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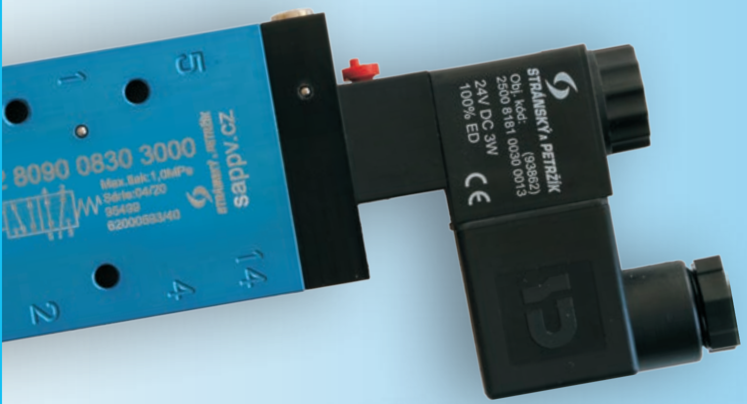
# STRÁNSKÝ A PETRŽÍK






# CATALOGUE OF PNEUMATIC COMPONENTS

CSJ
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ISO 9001

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Dear customer,
this is the latest version of the catalogue of pneumatic components. Thank you for your interest and we hope that this catalogue will be usefull for you.

Our company, Stransky a Petrzik, Pneumaticke valce spol. s r.o., exists on the market with pneumatic components since 1991, as traditional and Czech producer of pneumatic cylinders and accessories. On the 1200 $m^2$ process area, the state-of-the-art technologies are used, which in conjunction with our development allows not only fast and high-quality production of standard pneumatic components, but also special components, designed and produced accordingly to the customer‘s requirements.

The our goal is to offer high-quality products with long lifetime and reliable service, to maximum satisfy the customers. The result of our hard work are thousands of customers not only located in EU countries. However our the most remarkable customers are traditionally from the Czech Republic, which pleases us very much.

If you are interested in our products, we are looking forward to good cooperation with you.

Petr Stránský
*executioner*

Tomáš Petržík
*executioner*

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There is no question, that the internet is an important communication tool nowadays. To make your access to our latest information easier, you can always find our up to date catalogue and many other informations at the address

**http://www.sappv.cz**

On this address, you can find our complete offer not only of pneumatic components, but also other spheres which we deal with - machine tools, food-processing industry and single-purpose machines and equipment.

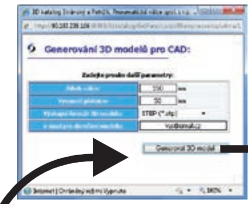
In the section, the pneumatic components, you can easily use our ordering system. Each component can be put into the basket directly from the catalogue, which significantely simplifies your job and makes it easier.

## 3D models for your CAD system

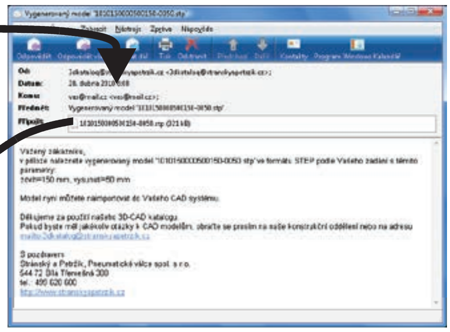
... may be simply generated any time at our web site!

1. choose the product from our internet catalogue:

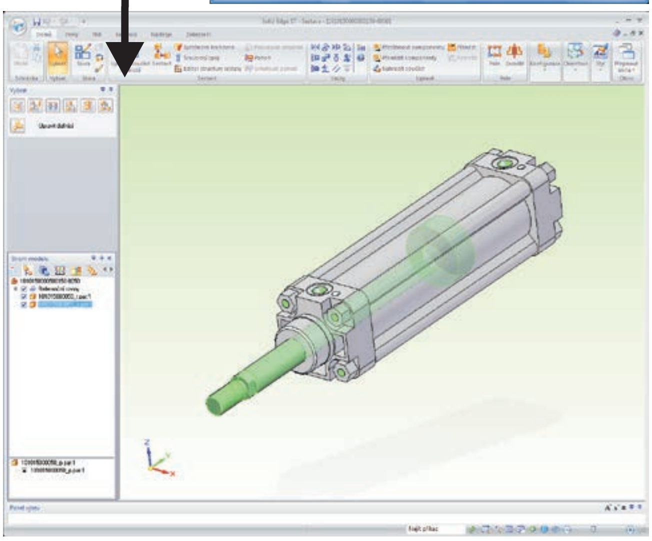
2. enter 3D model parameters and e-mail address:



3. after recieving the email, save the enclosed model



4. import model into your CAD system



For more information about generating 3D models, please visit our website at **http://www.stranskyapetrzik.cz/pneu-en/ke-stazeni/3dkatalog/**

If you are designing pneumatic, electric, or hydraulic schematic layouts or their combination, you will surely appreciate our new software in our offer. It is software AUTOMSIM PREMIUM designed by Irai France for creation and simulation of schematic layouts.

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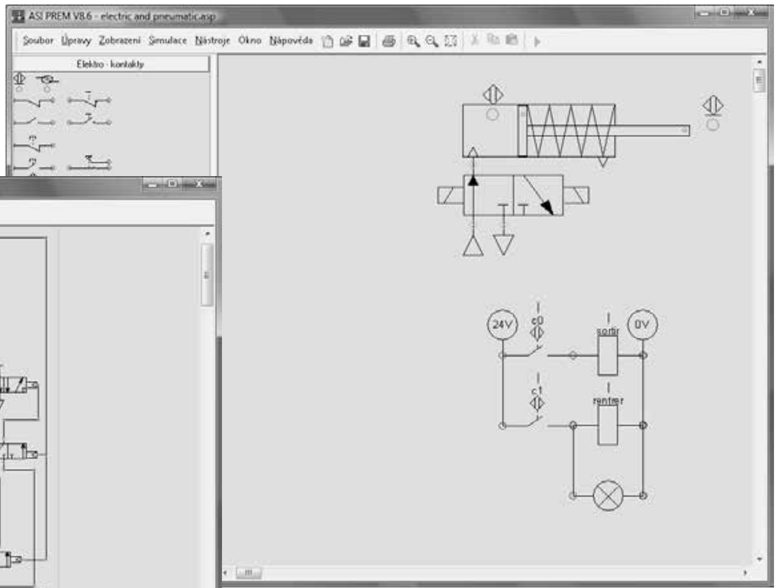
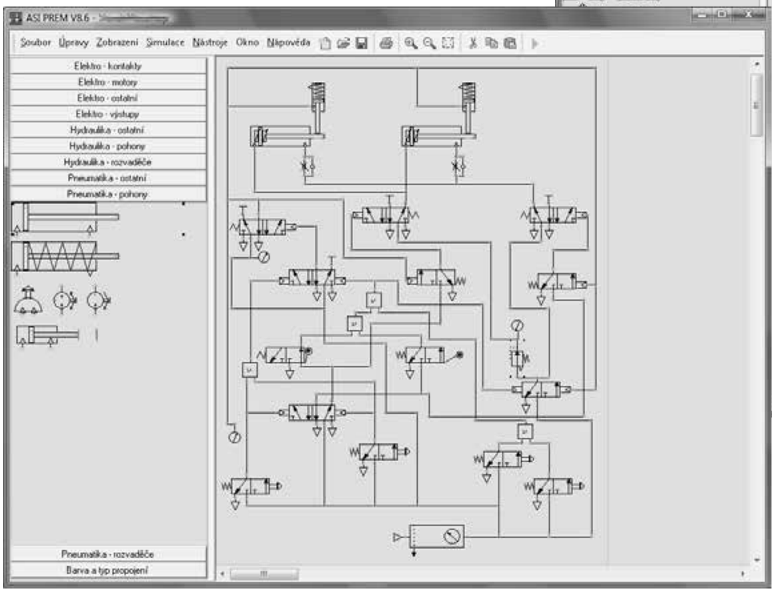
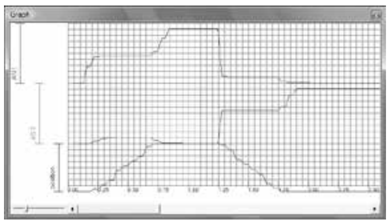


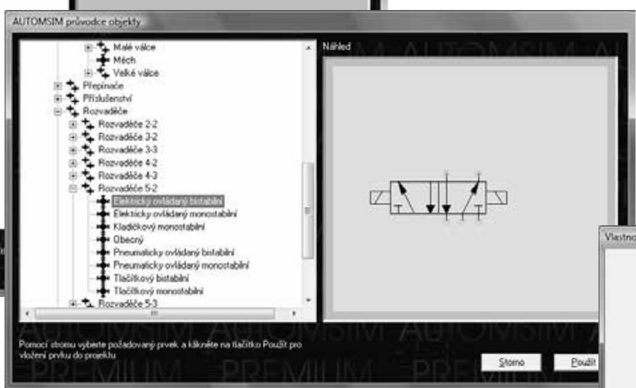


Examples of schematic layouts

Using the symbol library, you can simply insert the right symbol, which is necessary in your layout. If there is no specific symbol in the library, it can be easily modified from similar symbol by changing the properties. Pneumatic cylinders can be linked to proximity switches or roller lever valves, proximity switches to relays, relays to valve coils, etc. So it isn't just drawing of layouts, but a circuit, which you can simply build and simulate it during operation and check, if the function conforms the submission. Of course, the pressure level as well as percentage of adjustment of the speed control and many other properties can be set and changed during simulation. It is also possible to display graph with various values.
You can also create the layout of your current circuit, which you are having problems with and check, where the critical points are. Layouts can be printed and exported into EMF file format, which is a standard format that can be imported into any office software. If you fill in fields like designation, supplier, description and other during inserting the symbols into the layout, the automatic creating of bill of material is available.

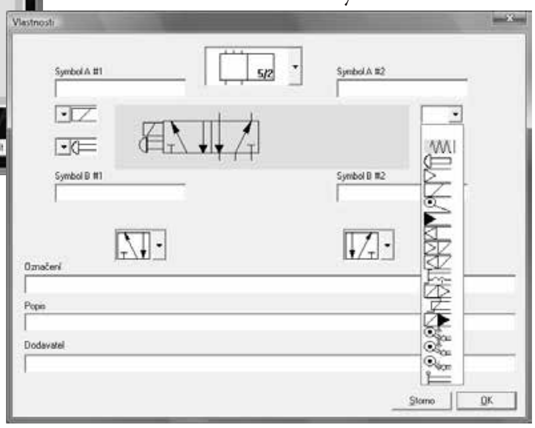
Example of graph





Comprehensive symbol library

Features of inserted symbol



**AUTOMSIM PREMIUM is excellent for creating layouts and their functional simulations not only for its simplicity, but also for its price!**
**The full functional demo is available. Please contact us about the possibility of delivery.**

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## General conditions for pneumatic circuits

- it is necessary to follow the appropriate safety rules, instructions, recommendations and specified parameters (temperature, pressure etc.), when setting products into operation
- areas, which are pressurized even after closing of the main air supply, should be specially marked in the pneumatic circuits
- it is necessary to take into account the failure of the product, or emergance of dangerous situations due to wrong operation, age or failure
- we recommend to mark with a special sign the whole pneumatic circuits, where the high caution during service is necessary
- we do not recommend to weld by electric arc on machinery, where pneumatic cylinders are mounted
- end users must take sufficient preventive steps to prevent injuries on material and health of employees

## Conditions of use and operation of pneumatic cylinders

- disassembly of single-acting cylinders must be done very cautiously, because the inside spring is mounted with a preload
- working medium is modified compressed air
- we recommend to use our pneumatic oil for air lubrication, or some oil listed on the recommended oil list, to renew lifetime grease, use grease SAP-FML2A
- using other than recommended oils leads to the damage of O-rings and sealing built-in not only into cylinders, but also in other components used in the pneumatic circuit
- if the speed of piston rod extension is lower than 1 $ms^{-1}$, the compressed air needn't be lubricated; if the speed is higher, we recommend to lubricate air using a lubricator and pneumatic oil (see above); we also recommend to lubricate air, when the dew point of compressed air is lower than -20°C
- we offer special surface treatment, material change (stainless steel) or use of dust covers on our cylinders for environments with hard conditions and aggressive surroundings
- other special designs, material or sealing changes, etc. are possible after consultation with our technical dept.
- it is necessary to follow the correct mounting of cylinders and correct guiding of the piston rod to avoid radial forces (except for versions which are specifically designed to capture radial forces such as guide unit H)
- we recommend to use hydraulic shock absorbers, when heavy mass and high piston rod speed may occur - the machinery lifetime will be significantly extended

## Stroke tolerance of pneumatic cylinders

Stroke of a cylinder may have positive tolerance accordingly to DIN ISO 6431, DIN ISO 6432 and VDMA 24562. The amount of tolerance is given by manufacturing tolerances and it depends on diameter and stroke as follows:

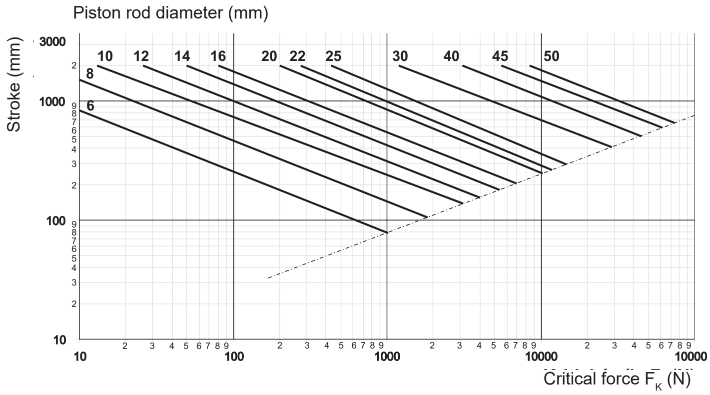
| Standard | Piston diameter [mm] | Stroke [mm] | Allowable tolerance [mm] |
|---|---|---|---|
| **DIN ISO 6432** | 8, 10, 12, 16, 20, 25 | 0 to 500 | +1.5 |
| **DIN ISO 6431 VDMA 24562 NF E 49003.1** | 32, 40, 50 | 0 to 500 | +2.0 |
| | | 501 to 1250* | +3.2** |
| | 63, 80, 100 | 0 to 500 | +2.5 |
| | | 501 to 1250* | +4.0** |
| | 125, 160, 200, 250, 320 | 0 to 500 | +4.0 |
| | | 501 to 1250* | +5.0** |

*) For strokes bigger than 1250 mm, the tolerance depends on an agreement between the producer and the customer
**) This value is not listed in standard VDMA 24562, or NF E 49003.1 and it is valid only for standard DIN ISO 6431

For large strokes, it is necessary to check, that the piston rod will not fail

## Critical strength of piston rod (buckling length)

by buckling, even if the cylinder would withstand the load according to its diameter. Quick check can be done by reading the graph below:




For exact calculation of the critical force, use the following formula ($F_K$ must be higher than load to prevent piston rod damage):
Where: $F_K$ is critical force on piston rod [N]

$$F_K = \frac{\pi^2 \times E \times J}{l^2 \times k}$$

E is stress modulus $2.1 \cdot 10^5$ MPa
J is quadratic moment of cross section [$mm^4$]
l is critical length (=twice the stroke) [mm]
k is safety coefficient (in practice about 4)

## Conditions of use and operation of pneumatic valves

- it is necessary to keep in mind, that the valve spool can be in an undefined position before first activation and that uncontrolled movements can occur
- when 5/3 valves or non-return valves are used, it is necessary to keep in mind that some parts of the circuit can always be pressurized - high caution during service is necessary
- it is necessary to follow listed technical data, especially pressure, air purity and solenoids voltage
- exhaust ports on valves should be equipped with silencers to prevent intrusion of junk into the valve
- valves can work on either lubricated or non-lubricated air (for more information, see chapter Modified compressed air)

Short form port designations:

| Port | Designation to ISO 5599 | Designation to DIN* | Designation to ANSI* |
|---|---|---|---|
| **Supply port** | 1 | P | P |
| **Working line** | 2 | A | B |
| **Exhaust line** | 3 | R | EB |
| **Working line** | 4 | B | A |
| **Exhaust line** | 5 | S | EA |
| **Pilot line** | 12 | Z | CA |
| **Pilot line** | 14 | Y | CB |

*) Designation by letters shouldn't be used anymore.

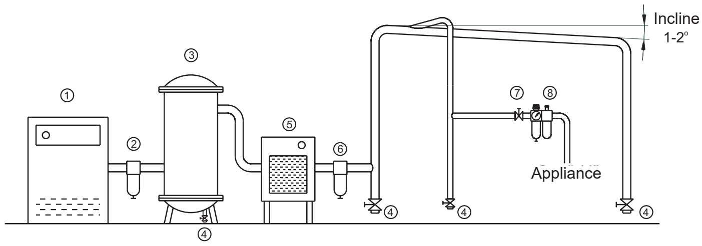
## Protecting contacts when electromagnetic coils are used

Electromagnetic coil is a coil, which opposes any voltage change. It is thus possible, that a voltage spike or electrical ark will occur when voltage is switched on or off. This can then lead to damage to the isolation or to contacts burning. There are at least four ways to eliminate this danger:

- for serial connection of RC circuit, it is necessary to calculate values of resistance and capacity for each application separately
- for DC voltage, a diode can be used, it is necessary to calculate the value of the diode for each application
- Zener diode can be used for both AC and DC voltage, it is necessary to calculate the size of the diode for each application
- varistor can be used for AC and DC voltage and it is commonly built into a connector of a valve (see connectors for valves)

## Distribution of compressed air

The operational reliability and service life of a pneumatic system depend, to a large extent, on the preparation of compressed air. Impurities in the compressed air such as scale, rust and dust as well as the liquid constituents in the air, which deposit as condensate can cause a great deal of damage in pneumatic systems. These contaminants accelerate wear on sliding surfaces and sealing elements, adversely affecting the functionality and service life of the pneumatic components. Pressure fluctuations occur as a result of switching the compressor on and off, these have an unfavourable effect on the functioning of the system. In order to eliminate these effects, compressed air service units must be installed in every pneumatic system.




*Example of air distribution:*
Compressed air goes from a compressor through a coarse filter to an a pressure vessel. Then the air is led into an air dryer and another filter, which should catch junk, collected in the pressure vessel and air dryer. The air dryer is used only in substantiated cases. Then distribution in plastic or metal tubes follows, the tubes should be inclined by 1-2° to allow drainage of possible condensed water. Individual branches to appliances should come out of the main distribution diagonally upwards. If there are intense pressure shocks during compressed air consumption, it is useful to use another smaller pressure vessel between the main distribution and appliance. This vessel should balance the pressure shocks. Finally, the standard FRL unit or only some of its modules is connected.

Legend:
1) compressor
2) coarse filter
3) pressure vessel
4) condensate drain
5) air dryer
6) filter
7) shut off valve
8) standard FRL unit

## Modified compressed air

Modified compressed air = filtered air without solid particles and liquids, optionally lubricated.
All our produced pneumatic items are greased with special grease, so it isn't necessary to lubricate air under standard conditions. However, we recommend to regularly check the lifetime grease level and if you observe a decline, renew the grease filling. Careful, these items cannot be exposed to air polluted by water or oil, because the lifetime grease level would be flushed out. If that happens, the air has to be lubricated, or the lifetime grease filling must be renewed. Special grease for lifetime filling is available, please see chapter Air preparation or contact our sales dept. If the pneumatic circuit is stressed and heavy duty, we recommend to lubricate air to increase the lifetime of the pneumatic items.

The operational reliability and service life of pneumatic systems depend among others on the quality of incoming compressed air.
Junk and moisture contained in the air increase surface wear of parts and sealing, which decreases economy and lifetime of the pneumatic items. Air preparation thus consists of liquid removal (mainly water and oil), suitably dimensioned filtration of solid junk and appropriate air lubrication.

Air must be so clean after the modification as to not cause any damage to the pneumatic system and sequentially damage to machinery. Using a filter reduces the maximum flow capacity since it builds up resistance that obscures air flow. Filter should have a filter element, that produces air of sufficient quality but keeps in mind economy of the system. If high quality of compressed air is required, the air should be filtered in several steps. If we only use a fine filter that ensures the requested air quality, we have to expect a serious decrease in its lifetime.
The compressed air quality is expressed by quality classes, that are described in ISO 8573-1 standard as well as the acceptable values of junk.

*Quality classes according to ISO 8573-1*

| Class | Solid junk | | | Max. pressure dew point [˚C] | Max. oil concentration [mg/m³] |
|---|---|---|---|---|---|
| | Particle size 0,1 to 0,5 [μm] | Particle size 0,5 to 1,0 [μm] | Particle size 1,0 to 5,0 [μm] | | |
| **1** | ≤ 20 000 | ≤ 400 | ≤ 10 | -70 | 0.01 |
| **2** | ≤ 400 000 | ≤ 6 000 | ≤ 100 | -40 | 0.1 |
| **3** | unstipulated | ≤ 90 000 | ≤ 1 000 | -20 | 1 |
| **4** | unstipulated | unstipulated | ≤ 10 000 | +3 | 5 |
| **5** | unstipulated | unstipulated | ≤ 100 000 | +7 | > 5 |

*Recommended way of using the quality classes*

| Area | Solid junk | | Water | | Oil | |
|---|---|---|---|---|---|---|
| | Max. class | Max. particle size [μm] | Max. class | Max. dew point [˚C] | Max. class | Max. concentration [mg/m³] |
| **Pneumatic cylinders** | 5 | 40 | 4 | +3 | 4 | 5 |
| **Pneumatic valves** | 3 to 5 | 5 to 40 | 4 | +3 | 4 | 5 |
| **Fine regulators** | 3 | 5 | 4 | +3 | 3 | 1 |
| **Measuring equipment** | 2 | 1 | 4 | +3 | 3 | 1 |
| **Other industry** | 5 | 40 | 3 to 7 | -20 to +10 and more | 3 to 5 | 1 to 25 |

## Mounting, operation and service of air preparation units

It is necessary to pay attention to the direction of flow, which is marked by arrows or labeled IN/OUT, when mounting the units. The following sequence of units should be adhered to: shut off valve, particulate filter, coalescing filter, regulator, lubricator. Bowls of the individual units must always point vertically downwards. Lubricator should be as close to the appliance as possible (max. 5 to 10 m).

Condensated water level in the bowl mustn‘t exceed level of bottom of filter element or mark on a bowl. For drain, there is connection for tube on the bottom of bowl. Automatic drain doesn‘t practically need service, but if semi-automatic drain is used, it is necessary to regularly check level of condensed water in bowl and expel it always if level of water achieve filter element or mar on the bowl. Semi-automatic drain automatically expels water if the primary pressure drop under 0.05 MPa. If it is necessary to expel water immediately, there are 2 systems: one has got button - pressing the button the water is removed. The second system is without button - for removing the water simply push the tube connection towards to the bowl. If the filter element is polluted, it must be changed. Before disassembling shut off air supply and depressurize the filter, remove bowl (release safety lock on side of bowl or push the bowl towards to the unit, turn it off 45° and pull it out). Then unscrew the baffle and remove filter element. Procedure at assembling is the same, but in reverse order.

If lubricator is used, it is necessary to keep sufficient level of oil. Oil refilling is possible when air supply is shut off directly into bowl, or by button head fill nut. Before disassembling shut off air supply and depressurize the lubricator, remove bowl (release safety lock on side of bowl or push the bowl towards to the unit, turn it off 45° and pull it out). Fill in bowl (see level mark on the bowl) and mount bowl back. Procedure at assembling is the same, but in reverse order. It is necessary to use only recommended oils.

Some bowls are made from polycarbonate and could be cleaned only with household soap and water. Do not use any solvent (alcohol), bowls may crackle.

## Recommended oils for compressed air lubricating

Primarily we recommend to use our pneumatic oil with order code 2995 0101 0000 0000, which composition was specially designed for this purpose. It is oil, which is foamless, nonaggressive to gaskets and has suitable mechanical characteristics (viscosity etc.).

In case of need, the following oils could be used too:

| Supplier | Designation |
|---|---|
| **Stránský a Petržík** | **Pneumatic oil, order code 2995 0101 0000 0000** |
| Shell | Tellus Ol 10 |
| Mobil Oil | Velocite Oil No. 6 |
| BP | Energol HLP10 |
| Esso | Spinesso 10, Nutto H5, H10 |
| Aral | Vitamol GF10, DE 10, Sumorol CM5, CM10 |

| Supplier | Designation |
|---|---|
| Fuchs | Renolin MR1, MR3 |
| Optimol | Ultra 10 |
| Agip | OSO10 |
| Elf | Spinelf 5, 10 |
| Total | Azolla 10 |
| Fina | Cirkan 10 |

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# Compressed air consumption

***Calculation of air consumption for pneumatic cylinder:***

$Q = Z \times (qp + qz) \times n \times 0{,}1$ where Q is air consumption [l/min]
Z is stroke [mm]
qp is air consumption for 10 mm of stroke when thrust [l]
qz is air consumption for 10 mm of stroke when retract [l]
n is number of complete strokes (thrust+retract) in a minute

***Table of air consumption sp / sz [l] for 10 mm of stroke:***

| Piston diameter | Piston area | Working pressure [MPa] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm² | | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
| 8 | 50 | qp | 0.0010 | 0.0015 | 0.0020 | 0.0025 | 0.0030 | 0.0035 | 0.0040 | 0.0045 | 0.0050 | 0.0055 |
| | 38 | qz | 0.0007 | 0.0011 | 0.0015 | 0.0019 | 0.0023 | 0.0026 | 0.0030 | 0.0034 | 0.0038 | 0.0041 |
| 10 | 79 | qp | 0.0015 | 0.0024 | 0.0031 | 0.0039 | 0.0047 | 0.0055 | 0.0063 | 0.0071 | 0.0079 | 0.0086 |
| | 66 | qz | 0.0013 | 0.0020 | 0.0026 | 0.0033 | 0.0040 | 0.0046 | 0.0053 | 0.0059 | 0.0066 | 0.0073 |
| 12 | 113 | qp | 0.0023 | 0.0034 | 0.0045 | 0.0056 | 0.0067 | 0.0078 | 0.0089 | 0.01 | 0.0111 | 0.0123 |
| | 90 | qz | 0.0018 | 0.0027 | 0.0036 | 0.0045 | 0.0054 | 0.0063 | 0.0072 | 0.0081 | 0.009 | 0.0099 |
| 16 | 200 | qp | 0.004 | 0.006 | 0.008 | 0.01 | 0.012 | 0.014 | 0.016 | 0.018 | 0.02 | 0.022 |
| | 170 | qz | 0.0034 | 0.0051 | 0.0068 | 0.0085 | 0.012 | 0.0119 | 0.0136 | 0.0153 | 0.017 | 0.0187 |
| 20 | 314 | qp | 0.0063 | 0.0094 | 0.0126 | 0.0157 | 0.0188 | 0.022 | 0.0251 | 0.0283 | 0.0314 | 0.0345 |
| | 260 | qz | 0.0052 | 0.0078 | 0.0104 | 0.013 | 0.0156 | 0.0182 | 0.0208 | 0.0234 | 0.026 | 0.0288 |
| 25 | 491 | qp | 0.0098 | 0.0147 | 0.0196 | 0.0245 | 0.0295 | 0.0344 | 0.0393 | 0.0442 | 0.0491 | 0.054 |
| | 410 | qz | 0.0082 | 0.0123 | 0.0164 | 0.0205 | 0.0246 | 0.0287 | 0.0328 | 0.0369 | 0.041 | 0.0451 |
| 32 | 804 | qp | 0.016 | 0.024 | 0.032 | 0.04 | 0.048 | 0.056 | 0.064 | 0.072 | 0.08 | 0.088 |
| | 691 | qz | 0.014 | 0.021 | 0.028 | 0.035 | 0.042 | 0.049 | 0.056 | 0.063 | 0.07 | 0.076 |
| 40 | 1256 | qp | 0.025 | 0.038 | 0.05 | 0.063 | 0.076 | 0.088 | 0.1 | 0.113 | 0.126 | 0.138 |
| | 1002 | qz | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 | 0.1 | 0.11 |
| 50 | 1963 | qp | 0.039 | 0.059 | 0.079 | 0.089 | 0.118 | 0.137 | 0.157 | 0.177 | 0.196 | 0.216 |
| | 1708 | qz | 0.034 | 0.051 | 0.068 | 0.085 | 0.102 | 0.12 | 0.137 | 0.154 | 0.17 | 0.188 |
| 63 | 3116 | qp | 0.062 | 0.093 | 0.125 | 0.156 | 0.187 | 0.218 | 0.249 | 0.28 | 0.312 | 0.343 |
| | 2726 | qz | 0.055 | 0.072 | 0.109 | 0.136 | 0.164 | 0.191 | 0.218 | 0.245 | 0.273 | 0.3 |
| 80 | 5024 | qp | 0.1 | 0.15 | 0.2 | 0.25 | 0.301 | 0.351 | 0.402 | 0.452 | 0.502 | 0.552 |
| | 4644 | qz | 0.093 | 0.139 | 0.186 | 0.232 | 0.279 | 0.325 | 0.372 | 0.418 | 0.464 | 0.51 |
| 100 | 7850 | qp | 0.157 | 0.236 | 0.314 | 0.382 | 0.471 | 0.549 | 0.628 | 0.706 | 0.785 | 0.862 |
| | 7144 | qz | 0.143 | 0.214 | 0.286 | 0.357 | 0.429 | 0.5 | 0.571 | 0.643 | 0.714 | 0.786 |
| 125 | 12266 | qp | 0.245 | 0.368 | 0.49 | 0.613 | 0.736 | 0.859 | 0.981 | 1.104 | 1.226 | 1.349 |
| | 11559 | qz | 0.231 | 0.347 | 0.462 | 0.578 | 0.694 | 0.809 | 0.925 | 1.04 | 1.156 | 1.272 |
| 160 | 20096 | qp | 0.402 | 0.603 | 0.804 | 1.005 | 1.206 | 1.407 | 1.608 | 1.809 | 2.01 | 2.211 |
| | 18840 | qz | 0.377 | 0.565 | 0.754 | 0.942 | 1.13 | 1.319 | 1.507 | 1.696 | 1.884 | 2.072 |
| 200 | 31400 | qp | 0.628 | 0.942 | 1.256 | 1.57 | 1.884 | 2.198 | 2.512 | 2.826 | 3.14 | 3.454 |
| | 30144 | qz | 0.603 | 0.904 | 1.206 | 1.507 | 1.808 | 2.11 | 2.412 | 2.713 | 3.014 | 3.316 |
| 250 | 49063 | qp | 0.981 | 1.473 | 1.964 | 2.455 | 2.946 | 3.437 | 3.928 | 4.419 | 4.91 | 5.401 |
| | 47100 | qz | 0.942 | 1.413 | 1.884 | 2.355 | 2.826 | 3.297 | 3.768 | 4.239 | 4.71 | 5.181 |
| 320 | 80425 | qp | 1.609 | 2.413 | 3.217 | 4.021 | 4.826 | 5.630 | 6.434 | 7.238 | 8.042 | 8.847 |
| | 77308 | qz | 1.546 | 2.319 | 3.092 | 3.865 | 4.639 | 4.412 | 6.185 | 6.958 | 7.731 | 8.504 |

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*Corresponding compressed air flow rates [l/min] as a function of pressure:*

| Pressure [MPa] | Port size | | | | | |
|---|---|---|---|---|---|---|
| | G1/8“ | G1/4“ | G3/8“ | G1/2“ | G3/4“ | G1“ |
| | Hose size at the length app. 2 to 2.5 m | | | | | |
| | Js 5 | Js 6 | Js 8 | Js 11 | Js 14 | Js 18 |
| 0.2 | 126 | 227 | 357 | 797 | 1416 | 2213 |
| 0.4 | 212 | 377 | 593 | 1328 | 2361 | 3689 |
| 0.6 | 297 | 529 | 826 | 1860 | 3306 | 5163 |
| 0.8 | 382 | 680 | 1062 | 2391 | 4250 | 6640 |
| 1.0 | 468 | 830 | 1299 | 2923 | 5194 | 8115 |

Values of flow rate are applied at standard conditions at 20˚C and absolute pressure 0.1 MPa.

## Action force

Calculation of force on piston rod of pneumatic cylinder:

F = ( Sp (or Sz) × p ) – T where F is force on piston rod of pneumatic cylinder [N]
Sp is piston area at thrust [$mm^2$]
Sz is piston area at retract [$mm^2$]
p is working pressure [MPa]
T is friction force (about 10% in practice)

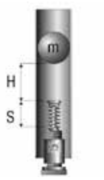
*Table of retract force on piston rod of pneumatic cylinder [N]*

| Piston diameter [mm] | Working pressure [MPa] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 |
| 8 | 4.5 | 9.0 | 13.6 | 18.1 | 22.6 | 27.1 | 31.7 | 36.2 | 40.7 | 45.2 | 49.8 | 54.3 |
| 10 | 7.1 | 14.1 | 21.2 | 28.3 | 35.3 | 42.4 | 49.5 | 56.5 | 63.6 | 70.7 | 77.8 | 84.8 |
| 12 | 10.2 | 20.4 | 30.5 | 40.7 | 50.9 | 61.1 | 71.2 | 81.4 | 91.6 | 102 | 112 | 122 |
| 16 | 18.1 | 36.2 | 54.3 | 72.4 | 90.5 | 109 | 127 | 145 | 163 | 181 | 199 | 217 |
| 20 | 28.3 | 56.5 | 84.8 | 113 | 141 | 170 | 198 | 226 | 254 | 283 | 311 | 339 |
| 25 | 44.2 | 88.4 | 133 | 177 | 221 | 265 | 309 | 353 | 398 | 442 | 486 | 530 |
| 32 | 72.4 | 145 | 217 | 290 | 362 | 434 | 507 | 579 | 651 | 724 | 796 | 869 |
| 40 | 113 | 226 | 339 | 452 | 565 | 679 | 792 | 905 | 1018 | 1131 | 1244 | 1357 |
| 50 | 177 | 353 | 530 | 707 | 884 | 1060 | 1237 | 1414 | 1590 | 1767 | 1944 | 2121 |
| 63 | 281 | 561 | 842 | 1122 | 1403 | 1683 | 1964 | 2244 | 2525 | 2805 | 3086 | 3367 |
| 80 | 452 | 905 | 1357 | 1810 | 2262 | 2714 | 3167 | 3619 | 4071 | 4524 | 4976 | 5429 |
| 100 | 707 | 1414 | 2121 | 2827 | 3534 | 4241 | 4948 | 5655 | 6362 | 7068 | 7775 | 8482 |
| 125 | 1104 | 2209 | 3313 | 4418 | 5522 | 6627 | 7731 | 8835 | 9940 | 11044 | 12149 | 13253 |
| 160 | 1810 | 3619 | 5429 | 7238 | 9048 | 10857 | 12667 | 14476 | 16286 | 18095 | 19905 | 21714 |
| 200 | 2827 | 5655 | 8482 | 11309 | 14137 | 16964 | 19791 | 22619 | 25446 | 28274 | 31101 | 33928 |
| 250 | 4418 | 8835 | 13253 | 17671 | 22089 | 26506 | 30924 | 35342 | 39760 | 44177 | 48595 | 53013 |
| 320 | 7238 | 14476 | 21714 | 28952 | 36190 | 43428 | 50666 | 57904 | 65142 | 72380 | 79618 | 86856 |

# Hydraulic shock absorber selection

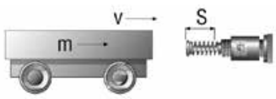
Five basic criteria are required for sizing the shock absorbers:
a) impacting mass m (kg)
b) impact speed v (m/s)
c) additional external forces acting on the mass e.g. propelling force F (N)
d) number of strokes of the shock absorber per hour X (1/h)
e) number of parallel shock absorbers

## Free falling mass



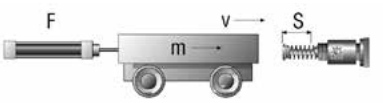

1. $W_k = m \cdot g \cdot H$
2. $W_A = m \cdot g \cdot S$
3. $W_{kg} = W_k + W_A$
4. $W_{kg/h} = W_{kg} \cdot X$
5. $m_e = \dfrac{2 \cdot W_{kg}}{v_e^2}$
6. $v = v_e = \sqrt{2 \cdot g \cdot H}$

## Mass without propelling force




1. $W_{kg} = \dfrac{m \cdot v^2}{2}$
2. $W_{kg/h} = W_{kg} \cdot X$
3. $v = v_e$
4. $m_e = \dfrac{2 \cdot W_{kg}}{v_e^2}$

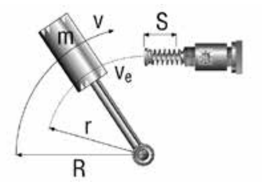
## Mass with propelling force, horizontal




Movement downward: $W_A = (F + m \cdot g) \cdot S$
Movement upward: $W_A = (F - m \cdot g) \cdot S$

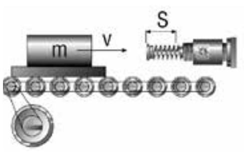
1. $v_e = \dfrac{v}{K1}$
2. $W_k = \dfrac{m \cdot v_e^2}{2}$
3. $W_A = F \cdot S$
4. $W_{kg} = W_k + W_A$
5. $W_{kg/h} = W_{kg} \cdot X$
6. $m_e = \dfrac{2 \cdot W_{kg}}{v_e^2}$

## Swinging mass without propelling force



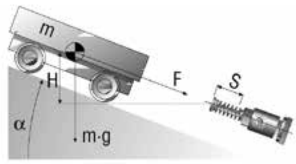

1. $W_k = \dfrac{m \cdot v^2}{2} = \dfrac{J \cdot \omega^2}{2}$
2. $W_A = \dfrac{M \cdot S}{r}$
3. $W_{kg} = W_k + W_A$
4. $W_{kg/h} = W_{kg} \cdot X$
5. $v_e = r \cdot \omega = \dfrac{v \cdot r}{R}$
6. $m_e = \dfrac{2 \cdot W_{kg}}{v_e^2}$

## Mass on driven rollers



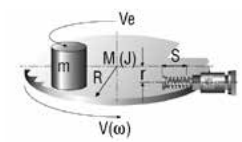

1. $W_k = \dfrac{m \cdot v^2}{2}$
2. $W_A = m \cdot g \cdot S \cdot \mu$
3. $W_{kg} = W_k + W_A$
4. $W_{kg/h} = W_{kg} \cdot X$
5. $v = v_e$
6. $m_e = \dfrac{2 \cdot W_{kg}}{v_e^2}$

## Mass on incline



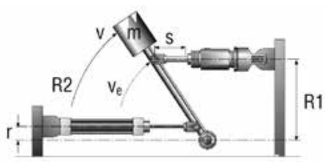

1. $W_k = m \cdot g \cdot H$
2. $W_A = m \cdot g \cdot \sin \alpha \cdot S$
3. $W_{kg} = W_k + W_A$
4. $W_{kg/h} = W_{kg} \cdot X$
5. $v = v_e = \sqrt{2 \cdot g \cdot H}$
6. $m_e = \dfrac{2 \cdot W_{kg}}{v_e^2}$

## Rotary table with propelling force




1. $W_k = \dfrac{m \cdot v^2}{2} = \dfrac{J \cdot \omega^2}{2}$
2. $W_A = \dfrac{M \cdot S}{r}$
3. $W_{kg} = W_k + W_A$
4. $W_{kg/h} = W_{kg} \cdot X$
5. $v_e = r \cdot \omega = \dfrac{v \cdot r}{R}$
6. $m_e = \dfrac{2 \cdot W_{kg}}{v_e^2}$

## Swinging mass with propelling force




1. $W_k = \dfrac{m \cdot v^2}{2}$
2. $W_A = \dfrac{M \cdot S}{R1} = \dfrac{F \cdot r \cdot S}{R1}$
3. $W_{kg} = W_k + W_A$
4. $W_{kg/h} = W_{kg} \cdot X$
5. $v_e = R1 \cdot \omega = \dfrac{v \cdot R1}{R2}$
6. $m_e = \dfrac{2 \cdot W_{kg}}{v_e^2}$

## Formulae

**Effective mass**

$$m_e = \frac{2 \cdot W_{kg}}{v_e^2}$$

**Counter force**

$$F_G = \frac{W_{kg} \cdot 1.2^*}{S}$$

**Deceleration time**

$$t = \frac{2 \cdot S}{v_e} \cdot 1.2^*$$

**Deceleration time**

$$a = \frac{v^2}{2 \cdot S} \cdot 1.2^*$$

**Stroke**

$$S = \frac{v^2}{2 \cdot a} \cdot 1.2^*$$

*) Calculation for optimum setting. Allow a safety margin!

## Used values and variables

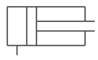
| | | | | | |
|---|---|---|---|---|---|
| $W_k$ | [Nm] | kinetic energy | $K_1$ | [1] | correction factor for pneumatic drive force ($K_1$=0.65) |
| $W_A$ | [Nm] | propelling force energy | M | [Nm] | torque |
| $W_{kg}$ | [Nm] | total energy | R, r | [m] | radius |
| $W_{kg/h}$ | [Nm·h$^{-1}$] | total energy per hour | H | [m] | height |
| m | [kg] | mass | g | [m·s$^{-2}$] | acceleration due to gravity |
| $m_e$ | [kg] | effective mass | J | [kg·m$^2$] | moment of inertia |
| v | [m·s$^{-1}$] | impact speed | ω | [s$^{-1}$] | angular velocity |
| $v_e$ | [m·s$^{-1}$] | effective speed | μ | [1] | coefficient of friction (steel=0.2) |
| X | [h$^{-1}$] | number of strokes per hour | a | [°] | angle |
| S | [m] | stroke | a | [m·s$^{-2}$] | acceleration / deceleration |
| F | [N] | propelling force | t | [s] | deceleration time |
| $F_p$ | [N] | pneumatic drive force | $F_G$ | [N] | counter force |

i

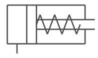
# Summary of the pneumatic symbols based on DIN ISO 1219

### *Energy conversion*

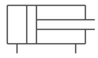
Single acting cylinder, return movement by external force



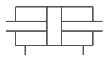
Single acting cylinder, return movement by spring



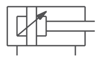
Double acting cylinder



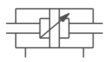
Double acting cylinder with double-ended piston rod



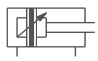
Double acting cylinder with adjustable cushioning at end of stroke



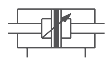
Double acting cylinder with double-ended piston rod and adjustable cushioning at end of stroke



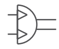
Double acting cylinder with adjustable cushioning at end of stroke and magnetic piston



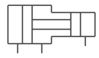
Double acting cylinder with double-ended piston rod and adjustable cushioning at end of stroke and magnetic piston



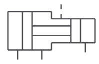
Pneumatic motor with limited range of swivel



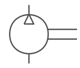
Pressure intensifier for the same fluid



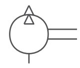
Pressure intensifier for air and liquid



Compressor

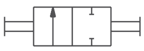


Vacuum pump

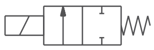


### *Directional control valves*

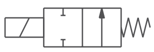
2/2-way valve, manually actuated



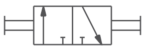
2/2-way valve, normally closed, solenoid actuated



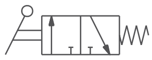
2/2-way valve, normally opened solenoid actuated



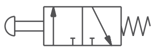
3/2-way valve, manually actuated



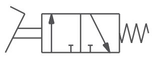
3/2-way valve, actuated by lever



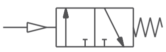
3/2-way valve, actuated by pushbutton



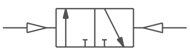
3/2-way valve, actuated by pedal



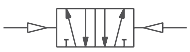
3/2-way valve, pneumatically actuated, monostable



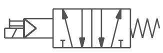
3/2-way valve, pneumatically actuated, bistable



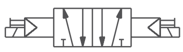
5/2-way valve, pneumatically actuated, bistable



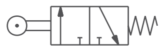
5/2-way valve, indirect solenoid actuated, monostable



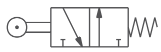
5/2-way valve, indirect solenoid actuated, bistable



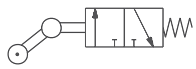
3/2-way valve, normally closed, actuated by roller lever



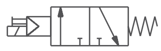
3/2-way valve, normally opened, actuated by roller lever



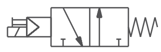
3/2-way valve, normally closed, actuated by roller lever with idle return



3/2-way valve, normally closed, indirect solenoid actuated



3/2-way valve, normally opened, indirect solenoid actuated



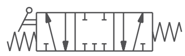
5/2-way valve, actuated by lever

5/2-way valve, actuated by pushbutton

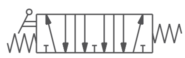
5/2-way valve, actuated by pedal

5/2-way valve, pneumatically actuated, monostable

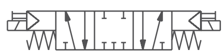
5/3-way valve, actuated by lever, centre position closed



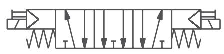
5/3-way valve, actuated by lever, centre position exhausted



5/3-way valve, indirect solenoid actuated, centre position closed

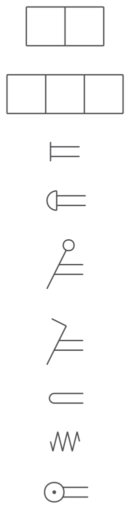


5/3-way valve, indirect solenoid actuated, centre position opened

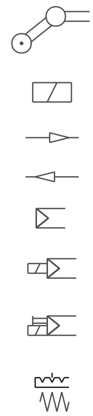


## *Directional control valves generally and control mechanisms*

- 2 positions
- 3 positions
- Manual control - general
- Pushbutton
- Lever
- Pedal
- Plunger
- Spring
- Roller lever

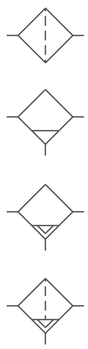


- Roller lever with idle return
- Direct solenoid
- Direct application of pressure
- Direct application by pressure relief
- Indirect by application of pressure (pilot)
- Solenoid and pilot valve
- Solenoid and pilot valve with manual override
- Detent for 3 positions

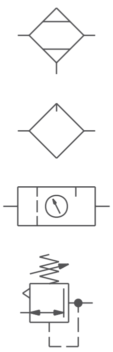


## *Air preparation*

- Filter
- Water separator
- Water separator with automatic drain
- Filter with water separator with automatic drain

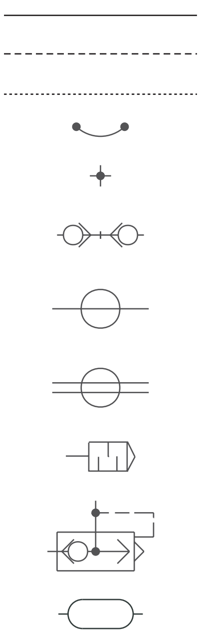


- Dryer
- Lubricator
- Standard unit (filter pressure regulator with gauge, lubricator), simplified representation
- Pressure regulator

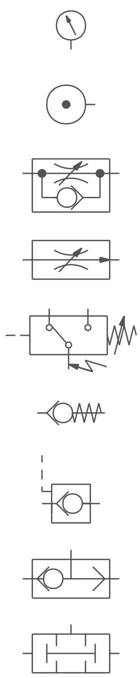


## *Energy transmission, valves*

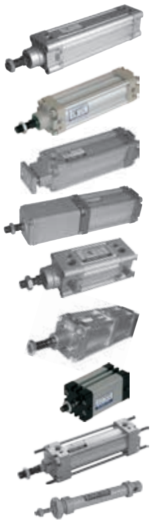
- Working line
- Control line
- Exhaust line
- Flexible pipeline
- Line connection
- Quick coupling with mechanically opened non-return valves, coupled
- Rotary connection with 1 path
- Rotary connection with 2 paths
- Silencer
- Quick exhaust valve
- Pneumatic capacitor



- Gauge
- Pressure source
- One-way flow control valve, adjustable
- Bidirectional flow control valve, adjustable
- Pressure switch
- Check valve with spring
- Piloted check valve
- OR disjunction (logical sum)
- AND conjunction (logical product)



## Double acting pneumatic cylinders






## Double acting guide pneumatic cylinders




## Single acting pneumatic cylinders




## Pneumatic shake devices




## Pneumatic clamp cylinders and grippers




## Pneumatic-hydraulic power cylinders and boosters




## Other types of pneumatic actuators and cylinders


# DOUBLE ACTING PNEUMATIC CYLINDERS
# ISO 15552, VDMA 24562, NF E 49003.1

STRÁNSKÝ A PETRŽÍK

Modern design, quality processing and high-quality of used parts - there are characteristics of new cylinders series. Dimensions conforms to the international standards ISO 6431, VDMA 24562 and NF E 49003.1, that is why it can replace pneumatic cylinder, which is made by any producer to these standards. Fully adjustable cushioning at end of stroke and magnet for proximity switches are standard for this series. The proximity switches can be mounted directly to the tube‘s groove - so no brackets are necessary. The lifetime of cylinders is more than 4000 km at standard conditions.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,1 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

| Piston diameter [mm] | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|---|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 482 | 754 | 1178 | 1870 | 3015 | 4713 | 7363 |
| Thrust at 0.6 MPa [N] with double ended piston rod | 415 | 633 | 990 | 1682 | 2720 | 4418 | 6880 |
| Return force at 0.6 MPa [N] | 415 | 633 | 990 | 1682 | 2720 | 4418 | 6880 |
| Connection | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G3/8“ | G1/2“ | G1/2“ |
| Length of adjustable cushioning [mm] | 17 | 17 | 17 | 16 | 20 | 18 | 28 |
| Max. stroke [mm] * | 1000* | 1000* | 1000* | 1000* | 1500* | 1500* | 2000* |
| Working speed [mm/s] | 50 to 500 | | | | | | |
| Min. stroke for proximity sensing [mm] | 17 | 21 | 25 | 25 | 25 | 25 | 25 |
| Weight 0 mm stroke [kg] | 0.46 | 0.74 | 1.27 | 1.70 | 2.65 | 3.67 | 5.53 |
| Weight add. per 1 mm stroke [kg] | 0.003 | 0.004 | 0.007 | 0.007 | 0.011 | 0.013 | 0.020 |
| Weight 0 mm stroke [kg] with double ended piston rod | 0.52 | 0.84 | 1.37 | 1.90 | 2.97 | 4.31 | 6.54 |
| Weight add. per 1 mm stroke [kg] with dbl. ended piston rod | 0.004 | 0.006 | 0.009 | 0.009 | 0.015 | 0.017 | 0.026 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

10201 60 00 050 0100

| Type | |
|---|---|
| 10201 | ISO 15552, VDMA 24562, NF E 49003.1, double acting |

| Equipment | |
|---|---|
| 60 | with cushioning, with magnet |
| 65 | with double ended piston rod, with cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |
| 28 | Viton® piston rod sealing + option 16 |

For more options regarding materials or dimensions, please contact our technical dept.

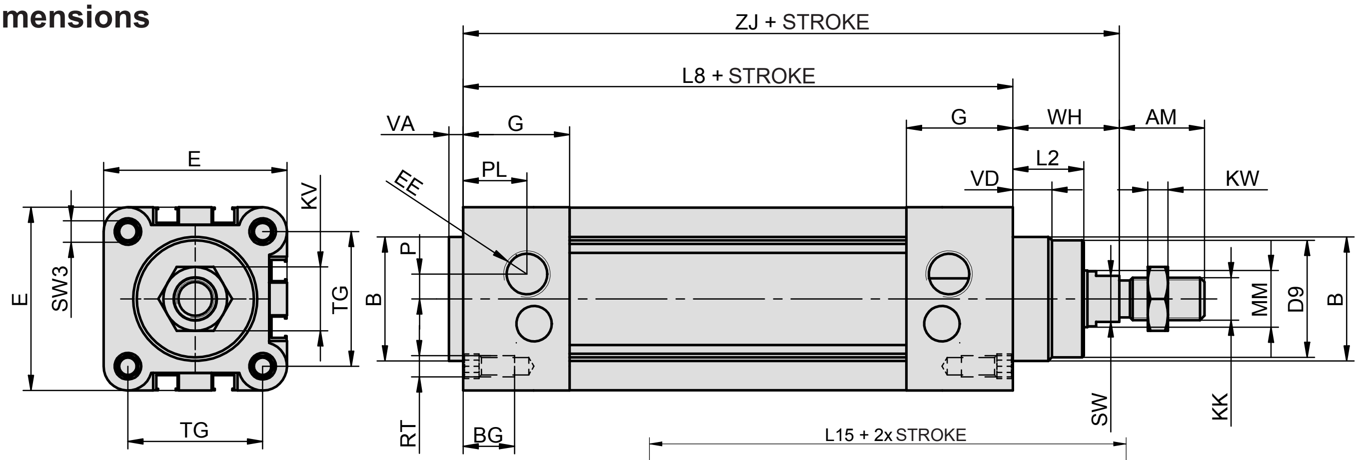
| Piston diameter | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 125 | 125 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

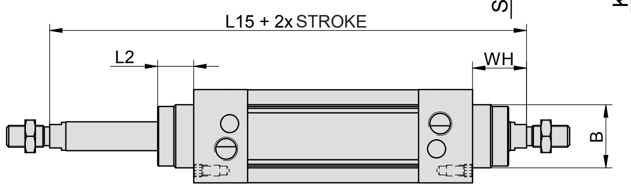
## Construction / materials

- caps: aluminium mold casting
- body: drawn dural profile, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

## Dimensions

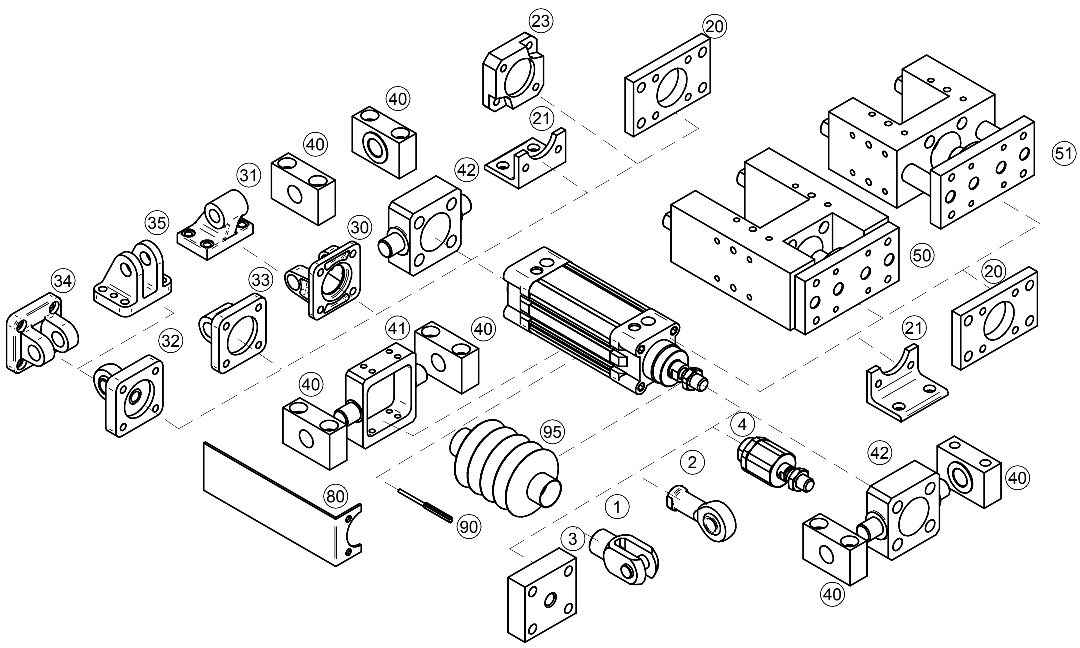



Double ended piston rod:
other dimensions are the
same as standard type)




| ∅ | AM | B | BG | D9 | E | EE | G | KK | KV | KW | L2 | L8 | L15 | MM | P | PL | RT | SW | SW3 | TG | VA | VD | WH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 22 | 30 | 16 | 28 | 46 | G1/8“ | 25 | M10x1.25 | 17 | 6 | 18 | 94 | 146 | 12 | 5 | 16 | M6 | 10 | 6 | 32.5 | 4 | 10 | 26 | 120 |
| **40** | 24 | 35 | 14.5 | 33 | 52 | G1/4“ | 30 | M12x1.25 | 19 | 7 | 21.5 | 105 | 165 | 16 | 6 | 14 | M6 | 13 | 6 | 38 | 4 | 11 | 30 | 135 |
| **50** | 32 | 40 | 17 | 38 | 64 | G1/4“ | 30 | M16x1.5 | 24 | 8 | 28 | 106 | 180 | 20 | 7 | 20 | M8 | 16 | 8 | 46.5 | 4 | 11 | 37 | 143 |
| **63** | 32 | 45 | 17 | 38 | 75 | G3/8“ | 36 | M16x1.5 | 24 | 8 | 28.5 | 121 | 195 | 20 | 7 | 17 | M8 | 16 | 8 | 56.5 | 4 | 11 | 37 | 158 |
| **80** | 40 | 45 | 17 | 44 | 93 | G3/8“ | 36 | M20x1.5 | 30 | 9 | 34.7 | 128 | 220 | 25 | 8 | 28 | M10 | 21 | 10 | 72 | 4 | 11 | 46 | 174 |
| **100** | 40 | 55 | 17 | 44 | 110 | G1/2“ | 39 | M20x1.5 | 30 | 9 | 38.2 | 138 | 240 | 25 | 10 | 32 | M10 | 21 | 10 | 89 | 4 | 11 | 51 | 189 |
| **125** | 54 | 60 | 18 | 54 | 135 | G1/2“ | 44 | M27x2 | 36 | 11 | 46 | 160 | 290 | 32 | 10 | 30 | M12 | 27 | 12 | 110 | 6 | 11 | 65 | 225 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-4 |
| 23 Boxer flange mounting | ... 4-22 |
| 30 Swivel flange | ... 4-8 |
| 31 Clevis foot mounting | ... 4-8 |
| 32 Swivel flange with spherical bearing | ... 4-10 |
| 33 Swivel flange | ... 4-7 |
| 34 Narrow swivel flange | ... 4-9 |
| 35 Rectangular swivel flange | ... 4-9 |
| 40 Trunnion mounting | ... 4-12 |
| 41 Pivot pin | ... 4-10 |
| 42 Pivot pin to front/end cap | ... 4-12 |
| 50 Guide unit H with ball bearings | ... 4-18 |
| 51 Guide unit with slide bearings | ... 4-20 |
| 80 Valve bracket | ... 4-22 |
| 90 Proximity switch | ... 3-2, 3-4 |
| 90 Proportional position sensor with analog output | ... 3-6 |
| 95 Piston rod protective cover | ... 4-23 |

# DOUBLE ACTING PNEUMATIC CYLINDERS
# VDMA 24562, NF E 49003.1

STRÁNSKÝ A PETRŽÍK


Cylinders are designed to meet the specifications of international standards ISO 6431, VDMA 24562 and NF E 49003.1, that is why it can replace pneumatic cylinder, which is made by any producer to these standards. The cylinders can work in higher temperatures by request. Fully adjustable cushioning at end of stroke is available. The cylinders can be delivered in explosion proof version (Ex, see details in ATEX options).

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -30°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| Piston diameter [mm] | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 | 250 | 320 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thrust at 0,6 MPa [N] | 482 | 754 | 1178 | 1870 | 3015 | 4713 | 7363 | 12064 | 18849 | 29460 | 48254 | 75398 |
| Thrust at 0,6 MPa [N] with double ended piston rod | 415 | 633 | 990 | 1682 | 2720 | 4418 | 6880 | 11581 | 18096 | 28274 | 46384 | 71657 |
| Return force at 0,6 MPa [N] | 415 | 633 | 990 | 1682 | 2720 | 4418 | 6880 | 11581 | 18096 | 28274 | 46384 | 71657 |
| Connection | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G3/8“ | G1/2“ | G1/2“ | G3/4“ | G3/4“ | G1“ | G1“ | G1“ |
| Length of adjustable cushioning [mm] | 13 | 13 | 11 | 16 | 16 | 20 | 25 | 27 | 32 | 40 | 48 | 48 |
| Max. stroke [mm] * | 1000* | 1000* | 1000* | 1000* | 1500* | 1500* | 2000* | 2000* | 2000* | 2000* | 2000* | 1500* |
| Weight 0 mm stroke [kg] | 0,54 | 0,80 | 1,10 | 1,70 | 2,70 | 4,20 | 7,60 | 13,30 | 20,50 | 29,00 | 69,50 | 120,00 |
| Weight add. per 1 mm stroke [kg] | 0,0028 | 0,0037 | 0,0060 | 0,0062 | 0,0100 | 0,0110 | 0,0160 | 0,0280 | 0,0300 | 0,0340 | 0,0650 | 0,113 |
| Weight 0 mm stroke [kg] with double ended piston rod | 0,64 | 0,90 | 1,30 | 1,90 | 3,40 | 5,00 | 9,40 | 16,30 | 22,50 | 33,00 | 74,00 | 129,00 |
| Weight add. per 1 mm stroke [kg] with double ended piston rod | 0,0038 | 0,0047 | 0,0080 | 0,0082 | 0,0140 | 0,0150 | 0,0220 | 0,0400 | 0,0420 | 0,0460 | 0,0810 | 0,137 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

10101 60 00 050 0100

| Type | |
|---|---|
| 10101 | DIN ISO 6431, VDMA 24562, NF E 49003.1, double acting |

| Equipment | |
|---|---|
| 00 | w/o cushioning, w/o magnet |
| 05 | with double ended piston rod, w/o cushioning, w/o magnet |
| 10 | w/o cushioning, with magnet |
| 15 | with double ended piston rod, w/o cushioning, with magnet |
| 50 | with cushioning, w/o magnet |
| 55 | with double ended piston rod, with cushioning, w/o magnet |
| 60 | with cushioning, with magnet |
| 65 | with double ended piston rod, with cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 05* | all parts stainless steel, piston rod 1.4401 |
| 10 | Viton® piston rod sealing |
| 11 | Viton® gaskets (up to 180°C) |
| 13* | tie rod version |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |
| 37 | composite round tube+opt. 10 and 16 |
| 44 | composite round tube+opt. 5 and 10 |
| 40 | ATEX, composite round tube<br>Ex I M2 Ex h I Mb<br>Ex II -/2 G Ex h IIC T6 -/Gb<br>Ex II -/2 D Ex h IIIC T85°C -/Db |
| 41 | ATEX, steel round tube<br>Ex I M2 Ex h I Mb<br>Ex II -/2 G Ex h IIC T6 -/Gb<br>Ex II -/2 D Ex h IIIC T85°C -/Db |
| 42 | ATEX,<br>Ex II-/2 G Ex h IIC T6 -/Gb<br>Ex II-/2 D Ex h IIIC T85°C -/Db |

| Piston diameter | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 125 | 125 mm |
| 160 | 160 mm |
| 200 | 200 mm |
| 250 | 250 mm |
| 320 | 320 mm |
| 400 | 400 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

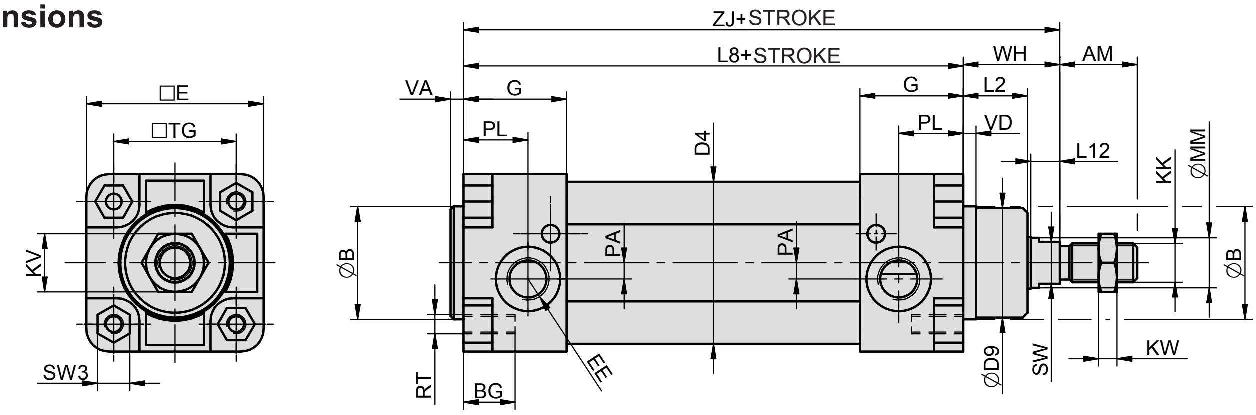
For more options regarding materials or dimensions, please contact our technical dept.

*) For piston dia. 32 to 100 incl.

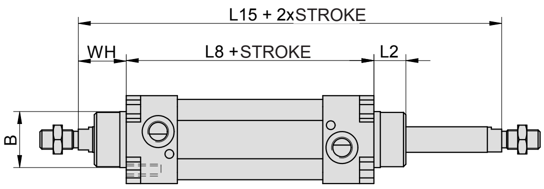
## Construction / materials

- caps: drawn dural profile, anodised, piston dia. 100 and more: aluminium casting, anodised
- body: drawn dural profile, anodized, piston dia. 125 and more: drawn dural tube, anodized, piston dia. 400: steel or composite sandwich plastic
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

## Dimensions

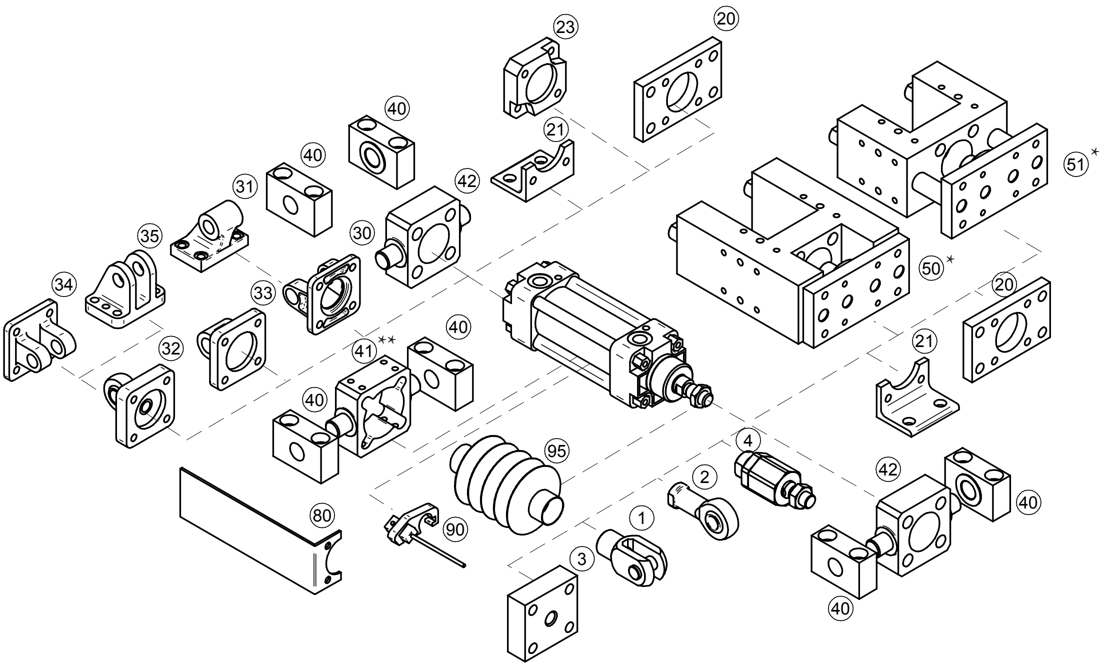



Double ended piston rod: other dimensions are the same as standard type)




| ∅ | AM | B | BG | D4 | D9 | E | EE | G | KK | KV | KW | L2 | L8 | L12 | L15 | MM | PA | PL | RT | SW | SW3 | TG | VA | VD | WH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 22 | 30 | 16 | 36 | 28 | 48 | G1/8“ | 31,5 | M10x1,25 | 17 | 6 | 18 | 94 | 8 | 146 | 12 | 5 | 22,5 | M6 | 10 | 10 | 32,5 | 4 | 4 | 26 | 120 |
| **40** | 24 | 35 | 16 | 45 | 34 | 55 | G1/4“ | 32 | M12x1,25 | 19 | 10 | 20 | 105 | 9 | 165 | 16 | 5 | 20 | M6 | 13 | 10 | 38 | 4 | 4 | 30 | 135 |
| **50** | 32 | 40 | 19 | 55 | 39 | 65 | G1/4“ | 30 | M16x1,5 | 24 | 8 | 22 | 106 | 10 | 180 | 20 | 3 | 17 | M8 | 16 | 14 | 46,5 | 4 | 5 | 37 | 143 |
| **63** | 32 | 45 | 19 | 68 | 44 | 75 | G3/8“ | 30 | M16x1,5 | 24 | 8 | 23 | 121 | 10 | 195 | 20 | 6 | 16 | M8 | 16 | 14 | 56,5 | 4 | 5 | 37 | 158 |
| **80** | 40 | 45 | 19 | 86 | 44 | 94 | G3/8“ | 30 | M20x1,5 | 30 | 9 | 31 | 128 | 10 | 220 | 25 | 10 | 16 | M10 | 21 | 17 | 72 | 4 | 5 | 46 | 174 |
| **100** | 40 | 55 | 19 | 106 | 54 | 115 | G1/2“ | 36 | M20x1,5 | 30 | 9 | 34 | 138 | 10 | 240 | 25 | 11 | 18 | M10 | 21 | 17 | 89 | 4 | 17 | 51 | 189 |
| **125** | 54 | 60 | 20 | 132 | 58 | 140 | G1/2“ | 40 | M27x2 | 41 | 12 | 50 | 160 | 14 | 290 | 32 | 11 | 22 | M12 | 27 | 22 | 110 | 6 | 6 | 65 | 225 |
| **160** | 72 | 65 | 24 | 168 | 64 | 185 | G3/4“ | 50 | M36x2 | 55 | 18 | 50 | 180 | 20 | 340 | 40 | 10 | 25 | M16 | 36 | 30 | 140 | 6 | 10 | 80 | 260 |
| **200** | 72 | 75 | 24 | 212 | 74 | 235 | G3/4“ | 50 | M36x2 | 55 | 18 | 55 | 180 | 20 | 370 | 40 | 12 | 25 | M16 | 36 | 30 | 175 | 6 | 20 | 95 | 275 |
| **250** | 84 | 90 | 32 | 262 | 84 | 270 | G1“ | 54 | M42x2 | 65 | 21 | 76 | 200 | 22 | 410 | 50 | 25 | 32 | M20 | 46 | 36 | 220 | 10 | 10 | 105 | 305 |
| **320** | 96 | 110 | 30 | 340 | 100 | 350 | G1“ | 57 | M48x2 | 75 | 24 | 85 | 220 | 24 | 560 | 63 | 23 | 32 | M24 | 55 | 41 | 270 | 10 | 35 | 120 | 340 |
| **400** | 96 | 110 | 28 | 420 | 100 | 430 | G1“ | 57,5 | M48x2 | 75 | 24 | 85 | 220 | 26 | 560 | 63 | 25 | 32 | M24 | 55 | 41 | 350 | 10 | 35 | 120 | 340 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupl. | ... 4-2 |
| 4 Self-align. piston rod coupl. | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-4 |
| 23 Boxer flange mounting | ... 4-22 |
| 30 Swivel flange | ... 4-8 |
| 31 Clevis foot mounting | ... 4-8 |
| 32 Swivel flange with spherical bearing | ... 4-10 |
| 33 Swivel flange | ... 4-7 |
| 34 Narrow swivel flange | ... 4-9 |
| 35 Rectangular swivel flange | ... 4-9 |
| 40 Trunnion mounting | ... 4-12 |
| 41 Pivot pin** | ... 4-11 |
| 42 Pivot pin to front/end cap | ... 4-12 |
| 50 Guide unit H with ball bearings* | ... 4-18 |
| 51 Guide unit with slide bearings* | ... 4-20 |
| 80 Valve bracket | ... 4-22 |
| 90 Prox. switch | ... 3-2, 3-4, 3-7 |
| 95 Piston rod protective cover | ... 4-23 |

*) When guide unit H or U is used on cylinder with magnetic piston, it is necessary to use cylinder with tie rod version (option No. 13). There is no free space to mount switch bracket near the front cap when the profile tube is used (position for extend piston rod).

**) Type of pivot pin should be selected accordingly to the cylinder profile/tube - with cutout for profile or for round tube.

# DOUBLE ACTING PNEUMATIC CYLINDERS WITH DOUBLE PISTON ROD VDMA 24562, NF E 49003.1

STRÁNSKÝ A PETRŽÍK

Mounting dimensions meets standard VDMA 24562. Fully adjustable cushioning at end of stroke is available. Using of double piston rod, the rotation of equipment mounted on connecting plate is prevented. This cylinder may not be efforted by torque. Piston rods are guided in slide bearings without clearance.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

| Piston diameter [mm] | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 |
|---|---|---|---|---|---|---|---|---|---|
| Thrust at 0,6 MPa [N] | 482 | 754 | 1178 | 1870 | 3015 | 4713 | 7363 | 12064 | 18849 |
| Return force at 0,6 MPa [N] | 422 | 660 | 1042 | 1735 | 2775 | 4335 | 6774 | 11098 | 17884 |
| Connection | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G3/8“ | G1/2“ | G1/2“ | G3/4” | G3/4” |
| Length of adjustable cushioning [mm] | 12 | 12 | 12 | 16 | 16 | 20 | 30 | 33 | 33 |
| Max. stroke [mm] * | 1000* | 1000* | 1000* | 1000* | 1500* | 1500* | 1500* | 1500* | 1500* |
| Weight 0 mm stroke [kg] | 0,57 | 0,68 | 1,15 | 1,75 | 2,90 | 5,10 | 9,1 | 16,60 | 28,00 |
| Weight add. per 1 mm stroke [kg] | 0,003 | 0,003 | 0,005 | 0,007 | 0,008 | 0,009 | 0,017 | 0,0278 | 0,0285 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

10115 61 00 050 0100

| Type | |
|---|---|
| 10115 | DIN ISO 6431, VDMA 24562, NF E 49003.1, double acting, with double piston rod |

| Equipment | |
|---|---|
| 01 | w/o cushioning, w/o magnet |
| 11 | w/o cushioning, with magnet |
| 51 | with cushioning, w/o magnet |
| 61 | with cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 13 | round tube* |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |
| 37 | composite round tube+opt. 10 and 16 |

*) Only valid for piston dia. 32 to 100 mm included

For more options regarding materials or dimensions, please contact our technical dept.

| Piston diameter | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 125 | 125 mm |
| 160 | 160 mm |
| 200 | 200 mm |

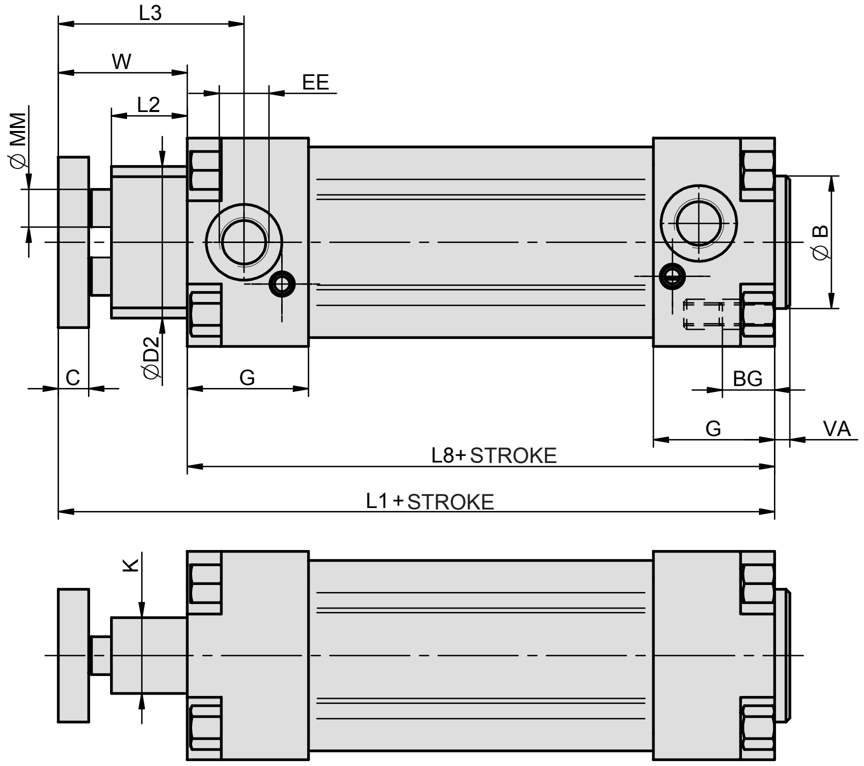
| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

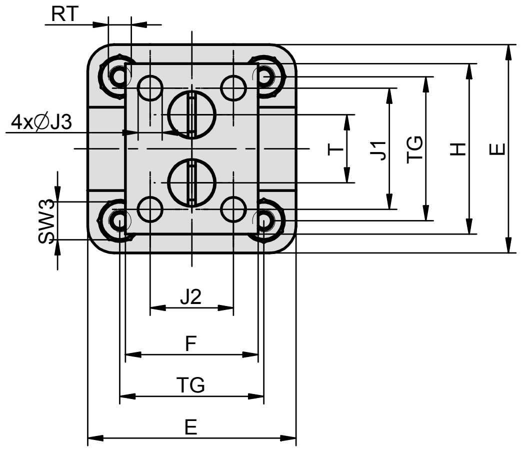
## Construction / materials

- front cap: drawn dural profile, anodised, end cap: aluminium casting, anodised
- body: drawn dural profile, anodized, piston dia. 125-200: drawn dural tube
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

# DOUBLE ACTING PNEUMATIC CYLINDERS WITH DOUBLE PISTON ROD VDMA 24562, NF E 49003.1

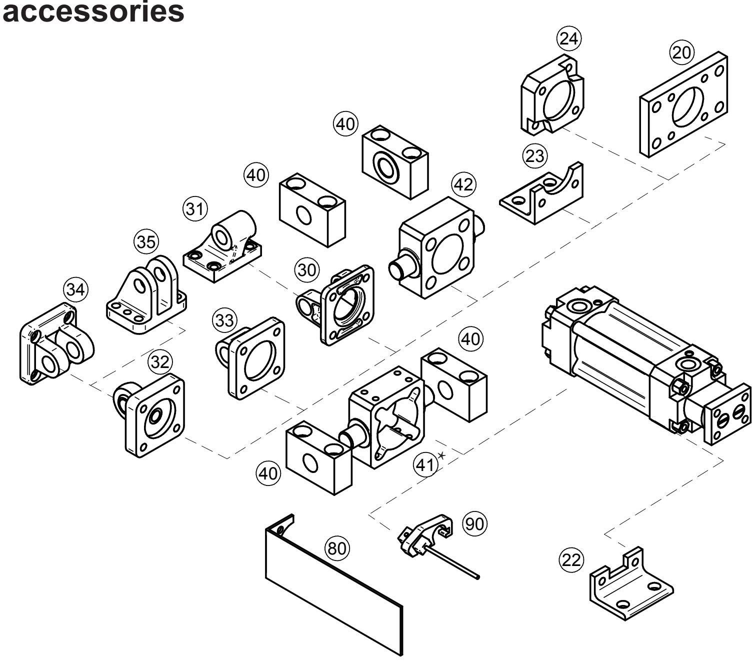
## Dimensions




| Ø | B | BG | C | D2 | E | EE | F | G | H | J1 | J2 | J3 | K | L1 | L2 | L3 | L8 | MM | RT | SW3 | T | TG | VA | W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 30 | 16 | 8 | 36 | 48 | G1/8“ | 30 | 31.5 | 40 | 30 | 20 | 5.4 | 16 | 126 | 18 | 47 | 94 | 8 | M6 | 10 | 14 | 32.5 | 4 | 32 |
| **40** | 35 | 16 | 8 | 40 | 55 | G1/4“ | 35 | 32 | 45 | 32 | 22 | 6.4 | 20 | 139 | 20 | 49 | 105 | 10 | M6 | 10 | 18 | 38 | 4 | 34 |
| **50** | 40 | 16 | 8 | 50 | 65 | G1/4“ | 40 | 30 | 50 | 38 | 28 | 6.4 | 24 | 143 | 22 | 53 | 106 | 12 | M8 | 14 | 25 | 46.5 | 4 | 37 |
| **63** | 45 | 17 | 8 | 60 | 75 | G3/8“ | 45 | 30 | 60 | 45 | 30 | 6.4 | 28 | 158 | 22 | 53 | 121 | 12 | M8 | 14 | 26 | 56.5 | 4 | 37 |
| **80** | 45 | 19 | 10 | 76 | 94 | G3/8“ | 60 | 30 | 75 | 60 | 45 | 8.2 | 40 | 178 | 31 | 65 | 128 | 16 | M10 | 17 | 40 | 72 | 4 | 50 |
| **100** | 55 | 17 | 12 | 90 | 115 | G1/2“ | 70 | 36 | 90 | 75 | 55 | 8.2 | 50 | 192 | 34 | 72 | 138 | 20 | M10 | 17 | 50 | 89 | 4 | 54 |
| **125** | 60 | 20 | 16 | 120 | 140 | G1/2“ | 90 | 40 | 110 | 90 | 70 | 10.5 | 60 | 231 | 40 | 89 | 160 | 25 | M12 | 22 | 62 | 110 | 6 | 71 |
| **160** | 65 | 24 | 18 | 150 | 185 | G3/4“ | 100 | 50 | 140 | 110 | 80 | 10.5 | 70 | 253 | 40 | 98 | 180 | 32 | M16 | 30 | 90 | 140 | 6 | 73 |
| **200** | 75 | 24 | 25 | 200 | 235 | G3/4“ | 182 | 50 | 182 | 150 | 150 | 13 | 80 | 265 | 45 | 111.5 | 180 | 32 | M16 | 30 | 120 | 175 | 6 | 85 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 20 Flange mounting | ... 4-6 |
| 22 Foot mounting for front cap | ... 4-4 |
| 23 Foot mounting | ... 4-4 |
| 24 Boxer flange mounting | ... 4-22 |
| 30 Swivel flange | ... 4-8 |
| 31 Clevis foot mounting | ... 4-8 |
| 32 Swivel flange with spherical bearing | ... 4-10 |
| 33 Swivel flange | ... 4-7 |
| 34 Narrow swivel flange | ... 4-9 |
| 35 Rectangular swivel flange | ... 4-9 |
| 40 Trunnion mounting | ... 4-12 |
| 41 Pivot pin* | ... 4-11 |
| 42 Pivot pin to front/end cap | ... 4-12 |
| 80 Valve bracket | ... 4-22 |
| 90 Prox. switch | ... 3-2, 3-4, 3-7 |

*) Type of pivot pin should be selected accordingly to the cylinder profile/tube - with cutout for profile or for round tube.

# DOUBLE ACTING PNEUMATIC CYLINDERS WITH LOCK DEVICE VDMA 24562, NF E 49003.1

STRÁNSKÝ A PETRŽÍK

Cylinders are designed to meet the specifications of international standard VDMA 24562 for mounting. The cylinders can work in higher temperatures by request. Fully adjustable cushioning at end of stroke is available. Lock device is actuated by spring force and deactivated by compressed air. Lock device is self-locking.

Lock device is not a safety element! The user must take relevant safety precautions!

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Min. pressure for lock release | 0,2 MPa |
| Locking direction | both direction |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

## Warning

Clamping force is purely static. When exceeding load, slipping of piston rod may occur, or piston rod and/or lock device can be damaged. Right connection and suitable designed control is necessary for impact free work. Please consult your connection with our technical dept.

| Piston diameter [mm] | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|---|---|---|---|---|---|---|---|
| Thrust at 0,6 MPa [N] | 482 | 754 | 1178 | 1870 | 3015 | 4713 | 7363 |
| Thrust at 0,6 MPa [N] with double ended piston rod | 415 | 633 | 990 | 1682 | 2720 | 4418 | 6880 |
| Return force at 0,6 MPa [N] | 415 | 633 | 990 | 1682 | 2720 | 4418 | 6880 |
| Static clamping force [N] | >482 | >754 | >1178 | >1870 | >3015 | >4713 | >7363 |
| Connection | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G3/8“ | G1/2“ | G1/2“ |
| Length of adjustable cushioning [mm] | 13 | 13 | 11 | 16 | 16 | 20 | 25 |
| Max. stroke [mm] * | 1000* | 1000* | 1000* | 1000* | 1000* | 1000* | 1500* |
| Weight 0 mm stroke [kg] | 1,15 | 1,62 | 2,80 | 3,90 | 6,20 | 9,80 | 20,6 |
| Weight add. per 1 mm stroke [kg] | 0,0028 | 0,0037 | 0,0060 | 0,0062 | 0,0100 | 0,0110 | 0,0160 |
| Weight 0 mm stroke [kg] with double ended piston rod | 1,25 | 1,72 | 3,00 | 4,10 | 6,90 | 10,60 | 22,4 |
| Weight add. per 1 mm stroke [kg] with dbl. ended piston rod | 0,0038 | 0,0047 | 0,0080 | 0,0082 | 0,0140 | 0,0150 | 0,0220 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

10110 60 00 050 0100

| Type | |
|---|---|
| 10110 | DIN ISO 6431, VDMA 24562, NF E 49003.1, double acting, with lock device |

| Equipment | |
|---|---|
| 00 | w/o cushioning, w/o magnet |
| 05 | double ended piston rod, w/o cushioning, w/o magnet |
| 10 | w/o cushioning, with magnet |
| 15 | double ended piston rod, w/o cushioning, with magnet |
| 50 | with cushioning, w/o magnet |
| 55 | double ended piston rod, with cushioning, w/o magnet |
| 60 | with cushioning, with magnet |
| 65 | double ended piston rod, with cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 11 | Viton® gaskets (up to 180°C) |
| 13 | round tube* |
| 14 | 1.4301 stainless steel piston rod |

*) Only valid for piston dia. 32 to 100 mm included

For more options regarding materials or dimensions, please contact our technical dept.

| Piston diameter | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 125 | 125 mm |

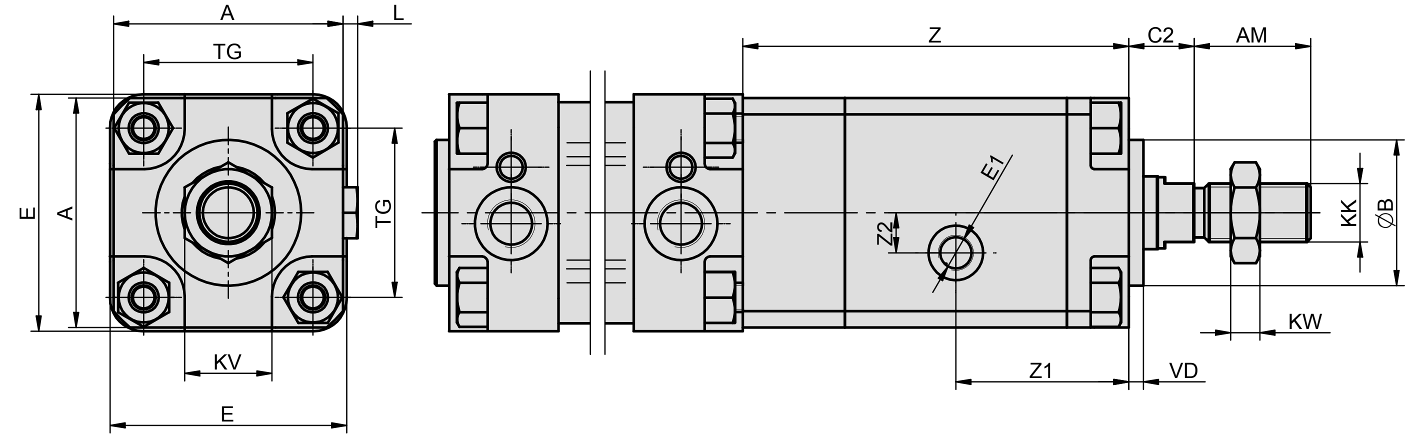
| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

## Construction / materials

- caps: drawn dural profile, anodised, piston dia. 100: aluminium casting, anodised
- body: drawn dural profile, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

# DOUBLE ACTING PNEUMATIC CYLINDERS WITH LOCK DEVICE VDMA 24562, NF E 49003.1

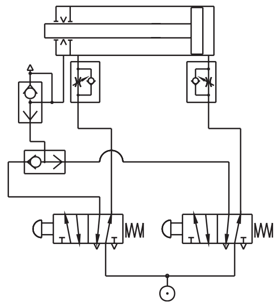
## Dimensions




| ∅ | A | AM | B | C2 | E | E1 | KK | KV | KW | L | TG | VD | Z | Z1 | Z2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 45 | 22 | 30 | 13,5 | 48 | G1/8“ | M10x1,25 | 16 | 5 | 4 | 32,5 | 4 | 95 | 47 | 5 |
| **40** | 56 | 24 | 35 | 16 | 55 | G1/8“ | M12x1,25 | 18 | 6 | 4 | 38 | 4 | 107 | 49,5 | 9 |
| **50** | 63 | 32 | 40 | 18 | 65 | G1/8“ | M16x1,5 | 24 | 8 | 4 | 46,5 | 4 | 106 | 46,5 | 11 |
| **63** | 70 | 32 | 45 | 18 | 75 | G1/8“ | M16x1,5 | 24 | 8 | 4 | 56,5 | 4 | 116 | 52,5 | 11 |
| **80** | 90 | 40 | 45 | 18 | 94 | G1/8“ | M20x1,5 | 30 | 10 | 5 | 72 | 5 | 150 | 65 | 18 |
| **100** | 110 | 43 | 55 | 18 | 115 | G1/8“ | M20x1,5 | 30 | 10 | 5 | 89 | 5 | 158 | 66,5 | 18 |
| **125** | 140 | 54 | 60 | 22 | 140 | G1/4“ | M27x2 | 30 | 13 | – | 110 | 5 | 255 | 106 | 0 |

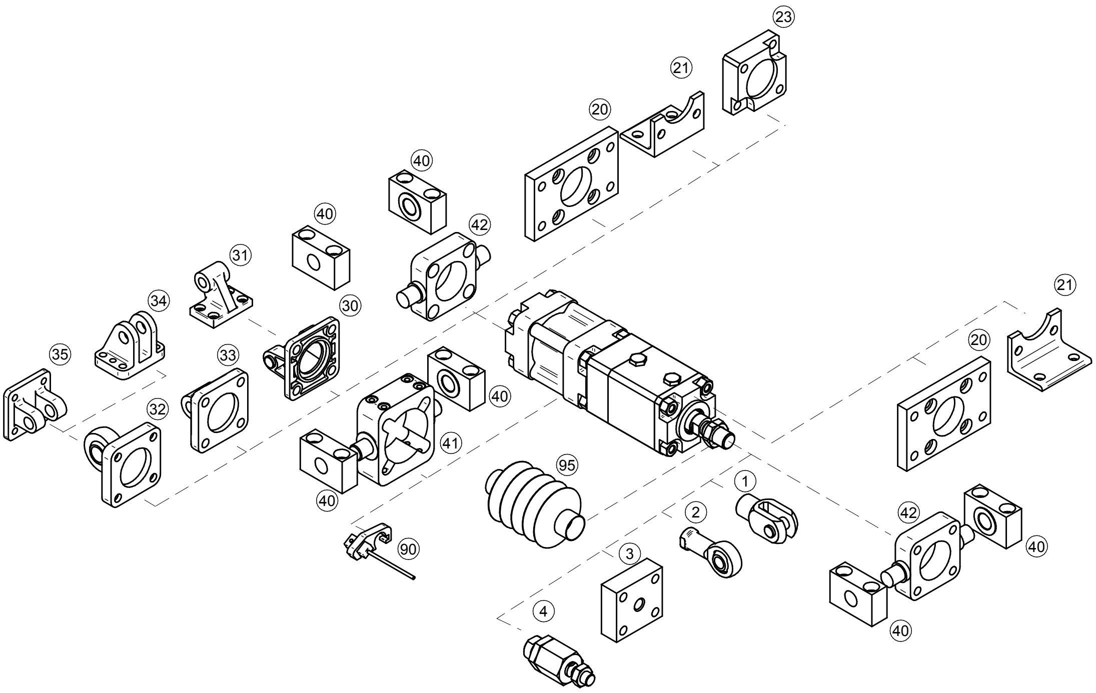
For dimensions of pneumatic cylinder on which the lock device is attached, see page 2-5

**Connection example for pushbutton control:**



Pressing the left pushbutton, the lock unit will unclamp and air which flows through right pushbutton into cylinder will extend it. After release pushbutton, compressed air is released from lock unit, which clamps piston rod and cylinder stops. For quick stopping of cylinder, the quick exhaust valve is used. The important on this connection is, that both chambers of cylinder are still with compressed air and for motion control discharging of air from particular chambers is used, which prevents from impacts or unwanted countermovements.

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-4 |
| 23 Boxer flange mounting | ... 4-22 |
| 30 Swivel flange | ... 4-8 |
| 31 Clevis foot mounting | ... 4-8 |
| 32 Swivel flange with spherical bearing | ... 4-10 |
| 33 Swivel flange | ... 4-7 |
| 34 Narrow swivel flange | ... 4-9 |
| 35 Rectangular swivel flange | ... 4-9 |
| 40 Trunnion mounting | ... 4-12 |
| 41 Pivot pin | ... 4-11 |
| 42 Pivot pin to front/end cap | ... 4-12 |
| 90 Prox. switch | ... 3-2, 3-4, 3-7 |
| 95 Piston rod protective cover | ... 4-23 |

# DOUBLE ACTING PNEUMATIC CYLINDERS
# ISO 15552, VDMA 24562, NF E 49003.1
# WITH END-POSITION LOCKING

Modern design, quality processing and high-quality of used parts - these are characteristics of the new cylinders series. Cylinders are equipped with automatic locking device in one or both end positions. When air supply failure occurs, cylinder is locked in its end position. Release then happens automatically after air supply is restored. Dimensions conform to the international standards ISO 6431, VDMA 24562 and NF E 49003.1, that is why it can replace a pneumatic cylinder, which is made by any producer to these standards. Fully adjustable cushioning at end of stroke and magnet for proximity switches are standard for this series. The proximity switches can be mounted directly to the tube‘s groove - so no brackets are necessary.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,1 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

## Warning

For the correct function of unlocking the piston rod during start-up, it is necessary to use a throttle valve on the cylinder with a function of throttling the output.

| Piston diameter [mm] | 32 | 40 | 50 | 63 | 80 |
|---|---|---|---|---|---|
| Thrust at 0,6 MPa [N] | 482 | 754 | 1178 | 1870 | 3015 |
| Thrust at 0,6 MPa [N] with double ended piston rod | 415 | 633 | 990 | 1682 | 2720 |
| Return force at 0,6 MPa [N] | 415 | 633 | 990 | 1682 | 2720 |
| Connection | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G3/8“ |
| Length of adjustable cushioning [mm] | 17 | 17 | 17 | 16 | 20 |
| Max. stroke [mm] * | 1000* | 1000* | 1000* | 1000* | 1500* |
| Working speed [mm/s] | 50 to 500 | | | | |
| Min. stroke for proximity sensing [mm] | 17 | 21 | 25 | 25 | 25 |
| Weight 0 mm stroke [kg] | 0.50 | 0.78 | 1.38 | 1.81 | 3.84 |
| Weight add. per 1 mm stroke [kg] | 0.003 | 0.004 | 0.007 | 0.007 | 0.013 |
| Weight 0 mm stroke [kg] with double ended piston rod | 0.56 | 0.88 | 1.48 | 2.01 | 5.19 |
| Weight add. per 1 mm stroke [kg] with dbl. ended piston rod | 0.004 | 0.006 | 0.009 | 0.009 | 0.017 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

10213 60 00 050 0100

| Type | |
|---|---|
| 10211 | ISO 15552, double acting, locking in advanced position |
| 10212 | ISO 15552, double acting, locking in retracted position |
| 10213 | ISO 15552, double acting, locking in both positions |

| Equipment | |
|---|---|
| 60 | with cushioning, with magnet |
| 65 | with double ended piston rod, with cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 14 | 1.4301 stainless steel piston rod |

For more options regarding materials or dimensions, please contact our technical dept.

| Piston diameter | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |

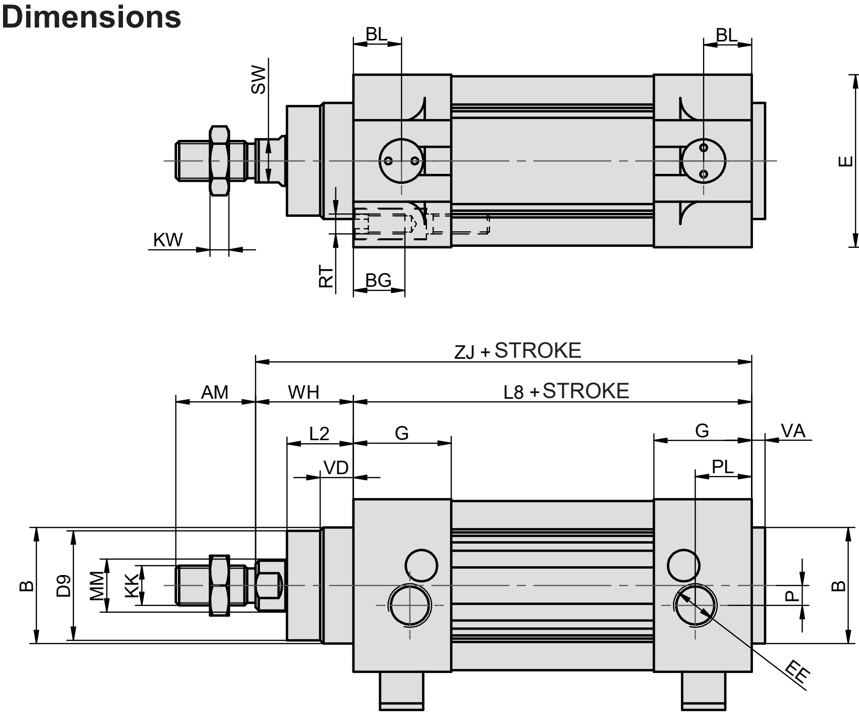
| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

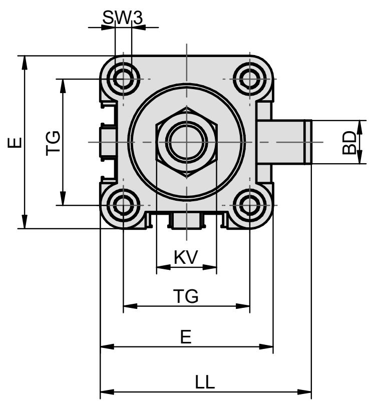
## Construction / materials

- caps: aluminium mold casting
- body: drawn dural profile, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

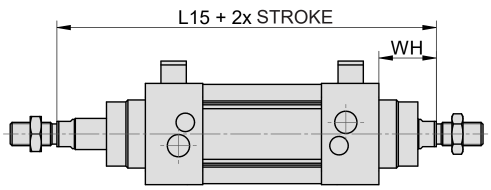
# DOUBLE ACTING PNEUMATIC CYLINDERS ISO 15552, VDMA 24562, NF E 49003.1 WITH END-POSITION LOCKING

## Dimensions



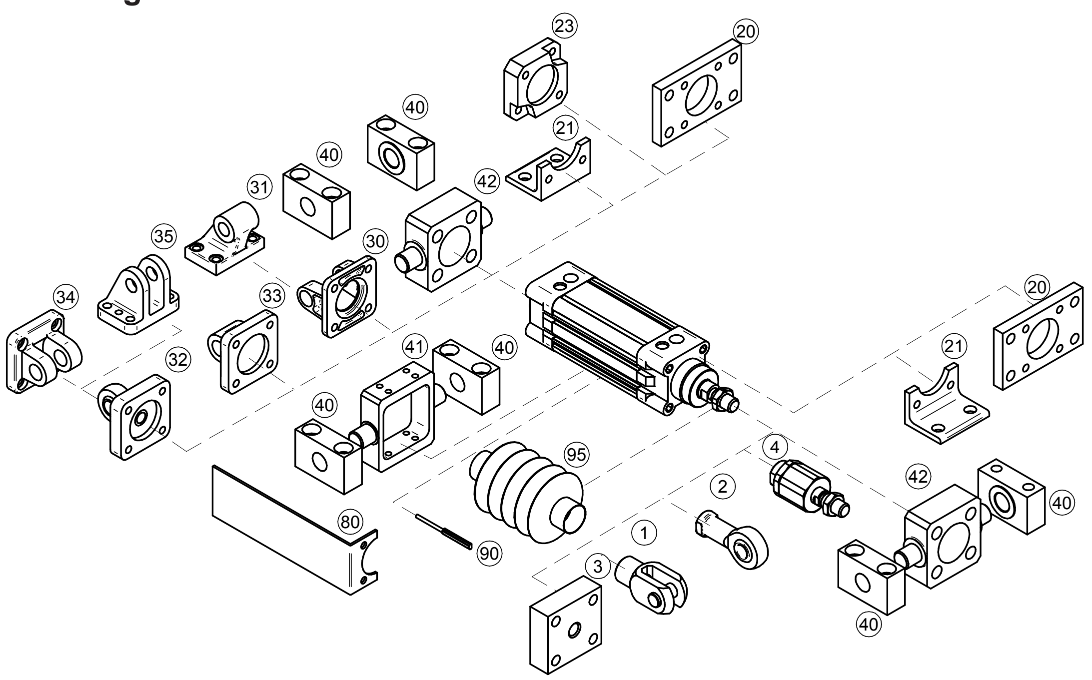




Double ended piston rod:
(other dimensions are the same as standard type)




| ∅ | AM | B | BD | BG | BL | D9 | E | EE | G | KK | KV | KW | LL | L2 | L8 | L15 | MM | P | PL | RT | SW | SW3 | TG | VA | VD | WH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 22 | 30 | 13 | 16 | 11 | 28 | 45 | G1/8“ | 25 | M10x1.25 | 17 | 6 | 58.5 | 18 | 94 | 146 | 12 | 3 | 16 | M6 | 10 | 6 | 32.5 | 4 | 10 | 26 | 120 |
| 40 | 24 | 35 | 13 | 16 | 14.5 | 33 | 54 | G1/4“ | 30 | M12x1.25 | 19 | 7 | 63.5 | 21.5 | 105 | 165 | 16 | 6 | 14 | M6 | 13 | 6 | 38 | 4 | 11 | 30 | 135 |
| 50 | 32 | 40 | 16 | 14 | 15 | 39 | 65 | G1/4“ | 30 | M16x1.5 | 24 | 8 | 79 | 22 | 106 | 180 | 20 | 3 | 17 | M8 | 16 | 8 | 46.5 | 4 | 5 | 37 | 143 |
| 63 | 32 | 45 | 16 | 17 | 15 | 44 | 75 | G3/8“ | 30 | M16x1.5 | 24 | 8 | 84 | 23 | 121 | 195 | 20 | 6 | 16 | M8 | 16 | 14 | 56.5 | 4 | 5 | 37 | 158 |
| 80 | 40 | 45 | 36 | 20 | 15 | 44 | 95 | G3/8“ | 30 | M20x1.5 | 30 | 10 | 113.5 | 31 | 128 | 220 | 25 | 10 | 16 | M10 | 21 | 17 | 72 | 4 | 5 | 46 | 174 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-4 |
| 23 Boxer flange mounting | ... 4-22 |
| 30 Swivel flange | ... 4-8 |
| 31 Clevis foot mounting | ... 4-8 |
| 32 Swivel flange with spherical bearing | ... 4-10 |
| 33 Swivel flange | ... 4-7 |
| 34 Narrow swivel flange | ... 4-9 |
| 35 Rectangular swivel flange | ... 4-9 |
| 40 Trunnion mounting | ... 4-12 |
| 41 Pivot pin | ... 4-10 |
| 42 Pivot pin to front/end cap | ... 4-12 |
| 80 Valve bracket | ... 4-22 |
| 90 Proximity switch | ... 3-2, 3-4 |
| 90 Proportional position sensor with analog output | ... 3-6 |
| 95 Piston rod protective cover | ... 4-23 |

# DOUBLE ACTING PNEUMATIC CYLINDERS
# TANDEM
# VDMA 24562, NF E 49003.1

STRÁNSKÝ A PETRŽÍK

Tandem cylinder is built-up from two or three cylinders, has common piston rod and almost double or triple thrust and return force. Cylinders are designed to meet the specifications of international standard ISO 6431, VDMA 24562 a NF E 49003.1 for mounting. The cylinders can work in higher temperatures by request. Fully adjustable cushioning at end of stroke is available.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| Piston diameter [mm] | 63 | 80 | 100 | 125 | 160 | 200 | 250 | 320 |
|---|---|---|---|---|---|---|---|---|
| Thrust at 0,6 MPa [N] for double tandem | 3552 | 5737 | 9130 | 14243 | 23373 | 36945 | 57726 | 94639 |
| Return force at 0,6 MPa [N] for double tandem | 3363 | 5442 | 8835 | 13761 | 22618 | 36192 | 56548 | 92769 |
| Thrust at 0,6 MPa [N] for triple tandem | 5234 | 8458 | 13548 | 21124 | 34682 | 55041 | 86002 | 141023 |
| Return force at 0,6 MPa [N] for triple tandem | 5045 | 8164 | 13253 | 20641 | 33927 | 54288 | 84823 | 139153 |
| Connection | G3/8“ | G3/8“ | G1/2“ | G1/2“ | G3/4“ | G3/4“ | G1“ | G1“ |
| Length of adjustable cushioning [mm] | 16 | 20 | 25 | 25 | 32 | 32 | 36 | 48 |
| Max. stroke [mm] * | 500* | 1000* | 1000* | 1000* | 1000* | 1000* | 1000* | 1000* |
| Weight 0 mm stroke [kg] for double tandem | 2,83 | 5,5 | 7,2 | 12,7 | 26,1 | 37,3 | 52,5 | 105,0 |
| Weight add. per 1 mm stroke [kg] for double tandem | 0,010 | 0,014 | 0,020 | 0,026 | 0,044 | 0,054 | 0,060 | 0,120 |
| Weight 0 mm stroke [kg] for triple tandem | 4,00 | 8,2 | 10,2 | 17,8 | 38,9 | 54,1 | 76,0 | 140,0 |
| Weight add. per 1 mm stroke [kg] for triple tandem | 0,014 | 0,019 | 0,029 | 0,036 | 0,060 | 0,078 | 0,086 | 0,175 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

10122 60 00 160 0100

| Type | |
|---|---|
| 10122 | double tandem, double acting |
| 10123 | triple tandem, double acting |

| Equipment | |
|---|---|
| 00 | w/o cushioning, w/o magnet |
| 05 | double ended piston rod, w/o cushioning, w/o magnet |
| 10 | w/o cushioning, with magnet |
| 15 | double ended piston rod, w/o cushioning, with magnet |
| 50 | with cushioning, w/o magnet |
| 55 | double ended piston rod, with cushioning, w/o magnet |
| 60 | with cushioning, with magnet |
| 65 | double ended piston rod, with cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 11 | Viton® gaskets (up to 180°C) |
| 13* | tie rod version |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |
| 37 | composite round tube+opt. 10 and 16 |

*) For piston dia. 63 to 100 incl.

| Piston diameter | |
|---|---|
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 125 | 125 mm |
| 160 | 160 mm |
| 200 | 200 mm |
| 250 | 250 mm |
| 320 | 320 mm |

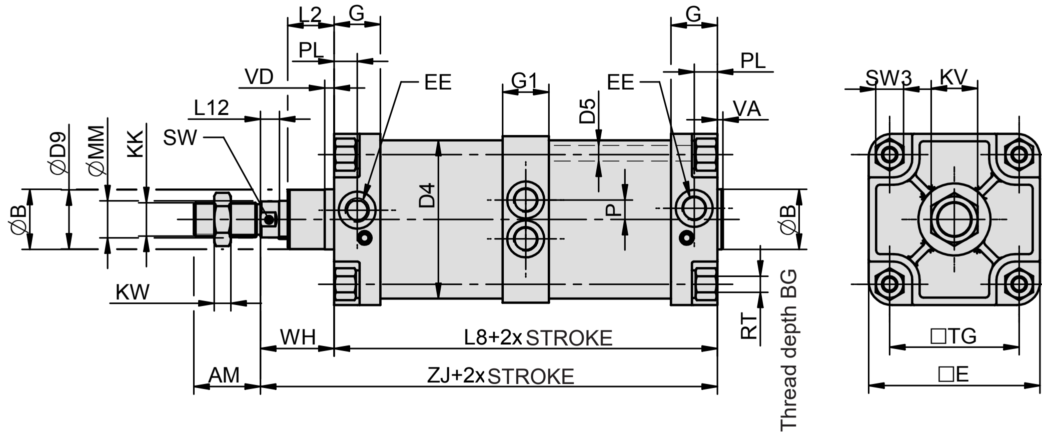
For more options regarding materials or dimensions, please contact our technical dept.

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

## Construction / materials

- caps: drawn dural profile, anodised, piston dia. 100 and more: aluminium casting, anodised
- centre part: drawn dural profile, anodized
- body: drawn dural profile, anodized, piston dia. 125 and more: drawn dural tube, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

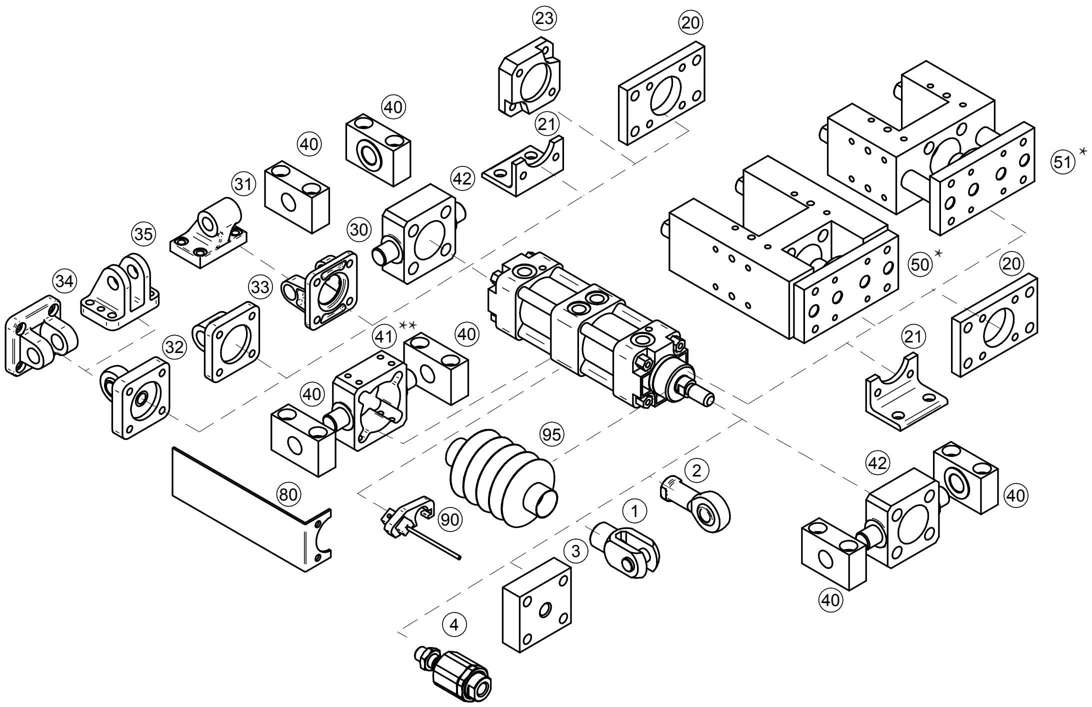
## Dimensions




| Ø | AM | B | BG | D4 | D5 | D9 | E | EE | G | G1 | KK | KV | KW | L2 | L8* | L8** | L12 | MM | P | PL | RT | SW | SW3 | TG | VA | VD | WH | ZJ* | ZJ** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **63** | 32 | 45 | 17 | 68 | 8 | 44 | 75 | G3/8“ | 30 | 26 | M16x1,5 | 24 | 8 | 23 | 208* | 295** | 10 | 20 | 6 | 16 | M8 | 16 | 14 | 56,5 | 4 | 5 | 37 | 245* | 332** |
| **80** | 40 | 45 | 19 | 86 | 10 | 44 | 95 | G3/8“ | 30 | 30 | M20x1,5 | 30 | 9 | 31 | 226* | 324** | 10 | 25 | 16 | 16 | M10 | 21 | 17 | 72 | 4 | 5 | 46 | 272* | 370** |
| **100** | 40 | 55 | 19 | 106 | 10 | 54 | 115 | G1/2“ | 36 | 36 | M20x1,5 | 30 | 9 | 34 | 240* | 342** | 10 | 25 | 16 | 18 | M10 | 21 | 17 | 89 | 4 | 17 | 51 | 291* | 393** |
| **125** | 54 | 60 | 20 | 132 | 12 | 58 | 140 | G1/2“ | 40 | 32 | M27x2 | 41 | 12 | 50 | 272* | 384** | 14 | 32 | 16 | 22 | M12 | 27 | 22 | 110 | 6 | 6 | 65 | 337* | 449** |
| **160** | 72 | 65 | 24 | 171 | 16 | 64 | 185 | G3/4“ | 50 | 50 | M36x2 | 50 | 14 | 50 | 314* | 446** | 20 | 40 | 21 | 25 | M16 | 36 | 30 | 140 | 6 | 10 | 80 | 394* | 526** |
| **200** | 72 | 75 | 24 | 210 | 16 | 74 | 235 | G3/4“ | 50 | 50 | M36x2 | 50 | 14 | 55 | 310* | 440** | 20 | 40 | 25 | 25 | M16 | 36 | 30 | 175 | 6 | 20 | 95 | 405* | 535** |
| **250** | 84 | 90 | 30 | 262 | 20 | 84 | 270 | G1“ | 54 | 54 | M42x2 | 65 | 21 | 76 | 346* | 492** | 22 | 50 | 32 | 32 | M20 | 46 | 36 | 220 | 10 | 10 | 105 | 451* | 597** |
| **320** | 96 | 110 | 30 | 340 | 24 | 100 | 350 | G1“ | 57 | 57 | M48x2 | 75 | 24 | 85 | 383* | 546** | 27 | 63 | 23 | 32 | M24 | 55 | 41 | 270 | 10 | 35 | 120 | 503* | 666** |

*) Values are valid for double tandem
**) Values are valid for triple tandem

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-4 |
| 23 Boxer flange mounting | ... 4-22 |
| 30 Swivel flange | ... 4-8 |
| 31 Clevis foot mounting | ... 4-8 |
| 32 Swivel flange with spherical bearing | ... 4-10 |
| 33 Swivel flange | ... 4-7 |
| 34 Narrow swivel flange | ... 4-9 |
| 35 Rectangular swivel flange | ... 4-9 |
| 40 Trunnion mounting | ... 4-12 |
| 41 Pivot pin** | ... 4-11 |
| 42 Pivot pin to front/end cap | ... 4-12 |
| 50 Guide unit H with ball bearings* | ... 4-18 |
| 51 Guide unit with slide bearings* | ... 4-20 |
| 80 Valve bracket | ... 4-22 |
| 90 Prox. switch | ... 3-2, 3-4, 3-7 |
| 95 Piston rod protective cover | ... 4-23 |

*) When guide unit H or U is used on cylinder with magnetic piston, it is necessary to use cylinder with tie rod version (option No. 13). There is no free space to mount switch bracket near the front cap when the profile tube is used (position for extend piston rod).
**) Type of pivot pin should be selected accordingly to the cylinder profile/tube - with cutout for profile or for round tube.

# DOUBLE ACTING PNEUMATIC CYLINDERS
# ISO 21287 COMPACT


Compact cylinders are smaller than standard cylinders and they are suitable especially, when there isn‘t enough space for standard cylinder. Dimensions of mounting holes meets international standards ISO 6431, VDMA 24562 and NF E 49003.1, that is why standard mounting accessories can be used. There are bumpers in both end positions.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| **Piston diameter [mm]** | **32** | **40** | **50** | **63** | **80** | **100** |
|---|---|---|---|---|---|---|
| Thrust at 0,6 MPa [N] | 482 | 754 | 1178 | 1870 | 3015 | 4713 |
| Thrust at 0,6 MPa [N] with double ended piston rod | 415 | 662 | 1025 | 1717 | 2720 | 4484 |
| Return force at 0,6 MPa [N] | 415 | 662 | 1025 | 1717 | 2720 | 4484 |
| Connection | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/8“ |
| Max. stroke [mm] * | 150* | 150* | 200* | 200* | 200* | 200* |
| Weight 0 mm stroke [kg] | 0,24 | 0,34 | 0,50 | 0,72 | 1,20 | 1,89 |
| Weight add. per 1 mm stroke [kg] | 0,0020 | 0,0034 | 0,0047 | 0,0055 | 0,0076 | 0,0095 |
| Weight 0 mm stroke [kg] with double ended piston rod | 0,28 | 0,36 | 0,55 | 0,76 | 1,30 | 2,07 |
| Weight add. per 1 mm stroke [kg] with dbl. ended piston rod | 0,0040 | 0,0044 | 0,0065 | 0,0067 | 0,0103 | 0,0131 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

12101 10 00 050 0100

| **Type** | |
|---|---|
| 12101 | ISO 21287 compact, double acting |

| **Equipment** | |
|---|---|
| 00 | w/o magnet, external thread |
| 01 | w/o magnet, internal thread |
| 05 | with double ended piston rod, w/o magnet, external thread |
| 06 | with double ended piston rod, w/o magnet,internal thread |
| 10 | with magnet, external thread |
| 11 | with magnet, internal thread |
| 15 | with double ended piston rod, with magnet, external thread |
| 16 | with double ended piston rod, with magnet, internal thread |

| **Options** | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |

For more options regarding materials or dimensions, please contact our technical dept.

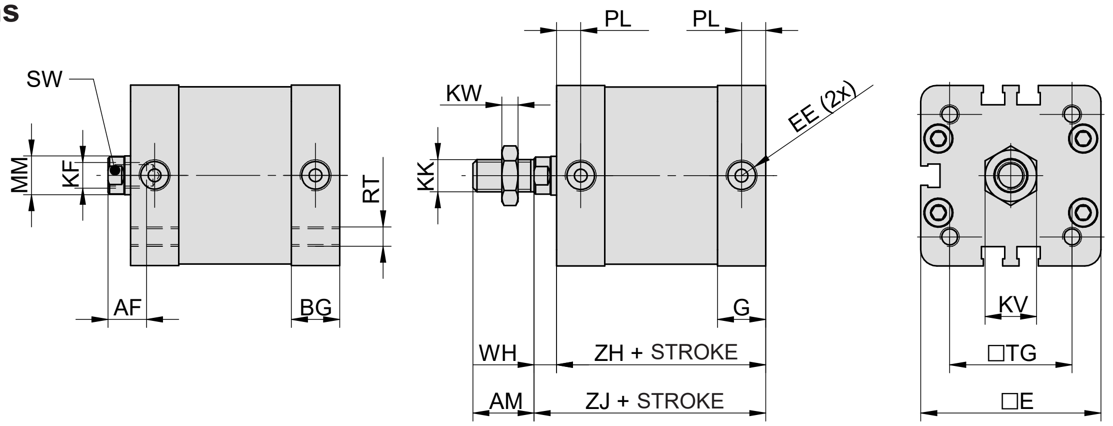
| **Piston diameter** | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |

| **Stroke / Repair kit** | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

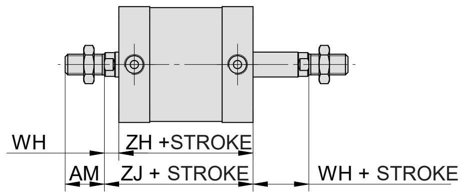
## Construction / materials

- caps: drawn dural profile, anodized
- body: drawn dural profile, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

## Dimensions

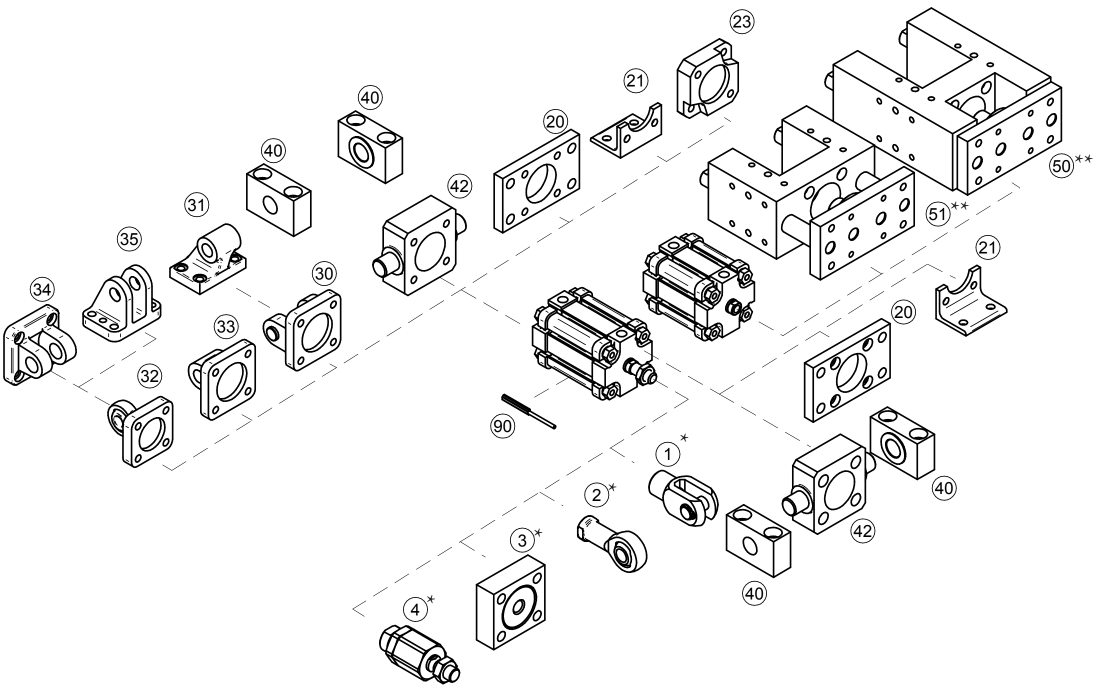



Double ended piston rod:
other dimensions are the
same as standard type)




| ∅ | AF | AM | BG | E | EE | G | KF | KK | KV | KW | MM | PL | RT | SW | TG | WH | ZH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 12 | 19 | 14.5 | 49.2 | G1/8“ | 14.5 | M8 | M10x1.25 | 16 | 5 | 12 | 7.5 | M6 | 10 | 32.5 | 7 | 44 | 51 |
| **40** | 12 | 19 | 15 | 56 | G1/8“ | 15 | M8 | M10x1.25 | 16 | 5 | 12 | 7.5 | M6 | 10 | 38 | 7 | 45 | 52 |
| **50** | 16 | 22 | 15 | 69 | G1/8“ | 15 | M10 | M12x1.25 | 18 | 6 | 16 | 7.5 | M8 | 13 | 46.5 | 8 | 45 | 53 |
| **63** | 16 | 22 | 15 | 79 | G1/8“ | 15 | M10 | M12x1.25 | 18 | 6 | 16 | 7.5 | M8 | 13 | 56.5 | 8 | 49 | 57 |
| **80** | 20 | 28 | 17 | 95 | G1/8“ | 17 | M12 | M16x1.5 | 24 | 8 | 20 | 7.5 | M10 | 16 | 72 | 10 | 54 | 64 |
| **100** | 20 | 28 | 20 | 115.5 | G1/8“ | 20 | M12 | M16x1.5 | 24 | 8 | 20 | 7.5 | M10 | 16 | 89 | 10 | 67 | 77 |

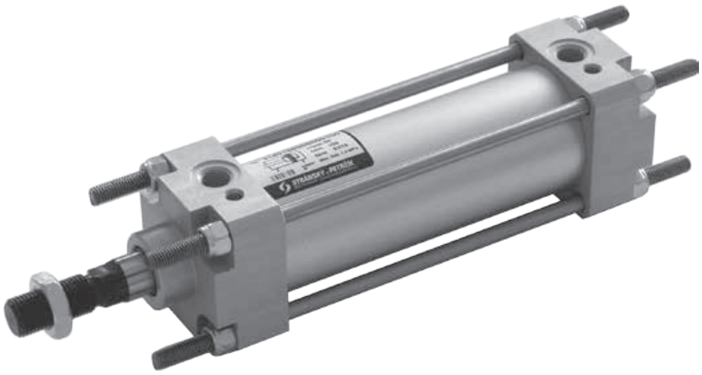
## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis* | ... 4-2 |
| 2 Piston rod eye* | ... 4-3 |
| 3 Flanged piston rod coupling* | ... 4-2 |
| 4 Self-aligning piston rod coupling* | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-4 |
| 23 Boxer flange mounting | ... 4-22 |
| 30 Swivel flange | ... 4-8 |
| 31 Clevis foot mounting | ... 4-8 |
| 32 Swivel flange with spherical bearing | ... 4-10 |
| 33 Swivel flange | ... 4-7 |
| 34 Narrow swivel flange | ... 4-9 |
| 35 Rectangular swivel flange | ... 4-9 |
| 40 Trunnion mounting | ... 4-12 |
| 42 Pivot pin to front/end cap | ... 4-12 |
| 50 Guide unit H with ball bearings | ... 4-18 |
| 51 Guide unit with slide bearings | ... 4-20 |
| 90 Prox. switch | ... 3-2, 3-4 |
| 90 Proportional position sensor with analog output | ... 3-6 |

*) Please check dimensions of thread on cylinder and accessories for piston rod, before you order it (for example: compact cylinder piston dia. 40 mm has thread M10x1,25 on piston rod, piston rod clevis for cylinder dia. 40 has thread M12x1,25, so it is necessary to order piston rod clevis for cylinder dia. 25/32, where is thread M10x1,25).

**) For use this cylinder type with guide unit, the cylinder must be equipped with internal thread on piston rod.



Cylinders are designed to meet the specifications of international standard CETOP. Fully adjustable cushioning at end of stroke and magnetic piston for proximity sensing are available. Another materials of components and seals are available on request.
We recommend to use cylinders to ISO 15552 and VDMA 24562 for new designs.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| Piston diameter [mm] | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 |
|---|---|---|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 482 | 754 | 1178 | 1870 | 3015 | 4713 | 7363 | 12064 | 18849 |
| Thrust at 0.6 MPa [N] with double ended piston rod | 415 | 633 | 990 | 1682 | 2720 | 4418 | 6880 | 11581 | 18096 |
| Return force at 0.6 MPa [N] | 415 | 633 | 990 | 1682 | 2720 | 4418 | 6880 | 11581 | 18096 |
| Connection | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G3/8“ | G1/2“ | G1/2“ | G3/4“ | G3/4“ |
| Length of adjustable cushioning [mm] | 12 | 11 | 11 | 16 | 9 | 16 | 15 | 20 | 20 |
| Max. stroke [mm] * | 1000* | 1000* | 1000* | 1000* | 1500* | 1500* | 2000* | 2000* | 2000* |
| Weight 0 mm stroke [kg] | 0.44 | 0.91 | 1.36 | 2.07 | 3.25 | 5.10 | 7.70 | 16.50 | 23.10 |
| Weight add. per 1 mm stroke [kg] | 0.003 | 0.004 | 0.005 | 0.006 | 0.007 | 0.012 | 0.013 | 0.023 | 0.027 |
| Weight 0 mm stroke [kg] with double ended piston rod | 0.55 | 1.03 | 1.77 | 2.74 | 4.31 | 6.65 | 10.80 | 19.79 | 27.33 |
| Weight add. per 1 mm stroke [kg] with double ended piston rod | 0.004 | 0.006 | 0.007 | 0.009 | 0.010 | 0.017 | 0.018 | 0.033 | 0.037 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

11401 60 00 050 0100

| Type | |
|---|---|
| 11401 | CNOMO 06.07.02, double acting |

| Equipment | |
|---|---|
| 00 | w/o cushioning, w/o magnet |
| 05 | with double ended piston rod, w/o cushioning, w/o magnet |
| 10 | w/o cushioning, with magnet |
| 15 | with double ended piston rod, w/o cushioning, with magnet |
| 50 | with cushioning, w/o magnet |
| 55 | with double ended piston rod, with cushioning, w/o magnet |
| 60 | with cushioning, with magnet |
| 65 | with double ended piston rod, with cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 11 | Viton® gaskets (up to 180°C) |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |
| 37 | composite round tube+opt. 10 and 16 |
| 39 | round steel tube |

For more options regarding materials or dimensions, please contact our technical dept.

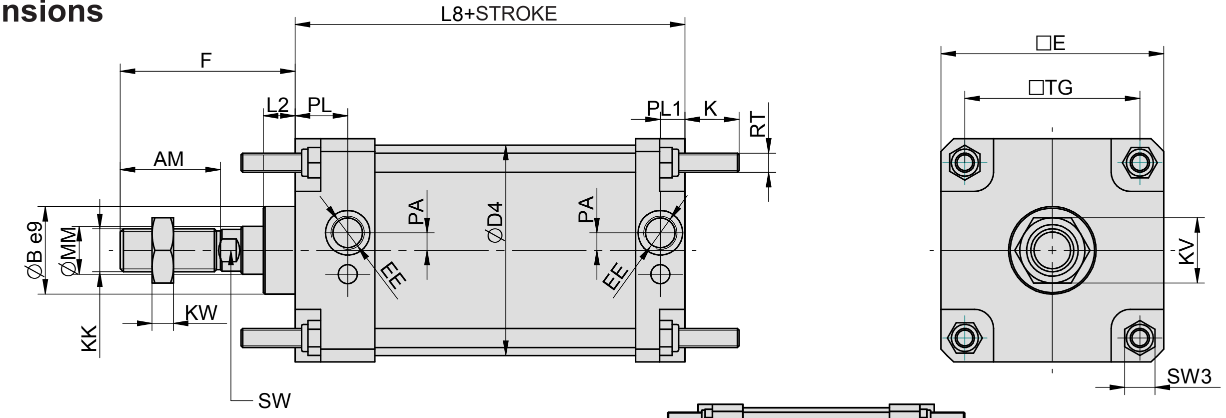
| Piston diameter | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 125 | 125 mm |
| 160 | 160 mm |
| 200 | 200 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

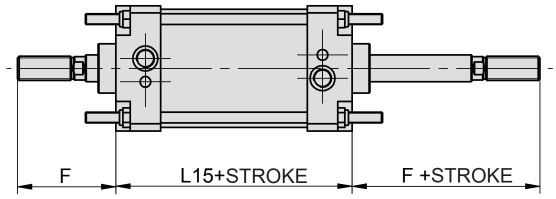
## Construction / materials

- caps: drawn aluminium alloy profile
- body: drawn dural tube, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

## Dimensions

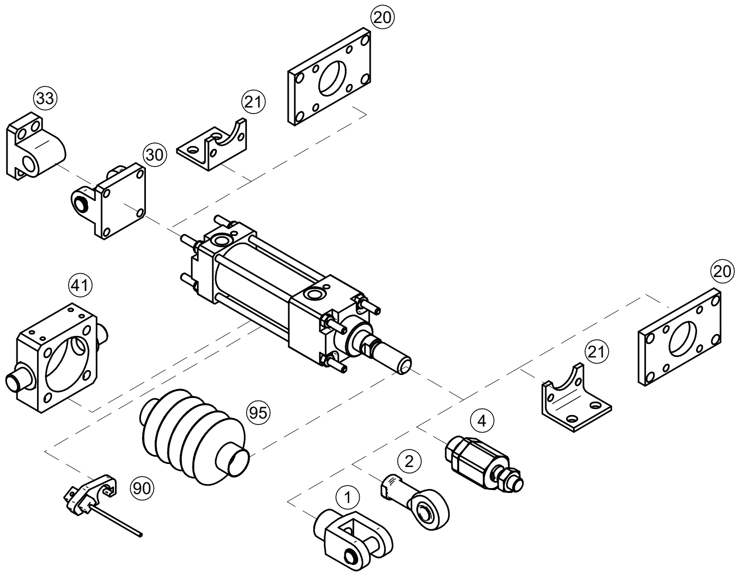



Double ended piston rod:
other dimensions are the
same as standard type)




| ∅ | AM | B | D4 | E | EE | F | K | KK | KV | KW | L2 | L8 | L15 | MM | PA | PL | PL1 | RT | SW | SW3 | TG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 20 | 25 | 36 | 45 | G1/8“ | 45 | 17 | M10 | 16 | 5 | 15 | 80 | 90 | 12 | 2 | 21.5 | 11.5 | M6 | 8 | 10 | 33 |
| **40** | 36 | 32 | 45 | 52 | G1/4“ | 70 | 17 | M16x1.5 | 24 | 8 | 15 | 110 | 129 | 18 | 5 | 34 | 15 | M6 | 13 | 10 | 40 |
| **50** | 36 | 32 | 55 | 65 | G1/4“ | 70 | 23 | M16x1.5 | 24 | 8 | 15 | 110 | 129 | 18 | 3 | 33.5 | 14.5 | M8 | 13 | 13 | 49 |
| **63** | 46 | 45 | 68 | 75 | G3/8“ | 85 | 23 | M20x1.5 | 30 | 10 | 20 | 125 | 146 | 22 | 10 | 34 | 13 | M8 | 17 | 13 | 59 |
| **80** | 46 | 45 | 86 | 95 | G3/8“ | 85 | 28 | M20x1.5 | 30 | 10 | 20 | 125 | 146 | 22 | 10 | 34 | 13 | M10 | 17 | 17 | 75 |
| **100** | 63 | 55 | 106 | 115 | G1/2“ | 110 | 28 | M27x2 | 41 | 13.5 | 20 | 145 | 164 | 30 | 11 | 31 | 15 | M10 | 22 | 17 | 90 |
| **125** | 63 | 55 | 132 | 140 | G1/2“ | 110 | 34 | M27x2 | 41 | 13.5 | 20 | 145 | 164 | 30 | 11 | 33 | 15.5 | M12 | 22 | 19 | 110 |
| **160** | 85 | 65 | 167 | 180 | G3/4“ | 135 | 42 | M36x2 | 50 | 18 | 25 | 180 | 200 | 40 | 11 | 37 | 20 | M16 | 32 | 24 | 140 |
| **200** | 85 | 65 | 210 | 220 | G3/4“ | 135 | 42 | M36x2 | 50 | 18 | 25 | 180 | 200 | 40 | 11 | 37 | 20 | M16 | 32 | 24 | 175 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-25 |
| 2 Piston rod eye | ... 4-3 |
| 4 Self-align. piston rod coupl. | ... 4-3 |
| 20 Flange mounting | ... 4-24 |
| 21 Foot mounting | ... 4-25 |
| 30 Swivel flange | ... 4-26 |
| 33 Swivel flange | ... 4-25 |
| 41 Pivot pin | ... 4-26 |
| 90 Prox. switch | ... 3-2, 3-4 |
| 95 Piston rod protective cover | ... 4-24 |

# DOUBLE ACTING PNEUMATIC CYLINDERS
# DIN ISO 6432

STRÁNSKÝ A PETRŽÍK


Cylinders are designed to meet the specifications of international standard ISO 6432. The cylinders can work in higher temperatures by request. There is no cushioning at the end of stroke.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| Piston diameter [mm] | 12 | 16 |
|---|---|---|
| Thrust at 0,6 MPa [N] | 66 | 121 |
| Thrust at 0,6 MPa [N] with double ended piston rod | 50 | 102 |
| Return force at 0,6 MPa [N] | 50 | 102 |
| Connection | M5 | M5 |
| Max. stroke [mm] * | 300* | 300* |
| Weight 0 mm stroke [kg] | 0,06 | 0,07 |
| Weight add. per 1 mm stroke [kg] | 0,0005 | 0,0008 |
| Weight 0 mm stroke [kg] with double ended piston rod | 0,06 | 0,07 |
| Weight add. per 1 mm stroke [kg] with dbl. ended piston rod | 0,0006 | 0,0009 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

11001 00 00 016 0050

| Type | |
|---|---|
| 11001 | to DIN ISO 6432, double acting |

| Equipment | |
|---|---|
| 00 | w/o cushioning, w/o magnet |
| 05 | with double ended piston rod, w/o cushioning, w/o magnet |
| 10 | w/o cushioning, with magnet |
| 15 | with double ended piston rod, w/o cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 11 | Viton® gaskets (up to 180°C) |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |

For more options regarding materials or dimensions, please contact our technical dept.

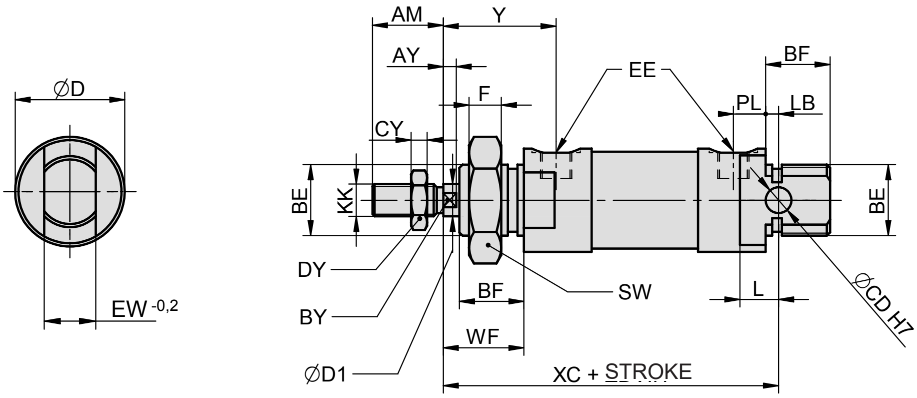
| Piston diameter | |
|---|---|
| 012 | 12 mm |
| 016 | 16 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0050 = stroke 50 mm |
| 9999 | repair kit |

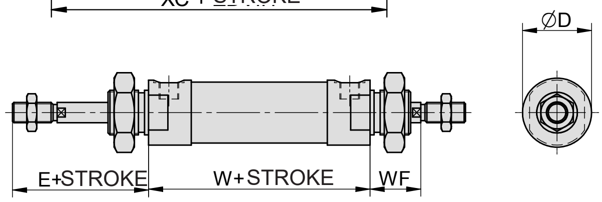
## Construction / materials

- caps: anodized dural
- body: drawn dural tube, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

## Dimensions

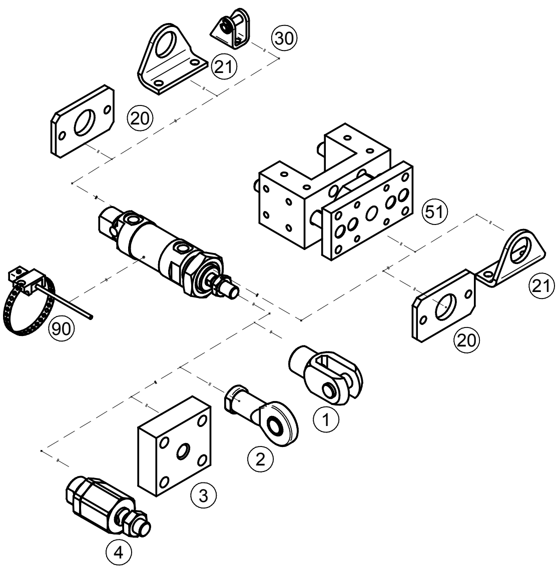



Double ended piston rod:
other dimensions are the
same as standard type)




| ∅ | AM | AY | BE | BF | BY | CD | CY | D | D1 | DY | E | EE | EW | F | KK | L | LB | PL | SW | WF | XC | Y | W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12** | 16 | 3 | M16x1,5 | 15 | 5 | 6 | 3 | 22 | 6 | 10 | 36 | M5 | 12 | 8 | M6 | 10 | 4 | 5 | 24 | 20 | 75 | 25 | 45 |
| **16** | 16 | 3 | M16x1,5 | 15 | 5 | 6 | 3 | 25 | 6 | 10 | 36 | M5 | 12 | 8 | M6 | 11 | 5 | 5 | 24 | 20 | 82 | 25 | 50 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-7 |
| 21 Foot mounting | ... 4-5 |
| 30 Swivel flange | ... 4-5 |
| 51 Guide unit with slide bearings | ... 4-20 |
| 90 Prox. switch | ... 3-2, 3-4 |


Cylinders are designed to meet the specifications of international standard ISO 6432. The cylinders can work in higher temperatures by request. Fully adjustable cushioning at end of stroke is available.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| **Piston diameter [mm]** | **20** | **25** |
|---|---|---|
| Thrust at 0,6 MPa [N] | 188 | 295 |
| Thrust at 0,6 MPa [N] with double ended piston rod | 158 | 248 |
| Return force at 0,6 MPa [N] | 158 | 248 |
| Connection | G1/8“ | G1/8“ |
| Length of adjustable cushioning [mm] | 11 | 9 |
| Max. stroke [mm] * | 300* | 500* |
| Weight 0 mm stroke [kg] | 0,17 | 0,22 |
| Weight add. per 1 mm stroke [kg] | 0,0010 | 0,0013 |
| Weight 0 mm stroke [kg] with double ended piston rod | 0,20 | 0,30 |
| Weight add. per 1 mm stroke [kg] with dbl. ended piston rod | 0,0014 | 0,0020 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

11101 60 00 020 0100

| **Type** | |
|---|---|
| 11101 | to DIN ISO 6432, double acting |

| **Equipment** | |
|---|---|
| 00 | w/o cushioning, w/o magnet |
| 05 | with double ended piston rod, w/o cushioning, w/o magnet |
| 10 | w/o cushioning, with magnet |
| 15 | with double ended piston rod, w/o cushioning, with magnet |
| 50 | with cushioning, w/o magnet |
| 55 | with double ended piston rod, with cushioning, w/o magnet |
| 60 | with cushioning, with magnet |
| 65 | with double ended piston rod, with cushioning, with magnet |

| **Options** | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 11* | Viton® gaskets (up to 180°C) |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |

*) This option in combination with magnetic piston causes different dimensions - please contact our technical dept.

For more options regarding materials or dimensions, please contact our technical dept.

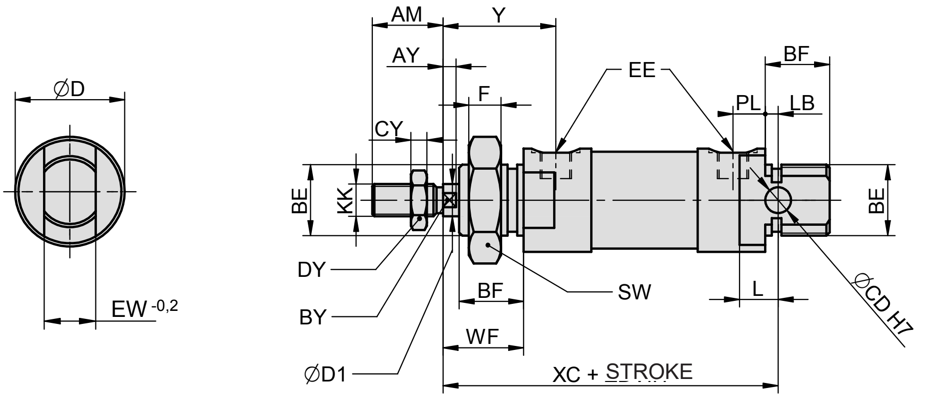
| **Piston diameter** | |
|---|---|
| 020 | 20 mm |
| 025 | 25 mm |

| **Stroke / Repair kit** | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

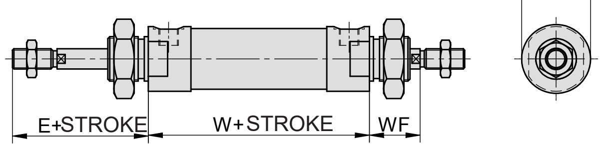
## Construction / materials

- caps: anodized dural
- body: drawn dural tube, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

## Dimensions

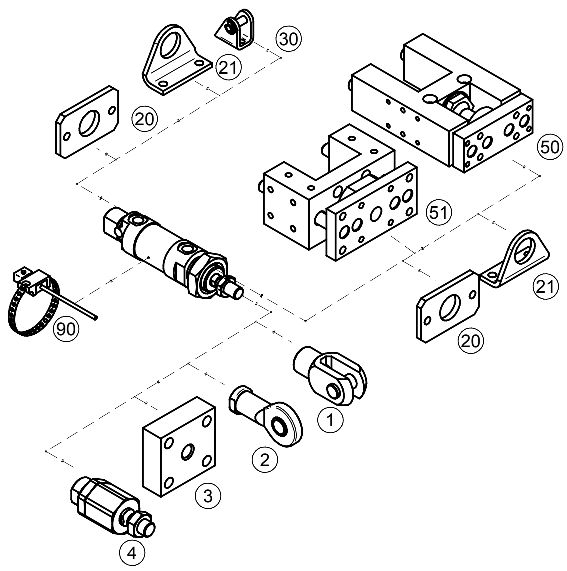



Double ended piston rod:
other dimensions are the
same as standard type)




| ∅ | AM | AY | BE | BF | BY | CD | CY | D | D1 | DY | E | EE | EW | F | KK | L | LB | PL | SW | WF | XC | Y | W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **20** | 20 | 4 | M22x1,5 | 20 | 7 | 8 | 6 | 27,5 | 8 | 13 | 44,5 | G1/8“ | 16 | 10 | M8 | 12 | 3 | 9,5 | 34 | 24,5 | 95 | 34 | 67,5 |
| **25** | 22 | 4 | M22x1,5 | 20 | 9 | 8 | 6 | 32 | 10 | 17 | 47 | G1/8“ | 16 | 10 | M10x1,25 | 12 | 4 | 10 | 34 | 25,5 | 104 | 35 | 75 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-7 |
| 21 Foot mounting | ... 4-5 |
| 30 Swivel flange | ... 4-5 |
| 50 Guide unit H with ball bearings | ... 4-18 |
| 51 Guide unit with slide bearings | ... 4-20 |
| 90 Prox. switch | ... 3-2, 3-4 |

# DOUBLE ACTING PNEUMATIC CYLINDERS DIN ISO 6432 WITH PRESSED-IN TUBE

STRÁNSKÝ A PETRŽÍK

Cylinders are designed to meet the specifications of international standard ISO 6432. The cylinders can work in higher temperatures by request. Fully adjustable cushioning at end of stroke is available for diameters 20 and 25 mm, diameters 16 mm and less are without cushioning at the end of stroke. Cylinders with pressed-in tube can't be disassembled.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| Piston diameter [mm] | 8 | 10 | 12 | 16 | 20 | 25 |
|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 30 | 47 | 66 | 121 | 188 | 295 |
| Thrust at 0.6 MPa [N] with double ended piston rod | 22 | 39 | 50 | 102 | 158 | 248 |
| Return force at 0.6 MPa [N] | 22 | 39 | 50 | 102 | 158 | 248 |
| Connection | M5 | M5 | M5 | M5 | G1/8“ | G1/8“ |
| Length of adjustable cushioning [mm] | — | — | — | — | 11 | 9 |
| Max. stroke [mm] * | 200* | 200* | 300* | 300* | 300* | 500* |
| Weight 0 mm stroke [kg] | 0.04 | 0.04 | 0.06 | 0.07 | 0.17 | 0.22 |
| Weight add. per 1 mm stroke [kg] | 0.0006 | 0.0006 | 0.0005 | 0.0008 | 0.0010 | 0.0013 |
| Weight 0 mm stroke [kg] with double ended piston rod | 0.04 | 0.04 | 0.06 | 0.07 | 0.20 | 0.30 |
| Weight add. per 1 mm stroke [kg] with double ended piston rod | 0.0006 | 0.0006 | 0.0006 | 0.0009 | 0.0014 | 0.0020 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

11201 60 00 020 0100

| Type | |
|---|---|
| 11201 | to DIN ISO 6432, double acting, with pressed-in tube |

| Equipment | |
|---|---|
| 00 | w/o cushioning, w/o magnet |
| 05 | with double ended piston rod, w/o cushioning, w/o magnet |
| 10[1)] | w/o cushioning, with magnet |
| 15[1)] | with double ended piston rod, w/o cushioning, with magnet |
| 50[2)] | with cushioning, w/o magnet |
| 55[2)] | with double ended piston rod, with cushioning, w/o magnet |
| 60[2)] | with cushioning, with magnet |
| 65[2)] | with double ended piston rod, with cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 14 | 1.4301 stainless steel piston rod |

For more options regarding materials or dimensions, please contact our technical dept.

| Piston diameter | |
|---|---|
| 008 | 8 mm |
| 010 | 10 mm |
| 012 | 12 mm |
| 016 | 16 mm |
| 020 | 20 mm |
| 025 | 25 mm |

| Stroke | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |

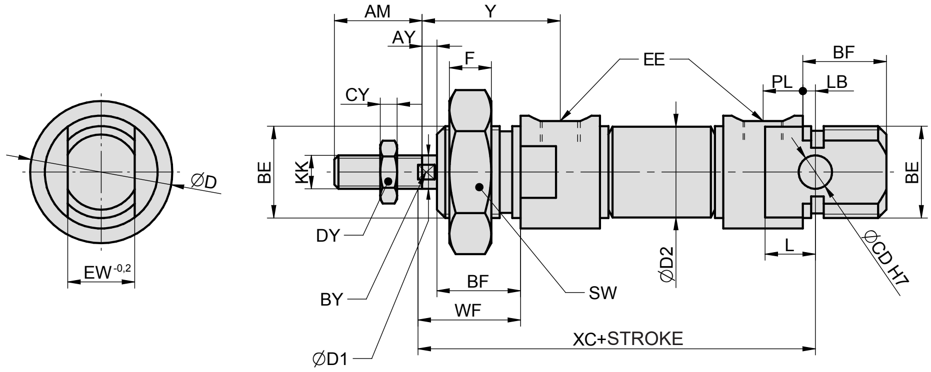
1) For piston dia. 12 mm and more
2) For piston dia. 20 mm a and more

i There is no repair kit for cylinders with pressed-in tube - these cylinders can't be disassembled

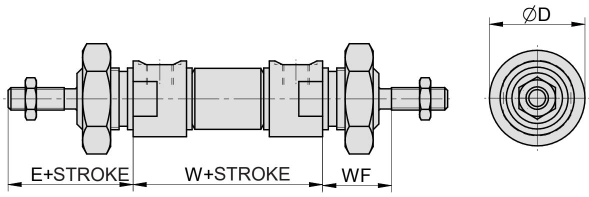
## Construction / materials

- caps: anodized dural
- body: drawn stainless steel tube 1.4301
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

## Dimensions

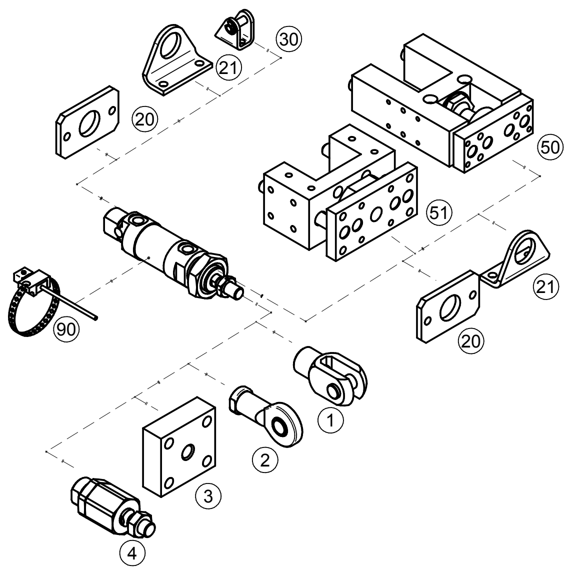



Double ended piston rod: other dimensions are the same as standard type)




| ∅ | AM | AY | BE | BF | BY | CD | CY | D | D1 | D2 | DY | E | EE | EW | F | KK | L | LB | PL | SW | WF | XC | Y | W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **8** | 12 | 3 | M12x1.25 | 12 | 3 | 4 | 3 | 15 | 4 | 9.3 | 7 | 28 | M5 | 8 | 7 | M4 | 9 | 3 | 5 | 18 | 16 | 64 | 21 | 45 |
| **10** | 12 | 3 | M12x1.25 | 12 | 3 | 4 | 3 | 15 | 4 | 11.3 | 7 | 28 | M5 | 8 | 7 | M4 | 9 | 3 | 5 | 18 | 16 | 64 | 21 | 45 |
| **12** | 16 | 3 | M16x1.5 | 15 | 5 | 6 | 3 | 19 | 6 | 13.3 | 10 | 36 | M5 | 12 | 8 | M6 | 10 | 4 | 5 | 24 | 20 | 75 | 25 | 45 |
| **16** | 16 | 3 | M16x1.5 | 15 | 5 | 6 | 3 | 20 | 6 | 17.3 | 10 | 36 | M5 | 12 | 8 | M6 | 11 | 5 | 5 | 24 | 20 | 82 | 25 | 50 |
| **20** | 20 | 4 | M22x1.5 | 20 | 7 | 8 | 6 | 27 | 8 | 21.3 | 13 | 44.5 | G1/8“ | 16 | 10 | M8 | 12 | 3 | 9.5 | 34 | 24.5 | 95 | 34 | 67.5 |
| **25** | 22 | 4 | M22x1.5 | 20 | 9 | 8 | 6 | 32 | 10 | 26.5 | 17 | 47 | G1/8“ | 16 | 10 | M10x1.25 | 12 | 4 | 10 | 34 | 25.5 | 104 | 35 | 75 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-7 |
| 21 Foot mounting | ... 4-5 |
| 30 Swivel flange | ... 4-5 |
| 50 Guide unit H with ball bearings | ... 4-18 |
| 51 Guide unit with slide bearings | ... 4-20 |
| 90 Prox. switch | ... 3-2, 3-4 |

This series of cylinders with fully adjustable cushioning at both ends and with magnetic piston for proximity switches, is direct replacement for cylinders of DSW series of other producers.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| Piston diameter [mm] | 32 | 40 | 50 | 63 |
|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 482 | 754 | 1178 | 1870 |
| Thrust at 0.6 MPa [N] with double ended piston rod | 415 | 633 | 990 | 1682 |
| Return force at 0.6 MPa [N] | 415 | 633 | 990 | 1682 |
| Connection | G1/8“ | G1/4“ | G1/4“ | G3/8“ |
| Length of adjustable cushioning [mm] | 13 | 14 | 11 | 16 |
| Max. stroke [mm] * | 1000* | 1000* | 1000* | 1000* |
| Weight 0 mm stroke [kg] | 0.43 | 0.90 | 1.10 | 1.70 |
| Weight add. per 1 mm stroke [kg] | 0.0015 | 0.002 | 0.002 | 0.004 |
| Weight 0 mm stroke [kg] with double ended piston rod | 0.56 | 1.23 | 1.33 | 1.80 |
| Weight add. per 1 mm stroke [kg] with dbl. ended piston rod | 0.0024 | 0.004 | 0.004 | 0.0065 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

11301 60 00 050 0100

| Type | |
|---|---|
| 11301 | double acting |

| Equipment | |
|---|---|
| 60 | with cushioning, with magnet |
| 65 | with double ended piston rod, with cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 14 | 1.4301 stainless steel piston rod |

For more options regarding materials or dimensions, please contact our technical dept.

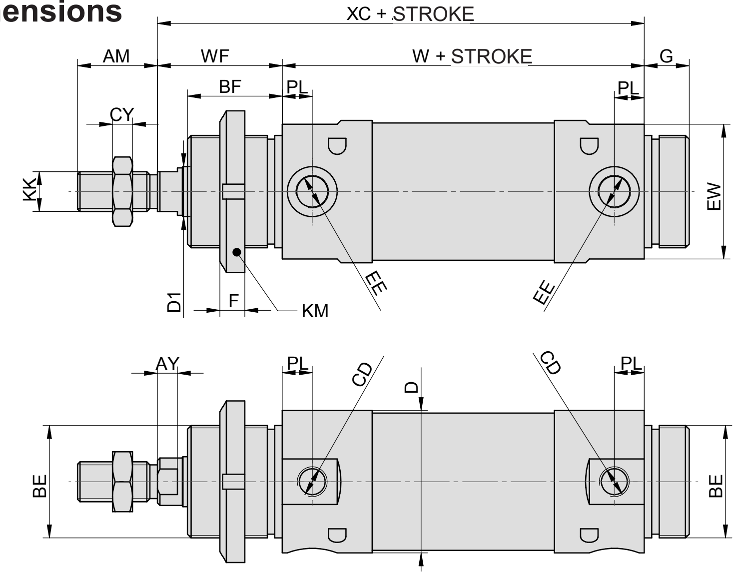
| Piston diameter | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |

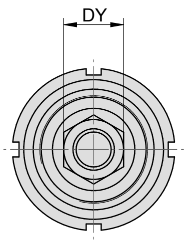
| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

## Construction / materials

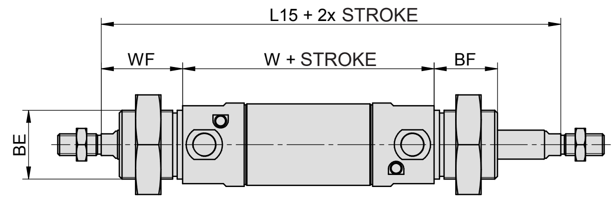
- caps: anodized dural
- body: drawn dural tube, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

## Dimensions



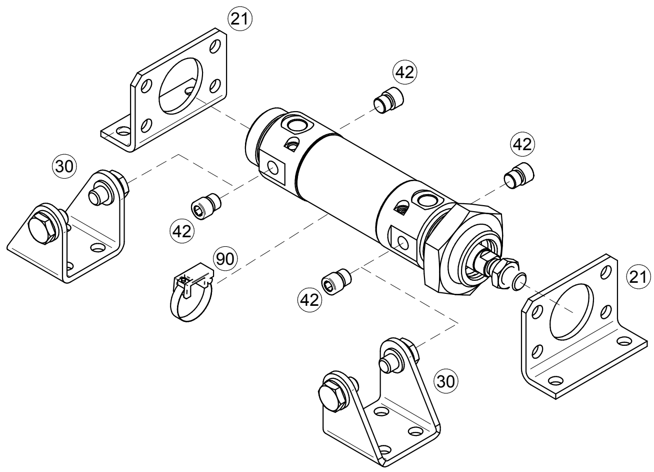




Double ended piston rod:
(other dimensions are the same as standard type)




| ∅ | AM | AY | BE | BF | BY | CD | CY | D | DY | D1 | EE | EW | F | G | KK | KM | L15 | PL | W | WF | XC | Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 20 | 4 | M30x1.5 | 30 | 10 | M8x1 | 5 | 38 | 16 | 12 | G1/8" | 35 | 7 | 14 | M10 | 6 | 172 | 9 | 96 | 38 | 134 | 47 |
| **40** | 24 | 6.5 | M38x1.5 | 35 | 12 | M10x1 | 6 | 46 | 18 | 16 | G1/4" | 43 | 14 | 16 | M12 | M38x1.5 | 204 | 12 | 113 | 45 | 158 | 57 |
| **50** | 32 | 8 | M45x1.5 | 38 | 16 | M12x1.5 | 8 | 57 | 24 | 20 | G1/4" | 54 | 10 | 18 | M16 | 9 | 220 | 12 | 120 | 50 | 170 | 62 |
| **63** | 32 | 8 | M45x1.5 | 38 | 16 | M14x1.5 | 8 | 70 | 24 | 20 | G3/8" | 67 | 10 | 18 | M16 | 9 | 224 | 13 | 124 | 50 | 174 | 63 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 21 Foot mounting | ... 4-23 |
| 30 Swivel flange | ... 4-23 |
| 42 Socket screw | ... 4-24 |
| 90 Proximity switch | ... 3-2, 3-4 |

# DOUBLE ACTING PNEUMATIC CYLINDERS
# ANTI-CORROSIVE - HYGIENIC CLEAN

STRÁNSKÝ A PETRŽÍK

Anti-corrosive cylinders are designed for use in area, where the hygienic clean is required (food processing or packing industry) or in aggressive chemical environment. The profile of the cylinder is smooth, to prevent dirt deposition. Fully adjustable cushioning at end of stroke is available as well as magnetic piston. Anti-corrosive cylinders are produced in several versions, for example: with thread on the front cap and with mounting holes on end cap, or with integrated swivel eye on end cap, and more. For using in food processing industry please choose appropriate option or contact our technical dept.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| Piston diameter [mm] | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 482 | 754 | 1178 | 1870 | 3015 | 4713 |
| Return force at 0.6 MPa [N] | 415 | 633 | 990 | 1682 | 2720 | 4418 |
| Connection | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G3/8“ | G3/8“ |
| Length of adjustable cushioning [mm] | 12 | 13 | 15 | 15 | 18 | 18 |
| Max. stroke [mm] * | 800* | 800* | 1000* | 1000* | 1000* | 1200* |
| Weight 0 mm stroke of type 17101 (standard / double-ended piston rod) [kg] | 0.66 / 0.72 | 1.13 / 1.34 | 1.70 / 1.94 | 2.97 / 3.00 | 5.14 / 5.66 | 8.04 / 8.51 |
| Weight 0 mm stroke of type 17201 (standard) [kg] | 0.77 | 1.29 | 2.05 | 3.77 | 6.43 | 10.73 |
| Weight 0 mm stroke of type 17301 (standard / double-ended piston rod) [kg] | 0.73 / 0.84 | 1.23 / 1.51 | 1.93 / 2.41 | 3.47 / 4.06 | 6.11 / 7.48 | 9.63 / 11.7 |
| Weight 0 mm stroke of type 17401 (standard / double-ended piston rod) [kg] | 0.73 / 0.84 | 1.23 / 1.51 | 1.93 / 2.41 | 3.47 / 4.06 | 6.11 / 7.48 | 9.63 / 11.7 |
| Weight 0 mm stroke of type 17501 (standard / double-ended piston rod) [kg] | 0.71 / 0.83 | 1.20 / 1.50 | 1.89 / 2.34 | 3.42 / 3.97 | 5.95 / 7.34 | 9.54 / 11.5 |
| Weight 0 mm stroke of type 17601 (standard) [kg] | 0.71 | 1.2 | 1.89 | 3.42 | 5.95 | 9.54 |
| Weight 0 mm stroke of type 17701 (standard) [kg] | 0.66 | 1.13 | 1.70 | 2.93 | 5.09 | 7.99 |
| Weight add. per 1 mm stroke (all types, standard) [kg] | 0.0025 | 0.0035 | 0.0050 | 0.0064 | 0.0098 | 0.0113 |
| Weight add. per 1 mm stroke (all types, double-ended piston rod) [kg] | 0.0035 | 0.0052 | 0.0075 | 0.0090 | 0.0138 | 0.0153 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

17101 60 00 050 0100

| Type | |
|---|---|
| 17101 | with thread on front cap |
| 17201 | with integrated swivel eye |
| 17301 | with pins for trunnion mounting on front cap |
| 17401 | with pins for trunnion mounting on end cap |
| 17501* | with threads for accessory mounting on front cap |
| 17601 | with threads for accessory mounting on end cap |
| 17701 | with thread on front cap and threads for accessory mounting on end cap |

*) For piston dia. 50 mm and more

| Equipment | |
|---|---|
| 50 | with cushioning, without magnet |
| 55* | with double-ended piston rod with cushioning, without magnet |
| 60 | with cushioning, with magnet |
| 65* | with double-ended piston rod with cushioning, with magnet |

*) Not for type 17201, 17601 and 17701

| Options | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 11 | Viton® gaskets (up to 180°C) |
| 31 | for food processing industry (piston rod sealing from TPU and special grease) |

For more options regarding materials or dimensions, please contact our technical dept.

| Piston diameter | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

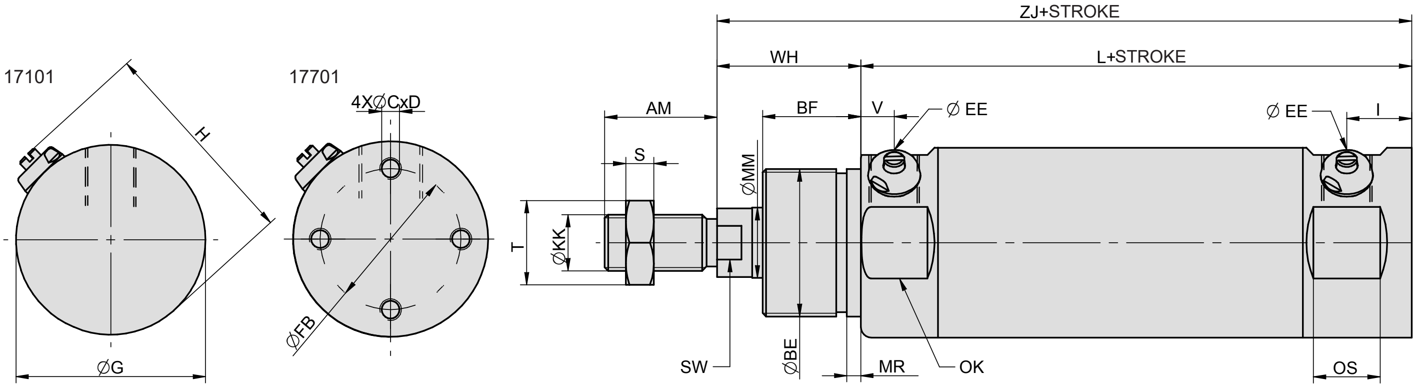
## Construction / materials

- caps: stainless steel 1.4571 (AISI 316)
- body: drawn stainless steel 1.4301 tube
- piston rod: stainless steel 1.4571 (AISI 316)
- sealing: NBR, wiping ring Viton®

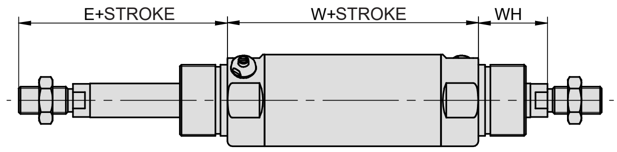
Anti-corrosive cylinders according to VDMA 24562 - see page 2-4, option 05

## Dimensions

**Types 17101 and 17701:**

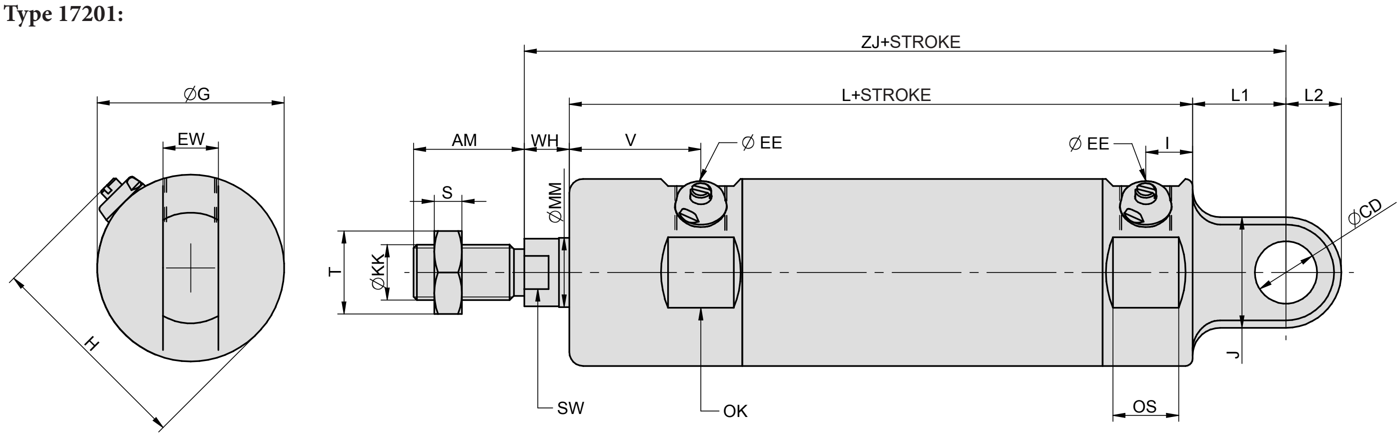



Double ended piston rod:
other dimensions are the
same as standard type)




| ∅ | AM | BE | BF | C | D | E | EE | FB | G | H | I | KK | L | MM | MR | OK | OS | S | SW | T | V | W | WH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 22 | M30x1.5 | 22 | M5 | 7 | 53 | G1/8“ | 25 | 36 | 45 | 17.5 | M10x1.25 | 92.5 | 12 | 2 | 33 | 16.5 | 5 | 10 | 17 | 10 | 84.5 | 31 | 123.5 |
| **40** | 24 | M35x1.5 | 25 | M6 | 8 | 58 | G1/4“ | 30 | 44 | 53 | 18 | M12x1.25 | 107 | 16 | 2 | 40 | 20 | 6 | 13 | 19 | 14 | 102.5 | 34 | 141 |
| **50** | 32 | M42x1.5 | 28 | M6 | 8 | 73 | G1/4“ | 39 | 54 | 64 | 18.5 | M16x1.5 | 107 | 20 | 2 | 50 | 19 | 8 | 17 | 24 | 10 | 98 | 41 | 148 |
| **63** | 32 | M42x1.5 | 28 | M8 | 8 | 73 | G3/8“ | 49 | 68 | 78 | 23 | M16x1.5 | 123 | 20 | 2 | 64 | 24 | 8 | 17 | 24 | 12 | 110 | 41 | 164 |
| **80** | 40 | M50x2 | 28 | M10 | 8.5 | 83.5 | G3/8“ | 64 | 86 | 96 | 22 | M20x1.5 | 136 | 25 | 2 | 82 | 24 | 10 | 21 | 30 | 18 | 135 | 43.5 | 179.5 |
| **100** | 40 | M50x2 | 28 | M10 | 10 | 84 | G3/8“ | 82 | 106 | 116 | 24 | M20x1.5 | 145 | 25 | 2 | 102 | 26 | 10 | 21 | 30 | 15 | 142 | 44 | 189 |

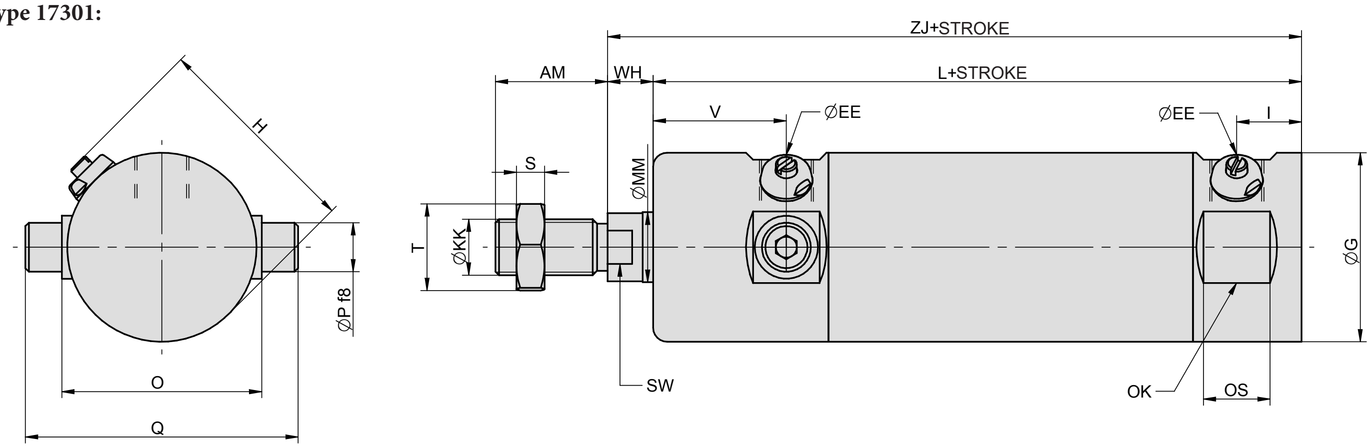
**Type 17201:**



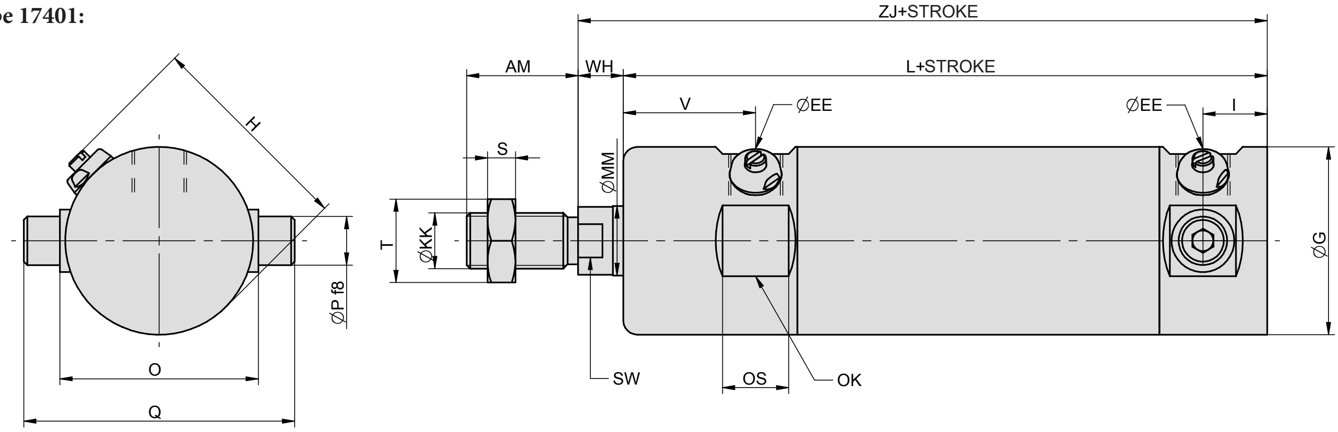

| ∅ | AM | CD | EE | EW | G | H | I | J | KK | L | L1 | L2 | MM | OK | OS | S | SW | T | V | WH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 22 | 10 | G1/8“ | 10 | 36 | 45 | 12 | 20 | M10x1.25 | 109 | 24 | 10 | 12 | 33 | 16.5 | 5 | 10 | 17 | 32 | 9 | 142 |
| **40** | 24 | 12 | G1/4“ | 12 | 44 | 53 | 14 | 24 | M12x1.25 | 127 | 24 | 12 | 16 | 40 | 20 | 6 | 13 | 19 | 39 | 9 | 160 |
| **50** | 32 | 16 | G1/4“ | 16 | 54 | 64 | 13.5 | 32 | M16x1.5 | 130 | 27 | 16 | 20 | 50 | 19 | 8 | 17 | 24 | 38 | 13 | 170 |
| **63** | 32 | 16 | G3/8“ | 16 | 68 | 78 | 22 | 32 | M16x1.5 | 150 | 27 | 16 | 20 | 64 | 24 | 8 | 17 | 24 | 40 | 13 | 190 |
| **80** | 40 | 20 | G3/8“ | 20 | 86 | 96 | 16.5 | 40 | M20x1.5 | 158.5 | 36 | 20 | 25 | 82 | 24 | 10 | 21 | 30 | 46 | 15.5 | 210 |
| **100** | 40 | 20 | G3/8“ | 20 | 106 | 116 | 27 | 40 | M20x1.5 | 178 | 36 | 20 | 25 | 102 | 26 | 10 | 21 | 30 | 46 | 16 | 230 |

# DOUBLE ACTING PNEUMATIC CYLINDERS
# ANTI-CORROSIVE - HYGIENIC CLEAN

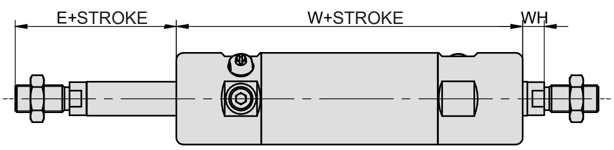
**Type 17301:**




**Type 17401:**

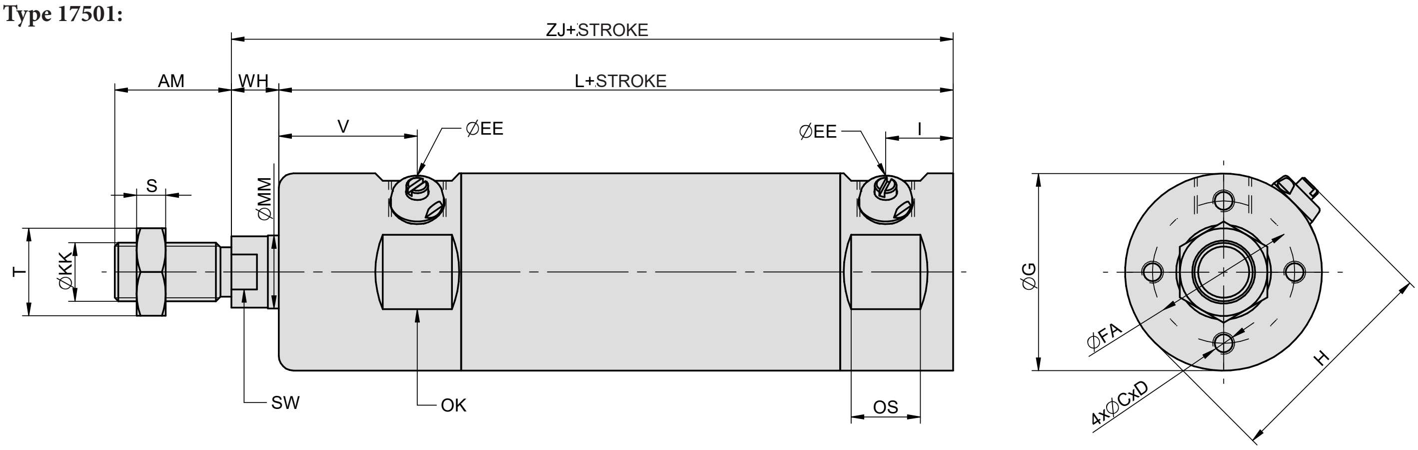



Double ended piston rod:
other dimensions are the
same as standard type)
For both 17301 and 17401
types.

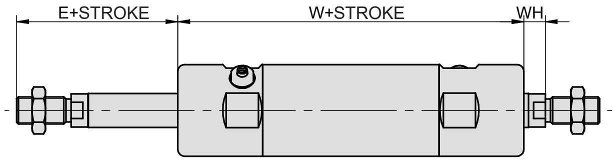



| ∅ | AM | E | EE | G | H | I | KK | L | MM | O | OK | OS | P | Q | S | SW | T | V | W | WH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 22 | 31 | G1/8“ | 36 | 45 | 17.5 | M10x1.25 | 114.5 | 12 | 38 | 33 | 16.5 | 10 | 52.8 | 5 | 10 | 17 | 32 | 128.5 | 9 | 123.5 |
| **40** | 24 | 33 | G1/4“ | 44 | 53 | 18 | M12x1.25 | 132 | 16 | 46 | 40 | 20 | 12 | 63.8 | 6 | 13 | 19 | 39 | 152.5 | 9 | 141 |
| **50** | 32 | 45 | G1/4“ | 54 | 64 | 18.5 | M16x1.5 | 135 | 20 | 57 | 50 | 19 | 14 | 77.8 | 8 | 17 | 24 | 38 | 154 | 13 | 148 |
| **63** | 32 | 45 | G3/8“ | 68 | 78 | 23 | M16x1.5 | 151 | 20 | 70 | 64 | 24 | 16 | 93 | 8 | 17 | 24 | 40 | 166 | 13 | 164 |
| **80** | 40 | 55.5 | G3/8“ | 86 | 96 | 22 | M20x1.5 | 164 | 25 | 88 | 82 | 24 | 18 | 120 | 10 | 21 | 30 | 46 | 191 | 15.5 | 179.5 |
| **100** | 40 | 56 | G3/8“ | 106 | 116 | 24 | M20x1.5 | 173 | 25 | 109 | 102 | 26 | 20 | 147 | 10 | 21 | 30 | 46 | 198 | 16 | 189 |

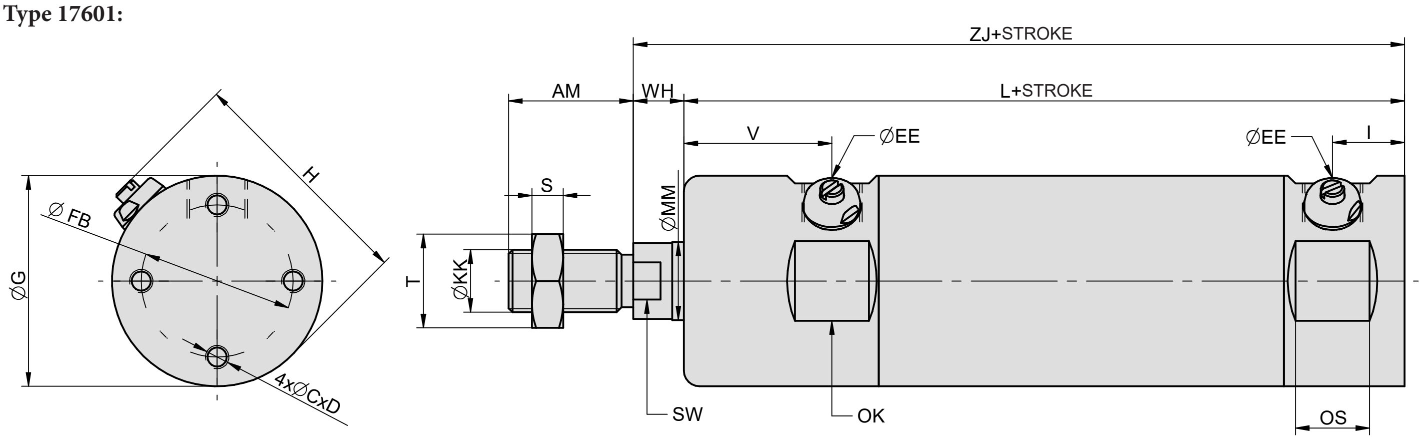
**Type 17501:**




Double ended piston rod:
other dimensions are the
same as standard type)
For type 17501 only.

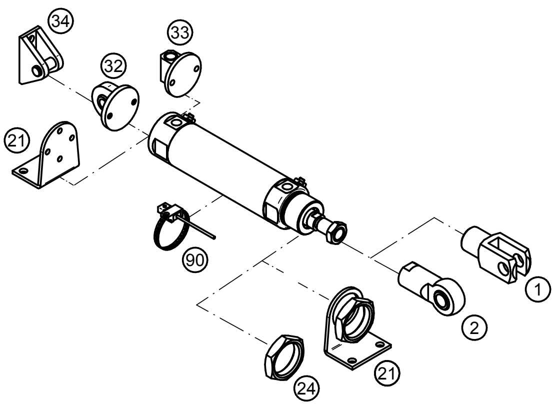



**Type 17601:**




| ∅ | AM | C | D | E | FA | FB | EE | G | H | I | KK | L | MM | OK | OS | S | SW | T | V | W | WH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 22 | M5 | 7 | 31 | — | 25 | G1/8“ | 36 | 45 | 17.5 | M10x1.25 | 114.5 | 12 | 33 | 16.5 | 5 | 10 | 17 | 32 | 128.5 | 9 | 123.5 |
| **40** | 24 | M6 | 8 | 33 | — | 30 | G1/4“ | 44 | 53 | 18 | M12x1.25 | 132 | 16 | 40 | 20 | 6 | 13 | 19 | 39 | 152.5 | 9 | 141 |
| **50** | 32 | M6 | 8 | 45 | 39 | 39 | G1/4“ | 54 | 64 | 18.5 | M16x1.5 | 135 | 20 | 50 | 19 | 8 | 17 | 24 | 38 | 154 | 13 | 148 |
| **63** | 32 | M8 | 8 | 45 | 49 | 49 | G3/8“ | 68 | 78 | 23 | M16x1.5 | 151 | 20 | 64 | 24 | 8 | 17 | 24 | 40 | 166 | 13 | 164 |
| **80** | 40 | M10 | 8.5 | 55.5 | 64 | 64 | G3/8“ | 86 | 96 | 22 | M20x1.5 | 164 | 25 | 82 | 24 | 10 | 21 | 30 | 46 | 191 | 15.5 | 179.5 |
| **100** | 40 | M10 | 10 | 56 | 82 | 82 | G3/8“ | 106 | 116 | 24 | M20x1.5 | 173 | 25 | 102 | 26 | 10 | 21 | 30 | 46 | 198 | 16 | 189 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-13 |
| 2 Piston rod eye | ... 4-13 |
| 21 Foot mounting | ... 4-14 |
| 24 Front cap nut | ... 4-13 |
| 32 Swivel flange with spherical bearing | ... 4-14 |
| 33 Swivel flange | ... 4-15 |
| 34 Narrow swivel flange | ... 4-14 |
| 90 Prox. switch | ... 3-2, 3-4 |

# DOUBLE ACTING PNEUMATIC CYLINDERS SHORT STROKE

Pneumatic cylinder may be used, when small mounting dimensions are required. The cylinders can work in higher temperatures by request. There is no cushioning at the end of stroke.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| Piston diameter [mm] | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 160 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|
| Thrust at 0,6 MPa [N] | 188 | 295 | 482 | 754 | 1178 | 1870 | 3015 | 4713 | 12064 | 29460 |
| Thrust at 0,6 MPa [N] with double ended piston rod | 158 | 248 | 415 | 662 | 1025 | 1717 | 2720 | 4484 | 11309 | 27600 |
| Return force at 0,6 MPa [N] | 158 | 248 | 415 | 662 | 1025 | 1717 | 2720 | 4484 | 11309 | 27600 |
| Connection | M5 | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Max. stroke [mm] * | 50* | 50* | 50* | 50* | 50* | 50* | 50* | 50* | 60* | 40* |
| Weight 0 mm stroke [kg] | 0,05 | 0,08 | 0,16 | 0,29 | 0,43 | 0,60 | 1,10 | 1,80 | 8,20 | 30,00 |
| Weight add. per 1 mm stroke [kg] | 0,0014 | 0,0015 | 0,0040 | 0,0060 | 0,0080 | 0,0100 | 0,0160 | 0,0200 | 0,0600 | 0,0830 |
| Weight 0 mm stroke [kg] with double ended piston rod | 0,06 | 0,09 | 0,17 | 0,32 | 0,50 | 0,70 | 1,20 | 2,00 | 8,90 | 33,00 |
| Weight add. per 1 mm stroke [kg] with double ended piston rod | 0,0022 | 0,0036 | 0,0050 | 0,0070 | 0,0100 | 0,0120 | 0,0190 | 0,0250 | 0,0700 | 0,0980 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

12501 10 00 050 0010

| Type | |
|---|---|
| 12501 | short stroke, double acting |

| Equipment | |
|---|---|
| 00 | w/o magnet, external thread |
| 01 | w/o magnet, internal thread |
| 05 | with double ended piston rod, w/o magnet, external thread |
| 06 | with double ended piston rod, w/o magnet, internal thread |
| 10 | with magnet, external thread |
| 11 | with magnet, internal thread |
| 15 | with double ended piston rod, with magnet, external thread |
| 16 | with double ended piston rod, with magnet, internal thread |

| Options | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 11 | Viton® gaskets (up to 180°C) |
| 14 | 1.4301 stainless steel piston rod |

For more options regarding materials or dimensions, please contact our technical dept.

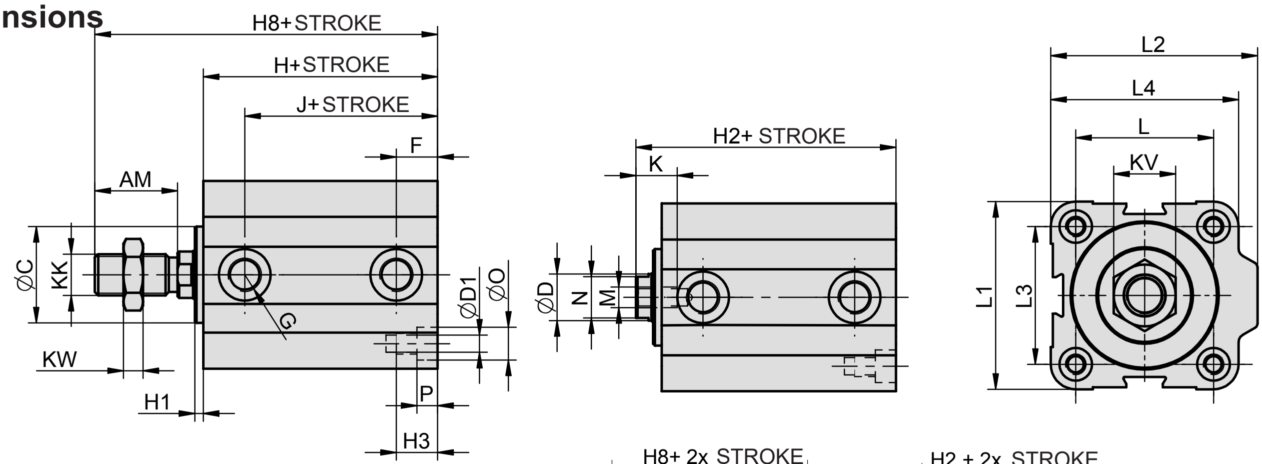
| Piston diameter | |
|---|---|
| 020 | 20 mm |
| 025 | 25 mm |
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 160 | 160 mm |
| 250 | 250 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0010 = stroke 10 mm |
| 9999 | repair kit |

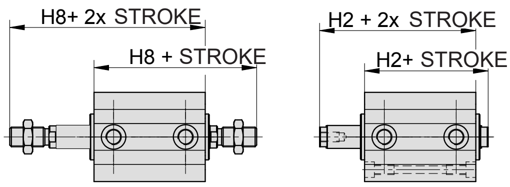
## Construction / materials

- caps: anodized dural, piston dia. 250 mm: aluminium casting
- body: drawn dural profile, anodized, piston dia. 160 and 250 mm: aluminium casting
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

## Dimensions



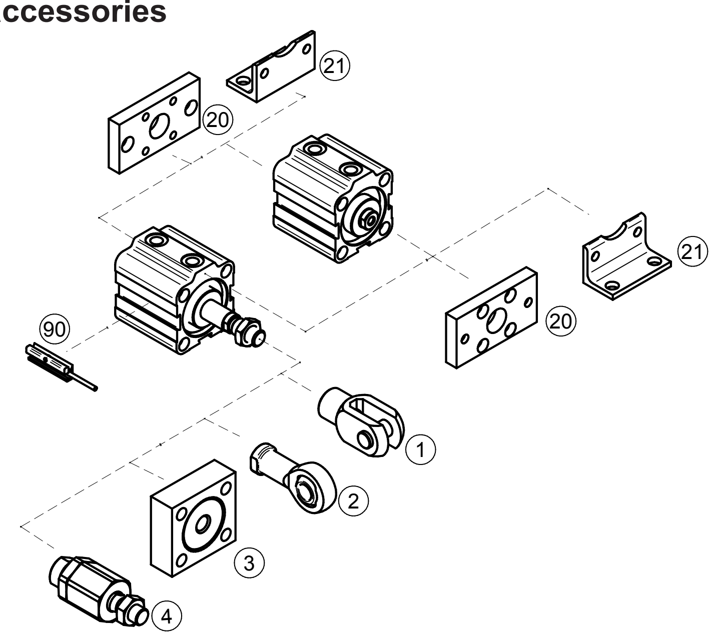

Double ended piston rod:
other dimensions are the
same as standard type)




| ∅ | AM | C | D | D1 | F | G | H | H1 | H2 | H3 | H8 | J | K | KK | KV | KW | L | L1 | L2 | L3 | L4 | M | N | O | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **20** | 20 | 12 | 8 | M5 | 9 | M5 | 28 | 2,5 | 35,5 | 15 | 55,5 | 19 | 8 | M8 | 13 | 6 | 22 | 32 | 35 | 22 | 32 | M5 | 7 | 7 | 5 |
| **20M** | 20 | 12 | 8 | M5 | 9 | M5 | 53,5 | 2,5 | 61 | 15 | 81 | 44,5 | 8 | M8 | 13 | 6 | 22 | 32 | 35 | 22 | 32 | M5 | 7 | 7 | 5 |
| **25** | 22 | 17 | 10 | M5 | 10 | G1/8“ | 32 | 2,5 | 39,5 | 15 | 61,5 | 22 | 8 | M10x1,25 | 17 | 6 | 28 | 38 | 45 | 26 | 39 | M5 | 8 | 8 | 5 |
| **25M** | 22 | 17 | 10 | M5 | 10 | G1/8“ | 46 | 2,5 | 53,5 | 15 | 75,5 | 36 | 8 | M10x1,25 | 17 | 6 | 28 | 38 | 45 | 26 | 39 | M5 | 8 | 8 | 5 |
| **32** | 22 | 21 | 12 | M6 | 11 | G1/8“ | 40 | 2,5 | 47,5 | 18 | 69,5 | 29 | 12 | M10x1,25 | 17 | 6 | 36 | 45 | 54 | 32 | 48 | M6 | 10 | 9,5 | 6 |
| **32M** | 22 | 21 | 12 | M6 | 11 | G1/8“ | 52 | 2,5 | 59,5 | 18 | 81,5 | 41 | 12 | M10x1,,5 | 17 | 6 | 36 | 45 | 54 | 32 | 48 | M6 | 10 | 9,5 | 6 |
| **40** | 24 | 28 | 14 | M6 | 12 | G1/8“ | 48 | 2,5 | 55,5 | 18 | 79,5 | 36 | 12 | M12x1,25 | 19 | 10 | 40 | 55 | 60 | 40 | 55 | M6 | 12 | 9,5 | 6 |
| **50** | 32 | 36 | 18 | M8 | 13 | G1/8“ | 49 | 2,5 | 57,5 | 24 | 89,5 | 36 | 14 | M16x1,5 | 24 | 8 | 50 | 65 | 73 | 50 | 65 | M8 | 16 | 11 | 8 |
| **63** | 32 | 48 | 18 | M10 | 14,5 | G1/8“ | 47 | 3,5 | 56,5 | 24,5 | 88,5 | 32,5 | 14 | M16x1,5 | 24 | 8 | 62 | 80 | 88 | 62 | 80 | M8 | 16 | 14 | 8,5 |
| **80** | 43 | 54 | 22 | M10 | 16,5 | G1/4“ | 52 | 3,5 | 61,5 | 24,5 | 104,5 | 35,5 | 17 | M20x1,5 | 30 | 9 | 82 | 100 | 110 | 82 | 100 | M10 | 19 | 14 | 8,5 |
| **80M** | 43 | 54 | 22 | M10 | 16,5 | G1/4“ | 57 | 3,5 | 66,5 | 24,5 | 109,5 | 40,5 | 17 | M20x1,5 | 30 | 9 | 82 | 100 | 110 | 82 | 100 | M10 | 19 | 14 | 8,5 |
| **100** | 43 | 60 | 22 | M12 | 20 | G1/4“ | 60 | 6 | 72 | 29 | 115 | 40 | 20 | M20x1,5 | 30 | 9 | 103 | 124 | 134 | 103 | 124 | M12 | 19 | 17 | 11 |
| **100M** | 43 | 60 | 22 | M12 | 20 | G1/4“ | 62 | 6 | 74 | 29 | 117 | 42 | 20 | M20x1,5 | 30 | 9 | 103 | 124 | 134 | 103 | 124 | M12 | 19 | 17 | 11 |
| **160** | 72 | 110 | 40 | M20 | 23 | G3/8“ | 96 | – | 113 | 45 | 185 | 73,5 | 25 | M36x2 | 50 | 18 | 154 | 200 | 210 | 154 | 200 | M16 | 36 | 26 | 21 |
| **250** | 84 | – | 50 | M20 | 42 | G1/2“ | 146 | – | 169 | 60 | 253 | 104 | 35 | M42x2 | 65 | 21 | 220 | 275 | 300 | 220 | – | M24 | 46 | 26 | 20 |

Notice: M after piston diameter size means cylinder with magnetic piston.

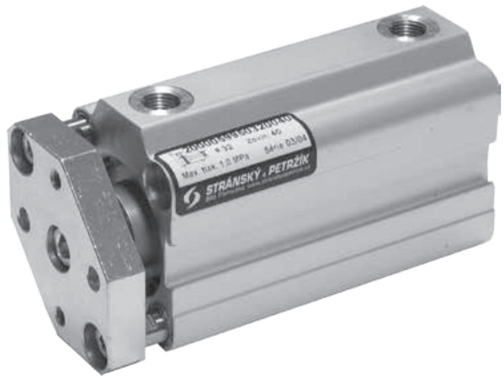
## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-5 |
| 90 Prox. switch | ... 3-2, 3-4 |

# DOUBLE ACTING PNEUMATIC CYLINDERS
# SHORT STROKE WITH GUIDE
# WITH SLIDE BEARINGS

STRÁNSKÝ A PETRŽÍK



Pneumatic cylinder may be used, when small mounting dimensions are required. The cylinders can work in higher temperatures by request. There is no cushioning at end of stroke. This design features a torque resistant guide system to prevent piston rod rotation. Guiding rods are mounted in slide bearings without clearance.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| Piston diameter [mm] | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 160 |
|---|---|---|---|---|---|---|---|---|---|
| Thrust at 0,6 MPa [N] | 188 | 295 | 482 | 754 | 1178 | 1870 | 3015 | 4713 | 12064 |
| Return force at 0,6 MPa [N] | 158 | 248 | 415 | 662 | 1025 | 1717 | 2720 | 4484 | 11309 |
| Connection | M5 | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/4“ | G1/4“ | G3/8“ |
| Max. stroke [mm] * | 50* | 50* | 50* | 50* | 50* | 50* | 50* | 50* | 60* |
| Weight 0 mm stroke [kg] | 0,20 | 0,25 | 0,30 | 0,37 | 0,50 | 0,69 | 1,46 | 1,78 | 13,5 |
| Weight add. per 1 mm stroke [kg] | 0,0023 | 0,0037 | 0,0053 | 0,0075 | 0,012 | 0,018 | 0,022 | 0,028 | 0,100 |

*) Stroke of cylinder may be longer after agreement with our technical dept.

## Order codes

12517 11 00 050 0010

| Type | |
|---|---|
| 12517 | short stroke with guide with slide bearings, double acting |

| Equipment | |
|---|---|
| 01 | w/o magnet |
| 11 | with magnet |

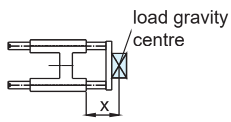
| Options | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 11 | Viton® gaskets (up to 180°C) |
| 14 | 1.4301 stainless steel piston rod |

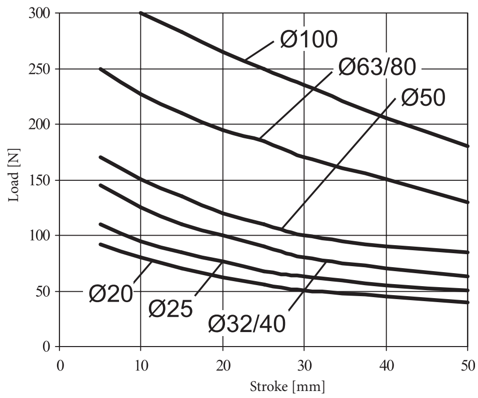
For more options regarding materials or dimensions, please contact our technical dept.

| Piston diameter | |
|---|---|
| 020 | 20 mm |
| 025 | 25 mm |
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 160 | 160 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0010 = stroke 10 mm |
| 9999 | repair kit |

## Useful load



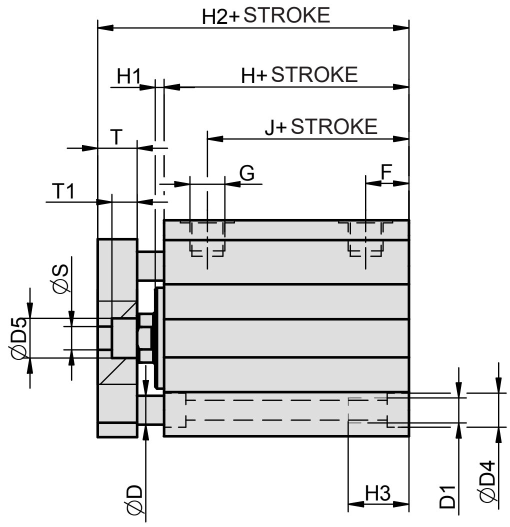



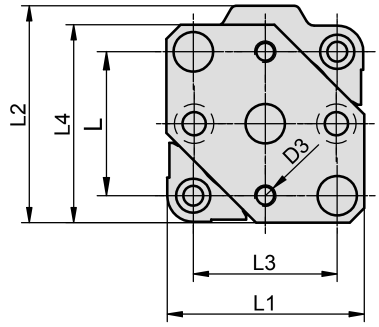

## Construction / materials

- caps: anodized dural
- body: drawn dural profile, anodized, piston dia. 160 mm: aluminium casting
- piston rod and guiding rods: grounded round steel bar CK45 with hard chrome plated surface
- flange: zinc plated steel
- guiding rods are mounted in slide bearings

# DOUBLE ACTING PNEUMATIC CYLINDERS SHORT STROKE WITH GUIDE WITH SLIDE BEARINGS

## Dimensions

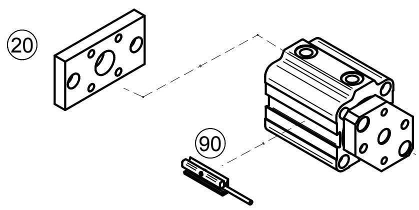



| Ø | D | D1 | D3 | D4 | D5 | F | G | H | H1 | H2 | H3 | J | L | L1 | L2 | L3 | L4 | S | T | T1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 5 | M5 | M4 | 7 depth 5 | 8 | 9 | M5 | 28 | 2,5 | 44,5 | 15 | 19 | 22 | 32 | 35 | 22 | 32 | 4,5 | 9 | 5 |
| 20M | 5 | M5 | M4 | 7 depth 5 | 8 | 9 | M5 | 53,5 | 2,5 | 70 | 15 | 44,5 | 22 | 32 | 35 | 22 | 32 | 4,5 | 9 | 5 |
| 25 | 6 | M5 | M4 | 8 depth 5 | 8 | 10 | G1/8“ | 32 | 2,5 | 48,5 | 15 | 22 | 28 | 38 | 44,5 | 26 | 39 | 4,5 | 9 | 5 |
| 25M | 6 | M5 | M4 | 8 depth 5 | 8 | 10 | G1/8“ | 46 | 2,5 | 62,5 | 15 | 22 | 28 | 38 | 44,5 | 26 | 39 | 4,5 | 9 | 5 |
| 32 | 8 | M6 | M5 | 9,5 depth 6 | 10 | 11 | G1/8“ | 40 | 2,5 | 57,5 | 18 | 29 | 36 | 45 | 54 | 32 | 48 | 5,5 | 10 | 6 |
| 32M | 8 | M6 | M5 | 9,5 depth 6 | 10 | 11 | G1/8“ | 52 | 2,5 | 69,5 | 18 | 41 | 36 | 46 | 54 | 32 | 48 | 5,5 | 10 | 6 |
| 40 | 8 | M6 | M6 | 9,5 depth 6 | 11 | 12 | G1/8“ | 48 | 2,5 | 66,5 | 18 | 36 | 40 | 55 | 60 | 40 | 55 | 6,5 | 11 | 7 |
| 50 | 10 | M8 | M6 | 11 depth 8 | 11 | 13 | G1/8“ | 49 | 2,5 | 70,5 | 24 | 36 | 50 | 65 | 73 | 50 | 65 | 6,5 | 13 | 7 |
| 63 | 12 | M10 | M8 | 14 depth 8,5 | 15 | 14,5 | G1/8“ | 47 | 3,5 | 69,5 | 24,5 | 32,5 | 62 | 80 | 88 | 62 | 80 | 8,5 | 13 | 9 |
| 80 | 12 | M10 | M8 | 14 depth 8,5 | 15 | 16,5 | G1/4“ | 52 | 3,5 | 76,5 | 24,5 | 34,5 | 82 | 100 | 109 | 82 | 100 | 8,5 | 15 | 9 |
| 80M | 12 | M10 | M8 | 14 depth 8,5 | 15 | 16,5 | G1/4“ | 57 | 3,5 | 81,5 | 24,5 | 39,5 | 82 | 100 | 109 | 82 | 100 | 8,5 | 15 | 9 |
| 100 | 14 | M12 | M8 | 17 depth 11 | 15 | 20 | G1/4“ | 60 | 6 | 89 | 29 | 40 | 103 | 124 | 134 | 103 | 124 | 8,5 | 17 | 9 |
| 100M | 14 | M12 | M8 | 17 depth 11 | 15 | 20 | G1/4“ | 62 | 6 | 91 | 29 | 42 | 103 | 124 | 134 | 103 | 124 | 8,5 | 17 | 9 |
| 160 | 22 | M20 | M12 | 26 depth 21 | 20 | 22,5 | G3/8“ | 96 | - | 137 | 45 | 73,5 | 154 | 200 | 210 | 154 | 200 | 13 | 24 | 13 |

Notice: M after piston diameter size means cylinder with magnetic piston.

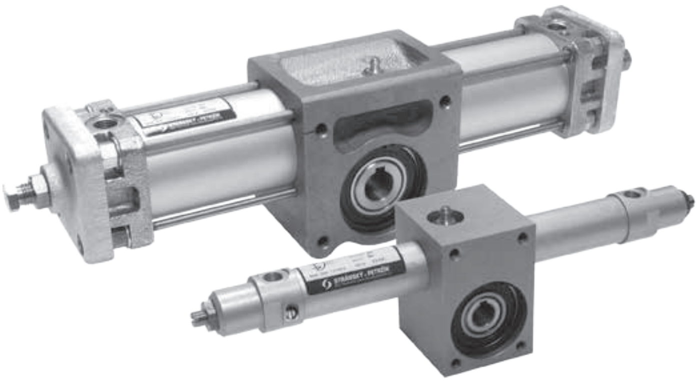
## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 20 Flange mounting | ... 4-6 |
| 90 Prox. switch | ... 3-2, 3-4 |

# DOUBLE ACTING ROTARY ACTUATORS

STRÁNSKÝ A PETRŽÍK




Linear piston movement is converted to rotary motion by rack and pinion. The cylinders can work in higher temperatures by request. Fully adjustable cushioning at end of stroke is available.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C * |
| End position regulation | ±5° |
| Working medium | modified compressed air |

*) values are valid for standard gaskets

| Piston diameter [mm] | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 |
|---|---|---|---|---|---|---|---|---|---|---|
| Torque at 0.6 MPa [Nm] | 3.5 | 5.5 | 8.7 | 13.6 | 27 | 42 | 108 | 173 | 397 | 651 |
| Connection | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/4“ | G3/8“ | G3/8“ | G1/2“ | G1/2“ | G3/4“ |
| Length of adjustable cushioning [mm] | 15 | 15 | 18 | 20 | 20 | 22 | 25 | 25 | 25 | 45 |
| Max. angle of pinion rotation [˚] | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 |
| Weight 0 mm stroke [kg] | 1.02 | 1.02 | 1.70 | 2.39 | 4.10 | 4.86 | 12.40 | 13.95 | 31.80 | 48.40 |
| Weight add per 10˚ pinion rotation [kg] | 0.013 | 0.009 | 0.008 | 0.010 | 0.022 | 0.023 | 0.083 | 0.144 | 0.255 | 0.321 |

## Order codes

15101 61 00 050 0180

| Type | |
|---|---|
| 15201 | rotary actuator, double acting, piston dia. 20 to 40 mm |
| 15101 | rotary actuator, double acting, piston dia. 50 to 160 mm |

| Equipment | |
|---|---|
| 01 | w/o cushioning, w/o magnet |
| 11 | w/o cushioning, with magnet |
| 51 | with cushioning, w/o magnet |
| 61 | with cushioning, with magnet |

| Options | |
|---|---|
| 00 | without options |
| 11 | Viton® gaskets (up to 180°C) |

For more options regarding materials or dimensions, please contact our technical dept.

| Piston diameter | |
|---|---|
| 020 | 20 mm |
| 025 | 25 mm |
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 125 | 125 mm |
| 160 | 160 mm |

| Angle / repair kit | |
|---|---|
| xxxx | angle of pinion rotation in degrees |
| 0090 | angle 90˚ |
| 0180 | angle 180˚ |
| 0270 | angle 270˚ |
| 0360 | angle 360˚ |
| 9999 | repair kit |

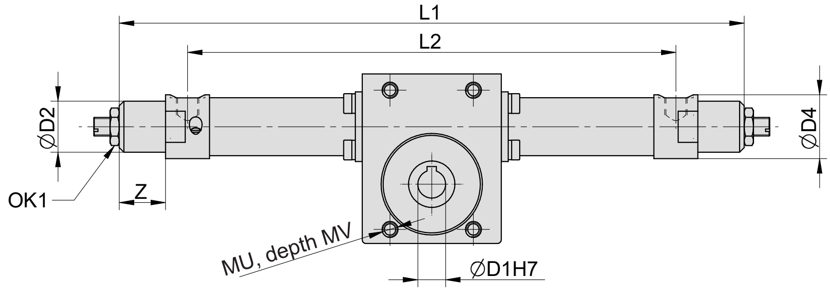
In case of proximity sensing request, please use switches series KT-50 or KT-21 - see page 3-2 for details

## Construction / materials

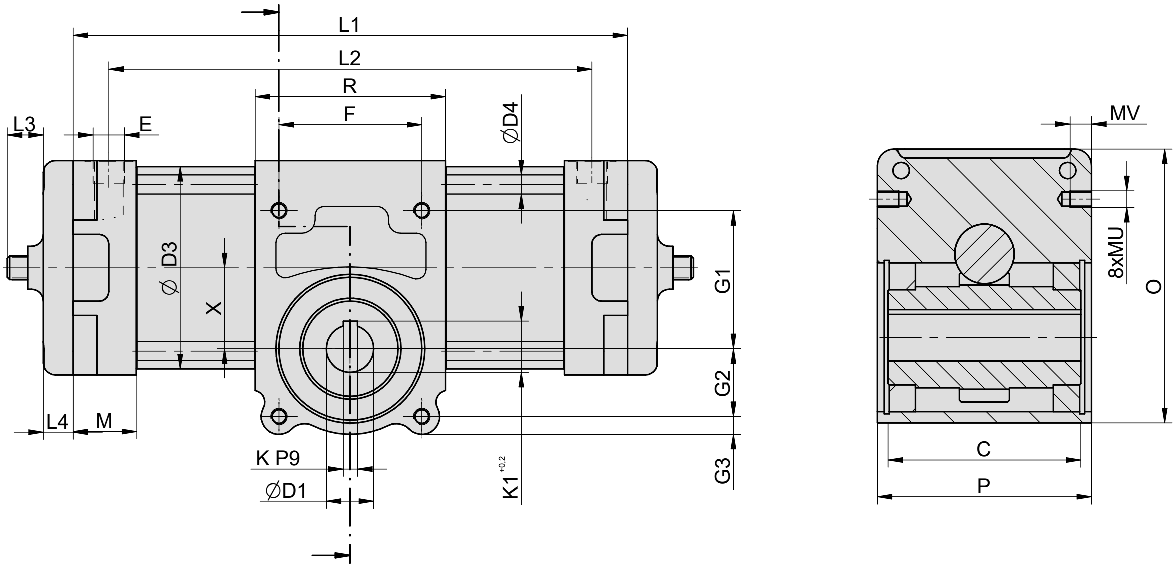
- caps: piston dia. 20 to 40: anodized dural, piston dia. 50 and more: aluminium casting
- gear body: anodized dural
- body: drawn dural tube, anodized
- regulation flange: piston dia. 20 to 40: none, piston dia. 50 and more: zinc plated cast iron
- rack and pinion: steel 1.0060
- pinion is mounted between ball bearings

## Dimensions

Piston diameter 20 to 40 mm:




Piston diameter 50 mm and more:

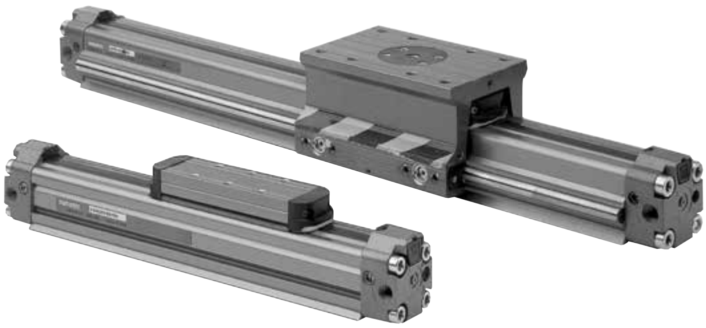



| ∅ | C | D1 | D2 | D3 | D4 | E | F | G1 | G2 | G3 | K | K1 | L3 max. | L4 | M | MU | MV | O | OK1 | P | R | X | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **20** | 42 | 12 | 22 | 25 | 27.5 | G1/8“ | 36 | 40.5 | 19.5 | 6 | 4 | 13.6 | 9 | — | 19 | M6 | 8 | 73 | 14 | 54 | 60 | 24.75 | 20 |
| **25** | 42 | 12 | 24 | 30 | 32 | G1/8“ | 36 | 40.5 | 19.5 | 6 | 4 | 13.6 | 9 | — | 22 | M6 | 8 | 73 | 14 | 54 | 60 | 24.75 | 14 |
| **32** | 42 | 12 | 30 | 36 | 40 | G1/8“ | 36 | 40.5 | 19.5 | 6 | 4 | 13.6 | 10 | — | 22 | M6 | 8 | 73 | 14 | 54 | 60 | 24.75 | 21 |
| **40** | 42 | 12 | 35 | 45 | 50 | G1/8“ | 36 | 40.5 | 19.5 | 6 | 4 | 13.6 | 7 | — | 22.5 | M6 | 8 | 73 | 14 | 54 | 60 | 24.75 | 14.5 |
| **50** | 60 | 18 | — | 55 | 8 | G1/4“ | 75 | 44.5 | 22.5 | 10.5 | 6 | 20.5 | 32 | 14 | 30 | M8 | 12 | 100 | — | 73 | 96 | 32.5 | — |
| **63** | 60 | 18 | — | 68 | 8 | G3/8“ | 75 | 44.5 | 22.5 | 8.5 | 6 | 20.5 | 32 | 14 | 30 | M8 | 12 | 100 | — | 73 | 96 | 32.5 | — |
| **80** | 92 | 24 | — | 86 | 10 | G3/8“ | 85 | 73 | 40 | 13.5 | 8 | 27 | 34 | 15 | 30 | M10 | 13 | 161 | — | 111 | 116 | 52 | — |
| **100** | 92 | 24 | — | 106 | 8.85 | G1/2“ | 85 | 75 | 40 | 13.5 | 8 | 27 | 38 | 15 | 36 | M12 | 15 | 161 | — | 111 | 116 | 52 | — |
| **125** | 160 | 40 | — | 132 | 12 | G1/2“ | 120 | 116 | 57 | 15 | 12 | 43.1 | 34 | 25 | 40 | M14 | 18 | 230 | — | 180 | 160 | 70 | — |
| **160** | 160 | 40 | — | 167 | 16 | G3/4“ | 120 | 116 | 57 | 15 | 12 | 43.1 | 42 | 25 | 50 | M14 | 18 | 230 | — | 180 | 160 | 70 | — |

| ∅ — Angle | 20 | | 25 | | 32 | | 40 | | 50 | | 63 | | 80 | | 100 | | 125 | | 160 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| **90º** | 270 | 211 | 272 | 222 | 297 | 233 | 291 | 239 | 326 | 292 | 351 | 319 | 397 | 365 | 423 | 387 | 517 | 473 | 555 | 505 |
| **180º** | 329 | 270 | 330 | 280 | 356 | 292 | 350 | 298 | 397 | 363 | 422 | 390 | 510 | 478 | 536 | 500 | 674 | 630 | 712 | 662 |
| **270º** | 388 | 329 | 389 | 339 | 414 | 350 | 409 | 357 | 468 | 434 | 493 | 461 | 623 | 591 | 649 | 613 | 832 | 788 | 870 | 820 |
| **360º** | 447 | 388 | 448 | 398 | 474 | 410 | 468 | 416 | 538 | 504 | 563 | 531 | 736 | 704 | 758 | 726 | 988 | 944 | 1026 | 976 |

# RODLESS PNEUMATIC CYLINDERS SERIES S1, S5, VL1

STRÁNSKÝ A PETRŽÍK



These mechanically coupled rodless cylinders offer long strokes with reduced installation place. Thanks to max. stroke up to 6 meters, these cylinders can be used in such an applications, where use of standard cylinder is impossible. This series uses well-proved two bands principle. Series S5 is equipped with slide guide with plastic bearings, series VL1 is equipped with rolling guide with ball bearings. There is also locking unit available for series S5 and VL1 (for details please contact our technical dept.)

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,35 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |
| Carriage speed | min. 7 to 20 $mms^{-1}$<br>max. 3 $ms^{-1}$ (series S1)<br>max. 1.5 $ms^{-1}$ (series S5)<br>max. 2 $ms^{-1}$ (series VL1) |

| Piston diameter [mm] | 25 | 32 | 40 | 50 |
|---|---|---|---|---|
| Weight 0 mm stroke (series S1) [kg] | 0.75 | 1.31 | 2.6 | 4.79 |
| Weight 0 mm stroke (series S5) [kg] | 1.63 | 2.78 | 6.1* | 10.1* |
| Weight 0 mm stroke (series VL1) [kg] | 2.10* | 3.13* | 6.34* | 10.85* |
| Weight of 100 mm stroke (series S1) [kg] | 0.21 | 0.325 | 0.555 | 0.955 |
| Weight of 100 mm stroke (series S5) [kg] | 0.365 | 0.495 | 0.92* | 1.28* |
| Weight of 100 mm stroke (series VL1) [kg] | 0.30* | 0.42* | 0.67* | 1.02* |

*) Values with asterisk are valid for medium carriage, other values are for standard carriage.

| Piston diameter [mm] | 25 | 32 | 40 | 50 |
|---|---|---|---|---|
| Force at 0.6 MPa [N] | 265 | 432 | 675 | 1053 |
| Connection | G1/8“ | G1/4“ | G3/8“ | G3/8“ |
| Length of adjustable cushioning [mm] | 25 | 32.5 | 41.5 | 52 |
| Max. stroke [mm] | 6000 | 6000 | 6000 | 6000 |

## Order codes

P S1 0 1 1 25 0500 M

| Type | |
|---|---|
| S1 | standard rodless cylinder, double acting |
| S5 | rodless cylinder with integrated turcite bearing guides |
| VL1 | rodless cylinder with integrated ball bearing guides |

| Carriage - series S1 and S5 | |
|---|---|
| 0 | standard* |
| 2 | medium |
| 3 | long |

*) only for piston diameter 25 and 32 when series S5 is used

| Carriage - series VL1 | |
|---|---|
| 22 | medium carriage diameters 25-40 |
| 23 | medium carriage diameter 50 |
| 33 | long carriage diameters 25-40 |
| 34 | long carriage diameter 50 |

| Left end cap supply port | |
|---|---|
| 1 | side supply |
| 2 | bottom supply |
| 3 | rear supply |
| 0 | no supply port (when both chambers are supplied from right end cap) |

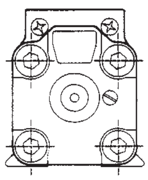
| Right end cap supply port | |
|---|---|
| 1 | side supply |
| 2 | bottom supply |
| 3 | rear supply |
| 4 | both chambers supplied from right end cap |

| Piston diameter | |
|---|---|
| 25 | 25 mm |
| 32 | 32 mm |
| 40 | 40 mm |
| 50 | 50 mm |

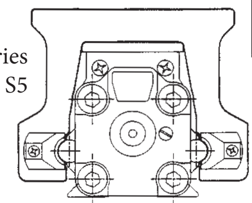
| Stroke | |
|---|---|
| xxxx | mm of stroke e.g.: 0100 = stroke 100 mm |

| Equipment | |
|---|---|
| | w/o magnet |
| M | with magnet (series S1 only) |

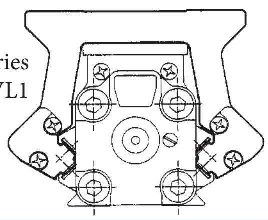
Series S1



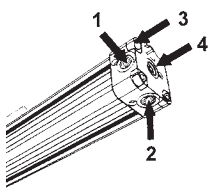
Series S5



Series VL1



Supply ports options:



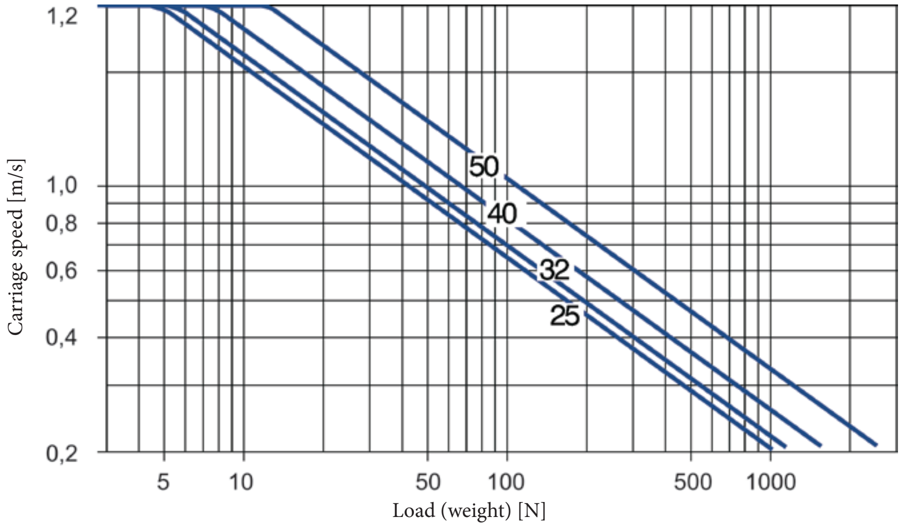

In case of proximity sensing request, please contact our technical dept. for details

## Examination and selection of cushioning

In a system with dynamic masses as for example with the rodless cylinder, it is essential to control the dissipation of the kinetic energy during braking until standstill. The first thing to be done is to select cushioning. Two kinds are available: 1. internal cushioning and 2. external cushioning.

It is of special significance that the carriage with load does not hit the end cap at high speed. If the point corresponding to a given load and speed lies beneath the appropriate curve, the cushioning is able to absorb the kinetic energy of the system. Vice versa if the point lies above the curve, the cushioning is not able to absorb the kinetic energy, in which case you must:
a) reduce load and keep the speed the same
b) decrease the speed and maintain the load
c) select a larger cylinder
d) use external damping (see page 9-1)
Cushioning capacity is shown in the diagrams on the right (in respect to final speed, when carriages get close to end caps).

**Cushioning of S1, S5 and VL1 series**



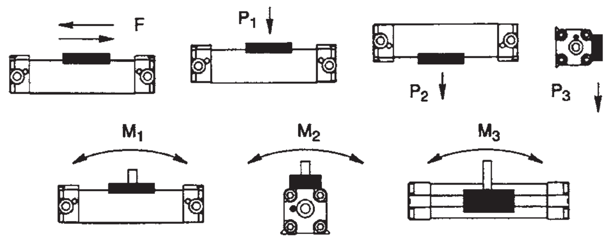

## Calculation of admissible load of cylinders series S1, S5 and VL1

**Allowable values of static load for S1 series**

| ∅ | F [N] | P1 [N] | P2 [N] | P3 [N] | Standard carriage | | | Medium carriage | | | Long carriage | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M1 [Nm] | M2 [Nm] | M3 [Nm] | M1 [Nm] | M2 [Nm] | M3 [Nm] | M1 [Nm] | M2 [Nm] | M3 [Nm] |
| **25** | 250 | 200 | 200 | 50 | 8 | 2 | 3 | 14 | 3 | 5 | 25 | 6 | 9 |
| **32** | 420 | 250 | 250 | 65 | 9 | 3 | 4 | 15 | 4 | 7 | 28 | 8 | 12 |
| **40** | 640 | 350 | 350 | 90 | 11 | 9 | 14 | 16 | 14 | 20 | 31 | 27 | 39 |
| **50** | 1050 | 500 | 500 | 125 | 19 | 13 | 19 | 29 | 20 | 30 | 52 | 36 | 53 |

**Allowable values of static load for S5 series**

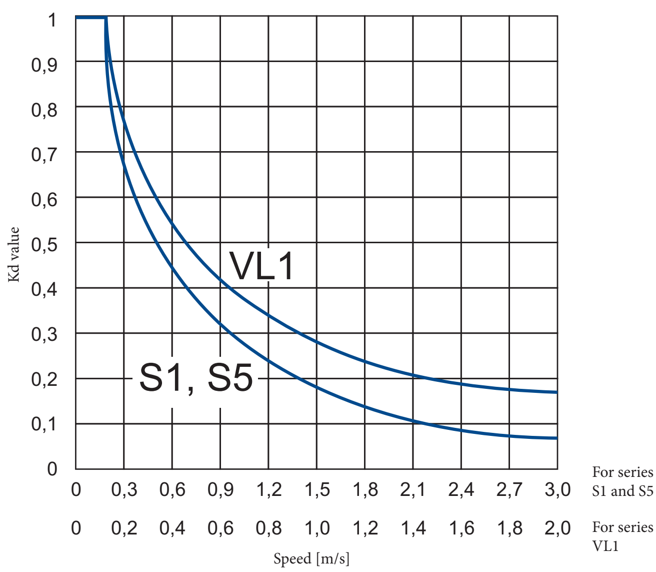
| ∅ | F [N] | P1, P2, P3 [N] | Standard carriage | | | Medium carriage | | | Long carriage | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | M1 [Nm] | M2 [Nm] | M3 [Nm] | M1 [Nm] | M2 [Nm] | M3 [Nm] | M1 [Nm] | M2 [Nm] | M3 [Nm] |
| **25** | 250 | 400 | 13 | 8 | 16 | 20 | 10 | 25 | 40 | 15 | 50 |
| **32** | 420 | 400 | 20 | 9 | 27 | 30 | 12 | 40 | 55 | 18 | 75 |
| **40** | 640 | 600 | – | – | – | 60 | 30 | 80 | 110 | 45 | 150 |
| **50** | 1050 | 800 | – | – | – | 85 | 50 | 110 | 150 | 75 | 210 |




**Allowable values of static load for VL1 series**

| ∅ | F [N] | Medium carriage | | | | Long carriage | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | P1, P2, P3 [N] | M1 [Nm] | M2 [Nm] | M3 [Nm] | P1, P2, P3 [N] | M1 [Nm] | M2 [Nm] | M3 [Nm] |
| **25** | 250 | 700 | 34 | 17 | 34 | 1000 | 63 | 25 | 63 |
| **32** | 420 | 700 | 51 | 20 | 51 | 1000 | 93 | 30 | 93 |
| **40** | 640 | 1100 | 120 | 46 | 120 | 1600 | 230 | 69 | 230 |
| **50** | 1050 | 1500 | 170 | 85 | 170 | 2000 | 310 | 110 | 310 |

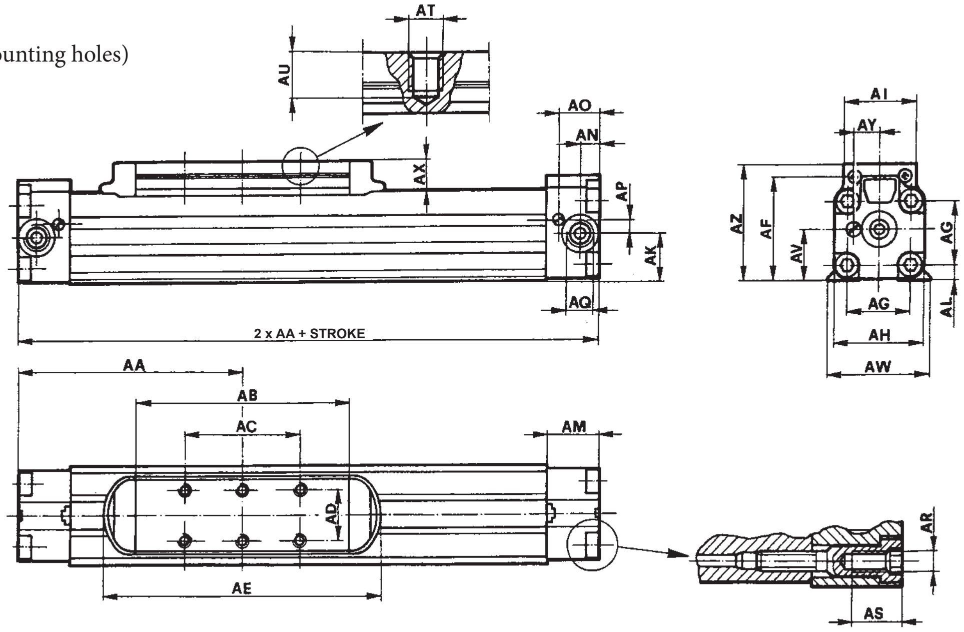
**Allowable values of dynamic load for S1, S5 and VL1 series**
How to find allowable value at dynamic load:
- take Kd value from graph according to the speed
- allowable values of static load multiple by Kd value and we will get max. allowable value for dynamic load



STRÁNSKÝ A PETRŽÍK

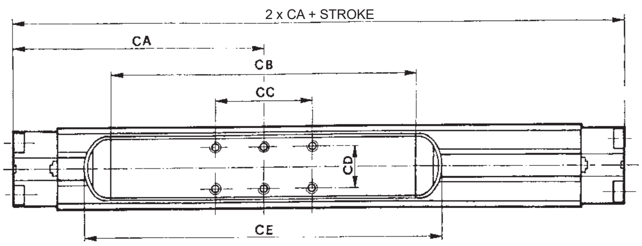
## Dimensions
### Series S1

Standard carriage (6 mounting holes)



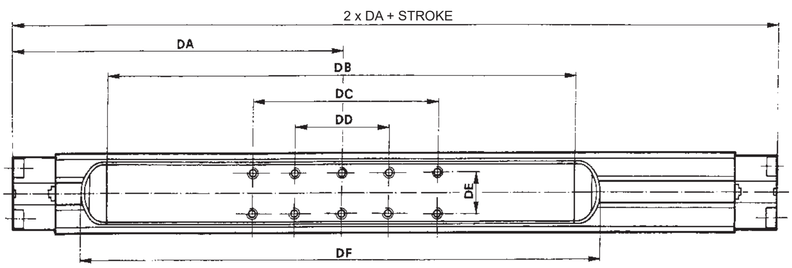

| ∅ | AA | AB | AC | AD | AE | AF | AG | AH | AI | AK | AL | AM | AN | AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX | AY | AZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **25** | 100 | 95 | 50 | 24 | 130 | 48.3 | 28 | 40.5 | 33 | 20.2 | 7 | 24 | 7.4 | 18.2 | 5.7 | G1/8“ | M5 | 12 | M5 | 9 | 22,8 | 42.8 | 16 | 12.2 | 57.6 |
| **32** | 125 | 118 | 65 | 31 | 156 | 57 | 35 | 50 | 40 | 25.3 | 8 | 29 | 10.3 | 22.5 | 7.3 | G1/4“ | M6 | 15.5 | M6 | 9 | 28 | 54.5 | 16 | 14.2 | 66.2 |
| **40** | 150 | 134 | 65 | 31 | 177 | 74 | 44 | 64 | 44 | 33.8 | 11.8 | 33 | 12.5 | 26.5 | 8.7 | G3/8“ | M8 | 20 | M6 | 11 | 37 | 67 | 19.5 | 16.5 | 85.8 |
| **50** | 175 | 164 | 105 | 39 | 211 | 90.7 | 55 | 80 | 54 | 41.4 | 14.7 | 33 | 14.2 | 25.7 | 11.8 | G3/8“ | M10 | 20 | M6 | 12 | 47.7 | 86 | 20.5 | 19.1 | 103 |

Medium carriage (6 mounting holes)




| ∅ | CA | CB | CC | CD | CE |
|---|---|---|---|---|---|
| **25** | 114.5 | 125 | 50 | 24 | 160 |
| **32** | 142.5 | 153 | 65 | 31 | 191 |
| **40** | 169 | 172 | 65 | 31 | 215 |
| **50** | 205 | 224 | 105 | 39 | 271 |

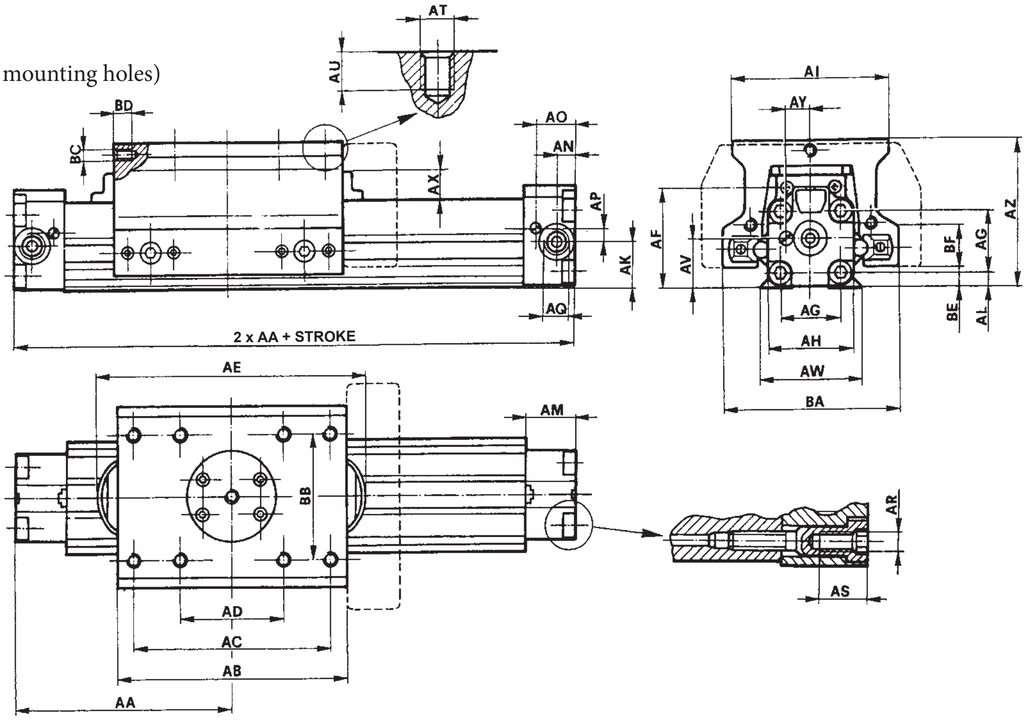
Long carriage (10 mounting holes)




| ∅ | DA | DB | DC | DD | DE | DF |
|---|---|---|---|---|---|---|
| **25** | 147.5 | 190 | 100 | 50 | 24 | 225 |
| **32** | 190 | 248 | 130 | 65 | 31 | 286 |
| **40** | 225 | 284 | 130 | 65 | 31 | 327 |
| **50** | 277 | 364 | 315 | 105 | 39 | 411 |

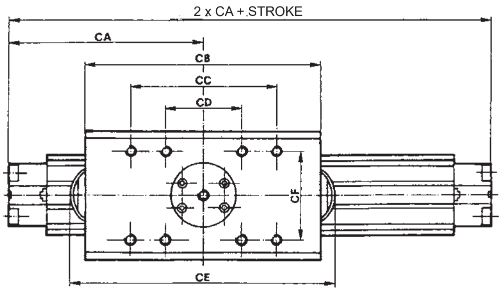
## Series S5

Standard carriage (8 mounting holes)



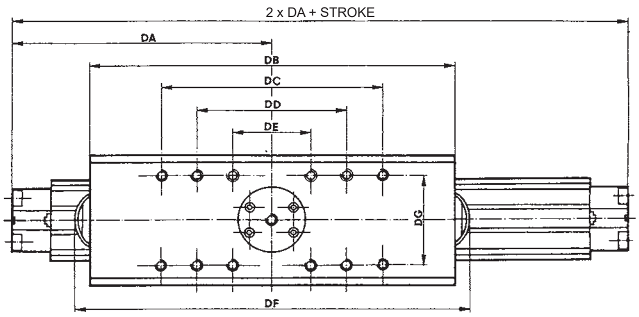

| ∅ | AA | AB | AC | AD | AE | AF | AG | AH | AI | AK | AL | AM | AN | AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX | AY | AZ | BA | BB | BC | BD | BE | BF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **25** | 100 | 106 | 90 | 50 | 130 | 48.3 | 28 | 40.5 | 70 | 20.2 | 7 | 24 | 7.4 | 18.2 | 5.7 | G1/8“ | M5 | 12 | M6 | 10 | 22.8 | 42.8 | 16 | 12.2 | 71.8 | 85 | 50 | M6 | 15 | 5.7 | 24 |
| **32** | 125 | 140 | 115 | 55 | 156 | 57 | 35 | 50 | 88 | 25.3 | 8 | 29 | 10.3 | 22.5 | 7.3 | G1/4“ | M6 | 15.5 | M8 | 12 | 28 | 57 | 16 | 14.2 | 82.5 | 100 | 67.5 | M6 | 15 | 7 | 24.5 |
| **40** | — | — | — | — | — | — | 44 | 64 | 90 | 33.8 | 11.8 | 33 | 12.5 | 26.5 | 8.7 | G3/8“ | M8 | 20 | M8 | 14 | 37 | 67 | 19.5 | 16.5 | 106.6 | 135 | 65 | M6 | 15 | 7 | 39 |
| **50** | — | — | — | — | — | — | 55 | 80 | 100 | 41.4 | 14.7 | 33 | 14.2 | 25.7 | 11.8 | G3/8“ | M10 | 20 | M8 | 16 | 47.7 | 86 | 20.5 | 19.1 | 123.7 | 149 | 76.5 | M8 | 16 | 7.2 | 41 |

Medium carriage (8 mounting holes)




| ∅ | CA | CB | CC | CD | CE | CF |
|---|---|---|---|---|---|---|
| **25** | 114.5 | 136 | 90 | 50 | 160 | 50 |
| **32** | 142.5 | 175 | 115 | 55 | 191 | 67.5 |
| **40** | 169 | 205 | 180 | 75 | 215 | 65 |
| **50** | 205 | 258 | 190 | 80 | 271 | 76.5 |

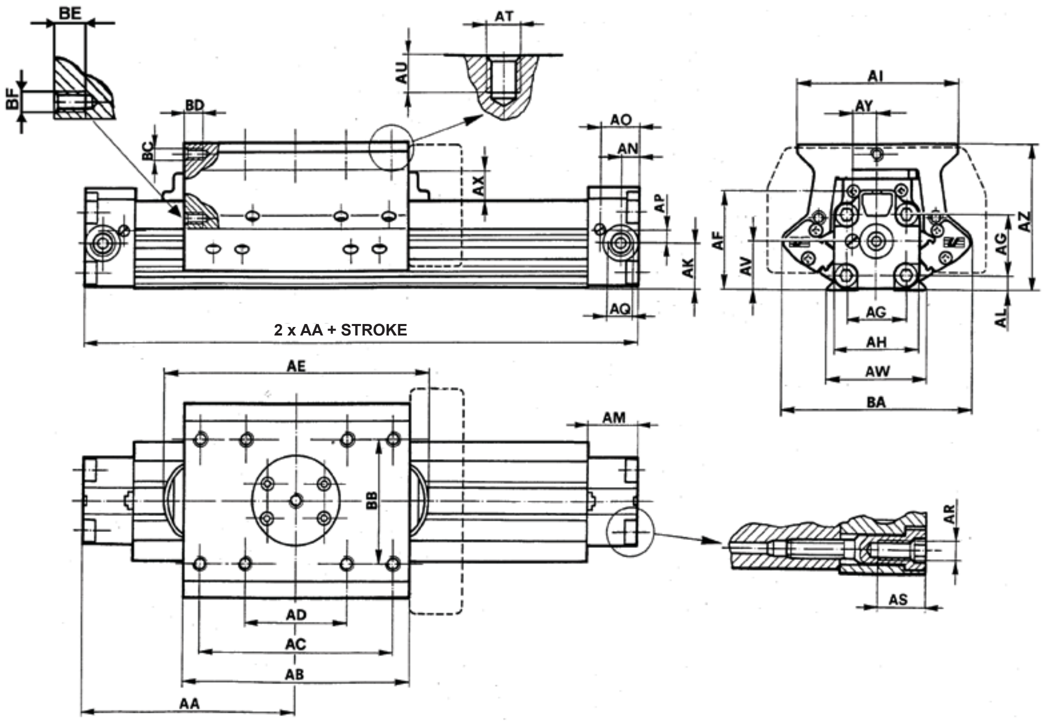
Long carriage (12 mounting holes)




| ∅ | DA | DB | DC | DD | DE | DF | DG |
|---|---|---|---|---|---|---|---|
| **25** | 147.5 | 201 | 130 | 90 | 50 | 225 | 50 |
| **32** | 190 | 270 | 175 | 115 | 55 | 286 | 67.5 |
| **40** | 225 | 317 | 280 | 185 | 75 | 327 | 65 |
| **50** | 277 | 398 | 320 | 200 | 80 | 411 | 76.5 |

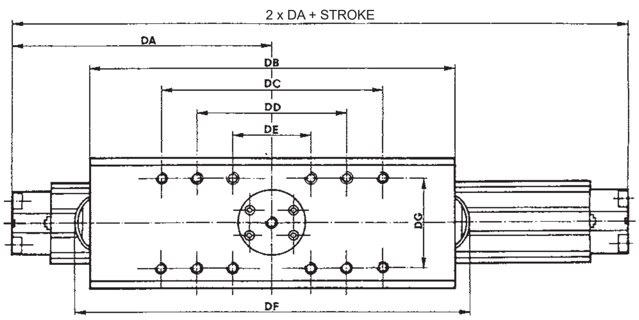
## Series VL1

Medium carriage (8 mounting holes)




| ∅ | AA | AB | AC | AD | AE | AF | AG | AH | AI | AK | AL | AM | AN | AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX | AY | AZ | BA | BB | BC | BD | BE | BF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **25** | 114.5 | 136 | 90 | 50 | 160 | 48.3 | 28 | 40.5 | 83.5 | 20.2 | 7 | 24 | 7.4 | 18.2 | 5.7 | G1/8“ | M5 | 12 | M6 | 12 | 22.8 | 42.8 | 16 | 12.2 | 74.3 | 111 | 50 | M6 | 10 | M6 | 10 |
| **32** | 142.5 | 175 | 115 | 55 | 191 | 57 | 35 | 50 | 92 | 25.3 | 8 | 29 | 10.3 | 22.5 | 7.3 | G1/4“ | M6 | 15.5 | M8 | 12 | 28 | 57 | 16 | 14.2 | 82.5 | 118 | 67.5 | M6 | 10 | M6 | 10 |
| **40** | 169 | 205 | 180 | 75 | 215 | 74 | 44 | 64 | 125 | 33.8 | 11.8 | 33 | 12.5 | 26.5 | 8.7 | G3/8“ | M8 | 20 | M8 | 14 | 37 | 67 | 19.5 | 16.5 | 106 | 158 | 65 | M6 | 15 | M6 | 15 |
| **50** | 205 | 258 | 190 | 80 | 271 | 90.7 | 55 | 80 | 140 | 41.4 | 14.7 | 33 | 14.2 | 25.7 | 11.8 | G3/8“ | M10 | 20 | M8 | 15 | 47.7 | 86 | 20.5 | 19.1 | 126.2 | 173 | 100 | – | – | M6 | 12 |

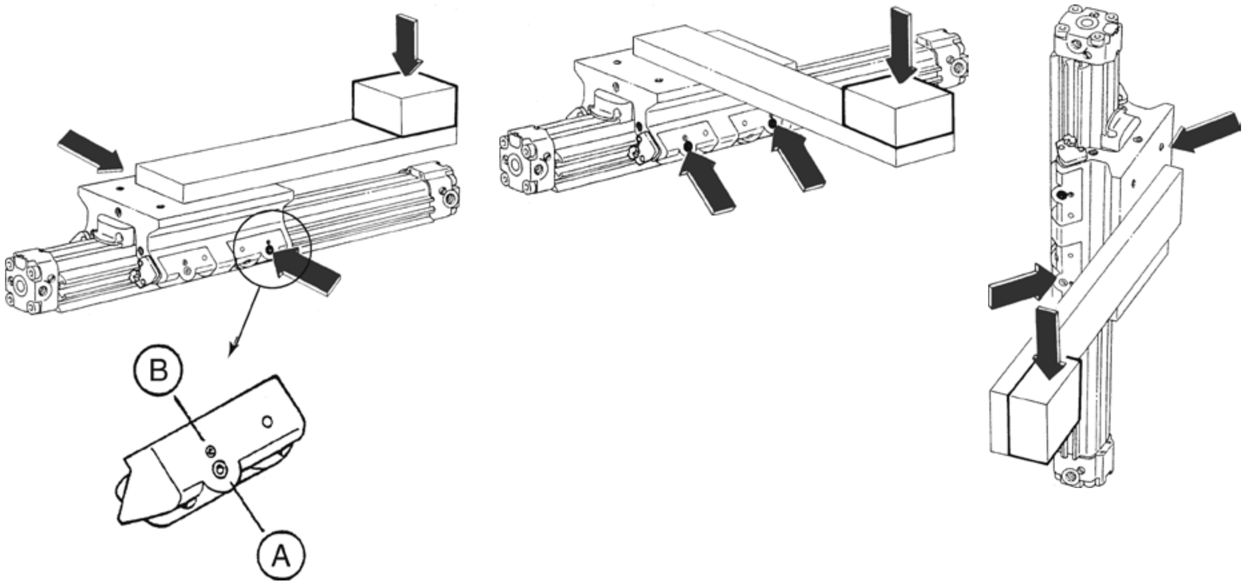
Long carriage (12 mounting holes)




| ∅ | DA | DB | DC | DD | DE | DF | DG |
|---|---|---|---|---|---|---|---|
| **25** | 147.5 | 201 | 130 | 90 | 50 | 225 | 50 |
| **32** | 190 | 270 | 175 | 115 | 55 | 286 | 67.5 |
| **40** | 225 | 317 | 280 | 185 | 75 | 327 | 65 |
| **50** | 277 | 398 | 320 | 200 | 80 | 411 | 100 |

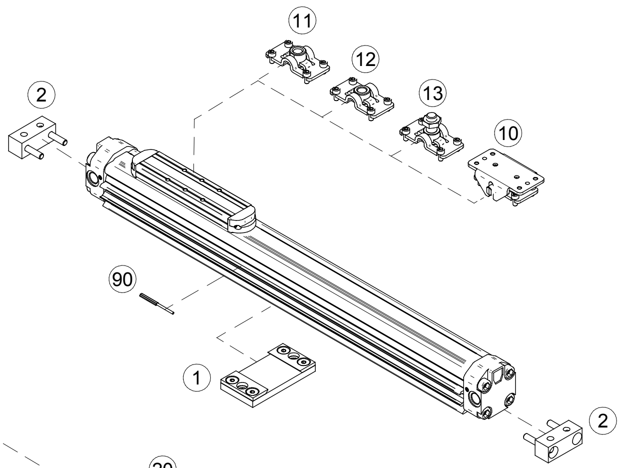
### Adjusting of the carriage of series VL1

In case of off-centred loads it is necessary to adjust the screws A as shown below. The arrows indicate the screws to be adjusted, in accordance with the position of the load. Adjust the screw A by one turn or more depending on the load. Put a drop of Loctite 242 on the screw B and tighten it thoroughly. Finally loosen both screws by 90°.

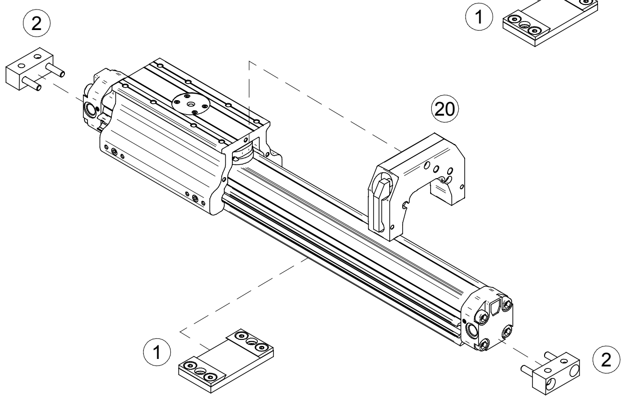



## Mounting accessories

### for series S1



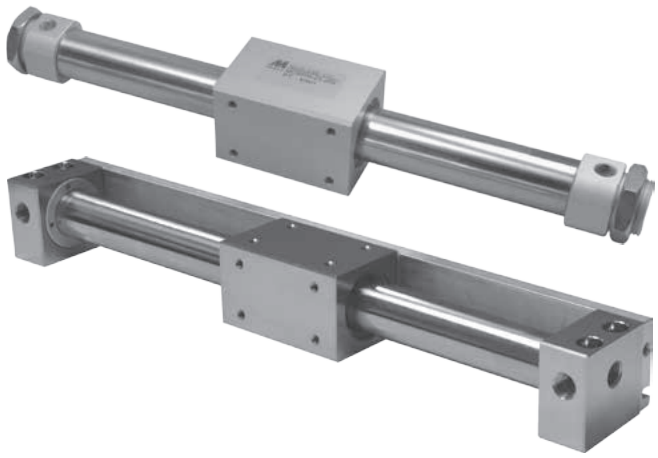

### for series S5 and VL1




| Mounting accessories | ... see page |
|---|---|
| 1 Mounting plate | ... 4-15 |
| 2 Foot mounting | ... 4-16 |
| 10 Floating flange | ... 4-16 |
| 11 Female threaded connection | ... 4-17 |
| 12 Female connection w/o thread | ... 4-17 |
| 13 Male threaded pin | ... 4-17 |
| 20 Locking unit | ... ✆ * |
| 90 Proximity switch | ... ✆ * |

*) For more information about locking unit and proximity switches for rodless cylinders, please contact our technical dept.

# MAGNETICALLY COUPLED RODLESS PNEUMATIC CYLINDERS SERIES MCRPM



Magnetically coupled rodless cylinders series MCRPM offers long strokes with reduced installation place. Thanks to max. stroke up to 2 meters, these cylinders can be used in such an applications, where use of standard cylinder is impossible. There is no fix connection between piston and carriage, when the force of magnet is exceeded, the carriage will move independently on piston. This feature is utilized as a safety feature, in some applications. Force transmission is provided by strong magnets in piston and carriage. There is no adjustable cushioning at end of stroke.

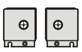
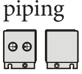
| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,16 MPa |
| Max. pressure | 0,7 MPa |
| Temp. range | +5°C to +60°C |
| Working medium | modified compressed air |
| Carriage speed | 50 to 500 $mms^{-1}$ |

| **Piston diameter [mm]** | **10** | **15** | **20** | **25** | **32** | **40** |
|---|---|---|---|---|---|---|
| Force at 0.6 MPa [N] | 40 | 95 | 170 | 265 | 432 | 675 |
| Holding force of magnets [N] | 54 | 137 | 231 | 363 | 588 | 922 |
| Connection | M5 | M5 | G1/8“ | G1/8“ | G1/8“ | G1/4“ |
| Max. stroke of standard type * / type with rail [mm] | 500 / 500 | 900 / 700 | 1500 / 1000 | 2000 / 1000 | 2000 / 1000 | 2000 / – |
| Weight 0 mm stroke of standard type / type with rail [kg] | 0.09 / 0.16 | 0.23 / 0.30 | 0.41 / 0.52 | 0.66 / 0.71 | 1.18 / 1.24 | 2.00 / – |
| Weight add. per 1 mm stroke of standard type / type with rail [kg] | 0.027 / 0.067 | 0.032 / 0.080 | 0.043 / 0.102 | 0.046 / 0.115 | 0.066 / 0.150 | 0.083 / – |

*) Values are valid for mounting on pad, max. strokes for mounting without pad are smaller. Please contact our technical dept.

## Order codes

P MCRP M 20 100

| **Type** | |
|---|---|
| M | standard |
| MD | with rail  |
| MDG | with rail, centralized piping  |

| **Piston diameter** | |
|---|---|
| 10 | 10 mm |
| 15 | 15 mm |
| 20 | 20 mm |
| 25 | 25 mm |
| 32 | 32 mm |
| 40* | 40 mm |

*) Only for cylinder type M

| **Stroke** | |
|---|---|
| xxx | mm of stroke e.g.: 100 = stroke 100 mm, see table of standard strokes |

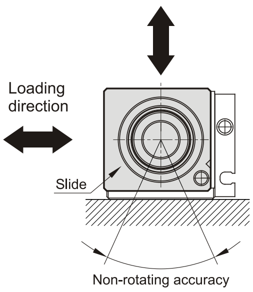
| **Piston diameter [mm]** | **Standard stroke [mm]*** |
|---|---|
| 10, 15 | 100, 150, 200, 250, 300, 400, 500 |
| 20 to 40 | 100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800 |

*) Please consult us if stroke is out of specification, stroke increment is 1 mm

## Allowable load of cylinder with rail

| **Piston dia. [mm]** | **Max. allowable load [N]** | **Non-rotating accuracy [°]** | **Max. torsion moment [Nm]** |
|---|---|---|---|
| 10 | 4 | 5 | 0.05 |
| 15 | 9 | 5 | 0.18 |
| 20 | 11 | 4 | 0.23 |
| 25 | 11 | 4 | 0.40 |
| 32 | 15 | 4 | 0.12 |

Note: Non-rotating accuracy will be reduced by distorsion due to longer stroke and switch rail. Values are for 300 mm stroke.



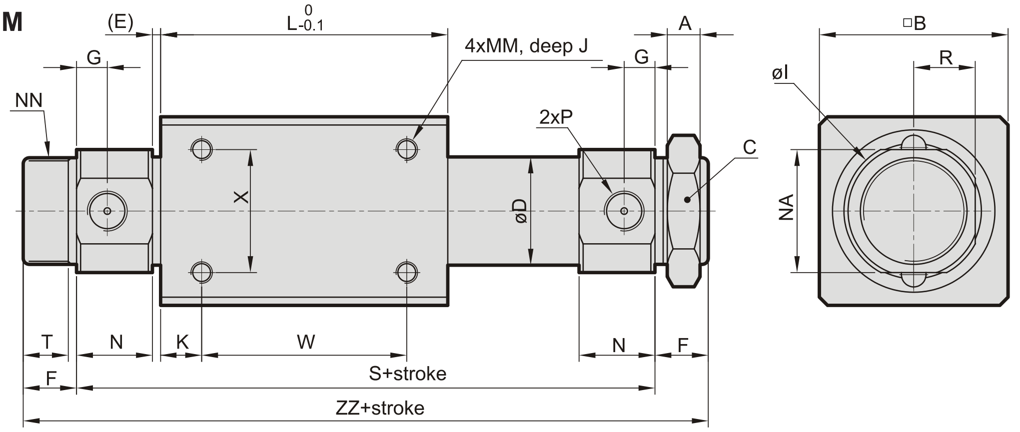

## Construction / materials

- caps, carriage, rail: anodized aluminium alloy
- tube: stainless steel
- yokes: nickel plated carbon steel
- seals: NBR

In case of proximity sensing request for cylinders with rail, please use switches series RCE/RPE/RNE - see page 3-8 for detail. There is no possible to use proximity sensing for standard cylinders (without rail).

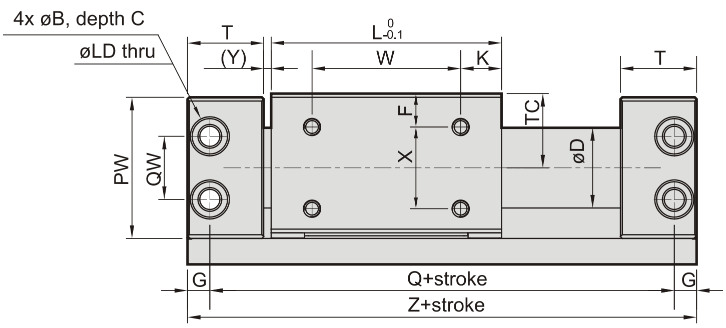
## Dimensions

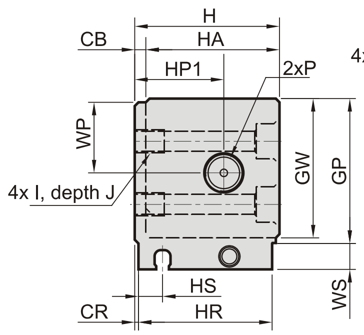
### Standard type - M



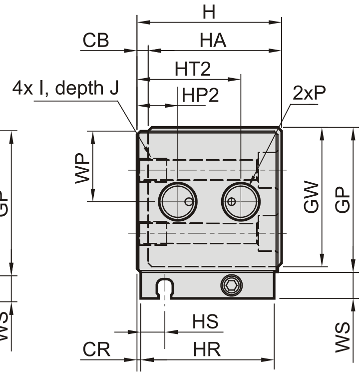

| ∅ | A | B | C | D | E | F | G | I | J | K | L | MM | N | NA | NN | R | S | T | W | X | ZZ | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 4 | 25 | 14 | 12 | 1.5 | 9 | 5 | 16 | 4.5 | 4 | 38 | M3 | 11 | 14 | M10x1 | 7 | 63 | 7.5 | 30 | 16 | 81 | M5 |
| **15** | 4 | 35 | 14 | 16.6 | 2 | 10 | 5.5 | 22 | 5 | 11 | 57 | M4 | 11 | 20 | M10x1 | 10 | 83 | 8.5 | 35 | 19 | 103 | M5 |
| **20** | 8 | 36 | 26 | 21.6 | 2 | 13 | 7.5 | 28 | 6 | 8 | 66 | M4 | 18 | 24 | M20x1.5 | 12 | 106 | 10.5 | 50 | 25 | 132 | G1/8“ |
| **25** | 8 | 46 | 32 | 26.4 | 2 | 13 | 7.5 | 34 | 8 | 10 | 70 | M5 | 18.5 | 30 | M26x1.5 | 15 | 111 | 10.5 | 50 | 30 | 137 | G1/8“ |
| **32** | 8 | 60 | 32 | 33.6 | 2 | 16 | 8 | 40 | 8 | 15 | 80 | M6 | 20 | 36 | M26x1.5 | 18 | 124 | 14 | 50 | 40 | 156 | G1/8“ |
| **40** | 10 | 70 | 41 | 41.6 | 3 | 16 | 11 | 50 | 10 | 16 | 92 | M6 | 26 | 46 | M32x2 | 23 | 150 | 13 | 60 | 40 | 182 | G1/4“ |

### Type with rail - MD and MDG



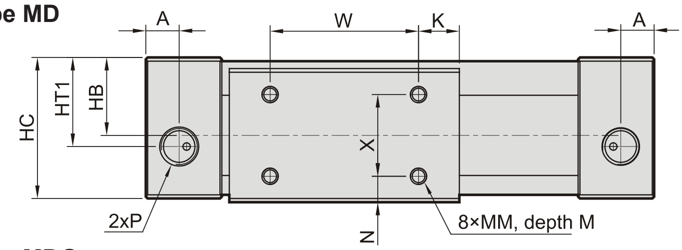




Type MD

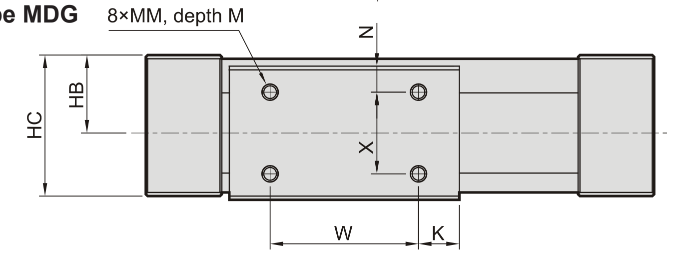



Type MDG

**Type MD**




**Type MDG**




| ∅ | A | B | C | CB | CR | D | F | G | GP | GW | H | HA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 8.5 | 6.5 | 3.2 | 2 | 0.5 | 12 | 6.5 | 4 | 27 | 25.5 | 26 | 24 |
| **15** | 9.5 | 8 | 4.2 | 2 | 0.5 | 16.6 | 8 | 5 | 33 | 31.5 | 32 | 30 |
| **20** | 9 | 9.5 | 5.2 | 3 | 1 | 21.6 | 9 | 6 | 39 | 37.5 | 39 | 36 |
| **25** | 9 | 9.5 | 5.2 | 3 | 1 | 26.4 | 8.5 | 6 | 44 | 42.5 | 44 | 41 |
| **32** | 10.5 | 11 | 6.5 | 3 | 1.5 | 33.6 | 10.5 | 7 | 55 | 53.5 | 55 | 52 |

| ∅ | HB | HC | HP | HP* | HR | HS | HT | HT* | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 13 | 25 | 14 | — | 24 | 4.5 | 14 | — | M4 | 6 | 9 | 38 |
| **15** | 17 | 31 | 17 | 8,5 | 30 | 4.9 | 17 | 22 | M5 | 7 | 14 | 53 |
| **20** | 21 | 38 | 24 | 11 | 36 | 6.5 | 24 | 28 | M6 | 8 | 11 | 62 |
| **25** | 23.5 | 43 | 23.5 | 14.5 | 41 | 6.5 | 23.5 | 33.5 | M6 | 8 | 15 | 70 |
| **32** | 29 | 54 | 29 | 20 | 51 | 6 | 29 | 40 | M8 | 10 | 13 | 76 |

| ∅ | LD | M | MM | N | P | PW | Q | QW | T | TC | W | WP | WP* | WS | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 3.3 | 4.5 | M3 | 4.5 | M5 | 26 | 68 | 14 | 17.5 | 14 | 20 | 13 | — | 7 | 15 | 1.5 | 76 |
| **15** | 4.3 | 5 | M4 | 6 | M5 | 32 | 84 | 18 | 19 | 17 | 25 | 16 | 13 / 19 | 7 | 18 | 1.5 | 94 |
| **20** | 5.4 | 5 | M4 | 7 | G1/8“ | 38 | 95 | 17 | 20.5 | 20 | 40 | 19 | 19 | 7 | 22 | 2 | 107 |
| **25** | 5.4 | 6 | M5 | 6.5 | G1/8“ | 43 | 105 | 20 | 21.5 | 22.5 | 40 | 21.5 | 21.5 | 7 | 28 | 2 | 117 |
| **32** | 6.8 | 7 | M6 | 8.5 | G1/8“ | 54 | 116 | 26 | 24 | 28 | 50 | 27 | 27 | 7 | 35 | 3 | 130 |

*) Values for model MDG

STRÁNSKÝ A PETRŽÍK

Cylinders series MCGS are due to heavy integrated bearing predetermined for applications, where is lateral load or torsional moment. It is possible to use them as stopper cylinders, where the slide bearing is used, or as push or lift cylinders, where the linear bush bearing is used. Cylinders are equipped with magnet for proximity switches. There is no adjustable cushioning, for cushioning at the end positions the rubber pad is used. Cylinders series MCGS are with compact design. The air connection is possible from two sides (from the top and side).

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,1 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -5°C to +60°C |
| Working medium | modified compressed air |

| Piston diameter [mm] | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 66 | 121 | 188 | 295 | 482 | 754 | 1178 | 1870 |
| Return force at 0.6 MPa [N] | 50 | 90 | 141 | 226 | 361 | 633 | 989 | 1681 |
| Connection | M5 | M5 | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/4“ | G1/4“ |
| Max. stroke [mm] | 250* | 250* | 400* | 400* | 400* | 400* | 400* | 150* |

*) Please consult our technical dept. if you require other than standard stroke (see table below)

## Order codes

P MCGS 03 12 50

| Type | |
|---|---|
| MCGS | double acting, twin guide, with magnetic piston |

| Purpose / Bearing type | |
|---|---|
| 03 | stop / slide bearing |
| 23 | push - lift / linear bush bearing |

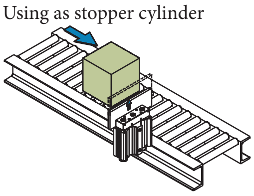
| Piston diameter | |
|---|---|
| 12 | 12 mm |
| 16 | 16 mm |
| 20 | 20 mm |
| 25 | 25 mm |
| 32 | 32 mm |
| 40 | 40 mm |
| 50 | 50 mm |
| 63 | 63 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 50 = stroke 50 mm, see table of standard strokes |
| -RK | repair kit |

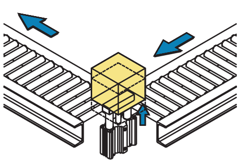
| Piston ∅ [mm] | Standard stroke [mm]* |
|---|---|
| 12, 16 | 10, 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250 |
| 20, 25 | 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400 |
| 32, 40, 50 | 25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400 |
| 63 | 25, 50, 75, 100, 125, 150 |

*) Please consult us if stroke is out of specification

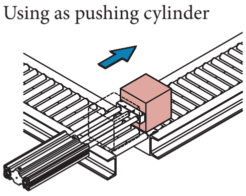
Using as stopper cylinder



Using as lifting cylinder

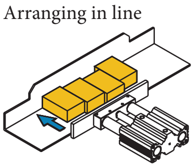


Using as pushing cylinder

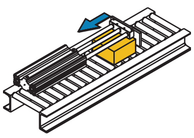


More examples of using:

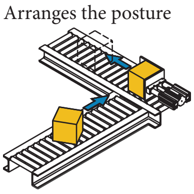
Arranging in line



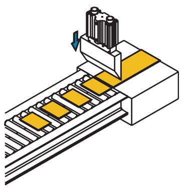
Draws in



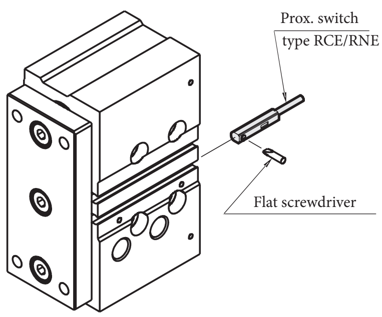
Arranges the posture



Cuts sheets



Installation of proximity switch



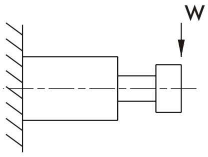

## Construction / materials

- caps: steel, anodized aluminium for piston dia. 40 mm and more
- body: drawn aluminium alloy
- piston rod: stainless steel, carbon steel for piston dia. 25 mm and more
- guide rods: carbon steel
- plate: steel
- bearing: brass alloy for slide bearing, linear bush bearing

i In case of proximity sensing request, please use switches series RCE/RPE/RNE - see page 3-8 for detail

# Allowable load

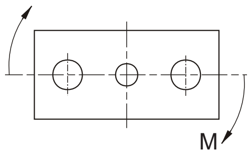
## Allowable lateral load




Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rod's top (vertical load against the guide rods).

| Stroke | Type | Piston diameter 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 03 | 31 | 50 | — | — | — | — | — | — |
| | 23 | 23 | 36 | — | — | — | — | — | — |
| 20 | 03 | 24 | 39 | 51 | 68 | — | — | — | — |
| | 23 | 17 | 29 | 43 | 67 | — | — | — | — |
| 25 | 03 | — | — | — | — | 165 | 203 | 296 | 296 |
| | 23 | — | — | — | — | 104 | 113 | 120 | 117 |
| 30 | 03 | 19 | 32 | 44 | 59 | — | — | — | — |
| | 23 | 14 | 24 | 36 | 56 | — | — | — | — |
| 40 | 03 | 16 | 27 | 39 | 52 | — | — | — | — |
| | 23 | 34 | 59 | 98 | 148 | — | — | — | — |
| 50 | 03 | 13 | 24 | 35 | 46 | 129 | 164 | 245 | 245 |
| | 23 | 30 | 52 | 87 | 132 | 74 | 78 | 83 | 81 |
| 75 | 03 | 37 | 54 | 54 | 72 | 106 | 182 | 273 | 273 |
| | 23 | 23 | 40 | 69 | 105 | 165 | 129 | 178 | 176 |
| 100 | 03 | 31 | 45 | 46 | 61 | 90 | 159 | 241 | 241 |
| | 23 | 19 | 33 | 57 | 87 | 138 | 106 | 148 | 145 |
| 125 | 03 | 15 | 27 | 74 | 98 | 138 | 142 | 216 | 216 |
| | 23 | 12 | 20 | 46 | 70 | 114 | 130 | 148 | 145 |
| 150 | 03 | 13 | 24 | 66 | 88 | 123 | 127 | 195 | 195 |
| | 23 | 11 | 17 | 40 | 62 | 100 | 114 | 129 | 126 |
| 175 | 03 | 12 | 21 | 59 | 79 | 111 | 190 | 190 | — |
| | 23 | 9 | 15 | 36 | 55 | 90 | 106 | 106 | — |
| 200 | 03 | 10 | 19 | 54 | 72 | 101 | 174 | 174 | — |
| | 23 | 8 | 13 | 32 | 50 | 81 | 95 | 95 | — |
| 250 | 03 | 9 | 16 | 28 | 53 | 88 | 150 | 150 | — |
| | 23 | 6 | 10 | 32 | 42 | 66 | 78 | 78 | — |
| 300 | 03 | — | — | 24 | 46 | 77 | 132 | 132 | — |
| | 23 | — | — | 27 | 36 | 56 | 67 | 67 | — |
| 350 | 03 | — | — | 21 | 41 | 68 | 118 | 118 | — |
| | 23 | — | — | 23 | 30 | 48 | 58 | 58 | — |
| 400 | 03 | — | — | 19 | 37 | 61 | 106 | 106 | — |
| | 23 | — | — | 20 | 27 | 42 | 50 | 50 | — |

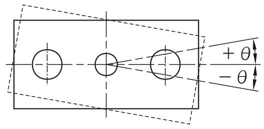
## Allowable rotating torque




Shows the dynamic allowable value, when actuating the cylinder with a rotating torque M at the guide rod's top.

| Stroke | Type | Piston diameter 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 03 | 0.64 | 1.14 | — | — | — | — | — | — |
| | 23 | 0.47 | 0.84 | — | — | — | — | — | — |
| 20 | 03 | 0.48 | 0.90 | 1.14 | 2.19 | — | — | — | — |
| | 23 | 0.35 | 0.66 | 1.19 | 2.14 | — | — | — | — |
| 25 | 03 | — | — | — | — | 6.61 | 7.00 | 13.0 | 14.7 |
| | 23 | — | — | — | — | 4.17 | 5.24 | 7.02 | 7.77 |
| 30 | 03 | 0.39 | 0.74 | 1.21 | 1.88 | — | — | — | — |
| | 23 | 0.29 | 0.54 | 0.99 | 1.79 | — | — | — | — |
| 40 | 03 | 0.32 | 0.63 | 1.07 | 1.65 | — | — | — | — |
| | 23 | 0.71 | 1.35 | 2.69 | 4.74 | — | — | — | — |
| 50 | 03 | 0.28 | 0.55 | 0.95 | 1.47 | 5.16 | 5.66 | 10.8 | 12.1 |
| | 23 | 0.62 | 1.19 | 2.40 | 4.22 | 2.95 | 4.25 | 5.76 | 3.35 |
| 75 | 03 | 0.75 | 1.23 | 1.49 | 2.31 | 4.23 | 6.27 | 12.0 | 13.5 |
| | 23 | 0.40 | 0.93 | 1.89 | 3.36 | 6.60 | 7.19 | 12.3 | 13.7 |
| 100 | 03 | 0.63 | 1.04 | 1.25 | 1.94 | 3.59 | 5.48 | 10.6 | 12.0 |
| | 23 | 0.38 | 1.76 | 1.56 | 2.78 | 5.52 | 6.33 | 10.9 | 12.2 |
| 125 | 03 | 0.15 | 0.31 | 2.03 | 3.15 | 5.52 | 4.87 | 9.50 | 10.7 |
| | 23 | 0.13 | 0.23 | 1.26 | 2.25 | 4.56 | 7.81 | 11.2 | 12.5 |
| 150 | 03 | 0.13 | 0.27 | 1.81 | 2.8 | 4.93 | 4.38 | 8.60 | 6.69 |
| | 23 | 0.11 | 0.19 | 1.10 | 1.98 | 4.02 | 7.11 | 10.2 | 11.4 |
| 175 | 03 | 0.12 | 0.24 | 1.63 | 2.52 | 4.45 | 5.21 | 5.88 | — |
| | 23 | 0.09 | 0.17 | 0.98 | 1.76 | 3.59 | 2.93 | 3.30 | — |
| 200 | 03 | 0.11 | 0.22 | 1.48 | 2.3 | 4.06 | 4.79 | 5.41 | — |
| | 23 | 0.08 | 0.15 | 0.88 | 1.59 | 3.24 | 2.61 | 2.94 | — |
| 250 | 03 | 0.09 | 0.18 | 0.37 | 0.85 | 1.72 | 4.13 | 4.66 | — |
| | 23 | 0.07 | 0.12 | 0.43 | 0.68 | 1.29 | 2.16 | 2.43 | — |
| 300 | 03 | — | — | 0.32 | 0.74 | 1.50 | 3.63 | 4.09 | — |
| | 23 | — | — | 0.36 | 0.57 | 1.09 | 1.83 | 2.06 | — |
| 350 | 03 | — | — | 0.29 | 0.66 | 1.33 | 3.23 | 3.65 | — |
| | 23 | — | — | 0.31 | 0.49 | 0.94 | 1.58 | 1.78 | — |
| 400 | 03 | — | — | 0.26 | 0.59 | 1.20 | 2.92 | 3.29 | — |
| | 23 | — | — | 0.27 | 0.42 | 0.82 | 1.39 | 1.57 | — |

## Anti-roll accuracy



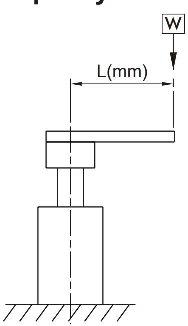

The value are the deflection angle against the piston rod. Deflection of a guide rods is not included.

| Type | Piston dia. [mm] 12 | 16 | 20 |
|---|---|---|---|
| 03 | ±0.09° | ±0.08° | ±0.08° |
| 23 | ±0.06° | ±0.06° | ±0.03° |

| Type | Piston dia. [mm] 25 | 32 | 40 |
|---|---|---|---|
| 03 | ±0.07° | ±0.07° | ±0.06° |
| 23 | ±0.05° | ±0.03° | ±0.08° |

| Type | Piston dia. [mm] 50 | 63 |
|---|---|---|
| 03 | ±0.05° | ±0.05° |
| 23 | ±0.06° | ±0.06° |

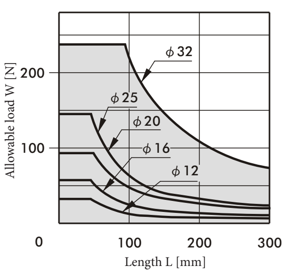
## Capacity for use as lifter



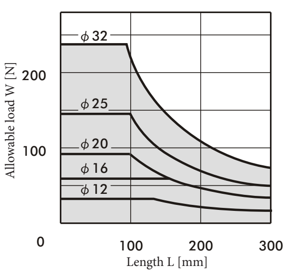

Allowable eccentricity load W [N] for the use as lifter at supply pressure 0.5 MPa.

Type 03 - slide bearing

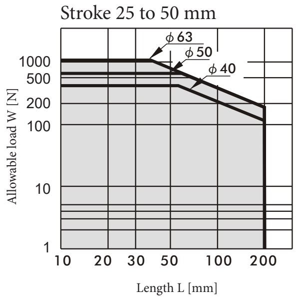
Stroke 10 to 50 mm



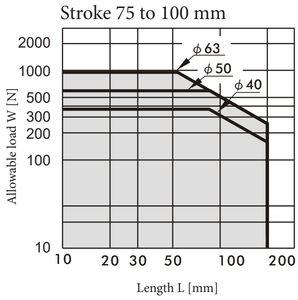

Stroke 75 to 200 mm




Stroke 25 to 50 mm

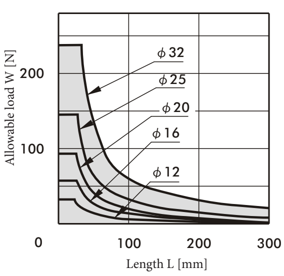



Stroke 75 to 100 mm

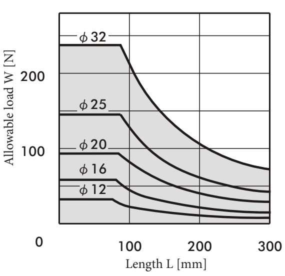



Type 23 - linear bush bearing

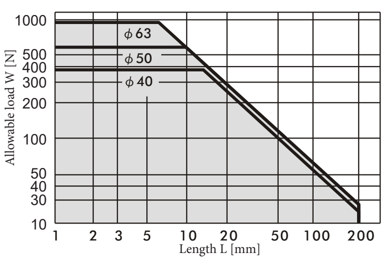
Stroke 10 to 50 mm



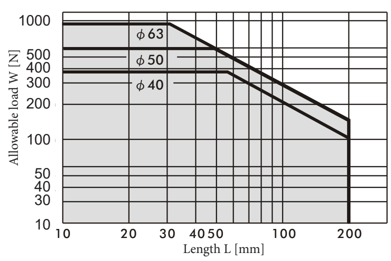

Stroke 75 to 200 mm




Stroke 25 to 50 mm

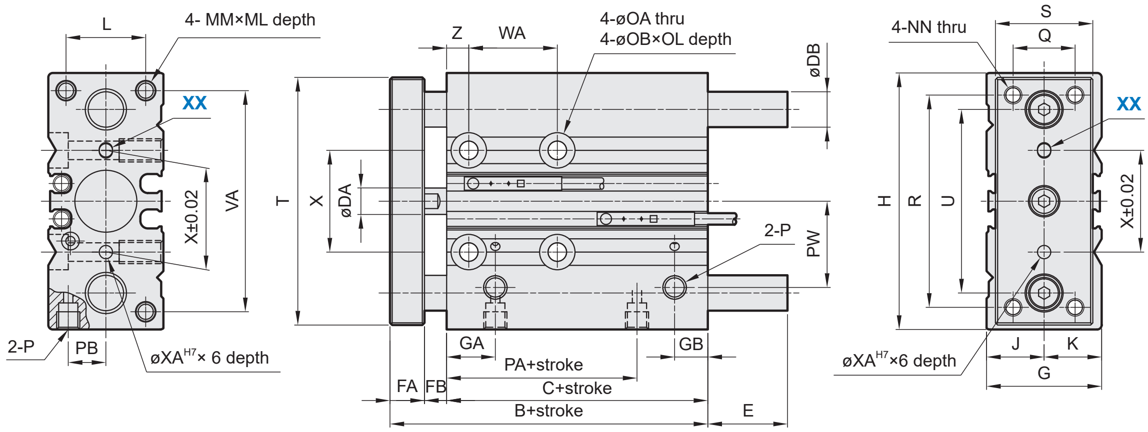


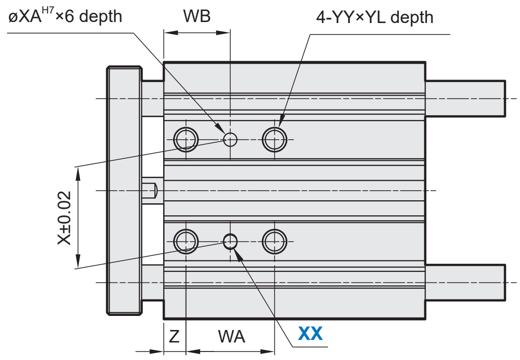

Stroke 75 to 100 mm



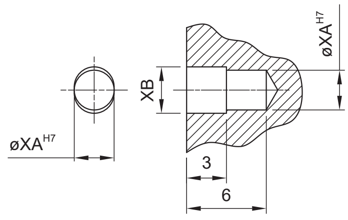
## Diameters

### Piston diameter 12 to 32 mm - series MCGS




Back side

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| ∅ | B | C | DA | DB type 03 | DB type 23 | FA | FB | G | GA | GB | H | J | K | L | MM | ML | NN | OA | OB | OL | P | PA | PB | PW | Q | R | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12** | 42 | 29 | 6 | 8 | 6 | 8 | 5 | 26 | 11 | 15*1 | 58 | 13 | 13 | 18 | M4 | 10 | M4 | 4.3 | 8 | 4.5 | M5 | 14 | 8.5 | 18 | 14 | 48 | 22 |
| **16** | 46 | 33 | 8 | 10 | 8 | 8 | 5 | 30 | 11 | 18*2 | 64 | 15 | 15 | 22 | M5 | 12 | M5 | 4.3 | 8 | 4.5 | M5 | 15 | 10 | 19 | 16 | 54 | 25 |
| **20** | 53 | 37 | 10 | 12 | 10 | 10 | 6 | 36 | 10.5 | 8.5 | 85 | 17 | 19 | 24 | M5 | 13 | M5 | 5.2 | 9.5 | 5.5 | G1/8“ | 12.5 | 11.5 | 25 | 18 | 70 | 30 |
| **25** | 53.5 | 37.5 | 12 | 16 | 13 | 10 | 6 | 42 | 11.5 | 9 | 96 | 21 | 21 | 30 | M6 | 15 | M6 | 5.2 | 9.5 | 5.5 | G1/8“ | 12.5 | 13.5 | 28.5 | 26 | 78 | 38 |
| **32** | 59.5 | 37.5 | 16 | 20 | 16 | 12 | 10 | 51 | 12.5 | 9 | 116 | 26 | 25 | 34 | M8 | 20 | M8 | 6.6 | 11 | 7.5 | G1/8“ | 7 | 16 | 34 | 30 | 96 | 44 |

*1) for stroke up to 20 mm, the value of GB=7.5 mm
*2) for stroke up to 20 mm, the value of GB=9 mm

| ∅ | T | U | VA | X | XA | XB | YY | YL | Z |
|---|---|---|---|---|---|---|---|---|---|
| **12** | 56 | 41.5 | 50 | 23 | 3 | 3.5 | M5 | 10 | 5 |
| **16** | 62 | 46 | 56 | 24 | 3 | 3.5 | M5 | 10 | 5 |
| **20** | 81 | 55 | 72 | 28 | 3 | 3.5 | M6 | 12 | 17 |
| **25** | 91 | 65 | 82 | 34 | 4 | 4.5 | M6 | 12 | 17 |
| **32** | 110 | 80 | 98 | 42 | 4 | 4.5 | M8 | 16 | 21 |

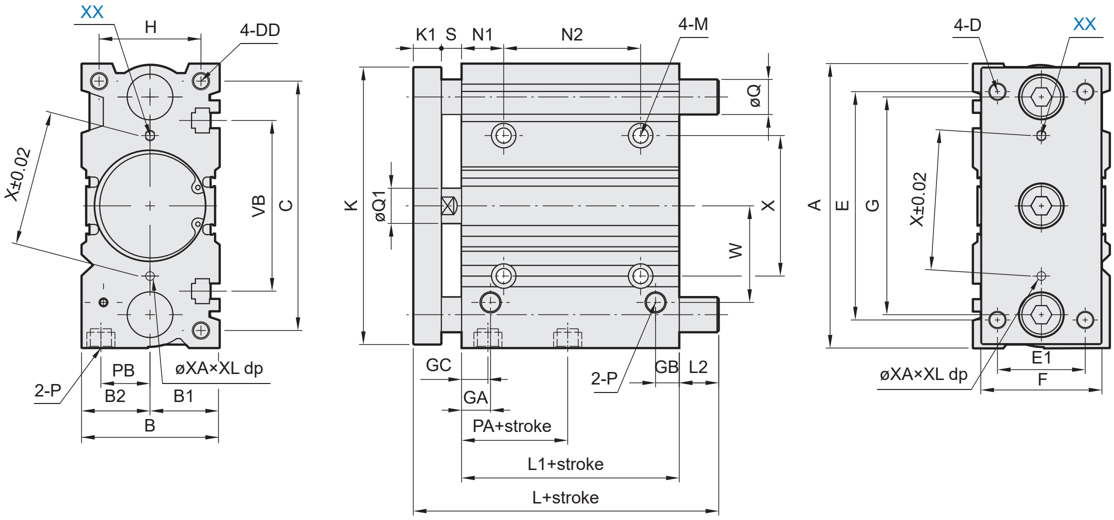
| ∅ | WA for stroke | | | | | WB for stroke | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10-39 | 40-100 | 125-200 | 201-300 | 301- | 10-39 | 40-100 | 125-200 | 201-300 | 301- |
| **12** | 20 | 40 | 110 | 200 | — | 15 | 25 | 60 | 105 | — |
| **16** | 24 | 44 | 110 | 200 | — | 17 | 27 | 60 | 105 | — |
| **20** | 24 | 44 | 120 | 200 | 300 | 29 | 39 | 77 | 117 | 167 |
| **25** | 24 | 44 | 120 | 200 | 300 | 29 | 39 | 77 | 117 | 167 |

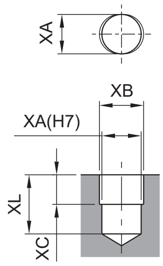
| ∅ | WA for stroke | | | | | WB for stroke | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 25-49 | 50-100 | 125-200 | 201-300 | 301- | 25-49 | 50-100 | 125-200 | 201-300 | 301- |
| **32** | 24 | 48 | 124 | 200 | 300 | 33 | 45 | 83 | 121 | 171 |

| ∅ | E type 03, for stroke | | | |
|---|---|---|---|---|
| | 10-50 | 51-100 | 101-200 | 201- |
| **12** | — | 18.5 | 43 | 43 |
| **16** | — | 18.5 | 49 | 49 |
| **20** | — | 31.5 | 31.5 | 69 |
| **25** | — | 31.5 | 31.5 | 68.5 |
| **32** | 37.5 | 42.5 | 42.5 | 80.5 |

| ∅ | E type 23, for stroke | | | |
|---|---|---|---|---|
| | 10-30 | 31-100 | 101-200 | 201- |
| **12** | 1 | 13 | 43 | 43 |
| **16** | 3 | 19 | 49 | 49 |
| **20** | 10 | 27 | 51 | 69 |
| **25** | 16 | 32 | 51 | 68.5 |
| **32** | 21.5 | 38.5 | 58.5 | 80.5 |

## Piston diameter 40 to 63 mm - series MCGS

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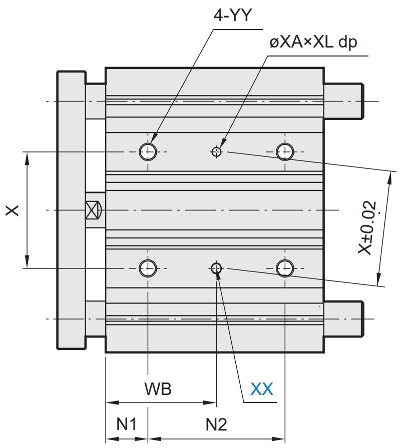
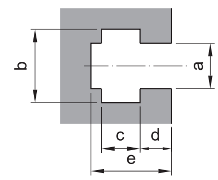



Back side

T slot for hexagon head bolt

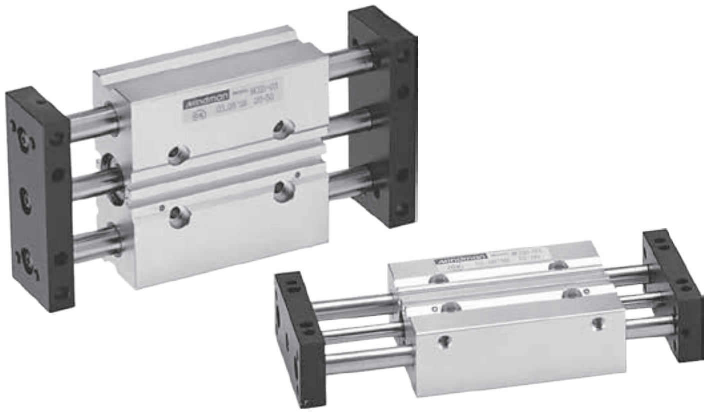



| ∅ | T - slot a | b | c | d | e |
|---|---|---|---|---|---|
| 40 | 6,5 | 10,5 | 5,5 | 4 | 11 |
| 50 | 8,5 | 13,5 | 7,5 | 4,5 | 13,5 |
| 63 | 11 | 17,8 | 10 | 7 | 18,5 |

| ∅ | A | B | B1 | B2 | C | D | DD | E | E1 | F | G | GA | GB | GC | H | K | K1 | L1 | M | N1 | P | PA | PB | Q1 | S | VB | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | 120 | 54 | 27 | 27 | 106 | M8 | M8 dp. 20 | 104 | 30 | 44 | 86 | 14 | 10 | 14 | 40 | 118 | 12 | 44 | ⌀6.6 thru, ⌀11 dp.7.5 | 22 | G1/8“ | 13 | 18 | 16 | 10 | 72 | 38 | 50 |
| 50 | 148 | 64 | 32 | 32 | 130 | M10 | M10 dp.22 | 130 | 40 | 60 | 110 | 14 | 11 | 12 | 46 | 146 | 16 | 44 | ⌀8.6 thru, ⌀14 dp. 9 | 24 | G1/4“ | 9 | 21.5 | 20 | 12 | 92 | 47 | 66 |
| 63 | 162 | 78 | 39 | 39 | 142 | M10 | M10 dp.22 | 130 | 50 | 70 | 124 | 16.5 | 13.5 | 16.5 | 58 | 158 | 16 | 49 | ⌀8.6 thru, ⌀14 dp. 9 | 24 | G1/4“ | 14 | 28 | 20 | 12 | 110 | 55 | 80 |

| ∅ | L type 03, for stroke | | L type 23, for stroke | | | L2 type 03, for stroke | | | L2 type 23, for stroke | | | | N2 for stroke | | | | | Q | Q | WB for stroke | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 25, 50 | 51- | 25, 50 | 75, 100 | 101- | 25, 50 | 51-200 | 201- | 25, 50 | 75, 100 | 101-200 | 201- | 25 | 50-100 | 101-200 | 201-300 | 301- | type 03 | type 23 | 25 | 50-100 | 101-200 | 201-300 | 301- |
| 40 | 97 | 102 | 81 | 98 | 118 | 31 | 36 | 63.5 | 15 | 32 | 52 | 72.5 | 24 | 48 | 124 | 200 | 300 | 20 | 16 | 34 | 46 | 84 | 122 | 172 |
| 50 | 106.5 | 118 | 93 | 114 | 134 | 34.5 | 46 | 78.5 | 21 | 42 | 62 | 87.5 | 24 | 48 | 124 | 200 | 300 | 25 | 20 | 36 | 48 | 86 | 124 | 174 |
| 63 | 106.5 | 118 | 93 | 114 | 134 | 29.5 | 41 | — | 16 | 37 | 57 | — | 28 | 52 | 128 | — | — | 25 | 20 | 38 | 50 | 88 | — | — |

| ∅ | XA H7 | XB | XC | XL | YY |
|---|---|---|---|---|---|
| 40 | 4 | 4,5 | 3 | 6 | M8, dp. 16 |
| 50 | 5 | 6 | 4 | 8 | M10, dp. 20 |
| 63 | 5 | 6 | 4 | 8 | M10, dp. 20 |



Cylinders series MCGD can be used as cylinders with slide plates or body slide. Cylinders series MCGD are designed as compact makes the ari cylinder working more smoothly and showing the characteristics of its high-strength and high-stiffness. Cylinders are equipped with magnet for proximity switches. The recessed groove for sensor switch keeps space saving and interference is avoided. The body and plate are reserved with many holes and threads for mounting. It is suitable for various mounting requirement. There is no adjustable cushioning, for cushioning at the end positions the rubber pad is used.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,1 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -5°C to +60°C |
| Working medium | modified compressed air |

| Piston diameter [mm] | 12 | 16 | 20 | 25 | 32 |
|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 50 | 102 | 158 | 248 | 415 |
| Return force at 0.6 MPa [N] | 50 | 102 | 158 | 248 | 415 |
| Connection | M5 | M5 | G1/8“ | G1/8“ | G1/8“ |
| Max. stroke [mm] | 100 | 150 | 150 | 150 | 250 |

## Order codes

P MCGD 03 12 50

| Type | |
|---|---|
| MCGD | double acting, twin guide, with magnetic piston, slide |

| Bearing type | |
|---|---|
| 03 | slide bearing |
| 23 | linear bush bearing |

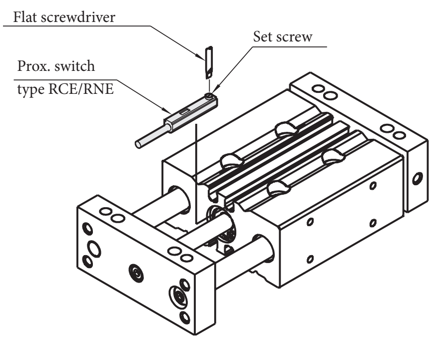
| Piston diameter | |
|---|---|
| 12 | 12 mm |
| 16 | 16 mm |
| 20 | 20 mm |
| 25 | 25 mm |
| 32 | 32 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 50 = stroke 50 mm |
| -RK | repair kit |

| Piston dia. [mm] | Bearing type | Standard stroke [mm]* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 30 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 250 |
| 12 | 03 | ● | ● | ● | ● | | | | | |
| 16, 20, 25 | | ● | ● | ● | ● | ● | ● | | | |
| 32 | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 12 | 23 | ● | ● | ● | ● | | | | | |
| 16, 20 | | ● | ● | ● | ● | ● | ● | | | |
| 25 | | | ● | ● | ● | ● | ● | | | |
| 32 | | | ● | ● | ● | ● | ● | ● | ● | ● |

*) Please consult us if stroke is out of specification

Installation of proximity switch

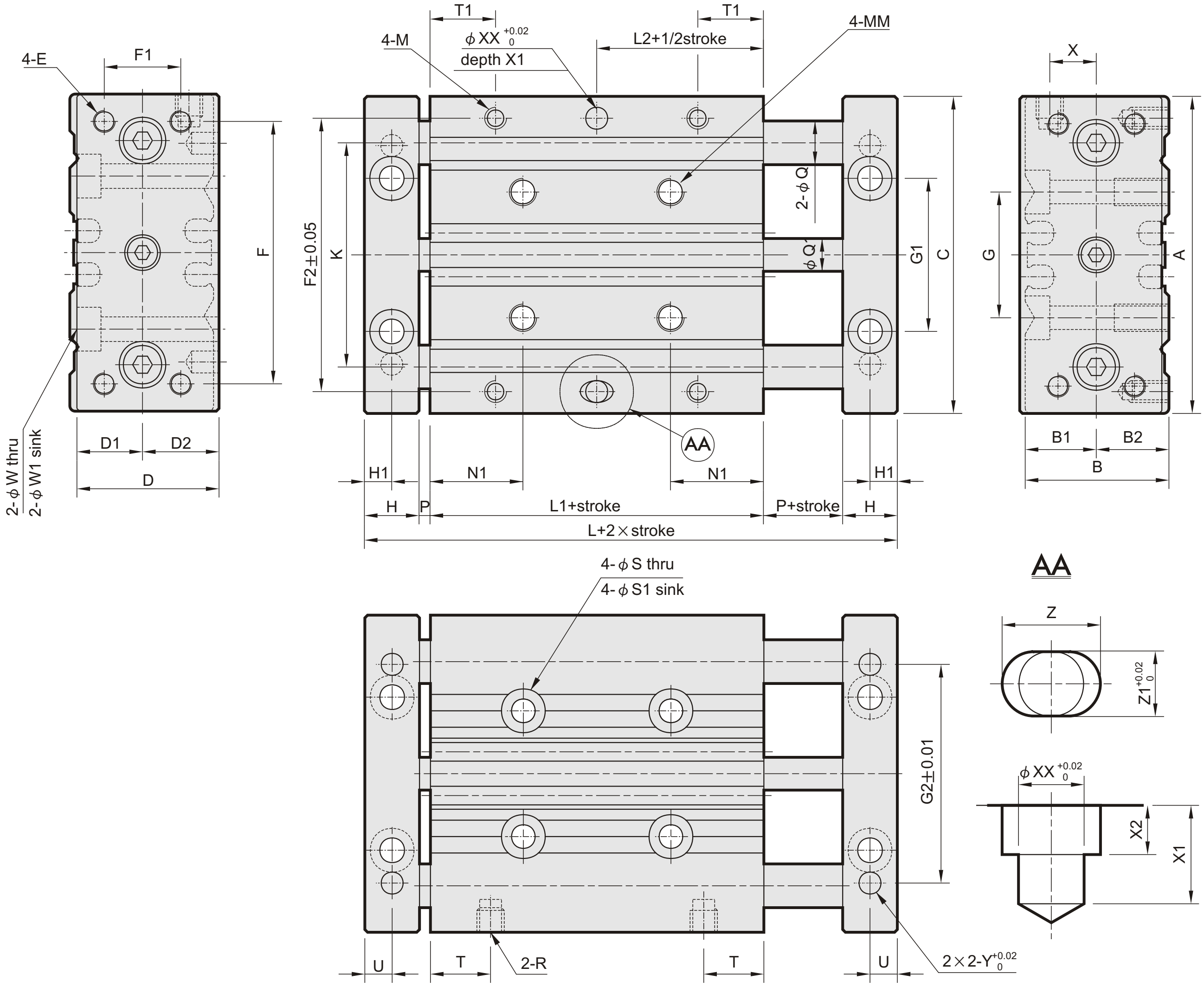



## Construction / materials

- caps: aluminium alloy
- body: aluminium alloy
- piston rod: carbon steel
- guide rods: carbon steel for slide bearing, bearing steel for linear bush bearing
- plate: aluminium alloy
- bearing: copper for slide bearing, linear bush bearing

i In case of proximity sensing request, please use switches series RCE/RPE/RNE - see page 3-8 for detail

## Dimensions

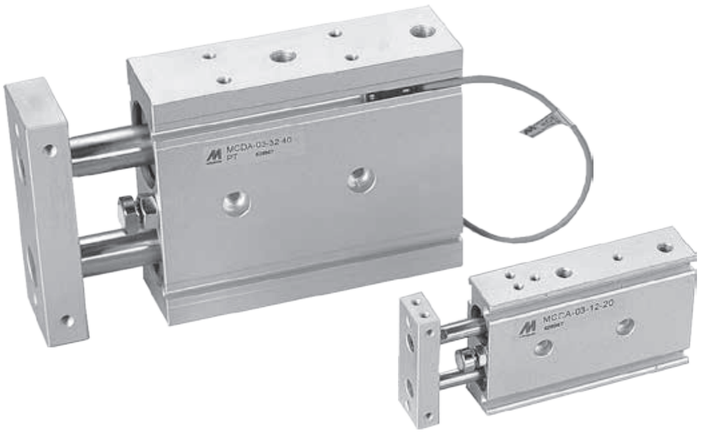



| ∅ | A | B | B1 | B2 | C | D | D1 | D2 | E | F | F1 | F2 | G | G1 | G2 | H | H1 | K | L | L1 | L2 | M | MM | N1 | Q (type 03) | Q (type 23) | Q1 | P | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 58 | 26 | 13 | 13 | 58 | 26 | 12 | 14 | M4 | 48 | 14 | 50 | 23 | 28 | 40 | 10 | 5 | 41.5 | 55 | 31 | 15.5 | M4 dp. 7 | M5 dp. 10 | 17 | 8 | 6 | 6 | 2 | M5 |
| 16 | 64 | 30 | 15 | 15 | 64 | 30 | 14 | 16 | M5 | 52 | 16 | 54 | 24 | 32 | 50 | 12 | 6 | 46 | 62 | 34 | 17 | M5 dp. 7 | M5 dp. 10 | 17 | 10 | 8 | 8 | 2 | M5 |
| 20 | 85 | 36 | 19 | 17 | 85 | 36 | 16 | 20 | M5 | 60 | 18 | 64 | 28 | 37 | 70 | 12 | 6 | 55 | 66 | 38 | 19 | M5 dp. 7 | M6 dp. 12 | 20.5 | 12 | 10 | 10 | 2 | G1/8“ |
| 25 | 96 | 42 | 21 | 21 | 96 | 42 | 20 | 22 | M6 | 70 | 26 | 76 | 34 | 44 | 84 | 12 | 6 | 65 | 67 | 39 | 19.5 | M6 dp. 9 | M6 dp. 12 | 19.5 | 16 | 13 | 12 | 2 | G1/8“ |
| 32 | 116 | 51 | 25 | 26 | 116 | 51 | 24 | 27 | M8 | 96 | 30 | 100 | 42 | 56 | 76 | 14 | 7 | 80 | 68 | 36 | 18 | M8 dp. 11 | M8 dp. 16 | 20 | 20 | 16 | 16 | 2 | G1/8“ |

| ∅ | S | S1 | T | T1 | U | W | W1 | X | XX | X1 | X2 | Y | Z | Z1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 4.3 | 8 dp. 4.5 | 11 | 12 | 5 | 4.5 | 8 dp. 4.5 | 8.5 | 4 | 6 | 3 | ∅4 dp. 5 | 6 | 4 |
| 16 | 4.3 | 8 dp. 4.5 | 11 | 13 | 6 | 4.5 | 8 dp. 4.5 | 10 | 5 | 6 | 3 | ∅5 dp. 5 | 7 | 5 |
| 20 | 5.2 | 9.5 dp. 5.5 | 13.5 | 14 | 6 | 5.5 | 9.5 dp. 5.5 | 11.5 | 6 | 8 | 4 | ∅6 dp. 8 | 8 | 6 |
| 25 | 5.2 | 9.5 dp. 5.5 | 11 | 12 | 6 | 5.5 | 9.5 dp. 5.5 | 13.5 | 6 | 8 | 4 | ∅6 dp. 8 | 8 | 6 |
| 32 | 6.8 | 11.5 dp. 6.5 | 11 | 16.5 | 7 | 6.6 | 11 dp. 6.5 | 16 | 8 | 12 | 6 | ∅8 dp. 12 | 10 | 8 |

# DOUBLE ACTING PNEUMATIC CYLINDERS
# SERIES MCDA DOUBLE PISTON ROD

STRÁNSKÝ A PETRŽÍK



Thin and compact double piston rod cylinders series MCDA with high precision guiding are used not only for precision picking and placing. High lateral load can be applied due to highly accurate slide bearing and linear bush bearing. Cylinders are equipped with magnet for proximity switches. The body and plate are reserved with many holes and threads for mounting. It is suitable for various mounting requirement. There is no adjustable cushioning, for cushioning at the end positions the rubber pad is used.

| | |
|---|---|
| Working pressure | 0,5 MPa |
| Min. pressure | 0,15 MPa for ∅6<br>0,1 MPa for ∅12 and 16<br>0,05 MPa for ∅20 to 32 |
| Max. pressure | 0,7 MPa |
| Temp. range | -5°C to +60°C |
| Working medium | modified compressed air |

| Piston diameter [mm] | 6 | 12 | 16 | 20 | 25 | 32 |
|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 34 | 136 | 241 | 377 | 589 | 965 |
| Return force at 0.6 MPa [N] | 19 | 102 | 181 | 283 | 453 | 724 |
| Connection | M5 | M5 | M5 | G1/8“ | G1/8“ | G1/8“ |
| Max. stroke [mm] | 30 (50*) | 75 | 100 (120*) | 100 (130*) | 100 (150*) | 100 (150*) |

*) Please consult our technical dept. if you require other than standard stroke (see table below)

## Order codes

P MCDA 03 12 50

| Type | |
|---|---|
| MCDA | double acting, double piston rod |

| Bearing type | |
|---|---|
| 03 | slide bearing |
| 23 | linear bush bearing |

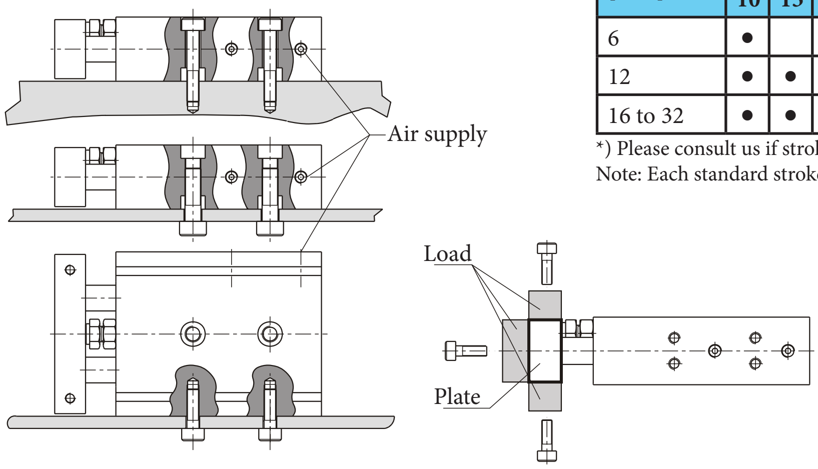
| Piston diameter | |
|---|---|
| 06 | 6 mm |
| 12 | 12 mm |
| 16 | 16 mm |
| 20 | 20 mm |
| 25 | 25 mm |
| 32 | 32 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 50 = stroke 50 mm |
| -RK | repair kit |

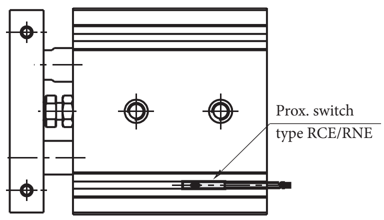
| Piston dia. [mm] | Standard stroke [mm]* | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 60 | 70 | 75 | 80 | 90 | 100 |
| 6 | ● | | ● | | ● | | | | | | | | | | |
| 12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| 16 to 32 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

*) Please consult us if stroke is out of specification
Note: Each standard stroke is adjustable in range 0 to +5 mm

Various examples of mounting the cylinder:




Installation of proximity switch



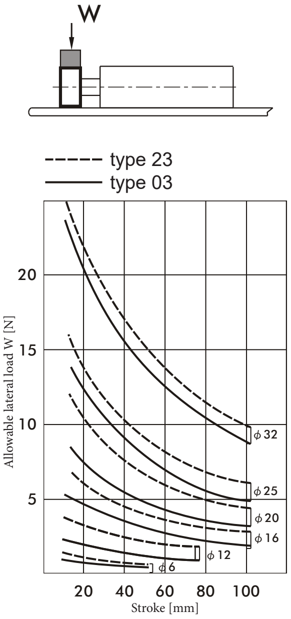

## Construction / materials

- caps: aluminium alloy
- body: aluminium alloy
- piston rod (type 03): stainless steel for piston dia. up to 20 mm incl., carbon steel for piston dia. 25 and 32 mm
- piston rod (type 23): bearing steel
- plate: aluminium alloy
- bearing: copper alloy for slide bearing, linear bush bearing

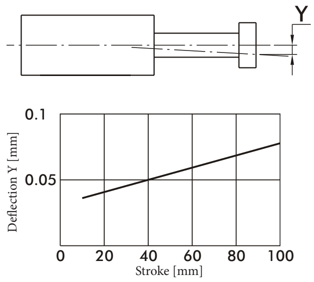
i In case of proximity sensing request, please use switches series RCE/RPE/RNE - see page 3-8 for detail

## Allowable load

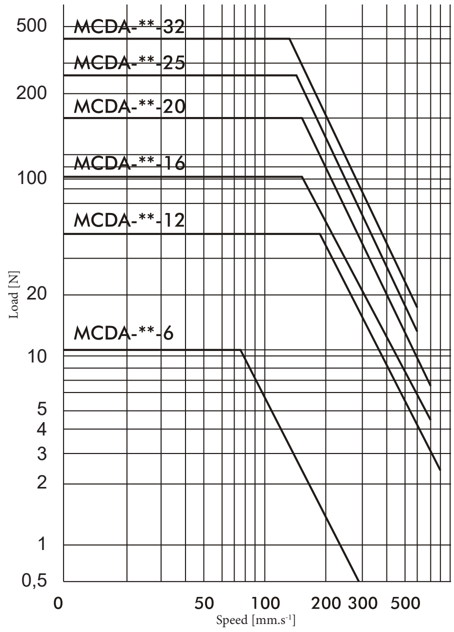
### Allowable lateral load



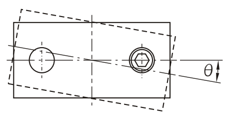

### Capacity for use as a pusher




In the actual operation, load at the top should be below the allowable top load.

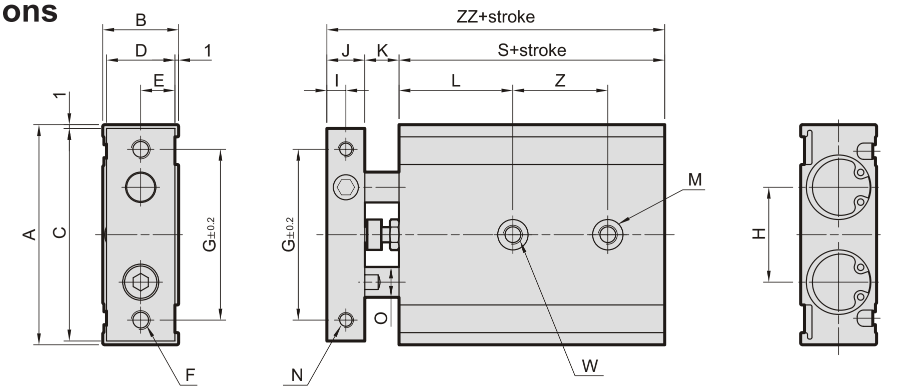



### Anti-roll accuracy

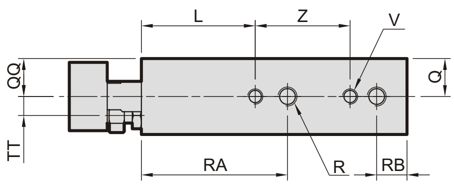



| Type | Piston dia. [mm] |
|---|---|
| | 6 to 32 |
| 03 | ±0.1° |
| 23 | ±0.15° |

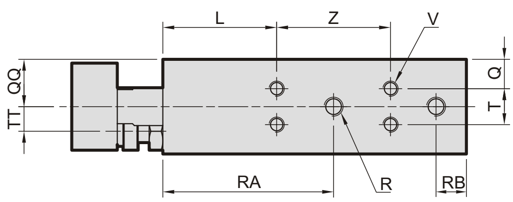
## Dimensions



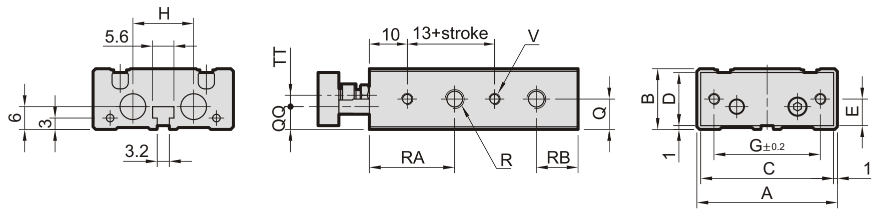

### Piston diameter 12 and 16 mm




### Piston diameter 20 to 32 mm




### Piston diameter 6 mm

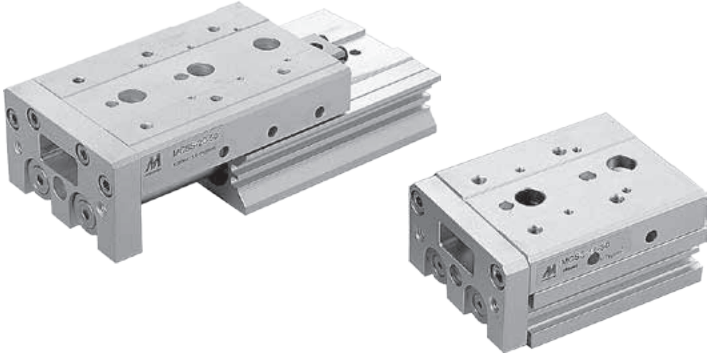



| ∅ | Z (for stroke) 10-25 | 30-50 | 60-75 | 80 | 90-100 |
|---|---|---|---|---|---|
| **6** | 10+1/2 stroke (10-30mm) | | | | |
| **12** | 30 | 40 | 50 | — | — |
| **16** | 25 | 35 | 45 | 45 | 55 |
| **20** | 30 | 40 | 60 | 60 | 60 |
| **25** | 30 | 40 | 60 | 60 | 60 |
| **32** | 40 | 50 | 70 | 70 | 70 |

| ∅ | A | B | C | D | E | F (thru) | G | H | I | J | K | L | M (both sides) | N (both sides) | O | Q | QQ | R (both sides) | RA | RB | S | T | TT | V (both sides) | W (thru) | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **6** | 37 | 16 | 35 | 14 | 7 | 2xM3 | 28 | 16 | 2.75 | 5.5 | 8 | 13 | 2x∅6.5 dp. 3.3[1)] | 2xM3 thru | 4 | 8 | 6 | 4xM5 | 22.5 | 11 | 45 | — | 3 | 4xM3 dp. 4.5 | 2x∅3.4 | 58.5 |
| **12** | 46 | 18 | 44 | 16 | 8 | 2xM4 | 35 | 19 | 4 | 8 | 9 | 20 | 4x∅6.5 dp. 3.3 | 4xM3 dp. 5 | 6 | 9 | 10 | 4xM5 | 30 | 8 | 55 | — | 3.5 | 4xM3 dp. 4.5 | 2xM4 | 72 |
| **16** | 58 | 20 | 56 | 18 | 9 | 2xM5 | 45 | 25 | 5 | 10 | 9 | 30 | 4x∅8 dp. 4.4 | 4xM4 dp. 6 | 8 | 10 | 10 | 4xM5 | 38.5 | 8 | 60 | — | 5 | 4xM4 dp. 5 | 2xM5 | 79 |
| **20** | 64 | 25 | 62 | 23 | 11.5 | 2xM5 | 50 | 28 | 6 | 12 | 12 | 30 | 4x∅9.5 dp. 5.3 | 4xM4 dp. 6 | 10 | 7.75 | 12.5 | 4xM5 | 45 | 8 | 70 | 9.5 | 6.5 | 8xM4 dp. 5.5 | 2xM6 | 94 |
| **25** | 80 | 30 | 78 | 28 | 14 | 2xM6 | 60 | 35 | 6 | 12 | 12 | 30 | 4x∅11 dp. 6.3 | 4xM5 dp. 8 | 12 | 8.5 | 15 | 4xG1/8“ | 46 | 9 | 72 | 13 | 9 | 8xM5 dp. 7.5 | 2xM8 | 96 |
| **32** | 98 | 38 | 96 | 36 | 18 | 2xM6 | 75 | 44 | 8 | 16 | 14 | 30 | 4x∅11 dp. 6.3 | 4xM5 dp. 8 | 16 | 9 | 19 | 4xG1/8“ | 56 | 10 | 82 | 20 | 11.5 | 8xM5 dp. 7.5 | 2xM8 | 112 |

1) single side only

STRÁNSKÝ A PETRŽÍK



Pneumatic slide cylinder consist of double pneumatic cylinder and integrated work table, which due to the sturdiness and precise of guidance ensures precise positioning. Cylinders are equipped with magnet for proximity switches.

**For more information like technical data, allowable load and dimensions, please visit our web page on www.sappv.cz .**

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 0,7 MPa |
| Temp. range | -5°C to +60°C |
| Working medium | modified compressed air |

| Piston diameter [mm] | 6 | 8 | 12 | 16 | 20 | 25 |
|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 34 | 61 | 136 | 241 | 377 | 589 |
| Return force at 0.6 MPa [N] | 25 | 45 | 102 | 181 | 283 | 454 |
| Connection | M3 | M5 | M5 | M5 | G1/8“ | G1/8“ |
| Max. stroke [mm] | 50 | 75 | 100 | 125 | 150 | 150 |
| Cushioning at end positions | rubber pads, optionally hydraulic shock absorber for one or both side | | | | | |

## Order codes

P MCSS 20 L 50 B

| Type | |
|---|---|
| MCSS | double acting, double piston |

| Piston diameter | |
|---|---|
| 06 | 6 mm |
| 08 | 8 mm |
| 12 | 12 mm |
| 16 | 16 mm |
| 20 | 20 mm |
| 25 | 25 mm |

| Design | |
|---|---|
| | standard |
| L | symmetric |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 50 = stroke 50 mm |
| -RK | repair kit |

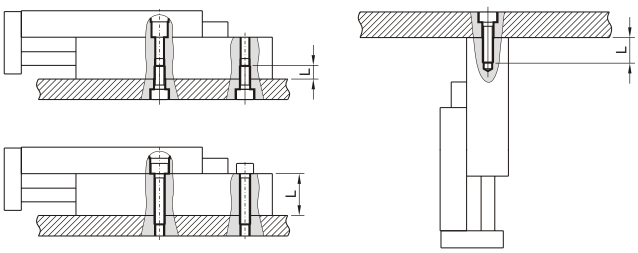
| Piston dia. [mm] | Standard stroke [mm] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 10 | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150 |
| 6 | ● | ● | ● | ● | ● | | | | |
| 8 | ● | ● | ● | ● | ● | ● | | | |
| 12 | ● | ● | ● | ● | ● | ● | ● | | |
| 16 | ● | ● | ● | ● | ● | ● | ● | ● | |
| 20 and 25 | ● | ● | ● | ● | ● | ● | ● | ● | ● |

| Equipment | |
|---|---|
| | w/o spec. equipment |
| AS | with stroke adjustment at extension |
| AT | with stroke adjustment at retract |
| A | with stroke adjustment at both ends |
| BS | with shock absorber at extension |
| BT | with shock absorber at retract |
| B | with shock absorber at both ends |

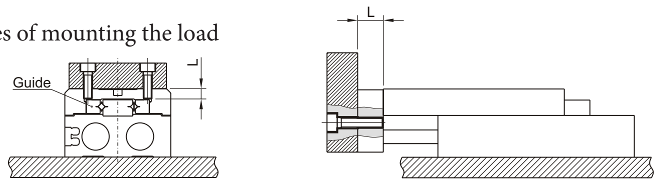
*) Shock absorber isn't available for piston diameter 6 mm

In case of proximity sensing request, please use switches series RCE/RPE/RNE - see page 3-8 for detail

Examples of mounting the cylinder

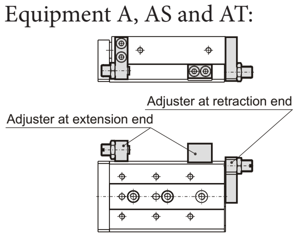



Examples of mounting the load

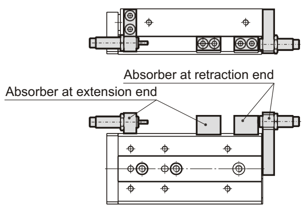



Note: the range of stroke adjustment is 5 mm as standard, ranges 15 and 25 mm are optional.

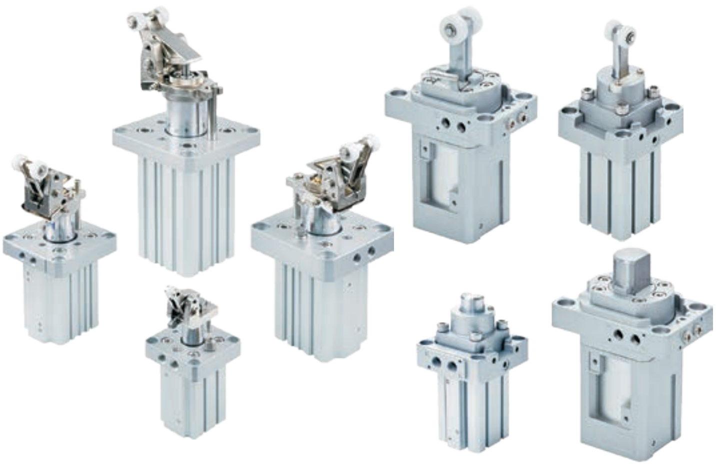
Equipment A, AS and AT:




Equipment B, BS and BT:



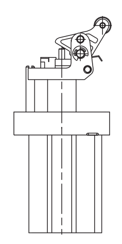
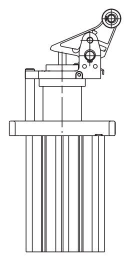
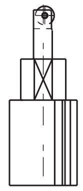
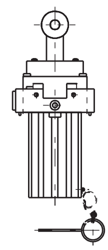
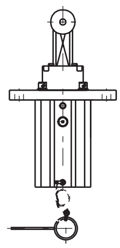
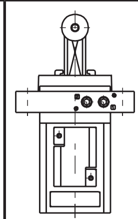
# PNEUMATIC STOPPER CYLINDER SERIES MSBE, MSBR AND MSBS

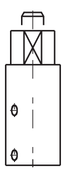
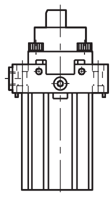
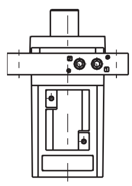


Stopper cylinders are used for safety stop or separation of objects which moves on belt, roller, chain or other conveyor. Regarding the series (see description below), the cylinders can be equipped for example with hydraulic shock absorber for soft stop of moving object, or with spring for automatic separation of two objects.

**For more information like technical data, order codes, allowable load and dimensions, please visit our web page on www.sappv.cz**

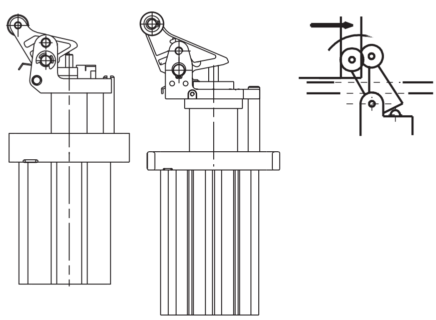
| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,2 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -5°C to +60°C |
| Working medium | modified compressed air |

| Series | MSBE | | | | MSBR | | | |
|---|---|---|---|---|---|---|---|---|
| Type | double acting with spring and shock absorber | | | | single acting (spring extended) with roller | | | |
| Piston diameter / stroke [mm] | ∅ 32 / 20 | ∅ 50 / 30 | ∅ 63 / 30 | ∅ 80 / 40 | ∅ 20 / 20 | ∅ 32 / 20 | ∅ 40 / 30 | ∅ 50 / 30 |
| Magnet for position sensing | yes | yes | yes | yes | yes | yes | no | no |
| Picture |  |  | | |  |  |  |  |

| Series | MSBS | | |
|---|---|---|---|
| Type | double acting for direct stop | | |
| Piston diameter / stroke [mm] | ∅ 20 / 10 | ∅ 32 / 20 | ∅ 50 / 30 |
| Magnet for position sensing | yes | yes | yes |
| Picture |  |  |  |

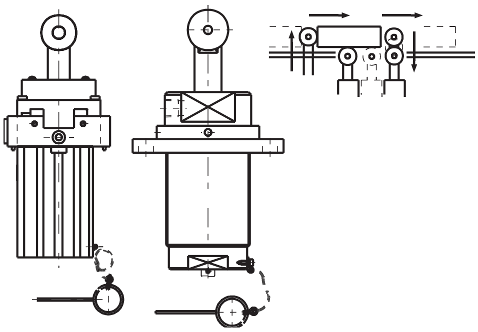
In case of proximity sensing request, please contact our technical dept. for details

## With shock absorber



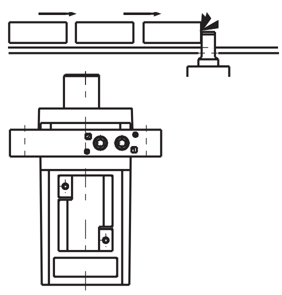
The built-in shock absorber softly catches and stops the work carrier. The strength of absorber can be easily adjusted, which makes the cylinder work in the best condition, conforming to the speed of the conveyor line and the weight of the work carrier.

## With roller



The top rollers with the built-in spring return in touch with the bottom of the work carrier. Automatically returns up to the original position as the work carrier pass by, and immediately works as a stopper for the next work carrier. Therefore the timing carriers does not need to be taken.

## For direct stop



Rod and cylinder are designed for toughness against the large side load. Also suitable for the relatively slow-moving conveyor line with the heavy work carriers.

STRÁNSKÝ A PETRŽÍK

Cylinders are designed to meet the specifications of international standards ISO 6431, VDMA 24562 and NF E 49003.1, that is why it can replace pneumatic cylinder, which is made by any producer to these standards. The cylinders can work in higher temperatures by request. There is no cushioning at the end of stroke.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

| **Piston diameter [mm]** | **32** | **40** | **50** | **63** | **80** | **100** |
|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N]* | 482 | 754 | 1178 | 1870 | 3015 | 4713 |
| Return force at 0.6 MPa [N]* | 415 | 633 | 990 | 1682 | 2720 | 4418 |
| Spring restoring force [N] | 42 | 42 | 66 | 66 | 70 | 74 |
| Connection | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G3/8“ | G1/2“ |
| Max. stroke [mm] | 50 | 50 | 70 | 70 | 70 | 70 |
| Weight 0 mm stroke [kg] | 0.54 | 0.80 | 1.10 | 1.70 | 2.70 | 4.20 |
| Weight add. per 1 mm stroke [kg] | 0.0028 | 0.0037 | 0.0060 | 0.0062 | 0.0100 | 0.0110 |

*) Cylinder will make out either thrust or return force, accordingly to the type (spring return / extend).

## Order codes

10105 10 00 050 0010

| Type | |
|---|---|
| 10105 | to DIN ISO 6431, VDMA 24562, NF E 49003.1, single acting, spring return |
| 10106 | to DIN ISO 6431, VDMA 24562, NF E 49003.1, single acting, spring extend |

| Equipment | |
|---|---|
| 00 | w/o magnet |
| 10 | with magnet |

| Options | |
|---|---|
| 00 | without options |
| 05 | all parts stainless steel, piston rod 1.4401 |
| 10 | Viton® piston rod sealing |
| 13 | tie rod version |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |
| 37 | composite round tube+opt. 10 and 16 |

| Piston diameter | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |

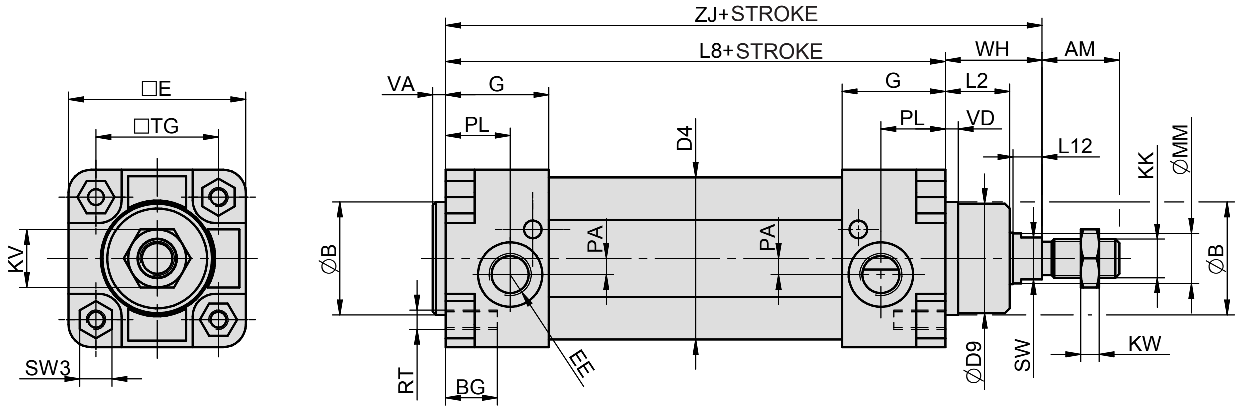
| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0010 = stroke 10 mm |
| 9999 | repair kit |

For more options regarding materials or dimensions, please contact our technical dept.

## Construction / materials

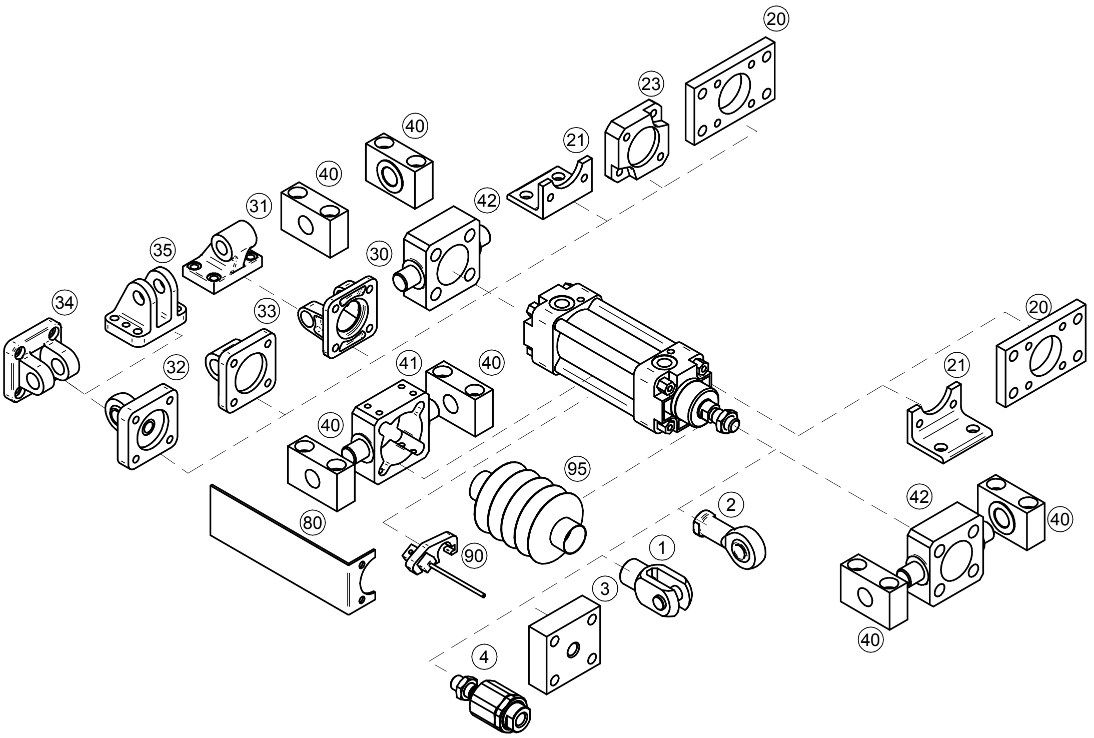
- caps: drawn dural profile, anodised, piston dia. 100: aluminium casting, anodised
- body: drawn dural profile, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

## Dimensions




| ⌀ | AM | B | BG | D4 | D9 | E | EE | G | KK | KV | KW | L2 | L8 | L12 | MM | PA | PL | RT | SW | SW3 | TG | VA | VD | WH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 22 | 30 | 16 | 36 | 28 | 48 | G1/8“ | 31.5 | M10x1.25 | 17 | 6 | 18 | 94 | 8 | 12 | 5 | 22.5 | M6 | 10 | 10 | 32.5 | 4 | 4 | 26 | 120 |
| **40** | 24 | 35 | 16 | 45 | 34 | 55 | G1/4“ | 32 | M12x1.25 | 19 | 10 | 20 | 105 | 9 | 16 | 5 | 20 | M6 | 13 | 10 | 38 | 4 | 4 | 30 | 135 |
| **50** | 32 | 40 | 19 | 55 | 39 | 65 | G1/4“ | 30 | M16x1.5 | 24 | 8 | 22 | 106 | 10 | 20 | 3 | 17 | M8 | 16 | 14 | 46.5 | 4 | 5 | 37 | 143 |
| **63** | 32 | 45 | 19 | 68 | 44 | 75 | G3/8“ | 30 | M16x1.5 | 24 | 8 | 23 | 121 | 10 | 20 | 6 | 16 | M8 | 16 | 14 | 56.5 | 4 | 5 | 37 | 158 |
| **80** | 40 | 45 | 19 | 86 | 44 | 94 | G3/8“ | 30 | M20x1.5 | 30 | 9 | 31 | 128 | 10 | 25 | 10 | 16 | M10 | 21 | 17 | 72 | 4 | 5 | 46 | 174 |
| **100** | 40 | 55 | 19 | 106 | 54 | 115 | G1/2“ | 36 | M20x1.5 | 30 | 9 | 34 | 138 | 10 | 25 | 11 | 18 | M10 | 21 | 17 | 89 | 4 | 17 | 51 | 189 |

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-4 |
| 23 Boxer flange mounting | ... 4-22 |
| 30 Swivel flange | ... 4-8 |
| 31 Clevis foot mounting | ... 4-8 |
| 32 Swivel flange with spherical bearing | ... 4-10 |
| 33 Swivel flange | ... 4-7 |
| 34 Narrow swivel flange | ... 4-9 |
| 35 Rectangular swivel flange | ... 4-9 |
| 40 Trunnion mounting | ... 4-12 |
| 41 Pivot pin | ... 4-11 |
| 42 Pivot pin to front/end cap | ... 4-12 |
| 80 Valve bracket | ... 4-22 |
| 90 Prox. switch | ... 3-2, 3-4, 3-7 |
| 95 Piston rod protective cover | ... 4-23 |

STRÁNSKÝ A PETRŽÍK

Compact cylinders are smaller than standard cylinders and they are suitable especially, when there isn‘t enough space for standard cylinder. Dimensions of mounting holes meets international standards ISO 21287, ISO 6431, VDMA 24562 and NF E 49003.1, that is why standard mounting accessories can be used. Cylinders aren‘t equipped with cushioning.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

| **Piston diameter [mm]** | **32** | **40** | **50** | **63** | **80** | **100** |
|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N]* | 482 | 754 | 1178 | 1870 | 3015 | 4713 |
| Return force at 0.6 MPa [N]* | 415 | 662 | 1025 | 1717 | 2720 | 4487 |
| Spring restoring force [N] | 17 | 24 | 22 | 42 | 33 | 120 |
| Connection | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/8“ |
| Max. stroke [mm] | 25 | 25 | 40 | 50 | 50 | 50 |
| Weight 0 mm stroke [kg] | 0.25 | 0.34 | 0.51 | 0.75 | 1.23 | 1.99 |
| Weight add. per 1 mm stroke [kg] | 0.0030 | 0.0034 | 0.0047 | 0.0055 | 0.0076 | 0.0095 |

*) Cylinder will make out either thrust or return force, accordingly to the type (spring return / extend).

## Order codes

12105 10 00 050 0010

| **Type** | |
|---|---|
| 12105 | compact single acting, spring return |
| 12106 | compact single acting, spring extend |

| **Equipment** | |
|---|---|
| 00 | w/o magnet, external thread |
| 01 | w/o magnet, internal thread |
| 10 | with magnet, external thread |
| 11 | with magnet, internal thread |

| **Options** | |
|---|---|
| 00 | without options |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |

For more options regarding materials or dimensions, please contact our technical dept.

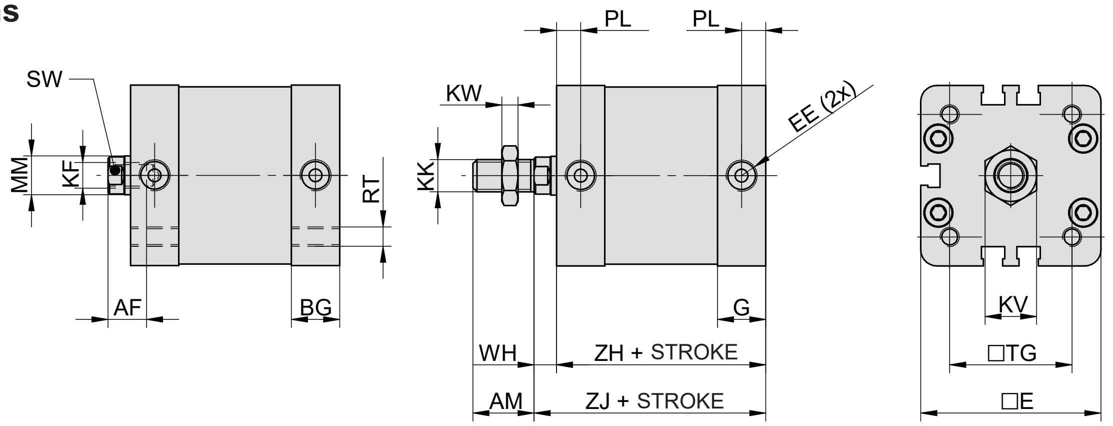
| **Piston diameter** | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |

| **Stroke / Repair kit** | |
|---|---|
| xxxx | mm of stroke e.g.: 0010 = stroke 10 mm |
| 9999 | repair kit |

## Construction / materials

- caps: drawn dural profile, anodized
- body: drawn dural profile, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

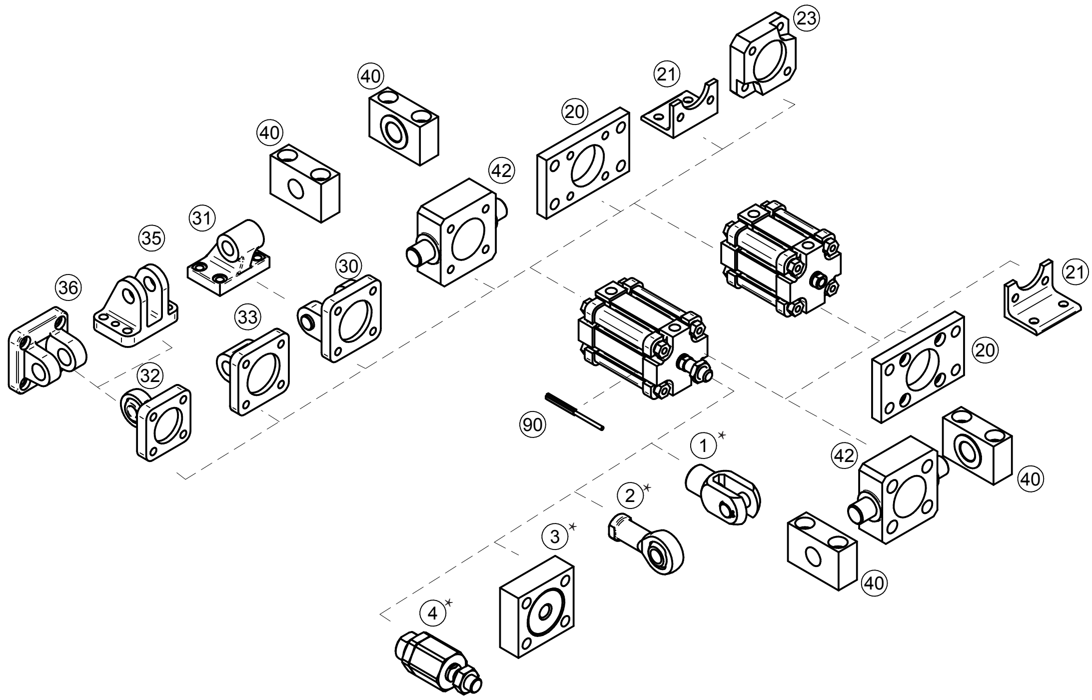
## Dimensions




| ∅ | AF | AM | BG | E | EE | G | KF | KK | KV | KW | MM | PL | RT | SW | TG | WH | ZH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 12 | 19 | 14.5 | 49.2 | G1/8“ | 14,5 | M8 | M10x1.25 | 16 | 5 | 12 | 7.5 | M6 | 10 | 32.5 | 7 | 52* | 59* |
| **40** | 12 | 19 | 15 | 56 | G1/8“ | 15 | M8 | M10x1.25 | 16 | 5 | 12 | 7.5 | M6 | 10 | 38 | 7 | 45 | 52 |
| **50** | 16 | 22 | 15 | 69 | G1/8“ | 15 | M10 | M12x1.25 | 18 | 6 | 16 | 7.5 | M8 | 13 | 46.5 | 8 | 45 | 53 |
| **63** | 16 | 22 | 15 | 79 | G1/8“ | 15 | M10 | M12x1.25 | 18 | 6 | 16 | 7.5 | M8 | 13 | 56.5 | 8 | 49 | 57 |
| **80** | 20 | 28 | 17 | 95 | G1/8“ | 17 | M12 | M16x1.5 | 24 | 8 | 20 | 7.5 | M10 | 16 | 72 | 10 | 54 | 64 |
| **100** | 20 | 28 | 20 | 115.5 | G1/8“ | 20 | M12 | M16x1.5 | 24 | 8 | 20 | 7.5 | M10 | 16 | 89 | 10 | 67 | 77 |

*) Dimensions ZH and ZJ of dia. 32 mm do not follow ISO 21287 standard.

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis* | ... 4-2 |
| 2 Piston rod eye* | ... 4-3 |
| 3 Flanged piston rod coupling* | ... 4-2 |
| 4 Self-aligning piston rod coupling* | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-4 |
| 23 Boxer flange mounting | ... 4-22 |
| 30 Swivel flange | ... 4-8 |
| 31 Clevis foot mounting | ... 4-8 |
| 32 Swivel flange with spherical bearing | ... 4-10 |
| 33 Swivel flange | ... 4-7 |
| 34 Narrow swivel flange | ... 4-9 |
| 35 Rectangular swivel flange | ... 4-9 |
| 40 Trunnion mounting | ... 4-12 |
| 42 Pivot pin to front/end cap | ... 4-12 |
| 90 Prox. switch | ... 3-2, 3-4 |
| 90 Proportional position sensor with analog output | ... 3-6 |

*) Please check dimensions of thread on cylinder and accessories for piston rod, before you order it (for example: compact cylinder piston dia. 40 mm has thread M10x1.25 on piston rod, piston rod clevis for cylinder dia. 40 has thread M12x1.25, so it is necessary to order picton rod clevis for cylinder dia. 25/32, where is thread M10x1.25).

# SINGLE ACTING PNEUMATIC CYLINDERS DIN ISO 6432


Cylinders are designed to meet the specifications of international standard ISO 6432. Cylinders aren't equipped with cushioning.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

| **Piston diameter [mm]** | **12** | **16** | **20** | **25** |
|---|---|---|---|---|
| Thrust at 0.6 MPa [N]* | 66 | 121 | 188 | 295 |
| Return force at 0.6 MPa [N]* | 50 | 102 | 158 | 248 |
| Spring restoring force [N] | 11 | 11 | 13 | 13 |
| Connection | M5 | M5 | G1/8“ | G1/8“ |
| Max. stroke [mm] | 50 | 50 | 50 | 50 |
| Weight 0 mm stroke [kg] | 0.04 | 0.05 | 0.15 | 0.18 |
| Weight add. per 1 mm stroke [kg] | 0.0005 | 0.0005 | 0.0010 | 0.0013 |

*) Cylinder will make out either thrust or return force, accordingly to the type (spring return / extend).

## Order codes

11005 10 00 020 0010

| Type | |
|---|---|
| 11005 | to DIN ISO 6432, single acting, spring return |
| 11006 | to DIN ISO 6432, single acting, spring extend |

| Equipment | |
|---|---|
| 00 | w/o magnet |
| 10 | with magnet |

| Options | |
|---|---|
| 00 | without options |
| 14 | 1.4301 stainless steel piston rod |
| 16 | steel parts from stainless 1.4301 piston rod stainless 1.4401 |

| Piston diameter | |
|---|---|
| 012 | 12 mm |
| 016 | 16 mm |
| 020 | 20 mm |
| 025 | 25 mm |

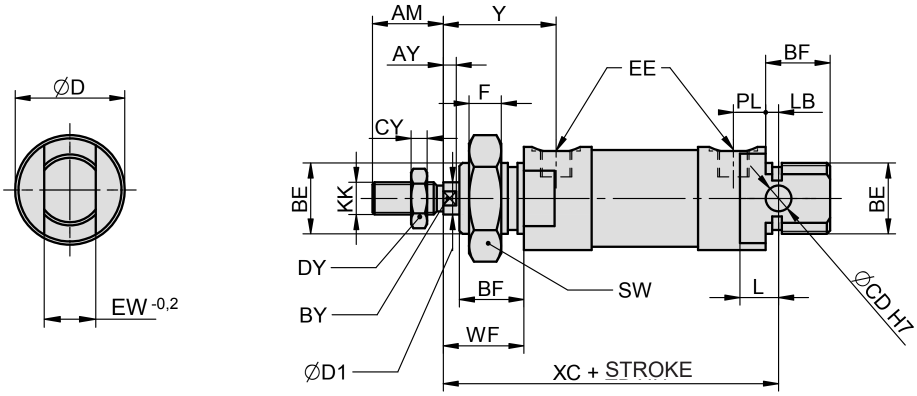
| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0010 = stroke 10 mm |
| 9999 | repair kit |

For more options regarding materials or dimensions, please contact our technical dept.

## Construction / materials

- caps: anodized dural
- body: drawn dural tube, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

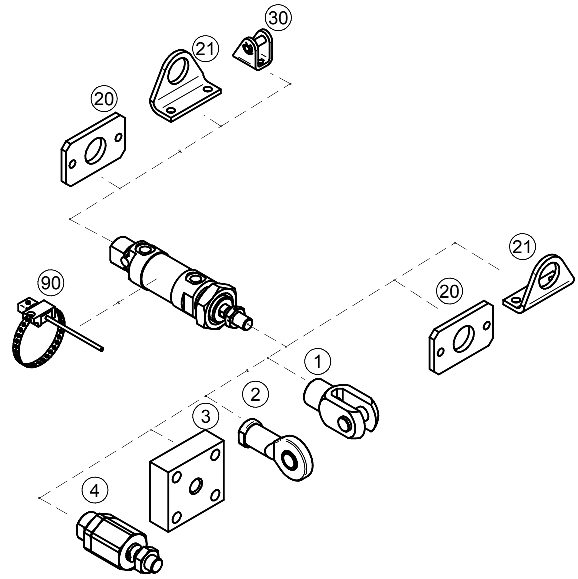
## Dimensions



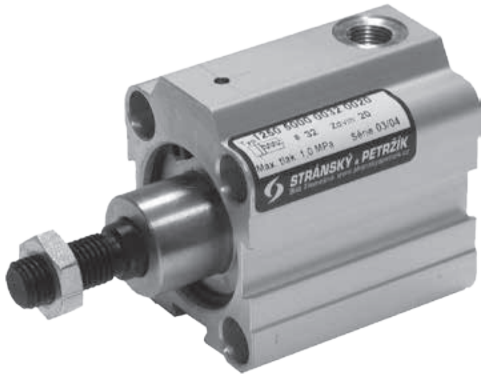

| ∅ | AM | AY | BE | BF | BY | CD | CY | D | D1 | DY | EE | EW | F | KK | L | LB | PL | SW | WF | XC | Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12** | 16 | 3 | M16x1.5 | 15 | 5 | 6 | 3 | 22 | 6 | 10 | M5 | 12 | 8 | M6 | 10 | 4 | 5 | 24 | 20 | 75 | 25 |
| **12*** | 16 | 3 | M16x1.5 | 15 | 5 | 6 | 3 | 22 | 6 | 10 | M5 | 12 | 8 | M6 | 10 | 4 | 5 | 24 | 20 | 80 | 25 |
| **12M** | 16 | 3 | M16x1.5 | 15 | 5 | 6 | 3 | 22 | 6 | 10 | M5 | 12 | 8 | M6 | 10 | 4 | 5 | 24 | 20 | 80 | 25 |
| **12M*** | 16 | 3 | M16x1.5 | 15 | 5 | 6 | 3 | 22 | 6 | 10 | M5 | 12 | 8 | M6 | 10 | 4 | 5 | 24 | 20 | 85 | 25 |
| **16** | 16 | 3 | M16x1.5 | 15 | 5 | 6 | 3 | 25 | 6 | 10 | M5 | 12 | 8 | M6 | 11 | 5 | 5 | 24 | 20 | 82 | 25 |
| **16M** | 16 | 3 | M16x1.5 | 15 | 5 | 6 | 3 | 25 | 6 | 10 | M5 | 12 | 8 | M6 | 11 | 5 | 5 | 24 | 20 | 87 | 25 |
| **20** | 20 | 4 | M22x1.5 | 20 | 7 | 8 | 6 | 27.5 | 8 | 13 | G1/8“ | 16 | 10 | M8 | 12 | 3 | 9.5 | 34 | 24.5 | 95 | 34 |
| **25** | 22 | 4 | M22x1.5 | 20 | 9 | 8 | 6 | 32 | 10 | 17 | G1/8“ | 16 | 10 | M10x1.25 | 12 | 4 | 10 | 34 | 25.5 | 104 | 35 |

Notice: M after piston diameter size means cylinder with magnetic piston.
Notice *) Values are valid for type 11006 with spring extedned piston rod

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-7 |
| 21 Foot mounting | ... 4-5 |
| 30 Swivel flange | ... 4-5 |
| 90 Prox. switch | ... 3-2, 3-4 |



Pneumatic cylinder may be used, when small mounting dimensions are required. There is no cushioning at end of stroke.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

| **Piston diameter [mm]** | **20** | **25** | **32** | **40** | **50** | **63** | **80** | **100** | **160** |
|---|---|---|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N]* | 188 | 295 | 482 | 754 | 1178 | 1870 | 3015 | 4713 | 12064 |
| Return force at 0.6 MPa [N]* | 158 | 248 | 415 | 662 | 1025 | 1717 | 2720 | 4484 | 11309 |
| Spring restoring force [N] | 15 | 16 | 24 | 27 | 46 | 46 | 124 | 124 | 402 |
| Connection | M5 | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/8“ | G1/4“ | G1/4“ | G3/8“ |
| Max. stroke [mm] | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 50 |
| Weight 0 mm stroke [kg] | 0.05 | 0.08 | 0.16 | 0.29 | 0.43 | 0.60 | 1.10 | 1.80 | 8.20 |
| Weight add. per 1 mm stroke [kg] | 0.0014 | 0.0015 | 0.0040 | 0.0060 | 0.0080 | 0.0100 | 0.0160 | 0.0200 | 0.0600 |

*) Cylinder will make out either thrust or return force, accordingly to the type (spring return / extend).

## Order codes

12505 10 00 050 0010

| Type | |
|---|---|
| 12505 | short stroke, single acting, spring return |
| 12506 | short stroke, single acting, spring extend |

| Equipment | |
|---|---|
| 00 | w/o magnet, external thread |
| 01 | w/o magnet, internal thread |
| 10 | with magnet, external thread |
| 11 | with magnet, internal thread |

| Options | |
|---|---|
| 00 | without options |
| 10 | Viton® piston rod sealing |
| 14 | 1.4301 stainless steel piston rod |

For more options regarding materials or dimensions, please contact our technical dept.

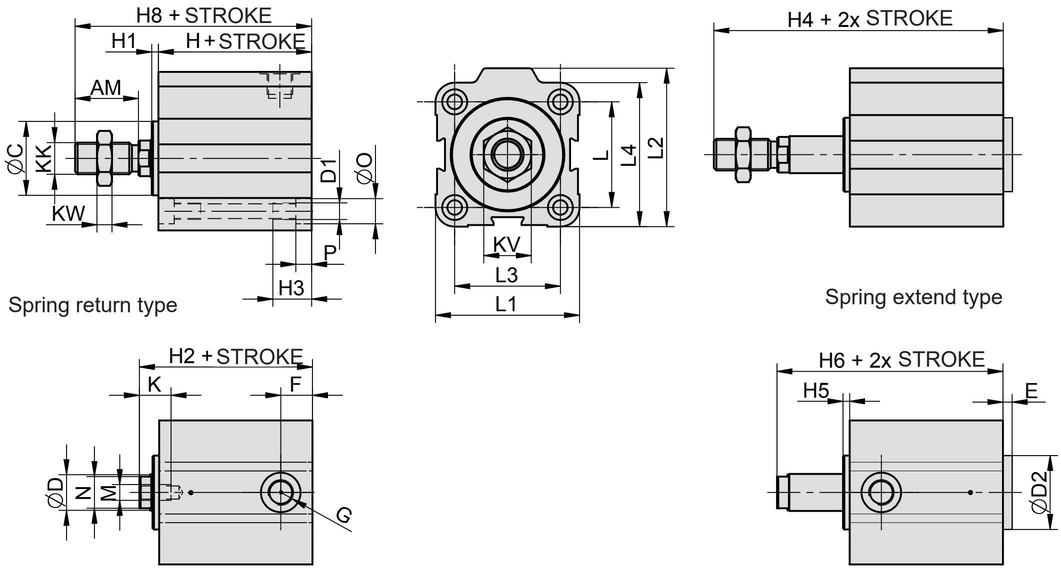
| Piston diameter | |
|---|---|
| 020 | 20 mm |
| 025 | 25 mm |
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 160 | 160 mm |

| Stroke / Repair kit | |
|---|---|
| xxxx | mm of stroke e.g.: 0010 = stroke 10 mm |
| 9999 | repair kit |

## Construction / materials

- caps: anodized dural
- body: drawn anodized dural profile, piston diameter 160: aluminium casting
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

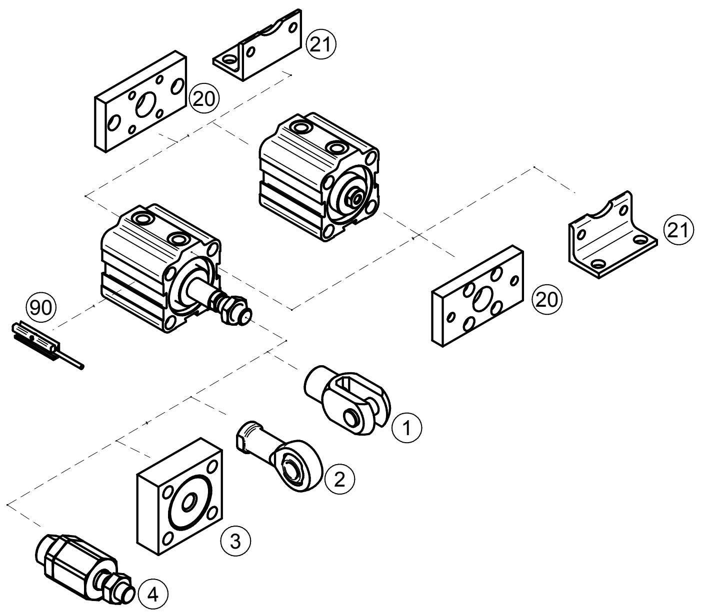
## Dimensions




| ∅ | AM | C | D | D1 | D2 | E | F | G | H | H1 | H2 | H3 | H4 | H5 | H6 | H8 | K | KK | KV | KW | L | L1 | L2 | L3 | L4 | M | N | O | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 20 | 12 | 8 | M5 | 12 | 16 | 9 | M5 | 23.5 | 16 | 44.5 | 15 | 51 | 2.5 | 31 | 64.5 | 8 | M8 | 13 | 6 | 22 | 32 | 35 | 22 | 32 | M5 | 7 | 7 | 5 |
| 20M | 20 | 12 | 8 | M5 | 12 | 16 | 9 | M5 | 41.5 | 16 | 62.5 | 15 | 69 | 2.5 | 49 | 82.5 | 8 | M8 | 13 | 6 | 22 | 32 | 35 | 22 | 32 | M5 | 7 | 7 | 5 |
| 25 | 22 | 17 | 10 | M5 | 17 | 12 | 10 | G1/8“ | 26.5 | 11 | 42.5 | 15 | 56 | 2.5 | 34 | 64.5 | 8 | M10x1.25 | 17 | 6 | 28 | 38 | 45 | 26 | 39 | M5 | 8 | 8 | 5 |
| 25M | 22 | 17 | 10 | M5 | 17 | 12 | 10 | G1/8“ | 34.5 | 11 | 50.5 | 15 | 64 | 2.5 | 42 | 72.5 | 8 | M10x1.25 | 17 | 6 | 28 | 38 | 45 | 26 | 39 | M5 | 8 | 8 | 5 |
| 32 | 22 | 21 | 12 | M6 | 21 | 12.5 | 11 | G1/8“ | 35 | 12.5 | 52.5 | 18 | 64.5 | 2.5 | 42.5 | 74.5 | 12 | M10x1.25 | 17 | 6 | 36 | 45 | 54 | 32 | 48 | M6 | 10 | 9.5 | 6 |
| 32M | 22 | 21 | 12 | M6 | 21 | 12.5 | 11 | G1/8“ | 45.5 | 15.5 | 63 | 18 | 75 | 2.5 | 53 | 85 | 12 | M10x1.25 | 17 | 6 | 36 | 45 | 54 | 32 | 48 | M6 | 10 | 9.5 | 6 |
| 40 | 24 | 28 | 14 | M6 | 28 | 11 | 12 | G1/8“ | 44 | 10.5 | 59.5 | 18 | 75.5 | 2.5 | 51.5 | 83.5 | 12 | M12x1.25 | 19 | 10 | 40 | 55 | 60 | 40 | 55 | M6 | 12 | 9.5 | 6 |
| 50 | 32 | 36 | 18 | M8 | 36 | 12 | 13 | G1/8“ | 46 | 12 | 64 | 24 | 86.5 | 2.5 | 54.5 | 96 | 14 | M16x1.5 | 24 | 8 | 50 | 65 | 73 | 50 | 65 | M8 | 16 | 11 | 8 |
| 63 | 32 | 48 | 18 | M10 | 48 | 7 | 14.5 | G1/8“ | 46 | 7 | 59 | 24.5 | 87.5 | 3.5 | 55.5 | 91 | 14 | M16x1.5 | 24 | 8 | 62 | 80 | 88 | 62 | 80 | M8 | 16 | 14 | 8.5 |
| 63M | 32 | 48 | 18 | M10 | 48 | 7 | 14.5 | G1/8“ | 50 | 7 | 63 | 24.5 | 91.5 | 3.5 | 59.5 | 95 | 14 | M16x1.5 | 24 | 8 | 62 | 80 | 88 | 62 | 80 | M8 | 16 | 14 | 8.5 |
| 80 | 43 | 54 | 22 | M10 | 54 | 8.5 | 16.5 | G1/4“ | 50 | 8.5 | 64.5 | 24.5 | 102.5 | 3.5 | 59.5 | 107.5 | 17 | M20x1.5 | 30 | 9 | 82 | 100 | 110 | 82 | 100 | M10 | 19 | 14 | 8.5 |
| 80M | 43 | 54 | 22 | M10 | 54 | 8.5 | 16.5 | G1/4“ | 57 | 8.5 | 71.5 | 24.5 | 109.5 | 3.5 | 66.5 | 114.5 | 17 | M20x1.5 | 30 | 9 | 82 | 100 | 110 | 82 | 100 | M10 | 19 | 14 | 8.5 |
| 100 | 43 | 60 | 22 | M12 | 60 | 7 | 20 | G1/4“ | 57 | 7 | 70 | 29 | 112 | 6 | 69 | 113 | 20 | M20x1.5 | 30 | 9 | 103 | 124 | 134 | 103 | 124 | M12 | 19 | 17 | 11 |
| 100M | 43 | 60 | 22 | M12 | 60 | 7 | 20 | G1/4“ | 61 | 7 | 74 | 29 | 116 | 6 | 73 | 117 | 20 | M20x1.5 | 30 | 9 | 103 | 124 | 134 | 103 | 124 | M12 | 19 | 17 | 11 |
| 160 | 72 | 110 | 40 | M20 | – | – | 22.5 | G3/8“ | 96 | – | 113 | 45 | – | – | – | 185 | 25 | M36x2 | 50 | 18 | 154 | 200 | 210 | 154 | 200 | M16 | 36 | 26 | 21 |

Notice: M after piston diameter size means cylinder with magnetic piston.

## Mounting accessories




| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod coupling | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-5 |
| 90 Prox. switch | ... 3-2, 3-4 |

# PNEUMATIC SHAKE DEVICES
# BALL VIBRATOR


Ball vibrator could be used for bulk material release if the bulk material was adhesed on walls of tubes or filling hopper. It can be used for such as materials which doesn‘t solidify by intensive shedding; in this case pneumatic knocker should be used.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,2 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

| Type | KV8 | KV15 | KV25 | KV36 |
|---|---|---|---|---|
| Ball diameter [mm] | 8 | 15 | 25 | 36 |
| Connection | G1/4“ | G1/4“ | G1/4“ | G3/8“ |
| Weight [kg] | 0.4 | 0.5 | 0.7 | 1.6 |
| Recommended hose orifice of air supply [mm] | 8 | 10 | 10 | 12 |
| Minimal tightening torque of fixing screws [Nm] | 10.4 | 25 | 25 | 51 |

## Order codes

2100 91 0 00 025 0000

| Device type | |
|---|---|
| 2100 | pneumatic shake device |

| Equipment | |
|---|---|
| 91 | ball vibrator |

| Options | |
|---|---|
| 00 | without options |

| Vibrator type | |
|---|---|
| 008 | KV8 |
| 015 | KV15 |
| 025 | KV25 |
| 036 | KV36 |

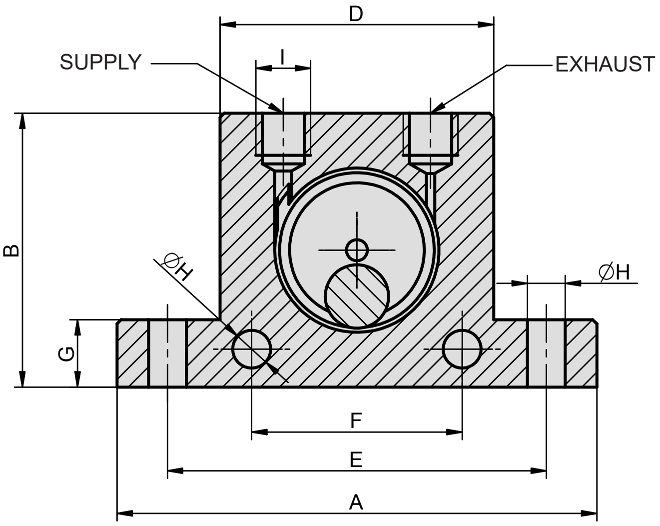
## Installation and operation notes

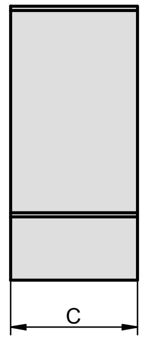
There is necessary to adhere minimal tightening torque of fixing screws (see values in table above). Fixing screws aren‘t included in supply.
We recommend to fix fixing screws with Loctite 242E or similar adhesive.
There is necessary to check right tightening of fixing screws regularly to prevent their releasing.
The silencer is required on exhaust to avoid excessive noise. The silencer must be kept clear otherwise danger of vibrator body failure and injury impend.
Compressed air supply must be connected to port marked as V (eventually VSTUP, IN, or 1).

## Construction / materials

- body and caps: anodized dural
- ball: precise bearing ball
- ball guide: hardened steel

## Dimensions



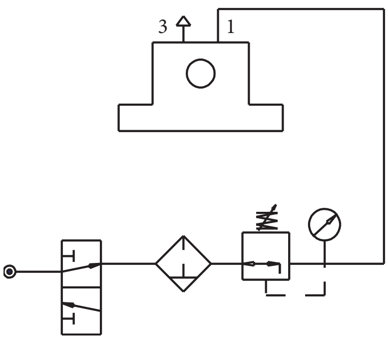




| TYPE | A | B | C | D | E | F | G | H | I | Ball diameter |
|---|---|---|---|---|---|---|---|---|---|---|
| **KV8** | 86 | 50 | 25 | 50 | 68 | 40 | 12 | 7 | G1/4“ | 8 |
| **KV15** | 114 | 65 | 30 | 65 | 90 | 50 | 15 | 9 | G1/4“ | 15 |
| **KV25** | 123 | 80 | 40 | 80 | 104 | 60 | 15 | 9 | G1/4“ | 25 |
| **KV36** | 160 | 100 | 56 | 100 | 130 | 80 | 20 | 10.5 | G3/8“ | 36 |

## Technical data

| Type | KV8 values at pressure [MPa] | | | KV15 values at pressure [MPa] | | | KV25 values at pressure [MPa] | | | KV36 values at pressure [MPa] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.2 | 0.4 | 0.6 | 0.2 | 0.4 | 0.6 | 0.2 | 0.4 | 0.6 | 0.2 | 0.4 | 0.6 |
| Frequence [1/min] | 24500 | 31000 | 35000 | 14300 | 17600 | 20200 | 10100 | 13200 | 14500 | 7500 | 9300 | 10300 |
| Centrifugal force [N] | 180 | 290 | 370 | 540 | 820 | 1090 | 1180 | 2000 | 2420 | 2340 | 3590 | 4400 |
| Air consumption [l/min] | 83 | 145 | 195 | 122 | 200 | 280 | 160 | 280 | 425 | 260 | 475 | 675 |

## Recommended connection




There is useful to use pressure regulator in circuit to enable vibration intensity regulation. If you need to start vibrator by another way than manually, there is necessary to use appropriate 2/2 or 3/2 valve which should be connected between pressure regulator and vibrator.

# PNEUMATIC SHAKE DEVICES
# PNEUMATIC KNOCKER

Pneumatic knocker could be used for bulk material release if the bulk material was adhesed on walls of tubes or filling hopper. Compared to ball vibrator, knocker can be used for materials which solidify by intensive shedding; in this case individual shakes are well-proven. Knocker should be controlled as well as double acting cylinder. From piston diameter 50 mm incl. knockers are equipped with fully adjustable cushioning at end of return piston movement.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,2 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

| Type | OK32 | OK40 | OK50 | OK63 | OK80 |
|---|---|---|---|---|---|
| Piston diameter [mm] | 32 | 40 | 50 | 63 | 80 |
| Stroke [mm] | 45 | 75 | 100 | 120 | 150 |
| Piston weight [kg] | 0.2 | 0.4 | 1 | 2.3 | 4 |
| Recommended orifice of air supply [mm] | 8 | 8 | 10 | 10 | 10 |
| Recommended flow capacity [Nl/min] | 900 | 900 | 1600 | 1600 | 2200 |
| Impulse [Ns] | 1.7 | 3.5 | 8 | 15 | 30 |
| Kinetic energy [Nm] | 7 | 14 | 32 | 60 | 100 |

## Order codes

2100 90 0 00 0500100

| Device type | |
|---|---|
| 2100 | pneumatic shake device |

| Equipment | |
|---|---|
| 90 | pneumatic knocker |

| Options | |
|---|---|
| 00 | without options |

| Knocker type | |
|---|---|
| 0320045 | diameter 32, stroke 45 mm |
| 0400075 | diameter 40, stroke 75 mm |
| 0500100 | diameter 50, stroke 100 mm |
| 0630120 | diameter 63, stroke 120 mm |
| 0800150 | diameter 80, stroke 150 mm |

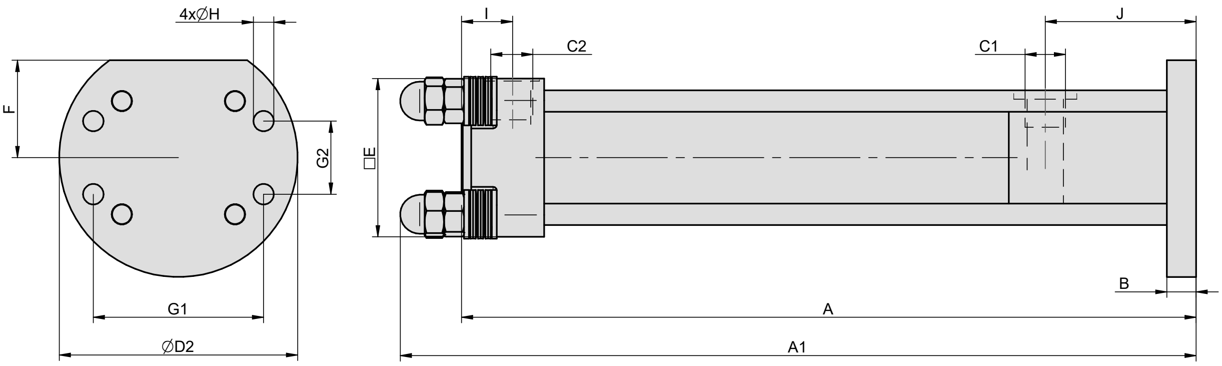
## Installation and operation notes

We recommend to fix fixing screws with Loctite 242E or similar adhesive.
There is necessary to check right tightening of fixing screws regularly to prevent their releasing.
We recommend to use quick exhaust valve on exhaust on impact side not to decrease knocker‘s effectivity.

## Construction / materials

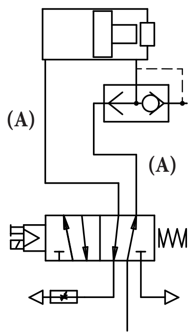
- flange: zinc plated steel
- end cap: aluminium casting
- body: drawn dural tube, anodized
- piston: steel

## Dimensions




| ∅ | A | A1 | B | C1 | C2 | D2 | E | F | G1 | G2 | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 186 | - | 8 | G1/4“ | G1/4“ | 69 | 48 | 28 | 50 | 18 | 6.4 | 26 | 40 |
| 40 | 228 | - | 10 | G1/4“ | G1/4“ | 72 | 55 | 30 | 55 | 20 | 6.4 | 24 | 44 |
| 50 | 302 | 327 | 12 | G3/8“ | G3/8“ | 98 | 65 | 40 | 70 | 30 | 8.4 | 21 | 62 |
| 63 | 352 | 377 | 15 | G3/8“ | G3/8“ | 119 | 75 | 45 | 85 | 40 | 10.5 | 20 | 58 |
| 80 | 388 | 422 | 20 | G3/8“ | G3/8“ | 138 | 95 | 55 | 100 | 50 | 13 | 20 | 58 |

## Recommended connection



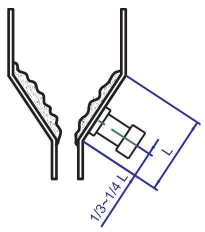

The 5/2 valve is suitable for knocker control. Valve should be placed as closest to knocker as possible, but we recommend to fix it so that valve will be isolated to shocks from knocker. We recommend to use quick exhaust valve on exhaust (mounted parallel to knocker‘s axis to prevent from shocks) so as not to decrease impact intensity. It is suitable to use speed control silencer during piston return movement, to get possible to control of return speed of piston into home position to prevent chocks.

**Attention: knocker is designed for make shocks only by movement of piston towards to front cap with flange! Do not allow to make shocks during piston return movement in any case! It may be the cause of permanent damage of end cap of knocker!**

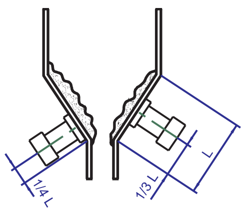
(A) We recommend consulting the choice of length and diameter of the marked parts of the circuit with our technical department.

## Mounting examples

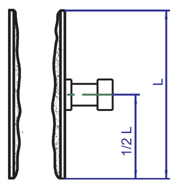
Single knocker on filling hopper




Two knockers on filling hopper
(edge distances should be different)




Single knocker on tube



# PNEUMATIC SHAKE DEVICES
# KNOCKER WITH AIR TANK

STRÁNSKÝ A PETRŽÍK

Pneumatic knocker could be used for bulk material release if the bulk material was sticked on the walls of tubes or filling hopper. Compared to ball vibrator, knocker can be used for materials which solidify by intensive shedding; in this case individual shakes are well-proven. Knocker should be controlled as well as double acting cylinder. The function is then given by the impulse effect when the pressure drop is created on the piston, the air before the piston is released and then the piston is fired against the wall of the knocker. Thanks to this principle the hammer does not require high demands on the flow of the distributor and the flow through the hoses.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,2 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

| Type | OKI32 | OKI40 | OKI50 | OKI63 | OKI80 |
|---|---|---|---|---|---|
| Piston diameter [mm] | 32 | 40 | 50 | 63 | 80 |
| Piston weight [kg] | 0.15 | 0.25 | 0.66 | 1.20 | 2.13 |
| Recommended orifice of air supply [mm] | 4 | 6 | 6 | 6 | 8 |
| Recommended flow capacity [Nl/min] | 400 | 600 | 600 | 600 | 800 |
| Impulse [Ns] | 1.5 | 2.7 | 5.2 | 12 | 20 |
| Kinetic energy [Nm] | 7.5 | 14 | 20 | 60 | 98 |
| Max. frequency of shocks [min$^{-1}$] | 30 | 24 | 20 | 15 | 12 |
| Weight [kg] | 1.2 | 1.8 | 4.0 | 5.9 | 9.7 |

## Order codes

2100 90 0 00 0500040

| Device type | |
|---|---|
| 2100 | pneumatic shake device |

| Equipment | |
|---|---|
| 90 | pneumatic knocker with air tank |

| Options | |
|---|---|
| 00 | without options |

| Knocker type | |
|---|---|
| 0320025 | diameter 32, stroke 25 mm |
| 0400030 | diameter 40, stroke 30 mm |
| 0500040 | diameter 50, stroke 40 mm |
| 0630050 | diameter 63, stroke 50 mm |
| 0800050 | diameter 80, stroke 50 mm |

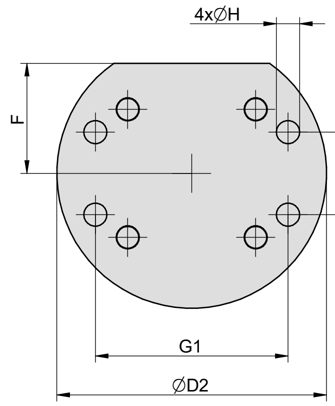
## Installation and operation notes

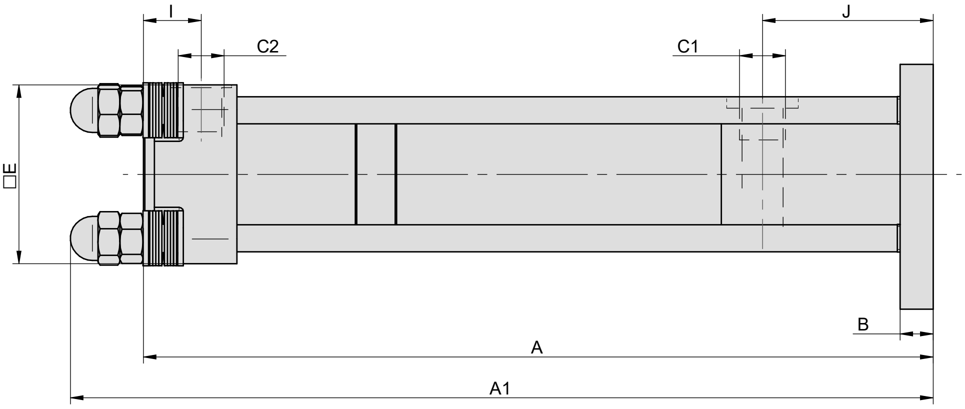
We recommend to fix fixing screws with Loctite 242E or similar adhesive.
There is necessary to check right tightening of fixing screws regularly to prevent their releasing.
We recommend to use quick exhaust valve on exhaust on impact side not to decrease knocker‘s effectivity.

## Construction / materials

- flange: zinc plated steel
- end cap: aluminium casting
- body: drawn dural tube, anodized
- piston: steel

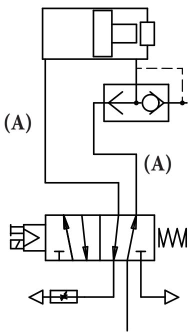
## Dimensions




| ∅ | A | A1 | B | C1 | C2 | D2 | E | F | G1 | G2 | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 203.5 | - | 8 | G1/4“ | G1/4“ | 69 | 48 | 28 | 50 | 18 | 6.4 | 26.5 | 40 |
| **40** | 225 | - | 10 | G1/4“ | G1/4“ | 72 | 55 | 30 | 55 | 20 | 6.4 | 24 | 44 |
| **50** | 287 | 314 | 12 | G3/8“ | G3/8“ | 98 | 65 | 40 | 70 | 30 | 8.4 | 21 | 62 |
| **63** | 307 | 334 | 15 | G3/8“ | G3/8“ | 119 | 75 | 45 | 85 | 40 | 10.5 | 20 | 58 |
| **80** | 313 | 347 | 20 | G3/8“ | G3/8“ | 138 | 94 | 50 | 100 | 50 | 13 | 20 | 58 |

## Recommended connection



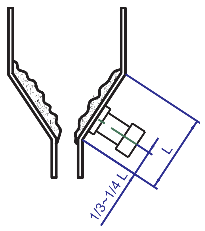

The 5/2 valve is suitable for knocker control. Valve should be placed as closest to knocker as possible, but we recommend to fix it so that valve will be isolated to shocks from knocker. We recommend to use quick exhaust valve on exhaust (mounted parallel to knocker‘s axis to prevent from shocks) so as not to decrease impact intensity. It is suitable to use speed control silencer during piston return movement, to get possible to control of return speed of piston into home position to prevent chocks.

**Attention: knocker is designed for make shocks only by movement of piston towards to front cap with flange! Do not allow to make shocks during piston return movement in any case! It may be the cause of permanent damage of end cap of knocker!**

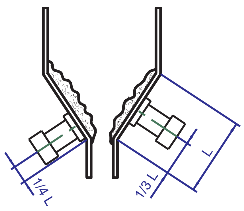
(A) We recommend consulting the choice of length and diameter of the marked parts of the circuit with our technical department.

## Mounting examples

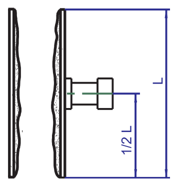
Single knocker on filling hopper




Two knockers on filling hopper
(edge distances should be different)




Single knocker on tube



# PNEUMATIC SHAKE DEVICES
# SPRING KNOCKER

Pneumatic knocker could be used for bulk material release if the bulk material was adhesed on walls of tubes or filling hopper. Compared to ball vibrator, knocker can be used for materials which solidify by intensive shedding; in this case individual shakes are well-proven. The principle is simple: by pressurize of air chamber the spring is pre-tensioned and by air exhausting the spring causes the impact. This system should be used, when there is no sufficient flow rate in the line for standard pneumatic knockers without springs.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,4 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -20°C to +80°C |
| Working medium | modified compressed air |

| **Type** | **OKP32** | **OKP50** | **OKP80** |
|---|---|---|---|
| Piston diameter [mm] | 32 | 50 | 80 |
| Stroke [mm] | 25 | 35 | 50 |
| Piston weight [kg] | 0.16 | 0.75 | 2.60 |
| Impulse [Ns] | 1.5 | 7 | 20 |
| Kinetic energy [Nm] | 6.5 | 28 | 75 |

## Order codes

2100 92 0 00 0500035

| **Device type** | |
|---|---|
| 2100 | pneumatic shake device |

| **Equipment** | |
|---|---|
| 92 | spring knocker |

| **Options** | |
|---|---|
| 00 | without options |

| **Knocker type** | |
|---|---|
| 0320025 | diameter 32, stroke 25 mm |
| 0500035 | diameter 50, stroke 35 mm |
| 0800050 | diameter 80, stroke 50 mm |

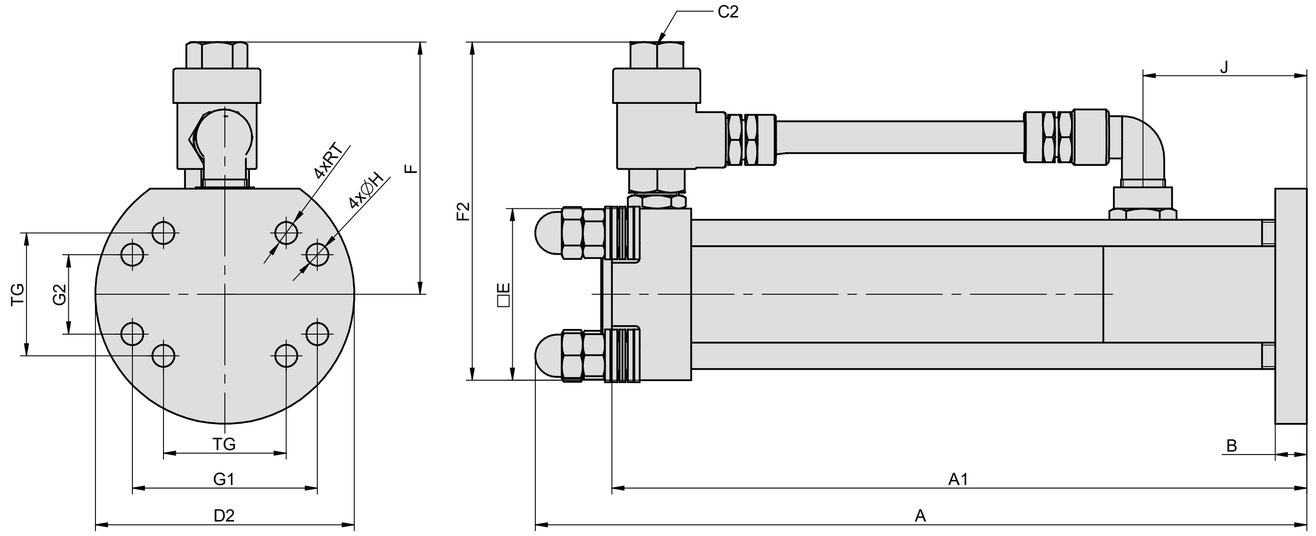
## Installation and operation notes

We recommend to fix fixing screws with Loctite 242E or similar adhesive.
There is necessary to check right tightening of fixing screws regularly to prevent their releasing.
The quick exhaust valve and connections of both chambers are included in delivery, compressed air should be connected to the quick exhaust valve.

## Construction / materials

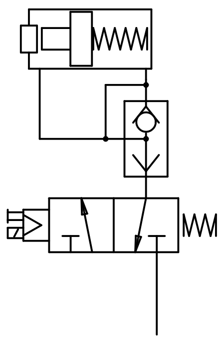
- flange: zinc plated steel
- end cap: aluminium casting
- body: drawn dural tube, anodized
- piston: steel

## Dimensions




| ∅ | A | A1 | B | C2 | D2 | E | F | F2 | G1 | G2 | J | H | RT | TG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 181 | 177 | 8 | G1/4“ | 69 | 48 | 86 | 110 | 50 | 18 | 40 | 6.4 | M6 | 32.5 |
| **50** | 292 | 263 | 12 | G3/8“ | 98 | 65 | 96 | 128 | 70 | 30 | 62 | 8.4 | M10 | 46.5 |
| **80** | 338 | 309 | 20 | G1/2“ | 150 | 94 | 126 | 173 | 110 | 60 | 58 | 13 | M10 | 72 |

## Recommended connection

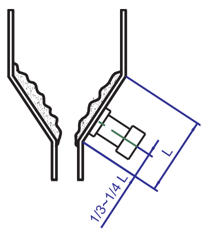


The 3/2 valve is suitable for knocker control. The force of knocker does not depend on distance between knocker and valve. We recommend to mount the valve outside, where the knocker‘s shocks couldn‘t reach the valve.

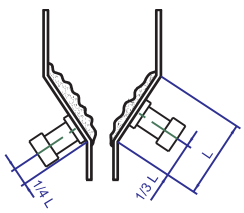
**Attention: knocker is designed for make shocks only by movement of piston towards to front cap with flange! Do not allow to make shocks during piston return movement in any case! It may be the cause of permanent damage of end cap of knocker!**

## Mounting examples

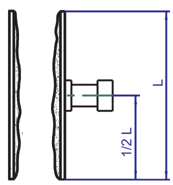
Single knocker on filling hopper




Two knockers on filling hopper
(edge distances should be different)




Single knocker on tube



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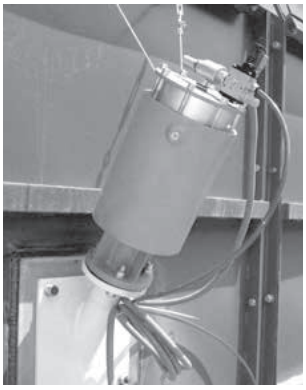


Air cannon is used to give support to free-flow of material in bunkers, hoppers, silos, etc. The volume of reservoir of air cannon is intensely expanded into the area with blocked material. This shot will release the material, which will flow by standard way.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,2 MPa |
| Max. pressure | 0,6 MPa |
| Temp. range | -25°C to +90°C |
| Working medium | modified compressed air |

| Size - volume | 2 litres | 8 litres |
|---|---|---|
| Connections | G3/8“ | G1/2“ |
| Weight [kg] | 10 | 33 |
| Min. tightening torque [Nm] | 25 | 100 |
| Recommended orifice of air supply [mm] | 8 | 10 |
| Recommended flow capacity [Nl/min] | 600 | 1100 |
| Max. number of shots per minute | 10 | 8 |
| Flange connection | DN20 PN6 | DN50 PN16 |

## Order codes

| Size - volume | Order codes |
|---|---|
| Air cannon, volume 2 litres | 4500 2608 4406 0002 |
| Air cannon, volume 8 litres | 4500 2608 4406 0001 |

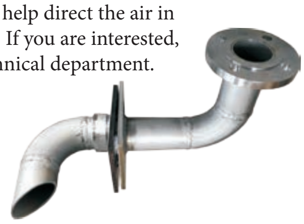
## Installation and operation notes

We recommend to fix fixing screws with Loctite 242E or similar adhesive.
There is necessary to check right tightening of fixing screws regularly to prevent their releasing.
The quick exhaust valve is included in delivery, compressed air should be connected to the quick exhaust valve.
The air cannon must be fixed by restraining cable to the vessel.
Installation must be done accordingly to the users manual.

## Warning

Detailed information regarding the connection, installation and operation of the cannon is given in the instruction manual of the device. You can find this manual at www.sappv.cz/r/2-70, or you can request it from the sales or technical department of Stránský a Petržík.

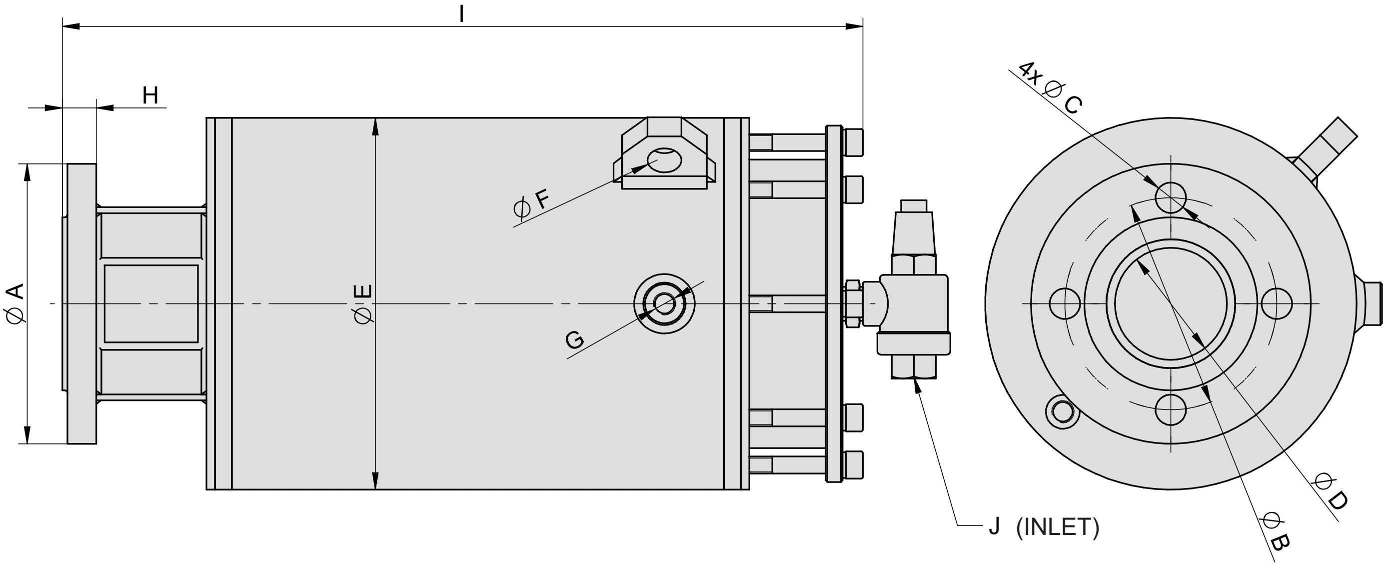
As an accessory to the cannon, it is possible to supply a force blowing nozzle with the possibility of adjusting the angle of the spiral air flow, which will help direct the air in the required direction. If you are interested, please contact our technical department.



## Construction / materials

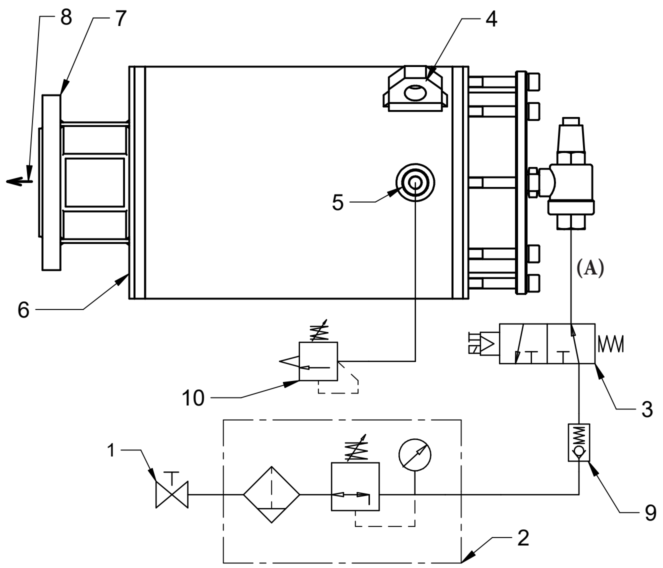
- body, end cap: steel, zinc plated
- tube: extruded dural tube
- piston: plastic
- sealing: NBR

## Dimensions




| Volume | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 litres | 90 | 65 | 11 | 20 | 133 | 12 | G1/4“ | 14 | 367 | G3/8“ |
| 8 litres | 165 | 125 | 18 | 66 | 219 | 20 | G1/4“ | 20 | 472 | G1/2“ |

## Recommended connection



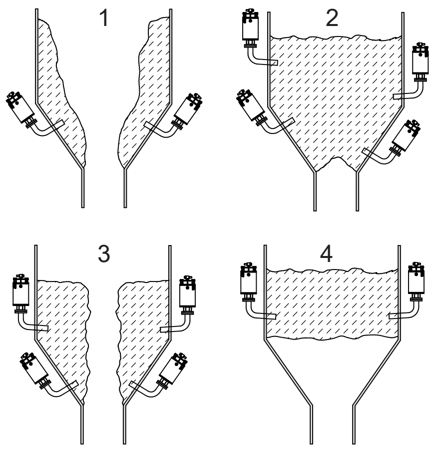

The 3/2 valve is suitable for air cannon control. We recommend to mount the valve outside, where the air cannon‘s shocks couldn‘t reach the valve.

| Position | Description |
|---|---|
| 1* | shutting-off valve |
| 2* | filter with pressure regulator |
| 3* | 3/2 normally open valve |
| 4 | shackle for installing restraining cable |
| 5 | plug G1/4“ - for example for gauge |
| 6 | draining screw |
| 7 | flange connection |
| 8 | direction of air shot |
| 9* | reverse throttle valve |
| 10* | safety valve |

Items marked by asterisk (*) are optional - they have to be ordered separately.

(A) We recommend consulting the choice of length and diameter of the marked parts of the circuit with our technical department.

## Mounting examples




There are four main problems associated with interruption of free flow of bulk solids in bunkers, hoppers, silos transfer chutes etc., as shown in Figs. 1, 2, 3 and 4. Please note these illustrations are for general information only, there being various other blocking scenarios which occur

1) Clinging
   Material deposits clinging to the sides of hoppers, reducing free-flow and creating the possibility of contamination of new material if clinging deposits break free from sides of vessel.
2) Bridging
   Blockage at the outlet of the storage hopper resulting in complete loss of production. This is a common fault where fine materials are being processed and the moisture content is higher than normal.
3) Ratholing
   An extreme form of clinging, reducing free-flow and requiring regular topping up of small quantities of material. Loss of production will be the result of this condition and the solution, i.e., high pressure lancing vibration etc., can result in huge lumps of material breaking away and blocking the outlet.
4) Arching
   Type of bridging occurring at a high level within the hopper. This condition creates a dangerous situation for operators when trying to clear the blockage and also a possible maintenance /damage issue for the works engineer and the high costs resulting from the loss of production.

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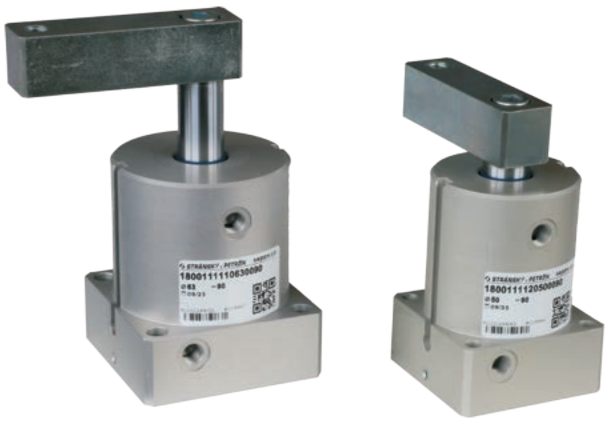


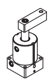
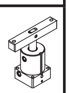
Pneumatic swing clamp cylinders are used for various types of clamping. Thanks to the design, it is easy to fit the clamping material because the clamping arm rotates over the material during clamping and then clamps. The angle of rotation is 90° as standard. With the double-sided arm, it is possible to clamp the material on two opposite sides at the same time. The clamps have a magnetic piston for contactless position sensing and do not have cushioning at the end positions. The single-sided clamping arm can be turned to any position, the double-sided arm has a fixed position.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,1 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -5°C to +60°C |
| Working medium | modified compressed air |

| **Piston diameter [mm]** | **32** | **40** | **50** | **63** |
|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 482 | 754 | 1178 | 1870 |
| Return (clamp) force at 0.6 MPa [N] | 360 | 630 | 980 | 1680 |
| Total stroke [mm] | 26 | 26 | 30 | 30 |
| Clamp stroke (linear movement only) [mm] | 13 | 13 | 13 | 13 |
| Stroke during swing [mm] | 13 | 13 | 17 | 17 |
| Non-rotating accuracy [°] | ±2 | ±1,3 | ±1,2 | |
| Available speed range [mm.s$^{-1}$] | 50 - 200 | | | |
| Port size | G1/8“ | G1/8“ | G1/8“ | G1/8“ |
| Weight - without arm / single sided arm / double sided arm[kg] | 0,45 / 0,65 / 0,85 | 0,61 / 0,83 / 1,00 | 0,95 / 1,33 / 1,67 | 1,24 / 1,66 / 1,95 |

## Order codes

18001 11 1 2 050 0090

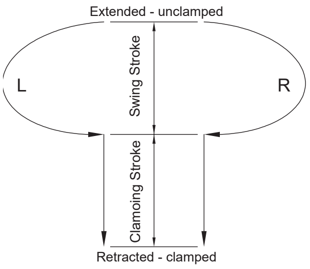
| **Clamping arm** | |
|---|---|
| 0 | without arm (with piston rod end for single side arm) |
| 1 | single-sided  |
| 2 | double-sided  |

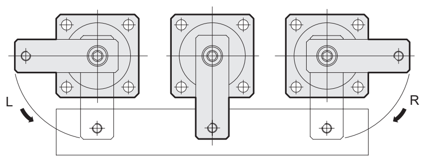
| **Rotation** | |
|---|---|
| 1 | clockwise „R“ |
| 2 | counterclockwise „L“ |

| Piston diameter | |
|---|---|
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |

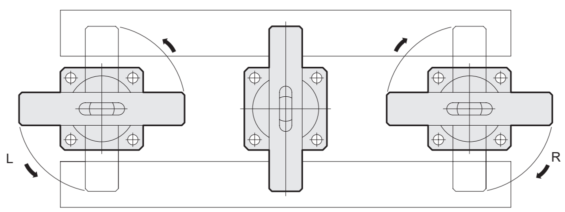
| **Rotation angle / repair kit** | |
|---|---|
| 0090 | rotation angle 90˚ |
| 9999 | repair kit |

## Rotation



Arm position when the material is clamped



Arm position when the material is clamped

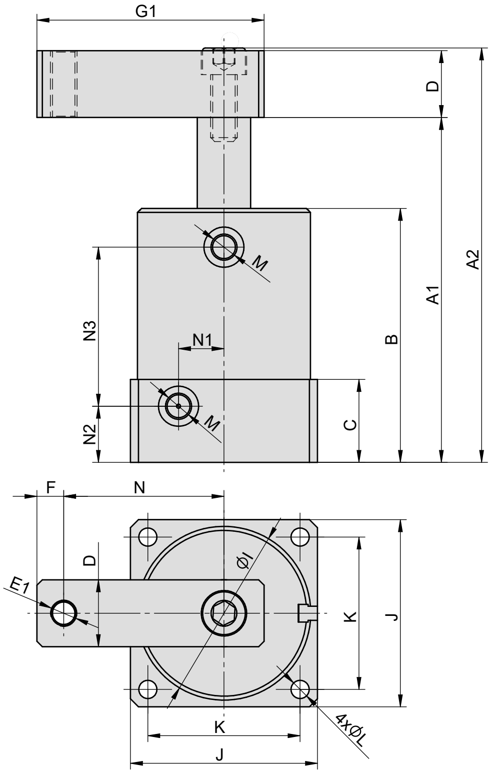
## Construction / materials

- body, end cap: dural, anodized
- piston rod: CK45
- arm: steel, zinc plated

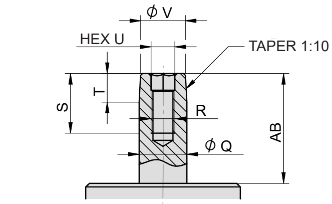
In case of proximity sensing request, please use switches series KT-50 or RZT7/MZT8 - see page 3-2 and 3-4 for details

## Dimensions

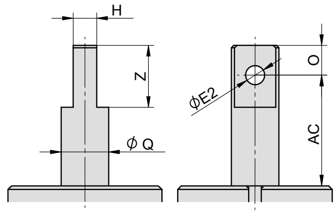
### Clamp with single-sided arm



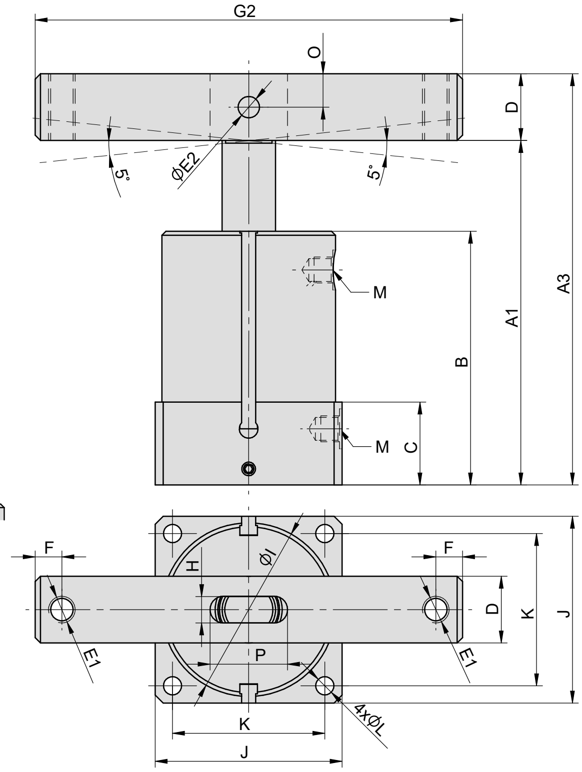

Piston rod end detail for single-sided arm and for version without arm:




Piston rod end detail for double-sided arm:




### Clamp with double-sided arm




| ∅ | A1 | A2 | A3 | AB | AC | B | C | D | E1 | E2 | F | G1 | G2 | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 113 | 134 | 133 | 39,5 | 40 | 83 | 28 | 20 | M8 | 8 | 8 | 70 | 140 | 9 | 46 | 50 |
| 40 | 115 | 136 | 135 | 39,5 | 40 | 85 | 28 | 20 | M8 | 8 | 8 | 75 | 140 | 9 | 55 | 60 |
| 50 | 129 | 155 | 154 | 46 | 46,5 | 95 | 31 | 25 | M10 | 8 | 10 | 85 | 160 | 10 | 65 | 70 |
| 63 | 129 | 155 | 154 | 46 | 46,5 | 95 | 31 | 25 | M10 | 8 | 10 | 95 | 160 | 10 | 78 | 83 |

| ∅ | K | L | M | N | N1 | N2 | N3 | O | P | Q | R | S | T | U | V | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 40 | 5,6 | G1/8“ | 50 | 11,5 | 19 | 55 | 10 | 25 | 16 | M8 | 20 | 9,5 | 8 | 15,1 | 21 |
| 40 | 48 | 6,8 | G1/8“ | 55 | 14 | 19 | 57 | 10 | 25 | 16 | M8 | 20 | 9,5 | 8 | 15,1 | 21 |
| 50 | 57 | 6,8 | G1/8“ | 60 | 17 | 21 | 59,5 | 12,5 | 29 | 20 | M10 | 25 | 12 | 10 | 18,7 | 26 |
| 63 | 67 | 9 | G1/8“ | 70 | 20 | 21 | 59,5 | 12,5 | 29 | 20 | M10 | 25 | 12 | 10 | 18,7 | 26 |

### Caution

Do not allow lateral forces to act on the clamping arm. It could cause irreversible damage to the internal parts. The clamp is designed for clamping forces in the direction of the clamp axis (in the direction of the clamping stroke).

### Caution

In order to avoid shocks in end positions (and thereby reduce the service life or damage internal parts), it is necessary to use flow control valves for both directions of movement.

## Loosening, fixing, rotating or replacing the clamping arm

When loosening or fastening the arm, it is necessary to secure it in the desired position. Never tighten the locking screw without securing the clamping arm. Torque transferred to the piston rod could damage internal parts.

After unscrewing the fixing screw, tap your arm in the direction of the axis of the clamp. Do not release it by tapping it from the side, it could damage the internal parts.

Pneumatic swing clamp cylinders are used for various types of clamping. Thanks to the design, it is easy to fit the clamping material because the clamping arm rotates over the material during clamping and then clamps. For the MCKC series, the angle of rotation is fixed - 90°. The clamps have a magnetic piston for non-contact position sensing.

**For more information like technical data and dimensions, please visit our web page on www.sappv.cz .**

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,1 MPa |
| Max. pressure | 1,0 MPa |
| Temp. range | -5°C to +60°C |
| Working medium | modified compressed air |

| **Piston diameter [mm]** | **12** | **16** | **20** | **25** | **32** | **40** | **50** |
|---|---|---|---|---|---|---|---|
| Thrust at 0.6 MPa [N] | 67 | 120 | 188 | 294 | 482 | 754 | 1178 |
| Return (clamp) force at 0.6 MPa [N] | 51 | 90 | 120 | 226 | 361 | 633 | 989 |
| Clamp stroke [mm] | 10, 20 | | 10, 20, 30 | | | | 10, 20, 30, 50 |
| Rotary stroke [mm] | 7,5 | | 9,5 | | 15 | | 19 |
| Non-rotating accuracy [°] | ±2 | ±1,3 | ±1,2 | | ±1 | | |
| Available speed range [mm.s$^{-1}$] | 50 - 200 | | | | | | |
| Port size | M5 | | | | G1/8“ | | G1/4“ |
| Weight 0 mm stroke -with arm [kg] | 0,066 | 0,100 | 0,266 | 0,319 | 0,573 | 0,652 | 1,170 |
| Weight 0 mm stroke - without arm [kg] | 0,052 | 0,066 | 0,176 | 0,229 | 0,382 | 0,461 | 0,820 |
| Weight add. per 1 mm stroke [kg] | 0,016 | 0,023 | 0,038 | 0,046 | 0,069 | 0,074 | 0,109 |

## Order codes

P MCKC 32 10 L N G

| Piston diameter | |
|---|---|
| 12 | 12 mm |
| 16 | 16 mm |
| 20 | 20 mm |
| 25 | 25 mm |
| 32 | 32 mm |
| 40 | 40 mm |
| 50 | 50 mm |

| Stroke | |
|---|---|
| 10 | 10 mm |
| 20 | 20 mm |
| 30* | 30 mm |
| 50** | 50 mm |

*) Only for piston dia. 20 mm and larger

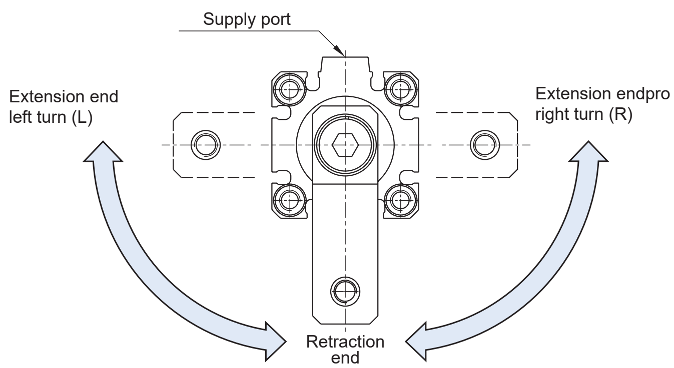
**) Only for piston dia. 50 mm

| Rotation | |
|---|---|
| L | left |
| R | right |

| Arm | |
|---|---|
| | yes |
| N | no |

| Air supply thread | |
|---|---|
| | M5 for piston dia. 12 to 25 mm |
| G | G1/8“ for piston dia. 32 and 40 mm<br>G1/4“ for piston dia. 50 mm |

## Rotation




In case of proximity sensing request, please contact our technical dept. for details

Pneumatic rectilinear clamps of the UCBP series are especially suitable for clamping elements during welding, in the automotive industry or where it is necessary that the clamp does not take up a lot of space. It is possible to equip them with a position sensor suitable for welding environments. Advantage of the clamp is that the parts moving rectilinearly are covered and are thereby protected from flying irons and dust. After clamping, the clamp is mechanically secured and there is no risk of loosening in the event of a compressed air failure. The clamp without manual lever is intended for highly automated operations where manual control by the operator is not an option.

**For more information like technical data and dimensions, please visit our web page on www.sappv.cz .**

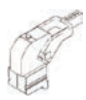
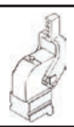
| | |
|---|---|
| Min. pressure | 0,4 MPa |
| Max. pressure | 0,6 MPa |
| Ambient temp. | +5°C to +45°C |
| Working medium | modified compressed air |

| **Piston diameter [mm]** | **50** |
|---|---|
| Connections | G1/4“ |
| Release angle [°] (depends on arm*) | adjustable setting 0 to (105)135 |
| Clamping moment (0.5 MPa) [Nm] | 280 |
| Locking torque of the clamped position [Nm] | 1250 |
| Working pressure [MPa] | 0.4 to 0.6 |
| End position damping method | rubber stop (requires use of throttle valves on both threaded connections) |
| Min. clamping/release time [s] | 1 |
| Sensor | integrated 10 to 30V, connector M12 |
| Weight [kg] | 2.5 (without the arm) |
| Weight of the clamping arm [kg] | 0.9 for offset 15 mm, 1.0 for offset 45 mm |

*) The angle depends on the type and orientation of the arm, see the dimensional diagram on our website

## Order codes

N UCBP 50 O E A K 0

| Arm position | | |
|---|---|---|
| V | 90° |  |
| O | 180° |  |
| N | without arm |  |

| Arm shape* | |
|---|---|
| C | centre position, 15 mm offset |
| D | right position, 15 mm offset |
| S | left position, 15 mm offset |
| E | centre position, 45 mm offset |
| F | right position, 45 mm offset |
| L | left position, 45 mm offset |
| N | without arm |

*) all arm variants can be supplied with an oversized dowel hole ∅8 H7 on request

| Arm material | |
|---|---|
| A | Al alloy |
| S | steel |
| N | without arm |

| Proximity switch | |
|---|---|
| D | pneumatic switch |
| K | electronic switch PNP (optical) (DF-K) |
| J | electronic switch NPN (optical) (DF-J) |
| N | no switch (with a protective sheet) |

In case of different size requirements, please contact our technical department

In case of a position sensing request, please contact our technical department

# PNEUMATIC RECTILINEAR CLAMPS SERIES UCBM

STRÁNSKÝ A PETRŽÍK


Pneumatic rectilinear clamps of the UCBP series are suitable for clamping elements during welding in semi- automatic operations, where the work is combined with manual entry into the machine. It is possible to equip them with a position sensor suitable for welding environments. Advantage of the clamp is that the parts moving rectilinearly are covered and are thereby protected from flying irons and dust. Manual handeling allows safe control of the clamp, when the clamp is not under pressure. For safe securing, it is necessary to subsequently fill the clamp with compressed air. The clamp can be controlled by air, when there is no operator access.

**For more information like technical data and dimensions, please visit our web page on www.sappv.cz .**

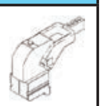
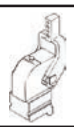
| | |
|---|---|
| Min. pressure | 0,4 MPa |
| Max. pressure | 0,6 MPa |
| Ambient temp. | +5°C to +45°C |
| Working medium | modified compressed air |

| **Piston diameter [mm]** | **50** |
|---|---|
| Connections | G1/4“ |
| Release angle [°] (depends on arm*) | adjustable setting 0 to (105)135 |
| Clamping moment (0.5 MPa) [Nm] | 280 |
| Locking torque of the clamped position [Nm] | 1250 |
| Working pressure [MPa] | 0.4 to 0.6 |
| End position damping method | rubber stop (requires use of throttle valves on both threaded connections) |
| Min. clamping/release time [s] | 1 |
| Sensor | integrated 10 to 30V, connector M12 |
| Weight [kg] | 3.2 (without the arm) |
| Weight of the clamping arm [kg] | 0.9 for offset 15 mm, 1.0 for offset 45 mm |

*) The angle depends on the type and orientation of the arm, see the dimensional diagram on our website

## Order codes

N UCBM 50 O E A K 0

| **Arm position** | |
|---|---|
| V | 90°  |
| O | 180°  |
| N | without arm  |

| **Arm shape*** | |
|---|---|
| C | centre position, 15 mm offset |
| D | right position, 15 mm offset |
| S | left position, 15 mm offset |
| E | centre position, 45 mm offset |
| F | right position, 45 mm offset |
| L | left position, 45 mm offset |
| N | without arm |

*) all arm variants can be supplied with an oversized dowel hole ∅8 H7 on request

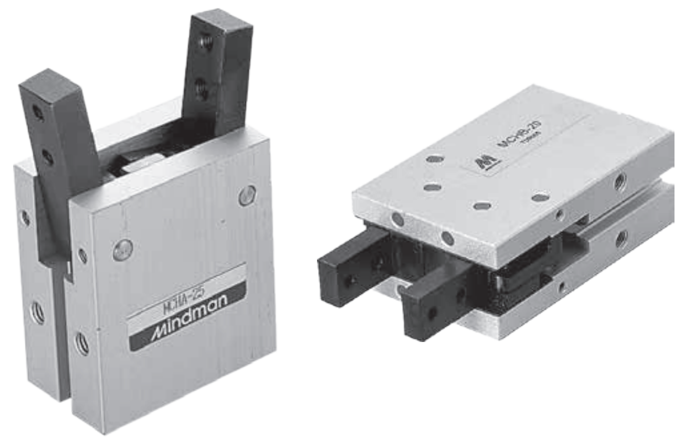
| **Arm material** | |
|---|---|
| A | Al alloy |
| S | steel |
| N | without arm |

| **Proximity switch** | |
|---|---|
| D | pneumatic switch |
| K | electronic switch PNP (optical) (DF-K) |
| J | electronic switch NPN (optical) (DF-J) |
| N | no switch (with a protective sheet) |

In case of different size requirements, please contact our technical department

In case of a position sensing request, please contact our technical department

# PNEUMATIC ANGULAR AND PARALLEL GRIPPERS SERIES MCHA AND MCHB




Pneumatic grippers are used for accurate object handling in automated operation. There are angular and parallel grippers available, which allows to gripe objects with various shapes. Wide size range warrants use for small as well as for heavy objects. Grippers are delivered with magnet as standard.

**For more information, please visit our web page on www.sappv.cz .**

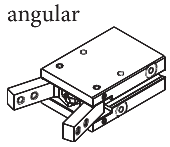
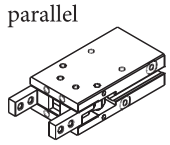
| | |
|---|---|
| Working pressure | 0,5 MPa |
| Min. pressure | 0,15 MPa |
| Max. pressure | 0,7 MPa |
| Temp. range | -5°C to +60°C |
| Working medium | modified compressed air |

| Piston diameter [mm] | 12 | 16 | 20 | 25 | 32 |
|---|---|---|---|---|---|
| Clamping force at 0.5 MPa [N] for series MCHA closed / opened* | 5.5 / 7 | 12.5 / 17 | 24 / 32.5 | 48 / 62 | 86 / 114.5 |
| Clamp / release angle for series MCHA [°] | -10 to +30 | | | | |
| Clamping force at 0.5 MPa [N] for series MCHB closed / opened* | 8 / 5 | 24 / 18 | 47 / 35 | 75 / 60 | 100 / 85 |
| Arm stroke for series MCHB [mm] | 6 | 8 | 12 | 14 | 16 |
| Connection | M3 | M5 | M5 | M5 | M5 |
| Max. frequency of clamping [number of cycles per minute] | 180 | | | | |
| Max. arm length [mm] | 30 | 40 | 60 | 70 | 85 |

*) For arm length L= 30 mm

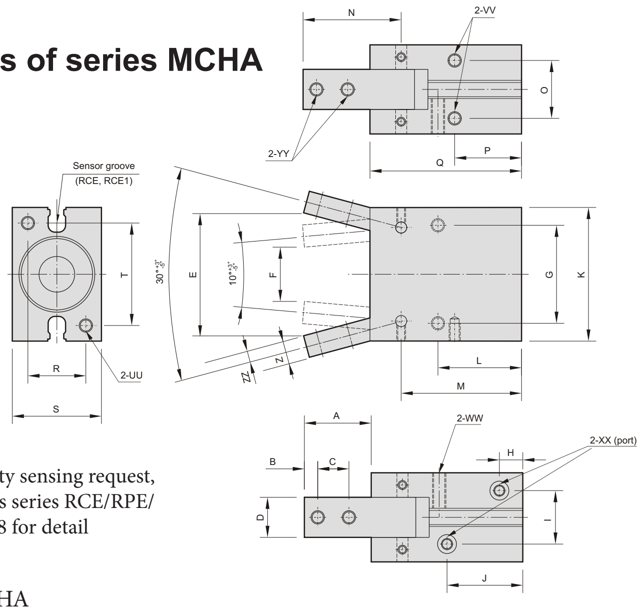
## Order codes

P MCHA 20

| Gripper type | | |
|---|---|---|
| MCHA | angular |  |
| MCHB | parallel |  |

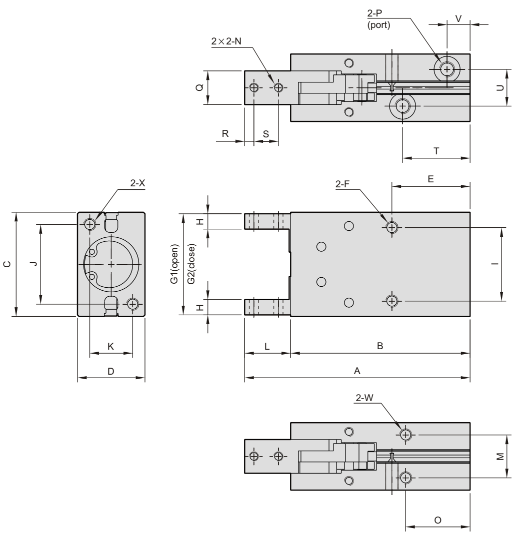
| Piston diameter | |
|---|---|
| 12 | 12 mm |
| 16 | 16 mm |
| 20 | 20 mm |
| 25 | 25 mm |
| 32 | 32 mm |

## Dimensions of series MCHA




In case of proximity sensing request, please use switches series RCE/RPE/RNE - see page 3-8 for detail

## Dimensions of series MCHB




Dimensions of series MCHA

| ∅ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | UU | VV | WW | XX | YY | Z | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12** | 15.4 | 3 | 6 | 7 | 26.3 | 9 | 20 | 7.5 | 10.2 | 23.5 | 28 | 20 | 32.9 | 21.5 | 10.2 | 16 | 39 | 10 | 16 | 22 | M3 | M3 | M3 | M3 | M3 | 5 | 2.5 |
| **16** | 17.5 | 3 | 8 | 9 | 31.1 | 14 | 24 | 7.5 | 12 | 22 | 34 | 22.5 | 35 | 25 | 14 | 18 | 42.5 | 14 | 22 | 26 | M4 | M4 | M4 | M5 | M3 | 6 | 3 |
| **20** | 22 | 4 | 10 | 12 | 40.1 | 18 | 30 | 8 | 13 | 25 | 45 | 25 | 39.5 | 32.5 | 16 | 19 | 50 | 16 | 26 | 35 | M5 | M5 | M5 | M5 | M4 | 7 | 3.5 |
| **25** | 26 | 5 | 12 | 14 | 47.9 | 21 | 36 | 8.5 | 18 | 28 | 52 | 28.5 | 45.5 | 38.5 | 20 | 21.5 | 58 | 20 | 32 | 40 | M6 | M6 | M6 | M5 | M5 | 9 | 4 |
| **32** | 30 | 6 | 14 | 18 | 55.1 | 24 | 44 | 10.5 | 24 | 34 | 60 | 37.5 | 54 | 44 | 26 | 30 | 68 | 26 | 40 | 46 | M6 | M6 | M6 | M5 | M6 | 10 | 5 |

Dimensions of series MCHB

| ∅ | A | B | C | D | E | F | G1 | G2 | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12** | 63.5 | 50.5 | 28 | 16 | 20 | M3 hl.5 | 27 | 21 | 4 | 18 | 17 | 10 | 13 | 10 | M3 | 16 | M3 | 7 | 3 | 6 | 23 | 10.2 | 7.5 | M3 hl.5 | M3 hl.5 |
| **16** | 73.5 | 58.5 | 34 | 22 | 25.5 | M4 hl.11 | 33 | 25 | 5 | 24 | 26 | 14 | 15 | 14 | M3 | 21 | M5 | 11 | 3 | 8 | 22 | 12 | 7.5 | M4 hl.7 | M4 hl.7 |
| **20** | 88.5 | 69.5 | 45 | 26 | 25 | M5 hl.8 | 44 | 32 | 6 | 30 | 35 | 16 | 19 | 16 | M4 | 19 | M5 | 12 | 4 | 10 | 26 | 13 | 8 | M5 hl.8 | M5 hl.8 |
| **25** | 102.5 | 78.5 | 52 | 32 | 28 | M6 hl.10 | 51 | 37 | 8 | 36 | 40 | 20 | 24 | 20 | M5 | 22 | M5 | 14 | 5 | 12 | 29 | 18 | 8.5 | M6 hl.10 | M6 hl.10 |
| **32** | 120.5 | 90.5 | 60 | 40 | 34 | M6 hl.10 | 59 | 43 | 10 | 44 | 46 | 24 | 30 | 26 | M6 | 26 | M5 | 20 | 7 | 15 | 35 | 24 | 10.5 | M6 hl.10 | M6 hl.10 |

STRÁNSKÝ A PETRŽÍK


Pneumatic grippers are used for accurate object handling in automated operation. Three jaws grippers are used for handling with rotary objects. Wide size range warrants use for small as well as for heavy objects. Grippers are delivered with magnet as option.

**For more information, please visit our web page on www.sappv.cz .**

| | |
|---|---|
| Working pressure | 0,5 MPa |
| Min. pressure | 0,2 MPa pro ∅16 and 25<br>0,1 MPa for ∅32 and more |
| Max. pressure | 0,6 MPa |
| Temp. range | -10°C to +60°C |
| Working medium | modified compressed air |

| Piston diameter [mm] | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|---|---|---|---|---|---|---|---|---|---|---|
| Clamping force at 0.5 MPa [N] closed / opened* | 14 / 16 | 25 / 28 | 42 / 47 | 74 / 82 | 118 / 130 | 187 / 204 | 335 / 359 | 500 / 525 | 750 / 780 | 1270 / 1320 |
| Arm stroke [mm] | 4 | 4 | 6 | 8 | 8 | 12 | 16 | 20 | 24 | 32 |
| Connection | M3 | M5 | M5 | M5 | M5 | M5 | M5 | G1/8“ | G1/4“ | G3/8“ |
| Max. frequency of clamping [no. of cycles per min.] | 120 | | | 60 | | | | 30 | | |
| Repeatability [mm] | ± 0.01 | | | | | | | | | |

*) For arm length L=20 mm for ∅16 to 25, 30 mm for ∅32 to 63, 50 mm for ∅80 to 125

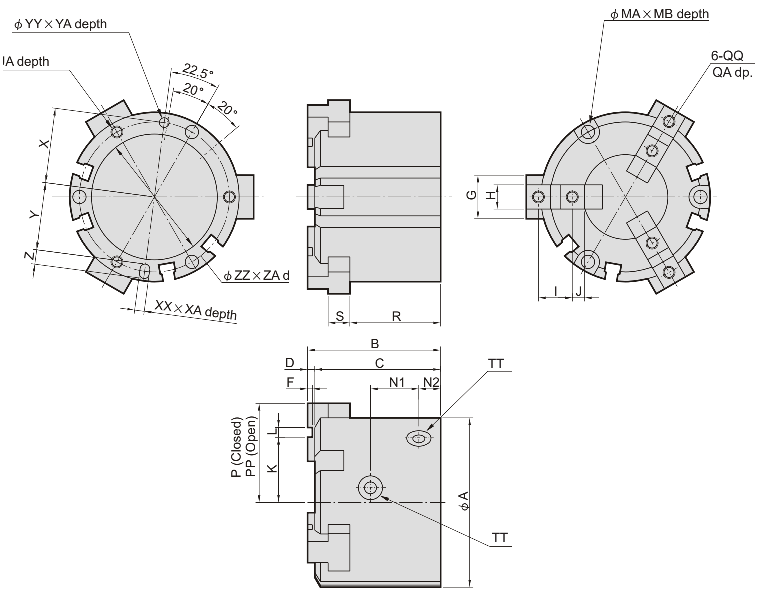
## Order codes

P MCHG2 16 M

| Gripper type | |
|---|---|
| MCHG2 | three jaws parallel |

| Piston diameter | |
|---|---|
| 16 | 16 mm |
| 20 | 20 mm |
| 25 | 25 mm |
| 32 | 32 mm |
| 40 | 40 mm |
| 50 | 50 mm |
| 63 | 63 mm |
| 80 | 80 mm |
| 100 | 100 mm |
| 125 | 125 mm |

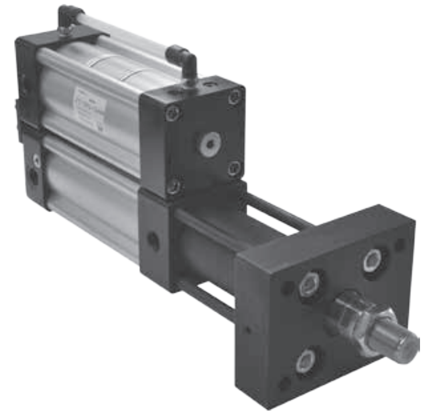
| Magnet | |
|---|---|
| M | with magnet |




## Dimensions

| ∅ | A | B | C | D | F | G | H h9 | I | J | K | L H9 | MA | MB | MM | MR | N1 | N2 | P | PP | QA | QQ | R | S | TT | UA | UU | X | XA | XX H9 | Y | YY H9 | Z | ZA | ZZ H9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **16** | 30 | 35 | 32 | 3 | 2 | 8 | 5 | 6 | 2 | 11 | 2 | 6.5 | 8 | 3.4 | 25 | 11 | 7 | 15 | 17 | 5 | M3 | 25 | 4 | M3 | 4.5 | M3 | 12.5 | 2 | 2 | 11 | 2 | 3 | 1.5 | 17 |
| **20** | 36 | 38 | 35 | 3 | 2 | 10 | 6 | 7 | 2.5 | 13 | 2 | 6.5 | 9.5 | 3.4 | 29 | 13 | 7 | 18 | 20 | 6 | M3 | 27 | 5 | M5 | 6 | M3 | 14.5 | 2 | 2 | 13 | 2 | 3 | 1.5 | 21 |
| **25** | 42 | 40 | 37 | 3 | 2 | 12 | 6 | 8 | 3 | 16 | 2 | 8 | 10 | 4.5 | 34 | 15 | 7 | 21 | 24 | 6 | M3 | 28 | 5 | M5 | 6 | M4 | 17 | 3 | 2 | 14.5 | 3 | 5 | 1.5 | 26 |
| **32** | 52 | 44 | 41 | 3 | 2 | 14 | 8 | 11 | 4.5 | 21 | 2 | 8 | 9 | 4.5 | 44 | 16 | 8 | 28 | 32 | 8 | M4 | 30.5 | 6 | M5 | 6 | M4 | 22 | 3 | 3 | 19.5 | 3 | 5 | 2 | 34 |
| **40** | 62 | 47 | 44 | 3 | 2 | 16 | 8 | 12 | 4.5 | 23 | 3 | 9.5 | 9 | 5.5 | 53 | 17 | 9 | 31 | 35 | 8 | M4 | 32 | 7 | M5 | 7.5 | M5 | 26.5 | 4 | 4 | 23.5 | 4 | 6 | 2 | 42 |
| **50** | 70 | 55 | 52 | 3 | 2 | 18 | 10 | 14 | 5 | 27 | 4 | 9.5 | 12 | 5.5 | 62 | 20 | 9 | 35 | 41 | 10 | M5 | 37.5 | 9 | M5 | 10 | M5 | 31 | 4 | 4 | 28 | 4 | 6 | 2 | 52 |
| **63** | 86 | 66 | 62 | 4 | 3 | 24 | 12 | 17 | 5.5 | 34 | 6 | 11 | 14 | 6.6 | 76 | 22 | 12 | 43 | 51 | 10 | M5 | 44 | 11 | M5 | 9 | M6 | 38 | 5 | 5 | 34.5 | 5 | 7 | 2.5 | 65 |
| **80** | 106 | 82 | 77 | 5 | 4 | 28 | 14 | 20 | 6 | 44 | 8 | 11 | 19 | 6.6 | 95 | 27 | 13.5 | 53.5 | 63.5 | 12 | M6 | 56 | 12 | G1/8“ | 12 | M6 | 47.5 | 6 | 6 | 43.5 | 6 | 8 | 3 | 82 |
| **100** | 134 | 96 | 90 | 6 | 4 | 34 | 18 | 23 | 7.5 | 42.5 | 8 | 14 | 21 | 9 | 118 | 30.6 | 18 | 66 | 78 | 16 | M8 | 63 | 15 | G1/4“ | 16 | M8 | 59 | 6 | 8 | 54 | 8 | 10 | 4 | 102 |
| **125** | 166 | 122 | 114 | 8 | 6 | 40 | 22 | 31 | 10.5 | 50 | 10 | 17.5 | 34 | 11 | 148 | 38 | 23.5 | 82 | 98 | 20 | M10 | 84 | 18 | G3/8“ | 20 | M10 | 74 | 8 | 10 | 68 | 10 | 12 | 6 | 130 |

# PNEUMATIC-HYDRAULIC POWER CYLINDERS SERIES MHPD



Pneumatic-hydraulic boosters are used for generating high force using standard air pressure. They are designed to save energy, time, space and money in wide variety of applications. These abilities and benefits of power cylinders make them ideal component in many applications, you can use them for such operation as marking, forming, punching riveting, shearing, stearing, straightening, and so on.

**For more information, please visit our web page on www.sappv.cz .**

| | |
|---|---|
| Working pressure | 0,3 to 0,8 MPa |
| Temp. range | -10°C to +60°C |
| Working medium | modified compressed air |
| Installation | vertical (piston rod down) |

| Type | 1T | 3T | 5T | 8T | 10T |
|---|---|---|---|---|---|
| Tube inside diameter [mm] | 50 | 70 | 80 | 100 | 125 |
| Piston rod diameter [mm] | 30 | 40 | 50 | 60 | 70 |
| Auxiliary stroke / working stroke [mm] * | 50, 75, 100, 150, 200 / 5, 10, 15, 20 | | | | |

*) See table below for allowed combination of auxiliary and working strokes

## Order codes

P MHPD 3T 100 — 10 Z

| Power cylinder | |
|---|---|
| MHPD | pneumatic-hydraulic |

| Type | |
|---|---|
| 1T | diameter 50 mm |
| 3T | diameter 70 mm |
| 5T | diameter 80 mm |
| 8T | diameter 100 mm |
| 10T | diameter 125 mm |

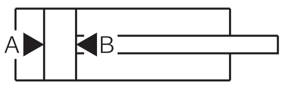
| Total stroke | |
|---|---|
| 50 | 50 mm |
| 75 | 75 mm |
| 100 | 100 mm |
| 125 | 125 mm |
| 150 | 150 mm |
| 200 | 200 mm |

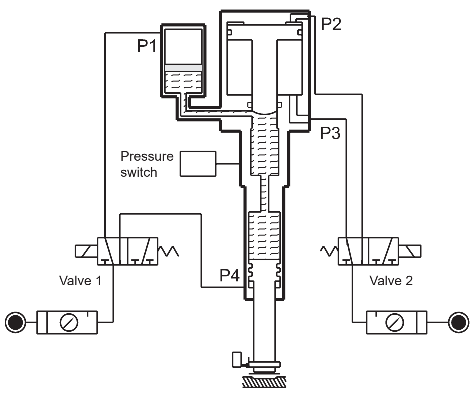
| Working stroke | |
|---|---|
| 5 | 5 mm |
| 10 | 10 mm |
| 15 | 15 mm |
| 20 | 20 mm |

| Piston rod end | |
|---|---|
| | hole |
| Z | male thread |

## Theoretic force [N]

| Operating pressure [MPa] | | 1T | 3T | 5T | 8T | 10T |
|---|---|---|---|---|---|---|
| 0.3 | A | 7 216 | 18 473 | 30 054 | 46 959 | 67 630 |
| | B | 377 | 778 | 919 | 1 508 | 2 527 |
| 0.4 | A | 9 621 | 24 630 | 40 072 | 62 612 | 90 174 |
| | B | 503 | 1 037 | 1 225 | 2 011 | 3 369 |
| 0.5 | A | 12 026 | 30 788 | 50 090 | 78 265 | 112 717 |
| | B | 628 | 1 296 | 1 532 | 2 513 | 4 212 |
| 0.6 | A | 14 432 | 36 945 | 60 108 | 93 918 | 135 261 |
| | B | 754 | 1 555 | 1 838 | 3 016 | 5 054 |
| 0.7 | A | 16 837 | 43 103 | 70 126 | 109 571 | 157 804 |
| | B | 880 | 1 814 | 2 144 | 3 519 | 5 896 |
| 0.8 | A | 19 242 | 49 260 | 80 143 | 125 224 | 180 347 |
| | B | 1 005 | 2 073 | 2 450 | 4 021 | 6 739 |




When the air is charged from the port P1, the oil in the tank will forward the hydraulic cylinder quickly. The pressure is the same as the air pressure, but the inflow of oil is large in volume.
When the air is charged from the port P2, a ram will advance. the highly pressured fluid will come in to the hydraulic cylinder which will be forwarded by large thrust.
When the air is send into port P4 and P3. the hydraulic cylinder is swiftly reversed. and at the same time the ram goes back.

## Working strokes [mm]

| Type | Total stroke [mm] | 1T | 3T | 5T | 8T | 10T |
|---|---|---|---|---|---|---|
| MHPD | 50 | 5,10,15 | 5,10 | 5,10 | 5,10 | 5,10,15 |
| | 75 | 5,10,15,20 | 5,10,15 | 5,10,15 | 5,10,15 | 5,10,15 |
| | 100 | 5,10,15,20 | 5,10,15 | 5,10,15 | 5,10,15 | 5,10,15,20 |
| | 125 | 5,10,15,20 | 10,15 | 5,10,15 | 10,15 | 10,15,20 |
| | 150 | 10,15,20 | 10,15,20 | 10,15,20 | 10,15,20 | 10,15,20 |
| | 200 | 10,15,20 | 10,15,20 | 10,15,20 | 10,15,20 | 10,15,20 |

| Type | Total stroke [mm] | 1T | 3T | 5T | 8T | 10T |
|---|---|---|---|---|---|---|
| MHPD ... Z | 50 | 5,10,15,20 | 5,10 | 5,10,15 | 5,10,15 | 5,10,15 |
| | 75 | 5,10,15,20 | 5,10,15 | 5,10,15 | 5,10,15 | 5,10,15,20 |
| | 100 | 5,10,15,20 | 5,10,15,20 | 5,10,15 | 5,10,15,20 | 5,10,15,20 |
| | 125 | 5,10,15,20 | 10,15,20 | 5,10,15,20 | 10,15,20 | 10,15,20 |
| | 150 | 10,15,20 | 10,15,20 | 10,15,20 | 10,15,20 | 10,15,20 |
| | 200 | 10,15,20 | 10,15,20 | 10,15,20 | 10,15,20 | 10,15,20 |

Boosters series MHB are used for generating of high pressure of hydraulic oil by air with common pressure. They are designed to save energy, time, space and money in wide variety of applications. These abilities and benefits of power cylinders make them ideal component in many applications, you can use them for such operation as marking, forming, punching riveting, shearing, stearing, straightening, and so on.

**For more information, please visit our web page on www.sappv.cz .**

| | |
|---|---|
| Working pressure | 0,2 to 0,7 MPa |
| Temp. range | +5°C to +60°C |
| Working medium | modified compressed air |
| Installation | horizontal |

| Type | 078 | 110 | 250 |
|---|---|---|---|
| Intensified pressure ratio | 7.8 | 11 | 25 |
| Max. oil pressure at air pressure 0.7 MPa [MPa] | 5.3 | 7.6 | 17.2 |
| Max. discharged oil volume at high pressure [ml] | 50 | 120 | 120 |
| Recommended oil | hydraulic petroleum oil ISO 68 | | |

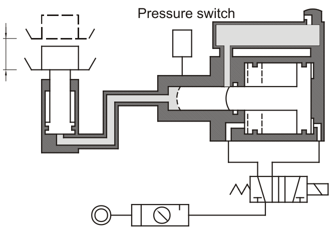
## Order codes

P MHBD 110

| Booster | | |
|---|---|---|
| MHBS | single pressure |  |
| MHBD | double pressure |  |

| Type | |
|---|---|
| 078 | ratio 7,8x |
| 110 | ratio 11x |
| 250 | ratio 25x |

## Operating principle
### of single pressure booster MHBS



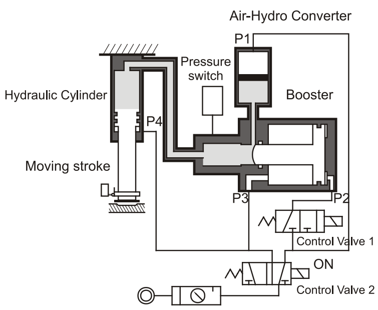

Booster can be used for short stroke hydraulic cylinders, for which is volume discharged by booster sufficient. In this case, any 5/2 valve can be used for control of booster and hydraulic cylinder, which copy the movement of booster.

## Notice

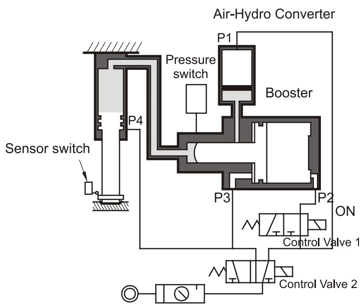
- booster must be levelled
- booster must be placed higher than hydraulic cylinder
- frequency of use should be 6 times/min or lower

## Operating principle
### of double pressure booster MHBD

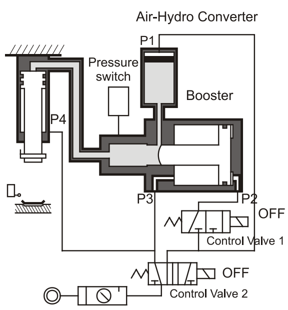
This type of booster is used for applications, where the auxiliary stroke with low force and working short stroke with big force is needed. Working stroke then conform to the oil volume, which is discharged by booster. Auxiliary stroke depends on volume of external air-hydro converter (which isn‘t in the supply).




**Quick traverse**
When the air is charged from the port P1, the oil in the tank will forward the hydraulic cylinder quickly. The pressure is the same as the air pressure, but the inflow of oil is large in volume.




**Intensified feeding**
When the air is charged from the port P2, a ram will advance. the highly pressured fluid will come in to the hydraulic cylinder which will be forwarded by large thrust.




**Swift release**
When the air is send into port P4 and P3. the hydraulic cylinder is swiftly reversed. and at the same time the ram goes back.

# BOOSTER REGULATOR
# SERIES MVBA

Pneumatic booster regulators series MVBA are used for increasing of air pressure. These booster regulators are able to twice increase inlet pressure, but due to safety, the maximal output pressure is restricted up to 0.99 MPa. Boosters can be used in applications, where there is no sufficient pressure in regular distribution. The advantage is, that no additional power is required, so also heat generation is reduced. They are fully autonomous and they start to „produce“ high pressure air, when compressed air is brought to inlet port.

| | |
|---|---|
| Working (supply) pressure | 0,1 to 0,99 MPa |
| Temperature range | +2°C to +50°C |
| Working medium | modified compressed air |
| Installation | horizontal |

| Type | MVBA2100 |
|---|---|
| Connection | G3/8“ (exhaust port R3/8“) |
| Pressure increase rate | 2 |
| Supply pressure [MPa] | 0.1 to 0.99 |
| Operating (output) pressure [MPa] | 0.2 to 0.99 |
| Flow capacity [Nl] at supply pressure 0.5 MPa and output pressure 0.8 MPa | 560 |
| Weight [kg] | 3.9 |

## Order codes

P MVBA 2100

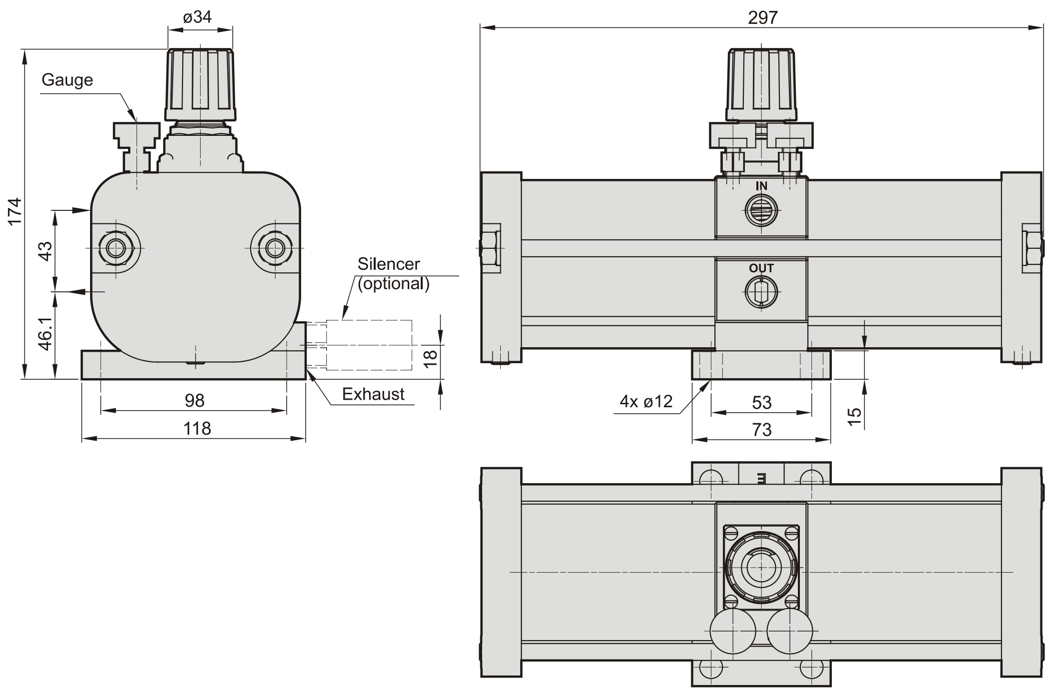
| Booster | |
|---|---|
| MVBA | pneumatic |

| Type | |
|---|---|
| 2100 | pressure increase rate 2x |

## Operation notes

- If the outlet capacity is undersized, pulsation may occur.
- Make sure to install a mist separator at the inlet side of the booster regulator, supply air must be dry - non lubricated
- The booster regulator has a sliding part inside, and it generates dust. Also, install a cleaning device such as an air filter or a mist separator on the outlet side as necessary.
- Depending on the necessity, install a silencer on the exhaust port of the booster regulator to reduce the exhaustion sound.
- Provide a dedicated pipe to release the exhaust air from each booster regulator. If exhaust air is converged into a pipe, the back pressure that is created could cause improper operation.

## Dimensions



# DOUBLE ACTING PNEUMATIC SWING ACTUATORS

STRÁNSKÝ A PETRŽÍK


Swing actuators of the ATM series are mainly intended for the control of fittings and valves. The swing movement is ensured by a pair of toothed combs with pistons. The advantage is a constant torque in the range of the entire swinging movement. The actuators have a fitting connection according to ISO 5211 and DIN 3337. The drive is prepared for switchboards and position sensors with connection according to NAMUR VDI/VDE 3845, air can be connected directly to the threaded holes.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,2 MPa |
| Max. pressure | 0,8 MPa |
| Temp. range | -20°C to +80°C * |
| End position regulation | ±4° |
| Working medium | modified compressed air |

*) values for temp. range B

| **Piston diameter [mm]** | **52** | **63** | **75** | **83** | **92** | **105** | **125** | **140** | **160** | **190** | **210** | **240** | **270** | **300** | **350** | **400** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection | G1/4" | G1/4" | G1/4" | G1/4" | G1/4" | G1/4" | G1/4" | G1/4" | G1/4" | G1/4" | G1/4" | G1/4" | G1/2" | G1/2" | G1/2" | G1/2" |
| Air source interface | NAMUR VDI/VDE 3845 | | | | | | | | | | | | | | | |
| Flange connection pattern 1 | F03 | F05 | F05 | F05 | F05 | F07 | F07 | F10 | F10 | – | – | – | – | – | F16 | F16 |
| Flange connection pattern 2 | F05 | F07 | F07 | F07 | F07 | F10 | F10 | F12 | F12 | F14 | F14 | F16 | F16 | F16 | F25 | F25 |
| Armature connection | ISO 5211 | | | | | | | | | | | | | | | |
| Position sensing | optical with the option of connecting a sensor, positioner or sensor box | | | | | | | | | | | | | | | |
| Connection of position sys. | NAMUR VDI/VDE 3845 | | | | | | | | | | | | | | | |
| Opening time [s] at 0,8 MPa | 0,3 | 0,4 | 0,4 | 0,5 | 0,6 | 0,7 | 0,9 | 1,2 | 1,6 | 2,6 | 3,3 | 3,8 | 4,5 | | | |
| Closing time [s] at 0,8 MPa | 0,4 | 0,4 | 0,5 | 0,6 | 0,7 | 0,7 | 1,1 | 1,4 | 1,7 | 3,1 | 3,8 | 4,4 | 5,3 | | | |
| Weight [kg] | 1,38 | 2,03 | 2,85 | 3,13 | 4,6 | 6,8 | 10,0 | 13,3 | 20,2 | 31,5 | 47,0 | 67,6 | 97,0 | | | |

## Order codes

ZG-ATM 125 X 90 B AM

| | **Piston diameter** |
|---|---|
| 052 | 52 mm |
| 063 | 63 mm |
| 075 | 75 mm |
| 083 | 83 mm |
| 092 | 92 mm |
| 105 | 105 mm |
| 125 | 125 mm |
| 140 | 140 mm |

| | **Piston diameter** |
|---|---|
| 160 | 160 mm |
| 190 | 190 mm |
| 210 | 210 mm |
| 240 | 240 mm |
| 270 | 270 mm |
| 300 | 300 mm |
| 350 | 350 mm |
| 400 | 400 mm |

| | **Swing angle** |
|---|---|
| 90 | angle 90° |
| 120 | angle 120° |
| 135 | angle 135° |
| 180 | angle 180° |

| | **Temperature range** |
|---|---|
| B | -20°C to +80°C |
| D | -40°C to +80°C |
| G | -15°C to +150°C |

The swing direction is standard to the right (clockwise). If you require the opposite swing direction, please contact our technical department.

## Actuator sizing

The recommended safety factor for double-acting swing actuator is 20 to 30% under normal conditions. Example of determining the size of the drive:
The required torque of the fitting is 100 Nm, the torque increased by the safety factor is 100 + 30% of 100 = 130 Nm. At an inlet pressure of 0.5 MPa, it is therefore advisable to choose the ZG-ATM105 actuator.

## Notice

The torque caused by the drive must not be greater than the maximum permissible torque specified in ISO 5211 for the specific size of the mounting flange.

## Construction / materials

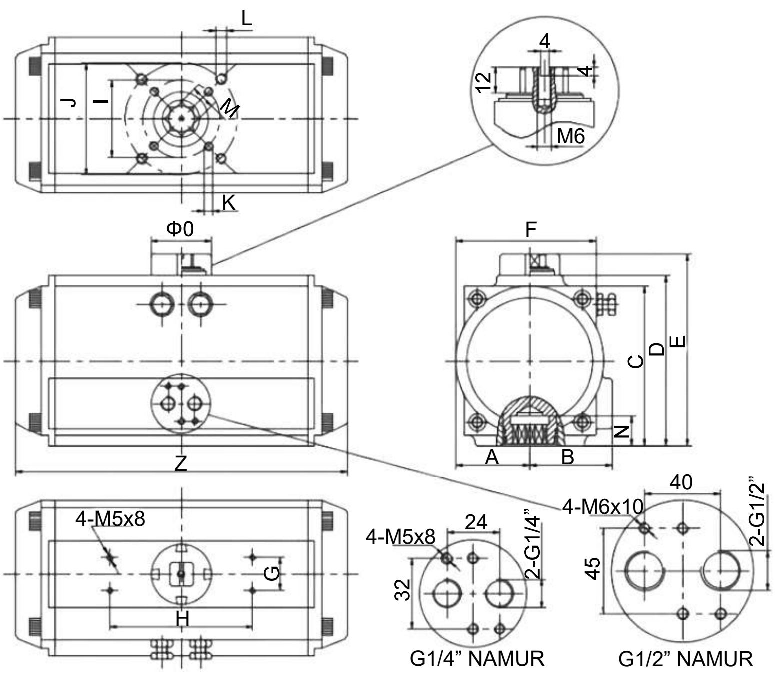
- body: hard anodized extruded aluminum alloy, honed bore
- pistons: Aluminum casting or steel casting
- pinion and cam: steel
- caps: Aluminium casting
- seal: NBR, or FPM or silicone
- fasteners: stainless steel
- position indicator: plastic

## Technical data

**Torque [Nm] depending on working pressure**

| Inlet pressure [MPa] | Piston diameter [mm] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 52 | 63 | 75 | 83 | 92 | 105 | 125 | 140 | 160 | 190 | 210 | 240 | 270 | 300 | 350 | 400 |
| 0,2 | 8,1 | 15 | 20,1 | 30,8 | 45 | 66 | 100 | 171 | 267 | 426 | 530 | 769 | 1174 | 1526 | 2285 | 3256 |
| 0,25 | 10,1 | 18 | 25 | 39 | 56 | 83 | 125 | 214 | 332 | 532 | 665 | 966 | 1462 | 1908 | 2856 | 4069 |
| 0,3 | 12,1 | 22 | 30 | 47 | 68 | 99 | 150 | 256 | 399 | 638 | 798 | 1154 | 1754 | 2289 | 3427 | 4883 |
| 0,4 | 16,1 | 29 | 40 | 63 | 90 | 132 | 200 | 342 | 532 | 852 | 1064 | 1539 | 2339 | 3052 | 4570 | 6511 |
| 0,45 | 18,1 | 33 | 45 | 70 | 102 | 149 | 225 | 385 | 598 | 958 | 1197 | 1731 | 2632 | 3434 | 5141 | 7325 |
| 0,5 | 20 | 36 | 50 | 78 | 113 | 165 | 250 | 427 | 665 | 1064 | 1330 | 1924 | 2924 | 3815 | 5712 | 8139 |
| 0,55 | 22 | 40 | 55 | 86 | 124 | 182 | 275 | 470 | 731 | 1170 | 1463 | 2116 | 3216 | 4197 | 6283 | 8953 |
| 0,6 | 24 | 44 | 60 | 94 | 135 | 198 | 300 | 513 | 798 | 1277 | 1596 | 2308 | 3509 | 4578 | 6854 | 9767 |
| 0,7 | 28 | 51 | 70 | 110 | 158 | 231 | 350 | 598 | 931 | 1490 | 1862 | 2693 | 4094 | 5341 | 7997 | 11394 |
| 0,8 | 32 | 58 | 80 | 125 | 181 | 264 | 400 | 684 | 1064 | 1702 | 2128 | 3078 | 4679 | 6104 | 9139 | 13022 |

## Dimensions




| ∅ | A | B | C | D | E | F | G | H | ∅ I | ∅ J | K | L | M | N | Z | O | Air source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **52** | 30 | 41,5 | 65,5 | 72 | 92 | 65 | 30 | 80 | 36 | 50 | M5x8 | M6x10 | 11 | 14 | 147 | 40 | NAMUR G1/4“ |
| **63** | 36 | 47 | 81 | 87,5 | 108 | 72 | 30 | 80 | 50 | 70 | M6x10 | M8x13 | 14 | 18 | 168 | 40 | |
| **75** | 42 | 53 | 94 | 99,5 | 120 | 81 | 30 | 80 | 50 | 70 | M6x10 | M8x13 | 14 | 18 | 184 | 40 | |
| **83** | 46 | 57 | 98,5 | 108,7 | 129 | 92 | 30 | 80 | 50 | 70 | M6x10 | M8x13 | 17 | 21 | 204 | 40 | |
| **92** | 50 | 58,5 | 111 | 116,5 | 137 | 98 | 30 | 80 | 50 | 70 | M6x10 | M8x13 | 17 | 21 | 262 | 40 | |
| **105** | 57,5 | 64 | 123 | 133 | 153 | 110 | 30 | 80 | 70 | 102 | M8x13 | M10x16 | 22 | 26 | 268 | 40 | |
| **125** | 67,5 | 74,5 | 146 | 155 | 185 | 128 | 30 | 130 | 70 | 102 | M8x13 | M10x16 | 22 | 26 | 301 | 55 | |
| **140** | 75 | 77 | 161 | 172 | 202 | 138 | 30 | 130 | 102 | 125 | M10x16 | M12x20 | 27 | 31 | 390 | 55 | |
| **160** | 87 | 87 | 184 | 197 | 227 | 158 | 30 | 130 | 102 | 125 | M10x16 | M12x20 | 27 | 31 | 458 | 55 | |
| **190** | 103 | 103 | 216 | 230 | 260 | 189 | 30 | 130 | – | 140 | – | M16x25 | 36 | 50 | 525 | 80 | |
| **210** | 113 | 113 | 236 | 255 | 285 | 210 | 30 | 130 | – | 140 | – | M16x25 | 36 | 50 | 532 | 80 | |
| **240** | 130 | 130 | 265 | 290 | 320 | 245 | 30 | 130 | – | 165 | – | M20x25 | 46 | 60 | 602 | 80 | |
| **270** | 147 | 147 | 299 | 330 | 360 | 273 | 30 | 130 | – | 165 | – | M20x25 | 46 | 60 | 722 | 80 | NAMUR G1/2“ |
| **300** | 162 | 173 | 330 | 354 | 384 | 312 | 30 | 130 | – | 165 | – | M20x25 | 46 | 60 | 820 | 80 | |
| **350** | 190 | 195 | 383 | 410 | 440 | 362 | 30 | 130 | 165 | 254 | M20x25 | 8xM16x25 | 46 | 60 | 900 | 80 | |
| **400** | 260 | 260 | 441 | 466 | 496 | 450 | 30 | 130 | 165 | 254 | M20x25 | 8xM16x25 | 46 | 60 | 940 | 80 | |

STRÁNSKÝ A PETRŽÍK


The single-acting swing actuators of the ATM series are mainly intended for controlling armatures and valves, where it is necessary to ensure a return to the initial state when the supply of compressed air is interrupted. The swing movement is ensured by a pair of toothed racks with pistons. The torque is not constant throughout the range of swinging motion. Supplying compressed air rotates the output shaft of the drive, venting the springs returns the shaft to its initial state.

| | |
|---|---|
| Working pressure | 0,6 MPa |
| Min. pressure | 0,2 MPa |
| Max. pressure | 0,8 MPa |
| Temp. range | -20°C to +80°C * |
| End position regulation | ±4° |
| Working medium | modified compressed air |

*) values for temp. range B

| **Průměr pístu [mm]** | **52** | **63** | **75** | **83** | **92** | **105** | **125** | **140** | **160** | **190** | **210** | **240** | **270** | **300** | **350** | **400** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection | G1/4“ | G1/4“ | G1/4“ | G1/4“ | G1/4“ | G1/4“ | G1/4“ | G1/4“ | G1/4“ | G1/4“ | G1/4“ | G1/4“ | G1/2“ | G1/2“ | G1/2“ | G1/2“ |
| Air source interface | NAMUR VDI/VDE 3845 | | | | | | | | | | | | | | | |
| Flange connection pattern 1 | F03 | F05 | F05 | F05 | F05 | F07 | F07 | F10 | F10 | – | – | – | – | – | F16 | F16 |
| Flange connection pattern 2 | F05 | F07 | F07 | F07 | F07 | F10 | F10 | F12 | F12 | F14 | F14 | F16 | F16 | F16 | F25 | F25 |
| Armature connection | ISO 5211 | | | | | | | | | | | | | | | |
| Position sensing | optical with the option of connecting a sensor, positioner or sensor box | | | | | | | | | | | | | | | |
| Connection of position sys. | NAMUR VDI/VDE 3845 | | | | | | | | | | | | | | | |
| Opening time [s] at 0,8 MPa | 0,4 | 0,5 | 0,5 | 0,6 | 0,7 | 0,9 | 1,3 | 1,6 | 2 | 3 | 4 | 4,5 | 5 | | | |
| Closing time [s] at 0,8 MPa | 0,4 | 0,5 | 0,6 | 0,6 | 0,8 | 0,9 | 1,4 | 1,8 | 2,3 | 3,3 | 4,4 | 4,9 | 5,7 | | | |
| Weight [kg] | 1,48 | 2,23 | 3,15 | 3,63 | 5,2 | 7,8 | 11,6 | 15,6 | 24,1 | 36 | 55 | 80,9 | 117 | | | |
| One spring weight [kg] | 0,01 | 0,02 | 0,03 | 0,05 | 0,06 | 0,10 | 0,16 | 0,23 | 0,39 | 0,45 | 0,80 | 1,33 | 2,00 | | | |

## Order codes

ZG-ATM 125 X 90 B AM D8

| **Piston diameter** | |
|---|---|
| 052 | 52 mm |
| 063 | 63 mm |
| 075 | 75 mm |
| 083 | 83 mm |
| 092 | 92 mm |
| 105 | 105 mm |
| 125 | 125 mm |
| 140 | 140 mm |

| **Piston diameter** | |
|---|---|
| 160 | 160 mm |
| 190 | 190 mm |
| 210 | 210 mm |
| 240 | 240 mm |
| 270 | 270 mm |
| 300 | 300 mm |
| 350 | 350 mm |
| 400 | 400 mm |

| **Swing angle** | |
|---|---|
| 90 | angle 90° |
| 120 | angle 120° |
| 135 | angle 135° |
| 180 | angle 180° |

| **Temperature range** | |
|---|---|
| B | -20°C to +80°C |
| D | -40°C to +80°C |
| G | -15°C to +150°C |

| **Number of springs** | |
|---|---|
| 5* | 2+3 springs |
| 6* | 3+3 springs |
| 7 | 3+4 springs |
| 8 | 4+4 springs |
| 9 | 4+5 springs |
| 10 | 5+5 springs |
| 11 | 5+6 springs |
| 12 | 6+6 springs |
| 13* | 6+7 springs |
| 14* | 7+7 springs |
| 15* | 7+8 springs |
| 16* | 8+8 springs |

*) Note for the number of springs 5 and 6 does not apply to piston ∅ 400 mm
13 to 16 only apply to piston ∅ 400 mm

The swing direction is standard to the right (clockwise). If you require the opposite swing direction, please contact our technical department.

## Construction / materials

- body: hard anodized extruded aluminum alloy, honed bore
- pistons: Aluminum casting or steel casting
- pinion and cam: steel
- caps: Aluminium casting
- seal: NBR, or FPM or silicone
- fasteners: stainless steel
- position indicator: plastic
- springs: spring steel

## Notice

The torque caused by the drive must not be greater than the maximum permissible torque specified in ISO 5211 for the specific size of the mounting flange.

## Actuator sizing

The recommended safety factor for single-acting swing actuator is 30 to 50% under normal conditions. Example of determining the size of actuator: The required torque of the fitting is 80 Nm, the torque increased by the safety factor is 80 + 30% of 80 = 104 Nm. At an inlet pressure of 0.5 MPa, it is therefore advisable to choose the ZG-ATM140 D7 actuator with 7 springs. During air movement, actuator has a torque of 308 Nm in the 0° position, and 247 Nm in the 90° position. When returned by springs, actuator has a torque of 181 Nm in the 90° position and 120 Nm in the 0° position.

## Technical data

**Torque [Nm] depending on working pressure**

| Piston ∅ [mm] | Number of springs | Inlet pressure [MPa] and position | | | | | | | | | | | | | | Return by springs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0,25 | | 0,3 | | 0,4 | | 0,5 | | 0,6 | | 0,7 | | 0,8 | | | |
| | | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 90° | 0° |
| 52 | 5 | 5,7 | 3,6 | 7,6 | 5,7 | | | | | | | | | | | 6,2 | 4,3 |
| | 6 | 4,8 | 2,5 | 6,9 | 4,5 | 10,9 | 8,5 | | | | | | | | | 7,4 | 5,0 |
| | 7 | 3,9 | 1,3 | 6,1 | 3,3 | 9,8 | 7,3 | 14,0 | 10,4 | | | | | | | 8,6 | 5,9 |
| | 8 | | | 5,2 | 2,0 | 9,2 | 6,0 | 13,2 | 9,1 | 17,2 | 14,1 | | | | | 9,9 | 6,7 |
| | 9 | | | 4,3 | 0,8 | 8,3 | 4,8 | 12,3 | 7,9 | 16,3 | 12,8 | 20,3 | 16,8 | | | 11,1 | 7,6 |
| | 10 | | | | | 7,4 | 3,6 | 11,5 | 6,7 | 15,5 | 11,6 | 19,5 | 15,6 | | | 12,4 | 8,5 |
| | 11 | | | | | 6,6 | 2,3 | 10,6 | 5,4 | 14,6 | 10,4 | 18,6 | 14,3 | 22,6 | 18,3 | 13,6 | 9,3 |
| | 12 | | | | | | | 9,7 | 4,2 | 13,8 | 9,1 | 17,8 | 12,2 | 21,8 | 17,1 | 14,8 | 10,2 |
| 63 | 5 | 11,4 | 7,7 | 15,0 | 11,4 | 22,3 | 14,9 | | | | | | | | | 10,4 | 6,8 |
| | 6 | 10,1 | 5,7 | 13,6 | 9,3 | 20,9 | 16,6 | 28,3 | 23,9 | | | | | | | 12,5 | 8,2 |
| | 7 | 8,6 | 3,6 | 12,5 | 7,2 | 19,3 | 14,5 | 26,8 | 21,9 | | | | | | | 14,6 | 9,6 |
| | 8 | | | 10,9 | 5,1 | 18,2 | 12,4 | 25,5 | 19,8 | 32,8 | 27,0 | 40,1 | 34,3 | | | 16,7 | 10,9 |
| | 9 | | | | | 16,8 | 10,4 | 24,1 | 17,7 | 31,4 | 24,9 | 38,7 | 32,2 | | | 18,8 | 12,3 |
| | 10 | | | | | 14,0 | 8,2 | 22,8 | 15,6 | 30,0 | 22,8 | 37,3 | 30,1 | 44,7 | 37,4 | 20,9 | 13,7 |
| | 11 | | | | | | | 21,5 | 13,5 | 28,7 | 30,7 | 36,0 | 28,0 | 44,3 | 35,3 | 22,9 | 15,0 |
| | 12 | | | | | | | 20,0 | 11,4 | 27,3 | 18,6 | 34,6 | 25,9 | 41,9 | 33,3 | 25,0 | 16,4 |
| 75 | 5 | 14,5 | 10,6 | 19,4 | 15,5 | 29,5 | 25,7 | | | | | | | | | 14,5 | 10,5 |
| | 6 | 12,4 | 7,6 | 17,3 | 12,6 | 27,4 | 22,7 | 37,5 | 32,8 | | | | | | | 17,4 | 12,7 |
| | 7 | 10,4 | 4,8 | 15,2 | 9,7 | 25,3 | 20,0 | 35,4 | 30,0 | | | | | | | 20,3 | 14,8 |
| | 8 | | | 13,1 | 6,8 | 23,1 | 17,0 | 33,3 | 27,0 | 43,2 | 37,0 | 53,3 | 47,0 | | | 23,2 | 16,9 |
| | 9 | | | | | 21,0 | 14,1 | 31,2 | 24,1 | 41,1 | 34,1 | 51,2 | 44,2 | | | 26,0 | 19,0 |
| | 10 | | | | | 19,0 | 11,1 | 28,9 | 21,2 | 39,0 | 31,2 | 49,0 | 41,2 | 59,0 | 51,0 | 29,0 | 21,0 |
| | 11 | | | | | | | 27,0 | 18,3 | 37,0 | 28,3 | 47,0 | 38,4 | 57,0 | 48,5 | 32,0 | 23,2 |
| | 12 | | | | | | | 25,0 | 15,4 | 34,9 | 25,4 | 45,0 | 35,4 | 55,0 | 45,4 | 34,8 | 25,3 |
| 83 | 5 | 23,3 | 16,0 | 31,0 | 24,0 | 46,8 | 39,7 | | | | | | | | | 23,0 | 15,8 |
| | 6 | 20,0 | 11,5 | 28,0 | 19,3 | 43,7 | 35,0 | 59,5 | 51,0 | | | | | | | 27,6 | 19,0 |
| | 7 | 17,0 | 7,0 | 25,0 | 15,0 | 40,5 | 30,5 | 56,2 | 46,2 | | | | | | | 32,2 | 22,0 |
| | 8 | | | 22,0 | 10,0 | 37,5 | 25,8 | 53,0 | 41,5 | 69,0 | 57,2 | 84,5 | 73,0 | | | 36,8 | 25,3 |
| | 9 | | | | | 34,2 | 2,3 | 50,0 | 37,0 | 66,0 | 52,6 | 81,2 | 68,3 | | | 41,4 | 28,5 |
| | 10 | | | | | 31,0 | 16,6 | 46,7 | 32,3 | 62,5 | 48,0 | 78,0 | 63,7 | 93,8 | 79,3 | 46,0 | 31.6 |
| | 11 | | | | | | | 43,6 | 27,7 | 59,3 | 43,4 | 75,0 | 59,0 | 91,0 | 74,8 | 50,6 | 34,8 |
| | 12 | | | | | | | 40,5 | 23,2 | 56,0 | 39,0 | 72,0 | 54,5 | 87,4 | 70,2 | 55,2 | 38,0 |
| 92 | 5 | 33,0 | 22,0 | 44,2 | 33,2 | 66,8 | 55,9 | | | | | | | | | 34,4 | 23,3 |
| | 6 | 28,4 | 15,2 | 39,6 | 26,4 | 62,2 | 49,0 | 84,8 | 71,6 | | | | | | | 41,2 | 28,0 |
| | 7 | 23,8 | 8,2 | 34,9 | 19,4 | 57,5 | 42,1 | 80,2 | 64,7 | | | | | | | 48,0 | 32,7 |
| | 8 | | | 31,3 | 12,6 | 52,9 | 35,2 | 75,5 | 57,9 | 98,0 | 80,5 | 120,7 | 103,0 | | | 55,0 | 37,3 |
| | 9 | | | | | 48,2 | 28,4 | 71,0 | 51,0 | 93,5 | 73,6 | 116,0 | 96,0 | | | 61,9 | 42,0 |
| | 10 | | | | | 43,6 | 21,5 | 66,2 | 44,0 | 89,0 | 66,7 | 111,3 | 89,2 | 134,0 | 112,0 | 68,7 | 46,7 |
| | 11 | | | | | | | 61,5 | 37,2 | 84,0 | 60,0 | 106,6 | 82,4 | 129,2 | 105,0 | 75,6 | 51,4 |
| | 12 | | | | | | | 56,8 | 30,4 | 79,5 | 53,0 | 101,9 | 75,5 | 124,5 | 98,0 | 82,5 | 56,0 |

STRÁNSKÝ A PETRŽÍK

### Torque [Nm] depending on working pressure (continued)

| Piston ∅ [mm] | Number of springs | Inlet pressure [MPa] and position | | | | | | | | | | | | | | Return by springs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0,25 | | 0,3 | | 0,4 | | 0,5 | | 0,6 | | 0,7 | | 0,8 | | | |
| | | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 90° | 0° |
| 105 | 5 | 51,0 | 33,4 | 67,5 | 50,0 | 100,6 | 83,0 | | | | | | | | | 49,2 | 31,6 |
| | 6 | 45,0 | 23,5 | 61,0 | 40,0 | 94,2 | 73,2 | 127,3 | 106,2 | | | | | | | 59,0 | 38,0 |
| | 7 | 38,4 | 13,7 | 55,0 | 30,0 | 88,0 | 63,4 | 121,0 | 96,4 | | | | | | | 69,0 | 44,3 |
| | 8 | | | 48,5 | 20,5 | 81,6 | 53,5 | 115,0 | 86,5 | 147,7 | 119,6 | 180,8 | 152,7 | | | 78,7 | 50,6 |
| | 9 | | | | | 75,3 | 43,7 | 109,0 | 76,8 | 141,5 | 110,0 | 174,5 | 142,9 | | | 88,6 | 56,9 |
| | 10 | | | | | 69,0 | 33,4 | 102,0 | 66,5 | 135,0 | 100,0 | 168,2 | 132,6 | 201,0 | 165,7 | 98,4 | 63,3 |
| | 11 | | | | | | | 96,0 | 57,0 | 128,7 | 90,0 | 161,8 | 123,0 | 195,0 | 156,0 | 108,3 | 69,3 |
| | 12 | | | | | | | 89,5 | 47,5 | 122,5 | 90,6 | 155,5 | 113,6 | 189,0 | 146,7 | 118,0 | 76,0 |
| 125 | 5 | 73,0 | 47,0 | 98,0 | 72,0 | 148,0 | 122,0 | | | | | | | | | 79,0 | 52,0 |
| | 6 | 63,0 | 31,0 | 88,0 | 56,0 | 138,0 | 107,0 | 188,0 | 157,0 | | | | | | | 94,0 | 63,0 |
| | 7 | 52,0 | 15,0 | 77,0 | 40,0 | 127,0 | 90,0 | 178,0 | 141,0 | | | | | | | 110,0 | 73,0 |
| | 8 | | | 67,0 | 25,0 | 117,0 | 75,0 | 167,0 | 125,0 | 217,0 | 176,0 | 268,0 | 226,0 | | | 125,0 | 84,0 |
| | 9 | | | | | 107,0 | 59,0 | 157,0 | 109,0 | 207,0 | 159,0 | 257,0 | 210,0 | | | 141,0 | 94,0 |
| | 10 | | | | | 96,0 | 44,0 | 146,0 | 94,0 | 196,0 | 144,0 | 247,0 | 194,0 | 297,0 | 245,0 | 157,0 | 105,0 |
| | 11 | | | | | | | 136,0 | 78,0 | 186,0 | 128,0 | 236,0 | 178,0 | 286,0 | 228,0 | 173,0 | 115,0 |
| | 12 | | | | | | | 125,0 | 63,0 | 176,0 | 113,0 | 226,0 | 163,0 | 276,0 | 213,0 | 188,0 | 125,0 |
| 140 | 5 | 128,0 | 85,0 | 171,0 | 127,0 | 256,0 | 213,0 | | | | | | | | | 129,0 | 86,0 |
| | 6 | 111,0 | 59,0 | 154,0 | 102,0 | 239,0 | 187,0 | 325,0 | 273,0 | | | | | | | 155,0 | 103,0 |
| | 7 | 94,0 | 33,0 | 137,0 | 76,0 | 222,0 | 162,0 | 308,0 | 247,0 | | | | | | | 181,0 | 120,0 |
| | 8 | | | 120,0 | 50,0 | 205,0 | 136,0 | 291,0 | 221,0 | 376,0 | 307,0 | 462,0 | 392,0 | | | 206,0 | 137,0 |
| | 9 | | | | | 187,0 | 110,0 | 273,0 | 196,0 | 358,0 | 281,0 | 444,0 | 367,0 | | | 232,0 | 155,0 |
| | 10 | | | | | 170,0 | 84,0 | 256,0 | 169,0 | 341,0 | 255,0 | 427,0 | 340,0 | 512,0 | 426,0 | 258,0 | 172,0 |
| | 11 | | | | | | | 238,0 | 143,0 | 324,0 | 229,0 | 409,0 | 314,0 | 495,0 | 400,0 | 284,0 | 189,0 |
| | 12 | | | | | | | 221,0 | 118,0 | 307,0 | 203,0 | 392,0 | 289,0 | 478,0 | 374,0 | 310,0 | 206,0 |
| 160 | 5 | 193,0 | 124,0 | 259,0 | 191,0 | 392,0 | 324,0 | | | | | | | | | 208,0 | 140,0 |
| | 6 | 165,0 | 83,0 | 232,0 | 149,0 | 365,0 | 282,0 | 498,0 | 415,0 | | | | | | | 250,0 | 168,0 |
| | 7 | 137,0 | 41,0 | 203,0 | 107,0 | 336,0 | 240,0 | 469,0 | 373,0 | | | | | | | 292,0 | 196,0 |
| | 8 | | | 176,0 | 66,0 | 309,0 | 199,0 | 442,0 | 337,0 | 575,0 | 465,0 | 708,0 | 598,0 | | | 333,0 | 223,0 |
| | 9 | | | | | 280,0 | 157,0 | 413,0 | 290,0 | 546,0 | 423,0 | 679,0 | 556,0 | | | 375,0 | 251,0 |
| | 10 | | | | | 253,0 | 115,0 | 386,0 | 248,0 | 519,0 | 381,0 | 652,0 | 514,0 | 785,0 | 647,0 | 417,0 | 279,0 |
| | 11 | | | | | | | 358,0 | 207,0 | 491,0 | 340,0 | 624,0 | 473,0 | 757,0 | 606,0 | 458,0 | 307,0 |
| | 12 | | | | | | | 330,0 | 165,0 | 463,0 | 298,0 | 596,0 | 431,0 | 729,0 | 564,0 | 500,0 | 335,0 |
| 190 | 5 | 332 | 222 | 438 | 329 | 651 | 542 | | | | | | | | | 309 | 200 |
| | 6 | 292 | 161 | 398 | 267 | 611 | 480 | 824 | 693 | | | | | | | 371 | 240 |
| | 7 | 252 | 99 | 358 | 205 | 571 | 418 | 784 | 631 | | | | | | | 433 | 280 |
| | 8 | | | 318 | 143 | 531 | 356 | 744 | 569 | 957 | 782 | 1169 | 995 | | | 495 | 320 |
| | 9 | | | | | 491 | 295 | 704 | 507 | 917 | 720 | 1130 | 933 | | | 557 | 360 |
| | 10 | | | | | 451 | 233 | 664 | 446 | 877 | 658 | 1090 | 871 | 1302 | 1084 | 618 | 400 |
| | 11 | | | | | | | 624 | 384 | 837 | 597 | 1050 | 809 | 1263 | 1022 | 680 | 440 |
| | 12 | | | | | | | 584 | 322 | 797 | 535 | 1010 | 748 | 1223 | 960 | 742 | 480 |

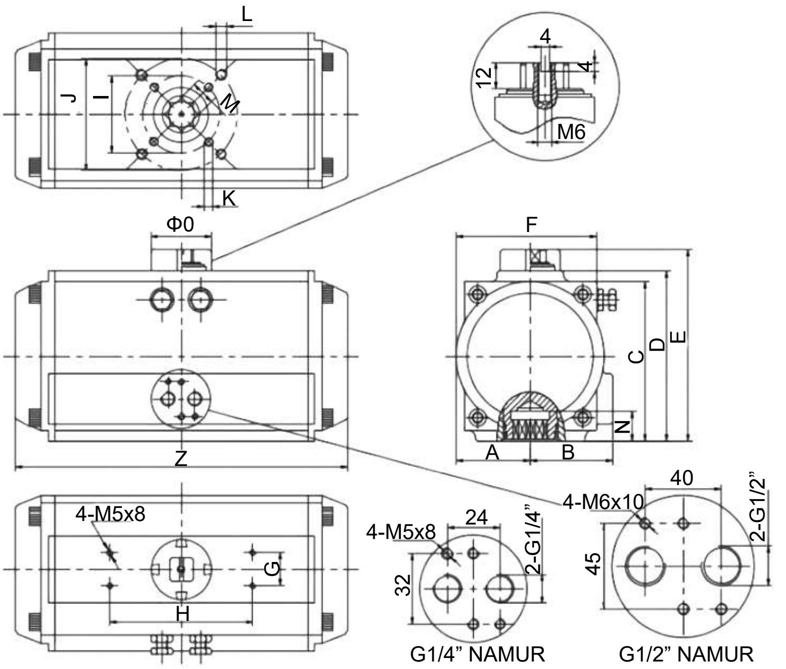
**Torque [Nm] depending on working pressure (continued)**

| Piston ∅ [mm] | Number of springs | Inlet pressure [MPa] and position | | | | | | | | | | | | | | Return by springs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0,25 | | 0,3 | | 0,4 | | 0,5 | | 0,6 | | 0,7 | | 0,8 | | | |
| | | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 90° | 0° |
| 210 | 5 | 390 | 285 | 523 | 418 | 789 | 684 | | | | | | | | | 380 | 275 |
| | 6 | 335 | 209 | 468 | 342 | 734 | 608 | 1000 | 874 | | | | | | | 456 | 330 |
| | 7 | 280 | 133 | 413 | 266 | 679 | 532 | 945 | 798 | | | | | | | 532 | 385 |
| | 8 | | | 358 | 190 | 624 | 456 | 890 | 722 | 1156 | 988 | 1422 | 1254 | | | 608 | 440 |
| | 9 | | | | | 569 | 380 | 835 | 646 | 1101 | 912 | 1367 | 1178 | | | 684 | 495 |
| | 10 | | | | | 514 | 304 | 780 | 570 | 1046 | 836 | 1312 | 1102 | 1578 | 1368 | 760 | 550 |
| | 11 | | | | | | | 725 | 494 | 991 | 760 | 1257 | 1026 | 1523 | 1292 | 836 | 605 |
| | 12 | | | | | | | 670 | 418 | 936 | 684 | 1202 | 950 | 1468 | 1216 | 912 | 660 |
| 240 | 5 | 552 | 409 | 744 | 600 | 1129 | 985 | | | | | | | | | 554 | 410 |
| | 6 | 470 | 297 | 662 | 489 | 1047 | 874 | 1432 | 1259 | | | | | | | 665 | 492 |
| | 7 | 388 | 187 | 580 | 379 | 964 | 764 | 1349 | 1149 | | | | | | | 775 | 575 |
| | 8 | | | 498 | 268 | 883 | 653 | 1267 | 1037 | 1652 | 1422 | 2037 | 1807 | | | 886 | 656 |
| | 9 | | | | | 800 | 542 | 1185 | 926 | 1569 | 1311 | 1954 | 1696 | | | 998 | 739 |
| | 10 | | | | | 718 | 431 | 1103 | 816 | 1488 | 1201 | 1872 | 1586 | 2257 | 1970 | 1108 | 821 |
| | 11 | | | | | | | 1021 | 705 | 1406 | 1090 | 1791 | 1474 | 2176 | 1859 | 1219 | 903 |
| | 12 | | | | | | | 939 | 594 | 1323 | 979 | 1708 | 1363 | 2093 | 1748 | 1330 | 985 |
| 270 | 5 | 890 | 675 | 1195 | 968 | 1779 | 1552 | | | | | | | | | 787 | 560 |
| | 6 | 790 | 519 | 1083 | 811 | 1667 | 1396 | 2252 | 1981 | | | | | | | 943 | 672 |
| | 7 | 679 | 361 | 972 | 654 | 1556 | 1238 | 2141 | 1823 | | | | | | | 1101 | 783 |
| | 8 | | | 860 | 497 | 1444 | 1081 | 2029 | 1666 | 2614 | 2252 | 3199 | 2836 | | | 1258 | 895 |
| | 9 | | | | | 1332 | 923 | 1917 | 1509 | 2502 | 2094 | 3087 | 2678 | | | 1416 | 1007 |
| | 10 | | | | | 1220 | 767 | 1805 | 1352 | 2390 | 1937 | 2974 | 2521 | 3560 | 3107 | 1572 | 1119 |
| | 11 | | | | | | | 1693 | 1194 | 2278 | 1779 | 2862 | 2364 | 3448 | 2949 | 1730 | 1231 |
| | 12 | | | | | | | 1582 | 1037 | 2167 | 1623 | 2751 | 2207 | 3336 | 2792 | 1887 | 1342 |
| 300 | 5 | 1097 | 729 | | | | | | | | | | | | | 1061 | 730 |
| | 6 | 935 | 494 | 1316 | 875 | | | | | | | | | | | 1273 | 876 |
| | 7 | 772 | 258 | 1153 | 639 | 1916 | 1402 | | | | | | | | | 1485 | 1022 |
| | 8 | | | 991 | 403 | 1754 | 1166 | 2517 | 1929 | | | | | | | 1697 | 1168 |
| | 9 | | | | | 1592 | 930 | 2355 | 1693 | 3119 | 2456 | | | | | 1909 | 1314 |
| | 10 | | | | | 1430 | 695 | 2193 | 1458 | 2956 | 2221 | 3719 | 2984 | 4482 | 3747 | 2122 | 1460 |
| | 11 | | | | | | | 2030 | 1222 | 2793 | 1985 | 3556 | 2748 | 4319 | 3511 | 2334 | 1606 |
| | 12 | | | | | | | 1868 | 986 | 2631 | 1749 | 3394 | 2512 | 4157 | 3275 | 2546 | 1752 |
| 350 | 5 | 1533 | 964 | | | | | | | | | | | | | 1702 | 1173 |
| | 6 | 1292 | 586 | 1863 | 1157 | | | | | | | | | | | 2043 | 1408 |
| | 7 | 1031 | 208 | 1602 | 779 | 2745 | 1922 | | | | | | | | | 2383 | 1642 |
| | 8 | | | 1341 | 401 | 2484 | 1544 | 3626 | 2686 | | | | | | | 2724 | 1877 |
| | 9 | | | | | 2224 | 1165 | 3336 | 2307 | 4508 | 3449 | | | | | 3064 | 2112 |
| | 10 | | | | | 1963 | 787 | 3105 | 1929 | 4247 | 3071 | 5390 | 4214 | 6532 | 5356 | 3405 | 2346 |
| | 11 | | | | | | | 2844 | 1551 | 3986 | 2693 | 5129 | 3836 | 6271 | 4978 | 3745 | 2581 |
| | 12 | | | | | | | 2584 | 1172 | 3726 | 2314 | 4869 | 3457 | 6011 | 4599 | 4086 | 2816 |

### Torque [Nm] depending on working pressure (continued)

| Piston ∅ [mm] | Number of springs | Inlet pressure [MPa] and position | | | | | | | | | | | | | | Return by springs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0,25 | | 0,3 | | 0,4 | | 0,5 | | 0,6 | | 0,7 | | 0,8 | | | |
| | | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 90° | 0° |
| 400 | 7 | 1028 | 869 | | | | | | | | | | | | | 2880 | 1837 |
| | 8 | 1736 | 411 | 2550 | 1225 | | | | | | | | | | | 3292 | 2100 |
| | 9 | | | 2259 | 768 | 3887 | 2396 | | | | | | | | | 3703 | 2362 |
| | 10 | | | 1967 | 311 | 3595 | 1939 | 5223 | 3567 | | | | | | | 4115 | 2624 |
| | 11 | | | | | 3303 | 1482 | 4931 | 3110 | 6559 | 4738 | | | | | 4526 | 2887 |
| | 12 | | | | | 3012 | 1025 | 4640 | 2653 | 6286 | 4281 | 7895 | 5908 | 9523 | 7536 | 4938 | 3149 |
| | 13 | | | | | | | 4348 | 2195 | 5976 | 3823 | 7603 | 5450 | 9231 | 7078 | 5349 | 3412 |
| | 14 | | | | | | | 4057 | 1738 | 5685 | 3366 | 7312 | 4993 | 8940 | 6621 | 5761 | 3674 |
| | 15 | | | | | | | 3765 | 1281 | 5393 | 2909 | 7020 | 4536 | 8648 | 6164 | 6172 | 3937 |
| | 16 | | | | | | | | | 5101 | 2452 | 6728 | 4079 | 8356 | 5707 | 6584 | 4199 |

## Dimensions




| ∅ | A | B | C | D | E | F | G | H | ∅ I | ∅ J | K | L | M | N | Z | O | Air source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **52** | 30 | 41,5 | 65,5 | 72 | 92 | 65 | 30 | 80 | 36 | 50 | M5x8 | M6x10 | 11 | 14 | 147 | 40 | NAMUR G1/4" |
| **63** | 36 | 47 | 81 | 87,5 | 108 | 72 | 30 | 80 | 50 | 70 | M6x10 | M8x13 | 14 | 18 | 168 | 40 | |
| **75** | 42 | 53 | 94 | 99,5 | 120 | 81 | 30 | 80 | 50 | 70 | M6x10 | M8x13 | 14 | 18 | 184 | 40 | |
| **83** | 46 | 57 | 98,5 | 108,7 | 129 | 92 | 30 | 80 | 50 | 70 | M6x10 | M8x13 | 17 | 21 | 204 | 40 | |
| **92** | 50 | 58,5 | 111 | 116,5 | 137 | 98 | 30 | 80 | 50 | 70 | M6x10 | M8x13 | 17 | 21 | 262 | 40 | |
| **105** | 57,5 | 64 | 123 | 133 | 153 | 110 | 30 | 80 | 70 | 102 | M8x13 | M10x16 | 22 | 26 | 268 | 40 | |
| **125** | 67,5 | 74,5 | 146 | 155 | 185 | 128 | 30 | 130 | 70 | 102 | M8x13 | M10x16 | 22 | 26 | 301 | 55 | |
| **140** | 75 | 77 | 161 | 172 | 202 | 138 | 30 | 130 | 102 | 125 | M10x16 | M12x20 | 27 | 31 | 390 | 55 | |
| **160** | 87 | 87 | 184 | 197 | 227 | 158 | 30 | 130 | 102 | 125 | M10x16 | M12x20 | 27 | 31 | 458 | 55 | |
| **190** | 103 | 103 | 216 | 230 | 260 | 189 | 30 | 130 | – | 140 | – | M16x25 | 36 | 50 | 525 | 80 | |
| **210** | 113 | 113 | 236 | 255 | 285 | 210 | 30 | 130 | – | 140 | – | M16x25 | 36 | 50 | 532 | 80 | |
| **240** | 130 | 130 | 265 | 290 | 320 | 245 | 30 | 130 | – | 165 | – | M20x25 | 46 | 60 | 602 | 80 | |
| **270** | 147 | 147 | 299 | 330 | 360 | 273 | 30 | 130 | – | 165 | – | M20x25 | 46 | 60 | 722 | 80 | NAMUR G1/2" |
| **300** | 162 | 173 | 330 | 354 | 384 | 312 | 30 | 130 | – | 165 | – | M20x25 | 46 | 60 | 820 | 80 | |
| **350** | 190 | 195 | 383 | 410 | 440 | 362 | 30 | 130 | 165 | 254 | M20x25 | 8xM16x25 | 46 | 60 | 900 | 80 | |
| **400** | 260 | 260 | 441 | 466 | 496 | 450 | 30 | 130 | 165 | 254 | M20x25 | 8xM16x25 | 46 | 60 | 940 | 80 | |

# LIMIT SWITCHES FOR PNEUMATIC SWING ACTUATORS



Position sensors of the ZLS series for actuators with swing movement of the ATM series have visible and clear optical position signaling. The sensor cam is easily and quickly adjusted without special tools. The terminal block has 8 contacts available for easy wiring. Thanks to the connection interface according to Namur VDI/VDE 3845, connecting the sensor is quick and easy.

| Sensor type | mechanical | induction type |
|---|---|---|
| Switches | 2x switch NC+NO (2xSPDT) | 2x switch NC+NO (2xSPDT) |
| Switching capacity | 250V AC, 16A; 125V AC, 16A<br>250V DC, 0,2A; 125V DC, 0,4A; 30V DC, 4A | 12 to 24V DC |
| Protection class | IP65 / IP67 | |
| Environmental conditions | altitude does not exceed 2000 m, ambient temperature -20 to -60 °C and + 60 °C according to temperature range | |
| Identificator | optical | |
| Limit switch connection | NAMUR VDI/VDE 3845, ISO 5211 | |
| Electrical interface | G1/2“ | |

## Order codes

ZG-ZLS 300 G A ST

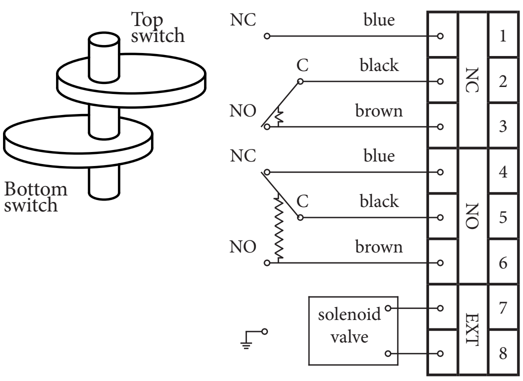
| Sensor type | |
|---|---|
| N | mechanical |
| G | induction type |

| Body material | |
|---|---|
| A | Aluminium alloy |
| S | stainless steel |

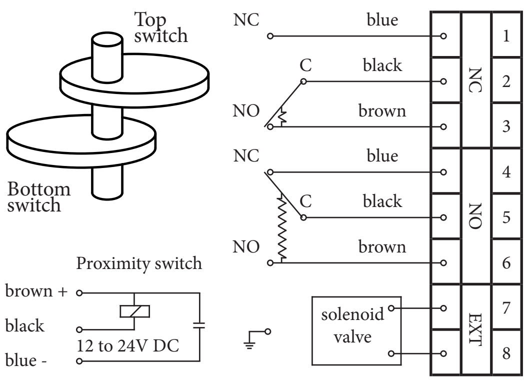
| Temperature range | |
|---|---|
| ST | -20°C to +60°C |
| OL | -40°C to +60°C |
| LT | -60°C to +60°C |

## Wiring

### Mechanical sensor




### Induction sensor



## We produce cylinders according to customer requirements

The Stránský and Petržík company specializes in customer solutions for pneumatic circuit designs, documentation of non-standard solutions, the production of atypical pneumatic elements, as well as the supply of complete functional units fitted with these elements.

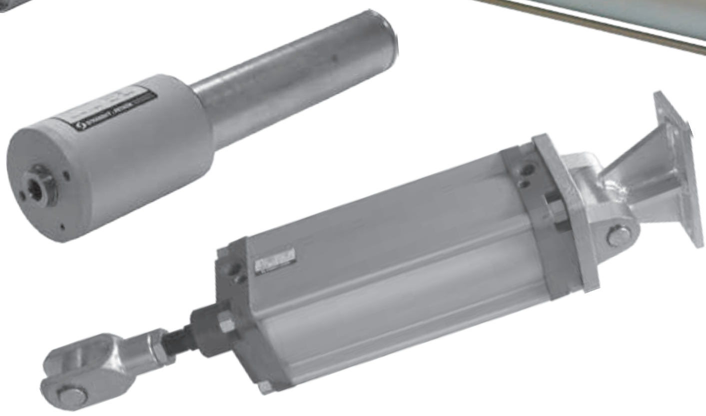
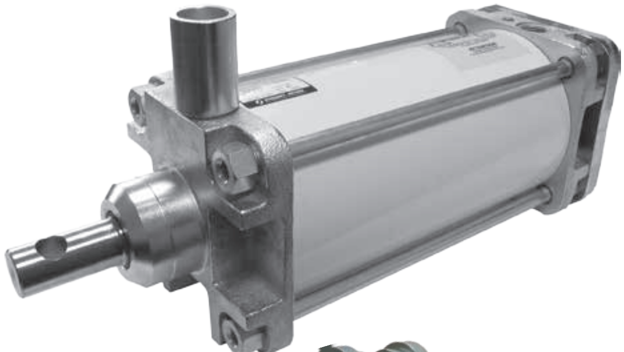
In the event of a customer‘s request for a certain specific function, for a special dimension, for special materials of a pneumatic cylinder, the design department proposes a solution that is the best and most economical option for the customer. Due to long-term experience and the appropriate structuring of production capacities, the manufacturer can offer suitable solutions for individual and piece production of these special pneumatic elements.

The phase of design work also offers flexible cooperation when the customer is continuously informed about the method of solution and the solution is corrected according to requirements. Each solution is approved by the customer in order to be sure of the best applicability.

***Main parameter range for specially designed pneumatic cylinders:***
- piston diameters from 8 to 600 mm
- single-acting and double-acting
- various strokes including a design with multiple strokes (boxer)
- various material versions, including stainless steel versions
- various shapes
- various surface finishes
- different types and materials of sealing elements
- different variants of fastening elements

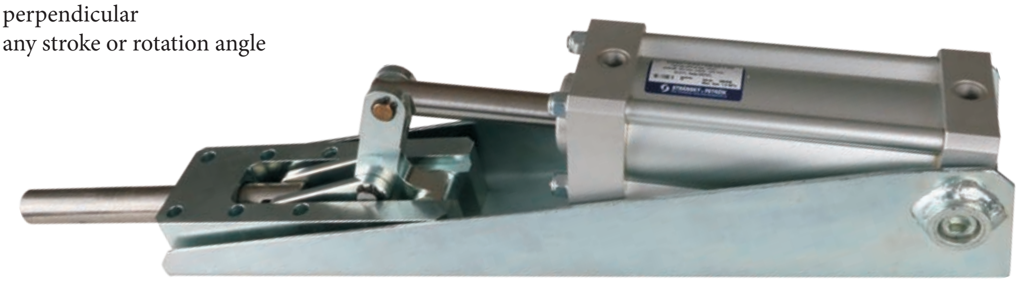




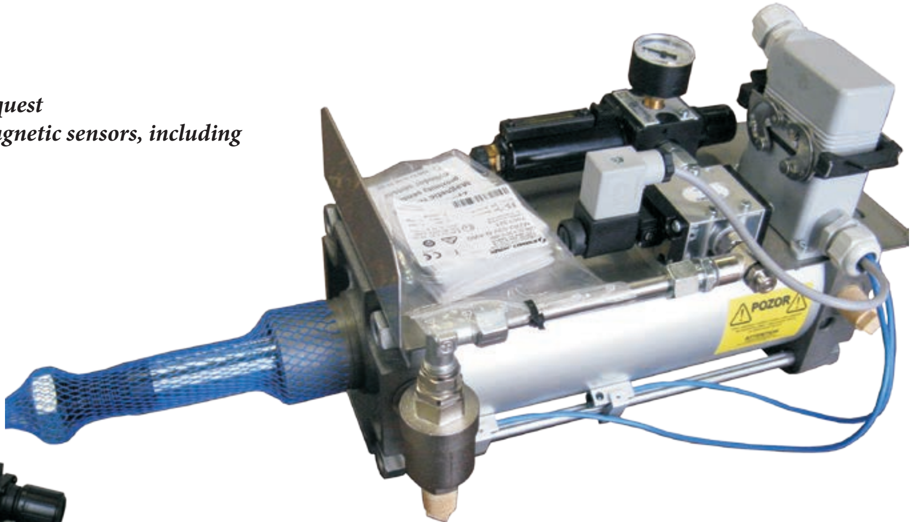
## Pneumatic clamps

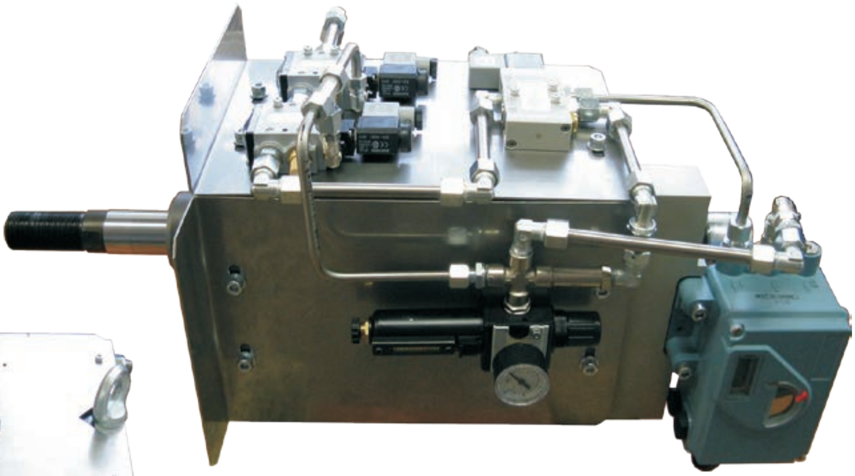
- piston diameters from 8 to 600 mm
- linear
- perpendicular
- any stroke or rotation angle

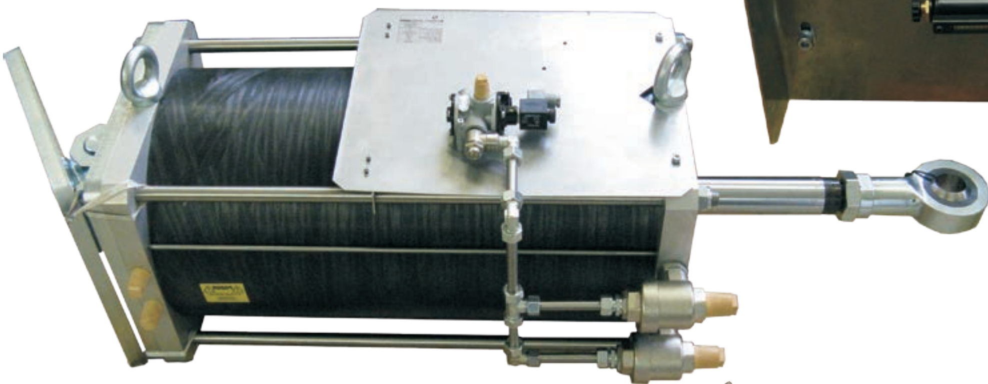



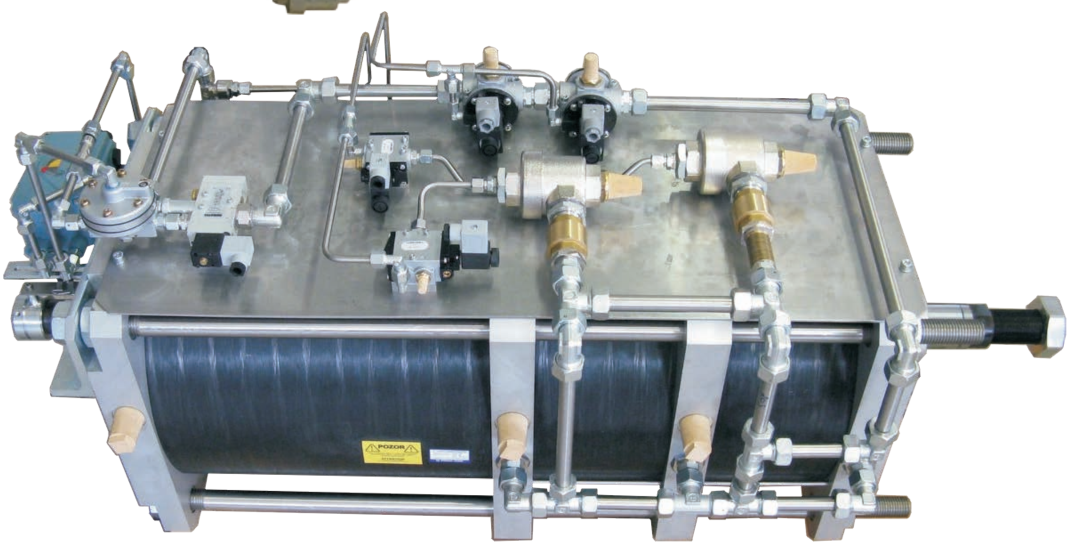
## We manufacture complete actuators according to customer requirements

- *intended primarily for controlling fittings*
- *double-acting, drive force up to 240 kN*
- *single-acting, spring force up to 65 kN*
- *pneumatic, max. cylinder diameter 600 mm*
- *hydraulic*
- *control circuit according to the customer‘s request*
- *the possibility of sensing the position with magnetic sensors, including the NAMUR standard*
- *possibility of emergency manual control*
- *ATEX*

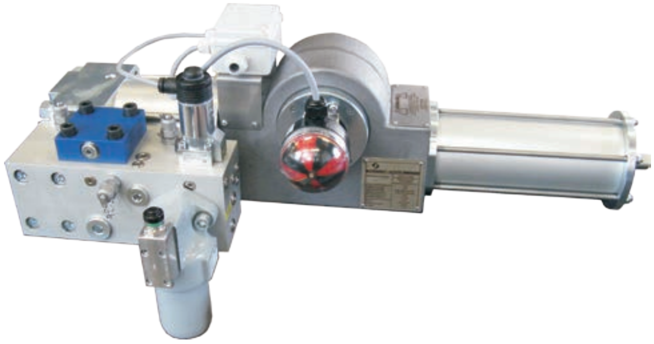


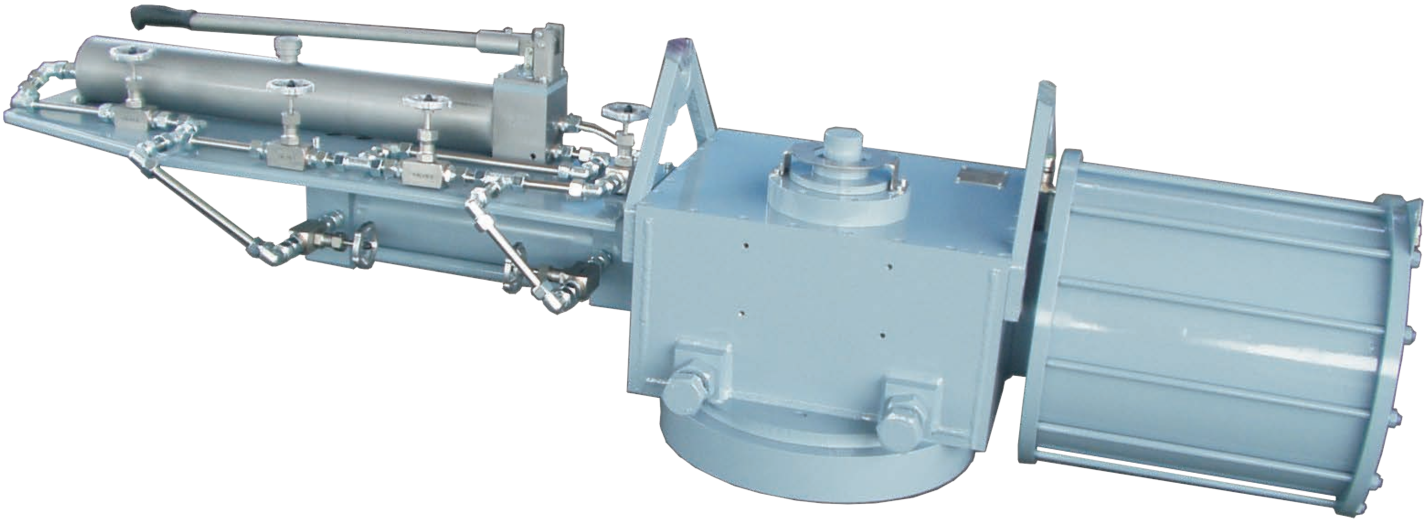



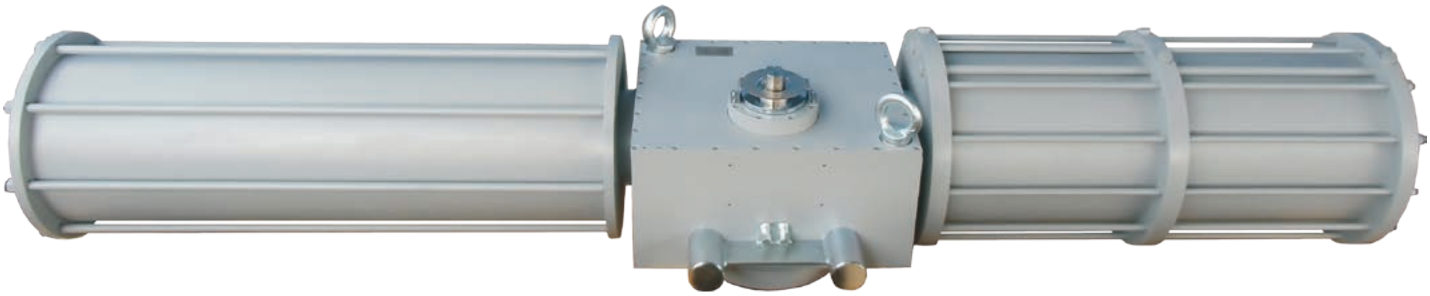


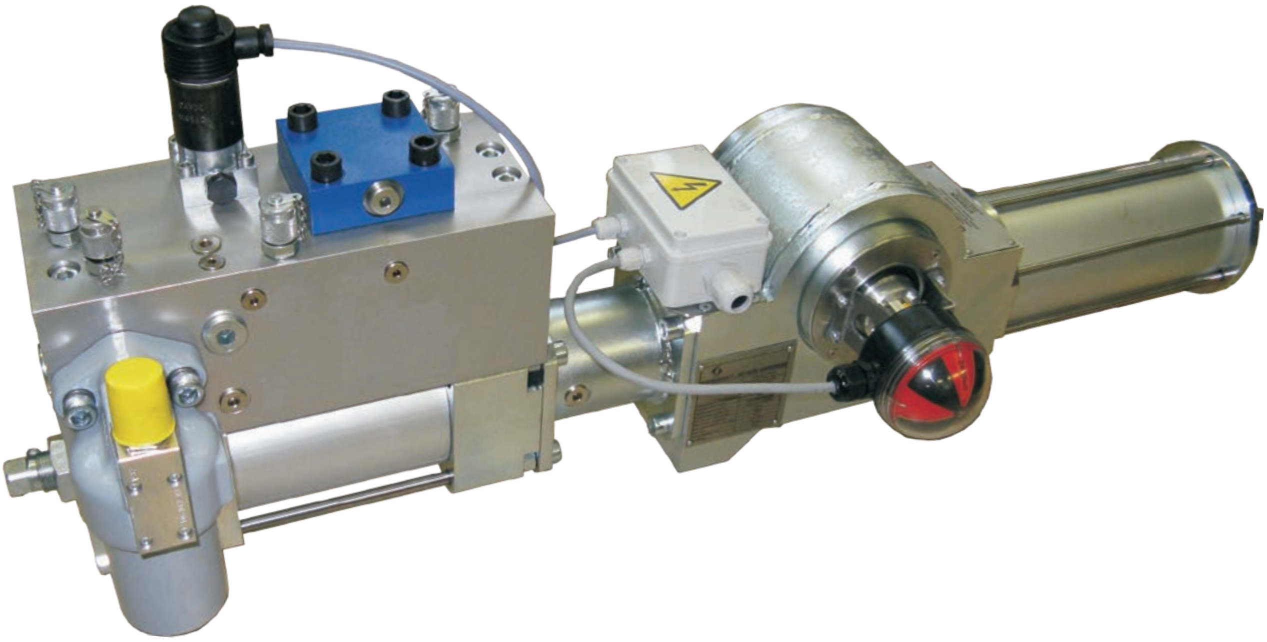


***Actuators with swing (rotary) motion according to customer requirements***
- single-acting
- double acting
- with gear wheel, max. torque up to 5000 Nm
- with a pulley mechanism, max. torque up to 12000 or 30000Nm
- pneumatic, max. cylinder diameter 600 mm
- hydraulic
- control circuit according to the customer‘s request
- the possibility of sensing the position with magnetic sensors, including the NAMUR standard
- ATEX









KT-50P
5B

# PROXIMITY SWITCHES
# SERIES KT-21 AND KT-50

STRÁNSKÝ A PETRŽÍK


KT-xxP series of electronic (PNP) proximity switches eliminates negative features of reed relays. Those switches are fully electronic, which brings excellent properties, long lifetime and integrated protections. We also offer reed switches, series KT-xxR. Series KT switches can be used with all types of Stránský a Petržík‘s cylinders. For various types of cylinders the right bracket must be used.
Switches KT-50 can be used with cylinders with T-slot made by other producer.

## Technical data

| Description | Value / Switch type | | | |
|---|---|---|---|---|
| | KT-21P | KT-21R | KT-50P | KT-50R |
| Supply voltage $U_b$ [V] | 5 to 30 DC | 5 to 240 DC / AC | 10 to 30 DC | 5 to 240 DC / AC |
| Max. switching power [W / VA] | 6 | 10 | 3 | 10 |
| Continuous current $I_a$ [mA] | ≤ 200 | ≤ 100 | ≤ 100 | ≤ 100 |
| Power consumption [mA] at 24V on-state | 20 | — | 20 | — |
| Voltage drop $U_d$ [V] | ≤ 0.5 | ≤ 3.5 | ≤ 2 | ≤ 3 |
| Leakage current [mA] | ≤ 0.01 | — | ≤ 0.05 | — |
| Enclosure rating | IEC529 IP67 | | | |
| Temperature range $T_a$ [˚C] | -10 to +70 | | | |
| Cable | PVC, 3x0.22 mm², ø4 mm | PVC, 2x0.22 mm², ø4 mm | PU, 3x0.22 mm², ø3 mm | PU, 2x0.22 mm², ø3 mm |
| Cable length | 2 m or 0.15 m with M8x1 connector | | 2 m or 0.30 m with M8x1 connector | |
| Housing material | plastic, metal sheet | | plastic, metal fixing device | |
| Integrated protection | against short circuit, overvoltage and reversing of polarity | — | against short circuit, overvoltage and reversing of polarity | — |

## Order codes

| Type | Switching output | Max. switching frequency [Hz] | Function indicator | Order codes for switch with connection | |
|---|---|---|---|---|---|
| | | | | cable 2 m | cable 0.15 (0.30) m with M8x1 connector |
| KT-21P | PNP | 1000 | LED | 2202 5111 0210 2000 | 2202 5111 0215 0000 |
| KT-21R | reed | 200 | LED | 2201 5102 0110 2000 | 2201 5102 0115 0000 |
| KT-50P | PNP | 1000 | LED | 2202 5011 0110 2000 | 2202 5011 0115 0000 |
| KT-50R | reed | 200 | LED | 2201 5002 0110 2000 | 2201 5002 0115 0000 |

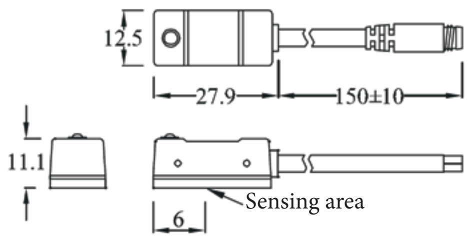
Please read carefully technical information on page 3-9.

## How to fix switch on cylinder and which series for which cylinder type

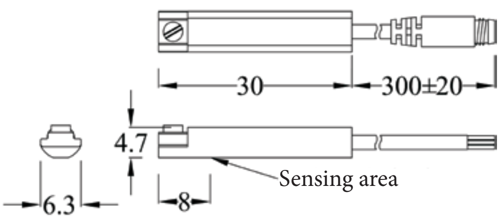
| Pneumatic cylinder type | Switch can be used | | | | | |
|---|---|---|---|---|---|---|
| | directly | with PM-x 1) bracket | with PI-x 2) bracket | with PBL-1 bracket (up to Ø63) | with PAB bracket (up to Ø100) | with bracket for dovetail groove |
| VDMA 24562, Ø32 to 100 mm | | | ✓ KT-21 | | | |
| VDMA 24562, Ø125 to 320 mm, CNOMO | | ✓ KT-21 | | | | |
| Compact, ISO 15552 (order code 10201...), short stroke Ø160 and 250 mm | ✓ KT-50 | | | | | |
| DIN ISO 6432 | | | | | ✓ KT-21 | |
| Short stroke, Ø20 to 100 mm | | | | | | ✓ KT-50 |
| PDSW, anti-corrosive - hygienic clean, rotary actuator, Ø 20 to 40 mm | | | | ✓ KT-50 | ✓ KT-21 | |
| Rotary actuator, Ø50 and more mm | | ✓ KT-21 | | | | |
| With guide unit U or H 3) | | ✓ KT-21 | | ✓ KT-50 | ✓ KT-21 | |

1) PM-6 bracket is for cylinders with tie rods diameter 5 to 6 mm (cylinders dia. 32, 40), PM-8 bracket is for tie rod diameter 8 mm (cylinders dia. 50, 63, 160 to 320), PM-12 bracket is for tie rod diameter 12 mm (cylinders dia. 80 to 125 mm)
2) PI-1 bracket is for cylinders dia. 32 and 40 mm, PI-2 is for cyl. dia 50 and 63 mm, PI-3 is for cyl. dia 80 mm and PI-4 is for cyl. dia 100 mm
3) We recommend to use bracket for tube with cylinder with guide unit, to provide sensing in section, where the guide unit is mounted. The guide body inhibits using of bracket for tie rod / profile. On the other side, or in the area out of guide body, bracket for tie rod / profile can be used.

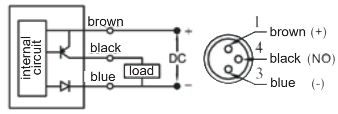
## Dimensions of series KT-21



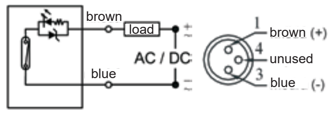

## Dimensions of series KT-50




## Connection of KT-xxP



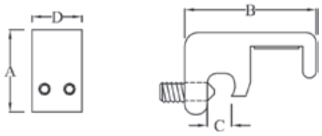

## Connection of KT-xxR




## Brackets for switches series KT-21

Bracket PM-x for cylinder tie rods

| Type | Order codes | For cylinder | Tie rod |
|---|---|---|---|
| PM-6 | 2290 5119 0000 0000 | Ø32, 40 | Ø5 to 6 |
| PM-8 | 2290 5120 0000 0000 | Ø50, 63, 160 to 320 | Ø8 |
| PM-12 | 2290 5121 0000 0000 | Ø80 to 125 | Ø12 |

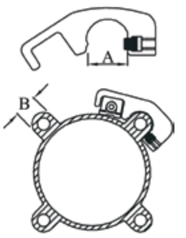



| Type | A | B | C | D |
|---|---|---|---|---|
| PM-6 | 19 | 31.0 | 6.5 | 12 |
| PM-8 | 20 | 34.5 | 8 | 12 |
| PM-12 | 20 | 35.5 | 11.5 | 12 |

Bracket PI-x for profile tube

| Type | Order codes | For cylinder |
|---|---|---|
| PI-1 | 2290 5115 0000 0000 | Ø32, 40 |
| PI-2 | 2290 5116 0000 0000 | Ø50, 63 |
| PI-3 | 2290 5117 0000 0000 | Ø80 |
| PI-4 | 2290 5118 0000 0000 | Ø100 |

It is necessary to use PM-12 bracket for cylinder to VDMA 24562 dia. 125 mm, and bracket PM-8 for cylinders dia. 160 to 320 mm



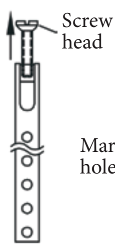

| Type | A max | B max |
|---|---|---|
| PI-1 | 11.15 | 10.4 |
| PI-2 | 14.10 | 13.5 |
| PI-3 | 15.45 | 15 |
| PI-4 | 16.3 | 16 |

Bracket PAB for tube

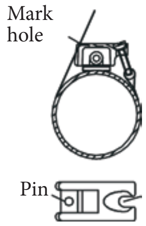
| Type | Order codes | For cylinder |
|---|---|---|
| PAB | 2290 5114 0000 0000 | up to Ø100 |

We recommend to use bracket for tube with cylinder with guide unit, to provide sensing in section, where the guide unit is mounted. The guide body inhibits using of bracket for tie rod / profile. On the other side, or in the area out of guide body, bracket for tie rod / profile can be used.

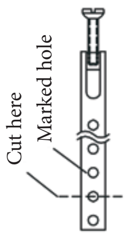
### How to use PAB bracket:



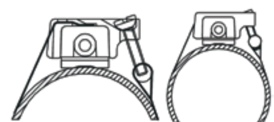

**Step 1:**
Start by keeping screw 3 to 4 turns into barrel nut on the end of band assembly




**Step 2:**
Place the screw head into clamp slot and wrap the band around the cylinder, position the pin with the nearest hole on the band and mark the hole with permanent marker




**Step 3:**
Remove clamp assembly from the cylinder. Locate the marked hole and cut the band at midway between next two adjacent holes

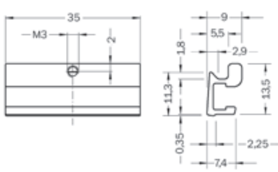


**Step 4:**
Insert cut of the band into a flat slot opposite from the clamp slot. Place the chosen hole over the pin and bend the band firmly down with thumb pressure. Then wrap the band around the cylinder barrel and re-insert screw head into clamp. Position the switch and tighten.

## Brackets for switches series KT-50

Bracket for dovetail groove

| Order codes | For cylinder |
|---|---|
| 2290 2011 0000 0000 | Ø20 to 100 |




Bracket PBL-1 for tube

| Type | Order codes | For cylinder |
|---|---|---|
| PBL-1 | 2290 5014 0000 0000 | Ø10 to 63 |

## Cables with M8x1 connector

| Description | Order codes - straight connector | Order codes - elbow connector |
|---|---|---|
| Connector only for cable max. 3x0.25 mm², max. dia. 5.5 mm | 2291 0001 0000 0000 | 2291 0002 0000 0000 |
| PVC cable with connector 3x0.22 mm², length 2m | 2291 0010 0000 0000 | 2291 0015 0000 0000 |
| PVC cable with connector 3x0.22 mm², length 5m | 2291 0011 0000 0000 | 2291 0016 0000 0000 |
| PVC cable with connector 3x0.22 mm², length 10m | 2291 0012 0000 0000 | 2291 0017 0000 0000 |

STRÁNSKÝ A PETRŽÍK


These proximity switches are produced as reed switches or electronic switches. Advantage of these switches is that they can be used with all types of Stránský a Petržík‘s cylinders. It means, that there can be used not only several diameters but also more types of cylinders (VDMA, compact, DIN ISO, etc.) in pneumatic circuit and for all cylinders only one type of switch can be used (it is necessary to select proper bracket for various types of cylinder - see table bellow). It brings cost savings at designing electrical circuits, at connection as well as at circuit maintaining.
Switch can be used with cylinders with T-slot made by other producers.

## Technical data of series RZT7

| Description | Value |
|---|---|
| Supply voltage $U_b$ [V] | 5 to 30 DC / AC |
| Max. switching power [W] | ≤ 6 |
| Continuous current $I_a$ [mA] | ≤ 500 (DC), ≤ 300 (AC) |
| Overrun distance, typ. [mm] | 10 |
| Enclosure rating to EN 60 529 | IP 67 |
| Temperature range $T_a$ [˚C] | -20 to +70 |
| Housing material | plastic |
| Cable | PVC, 3 x 0.12 mm² |
| Function indicator | LED |
| Integrated short circuit (max. 8A) and reverse polarity protection | |

## Technical data of series MZT8

| Description | Value for switching output | |
|---|---|---|
| | PNP and NPN | NAMUR EN 60947-5 |
| Supply voltage$U_b$ [V] | 10 to 30 DC | 8,2 to 20 DC[1)] |
| Voltage drop $U_d$ [V] | ≤ 2.2 | |
| Power consumption [mA] | ≤ 10 | |
| Continuous current $I_a$ [mA] | ≤ 200 | ≤ 60 |
| Overrun distance, typ. [mm] | 3 | |
| Enclosure rating to EN 60 529 | IP 68 | IP 67 |
| Temperature range $T_a$ [˚C] | -30 to +80 | -25 to +80 |
| Housing material | plastic PA12 | |
| Cable | PUR, 3 x 0.14 mm² | PVC, 2 x 0.14 mm² |
| Function indicator | LED | |
| Integrated short circuit, reverse polarity and power-up pulse protection | | |

## Order codes

| Type | Switching output | Function | Max. switching frequency [Hz] | Sensitivity [mT] | Order codes for switch with connection | | |
|---|---|---|---|---|---|---|---|
| | | | | | cable 2m | cable 5m | cable 0.3 m with connector M8x1 |
| RZT7 | reed | normally open (NO) | 400 | 3 | 2201 2810 0510 2000 | 2201 2810 0510 5000 | 2201 2810 0515 0000 |
| MZT8 | PNP | | 1000 | 2.6 | 2202 2511 0210 2000 | 2202 2511 0210 5000 | 2202 2511 0215 0000 |
| MZT8 | NPN | | 1000 | 2.6 | — | — | 2202 2611 0215 0000 |
| MZT8 | NAMUR ATEX[1)] | | 1000 | 2.8 | 2202 2714 5610 2000 | 2202 2714 5610 5000 | — |

1) According NAMUR EN 60947-5-6. Using of isolated switch amplifier with certificates of conformity for explosion areas is recommended (U ≤ 20 V; I≤ 60 mA; P ≤ 100 mW), device labeling: II 1D Ex ia IIIC T135 ˚C Da, II 1G Ex ia IIC T4 Ga

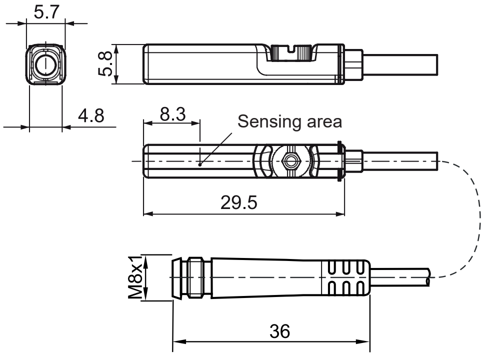
i Please read carefully technical information on page 3-9.

## How to fix switch on cylinder and which series for which cylinder type

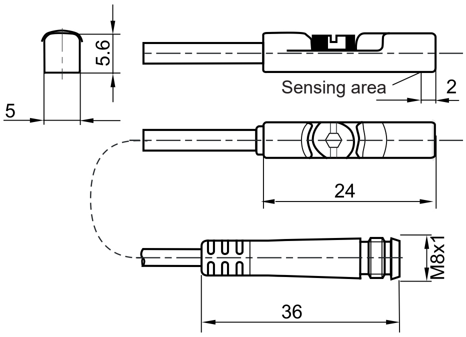
| Pneumatic cylinder type | Switch can be used | | | | | |
|---|---|---|---|---|---|---|
| | directly | with bracket | with bracket for dovetail groove | With bracket for tube | | |
| | | | | up to Ø25 | up to Ø63 | up to Ø125 |
| VDMA 24562, CNOMO | | ✓ | | | | |
| Compact, ISO 15552 (order code 10201...), short stroke Ø160 and 250 mm | ✓ | | | | | |
| DIN ISO 6432, PDSW, anti-corrosive - hygienic clean | | | | ✓ | | |
| Short stroke, Ø20 to 100 mm | | | ✓ | | | |
| Rotary actuator, Ø 20 to 40 mm | | | | ✓ | ✓ | |
| Rotary actuator, Ø50 and more mm | | ✓ | | | | |
| With guide unit U or H* | | ✓ | | ✓ | ✓ | ✓ |

*) We recommend to use bracket for tube with cylinder with guide unit, to provide sensing in section, where the guide unit is mounted. The guide body inhibits using of bracket for tie rod / profile. On the other side, or in the area out of guide body, bracket for tie rod / profile can be used.

## Dimensions of series RZT7

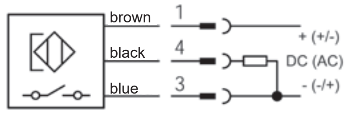



## Dimensions of series MZT8

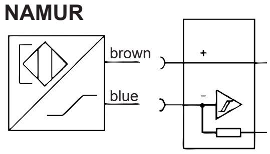


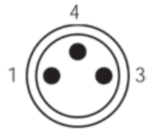

## Connection

**reed, PNP, NPN**




**NAMUR**



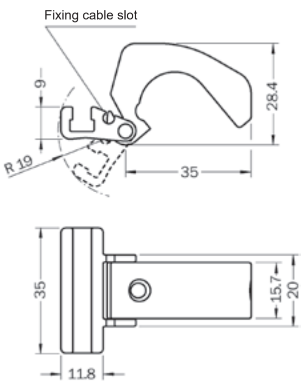

| Wire colour | Pin | Assignment |
|---|---|---|
| brown | 1 | +V DC |
| black | 4 | NO |
| blue | 3 | -V DC |

## Brackets for switches series RZT7, MZT8

Bracket for tie rod / profile

| Order code | Ø tie rod / profile |
|---|---|
| 2290 2010 0000 0000 | 5 to 18 |

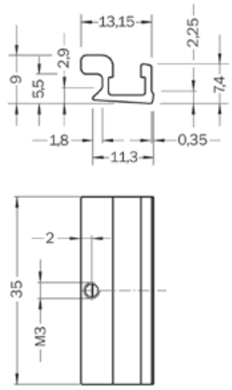
suitable for cylinders with tie rods or profile tubes cylinders to ISO 6431, VDMA 24562 (except guide unit U or H) and CNOMO, tie rod diameter / profile width: 5 to 18 mm




Bracket for dovetail groove

| Order code | Profile |
|---|---|
| 2290 2011 0000 0000 | dovetail gr. |

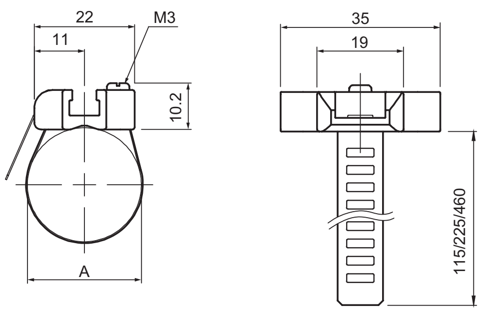
suitable for short stroke cylinders with dovetail groove




Bracket for round tube

| Order code | For cylinder |
|---|---|
| 2290 2012 0000 0000 | up to Ø25 |
| 2290 2013 0000 0000 | up to Ø63 |
| 2290 2014 0000 0000 | up to Ø125 |

up to Ø25: suitable for cylinders with round tube (ISO 6432 and rotary actuators dia. 20-32) and cylinders to VDMA 24562 with guide unit U or H diameter 32
up to Ø63: suitable for cylinders with round tube (rotary actuator dia. 40) and cylinder to VDMA 24562 with guide unit U or H dia. 40 to 63
up to Ø125: suitable for cylinders with round tube and cylinders to VDMA 24562 with guide unit U or H dia. 80 to 125




## Cables with M8x1 connector

| Description | Order codes - straight connector | Order codes - elbow connector |
|---|---|---|
| Connector only for cable max. 3x0.25 mm², max. dia. 5.5 mm | 2291 0001 0000 0000 | 2291 0002 0000 0000 |
| PVC cable with connector 3x0.22 mm², length 2m | 2291 0010 0000 0000 | 2291 0015 0000 0000 |
| PVC cable with connector 3x0.22 mm², length 5m | 2291 0011 0000 0000 | 2291 0016 0000 0000 |
| PVC cable with connector 3x0.22 mm², length 10m | 2291 0012 0000 0000 | 2291 0017 0000 0000 |

# PROPORTIONAL POSITION SENSOR SERIES MPS WITH ANALOG OUTPUT

Proportional position sensor with analog output (current as well as voltage) is suitable for application, where it is necessary to know exact position of the piston. It is a compact sensor, which can be fixed into the T slot. It is a fully electronic sensor, which brings excellent properties, long lifetime and integrated protections. There are several types with various measuring ranges available for various cylinder strokes. If the cylinder stroke is smaller than measuring range, the starting and end position can be adjusted by user on the sensor.

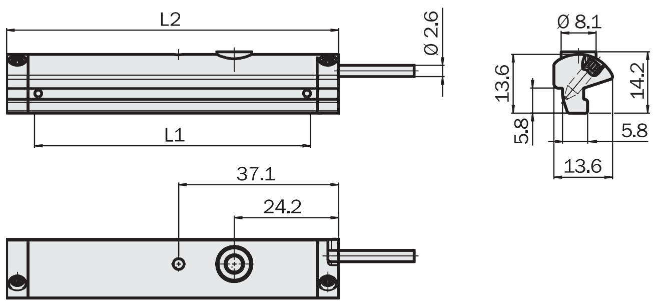
## Technical data

| Description | Value |
|---|---|
| Supply voltage $U_b$ [V] | 10 to 30 DC, ±10% |
| Continuous current $I_a$ [mA] | 25 |
| Max. load resistance, current output [Ω] | 500 |
| Min. load resistance, voltage output [kΩ] | 2 |
| Temperature range $T_a$ [°C] | -20 to+70 |
| Connection | PUR cable 2m or cable 0.3 m with M8x1 connector |
| Function indicator | LED |
| Overload and short-circuit protection, reverse polarity protection | |

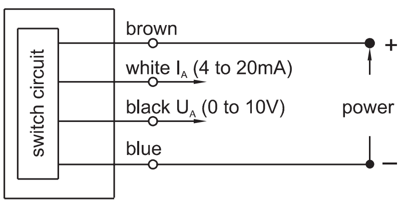
| Description | Value |
|---|---|
| Sample time [ms] | 1 |
| Resolution typ. [mm] | 0.05 |
| Linearity typ. [mm] | 0.3 |
| Repeat accuracy typ. [mm] | 0.1 |
| Travel speed max. [m/s] | 3 |
| Analog output - current [mA] | 4 to 20 |
| - voltage [V] | 0 to 10 |
| Enclosure rating | IP 67 |
| EMC | according to EN 60947-5-7 |
| Housing material | PA reinforced |

## Order codes, dimensions

| Type | Measuring range L1[mm] | L2 | Order codes for switch with connection | |
|---|---|---|---|---|
| | | | cable 2m | cable 0.3 m with M8x1 connector |
| MPS | 32 | 45 | 2210 9011 0010 2032 | 2210 9011 0015 0032 |
| | 64 | 77 | 2210 9011 0010 2064 | 2210 9011 0015 0064 |
| | 96 | 109 | 2210 9011 0010 2096 | 2210 9011 0015 0096 |
| | 128 | 141 | 2210 9011 0010 2128 | 2210 9011 0015 0128 |
| | 160 | 173 | 2210 9011 0010 2160 | 2210 9011 0015 0160 |
| | 192 | 205 | 2210 9011 0010 2192 | 2210 9011 0015 0192 |
| | 224 | 237 | 2210 9011 0010 2224 | 2210 9011 0015 0224 |
| | 256 | 269 | 2210 9011 0010 2256 | 2210 9011 0015 0256 |




## Connection




## How to fix switch on cylinder

| Pneumatic cylinder type | Switch can be used directly |
|---|---|
| Compact, ISO 15552 (order code 10201...), short stroke Ø160 and 250 mm | ✓ |

## Cables with straight M8x1 connector

| Description | Order codes |
|---|---|
| PVC cable with connector 4x0.22 mm², length 2m | 2291 0020 0000 0000 |
| PVC cable with connector 4x0.22 mm², length 5m | 2291 0021 0000 0000 |
| PVC cable with connector 4x0.22 mm², length 10m | 2291 0022 0000 0000 |

# PROXIMITY SWITCHES SERIES SP472

This proximity switch is designed for use in extreme temperature conditions. It can be placed and used in ambient temperatures from -40 to +150°C. This switch is suitable for use with cylinders to VDMA 24562 and DIN ISO 6431 when proper bracket is used. Switch is mounted to bracket with M3 screws (included in pack).

## Technical data

| Description | Value |
|---|---|
| Supply voltage $U_b$ [V] | 10 to 30 DC |
| Power consumption [mA] | 20 |
| Continuous current $I_a$ [mA] | 100 |
| Enclosure rating to EN 60 529 | IP 68 |
| Temperature range $T_a$ [°C] | -40 to +150 |
| Housing material | dural |
| Cable | silicone, 3 x 0.22 mm², length 2 m |
| Function indicator | none |
| Built-in reverse polarity protection, shock and vibration resistivity, switch hasn‘t built-in short circuit protection | |

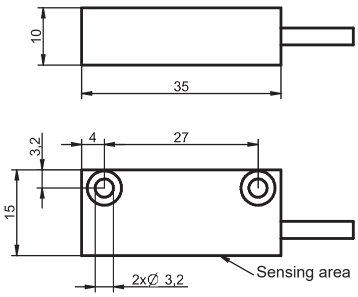
## Order codes

| Type | Switching output | Max. switching frequency [Hz] | Sensitivity [mm] | Connection | Order codes |
|---|---|---|---|---|---|
| SP-472 | PNP | 10000 | 5 to 10 | cable 2 m | 2202 8012 5200 2000 |

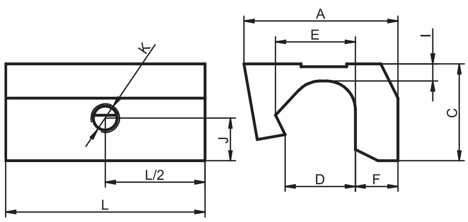
| Bracket for pneumatic cylinders | Bracket type | Order codes |
|---|---|---|
| VDMA 24562, piston diameter 32, 40, 125 to 320 mm | 1 | 2290 8010 0000 0000 |
| VDMA 24562, piston diameter 50 and 63 mm (with profile tube) | 2 | 2290 8010 0050 0063 |
| VDMA 24562, piston diameter 80 and 100 mm (with profile tube) | 3 | 2290 8010 0080 0100 |
| Short stroke (piston diameter 20 to 80 mm) | 4 | 2290 8011 0000 0001 |
| Short stroke (piston diameter 100 mm) | 4 | 2290 8011 0000 0002 |

## Dimensions

Switch



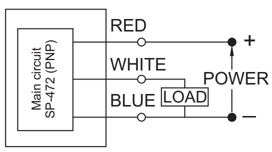

Bracket




| Type | A | C | D | E | F | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 27 | 17 | 12,3 | 14 | 7,5 | 3 | 7 | M6 | 35 |
| 2 | 27 | 19 | 13 | – | 5 | 5 | 5 | M5 | 35 |
| 3 | 27 | 25 | 16 | – | 5 | 6 | 5 | M5 | 35 |

Please read carefully technical information on page 3-9.

## Connection




## How to fix switch on cylinder and which series for which cylinder type

| Pneumatic cylinder type | Switch can be used with bracket | | | |
|---|---|---|---|---|
| | type 1 | type 2 | type 3 | type 4 |
| VDMA 24562, piston diameter 32, 40, 125 to 320 mm | ✓ | | | |
| VDMA 24562, piston diameter 50 and 63 mm | | ✓ | | |
| VDMA 24562, piston diameter 80 and 100 mm | | | ✓ | |
| Rotary actuator, piston diameter 50 and more mm | ✓ | | | |
| Short stroke (piston diameter 20 to 100 mm) | | | | ✓ |

STRÁNSKÝ A PETRŽÍK

RPE and RNE series of electronic (PNP and NPN) proximity switches eliminates negative features of reed relays. Those switches are fully electronic, which brings excellent properties and long lifetime. We also offer reed switches, series RCE. All series switches can be used with cylinders series M*.

## Technical data

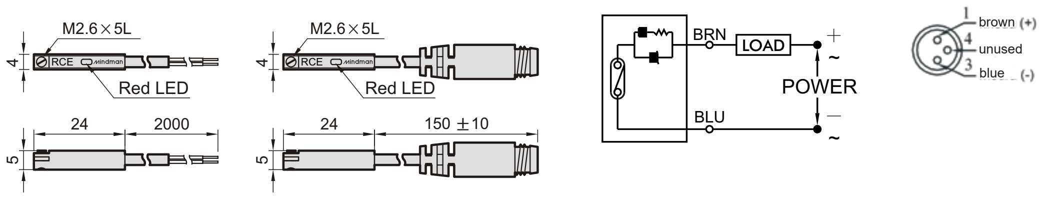
| Description | Value / Switch type | | |
|---|---|---|---|
| | RCE (reed switch) | RPE (solid state switch, PNP) | RNE (solid state switch, NPN) |
| Supply voltage $U_b$ [V] | 5 to 230 DC or AC | 5 to 30 DC | 5 to 30 DC |
| Max. switching power [W / VA] | 10 | 1.5 | 1.5 |
| Continuous current $I_a$ [mA] | ≤ 100 | ≤ 50 | ≤ 50 |
| Power consumption [mA] at 24V on-state | — | ≤ 12 | ≤ 10 |
| Voltage drop $U_d$ [V] | ≤ 2.5 | ≤ 1.5 | ≤ 0.5 |
| Leakage current [mA] | — | ≤ 0.01 | ≤ 0.01 |
| Enclosure rating | IEC 529 IP67 | | |
| Temperature range $T_a$ [˚C] | -10 to +70 | | |
| Cable | 2 wires, ø2.8 mm | 3 wires, ø3 mm | 3 wires, ø3 mm |
| Cable length | 2 m or 0.15 m with M8x1 connector | | |
| Housing material | plastic | | |
| Integrated protection | — | power source reverse polarity, surge suppression | |

## Order codes

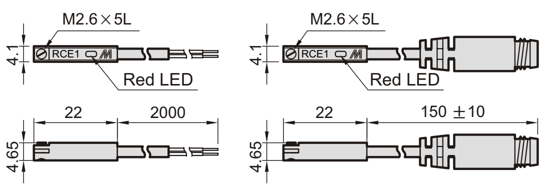
| Type | Switching output | Max. response time [Hz] | Function indicator | Order codes for switch with connection | |
|---|---|---|---|---|---|
| | | | | cable 2 m | cable 0.15 m with M8x1 connector |
| RCE | reed | 1 | red LED | PRCE | PRCE-QD |
| RPE | PNP | 1 | red LED | PRPE | PRPE-QD |
| RNE | NPN | 1 | green LED | PRNE | PRNE-QD |

Please read carefully technical information on page 3-9.

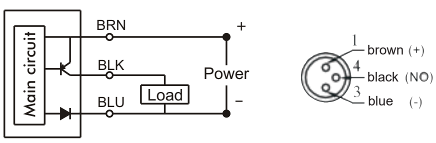
## Dimensions and connection of RCE type



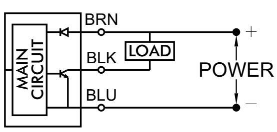

## Dimensions of RPE and RNE type




## Connection of RPE type




## Connection of RNE type




## How to fix switch on cylinder and which series for which cylinder type

| Pneumatic cylinder type | Sutable switch with direct mounting |
|---|---|
| MCGS, MCGD, MCDA, MCSS , MSBD1), MSBR2), MSBS3), MCHA, MCHB, MCRPMD | ✓ RCE, ✓ RPE, ✓ RNE |

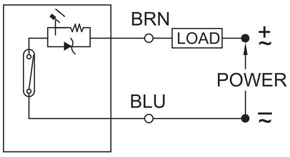
1) Except piston diameter 50 mm - in this case please contact our technical dept.
2) Except piston diameter 20 mm - in this case please contact our technical dept.
3) Except piston diameter 20 and 50 mm - in this case please contact our technical dept.

## Warning

Do not exceed specification, permanent damage to the sensor may occur.

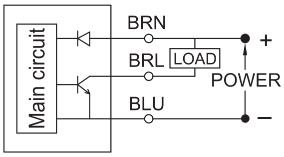
## Rules for using of proximity switches

1. For reed switch type sensors, polarity must also be observed for the proper functioning of LED. Connect the brown wire in series with load positive (+) and the blue wire to negative (-) of power source. If the polarity is reversed, reed switch remains functional but LED will remain in "OFF" state.

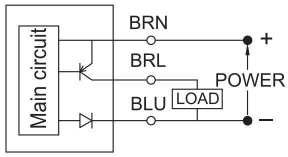


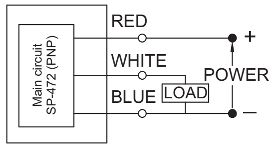

2. For solid-state type sensors , polarity must also be observed . Connect brown (red for SP-472 switch) wire to the positive (+) and the blue to the negative (-) of DC power source. The black (white for SP-472 switch) wire must connect to the load only. If the black (white for SP-472 switch) wire is accidentally connected to the power source, permanent damage to the sensor may occur.

( NPN Output )



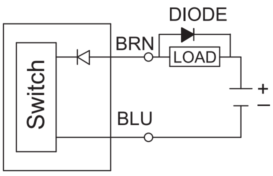

( PNP Output )



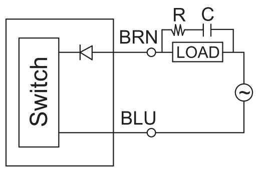




3. An external protection circuit may be required if the reed switch is used with inductive load. For DC voltage, the diode must be connected, for AC voltage, the RC circuit must be connected as shown below.

DC Power



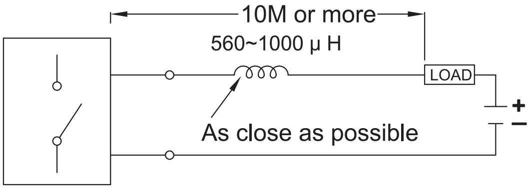

AC Power




R: 2,7K Ω
C: 0,1μf/600V

4. Keep sensors away form stray magnetic field to prevent malfunctions.

5. When using reed switch with capacitive load or if the lead wire length exceed 10 meters, an inductor must be installed in series.

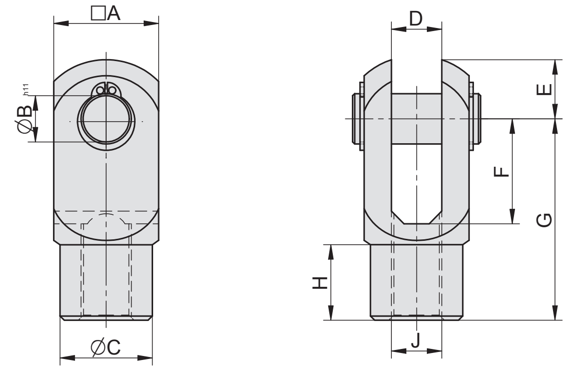


# MOUNTING ACCESSORIES - CONTENTS



## PISTON ROD CLEVIS

Supply contains:
1 pc clevis
1 pc pivot pin
2 pcs retaining rings

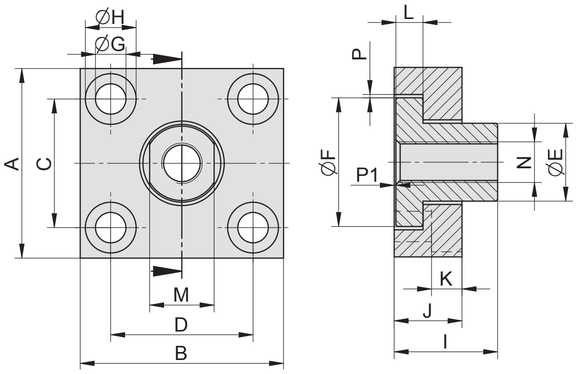



| Piston ∅* | A | B | C | D | E | F | G | H | J* | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 / 16 | 12 | 6 | 10 | 6 | 7.6 | 12 | 24 | 10 | M6 | 0.005 | 2110 0100 0012 0000 |
| 20 | 16 | 8 | 14 | 8 | 10 | 16 | 32 | 14 | M8 | 0.02 | 2110 0100 0020 0000 |
| 25 / 32 | 20 | 10 | 18 | 10 | 12.6 | 22 | 40 | 13 | M10x1.25 | 0.06 | 2110 0100 0025 0000 |
| 40 | 25 | 12 | 22 | 12 | 14 | 25 | 48 | 18 | M12x1.25 | 0.12 | 2101 0100 0040 0000 |
| 50 / 63 | 28 | 16 | 26 | 16 | 14 | 32 | 64 | 23 | M16x1.5 | 0.16 | 2101 0100 0050 0000 |
| 80 / 100 | 35 | 20 | 34 | 20 | 18 | 45 | 80 | 23.5 | M20x1.5 | 0.36 | 2101 0100 0080 0000 |
| 125 | 55 | 30 | 48 | 30 | 38 | 60 | 110 | 40 | M27x2 | 1.56 | 2101 0100 0125 0000 |
| 160 / 200 | 70 | 35 | 60 | 35 | 57 | 85 | 144 | 45 | M36x2 | 3.60 | 2101 0100 0160 0000 |
| 250 | 85 | 40 | 70 | 40 | 64 | 84 | 168 | 65 | M42x2 | 6.32 | 2101 0100 0250 0000 |
| 320 | 96 | 50 | 80 | 50 | 73 | 96 | 192 | 70 | M48x2 | 6.86 | 2101 0100 0320 0000 |

*) Please check dimensions of thread on cylinder and accessories for piston rod, before you order it (for example: compact cylinder piston dia. 40 mm has thread M10x1.25 on piston rod, piston rod clevis for cylinder dia. 40 has thread M12x1.25, so it is necessary to order picton rod clevis for cylinder dia. 25/32, where is thread M10x1.25).

## FLANGED PISTON ROD COUPLING

Supply contains:
1 pc flange

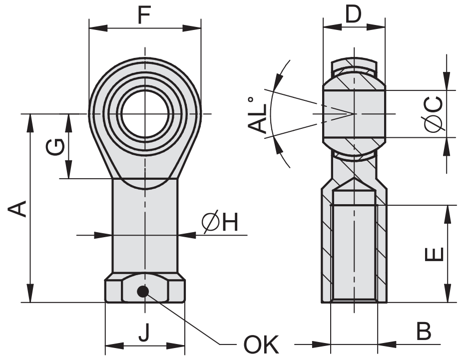



| Piston ∅* | A | B | C | D | E | F | G | H | I | J | K | L | M | N* | P | P1 | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 / 16 | 30 | 25 | 20 | 15 | 12 | 18 | 5.5 | - | 16 | 8 | - | 3.5 | 10 | M6 | 1 | 0.5 | 0.02 | 2110 0300 0012 0000 |
| 20 | 35 | 30 | 25 | 20 | 14 | 20 | 5.5 | - | 22 | 8 | - | 3.5 | 13 | M8 | 1 | 0.5 | 0.04 | 2110 0300 0020 0000 |
| 25 / 32 | 60 | 37 | 36 | 23 | 20 | 30 | 6.4 | 11 | 24 | 15 | 7 | 7 | 17 | M10x1.25 | 1 | 0.5 | 0.20 | 2110 0300 0025 0000 |
| 40 | 60 | 56 | 42 | 38 | 25 | 40 | 9 | 15 | 30 | 20 | 9 | 8 | 19 | M12x1.25 | 1 | 0.5 | 0.44 | 2101 0300 0040 0000 |
| 50 / 63 | 80 | 80 | 58 | 58 | 30 | 50 | 11 | 18 | 32 | 20 | 11 | 9 | 24 | M16x1.5 | 1 | 0.5 | 0.84 | 2101 0300 0050 0000 |
| 80 / 100 | 90 | 90 | 65 | 65 | 40 | 60 | 14 | 20 | 35 | 20 | 13 | 10 | 36 | M20x1.5 | 1 | 0.5 | 1.10 | 2101 0300 0080 0000 |
| 125 | 90 | 90 | 65 | 65 | 40 | 60 | 14 | 20 | 35 | 20 | 13 | 10 | 36 | M27x2 | 1 | 0.5 | 1.06 | 2101 0300 0125 0000 |
| 160 / 200 | 120 | 120 | 80 | 80 | 50 | 70 | 17 | 26 | 42 | 20 | 14 | 12 | 46 | M36x2 | 1 | 0.5 | 1.98 | 2101 0300 0160 0000 |

*) Please check dimensions of thread on cylinder and accessories for piston rod, before you order it (for example: compact cylinder piston dia. 40 mm has thread M10x1.25 on piston rod, piston rod clevis for cylinder dia. 40 has thread M12x1.25, so it is necessary to order picton rod clevis for cylinder dia. 25/32, where is thread M10x1.25).

# PISTON ROD EYE

Supply contains:
1 pc eye

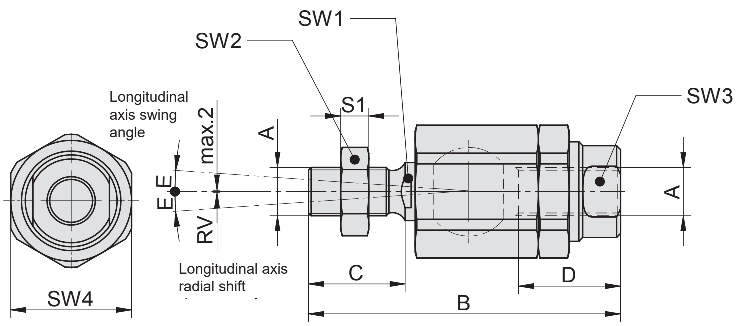



| Piston ∅* | A | B | C | D | E | F | G | H | J* | OK | AL | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 / 16 | 31 | M6 | 6 | 9 | 12 | 18 | 9 | 10 | 13 | 11 | 35 | 0.02 | 2101 0200 0012 0000 |
| 20 | 36 | M8 | 8 | 12 | 14 | 24 | 13 | 13 | 16 | 13 | 30 | 0.01 | 2101 0200 0020 0000 |
| 20 | 36 | M8 | 8 | 8 | 14 | 26 | 13 | 13 | 16 | 14 | 30 | 0.02 | 2110 0200 0020 0000 |
| 25 | 42 | M10x1.25 | 10 | 9 | 16 | 28 | 15 | 14 | 16 | 14 | 24 | 0.06 | 2110 0200 0025 0000 |
| 32 | 43 | M10x1.25 | 10 | 14 | 20 | 30 | 15 | 15 | 19 | 16 | 24 | 0.04 | 2101 0200 0025 0000 |
| 40 | 50 | M12x1.25 | 12 | 16 | 22 | 34 | 17 | 17 | 21 | 18 | 22 | 0.10 | 2101 0200 0040 0000 |
| 50 / 63 | 64 | M16x1.5 | 16 | 21 | 28 | 40 | 22 | 21 | 27 | 22 | 15 | 0.14 | 2101 0200 0050 0000 |
| 80 / 100 | 77 | M20x1.5 | 20 | 25 | 33 | 51 | 27 | 28 | 34 | 30 | 18 | 0.38 | 2101 0200 0080 0000 |
| 125 | 110 | M27x2 | 30 | 37 | 42 | 70 | 36 | 38 | 50 | 41 | 12 | 1.40 | 2101 0200 0125 0000 |
| 160 / 200 | 125 | M36x2 | 35 | 43 | 56 | 100 | 44 | 52 | 60 | 55 | 16 | 1.74 | 2101 0200 0160 0000 |
| 250 | 142 | M42x2 | 40 | 49 | 60 | 110 | 46 | 60 | 73 | 65 | 14 | 3.32 | 2101 0200 0250 0000 |
| 320 | 160 | M48x2 | 50 | 60 | 68 | 128 | 59 | 65 | 75 | 66 | 12 | 5.50 | 2101 0200 0320 0000 |

*) Please check dimensions of thread on cylinder and accessories for piston rod, before you order it (for example: compact cylinder piston dia. 40 mm has thread M10x1.25 on piston rod, piston rod clevis for cylinder dia. 40 has thread M12x1.25, so it is necessary to order picton rod clevis for cylinder dia. 25/32, where is thread M10x1.25).

# SELF-ALIGNING PISTON ROD COUPLING

Supply contains:
1 pc coupling



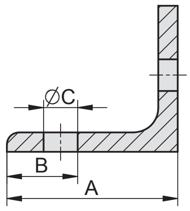

| Piston ∅* | A* | B | C | D | E | S1 | SW1 | SW2 | SW3 | SW4 | RV | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 / 10 | M4 | 33 | 8 | 13 | 4 | 2.2 | 3.2 | 7 | 7 | 11 | 0.5 | 0.015 | 2110 0400 0008 0000 |
| 12 / 16 | M6 | 37 | 12 | 14 | 4 | 3.2 | 5 | 10 | 7 | 13 | 0.5 | 0.02 | 2110 0400 0012 0000 |
| 20 | M8 | 42.5 | 15 | 18 | 4 | 4 | 7 | 13 | 10 | 17 | 0.5 | 0.06 | 2110 0400 0020 0000 |
| 25 / 32 | M10x1.25 | 69.5 | 20 | 26 | 5 | 6 | 12 | 17 | 19 | 30 | 0.7 | 0.21 | 2110 0400 0025 0000 |
| 40 | M12x1.25 | 74.5 | 24 | 26 | 5 | 7 | 12 | 19 | 19 | 30 | 0.7 | 0.22 | 2110 0400 0040 0000 |
| 50 / 63 | M16x1.5 | 103 | 32 | 34 | 5 | 8 | 19 | 24 | 30 | 41 | 1.0 | 0.65 | 2110 0400 0050 0000 |
| 80 / 100 | M20x1.5 | 120 | 40 | 42 | 5 | 9 | 19 | 30 | 30 | 41 | 1.0 | 0.72 | 2110 0400 0080 0000 |
| 125 | M27x2 | 157 | 54 | 48 | 5 | 13 | 24 | 41 | 32 | 55 | 2.0 | 1.78 | 2110 0400 0125 0000 |
| 160 / 200 | M36x2 | 251 | 72 | 80 | 4 | 18 | 32 | 50 | 50 | 75 | 2.0 | 5.2 | 2110 0400 0160 0000 |
| 250 | M42x2 | 271 | 82 | 88 | 4 | 14 | 40 | 65 | 60 | 85 | 2.0 | 8.7 | 2110 0400 0250 0000 |

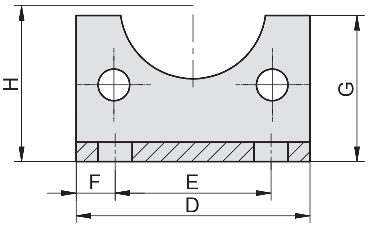
*) Please check dimensions of thread on cylinder and accessories for piston rod, before you order it (for example: compact cylinder piston dia. 40 mm has thread M10x1.25 on piston rod, piston rod clevis for cylinder dia. 40 has thread M12x1.25, so it is necessary to order picton rod clevis for cylinder dia. 25/32, where is thread M10x1.25).

## FOOT MOUNTING FOR CYLINDER

- **ISO 15552, VDMA 24562, NF E 49003.1**
- **DIN ISO 6431, VDMA 24562, NF E 49003.1**
- **COMPACT**

Supply contains:
1 pc foot mounting
2 pcs screws



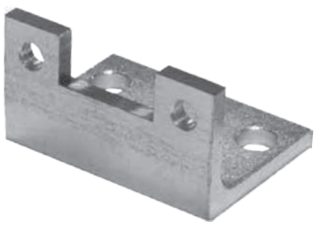



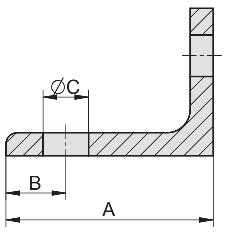

| Piston ∅ | A | B | C | D | E | F | G | H | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 35 | 11 | 7 | 48 | 32 | 5 | 30 | 32 | 0.08 | 2101 2100 0032 0000 |
| 40 | 40 | 12 | 10 | 55 | 36 | 9.5 | 32 | 36 | 0.12 | 2101 2100 0040 0000 |
| 50 | 45 | 13 | 10 | 65 | 45 | 10 | 40 | 45 | 0.16 | 2101 2100 0050 0000 |
| 63 | 45 | 13 | 10 | 75 | 50 | 12.5 | 40 | 50 | 0.22 | 2101 2100 0063 0000 |
| 80 | 60 | 19 | 12 | 95 | 63 | 16 | 60 | 63 | 0.50 | 2101 2100 0080 0000 |
| 100 | 60 | 19 | 12 | 115 | 75 | 20 | 60 | 71 | 0.54 | 2101 2100 0100 0000 |
| 125 | 70 | 30 | 16.5 | 140 | 90 | 25 | 70 | 90 | 1.22 | 2101 2100 0125 0000 |
| 160 | 85 | 25 | 18.5 | 185 | 115 | 35 | 90 | 115 | 2.55 | 2101 2100 0160 0000 |
| 200 | 105 | 35 | 24 | 235 | 135 | 50 | 120 | 135 | 4.68 | 2101 2100 0200 0000 |
| 250 | 115 | 40 | 28 | 270 | 165 | 52.5 | 150 | 165 | 10.84 | 2101 2100 0250 0000 |
| 320 | 130 | 45 | 35 | 350 | 200 | 75 | 170 | 200 | 14.75 | 2101 2100 0320 0000 |

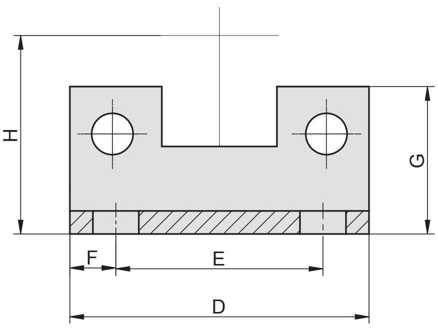
## FOOT MOUNTING FOR FRONT CAP OF CYLINDER

- **DIN ISO 6431, VDMA 24562 WITH DOUBLE PISTON ROD**

Supply contains:
1 pc foot mounting
2 pcs screws





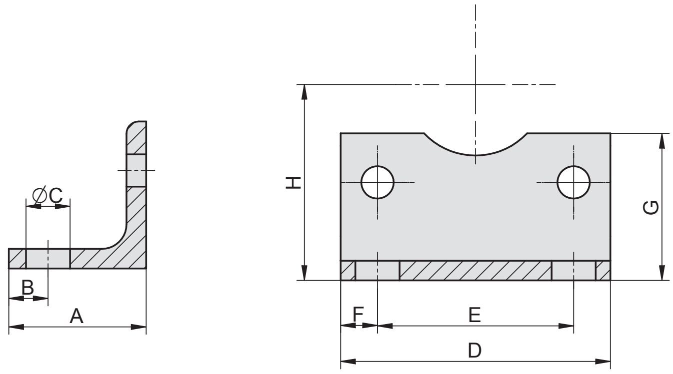

| Piston ∅ | A | B | C | D | E | F | G | H | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 35 | 11 | 7 | 48 | 32 | 5 | 23.5 | 32 | 0.08 | 2101 2200 0032 0000 |
| 40 | 40 | 12 | 10 | 55 | 36 | 9.5 | 25.5 | 36 | 0.12 | 2101 2200 0040 0000 |
| 50 | 45 | 13 | 10 | 65 | 45 | 10 | 32 | 45 | 0.16 | 2101 2200 0050 0000 |
| 63 | 45 | 13 | 10 | 75 | 50 | 12.5 | 35 | 50 | 0.22 | 2101 2200 0063 0000 |
| 80 | 60 | 19 | 12 | 95 | 63 | 16 | 42 | 63 | 0.50 | 2101 2200 0080 0000 |
| 100 | 60 | 19 | 12 | 115 | 75 | 20 | 45 | 71 | 0.54 | 2101 2200 0100 0000 |

Note: There is necessary to use standard foot mounting for cylinders DIN ISO 6431, VDMA 24562 (order code 2101 2100 0xxx 0000) when mounting on end cap.

# FOOT MOUNTING FOR CYLINDER

**• SHORT STROKE**

Supply contains:
1 pc foot mounting
2 pcs screws

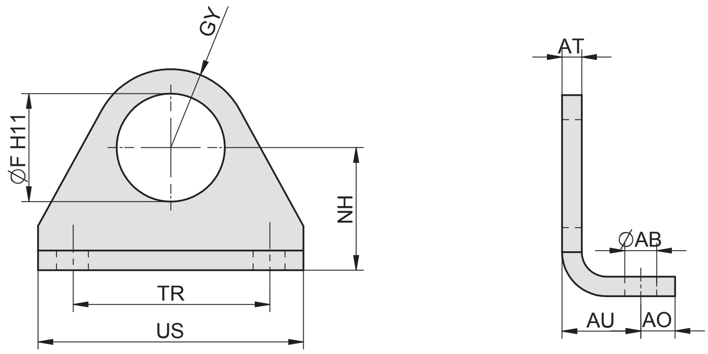



| Piston ∅ | A | B | C | D | E | F | G | H | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 22 | 6 | 6.6 | 32 | 22 | 5 | 25 | 27 | 0.04 | 2125 2100 0020 0000 |
| 25 | 22 | 6 | 6.6 | 39 | 28 | 5.5 | 25 | 29 | 0.04 | 2125 2100 0025 0000 |
| 32 | 26 | 8 | 6.6 | 48 | 36 | 6 | 30 | 34 | 0.08 | 2125 2100 0032 0000 |
| 40 | 28 | 8 | 9 | 55 | 40 | 7.5 | 30 | 40 | 0.08 | 2125 2100 0040 0000 |
| 50 | 32 | 8 | 9 | 65 | 50 | 7.5 | 40 | 47 | 0.14 | 2125 2100 0050 0000 |
| 63 | 38 | 12 | 9 | 80 | 62 | 9 | 45 | 56 | 0.22 | 2125 2100 0063 0000 |
| 80 | 42 | 12 | 12 | 100 | 82 | 9 | 55 | 68 | 0.40 | 2125 2100 0080 0000 |
| 100 | 45 | 12 | 14 | 124 | 103 | 10.5 | 60 | 81 | 0.68 | 2125 2100 0100 0000 |

# FOOT MOUNTING FOR CYLINDER

**• DIN ISO 6432**

Supply contains:
1 pc foot mounting

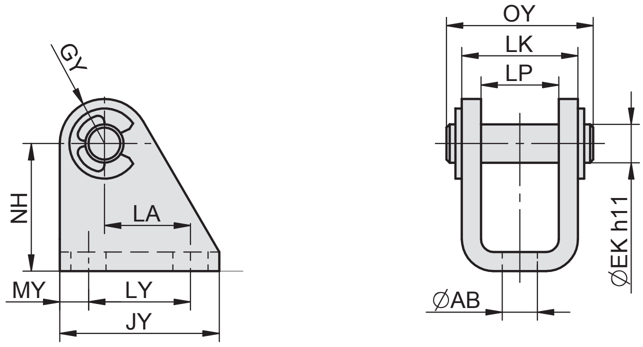



| Piston ∅ | AB | AO | AT | AU | F | GY | NH | TR | US | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 / 16 | 5.5 | 6 | 3 | 13 | 16 | 12 | 20 | 32 | 44 | 0.04 | 2110 2100 0012 0000 |
| 20 / 25 | 6.5 | 7 | 4 | 16 | 22 | 16 | 25 | 40 | 54 | 0.10 | 2110 2100 0020 0000 |

# CLEVIS FOOT MOUNTING FOR CYLINDER

**• DIN ISO 6432**

Supply contains:
1 pc clevis
1 pc pivot pin
2 pcs retaining rings



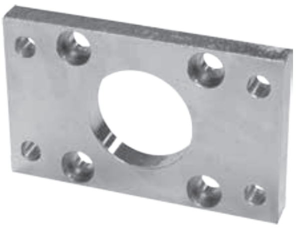

| Piston ∅ | AB | EK | GY | JY | LA | LK | LP | LY | MY | NH | OY | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 / 16 | 5.5 | 6 | 7 | 25 | 13.5 | 18.2 | 12.2 | 16 | 4.5 | 20 | 23 | 0.02 | 2110 3000 0012 0000 |
| 20 / 25 | 6.5 | 8 | 10 | 32 | 16 | 22.2 | 16.2 | 20 | 6 | 25 | 30 | 0.02 | 2110 3000 0020 0000 |

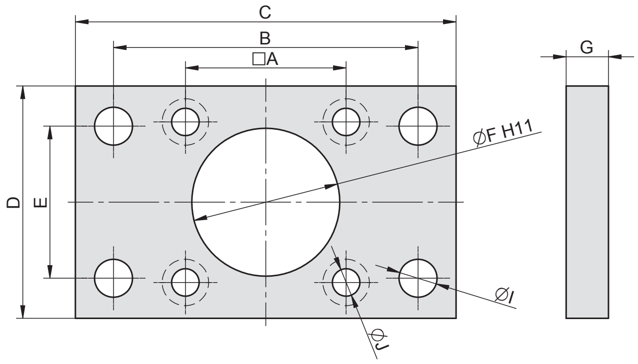
STRÁNSKÝ A PETRŽÍK

## FLANGE MOUNTING FOR CYLINDER

- **ISO 15552, VDMA 24562, NF E 49003.1**
- **DIN ISO 6431, VDMA 24562, NF E 49003.1**
- **COMPACT**

Supply contains:
1 pc flange mounting
4 pcs screws



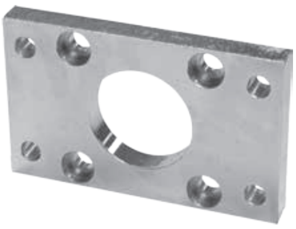



| Piston ∅ | A | B | C | D | E | F | G | I | J | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 32.5 | 64 | 80 | 50 | 32 | 30 | 10 | 7 | 6.5 | 0.24 | 2101 2000 0032 0000 |
| 40 | 38 | 72 | 90 | 55 | 36 | 35 | 10 | 9 | 6.5 | 0.28 | 2101 2000 0040 0000 |
| 50 | 46.5 | 90 | 110 | 70 | 45 | 40 | 12 | 9 | 9 | 0.56 | 2101 2000 0050 0000 |
| 63 | 56.5 | 100 | 120 | 75 | 50 | 45 | 12 | 9 | 9 | 0.64 | 2101 2000 0063 0000 |
| 80 | 72 | 126 | 153 | 100 | 63 | 45 | 16 | 12 | 11 | 1.60 | 2101 2000 0080 0000 |
| 100 | 89 | 150 | 178 | 115 | 75 | 55 | 16 | 14 | 11 | 2.18 | 2101 2000 0100 0000 |
| 125 | 110 | 180 | 220 | 140 | 90 | 60 | 20 | 16 | 14 | 4.16 | 2101 2000 0125 0000 |
| 160 | 140 | 230 | 260 | 190 | 115 | 65 | 20 | 18 | 18 | 7.06 | 2101 2000 0160 0000 |
| 200 | 175 | 270 | 312 | 220 | 135 | 75 | 25 | 22 | 18 | 12.20 | 2101 2000 0200 0000 |
| 250 | 220 | 330 | 380 | 270 | 165 | 90 | 25 | 26 | 22 | 18.48 | 2101 2000 0250 0000 |
| 320 | 270 | 400 | 460 | 340 | 200 | 110 | 30 | 33 | 26 | 32.90 | 2101 2000 0320 0000 |

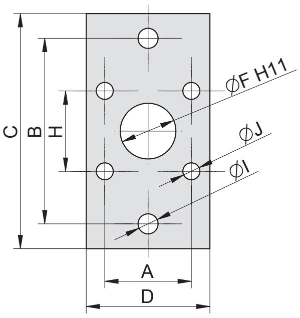
## FLANGE MOUNTING FOR CYLINDER

- **SHORT STROKE**

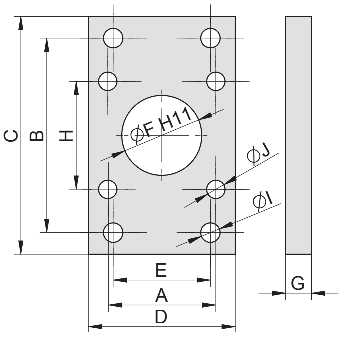
Supply contains:
1 pc flange mounting
4 pcs screws



For piston dia. 20 and 25




For piston dia. 32 to 100

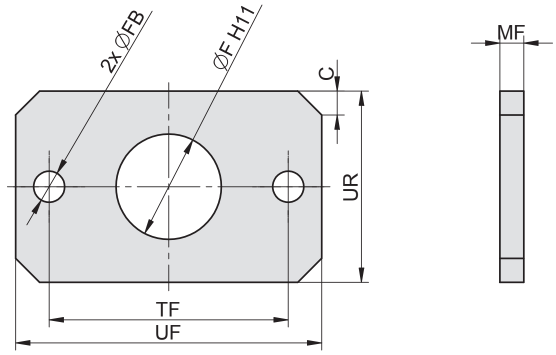



| Piston ∅ | A | B | C | D | E | F | G | H | I | J | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 22 | 55 | 70 | 36 | - | 13 | 10 | 22 | 6.6 | 5.5 | 0.16 | 2125 2000 0020 0000 |
| 25 | 28 | 60 | 76 | 40 | - | 18 | 10 | 26 | 6.6 | 5.5 | 0.18 | 2125 2000 0025 0000 |
| 32 | 36 | 65 | 80 | 50 | 32 | 22 | 10 | 32 | 7 | 6.5 | 0.22 | 2125 2000 0032 0000 |
| 40 | 40 | 82 | 102 | 60 | 36 | 29 | 10 | 40 | 9 | 6.5 | 0.36 | 2125 2000 0040 0000 |
| 50 | 50 | 90 | 110 | 68 | 45 | 37 | 12 | 50 | 9 | 8.5 | 0.56 | 2125 2000 0050 0000 |
| 63 | 62 | 110 | 130 | 87 | 50 | 49 | 16 | 62 | 9 | 10.5 | 1.08 | 2125 2000 0063 0000 |
| 80 | 82 | 135 | 160 | 107 | 63 | 55 | 16 | 82 | 12 | 10.5 | 1.76 | 2125 2000 0080 0000 |
| 100 | 103 | 163 | 190 | 130 | 75 | 61 | 16 | 103 | 13 | 13 | 2.68 | 2125 2000 0100 0000 |

## FLANGE MOUNTING FOR CYLINDER

- **DIN ISO 6432**

Supply contains:
1 pc flange mounting

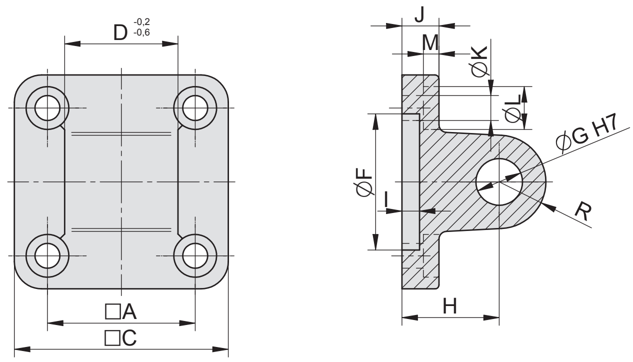



| Piston ∅ | C | F | FB | MF | TF | UF | UR | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|
| 12 / 16 | 5 | 16 | 5.5 | 4 | 40 | 52 | 28 | 0.04 | 2110 2000 0012 0000 |
| 20 / 25 | 5 | 22 | 6.5 | 5 | 50 | 64 | 38 | 0.12 | 2110 2000 0020 0000 |

## SWIVEL FLANGE FOR CYLINDER

- **ISO 15552, VDMA 24562, NF E 49003.1**
- **DIN ISO 6431, VDMA 24562, NF E 49003.1**
- **COMPACT**

Supply contains:
1 pc swivel flange
4 pcs screws

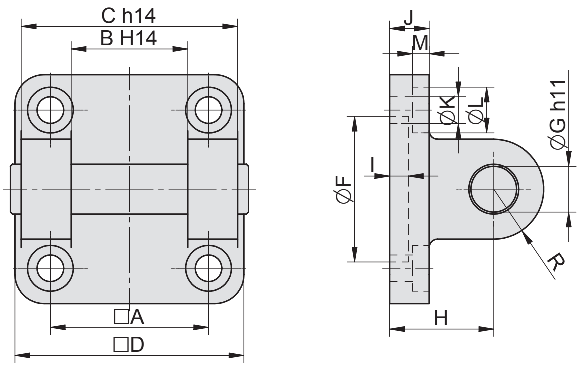



| Piston ∅ | A | C | D | F | G | H | I | J | K | L | M | R | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 32.5 | 48 | 26 | 30 | 10 | 22 | 4.5 | 9 | 6.4 | 11 | 3.5 | 10 | 0.08 | 2101 3300 0032 0000 |
| 40 | 38 | 55 | 28 | 35 | 12 | 25 | 4.5 | 9.5 | 6.4 | 11 | 4 | 12 | 0.11 | 2101 3300 0040 0000 |
| 50 | 46.5 | 65 | 32 | 40 | 12 | 27 | 5 | 11 | 9 | 15 | 4.5 | 12 | 0.18 | 2101 3300 0050 0000 |
| 63 | 56.5 | 75 | 40 | 45 | 16 | 32 | 5 | 11 | 9 | 15 | 4.5 | 16 | 0.30 | 2101 3300 0063 0000 |
| 80 | 72 | 95 | 50 | 45 | 16 | 36 | 5 | 15 | 11 | 18 | 5 | 16 | 1.30 | 2101 3300 0080 0000 |
| 100 | 89 | 115 | 60 | 55 | 20 | 41 | 5 | 15 | 11 | 18 | 5 | 20 | 2.20 | 2101 3300 0100 0000 |
| 125 | 110 | 140 | 70 | 60 | 25 | 50 | 7 | 19 | 14 | 20 | 9 | 25 | 3.90 | 2101 3300 0125 0000 |
| 160 | 140 | 185 | 90 | 65 | 30 | 55 | 7 | 19 | 18 | 26 | 9 | 30 | 7.00 | 2101 3300 0160 0000 |
| 200 | 175 | 235 | 90 | 75 | 30 | 60 | 7 | 24 | 18 | 26 | 13 | 30 | 12.20 | 2101 3300 0200 0000 |
| 250 | 220 | 270 | 110 | 90 | 40 | 70 | 12 | 25 | 22 | 34 | 14 | 40 | 15.10 | 2101 3300 0250 0000 |
| 320 | 270 | 350 | 120 | 110 | 45 | 80 | 12 | 30 | 26 | 46 | 15 | 45 | 33.00 | 2101 3300 0320 0000 |
| 400 | 350 | 430 | 119.5 | 110 | 45 | 90 | 12 | 28 | 26 | 46 | 14 | 53.5 | 46.50 | 2101 3300 0400 0000 |

## SWIVEL FLANGE FOR CYLINDER

- **ISO 15552, VDMA 24562, NF E 49003.1**
- **DIN ISO 6431, VDMA 24562, NF E 49003.1**
- **COMPACT**

Supply contains:
1 pc flange
1 pc pivot pin
2 pcs retaining rings
4 pcs screws

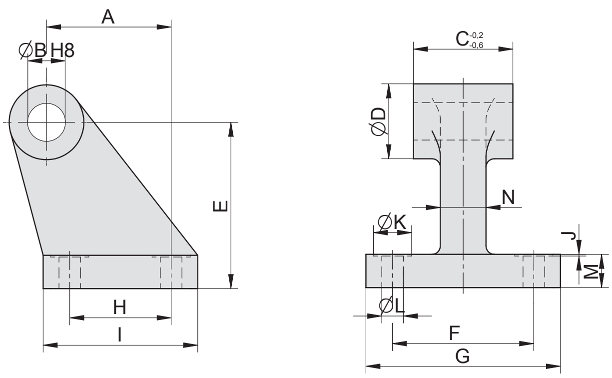



| Piston ∅ | A | B | C | D | F | G | H | I | J | K | L | M | R | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 32.5 | 26 | 45 | 48 | 30 | 10 | 22 | 4.5 | 6 | 6.6 | - | - | 8.5 | 0.10 | 2101 3000 0032 0000 |
| 40 | 38 | 28 | 52 | 55 | 35 | 12 | 25 | 4.5 | 6 | 6.6 | - | - | 10 | 0.16 | 2101 3000 0040 0000 |
| 50 | 46.5 | 32 | 60 | 65 | 40 | 12 | 27 | 4.3 | 6.5 | 9.2 | - | - | 10 | 0.26 | 2101 3000 0050 0000 |
| 63 | 56.5 | 40 | 70 | 75 | 45 | 16 | 32 | 4.5 | 6.5 | 9.2 | - | - | 12 | 0.38 | 2101 3000 0063 0000 |
| 80 | 72 | 50 | 90 | 95 | 45 | 16 | 36 | - | 11 | 11 | - | - | 13 | 0.72 | 2101 3000 0080 0000 |
| 100 | 89 | 60 | 110 | 115 | 55 | 20 | 41 | - | 10 | 11.2 | - | - | 16 | 1.06 | 2101 3000 0100 0000 |
| 125 | 110 | 70 | 130 | 140 | 60 | 25 | 50 | 7 | 19 | 14 | 20 | 9 | 25 | 3.90 | 2101 3000 0125 0000 |
| 160 | 140 | 90 | 170 | 185 | 65 | 30 | 55 | 7 | 20 | 18 | 26 | 10 | 30 | 7.44 | 2101 3000 0160 0000 |
| 200 | 175 | 90 | 170 | 235 | 75 | 30 | 60 | 7 | 24 | 18 | 26 | 13 | 30 | 12.08 | 2101 3000 0200 0000 |
| 250 | 220 | 110 | 200 | 270 | 90 | 40 | 70 | 11 | 25 | 22 | 34 | 14 | 40 | 17.55 | 2101 3000 0250 0000 |
| 320 | 270 | 120 | 220 | 350 | 110 | 45 | 80 | 11 | 30 | 26 | 46 | 15 | 45 | 31.60 | 2101 3000 0320 0000 |
| 400 | 350 | 120 | 220 | 430 | 110 | 45 | 90 | 12 | 28 | 26 | 46 | 14 | 53.5 | 47.00 | 2101 3000 0400 0000 |

## CLEVIS FOOT MOUNTING FOR CYLINDER

- **ISO 15552, VDMA 24562, NF E 49003.1**
- **DIN ISO 6431, VDMA 24562, NF E 49003.1**
- **COMPACT**

Supply contains:
1 pc clevis

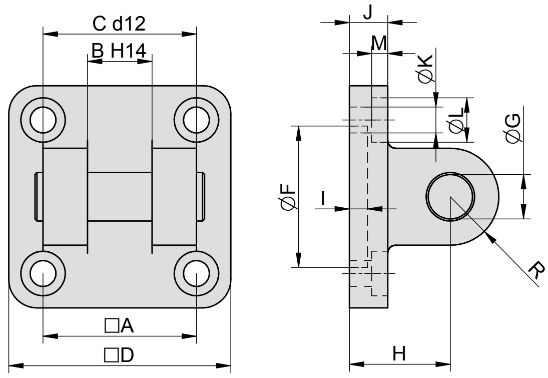



| Piston ∅ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 21 | 10 | 26 | 20 | 32 | 38 | 51 | 18 | 31 | 1 | 11 | 6.4 | 8 | 10 | 0.11 | 2101 3100 0032 0000 |
| 40 | 24 | 12 | 28 | 23 | 36 | 41 | 54 | 22 | 35 | 1 | 11 | 6.4 | 10 | 12 | 0.09 | 2101 3100 0040 0000 |
| 50 | 33 | 12 | 31.8 | 20 | 45 | 50 | 65 | 30 | 45 | - | - | 9 | 12 | 15 | 0.20 | 2101 3100 0050 0000 |
| 63 | 37 | 16 | 39.8 | 24 | 50 | 52 | 67 | 35 | 50 | - | - | 9.2 | 12 | 15 | 0.28 | 2101 3100 0063 0000 |
| 80 | 47 | 16 | 49.8 | 26 | 63 | 66 | 86 | 40 | 60 | - | - | 11 | 14 | 20 | 0.47 | 2101 3100 0080 0000 |
| 100 | 55 | 20 | 59.8 | 32 | 71 | 76 | 93 | 50 | 67 | - | - | 11 | 15 | 20 | 0.60 | 2101 3100 0100 0000 |
| 125 | 70 | 25 | 69.6 | 50 | 90 | 94 | 124 | 60 | 90 | 3 | 20 | 14 | 20 | 28 | 1.10 | 2101 3100 0125 0000 |
| 160 | 97 | 30 | 89.5 | 60 | 115 | 118 | 156 | 88 | 126 | 4 | 20 | 14 | 25 | 35 | 5.20 | 2101 3100 0160 0000 |
| 200 | 105 | 30 | 89.5 | 60 | 135 | 122 | 162 | 90 | 130 | 2 | 26 | 18 | 30 | 38 | 7.60 | 2101 3100 0200 0000 |
| 250 | 128 | 40 | 108.5 | 80 | 165 | 150 | 200 | 110 | 160 | 4 | 34 | 22 | 35 | 45 | 16.20 | 2101 3100 0250 0000 |
| 320 | 150 | 45 | 119.5 | 90 | 200 | 170 | 234 | 122 | 186 | 2 | 46 | 26 | 40 | 55 | 25.34 | 2101 3100 0320 0000 |

## NARROW SWIVEL FLANGE FOR CYLINDER

- ISO 15552, VDMA 24562, NF E 49003.1
- DIN ISO 6431, VDMA 24562, NF E 49003.1
- COMPACT

Supply contains:
1 pc flange
1 pc pivot pin
2 pcs retaining rings
4 pcs screws

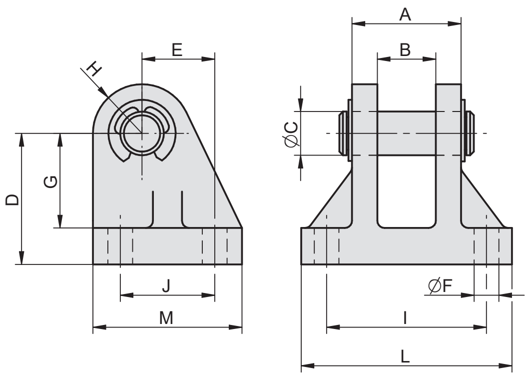



| Piston ∅ | A | B | C | D | F | G | H | I | J | K | L | M | R | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 32.5 | 14 | 34 | 48 | 30 | 10 | 22 | 4.5 | 9 | 6.6 | 11 | 3.5 | 10 | 0.05 | 2101 3400 0032 0000 |
| 40 | 38 | 16 | 40 | 55 | 35 | 12 | 25 | 4.5 | 9.5 | 6.6 | 11 | 4 | 12 | 0.08 | 2101 3400 0040 0000 |
| 50 | 46.5 | 21 | 45 | 65 | 40 | 16 | 27 | 5 | 11 | 9.2 | 15 | 4.5 | 14 | 0.12 | 2101 3400 0050 0000 |
| 63 | 56.5 | 21 | 51 | 75 | 45 | 16 | 32 | 4.5 | 11 | 9.2 | 15 | 4.5 | 16 | 0.20 | 2101 3400 0063 0000 |
| 80 | 72 | 25 | 65 | 95 | 45 | 20 | 36 | 5 | 15 | 11 | 18 | 5 | 20 | 0.41 | 2101 3400 0080 0000 |
| 100 | 89 | 25 | 75 | 115 | 55 | 20 | 41 | 5 | 15 | 11.2 | 18 | 5 | 20 | 0.66 | 2101 3400 0100 0000 |
| 125 | 110 | 37 | 97 | 140 | 60 | 30 | 50 | 7 | 19 | 14 | 20 | 9 | 28 | 1.22 | 2101 3400 0125 0000 |
| 160 | 140 | 43 | 122 | 185 | 65 | 35 | 55 | 7 | 19 | 18 | 26 | 9 | 33 | 6.68 | 2101 3400 0160 0000 |
| 200 | 175 | 43 | 122 | 235 | 75 | 35 | 60 | 7 | 24 | 18 | 26 | 11 | 35 | 12.08 | 2101 3400 0200 0000 |
| 250 | 220 | 49 | 125 | 270 | 90 | 40 | 70 | 12 | 25 | 22 | 34 | 14 | 40 | 17.55 | 2101 3400 0250 0000 |
| 320 | 270 | 60 | 150 | 350 | 110 | 50 | 80 | 12 | 30 | 26 | 46 | 15 | 46 | 30.80 | 2101 3400 0320 0000 |

## RECTANGULAR SWIVEL FLANGE FOR CYLINDER

- ISO 15552, VDMA 24562, NF E 49003.1
- DIN ISO 6431, VDMA 24562, NF E 49003.1
- COMPACT

Supply contains:
1 pc flange
1 pc pivot pin
2 pcs retaining rings



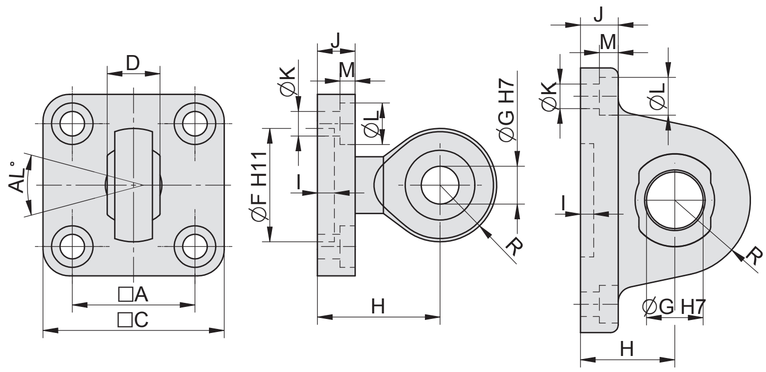

| Piston ∅ | A | B | C | D | E | F | G | H | I | J | L | M | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 28 | 14 | 10 | 32 | 16 | 6.8 | 24 | 12 | 42 | 20 | 56 | 36 | 0.10 | 2101 3500 0032 0000 |
| 40 | 30 | 16 | 12 | 36 | 20 | 6.8 | 26 | 14 | 44 | 26 | 58 | 41 | 0.14 | 2101 3500 0040 0000 |
| 50 | 40 | 21 | 16 | 45 | 25 | 9.2 | 33 | 14 | 56 | 31 | 70 | 47 | 0.25 | 2101 3500 0050 0000 |
| 63 | 40 | 21 | 16 | 50 | 25 | 9 | 38 | 14 | 56 | 31 | 70 | 47 | 0.26 | 2101 3500 0063 0000 |
| 80 | 50 | 25 | 20 | 63 | 30 | 11 | 49 | 18 | 70 | 36 | 89 | 57 | 0.52 | 2101 3500 0080 0000 |
| 100 | 50 | 25 | 20 | 71 | 41 | 11 | 56 | 22 | 70 | 46 | 89 | 67 | 0.64 | 2101 3500 0100 0000 |

# SWIVEL FLANGE WITH SPHERICAL BEARING

- **ISO 15552, VDMA 24562, NF E 49003.1**
- **DIN ISO 6431, VDMA 24562, NF E 49003.1**
- **COMPACT**

Supply contains:
1 pc flange
4 pcs screws

Flange design for piston dia 125 and more



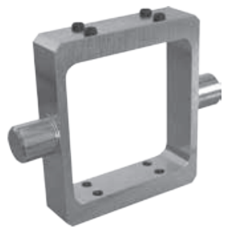

| Piston ∅ | A | AL | C | D | F | G | H* | I | J | K | L | M | R | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 32.5 | 15 | 48 | 14 | 30 | 10 | 32.5 | 4.5 | 10 | 6.4 | 11 | 4 | 14 | 0.20 | 2101 3200 0032 0000 |
| 40 | 38 | 15 | 55 | 16 | 35 | 12 | 32.5 | 4.5 | 10 | 6.4 | 11 | 4 | 17 | 0.26 | 2101 3200 0040 0000 |
| 50 | 46.5 | 15 | 65 | 21 | 40 | 16 | 40 | 6.5 | 12 | 8.5 | 15 | 8 | 21.5 | 0.44 | 2101 3200 0050 0000 |
| 63 | 56.5 | 15 | 75 | 21 | 45 | 16 | 40 | 6.5 | 12 | 8.5 | 15 | 8 | 21.5 | 0.56 | 2101 3200 0063 0000 |
| 80 | 72 | 18 | 94 | 25 | 45 | 20 | 49 | 5.5 | 14 | 10.5 | 18 | 8 | 25 | 1.16 | 2101 3200 0080 0000 |
| 100 | 89 | 18 | 115 | 25 | 55 | 20 | 49 | 5.5 | 14 | 10.5 | 18 | 8 | 25 | 1.54 | 2101 3200 0100 0000 |
| 125 | 110 | 15 | 140 | 37 | 60 | 30 | 50 | 7 | 20 | 13 | 20 | 10 | 40 | 3.46 | 2101 3200 0125 0000 |
| 160 | 140 | 16 | 185 | 43 | 65 | 35 | 55 | 7 | 20 | 18 | 26 | 10 | 46 | 5.60 | 2101 3200 0160 0000 |
| 200 | 175 | 16 | 235 | 43 | 75 | 35 | 60 | 7 | 24 | 18 | 26 | 10 | 47 | 10.72 | 2101 3200 0200 0000 |
| 250 | 220 | 16 | 270 | 49 | 90 | 40 | 70 | 12 | 24 | 22 | 34 | 13 | 56 | 14.80 | 2101 3200 0250 0000 |
| 320 | 270 | 16 | 350 | 60 | 110 | 50 | 80 | 12 | 30 | 26 | 46 | 15 | 64 | 28.94 | 2101 3200 0320 0000 |

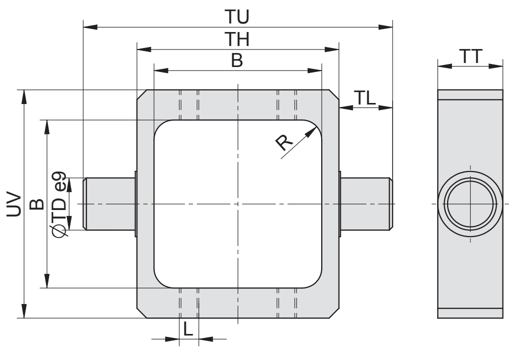
*) For the swivel flanges for diameters 32-100 mm, the H value does not correspond to the ISO 15552 standard.

# PIVOT PIN FOR CYLINDER

- **ISO 15552, VDMA 24562, NF E 49003.1**

Supply contains:
1 pc pivot pin
8 pcs screws



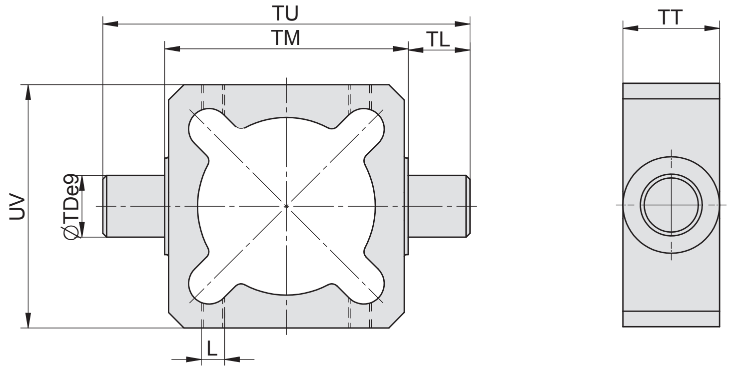



| Piston ∅ | L | TD | TL | TH | TT | TU | UV | B | R | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | M6 | 12 | 12 | 50 | 20 | 74 | 65 | 44.5 | 5 | 0.20 | 2102 4100 0032 0000 |
| 40 | M6 | 16 | 16 | 63 | 20 | 95 | 70 | 51.5 | 6 | 0.31 | 2102 4100 0040 0000 |
| 50 | M6 | 16 | 16 | 75 | 20 | 107 | 85 | 64.5 | 6 | 0.37 | 2102 4100 0050 0000 |
| 63 | M6 | 20 | 20 | 90 | 25 | 130 | 95 | 75.5 | 8 | 0.61 | 2102 4100 0063 0000 |
| 80 | M8 | 20 | 20 | 110 | 25 | 150 | 120 | 94 | 10 | 0.90 | 2102 4100 0080 0000 |
| 100 | M8 | 25 | 25 | 132 | 30 | 182 | 130 | 112 | 10 | 1.63 | 2102 4100 0100 0000 |

# PIVOT PIN FOR CYLINDER

**• DIN ISO 6431, VDMA 24562, NF E 49003.1**

Supply contains:
1 pc pivot pin
8 pcs screws

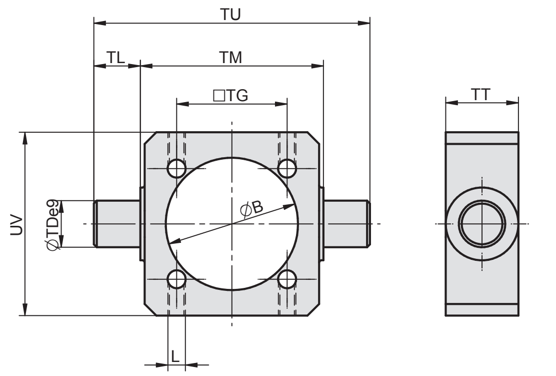



| Piston ∅ | L | TD | TL | TM | TT | TU | UV | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|
| 32 | M5 | 12 | 12 | 50 | 25 | 74 | 63 | 0.12 | 2101 4100 0032 0000 |
| 40 | M6 | 16 | 16 | 63 | 25 | 95 | 63 | 0.17 | 2101 4100 0040 0000 |
| 50 | M6 | 16 | 16 | 75 | 28 | 107 | 85 | 0.70 | 2101 4100 0050 0000 |
| 63 | M6 | 20 | 20 | 90 | 32 | 130 | 95 | 1.03 | 2101 4100 0063 0000 |
| 80 | M6 | 20 | 20 | 110 | 32 | 150 | 120 | 1.46 | 2101 4100 0080 0000 |
| 100 | M8 | 25 | 25 | 132 | 40 | 182 | 142 | 2.69 | 2101 4100 0100 0000 |

# PIVOT PIN FOR CYLINDER

**• DIN ISO 6431, VDMA 24562, NF E 49003.1**
**with round tube**

Supply contains:
1 pc pivot pin
8 pcs screws

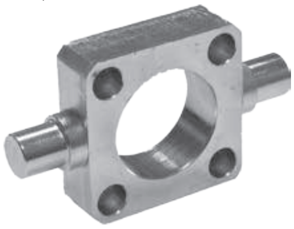


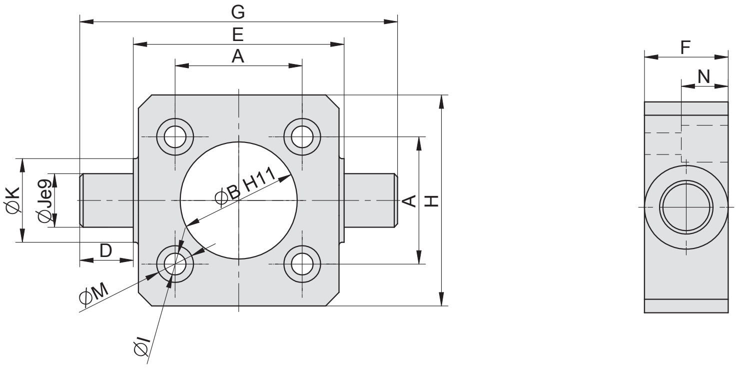

| Piston ∅ | L | TD | TL | TM | TT | TU | UV | TG | B | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | M5 | 12 | 12 | 50 | 25 | 74 | 50 | 32.5 | 36.5 | 0.10 | 2101 4101 1032 0000 |
| 40 | M6 | 16 | 16 | 63 | 25 | 95 | 63 | 38 | 45.5 | 0.16 | 2101 4101 1040 0000 |
| 50 | M5 | 16 | 16 | 75 | 25 | 107 | 70 | 46.5 | 56 | 0.70 | 2101 4101 1050 0000 |
| 63 | M6 | 20 | 20 | 90 | 25 | 130 | 84 | 56.5 | 69 | 0.80 | 2101 4101 1063 0000 |
| 80 | M6 | 20 | 20 | 110 | 30 | 150 | 108 | 72 | 87 | 1.40 | 2101 4101 1080 0000 |
| 100 | M8 | 25 | 25 | 132 | 40 | 182 | 130 | 85 | 106.5 | 2.60 | 2101 4101 1100 0000 |
| 125 | M8 | 25 | 25 | 160 | 40 | 210 | 158 | 110 | 133 | 3.60 | 2101 4101 1125 0000 |
| 160 | M8 | 32 | 32 | 200 | 40 | 264 | 196 | 140 | 172 | 5.40 | 2101 4101 1160 0000 |
| 200 | M10 | 32 | 32 | 250 | 48 | 314 | 248 | 175 | 212 | 9.20 | 2101 4101 1200 0000 |
| 250 | — | 40 | 40 | 320 | 55 | 400 | 314 | 220 | 263.5 | 21.50 | 2101 4100 0250 0000 |
| 320 | — | 50 | 50 | 400 | 70 | 500 | 400 | 270 | 338 | 35.80 | 2101 4100 0320 0000 |

## PIVOT PIN TO FRONT/END CAP FOR CYLINDER

- ISO 15552, VDMA 24562, NF E 49003.1
- DIN ISO 6431, VDMA 24562, NF E 49003.1
- COMPACT

Supply contains:
1 pc pivot pin
4 pcs screws



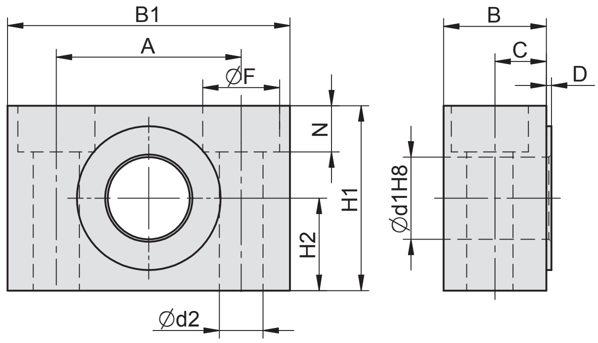



| Piston ∅ | A | B | D | E | F | G | H | I | J | K | M | N | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 32.5 | 30 | 12 | 50 | 23 | 74 | 50 | 6.5 | 12 | 23 | 11 | 14 | 0.10 | 2101 4200 0032 0000 |
| 40 | 38 | 35 | 16 | 63 | 25 | 95 | 63 | 6.5 | 16 | 25 | 11 | 14 | 0.20 | 2101 4200 0040 0000 |
| 50 | 46.5 | 40 | 16 | 75 | 20 | 107 | 65 | 8.5 | 16 | 20 | 14 | 12 | 0.45 | 2101 4200 0050 0000 |
| 63 | 56.5 | 45 | 20 | 90 | 25 | 130 | 75 | 8.5 | 20 | 25 | 15 | 17 | 0.86 | 2101 4200 0063 0000 |
| 80 | 72 | 45 | 20 | 110 | 30 | 150 | 95 | 10.5 | 20 | 30 | 18 | 23 | 1.76 | 2101 4200 0080 0000 |
| 100 | 89 | 55 | 25 | 132 | 40 | 182 | 115 | 10.5 | 25 | 40 | 18 | 32 | 2.83 | 2101 4200 0100 0000 |

## TRUNNION MOUNTING FOR CYLINDER

- ISO 15552, VDMA 24562, NF E 49003.1
- DIN ISO 6431, VDMA 24562, NF E 49003.1
- COMPACT

Supply contains:
1 pc trunnion

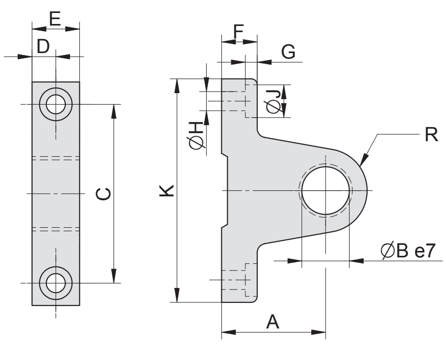



| Piston ∅ | A | B | B1 | C | D | d1 | d2 | F | H1 | H2 | N | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 32 | 17 | 46 | 9.5 | 1 | 12 | 6.5 | 11 | 30 | 15 | 10 | 0.04 | 2101 4000 0032 0000 |
| 40 / 50 | 36 | 20 | 55 | 11 | 1 | 16 | 8.5 | 15 | 36 | 18 | 9 | 0.08 | 2101 4000 0040 0000 |
| 63 / 80 | 42 | 21.5 | 65 | 11.5 | 1.5 | 20 | 11 | 18 | 40 | 20 | 11 | 0.10 | 2101 4000 0063 0000 |
| 100 / 125 | 50 | 27 | 75 | 14.5 | 1.5 | 25 | 14 | 20 | 50 | 25 | 13 | 0.22 | 2101 4000 0100 0000 |
| 160 / 200 | 60 | 38 | 92 | 20.5 | 2 | 32 | 18 | 26 | 60 | 30 | 17.5 | 0.40 | 2101 4000 0160 0000 |
| 250 | 90 | 54 | 140 | 23.5 | 4 | 40 | 22 | 34 | 70 | 35 | 21.5 | 1.08 | 2101 4000 0250 0000 |
| 320 | 100 | 63 | 150 | 28.5 | 4 | 50 | 26 | 40 | 80 | 40 | 26 | 1.35 | 2101 4000 0320 0000 |

## TRUNNION MOUNTING FOR CYLINDER

- ISO 15552, VDMA 24562, NF E 49003.1
- DIN ISO 6431, VDMA 24562, NF E 49003.1
- COMPACT

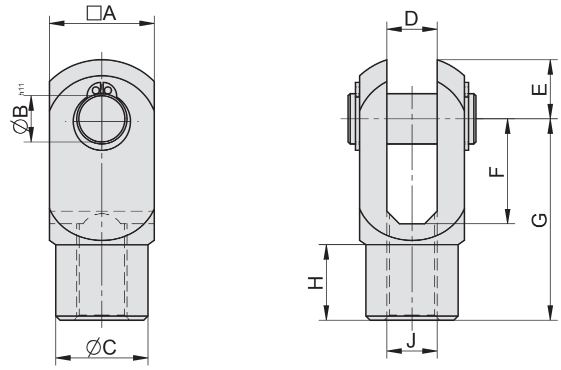
Supply contains:
1 pc trunnion




| Piston ∅ | A | B | C | D | E | F | G | H | J | K | R | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 22 | 12 | 40 | 6 | 12 | 8 | 4 | 5.3 | 10 | 55 | 12 | 0.20 | 2110 4000 0032 0000 |
| 40 / 50 | 35 | 16 | 60 | 8 | 16 | 12 | 4 | 6.4 | 11 | 75 | 14 | 0.22 | 2110 4000 0040 0000 |
| 63 / 80 | 38 | 20 | 71 | 10 | 20 | 14 | 7 | 8.5 | 14 | 90 | 23 | 0.40 | 2110 4000 0063 0000 |
| 100 / 125 | 50 | 25 | 90 | 15 | 30 | 20 | 12 | 13 | 20 | 120 | 25 | 0.86 | 2110 4000 0100 0000 |

# PISTON ROD CLEVIS
## FOR ANTI-CORROSIVE - HYGIENIC CLEAN CYLINDERS

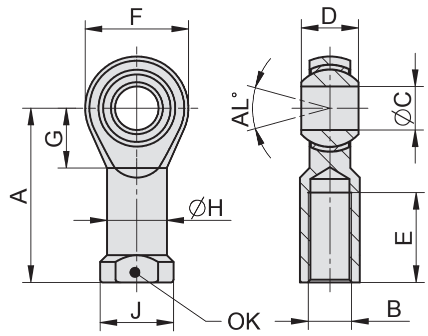
Supply contains (material):
1 pc clevis (AISI 304)
1 pc pivot pin (AISI 304)
2 pcs retaining rings (A2)




| Piston ∅ | A | B | C | D | E | F | G | H | J | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 20 | 10 | 18 | 10 | 12 | 20 | 40 | 13 | M10x1.25 | 0.09 | 2171 0100 0032 0000 |
| 40 | 24 | 12 | 22 | 12 | 14 | 24 | 48 | 13 | M12x1.25 | 0.16 | 2171 0100 0040 0000 |
| 50 / 63 | 32 | 16 | 26 | 16 | 19 | 32 | 64 | 18 | M16x1.5 | 0.31 | 2171 0100 0050 0000 |
| 80 / 100 | 40 | 20 | 32 | 20 | 25 | 40 | 80 | 22 | M20x1.5 | 0.67 | 2171 0100 0080 0000 |

# PISTON ROD EYE
## FOR ANTI-CORROSIVE - HYGIENIC CLEAN CYLINDERS

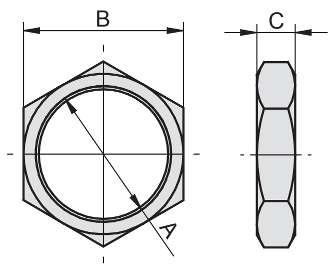
Supply contains (material):
1 pc eye
(body: 1.4057, bearing ring: 1.4571 with PTFE foil, ball: 1.4401)




| Piston ∅ | A | B | C | D | E | F | G | H | J | OK | AL | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 43 | M10x1.25 | 10 | 14 | 20 | 28 | 15 | 15 | 19 | 17 | 10 | 0.076 | 2171 0200 0032 0000 |
| 40 | 50 | M12x1.25 | 12 | 16 | 22 | 32 | 17 | 17.5 | 22 | 19 | 12 | 0.115 | 2171 0200 0040 0000 |
| 50 / 63 | 64 | M16x1.5 | 16 | 21 | 28 | 42 | 22 | 22 | 27 | 22 | 14 | 0.230 | 2171 0200 0050 0000 |
| 80 / 100 | 77 | M20x1.5 | 20 | 25 | 33 | 50 | 27 | 27.5 | 34 | 32 | 14 | 0.415 | 2171 0200 0080 0000 |

# FRONT CAP NUT
## FOR ANTI-CORROSIVE - HYGIENIC CLEAN CYLINDERS

Supply contains (material):
1 pc nut (AISI 304)



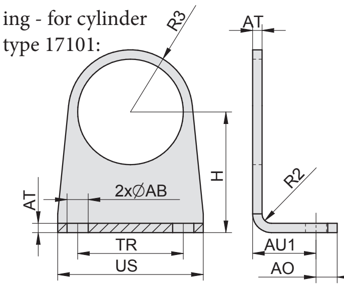

| Piston ∅ | A | B | C | Weight | Order codes |
|---|---|---|---|---|---|
| 32 | M30x1.5 | 36 | 10 | 0.037 | 2171 2400 0032 0000 |
| 40 | M35x1.5 | 46 | 10 | 0.043 | 2171 2400 0040 0000 |
| 50 / 63 | M42x1.5 | 50 | 12 | 0.079 | 2171 2400 0050 0000 |
| 80 / 100 | M50x2 | 65 | 12 | 0.167 | 2171 2400 0080 0000 |

# FOOT MOUNTING

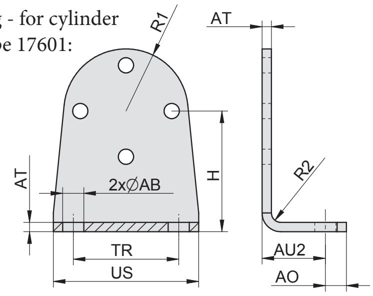
## FOR ANTI-CORROSIVE - HYGIENIC CLEAN CYLINDERS

Supply contains (material):
1 pc foot (AISI 304)
1 pc nut or 4 pcs screws
-according to foot type (A4)

Front foot mounting - for cylinder type 17101:




Rear foot mounting - for cylinder type 17601:

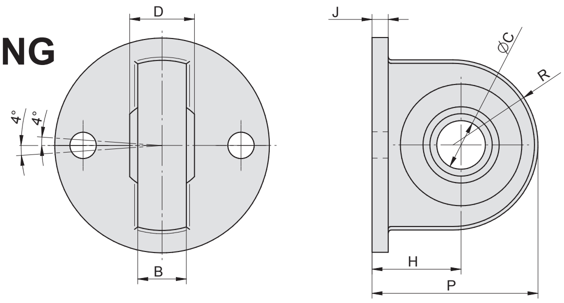



| Piston Ø | AB | AO | AU1 | AU2 | AT | H | R1 | R2 | R3 | TR | US | Weight | Order codes (front foot mounting for cyl. type 17101) | Order codes (rear foot mounting for cyl. type 17601) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 7 | 9 | 28.5 | 20.5 | 3 | 33 | 17.5 | 3 | 17.5 | 32 | 45 | 0.075 | 2171 2100 0032 0000 | 2176 2100 0032 0000 |
| 40 | 9 | 9 | 32 | 22 | 3 | 38 | 21.5 | 3 | 21.5 | 36 | 52 | 0.09 | 2171 2100 0040 0000 | 2176 2100 0040 0000 |
| 50 | 9 | 9 | 36 | 27 | 4 | 47 | 26.5 | 4 | 25 | 45 | 62 | 0.17 | 2171 2100 0050 0000 | 2176 2100 0050 0000 |
| 63 | 9 | 9 | 36 | 26 | 4 | 52 | 33 | 4 | 27 | 50 | 72 | 0.23 | 2171 2100 0063 0000 | 2176 2100 0063 0000 |
| 80 | 12 | 15 | 38.5 | 35.5 | 5 | 65 | 42.5 | 5 | 31 | 63 | 90 | 0.45 | 2171 2100 0080 0000 | 2176 2100 0080 0000 |
| 100 | 12 | 15 | 38.5 | 35.5 | 5 | 75 | 50 | 5 | 40 | 83 | 110 | 0.64 | 2171 2100 0100 0000 | 2176 2100 0100 0000 |

# SWIVEL FLANGE WITH SPHERICAL BEARING

## FOR ANTI-CORROSIVE - HYGIENIC CLEAN CYLINDERS

Supply contains (material):
1 pc flange (body: AISI 304,
bearing ring: 1.4571 with
PTFE foil, ball: 1.4401)
2 pcs screws (A4)

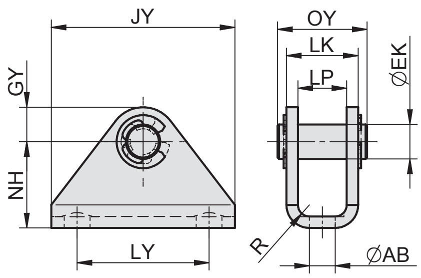



| Piston Ø | B | C | D | H | J | P | R | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|
| 32 | 10.5 | 10 | 14 | 18.5 | 3.5 | 33.5 | 15 | 0.09 | 2176 3200 0032 0000 |
| 40 | 12 | 12 | 16 | 19 | 3.5 | 37 | 18 | 0.14 | 2176 3200 0040 0000 |
| 50 | 12 | 12 | 16 | 22 | 5 | 44 | 22 | 0.22 | 2176 3200 0050 0000 |
| 63 | 15 | 16 | 21 | 26 | 5 | 48 | 22 | 0.34 | 2176 3200 0063 0000 |
| 80 | 15 | 16 | 21 | 30.5 | 8 | 55.5 | 25 | 0.6 | 2176 3200 0080 0000 |
| 100 | 18 | 20 | 25 | 35 | 8 | 65 | 30 | 1.0 | 2176 3200 0100 0000 |

# NARROW SWIVEL FLANGE

## FOR ANTI-CORROSIVE - HYGIENIC CLEAN CYLINDERS

Supply contains (material):
1 pc flange (AISI 304)
1 pc pivot pin (AISI 304)
2 pcs retaining rings (A2)

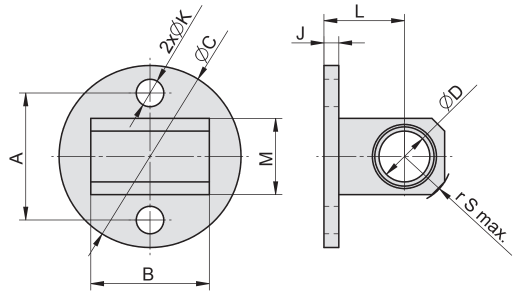



| Piston Ø | AB | EK | GY | JY | LK | LP | LY | NH | OY | R | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 7 | 10 | 9 | 45 | 21 | 15 | 30 | 24 | 26 | 3 | 0.08 | 2176 3400 0032 0000 |
| 40 | 9 | 12 | 10 | 55 | 23 | 17 | 38 | 27 | 29 | 3 | 0.09 | 2176 3400 0040 0000 |
| 50 | 9 | 12 | 10 | 64 | 25 | 17 | 46 | 30 | 31 | 4 | 0.18 | 2176 3400 0050 0000 |
| 63 | 12 | 16 | 13 | 79 | 30 | 22 | 58 | 36 | 36 | 4 | 0.27 | 2176 3400 0063 0000 |
| 80 | 14 | 16 | 13 | 94 | 32 | 22 | 70 | 40 | 38 | 5 | 0.41 | 2176 3400 0080 0000 |
| 100 | 14 | 20 | 15 | 112 | 36 | 26 | 88 | 45 | 42 | 5 | 0.47 | 2176 3400 0100 0000 |

## SWIVEL FLANGE

### FOR ANTI-CORROSIVE - HYGIENIC CLEAN CYLINDERS

Supply contains (material):
1 pc flange (body: AISI 304,
bushing: Tecaform AD)
2 pcs screws (A4)

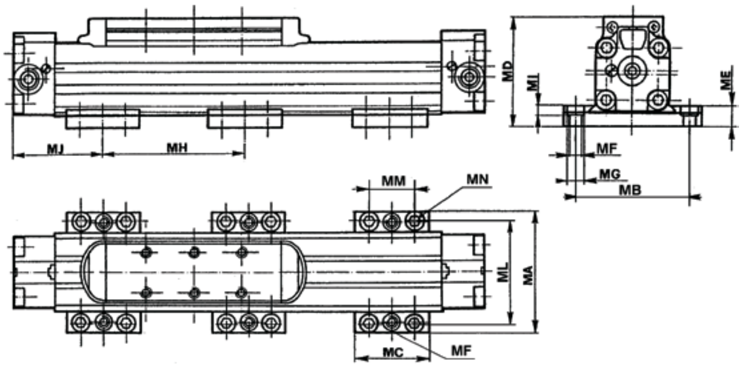



| Piston ∅ | A | B | C | D | J | K | L | M | r S max. | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 25 | 26 | 34.6 | 10 | 3.5 | 5.5 | 18.5 | 15 | 10 | 0.076 | 2176 3300 0032 0000 |
| 40 | 30 | 28 | 43 | 12 | 3.5 | 6.5 | 19 | 18 | 12 | 0.10 | 2176 3300 0040 0000 |
| 50 | 39 | 32 | 53 | 12 | 5 | 6.5 | 22 | 20 | 12.5 | 0.18 | 2176 3300 0050 0000 |
| 63 | 49 | 40 | 64.5 | 16 | 5 | 8.5 | 26 | 28 | 18 | 0.35 | 2176 3300 0063 0000 |
| 80 | 64 | 50 | 84 | 16 | 8 | 11 | 30.5 | 32 | 20 | 0.70 | 2176 3300 0080 0000 |
| 100 | 82 | 60 | 104 | 18 | 8 | 11 | 35 | 35 | 20.5 | 1.05 | 2176 3300 0100 0000 |

## MOUNTING PLATE FOR RODLESS CYLINDER

- **SERIES S1, S5 AND VL1**

Supply contains:
1 pc flange
2 pcs mounting plates
4 pcs bolts to fix
mounting plates

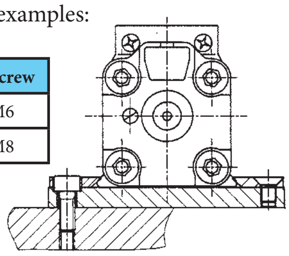



| Piston ∅ | MA | MB | MC | MD for series | | | ME | MF | MG | MH* | MI | MJ | ML | MM | MN | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | S1 | S5 | VL1 | | | | | | | | | | | |
| 25 | 78.5 | 63.5 | 50 | 65.6 | 79.8 | 82.3 | 12 | M8 | 11 | 500* | 6.5 | 55 | 65.5 | 30 | M6 | 0.31 | NSF-12025 |
| 32 | 92 | 77.5 | 50 | 74.2 | 90.5 | 90.5 | 12 | M8 | 11 | 600* | 5.5 | 60 | 79.5 | 30 | M6 | 0.34 | NSF-12032 |
| 40 | 117 | 96 | 60 | 95.8 | 116.6 | 116 | 15 | M10 | 14 | 700* | 8 | 70 | 96 | 37.5 | M8 | 0.66 | NSF-12040 |
| 50 | 136 | 115 | 60 | 113 | 133.7 | 136.2 | 15 | M10 | 14 | 800* | 8 | 70 | 115 | 37.5 | M8 | 0.70 | NSF-12050 |

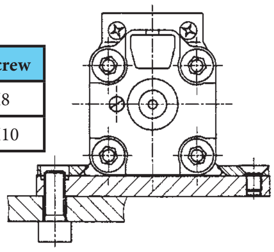
*) Maximum dimension in order to limit the deflection of the cylinder under its own weight (if exceeded, we recommend to use another flange)

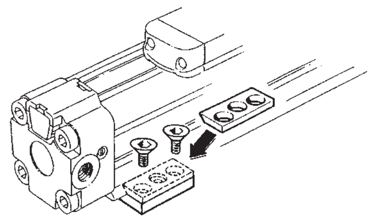
Mounting examples:

| Piston ∅ | Screw |
|---|---|
| 25, 32 | M6 |
| 40, 50 | M8 |



| Piston ∅ | Screw |
|---|---|
| 25, 32 | M8 |
| 40, 50 | M10 |





# FOOT MOUNTING FOR RODLESS CYLINDER

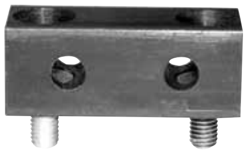
**• SERIES S1, S5 AND VL1**

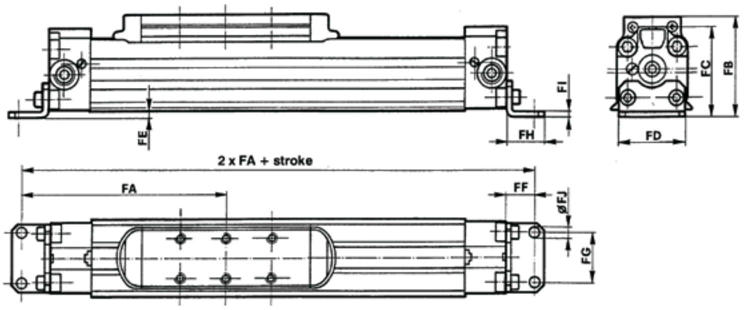
**ONLY FOR CYLINDERS WITH STROKE UP TO 400 MM**

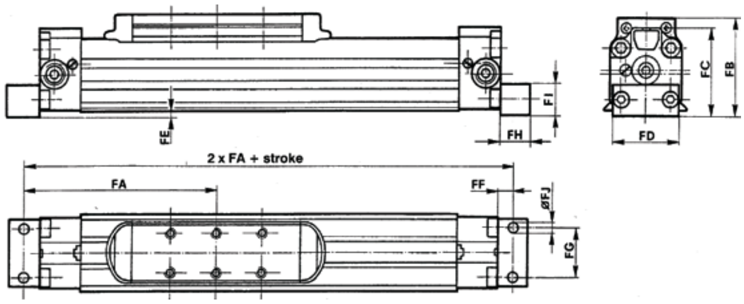
Supply contains:
1 pc foot mounting
2 pcs screw

Foot mounting for cylinder
∅ 25 and 32 mm

Foot mounting for cylinder
∅ 40 and 50 mm





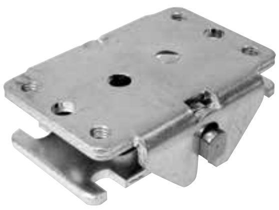

| Piston ∅ | FA | FB for series | | | FC | FD | FE | FF | FG | FH | FI | FJ | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | S1 | S5 | VL1 | | | | | | | | | | |
| 25 | 116 | 58.1 | 72.3 | 74.8 | 48.8 | 40 | 0.5 | 16 | 27 | 22 | 2.5 | 5.5 | 0.04 | NSF-13025 |
| 32 | 143.5 | 68.7 | 85 | 85 | 59.2 | 48 | 2.5 | 18.5 | 36 | 26 | 3 | 6.5 | 0.06 | NSF-13032 |
| 40 | 162.5 | 86.5 | 107.3 | 106.7 | 74.9 | 63 | 0.7 | 12.5 | 30 | 25 | 25 | 9 | 0.12 | NSF-13040 |
| 50 | 189.5 | 104.3 | 125 | 127.5 | 92.4 | 79 | 1.3 | 12.5 | 40 | 25 | 30 | 9.3 | 0.17 | NSF-13050 |

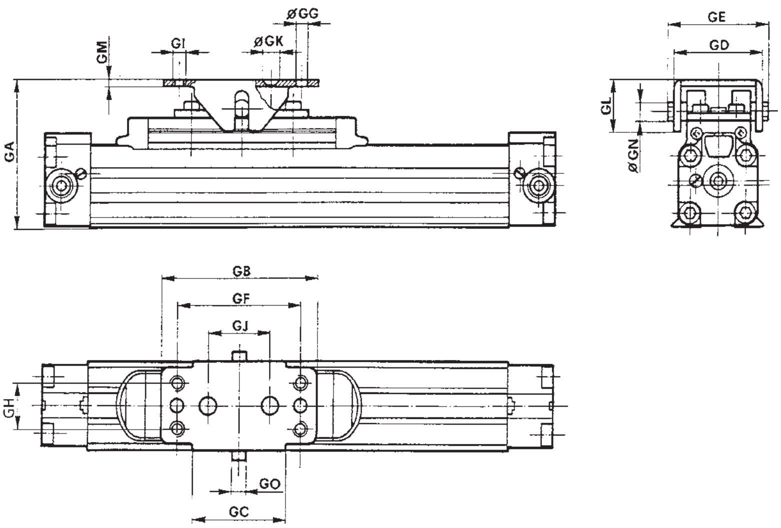
Notice: foot mounting is only recommended for strokes up to 400 mm

# FLOATING FLANGE FOR RODLESS CYLINDER

**• SERIES S1**

Supply contains:
1 pc floating flange
4 pcs screws



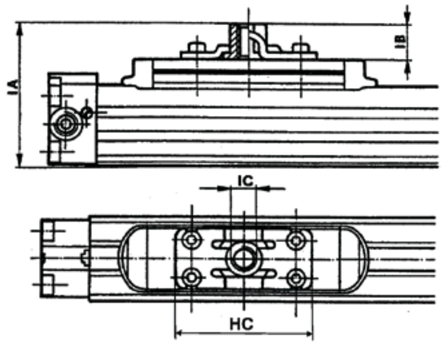



| Piston ∅ | GA | GB | GC | GD | GE | GF | GG | GH | GI | GJ | GK | GL | GM | GN | GO | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 73.5±2.5 | 60 | 40 | 44.5±2.5 | 50 | 50 | 5.5 | 25 | M5 | 16 | 5.5 | 20.5 | 3 | 8 | 6.15 | 0.14 | NSF-24025 |
| 32 | 89±4 | 100 | 60 | 56±4 | 64 | 80 | 5.5 | 30 | M6 | 40 | 6.5 | 30 | 4 | 12 | 8.2 | 0.36 | NSF-24032 |
| 40 | 108.5±4 | 100 | 60 | 56±4 | 64 | 80 | 5.5 | 30 | M6 | 40 | 6.5 | 30 | 4 | 12 | 8.2 | 0.36 | NSF-24032 |

# FEMALE THREADED CONNECTION FOR RODLESS CYLINDER

• **SERIES S1**

Supply contains:
1 pc connection
4 pcs screws

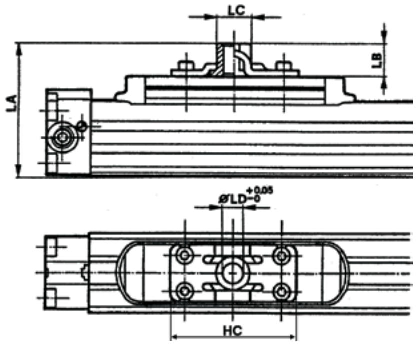



| Piston ∅ | IA | IB | IC | HC | Weight | Order codes |
|---|---|---|---|---|---|---|
| 25 | 75.6 | 18 | M12 | 64 | 0.08 | NSF-26025 |
| 32 | 87.2 | 21 | M14 | 84 | 0.16 | NSF-26032 |
| 40 | 106.8 | 21 | M14 | 84 | 0.16 | NSF-26032 |

# FEMALE CONNECTION WITHOUT THREAD FOR RODLESS CYLINDER

• **SERIES S1**

Supply contains:
1 pc connection
4 pcs screws

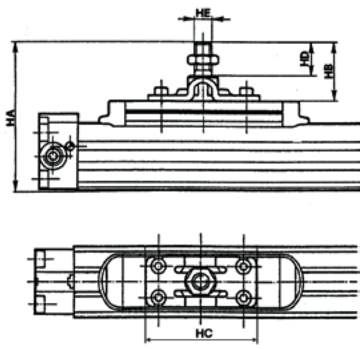



| Piston ∅ | LA | LB | LC | LD | HC | Weight | Order codes |
|---|---|---|---|---|---|---|---|
| 25 | 70.6 | 13 | 18 | 10 | 64 | 0.07 | NSF-28025 |
| 32 | 84.3 | 17.2 | 22 | 12 | 84 | 0.15 | NSF-28032 |
| 40 | 103 | 17.2 | 22 | 12 | 84 | 0.15 | NSF-28032 |

# MALE THREADED PIN FOR RODLESS CYLINDER

• **SERIES S1**

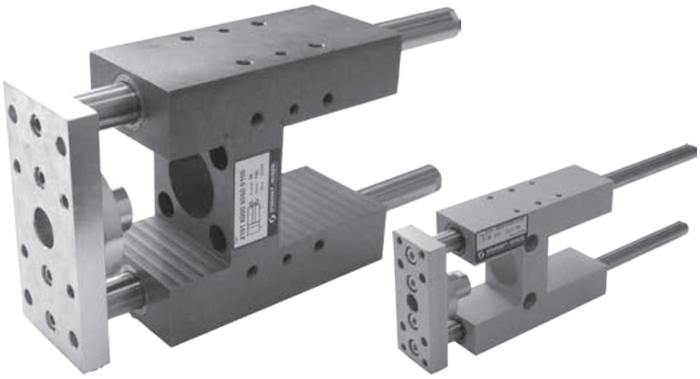
Supply contains:
1 pc connection
4 pcs screws
1 pc nut




| Piston ∅ | HA | HB | HC | HD | HE | Weight | Order codes |
|---|---|---|---|---|---|---|---|
| 25 | 91.1 | 33.5 | 64 | 22 | M12 | 0.11 | NSF-27025 |
| 32 | 107.7 | 41.5 | 84 | 24.3 | M14 | 0.26 | NSF-27032 |
| 40 | 127.3 | 41.5 | 84 | 24.3 | M14 | 0.26 | NSF-27032 |

## GUIDE UNIT „H“ WITH BALL BEARINGS FOR CYLINDER

- **ISO 15552, VDMA 24562, NF E 49003.1**
- **DIN ISO 6431, VDMA 24562, NF E 49003.1**
- **COMPACT**
- **DIN ISO 6432**



Supply contains:
1 pc guide body
1 pc flange
2 pcs guide rods
1 pc flange for fix to the cylinder

Guide unit can be mounted to any pneumatic cylinder to VDMA 24562 (there is necessary to use option 13 for cylinders with magnetic piston dia. 32 to 63 mm), ISO 15552, compact cylinders (only for cylinders with internal thread on piston rod) or DIN ISO 6432. Guide secures piston rod against rotation, high torque loads and radial forces. Guide rods are mounted in ball bearings without clearance.

### Order codes

2101 500 00 050 0100

| Guide unit H | |
|---|---|
| 2101 | for cylinder DIN ISO 6431, VDMA 24562, NF E 49003.1 |
| 2102 | for cylinder ISO 15552 |
| 2110 | for cylinder DIN ISO 6432 |
| 2120* | for compact cylinder* |

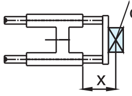
*) Cylinders with internal thread on piston rod only

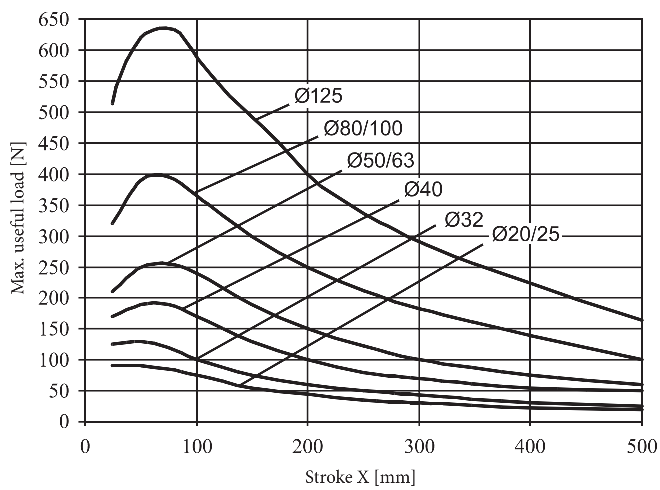
| Options | |
|---|---|
| 00 | without options |

| Piston diameter | |
|---|---|
| 020 | 20 mm |
| 025 | 25 mm |
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 125 | 125 mm |

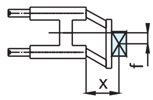
| Stroke | |
|---|---|
| xxxx | mm of stroke e.g. 0100 = stroke 100 mm |

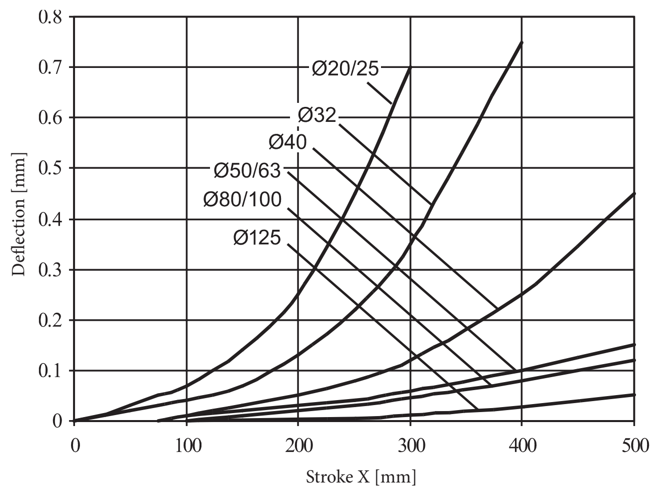
### Useful load




### Deflection caused by load of 10 N



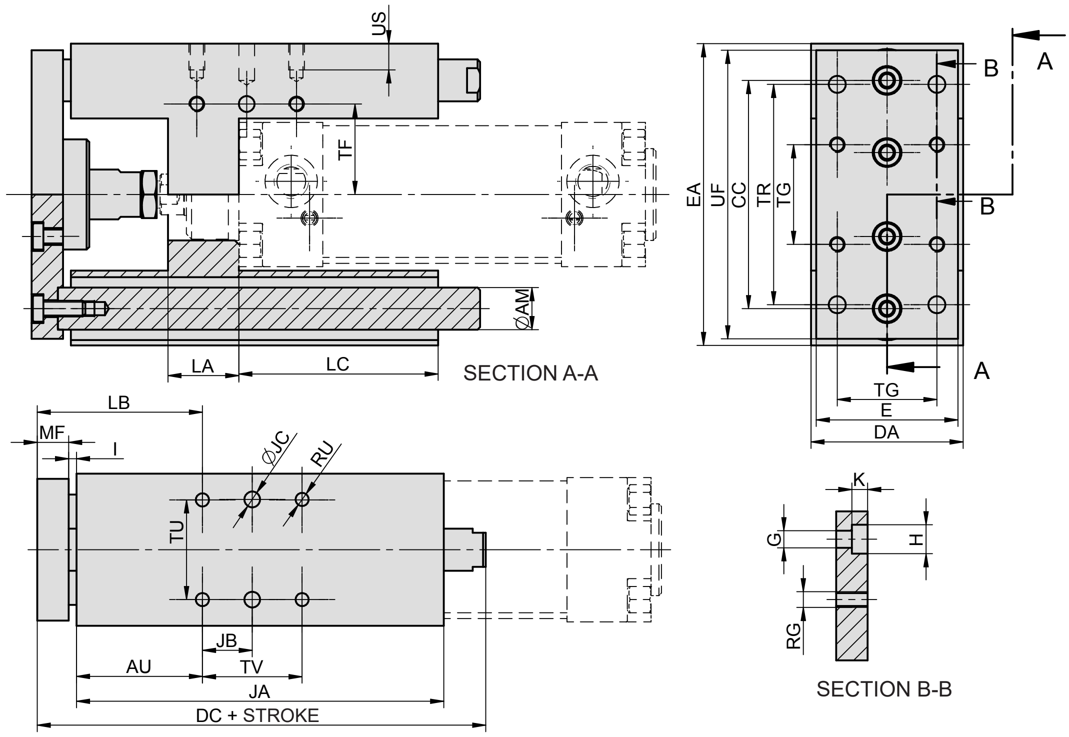

### Construction / materials

- guide bars: grounded hardened steel bar Cs-53 with hard chrome plated surface
- guide body: aluminium casting
- flange and nut: zinc plated steel
- bearings: covered linear ball bearings

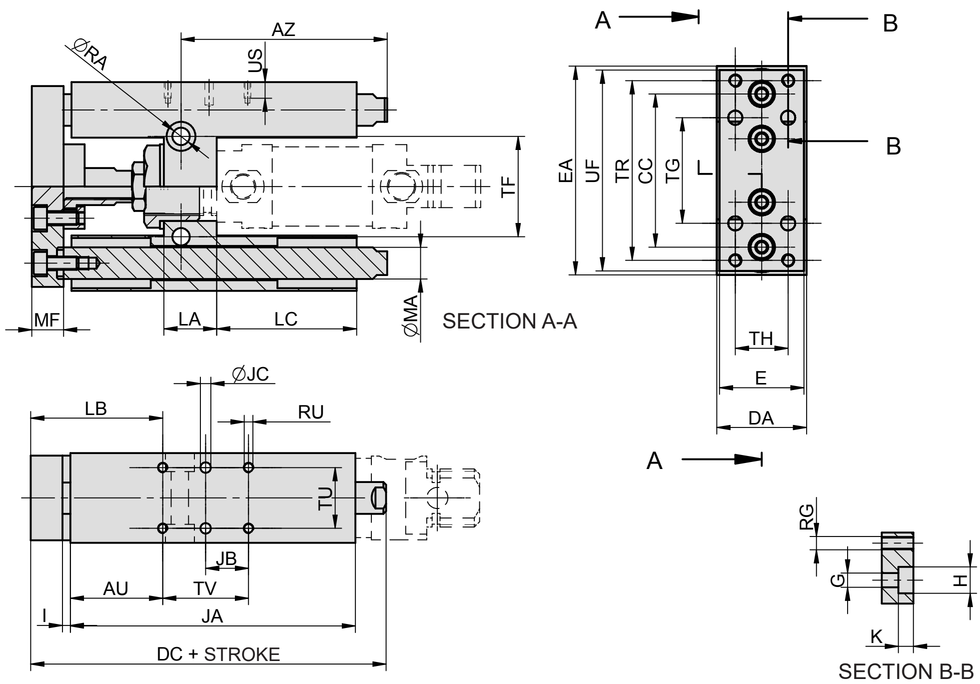
| Piston diameter [mm] | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|---|---|---|---|---|---|---|---|---|---|
| Weight 0 mm stroke [kg] | 0.86 | 0.86 | 1.57 | 2.54 | 4.08 | 5.87 | 10.46 | 14.13 | 21.78 |
| Weight add. per 1 mm stroke [kg] | 0.002 | 0.002 | 0.002 | 0.003 | 0.005 | 0.005 | 0.008 | 0.008 | 0.011 |

## Dimensions

**For cylinder to ISO 15552, DIN ISO 6431, VDMA 24562, NF E 49003.1 and compact (piston diameter 32 to 125 mm)**




**For cylinder to DIN ISO 6432 (piston diameter 20 and 25 mm)**

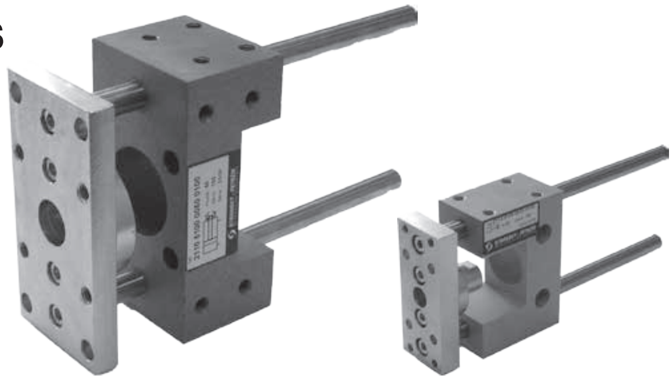



| Ø | AU | AZ | CC | DA | DC | E | EA | G | H | I | JA | JB | JC | K | LA | LB | LC | MA | MF | RA | RG | RU | TR | TF | TG | TH | TU | TV | UF | US |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **20/25** | 35 | 66.5 | 58 | 34 | 135 | 32 | 79 | 5.4 | 10 | 3 | 108 | 16.25 | 4 | 5.7 | 20 | 50-60 | 53 | 12 | 12 | 6.6 | M5 | M4 | 68 | 38 | 40 | 20 | 23 | 32.5 | 76 | 8 |
| **32** | 44 | – | 74 | 50 | 152 | 45 | 97 | 6.5 | 11 | 3 | 125 | 16.25 | 6 | 6 | 23 | 59-69 | 65 | 12 | 12 | – | M6 | M6 | 78 | 30.5 | 32.5 | – | 32.5 | 32.5 | 92 | 10 |
| **40** | 48 | – | 87 | 58 | 171 | 54 | 115 | 6.5 | 11 | 3 | 140 | 19 | 6 | 6 | 27 | 63-73 | 76 | 16 | 12 | – | M6 | M6 | 84 | 34.5 | 38 | – | 38 | 38 | 110 | 10 |
| **50** | 52 | – | 104 | 70 | 182 | 63 | 137 | 9 | 15 | 3 | 150 | 23.25 | 6 | 9 | 34 | 70-80 | 79 | 20 | 15 | – | M8 | M8 | 100 | 42.5 | 46.5 | – | 46.5 | 46.5 | 130 | 13 |
| **63** | 55.5 | – | 119 | 85 | 218 | 80 | 152 | 9 | 15 | 3 | 182 | 28.25 | 6 | 9 | 34 | 73.5-83.5 | 103 | 20 | 15 | – | M8 | M8 | 105 | 50 | 56.5 | – | 56.5 | 56.5 | 145 | 13 |
| **80** | 66 | – | 148 | 105 | 256 | 100 | 189 | 11 | 18 | 3 | 215 | 36 | 6 | 11 | 40 | 89-99 | 122 | 25 | 20 | – | M10 | M10 | 130 | 65 | 72 | – | 72 | 72 | 180 | 16 |
| **100** | 67.5 | – | 172 | 130 | 261 | 120 | 213 | 11 | 18 | 3 | 220 | 44.5 | 6 | 11 | 45 | 90.5-100.5 | 122 | 25 | 20 | – | M10 | M10 | 140 | 75 | 89 | – | 89 | 89 | 200 | 16 |
| **125** | 65 | – | 202 | 150 | 285 | 140 | 250 | 13 | 20 | 3 | 230 | 55 | 8 | 13 | 52 | 93-103 | 108 | 30 | 25 | – | M12 | M12 | 170 | 90 | 110 | – | 110 | 110 | 240 | 20 |

STRÁNSKÝ A PETRŽÍK

# GUIDE UNIT „U“ WITH SLIDE BEARINGS FOR CYLINDER

- **ISO 15552, VDMA 24562, NF E 49003.1**
- **DIN ISO 6431, VDMA 24562, NF E 49003.1**
- **COMPACT**
- **DIN ISO 6432**



Supply contains:
1 pc guide body
1 pc flange
2 pcs guide rods
1 pc flange for fix to the cylinder

Guide unit can be mounted on any pneumatic cylinder to VDMA 24562, ISO 15552, compact (only for cylinders with internal thread on piston rod) or DIN ISO 6431 / 6432. Guide secures piston rod against rotation, high torque loads and radial forces. Guide rods are mounted in slide bearings without clearance.

## Order codes

2101 510 00 050 0100

| Guide unit U | |
|---|---|
| 2101 | for cylinder DIN ISO 6431, VDMA 24562, NF E 49003.1 |
| 2102 | for cylinder ISO 15552 |
| 2110 | for cylinder DIN ISO 6432 |
| 2120* | for compact cylinder* |

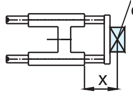
*) Cylinders with internal thread on piston rod only

| Options | |
|---|---|
| 00 | without options |

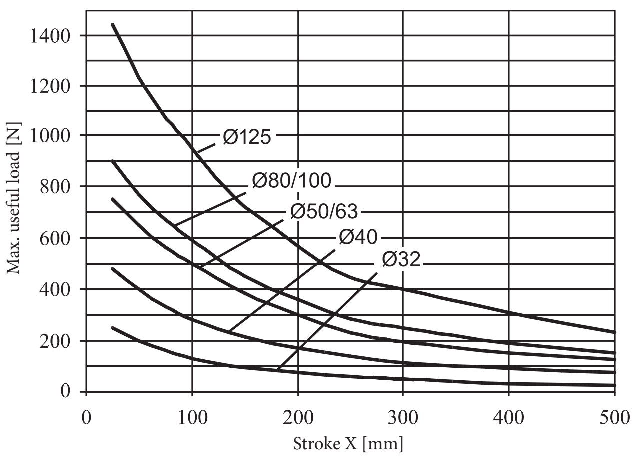
| Piston diameter | |
|---|---|
| 012 | 12 mm, 16 mm |
| 020 | 20 mm |
| 025 | 25 mm |
| 032 | 32 mm |
| 040 | 40 mm |
| 050 | 50 mm |
| 063 | 63 mm |
| 080 | 80 mm |
| 100 | 100 mm |
| 125 | 125 mm |

| Stroke | |
|---|---|
| xxxx | mm of stroke e.g. 0100 = stroke 100 mm |

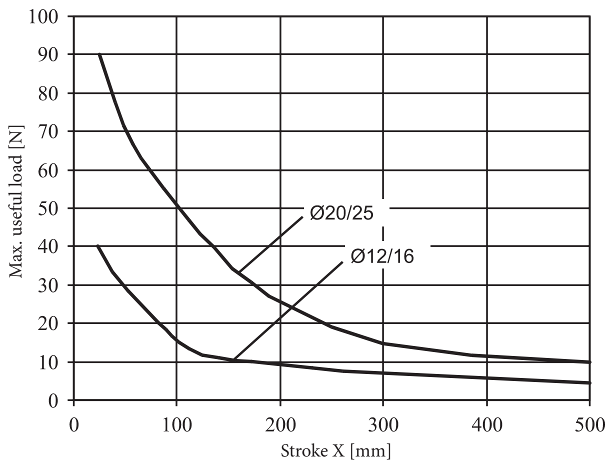
## Useful load




For cylinders to DIN ISO 6431, VDMA 24562 and NF E 49003.1




For cylinders to DIN ISO 6432



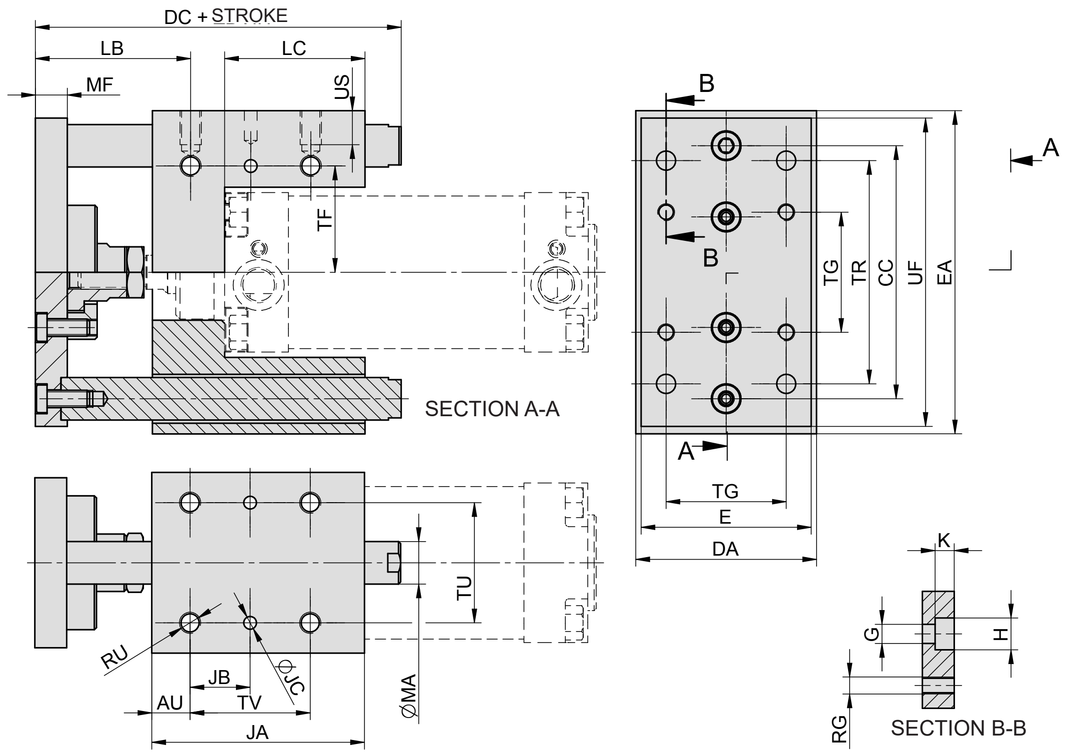

## Construction / materials

- guide bars: grounded round steel bar CK45 with chrome plated surface
- guide body: aluminium casting
- flange and nut: zinc plated steel
- bearings: slide, self-lubricating

| Piston diameter [mm] | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|---|---|---|---|---|---|---|---|---|---|
| Weight 0 mm stroke [kg] | 0.49 | 0.48 | 0.67 | 1.04 | 1.65 | 2.01 | 2.68 | 6.69 | 20.24 |
| Weight add. per 1 mm stroke [kg] | 0.001 | 0.001 | 0.001 | 0.002 | 0.002 | 0.002 | 0.003 | 0.003 | 0.012 |

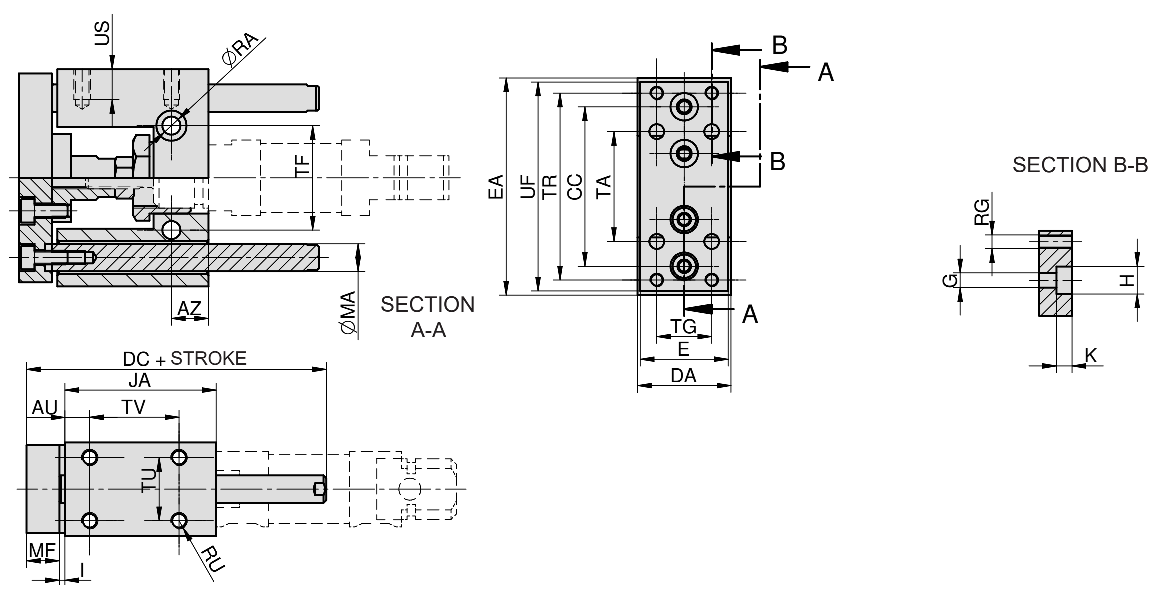
## Dimensions

**For cylinder to ISO 15552, DIN ISO 6431, VDMA 24562, NF E 49003.1 and compact (piston diameter 32 to 125 mm)**




| ∅ | AU | CC | DA | DC | E | EA | G | H | JA | JB | JC | K | LB | LC | MA | MF | RG | RU | TR | TF | TG | TU | TV | UF | US |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 12 | 74 | 50 | 130 | 45 | 97 | 6.5 | 11 | 70 | 16.25 | 6 | 6 | 59-69 | 50 | 12 | 12 | M6 | M6 | 78 | 30.5 | 32.5 | 32.5 | 32.5 | 92 | 10 |
| 40 | 14 | 87 | 58 | 145 | 54 | 115 | 6.5 | 11 | 80 | 19 | 6 | 6 | 63-73 | 55 | 16 | 12 | M6 | M6 | 84 | 34.5 | 38 | 38 | 38 | 110 | 10 |
| 50 | 18 | 104 | 70 | 162 | 63 | 137 | 9 | 15 | 90 | 23.25 | 6 | 9 | 70-80 | 56 | 20 | 15 | M8 | M8 | 100 | 42.5 | 46.5 | 46.5 | 46.5 | 130 | 13 |
| 63 | 18 | 119 | 85 | 172 | 80 | 152 | 9 | 15 | 100 | 28.25 | 6 | 9 | 73-83 | 66 | 20 | 15 | M8 | M8 | 105 | 50 | 56.5 | 56.5 | 56.5 | 145 | 13 |
| 80 | 18 | 148 | 105 | 220 | 100 | 189 | 11 | 18 | 130 | 36 | 6 | 11 | 89-99 | 90 | 25 | 20 | M10 | M10 | 130 | 65 | 72 | 72 | 72 | 180 | 16 |
| 100 | 19.5 | 172 | 130 | 230 | 120 | 213 | 11 | 18 | 140 | 44.5 | 6 | 11 | 90.5-100.5 | 95 | 25 | 20 | M10 | M10 | 140 | 75 | 89 | 89 | 89 | 200 | 16 |
| 125 | 20 | 202 | 157 | 285 | 140 | 254 | 13 | 20 | 175 | 55 | 6 | 13 | 110-120 | 117 | 32 | 25 | M12 | M12 | 175 | 92 | 110 | 110 | 110 | 240 | 25 |

**For cylinder to DIN ISO 6432 (piston diameter 12 to 25 mm)**

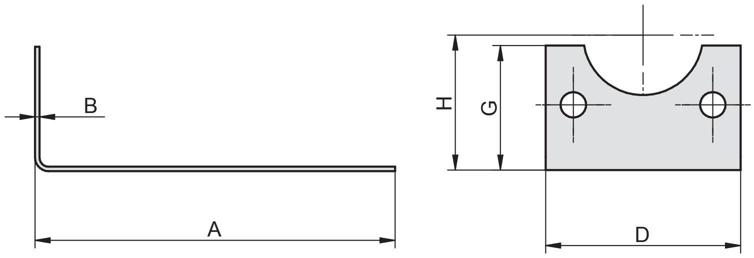



| ∅ | AU | AZ | CC | DA | DC | E | EA | G | H | I | JA | K | MA | MF | RA | RG | RU | TA | TR | TF | TG | TU | TV | UF | US |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/16 | 7.5 | 58 | 46 | 30 | 62 | 27 | 65 | 4.5 | 8 | 3 | 39 | 4.6 | 8 | 10 | 5.5 | M4 | M4 | 32 | 54 | 24 | 15 | 22 | 25 | 63 | 8 |
| 20/25 | 9 | 13.5 | 58 | 34 | 80 | 32 | 79 | 5.5 | 10 | 3 | 55 | 6 | 10 | 12 | 6.5 | M5 | M6 | 40 | 68 | 38 | 20 | 23 | 32.5 | 76 | 12 |

## VALVE BRACKET FOR CYLINDER

- **ISO 15552, VDMA 24562, NF E 49003.1**
- **DIN ISO 6431, VDMA 24562, NF E 49003.1**
- **COMPACT**

Supply contains:
1 pc bracket
2 pcs screws

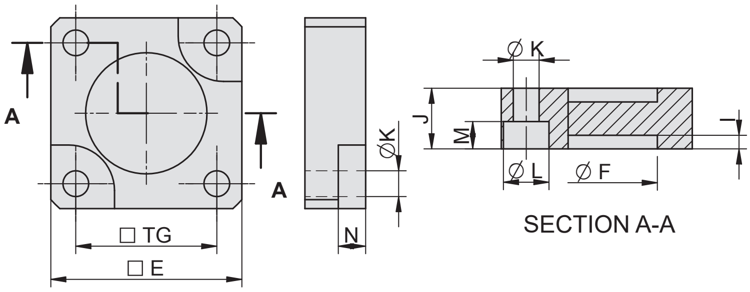



Valve bracket should be fixed on front or rear cap of cylinder. Bracket is universal, it means, that any valve can be attached on it - it is necessary to drill fixing holes in bracket according to the holes in valve. This simple but practical bracket should solve not only the problem with placing of valve in application, but it helps to better look and compact impression of application (it is not necessary to lead and fix tubes for inlet and outlet of cylinder).

| Piston ∅ | A | B | D | G | H | Weight | Order codes |
|---|---|---|---|---|---|---|---|
| 32 | 160 | 1.5 | 48 | 30 | 32 | 0.11 | 2101 8000 0032 0000 |
| 40 | 200 | 1.5 | 55 | 32 | 36 | 0.15 | 2101 8000 0040 0000 |
| 50 | 230 | 1.5 | 65 | 41.5 | 45 | 0.20 | 2101 8000 0050 0000 |
| 63 | 230 | 1.5 | 75 | 41.5 | 50 | 0.24 | 2101 8000 0063 0000 |
| 80 | 230 | 1.5 | 95 | 60 | 63 | 0.32 | 2101 8000 0080 0000 |
| 100 | 230 | 1.5 | 115 | 60 | 71 | 0.30 | 2101 8000 0100 0000 |
| 125 | 250 | 1.5 | 140 | 70 | 90 | 0.42 | 2101 8000 0125 0000 |

## BOXER FLANGE MOUNTING FOR CYLINDER

- **ISO 15552, VDMA 24562, NF E 49003.1**
- **DIN ISO 6431, VDMA 24562, NF E 49003.1**
- **COMPACT**

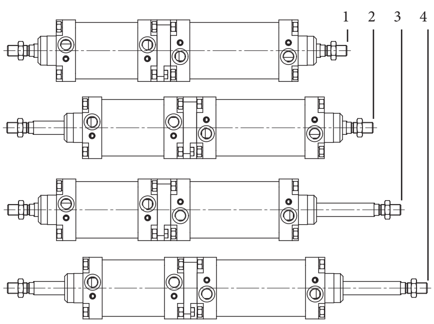



Supply contain:s
1 pc flange
4 pcs screws

Using the boxer flange mounting, the 2 cylinders can be mounted together by end caps, so the piston rods will move against each other. If the cylinders will have the same stroke, the final assembly will have 3 positions when cylinders will be in end positions. When the cylinders will have various strokes, the final assembly will have 4 positions.

Attention: the body of cylinders are moving in this assembly, so it is necessary to use flexible air connections.

| Piston ∅ | TG | E | F | J | M | N | K | L | I | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 32.5 | 45 | 30 | 15 | 6.5 | 8 | 6.5 | 11 | 4.5 | 0.052 | 2101 2300 0032 0000 |
| 40 | 38 | 56 | 35 | 15 | 6.5 | 8 | 6.5 | 11 | 4.5 | 0.084 | 2101 2300 0040 0000 |
| 50 | 46.5 | 63 | 40 | 20 | 9 | 9 | 8.5 | 15 | 4.5 | 0.154 | 2101 2300 0050 0000 |
| 63 | 56.5 | 75 | 45 | 20 | 9 | 9 | 8.5 | 15 | 4.5 | 0.223 | 2101 2300 0063 0000 |
| 80 | 72 | 95 | 45 | 25 | 12 | 12 | 10.5 | 18 | 4.5 | 0.511 | 2101 2300 0080 0000 |
| 100 | 89 | 115 | 55 | 25 | 12 | 12 | 10.5 | 18 | 4.5 | 0.774 | 2101 2300 0100 0000 |
| 125 | 110 | 140 | 60 | 30 | 15 | 13 | 12.5 | 20 | 6.5 | 1.714 | 2101 2300 0125 0000 |
| 160 | 140 | 185 | 65 | 35 | 17.5 | 15 | 16.5 | 26 | 6.5 | 2.945 | 2101 2300 0160 0000 |
| 200 | 175 | 235 | 75 | 35 | 17.5 | 15 | 16.5 | 26 | 6.5 | 4.844 | 2101 2300 0200 0000 |
| 250 | 220 | 270 | 90 | 45 | 21.5 | 18 | 21 | 34 | 10.5 | 8.167 | 2101 2300 0250 0000 |
| 320 | 270 | 350 | 110 | 50 | 27 | 20 | 25 | 40 | 10.5 | 15.47 | 2101 2300 0320 0000 |

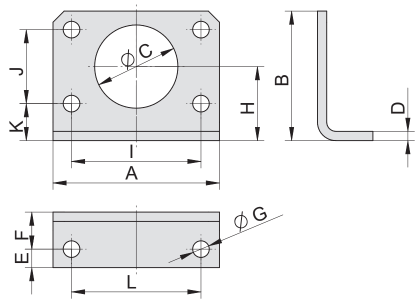


# FOOT MOUNTING FOR CYLINDER

**• PDSW**

Supply contains:
1 pc foot mounting

Note: supply doesn‘t contain nut - it is included in supply of the cylinder (1 pc)

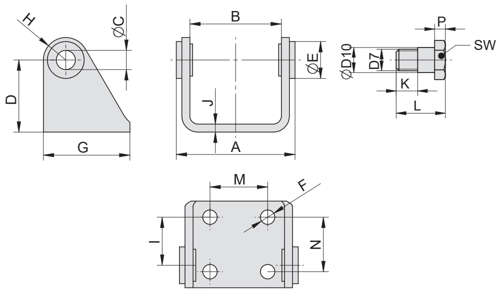



| Piston ∅ | A | B | C | D | E | F | G | H | I | J | K | L | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 66 | 49 | 30 | 4 | 7 | 14 | 7 | 28 | 52 | 28 | 14 | 52 | 0.12 | 2113 2100 0032 0000 |
| 40 | 80 | 58 | 38 | 4 | 10 | 20 | 9 | 33 | 60 | 30 | 18 | 60 | 0.16 | 2113 2100 0040 0000 |
| 50 | 90 | 70 | 45 | 5 | 10 | 20 | 9 | 40 | 70 | 40 | 20 | 70 | 0.25 | 2113 2100 0050 0000 |
| 63 | 96 | 80 | 45 | 5 | 10 | 20 | 9 | 45 | 76 | 50 | 20 | 76 | 0.32 | 2113 2100 0063 0000 |

# CLEVIS FOOT MOUNTING FOR CYLINDER

**• PDSW**

Supply contains:
1 pc clevis
2 pcs screws
2 pcs washers

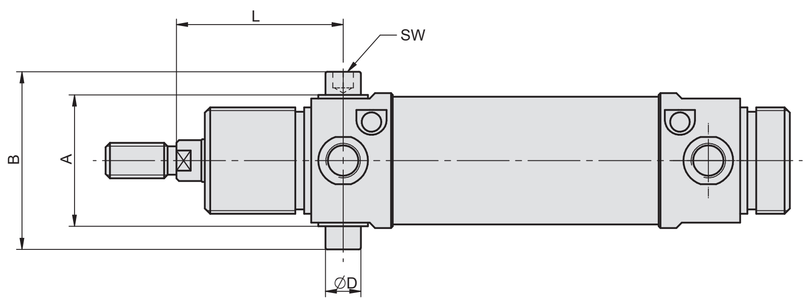



| Piston ∅ | A | B | C | D | E | F | G | H | I | J | M | N | L | SW | K | P | D10 | D7 | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 50.1 | 38.1 | 10 | 35 | 15 | 7 | 40 | 12 | 20 | 4 | 20 | 24 | 17.5 | 13 | 6.5 | 4 | 10 | M8x1 | 0.16 | 2113 3000 0032 0000 |
| 40 | 60.1 | 46.1 | 12 | 40 | 20 | 9 | 50 | 13 | 27 | 4 | 28 | 30 | 22 | 17 | 9 | 5 | 12 | M10x1 | 0.25 | 2113 3000 0040 0000 |
| 50 | 74.1 | 57.1 | 14 | 45 | 23 | 9 | 54 | 14 | 30 | 5 | 36 | 34 | 27.5 | 19 | 12 | 6 | 14 | M12x1.5 | 0.37 | 2113 3000 0050 0000 |
| 63 | 88.1 | 70.1 | 16 | 50 | 23 | 9 | 65 | 16 | 34 | 5 | 42 | 35 | 32 | 19 | 16 | 6 | 16 | M14x1.5 | 0.51 | 2113 3000 0063 0000 |

# PLUG BOLT FOR CYLINDER

**• PDSW**

Supply contains:
1 pc bolt
1 pc washer

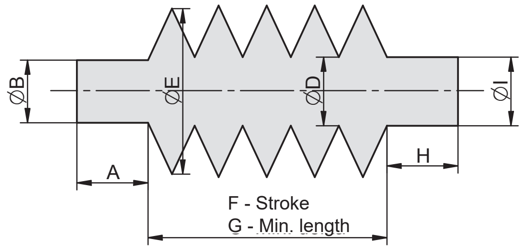



| Piston ∅ | A | B | D f7 | L | SW | Weight | Order codes |
|---|---|---|---|---|---|---|---|
| 32 | 37 | 50 | 10 | 47 | 5 | 0.010 | 2113 4200 0032 0000 |
| 40 | 45 | 60 | 12 | 57 | 6 | 0.013 | 2113 4200 0040 0000 |
| 50 | 56 | 74 | 14 | 62 | 6 | 0.020 | 2113 4200 0050 0000 |
| 63 | 69 | 89 | 16 | 63 | 8 | 0.028 | 2113 4200 0063 0000 |

# PISTON ROD PROTECTIVE COVER

**• FOR ALL CYLINDER TYPES**
**• FOR ANY EQUIPMENT**

Supply contains:
1 pc protective cover




| Size | D | E | For cylinders ∅ | Number of annulus for 100 mm stroke | Width of 10 pcs annulus | Order codes |
|---|---|---|---|---|---|---|
| 5 | 20 | 60 | 32, 40 | 10 | 10 | 2195 0000 5 zzzz xxx |
| 4 | 40 | 80 | 50, 63, 80 | 8 | 10 | 2195 0000 4 zzzz xxx |
| 3 | 50 | 130 | 100, 125 | 4 | 10 | 2195 0000 3 zzzz xxx |
| 2 | 60 | 155 | 160, 200 | 3 | 10 | 2195 0000 2 zzzz xxx |
| 1 | 100 | 180 | 250, 320 | 3 | 10 | 2195 0000 1 zzzz xxx |

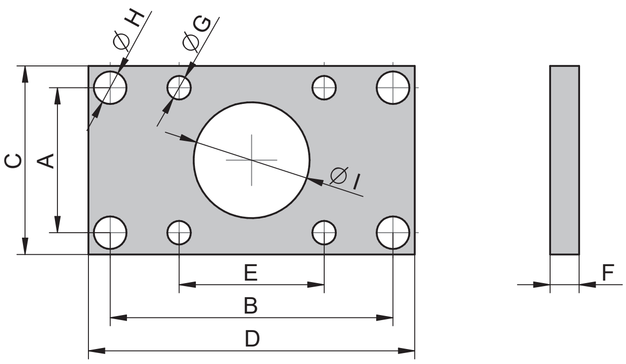
Notice: zzzz means cover stroke in mm, xxx is ordinal number, which will be assigned by sales dept. on the base of A,B,H and I dimensions.

Material: double-sided hyped-up fabric, water, oil and dust resistant
Temperature range: -20 to +80°C
Covers are fixed by clamps - there is necessary to select proper size according to diameters, to which will be the cover fixed
We produce protective covers to customer‘s request (length, form, flange form. If you need protective cover for our pneumatic cylinder, just let us know order code of that cylinder and order code of mounting accessories, which is mounted on piston rod. If you need protective cover for another application, send us a request with dimensions which are important and we will send you offer by return.

# FLANGE MOUNTING FOR CYLINDER

**• CNOMO 06.07.02**

Supply contains:
1 pc flange mounting
4 pcs nuts

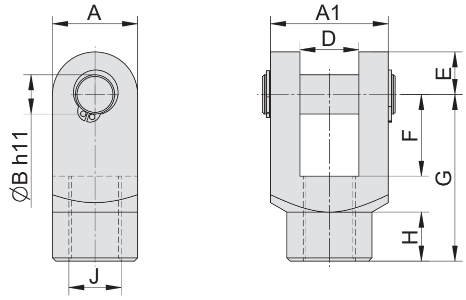



| Piston ∅ | A | B | C | D | E | F | G | H | I | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 33 | 68 | 45 | 80 | 33 | 8 | 6,5 | 9 | 25 | 0,18 | 2114 2000 0032 0000 |
| 40 | 40 | 78 | 52 | 90 | 40 | 8 | 6,5 | 9 | 32 | 0,23 | 2114 2000 0040 0000 |
| 50 | 49 | 94 | 65 | 110 | 49 | 10 | 8,4 | 11 | 32 | 0,47 | 2114 2000 0050 0000 |
| 63 | 59 | 104 | 75 | 120 | 59 | 10 | 8,4 | 11 | 45 | 0,56 | 2114 2000 0063 0000 |
| 80 | 75 | 130 | 95 | 150 | 75 | 12 | 10,5 | 14 | 45 | 1,13 | 2114 2000 0080 0000 |
| 100 | 90 | 150 | 115 | 170 | 90 | 12 | 10,5 | 14 | 55 | 1,54 | 2114 2000 0100 0000 |
| 125 | 110 | 180 | 140 | 205 | 110 | 16 | 13,5 | 18 | 55 | 3,13 | 2114 2000 0125 0000 |
| 160 | 140 | 228 | 180 | 260 | 140 | 20 | 16,5 | 22 | 65 | 6,48 | 2114 2000 0160 0000 |
| 200 | 175 | 268 | 220 | 300 | 175 | 20 | 16,5 | 22 | 65 | 9,46 | 2114 2000 0200 0000 |

# PISTON ROD CLEVIS FOR CYLINDERS

**• CNOMO 06.07.02**

Supply contains:
1 pc clevis
1 pc pivot pin
2 pcs retaining rings

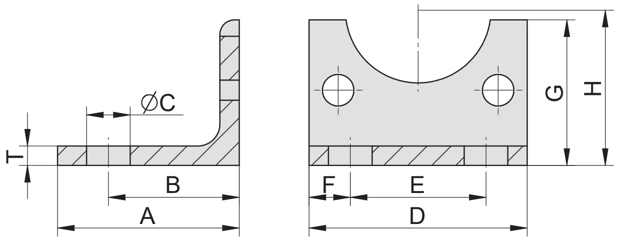



| Piston ∅ | A | A1 | B | D | E | F | G | H | J | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 22 | 22 | 8 | 11 | 9 | 16 | 36 | 13 | M10 | 0.11 | 2114 0100 0032 0000 |
| 40 / 50 | 26 | 36 | 12 | 18 | 13 | 25 | 51 | 15 | M16x1.5 | 0.26 | 2114 0100 0040 0000 |
| 63 / 80 | 34 | 45 | 16 | 22 | 17 | 33 | 63 | 18.5 | M20x1.5 | 0.53 | 2114 0100 0063 0000 |
| 100 / 125 | 42 | 63 | 20 | 30 | 20 | 40 | 85 | 30 | M27x2 | 1.13 | 2114 0100 0100 0000 |
| 160 / 200 | 60 | 80 | 25 | 40 | 25 | 40 | 115 | 45 | M36x2 | 2.82 | 2114 0100 0160 0000 |

# FOOT MOUNTING FOR CYLINDER

**• CNOMO 06.07.02**

Supply contains:
1 pc foot mounting
2 pcs nuts
2 pcs washers

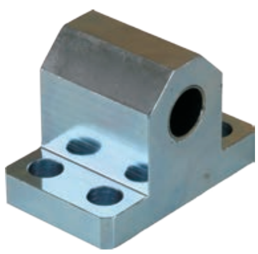


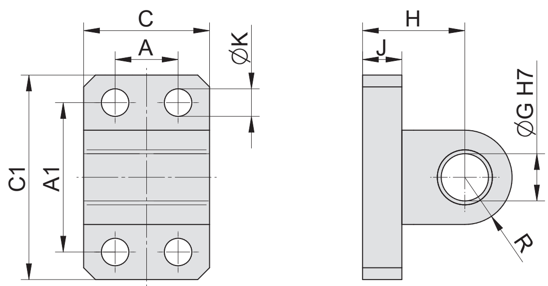

| Piston ∅ | A | B | C | D | E | F | G | H | T | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 37.5 | 27 | 9 | 45 | 28 | 8.5 | 30 | 32 | 4 | 0.09 | 2114 2100 0032 0000 |
| 40 | 35 | 27 | 9 | 52 | 36 | 8 | 32 | 36 | 5 | 0.12 | 2114 2100 0040 0000 |
| 50 | 45 | 35 | 11 | 65 | 45 | 10 | 40 | 45 | 5 | 0.19 | 2114 2100 0050 0000 |
| 63 | 45 | 35 | 11 | 75 | 55 | 10 | 40 | 50 | 5 | 0.22 | 2114 2100 0063 0000 |
| 80 | 55.5 | 43 | 14 | 95 | 70 | 12.5 | 60 | 63 | 6 | 0.45 | 2114 2100 0080 0000 |
| 100 | 55 | 43 | 14 | 115 | 90 | 12.5 | 60 | 73 | 6 | 0.55 | 2114 2100 0100 0000 |
| 125 | 72 | 52 | 18 | 140 | 100 | 20 | 70 | 91 | 8 | 1.14 | 2114 2100 0125 0000 |
| 160 | 87 | 62 | 22 | 180 | 130 | 25 | 90 | 115 | 10 | 2.29 | 2114 2100 0160 0000 |
| 200 | 95 | 62 | 22 | 220 | 170 | 25 | 120 | 135 | 12 | 4.03 | 2114 2100 0200 0000 |

# SWIVEL FLANGE FOR CYLINDER

**• CNOMO 06.07.02**

Supply contains:
1 pc swivel flange



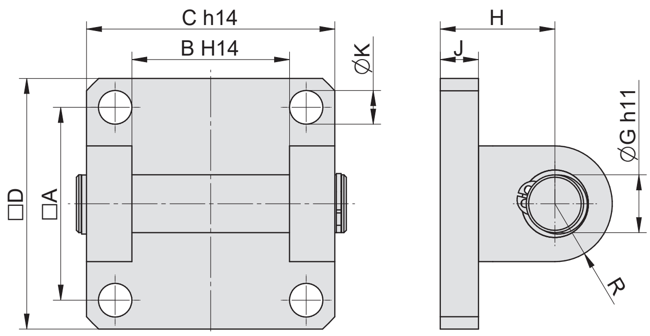



| Piston ∅ | A | A1 | C | C1 | G | H | J | K | R | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | - | 28 | 25 | 40 | 8 | 18 | 8 | 7 | 8 | 0.04 | 2114 3300 0032 0000 |
| 40 / 50 | 16 | 38 | 32 | 52 | 12 | 26 | 10 | 9 | 12 | 0.09 | 2114 3300 0040 0000 |
| 63 / 80 | 25 | 54 | 46 | 75 | 16 | 34 | 12 | 11 | 18 | 0.69 | 2114 3300 0063 0000 |
| 100 / 125 | 32 | 90 | 56 | 115 | 20 | 41 | 16 | 14 | 20 | 1.30 | 2114 3300 0100 0000 |
| 160 / 200 | 43 | 150 | 71 | 180 | 25 | 55 | 20 | 18 | 25 | 3.50 | 2114 3300 0160 0000 |

## SWIVEL FLANGE FOR CYLINDER

**• CNOMO 06.07.02**

Supply contains:
1 pc flange
1 pc pivot pin
2 pcs retaining rings
4 pcs nuts
4 pcs washers

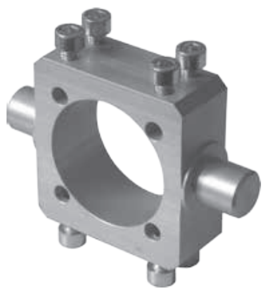


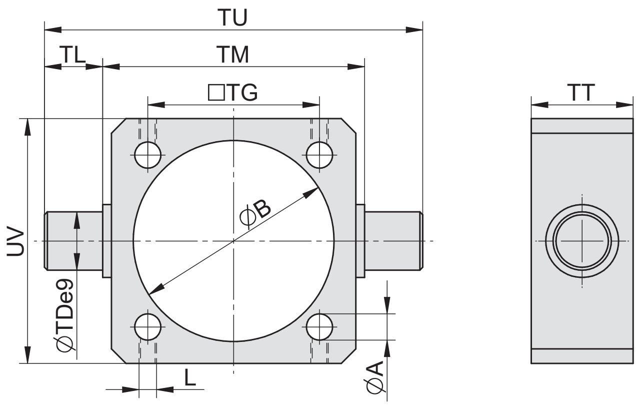

| Piston ∅ | A | B | C | D | G | H | J | K | R | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 33 | 26 | 45 | 45 | 8 | 18 | 8 | 7 | 8 | 0.09 | 2114 3000 0032 0000 |
| 40 | 40 | 33 | 52 | 52 | 12 | 24 | 8 | 7 | 12 | 0.14 | 2114 3000 0040 0000 |
| 50 | 49 | 33 | 60 | 65 | 12 | 26 | 10 | 9 | 12 | 0.23 | 2114 3000 0050 0000 |
| 63 | 59 | 47 | 70 | 75 | 16 | 30 | 10 | 9 | 16 | 0.34 | 2114 3000 0063 0000 |
| 80 | 75 | 47 | 90 | 95 | 16 | 32 | 12 | 11 | 16 | 1.27 | 2114 3000 0080 0000 |
| 100 | 90 | 57 | 110 | 115 | 20 | 37 | 12 | 11 | 20 | 2.05 | 2114 3000 0100 0000 |
| 125 | 110 | 57 | 140 | 140 | 20 | 41 | 16 | 14 | 20 | 3.65 | 2114 3000 0125 0000 |
| 160 | 140 | 72 | 180 | 180 | 25 | 55 | 20 | 18 | 25 | 7.63 | 2114 3000 0160 0000 |
| 200 | 175 | 72 | 220 | 220 | 25 | 55 | 20 | 18 | 25 | 10.43 | 2114 3000 0200 0000 |

## PIVOT PIN FOR CYLINDER

**• CNOMO 06.07.02**

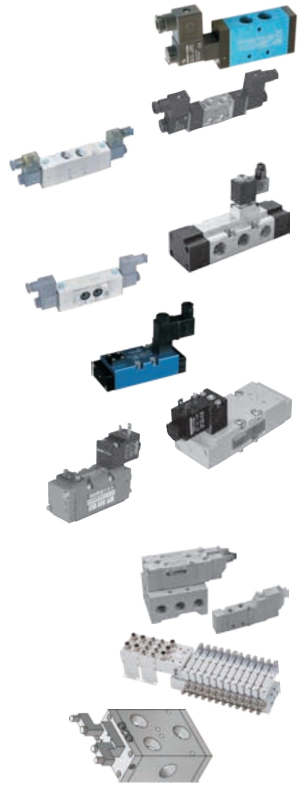
Supply contains:
1 pc pivot pin
8 pcs screws






| Piston ∅ | A | B | TD | TL | TM | TT | TU | UV | TG | L | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 7 | 37 | 12 | 12 | 50 | 25 | 74 | 46 | 33 | M5 | 0,10 | 2114 4100 0032 0000 |
| 40 | 7 | 46 | 16 | 16 | 63 | 25 | 95 | 58 | 40 | M6 | 0,19 | 2114 4100 0040 0000 |
| 50 | 9 | 56 | 16 | 16 | 73 | 25 | 105 | 68 | 49 | M6 | 0,50 | 2114 4100 0050 0000 |
| 63 | 9 | 69 | 20 | 20 | 90 | 25 | 130 | 84 | 59 | M6 | 0,73 | 2114 4100 0063 0000 |
| 80 | 11 | 87 | 20 | 20 | 108 | 30 | 148 | 102 | 75 | M6 | 1,12 | 2114 4100 0080 0000 |
| 100 | 11 | 107 | 25 | 25 | 131 | 40 | 181 | 124 | 90 | M8 | 2,37 | 2114 4100 0100 0000 |
| 125 | 12,5 | 134 | 25 | 25 | 159 | 40 | 209 | 158 | 110 | M8 | 3,51 | 2114 4100 0125 0000 |
| 160 | 17 | 168 | 32 | 32 | 198 | 40 | 262 | 196 | 140 | M8 | 5,21 | 2114 4100 0160 0000 |
| 200 | 17 | 212 | 32 | 32 | 248 | 48 | 312 | 248 | 175 | M10 | 9,61 | 2114 4100 0200 0000 |

## 4/2, 5/2 and 5/3 function valves





## 2/2 and 3/2 function valves



## Connectors

## 5/2 a 5/3 function valves - valve properties and selection table

| Series | Port size | Flow capacity [Nl/min] | Working pressure [MPa]*** | Connection* | | | Voltage | | Connector type | Page |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1* | 2* | 3* | DC [V] | AC [V] | | |
| ***K1*** | G1/8“ | 1000 | 0.15 to 1.0 (2.1) | ✓ | × | ✓ | 24 | 24, 110, 230 | 22 | 5-3 |
| ***K2*** | G1/4“, G3/8“ | 1700 | 0.15 to 1.0 (2.1) | ✓ | × | ✓ | 24 | 24, 110, 230 | 22 | 5-3 |
| ***K3*** | G1/2“ | 3500 | 0.15 to 1.0 (2.1) | ✓ | × | ✓ | 24 | 24, 110, 230 | 22 | 5-3 |
| ***MVSC***** | G1/4“,G3/8“,G1/2“ | 980 to 2730 | 0.2 to 0.8 | ✓ | × | ✓ | 12, 24 | 24, 110, 230 | 22 | 5-6 |
| ***MVSE*** | G1/4“,G3/8“,G1/2“ | 980 to 2180 | 0.2 to 1.2 | ✓ | × | ✓ | 24 | 24, 110, 230 | 22 | 5-8 |
| ***MVSE*** | G1/2“,G3/4“,G1“ | 3400 to 4830 | 0.2 to 0.7 | ✓ | × | × | 24 | 110, 230 | DIN 43650 A | 5-10 |
| ***MVSN*** | NAMUR | 1630 to 1905 | 0.2 to 0.8 | ✓ | ✓ | × | 24 | 24, 230 | 22 | 5-12 |
| ***MVSY*** | M5, G1/8“, G1/4“ | 200 to 760 | 0.15 to 0.7 | ✓ | × | ✓ | 6, 12, 24 | 230 | special, with cable | 5-20 |
| L01 | G1/8“ | 200 | vacuum to 1.0 | ✓ | × | ✓ | 24 | 24, 110, 230 | 22 | www.sappv.cz |
| ***L1***** | G1/8“, G1/4“ | 1000 | 0.1 to 1.0 | ✓ | × | ✓ | 24 | 24, 110, 230 | 22 | www.sappv.cz |
| ***L2***** | G1/4“, G3/8“ | 1700 | 0.1 to 1.0 | ✓ | × | ✓ | 24 | 24, 110, 230 | 22 | www.sappv.cz |
| ***KI ISO 1*** | ISO 1 - G1/4“ | 1200 | 0.15 to 1.0 (2.1) | × | ✓ | ✓ | 24 | 24, 110, 230 | 22 | 5-14 |
| ***KI ISO 2*** | ISO 2 - G3/8“ | 2800 | 0.15 to 1.0 (2.1) | × | ✓ | ✓ | 24 | 24, 110, 230 | 22 | 5-14 |
| ***ISO 1 Compact*** | ISO 1 - G1/4“ | 1400 | 0.1 to 1.0 (1.6) | × | ✓ | ✓ | 12, 24 | 24, 110, 230 | 22, DIN 43650 A | 5-16 |
| ISO 1** indirect act. | ISO 1 - G1/4“ | 1200 | 0.1 to 1.0 (1.6) | × | ✓ | ✓ | 12, 24 | 24, 110, 230 | 22, DIN 43650 A | 5-17 |
| ISO 1** direct act. | ISO 1 - G1/4“ | 1200 | vakuum to 2.1 | × | ✓ | ✓ | 24 | 24, 110, 230 | DIN 43650 A | www.sappv.cz |
| ***ISO 2 Compact*** | ISO 2 - G3/8“ | 2800 | 0.1 to 1.0 (1.6) | × | ✓ | ✓ | 12, 24 | 24, 110, 230 | 22, DIN 43650 A | 5-16 |
| ISO 2** indirect act. | ISO 2 - G3/8“ | 1700 | 0.1 to 1.0 (1.6) | × | ✓ | ✓ | 12, 24 | 24, 110, 230 | 22, DIN 43650 A | 5-17 |
| ISO 2** direct act. | ISO 2 - G3/8“ | 1700 | vakuum to 2.1 | × | ✓ | ✓ | 24 | 24, 110, 230 | DIN 43650 A | www.sappv.cz |
| ***ISO 3 Compact*** | ISO 3 - G1/2“ | 4200 | 0.1 to 1.0 (1.6) | × | ✓ | ✓ | 12, 24 | 24, 110, 230 | 22, DIN 43650 A | 5-16 |
| ISO 3** indirect act. | ISO 3 - G1/2“ | 4300 | 0.1 to 1.0 (1.6) | × | ✓ | ✓ | 12, 24 | 24, 110, 230 | 22, DIN 43650 A | 5-17 |
| ISO 3** direct act. | ISO 3 - G1/2“ | 4300 | vakuum to 2.1 | × | ✓ | ✓ | 24 | 24, 110, 230 | DIN 43650 A | www.sappv.cz |
| High flow | G1“,G1 1/2“, | 16000 to 28000 | 0.2 to 0.7 | ✓ | × | × | 24 | 24, 230 | DIN 43650 A | 5-26 |

*) Valve connection:
1 - in-line
2 - individual base
3 - manifold block

**) Valves are available with explosion proof solenoids too.

***) Working pressure may be higher / lower, when option coils and external pilot supply is used.

Standard valve series are ***highlighted***.

**Notice:** due to spool and sleeve assembly, minor leakage may occur in 5/3 with closed centre. If you need to ensure 100% leakproof, it is necessary to use valve with rubber packed spool.

## 2/2 and 3/2 function valves - valve properties and selection table

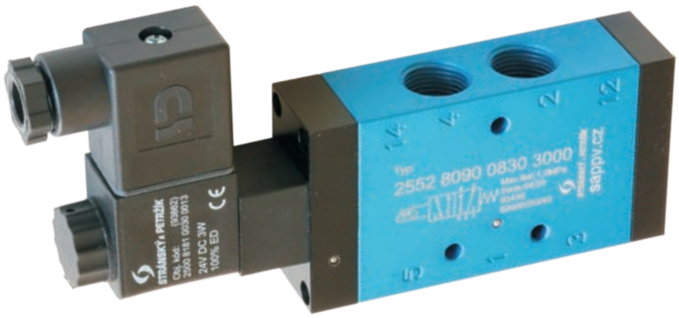
| Series | Port size | Flow capacity [Nl/min] | Working pressure [MPa] | Function | | | Voltage | | Connector type | Page |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2/2 | 3/2 NC | 3/2 NO | DC [V] | AC [V] | | |
| ***MVDC*** | G1/8“ | 60 | 0.1 to 0.7 | ✓ | ✓ | × | 12, 24 | 24, 230 | 22 | 5-30 |
| ***MBS*** | G1/8“, G1/4“ | 30 to 180 | 0 to 4.0 | ✓ | × | × | 12, 24 | 24, 230 | 22 | 5-32 |
| ***MCS*** | G1/4“, G3/8“, G1/2“ | 120 to 530 | 0 to 4.0 | ✓ | × | × | 12, 24 | 24, 230 | DIN 43650 A | 5-33 |
| ***MVSC*** | G1/4“, G3/8“, G1/2“ | 980 to 2730 | 0.2 to 0.8 | × | ✓ | ✓ | 12, 24 | 24, 230 | 22 | 5-26 |
| ***NAF*** | G1/8“ | 580 | 0.15 to 1.0 | × | ✓ | ✓ | 12, 24 | 24, 110, 230 | 22 | 5-28 |
| ***NAF*** | G1/4“, G3/8“ | 1100 / 1500 | 0.16 to 1.0 | × | ✓ | ✓ | 12, 24 | 24, 110, 230 | 22 | 5-28 |
| ***NAF*** | G1/2“, G3/4“ | 5400 / 6500 | 0.2 to 1.0 | ✓ | ✓ | ✓ | 12, 24 | 24, 110, 230 | DIN 43650 A | 5-28 |
| ***NAF*** | G1“ | 13500 | 0.22 to 1.0 | ✓ | ✓ | ✓ | 12, 24 | 24, 110, 230 | DIN 43650 A | 5-28 |
| ***NAF*** | G1 1/2“ | 35000 | 0.25 to 1.0 | ✓ | ✓ | ✓ | 12, 24 | 24, 110, 230 | DIN 43650 A | 5-28 |

Standard valve series are ***highlighted.***

## Solenoid actuated valves with spool and sleeve assembly

The spool and sleeve assembly is a matched set consisting of a stainless steel spool assembled into a stainless steel sleeve. The steel used is a 440C stainless hardened to 62 Rockwell „C“. The tolerance is such that air is entrained between the spool and sleeve forming an „airbearing“ effect which ensures safe, wear-free operation with extremely short cycles and low shift forces. At the same time reliability of the spool and sleeve assembly is maintained both for lubricated and non-lubricated air. Under both sets of conditions the spool moves with minimal friction leading to very low shifting forces enabling quick response.
The hardness of the spool and sleeve ensures no damage from pipe scale or other airline contaminants while the stainless steel construction combats any line moisture. these features will allow a typical service life in excess of 200 million cycles. The spool is balanced with respect to air pressure and coupled with the absence of wearing parts allows extreme versatility of valve applications. The air can flow in any direction at any pressure or vacuum. This unique design enables cylinder working strokes at one pressure while unloaded reverse strokes can be carried out economically at low pressures.

# SOLENOID ACTUATED VALVES SERIES K



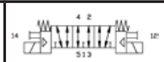

A new type of solenoid pilot actuated valve, which offers not only a large flow rate, high durability but also better availability. Valves can be used as standalone or they can be mounted on manifolds. They can replace L1 and L2 series valves because they have the same connection dimensions, unlike the L1/L2 series, the coil can be rotated in the desired direction. Connector and coil are included in delivery.

Valves series K contains spool and sleeve assembly, which guarantee long lifetime of valve.

| Series | K1 | K2 | | K3 |
|---|---|---|---|---|
| Port | G1/8" | G1/4" | G3/8" | G1/2" |
| Connection of external pressure supply port | M5 | M5 | M5 | G1/8" |
| Flow capacity [Nl/min] | 1000 | 1700 | 1700 | 3500 |
| Working pressure [MPa] | 0.15 to 1.0 (vacuum to 2.1 when external pilot supply is used) | | | |
| Pilot pressure range [MPa] | 0.15 to 1.0 | | | |
| Power input [W/VA] (standard coils) | 3W for DC voltage, 7.5 VA inrush and 5 VA hold for AC voltage | | | |
| Response time for DC voltage [ms] | 10 energize, 35 de-energize | | | |
| Response time for AC voltage [ms] | 7 energize, 35 de-energize | | | |
| Temperature range [°C] | medium temperature max. 50, ambient temperature -20 to +50 | | | |
| Enclosure (standard coils) | IP65 with sealed and fastened connector | | | |

## Order codes

25 528090 06 30 3 000

| Function | |
|---|---|
| 52 80 90 |  |
| 52 80 80 |  |
| 53 80 80 |  |
| 73 80 80 |  (for series K2 only) |

| Port | |
|---|---|
| 04 | thread G1/8" (for series K1 only) |
| 06 | thread G1/4" |
| 08 | thread G3/8" |
| 10 | thread G1/2" (for series K3 only) |

| Voltage | |
|---|---|
| 30 | 24 V DC ± 10% |
| 40 | 24 V AC ± 10% 50-60 Hz |
| 50 | 110 V AC ± 10% 50-60 Hz |
| 60 | 230 V AC ± 10% 50-60 Hz |
| 31 | 24 V DC ± 10% ATEX II 2G(D)* |

*)See detailed specification of ATEX coil on the next page

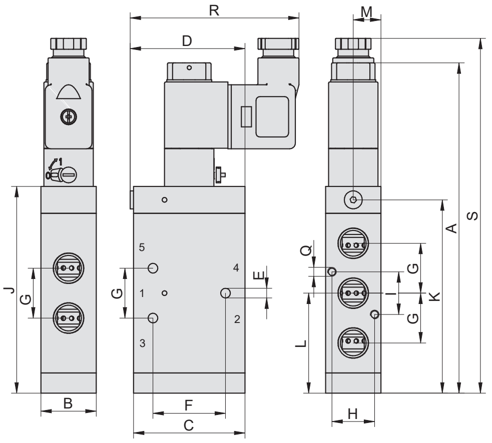
| Series | |
|---|---|
| 2 | K1 (thread G1/8" only) |
| 3 | K2 |
| 4 | K3 (thread G1/2" only) |

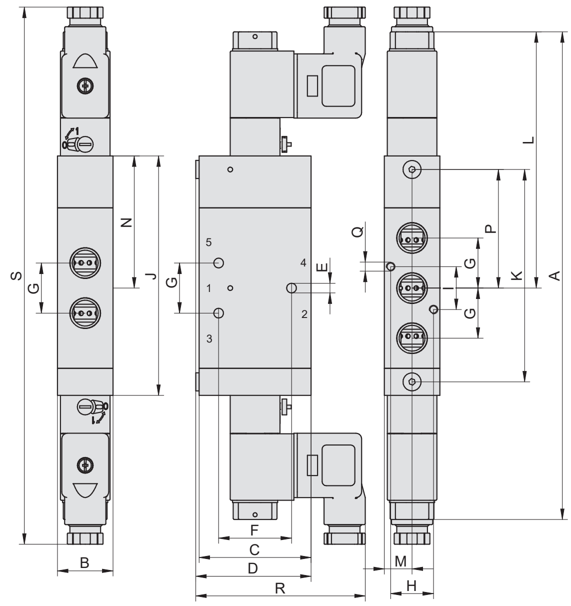
We make the spool and sleeve assembly from hardened stainless steel. The technical interest is that thanks to the precise grinding and honing of both parts, such accuracy is achieved that the piston in the sleeve moves on the air cushion. This essentially eliminates possible wear and at the same time the piston can be moved very easily and very quickly. The clearance is so small that there are no leaks even without a seal.

Supply contains connector(s).

For information about manifold assembly see page 5-5.

## Dimensions of valve series K




| Series | Function | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | Q | R | S | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1 | 52 80 90 | 136 | 22 | 42 | 43.5 | 3.3 | 24.4 | 18 | 15.8 | 18 | 81 | 75 | 39 | 11 | — | — | M3, deep 7 | 71 | 147 | 0.312 |
| K1 | 52 80 80 | 204 | 22 | 42 | 43.5 | 3.3 | 24.4 | 18 | 15.8 | 18 | 94 | 82 | 107 | 11 | 52 | 46 | M3, deep 7 | 71 | 226 | 0.420 |
| K1 | 53 80 80 | 214 | 22 | 42 | 43.5 | 3.3 | 24.4 | 18 | 15.8 | 18 | 104 | 92 | 107 | 11 | 52 | 46 | M3, deep 7 | 71 | 236 | 0.460 |
| K2 | 52 80 90 | 147 | 24.6 | 49.6 | 51.1 | 4.3 | 32.3 | 22.2 | 19 | 19 | 92.1 | 86.1 | 44.6 | 12.3 | — | — | M4, deep 7 | 75 | 158 | 0.345 |
| K2 | 52 80 80 | 216 | 24.6 | 49.6 | 51.1 | 4.3 | 32.3 | 22.2 | 19 | 19 | 106.1 | 94.1 | 113 | 12.3 | 58.6 | 52.6 | M4, deep 7 | 75 | 238 | 0.430 |
| K2 | 53 80 80 | 227 | 24.6 | 49.6 | 51.1 | 4.3 | 32.3 | 22.2 | 19 | 19 | 1171 | 105.1 | 113 | 12.3 | 58.6 | 52.6 | M4, deep 7 | 75 | 249 | 0.479 |
| K2 | 73 80 80 | 227 | 24.6 | 49.6 | 51.1 | 4.3 | 32.3 | 22.2 | 19 | 19 | 1171 | 105.1 | 113 | 12.3 | 58.6 | 52.6 | M4, deep 7 | 75 | 249 | 0.479 |
| K3 | 52 80 90 | 223 | 44 | 66 | 68.5 | 5.3 | 44 | 32 | 35 | 16 | 168 | 159.5 | 80 | 22 | — | — | ∅5.3 | 85 | 234 | 1.380 |
| K3 | 52 80 80 | 268 | 44 | 66 | 68.5 | 5.3 | 44 | 32 | 35 | 16 | 176 | 159 | 143 | 22 | 88 | 79.5 | ∅5.3 | 85 | 308 | 1.441 |
| K3 | 53 80 80 | 297 | 44 | 66 | 68.5 | 5.3 | 44 | 32 | 35 | 16 | 186 | 169 | 148 | 22 | 93 | 84.5 | ∅5.3 | 85 | 318 | 1.576 |

Notice: use fittings only to max. 19 mm wrench size with series K2.

## Coils for valve series K

### Standard coils type 22

| Order code | Voltage | Coil type | Weight [kg] |
|---|---|---|---|
| 2500 8181 0030 0013 | 24V DC | DIN 43650B | 0.06 |
| 2500 8181 0040 0010 | 24V 50-60 Hz | DIN 43650B | 0.06 |
| 2500 8181 0060 0009 | 230V 50-60 Hz | DIN 43650B | 0.06 |
| PMVSC220-COA110 | 110V 50-60 Hz | DIN 43650B | 0.06 |

Notice: The connector is fastened with a M3 screw with a maximum torque of 0.4 to 0.6 Nm

### Coil type 22 with ATEX Ex certification

| Order code | Voltage | Cable length [m] | Weight [kg] |
|---|---|---|---|
| 2500 8181 0030 0014 | 24V DC | 5 | 0.46 |

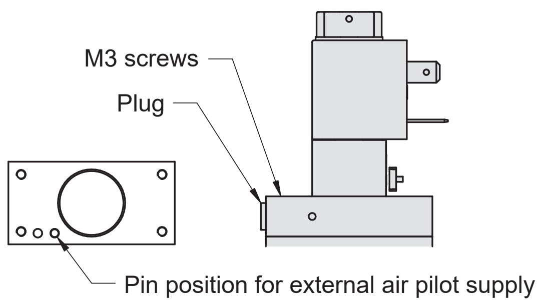
Ex II 2G Ex mb IIC T5 Gb
Ex II 2D Ex tb IIIC T95°C Db IP66

U=24V DC ±10%
I=125 mA
P=3W
Ta=-20°C to +50°C

## Conversion of internal to external air pilot supply

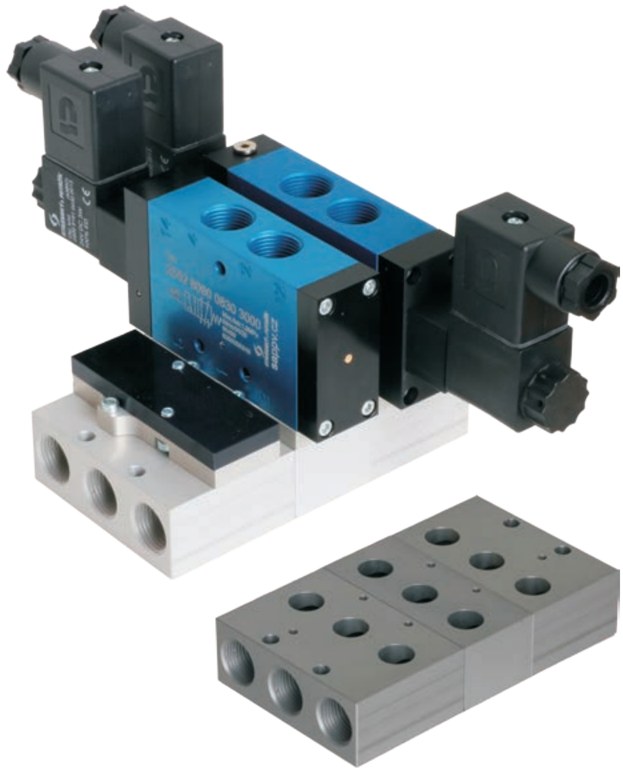
External air pilot supply is used, when air supply pressure is lower than 0.1 MPa (1 bar) as well as for vacuum and or if another medium than compressed air is used. It is necessary to change standard setting (when air pilot supply is drawn from valve supply port 1) in that cases.

When converting from internal to external pilot supply, please proceed as follows:
1) Dismount connector
2) Unscrew for M3 screws, remove valve lid with pilot valve, pay attention to the O-ring between the cover and the valve body
3) Remove the pin from the valve body and insert it into the hole with the O-ring in the lid, check if the O-rings fits correctly in the lid and put the lid back (tightening torque 1.5 Nm), insert and fasten the connector
4) Unscrew plug on side of valve and connect modified compressed air with pressure 0.1 to 1.0 MPa



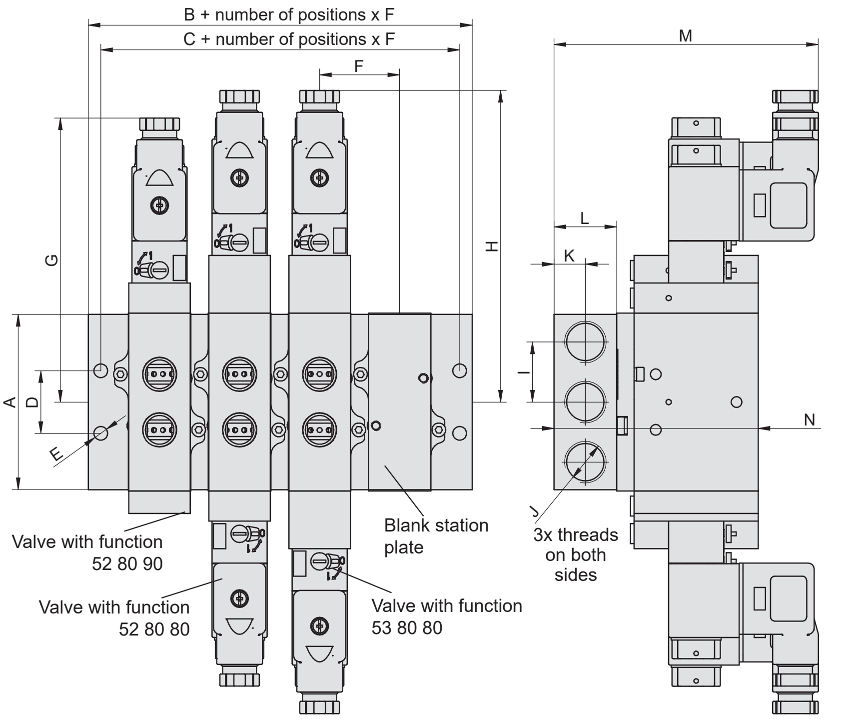
## Series K valves manifold assembly

Manifolds for K series valves are supplied separately and it is necessary to use one pair of end plates, which are also used as manifolds for 2 valves, and requested number of middle plates (1 plate for 1 valve) to create the complete manifold assembly. It is possible to add other positions to the assembly at any time, just remove the end plate and add additional middle plates. If it is necessary to create a reserve during assembly, it is recommended to use a blank station plate, which can be easily replaced by valve. Max. number of valves in one manifold is 10.
Any valve series K may be used for manifold assembly (it doesn't matter if valve is single or double solenoid actuated or air actuated). But it is necessary to use adaptor, which must be mounted between valve and manifold. Valves mounted on manifold could be unmounted separately by unscrew of 2 bolts, which are accessible from top side (side with ports 2 and 4 of valves).



| Series | Order code | Weight [kg] | Application |
|---|---|---|---|
| K1 | 2500 8181 0600 0003 | 0.26 | End plates (1 pair) for 2 valves |
| K1 | 2500 8181 0600 0002 | 0.08 | Middle plate (extension for 1 valve) |
| K1 | 2500 8181 0600 0001 | 0.02 | Adaptor plate (1 plate per station) |
| K1 | 2500 8181 0600 0004 | 0.05 | Blank station plate |
| K2 | 2500 8181 0800 0001 | 0.29 | End plates (1 pair) for 2 valves |
| K2 | 2500 8181 0800 0002 | 0.11 | Middle plate (extension for 1 valve) |
| K2 | 2500 8181 0800 0003 | 0.04 | Adaptor plate (1 plate per station) |
| K2 | 2500 8181 0800 0005 | 0.07 | Blank station plate |

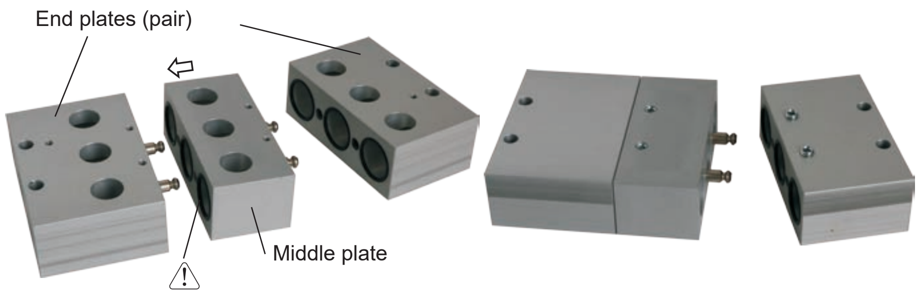
Adaptor plate for mounting the valve on the manifold (1 plate per station)




| Series | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1 | 59 | 26.5 | 16.5 | 21 | 5.5 | 30.5 | 108 | 118 | 21 | G1/4“ | 12.5 | 25 | 100 | 72.5 |
| K2 | 69 | 25.5 | 15.5 | 25 | 5.5 | 32 | 113.5 | 124.5 | 24 | G3/8“ | 12.5 | 25 | 106 | 82 |

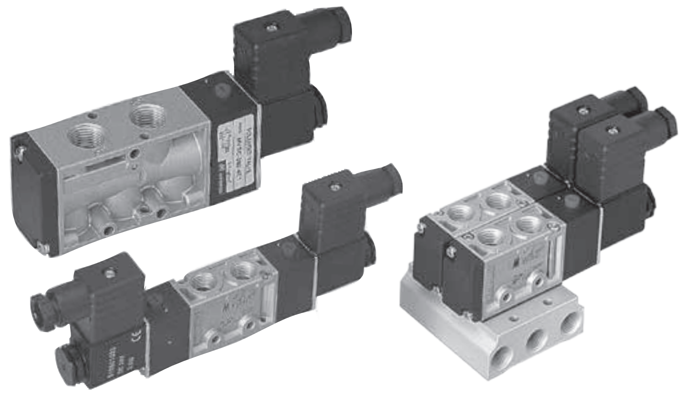
**Assembly procedure:**

1) On the middle plate, check that the sealing rings in the recesses are seated correctly. Place the middle plate on the end plate pins and secure with two countersunk screws.
2) Repeat the procedure with the other middle plates.
3) On the other end plate, check that the sealing rings are seated correctly in the recesses. Place the end plate on the pins of the middle plate and secure with two countersunk screws.
4) Mount the adapter on the inlet and exhaust side (ports 1,3,5) on the valve using two M4x10 screws. Make sure that the sealing rings are fitted correctly in the recesses.
5) Mount the valve with the adapter using two M3x12 screws in the required position on the manifold. Make sure that the sealing rings are fitted correctly in the recesses.
6) Fasten the manifold with valves with all four holes øE.




For more information about assembly see sappv.cz/r/5-5

# SOLENOID ACTUATED VALVES
# SERIES MVSC



The popular valve series, which replaces valves series L and J. The basic usable features are kept and brings some improvements such as lower wattage, comparable or bigger flow capacity and better accessibility. Valves are solenoid pilot actuated. The product range covers functions 5/2 single or double solenoid and 5/3 with centre closed and exhaust position and position with pressure centre. Connector and coil are included in delivery.

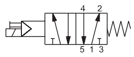
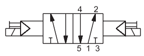
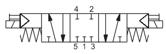
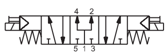
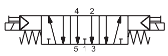
This valve series contains rubber gaskets.

| Series | MVSC 220 | MVSC 300 | MVSC 460 |
|---|---|---|---|
| Ports | G1/4“ (G1/8“ for exhaust port 3 and 5) | G3/8“ | G1/2“ |
| Flow capacity [Nl/min] | 980, or 860 for function 5/3 | 1905, or 1355 for function 5/3 | 2730, or 1630 for function 5/3 |
| Working pressure [MPa] | 0.2 to 0.8, or 0.3 to 0.8 for function 5/3 | | |
| Power input [W, VA] | 2W for DC voltage, 6/4.9VA for AC voltage (inrush/hold) | | |
| Response time [ms] | 30, or 40 for function 5/3 | 50 | 50 |
| Coil voltage tolerance | ±10% | | |
| Temperature range [°C] | ambient temperature -5 to +50 | | |
| Enclosure | IP65 with sealed and fastened connector | | |

## Order codes

PMVSC 220 4E2C A220

| Size | |
|---|---|
| 220 | series MVSC 220, thread G1/4“ |
| 300 | series MVSC 300, thread G3/8“ |
| 460 | series MVSC 460, thread G1/2“ |

| Function | | |
|---|---|---|
| 4E1 |  | 5/2 monostable (with 1 coil) |
| 4E2 |  | 5/2 bistable (with 2 coils) |
| 4E2C |  | 5/3 with closed centre position |
| 4E2C |  | 5/3 with pressure centre position |
| 4E2C |  | 5/3 with exhaust centre position |

| Voltage | |
|---|---|
| D12 | 12 V DC ± 10% |
| D24 | 24 V DC ± 10% |
| A24 | 24 V AC ± 10%, 50-60 Hz |
| A110 | 110 V AC ± 10%, 50-60 Hz |
| A220 | 230 V AC ± 10%, 50-60 Hz |

Supply contains connector(s).

## Order codes of manifolds

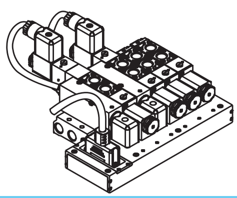
PMVSC 220 - 5B 4

| Size | |
|---|---|
| 220 | series MVSC and MVAA 220, thread G1/4“ |
| 300 | series MVSC 300, thread G3/8“ |
| 460 | series MVSC and MVAA 460, thread G1/2“ |

| Number of positions | |
|---|---|
| 2 to 10 | for 2 to 10 valves |

It is possible to mount series MVSC and MVAA valves on manifold with predefined number of position. It isn‘t possible to add another position to created assembly - it could be necessary to replace manifold or create another manifold. If there is possibility that more valves will be needed in future, we recommend to use manifold with more positions and use blocking plates for unused positions. Valves are mounted to manifold directly - no adaptor is necessary. Valves mounted on manifold could be unmounted separately by unscrew of 2 bolts, which are accessible from top side (side with ports 2 and 4 of valves). Each separate coil must be wired with separate electrical cable.

Manifolds with internal wiring and common 25-pin SUB-D connector are also available. These manifolds are for valves series 220, 300 and 460. Number of stations is 2 to 12 as standard, maximum is 20. Voltage of coils is 24V DC. For more information about these manifolds, please contact our technical department.

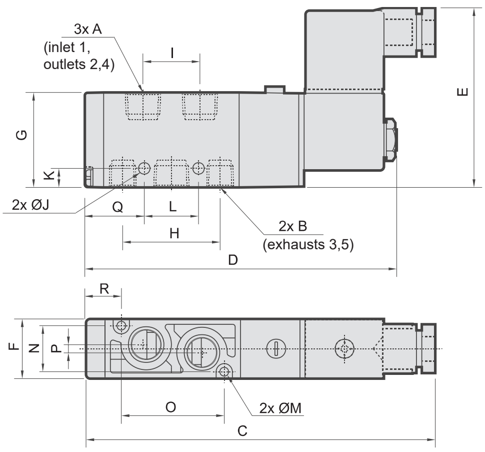


Order codes for blank station plates:

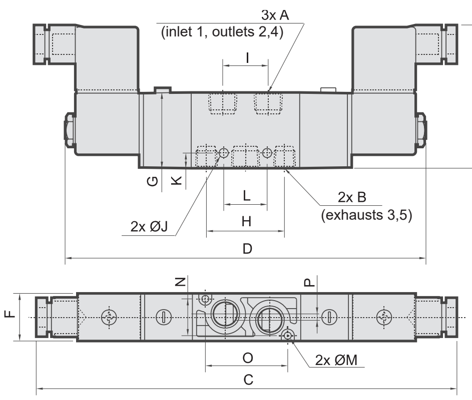
| Series | Order codes |
|---|---|
| 220 | PMVSC 220 -5P |
| 300 | PMVSC 300 -5P |
| 460 | PMVSC 460 -5P |

## Dimensions of valve series MVSC

Type 5/2 with single solenoid:



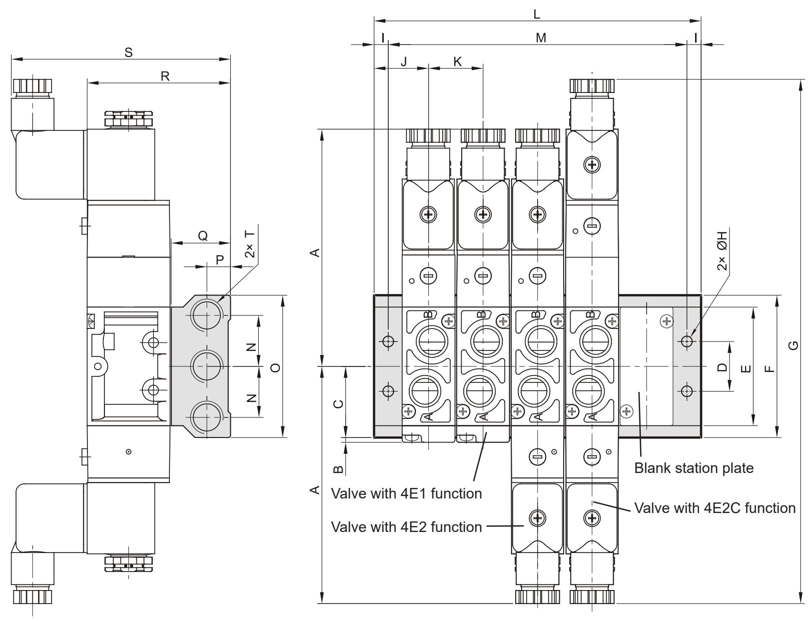

Type 5/2 and 5/3 with double solenoid:




| Series | Function | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 220 | 4E1 | G1/4“ | G1/8“ | 132 | 118.5 | 67 | 22.3 | 35 | 36 | 21 | 4.2 | 7 | 20 | 3.2 | 17 | 38 | 3 | 22 | 13 | 0.20 |
| | 4E2 | G1/4“ | G1/8“ | 200 | 173 | 67 | 22.3 | 35 | 36 | 21 | 4.2 | 7 | 20 | 3.2 | 17 | 38 | 3 | — | — | 0.29 |
| | 4E2C/P/R | G1/4“ | G1/8“ | 221 | 194 | 67 | 22.3 | 35 | 36 | 21 | 4.2 | 7 | 20 | 3.2 | 17 | 38 | 3 | — | — | 0.34 |
| 300 | 4E1 | G3/8“ | G3/8“ | 159 | 145.5 | 73 | 30 | 46.4 | 52 | 30 | 5.5 | 4.7 | 26 | 4.5 | 23 | 13 | 0 | 32 | 38.5 | 0.29 |
| | 4E2 | G3/8“ | G3/8“ | 228 | 201 | 73 | 30 | 46.4 | 52 | 30 | 5.5 | 4.7 | 26 | 4.5 | 23 | 13 | 0 | — | — | 0.39 |
| | 4E2C/P/R | G3/8“ | G3/8“ | 247.5 | 220.5 | 73 | 30 | 46.4 | 52 | 30 | 5.5 | 4.7 | 26 | 4.5 | 23 | 13 | 0 | — | — | 0.53 |
| 460 | 4E1 | G1/2“ | G1/2“ | 170 | 157 | 73 | 30 | 46.4 | 58 | 28 | 4.5 | 7 | 29 | 4.2 | 23 | 72 | 4.5 | 36.5 | 15 | 0.33 |
| | 4E2 | G1/2“ | G1/2“ | 238 | 212 | 73 | 30 | 46.4 | 58 | 28 | 4.5 | 7 | 29 | 4.2 | 23 | 72 | 4.5 | — | — | 0.45 |
| | 4E2C/P/R | G1/2“ | G1/2“ | 257.5 | 231.5 | 73 | 30 | 46.4 | 58 | 28 | 4.5 | 7 | 29 | 4.2 | 23 | 72 | 4.5 | — | — | 0.55 |

## Dimensions of manifold assemblies of valves series MVSC a MVAA

| Series | Value | Number of positions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 220 | L | 69 | 92 | 115 | 138 | 161 | 184 | 207 | 230 | 253 |
| | M | 57 | 80 | 103 | 126 | 149 | 172 | 195 | 218 | 241 |
| | Weight[kg] | 0.20 | 0.26 | 0.32 | 0.38 | 0.46 | 0.52 | 0.60 | 0.62 | 0.68 |
| 300 | L | 81 | 112 | 143 | 174 | 205 | 236 | 267 | 298 | 329 |
| | M | 71 | 102 | 133 | 164 | 195 | 226 | 257 | 288 | 319 |
| | Weight [kg] | 0.25 | 0.35 | 0.44 | 0.54 | 0.64 | 0.74 | 0.83 | 0.84 | 0.92 |
| 460 | L | 81 | 112 | 143 | 174 | 205 | 236 | 267 | 298 | 329 |
| | M | 71 | 102 | 133 | 164 | 195 | 226 | 257 | 288 | 319 |
| | Weight [kg] | 0.39 | 0.53 | 0.68 | 0.82 | 0.97 | 1.11 | 1.26 | 1.40 | 1.55 |




## Spare coils for series 220/300/460

| Order codes | Voltage | Power input |
|---|---|---|
| PMVSC220-COD12 | 12V DC | 3.1 W |
| PMVSC220-COD24 | 24V DC | 2.5 W |
| PMVSC220-COA24 | 24V 50-60 Hz | 5.8 VA |
| PMVSC220-COA110 | 110V 50-60 Hz | 4.9 VA |
| PMVSC220-COA220 | 230V 50-60 Hz | 5.0 VA |

| Series | A | B | C | D | E | F | G | H | I | J | K | N | O | P | Q | R | S | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 220 | 100 | 2 | 30 | 21 | 50 | 60 | 221 | 4.5 | 6 | 23 | 23 | 21.5 | 60 | 10 | 25 | 60.5 | 92.5 | G1/4“ |
| 300 | 114 | 3 | 42 | 30 | 74 | 84 | 281.4 | 4.5 | 5 | 25 | 31 | 30.5 | 84 | 12 | 27 | 73.9 | 100.2 | G3/8“ |
| 460 | 119 | 3 | 48 | 30 | 86 | 96 | 291.4 | 4.5 | 5 | 25 | 31 | 29 | 96 | 13 | 30 | 76.9 | 103 | G1/2“ |

This valve series that complement favorite MVSC series with their parameters, over which they can handle up to 1.2 MPa. Other parameters, such as power consumption and flow, are the same or similar. The MVSE series is indirectly controlled. All 5/2 with one or two coils and 5/3 with medium closed, ventilated and under pressure (5/3 not available for MVSE-500) are available. The valves can be used directly or can be mounted on a manifold.

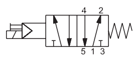
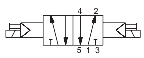
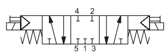
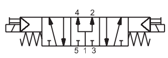
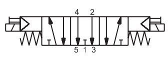
This valve series contains rubber gaskets.

| Series | MVSE 260 | MVSE 300 | MVSE 500 |
|---|---|---|---|
| Ports | G1/4“ (G1/8“ for exhaust port 3 and 5) | G3/8“ | G1/2“ |
| Flow capacity [Nl/min] | 980, or 860 for function 5/3 | 1905 | 2180 |
| Working pressure [MPa] | 0.2 to 1.2 or 0.3 to 1.2 for function 5/3 | | |
| Power input [W, VA] | 2.0W for DC voltage, 6/4.9VA for AC voltage (inrush/hold) | | |
| Response time [ms] | 40, or 35 for function 5/3 | 50 | 50 |
| Coil voltage tolerance | ±10% | | |
| Temperature range [°C] | ambient temperature -5 to +50 | | |
| Enclosure | IP65 with sealed and fastened connector | | |

## Order codes

PMVSE 300 4E2C A220

| Size | |
|---|---|
| 260 | series MVSE 260, thread G1/4“ |
| 300 | series MVSE 300, thread G3/8“ |
| 500 | series MVSE 500, thread G1/2“ |

| Function | | |
|---|---|---|
| 4E1 |  | 5/2 monostable (with 1 coil) |
| 4E2 |  | 5/2 bistable (with 2 coils) |
| 4E2C* |  | 5/3 with closed centre position |
| 4E2C* |  | 5/3 with pressure centre position |
| 4E2C* |  | 5/3 with exhaust centre position |

*) Not for MVSE-500

| Voltage | |
|---|---|
| D24 | 24 V DC ± 10% |
| A24 | 24 V AC ± 10%, 50-60 Hz |
| A110 | 110 V AC ± 10%, 50-60 Hz |
| A220 | 230 V AC ± 10%, 50-60 Hz |

Supply contains connector(s).

## Order codes of manifolds

PMVSE 260 - 5B 4

| Size | |
|---|---|
| 260 | series MVSE 260, thread G1/4“ |
| 300 | series MVSE 300, thread G3/8“ |
| 500 | series MVSE 500, thread G1/2“ |

| Number of positions | |
|---|---|
| 2 to 10 | for 2 to 10 valves |

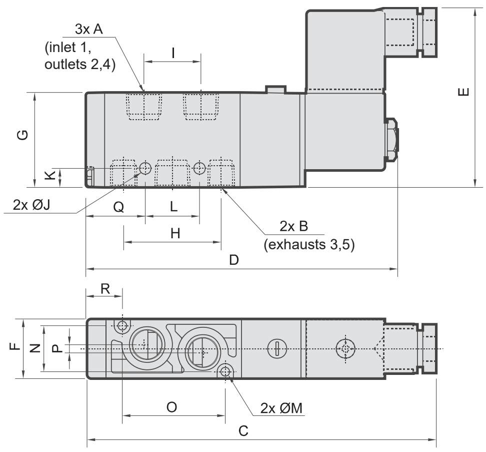
Order codes for blank station plates:

| Series | Order codes |
|---|---|
| 260 | PMVSE 260 -5P |
| 300 | PMVSE 300 -5P |
| 500 | PMVSE 500 -5P |

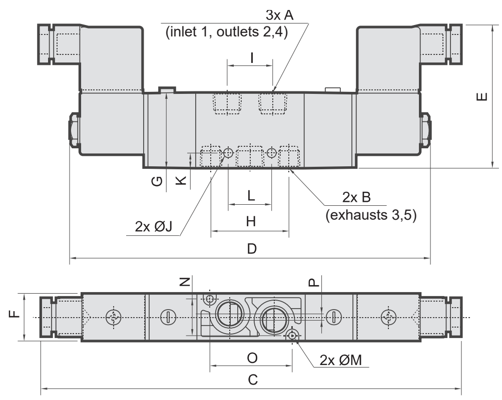
It is possible to mount series MVSE valves on manifold with predefined number of position. It isn‘t possible to add another position to created assembly - it could be necessary to replace manifold or create another manifold. If there is possibility that more valves will be needed in future, we recommend to use manifold with more positions and use blocking plates for unused positions. Valves are mounted to manifold directly - no adaptor is necessary. Valves mounted on manifold could be unmounted separately by unscrew of 2 bolts, which are accessible from top side (side with ports 2 and 4 of valves). Each separate coil must be wired with separate electrical cable.

## Dimensions of valve series MVSE

Type 5/2 with single solenoid:



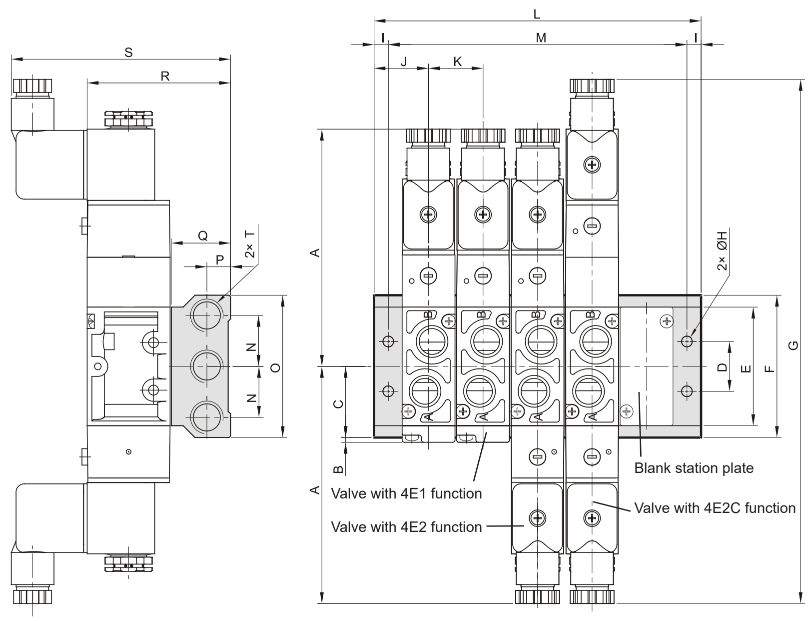

Type 5/2 and 5/3 with double solenoid:




| Series | Function | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 260 | 4E1 | G1/4“ | G1/8“ | 131.5 | 118 | 66 | 26.4 | 35.3 | 37 | 21 | 4.2 | 7 | 20 | 4.2 | 21 | 10 | 0 | 21.5 | 26.5 | 0.26 |
| | 4E2 | G1/4“ | G1/8“ | 200 | 173 | 66 | 26.4 | 35.3 | 37 | 21 | 4.2 | 7 | 20 | 4.2 | 21 | 10 | 0 | — | — | 0.35 |
| | 4E2C/P/R | G1/4“ | G1/8“ | 216 | 189 | 66 | 26.4 | 35.3 | 37 | 21 | 4.2 | 7 | 20 | 4.2 | 21 | 10 | 0 | — | — | 0.41 |
| 300 | 4E1 | G3/8“ | G3/8“ | 156.5 | 145.5 | 72 | 30 | 46.4 | 52 | 30 | 4.5 | 4.7 | 26 | 3.2 | 25 | 60 | 0 | 32 | 15 | 0.41 |
| | 4E2 | G3/8“ | G3/8“ | 223 | 201 | 72 | 30 | 46.4 | 52 | 30 | 4.5 | 4.7 | 26 | 3.2 | 25 | 60 | 0 | — | — | 0.51 |
| | 4E2C/P/R | G3/8“ | G3/8“ | 242.2 | 220 | 72 | 30 | 46.4 | 52 | 30 | 4.5 | 4.7 | 26 | 3.2 | 25 | 60 | 0 | — | — | 0.58 |
| 500 | 4E1 | G1/2“ | G1/2“ | 168.5 | 157.5 | 73 | 30 | 50 | 58 | 27 | 4.5 | 8.8 | 29 | 4.2 | 23 | 72 | 4.5 | 36.5 | 15 | 0.45 |
| | 4E2 | G1/2“ | G1/2“ | 235 | 213 | 73 | 30 | 50 | 58 | 27 | 4.5 | 8.8 | 29 | 4.2 | 23 | 72 | 4.5 | — | — | 0.55 |

## Dimensions of manifold assemblies of valves series MVSE

| Series | Value | Number of positions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 260 | L | 74 | 101 | 128 | 155 | 182 | 209 | 236 | 263 | 290 |
| | M | 64 | 91 | 118 | 145 | 172 | 199 | 226 | 253 | 280 |
| | Weight[kg] | 0.22 | 0.30 | 0.39 | 0.47 | 0.55 | 0.63 | 0.72 | 0.80 | 0.88 |
| 300 | L | 81 | 112 | 143 | 174 | 205 | 236 | 267 | 298 | 329 |
| | M | 71 | 102 | 133 | 164 | 195 | 226 | 257 | 288 | 319 |
| | Weight [kg] | 0.24 | 0.33 | 0.42 | 0.51 | 0.60 | 0.68 | 0.76 | 0.84 | 0.93 |
| 500 | L | 81 | 112 | 143 | 174 | 205 | 236 | 267 | 298 | 329 |
| | M | 71 | 102 | 133 | 164 | 195 | 226 | 257 | 288 | 319 |
| | Weight [kg] | | | | | | | | | |

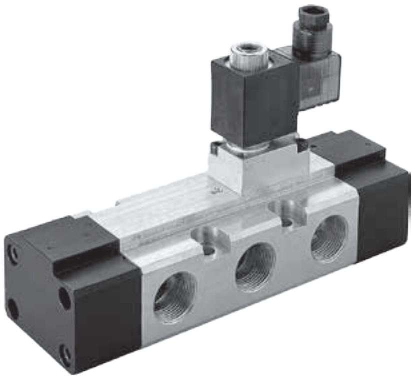



## Spare coils for series 260/300/500

| Order codes | Voltage | Power input |
|---|---|---|
| PMVSE260-COD24 | 24V DC | 2.0 W |
| PMVSE260-COA24 | 24V 50-60 Hz | 5.4 VA |
| PMVSE260-COA110 | 110V 50-60 Hz | 4,4 VA |
| PMVSE260-COA220 | 230V 50-60 Hz | 4.9 VA |

| Series | A | B | C | D | E | F | G | H | I | J | K | N | O | P | Q | R | S | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 260 | 100 | 1.5 | 30 | 21 | 50 | 60 | 216 | 4.5 | 5 | 23.5 | 27 | 21.5 | 60 | 10 | 25 | 60.3 | 90.7 | G1/4“ |
| 300 | 111.5 | 3 | 42 | 30 | 74 | 84 | 242.2 | 4.5 | 5 | 25 | 31 | 30.5 | 84 | 12 | 27 | 73.9 | 98.7 | G3/8“ |
| 500 | 117.5 | 3 | 48 | 30 | 86 | 96 | — | 4.5 | 5 | 25 | 31 | 30 | 96 | 13 | 30 | 80 | 103 | G1/2“ |

STRÁNSKÝ A PETRŽÍK



The new valve series, which continues with parameters the series MVSC. They are suitable for large diameter cylinders actuating. Valves series MVSE are solenoid pilot actuated. The product range covers functions 5/2 single or double solenoid. Connector and coil are included in delivery.

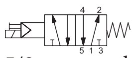
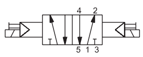
This valve series contains rubber gaskets.

| Series | MVSE 510 | MVSE 600 | MVSE 600 |
|---|---|---|---|
| Ports | G1/2“ | G3/4“ | G1“ |
| Flow capacity [Nl/min] | 3400 | 4600 | 4800 |
| Working pressure [MPa] | 0.2 to 0.7 | | |
| Power input [W, VA] | 10W for DC voltage, 13/11VA for AC voltage (inrush/hold) | | |
| Response time [ms] | 60 | 80 | 80 |
| Coil voltage tolerance | ±10% | | |
| Temperature range [°C] | ambient temperature -5 to +50 | | |
| Enclosure | IP65 with sealed and fastened connector | | |

## Order codes

PMVSE 600 42 20 D24

| Size | |
|---|---|
| 510 | series MVSE 510 |
| 600 | series MVSE 600 |

| Function | |
|---|---|
| 41 |  5/2 monostable (with 1 coil) |
| 42 |  5/2 bistable (with 2 coils) |

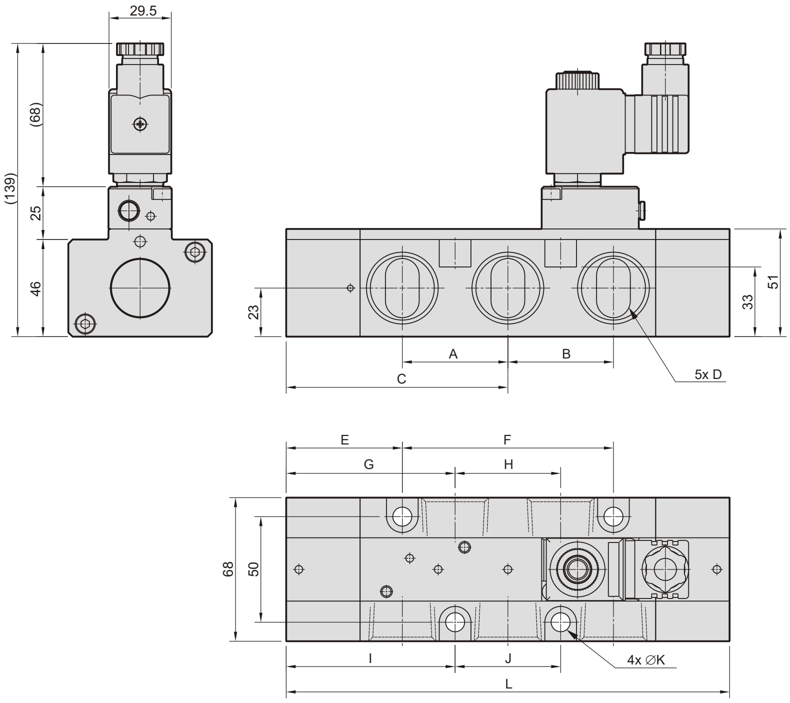
| Thread | |
|---|---|
| 15 | G1/2“ for series 510 |
| 20 | G3/4“ for series 600 |
| 25 | G1“ for series 600 |

| Voltage | |
|---|---|
| D24 | 24 V DC ± 10% |
| A110 | 110 V AC ± 10%, 50-60 Hz |
| A220 | 230 V AC ± 10%, 50-60 Hz |

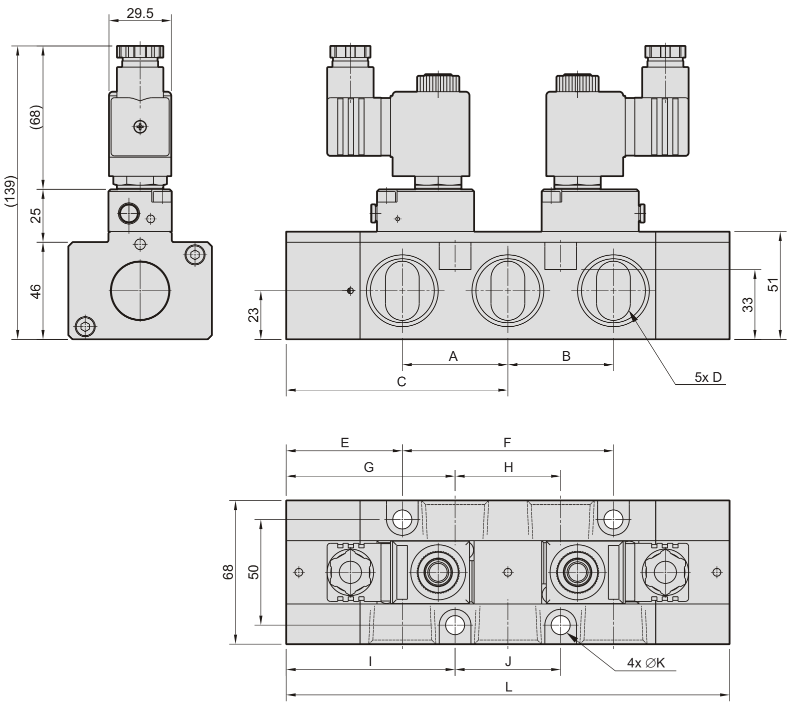
Supply contains connector(s).

## Dimensions of valve series MVSE

Type 5/2 with single solenoid:




Type 5/2 with double solenoid:




| Series | Function | A | B | C | D | E | F | G | H | I | J | K | L | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 510 | 41 | 32 | 32 | 77.5 | G1/2“ | 45.5 | 64 | 61.5 | 32 | 61.5 | 32 | 9 | 155 | 1.52 |
| | 42 | 32 | 32 | 77.5 | G1/2“ | 45.5 | 64 | 61.5 | 32 | 61.5 | 32 | 9 | 155 | 1.81 |
| 600 | 41 | 50 | 50 | 105 | G3/4“ or G1“ | 55 | 100 | 80 | 50 | 80 | 50 | 9 | 210 | 1.82 |
| | 42 | 50 | 50 | 105 | G3/4“ or G1“ | 55 | 100 | 80 | 50 | 80 | 50 | 9 | 210 | 2.10 |

## Spare coils for series 510/600

| Order codes | Voltage |
|---|---|
| PMVSE510-COD24 | 24V DC |
| PMVSE510-COA110 | 110V 50-60 Hz |
| PMVSE510-COA220 | 230V 50-60 Hz |

Valve series with connection according to NAMUR (VDI / VDE 3845) The MVSN series is indirectly controlled. All 5/2 with one or two coils and 5/3 with medium closed, ventilated and under pressure are available. Version 3/2 can be made using an adapter that is ordered separately. Using the connection plate, the valve can be mounted directly on the cylinder inlet. A connector is also included.

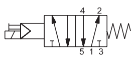
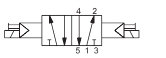
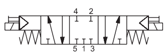
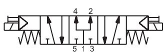
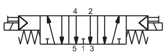
This valve series contains rubber gaskets.

| Series | MVSN 300 |
|---|---|
| Ports | G1/4“ (NAMUR for outlet 2 and 4) |
| Flow capacity [Nl/min] | 1905, or 1630 for function 5/3 |
| Working pressure [MPa] | 0.2 to 0.8 or 0.3 to 0.8 for function 5/3 |
| Power input [W, VA] | 2W for DC voltage, 6/4.9VA (230V) or 4.8/4.4 (24V) for AC voltage (inrush/hold) |
| Response time [ms] | 50 |
| Coil voltage tolerance | ±10% |
| Temperature range [°C] | ambient temperature -5 to +50 |
| Enclosure | IP65 with sealed and fastened connector |
| Weight [kg] | 0.42 for 5/2 1 coil, 0.51 for 5/2 2 coils, 0.76 for 5/3 |

## Order codes

PMVSN 300 4E2C A220

| Size | |
|---|---|
| 300 | series MVSN 300, thread G1/4“ and NAMUR |

| Function | | |
|---|---|---|
| 4E1 |  | 5/2 monostable (with 1 coil) |
| 4E2 |  | 5/2 bistable (with 2 coils) |
| 4E2C |  | 5/3 with closed centre position |
| 4E2C |  | 5/3 with pressure centre position |
| 4E2C |  | 5/3 with exhaust centre position |

| Voltage | |
|---|---|
| D24 | 24 V DC ± 10% |
| A220 | 230 V AC ± 10%, 50-60 Hz |
| A24 | 24 V AC ± 10%, 50-60 Hz |

i Supply contains connector(s).

## Accessories

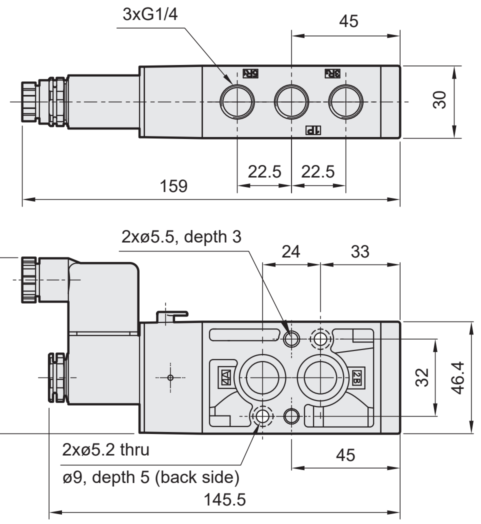
| Description | Order codes |
|---|---|
| Adapter for making of 3/2 function (from 4E1) | PMVSN 300 -A |
| Connection plate for mounting the valve on cylinder inlet | PMVSN 300 -C |

## Spare coils

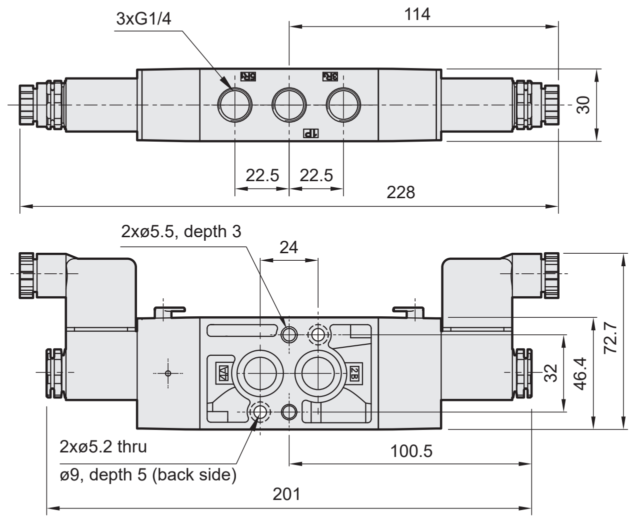
| Order codes | Voltage | Power input |
|---|---|---|
| PMVSE260-COD24 | 24V DC | 2,0 W |
| PMVSE260-COA24 | 24V 50-60 Hz | 5,4 VA |
| PMVSE260-COA220 | 230V 50-60 Hz | 4,9 VA |

## Dimensions of valve series MVSN

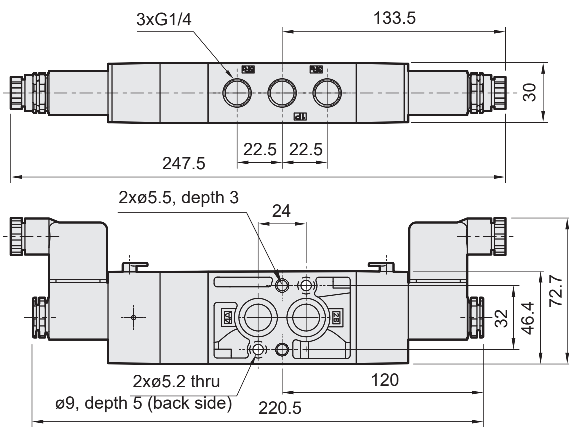
Type 5/2 with one coil:



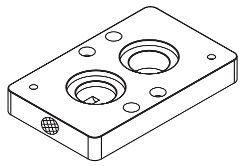

Type 5/2 with two coils:



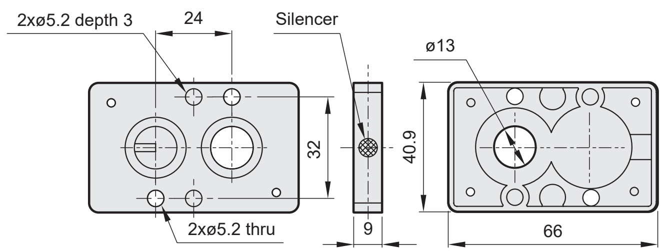

Type 5/3:



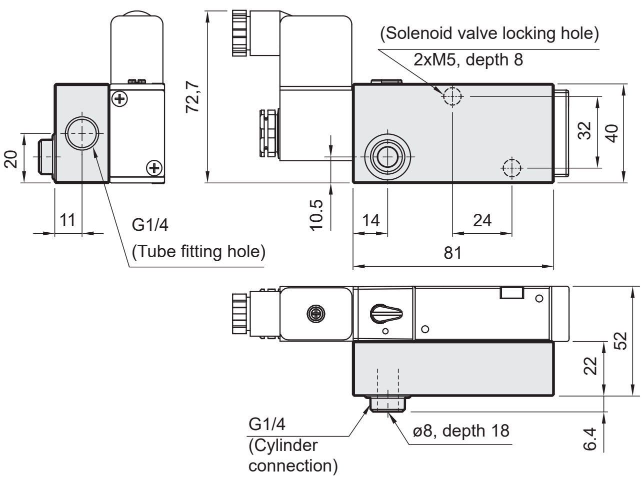

Adapter for making of 3/2 function - PMVSN 300 -A:

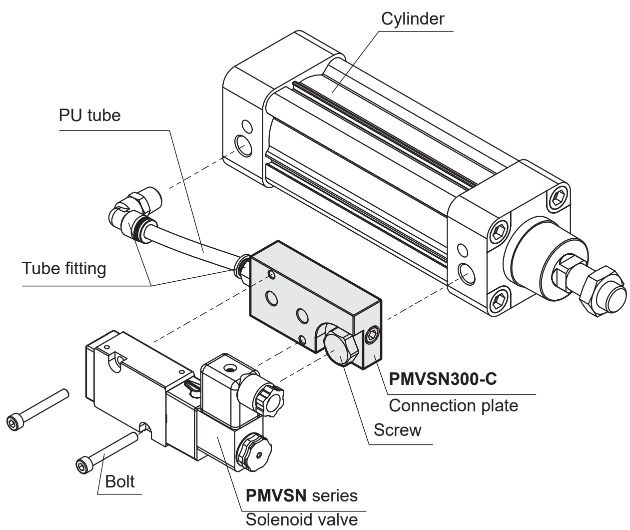


Using this adapter on valve 5/2 with one coil (function 4E1) changes the valve to 3/2 function with NAMUR connection. Adapter can be positioned with silencer toward to the coil, then the function is normally opened, if the silencer will be oposite to the coil, function will be normally closed.




Connection plate for mounting the valve on cylinder inlet PMVSN 300 -C:



Our new soleniod actuated valve series KI is based on the classic ISO series, but has higher flow rate and is also highly economical, compared to the ISO 5599/1 Compact series. Air pilot is used for valve actuating, so it is an indirectly actuated valve. The valves are mounted on base plates standardized according to ISO. The coils and pilot valves are co-mmon with the K series. Coil can be rotated to best suit the application. Valves can be used on the base plate individually or mounted as a group assembly.

Valves of the KI ISO 5599/1 Compact series contain a spool ans slide assembly, which guarantees a long service life of the valve.

| Series | KI ISO 1 Compact | KI ISO 2 Compact |
|---|---|---|
| Flow capacity [Nl/min] | 1200 | 2800 |
| Working pressure [MPa] | 0.15 to 1.0 (vacuum up to 2.1 MPa when external air pilot supply is used) | |
| Pilot pressure range [MPa] | 0.15 to 1.0 | |
| Power input [W, VA] (standard coils) | 3W for DC voltage, 7.5VA inrush and 5VA hold for AC voltage | |
| Response time energize / de-energize [ms] | 20 / 35 | |
| Temperature range [°C] | medium temperature max. 50, ambient temperature -20 to +50 | |
| Enclosure (standard coils) | IP65 with sealed and fastened connector | |

## Order codes

25 528090 52 60 6 000

| Function | |
|---|---|
| 52 80 90 |  |
| 52 80 80 |  |
| 53 80 80 |  |

| Size | |
|---|---|
| 51 | series ISO 1 Compact (only for series K5) |
| 52 | series ISO 2 Compact (only for series K6) |

| Voltage | |
|---|---|
| 30 | 24 V DC ± 10% |
| 40 | 24 V AC ± 10% 50-60 Hz |
| 50 | 110 V AC ± 10% 50-60 Hz |
| 60 | 230 V AC ± 10% 50-60 Hz |
| 31 | 24 V DC ± 10% ATEX II 2G(D) |

| Series | |
|---|---|
| 5 | K5 (only for size ISO 1) |
| 6 | K6 (only for size ISO 2) |

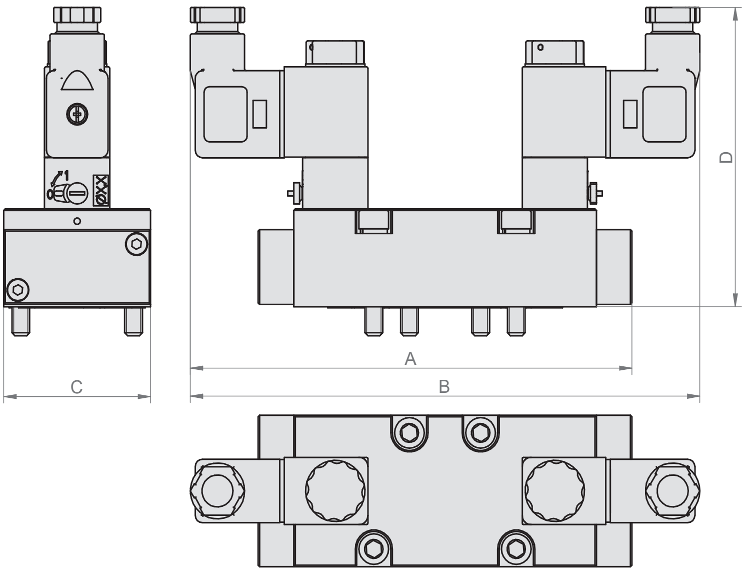
## Construction / materials

- body: aluminium alloy
- spool and sleeve assembly: hardened stainless steel
- main valve sealing: NBR
- pilot valve sealing: Viton®

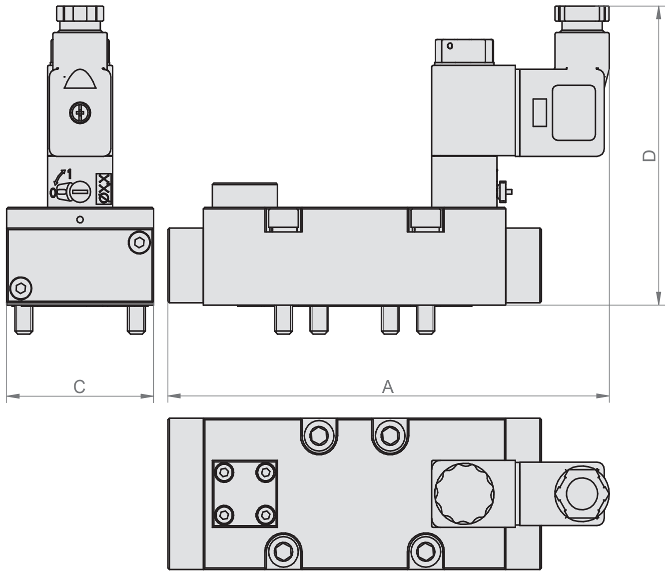
Supply contains connector(s).

## Dimensions

Type 5/2 and 5/3 with double soleniod:




Type 5/2 with a single soleniod:




| Series | Function | A | B | C | D | Weight [kg] |
|---|---|---|---|---|---|---|
| KI ISO 1 Compact | 528090 | 136 | — | 42 | 95 | 0,42 |
| | 528080<br>538080 | 136 | 164 | 42 | 95 | 0,50 |
| KI ISO 2 Compact | 528090 | 149 | — | 49,5 | 98 | 0,60 |
| | 528080<br>538080 | 149 | 172 | 49,5 | 98 | 0,68 |

## Pilot valve for valve series K

| Order code | Part | Working pressure [MPa] | Weight [kg] |
|---|---|---|---|
| 2532 8090 0000 0004 | Pilot | 0 to 1 | 0.027 |
| N230-363 | Connector type 22 | — | 0.024 |
| N540270 | Nut | — | 0.002 |

## Coils for valve series K

### Standard coils type 22

| Order code | Voltage | Coil type | Weight [kg] |
|---|---|---|---|
| 2500 8181 0030 0013 | 24V DC | DIN 43650B | 0.06 |
| 2500 8181 0040 0010 | 24V 50-60 Hz | DIN 43650B | 0.06 |
| 2500 8181 0060 0009 | 230V 50-60 Hz | DIN 43650B | 0.06 |
| PMVSC220-COA110 | 110V 50-60 Hz | DIN 43650B | 0.06 |

Notice: The connector is fastened with a M3 screw with a maximum torque of 0.4 to 0.6 Nm

### Coil type 22 with ATEX Ⓔx certification

| Order code | Voltage | Cable length [m] | Weight [kg] |
|---|---|---|---|
| 2500 8181 0030 0014 | 24V DC | 5 | 0.46 |

Ⓔx II 2G Ex mb IIC T5 Gb
Ⓔx II 2D Ex tb IIIC T95°C Db IP66

U=24V DC ±10%
I=125 mA
P=3W
Ta=-20°C to +50°C

Series Compact is appear from classic ISO valves, but they are cheaper and off er higher flow capacity. Air pilot is used for valve actuating, so it is indirect actuated valve. Valves must be mounted on sub-bases with dimensions according to ISO standard. Coil can be turned so that it will serve the purpose. Valves can be use as standalone with individual base or they can be mounted on manifolds.

Valves series ISO 5599/1 Compact contain spool and sleeve assembly, which guarantees a long lifetime of the valve.

| Series | ISO 1 Compact | ISO 2 Compact | ISO 3 Compact |
|---|---|---|---|
| Flow capacity [Nl/min] | 1400 | 2800 | 4200 |
| Working pressure [MPa] | 0.1 to 1.0 , or 0.1 to 1.6 (for pilot type 190)<br>(vacuum to 1.6 MPa when external air pilot supply type 190 is used) | | |
| Pilot pressure range [MPa] | 0.1 to 1.0 , or 0.1 to 1.6 (for pilot type 190) | | |
| Power input for pilot type 189 [W, VA] | 2.5W for DC voltage, 6VA inrush and 3.5VA hold for AC voltage | | |
| Power input for pilot type 190 [W, VA] | 3W for DC voltage, 9VA inrush and 4VA hold for AC voltage | | |
| Response time energize / de-energize [ms] | 15 / 35 | 20 / 35 | 20 / 90 |
| Temperature range [°C] | ambient temperature -10 to +60 | | |

## Order codes

NC23 BA4 00 18910 61

| Size | |
|---|---|
| NC12 | series ISO 1 Compact |
| NC23 | series ISO 2 Compact |
| NC34 | series ISO 3 Compact |

| Function | |
|---|---|
| BA4 |  |
| BB4 |  |
| BB5 |  |
| BB6 |  |
| BB7* |  |

*) Not for series ISO 2 Compact

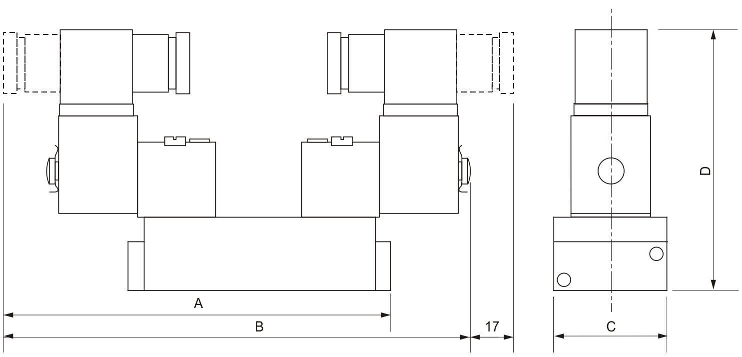
| Pilot valve type | |
|---|---|
| 18910 | standard, type 189, with locking manual override, 0.1 to 1.0 MPa, connector type 22 |
| 19016 | type 190, with locking manual override, 0.1 to 1.6 MPa, connector DIN 43650, form A type 30 |

| Voltage | |
|---|---|
| 60 | 12 V DC ± 10% |
| 61 | 24 V DC ± 10% |
| 40 | 230 V AC ± 10% 50 Hz |
| 30 | 110 V AC ± 10% 50 Hz |
| 20 | 24 V AC ± 10% 50 Hz |

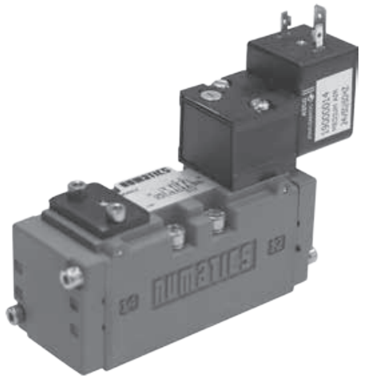
For connectors for valves see page 5-36.

For spare coils and pilots see page 5-21.

## Dimensions




| Series | Function | A | B | C | D | Weight [kg] |
|---|---|---|---|---|---|---|
| ISO 1 Compact | BA | 136 | — | 42 | 102 | 0.50 |
| | BB | — | 168 | 42 | 102 | 0.60 |
| ISO 2 Compact | BA | 149 | — | 50.8 | 104.6 | 0.70 |
| | BB | — | 169 | 50.8 | 104.6 | 0.80 |
| ISO 3 Compact | BA | 179 | — | 63.5 | 114 | 1.10 |
| | BB | — | 196.7 | 63.5 | 114 | 1.26 |



The most common type of air pilot solenoid actuated valve, which is designed for use with sub-bases. Coil of air pilot actuated valve can be turned so that it will serve the purpose. Valves can be use as standalone with individual base or they can be mounted on manifolds.

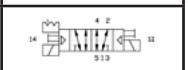
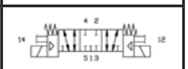
Valves series ISO 5599/1 contains spool and sleeve assembly, which guarantee long lifetime of valve.

| Series | ISO 1 | ISO 2 | ISO 3 |
|---|---|---|---|
| Flow capacity [Nl/min] | 1400 | 2800 | 4200 |
| Working pressure [MPa] | 0.1 to 1.0 , or 0.1 to 1.6 (for pilot type 190)<br>(vacuum to 1.6 MPa when external air pilot supply type 190 is used) | | |
| Pilot pressure range [MPa] | 0.1 to 1.0 , or 0.1 to 1.6 (for pilot type 190) | | |
| Power input for pilot type 189 [W, VA] | 2.5W for DC voltage, 6VA inrush and 3.5VA hold for AC voltage | | |
| Power input for pilot type 190 [W, VA] | 3W for DC voltage, 9VA inrush and 4VA hold for AC voltage | | |
| Response time energize / de-energize [ms] | 15 / 35 | 20 / 35 | 20 / 90 |
| Temperature range [°C] | ambient temperature -10 to +60 | | |

## Order codes

NI23 BA4 00 18910 61

| Size | |
|---|---|
| NI12 | series ISO 1 |
| NI23 | series ISO 2 |
| NI34 | series ISO 3 |

| Function | |
|---|---|
| BA4 |  |
| BB4 |  |
| BB5 |  |
| BB6 |  |
| BB7* |  |

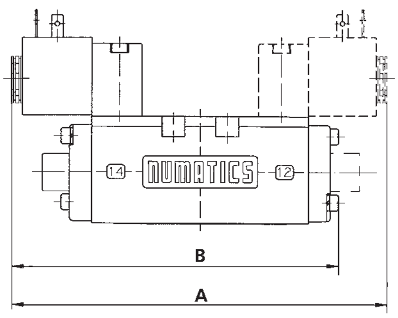
*) Not for series ISO 2

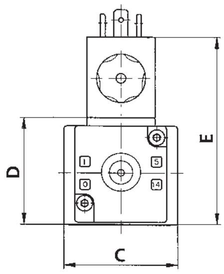
| Pilot valve type | |
|---|---|
| 18910 | standard, type 189, with locking manual override, 0.1 to 1.0 MPa, connector type 22 |
| 19016 | type 190, with locking manual override, 0.1 to 1.6 MPa, connector DIN 43650, form A type 30 |

| Voltage | |
|---|---|
| 60 | 12 V DC ± 10% |
| 61 | 24 V DC ± 10% |
| 40 | 230 V AC ± 10%<br>50 Hz |
| 30 | 110 V AC ± 10%<br>50 Hz |
| 20 | 24 V AC ± 10%<br>50 Hz |

For connectors for valves see page 5-36.

## Dimensions




| Series | Function | A | B | C | D | E | Weight [kg] |
|---|---|---|---|---|---|---|---|
| ISO 1 | BA/BW | — | 143 | 42 | 48 | 83 | 0.70 |
| ISO 1 | BB | 172 | — | 42 | 48 | 83 | 0.80 |
| ISO 2 | BA/BW | — | 155 | 50 | 48 | 83 | 0.80 |
| ISO 2 | BB | 183 | — | 50 | 48 | 83 | 1.00 |
| ISO 3 | BA/BW | — | 180 | 63.5 | 60.5 | 97 | 1.60 |
| ISO 3 | BB | 197 | — | 63.5 | 60.5 | 97 | 1.70 |

## Coils for valve series ISO 5599/1 Compact and ISO 5599/1

### Coils for pilot valves type 189, for connector type 22

| Order codes | Voltage |
|---|---|
| N43004149 | 12V DC ± 10% |
| N43004166 | 24V DC ± 10% |
| N43004167 | 48V DC ± 10% |
| N43004168 | 110V DC ± 10% |
| N43004416 | 24V 50-60Hz ± 10% |
| N43004417 | 48V 50-60Hz ± 10% |
| N43004419 | 115V 50-60Hz ± 10% |
| N43004422 | 230V 50-60Hz ± 10% |
| N43004423 | 240V 50-60Hz ± 10% |

### Coils for pilot valves type 190, for connector DIN 43650, form A, type 30

| Order codes | Voltage |
|---|---|
| N43004469 | 12V DC ± 10%<br>24V 50Hz ± 10% |
| N43004473 | 24V DC ± 10%<br>48V 50Hz ± 10% |
| N43004471 | 48V DC ± 10%<br>115V 50Hz ± 10% |
| N43004472 | 110V DC ± 10%<br>230V 50Hz ± 10% |

## Pilot valves for valve series ISO 5599/1 Compact and ISO 5599/1

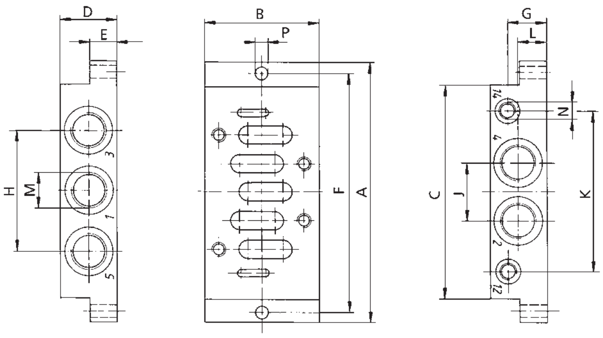
### Pilot valve type 189

| Order code | Working pressure [MPa] |
|---|---|
| N18990001 | 0.1 to 1.0 |

### Pilot valve type 190

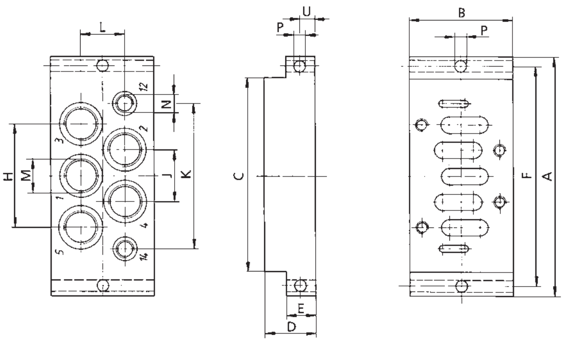
| Order code | Working pressure [MPa] |
|---|---|
| N19069019 | 0.1 to 1.6 |

## Individual base VDMA 24345, form A, with side ports



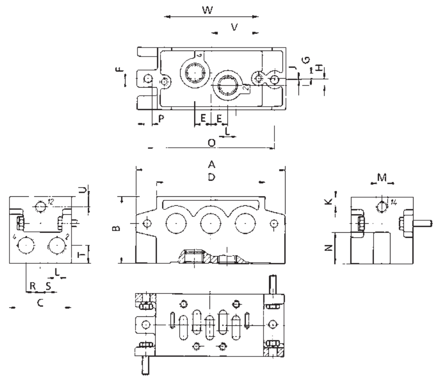
| Order codes | Size | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N103-544 | ISO 1 | 110 | 48 | 84 | 36 | 10 | 98 | 26 | 50 | 26 | 60 | 13.5 | G1/4“ | G1/8“ | 5.5 | 0.20 |
| N103-549 | ISO 2 | 124 | 57 | 95 | 41 | 13 | 112 | 30 | 56 | 30 | 74 | 15 | G3/8“ | G1/8“ | 6.6 | 0.30 |
| N103-545 | ISO 3 | 149 | 71 | 119 | 32 | 18 | 136 | 22 | 68 | 32 | 90 | 17 | G1/2“ | G1/8“ | 6.6 | 0.40 |

## Individual base VDMA 24345, form B, with bottom ports



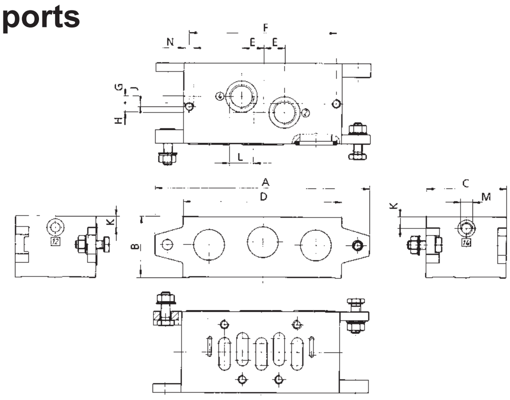
| Order codes | Size | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N103-542 | ISO 1 | 110 | 46 | 84 | 16 | 10 | 98 | 5 | 40 | 20 | 57 | 17.6 | G1/4“ | G1/8“ | 5.5 | 0.19 |
| N103-557 | ISO 2 | 124 | 56 | 95 | 35 | 10 | 112 | 6.5 | 58 | 29 | 75 | 26 | G3/8“ | G1/8“ | 5.5 | 0.32 |

## Manifold block with side and bottom ports



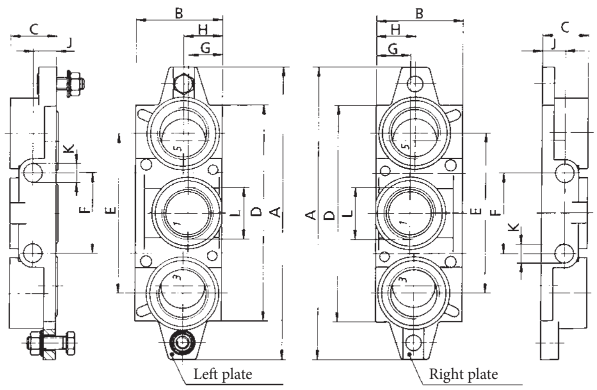
| Order codes | Size | A | B | C | D | E | F | G | H | J | K | L | M | N | O | P | R | S | T | U | V | W | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N239-241 | ISO 1 | 110 | 50 | 43 | 84 | 13 | 3 | 1.5 | 7.5 | 1.2 | 10 | G1/4“ | G1/8“ | 23 | 95 | 5.4 | 9.5 | 12 | 13 | 10 | 35.5 | 71 | 0.40 |
| N239-245 | ISO 2 | 135 | 60 | 56 | 98.5 | 15 | 3 | 5 | 6 | 1 | 9 | G3/8“ | G1/8“ | 28 | 115 | 6.6 | 13 | 15 | 16 | 9 | 43 | 86 | 0.60 |
| N239-249 | ISO 3 | 190 | 66 | 71 | 140 | 19 | 3 | 6 | 8 | 1.3 | 9.5 | G1/2“ | G1/8“ | 32 | 168 | 8.6 | 16.5 | 19 | 18 | 9.5 | 65 | 130 | 1.20 |

## Manifold block VDMA 24345, form C,with bottom ports



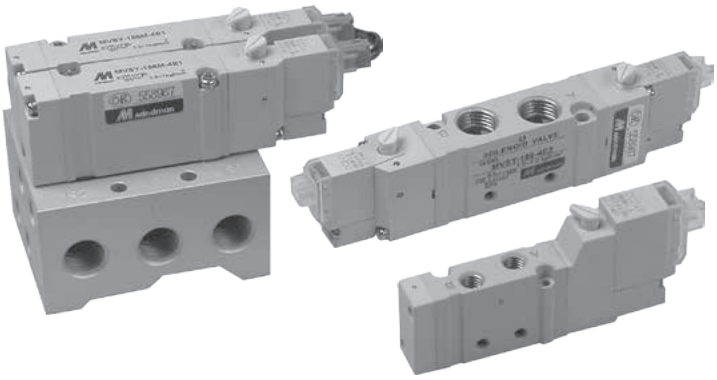
| Order codes | Size | A | B | C | D | E | F | G | H | J | K | L | M | N | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N239-239 | ISO 1 | 109 | 46 | 43 | 85 | 13 | 71 | 1.5 | 7.5 | 3 | 10 | G1/4“ | G1/8“ | M5 | 0.30 |
| N239-243 | ISO 2 | 135 | 47 | 56 | 98.5 | 15 | 86 | 5 | 5 | 3 | 9 | G3/8“ | G1/8“ | M6 | 0.40 |
| N239-247 | ISO 3 | 190 | 56 | 71 | 140 | 19 | 130 | 6 | 8 | 3 | 10 | G1/2“ | G1/8“ | M8 | 0.80 |

## End plate kit VDMA 24345, form D for manifold blocks




| Order codes | Size | A | B | C | D | E | F | G | H | J | K | L | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N239-257 | ISO 1 | 109 | 46 | 22 | 85 | 56 | 28 | 22 | 25 | 10.5 | 7 | G3/8“ | 0.30 |
| N239-255 | ISO 2 | 135 | 47 | 26 | 98.5 | 68 | 35 | 24 | 25 | 12.5 | 9 | G1/2“ | 0.40 |
| N239-259 | ISO 3 | 190 | 56 | 32 | 140 | 104 | 52 | 22 | 25 | 12.5 | 12 | G1“ | 0.70 |

STRÁNSKÝ A PETRŽÍK



The new valve series with small space requirements and with improved technical parameters (for example lower power consumption). Versions for direct usage (in-line) as well as manifold valves are available. Valves are solenoid pilot actuated. The product range covers functions 5/2 single or double solenoid and 5/3 with centre closed and exhaust position and position with pressure centre. Connector with 0.5m cable and coil are included in delivery.

This valve series contains rubber gaskets.

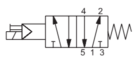
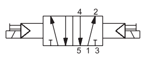
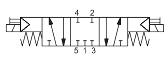
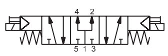
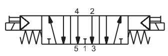
| Series | MVSY 100 | MVSY 156 | MVSY 188 |
|---|---|---|---|
| Ports | M5 | G1/8“ | G1/4“(G1/8“ for exhaust port 3 and 5) |
| Flow capacity [Nl/min] | 200 | 630 | 760 |
| Working pressure [MPa] | 0.2 to 0.7 | 0.15 to 0.7, or 0.2 to 0.7 for function 5/3 | |
| Power input [W, VA] | 1.2W for DC voltage, 2.5/1.6VA for AC voltage (inrush/hold), LED indicator | | |
| Response time [ms] | 12, or 15 for function 5/3 | 19, or 32 for function 5/3 | 23, or 50 for function 5/3 |
| Coil voltage tolerance | ±10% | | |
| Temperature range [°C] | ambient temperature -5 to +50 | | |
| Enclosure | IP40 | | |

## Order codes

PMVSY 156 42 D24

| Size | |
|---|---|
| 100 | series MVSY 100, thread M5** |
| 100M | series MVSY 100, without threads, for manifold * |
| 156 | series MVSY 156, thread G1/8“ |
| 156M | series MVSY 156, without threads, for manifold * |
| 188 | series MVSY 188, thread G1/4“ |
| 188M | series MVSY 188, without threads, for manifold * |

*) These valves are without threaded ports. Threaded ports are on the side of manifold - for details see below.
**) It is **not possible** to use the straight push-in fittings for a tube ∅6 with this valve.

| Function | | |
|---|---|---|
| 41 |  | 5/2 monostable (with 1 coil) |
| 42 |  | 5/2 bistable (with 2 coils) |
| 42C |  | 5/3 with closed centre position |
| 42P |  | 5/3 with pressure centre position |
| 42R |  | 5/3 with exhaust centre position |

| Voltage | |
|---|---|
| D6 | 6 V DC ± 10% |
| D12 | 12 V DC ± 10% |
| D24 | 24 V DC ± 10% |
| A220 | 230 V AC ± 10%, 50-60 Hz |

Connector with 0.5m cable is included in delivery. Available are also connectors with cable:
length 5m ... order code PMVSY-C5
length 10m ... order code PMVSY-C10.

## Order codes of manifolds

PMVSY 100 M-5M 4

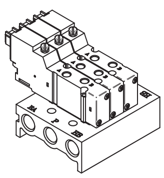
| Size | |
|---|---|
| 100 | series MVSY 100 |
| 156 | series MVSY 156 |
| 188 | series MVSY 188 |

| Type | |
|---|---|
| -5B | valve with threaded ports |
| M-5M | valve without threaded ports, manifolds with ports+ |

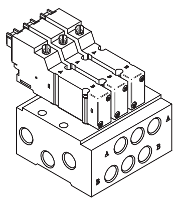
| Number of positions | |
|---|---|
| 2 to 10 | for 2 to 10 valves |

+) For series MVSY 100, it is only possible to use the straight cylindrical push-in fittings for tube ∅4 (N102-004-000-01) and ∅6 (N102-006-000-01)

It is possible to mount series MVSY valves on manifold with predefined number of position. It isn‘t possible to add another position to created assembly - it could be necessary to replace manifold or create another manifold. If there is possibility that more valves will be needed in future, we recommend to use manifold with more positions and use blocking plates for unused positions. Valves are mounted to manifold directly - no adaptor is necessary. Valves mounted on manifold could be unmounted separately by unscrew of 2 bolts, which are accessible from top side (side with ports 2 and 4 of valves). Each separate coil must be wired with separate electrical cable. There are also manifolds with a common connector available - for more information, contact our technical department.



**Manifolds for valves with threaded ports** - PMVSYxxx4... - these valves are with threads on all five ports (ports 1,2,3,4 and 5). In this case, the manifold PMVSYxxx-5Bx, which has only ports 1,3 and 5 is used.



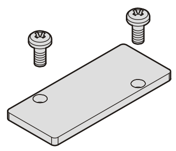
Also available are **manifolds for valves without threads** - PMVSYxxxM4... - these valves are without threads and ports - they are entirely intended for use on manifold. In this case, manifold PMVSYxxxM-5Mx, which has common ports 1,3 and 5 and outlet ports 2 and 4 for each valve position, is used. This lay-out simplifies assembly and maintenance - valve can be easily unmounted without unplugging of connections on ports 2 and 4.

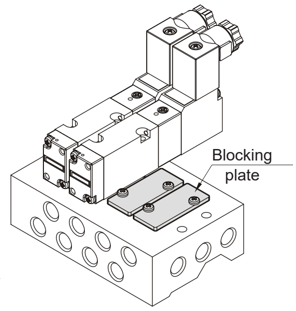
## Order codes of blocking plate for manifolds

PMVSY 100 - 5P

| Size | |
|---|---|
| 100 | series MVSY 100 |
| 156 | series MVSY 156 |
| 188 | series MVSY 188 |

| Blocking plate | |
|---|---|
| -5P | blocking plate |



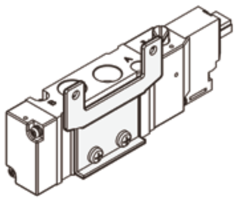

Blocking plates are used for blocking outlets from manifold in case, that not all positions are used presently and expansion of the assembly is planned in the future. In that case, the blocking plate will be changed with valve and manifold is without change.

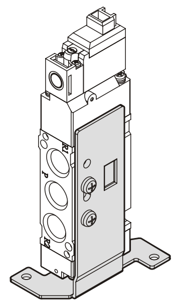
## Order codes of brackets of individual valves with threaded ports

PMVSY 100 - 1A

| Size | |
|---|---|
| 100 | series MVSY 100 |
| 156 | series MVSY 156 |
| 188 | series MVSY 188 |

| Bracket type | |
|---|---|
| -1A | horizontal |
| -2A | vertical |

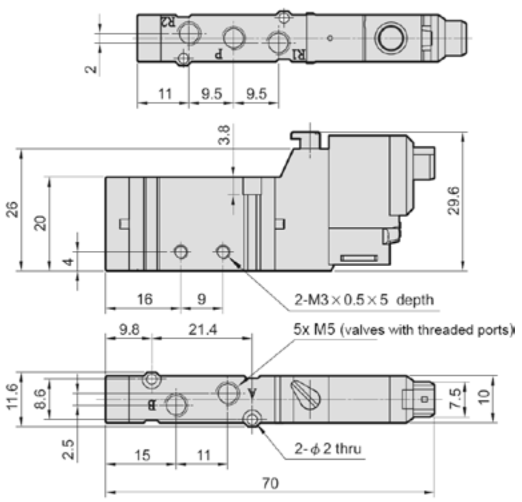

Horizontal bracket


Vertical bracket

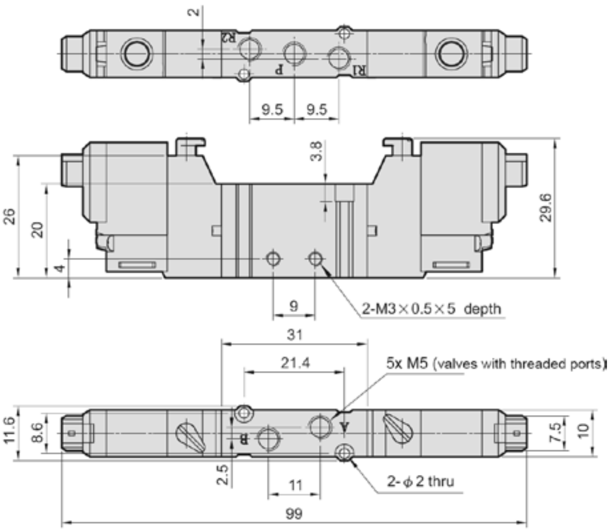
Brackets can be used for individually mounted valves with threaded ports - valves are without through hole for fixing, that is why it is better to use bracket for easy assembly in some cases. **Vertical brackets are only for monostable valves (4/2, one coil, function 41).**

## Dimensions of valve series MVSY 100

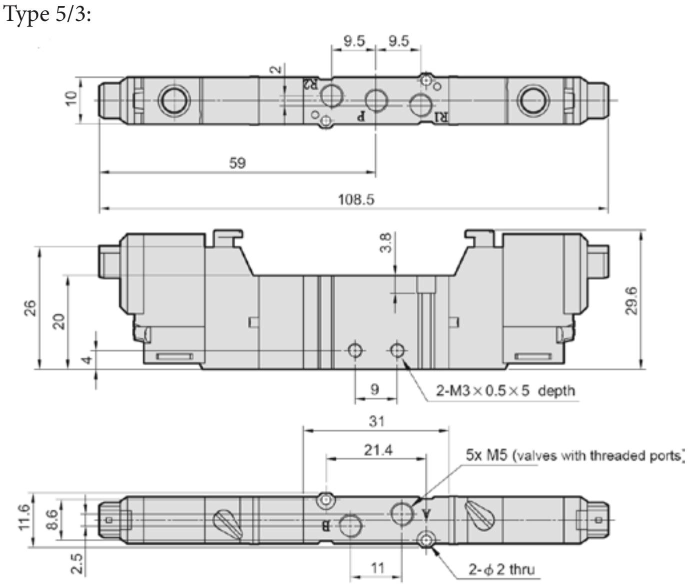
Type 5/2 with single solenoid:



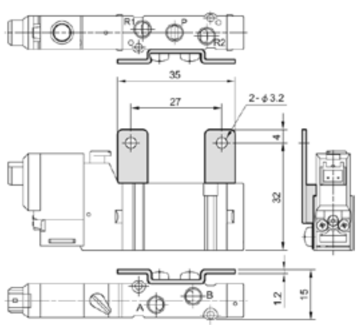

Type 5/2 with double solenoid:



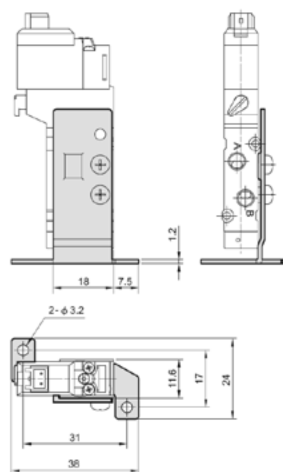

Type 5/3:




Horizontal bracket:



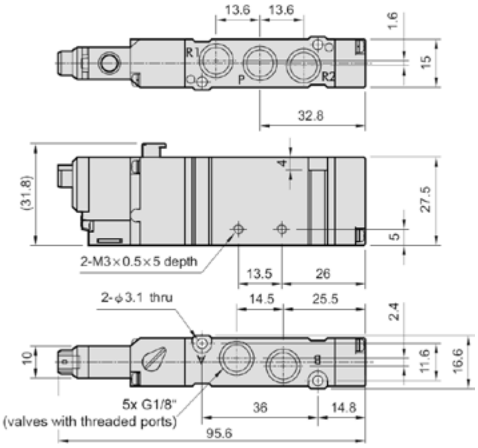
Vertical bracket:



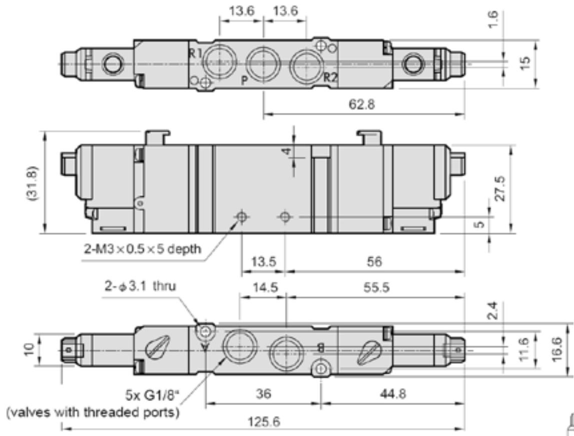
| Function | Weight [kg] |
|---|---|
| 41 | 0,030 |
| 42 | 0,043 |
| 42C/P/R | 0,055 |

## Dimensions of valve series MVSY 156

Type 5/2 with single solenoid:

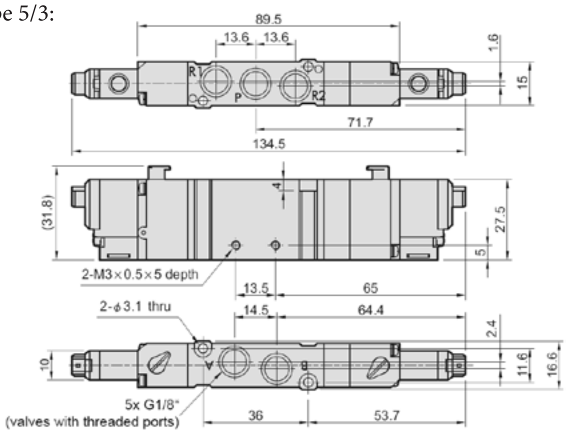



Type 5/2 with double solenoid:

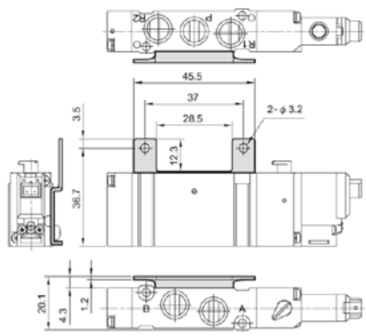



| Function | Weight [kg] |
|---|---|
| 41 | 0.068 |
| 42 | 0.087 |
| 42C/P/R | 0.096 |

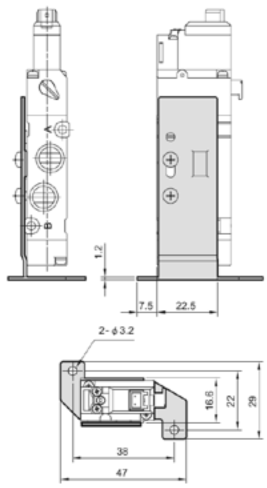
Type 5/3:




Horizontal bracket:

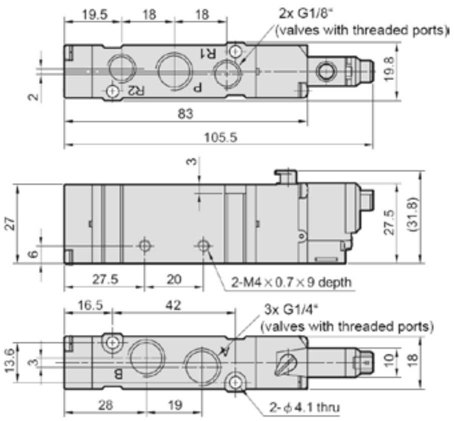



Vertical bracket:

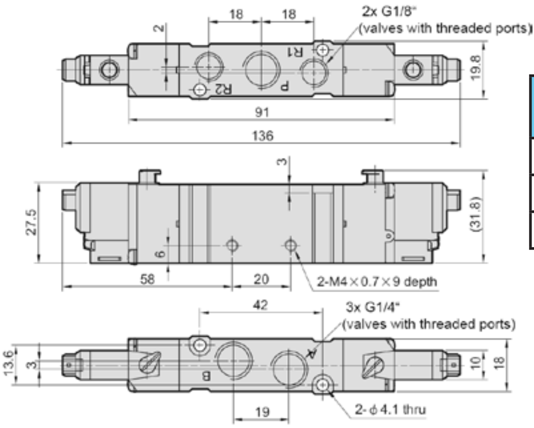



## Dimensions of valve series MVSY 188

Type 5/2 with single solenoid:

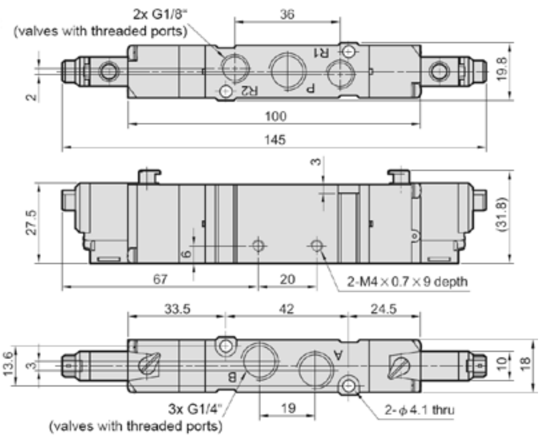



Type 5/2 with double solenoid:

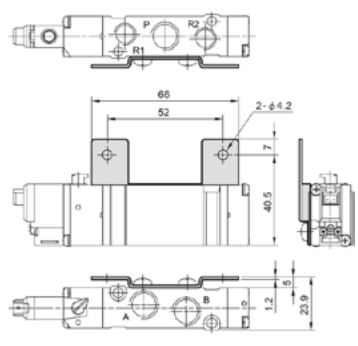



| Function | Weight [kg] |
|---|---|
| 41 | 0.084 |
| 42 | 0.106 |
| 42C/P/R | 0.116 |

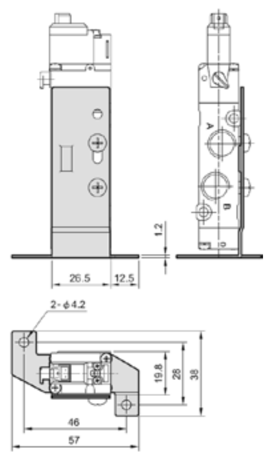
Type 5/3:




Horizontal bracket:

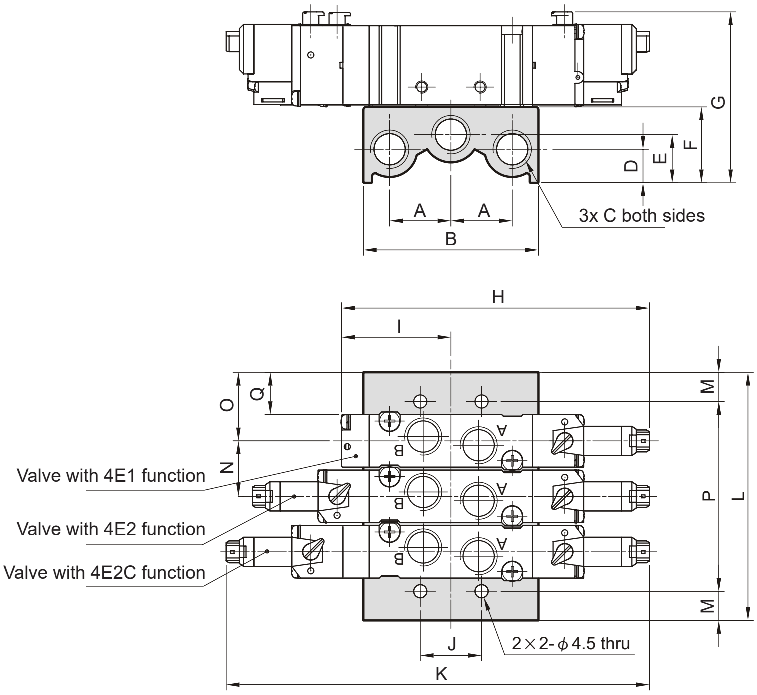



Vertical bracket:



## Dimensions of manifold assemblies of valves series MVSY

Type -5B for valves with threaded ports

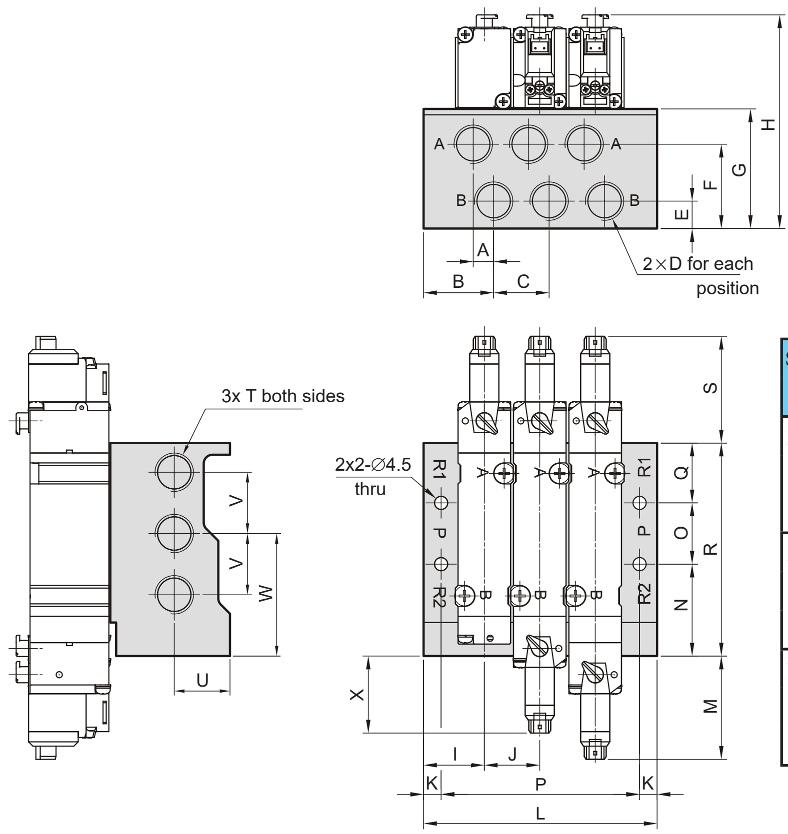



| Series | Value | Number of positions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 100 | L | 48.5 | 59 | 69.5 | 80 | 90.5 | 101 | 111.5 | 122 | 132.5 |
| | P | 30.5 | 41 | 51.5 | 62 | 72.5 | 83 | 93.5 | 104 | 114.5 |
| | Weight [kg] | 0.07 | 0.08 | 0.10 | 0.12 | 0.13 | 0.15 | 0.16 | 0.18 | 0.19 |
| 156 | L | 60 | 76 | 92 | 108 | 124 | 140 | 156 | 172 | 188 |
| | P | 40 | 56 | 72 | 88 | 104 | 120 | 136 | 152 | 168 |
| | Weight [kg] | 0.14 | 0.17 | 0.21 | 0.24 | 0.28 | 0.31 | 0.35 | 0.39 | 0.42 |
| 188 | L | 66 | 85 | 104 | 123 | 142 | 161 | 180 | 199 | 218 |
| | P | 46 | 65 | 84 | 103 | 122 | 141 | 160 | 179 | 198 |
| | Weight [kg] | 0.18 | 0.23 | 0.27 | 0.32 | 0.37 | 0.42 | 0.47 | 0.52 | 0.57 |

| Series | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 16.5 | 49 | G1/8“ | 12.5 | 12.5 | 20 | 50.1 | 75 | 24.5 | 16 | 108.5 |
| 156 | 21 | 60 | G1/4“ | 11.5 | 16.5 | 26 | 58.6 | 96.5 | 22.8 | 20 | 134.5 |
| 188 | 21 | 60 | G1/4“ | 11.5 | 16.5 | 26 | 58.6 | 105.5 | 37.5 | 21 | 145 |

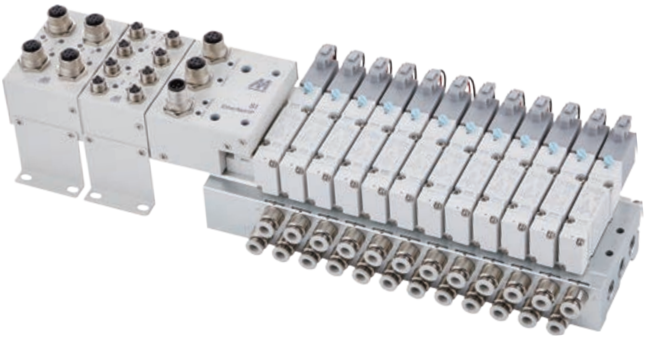
| Series | M | N | O | Q |
|---|---|---|---|---|
| 100 | 9 | 10.5 | 19 | 14 |
| 156 | 10 | 16 | 22 | 14.5 |
| 188 | 10 | 19 | 23.5 | 14.5 |

Type M-5M for valves for manifold (without threaded ports)




| Series | Value | Number of positions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 100 | L | 47.5 | 60 | 72.5 | 85 | 97.5 | 110 | 122.5 | 135 | 147.5 |
| | P | 39.5 | 52 | 64.5 | 77 | 98.5 | 102 | 114.5 | 127 | 139.5 |
| | Weight [kg] | 0.18 | 0.2 | 0.28 | 0.32 | 0.37 | 0.41 | 0.46 | 0.50 | 0.55 |
| 156 | L | 59.5 | 77 | 94.5 | 112 | 129.5 | 147 | 164.5 | 182 | 199.5 |
| | P | 49.5 | 67 | 84.5 | 102 | 119.5 | 137 | 154.5 | 172 | 189.5 |
| | Weight [kg] | 0.25 | 0.3 | 0.40 | 0.47 | 0.55 | 0.62 | 0.69 | 0.77 | 0.84 |
| 188 | L | 61 | 80 | 99 | 118 | 137 | 156 | 175 | 194 | 213 |
| | P | 49 | 68 | 87 | 106 | 125 | 144 | 163 | 182 | 201 |
| | Weight [kg] | 0.39 | 0.5 | 0.62 | 0.74 | 0.85 | 0.97 | 1.09 | 1.20 | 1.32 |

| Series | A | B | C | D | E | F | G | H | I | J | K | M | N | O | Q | R | S | T | U | V | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 7 | 15 | 12.5 | G1/8“ | 7.4 | 22.2 | 32 | 61.6 | 18.5 | 12.5 | 4 | 29.9 | 24.6 | 16 | 15.2 | 55.8 | 22.8 | G1/8“ | 8 (15) | 16 | 32.6 | 20.4 |
| 156 | 8.5 | 19 | 17.5 | G1/4“ | 10 | 27.5 | 38 | 70.3 | 21 | 17.5 | 5 | 33.7 | 29 | 20 | 19 | 68 | 32.8 | G1/4“ | 17.6 | 20 | 39 | 24.8 |
| 188 | 7 | 24 | 19 | G1/4“ | 9.4 | 28.9 | 41 | 73.3 | 20.8 | 19 | 6 | 35.4 | 31.5 | 21 | 20.5 | 73 | 36.6 | G1/4“ | 19.1 | 21 | 42 | 26.4 |



The fieldbus system of the MVE series system allows the connection and control of valves and other inputs and outputs using the EtherNet / IP protocol. Up to 23 channels are available in one set for the control of associated valves (MVSY 100 and MVSY 156 series) as well as up to 8 input and output units, with 8 inputs or 8 outputs in each unit. It is therefore easy to connect and control the island with valves and send back to the control system, for example, the states of the end position sensors. The configuration can be modified using a web browser or using a configuration program on a computer. Both the main and I/O units have LEDs that inform the user of the status.

## Order codes of fieldbus system with valve and serial interface

P MVE - 156C6-5B 4 □ - SSDC - G - EA P 2

| Model - series MVSY 100 | |
|---|---|
| 100-5B | threads M5 on valve |
| 100M-5M | threads G1/8“ on manifold |
| **Model - series MVSY 156** | |
| 156C4-5B | tube ø4 fitting on valve |
| 156C6-5B | tube ø6 fitting on valve |
| 156C8-5B | tube ø8 fitting on valve |
| 156M4-5M | tube ø4 fitting on manifold |
| 156M6-5M | tube ø6 fitting on manifold |
| 156M8-5M | tube ø8 fitting on manifold |

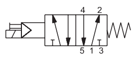
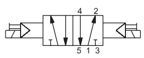
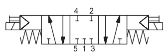
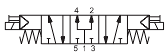
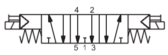
| Number of valves | |
|---|---|
| 2 to 12 | number |

| Valve COM spec. | |
|---|---|
| | -COM |
| N | +COM |

| SI unit | |
|---|---|
| | without |
| EA | EtherNet/IP |

| SI unit output | |
|---|---|
| P | -COM |
| N | +COM |

| Number of I/O units | |
|---|---|
| | none |
| 1 to 8 | number |

| Valve type | | |
|---|---|---|
| S |  | 5/2 monostable (with 1 coil) |
| D |  | 5/2 bistable (with 2 coils) |
| C |  | 5/3 with closed centre position |
| P |  | 5/3 with pressure centre position |
| R |  | 5/3 with exhaust centre position |
| B | blocking plate (w/o valve) | |

**Notes:**
- SI unit output and valve COM spec. must be the same.
- The valve arrangement is numbered as the 1st station from the SI unit side, use as many letters as there are valves in the code
- I/O unit cannot be installed without SI unit.
- I/O units must be ordered and specified separately, they will be delivered separately.

## Order codes of I/O units

| Order code | Description |
|---|---|
| PMVE-100-DIPA | DI unit - 8 inputs PNP |
| PMVE-100-DINA | DI unit - 8 inputs NPN |
| PMVE-100-DOPB | DO unit - 8 outputs PNP |
| PMVE-100-DONB | DO unit - 8 outputs NPN |

## Technical data of SI unit (serial interface)

| Description | Value |
|---|---|
| Interface protocol | EtherNet/IP |
| Communication speed | 10/100 Mbps |
| Configuration file | EDS |
| Power connector | M12 (5 pins) |
| Control & input power supply | 24V DC class 2, 2A |
| Output power supply | 24V DC class 2, 2A |
| Consumption | 12W |
| Polarity of output for valves | PNP (-COM), NPN (+COM) |
| Power supply of valves | 24V DC class 2, 2A |
| Number of valve outputs | 23 |
| Suitable valves | MVSY 100, MVSY 156, 24V DC |
| Fail safe of valves | hold, off, setting value |
| Protective function for valve | short circuit protrction |
| Working environment | temperature -20°C to +50°C, humidity 10% to 90% RH |

## Example of order codes of fieldbus system

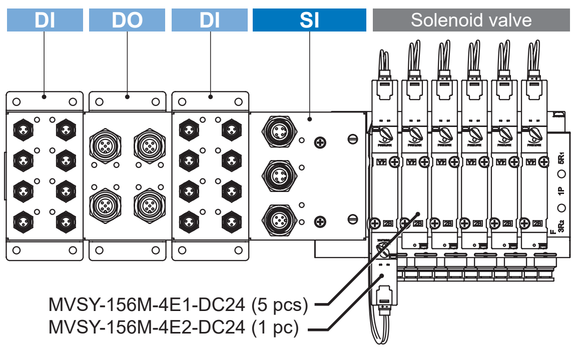
**assembly with valves and I/O units**

PMVE-156M4-5M6-DSSSSS-G-EAP3

Set of 6 valves MVSY 156 (1x 5/2 bistable, 5x 5/2 monostable) with tube ø4 fittings on the manifold, -COM, incl. SI unit for 3 I/O units.

2 pcs ... PMVE-100-DIPA 2 digital input units PNP (total 16 inputs)

1 pc ... PMVE-100-DOPB Digital output unit PNP (total 8 outputs)




For more information please visit our web page on www.sappv.cz .

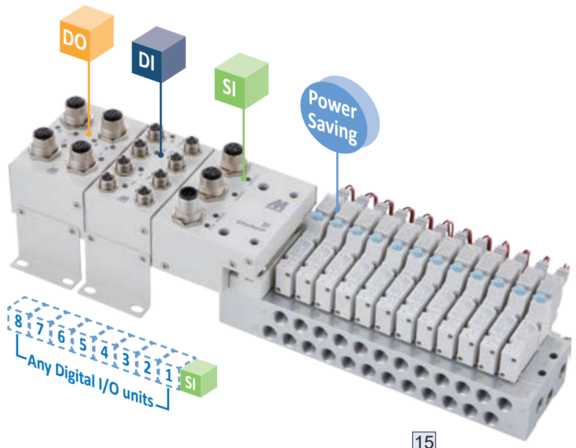
## Technical data of DI unit (digital input)

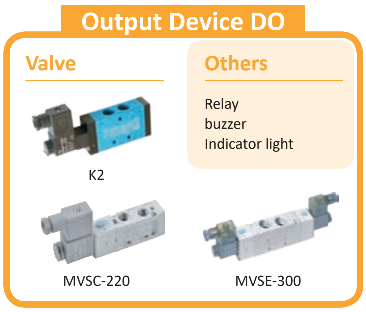
| Description | Value |
|---|---|
| Inpout type | PNP or NPN |
| Input connector | 8x M8 (3 pins) |
| Number of inputs | 8 (1 input / connector) |
| Sensor supplied voltage | 24V DC |
| Max. sensor supplied current | 0.25A / connector, 2A / unit |
| Rated input current | 9 mA |
| ON voltage (NPN input) | ≥17V |
| OFF voltage (PNP input) | ≤5V |
| Features | Short / open - circuit detection |
| Power supply voltage | 24V DC class 2, 2A |
| Working environment | temperature -10°C to +50°C, humidity 35% to 85% RH |
| Isolation | 500V AC, 10MΩ |

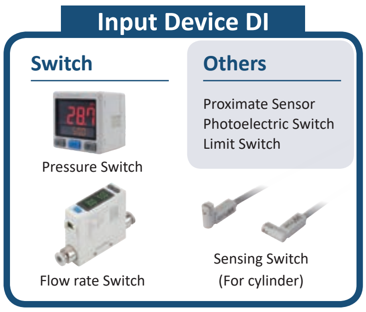
## Technical data of DO unit (digital output)

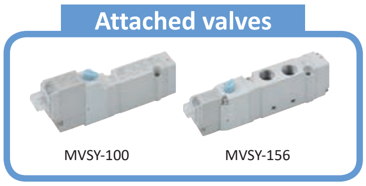
| Description | Value |
|---|---|
| Output type | PNP or NPN |
| Output connector | 4x M12 (5 pins) |
| Number of outputs | 8 (2 outputs / connector) |
| Rated load voltage | 24V DC |
| Max. load current | 0.5A / connector, 2A / unit |
| Features | Short / open - circuit detection |
| Power supply voltage | 24V DC class 2, 2A |
| Working environment | temperature -10°C to +50°C, humidity 35% to 85% RH |
| Isolation | 500V AC, 10MΩ |

## System and accessories diagram



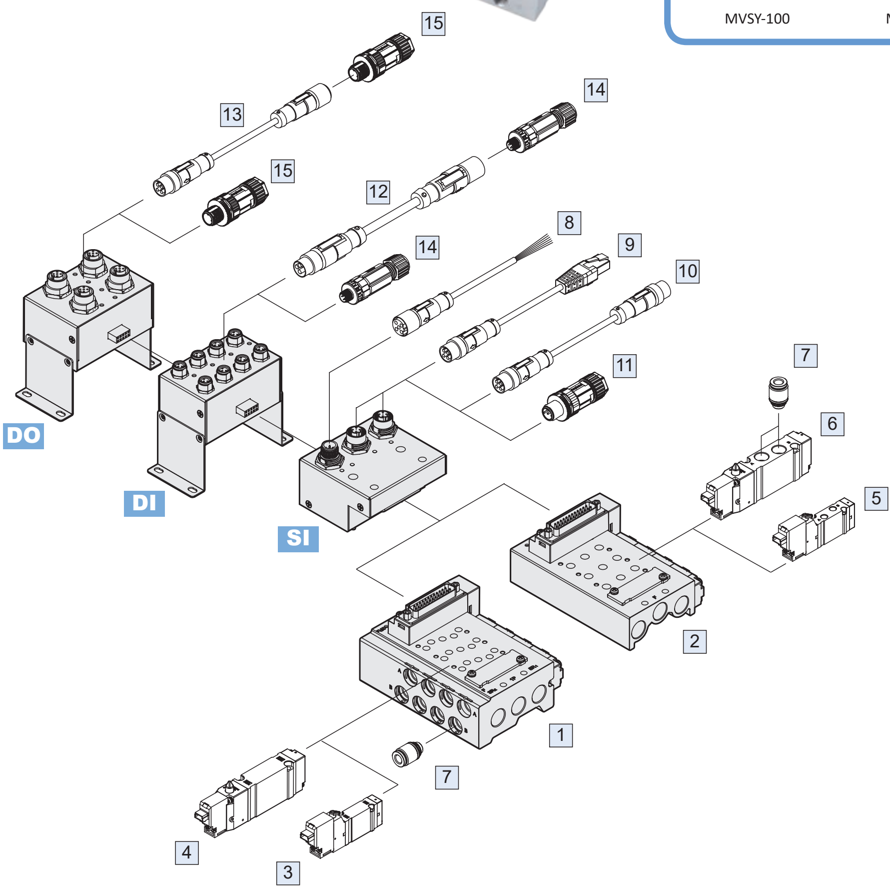




**SI** Serial interface

**DI** Digital input

**DO** Digital output




| Pos. | Description | Page |
|---|---|---|
| 1 | Manifold (ports on manifold) | 5-22 |
| 2 | Manifold (body ported valves) | 5-22 |
| 3 | Valve MVSY-100 (manifold type) | 5-18 |
| 4 | Valve MVSY-156 (manifold type) | 5-18 |
| 5 | Valve MVSY-100 (body ported) | 5-18 |
| 6 | Valve MVSY-156 (body ported) | 5-18 |
| 7 | Fittings | 10-2 |
| 8 | Supply cable PM125R-WB (M12, 5 pin) | 5-34 |
| 9 | Cable w/conn. PM124R-RJD (M12, 4 pin) | 5-34 |
| 10 | Cable w/conn. PM124R-MD (M12, 4 pin) | 5-34 |
| 11 | Connector PM124C-MD (M12, 4 pin) | 5-34 |
| 12 | Cable w/connectors PM83R-F (M8, 3 pin) | 5-34 |
| 13 | Cable w/conn. PM124R-FA (M12, 4 pin) | 5-34 |
| 14 | Connector PM83C-M (M8, 3 pin) | 5-34 |
| 15 | Connector PM124C-MA (M12, 4 pin) | 5-34 |

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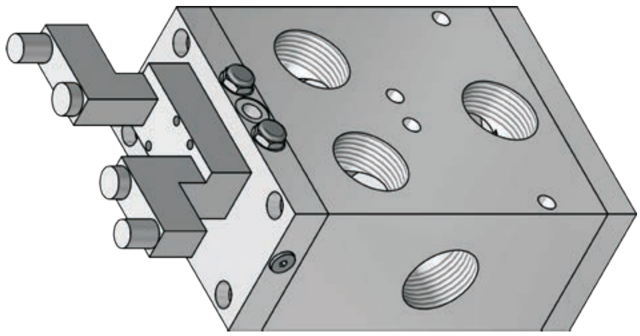


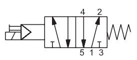
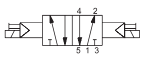
High flow valve series with flow capacity up to 28 000 Nl/min is suitable for fast air supply of big appliances, or higher quantity of appliances which are supplied from common distribution. Valves are pilot operated, using smaller, standard electromagnetic actuated valves ISO 5599/1. These pilot valves are designed for external supply of compressed air, however the common supply is possible, but in this case, please contact our technical dept.

This valve series contains rubber gaskets.

| Series | G1“ | G1 ½“ |
|---|---|---|
| Ports | G1“ | G1 ½“ |
| Connection of external pressure supply port | G1/4“ | |
| Connection of pilot (12,14) for pneumatic actuating | G1/8“ | |
| Flow capacity [Nl/min] | 16 000 | 28 000 |
| Working pressure [MPa] | 0 to 1.0 MPa when external pilot supply is used | |
| Pilot pressure range [MPa] | 0.2 to 0.7 | |
| Power input [W, VA] | 2.5W for DC voltage, 6/4.9VA for AC voltage (inrush/hold) | |
| Response time for DC voltage [ms] | 60 | 70 |
| Response time for AC voltage [ms] | 60 | 70 |
| Temperature range [°C] | medium temperature max. 50, ambient temperature -20 to +50 | |

## Order codes

25 52 80 90 20 30 000 1

| Function | | |
|---|---|---|
| 52 80 90 |  | 5/2 monostable (with 1 coil) |
| 52 80 80 |  | 5/2 bistable (with 2 coils) |

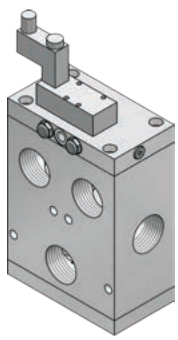
| Size | |
|---|---|
| 14 | G1“ |
| 20 | G1 ½“ |

| Voltage | |
|---|---|
| 30 | 24 V DC ± 10% |
| 40 | 24 V AC ± 10%, 50-60 Hz |
| 60 | 230 V AC ± 10%, 50-60 Hz |

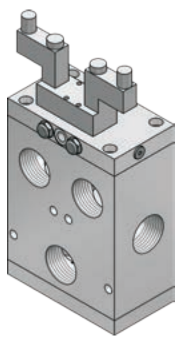
| Pilot supply | |
|---|---|
| 2 | external (from port X), standard |
| 1* | internal (from port 1) |

*) Please consult with our technical dept.

Supply contains connector(s).

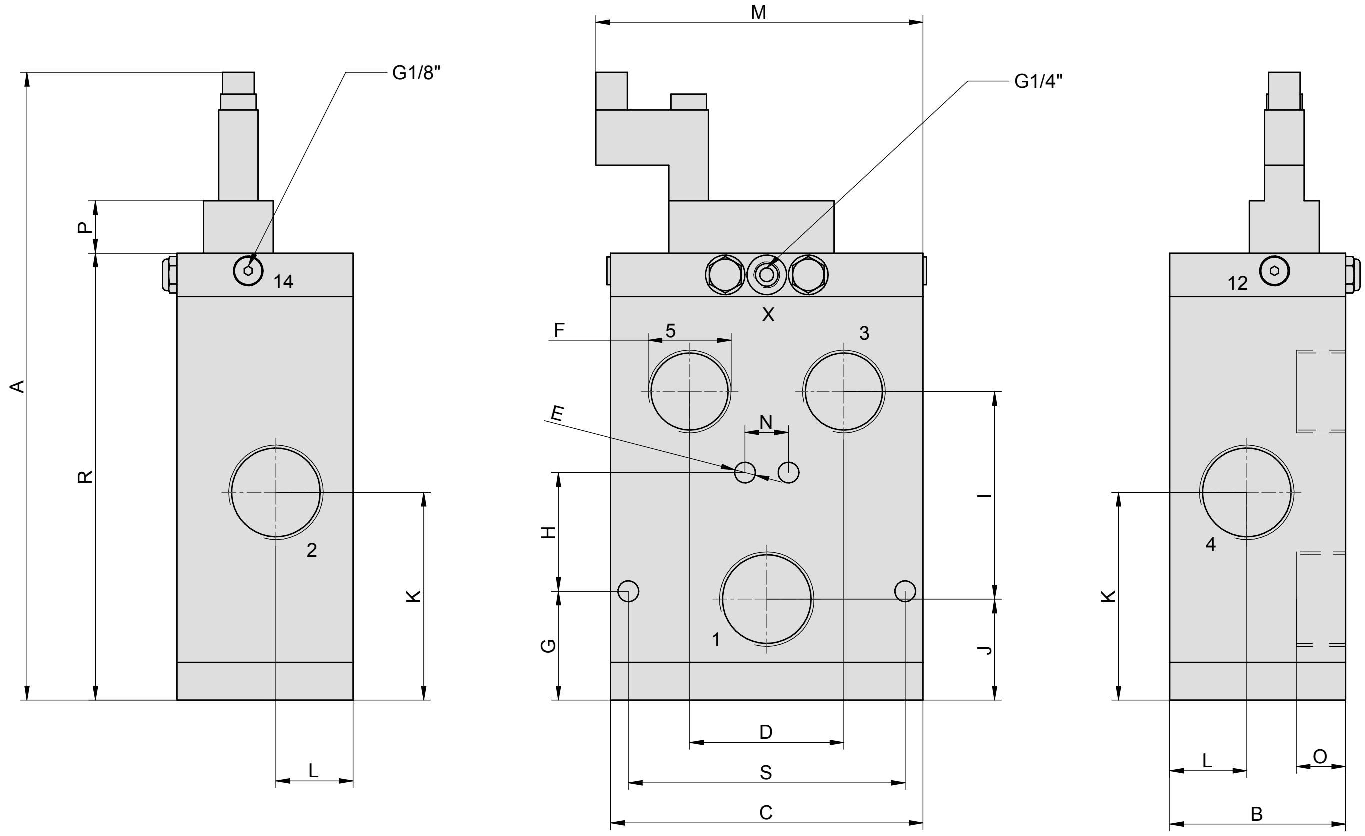


Function 52 80 90



Function 52 80 80

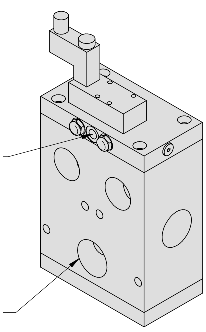
## Dimensions




| Series | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | R | S | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 80 x0 14 | 317 | 89 | 158 | 78 | 10.5 | G1" | 55 | 60 | 105 | 51 | 105 | 39 | 165.5 | 22 | 25 | 26.4 | 226 | 140 | 7.5 |
| 52 80 x0 20 | 317 | 89 | 158 | 78 | 10.5 | G1 1/2" | 55 | 60 | 105 | 51 | 105 | 39 | 165.5 | 22 | 25 | 26.4 | 226 | 140 | 7.5 |

## Notes for connecting of valve

Valves are designed for independent, external air pilot supply (port X). It is not recommended, to merge air supply for main valve and for pilot valve, because a big flow through main valve may cause serious dropping of pressure for pilot valve and malfunction may occur.



Pilot supply
port G1/4“
0.2 to 0.7 MPa

Main valve
supply port
0 to 1.0 MPa

# SOLENOID ACTUATED VALVES
# SERIES MVSC

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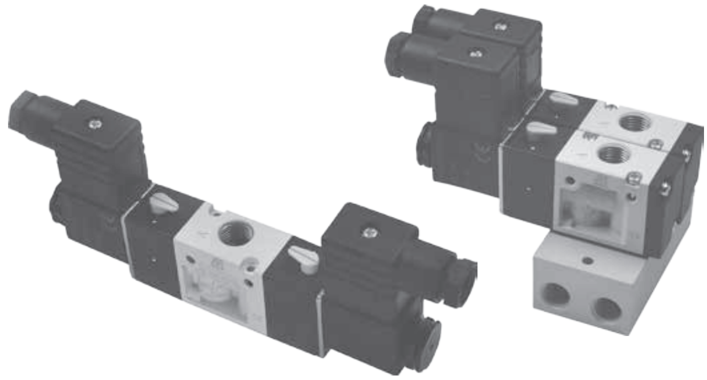


The valve series, which replaces valves series K. The basic usable features are kept and brings some improvements such as lower wattage, comparable or bigger flow capacity and better accessibility. Valves are solenoid pilot actuated. The product range covers functions 3/2 normally closed, opened and double solenoid. Connector and coil are included in delivery.

This valve series contains rubber gaskets.

| Series | MVSC 220 | MVSC 300 | MVSC 460 |
|---|---|---|---|
| Ports | G1/4“ | G3/8“ | G1/2“ |
| Flow capacity [Nl/min] | 980 | 1905 | 2730 |
| Working pressure [MPa] | 0.2 to 0.8 | | |
| Power input [W, VA] | 2.5W for DC voltage, 6/4.9VA for AC voltage (inrush/hold) | | |
| Response time [ms] | 30 | 50 | 50 |
| Coil voltage tolerance | ±10% | | |
| Temperature range [°C] | ambient temperature -5 to +50 | | |
| Enclosure | IP65 with sealed and fastened connector | | |

## Order codes

PMVSC 220 3E1C A220

| Size | |
|---|---|
| 220 | series MVSC 220, thread G1/4“ |
| 300 | series MVSC 300, thread G3/8“ |
| 460 | series MVSC 460, thread G1/2“ |

| Function | | |
|---|---|---|
| 3E1C | | 3/2 normally closed |
| 3E1O | | 3/2 normally opened |
| 3E2 | | 3/2 bistable (with 2 coils) |

| Voltage | |
|---|---|
| D12 | 12 V DC ± 10% |
| D24 | 24 V DC ± 10% |
| A220 | 230 V AC ± 10%, 50-60 Hz |
| A24 | 24 V AC ± 10%, 50-60 Hz |

Supply contains connector(s).

## Order codes of manifolds

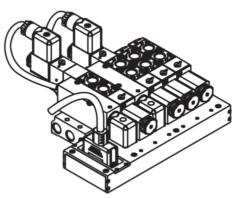
PMVS C220 - 3B 4

| Size | |
|---|---|
| C220 | series MVSC and MVAA 220, thread G1/4“ |
| C300 | series MVSC 300, thread G3/8“ |
| C460 | series MVSC and MVAA 460, thread G1/2“ |

| Number of positions | |
|---|---|
| 2 to 10 | for 2 to 10 valves |

It is possible to mount series MVSC and MVAA valves on manifold with predefined number of position. It isn‘t possible to add another position to created assembly - it could be necessary to replace manifold or create another manifold. If there is possibility that more valves will be needed in future, we recommend to use manifold with more positions and use blocking plates for unused positions. Valves are mounted to manifold directly - no adaptor is necessary. Valves mounted on manifold could be unmounted separately by unscrew of 2 bolts, which are accessible from top side (side with ports 2 and 4 of valves). Each separate coil must be wired with separate electrical cable.

Manifolds with internal wiring and common 25-pin SUB-D connector are also available. These manifolds are for valves series 220 and 300. Number of stations is 3 to 12 as standard, maximum is 20. Voltage of coils is 24V DC. For more information about these manifolds, please contact our technical department.



Order codes for blank station plates:

| Series | Order codes |
|---|---|
| 220 | PMVSC 220 -3P |
| 300 | PMVSC 300 -3P |
| 460 | PVMSC 460 -3P |

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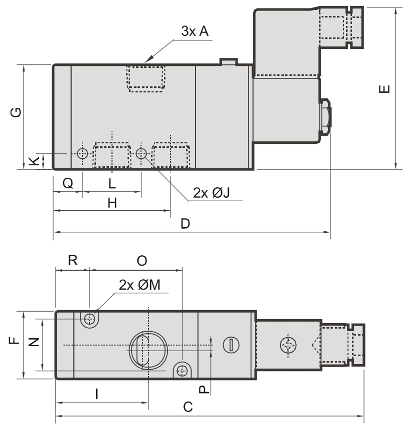
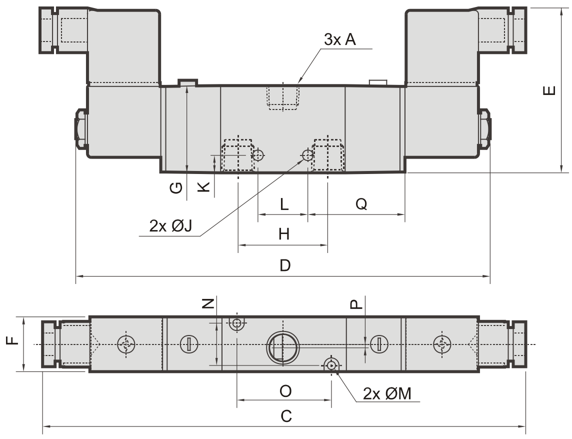
## Dimensions of valve series MVSC

Type 3/2 NC and NO:



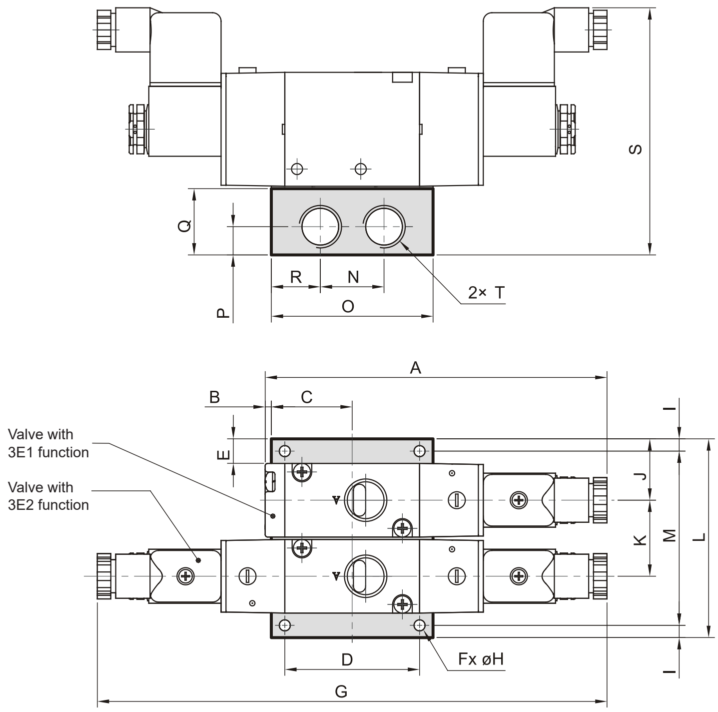

Type 3/2 with 2 coils:




| Series | Function | A | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 220 | 3E1 | G1/4" | 120 | 105.5 | 67 | 22.3 | 35 | 35 | 26 | 4.2 | 26.5 | 25 | 3.2 | 17 | 25 | 2 | 13.5 | 13.5 | 0.20 |
| | 3E2 | G1/4" | 188 | 159 | 68 | 22.3 | 35 | 18 | — | 4.2 | 26.5 | 25 | 3.2 | 17 | 25 | 2 | 30.5 | — | 0.30 |
| 300 | 3E1 | G3/8" | 139.5 | 126.5 | 73 | 30 | 46.4 | 52 | 41 | 4.5 | 9 | 26 | 4.5 | 23 | 41 | 0 | 13 | 15 | 0.35 |
| | 3E2 | G3/8" | 208 | 182 | 73 | 30 | 46.4 | 26 | — | 4.5 | 9 | 26 | 4.5 | 23 | 41 | 0 | 50 | — | 0.44 |
| 460 | 3E1 | G1/2" | 146 | 133 | 73 | 30 | 46.4 | 56 | 40.5 | 4.5 | 9 | 29 | 4.2 | 23 | 48 | 2.3 | 12.5 | 15 | 0.35 |
| | 3E2 | G1/2" | 214 | 188 | 73 | 30 | 46.4 | 29 | — | 4.5 | 9 | 29 | 4.2 | 23 | 48 | 2.3 | 54.5 | — | 0.44 |

## Dimensions of manifold assemblies of valves series MVSC and MVAA

| Series | Value | Number of positions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 220 | L | 77 | 100 | 123 | 146 | 169 | 192 | 215 | 238 | 261 |
| | M | 65 | 88 | 111 | 134 | 157 | 180 | 203 | 226 | 249 |
| | Weight [kg] | 0.20 | 0.26 | 0.32 | 0.38 | 0.44 | 0.50 | 0.56 | 0.63 | 0.69 |
| 300 | L | 81 | 112 | 143 | 174 | 205 | 236 | 267 | 298 | 329 |
| | M | 71 | 102 | 133 | 164 | 195 | 226 | 257 | 288 | 319 |
| | Weight [kg] | 0.31 | 0.43 | 0.55 | 0.66 | 0.78 | 0.90 | 1.02 | 1.14 | 1.26 |
| 460 | L | 81 | 112 | 143 | 174 | 205 | 236 | 267 | 298 | 329 |
| | M | 71 | 102 | 133 | 164 | 195 | 226 | 257 | 288 | 319 |
| | Weight [kg] | 0.36 | 0.50 | 0.65 | 0.79 | 0.93 | 1.07 | 1.20 | 1.36 | 1.50 |




## Spare coils for series 220/300/460

| Order codes | Voltage | Power input |
|---|---|---|
| PMVSC220-COD12 | 12V DC | 3.1 W |
| PMVSC220-COD24 | 24V DC | 2.5 W |
| PMVSC220-COA24 | 24V 50-60 Hz | 5.8 VA |
| PMVSC220-COA110 | 110V 50-60 Hz | 4.9 VA |
| PMVSC220-COA220 | 230V 50-60 Hz | 5.0 VA |

| Series | A | B | C | D | E | F | G | H | I | J | K | N | O | P | Q | R | S | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 220 | 120 | 5 | 21 | 0 | 15.5 | 2 | 188 | 4.5 | 6 | 27 | 23 | 22 | 42 | 10 | 28 | 10 | 96 | G1/4" |
| 300 | 139.5 | 2.5 | 33 | 55 | 10 | 4 | 208 | 4.5 | 5 | 25 | 31 | 26 | 66 | 11.5 | 27 | 20 | 101 | G3/8" |
| 460 | 146 | 3 | 36 | 60 | 10 | 4 | 214 | 4.5 | 5 | 25 | 31 | 30 | 72 | 15 | 32 | 21 | 106 | G1/2" |

Series of poppet seat valves 2/2 and 3/2 with indirect actuating offers all functions which you need. Normally open as well as normally closed versions are available. Due to construction, these valves are reliable and offers maximal flow capacity.

This valve series contains rubber gaskets.

| Ports | | G1/8“ | G1/4“ | G3/8“ | G1/2“ | G3/4“ | G1“ | G1 1/2“ |
|---|---|---|---|---|---|---|---|---|
| Flow capacity [Nl/min] | | 580 | 1100 | 1500 | 5400 | 6500 | 13500 | 35000 |
| Working pressure [MPa]* | | 0.15 to 1.0 | 0.16 to 1.0 | 0.16 to 1.0 | 0.2 to 1.0 | 0.2 to 1.0 | 0.22 to 1.0 | 0.25 to 1.0 |
| Power input for DC coils [W] | | 3.5 | | | 11 | | | |
| Power input for AC coils [VA] | | 7.8 inrush, 5 hold | | | 16 inrush, 10 hold | | | |
| Response time energize / de-energize [ms] | NC | 15 / 20 | 20 / 23 | 20 / 23 | 17 / 27 | 17 / 27 | 20 / 32 | 47 / 22 |
| Response time energize / de-energize [ms] | NO | 15 / 20 | 15 / 20 | 15 / 20 | 30 / 22 | 30 / 22 | 28 / 23 | 55 / 20 |
| Temperature range [°C] | | medium temperature max. 60, ambient temperature -5 to +50 | | | | | | |
| Coil type | | type 22 | type 22 | type 22 | type A | type A | type A | type A |

*) For vacuum, the NAG series is available - please contact our technical or sales dept. for more information.

## Order codes

NAF25 100G 61

| Size | |
|---|---|
| NAF25 | series NAF |

| Function, port size | | |
|---|---|---|
| 000G | G1/8“ | NC |
| 010G | G1/8“ | NO |
| 100G | G1/4“ | NC |
| 110G | G1/4“ | NO |
| 200G | G3/8“ | NC |
| 210G | G3/8“ | NO |
| 300G | G1/2“ | NC |
| 310G | G1/2“ | NO |
| 320G | G1/2“ | NC |
| 400G | G3/4“ | NC |
| 410G | G3/4“ | NO |
| 420G | G3/4“ | NC |

| Function, port size | | |
|---|---|---|
| 450G | G1“ | NC |
| 460G | G1“ | NO |
| 470G | G1“ | NC |
| 610G | G1 1/2“ | NO |
| 650G | G1 1/2“ | NC |
| 670G | G1 1/2“ | NC |

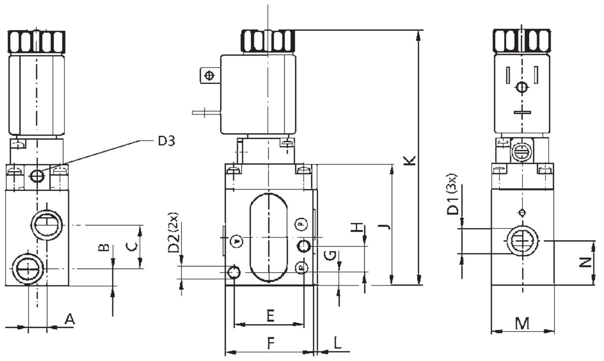
| Voltage | |
|---|---|
| 60 | 12 V DC ± 10% |
| 61 | 24 V DC ± 10% |
| 40 | 230 V AC ± 10% 50-60 Hz |
| 30 | 110 V AC ± 10% 50-60 Hz |
| 20 | 24 V AC ± 10% 50-60 Hz |

For connectors for valves see page 5-36.

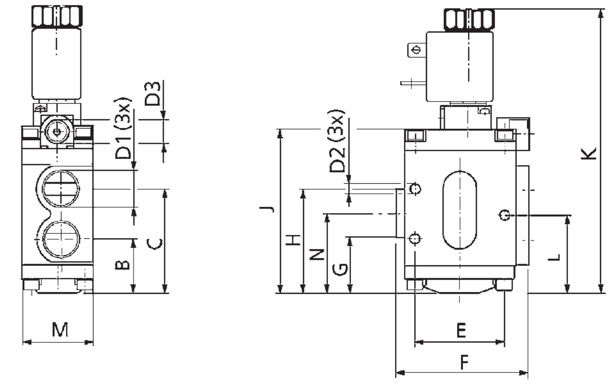
For vacuum, the NAG series is available - please contact our technical or sales dept. for more information.

## Dimensions of valve series NAF

### Port size G1/8“

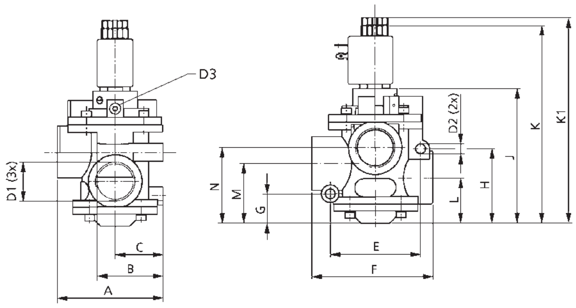


### Port size G1/4“ and G3/8“

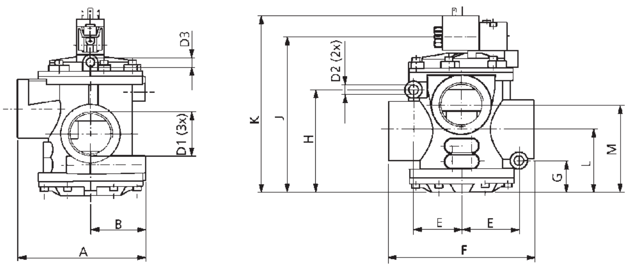


| Port size | A | B | C | D1 | D2 | D3 | E | F | G | H | J | K | L | M | N | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1/8“ | 7.5 | 7 | 17.5 | G1/8“ | 4.5 | G1/8“ | 28 | 36 | 5.3 | 10.5 | 48.5 | 102 | 1.9 | 25 | 17.8 | 0.25 |
| G1/4“ | — | 24 | 47 | G1/4“ | 4.5 | G1/8“ | 40 | 60 | 25 | 47 | 74 | 129 | 35.5 | 32 | 36 | 0.58 |
| G3/8“ | — | 24 | 47 | G3/8“ | 4.5 | G1/8“ | 40 | 60 | 25 | 47 | 74 | 129 | 35.5 | 32 | 36 | 0.56 |

### Port size G1/2“ to G1“



### Port size G1 1/2“



| Port size | A | B | C | D1 | D2 | D3 | E | F | G | H | J | K | K1 | L | M | N | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1/2“ | 75 | 47 | 35 | G1/2“ | 6.4 | G1/8“ | 63 | 78.5 | 21 | 54.5 | 100 | 150 | 154 | 30 | 41 | 50.5 | 1.19 |
| G3/4“ | 75 | 47 | 35 | G3/4“ | 6.4 | G1/8“ | 63 | 78.5 | 21 | 54.5 | 100 | 150 | 154 | 30 | 41 | 50.5 | 1.13 |
| G1“ | 89 | 55 | 40 | G1“ | 8.4 | G1/8“ | 76 | 101 | 25.5 | 62.5 | 115 | 167 | 174 | 38 | 51 | 64 | 1.62 |
| G1 1/2 | 138 | 59 | — | G1 1/2“ | 10.8 | G1/8“ | 51 | 158 | 34 | 113 | 170 | 192.5 | — | 68 | 96 | — | 2.27 |

## Coils for valve series NAF

| Order codes | Port size | Voltage | Connector type | Weight [kg] |
|---|---|---|---|---|
| NDA0050 | G1/8“ to G3/8“ | 12V DC | type 22 | 0.06 |
| NDA0051 | G1/8“ to G3/8“ | 24V DC | type 22 | 0.06 |
| NDA0106 | G1/8“ to G3/8“ | 24V 50-60 Hz | type 22 | 0.06 |
| NDA0108 | G1/8“ to G3/8“ | 110V 50-60 Hz | type 22 | 0.06 |
| NDA0124 | G1/8“ to G3/8“ | 230V 50-60 Hz | type 22 | 0.06 |
| NDB0501 | G1/2“ to G1 1/2“ | 12V DC | type A | 0.10 |
| NDB0502 | G1/2“ to G1 1/2“ | 24V DC | type A | 0.10 |
| NDB0507 | G1/2“ to G1 1/2“ | 24V 50-60 Hz | type A | 0.10 |
| NDB0509 | G1/2“ to G1 1/2“ | 110V 50-60 Hz | type A | 0.10 |
| NDB0510 | G1/2“ to G1 1/2“ | 230V 50-60 Hz | type A | 0.10 |

STRÁNSKÝ A PETRŽÍK

Small, direct actuated valve 3/2 or 2/2 normally closed with manual override. Valve can be used as a standalone or can be mounted together with other valves as manifold mounting. This manifold can be expanded at any time, valve and set of screws are required.

This valve series contains rubber gaskets.

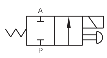
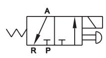
| Series | MVDC |
|---|---|
| Ports | G1/8“ * |
| Flow capacity [Nl/min] | 60 |
| Working pressure [MPa] | 0.1 to 0.7 |
| Power input [W, VA] | 2.5W for DC voltage, 6VA for AC voltage (inrush/hold) |
| Time response [ms] | 20 |
| Coil voltage tolerance | ±10% |
| Temperature range [°C] | ambient temperature -5 to +50 |
| Enclosure | IP65 with sealed and fastened connector |

*)Port 3 is covered by plastic nut which is used as exhaust

## Order codes

PMVDC 220 3E1 A220

| Size | |
|---|---|
| 220 | series MVDC 220, thread G1/8“ |

| Function | | |
|---|---|---|
| 2E1 |  | 2/2 normally closed |
| 3E1 |  | 3/2 normally closed |

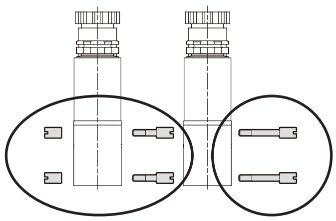
| Voltage | |
|---|---|
| D12 | 12 V DC ± 10% |
| D24 | 24 V DC ± 10% |
| A220 | 230 V AC ± 10%, 50-60 Hz |
| A24 | 24 V AC ± 10%, 50-60 Hz |

Supply contains connector(s).

## Order codes of manifold screw sets

PMVDC 220 - M 1

| Screw set | |
|---|---|
| 1 | for first valve |
| X | for next valve in manifold |



PMVDC220-M1 PMVDC220-MX

The screw sets are necessary for assembly the manifold of the valves. There are two sets available - set for first valve, which contains 2 nuts and 2 short screws and set for next valve, which contains 2 long screws - the required number of sets for next valves is about one set less than the total number of valves in the assembly (for example for 4 valves in manifold, 1 set of PMVDC220-M1 and 3 sets of PMVDC220-MX are required).

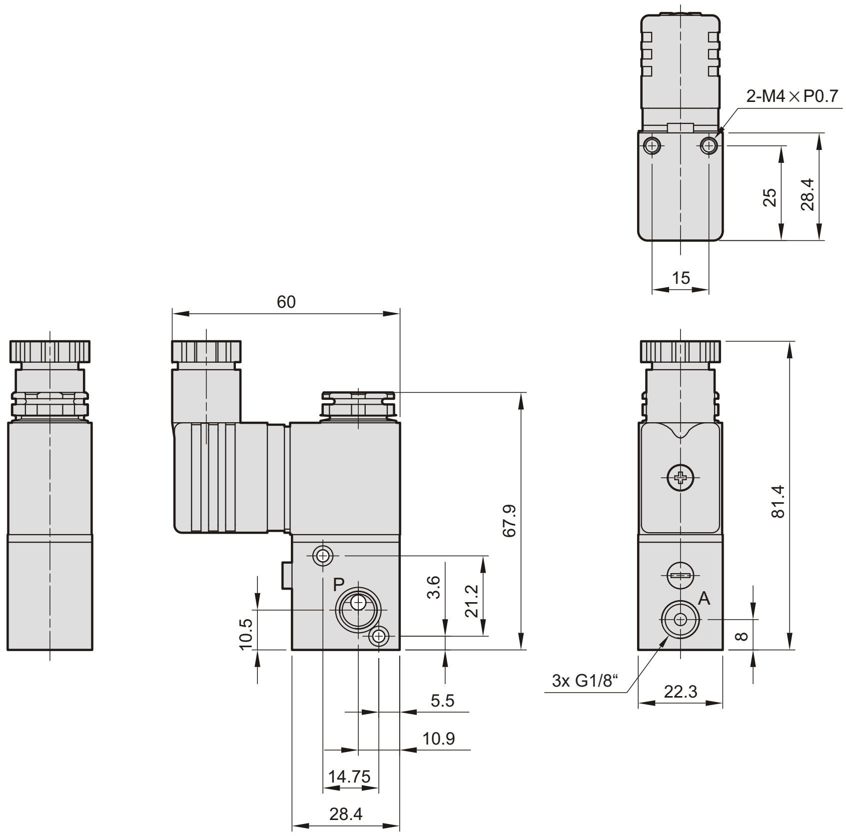
## Order code of bracket

PMVDC 220 - B

| Bracket type | |
|---|---|
| B | bottom bracket |

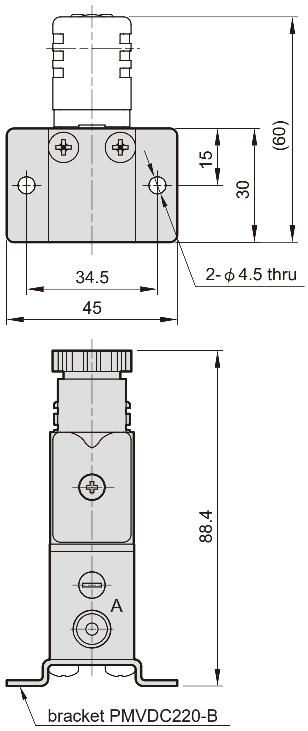
Bracket is attached to the bottom of the valve and holes for fixing of the assembly of bracket and valve are accessible from the upper side (they are next to the valve). Bracket can be used for standalone valves as well as for manifolds (for first and the last valve in manifold).

## Dimensions of valve series MVDC

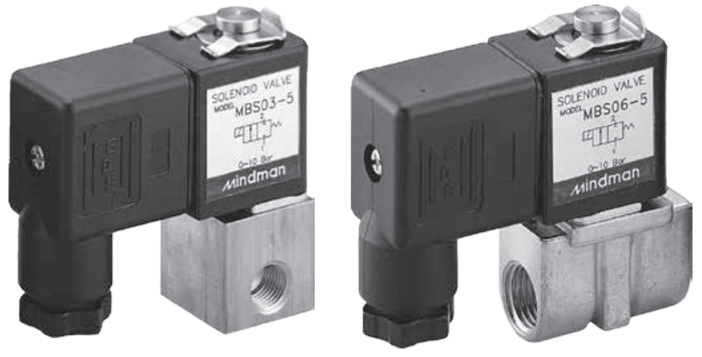



| Weight [kg] |
|---|
| 0.155 |

## Dimensions of valve series MVDC with bracket



STRÁNSKÝ A PETRŽÍK




Direct solenoid actuated valve 2/2 normally closed with orifice 1 to 2.4 mm. The following sealing are available: NBR, EPDM and viton (teflon on request). Available fluid: air, inert gas, water, vacuum, oil, etc. Coil with Ex approval EExm II T4, or EEx ia II C T6 PTB are available on request.

| Series | MBS | | | | |
|---|---|---|---|---|---|
| Ports | G1/8“, G1/4“ | | | | |
| Size | 1 | 2 | 3 | 4 | 5 |
| Flow capacity [Nl/min] | 30 | 50 | 90 | 140 | 180 |
| Working pressure [MPa] for AC voltage | 0 to 4.0 | 0 to 3.5 | 0 to 3.0 | 0 to 2.5 | 0 to 2.0 |
| Working pressure [MPa] for DC voltage | 0 to 3.0 | 0 to 2.4 | 0 to 1.2 | 0 to 1.0 | 0 to 0.7 |
| Power input [W, VA] | 6.8W for DC voltage, 8VA for AC voltage - inrush, 6VA hold | | | | |
| Coil voltage tolerance | ±8% | | | | |
| Temperature range [°C] | ambient temperature -15 to +50, medium temperature -5 to +80 for NBR sealing, , -10 to +120 for EPDM and viton sealing | | | | |
| Enclosure | IP65 with sealed and fastened connector | | | | |
| Installing position | free, coil upright is recommended | | | | |
| Housing material | brass | | | | |

## Order codes

P MBS 03 2 N 3 D D24

| Series | |
|---|---|
| MBS | 2/2 normally closed |

| Thread | |
|---|---|
| 03 | G1/8“ |
| 06 | G1/4“ |

| Size | |
|---|---|
| 1 | flow cap. 30 Nl/min |
| 2 | flow cap. 50 Nl/min |
| 3 | flow cap. 90 Nl/min |
| 4 | flow cap. 140 Nl/min |
| 5 | flow cap. 180 Nl/min |

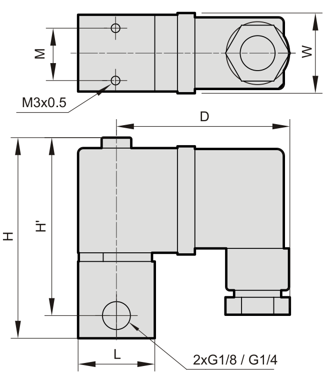
| Sealing | |
|---|---|
| N | NBR |
| J | EPDM |
| V | Viton |

| Connector | |
|---|---|
| | standard |
| D | s LED |

| Voltage | |
|---|---|
| D12 | 12 V DC |
| D24 | 24 V DC |
| A220 | 230 V AC 50-60 Hz |
| A24 | 24 V AC 50-60 Hz |

Supply contains connector.

## Dimensions




| Ports thread | D | H | H‘ | L | M | W | Weight [kg] |
|---|---|---|---|---|---|---|---|
| G1/8“ | 50 | 57 | 51 | □22 | 15 | 23 | 0.15 |
| G1/4“ | 50 | 61 | 51 | 33 | 11.2 | 23 | 0.15 |

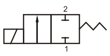
# SOLENOID ACTUATED VALVES SERIES MCS


Direct solenoid actuated valve 2/2 normally closed with orifice up to 4 mm, as extension of series MBS. The following sealing are available: NBR, EPDM and viton (teflon and other on request). Available fluid: air, inert gas, water, vacuum, oil, etc. Coil with Ex approval EExm II T4, or EEx ia II C T6 PTB are available on request.

| Series | MCS | | | | |
|---|---|---|---|---|---|
| Ports | G1/4“, G3/8“, G1/2“ | | | | |
| Size | 1 | 2 | 3 | 4 | 5 |
| Flow capacity [Nl/min] | 120 | 180 | 240 | 370 | 530 |
| Working pressure [MPa] for AC voltage | 0 to 4.0 | 0 to 3.0 | 0 to 2.0 | 0 to 1.5 | 0 to 1.0 |
| Working pressure [MPa] for DC voltage | 0 to 3.0 | 0 to 2.0 | 0 to 1.5 | 0 to 1.0 | 0 to 0.7 |
| Power input [W, VA] | 18.5W for DC voltage, 46VA for AC voltage - inrush, 23VA hold | | | | |
| Coil voltage tolerance | ±8% | | | | |
| Temperature range [°C] | ambient temperature -15 to +50, medium temperature -5 to +80 for NBR sealing, -10 to +145 for EPDM sealing and -10 to +160 for viton sealing | | | | |
| Enclosure | IP65 with sealed and fastened connector | | | | |
| Installing position | free, coil upright is recommended | | | | |
| Housing material | brass | | | | |

## Order codes

P MCS 06 2 N 5 D D24

| Series | |
|---|---|
| MCS |  2/2 normally closed |

| Thread | |
|---|---|
| 06 | G1/4“ |
| 10 | G3/8“ |
| 15 | G1/2“ |

| Size | |
|---|---|
| 1 | flow cap. 120 Nl/min |
| 2 | flow cap. 180 Nl/min |
| 3 | flow cap. 240 Nl/min |
| 4 | flow cap. 370 Nl/min |
| 5 | flow cap. 530 Nl/min |

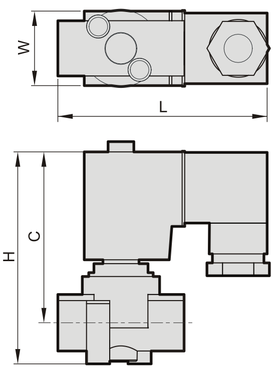
| Sealing | |
|---|---|
| N | NBR |
| J | EPDM |
| V | Viton |

| Connector | |
|---|---|
| | standard |
| D | s LED |

| Voltage | |
|---|---|
| D12 | 12 V DC |
| D24 | 24 V DC |
| A220 | 230 V AC 50-60 Hz |
| A24 | 24 V AC 50-60 Hz |

i Supply contains connector.

## Dimensions



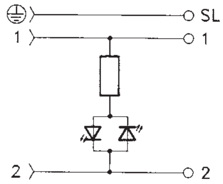

| Ports thread | L | H | C | W | Weight [kg] |
|---|---|---|---|---|---|
| G1/4“ | 49 | 86 | 71 | 36 | 0.4 |
| G3/8“ | 49 | 86 | 71 | 36 | 0.4 |
| G1/2“ | 56 | 86 | 73 | 36 | 0.4 |

### Standard conncector type 22 with cable grommet PG9

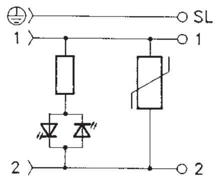
| Order codes | Type | Voltage [V] | Wiring | Colour | Weight [kg] |
|---|---|---|---|---|---|
| N230-363 | standard | up to 250 | — | black | 0.02 |
| N230-391 | with red LED | 10 to 50 | a | transparent | 0.02 |
| N230-392 | with red LED and varistor | 10 to 30 | b | transparent | 0.02 |
| N230-393 | with red LED | 70 to 250 | a | transparent | 0.02 |
| N230-394 | with red LED and varistor | 70 to 250 | b | transparent | 0.02 |

### Wiring

Wiring a




Wiring b



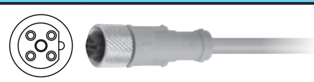
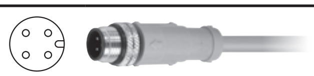
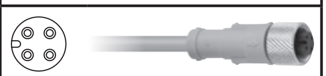
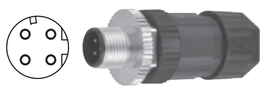
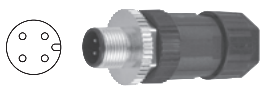

### Connector DIN 43650, form A, type 30 with cable grommet PG9

| Order codes | Type | Voltage [V] | Wiring | Colour | Weight [kg] |
|---|---|---|---|---|---|
| N230-592 | standard | up to 250 | — | grey | 0.02 |
| N230-582 | with red LED | 10 to 50 | a | transparent | 0.02 |
| N230-567 | with red LED and varistor | 10 to 30 | b | transparent | 0.02 |
| N230-584 | with red LED | 70 to 250 | a | transparent | 0.02 |
| N230-585 | with red LED and varistor | 70 to 250 | b | transparent | 0.02 |

### Plug connector with cable for valve series MVSY

| Order codes | Type |
|---|---|
| PMVSY-C5 | straight, cable 5 m |
| PMVSY-C10 | straight, cable 10 m |

### Cables and connectors for Fieldbus system series MVE

| Order codes | Type | 1st side | 2nd side |
|---|---|---|---|
| PM125R-WB-PVC-2M | Cable with connector M12. 5 pins, B coded, length 2m, (supply of SI unit) |  |  |
| PM124R-RJD-PVC-3M | Cable with connector M12, 4 pins, D coded, with RJ45 connector, length 3m, (communication of SI unit) |  |   |
| PM124R-MD-PVC-3M | Cable with connectors M12, 4 pins, D coded, length 3m, (communication of SI unit) |  |  |
| PM83R-F-PVC-3M | Cable with connectors M8, 3 pins, length 3m, (digital inputs of DI unit) |  |  |
| PM124R-FA-PVC-3M | Cable with connectors M12, 4 pins, A coded, length 3m, (digital outputs of DO unit) |  |  |
| PM124C-MD | Connector M12, 4 pins, D coded, (communication of SI unit) |  | |
| PM83C-M | Connector M8, 3 pins, (digital inputs of DI unit) |  | |
| PM124C-MA | Connector M12, 4 pins, A coded, (digital outputs of DO unit) |  | |

## Manually actuated 3/2, 4/2, 5/2, 4/3 and 5/3 function valves



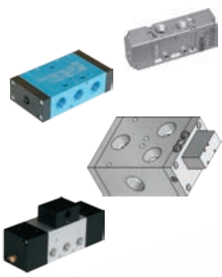
## Foot actuated 3/2, 4/2 and 5/2 function valves



## Mechanically actuated 3/2 and 5/2 function valves



## Pneumatically actuated 3/2, 5/2 and 5/3 function valves



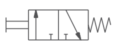
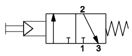
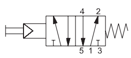
The new valve series, which replaces the old valve series for panel mounting with replaceable actuators. basic usable features are kept and brings some improvements such as bigger flow capacity, better accessibility and not least also better comfort during mounting and changing of actuators. Bigger actuators also brings the better user comfort during the actuating. The valves can be mounted into the panel with hole dia. 25 mm, or by using holes on the valve body. The big variability allows also changing of actuator anytime during operation - just turn off/on 2 screws on the side of valve and actuator is unlocked/locked.

This valve series contains rubber gaskets.

| Series | MVMC 210 | MVMB 220 3 | MVMB 220 4 |
|---|---|---|---|
| Ports | G1/8“ | G1/4“ | G1/4“ (G1/8“ for exhaust ports 3 and 5) |
| The way of actuation | direct | indirect (with pilot valve) | indirect (with pilot valve) |
| Actuating force at 0.6 MPa [N] | 30 | 20 | 20 |
| Flow capacity [Nl/min] | 1050 | 1000 | 1000 |
| Working pressure [MPa] | 0 to 0.99 | 0.15 to 0.8 | 0.15 to 0.8 |
| Weight [kg] | 0.155 | 0.21 | 0.18 |
| Temperature range [°C] | ambient temperature -5 to +60 | | |

## Order codes of valves

PMVM B2203

| | Function | |
|---|---|---|
| C2103 |  | Series MVMC, thread G1/8“, 3/2 normally closed and opened |
| B2203 |  | Series MVMB, thread G1/4“ 3/2 normally closed |
| B2204 |  | Series MVMB, thread G1/4“ 5/2 |

Valve PMVMC2103 can be connected as normally open or normally closed. The air supply should be connected to the port marked NC or NO.

## Order codes of actuators

PMVM BPPR

BPPx

BPBx

BEB

| | Function |
|---|---|
| BPPB | push button black |
| BPPR | push button red |
| BPPG | push button green |
| BPBB | mushroom push button black |
| BPBR | mushroom push button red |
| BPBG | mushroom push button green |
| BEB | twist to release mushroom push button red |
| BTB | selector switch black |
| BLB | extended selector switch black |
| CR1 | roller lever (only for PMVMC2103 valve) |

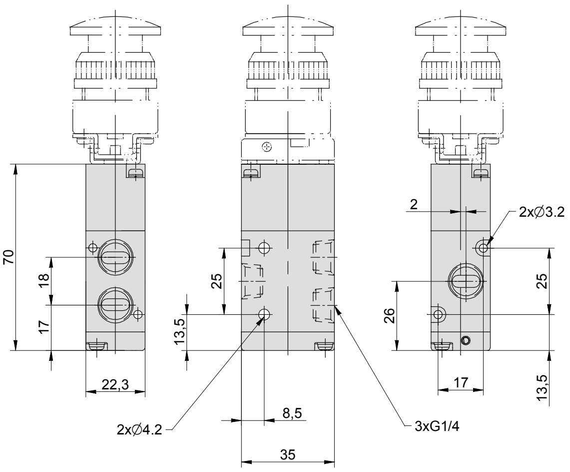
BTB

BLB

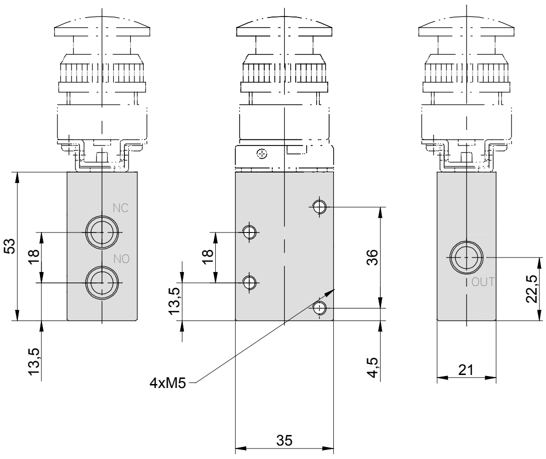
CR1

## Dimensions

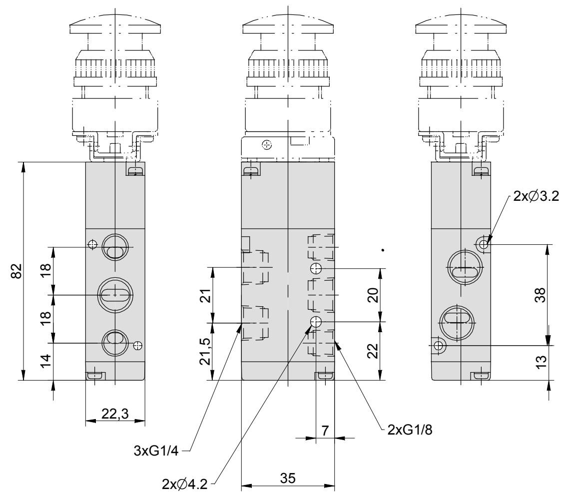
Type MVMB2203



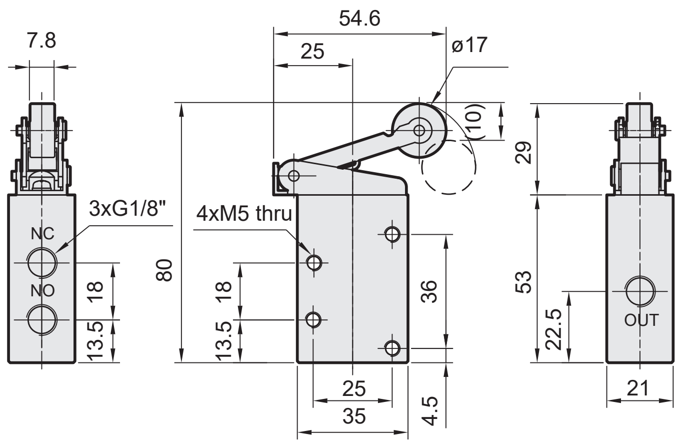

Type MVMC2103




Type MVMB2204

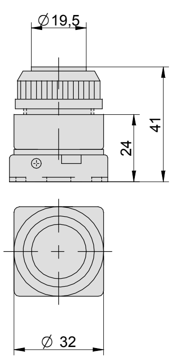



Type MVMC2103 with PMVMCR1 roller lever actuator

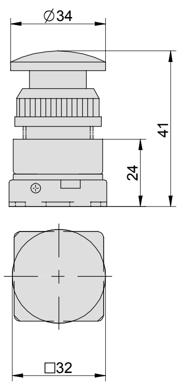



Actuators

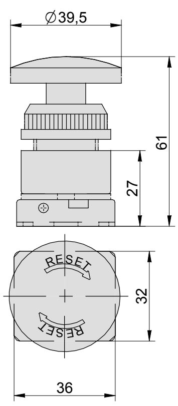
MVMBPPx



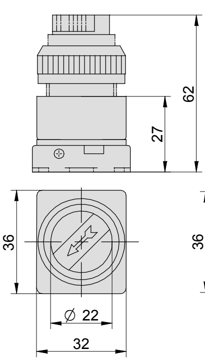

MVMBPBx



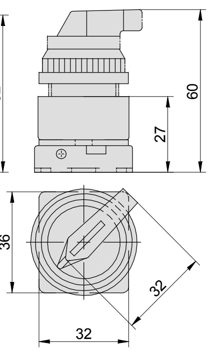

MVMBEB



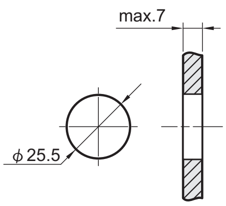

MVMBTB




MVMBLB




Panel mounting hole



Valves are available with or without detent as well as functions 5/2 and 5/3 with closed, pressured or exhausted centre. Valves can be mounted by using the holes on the valve body, type MVHB 220 can be also mounted into the panel with hole dia. 18.5 mm.

This valve series contains rubber gaskets.

| Series | MVHB 220 | MVHB 300 | MVHB 500 |
|---|---|---|---|
| Ports | G1/4“ (G1/8“ for exhaust ports 3 and 5) | G3/8” | G1/2“ |
| Flow capacity [Nl/min] | 1000, or 890 for 5/3 function | 1880 for 5/2 and 5/3 function | 2270 for 5/2 and 5/3 function |
| Working pressure [MPa] | 0 to 0.80 | 0 to 1.20 | 0 to 1.20 |
| Weight [kg] | 0.193, or 0.234 for 5/3 function | 0.438, or 0.487 for 5/3 function | 0.519, or 0.560 for 5/3 function |
| Temperature range [°C] | ambient temperature -5 to +60 | | |

## Order codes

PMVHB 220 4TV SPM

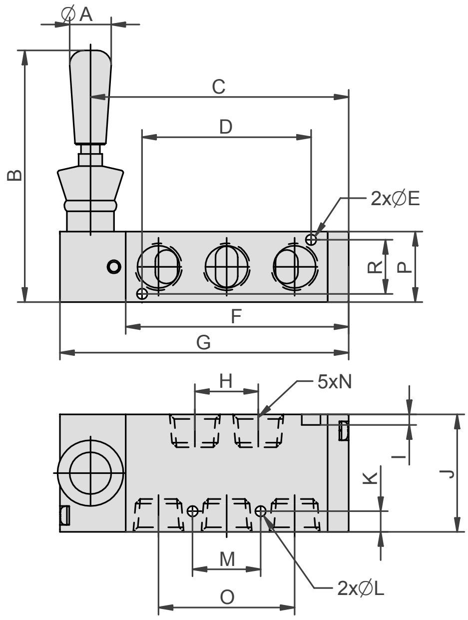
| Size | |
|---|---|
| 220 | series MVHB 220, thread G1/4“ |
| 300 | series MVHB 300, thread G3/8“ |
| 500 | series MVHB 500, thread G1/2“ |

| Function | |
|---|---|
| M | 5/2 with detent |
| SPM | 5/2 without detent |
| CM | 5/3 with detent, closed centre |
| CSPM | 5/3 without detent, closed centre |

| Function | |
|---|---|
| PM | 5/3 with detent, pressured centre |
| PSPM | 5/3 without detent, pressured centre |
| RM | 5/3 with detent, exhausted centre |
| RSPM | 5/3 without detent, exhausted centre |



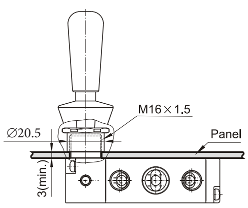
## Dimensions




| Series | Function | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 220 | M, SPM | 18 | 95 | 67 | — | — | 57 | 77 | 21 | — | 35 | 7 | 4.2 | 20 | G1/4“ | 36 | 22.3 | — |
| | CM, PM, RM | 18 | 95 | 74.5 | — | — | 59 | 85 | 21 | — | 35 | 7 | 4.2 | 20 | G1/4“ | 36 | 22.3 | — |
| | CSPM, PSPM, RSPM | 18 | 95 | 86.5 | — | — | 71 | 97 | 21 | — | 35 | 7 | 4.2 | 20 | G1/4“ | 36 | 22.3 | — |
| 300 | M, SPM | 18 | 107 | — | 60 | 3.2 | — | 114 | 30 | — | 47 | 4.7 | 4.5 | 26 | G3/8“ | 52 | 30 | 25 |
| | CM, PM, RM | 18 | 107 | 110 | 60 | 3.2 | — | 123 | 30 | — | 47 | 4.7 | 4.5 | 26 | G3/8“ | 52 | 30 | 25 |
| | CSPM, PSPM, RSPM | 18 | 107 | 129 | 60 | 3.2 | — | 142 | 30 | — | 47 | 4.7 | 4.5 | 26 | G3/8“ | 52 | 30 | 25 |
| 500 | M, SPM, CM, PM, RM | 18 | 107 | 111 | 72 | 4.5 | 95 | 124 | 27 | 4.5 | 50 | 8.8 | 4.5 | 29 | G1/2“ | 58 | 30 | 23 |
| | CSPM, PSPM, RSPM | 18 | 107 | 129 | 72 | 4.5 | 114 | 142 | 27 | 4.5 | 50 | 8.8 | 4.5 | 29 | G1/2“ | 58 | 30 | 23 |

i

Valves series MVHB 220 can be mounted into the panel or by holes in the valve body. Valves series MVHB 500 can be mounted only by holes in the valve body.



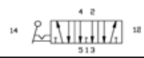
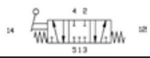
Valves are available with or without detent as well as functions 5/2 and 5/3 with closed or exhausted centre.

This valve series contains rubber gaskets.

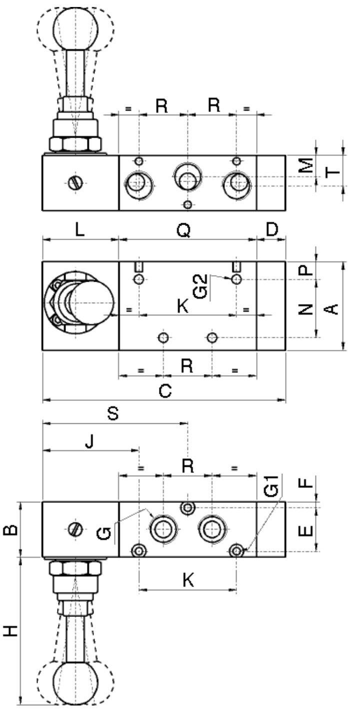
| Series | Z22 5/2 | Z22 5/3 |
|---|---|---|
| Ports | G1/4“ | |
| Flow capacity [Nl/min] | 1000 | |
| Working pressure [MPa] | 0 to 1.0 | |
| Temperature range [°C] | -10 to +60 | |
| Medium | modified compressed air | |
| Weight [kg] | 0.31 | 0.38 |

## Order codes

| Type | | 5/2 |
|---|---|---|
| Without detent |  | NZ22 VA45 2OG0 0000 |
| With detent |  | NZ22 VD45 2OG0 0000 |

| Type | | 5/3 |
|---|---|---|
| Without detent, exhausted centre |  | NZ22 VA55 2OG0 0000 |
| With detent, exhausted centre |  | NZ22 VD55 2OG0 0000 |
| Without detent, closed centre |  | NZ22 VA65 2OG0 0000 |
| With detent, closed centre |  | NZ22 VD65 2OG0 0000 |

## Dimensions




| Type | A | B | C | D | E | F | G | G1 | G2 | H | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NZ22 Vx45 ... | 40 | 25 | 109.5 | 13 | 19.6 | 2.7 | G1/4“ | 3.3 | 4.2 | 67 | 43.5 | 44 | 34.5 |
| NZ22 VAx5 ... | 40 | 25 | 132.5 | 36 | 19.6 | 2.7 | G1/4“ | 3.3 | 4.2 | 67 | 43.5 | 44 | 34.5 |
| NZ22 VDx5 ... | 40 | 25 | 109.5 | 13 | 19.6 | 2.7 | G1/4“ | 3.3 | 4.2 | 67 | 43.5 | 44 | 34.5 |

| Type | M | N | P | Q | R | S | T |
|---|---|---|---|---|---|---|---|
| NZ22 Vx45 ... | 9.8 | 26.3 | 8 | 62 | 22 | 65.5 | 13.8 |
| NZ22 VAx5 ... | 9.8 | 26.3 | 8 | 62 | 22 | 65.5 | 13.8 |
| NZ22 VDx5 ... | 9.8 | 26.3 | 8 | 62 | 22 | 65.5 | 13.8 |

STRÁNSKÝ A PETRŽÍK

Valves are available with functions 4/2 and 4/3 with centre closed and exhausted position, with detent positions.

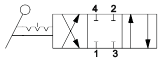
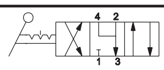
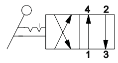
This valve series contains rubber gaskets.

| Series | MVHC 200 | MVHC 300 | MVHC 400 |
|---|---|---|---|
| Ports | G1/4“ | G3/8“ | G1/2“ |
| Flow capacity [Nl/min] | 410 | 1100 | 3000 |
| Working pressure [MPa] | 0 to 0.99 | 0 to 0.99 | 0 to 0.99 |
| Weight [kg] | 0.280 | 0.420 | 1.100 |
| Temperature range [°C] | ambient temperature -5 to +60 | | |

## Order codes - valves

PMVHC 3 0 2 4H

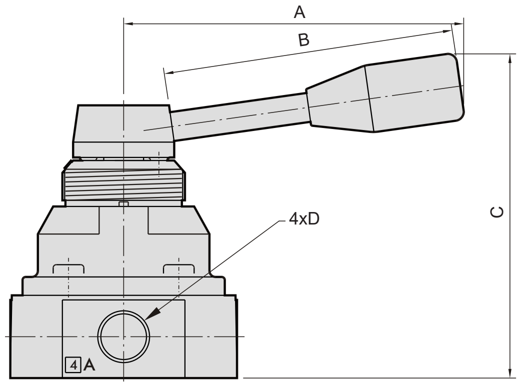
| | Size |
|---|---|
| 2 | series MVHC 200, thread G1/4“ |
| 3 | series MVHC 300, thread G3/8“ |
| 4 | series MVHC 400, thread G1/2“ |

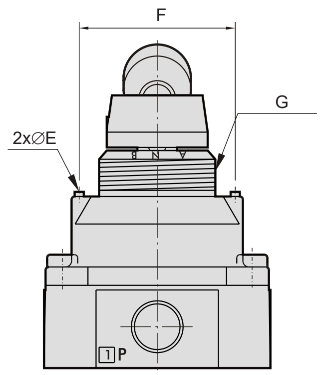
| | Function | |
|---|---|---|
| 0 |  | 4/3 with closed centre |
| 1 |  | 4/3 with exhausted centre |
| 2 |  | 4/2 |

## - mounting nut

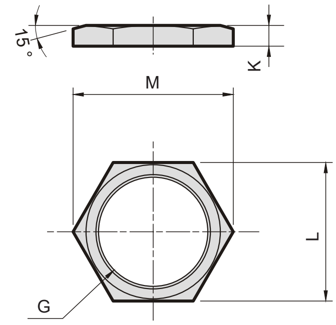
| Series | Order codes |
|---|---|
| 200 | PMVHC2M |
| 300 | PMVHC3M |
| 400 | PMVHC4M |

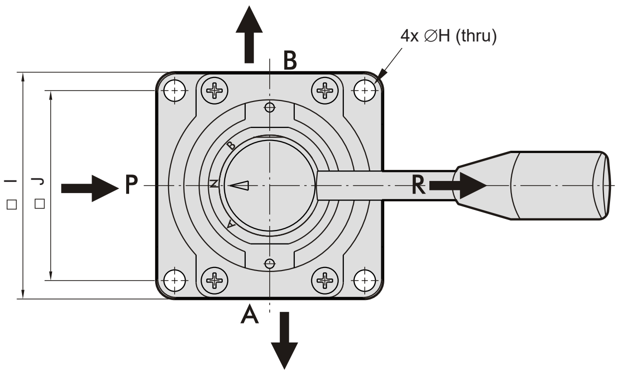
## Dimensions



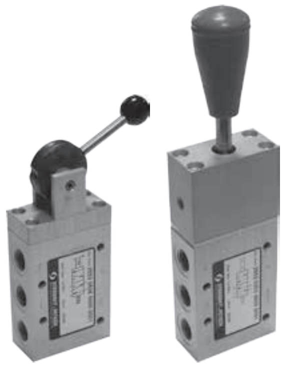

**Mounting nut**
(to be ordered separately)




| Series | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 | 103 | | 88 | G1/4“ | 3 | 40 | M33x1.5 | 5.5 | 62 | 49 | 6 | 41 | 46 |
| 300 | 111 | 95 | 106 | G3/8“ | 3 | 51 | M40x1.5 | 7 | 74 | 62 | 6 | 50 | 57 |
| 400 | 111 | 95 | 124 | G1/2“ | 3 | 64 | M50x1.5 | 6.5 | 102 | 88 | 8 | 55 | 63 |

# LEVER VALVES SERIES
# DRAW BAR VALVES SERIES



Lever valves are actuated by 120° lever turning. Both positions are detent. Draw bar valves are actuated by pressing the draw bar. Return to starting position is by pulling of draw bar. If the draw bar is during pulling out rotated to right, the force which is need for overcome the detent will be lower. Draw bar valves can be produced from stainless steel on request.

This valve series contains rubber gaskets.

| Ports | G1/4“ |
|---|---|
| Flow capacity [Nl/min] | 800 |
| Working pressure [MPa] | 0.2 to 1.0 |
| The way of actuation | direct |
| Temperature range [°C] | -20 to +80 |
| Working medium | modified compressed air |
| Weight [kg] | 0.26 for 3/2 function, 0.32 for 5/2 function |

## Order codes

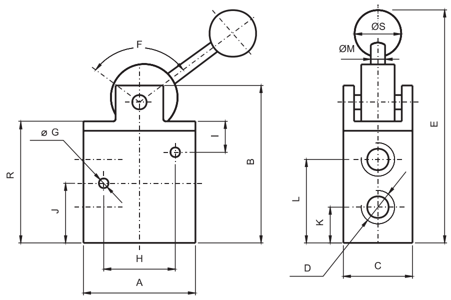
| Ports | G1/4“ |
|---|---|
| Lever valve 3/2 | 2532 0505 0600 0001 |
| Lever valve 5/2 | 2552 0505 0600 0001 |

| Ports | G1/4“ | G1/4“ stainless steel |
|---|---|---|
| Draw bar valve 3/2 | 2532 0303 0600 0001 | 2532 0303 0600 0002 |
| Draw bar valve 5/2 | 2552 0303 0600 0001 | 2552 0303 0600 0002 |

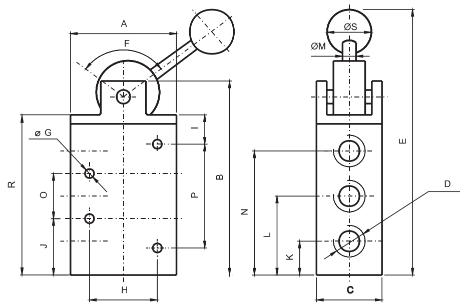
## Dimensions

### Lever valve series

**Type 3/2**



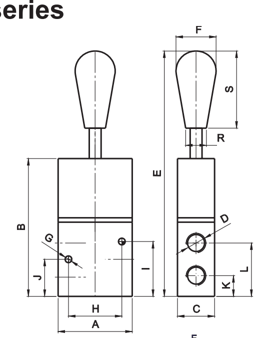
**Type 5/2**



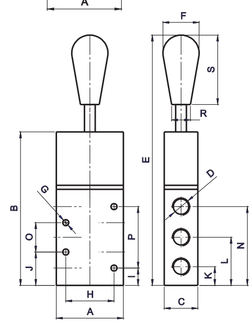
| Type | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | R | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/2 | 50 | 85 | 25 | G1/4“ | 127 | 120 | 4.5 | 36 | 23 | 25 | 14 | 36 | 5 | – | – | – | 60 | 16 |
| 5/2 | 50 | 107 | 25 | G1/4“ | 149 | 120 | 4.5 | 36 | 23 | 25 | 14 | 36 | 5 | 58 | 22 | 46 | 82 | 16 |

### Draw bar valve series

**Type 3/2**



**Type 5/2**



| Type | A | B | C | D | E | F | G | H | I | J | K | L | N | O | P | R | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/2 | 50 | 93 | 25 | G1/4“ | 166 | 27 | 4.5 | 36 | 37 | 25 | 14 | 36 | – | – | – | 14 | 52 |
| 5/2 | 50 | 115 | 25 | G1/4“ | 188 | 27 | 4.5 | 36 | 13 | 25 | 14 | 36 | 59 | 22 | 46 | 14 | 52 |

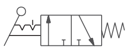
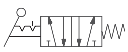
STRÁNSKÝ A PETRŽÍK

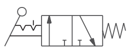
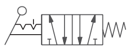
The valve with a lever is operated by turning the lever by 110°. Both positions are detent. We also produce a version with the hole for securing the valve (eg with a padlock) in the initial position.

This valve series contains rubber gaskets.

| Ports | G1/4“ |
|---|---|
| Flow capacity [Nl/min] | 800 |
| Working pressure [MPa] | 0.2 to 1.0 |
| The way of actuation | direct |
| Temperature range [°C] | -20 to +80 |
| Working medium | modified compressed air |
| Weight [kg] | 0.43 for 3/2 function, 0.51 for 5/2 function |

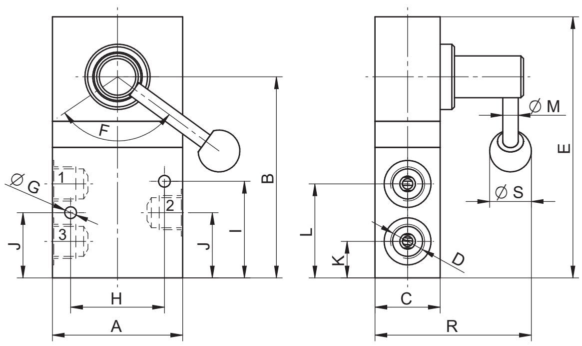
## Order codes

| Ports | | G1/4“ |
|---|---|---|
| Twist lever valve 3/2 |  | 2532 0505 0600 0005 |
| Twist lever valve 5/2 |  | 2552 0505 0600 0006 |

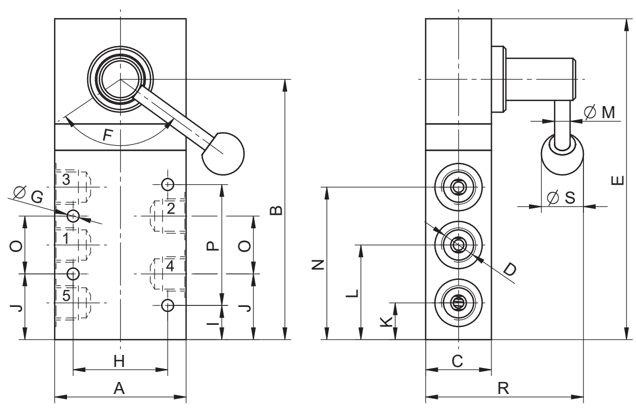
| Ports | | G1/4“ |
|---|---|---|
| Twist lever valve 3/2 with hole for securing |  | 2532 0505 0600 0004 |
| Twist lever valve 5/2 with hole for securing |  | 2552 0505 0600 0007 |

## Dimensions

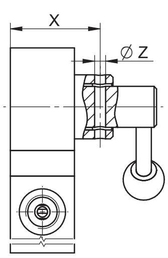
### Type 3/2




### Type 5/2

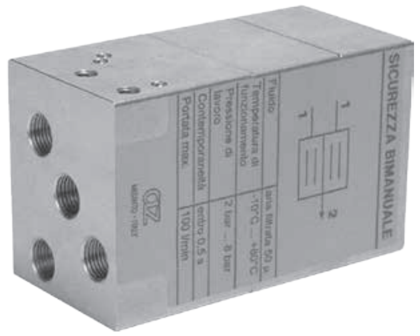



| Type | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | R | S | X | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/2 | 50 | 77 | 25 | G1/4“ | 100 | 110 | 4.5 | 36 | 37 | 25 | 14 | 36 | 5 | – | – | – | 60 | 16 | 35 | 5 |
| 5/2 | 50 | 99 | 25 | G1/4“ | 122 | 110 | 4.5 | 36 | 13 | 25 | 14 | 36 | 5 | 58 | 22 | 46 | 60 | 16 | 35 | 5 |




Version with hole for securing the basic position

# TWO HAND SAFETY VALVE



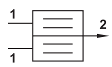
This valve is used to pilot high-flow directional control valves connected to machines which have a high risk of injuries to the hands.
The machine operator must simultaneously operate, in a safe area, two three-way manual valves for correct operation. The safety valve will ignore a single depression of one of the manual valves. To repeat the cycle both pilot signals must be exhausted and the manual valves simultaneously actuated again.

**The two-hand safety valve is sold with CE-certification (compliant to Machinery Directives EEC 89/392, 91/368, 93/44, 96/68 and to Norm EN 574, level 1).**

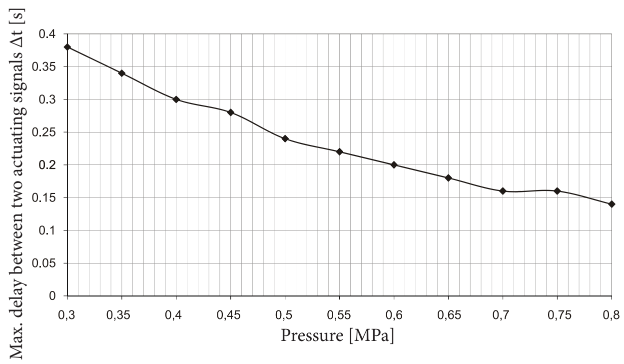
This valve series contains rubber gaskets.

| Ports | G1/8“ |
|---|---|
| Flow capacity [Nl/min] | 100 |
| Working pressure [MPa] | 0.3 to 0.8 |
| Temperature range [°C] | -10 to +60 |
| Max. delay between two actuating signals [s] | 0.5 |
| Working medium | modified compressed air |
| Weight [kg] | 0.40 |

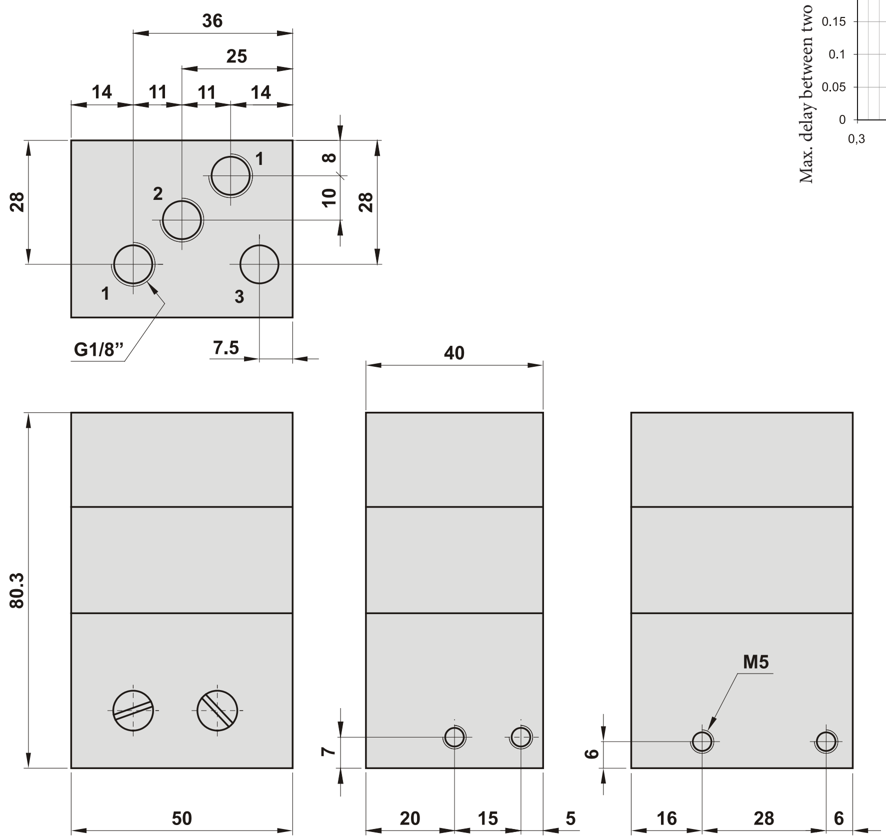
## Order codes

| Ports | | G1/8“ |
|---|---|---|
| Two hand safety valve |  | 2899 0029 9040 0004 |

## Max. delay between two actuating signals related to the pressure

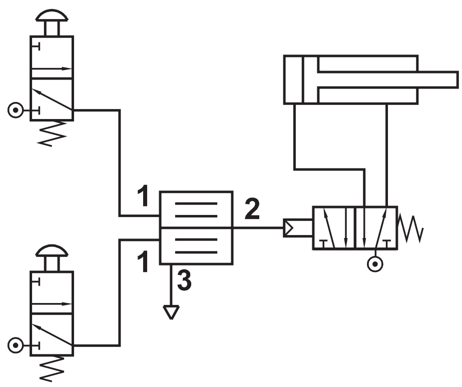



## Dimensions




Note: M5 threaded holes are for fixing the valve

## Connection



This safety valve is used in applications, where controlling by two hands at a time is necessary due to safety reasons (presses and etc.). Valve is actuated only when both levers are pressed together. If one lever will be pressed permanently, valve will not be actuated when the second lever will be pressed.

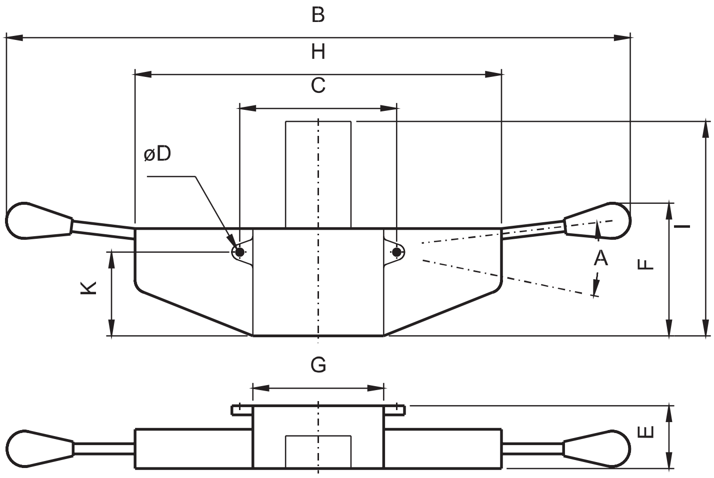
This valve series contains rubber gaskets.

| Ports | G1/4“ |
|---|---|
| Flow capacity [Nl/min] | 800 |
| Working pressure [MPa] | 0.2 to 1.0 |
| The way of actuation | direct |
| Temperature range [°C] | -20 to +80 |
| Working medium | modified compressed air |
| Weight [kg] | 1.28 for 3/2 function, 1.34 for 5/2 function |

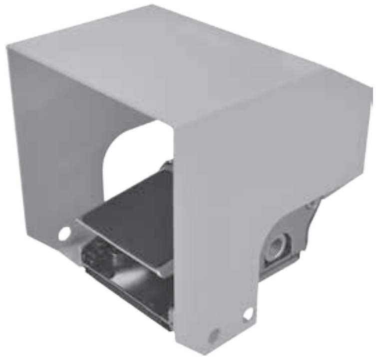
## Order codes

| Ports | G1/4“ |
|---|---|
| Type 3/2 | 2532 5090 0600 0001 |
| Type 5/2 | 2552 5090 0600 0001 |

## Dimensions




| Type | A | B | C | D | E | F | G | H | I | K |
|---|---|---|---|---|---|---|---|---|---|---|
| 3/2 | 22° | 530 | 118 | 5.4 | 48 | 106 | 100 | 280 | 138 | 35 |
| 5/2 | 22° | 530 | 118 | 5.4 | 48 | 106 | 100 | 280 | 160 | 35 |

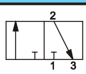
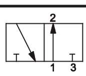
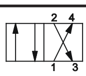
Valves without or with protecting cover are available with 3/2 and 4/2 function with or without detent.

This valve series contains rubber gaskets.

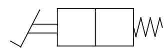
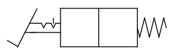
| **Series** | **MVFA 240** |
|---|---|
| Ports | G1/4“ |
| Flow capacity [Nl/min] | 440 |
| Working pressure [MPa] | 0.2 to 0.7 |
| Weight without / with protection cover [kg] | function 230: 0.684/1.426; function 231: 0.739/1.481; function 240: 0.774/1.516 |
| Temperature range [°C] | ambient temperature -5 to +60 |

## Order codes

PMVFA 240 P L

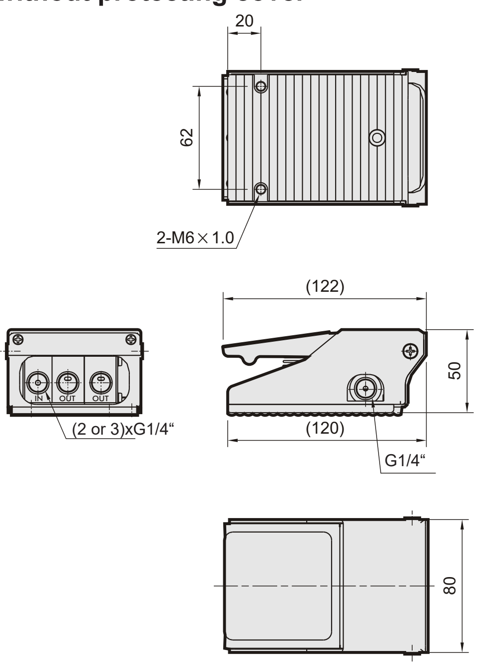
| **Function** | | |
|---|---|---|
| 230 |  | 3/2 normally closed |
| 231 |  | 3/2 normally opened |
| 240 |  | 4/2 |

| **Protective cover** | |
|---|---|
| | without protective cover |
| P | with protective cover |

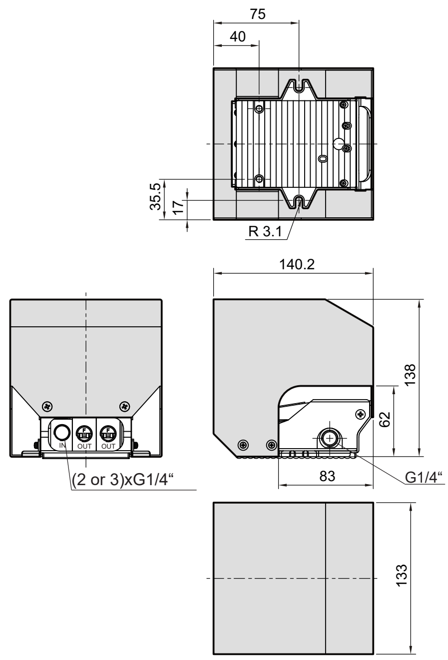
| **Detent** | | |
|---|---|---|
| |  | without detent |
| L |  | with detent |

## Dimensions

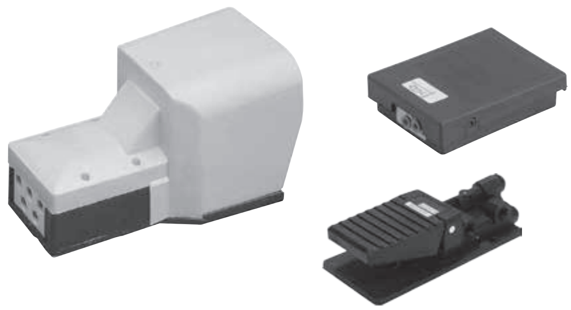
### Type without protecting cover




### Type with protecting cover



# FOOT ACTUATED VALVES

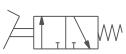
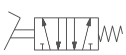


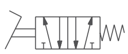
Valves are available with or without protecting cap. Protecting cap protect foot pedal to unwanted activating. Valves with protecting cap are available with or without detent in activated position. Valves without protecting cap are available only without detent.

This valve series contains rubber gaskets.

| Type | 3/2 without protecting cover | 5/2 without protecting cover | 5/2 with protecting cover |
|---|---|---|---|
| Ports | tube 4/2 | tube 6/4; G1/8“ for exhausts (3.5) | G1/4“ |
| Flow capacity [Nl/min] | 100 | 540 | 600 |
| Working pressure [MPa] | 0.2 to 1.0 | | |
| Temperature range [°C] | -20 to +60 | | |
| Working medium | modified compressed air | | |
| Weight [kg] | 0.18 | 0.18 | 1.10 |

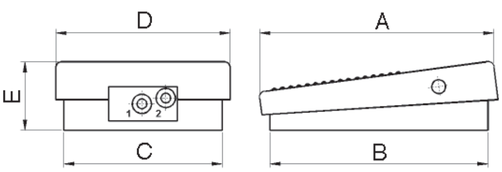
## Order codes

| Type | | Order codes |
|---|---|---|
| Type 3/2 without protection cover, for tube 4/2 |  | NZFD FA30 0OL0 0000 |
| Type 5/2 without protection cover, for tube 6/4, exhaust ports G1/8“ |  | 2552 4090 3200 0001 |

| Type | | Order codes |
|---|---|---|
| Type 5/2 with protection cover, thread G1/4“ |  | NZF2 FA40 0OG0 0000 |
| Type 5/2 with protection cover with detent, thread G1/4“ |  | NZF2 FD40 0OG0 0000 |

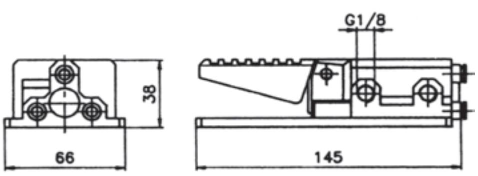
## Dimensions

### Type 3/2 without protecting cover

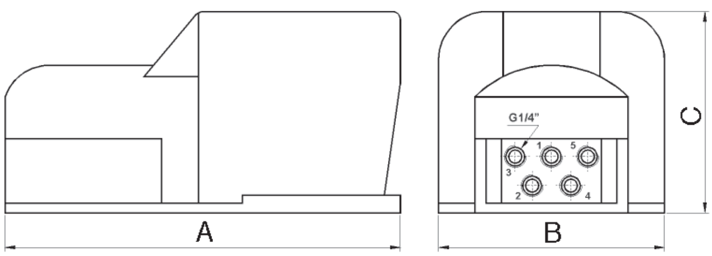



| A | B | C | D | E |
|---|---|---|---|---|
| 104 | 95 | 76 | 69 | 31 |

### Type 5/2 without protecting cover

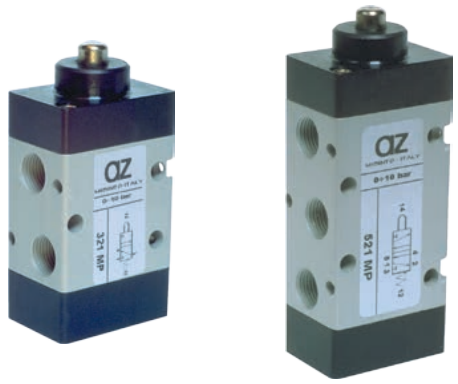



### Type 5/2 with protecting cover




| A | B | C |
|---|---|---|
| 245 | 140 | 145 |

# MECHANICALLY ACTUATED STEM VALVES

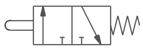
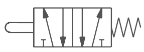


This valve is actuated by pressing down the stem at the axis direction. This valve is not replacement for roller lever valves, which are actuated by rolling the can from the side.

This valve series contains rubber gaskets.

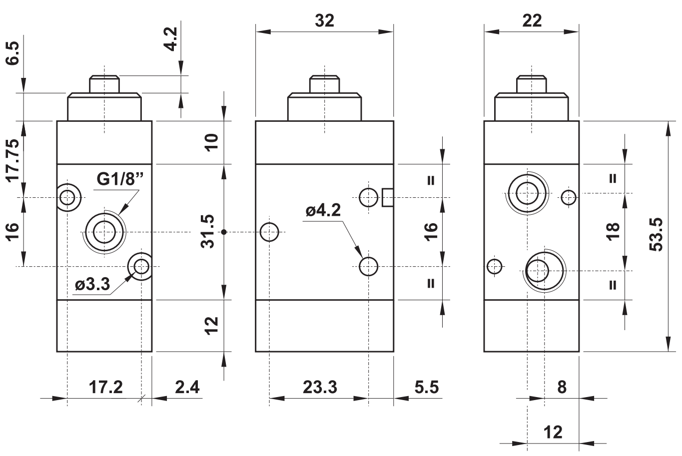
| Ports | G1/8“ |
|---|---|
| Flow capacity [Nl/min] | 550 |
| Working pressure [MPa] | vacuum to 1.0 |
| Temperature range [°C] | -20 to +60 |
| Actuating force [N] | 33 |
| Working medium | modified compressed air |
| Weight [kg] | 0.1 (3/2), 0.13 (5/2) |

## Order codes

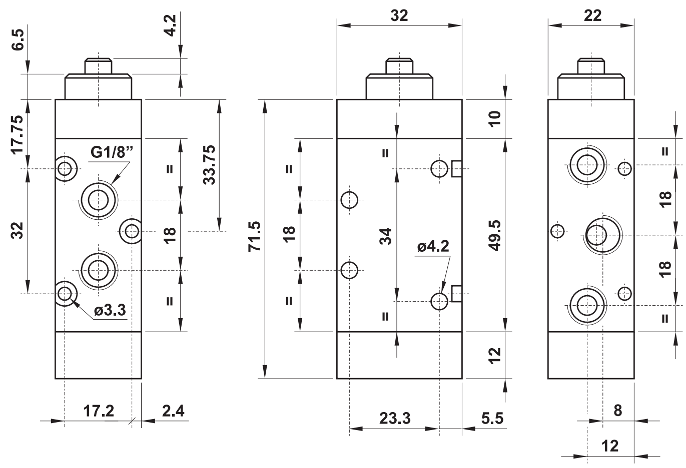
| Ports | | G1/8“ |
|---|---|---|
| Valve 3/2 |  | 2532 3090 0400 0007 |
| Valve 5/2 |  | 2552 3090 0400 0004 |

## Dimensions

### Valve 3/2




### Valve 5/2

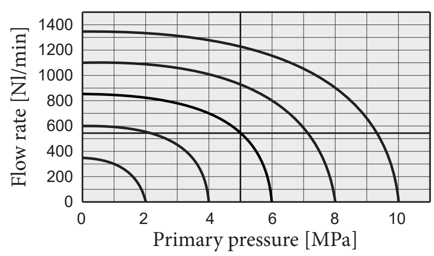



## Technical data

### Materials

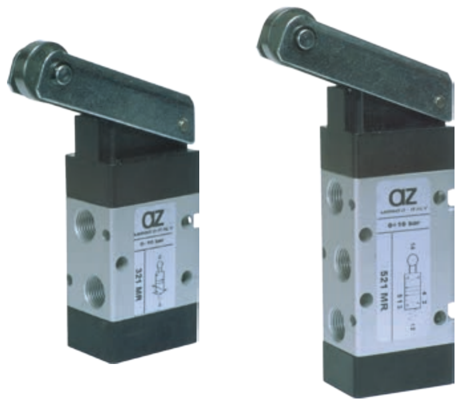
body - aluminium alloy
caps - aluminium alloy, technopolymer
spring - stainless steel
seals - NBR
spool - nickel plated aluminium alloy
internal parts - brass

### Flow rate



# MECHANICALLY ACTUATED ROLLER LEVER VALVES

STRÁNSKÝ A PETRŽÍK

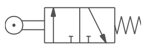
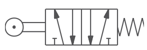


Valves are actuated by rolling the cam from the one or another side of the valve body. There are 3/2 normally closed and 5/2 valves available.

This valve series contains rubber gaskets.

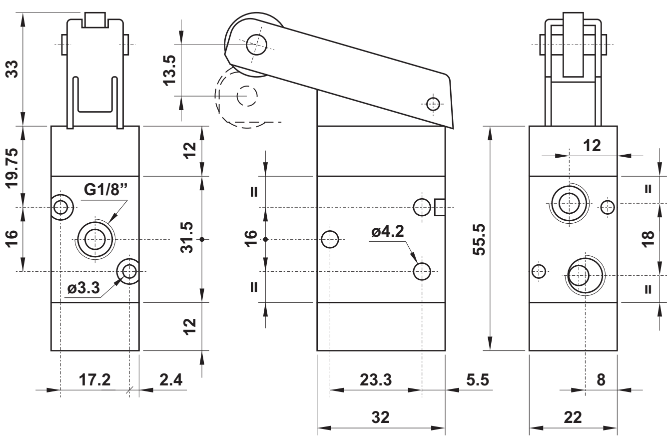
| Ports | G1/8“ |
|---|---|
| Flow capacity [Nl/min] | 550 |
| Working pressure [MPa] | vacuum to 1.0 |
| Temperature range [°C] | -20 to +60 |
| Actuating force [N] | 10 |
| Working medium | modified compressed air |
| Weight [kg] | 0.15 (3/2), 0.18 (5/2) |

## Order codes

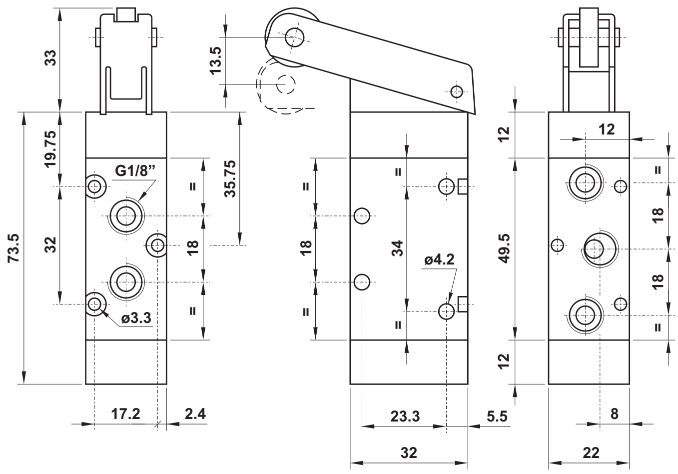
| Ports | | G1/8“ |
|---|---|---|
| Valve 3/2 |  | 2532 2090 0400 0008 |
| Valve 5/2 |  | 2552 2090 0400 0005 |

## Dimensions

### Valve 3/2




### Valve 5/2

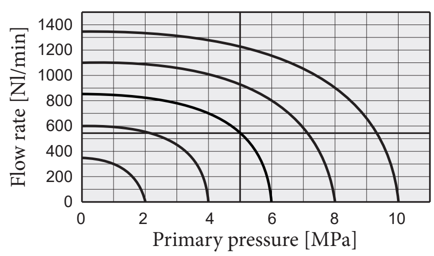



## Technical data

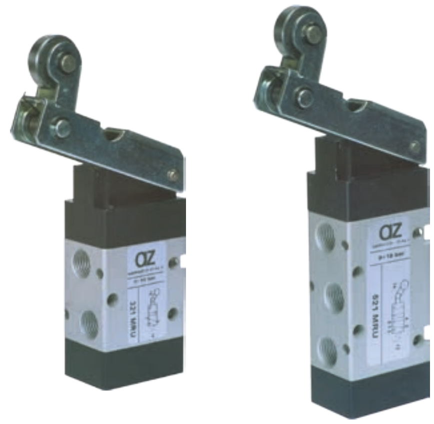
### Materials

body - aluminium alloy
caps - aluminium alloy, technopolymer
spring - stainless steel
seals - NBR
spool - nickel plated aluminium alloy
internal parts - brass
lever - zinc plated steel
roller - bearing

### Flow rate



# MECHANICALLY ACTUATED ROLLER LEVER VALVES WITH IDLE RETURN

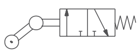
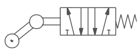


Valves are actuated by rolling the cam from the one or another side of the valve body. The cam must go over the roller and release it. During the cam return, the roller will not activate the valve. Those valves are used in pneumatic controlled circuits and everywhere where only one signal about movement is necessary. There are 3/2 normally closed and 5/2 valves available.

This valve series contains rubber gaskets.

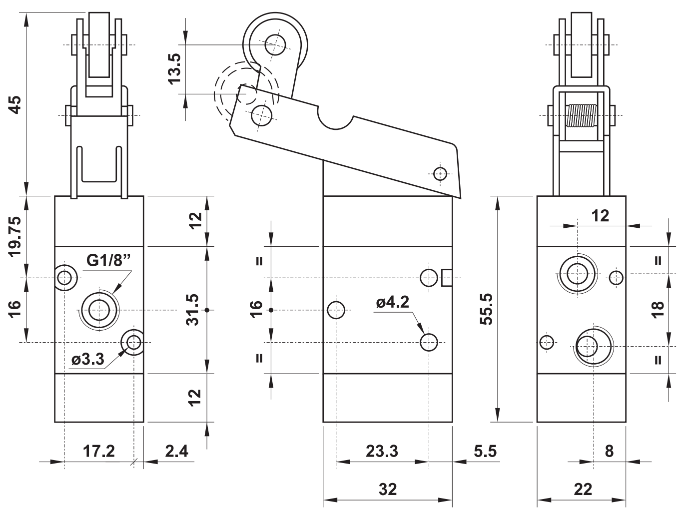
| Ports | G1/8“ |
|---|---|
| Flow capacity [Nl/min] | 550 |
| Working pressure [MPa] | vacuum to 1.0 |
| Temperature range [°C] | -20 to +60 |
| Actuating force [N] | 10 |
| Working medium | modified compressed air |
| Weight [kg] | 0.15 (3/2), 0.18 (5/2) |

## Order codes

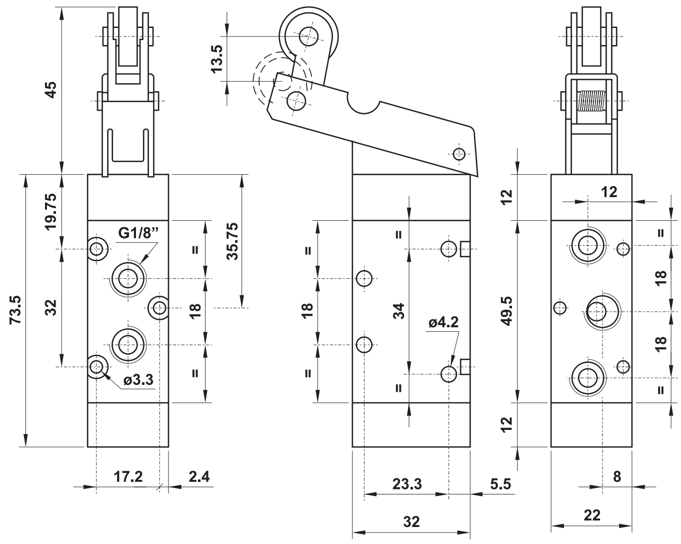
| Ports | | G1/8“ |
|---|---|---|
| Valve 3/2 |  | 2532 2190 0400 0002 |
| Valve 5/2 |  | 2552 2190 0400 0002 |

## Dimensions

### Valve 3/2




### Valve 5/2

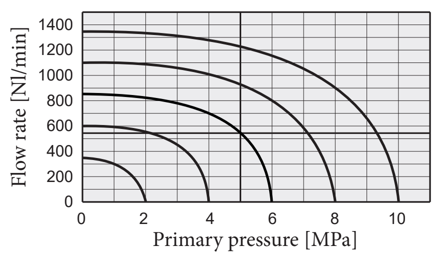



## Technical data

### Materials

body - aluminium alloy
caps - aluminium alloy, technopolymer
spring - stainless steel
seals - NBR
spool - nickel plated aluminium alloy
internal parts - brass
lever - zinc plated steel
roller - bearing

### Flow rate



All functions like 3/2 normally close and open, 5/2 monostable and bistable and 5/3 with centre closed position are available.

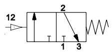
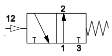
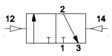
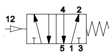
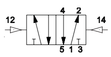
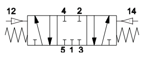
This valve series contains rubber gaskets.

| Series | MVAA 220 | MVAA 460 |
|---|---|---|
| Ports | G1/4“ (G1/8“ for exhaust ports 3, 5 and for pilot) | G1/2“ (G1/8“ for pilot) |
| Flow capacity [Nl/min] | 1000 | 2780 |
| Working pressure [MPa] | 0 to 0.8 | |
| Pilot pressure [MPa] | 0.2 to 0.7 | |
| Weight [kg] | function 3A1: 0.122; 3A2: 0.134; 4A1: 0.106; 4A2: 0.134; 4A2C:0.179 | function 4A1: 0.275; 4A2: 0.338; 4A2C: 0.500 |
| Temperature range [°C] | ambient temperature -5 to +50 | |

## Order codes

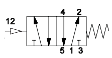
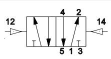
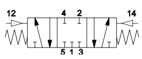
PMVAA 220 4A1

| Size | |
|---|---|
| 220 | series MVAA 220, thread G1/4“ |

| Function | | |
|---|---|---|
| 3A1C |  | 3/2 normally closed |
| 3A1O |  | 3/2 normally open |
| 3A2 |  | 3/2 bistable |
| 4A1 |  | 5/2 monostable |
| 4A2 |  | 5/2 bistable |
| 4A2C |  | 5/3 centre closed position |

PMVAA 460 4A2

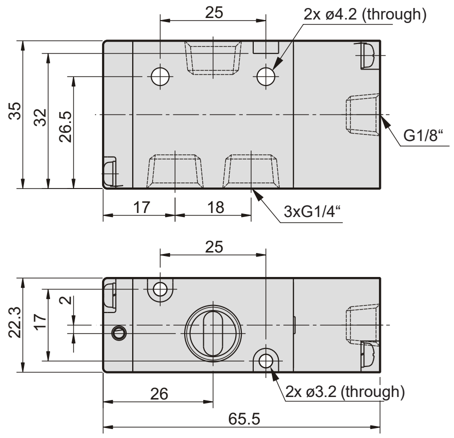
| Size | |
|---|---|
| 460 | series MVAA 460, thread G1/2“ |

| Function | | |
|---|---|---|
| 4A1 |  | 5/2 monostable |
| 4A2 |  | 5/2 bistable |
| 4A2C |  | 5/3 centre closed position |

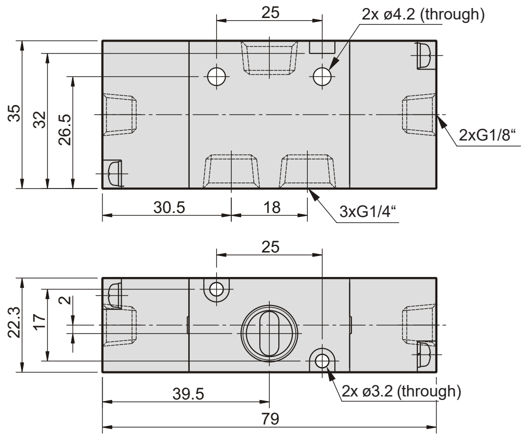
The valves of MVAA series can be mounted on manifold. Then it is possible to use one air supply (which can be through) and common exhausts. Manifold assembly can save space and reduce installation and maintenance costs. The manifolds are the same as for valves of MVSC series. Order codes and dimensions can be found on pages 5-6 and 5-28.

## Dimensions

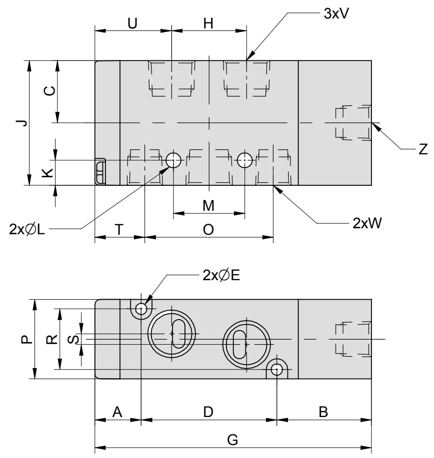
Type MVAA2203A1C and MVAA2203A1O:



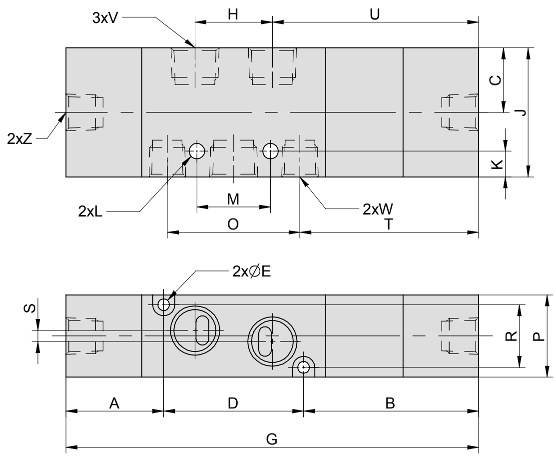

Type MVAA2203A2:



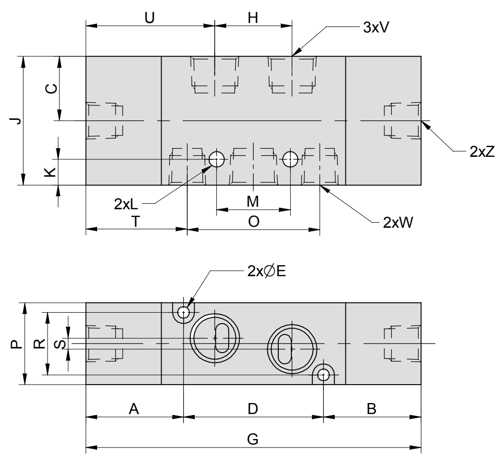

Type MVAA2204A1 and MVAA4604A1:




Type MVAA2204A2C and MVAA4604A2C:




Type MVAA2204A2 and MVAA4604A2:




| Series | Function | A | B | C | D | E | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 220 | 4A1 | 13 | 26.5 | 17.5 | 38 | 3.2 | 77.5 | 21 | 35 | 7 | 4.2 | 20 |
| | 4A2 | 26.5 | 26.5 | 17.5 | 38 | 3.2 | 91 | 21 | 35 | 7 | 4.2 | 20 |
| | 4A2C | 26.5 | 47.5 | 17.5 | 38 | 3.2 | 112 | 21 | 35 | 7 | 4.2 | 20 |
| 460 | 4A1 | 15 | 31 | 29.4 | 72 | 4.2 | 118 | 28 | 46.4 | 9 | 4.5 | 29 |
| | 4A2 | 31 | 31 | 29.4 | 72 | 4.2 | 134 | 28 | 46.4 | 9 | 4.5 | 29 |
| | 4A2C | 50.7 | 31 | 29.4 | 72 | 4.2 | 153.5 | 28 | 46.4 | 9 | 4.5 | 29 |

| Series | Function | O | P | R | S | T | U | V | W | Z |
|---|---|---|---|---|---|---|---|---|---|---|
| 220 | 4A1 | 36 | 22.3 | 17 | 3 | 14 | 21.5 | G1/4“ | G1/8“ | G1/8“ |
| | 4A2 | 36 | 22.3 | 17 | 3 | 27.5 | 35 | G1/4“ | G1/8“ | G1/8“ |
| | 4A2C | 36 | 22.3 | 17 | 3 | 28.5 | 56 | G1/4“ | G1/8“ | G1/8“ |
| 460 | 4A1 | 58 | 30 | 23 | 4.5 | 22 | 37 | G1/2“ | G1/2“ | G1/8“ |
| | 4A2 | 58 | 30 | 23 | 4.5 | 38 | 53 | G1/2“ | G1/2“ | G1/8“ |
| | 4A2C | 58 | 30 | 23 | 4.5 | 57.5 | 72.5 | G1/2“ | G1/2“ | G1/8“ |

STRÁNSKÝ A PETRŽÍK

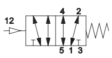
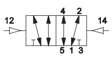
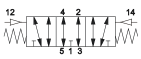

A new type of pneumatically actuated valve, which offers not only a large flow rate, but also high durability. Valves can be used as standalone or they can be mounted on manifolds.

Valves series K contains spool and sleeve assembly, which guarantee long lifetime of valve.

| Series | K1 | K2 | | K3 |
|---|---|---|---|---|
| Port | G1/8“ | G1/4“ | G3/8“ | G1/2“ |
| Port for pilot | G1/8“ | G1/8“ | G1/8“ | G1/8“ |
| Flow capacity [Nl/min] | 1000 | 1700 | 1700 | 3500 |
| Working pressure [MPa] | vacuum to 2.1 MPa | | | |
| Pilot pressure range [MPa] | 0.15 to 1.0 | | | |
| Temperature range [°C] | medium temperature max. 50, ambient temperature -20 to +50 | | | |

## Order codes

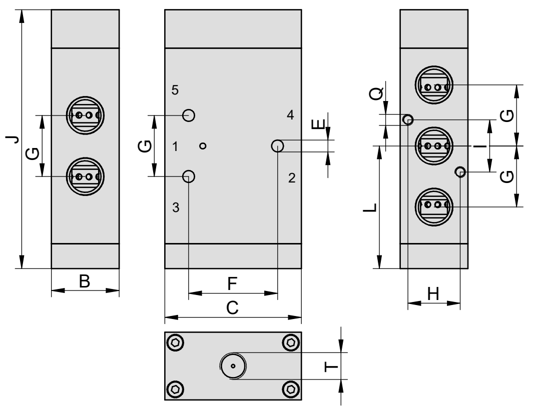
25 527090 06 00 3 000

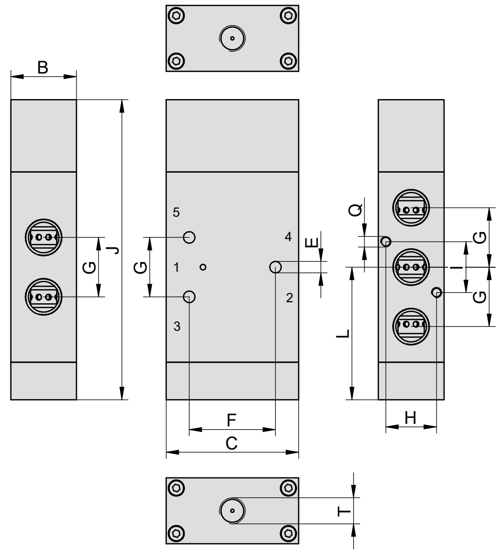
| Function | | |
|---|---|---|
| 52 70 90 |  | 5/2 monostable |
| 52 70 70 |  | 5/2 bistable |
| 53 70 70 |  | 5/3 centre opened position |

| Series and port | | |
|---|---|---|
| 04 00 2 | series K1 | thread G1/8“ |
| 06 00 3 | series K2 | thread G1/4“ |
| 08 00 3 | series K2 | thread G3/8“ |
| 10 00 4 | series K3 | thread G1/2“ |

We make the spool and sleeve assembly from hardened stainless steel. The technical interest is that thanks to the precise grinding and honing of both parts, such accuracy is achieved that the piston in the sleeve moves on the air cushion. This essentially eliminates possible wear and at the same time the piston can be moved very easily and very quickly. The clearance is so small that there are no leaks even without a seal.

## Dimensions of valve series K





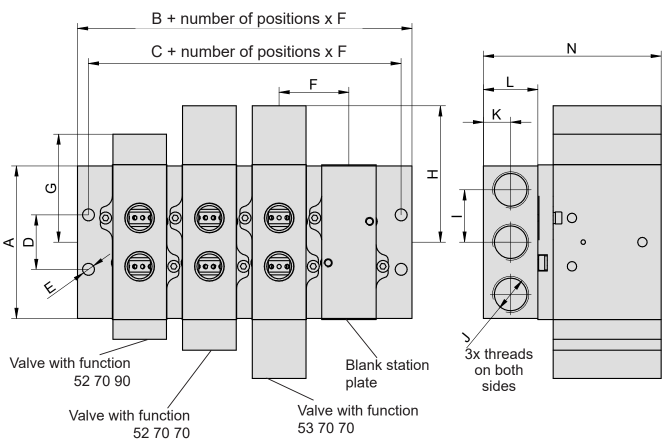
| Series | Function | B | C | E | F | G | H | I | J | L | Q | T | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1 | 52 70 90 | 22 | 42 | 3.3 | 24.4 | 18 | 15.8 | 18 | 83 | 39 | M3, deep 7 | G1/8“ | 0.21 |
| K1 | 52 70 70 | 22 | 42 | 3.3 | 24.4 | 18 | 15.8 | 18 | 101 | 44 | M3, deep 7 | G1/8“ | 0.25 |
| K1 | 53 70 70 | 22 | 42 | 3.3 | 24.4 | 18 | 15.8 | 18 | 114 | 57 | M3, deep 7 | G1/8“ | 0.28 |
| K2 | 52 70 90 | 24.6 | 49.6 | 4.3 | 32.3 | 22.2 | 19 | 19 | 94.1 | 44.6 | M4, deep 7 | G1/8“ | 0.31 |
| K2 | 52 70 70 | 24.6 | 49.6 | 4.3 | 32.3 | 22.2 | 19 | 19 | 112.1 | 49.6 | M4, deep 7 | G1/8“ | 0.36 |
| K2 | 53 70 70 | 24.6 | 49.6 | 4.3 | 32.3 | 22.2 | 19 | 19 | 125.1 | 62.6 | M4, deep 7 | G1/8“ | 0.42 |
| K3 | 52 70 90 | 44 | 66 | 5,3 | 44 | 32 | 35 | 16 | 169 | 80 | ø5,3 | G1/8“ | 1,28 |
| K3 | 52 70 70 | 44 | 66 | 5,3 | 44 | 32 | 35 | 16 | 156 | 67 | ø5,3 | G1/8“ | 1,18 |
| K3 | 53 70 70 | 44 | 66 | 5,3 | 44 | 32 | 35 | 16 | 178 | 89 | ø5,3 | G1/8“ | 1,36 |

Notice: use fittings only to max. 19 mm wrench size with series K2.

## Series K valves manifold assembly

| Series | Order code | Weight [kg] | Application |
|---|---|---|---|
| K1 | 2500 8181 0600 0003 | 0.26 | End plates (1 pair) for 2 valves |
| K1 | 2500 8181 0600 0002 | 0.08 | Middle plate (extension for 1 valve) |
| K1 | 2500 8181 0600 0001 | 0.02 | Adaptor plate (1 plate per station) |
| K1 | 2500 8181 0600 0004 | 0.04 | Blank station plate |
| K2 | 2500 8181 0800 0001 | 0.29 | End plates (1 pair) for 2 valves |
| K2 | 2500 8181 0800 0002 | 0.11 | Middle plate (extension for 1 valve) |
| K2 | 2500 8181 0800 0003 | 0.04 | Adaptor plate (1 plate per station) |
| K2 | 2500 8181 0800 0005 | 0.07 | Blank station plate |

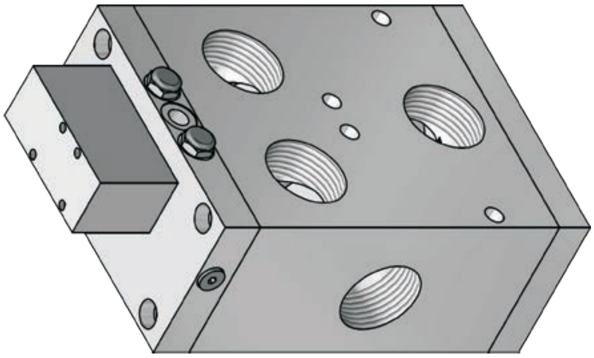
Manifolds for K series valves are supplied separately and it is necessary to use one pair of end plates, which are also used as manifolds for 2 valves, and requested number of middle plates (1 plate for 1 valve) to create the complete manifold assembly. It is possible to add other positions to the assembly at any time, just remove the end plate and add additional middle plates. If it is necessary to create a reserve during assembly, it is recommended to use a blank station plate, which can be easily replaced by valve. Max. number of valves in one maifold is 10. Any valve series K may be used for manifold assembly (it doesn't matter if valve is single or double solenoid actuated or air actuated). But it is necessary to use adaptor, which must be mounted between valve and manifold. Valves mounted on manifold could be unmounted separately by unscrew of 2 bolts, which are accessible from top side (side with ports 2 and 4 of valves).




| Series | A | B | C | D | E | F | G | H | I | J | K | L | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K1 | 59 | 26.5 | 16.5 | 21 | 5.5 | 30.5 | 44 | 57 | 21 | G1/ | 12.5 | 25 | 72.5 |
| K2 | 69 | 25.5 | 15.5 | 25 | 5.5 | 32 | 49.5 | 62.5 | 24 | G3/8“ | 12.5 | 25 | 82 |

For information about manifold assembly see page 5-5.

STRÁNSKÝ A PETRŽÍK



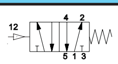
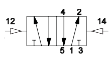
High flow valve series with flow capacity up to 28 000 Nl/min is suitable for fast air supply of big appliances, or higher quantity of appliances which are supplied from common distribution. Valves are pilot operated, using smaller, standard pneumatic actuated valves ISO 5599/1. These pilot valves are designed for external supply of compressed air, however the common supply is possible, but in this case, please contact our technical dept.

This valve series contains rubber gaskets.

| Series | G1“ | G1 ½“ |
|---|---|---|
| Ports | G1“ | G1 ½“ |
| Connection of external pressure supply port | G1/4“ | |
| Connection of pilot (12,14) for pneumatic actuating | G1/8“ | |
| Flow capacity [Nl/min] | 16 000 | 28 000 |
| Working pressure [MPa] | 0 to 1.0 MPa when external pilot supply is used | |
| Pilot pressure range [MPa] | 0.2 to 0.7 | |
| Temperature range [°C] | medium temperature max. 50, ambient temperature -20 to +50 | |

## Order codes

25 52 70 90 20 00 000 1

| Function | | |
|---|---|---|
| 52 70 90 |  | 5/2 monostable |
| 52 70 70 |  | 5/2 bistable |

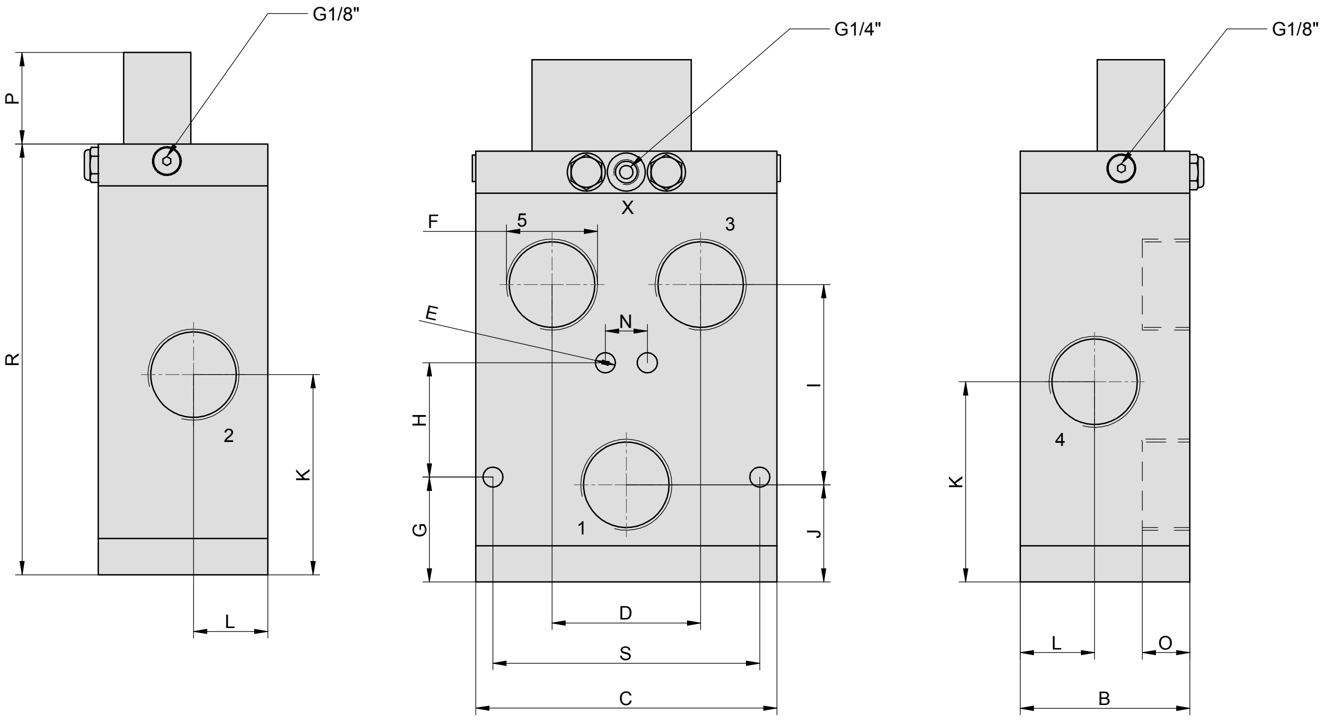
| Size | |
|---|---|
| 14 | G1“ |
| 20 | G1 ½“ |

| Voltage | |
|---|---|
| 00 | w/o coils (pneumatic actuating) |

| Pilot supply | |
|---|---|
| 2 | external (from port X), standard |
| 1* | internal (from port 1) |

*) Please consult with our technical dept.

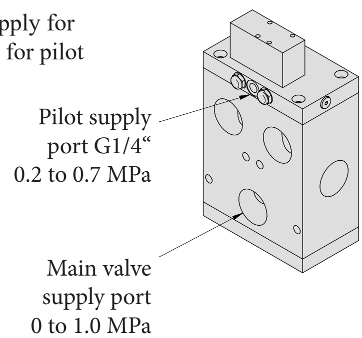
## Dimensions




| Series | B | C | D | E | F | G | H | I | J | K | L | N | O | P | R | S | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 70 x0 14 | 89 | 158 | 78 | 10.5 | G1" | 55 | 60 | 105 | 51 | 105 | 39 | 22 | 25 | 48 | 226 | 140 | 7.5 |
| 52 70 x0 20 | 89 | 158 | 78 | 10.5 | G1 1/2" | 55 | 60 | 105 | 51 | 105 | 39 | 22 | 25 | 48 | 226 | 140 | 7.5 |

## Notes for connecting of valve

Valves are designed for independent, external air pilot supply (port X). It is not recommended, to merge air supply for main valve and for pilot valve, because a big flow through main valve may cause serious dropping of pressure for pilot valve and malfunction may occur.



# PNEUMATICALLY ACTUATED FLIP-FLOP VALVE

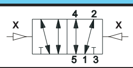
STRÁNSKÝ A PETRŽÍK

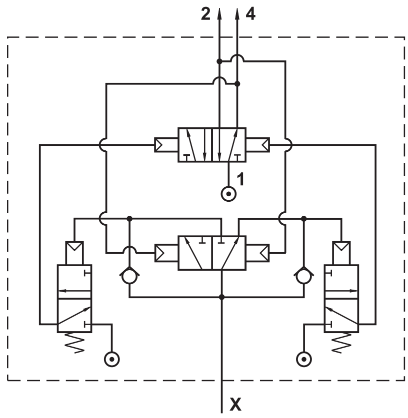
The pneumatically actuated valve automatically switches positions after applying a short signal to the control port marked X. After applying pressure to the control port, the position of the valve switches and if there is a pneumatic cylinder connected to the output, for example, it will extend. The signal can be short, or it can last for a long time. The moment of signal introduction is important. As soon as the pressure of the control signal is exhausted - the signal is interrupted, the valve is ready for switching. After pressure is applied again to the control port, the valve will switch and the cylinder will begin to retract. In this way, the valve can be reversed using a single control signal. The valve can also be switched manually in the event of a control signal failure. The control signal is independent of the working supply and can have a different pressure.

This valve series contains rubber gaskets.

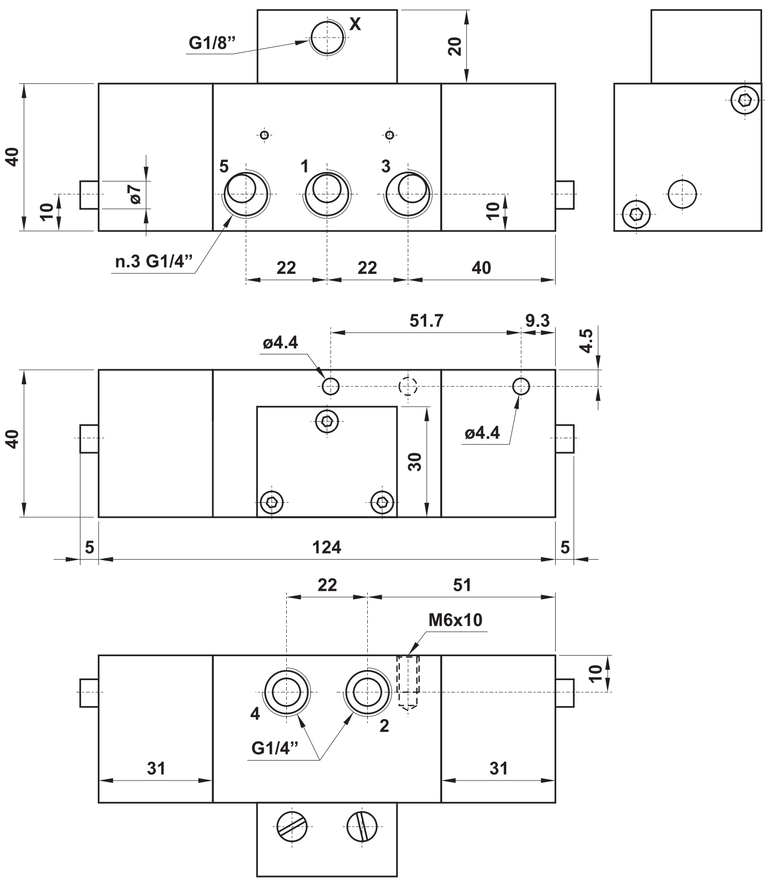
| Ports | G1/4“ |
|---|---|
| Flow capacity [Nl/min] | 1100 |
| Working pressure [MPa] | 0,3 to 1,0 |
| Pilot pressure range [MPa] | 0,2 to 1,0 |
| Temperature range [°C] | -20 to +60 |
| Working medium | modified compressed air |
| Weight [kg] | 0,59 |

## Order code

| Port | G1/4“ |
|---|---|
| Valve 5/2  | 2552 7070 0600 0007 |

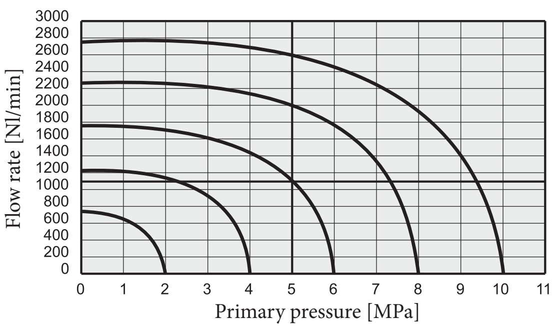



## Dimensions




## Technical data

### Flow rate



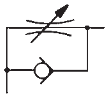

### Materials

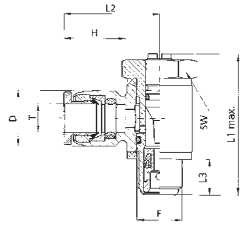
body - aluminium alloy
spring - stainless steel
seals - NBR
spool - nickel plated aluminium alloy
internal parts - brass



## Unidirectional flow control valve - push-in, for cylinder use, for screw driver setting

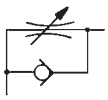
| Order codes | T - For tube | F - Thread | D | H | L1 max. | L2 | L3 | SW |
|---|---|---|---|---|---|---|---|---|
| N135C-004-005 | 4 / 2 | M5 | 10 | 12.5 | 24.5 | 19 | 5.5 | 8 |
| N135C-004-000 | 4 / 2 | G1/8“ | 10 | 12.5 | 30 | 20.2 | 7 | 14 |
| N135C-006-005 | 6 / 4 | M5 | 12 | 13 | 24.5 | 20.6 | 5.5 | 8 |
| N135C-006-000 | 6 / 4 | G1/8“ | 12 | 13.5 | 30 | 20.6 | 7 | 14 |
| N135C-006-001 | 6 / 4 | G1/4“ | 12 | 13.5 | 36.5 | 22.6 | 9 | 17 |
| N135C-008-000 | 8 / 6 | G1/8“ | 15 | 16 | 30 | 23.8 | 7 | 14 |
| N135C-008-001 | 8 / 6 | G1/4“ | 15 | 16 | 35.6 | 25.8 | 9 | 17 |
| N135C-008-002 | 8 / 6 | G3/8“ | 15 | 16 | 41 | 30 | 9 | 19 |
| N135C-010-001 | 10 / 8 | G1/4“ | 18 | 17 | 36.5 | 27.1 | 9 | 17 |
| N135C-010-002 | 10 / 8 | G3/8“ | 18 | 17 | 41 | 31 | 9 | 19 |
| N135C-012-001 | 12 / 10 | G1/4“ | 20 | 19 | 36.5 | 31.5 | 9 | 17 |

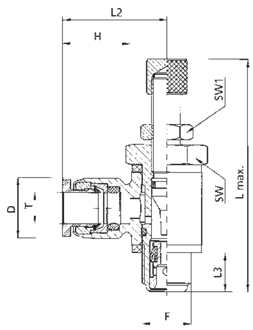





## Unidirectional flow control valve - push-in, for cylinder use, with control knob setting

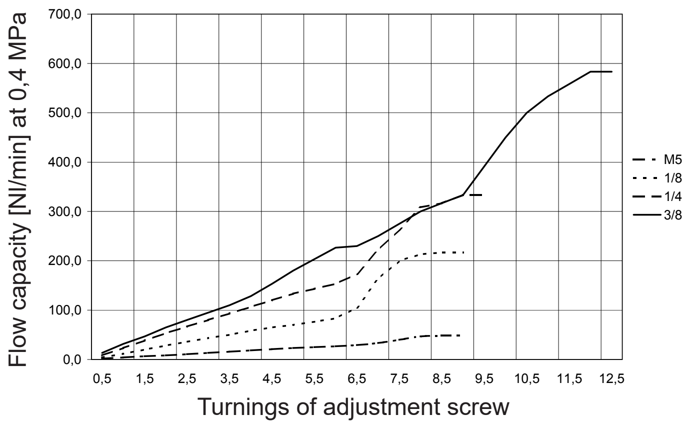
| Order codes | T - For tube | F - Thread | D | H | L max. | L2 | L3 | SW | SW1 |
|---|---|---|---|---|---|---|---|---|---|
| N136C-004-005 | 4 / 2 | M5 | 10 | 12.5 | 35 | 19 | 5.5 | 8 | 6 |
| N136C-004-000 | 4 / 2 | G1/8“ | 10 | 12.5 | 45 | 20.2 | 7 | 14 | 9 |
| N136C-006-005 | 6 / 4 | M5 | 12 | 13 | 35 | 20.6 | 5.5 | 8 | 6 |
| N136C-006-000 | 6 / 4 | G1/8“ | 12 | 13.5 | 45 | 20.6 | 7 | 14 | 9 |
| N136C-006-001 | 6 / 4 | G1/4“ | 12 | 13.5 | 52 | 22.6 | 9 | 17 | 9 |
| N136C-008-000 | 8 / 6 | G1/8“ | 15 | 16 | 45 | 23.8 | 7 | 14 | 9 |
| N136C-008-001 | 8 / 6 | G1/4“ | 15 | 16 | 52 | 25.8 | 9 | 17 | 9 |
| N136C-008-002 | 8 / 6 | G3/8“ | 15 | 16 | 58 | 30 | 9 | 19 | 11 |
| N136C-010-001 | 10 / 8 | G1/4“ | 18 | 17 | 52 | 27.1 | 9 | 17 | 9 |
| N136C-010-002 | 10 / 8 | G3/8“ | 18 | 17 | 58 | 31 | 9 | 19 | 11 |
| N136C-012-001 | 12 / 10 | G1/4“ | 20 | 19 | 52 | 31.5 | 9 | 17 | 9 |






| | |
|---|---|
| Working pressure | 0.2 to 1.0 MPa |
| Temperature range | -20°C to +80°C |
| Working medium | modified compressed air |

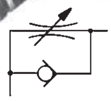
## Flow capacity



## Unidirectional flow control valve - plastic, push-in, for cylinder use, with control knob setting

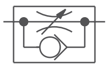
| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | P136C-004-005 |
| 4 | G1/8“ | P136C-004-000 |
| 4 | G1/4“ | P136C-004-001 |
| 6 | M5 | P136C-006-005 |
| 6 | G1/8“ | P136C-006-000 |
| 6 | G1/4“ | P136C-006-001 |
| 6 | G3/8“ | P136C-006-002 |
| 8 | G1/8“ | P136C-008-000 |
| 8 | G1/4“ | P136C-008-001 |
| 8 | G3/8“ | P136C-008-002 |
| 8 | G1/2“ | P136C-008-003 |
| 10 | G1/4“ | P136C-010-001 |

| ∅ mm | Thread | Order codes |
|---|---|---|
| 10 | G3/8“ | P136C-010-002 |
| 10 | G1/2“ | P136C-010-003 |
| 12 | G1/4“ | P136C-012-001 |
| 12 | G3/8“ | P136C-012-002 |
| 12 | G1/2“ | P136C-012-003 |

## Unidirectional flow control valve - plastic, push-in, with control knob setting

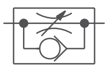
| For tube ∅ mm | Order codes |
|---|---|
| 4 | P139C-004-000 |
| 6 | P139C-006-000 |
| 8 | P139C-008-000 |
| 10 | P139C-010-000 |
| 12 | P139C-012-000 |

## Unidirectional flow control valve - dural, with internal threads, with control knob setting

| Thread | Order codes | Max. flow* 1→2 | Max. flow* 2→1 |
|---|---|---|---|
| M5 | NDRV05B | 60 | 130 |
| G1/8“ | NDRV10 | 60 | 450 |
| G1/4“ | NDRV25 | 300 | 600 |
| G3/8“ | NDRV37 | 600 | 1100 |
| G1/2“ | NDRV50 | 600 | 1400 |

*) Max. flow [Nl] at primary pressure 0.6 MPa and pressure difference 0.1 MPa

## Bidirectional flow control valve - dural, with internal threads, with control knob setting

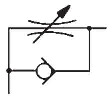
| Thread | Order codes | Max. flow* |
|---|---|---|
| M5 | NDV05 | 60 |
| G1/8“ | NDV10 | 60 |
| G1/4“ | NDV25 | 300 |
| G3/8“ | NDV37 | 600 |
| G1/2“ | NDV50 | 600 |

*) Max. flow [Nl] at primary pressure 0.6 MPa and pressure difference 0.1 MPa


## Unidirectional flow control valve - internal/external threads, for cylinder use, for screw driver setting

| Order codes | Thread | Flow |
|---|---|---|
| N0FCRG | M5 | 45 |
| N1FCRG | G1/8“ | 310 |
| N2FCRG | G1/4“ | 450 |
| N3FCRG | G3/8“ | 1040 |
| N4FCRG | G1/2“ | 2200 |

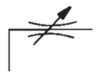
*) Max. flow [Nl] at prim. press. 0.6 MPa

## Bidirectional flow control valve - internal/external threads, for screw driver setting

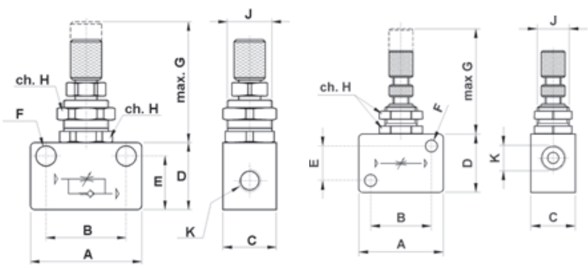
| Order codes | Thread | Flow |
|---|---|---|
| N0FCG | M5 | 45 |
| N1FCG | G1/8“ | 310 |
| N2FCG | G1/4“ | 450 |
| N3FCG | G3/8“ | 1040 |
| N4FCG | G1/2“ | 2200 |

*) Max. flow [Nl] at prim. press. 0.6 MPa

| | |
|---|---|
| Working pressure | 0.2 to 1.0 MPa |
| Temperature range | -20°C to +60°C |
| Working medium | modified compressed air |

NDRV05B, NDV05 NDRV10, NDV10 and bigger

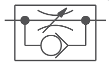



| A | B | C | D | E | F | G | H | J | K |
|---|---|---|---|---|---|---|---|---|---|
| 25 | 18 | 12 | 15 | 12 | 4.5 | 27 | 11 | M10x0.75 | M5 |
| 32 | 23 | 16.8 | 22 | 13 | 4.5 | 35 | 15 | M12x0.75 | G1/8“ |
| 40 | 30 | 22 | 32 | 22 | 4.5 | 35 | 15 | M12x0.75 | G1/4“ |
| 56 | 43 | 27 | 42 | 27 | 6.5 | 43 | 24 | M18x1 | G3/8“ |
| 56 | 43 | 27 | 42 | 27 | 6.5 | 43 | 24 | M18x1 | G1/2“ |

## High-flow unidirectional flow control valve

| Thread | Order codes | Max. flow* 1→2 | Max. flow* 2→1 | Weight [g] | Working pressure | Temperature range | Working medium |
|---|---|---|---|---|---|---|---|
| G1/2“ | PMSC500-15A | 6320 | 5780 | 406 | 0.0 to 1.0 MPa | -5°C to +60°C | modified compressed air |
| G3/4“ | PMSC500-20A | 8390 | 6700 | 400 | | | |
| G3/4“ | PMSC600-20A | 8940 | 8230 | 767 | | | |
| G1“ | PMSC600-25A | 12 540 | 14 060 | 721 | | | |

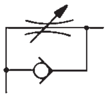
*) Max. flow [Nl] at supply pressure 0.5 MPa.

# Push-in flow control valves - components

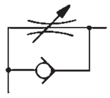
## Screw for flow regulation,
**unidirectional, for cylinder use, for screw driver setting**

| Thread | Order codes |
|---|---|
| M5 | NCVC-005 |
| G1/8“ | NCVC-000 |
| G1/4“ | NCVC-001 |
| G3/8“ | NCVC-002 |

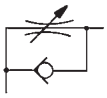
## Screw for flow regulation,
**unidirectional, for cylinder use, with control knob setting**

| Thread | Order codes |
|---|---|
| M5 | NCMC-005 |
| G1/8“ | NCMC-000 |
| G1/4“ | NCMC-001 |
| G3/8“ | NCMC-002 |

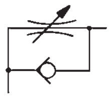
## Screw for flow regulation,
**unidirectional, for valve use, for screw driver setting**

| Thread | Order codes |
|---|---|
| M5 | NCVV-005 |
| G1/8“ | NCVV-000 |
| G1/4“ | NCVV-001 |
| G3/8“ | NCVV-002 |

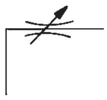
## Screw for flow regulation,
**unidirectional, for valve use, with control knob setting**

| Thread | Order codes |
|---|---|
| M5 | NCMV-005 |
| G1/8“ | NCMV-000 |
| G1/4“ | NCMV-001 |
| G3/8“ | NCMV-002 |

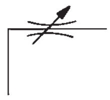
## Screw for flow regulation,
**bidirectional, for screw driver setting**

| Thread | Order codes |
|---|---|
| M5 | NCVB-005 |
| G1/8“ | NCVB-000 |
| G1/4“ | NCVB-001 |
| G3/8“ | NCVB-002 |

## Screw for flow regulation,
**bidirectional, with control knob setting**

| Thread | Order codes |
|---|---|
| M5 | NCMB-005 |
| G1/8“ | NCMB-000 |
| G1/4“ | NCMB-001 |
| G3/8“ | NCMB-002 |

## 1 port banjo for screw for flow regulation

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N122/1-004-005 |
| 4 | G1/8“ | N122-004-000 |
| 6 | M5 | N122/1-006-005 |
| 6 | G1/8“ | N122-006-000 |
| 6 | G1/4“ | N122-006-001 |
| 8 | G1/8“ | N122-008-000 |
| 8 | G1/4“ | N122-008-001 |
| 8 | G3/8“ | N122-008-002 |
| 10 | G1/4“ | N122-010-001 |
| 10 | G3/8“ | N122-010-002 |
| 12 | G1/4“ | N122-012-001 |

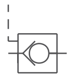
| | |
|---|---|
| Working pressure | 0.2 to 1.0 MPa |
| Temperature range | -20°C to +80°C |
| Working medium | modified compressed air |

## Assembly of flow control valve:

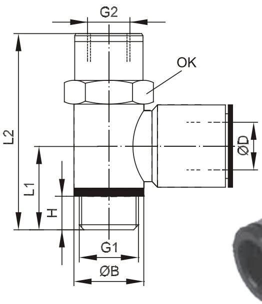

+

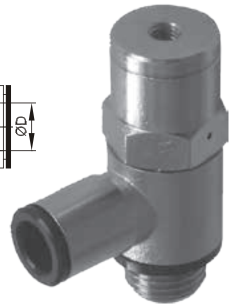
=


## Non-return valve, controlled, elbow, push-in or internal threaded

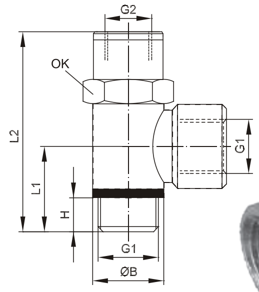


| Order codes | D - For tube | G1 - Thread | B | G2 - Pilot port thread | H | L1 | L2 | OK |
|---|---|---|---|---|---|---|---|---|
| NCPPG-004-000 | 4 / 2 | G1/8“ | 14 | M5 | 6 | 15.5 | 42 | 13 |
| NCPPG-006-000 | 6 / 4 | G1/8“ | 14 | M5 | 6 | 15.5 | 42 | 13 |
| NCPPG-006-001 | 6 / 4 | G1/4“ | 18 | M5 | 8 | 18.5 | 47 | 17 |
| NCPPG-008-000 | 8 / 6 | G1/8“ | 14 | M5 | 6 | 15.5 | 42 | 13 |
| NCPPG-008-001 | 8 / 6 | G1/4“ | 18 | M5 | 8 | 18.5 | 47 | 17 |
| NCPPG-008-002 | 8 / 6 | G3/8“ | 21 | G1/8“ | 9 | 21 | 53.5 | 20 |
| NCPPG-010-001 | 10 / 8 | G1/4“ | 18 | M5 | 8 | 18.5 | 47 | 17 |
| NCPPG-010-002 | 10 / 8 | G3/8“ | 21 | G1/8“ | 9 | 21 | 53.5 | 20 |
| NCPPG-012-001 | 12 / 10 | G1/4“ | 18 | M5 | 8 | 18.5 | 47 | 17 |
| NCPPG-012-002 | 12 / 10 | G3/8“ | 21 | G1/8“ | 9 | 21 | 53.5 | 20 |



| Order codes | G1 - Thread | B | G2 - Pilot port thread | H | L1 | L2 | OK |
|---|---|---|---|---|---|---|---|
| NCPGG-000-000 | G1/8“ | 15 | M5 | 6 | 15.5 | 42 | 13 |
| NCPGG-001-001 | G1/4“ | 18 | M5 | 8 | 18.5 | 47 | 17 |
| NCPGG-002-002 | G3/8“ | 22 | G1/8“ | 9 | 21 | 53.5 | 20 |
| NCPGG-003-003 | G1/2“ | 27 | G1/8“ | 10 | 24.5 | 60 | 25 |




| | |
|---|---|
| Working pressure | 0.2 to 1.0 MPa |
| Temperature range | -5°C to +70°C |
| Working medium | modified compressed air |

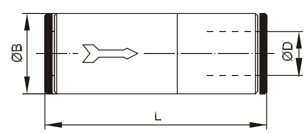
### Flow capacity and min. opening pressure

| Thread | Flow* [Nl] | Min. opening pressure at primary pressure [MPa] | | | | |
|---|---|---|---|---|---|---|
| | | 0.2 | 0.4 | 0.6 | 0.8 | 1.0 |
| G1/8“ | 400 | 0.15 | 0.2 | 0.3 | 0.35 | 0.4 |
| G1/4“ | 850 | 0.15 | 0.2 | 0.3 | 0.35 | 0.4 |
| G3/8“ | 1250 | 0.15 | 0.2 | 0.3 | 0.35 | 0.4 |
| G1/2“ | 1800 | 0.15 | 0.2 | 0.3 | 0.35 | 0.4 |

*) Max. flow [Nl] at primary pressure 0.6 MPa

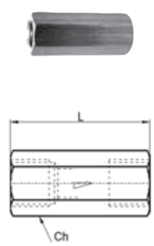
## Non-return valve, uncontrolled

| Order codes | D - For tube | B | L |
|---|---|---|---|
| 2750 0003 3100 0000 | 4 / 2 | 9 | 44.5 |
| 2750 0003 3200 0000 | 6 / 4 | 11 | 50 |
| 2750 0003 3300 0000 | 8 / 6 | 13 | 53.5 |

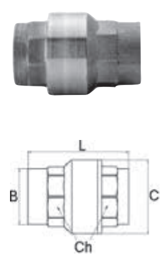



| Order codes | Internal thread | L | B | C | Ch | Flow capacity [Nl/min] |
|---|---|---|---|---|---|---|
| NRV05 | M5 | 25 | — | — | 8 | 100 |
| NRV10 | G1/8“ | 34 | — | — | 13 | 500 |
| NRV25 | G1/4“ | 39 | — | — | 16 | 900 |
| NRV37 | G3/8“ | 47 | 20 | 27 | 20 | 4290 |
| NRV50 | G1/2“ | 44.5 | 28 | — | 25 | 4290 |
| NRV75 | G3/4“ | 47.5 | 34.5 | — | 31 | 5720 |
| NRV100 | G1“ | 56 | 42 | — | 38 | 10340 |

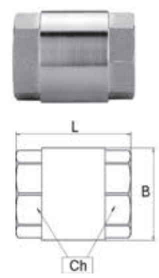
NRV05 to NRV25




NRV37



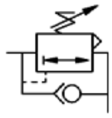

NRV50 to NRV100

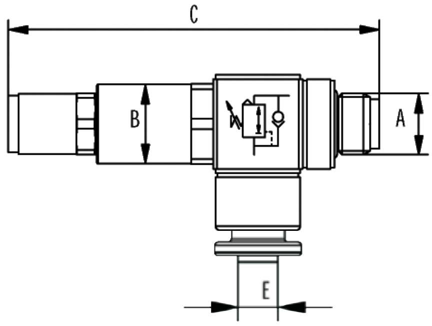



| | |
|---|---|
| Working pressure | 0.2 to 1.0 MPa (NRV05 to NRV25), 0 to 4.0 MPa (NRV37 to NRV75), 0 to 2.5 MPa (NRV100) |
| Temperature range | -10°C to +60°C (NRV05 to NRV25), -20°C to +100°C (NRV37 to NRV100) |
| Working medium | modified compressed air |

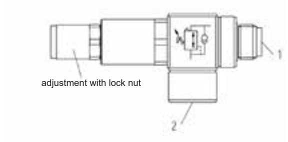
## Unidirectional pressure regulators with push-in fitting

| Order codes | E - For tube | A - Thread | B (OK) | C max. |
|---|---|---|---|---|
| NPRPG-004-000 | 4 / 2 | G1/8“ | 17 | 73 |
| NPRPG-006-000 | 6 / 4 | G1/8“ | 17 | 73 |
| NPRPG-006-001 | 6 / 4 | G1/4“ | 17 | 81 |
| NPRPG-008-000 | 8 / 6 | G1/8“ | 17 | 73 |
| NPRPG-008-001 | 8 / 6 | G1/4“ | 17 | 81 |
| NPRPG-008-002 | 8 / 6 | G3/8“ | 22 | 88 |
| NPRPG-010-001 | 10 / 8 | G1/4“ | 17 | 81 |

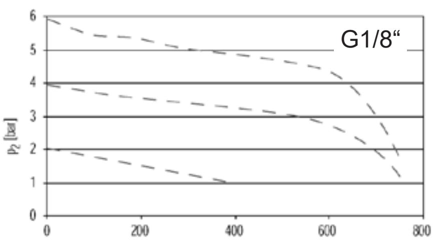


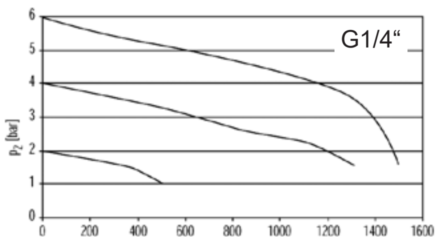


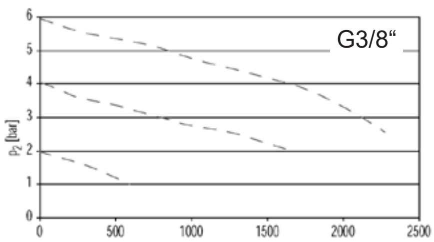

| | |
|---|---|
| Primary pressure | 0.1 to 1.6 MPa |
| Secondary pressure | 0.1 to 0.8 MPa |
| Temperature range | -10°C to +70°C |
| Working medium | modified compressed air |




### Flow capacity 1→2 at $p_1$=0.7 MPa

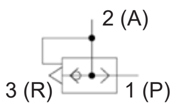


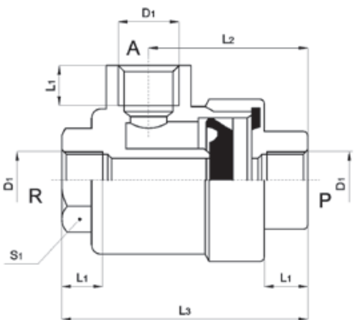




## Quick exhaust valve

| Order codes | D1 - Thread | L1 | L2 | L3 | S1 | Spare parts kit order code |
|---|---|---|---|---|---|---|
| NSEV05C | M5 | 5 | 16 | 25 | 10 | NSEV05C-RK |
| NSEV10C | G1/8“ | 7.5 | 27 | 42 | 15 | NSEV10C-RK |
| NSEV25C | G1/4“ | 11 | 35 | 54 | 19 | NSEV25C-RK |
| NSEV37C | G3/8“ | 11 | 35 | 54 | 19 | NSEV37C-RK |
| NSEV50C | G1/2“ | 14 | 45 | 72 | 26 | NSEV50C-RK |
| NSEV75C | G3/4“ | 16.3 | 53 | 87 | 32 | NSEV75C-RK |
| NSEV100C | G1“ | 18 | 70 | 108 | 46 | NSEV100C-RK |




Spare parts kit:

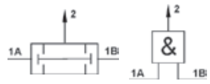



| | |
|---|---|
| Working pressure | 0.1 to 1.0 MPa |
| Temperature range | -20°C to +70°C |
| Working medium | modified compressed air |

### Flow capacity at 0,6 MPa

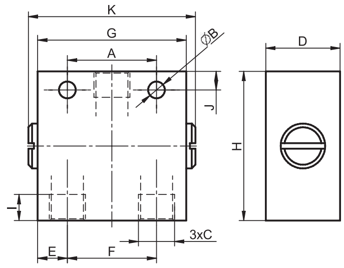
| Thread | M5 | G1/8" | G1/4" | G3/8" | G1/2" | G3/4" | G1" |
|---|---|---|---|---|---|---|---|
| Flow P→A [Nl/min] | 290 | 900 | 1300 | 1600 | 4200 | 5800 | 7700 |
| Flow A→R [Nl/min] | 340 | 1200 | 2500 | 2600 | 7400 | 12600 | 19000 |

## Logical gate AND (production)

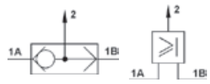


| Order codes | C-Thread | A | B | D | E | F | G | H | I | J | K | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2760 0100 0400 0000 | G1/8“ | 24 | 4.5 | 20 | 8 | 24 | 40 | 35 | 7 | 5 | 45 | 0.12 |

| | |
|---|---|
| Working pressure | 0.2 to 1.0 MPa |
| Temperature range | -20°C to +80°C |
| Working medium | modified compressed air |

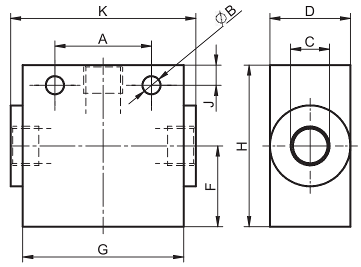



## Logical gate OR (sum)

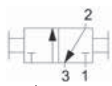


| Order codes | C-Thread | A | B | D | F | G | H | I | J | K | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2760 0200 0400 0000 | G1/8“ | 24 | 4.5 | 20 | 20 | 40 | 40 | 7 | 5 | 45 | 0.12 |

| | |
|---|---|
| Working pressure | 0.2 to 1.0 MPa |
| Temperature range | -20°C to +80°C |
| Working medium | modified compressed air |

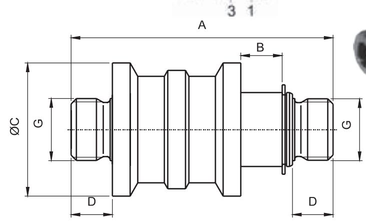



## Manually operated slide valve 3/2 with external threads

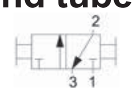


| Order codes | G - Thread | A | B | C | D | Weight [kg] |
|---|---|---|---|---|---|---|
| 2740 3200 1006 0600 | G1/4“ | 71 | 10 | 24 | 10 | 0.09 |
| 2740 3200 1008 0800 | G3/8“ | 87 | 12 | 34 | 10 | 0.20 |
| 2740 3200 1010 1000 | G1/2“ | 89 | 14 | 45 | 14 | 0.26 |

Working pressure, temperature and medium see below

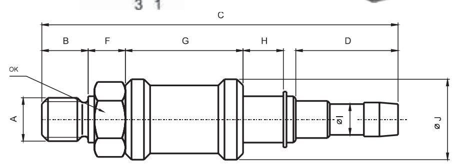



## Manually operated slide valve 3/2 with external thread and tube socket

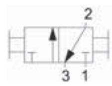




| Order codes | A - Thread | B | C | D | F | G | H | I | J | OK | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2740 3200 2006 3300 | G1/4“ | 10 | 77 | 21 | 6 | 27 | 10 | 8 | 24 | 17 | 0.08 |

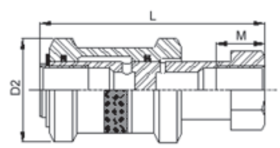
Working pressure, temperature and medium see below




## Manually operated slide valve 3/2 with internal threads



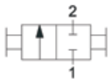
| Order codes | G - Thread | Js | D2 | M | L | OK | Flow capacity [Nl/min] |
|---|---|---|---|---|---|---|---|
| N530-000 | G1/8“ | 4 | 25 | 12 | 48 | 14 | 700 |
| N530-001 | G1/4“ | 7 | 35 | 12 | 58 | 19 | 1100 |
| N530-002 | G3/8“ | 10 | 38 | 12 | 68 | 22 | 1500 |
| N530-003 | G1/2“ | 15 | 48 | 15 | 88 | 27 | 2200 |

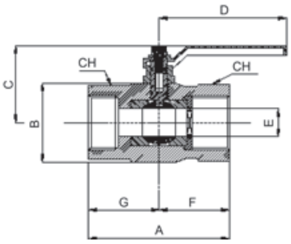



| | |
|---|---|
| Working pressure | 0 to 1.0 MPa (2740...), 0 to 1.6 MPa (N530) |
| Temperature range | -10°C to +80°C |
| Working medium | modified compressed air |

## Standard ball valve 2/2

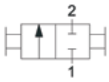
| Order codes | Thread | A | B | C | D | E | F | G | CH |
|---|---|---|---|---|---|---|---|---|---|
| NKHI25 | G1/4“ | 51 | 25.5 | 40 | 80 | 10 | 25.5 | 25.5 | 18 |
| NKHI37 | G3/8“ | 60 | 25.5 | 40 | 80 | 10 | 30 | 30 | 21 |
| NKHI50 | G1/2“ | 75 | 32.5 | 50 | 89 | 15 | 37.5 | 37.5 | 25 |
| NKHI75 | G3/4“ | 80 | 42 | 59 | 113 | 20 | 40 | 40 | 31 |
| NKHI100 | G1“ | 90 | 49.5 | 63 | 113 | 25 | 45 | 45 | 40 |
| NKHI125 | G1 1/4“ | 110 | 59.5 | 77 | 138 | 32 | 55 | 55 | 49 |
| NKHI150 | G1 1/2“ | 120 | 72 | 91 | 158 | 40 | 60 | 60 | 54 |
| NKHI200 | G2“ | 140 | 86 | 97 | 158 | 50 | 70 | 70 | 68.5 |

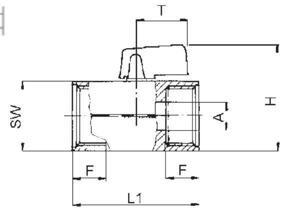



## Medium ball valve 2/2

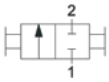
| Order codes | Thread | A | F | H | L1 | SW | T |
|---|---|---|---|---|---|---|---|
| NKMI10 | G1/8“ | 6 | 9 | 38 | 39 | 21 | 22 |
| NKMI25 | G1/4“ | 8 | 9 | 38 | 39 | 21 | 22 |
| NKMI37 | G3/8“ | 8 | 9 | 38 | 42 | 21 | 22 |
| NKMI50 | G1/2“ | 10 | 10.5 | 42 | 47 | 25 | 22 |
| NKMI75 | G3/4“ | 12 | 10.5 | 46 | 54 | 30 | 22 |

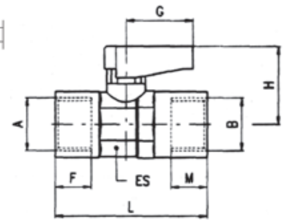



## Small ball valve 2/2

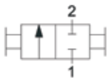
| Order codes | Thread A,B | ES | F | M | L | G | H |
|---|---|---|---|---|---|---|---|
| NKMI10-01 | G1/8“ | 14-15 | 7.4 | 7.4 | 36 | 19 | 21 |
| NKMI25-01 | G1/4“ | 14-15 | 11 | 11 | 43 | 19 | 21 |
| NKMI37-01 | G3/8“ | 18-19 | 11.4 | 11.4 | 47 | 19 | 22 |
| NKMI50-01 | G1/2“ | 22-23 | 15 | 15 | 59 | 26 | 30.5 |
| NKMI75-01 | G3/4“ | 28-30 | 16.3 | 16.3 | 67 | 26 | 33 |

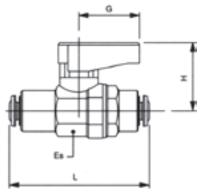



## Small ball valve 2/2 with push-in fittings

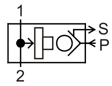
| Order codes | For tube | Es | L | G | H |
|---|---|---|---|---|---|
| NKMI-004 | 4 / 2 | 15 | 44 | 19 | 21 |
| NKMI-006 | 6 / 4 | 15 | 48 | 19 | 21 |
| NKMI-008 | 8 / 6 | 15 | 48 | 19 | 21 |



| | |
|---|---|
| Working pressure | 0 to 1.5 MPa (NKMI), 0 to 2.5 MPa (NKHI) |
| Temperature range | -10°C to +90°C (up to +60°C with push-in fittings) |
| Working medium | modified compressed air, oil, water |

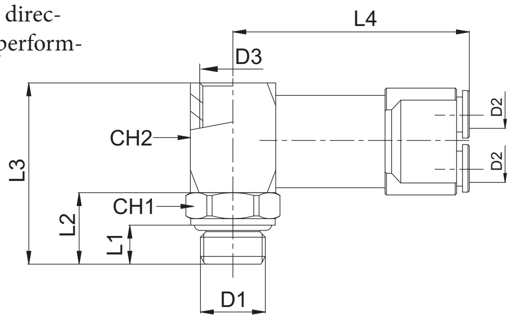
## Sensor fitting

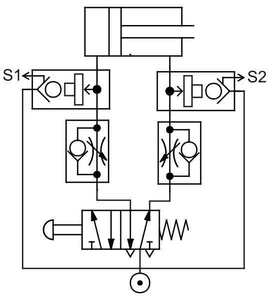



| Order codes | D1 - Thread | D2 | D3 | L1 | L2 | L3 | L4 | CH1 | CH2 | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|
| 2899 0029 9040 0005 | G1/8“ | 4 | G1/8“ | 5 | 11 | 29.5 | 38 | 13 | 16 | 0.069 |
| 2899 0029 9060 0001 | G1/4“ | 4 | G1/4“ | 6.5 | 13 | 33 | 40 | 16 | 16 | 0.079 |
| 2899 0029 9080 0001 | G3/8“ | 4 | G3/8“ | 7 | 13 | 33 | 42 | 20 | 20 | 0.098 |

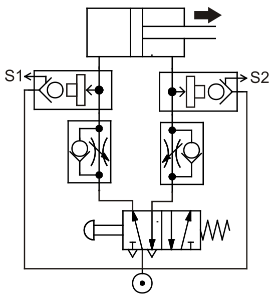
| Working pressure [MPa] | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
|---|---|---|---|---|---|---|---|---|
| Switching pressure [MPa] | 0.03 | 0.05 | 0.065 | 0.09 | 0.10 | 0.12 | 0.14 | 0.16 |

Threshold sensor can detect a pressure drop and signal it with a command signal (s). This component turns out to be especially useful when assembled directly on the cylinder. When the piston completes its stroke (no more counter pressure available in the cylinder ), a command signal is given out to a direction valve to have the piston change the stroke. Sole condition required for perfect component performance is that the piston has to complete its stroke. No intermediate positions are allowed.
Major advantage of this component is to command the piston stroke changes without electrical connections.

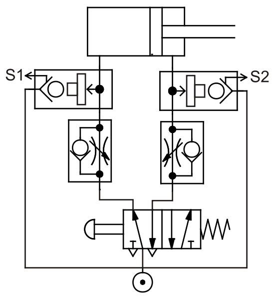



Cylinder is retracted, signal S1 is active, S2 is inactive.



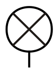

Cylinder is thrusting, both signals S1 and S2 are inactive.



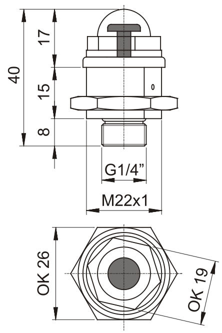

Cylinder is thrust, signal S1 is inactive, S2 is active.

| | |
|---|---|
| Working pressure | 0.3 to 1.0 MPa |
| Temperature range | 0°C to +70°C |
| Working medium | modified compressed air |

## Pressure indicator



| Order codes | Colour | Thread | Weight [kg] |
|---|---|---|---|
| 2899 0020 3060 0003 | red | G1/4“ | 0.053 |
| 2899 0020 3060 0004 | yellow | G1/4“ | 0.053 |
| 2899 0020 3060 0005 | green | G1/4“ | 0.053 |
| 2899 0020 3060 0006 | blue | G1/4“ | 0.053 |



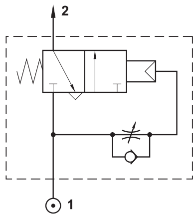

Pressure indicator is used for visual display, if there is a pressure in the circuit. Indicator doesn‘t show the value of a pressure, but only if there is or isn‘t pressure. In case, that there is a pressure, the colour disk is visible in the dome, with visibility of 180°.

| | |
|---|---|
| Working pressure | 0.2 to 1.0 MPa |
| Temperature range | 0°C to +60°C |
| Working medium | modified compressed air |

## Valve for signal start delay

| Order code | Delay range [s] | Thread | Weight [kg] |
|---|---|---|---|
| 2532 7090 0400 0006 | 0 to 5 | G1/8“ | 0.11 |

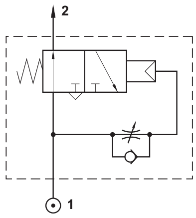
This device, if air is supplied at port 1, lets the air go out from port 2 when the adjustable dwell time (pre-set by screw R) has elapsed. The air flow can then be interrupted by removing the air supply from port 1. The difference from the normally open version (see below) is that the screw R adjusts the dwell time and not the duration of the air impulse.



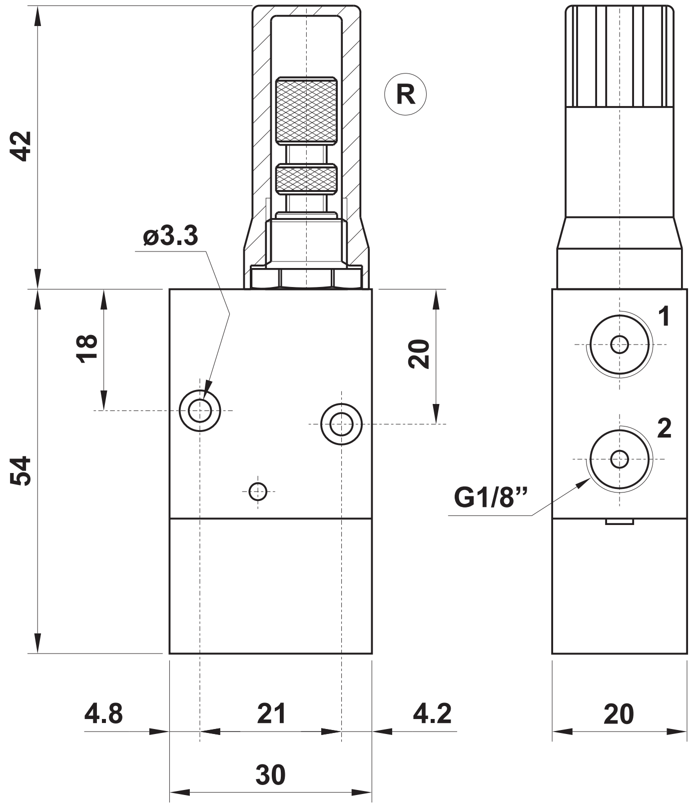

## Valve for limiting the signal length

| Order code | Signal length range [s] | Thread | Weight [kg] |
|---|---|---|---|
| 2532 7090 0400 0005 | 0 to 5 | G1/8“ | 0.11 |

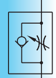
It is a device which produces an adjustable impulse of fixed duration by adjusting screw (R). When a signal is applied from a three way valve and maintained at port 1 the impulse generator is activated and will generate an impulse period which was pre-set by screw R. If the signal is interrupted the duration of the impulse is terminated. To repeat the cycle the pilot signal must be exhausted and applied again.




| | |
|---|---|
| Working pressure | 0.2 to 1.0 MPa |
| Temperature range | 0°C to +60°C |
| Working medium | modified compressed air |




Notice: dimensions are the same for both valves - valve for signal start delay and valve for shorten the signal length.

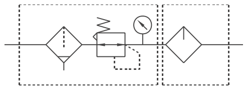


## Complete FRL units and standalone units



## Accessories

The new FRL unit series with robust metal construction with polycarbonate or nylon bowls with plastic guards, or with metal bowls. High flow rate and 5 µm filter element predestine these units for all smaller applications.



| Port thread | G1/4“ | G3/8“ | G1/2“ |
|---|---|---|---|
| Primary pressure [MPa] | 0,05 to 1,0 for semiautomatic drain, 0,15 to 1,0 for automatic drain | | |
| Secondary pressure [MPa] | 0,05 to 0,85 | | |
| Test pressure [MPa] | 1,5 | | |
| Temperature range [°C] | -5 to +60 | | |
| Filter element [µm] | 5 | | |
| Oil bowl capacity [l] | 0,065 | | |
| Min. lubricator flow [Nl/min] | 50 | 60 | 60 |
| Weight [kg] | 0,85 | | |
| Supply contains | gauge (PPG-20)*, bracket (T-shaped) | | |

*) Gauge PPG-40 can only be used with a threaded adapter, order code PA-MAR302, see page 8-24

## Order codes

PMACP302 – 8A M – BSP

| Port size | |
|---|---|
| 8A | G1/4“ |
| 10A | G3/8“ |
| 15A | G1/2“ |

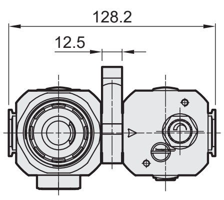
| Bowl | |
|---|---|
| | polycarbonate |
| N | nylon |
| M | metal |

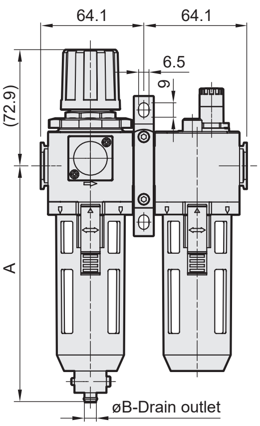
| Condensation draining | |
|---|---|
| – | semiautomatic |
| D | automatic |

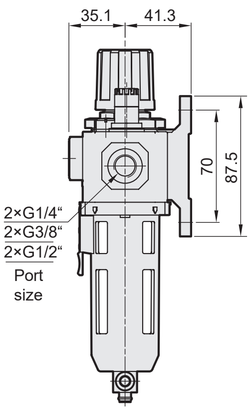
Semiautomatic condensation draining automatically drains when the primary pressure drops under 0,05 MPa.

The unit can be placed with the inlet on the right or on the left.

## Dimensions




Semiautomatic condensation draining

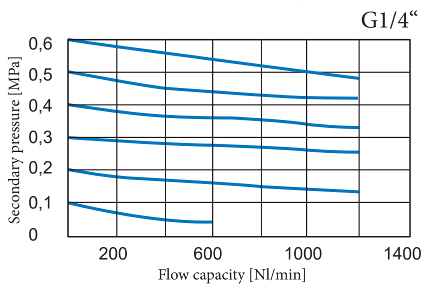
| Bowl | A | B - inner tube ø |
|---|---|---|
| polycarbonate nylon | 147,1 | 6 |
| metal | 147,2 | 5 |

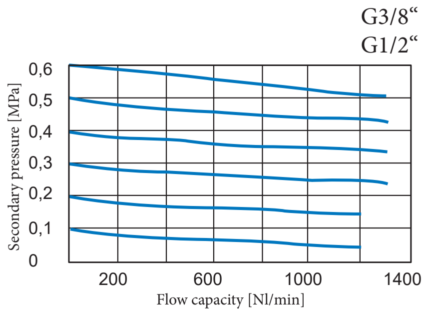
Automatic condensation draining

| Bowl | A | B - outer tube ø |
|---|---|---|
| polycarbonate nylon | 156,6 | 8 |
| metal | 159,1 | 8 |

## Flow capacity

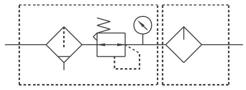
Flow rates at primary pressure 0,7 MPa



# FRL AIR PREPARATION UNIT SERIES MACP401

The new FRL unit series is interest for its robust metal construction inclusive metal bowls with level indicator at first sight. Countersunk gauge isn't predisposed to damage. These accessible units with good flow capacity and 5 μm filter element will find exercise in many applications.



| Port thread | G1/4" | G3/8" | G1/2" |
|---|---|---|---|
| Primary pressure [MPa] | 0,05 to 1,5 for semiautomatic drain, 0,15 to 1,0 for automatic drain | | |
| Secondary pressure [MPa] | 0,1 to 0,85 | | |
| Test pressure [MPa] | 2,0 | | |
| Temperature range [°C] | -5 to +60 | | |
| Filter element [μm] | 5 | | |
| Oil bowl capacity [l] | 0,2 | | |
| Min. lubricator flow [Nl/min] | 30 | 65 | 80 |
| Weight [kg] | 1,52 | | |
| Supply contains | gauge (PPG-20)*, bracket (elbow) | | |

*) Gauge PPG-40 can only be used with a threaded adapter, order code PA-MAR401, see page 8-24

## Order codes

PMACP401 – 8A – 5u – BSP

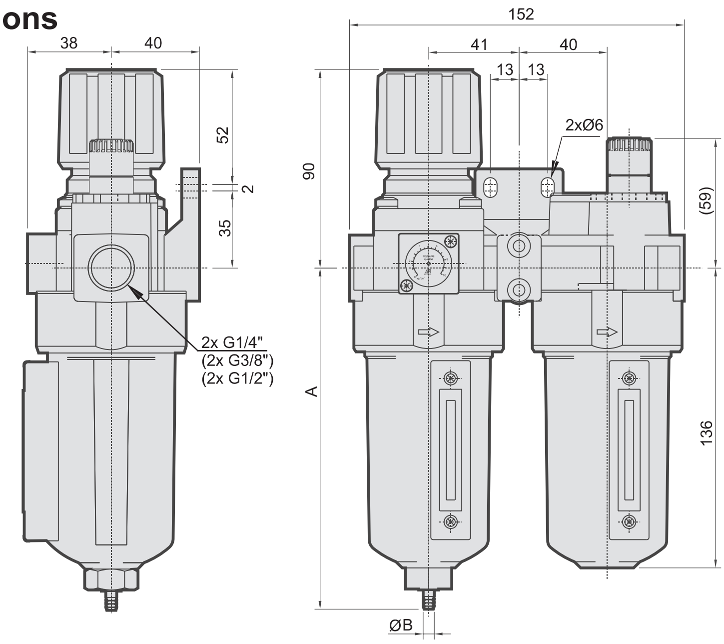
| Port size | |
|---|---|
| 8A | G1/4" |
| 10A | G3/8" |
| 15A | G1/2" |

| Condensate draining | |
|---|---|
| – | semiautomatic |
| D | automatic |

Semiautomatic condensation draining automatically drains when the primary pressure drops under 0,05 MPa.

The unit can be placed with the inlet on the right or on the left.

## Dimensions




Semiautomatic condensation draining

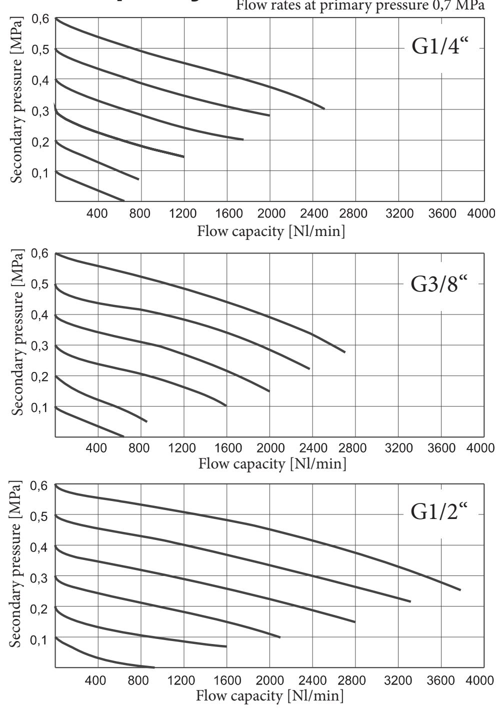
| A | B - inner tube ø |
|---|---|
| 154 | 5 |

Automatic condensation draining

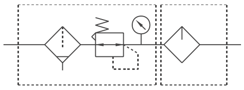
| A | B - outer tube ø |
|---|---|
| 166 | 8 |

## Flow capacity

Flow rates at primary pressure 0,7 MPa



FRL series which supplement series MACP401. Also this series features by robust construction with polycarbonate  or nylon bowls with plastic guards, or metal bowls. These reasonable units with 40 μm filter element will find usage in wide range of applications, where the high flow is necessary.



| Port thread | G3/4“ | G1“ |
|---|---|---|
| Primary pressure [MPa] | semiautomatic drain: 0,05 to 1,0 (polycarbonate and nylon bowls), 0,05 to 1,5 (metal bowls)<br>automatic drain: 0,15 to 1,0 | |
| Secondary pressure [MPa] | 0,1 to 0,85 | |
| Test pressure [MPa] | 1,5 (polycarbonate and nylon bowls), 2,0 (metal bowls) | |
| Temperature range [°C] | -5 to +60 | |
| Filter element [μm] | 40 | |
| Oil bowl capacity [l] | 0,2 | |
| Min. lubricator flow [Nl/min] | 25 | 33 |
| Weight [kg] | 3.48 (polycarbonate and nylon bowls), 3.72 (metal bowls) | |
| Supply contains | gauge (PPG-20),* bracket | |

*) Gauge PPG-40 can only be used with a threaded adapter, order code PA-MAR302, see page 8-24

## Order codes

PMACP501-20A M – BSP

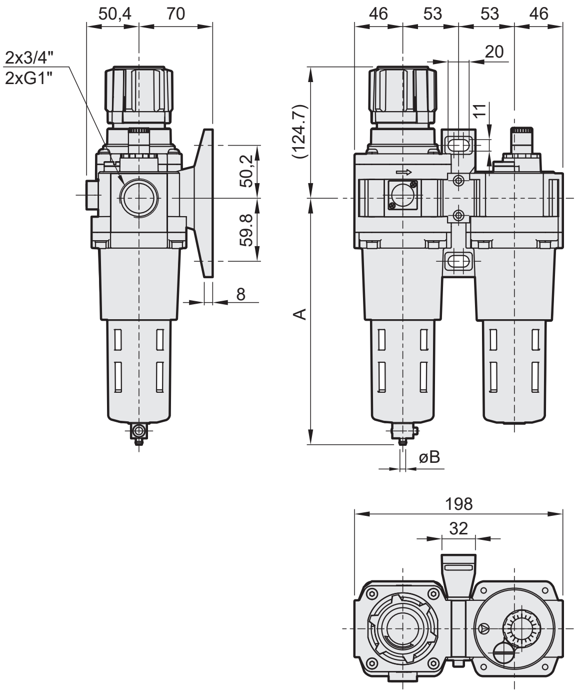
| Port size | |
|---|---|
| 20A | G3/4“ |
| 25A | G1“ |

| Bowl | |
|---|---|
| | polycarbonate |
| N | nylon |
| M | metal |

| Condensation draining | |
|---|---|
| – | semiautomatic |
| D | automatic |

Semiautomatic condensation draining automatically drains when the primary pressure drops under 0,05 MPa.

## Dimensions




Semiautomatic condensation draining

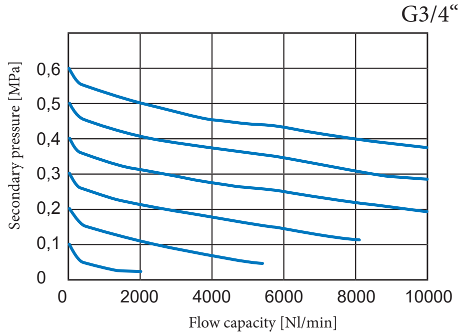
| Bowl | A | B - inner tube ø |
|---|---|---|
| polycarbonate nylon | 233,8 | 6 |
| metal | 231,4 | 5 |

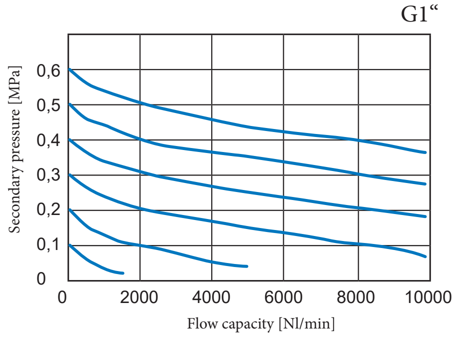
Automatic condensation draining

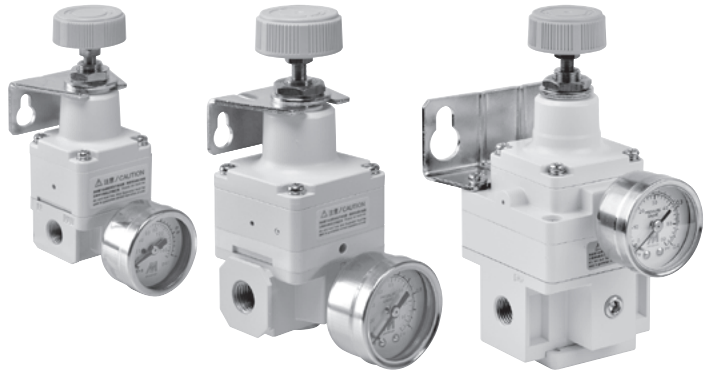
| Bowl | A | B - outer tube ø |
|---|---|---|
| polycarbonate nylon | 243,3 | 8 |
| metal | 243,3 | 8 |

## Flow capacity

Flow rates at primary pressure 0,7 MPa

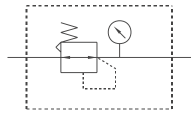




Precision pressure regulators are used for reduce of pressure to precise working pressure, which is automatically hold on selected value. It can be used especially in control applications, where the exact value of output pressure is required.

For proper operation, the valve continuously consumes a small amount of compressed air after connecting the supply pressure and blows it out through the relief hole.



| Port size | MAIR100 | MAIR200 | MAIR300 | | |
|---|---|---|---|---|---|
| | G1/8“ | G1/4“ | G1/4“ | G3/8“ | G1/2“ |
| Primary pressure [MPa] | 0 to 1,0 (setting pressure + 0,05 MPa) | | 0 to 1,0 (setting pressure + 0,10 MPa) | | |
| Secondary pressure [MPa] | range 2K: 0,005 to 0,2<br>range 4K: 0,01 to 0,4<br>range 8K: 0,01 to 0,8 | | | | |
| Test presure [MPa] | 1,5 | | | | |
| Air consumption [Nl/min] | 4,4 | | 11,5 | | |
| Output sensitivity [MPa] | 0,2% of full span | | | | |
| Output repeatability [MPa] | ±0,5% of full span | | | | |
| Temperature range [°C] | -5 to +60 | | | | |
| Weight [kg] | 0,150 | 0,300 | 0,875 | | |
| Supply contains | gauge (R1/8“), bracket (elbow) | | | | |

## Order codes

PMAIR 100 6A 2K BSP

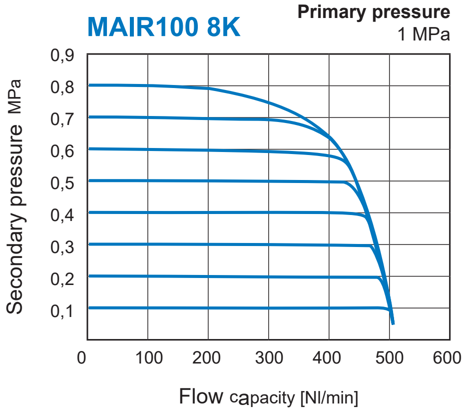
| Type - port size | |
|---|---|
| 100 6A | MAIR100, G1/8“ |
| 200 8A | MAIR200, G1/4“ |
| 300 8A | MAIR300, G1/4“ |
| 300 10A | MAIR300, G3/8“ |
| 300 15A | MAIR300, G1/2“ |

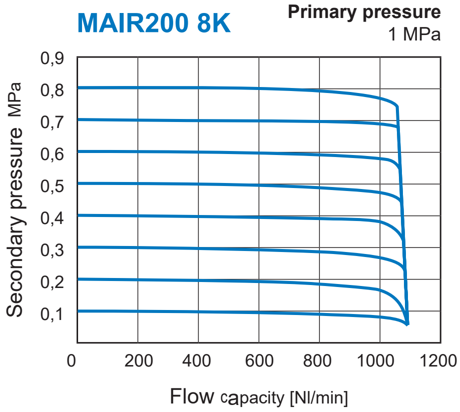
| Secondary pressure range | |
|---|---|
| 2K | 0,005-0,2 MPa |
| 4K | 0,01-0,4 MPa |
| 8K | 0,01-0,8 MPa |

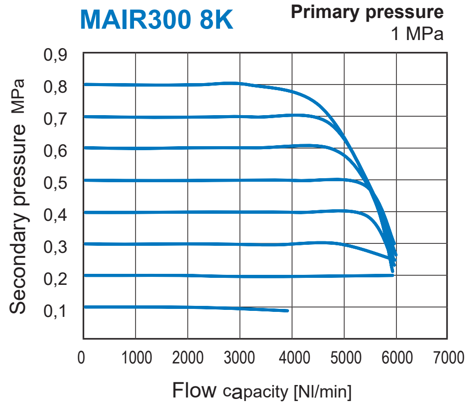
### Caution

- If the air supply line contains drain or particlate, etc., the primary pressure fixed throttle can become clogged leading to malfunction, and therefore, be sure to use an air filter (MAF or MAM*) & mist separator.
- Never use a lubricator on the primary side of the regulator, as this will positively cause the fixed throttle to become clogged and result in a malfunction. If lubrication is required for terminal devices, connect a lubricator on the  secondary side.
- When to be during maintenance, first reduce the precision regulatorset pressure to zero, and completely shut off the supply pressure.
- If a directional switching valve (solenoid valve, mechanical valve, etc.) is mounted on the primary side of the the  precision regulator  and repeatedly switched ON and OFF, wear of the nozzle/diaphragm section will be accelerated and a discrepancy in the setting value may occur. Therefore, avoid using a directional switching valve on the primary side. In the event a directional switching valve will be used, install it on the secondary side of the precision regulator.

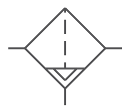
## Flow capacity



Primary air particulate filters are designed to separate liquid, water, rust, pipe scale, and debris from air lines. They should be installed upstream of the regulator and/or lubricator to prevent contamination from reaching other components.
Series 401 has got metal bowl with sight glass and series 302 and 501 have got polycarbonate or nylon bowl with plastic guard or metal bowl.



| Port thread | MAF302 | | | MAF401 | | | MAF501 | |
|---|---|---|---|---|---|---|---|---|
| | G1/4“ | G3/8“ | G1/2“ | G1/4“ | G3/8“ | G1/2“ | G3/4“ | G1“ |
| Flow at 0,7 MPa (Δp=0,03MPa) [Nl/min] | 910 | 1100 | 1100 | 1300 | 2000 | 2500 | 7000 | 7000 |
| Primary pressure [MPa] for semiautomatic drain | 0,05 to 1 | | | 0,05 to 1,5 | | | 0,05 to 1 and 0,05 to 1,5 for metal bowl | |
| Primary pressure [MPa] for automatic drain | 0,15 to 1 | | | 0,15 to 1 | | | 0,15 to 1 | |
| Test pressure [MPa] | 1,5 | | | 2 | | | 1,5, 2 for metal bowl | |
| Temperature range [°C] | -5 to +60 | | | -5 to +60 | | | -5 to +60 | |
| Filter element [µm] | 5 | | | 40 | | | 40 | |
| Weight [kg] | 0,34 | | | 0,48 | | | 1.18, 1.30 for metal bowl | |
| Supply contains | bracket (C-shaped) | | | bracket (C-shaped) | | | bracket (elbow) | |

## Order codes

PMAF401-10A – 5u – BSP

| Port size | |
|---|---|
| 401-8A | G1/4“ |
| 401-10A | G3/8“ |
| 401-15A | G1/2“ |

| Condensation draining | |
|---|---|
| – | semiautomatic |
| D | automatic |

PMAF501-20A M – BSP

| Port size | |
|---|---|
| 302-8A | G1/4“ |
| 302-10A | G3/8“ |
| 302-15A | G1/2“ |
| 501-20A | G3/4“ |
| 501-25A | G1“ |

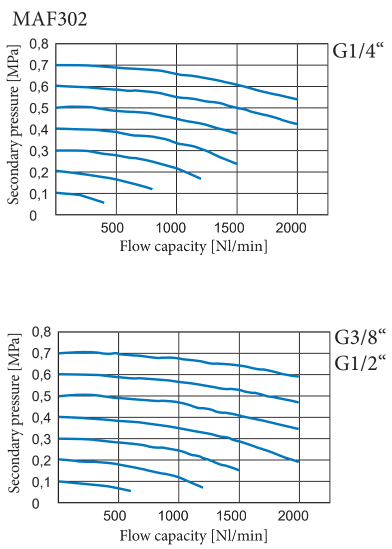
| Bowl | |
|---|---|
| | polycarbonate |
| N | nylon |
| M | metal |

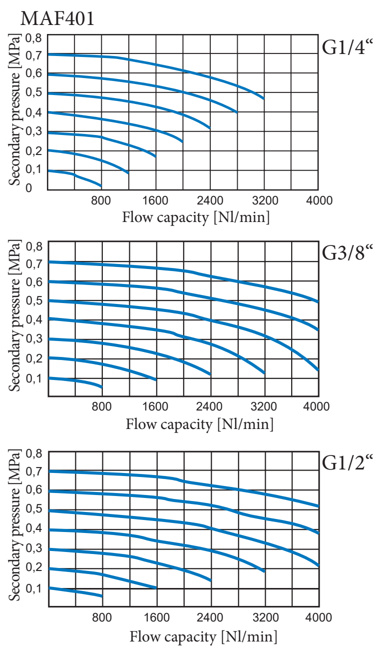
| Condensation draining | |
|---|---|
| – | semiautomatic |
| D | automatic |

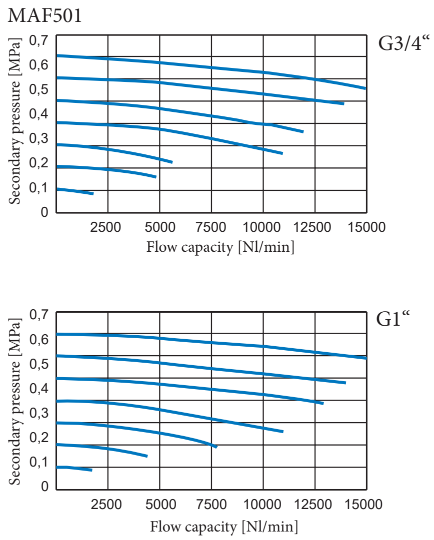
Semiautomatic condensation draining automatically drains when the primary pressure drops under 0,05 MPa.

## Flow capacity

Flow rates at primary pressure 0,7 MPa

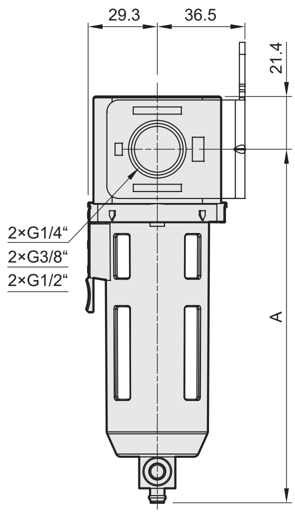


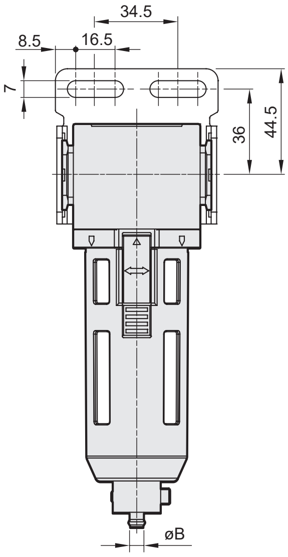



## Dimensions

### MAF302



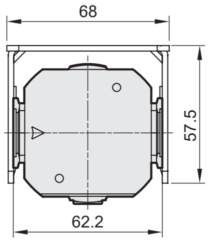




Semiautomatic condensation draining

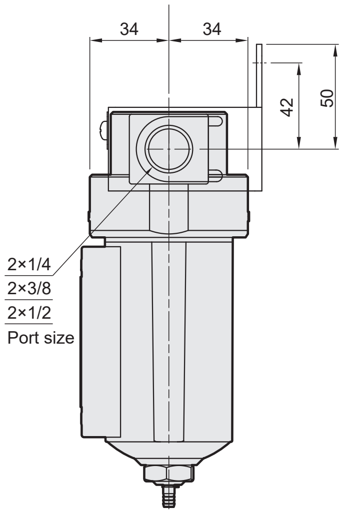
| Bowl | A | B - inner tube ø |
|---|---|---|
| polycarbonate nylon | 147,1 | 6 |
| metal | 147,2 | 5 |

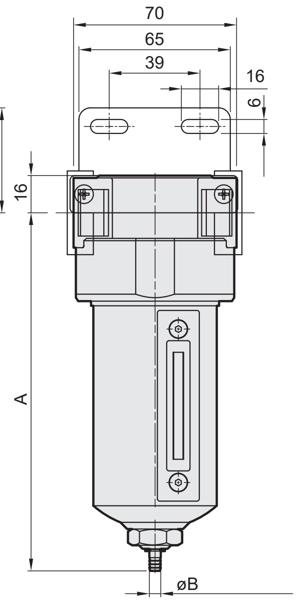
Automatic condensation draining

| Bowl | A | B - outer tube ø |
|---|---|---|
| polycarbonate nylon | 156,6 | 8 |
| metal | 159,1 | 8 |




### MAF401



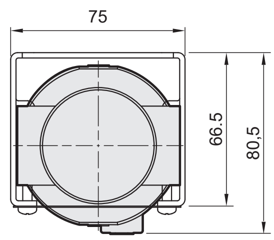




Semiautomatic condensation draining

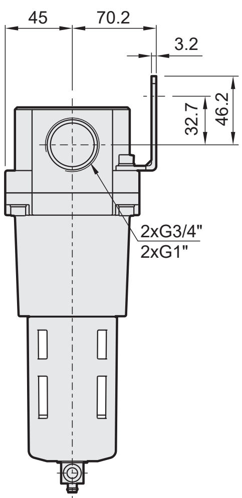
| Bowl | A | B - inner tube ø |
|---|---|---|
| metal | 154 | 5 |

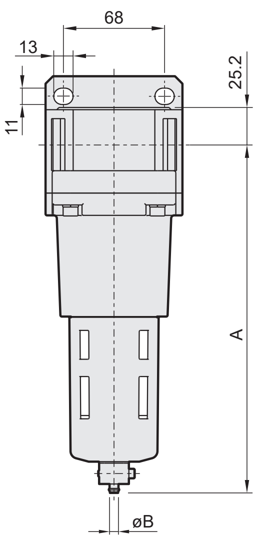
Automatic condensation draining

| Bowl | A | B - outer tube ø |
|---|---|---|
| metal | 166 | 8 |




### MAF501



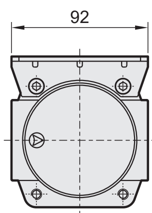




Semiautomatic condensation draining

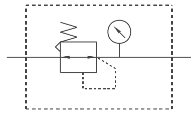
| Bowl | A | B - inner tube ø |
|---|---|---|
| polycarbonate nylon | 233,8 | 6 |
| metal | 231,4 | 5 |

Automatic condensation draining

| Bowl | A | B - outer tube ø |
|---|---|---|
| polycarbonate nylon | 243,3 | 8 |
| metal | 243,3 | 8 |



Pressure regulators are used to reduce pressure to working pressure, which is automatically held on the selected value. By using an optimal pressure, longer lifetime of pneumatic components can be reached as well as resources necessary for production of compressed air can be saved.



| Port size | MAR200 | MAR302 | | | MAR401 | | | MAR501 | |
|---|---|---|---|---|---|---|---|---|---|
| | G1/4“ | G1/4“ | G3/8“ | G1/2“ | G1/4“ | G3/8“ | G1/2“ | G3/4“ | G1“ |
| Primary pressure [MPa] | 0,05 to 0,99 | 0,05 to 0,99 | | | 0,1 to 1,5 | | | 0,1 to 1,5 | |
| Secondary pressure [MPa] | 0,05 to 0,85 | 0,05 to 0,85 | | | 0,1 to 0,85 | | | 0,1 to 0,85 | |
| Test pressure [MPa] | 1,5 | 1,5 | | | 2,0 | | | 2,0 | |
| Temperature range [°C] | -5 to +60 | -5 to +60 | | | -5 to +60 | | | -5 to +60 | |
| Weight [kg] | 0,20 | 0,27 | | | 0,45 | | | 1.46 | |
| Supply contains | gauge (PPG-40, R1/8“), bracket | gauge (PPG-20)*, bracket | | | gauge (PPG-20)*, bracket | | | gauge (PPG-20)*, bracket | |

*) Gauge PPG-40 can only be used with a threaded adapter, order code PA-MAR302 (for series 302 and 501) or order code PA-MAR401 (for series 401), see page 8-24

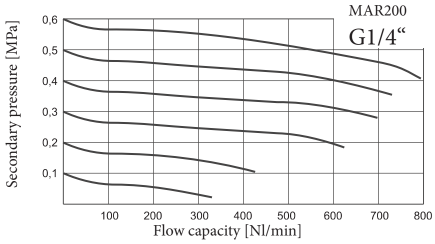
## Order codes

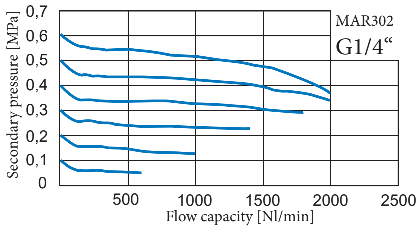
PMAR200-8A – BSP

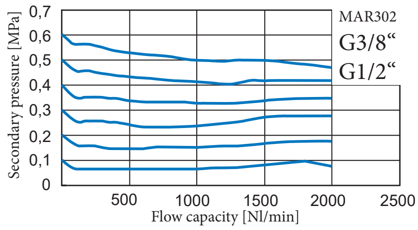
| Port size | |
|---|---|
| 200-8A | G1/4“ |
| 302-8A | G1/4“ |
| 302-10A | G3/8“ |
| 302-15A | G1/2“ |
| 401-8A | G1/4“ |
| 401-10A | G3/8“ |
| 401-15A | G1/2“ |
| 501-20A | G3/4“ |
| 501-25A | G1“ |

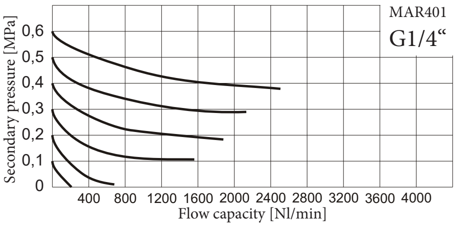
## Flow capacity

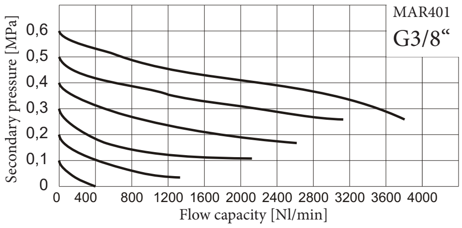
Flow rates at primary pressure 0,7 MPa

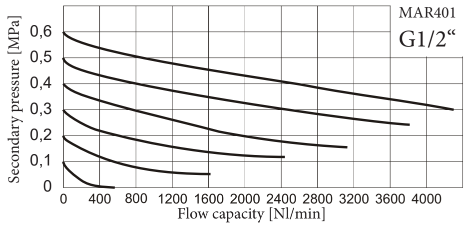


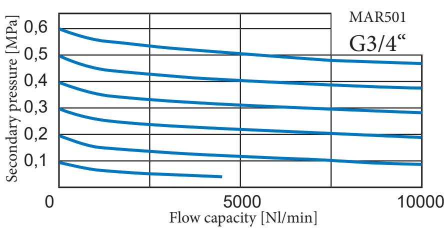



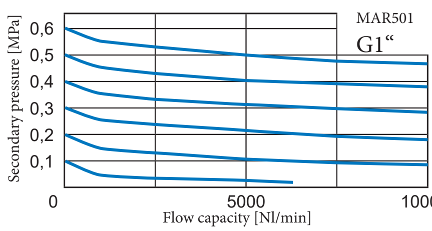



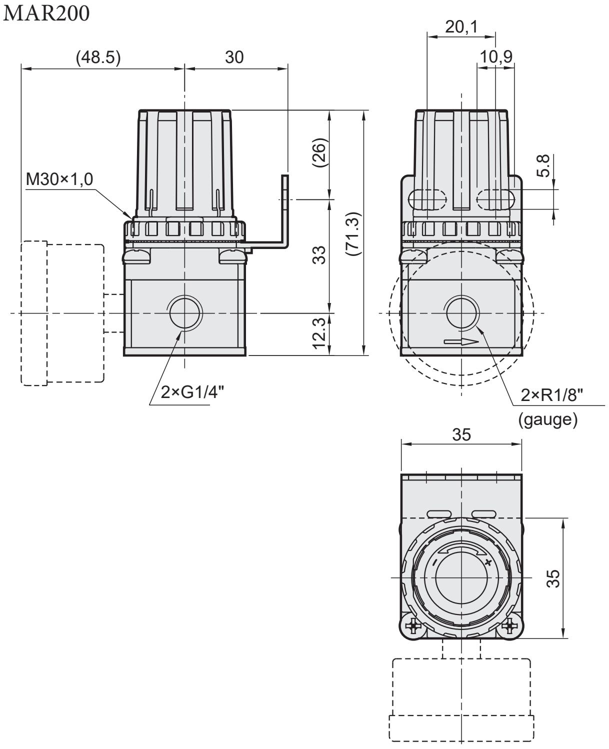



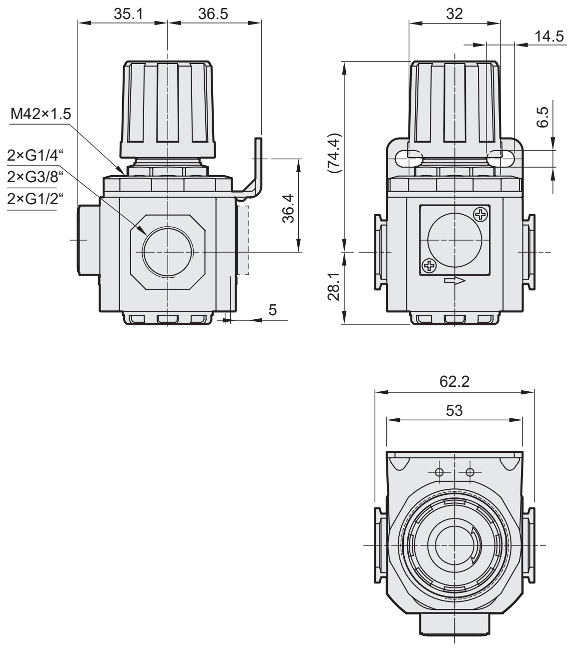



## Dimensions

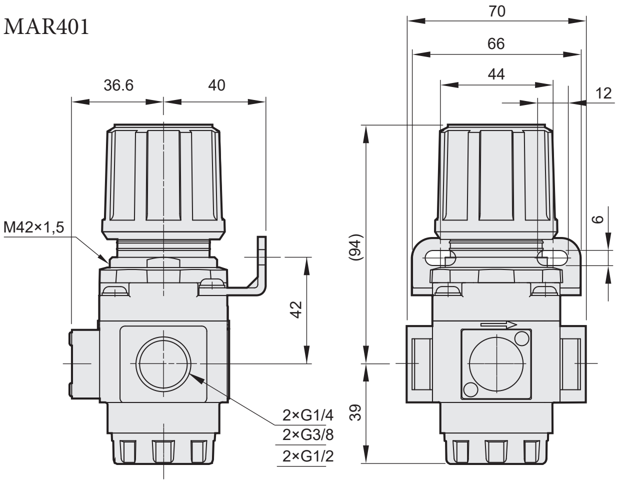
MAR200



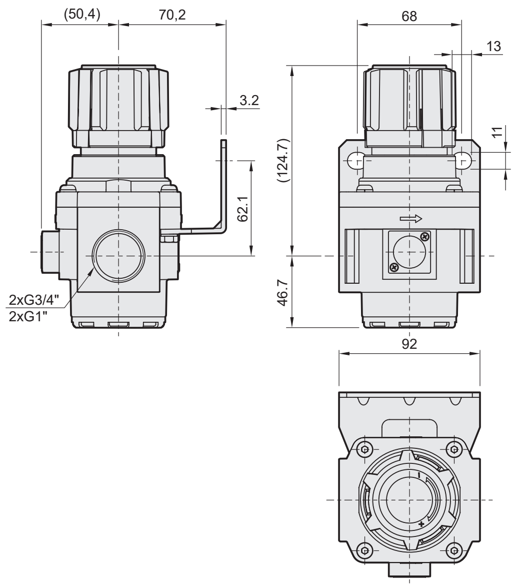

MAR302




MAR401

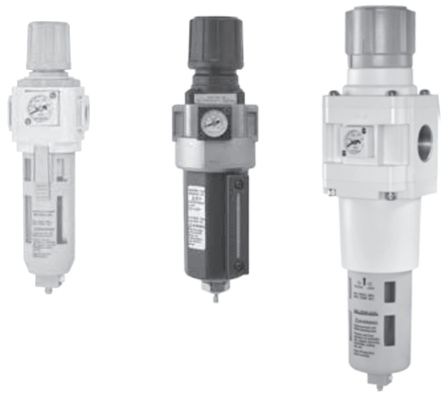



MAR501

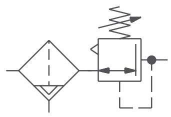


# PARTICULAR FILTER WITH REGULATOR SERIES MAFR302, MAFR401 AND MAFR501

STRÁNSKÝ A PETRŽÍK



The integral part of the particulate filter/regulator ('piggyback') is a two station component designed to filter and regulate compressed air when cost and space are of primary concern.
Series 401 has got metal bowl with sight glass and series 302 and 501 have got polycarbonate or nylon bowl with plastic guard or metal bowl.



| Port size | MAFR302 | | | MAFR401 | | | MAFR501 | |
|---|---|---|---|---|---|---|---|---|
| | G1/4“ | G3/8“ | G1/2“ | G1/4“ | G3/8“ | G1/2“ | G3/4“ | G1“ |
| Primary pressure [MPa] for semiautomatic drain | 0,05 to 1 | | | 0,05 to 1,5 | | | 0,05 to 1 and 0,05 to 1,5 for metal bowl | |
| Primary pressure [MPa] for automatic drain | 0,15 to 1 | | | 0,15 to 1 | | | 0,15 to 1 | |
| Secondary pressure [MPa] | 0,05 to 0,85 | | | 0,1 to 0,85 | | | 0,1 to 0,85 | |
| Test pressure [MPa] | 1,5 | | | 2,0 | | | 1,5, 2 for metal bowl | |
| Filter element [µm] | 5 | | | 5 | | | 40 | |
| Temperature range [°C] | -5 to +60 | | | -5 to +60 | | | -5 to +60 | |
| Weight [kg] | 0,49 | | | 0,80 | | | 1.94, 2,06 for metal bowl | |
| Supply contains | gauge (PPG-20)*, bracket (elbow) | | | gauge (PPG-20)*, bracket (elbow) | | | gauge (PPG-20)*, bracket (elbow) | |

*) Gauge PPG-40 can only be used with a threaded adapter, order code PA-MAR302 (for series 302 and 501) or order code PA-MAR401 (for series 401), see page 8-24

## Order codes

PMAFR401-10A – 5u – BSP

| Port size | |
|---|---|
| 401-8A | G1/4“ |
| 401-10A | G3/8“ |
| 401-15A | G1/2“ |

| Condensation draining | |
|---|---|
| – | semiautomatic |
| D | automatic |

PMAFR501-20A M – BSP

| Port size | |
|---|---|
| 302-8A | G1/4“ |
| 302-10A | G3/8“ |
| 302-15A | G1/2“ |
| 501-20A | G3/4“ |
| 501-25A | G1“ |

| Bowl | |
|---|---|
| | polycarbonate |
| N | nylon |
| M | metal |

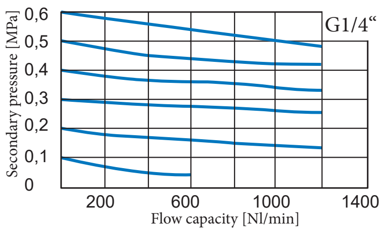
| Condensation draining | |
|---|---|
| – | semiautomatic |
| D | automatic |

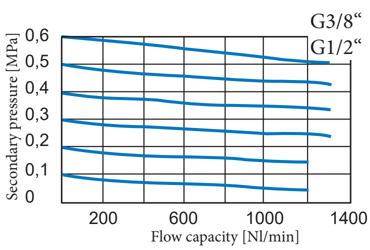
i Semiautomatic condensation draining automatically drains when the primary pressure drops under 0,05 MPa.

## Flow capacity

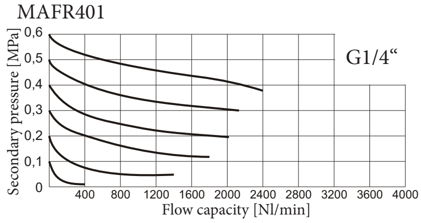
Flow rates at primary pressure 0,7 MPa

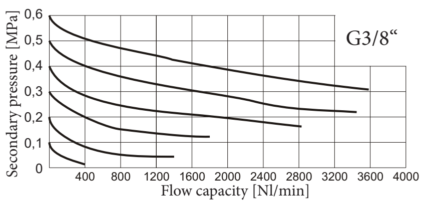
MAFR302

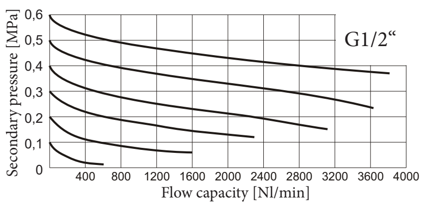


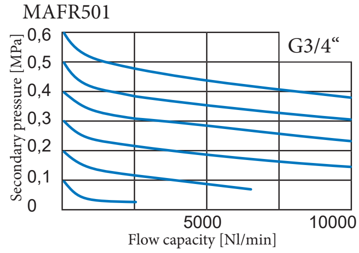

MAFR401

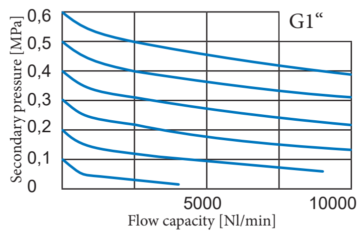


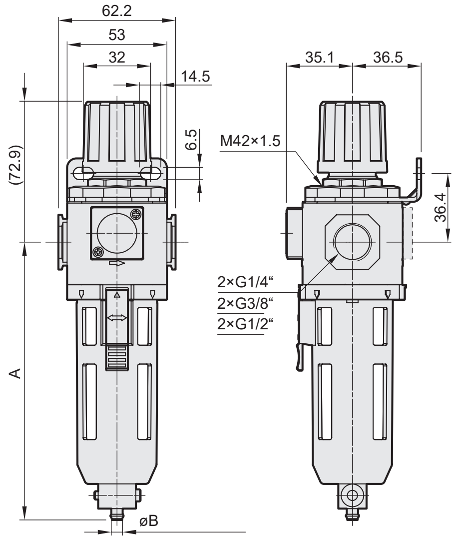

MAFR501



## Dimensions

MAFR302



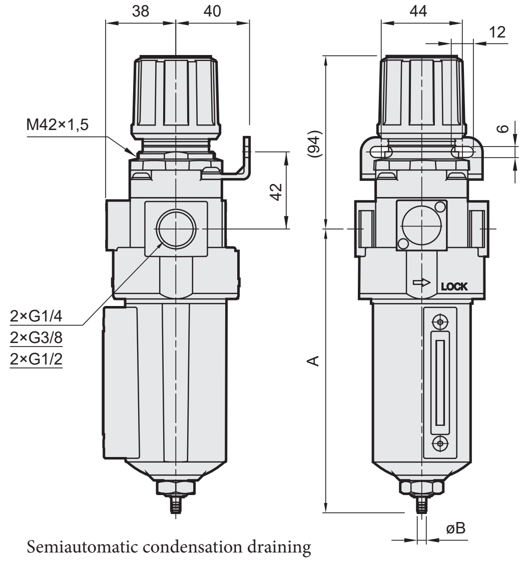

Semiautomatic condensation draining

| Bowl | A | B - inner tube ø |
|---|---|---|
| polycarbonate nylon | 147,1 | 6 |
| metal | 147,2 | 5 |

Automatic condensation draining

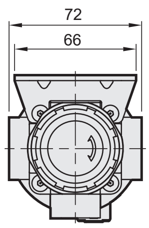
| Bowl | A | B - outer tube ø |
|---|---|---|
| polycarbonate nylon | 156,6 | 8 |
| metal | 159,1 | 8 |

MAFR401




Semiautomatic condensation draining

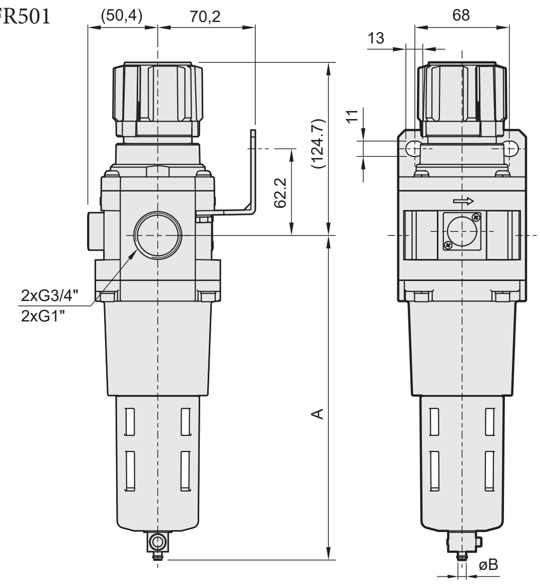
| Bowl | A | B - inner tube ø |
|---|---|---|
| metal | 154 | 5 |




Automatic condensation draining

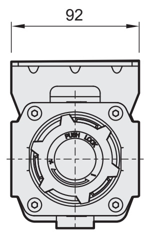
| Bowl | A | B - outer tube ø |
|---|---|---|
| metal | 166 | 8 |

MAFR501




Semiautomatic condensation draining

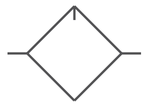
| Bowl | A | B - inner tube ø |
|---|---|---|
| polycarbonate nylon | 233,8 | 6 |
| metal | 231,4 | 5 |




Automatic condensation draining

| Bowl | A | B - outer tube ø |
|---|---|---|
| polycarbonate nylon | 243,3 | 8 |
| metal | 243,3 | 8 |

Usually mounted third in the FRL Series, the lubricator is designed to inject oil aerosols into the airstream of a pneumatic circuit.
Series 401 has got metal bowl with sight glass and series 302 and 501 have got polycarbonate or nylon bowl with plastic guard or metal bowl.



| Port size | MAL302 | | | MAL401 | | | MAL501 | |
|---|---|---|---|---|---|---|---|---|
| | G1/4“ | G3/8“ | G1/2“ | G1/4“ | G3/8“ | G1/2“ | G3/4“ | G1“ |
| Flow at 0,7 MPa (Δp=0,03MPa) [Nl/min] | 910 | 1100 | 1100 | 1200 | 2000 | 2100 | 11000 | 11000 |
| Primary pressure [MPa] | 0 to 0,99 | | | 0 to 1,5 | | | 0 to 1 (0 to 1,5)* | |
| Test pressure [MPa] | 1,5 | | | 2 | | | 1,5 (2)* | |
| Temperature range [°C] | -5 to +60 | | | -5 to +60 | | | -5 to +60 | |
| Min. lubricator flow [Nl/min] | 50 | 60 | 60 | 30 | 65 | 80 | 25 | 33 |
| Oil bowl capacity [l] | 0,065 | | | 0,2 | | | 0,2 | |
| Weight [kg] | 0,35 | | | 0,545 | | | 1,26 (1.38)* | |
| Supply contains | bracket (C-shaped) | | | bracket (C-shaped) | | | bracket (elbow) | |

*) Values in the brackets are valid for metal bowl for series 501.

## Order codes

PMAL401-10A – BSP

| Port size | |
|---|---|
| 401-8A | G1/4“ |
| 401-10A | G3/8“ |
| 401-15A | G1/2“ |

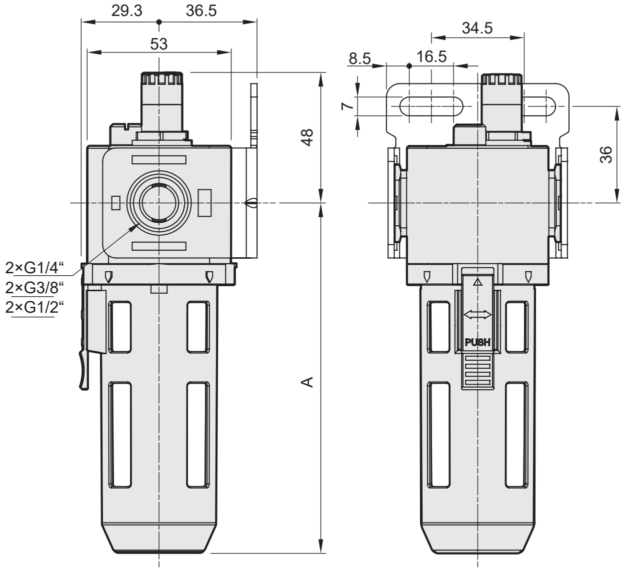
PMAL501-20A M – BSP

| Port size | |
|---|---|
| 302-8A | G1/4“ |
| 302-10A | G3/8“ |
| 302-15A | G1/2“ |
| 501-20A | G3/4“ |
| 501-25A | G1“ |

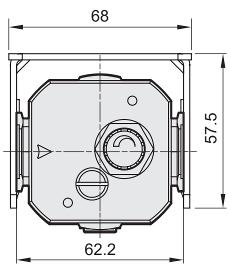
| Bowl | |
|---|---|
| | polycarbonate |
| N | nylon |
| M | metal |

## Dimensions

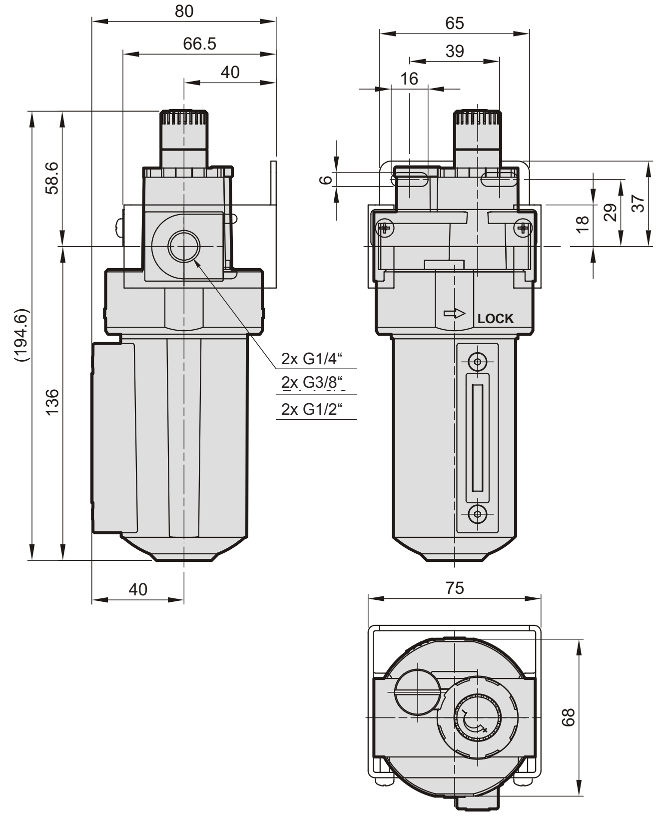
MAL302



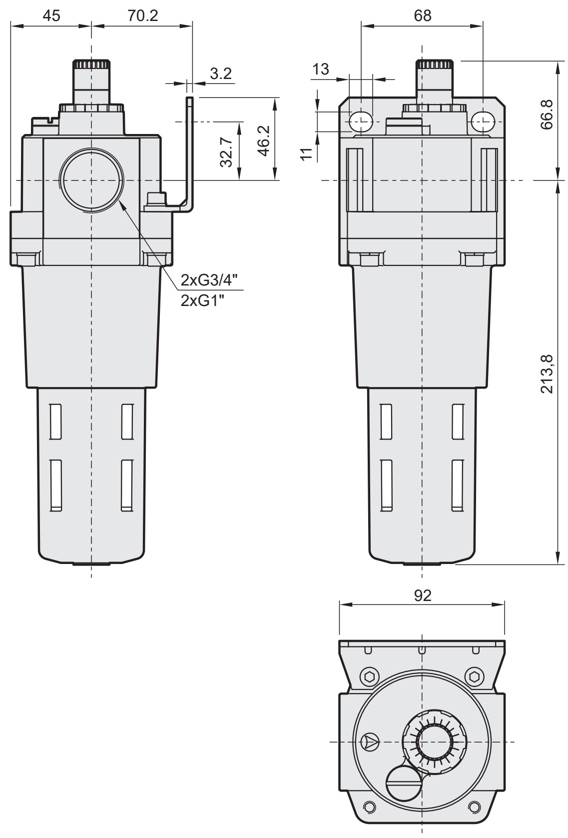

| Bowl | A |
|---|---|
| polycarbonate nylon | 129.1 |
| metal | 129,6 |




MAL401



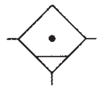

MAL501



# COALESCING FILTERS SERIES MAF302, MAF401 AND MAF501

STRÁNSKÝ A PETRŽÍK

The coalescing filter is utilized when either clean air is required or longer component life is desired. This type of filter removes water and oil aerosols. It works differently than the particulate filter; dirty air enters the element from the centre and passes through a field of glass fibres which cause the aerosols to form into droplets which are heavier than the surrounding air. The droplets grow larger as they pass through the element and gravity causes the oil drops to drain to the sump of the bowl. By removing the harmful oil varnishes and contaminant that attack seals and gaskets, the valve or cylinder is much less likely to stick. To maximize the life of a coalescing filter it should always be used after a 5 micron particulate filter. Series 401 has got metal bowl with sight glass and series 302 and 501 have got polycarbonate, nylon or metal bowl.



| Series | | MAF302 | | | MAF401 | | | MAF501 | |
|---|---|---|---|---|---|---|---|---|---|
| Port size | | G1/4“ | G3/8“ | G1/2“ | G1/4“ | G3/8“ | G1/2“ | G3/4“ | G1“ |
| Flow at 0,7 MPa (Δp=0,03MPa) [Nl/min] | filter element 0,3 µm | 1100 | 1800 | 2000 | 1250 | 1900 | 2300 | 6000 | 7000 |
| | filter element 0,01 µm | 1000 | 1700 | 1800 | 1200 | 1850 | 2200 | 5000 | 6000 |
| Primary pressure [MPa] for semiautomatic drain | | 0,05 to 1 | | | 0,05 to 1,5 | | | 0,05 to 1 and 0,05 to 1,5 for metal bowl | |
| Primary pressure [MPa] for automatic drain | | 0,15 to 1 | | | 0,15 to 1 | | | 0,15 to 1 | |
| Test pressure [MPa] | | 1,5 | | | 2 | | | 1,5 and 2 for metal bowl | |
| Temperature range [°C] | | -5 to +60 | | | -5 to +60 | | | -5 to +60 | |
| Filter element [µm] | | 0,3 and 0,01 | | | 5, 0,3 and 0,01 | | | 0,3 and 0,01 | |
| Drain capacity [cm³] | | 35 | | | 70 | | | 75 and 70 for metal bowl | |
| Weight [kg] | | 0,37 | | | 0,48 | | | 1,18 and 1,3 for metal bowl | |
| Supply contains | | bracket (C-type) | | | bracket (C-type) | | | bracket (L-type) | |

## Order codes

### Series MAF302

PMAF302 D – 10A – N D – B–G

| Filter element | |
|---|---|
| D | 0,3 µm |
| M | 0,01 µm |

| Port size | |
|---|---|
| 8A | G1/4“ |
| 10A | G3/8“ |
| 15A | G1/2“ |

| Bowl | |
|---|---|
| | polycarbonate |
| N | nylon |
| M | metal |

| Condensation draining | |
|---|---|
| | semiautomatic |
| D | automatic |

Semiautomatic condensation draining automatically drains when the primary pressure drops under 0,05 MPa.

Replace filter element at least once per year or when pressure drop reaches 0,07 MPa.

### Series MAF401

PMAF401 D – 10A – D –B–G

| Filter element | |
|---|---|
| D | 0,3 µm |
| M | 0,01 µm |

| Port size | |
|---|---|
| 8A | G1/4“ |
| 10A | G3/8“ |
| 15A | G1/2“ |

| Condensation draining | |
|---|---|
| | semiautomatic |
| D | automatic |

### Series MAF501

PMAF501 D – 20A – N D – B–G

| Filter element | |
|---|---|
| D | 0,3 µm |
| M | 0,01 µm |

| Port size | |
|---|---|
| 20A | G3/4“ |
| 25A | G1“ |

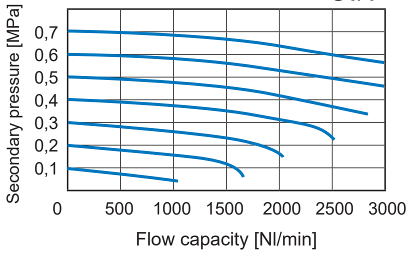
| Bowl | |
|---|---|
| | polycarbonate |
| N | nylon |
| M | metal |

| Condensation draining | |
|---|---|
| | semiautomatic |
| D | automatic |

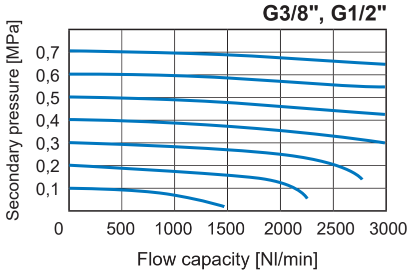
## Flow capacity

**MAF302D** (Filter element: 0,3 μm)

G1/4"

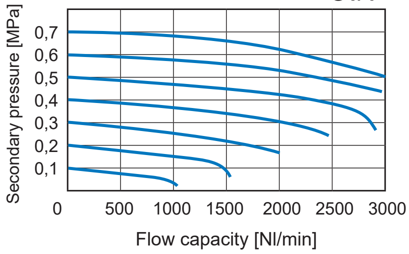



G3/8", G1/2"

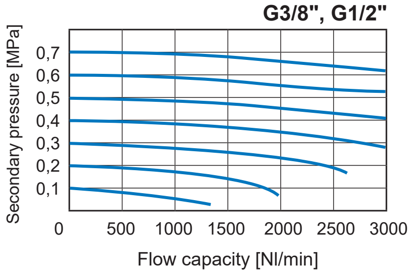



**MAF302M** (Filter element: 0,01 μm)

G1/4"

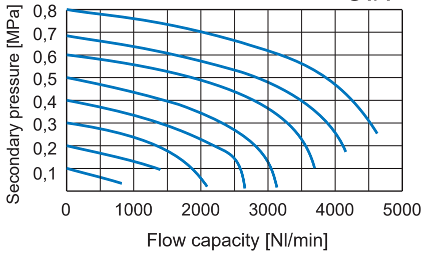



G3/8", G1/2"

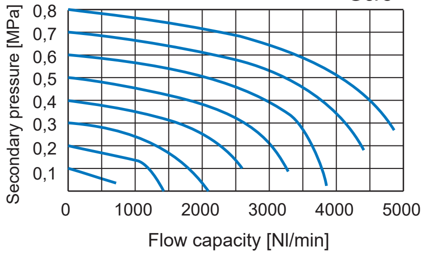



**MAF401D** (Filter element: 0,3 μm)

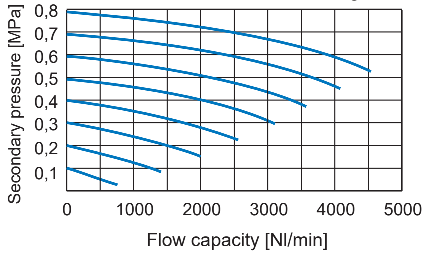
G1/4"




G3/8"

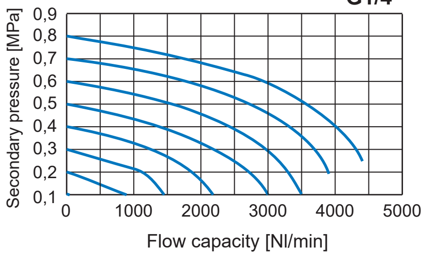



G1/2"

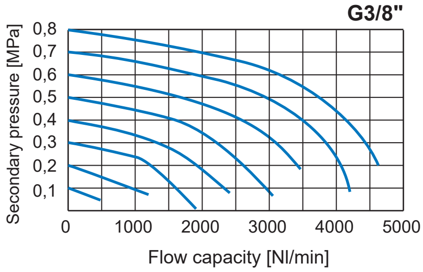



**MAF401M** (Filter element: 0,01 μm)

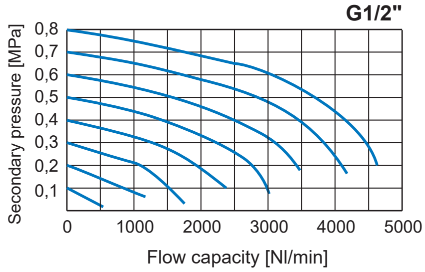
G1/4"




G3/8"

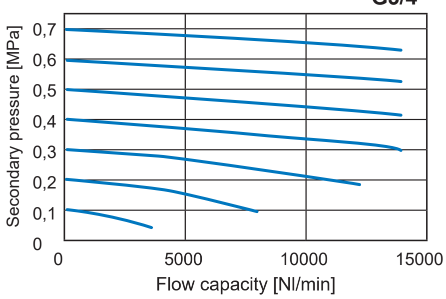



G1/2"

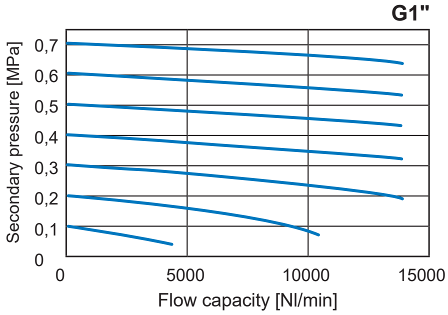



**MAF501D** (Filter element: 0,3 μm)

G3/4"

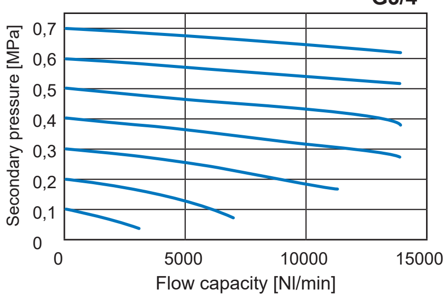



G1"

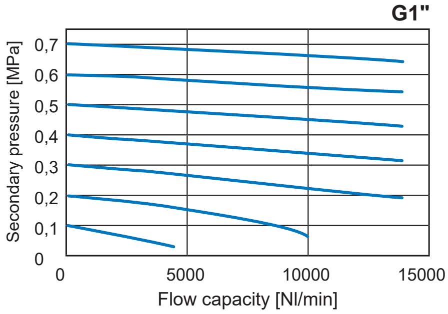



**MAF501M** (Filter element: 0,01 μm)

G3/4"

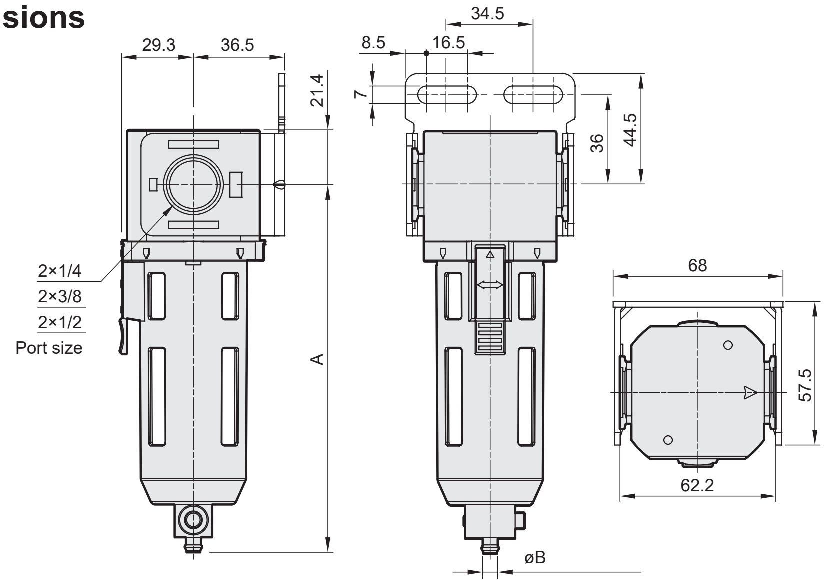



G1"



## Dimensions

### MAF302



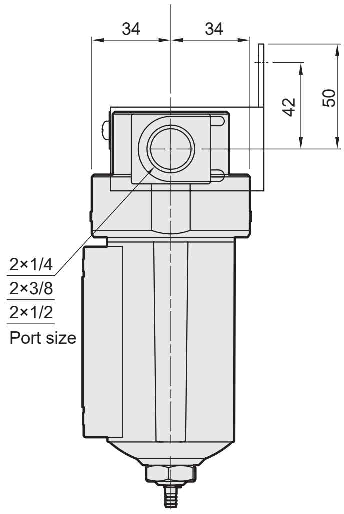

Semiautomatic condensation draining

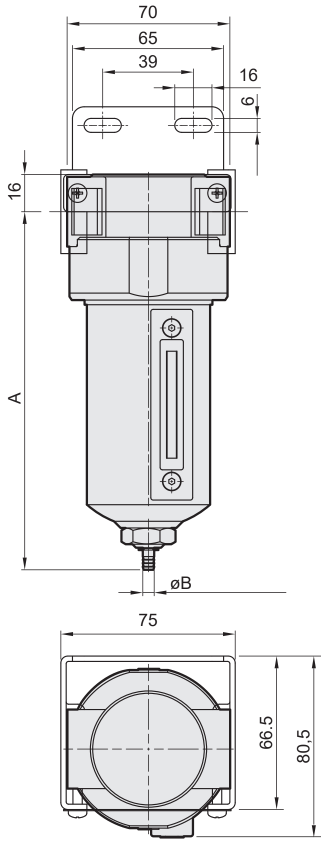
| Bowl | A | B - inner tube ø |
|---|---|---|
| polycarbonate nylon | 147,1 | 6 |
| metal | 147,2 | 5 |

Automatic condensation draining

| Bowl | A | B - outer tube ø |
|---|---|---|
| polycarbonate nylon | 156,6 | 8 |
| metal | 159,1 | 8 |

### MAF401



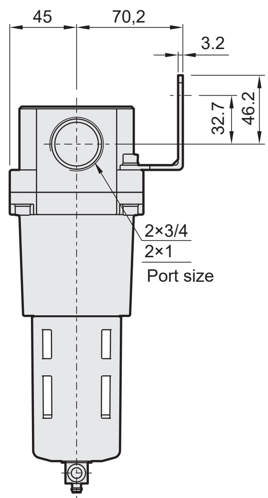

Semiautomatic condensation draining

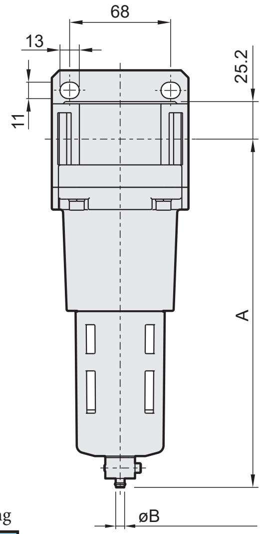
| Bowl | A | B - inner tube ø |
|---|---|---|
| metal | 154 | 5 |

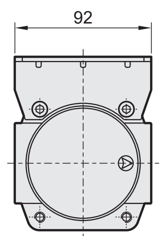
Automatic condensation draining

| Bowl | A | B - outer tube ø |
|---|---|---|
| metal | 166 | 8 |

### MAF501




Semiautomatic condensation draining

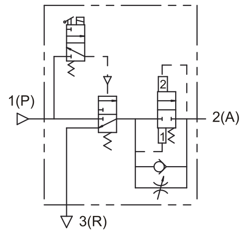
| Bowl | A | B - inner tube ø |
|---|---|---|
| polycarbonate nylon | 233,8 | 6 |
| metal | 231,4 | 5 |

Automatic condensation draining

| Bowl | A | B - outer tube ø |
|---|---|---|
| polycarbonate nylon | 243,3 | 8 |
| metal | 243,3 | 8 |

# SOFT START-UP VALVE SERIES MAVS401

Soft start-up valve is used everywhere, where items in line behind the valve should be secured against intense pressure rise after connection to air supply, as is common when hand valve or quick connect couplings are used. When the valve is energized or manually operated, output pressure will increase gradually with flow rate, which can be adjusted. After specific pressure (see chart) is reached, full pressure and flow is switched to output. When the valve is de-energized or switched off manually, input is closed and air from the line will be quickly exhausted.




| Port size | G1/2“ |
|---|---|
| Flow at 0,7 MPa (Δp=0,03MPa) [Nl/min] | 3000 in direction 1(P)→2(A); 3800 in direction 2(A)→3(R) |
| Primary pressure [MPa] | 0,25 to 1,0 |
| Temperature range [°C] | 0 to +60 |
| Power input [VA / W] | inrush 6, hold 4.9 for AC; 2.5 for DC |
| Insulation class | F |
| Weight [kg] | 0,8 |
| Supply contains | with connector, optionally with gauge, bracket on request |

## Order codes

PMAVS4001 C D24 L

| Gauge | |
|---|---|
| | without gauge |
| C | with gauge |

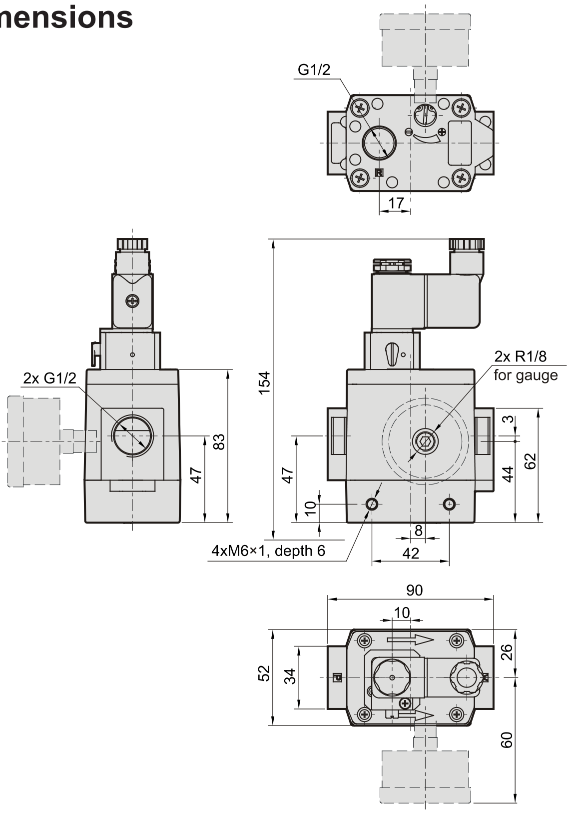
| Voltage | |
|---|---|
| D24 | 24 V DC ± 10% |
| A220 | 230 V AC ± 10%, 50-60 Hz |
| A24 | 24 V AC ± 10%, 50-60 Hz |

| Connector | |
|---|---|
| | standard |
| L | with LED |

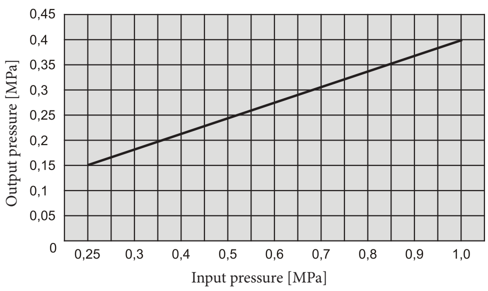
Valve can be used standalone, or should be attached using connection plate (order code PMACP401-C) with other units of series 401.

The total effective orifice of piping and components on the P port side must be equal or larger than 35 mm². When the air current is restricted or insufficient pressure, the main valve will not function / switch normally and it could cause air to leak from the R port.

## Dimensions

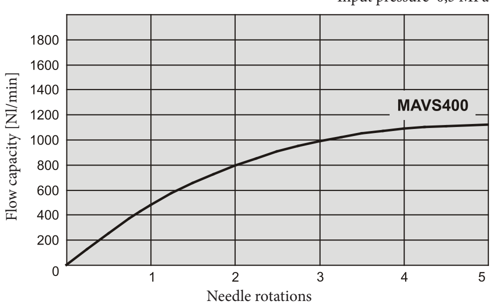



## Full pressure and flow capacity switching point



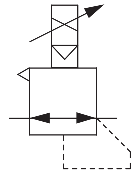

## Slow start-up flow capacity characteristics

Input pressure 0,5 MPa



STRÁNSKÝ A PETRŽÍK

The electro-pneumatic regulator is used for continuous electronic regulation of the output pressure based on the voltage or current input signal. The outlet pressure can therefore be dynamically adapted to the requirements of the application. The valve is also equipped with an output that can be further processed. High accuracy is achieved thanks to the integrated processor and PID control. The maximum flow at an inlet pressure of 1 MPa and an outlet pressure of 0,6 MPa is up to 1500 Nl/min.



A model controlled by RS-232 / RS-485 with Modbus protocol is also available. For more information, contact the technical department.

| Type | | MAER200 | | |
|---|---|---|---|---|
| **Pressure range (see order code)** | | **1K** | **5K** | **9K** |
| Port size | | in/out: G1/4“, G3/8“, relief: G1/4“, control exhaust: M5 | | |
| Medium | | modified compressed air | | |
| Test pressure [MPa] | | 0,3 | 1,5 | 1,5 |
| Temperature range [°C] | | -5 to +50 | | |
| Min. supply pressure [MPa] | | set pressure + 0,1 | | |
| Max. supply pressure [MPa] | | 0,2 | 0,7 | 1,0 |
| Setting pressure range [MPa] | | 0,005 to 0,1 | 0,005 to 0,5 | 0,009 to 0,9 |
| Supply voltage [V] | | 24V DC ±10% | | |
| Power consumption [A] | | 0,08 or less | | |
| Input signal | current type [mA] | DC, 4 to 20, impedance ≤ 400 Ω | | |
| | voltage type [V] | DC, 0 to 5, or 0 to 10, impedance approx. ≤ 50 kΩ | | |
| | preset input | 4 points (one point should be set to zero due to safety reasons, combinations of 2 input signals), impedance approx. ≤ 1000 kΩ | | |
| Output signal | analog | DC output current 4 to 20 mA (load impedance 750Ω or less),<br>DC output voltage 1 to 5 V (load impedance 1kΩ or above) | | |
| | switch | PNP or NPN output, max. voltage 24V DC, max. current 160 mA | | |
| Linearity | | within ±1% F.S. | | |
| Hysteresis | | within 0,5% F.S. | | |
| Repeatability | | within ±0,5% F.S. | | |
| Sensitivity | | within 0,2% F.S. | | |
| Temperature characteristics | | within ±0,2% F.S./°C | | |
| Output pressure display | | precision: ±2% F.S., ±1 digit, min. unit: 0,001 (MPa), 0,01 (bar, kg/cm$^2$), 0,1 (psi), 1 (kPa) | | |
| Enclosure | | equivalent to IP65 | | |
| Weight [kg] | | valve: 0,36, bracket: 0,086 (L type), 0,08 (flat type), connector with cable: 0,055 (1m), 0,13 (3m) | | |

## Order codes

PMAER200 10A 9K 2 3 1

| Port size | |
|---|---|
| 8A | G1/4“ |
| 10A | G3/8“ |

| Pressure range | |
|---|---|
| 1K | 0,005 to 0,1 MPa |
| 5K | 0,005 to 0,5 MPa |
| 9K | 0,009 to 0,9 MPa |

| Input signal | |
|---|---|
| 1 | current 4-20 mA |
| 2 | voltage 0-10 V |
| 3 | voltage 0-5 V |
| 4 | 4 preset points |

| Output signal | |
|---|---|
| 1 | analog, voltage 1-5 V |
| 2 | switch, NPN |
| 3 | switch, PNP |
| 4 | analog, current 4-20 mA |
| 0 | for input signal 4 |

| Display unit | |
|---|---|
| 1 | MPa |
| 2 | kg/cm$^2$ |
| 3 | bar |
| 4 | psi |
| 5 | kPa |

## Order codes - accessories

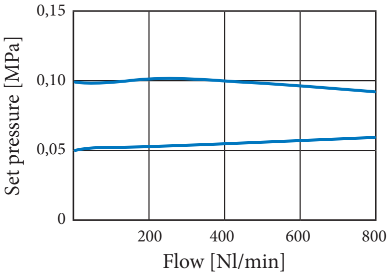
| Description | Order code | Description | Order code | Description | Order code |
|---|---|---|---|---|---|
| L type bracket | PMAER200-B1 | Straight connector, cable 1 m | PMAER200-S1 | L type connector, cable 1 m | PMAER200-L1 |
| Flat type bracket | PMAER200-B2 | Straight connector, cable 3 m | PMAER200-S3 | L type connector, cable 3 m | PMAER200-L3 |

# Capacity

## Flow rate

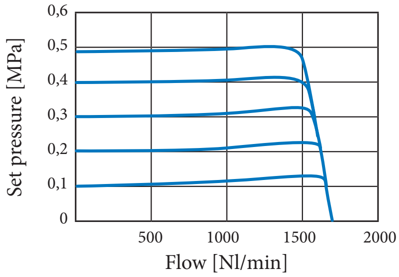
**Pressure range 1K**

Supply pressure 0,2 MPa



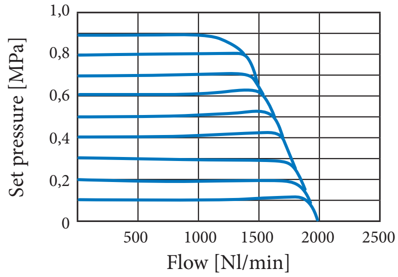

**Pressure range 5K**

Supply pressure 0,7 MPa




**Pressure range 9K**

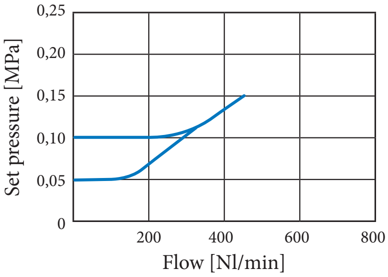
Supply pressure 1,0 MPa




## Relief flow rate

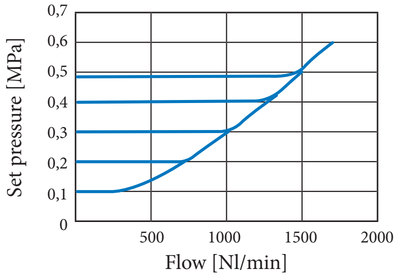
**Pressure range 1K**

Back pressure 0,2 MPa



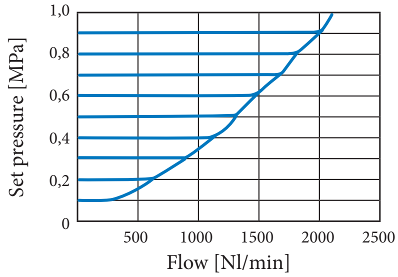

**Pressure range 5K**

Back pressure 0,7 MPa



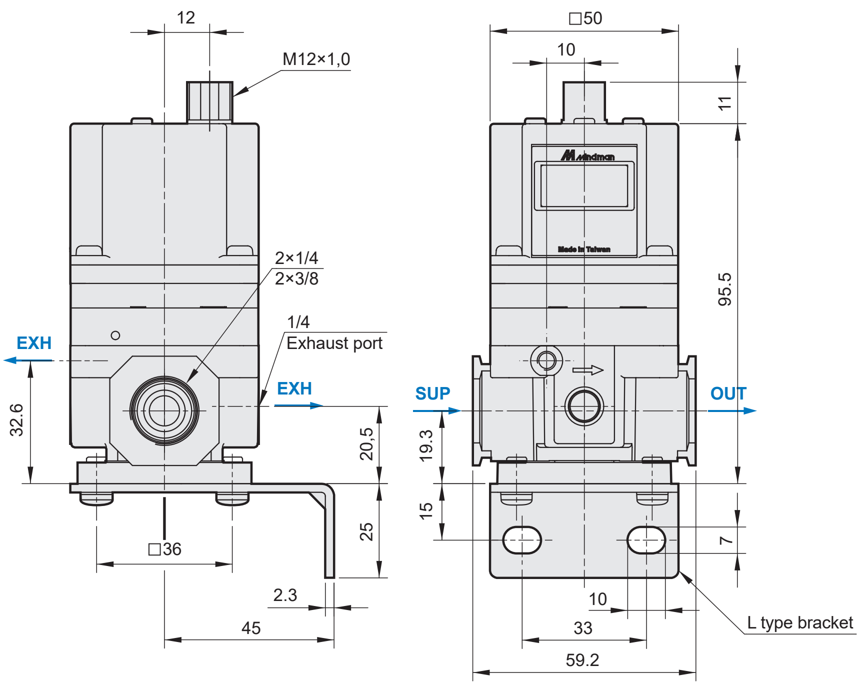

**Pressure range 9K**

Back pressure 1,0 MPa

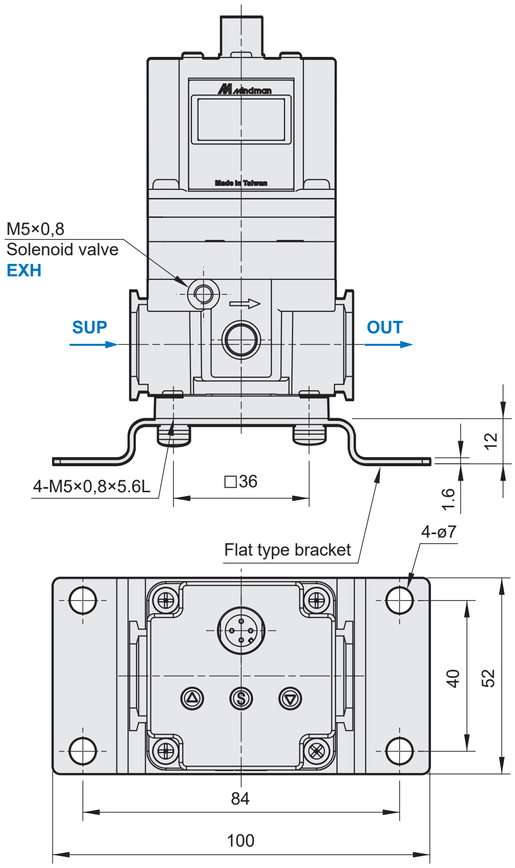



# Dimensions

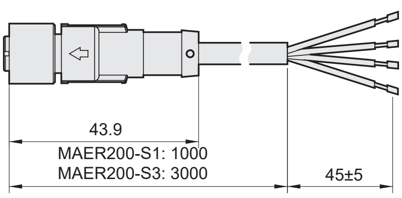
MAER200 with L type bracket

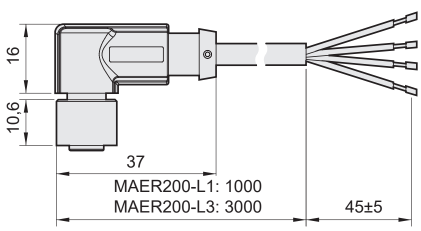



MAER200 with flat type bracket

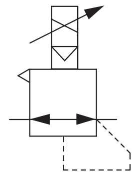



Connectors



The electro-pneumatic regulator is used for continuous electronic regulation of the output pressure based on the voltage or current input signal. The outlet pressure can therefore be dynamically adapted to the requirements of the application. The valve is also equipped with an output that can be further processed. High accuracy is achieved thanks to the integrated processor and PID control. The maximum flow at an inlet pressure of 1 MPa and an outlet pressure of 0,6 MPa is up to 4000 Nl/min.



i A model controlled by RS-232 / RS-485 with Modbus protocol is also available. For more information, contact the technical department.

| Type | | MAER300 | | |
|---|---|---|---|---|
| **Pressure range (see order code)** | | **1K** | **5K** | **9K** |
| Port size | | in/out: G1/4“, G3/8“, G1/2“, relief: G1/2“, control exhaust: M5 | | |
| Medium | | modified compressed air | | |
| Test pressure [MPa] | | 0,3 | 1,5 | 1,5 |
| Temperature range [°C] | | -5 to +50 | | |
| Min. supply pressure [MPa] | | set pressure + 0,1 | | |
| Max. supply pressure [MPa] | | 0,2 | 0,7 | 1,0 |
| Setting pressure range [MPa] | | 0,005 to 0,1 | 0,005 to 0,5 | 0,009 to 0,9 |
| Supply voltage [V] | | 24V DC ±10% | | |
| Power consumption [A] | | 0,08 or less | | |
| Input signal | current type [mA] | DC, 4 to 20, impedance ≤ 400 Ω | | |
| | voltage type [V] | DC, 0 to 5, or 0 to 10, impedance approx. ≤ 50 kΩ | | |
| | preset input | 4 points (one point should be set to zero due to safety reasons, combinations of 2 input signals), impedance approx. ≤ 1000 kΩ | | |
| Output signal | analog | DC output current 4 to 20 mA (load impedance 750Ω or less),<br>DC output voltage 1 to 5 V (load impedance 1kΩ or above) | | |
| | switch | PNP or NPN output, max. voltage 24V DC, max. current 160 mA | | |
| Linearity | | within ±1% F.S. | | |
| Hysteresis | | within 0,5% F.S. | | |
| Repeatability | | within ±0,5% F.S. | | |
| Sensitivity | | within 0,2% F.S. | | |
| Temperature characteristics | | within ±0,2% F.S./°C | | |
| Output pressure display | | precision: ±2% F.S., ±1 digit, min. unit: 0,001 (MPa), 0,01 (bar, kg/cm$^2$), 0,1 (psi), 1 (kPa) | | |
| Enclosure | | equivalent to IP65 | | |
| Weight [kg] | | valve: 0,69, bracket: 0,086 (L type), 0,08 (flat type), connector with cable: 0,055 (1m), 0,13 (3m) | | |

## Order codes

PMAER300 10A 9K 2 3 1

| Port size | |
|---|---|
| 8A | G1/4“ |
| 10A | G3/8“ |
| 15A | G1/2“ |

| Pressure range | |
|---|---|
| 1K | 0,005 to 0,1 MPa |
| 5K | 0,005 to 0,5 MPa |
| 9K | 0,009 to 0,9 MPa |

| Input signal | |
|---|---|
| 1 | current 4-20 mA |
| 2 | voltage 0-10 V |
| 3 | voltage 0-5 V |
| 4 | 4 preset points |

| Output signal | |
|---|---|
| 1 | analog, voltage 1-5 V |
| 2 | switch, NPN |
| 3 | switch, PNP |
| 4 | analog, current 4-20 mA |
| 0 | for input signal 4 |

| Display unit | |
|---|---|
| 1 | MPa |
| 2 | kg/cm$^2$ |
| 3 | bar |
| 4 | psi |
| 5 | kPa |

## Order codes - accessories

| Description | Order code |
|---|---|
| L type bracket | PMAER200-B1 |
| Flat type bracket | PMAER200-B2 |

| Description | Order code |
|---|---|
| Straight connector, cable 1 m | PMAER200-S1 |
| Straight connector, cable 3 m | PMAER200-S3 |

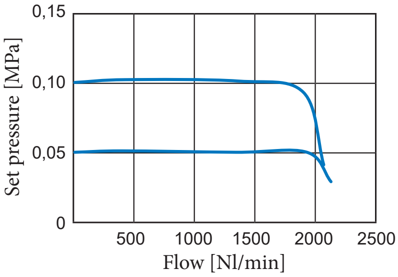
| Description | Order code |
|---|---|
| L type connector, cable 1 m | PMAER200-L1 |
| L type connector, cable 3 m | PMAER200-L3 |

## Capacity

### Flow rate

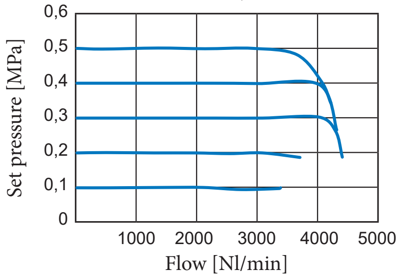
**Pressure range 1K**

Supply pressure 0,2 MPa



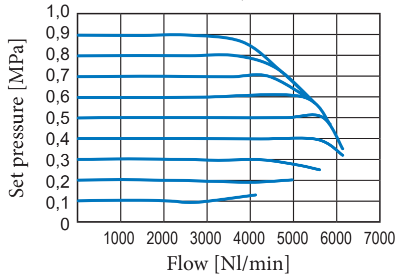

**Pressure range 5K**

Supply pressure 0,7 MPa




**Pressure range 9K**

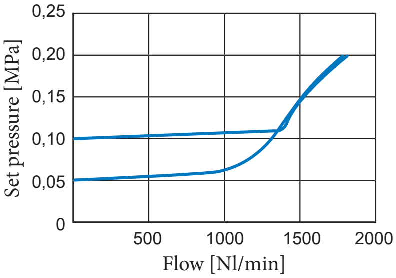
Supply pressure 1,0 MPa




### Relief flow rate

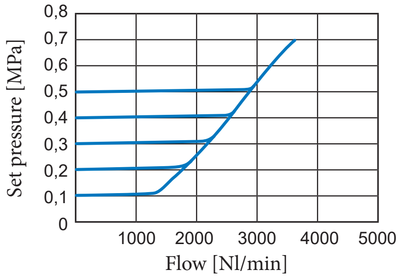
**Pressure range 1K**

Back pressure 0,2 MPa



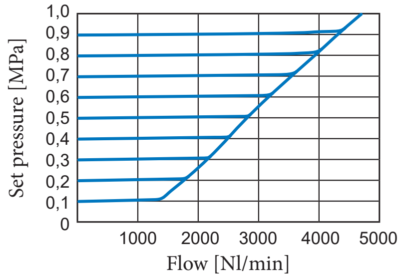

**Pressure range 5K**

Back pressure 0,7 MPa



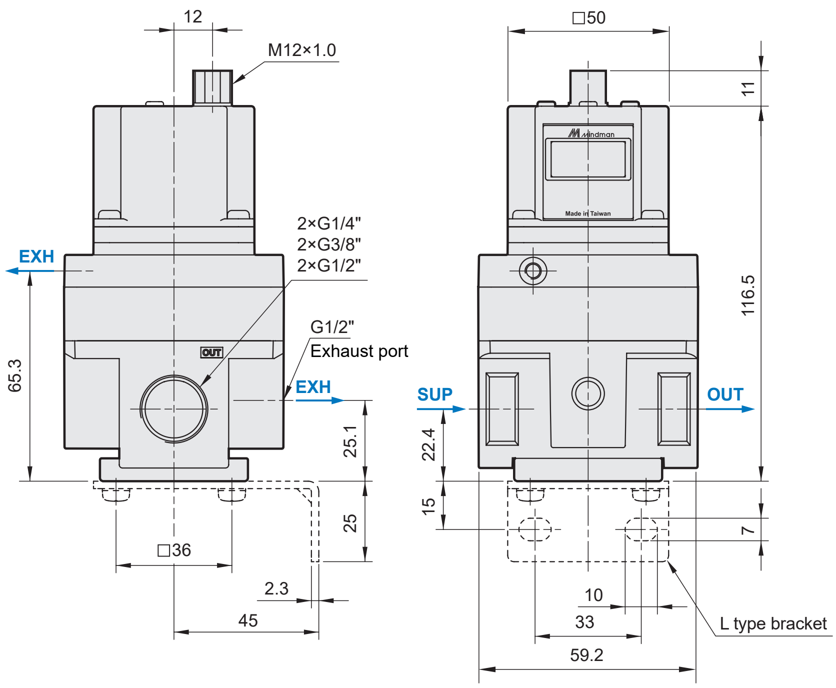

**Pressure range 9K**

Back pressure 1,0 MPa

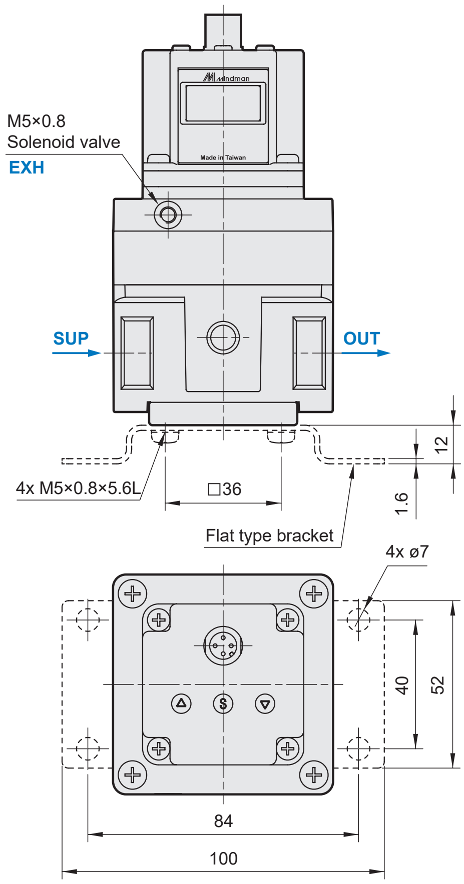



## Dimensions

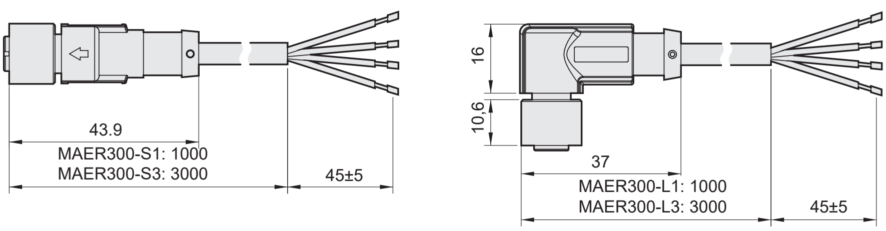
MAER300 with L type bracket




MAER300 with flat type bracket



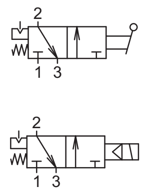

Connectors



# SHUTOFF VALVE
# SERIES MVHR302 AND MVHR400

STRÁNSKÝ A PETRŽÍK

Shutoff valve is an easy and inexpensive way to add shutoff capability to an FRL unit. It allows the air supply to be closed and MVHR models can be operated either manually or by a solenoid valve. When the supply is closed, the compressed air is exhausted from the circuit behind the valve. Both positions of the manually operated model can be locked (padlock not included), which will contribute to safety during maintenance or adjustment. The valve is designed to be assembled with other air conditioning elements (using the couplings) or can be used separately. Size 302 is suitable for all elements of the MA**302 series, size 400 is then for MA**401 and MA**403.




| Port size | MVHR302 | | | MVHR400 | | |
|---|---|---|---|---|---|---|
| | G1/4“ | G3/8“ | G1/2“ | G1/4“ | G3/8“ | G1/2“ |
| Valve type | 3/2 (residual pressure release) | | | | | |
| Pressure range [MPa] | manual type: 0,1 to 1,0, solenoid type: 0,15 to 1,0 | | | | | |
| Temperature range [°C] | -5 to +60 | | | | | |
| Voltage [V] | 24V AC ±10%, 230V AC ±10%, 24V DC ±10% | | | | | |
| Power consumption [W, VA] | 6/4.9VA for AC (inrush/hold), 2W for DC voltage | | | | | |
| Weight [kg] | manual type: 0,30, solenoid type: 0,38 | | | manual type: 0,31, solenoid type: 0,38 | | |
| Supply contains | without lock, without connection plate, bracket (optional - see order code) | | | | | |

## Order codes

PMVHR 302 S 10A A220 L B

| Series | |
|---|---|
| 302 | series 302 |
| 4 | series 401, 403 |

| Control | |
|---|---|
| | manual type |
| S | solenoid type |

| Port size | |
|---|---|
| 8A | G1/4“ |
| 10A | G3/8“ |
| 15A | G1/2“ |

| Voltage | |
|---|---|
| | none (manual type) |
| D24 | 24 V DC ± 10% |
| A220 | 230 V AC ± 10%, 50-60 Hz |
| A24 | 24 V AC ± 10%, 50-60 Hz |

| Connector | |
|---|---|
| | standard |
| L | with LED |

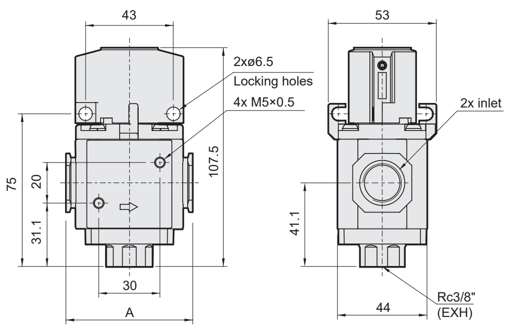
Note: EEx m II T4 coil is available on request

| Accessories | |
|---|---|
| | without |
| B | bracket |

Valve can be used standalone, or should be attached using connection plate order code PMACP302-C with other units of series 302, or attached using connection plate order code PMACP401-C with other units of series 401.

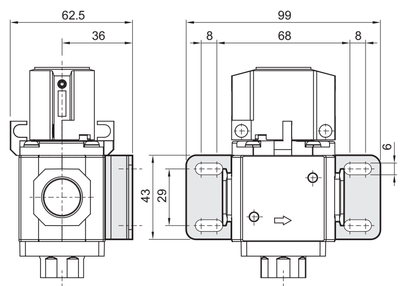
## Dimensions

MVHRx - manual type

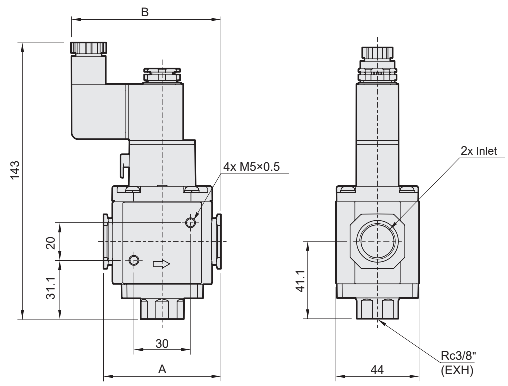



| Series | A | B |
|---|---|---|
| MVHR302 | 62.2 | 80,8 |
| MVHR4 | 63.9 | 81.7 |

MVHRx - bracket dimensions




MVHRxS - solenoid type

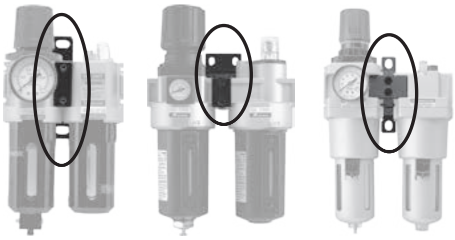


## Connection plate for FRL units

| Order codes | For series |
|---|---|
| PMACP302-C | MA*302 |
| PMACP401-C | MA*401 |

| Order codes | For series |
|---|---|
| PMACP501-C | MA*501 |

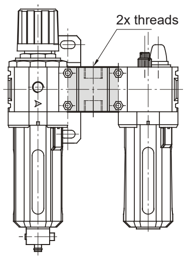
Connection plate is used, for assembling of two or more standalone units of the same series, for example filter and lubricator or filter and coalescing filter.



## Diverter blocks for FRL units

| Order codes | For series | Thread |
|---|---|---|
| PMACP302-T8 | MACP302 | 2x G1/4“ |
| PMACP302-T10 | MACP302 | 2x G3/8“ |
| PMACP302-T15 | MACP302 | 2x G1/2“ |
| PMACP401-T8 | MACP401 | 2x G1/4“ |
| PMACP401-T10 | MACP401 | 2x G3/8“ |

| Order codes | For series | Thread |
|---|---|---|
| PMACP401-T15 | MACP401 | 2x G1/2“ |
| PMACP501-T8 | MACP501 | 2x G1/4“ |
| PMACP501-T10 | MACP501 | 2x G3/8“ |
| PMACP501-T15 | MACP501 | 2x G1/2“ |





The delivery includes a diverter block and a set of connecting plates for mounting on the relevant element.

## Spare bowls

| For filters | Order codes | |
|---|---|---|
| | with semiautomatic drain | with automatic drain |
| MACP302, MAF302, MAFR302 | PMACP302-S* | PMACP302-D* |
| MACP401, MAF401, MAFR401 | PMACP401-S | PMACP401-D |
| MACP501, MAF501, MAFR501 | PMACP501-S* | PMACP501-D* |

| For lubricators | Order codes |
|---|---|
| MACP302, MAL302 | PMACP302-L* |
| MACP401, MAL401 | PMACP401-L |
| MACP501, MAL501 | PMACP501-L* |

*) Note for 302 and 501 series: mentioned code is for polycarbonate bowl. For nylon bowl add „N“ at the end of the code and for metal bowl add „M“ at the end of the code.

## Spare filter elements

| For filters | Order codes | | | |
|---|---|---|---|---|
| | 5 µm | 40 µm | 0,3 µm | 0,01 µm |
| MACP302, MAF302, MAFR302 | PMACP302-FE5 | — | — | — |
| MACP401, MAF401, MAFR401 | PMACP401-FE5 | — | — | — |
| MAF401A, MAF401D, MAF401M | PMACP401-FE5 | — | PMACP401-FE0,3 | PMACP401-FE0,01 |
| MACP501, MAFR501 | — | PMACP501-FE40R | — | — |
| MAF501 | — | PMACP501-FE40 | — | — |

## Valve with digital condensation removal timer

Valve for automatic condensation removal is used for draining of pressure tank or big filters. Main advantages are enclosure IP65, compact design a digital timer with easy operation.

### Order codes

PMBS 03 3N3 A220 T

| Thread | |
|---|---|
| 03 | G1/8“ |
| 06 | G1/4“ |

| Voltage | |
|---|---|
| A220 | 230 V AC ± 8%, 50-60 Hz |


**Time adjustment:**
- press SET for 2 seconds
- press ADJ to adjust ON time
- press SET
- press ADJ to adjust OFF time seconds
- press SET
- press ADJ to adjust OFF time minutes
- press SET

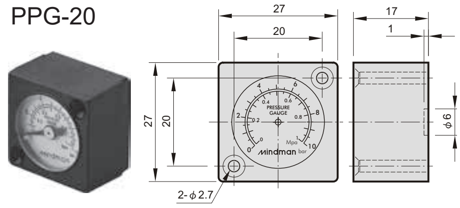
Note: for manual override press both keys for 2 seconds.

| Order code | Thread | Max. pressure [MPa] at 230V AC | Orifice [mm²] | Cv | Time ranges | Power input [VA] | Temperature range [°C] |
|---|---|---|---|---|---|---|---|
| PMBS 03 ... | G1/8“ | 0 to 1.6 | 1.6 | 0,09 | On: 0 to 59 seconds<br>Off: 0 to 99 minutes | 8.5 for 230V AC | -15 to +50 |
| PMBS 06 ... | G1/4“ | 0 to 1.6 | 1.6 | 0,09 | | | |

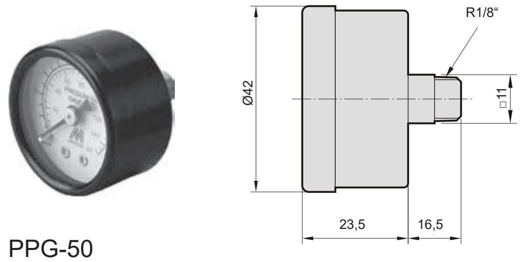
# Gauges

| Type | PPG-20 | PPG-40 | PPG-50 |
|---|---|---|---|
| Scale | MPa | MPa / PSI | MPa/ PSI |
| Range [kg/cm$^2$] | 0 to 10 | 0 to 10; 0 to 1<br>0 to 3; 0 to 5 | 0 to 10<br>0 to 5 |
| Diameter [mm] | — | 40 | 50 |
| Accuracy | JIS class 4 | | |
| Temperature range [°C] | -5 to +60 | | |

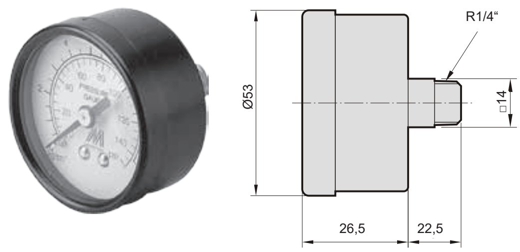
PPG-20




PPG-40




PPG-50




## Order codes

PPG – 40 – 5K

| Type | |
|---|---|
| 20 | PPG-20 |
| 40 | PPG-40 |
| 50 | PPG-50 |

| Range | |
|---|---|
| | 0 to 10 (1,0 MPa)<br>(standard) |
| -1K* | 0 to 1 (0,1 MPa) |
| -3K* | 0 to 3 (0,3 MPa) |
| -5K* | 0 to 5 (0,5 MPa) |
| -20K** | 0 to 20 (2.1 MPa) |

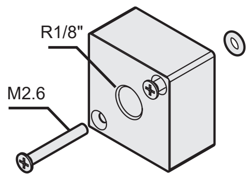
*) for PPG-40 only
**) for PPG-50 only

| Suitable for series | PPG-20 | PPG-40 | PPG-50 |
|---|---|---|---|
| MAR200 | ✕ | ✓ | ✕ |
| MACP302, MAR302, MAFR302 | ✓ | ✕* | ✕ |
| MACP401, MAR401, MAFR401 | ✓ | ✕* | ✕ |
| MACP501, MAR501, MAFR501 | ✓ | ✕* | ✕ |

*) Note for series 302, 401 and 501: Gauge with a thread can only be used with a threaded adapter, order code PA-MAR302 (for series 302 and 501) or order code PA-MAR401 (for series 401).

### Threaded adapter (for mounting a threaded gauge instead of a built-in square gauge)

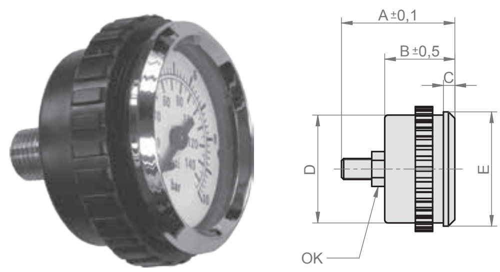
| Description | Order code |
|---|---|
| Threaded adapter for series MAx302 and MAx501 | PA-MAR302 |
| Threaded adapter for seriesMAx401 | PA-MAR401 |




Recommended tightening torque is between 1,5 to 2,5 Nm for the female thread (1/8“) and 0,3 to 0,5Nm for the screws (M2.6).

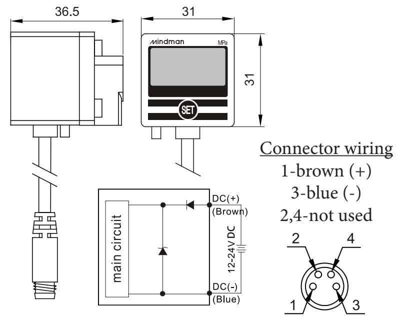
# Gauges for panel mounting

| Order codes | D - diam. | Thread | Range [bar] | A | B | C | E | OK |
|---|---|---|---|---|---|---|---|---|
| 2980 0000 0600 0003 | 50 | G1/4“ | 0 to 10 | 52.5 | 32.5 | 5.3 | 55 | 14 |
| 2980 0000 0600 0004 | 50 | G1/4“ | 0 to 16 | 52.5 | 32.5 | 5.3 | 55 | 14 |
| 2980 0000 0600 0005 | 63 | G1/4“ | 0 to 10 | 51,5 | 31.7 | 5 | 68 | 14 |
| 2980 0000 0600 0006 | 63 | G1/4“ | 0 to 16 | 51,5 | 31.7 | 5 | 68 | 14 |



## Digital gauges

| Description | Order codes |
|---|---|
| Digital pressure gauge MP23, G1/8“, cable 2m | PMP23P-F3 |
| Digital pressure gauge MP23, G1/8“, 4-pin connector M8x1 | PMP23P-F3-QD |
| Bracket BT-1 | PMP25-BT1 |
| Bracket BT-2 | PMP25-BT2 |
| Panel mounting adapter with protective cover PA | PMP25-PA |



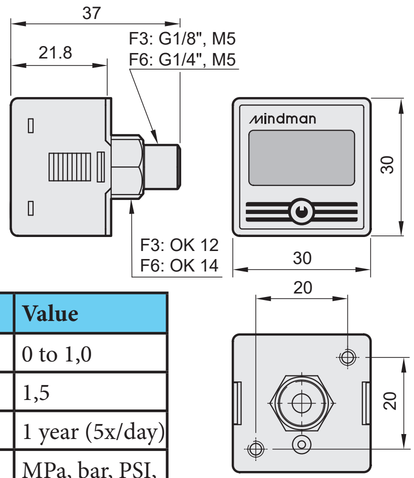

| Description | Value |
|---|---|
| Working medium | air, non-corrosive gases, incombustible gases |
| Supply voltage [V] | 12 to 24, DC (± 10%) |
| Display | 3 1/2 digits, red LED, sampling rate 5x per second |
| Accuracy at 25 ˚C | ≤±2% of full span, ±1 digit |
| Protection | short circuit-integrated, enclosure IP40 |
| Ambient temp. range [˚C] | 0 to +50 (no dew condensation or icing) |

| Description | Value |
|---|---|
| Rated pressure range [MPa] | -0,1 to 1,0 |
| Max. pressure [MPa] | 1,5 |
| Current consumption [mA] | up to 55 |
| Selectable units | MPa, bar, PSI, kgf/cm² |
| Ambient humidity [%] | 35 to 85 |
| Weight [kg] | 0,102 |

Note:
- See page 3-6 for cables with connector.
- See www.sappv.cz for dimensions of bracket and panel adapter.
- Gauge has 2 inlet ports, bottom and back, plug is attached.

## Digital battery pressure gauge

| Description | Order code |
|---|---|
| Digital pressure gauge MPG60, external G1/8“, internal M5 | PMPG60PL-F3 |
| Digital pressure gauge MPG60, external G1/4“, internal M5 | PMPG60PL-F6 |
| Bracket BT-5 | PMP-A5 |
| Bracket BT-6 | PMP-A6 |
| Panel mounting adapter with protective cover PA-D | PMP-C2 |

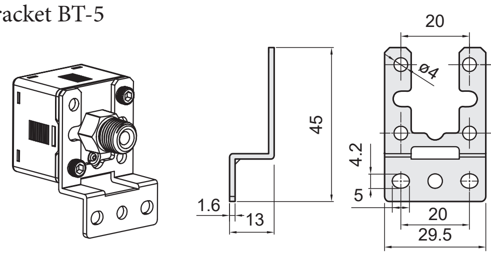



| Description | Value |
|---|---|
| Working medium | air, non-corrosive gases, incombustible gases |
| Battery | CR2032 lithium, replaceable |
| Display | 3 1/2 digits, LCD, sampling 2x per second, back light |
| Accuracy at 25 ˚C | ≤±2% F. S., ±1 digit |
| Enclosure | IP65 (air tube must be installed) |
| Ambient temperature range [˚C] | 0 to +50 (no dew condensation or icing) |

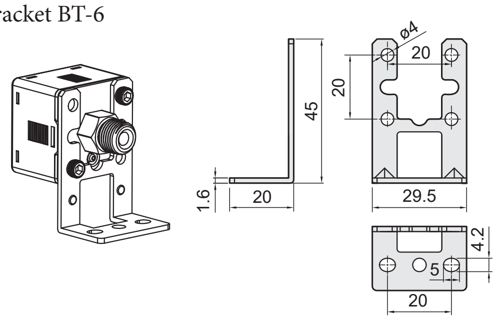
| Description | Value |
|---|---|
| Rated pressure range [MPa] | 0 to 1,0 |
| Max. pressure [MPa] | 1,5 |
| Battery life | 1 year (5x/day) |
| Selectable units | MPa, bar, PSI, kgf/cm² |
| Ambient humidity [%] | 35 to 85 |
| Weight [kg] | 0,04 |

The gauge display is off by default. If you want to display the current pressure, just press the button and the measured value will be displayed for 60 seconds. Then the display goes off again.

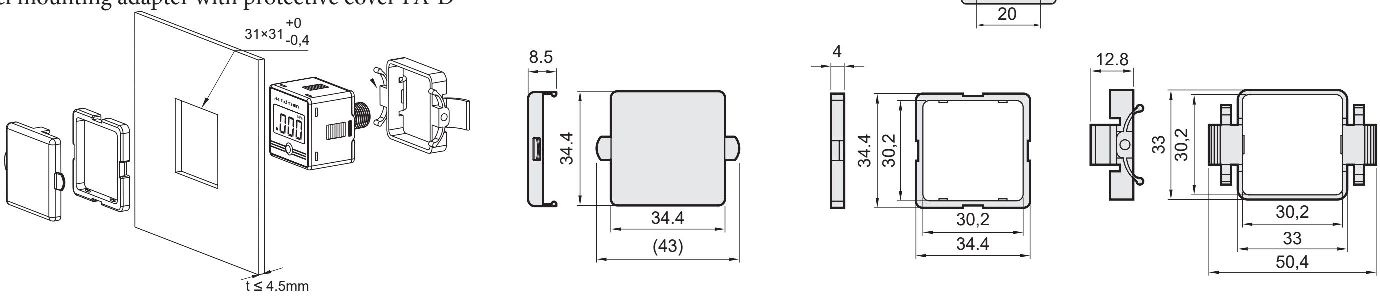
Bracket BT-5




Bracket BT-6




Panel mounting adapter with protective cover PA-D



# Digital pressure switch, type MP45 with threads G1/8“ and M5

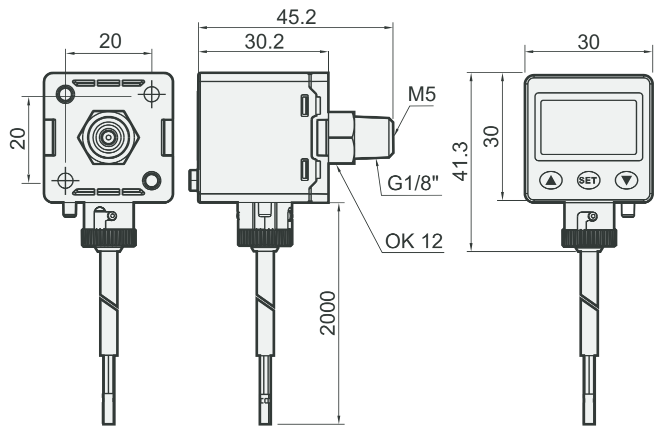

| Description | Value |
|---|---|
| Rated pressure range [MPa] | 0,00 to 1,00 |
| Thread | G1/8“ external and M5 internal |
| Max. pressure [MPa] | 1,5 |
| Working medium | air, non-corrosive gases, incombustible gases |
| Supply voltage [V] | 12 to 24, DC (± 10%) |
| Current consumption [mA] | ≤40 (no load) |
| Comparative output | 2x PNP/NPN output, current max. 125 mA, voltage max. 24V DC, residual voltage 1,5V |
| Comparative output indication | orange indicator for both outputs |
| Analog voltage output | output voltage 1 to 5 V ±2,5%, linearity ±1% F.S., output impedance approx. 1 kΩ |
| Analog current output | output current 4 to 20 mA ±2.5%, linearity ±1% F.S., load impedance: min. 50 Ω, max. 250 Ω at 12 V, max. 600 Ω at 24 V |
| Units and resolution | MPa: 0,001, bar/ kgf/cm$^2$: 0,01, PSI: 0,1 |
| Hysteresis | adjustable, 1 digit or fixed in comparator mode |
| Repeatability | ±0,2% F.S. ±1 digit |
| Indicator accuracy | ±2% F.S. ±1 digit (at 25 ±3 ˚C) |
| Temperature characteristic | ±2.5% F.S. of detected pressure (25 ˚C) at range 0 - 50 ˚C |
| Response time [ms] | adjustable 2.5 to 1500 in 7 steps |
| Short circuit protection | integrated |
| Display | 3 ½ digits, 7 segments, red/green, sampling rate 5x per second |
| Enclosure | IP65 |
| Ambient temperature range [˚C] | 0 to +50 (no condensation or freezing), storage: -10 to +60 |
| Ambient humidity [%] | 35 to 85 |
| Cable | 5-wire, section 0,15 mm$^2$, length 2m, removable |
| Weight [kg] | 0,086 |

## Order codes

PMP45P– 030 –F3

| | Output |
|---|---|
| 010 | 2x NPN + 1 analog output 1-5V |
| 011 | 2x NPN + 1 analog output 4-20mA |
| 030 | 2x PNP + 1 analog output 1-5V |
| 031 | 2x PNP + 1 analogo output 4-20mA |

## Dimensions

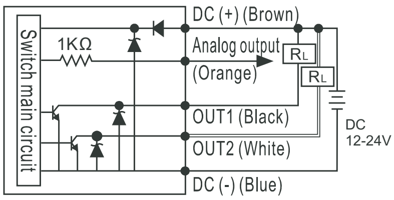



## Order codes of accessories

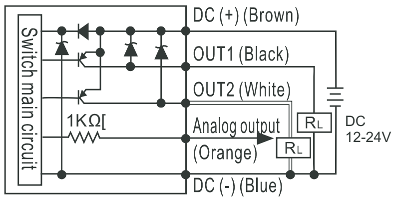
| Description | Order codes |
|---|---|
| Bracket BT-10 | PMP-A10 |
| Bracket BT-11 | PMP-A11 |
| Panel mounting adapter with protective cover PA-F | PMP-C3 |

## Wiring diagrams

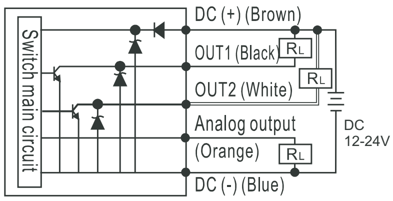
Output 010: 2x NPN + 1 analog output 1-5V



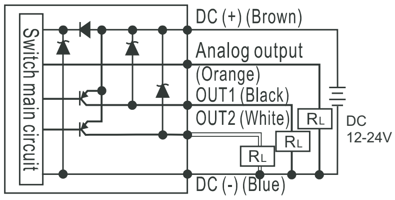

Output 030: 2x PNP + 1 analog output 1-5V




Output 011: 2x NPN + 1 analog output 4-20mA

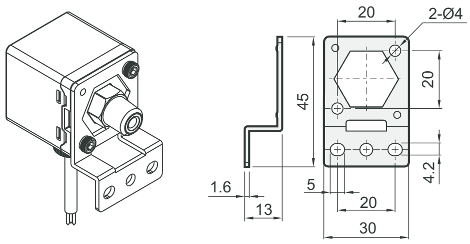



Output 031: 2x PNP + 1 analog output 4-20mA

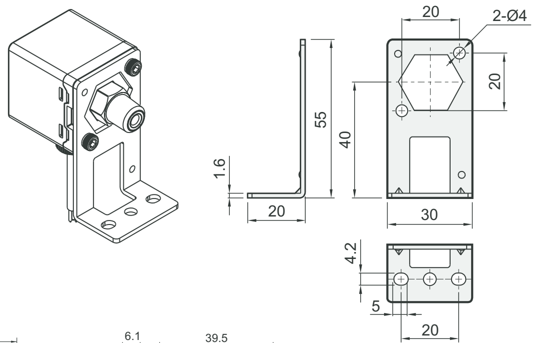



## Accessories for digital pressure switch MP45

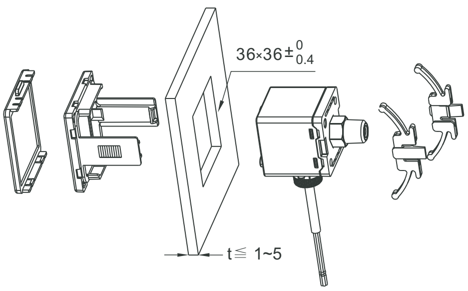
Bracket BT-10

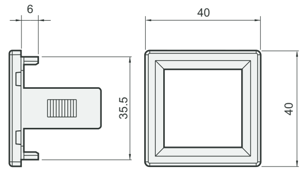



Bracket BT-11

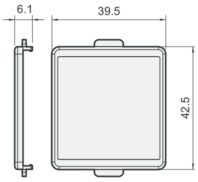



Panel mounting adapter with protective cover PA-F



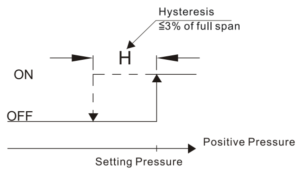

Dimensions of panel mounting adapter without protective cover. It is necessary to create square hole with dimensions 36x36 mm. Max. panel thickness is 5 mm.

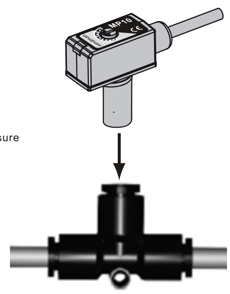



Dimensions of protective cover

## Electronic pressure switch, type MP10 push-in, or with thread G1/8“

| Description | Value |
|---|---|
| Rated pressure range [MPa] | 0,0 to 0,6 |
| Max. pressure [MPa] | 1,5 |
| Working medium | air, non-corrosive gases, incombustible gases |
| Supply voltage [V] | 10,8 to 30, DC |
| Max. load current [mA] | 80 |
| Current consumption [mA] | 10 |
| Internal voltage drop [V] | 0,8 |
| Repeatability | ≤±1% of full span |
| Hysteresis | max. 3% of full span |
| Response time [ms] | approx. 1 |
| Short circuit protection | integrated |
| Indicator | red LED |
| Enclosure | IP40 |
| Cable | 3 wires (0,18 mm²), ∅2.6 mm |
| Ambient temperature range [˚C] | 0 to +50 (no dew condensation or icing) |
| Ambient humidity [%] | 35 to 85 |
| Weight [kg] | 0,050 |

### Order codes

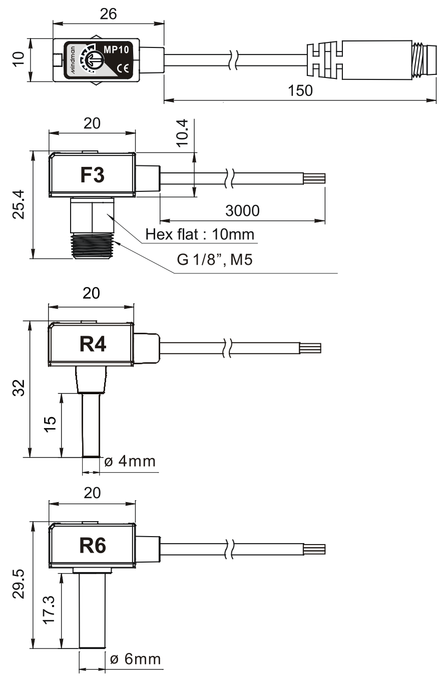
PMP10P– 04 – F3 –C

| Output | |
|---|---|
| 04 | PNP |
| 02 | NPN |

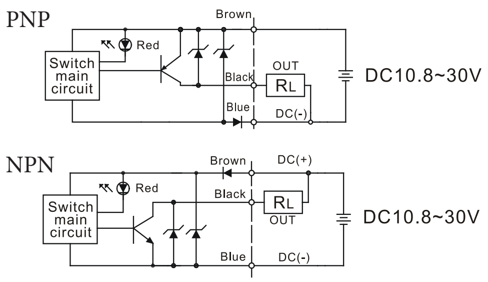
| Connection | |
|---|---|
| F3 | G1/8“ outer / M5 inner |
| R4 | push-in ∅4 |
| R6 | push-in ∅6 |

| Wiring | |
|---|---|
| | cable 3 m |
| -C | 3-pin connector M8x1 |

### Dimensions

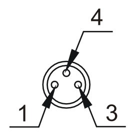



### Connection



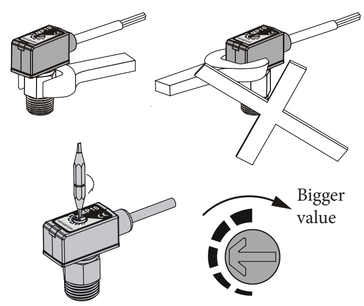

Note:
See page 3-3 for cables with connector

Connector wiring
1-brown (+)
3-blue (-)
4-black (output)



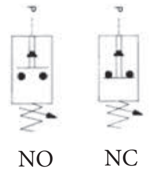

### Installation, setting

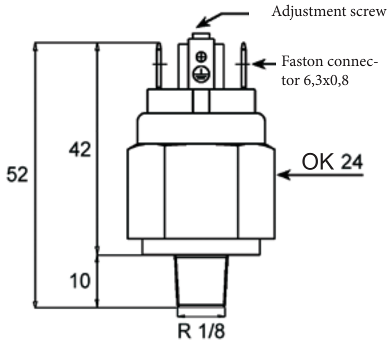
- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plasticbody, it will damage the sensor
- Use the pressure setting trimmer to set „ON“ pressure. Rotate clockwise to increase pressure setpoint. Rotate counter-clockwise to decrease pressure setpoint



## Pressure switch PS31

| Description | Value |
|---|---|
| Housing material | brass (u NPS3120234 passivated steel) |
| Diaphragm | FKM (Viton®) |
| Working medium | air, water,mineral hydraulic oil and other |
| Electric contacts | silver plated |
| Max. switched voltage [V] | 250, 50-60 Hz |
| Max. switched current [A] | 2 for ohmic load, 0,5 for inductive load |
| Max. fluid temperature [˚C] | 120 |
| Anticipated min. cycles | 1 million |
| Enclosure rating | IP00 without connector IP54 resp. IP65 with connector |
| Weight [kg] | 0,07 |




| Order codes type NO - normally open | Order codes type NC - normally closed | Thread | Pressure [MPa] | Tolerance at 20˚C [MPa] | Max. static pressure [MPa] |
|---|---|---|---|---|---|
| NPS3121231 | NPS3111231 | R1/8“ | 0,01 to 0,10 | ± 0,01 | 8.0 |
| NPS3121232 | NPS3111232 | R1/8“ | 0,1 to 0,5 | ± 0,03 | 8.0 |
| NPS3121233 | NPS3111233 | R1/8“ | 0,1 to 1.6 | ± 0,05 | 8.0 |
| NPS3120234 | NPS3110234 | R1/8“ | 2,0 to 5.0 | ± 0,2 | 30,0 |

### Connector for switch PS31

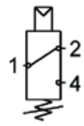
| Order codes | Enclosure rating |
|---|---|
| NPCPS3165 | IP65 |

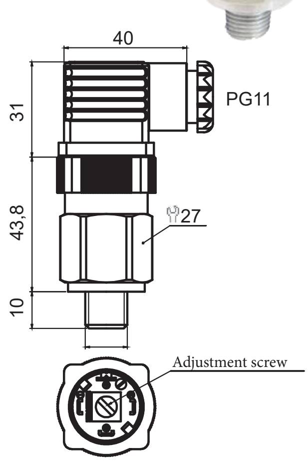
### Protection cap for switch PS31

| Order codes | Enclosure rating |
|---|---|
| NPCPS3154 | IP54 |

## Pressure switch 27N with hysteresis

| Description | Value |
|---|---|
| Housing material | brass, zinc plated steel for switch with pressure range 1-5 MPa |
| Diaphragm | FKM |
| Working medium | air, water |
| Electric contacts | silver plated |
| Max. switched voltage [V] | 250, 50-60 Hz |
| Max. switched current [A] | 6 for ohmic load, 2 for inductive load |
| Max. fluid temperature [˚C] | 100 |
| Anticipated min. cycles | 1 million |
| Enclosure rating | IP00 without connector, IP65 with connector |
| Hysteresis | 30% of setting value |
| Weight [kg] | 0,13 |




| Order codes | Thread | Pressure [MPa] | Tolerance at 20˚C [MPa] | Max. static pressure [MPa] |
|---|---|---|---|---|
| N27N21121 | R1/8“ | 0,1 to 0,5 | ± 0,03 | 8.0 |
| N27N21122 | R1/8“ | 0,1 to 1,0 | ± 0,05 | 8.0 |
| N27N20123 | R1/8“ | 1,0 to 5.0 | ± 0,2 | 30,0 |

i Supply contains connector.

## Pneumatic oil


This oil is used for lubrication of compressed air in pneumatic systems for fail-safe operation. It is specially blended oil with good features such as foamless, no aggression to sealing, balanced viscosity gives you an advantage. Oil is atomized into the compressed air in lubricators.

Temperature range: -20˚C to +80˚C

| Order codes | Package volume |
|---|---|
| 2995 0101 0000 0000 | 1 liter |
| 2995 0105 0000 0000 | 5 liters |

## Grease SAP-FML2A for pneumatic components

This grease is used for renovation or creation of permanent fat filling with very long lifetime for using with non-lubricated air. All pneumatic items are greased with this grease by default. Grease has very good water resistance, good stability, excellent mechanical stability and is oxidation resistant.

Temperature range: -30˚C to +120˚C

| Order codes | Package content |
|---|---|
| 2995 1004 0000 0000 | 400 g |

## Grease for pneumatic components for high temperature usage


This grease is used for renovation or creation of permanent fat filling with very long lifetime for using in high temperatures up to 200°C.

Temperature range: -50˚C to +180 (200)˚C

| Order codes | Package content |
|---|---|
| 2995 1101 0000 0000 | 100 g |
| 2995 1110 0000 0000 | 1000 g |

## Grease with PTFE-Teflon for guides

It is plastic grease filled with PTFE-Teflon, which is used for greasing of various sliding and guiding surfaces on stressed places of machines. This grease is not used for greasing of internal parts of pneumatic items. For lubricating of internal parts of pneumatic components please use pneumatic oil or grease for pneumatic components.

Temperature range: -30˚C to +120 (140)˚C

| Order codes | Package content |
|---|---|
| 2995 5004 0000 0000 | 350 g |

# HYDRAULIC SHOCK ABSORBER - CONTENTS



| Series | NC-E | NC-S | NC-P |
|---|---|---|---|
| Type | adjustable | self-compensating | self-compensating |
| Characteristics | linear | linear | progressive |
| Impact speed [$ms^{-1}$] | 0.2 to 3.5 | 0.2 to 5.0 | 0.2 to 5.0 |
| Temperature range [°C] | -20 to +80 | | |

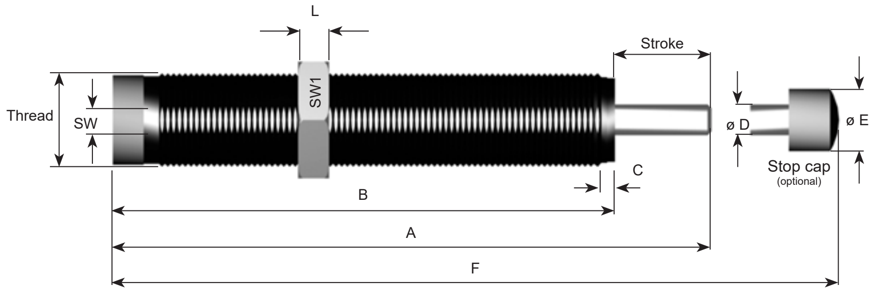
| Type | 0,1 | 0,15 | 0,2 |
|---|---|---|---|
| Spring return force [N] | 2.5 to 6 | 3.6 to 8 | 3.5 to 7 |
| Weight [kg] | 0.01 | 0.02 | 0.04 |
| Max. tightening torque [Nm] | 2 | 6 | 10 |

## Order codes

Order code consist of **series description, type** (1. part - see table) and **hardness selection** (2. part - see table), eventually indication of shock absorber with stop cap. If you need the shock absorber with stop cap, add **„-A“** after complete order code. The stop cap couldn‘t be mounted additionally as accessories, because by mounting of stop cap the stroke of shock absorber will be smaller. That is why the stop cap must be ordered together with shock absorber to ensure that piston rod will be extended for stop cap.
Example 1: self-compensating progressive shock absorber M10x1 type 0,15 with hardness 3 has order code NC-P0,15-3
Example 2: adjustable shock absorber M12x1 type 0,2 with stop cap has order code NC-E0,2-1-A

| Order code (1. part) | Thread | Stroke | Energy absorption | | | Effective mass - hardness / order code (2. part) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | constant load[Nm/ stroke] | emergency load [Nm/stroke] | total energy [Nm/hod] | ...-1 (soft) | ...-2 (medium) | ...-3 (hard) | ...-4 (very hard) |
| NC-E0,1-... | M8x1 | 7 | 4 | 6 | 14 000 | 0.65 to 50 | — | — | — |
| NC-S0,1-... | M8x1 | 7 | 4 | 6 | 14 400 | 0.65 to 2 | 1.3 to 5.5 | 1.7 to 50 | — |
| NC-P0,1-... | M8x1 | 7 | 4 | 6 | 14 400 | 0.3 to 0.9 | 0.65 to 2.0 | 1.8 to 8 | — |
| NC-E0,15-... | M10x1 | 10 | 15 | 22.5 | 24 000 | 1 to 500 | — | — | — |
| NC-S0,15-... | M10x1 | 10 | 15 | 22.5 | 24 000 | 1.6 to 7.5 | 6.1 to 71 | 61 to 252 | 232 to 750 |
| NC-P0,15-... | M10x1 | 10 | 15 | 22.5 | 24 000 | 1 to 2.2 | 2 to 7.5 | 6.1 to 71 | — |
| NC-E0,2-... | M12x1 | 12 | 22 | 33 | 35 200 | 9 to 800 | — | — | — |
| NC-P0,2-... | M12x1 | 12 | 22 | 33 | 35 200 | 2 to 11 | 10 to 107 | 104 to 360 | 343 to 1100 |
| NC-S0,2-... | M12x1 | 12 | 22 | 33 | 35 200 | 1.5 to 2.8 | 2 to 21 | 17 to 92 | — |

## Dimensions




| Type | Thread | A | A1 | B | C | D | E | F | F1 | K | L | SW | SW1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,1 | M8x1 | 51 | 56 | 44 | 2.5 | 2.5 | 6 | 57 | 61.5 | 3.5 | 3 | 3 | 11 |
| 0,15 | M10x1 | 59.5 | 62 | 49.5 | 2.5 | 3 | 6 | 66 | 68.5 | 3.5 | 3 | 3 | 13 |
| 0,2 | M12x1 | 77 | 81.5 | 65 | 2.5 | 4 | 10 | 85 | 89.5 | 3.5 | 4 | 3 | 14 |

| Series | NC-E | NC-S | NC-P |
|---|---|---|---|
| Type | adjustable | self-compensating | self-compensating |
| Characteristics | linear | linear | progressive |
| Impact speed [$ms^{-1}$] | 0.08 to 6.0 | 0.08 to 6.0 | 0.3 to 8.0 |
| Temperature range [°C] | -20 to +80 | | |

| Type | 0,25 | 0,35 | 0,5x19 | 1,0 | 1,0x40 |
|---|---|---|---|---|---|
| Spring return force [N] | 13 to 23 | 13 to 23 | 12 to 23 | 15 to 31 | 11 to 20 |
| Weight [kg] | 0.05 | 0.07 | 0.14 | 0.29 | 0.39 |
| Max. tightening torque [Nm] | 20 | 20 | 25 | 30 | 30 |

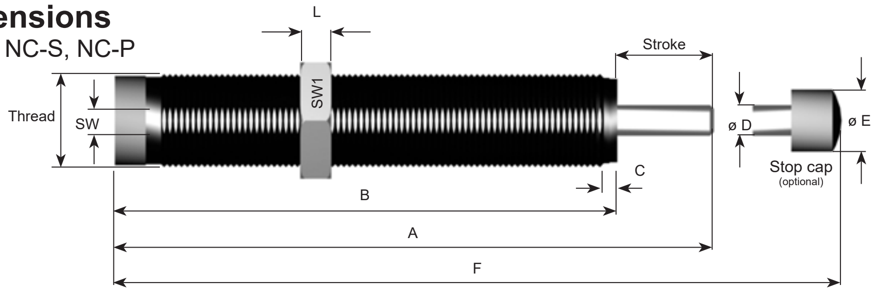
## Order codes

Order code consist of **series description, type** (1. part - see table) and **hardness selection** (2. part - see table), eventually indication of shock absorber with stop cap. If you need the shock absorber with stop cap, add **„-A“** after complete order code. The stop cap couldn't be mounted additionally as accessories, because by mounting of stop cap the stroke of shock absorber will be smaller. That is why the stop cap must be ordered together with shock absorber to ensure that piston rod will be extended for stop cap.
Example 1: self-compensating progressive shock absorber M16x1.5 type 0,35 with hardness 3 has order code NC-P0,35-3
Example 2: adjustable shock absorber M14x1 type 0,25 with stop cap has order code NC-E0,25-1-A

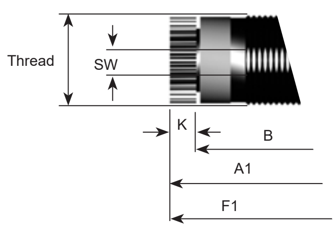
| Order code (1. part) | Thread | Stroke | Energy absorption | | | Effective mass - hardness / order code (2. part) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | constant load[Nm/stroke] | emergency load [Nm/stroke] | total energy [Nm/hod] | ...-0 (very soft) | ...-1 (soft) | ...-2 (medium) | ...-3 (hard) | ...-4 (very hard) |
| NC-E0,25-... | M14x1 | 14 | 30 | 48 | 50 000 | — | 1.6 to 1500 | — | — | — |
| NC-S0,25-... | M14x1 | 14 | 30 | 48 | 50 000 | 0.9 to 8 | 3.5 to 17 | 9.9 to 76 | 62 to 252 | 250 to 950 |
| NC-P0,25-... | M14x1 | 14 | 30 | 48 | 50 000 | — | 0.8 to 3.7 | 3 to 26 | 21 to 165 | — |
| NC-E0,35-... | M16x1 | 14 | 35 | 50 | 52 500 | — | 6.5 to 1750 | — | — | — |
| NC-S0,35-... | M16x1 | 14 | 35 | 50 | 52 500 | 1.9 to 4.5 | 4 to 25 | 22 to 90 | 85 to 428 | 420 to 1320 |
| NC-P0,35-... | M16x1 | 14 | 35 | 50 | 52 500 | — | 1.1 to 6.4 | 5 to 28 | 25 to 280 | — |
| NC-E0,5x19-... | M20x1 | 19 | 100 | 160 | 76 500 | — | 9 to 4500 | — | — | — |
| NC-S0,5x19-... | M20x1 | 19 | 100 | 160 | 76 500 | 2.6 to 10.6 | 10 to 86 | 40 to 209 | 170 to 800 | 680 to 4050 |
| NC-P0,5x19-... | M20x1 | 19 | 100 | 160 | 76 500 | — | 2.6 to 12.5 | 10 to 89 | 69 to 555 | — |
| NC-E1,0-... | M24x1.5 | 25 | 220 | 352 | 105 600 | — | 22 to 11000 | — | — | — |
| NC-S1,0-... | M24x1.5 | 25 | 220 | 352 | 105 600 | 6 to 29 | 24 to 120 | 70 to 460 | 440 to 2050 | 1760 to 10800 |
| NC-P1,0-... | M24x1.5 | 25 | 220 | 352 | 105 600 | — | 6 to 27.5 | 21 to 195 | 150 to 1200 | — |
| NC-E1,0x40-... | M24x1.5 | 40 | 390 | 624 | 175 600 | — | 38 to 18000 | — | — | — |
| NC-S1,0x40-... | M24x1.5 | 40 | 390 | 624 | 175 600 | 15 to 103 | 44 to 216 | 135 to 962 | 780 to 3600 | 3100 to 19500 |
| NC-P1,0x40-... | M24x1.5 | 40 | 390 | 624 | 175 600 | — | 10 to 48 | 39 to 340 | 270 to 2150 | — |

## Dimensions

Series NC-S, NC-P




Series NC-E




| Type | Thread | A | A1 | B | C | D | E | F | F1 | K | L | SW | SW1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,25 | M14x1 | 92 | 97 | 78 | 2.5 | 4 | 10 | 100 | 105 | 4.5 | 5 | 13 | 17 |
| 0,35 | M16x1 | 92 | 97 | 78 | 2.5 | 4 | 10 | 100 | 105 | 4.5 | 6 | 14 | 19 |
| 0,5x19 | M20x1 | 107 | 113 | 88 | 2.5 | 6 | 12 | 117 | 123 | 6 | 6 | 18 | 24 |
| 1,0 | M24x1.5 | 133 | 141 | 108 | 3.5 | 8 | 16 | 146 | 154 | 8 | 8 | 23 | 30 |
| 1,0x40 | M24x1.5 | 170 | 178 | 130 | 3.5 | 8 | 16 | 183 | 191 | 8 | 8 | 23 | 30 |

STRÁNSKÝ A PETRŽÍK

| Series | NC-E | NC-S | NC-P |
|---|---|---|---|
| Type | adjustable | self-compensating | self-compensating |
| Characteristics | linear | linear | progressive |
| Impact speed [$ms^{-1}$] | 0.02 to 6.0 | 0.1 to 6.0 | 0.4 to 8.0 |
| Temperature range [°C] | -20 to +80 | | |

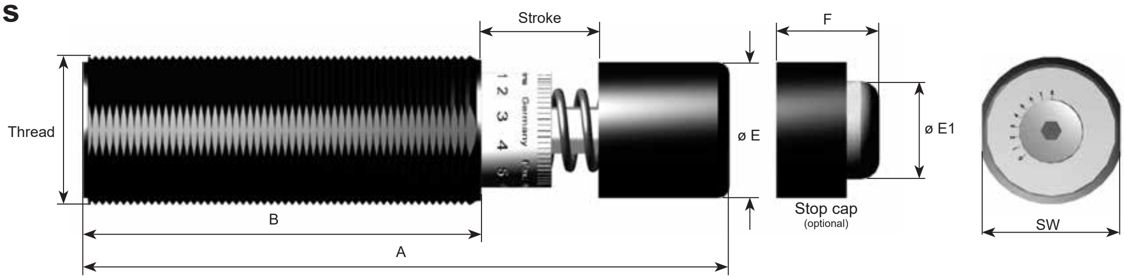
| Type | 1,25x1 | 1,25x2 | 1,5x1 | 1,5x2 | 1,5x3 |
|---|---|---|---|---|---|
| Spring return force [N] | 30 to 50 | 23 to 50 | 50 to 70 | 35 to 70 | 35 to 80 |
| Weight [kg] | 0.45 | 0.55 | 0.95 | 1.1 | 1.2 |
| Max. tightening torque [Nm] | 40 | 40 | 40 | 40 | 40 |

## Order codes

Order code consist of series **description, type** (1. part - see table) and **hardness selection** (2. part - see table), eventually indication of shock absorber with stop cap. If you need the shock absorber with stop cap, add **„-A“** after complete order code. The stop cap couldn‘t be mounted additionally as accessories, because by mounting of stop cap the stroke of shock absorber will be smaller. That is why the stop cap must be ordered together with shock absorber to ensure that piston rod will be extended for stop cap.
Example 1: self-compensating progressive shock absorber M45x2 type 1,5x2 with hardness 3 has order code NC-P1,5x2-3
Example 2: adjustable shock absorber M32x1.5 type 1,25x1 with stop cap has order code NC-E1,25x1-1-A

| Order code (1. part) | Thread | Stroke | Energy absorption | | | Effective mass - hardness / order code (2. part) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | constant load[Nm/stroke] | emergency load [Nm/stroke] | total energy [Nm/hod] | ...-0 (very soft) | ...-1 (soft) | ...-2 (medium) | ...-3 (hard) | ...-4 (very hard) |
| NC-E1,25x1-... | M32x1.5 | 25 | 300 | 480 | 120 000 | 10 to 100 | 60 to 2950 | 600 to 89000 | — | — |
| NC-S1,25x1-... | M32x1.5 | 25 | 300 | 480 | 120 000 | 7 to 32 | 28 to 130 | 80 to 590 | 440 to 2050 | 2000 to 12500 |
| NC-P1,25x1-... | M32x1.5 | 25 | 300 | 480 | 120 000 | — | 7 to 35 | 30 to 260 | 207 to 1650 | — |
| NC-E1,25x2-... | M32x1.5 | 50 | 500 | 800 | 150 000 | 15 to 160 | 100 to 4000 | 800 to 120000 | — | — |
| NC-S1,25x2-... | M32x1.5 | 50 | 500 | 800 | 150 000 | 13 to 60 | 56 to 240 | 160 to 1200 | 1000 to 4200 | 4000 to 25000 |
| NC-P1,25x2-... | M32x1.5 | 50 | 500 | 800 | 150 000 | — | 7 to 35 | 30 to 260 | 207 to 1650 | — |
| NC-E1,5x1-... | M45x2 | 25 | 870 | 1400 | 261 000 | 30 to 250 | 150 to 21000 | 6200 to 240000 | — | — |
| NC-S1,5x1-... | M45x2 | 25 | 870 | 1400 | 261 000 | 24 to 114 | 98 to 480 | 280 to 2100 | 1740 to 8200 | 6960 to 43500 |
| NC-P1,5x1-... | M45x2 | 25 | 870 | 1400 | 261 000 | — | 24 to 108 | 85 to 770 | 600 to 4800 | — |
| NC-E1,5x2-... | M45x2 | 50 | 1 350 | 2160 | 340 000 | 45 to 430 | 300 to 26000 | 10800 to 330000 | — | — |
| NC-S1,5x2-... | M45x2 | 50 | 1 350 | 2160 | 340 000 | 35 to 170 | 160 to 680 | 440 to 2900 | 2700 to 12700 | 10800 to 67500 |
| NC-P1,5x2-... | M45x2 | 50 | 1 350 | 2160 | 340 000 | — | 37 to 160 | 130 to 1200 | 940 to 7500 | — |
| NC-E1,5x3-... | M45x2 | 75 | 2 100 | 3360 | 420 000 | 70 to 670 | 450 to 27600 | 16800 to 500000 | — | — |
| NC-S1,5x3-... | M45x2 | 75 | 2 100 | 3360 | 420 000 | 40 to 270 | 240 to 1100 | 670 to 5000 | 4200 to 19500 | 16800 to 105000 |
| NC-P1,5x3-... | M45x2 | 75 | 2 100 | 3360 | 420 000 | — | 58 to 260 | 200 to 1850 | 1450 to 11600 | — |

## Dimensions




| Type | Thread | A | B | E | E1 | F | SW |
|---|---|---|---|---|---|---|---|
| 1,25x1 | M32x1.5 | 138 | 85 | 29 | 21 | 16 | 30 |
| 1,25x2 | M32x1.5 | 188 | 110 | 29 | 21 | 16 | 30 |
| 1,5x1 | M45x2 | 148 | 89 | 39.6 | 31 | 18 | 41 |
| 1,5x2 | M45x2 | 198 | 114 | 39.6 | 31 | 18 | 41 |
| 1,5x3 | M45x2 | 248 | 139 | 39.6 | 31 | 18 | 41 |

# HYDRAULIC SHOCK ABSORBER
# SERIES NC - M62

| Series | NC-E | NC-S | NC-P |
|---|---|---|---|
| Type | adjustable | self-compensating | self-compensating |
| Characteristics | linear | linear | progressive |
| Impact speed [$ms^{-1}$] | 0.02 to 6.0 | 0.1 to 6.0 | 0.4 to 8.0 |
| Temperature range [°C] | -20 to +80 | | |

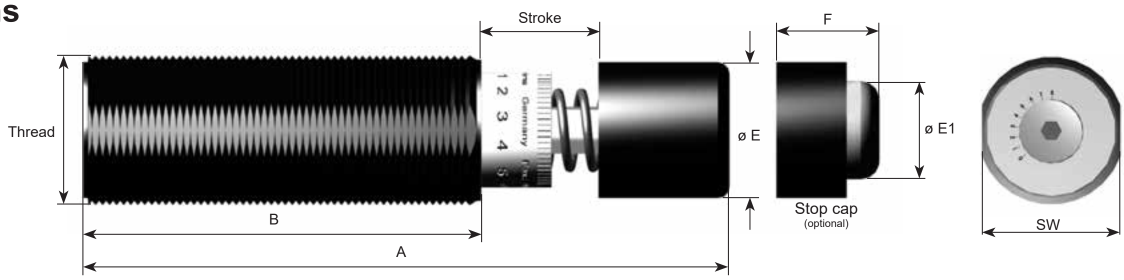
| Type | 2,0x1 | 2,0x2 | 2,0x4 | 2,0x6 |
|---|---|---|---|---|
| Spring return force [N] | 50 to 130 | 40 to 130 | 45 to 130 | 35 to 130 |
| Weight [kg] | 2.0 | 3.0 | 3.9 | 4.8 |
| Max. tightening torque [Nm] | 40 | 40 | 40 | 40 |

## Order codes

Order code consist of **series description, type** (1. part - see table) and **hardness selection** (2. part - see table), eventually indication of shock absorber with stop cap. If you need the shock absorber with stop cap, add **„-A“** after complete order code. The stop cap couldn't be mounted additionally as accessories, because by mounting of stop cap the stroke of shock absorber will be smaller. That is why the stop cap must be ordered together with shock absorber to ensure that piston rod will be extended for stop cap.
Example 1: self-compensating progressive shock absorber M62x2 type 2,0x2 with hardness 3 has order code NC-P2,0x2-3
Example 2: adjustable shock absorber M62x2 type 2,0x1 with stop cap has order code NC-E2,0x1-1-A

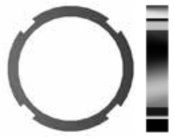
| Order code (1. part) | Thread | Stroke | Energy absorption | | | Effective mass - hardness / order code (2. part) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | constant load[Nm/stroke] | emergency load [Nm/stroke] | total energy [Nm/hod] | ...-0 (very soft) | ...-1 (soft) | ...-2 (medium) | ...-3 (hard) | ...-4 (very hard) |
| NC-E2,0x1-... | M62x2 | 25 | 1 500 | 2 400 | 150 000 | 60 to 480 | 300 to 41150 | 12000 to 470000 | — | — |
| NC-S2,0x1-... | M62x2 | 25 | 1 500 | 2 400 | 150 000 | 31 to 197 | 170 to 830 | 480 to 3700 | 3000 to 14100 | 12000 to 75000 |
| NC-P2,0x1-... | M62x2 | 25 | 1 500 | 2 400 | 150 000 | — | 31 to 187 | 150 to 1330 | 1030 to 8300 | — |
| NC-E2,0x2-... | M62x2 | 50 | 2 500 | 4 000 | 250 000 | 80 to 800 | 500 to 63700 | 14000 to 600000 | — | — |
| NC-S2,0x2-... | M62x2 | 50 | 2 500 | 4 000 | 250 000 | 52 to 330 | 280 to 1385 | 800 to 6150 | 5000 to 23500 | 20000 to 125000 |
| NC-P2,0x2-... | M62x2 | 50 | 2 500 | 4 000 | 250 000 | — | 52 to 310 | 250 to 2200 | 1730 to 13800 | |
| NC-E2,0x4-... | M62x2 | 100 | 5 000 | 8 000 | 350 000 | 160 to 1600 | 1000 to 62500 | 40000 to 1000000 | — | — |
| NC-S2,0x4-... | M62x2 | 100 | 5 000 | 8 000 | 350 000 | 104 to 650 | 565 to 2770 | 1600 to 12350 | 10000 to 47200 | 40000 to 250000 |
| NC-P2,0x4-... | M62x2 | 100 | 5 000 | 8 000 | 350 000 | — | 100 to 625 | 490 to 4400 | 3460 to 27700 | — |
| NC-E2,0x6-... | M62x2 | 150 | 8 000 | 12 800 | 400 000 | 250 to 2400 | 1250 to 105000 | 64000 to 1000000 | — | — |
| NC-S2,0x6-... | M62x2 | 150 | 8 000 | 12 800 | 400 000 | 160 to 1050 | 905 to 4430 | 2560 to 19750 | 16000 to 75500 | 64000 to 400000 |
| NC-P2,0x6-... | M62x2 | 150 | 8 000 | 12 800 | 400 000 | — | 160 to 1000 | 790 to 7100 | 5530 to 44000 | — |

## Dimensions



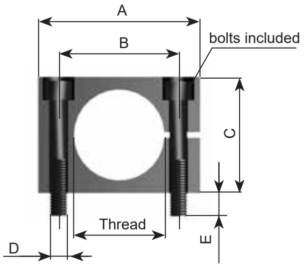

| Type | Thread | A | B | E | E1 | F | SW |
|---|---|---|---|---|---|---|---|
| 2,0x1 | M62x2 | 186 | 104 | 59 | 49 | 25 | 60 |
| 2,0x2 | M62x2 | 236 | 129 | 59 | 49 | 25 | 60 |
| 2,0x4 | M62x2 | 336 | 179 | 59 | 49 | 25 | 60 |
| 2,0x6 | M62x2 | 453 | 246 | 59 | 49 | 25 | 60 |

## Nut for series NC M8 to M62



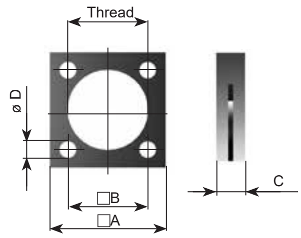
| Thread | Order codes | Thread | Order codes | Thread | Order codes | Thread | Order codes | Thread | Order codes |
|---|---|---|---|---|---|---|---|---|---|
| M8x1 | NU-14012 | M12x1 | NU-17012 | M16x1 | NU-22152 | M24x1.5 | NU-21232 | M45x2 | NU-S24012 |
| M10x1 | NU-15012 | M14x1 | NU-21052 | M20x1 | NU-21152 | M32x1.5 | NU-S23012 | M62x2 | NU-S25012 |

## Rectangular flange for series NC M10 to M24




| Order codes | Thread | A | B | C | D | E | Width |
|---|---|---|---|---|---|---|---|
| NU-15013 | M10x1 | 38 | 25.4 | 25 | 4.5 | — | 12 |
| NU-17013 | M12x1 | 38 | 25.4 | 25 | 4.5 | — | 12 |
| NU-S21053 | M14x1 | 32 | 20 | 20 | M5 | 5 | 12 |
| NU-S22153 | M16x1 | 40 | 28 | 25 | M6 | 6 | 20 |
| NU-S21153 | M20x1 | 40 | 28 | 25 | M6 | 6 | 20 |
| NU-S21233 | M24x1.5 | 46 | 33 | 32 | M6 | 6 | 25 |

## Square flange for series NC M32 to M62

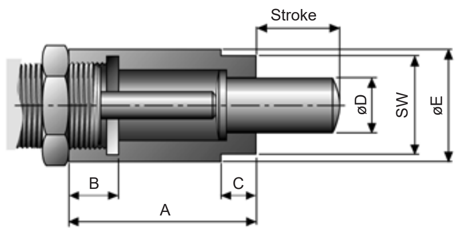



| Order codes | Thread | A | B | C | D |
|---|---|---|---|---|---|
| NU-S23014 | M32x1.5 | 45 | 31 | 12 | 6,6 |
| NU-S24014 | M45x2 | 55 | 43 | 12 | 9 |
| NU-S25014 | M62x2 | 80 | 60 | 20 | 11 |

## Bellow for series NC M32 to M62


| Order codes | Thread | A |
|---|---|---|
| NU-S23117 | M32x1.5 | 65 |
| NU-S24117 | M45x2 | 80 |
| NU-S25117 | M62x2 | 90 |

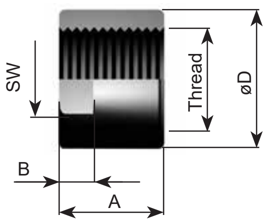
## Adapter for side forces for series NC M10 to M24

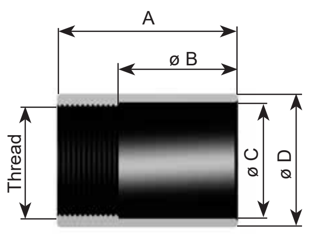



| Order codes | Thread | A | B | C | D | E | SW |
|---|---|---|---|---|---|---|---|
| NU-15319 | M10x1 | 20.5 | 7 | 5 | 7 | 14 | 13 |
| NU-17019 | M12x1 | 23 | 7 | 5 | 9 | 15 | 14 |
| NU-S21019 | M14x1 | 32 | 10 | 6 | 9 | 18 | 15 |
| NU-S22119 | M16x1 | 33 | 10 | 5 | 12 | 20 | 17 |
| NU-S21119 | M20x1 | 42 | 16 | 8 | 12 | 24 | 22 |
| NU-S21219 | M24x1.5 | 53.5 | 14.5 | 10 | 16 | 29 | 27 |

## Stop limit nut for series NC M8 to M62

M8 to M24




M32 to M62

| Order codes | Thread | A | B | C | D | SW |
|---|---|---|---|---|---|---|
| NU-14018 | M8x1 | 12 | — | — | 11 | — |
| NU-15018 | M10x1 | 15 | — | — | 14 | — |
| NU-17018 | M12x1 | 20 | — | — | 16 | — |
| NU-21058 | M14x1 | 20 | 6 | — | 18 | 15 |
| NU-22158 | M16x1 | 25 | 8 | — | 21 | 19 |
| NU-21158 | M20x1 | 35 | 8 | — | 25 | 22 |
| NU-21238 | M24x1.5 | 38 | 10 | — | 31 | 30 |
| NU-S23018 | M32x1.5 | 60 | 35 | 33 | 38 | — |
| NU-S24018 | M45x2 | 65 | 35 | 47 | 54 | — |
| NU-S25018 | M62x2 | 100 | 60 | 65 | 74 | — |

Hydraulic speed control is suitable for applications, where constant speed of feed is necessary, e.g. for feed during drilling, where feed speed balances due to variable material resistance when pneumatic cylinder is used only. The advantage is continual speed setting and maintanance-free operation.

| Series | NU-V |
|---|---|
| Speed range [m/min] | 0.015 to 15 or 12 to 40, continual speed setting |
| Temperature range [°C] | -20 to +80 |

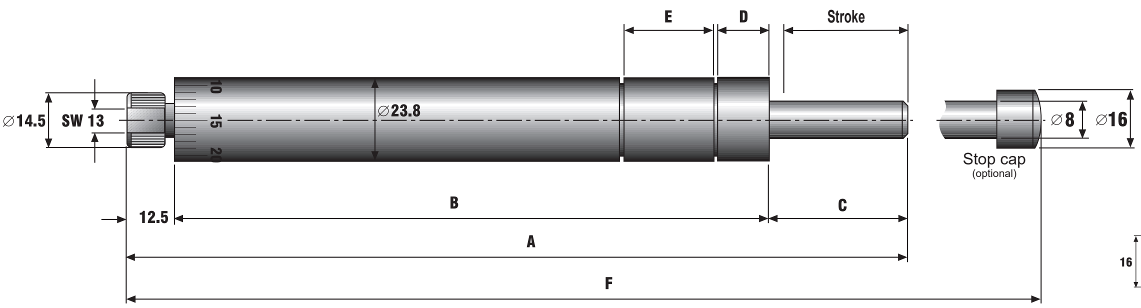
## Order codes

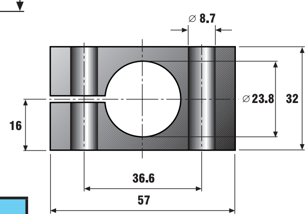
Order code consist of **series description, type** (1. part - see table) and **speed range** (2. part - see table), eventually indication of speed control with stop cap. If you need the speed control with stop cap, add **„-A“** after complete order code. The stop cap couldn‘t be mounted additionally as accessories, because by mounting of stop cap the stroke of speed control will be smaller. That is why the stop cap must be ordered together with speed control to ensure that piston rod will be extended for stop cap.
Example: speed control for speed range 0.015 to 15 with stroke 100 mm has order code NU-V50-2

| Order codes (1. part) | Stroke | External force | | Speed range - order codes (2. part) | | Spring return force [N] | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | min [N] | max [N] | ...-1 [m/min] | ...-2 [m/min] | | |
| NU-V10-... | 13 | 25 | 3700 | 12 to 40 | 0.015 to 15 | 12 to 28 | 0.35 |
| NU-V20-... | 25 | 25 | 3700 | 12 to 40 | 0.015 to 15 | 12 to 28 | 0.45 |
| NU-V30-... | 50 | 35 | 3700 | 12 to 40 | 0.015 to 15 | 15 to 32 | 0.55 |
| NU-V40-... | 75 | 45 | 3700 | 12 to 40 | 0.015 to 15 | 15 to 32 | 0.65 |
| NU-V50-... | 100 | 45 | 3700 | 12 to 40 | 0.015 to 15 | 15 to 32 | 0.80 |
| NU-V60-... | 125 | 45 | 3700 | 12 to 40 | 0.015 to 15 | 16 to 40 | 0.97 |
| NU-V70-... | 150 | 45 | 3700 | 12 to 40 | 0.015 to 15 | 16 to 40 | 1.05 |

| Accessories | NU-V10 to NU-V30 | NU-V40 to NU-V70 |
|---|---|---|
| Rectangular flange | NU-82013 | NU-82043 |

## Dimensions




Rectangular flange
(optional)

| Order code | Stroke | A | B | C | D | E | F | Flange width |
|---|---|---|---|---|---|---|---|---|
| NU-V10-... | 13 | 161 | 128 | 21 | 21.5 | 25.4 | 166 | 32 |
| NU-V20-... | 25 | 202 | 157 | 33 | 19.1 | 25.4 | 207 | 32 |
| NU-V30-... | 50 | 278 | 208 | 58 | 14.6 | 25.4 | 283 | 32 |
| NU-V40-... | 75 | 351 | 256 | 83 | 14.6 | 25.4 | 356 | 50 |
| NU-V50-... | 100 | 417 | 298 | 106 | 14.6 | 25.4 | 422 | 50 |
| NU-V60-... | 125 | 524 | 381 | 131 | 14.6 | 25.4 | 529 | 50 |
| NU-V70-... | 150 | 584 | 415 | 156 | 14.6 | 25.4 | 589 | 50 |

# FITTINGS, TUBES AND ACCESSORIES - CONTENTS



**Technical data:**
**Max. pressure**: vacuum to 1.8 MPa
**Temperature range**: -20°C to +80°C
**Materials**: body, bush - nickel plated brass, release sleeve - POM, clamping ring - stainless steel, seals - NBR (nylon sealing rings for banjo bolt)
**Medium**: air, liquids and gases according to compatibility with fitting and tube materials
**Suitable for tubes**: PA6, PA11, PU, PE, PTFE
When inserting PU and PTFE tubes it is recommended to press release sleeve to protect tube before scratching and possible inner sealing ring damage.

## Straight incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N104-004-005 |
| 4 | G1/8“ | N102-004-000 |
| 4 | G1/4“ | N102-004-001 |
| 6 | M5 | N104-006-005 |
| 6 | G1/8“ | N102-006-000 |
| 6 | G1/4“ | N102-006-001 |
| 8 | G1/8“ | N102-008-000 |
| 8 | G1/4“ | N102-008-001 |
| 8 | G3/8“ | N102-008-002 |
| 10 | G1/4“ | N102-010-001 |
| 10 | G3/8“ | N102-010-002 |
| 10 | G1/2“ | N102-010-003 |
| 12 | G1/4“ | N102-012-001 |
| 12 | G3/8“ | N102-012-002 |
| 12 | G1/2“ | N102-012-003 |
| 16 | G1/2“ | N102-016-003 |

## Straight with internal thread

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N105-004-005 |
| 4 | G1/8“ | N105-004-000 |
| 6 | G1/8“ | N105-006-000 |
| 6 | G1/4“ | N105-006-001 |
| 8 | G1/8“ | N105-008-000 |
| 8 | G1/4“ | N105-008-001 |
| 10 | G1/4“ | N105-010-001 |
| 10 | G3/8“ | N105-010-002 |
| 12 | G1/4“ | N105-012-001 |
| 12 | G3/8“ | N105-012-002 |
| 12 | G1/2“ | N105-012-003 |

## Bulkhead fitting

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M11 | N101-004-000 |
| 6 | M13 | N101-006-000 |
| 8 | M16 | N101-008-000 |
| 10 | M19 | N101-010-000 |
| 12 | M22 | N101-012-000 |
| 16 | M28x1.5 | N101-016-000 |

## Swivel elbow incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N108-004-005 |
| 4 | G1/8“ | N108-004-000 |
| 4 | G1/4“ | N108-004-001 |
| 6 | M5 | N108-006-005 |
| 6 | G1/8“ | N108-006-000 |
| 6 | G1/4“ | N108-006-001 |
| 8 | G1/8“ | N108-008-000 |
| 8 | G1/4“ | N108-008-001 |
| 8 | G3/8“ | N108-008-002 |
| 8 | G1/2“ | N108-008-003* |
| 10 | G1/8“ | N108-010-000 |
| 10 | G1/4“ | N108-010-001 |
| 10 | G3/8“ | N108-010-002 |
| 10 | G1/2“ | N108-010-003 |
| 12 | G1/4“ | N108-012-001 |
| 12 | G3/8“ | N108-012-002 |
| 12 | G1/2“ | N108-012-003 |
| 16 | G1/2“ | N108-016-003 |

## Long swivel elbow incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | G1/8“ | N108E-004-000 |
| 4 | G1/4“ | N108E-004-001 |
| 6 | G1/8“ | N108E-006-000 |
| 6 | G1/4“ | N108E-006-001 |
| 8 | G1/8“ | N108E-008-000 |
| 8 | G1/4“ | N108E-008-001 |
| 8 | G3/8“ | N108E-008-002 |
| 10 | G1/4“ | N108E-010-001 |
| 10 | G3/8“ | N108E-010-002 |

## Adapter incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N120-004-005 |
| 4 | G1/8“ | N120-004-000 |
| 4 | G1/4“ | N120-004-001 |
| 6 | M5 | N120-006-005 |
| 6 | G1/8“ | N120-006-000 |
| 6 | G1/4“ | N120-006-001 |
| 8 | G1/8“ | N120-008-000 |
| 8 | G1/4“ | N120-008-001 |
| 8 | G3/8“ | N120-008-002 |
| 10 | G1/4“ | N120-010-001 |
| 10 | G3/8“ | N120-010-002 |
| 10 | G1/2“ | N120-010-003 |
| 12 | G1/4“ | N120-012-001 |
| 12 | G3/8“ | N120-012-002 |
| 12 | G1/2“ | N120-012-003 |

## 1 port banjo

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N122-004-005 |
| 4 | G1/8“ | N122-004-000 |
| 6 | M5 | N122-006-005 |
| 6 | G1/8“ | N122-006-000 |
| 6 | G1/4“ | N122-006-001 |
| 8 | G1/8“ | N122-008-000 |
| 8 | G1/4“ | N122-008-001 |
| 8 | G3/8“ | N122-008-002 |
| 10 | G1/4“ | N122-010-001 |
| 10 | G3/8“ | N122-010-002 |
| 12 | G1/4“ | N122-012-001 |
| 12 | G3/8“ | N122-012-002* |

## 2 ports banjo

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N123-004-005 |
| 4 | G1/8“ | N123-004-000 |
| 6 | M5 | N123-006-005 |
| 6 | G1/8“ | N123-006-000 |
| 6 | G1/4“ | N123-006-001 |
| 8 | G1/8“ | N123-008-000 |
| 8 | G1/4“ | N123-008-001 |
| 8 | G3/8“ | N123-008-002 |
| 10 | G1/4“ | N123-010-001 |
| 10 | G3/8“ | N123-010-002 |
| 12 | G1/4“ | N123-012-001 |

## Single banjo bolt incl. sealing rings

| Thread | Order codes |
|---|---|
| M5 | N124-000-005 |
| G1/8“ | N124-000-000 |
| G1/4“ | N124-000-001 |
| G3/8“ | N124-000-002 |

## Double banjo bolt incl. sealing rings

| Thread | Order codes |
|---|---|
| G1/8“ | N125-000-000 |
| G1/4“ | N125-000-001 |
| G3/8“ | N125-000-002 |

A For dimensions, check our website sappv.cz

*) This item has another design and/or colour and different technical data

## Straight connector

| ∅ mm | ∅ mm | Order codes |
|---|---|---|
| 4 | 4 | N100-004-000 |
| 4 | 6 | N100-004-006* |
| 6 | 6 | N100-006-000 |
| 6 | 8 | N100-006-008* |
| 8 | 8 | N100-008-000 |
| 10 | 10 | N100-010-000 |
| 12 | 12 | N100-012-000 |

## Elbow connector

| ∅ mm | Order codes |
|---|---|
| 4 | N106-004-000 |
| 6 | N106-006-000 |
| 8 | N106-008-000 |
| 10 | N106-010-000 |
| 12 | N106-012-000 |
| 16 | N106-016-000 |

## X connector

| ∅ mm | Order codes |
|---|---|
| 4 | N117-004-000 |
| 6 | N117-006-000 |
| 8 | N117-008-000 |
| 10 | N117-010-000 |
| 12 | N117-012-000 |

## Straight connector for 2 fittings

| ∅ mm | Order codes |
|---|---|
| 4 | N119-004-000 |
| 6 | N119-006-000 |
| 8 | N119-008-000 |
| 10 | N119-010-000 |
| 12 | N119-012-000 |

## Reducer

∅D2

∅D1

| D1 ∅ mm | D2 ∅ mm | Order codes |
|---|---|---|
| 6 | 4 | N121-006-004 |
| 8 | 4 | N121-008-004 |
| 8 | 6 | N121-008-006 |
| 10 | 6 | N121-010-006 |
| 10 | 8 | N121-010-008 |
| 12 | 6 | N121-012-006 |
| 12 | 8 | N121-012-008 |
| 12 | 10 | N121-012-010 |

## T connector

| ∅ mm | Order codes |
|---|---|
| 4 | N110-004-000 |
| 6 | N110-006-000 |
| 8 | N110-008-000 |
| 10 | N110-010-000 |
| 12 | N110-012-000 |
| 16 | N110-016-000 |

## T fitting with side thread incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N115-004-005* |
| 4 | G1/8“ | N115-004-000 |
| 6 | M5 | N115-006-005* |
| 6 | G1/8“ | N115-006-000 |
| 6 | G1/4“ | N115-006-001 |
| 8 | G1/8“ | N115-008-000 |
| 8 | G1/4“ | N115-008-001 |
| 8 | G3/8“ | N115-008-002 |
| 10 | G1/4“ | N115-010-001 |
| 10 | G3/8“ | N115-010-002 |
| 10 | G1/2“ | N115-010-003 |
| 12 | G1/4“ | N115-012-001 |
| 12 | G3/8“ | N115-012-002 |
| 12 | G1/2“ | N115-012-003 |

## T fitting with bottom thread incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N113-004-005* |
| 4 | G1/8“ | N113-004-000 |
| 6 | M5 | N113-006-005* |
| 6 | G1/8“ | N113-006-000 |
| 6 | G1/4“ | N113-006-001 |
| 8 | G1/8“ | N113-008-000 |
| 8 | G1/4“ | N113-008-001 |
| 8 | G3/8“ | N113-008-002 |
| 10 | G1/4“ | N113-010-001 |
| 10 | G3/8“ | N113-010-002 |
| 10 | G1/2“ | N113-010-003 |
| 12 | G1/4“ | N113-012-001 |
| 12 | G3/8“ | N113-012-002 |
| 12 | G1/2“ | N113-012-003 |

## Y connector

| ∅ mm | Order codes |
|---|---|
| 4 | N131-004-000 |
| 6 | N131-006-000 |
| 8 | N131-008-000* |

## Y fitting

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N132-004-005 |
| 4 | R1/8“ | N132-004-000 |
| 6 | R1/8“ | N132-006-000 |

## Plug

| ∅ mm | Order codes |
|---|---|
| 4 | N118-004-000 |
| 6 | N118-006-000 |
| 8 | N118-008-000 |
| 10 | N118-010-000 |
| 12 | N118-012-000 |

See page 10-2 for technical data

For dimensions, check our website sappv.cz

*) This item has another design and/or colour and different technical data

**Technical data:**
**Working pressure**: vacuum to 1.0 MPa
**Temperature range**: -20°C to +60°C
**Materials**: body - PBT, thread - nickel plated brass, release sleeve - POM, clamping ring - stainless steel, seals - NBR, bush - ZnDc
**Medium**: air
**Suitable for tubes**: PA6, PU
When inserting PU tubes it is recommended to press release sleeve to protect tube before scratching and possible inner sealing ring damage.

## Straight incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | P102-004-005 |
| 4 | G1/8“ | P102-004-000 |
| 4 | G1/4“ | P102-004-001 |
| 6 | M5 | P102-006-005 |
| 6 | G1/8“ | P102-006-000 |
| 6 | G1/4“ | P102-006-001 |
| 6 | G3/8“ | P102-006-002 |
| 6 | G1/2“ | P102-006-003 |
| 8 | G1/8“ | P102-008-000 |
| 8 | G1/4“ | P102-008-001 |
| 8 | G3/8“ | P102-008-002 |
| 8 | G1/2“ | P102-008-003 |
| 10 | G1/8“ | P102-010-000 |
| 10 | G1/4“ | P102-010-001 |
| 10 | G3/8“ | P102-010-002 |
| 10 | G1/2“ | P102-010-003 |
| 12 | G1/4“ | P102-012-001 |
| 12 | G3/8“ | P102-012-002 |
| 12 | G1/2“ | P102-012-003 |

## Straight with internal thread

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | P105-004-005 |
| 4 | G1/8“ | P105-004-000 |
| 4 | G1/4“ | P105-004-001 |
| 6 | M5 | P105-006-005 |
| 6 | G1/8“ | P105-006-000 |
| 6 | G1/4“ | P105-006-001 |
| 6 | G3/8“ | P105-006-002 |
| 6 | G1/2“ | P105-006-003 |
| 8 | G1/8“ | P105-008-000 |
| 8 | G1/4“ | P105-008-001 |
| 8 | G3/8“ | P105-008-002 |
| 8 | G1/2“ | P105-008-003 |
| 10 | G1/8“ | P105-010-000 |
| 10 | G1/4“ | P105-010-001 |
| 10 | G3/8“ | P105-010-002 |
| 10 | G1/2“ | P105-010-003 |
| 12 | G1/4“ | P105-012-001 |
| 12 | G3/8“ | P105-012-002 |
| 12 | G1/2“ | P105-012-003 |

## Swivel elbow incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | P108-004-005 |
| 4 | G1/8“ | P108-004-000 |
| 4 | G1/4“ | P108-004-001 |
| 6 | M5 | P108-006-005 |
| 6 | G1/8“ | P108-006-000 |
| 6 | G1/4“ | P108-006-001 |
| 6 | G3/8“ | P108-006-002 |
| 6 | G1/2“ | P108-006-003 |
| 8 | G1/8“ | P108-008-000 |
| 8 | G1/4“ | P108-008-001 |
| 8 | G3/8“ | P108-008-002 |
| 8 | G1/2“ | P108-008-003 |
| 10 | G1/8“ | P108-010-000 |
| 10 | G1/4“ | P108-010-001 |
| 10 | G3/8“ | P108-010-002 |
| 10 | G1/2“ | P108-010-003 |
| 12 | G1/4“ | P108-012-001 |
| 12 | G3/8“ | P108-012-002 |
| 12 | G1/2“ | P108-012-003 |

## Long swivel elbow incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | P108E-004-005 |
| 4 | G1/8“ | P108E-004-000 |
| 4 | G1/4“ | P108E-004-001 |
| 6 | M5 | P108E-006-005 |
| 6 | G1/8“ | P108E-006-000 |
| 6 | G1/4“ | P108E-006-001 |
| 6 | G3/8“ | P108E-006-002 |
| 6 | G1/2“ | P108E-006-003 |
| 8 | G1/8“ | P108E-008-000 |
| 8 | G1/4“ | P108E-008-001 |
| 8 | G3/8“ | P108E-008-002 |
| 8 | G1/2“ | P108E-008-003 |
| 10 | G1/8“ | P108E-010-000 |
| 10 | G1/4“ | P108E-010-001 |
| 10 | G3/8“ | P108E-010-002 |
| 10 | G1/2“ | P108E-010-003 |
| 12 | G1/4“ | P108E-012-001 |
| 12 | G3/8“ | P108E-012-002 |
| 12 | G1/2“ | P108E-012-003 |

For dimensions, check our website sappv.cz

## Swivel elbow with internal thread

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | P109-004-005 |
| 4 | G1/8“ | P109-004-000 |
| 4 | G1/4“ | P109-004-001 |
| 6 | M5 | P109-006-005 |
| 6 | G1/8“ | P109-006-000 |
| 6 | G1/4“ | P109-006-001 |
| 6 | G3/8“ | P109-006-002 |
| 6 | G1/2“ | P109-006-003 |
| 8 | G1/8“ | P109-008-000 |
| 8 | G1/4“ | P109-008-001 |
| 8 | G3/8“ | P109-008-002 |
| 8 | G1/2“ | P109-008-003 |
| 10 | G1/8“ | P109-010-000 |
| 10 | G1/4“ | P109-010-001 |
| 10 | G3/8“ | P109-010-002 |
| 10 | G1/2“ | P109-010-003 |
| 12 | G1/4“ | P109-012-001 |
| 12 | G3/8“ | P109-012-002 |
| 12 | G1/2“ | P109-012-003 |

## Swivel elbow 45° incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | G1/8“ | P127-004-000 |
| 4 | G1/4“ | P127-004-001 |
| 6 | G1/8“ | P127-006-000 |
| 6 | G1/4“ | P127-006-001 |
| 6 | G3/8“ | P127-006-002 |
| 6 | G1/2“ | P127-006-003 |
| 8 | G1/8“ | P127-008-000 |
| 8 | G1/4“ | P127-008-001 |
| 8 | G3/8“ | P127-008-002 |
| 8 | G1/2“ | P127-008-003 |
| 10 | G1/8“ | P127-010-000 |
| 10 | G1/4“ | P127-010-001 |
| 10 | G3/8“ | P127-010-002 |
| 10 | G1/2“ | P127-010-003 |
| 12 | G1/4“ | P127-012-001 |
| 12 | G3/8“ | P127-012-002 |
| 12 | G1/2“ | P127-012-003 |

## Bulkhead fitting

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M12 | P101-004-000 |
| 6 | M14 | P101-006-000 |
| 8 | M16 | P101-008-000 |
| 10 | M18 | P101-010-000 |
| 12 | M22 | P101-012-000 |

## Swivel single port banjo incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | P137-004-005 |
| 4 | G1/8“ | P137-004-000 |
| 4 | G1/4“ | P137-004-001 |
| 6 | M5 | P137-006-005 |
| 6 | G1/8“ | P137-006-000 |
| 6 | G1/4“ | P137-006-001 |
| 6 | G3/8“ | P137-006-002 |
| 8 | G1/8“ | P137-008-000 |
| 8 | G1/4“ | P137-008-001 |
| 8 | G3/8“ | P137-008-002 |
| 8 | G1/2“ | P137-008-003 |
| 10 | G1/8“ | P137-010-000 |
| 10 | G1/4“ | P137-010-001 |
| 10 | G3/8“ | P137-010-002 |
| 10 | G1/2“ | P137-010-003 |
| 12 | G3/8“ | P137-012-002 |
| 12 | G1/2“ | P137-012-003 |

## Y fitting incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | P132-004-005 |
| 4 | G1/8“ | P132-004-000 |
| 4 | G1/4“ | P132-004-001 |
| 6 | M5 | P132-006-005 |
| 6 | G1/8“ | P132-006-000 |
| 6 | G1/4“ | P132-006-001 |
| 6 | G3/8“ | P132-006-002 |
| 6 | G1/2“ | P132-006-003 |
| 8 | G1/8“ | P132-008-000 |
| 8 | G1/4“ | P132-008-001 |
| 8 | G3/8“ | P132-008-002 |
| 8 | G1/2“ | P132-008-003 |
| 10 | G1/8“ | P132-010-000 |
| 10 | G1/4“ | P132-010-001 |
| 10 | G3/8“ | P132-010-002 |
| 10 | G1/2“ | P132-010-003 |
| 12 | G1/4“ | P132-012-001 |
| 12 | G3/8“ | P132-012-002 |
| 12 | G1/2“ | P132-012-003 |

## Reducer


| D1 ∅ mm | D2 ∅ mm | Order codes |
|---|---|---|
| 6 | 4 | P121-006-004 |
| 8 | 4 | P121-008-004 |
| 8 | 6 | P121-008-006 |
| 10 | 6 | P121-010-006 |
| 10 | 8 | P121-010-008 |
| 12 | 8 | P121-012-008 |
| 12 | 10 | P121-012-010 |

## T fitting with side thread incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | P115-004-005 |
| 4 | G1/8“ | P115-004-000 |
| 4 | G1/4“ | P115-004-001 |
| 6 | M5 | P115-006-005 |
| 6 | G1/8“ | P115-006-000 |
| 6 | G1/4“ | P115-006-001 |
| 6 | G3/8“ | P115-006-002 |
| 6 | G1/2“ | P115-006-003 |
| 8 | G1/8“ | P115-008-000 |
| 8 | G1/4“ | P115-008-001 |
| 8 | G3/8“ | P115-008-002 |
| 8 | G1/2“ | P115-008-003 |
| 10 | G1/8“ | P115-010-000 |
| 10 | G1/4“ | P115-010-001 |
| 10 | G3/8“ | P115-010-002 |
| 10 | G1/2“ | P115-010-003 |
| 12 | G1/4“ | P115-012-001 |
| 12 | G3/8“ | P115-012-002 |
| 12 | G1/2“ | P115-012-003 |

## T fitting with bottom thread incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | P113-004-005 |
| 4 | G1/8“ | P113-004-000 |
| 4 | G1/4“ | P113-004-001 |
| 6 | M5 | P113-006-005 |
| 6 | G1/8“ | P113-006-000 |
| 6 | G1/4“ | P113-006-001 |
| 6 | G3/8“ | P113-006-002 |
| 6 | G1/2“ | P113-006-003 |
| 8 | G1/8“ | P113-008-000 |
| 8 | G1/4“ | P113-008-001 |
| 8 | G3/8“ | P113-008-002 |
| 8 | G1/2“ | P113-008-003 |
| 10 | G1/8“ | P113-010-000 |
| 10 | G1/4“ | P113-010-001 |
| 10 | G3/8“ | P113-010-002 |
| 10 | G1/2“ | P113-010-003 |
| 12 | G1/4“ | P113-012-001 |
| 12 | G3/8“ | P113-012-002 |
| 12 | G1/2“ | P113-012-003 |

## X connector

| ∅ mm | Order codes |
|---|---|
| 4 | P117-004 |
| 6 | P117-006 |
| 8 | P117-008 |
| 10 | P117-010 |
| 12 | P117-012 |

## T connector

| ∅ mm | Order codes |
|---|---|
| 4 | P110-004-000 |
| 6 | P110-006-000 |
| 8 | P110-008-000 |
| 10 | P110-010-000 |
| 12 | P110-012-000 |

## T connector reduced


| D1 ∅ mm | D2 ∅ mm | Order codes |
|---|---|---|
| 2x 6 | 4 | P110-006-004 |
| 2x 8 | 4 | P110-008-004 |
| 2x 8 | 6 | P110-008-006 |
| 2x 10 | 6 | P110-010-006 |
| 2x 10 | 8 | P110-010-008 |
| 2x 12 | 8 | P110-012-008 |
| 2x 12 | 10 | P110-012-010 |

## Distributor connector reduced


| Inlet D1 ∅ mm | Outlet D2 ∅ mm | Order codes |
|---|---|---|
| 6 | 3x 4 | P193-006-004 |
| 8 | 3x 4 | P193-008-004 |
| 8 | 3x 6 | P193-008-006 |
| 10 | 3x 6 | P193-010-006 |
| 10 | 3x 8 | P193-010-008 |

## Distributor fitting incl. sealing ring

| Inlet ∅ mm | Thread | Outlet ∅ mm | Order codes |
|---|---|---|---|
| 6 | G1/8“ | 3x 4 | P194-006-004 |
| 8 | G1/4“ | 3x 4 | P194-008-004 |
| 8 | G1/4“ | 3x 6 | P194-008-006 |
| 10 | G3/8“ | 3x 8 | P194-010-008 |

## Distributor connector

| ∅ mm | Order codes |
|---|---|
| 4 | P193-004-000 |
| 6 | P193-006-000 |
| 8 | P193-008-000 |

See page 10-4 for technical data

For dimensions, check our website sappv.cz

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## Straight connector

| ∅ mm | Order codes |
|---|---|
| 4 | P100-004-000 |
| 6 | P100-006-000 |
| 8 | P100-008-000 |
| 10 | P100-010-000 |
| 12 | P100-012-000 |

## Straight connector reduced

| ∅ mm | ∅ mm | Order codes |
|---|---|---|
| 6 | 4 | P100-006-004 |
| 8 | 4 | P100-008-004 |
| 8 | 6 | P100-008-006 |
| 10 | 8 | P100-010-008 |
| 12 | 10 | P100-012-010 |

## Elbow connector

| ∅ mm | Order codes |
|---|---|
| 4 | P106-004-000 |
| 6 | P106-006-000 |
| 8 | P106-008-000 |
| 10 | P106-010-000 |
| 12 | P106-012-000 |

## Y connector

| ∅ mm | Order codes |
|---|---|
| 4 | P131-004-000 |
| 6 | P131-006-000 |
| 8 | P131-008-000 |
| 10 | P131-010-000 |
| 12 | P131-012-000 |

## Y connector reduced


| D1 ∅ mm | D2 ∅ mm | Order codes |
|---|---|---|
| 6 | 2x 4 | P131-006-004 |
| 8 | 2x 4 | P131-008-004 |
| 8 | 2x 6 | P131-008-006 |
| 10 | 2x 6 | P131-010-006 |
| 10 | 2x 8 | P131-010-008 |
| 12 | 2x 8 | P131-012-008 |
| 12 | 2x 10 | P131-012-010 |

## Plug

| ∅ mm | Order codes |
|---|---|
| 4 | P118-004 |
| 6 | P118-006 |
| 8 | P118-008 |
| 10 | P118-010 |
| 12 | P118-012 |

See page 10-4 for technical data

For dimensions, check our website sappv.cz

**Technical data:**
**Max. pressure**: 1.6 MPa
**Temperature range**: -20°C to +150°C
**Materials**: body, bush, release sleeve, clamping ring - stainless steel AISI 316L, seals - FKM
**Medium**: air, liquids and gases according to compatibility with fitting and tube materials
**Suitable for tubes**: PA6, PA11, PU, PTFE
When inserting PU and PTFE tubes it is recommended to press release sleeve to protect tube before scratching and possible inner sealing ring damage.

## Straight incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N102S-004-005 |
| 4 | G1/8“ | N102S-004-000 |
| 6 | M5 | N102S-006-005 |
| 6 | G1/8“ | N102S-006-000 |
| 6 | G1/4“ | N102S-006-001 |
| 8 | G1/8“ | N102S-008-000 |
| 8 | G1/4“ | N102S-008-001 |
| 10 | G1/4“ | N102S-010-001 |
| 10 | G3/8“ | N102S-010-002 |
| 10 | G1/2“ | N102S-010-003 |
| 12 | G1/4“ | N102S-012-001 |
| 12 | G3/8“ | N102S-012-002 |
| 12 | G1/2“ | N102S-012-003 |

## Bulkhead fitting

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M11x0,75 | N101S-004-000 |
| 6 | M14x1 | N101S-006-000 |
| 8 | M16x1 | N101S-008-000 |
| 10 | M18x1 | N101S-010-000 |
| 12 | M22x1,5 | N101S-012-000 |

## Swivel elbow incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N108S-004-005 |
| 4 | G1/8“ | N108S-004-000 |
| 4 | G1/4“ | N108S-004-001 |
| 6 | M5 | N108S-006-005 |
| 6 | G1/8“ | N108S-006-000 |
| 6 | G1/4“ | N108S-006-001 |
| 8 | G1/8“ | N108S-008-000 |
| 8 | G1/4“ | N108S-008-001 |
| 10 | G1/4“ | N108S-010-001 |
| 10 | G3/8“ | N108S-010-002 |
| 12 | G1/4“ | N108S-012-001 |
| 12 | G3/8“ | N108S-012-002 |
| 12 | G1/2“ | N108S-012-003 |

## Straight connector

| ∅ mm | ∅ mm | Order codes |
|---|---|---|
| 4 | 4 | N100S-004-000 |
| 6 | 6 | N100S-006-000 |
| 8 | 8 | N100S-008-000 |
| 10 | 10 | N100S-010-000 |
| 12 | 12 | N100S-012-000 |

## Elbow connector

| ∅ mm | Order codes |
|---|---|
| 4 | N106S-004-000 |
| 6 | N106S-006-000 |
| 8 | N106S-008-000 |
| 10 | N106S-010-000 |
| 12 | N106S-012-000 |

## T connector

| ∅ mm | Order codes |
|---|---|
| 4 | N110S-004-000 |
| 6 | N110S-006-000 |
| 8 | N110S-008-000 |
| 10 | N110S-010-000 |
| 12 | N110S-012-000 |

## T fitting with bottom thread incl. sealing ring

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | M5 | N113S-004-005 |
| 4 | G1/8“ | N113S-004-000 |
| 6 | G1/8“ | N113S-006-000 |
| 6 | G1/4“ | N113S-006-001 |
| 8 | G1/8“ | N113S-008-000 |
| 8 | G1/4“ | N113S-008-001 |
| 10 | G1/4“ | N113S-010-001 |
| 10 | G3/8“ | N113S-010-002 |

## Reducer


| D1 ∅ mm | D2 ∅ mm | Order codes |
|---|---|---|
| 6 | 4 | N121S-006-004 |
| 8 | 6 | N121S-008-006 |
| 10 | 8 | N121S-010-008 |

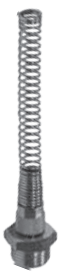
For dimensions, check our website sappv.cz

**Technical data:**
**Working pressure**: vacuum to 1.5 MPa
**Temperature range**: -18°C to +70°C
**Material**: nickel plated brass
**Medium**: air, liquids and gases according to compatibility with fitting and tube materials
**Suitable for tubes**: PA6, PA11, PU, PE, PTFE
The sealing ring is not included (unless otherwise stated) and must be ordered separately - see page 10-8.

## Straight

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4/2 | M5 | N341-004-005 |
| 4/2 | G1/8“ | N341-004-000 |
| 6/4 | M5 | N341-006-005 |
| 6/4 | G1/8“ | N341-006-000 |
| 6/4 | G1/4“ | N341-006-001 |
| 6/4 | G3/8“ | N341-006-002 |
| 8/6 | G1/8“ | N341-008-000 |
| 8/6 | G1/4“ | N341-008-001 |
| 8/6 | G3/8“ | N341-008-002 |
| 8/6 | G1/2“ | N341-008-003* |
| 10/8 | G1/8“ | N341-010-000 |
| 10/8 | G1/4“ | N341-010-001 |
| 10/8 | G3/8“ | N341-010-002 |
| 10/8 | G1/2“ | N341-010-003* |
| 12/9 | G3/8“ | N341-912-002* |
| 12/9 | G1/2“ | N341-912-003* |
| 12/10 | G3/8“ | N341-012-002 |
| 12/10 | G1/2“ | N341-012-003* |
| 12/10 | G3/4“ | N341-012-006* |
| 12/10 | G1“ | N341-012-007* |
| 15/12 | G1/2“ | N341-015-003* |
| 15/12 | G3/4“ | N341-015-006* |
| 15/12 | G1“ | N341-015-007* |

## Straight with tube guard incl. sealing ring (NBR)



| ∅ mm | Thread | Order codes |
|---|---|---|
| 6/4 | G1/8“ | N180-006-000 |
| 6/4 | G1/4“ | N180-006-001 |
| 6/4 | G3/8“ | N180-006-002 |
| 6/4 | G1/2“ | N180-006-003 |
| 8/6 | G1/8“ | N180-008-000 |
| 8/6 | G1/4“ | N180-008-001 |
| 8/6 | G3/8“ | N180-008-002 |
| 8/6 | G1/2“ | N180-008-003 |
| 10/8 | G1/8“ | N180-010-000 |
| 10/8 | G1/4“ | N180-010-001 |
| 10/8 | G3/8“ | N180-010-002 |
| 10/8 | G1/2“ | N180-010-003 |
| 12/10 | G3/8“ | N180-012-002 |
| 12/10 | G1/2“ | N180-012-003 |

## Bulkhead fitting

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4/2 | M7x0.5 | N345-004-000 |
| 6/4 | M10x1 | N345-006-000 |
| 8/6 | M12x1 | N345-008-000 |
| 10/8 | M14x1 | N345-010-000 |

## Elbow connector

| ∅ mm | Order codes |
|---|---|
| 4/2 | N348-004-000 |
| 6/4 | N348-006-000 |
| 8/6 | N348-008-000 |
| 10/8 | N348-010-000 |

## Elbow with internal thread

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4/2 | G1/8“ | N347-004-000 |
| 6/4 | G1/8“ | N347-006-000 |
| 6/4 | G1/4“ | N347-006-001 |
| 8/6 | G1/8“ | N347-008-000 |
| 8/6 | G1/4“ | N347-008-001 |

## X connector

| ∅ mm | Order codes |
|---|---|
| 6/4 | N354-006-000 |
| 8/6 | N354-008-000 |
| 10/8 | N354-010-000 |

## Swivel elbow incl. sealing ring (NBR)

| ∅ mm | Thread | Order codes |
|---|---|---|
| 6/4 | G1/8“ | N349-006-000 |
| 6/4 | G1/4“ | N349-006-001 |
| 8/6 | G1/8“ | N349-008-000 |
| 8/6 | G1/4“ | N349-008-001 |
| 10/8 | G1/4“ | N349-010-001 |

## T connector

| ∅ mm | Order codes |
|---|---|
| 4/2 | N353-004-000 |
| 6/4 | N353-006-000 |
| 8/6 | N353-008-000 |
| 10/8 | N353-010-000 |
| 12/10 | N353-012-000 |

## Push-on nut

| ∅ mm | Order codes |
|---|---|
| 4/2 | N368-004-000 |
| 6/4 | N368-006-000 |
| 8/6 | N368-008-000 |
| 10/8 | N368-010-000 |
| 12/10 | N368-012-000 |

## Single banjo bolt incl. plastic sealing rings

| Thread | Order codes |
|---|---|
| M5 | N324-005 |
| G1/8“ | N324-000 |
| G1/4“ | N324-001 |
| G3/8“ | N324-002* |
| G1/2“ | N324-003* |

## Double banjo bolt incl. plastic sealing rings

| Thread | Order codes |
|---|---|
| G1/8“ | N325-000 |
| G1/4“ | N325-001 |
| G3/8“ | N325-002* |
| G1/2“ | N325-003* |

## 1 port banjo

| ∅ mm | Thread | Order codes |
|---|---|---|
| 6/4 | M5 | N355-006-005 |
| 6/4 | G1/8“ | N355-006-000 |
| 6/4 | G1/4“ | N355-006-001 |
| 8/6 | G1/8“ | N355-008-000 |
| 8/6 | G1/4“ | N355-008-001 |
| 8/6 | G3/8“ | N355-008-002* |
| 8/6 | G1/2“ | N355-008-003* |
| 10/8 | G1/4“ | N355-010-001 |
| 10/8 | G3/8“ | N355-010-002* |
| 10/8 | G1/2“ | N355-010-003* |
| 12/9 | G1/4“ | N355-912-001* |
| 12/9 | G3/8“ | N355-912-002* |
| 12/10 | G3/8“ | N355-012-002* |
| 12/10 | G1/2“ | N355-012-003* |

## 2 ports banjo

| ∅ mm | Thread | Order codes |
|---|---|---|
| 6/4 | G1/8“ | N356-006-000 |
| 6/4 | G1/4“ | N356-006-001 |
| 8/6 | G1/8“ | N356-008-000 |
| 8/6 | G1/4“ | N356-008-001 |
| 8/6 | G3/8“ | N356-008-002* |
| 10/8 | G1/4“ | N356-010-001 |
| 10/8 | G3/8“ | N356-010-002* |
| 12/9 | G3/8“ | N356-912-002* |
| 12/10 | G3/8“ | N356-012-002* |
| 12/10 | G1/2“ | N356-012-003* |

A For dimensions, check our website sappv.cz

*) The item has a different shape, material and finish compared to other items in the series and may have different technical parameters

## Straight with internal thread

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4/2 | G1/8“ | N343-004-000 |
| 6/4 | G1/8“ | N343-006-000 |
| 6/4 | G1/4“ | N343-006-001 |
| 8/6 | G1/8“ | N343-008-000 |
| 8/6 | G1/4“ | N343-008-001 |
| 8/6 | G3/8“ | N343-008-002 |
| 10/8 | G1/8“ | N343-010-000 |
| 10/8 | G1/4“ | N343-010-001 |
| 10/8 | G3/8“ | N343-010-002 |

## Straight connector

| ∅ mm | ∅ mm | Order codes |
|---|---|---|
| 4/2 | 4/2 | N344-004-000 |
| 6/4 | 6/4 | N344-006-000 |
| 6/4 | 8/6 | N344-006-008+ |
| 8/6 | 8/6 | N344-008-000 |
| 8/6 | 10/8 | N344-008-010+ |
| 10/8 | 10/8 | N344-010-000 |
| 12/10 | 12/10 | N344-012-000 |
| 15/12 | 15/12 | N344-015-000+ |

See page 10-7 for technical data

For dimensions, check our website sappv.cz

*) The item has a different shape, material and finish compared to other items in the series and may have different technical parameters

**Technical data:**
**Working pressure**: vacuum to 1.5 MPa
**Temperature range**: -18°C to +70°C
**Material**: nickel plated brass
**Medium**: air, liquids and gases according to compatibility with fitting and tube materials
**Suitable for tubes**: PA6, PA11, PU, PE, PTFE
The sealing ring is not included and must be ordered separately - see page 10-8. The tube must be fixed by tube clamp - see page 10-11.

## Straight with external thread

| ∅ mm | Thread | Order codes |
|---|---|---|
| 4 | G1/8“ | N460-004-000* |
| 4 | G1/4“ | N460-004-001* |
| 6 | G1/8“ | N460-006-000 |
| 6 | G1/4“ | N460-006-001* |
| 7 | G1/8“ | N460-007-000 |
| 7 | G1/4“ | N460-007-001 |
| 8 | G1/8“ | N460-008-000 |
| 8 | G1/4“ | N460-008-001 |
| 8 | G3/8“ | N460-008-002* |
| 8 | G1/2“ | N460-008-003* |
| 9 | G1/8“ | N460-009-000 |
| 9 | G1/4“ | N460-009-001 |
| 9 | G3/8“ | N460-009-002 |
| 10 | G3/8“ | N460-010-002* |
| 10 | G1/2“ | N460-010-003* |
| 12 | G1/4“ | N460-012-001 |
| 12 | G3/8“ | N460-012-002 |
| 12 | G1/2“ | N460-012-003 |
| 14 | G3/8“ | N460-014-002 |
| 17 | G3/8“ | N460-017-002 |
| 17 | G1/2“ | N460-017-003 |

## Straight with internal thread

| ∅ mm | Thread | Order codes |
|---|---|---|
| 6 | G1/8“ | N455-006-000 |
| 7 | G1/8“ | N455-007-000 |
| 7 | G1/4“ | N455-007-001 |
| 8 | G1/8“ | N455-008-000 |
| 8 | G1/4“ | N455-008-001* |
| 9 | G1/4“ | N455-009-001* |
| 9 | G3/8“ | N455-009-002* |
| 10 | G3/8“ | N455-010-002* |
| 12 | G3/8“ | N455-012-002 |
| 12 | G1/2“ | N455-012-003 |

## Elbow with external thread

| ∅ mm | Thread | Order codes |
|---|---|---|
| 6 | R1/8“ | N491-006-000 |
| 6 | R1/4“ | N491-006-001 |
| 7 | R1/8“ | N491-007-000 |
| 7 | R1/4“ | N491-007-001 |

For dimensions, check our website sappv.cz

*) The item has a different shape, material and finish compared to other items in the series and may have different technical parameters

## Plastic sealing ring

**Temp. range**: -18°C to +60°C, **Material**: polypropylen

| Thread | Order codes |
|---|---|
| M5 | 3910 2002 1000 0030 |
| G1/8“ | 3910 2004 1000 0030 |
| G1/4“ | 3910 2006 1000 0030 |
| G3/8“ | 3910 2008 1000 0030 |
| G1/2“ | 3910 2010 1000 0030 |

## Aluminium sealing ring

**Temperature range**: -60°C to +200°C

| Thread | Order codes |
|---|---|
| M5 | 3910 2002 0000 0022 |
| G1/8“ | 3910 2004 0000 0022 |
| G1/4“ | 3910 2006 0000 0022 |
| G3/8“ | 3910 2008 0000 0022 |
| G1/2“ | 3910 2010 0000 0022 |
| G3/4“ | 3910 2012 0000 0022 |
| G1“ | 3910 2014 0000 0022 |

## Teflon thread tape

**Temperature range**: -60°C to +200°C

| Width | Length | Order codes |
|---|---|---|
| 10 mm | 10 m | 3910 2210 0110 0035 |
| 19 mm | 15 m | 3910 2219 0215 0035 |

**Technical data:**
**Working pressure**: vacuum to 1.5 MPa
**Temperature range**: -18°C to +70°C
**Material**: nickel plated brass
**Medium**: air, liquids and gases according to compatibility with fitting
The sealing ring is not included (unless otherwise stated) and must be ordered separately - see page 10-8.

## Reducer

| External thread | Internal thread | Order codes |
|---|---|---|
| G1/8“ | M5 | N449-000-005* |
| G1/4“ | M5 | N449-001-005* |
| G1/4“ | G1/8“ | N449-001-000 |
| G3/8“ | G1/8“ | N449-002-000 |
| G3/8“ | G1/4“ | N449-002-001 |
| G1/2“ | G1/8“ | N449-003-000 |
| G1/2“ | G1/4“ | N449-003-001 |
| G1/2“ | G3/8“ | N449-003-002 |
| G3/4“ | G3/8“ | N449-006-002* |
| G3/4“ | G1/2“ | N449-006-003 |
| G1“ | G3/8“ | N449-007-002* |
| G1“ | G1/2“ | N449-007-003 |
| G1“ | G3/4“ | N449-007-006* |

## Enlarging reducer

| External thread | Internal thread | Order codes |
|---|---|---|
| M5 | G1/8“ | N445-005-000* |
| G1/8“ | G1/4“ | N445-000-001 |
| G1/8“ | G3/8“ | N445-000-002 |
| G1/4“ | G3/8“ | N445-001-002 |
| G1/4“ | G1/2“ | N445-001-003 |
| G3/8“ | G1/2“ | N445-002-003 |

## Thread reducer G→NPTF

| External thread | Internal thread | Order codes |
|---|---|---|
| G1/8“ | 1/8“ NPTF | NIN439-000-020 |
| G1/4“ | 1/4“ NPTF | NIN439-001-021 |
| G3/8“ | 3/8“ NPTF | NIN439-002-022 |
| G1/2“ | 1/2“ NPTF | NIN439-003-023 |
| G3/4“ | 3/4“ NPTF | NIN439-006-026 |

## Thread reducer NPTF→G

| External thread | Internal thread | Order codes |
|---|---|---|
| 1/8“ NPTF | G1/8“ | NIN438-020-000* |
| 1/4“ NPTF | G1/4“ | NIN438-021-001 |
| 3/8“ NPTF | G3/8“ | NIN438-022-002* |
| 1/2“ NPTF | G1/2“ | NIN438-023-003* |

## Plug with internal hexagon socket incl. sealing ring

| Thread | Order codes |
|---|---|
| M5 | N411-005 |
| G1/8“ | N411-000 |
| G1/4“ | N411-001 |
| G3/8“ | N411-002 |
| G1/2“ | N411-003 |
| G3/4“ | N411-006* |
| G1“ | N411-007* |

## Plug with internal hexagon socket

| Thread | Order codes |
|---|---|
| R1/8“ | N412-000 |
| R1/4“ | N412-001 |
| R3/8“ | N412-002 |
| R1/2“ | N412-003 |

## Plug with internal thread

| Thread | Order codes |
|---|---|
| G1/8“ | N453-000 |
| G1/4“ | N453-001 |
| G3/8“ | N453-002 |
| G1/2“ | N453-003 |

## Prolonging fitting

| External thread | Internal thread | Length | Order codes |
|---|---|---|---|
| M5 | M5 | 14 | N447-005-014* |
| G1/8“ | G1/8“ | 36 | N447-000-036 |
| G1/4“ | G1/4“ | 43 | N447-001-043 |
| G3/8“ | G3/8“ | 40 | N447-002-040* |
| G1/2“ | G1/2“ | 50 | N447-003-050* |

## Short prolonging fitting

| Thread | Length | Order codes |
|---|---|---|
| G1/8“ | 11 | N445-000-000 |
| G1/4“ | 11,5 | N445-001-001 |
| G3/8“ | 15 | N445-002-002 |
| G1/2“ | 16,5 | N445-003-003 |

## Hexagonal nut

| Thread | Order codes |
|---|---|
| G1/8“ | N489-000 |
| G1/4“ | N489-001 |
| G3/8“ | N489-002 |
| G1/2“ | N489-003 |

## L coupling internal / external threads

| External thread | Internal thread | Order codes |
|---|---|---|
| M5 | M5 | N458-005-005 |
| R1/8“ | G1/8“ | N458-000-000 |
| R1/4“ | G1/4“ | N458-001-001 |
| R3/8“ | G3/8“ | N458-002-002 |
| R1/2“ | G1/2“ | N458-003-003 |
| R3/4“ | G3/4“ | N458-006-006 |
| R1“ | G1“ | N458-007-007 |

## L coupling 2x external threads

| Thread | Order codes |
|---|---|
| R1/8“ | N459-000-000 |
| R1/4“ | N459-001-001 |
| R3/8“ | N459-002-002 |
| R1/2“ | N459-003-003 |
| R3/4“ | N459-006-006 |
| R1“ | N459-007-007 |

## L coupling 2x internal threads

| Thread | Order codes |
|---|---|
| G1/8“ | N456-000 |
| G1/4“ | N456-001 |
| G3/8“ | N456-002 |
| G1/2“ | N456-003 |
| G3/4“ | N456-006 |
| G1“ | N456-007 |

## T connector 3x internal threads

| Thread | Order codes |
|---|---|
| G1/8“ | N461-000 |
| G1/4“ | N461-001 |
| G3/8“ | N461-002 |
| G1/2“ | N461-003 |
| G3/4“ | N461-006 |

## T connector 1x external, 2x internal threads

| External thread | Internal thread | Order codes |
|---|---|---|
| M5 | M5 | N462-005-005 |
| R1/8“ | G1/8“ | N462-000-000 |
| R1/4“ | G1/4“ | N462-001-001 |
| R3/8“ | G3/8“ | N462-002-002 |
| R1/2“ | G1/2“ | N462-003-003 |
| R3/4“ | G3/4“ | N462-006-006* |
| R1“ | G1“ | N462-007-007* |

A For dimensions, check our website sappv.cz

*) The item has a different shape, material and finish compared to other items in the series and may have different technical parameters

## T connector 3x external threads

| Thread | Order codes |
|---|---|
| R1/8“ | N464-000 |
| R1/4“ | N464-001 |
| R3/8“ | N464-002 |
| R1/2“ | N464-003 |

## T connector 1x external, 2x internal threads

| External thread | Internal thread | Order codes |
|---|---|---|
| R1/8“ | G1/8“ | N466-000-000 |
| R1/4“ | G1/4“ | N466-001-001 |
| R3/8“ | G3/8“ | N466-002-002 |
| R1/2“ | G1/2“ | N466-003-003 |

## T connector 2x external, 1x internal threads

| External thread | Internal thread | Order codes |
|---|---|---|
| R1/8“ | G1/8“ | N465-000-000 |
| R1/4“ | G1/4“ | N465-001-001 |
| R3/8“ | G3/8“ | N465-002-002 |
| R1/2“ | G1/2“ | N465-003-003 |

## T connector 2x external, 1x internal threads

| External thread | Internal thread | Order codes |
|---|---|---|
| R1/8“ | G1/8“ | N463-000-000 |
| R1/4“ | G1/4“ | N463-001-001 |
| R3/8“ | G3/8“ | N463-002-002 |
| R1/2“ | G1/2“ | N463-003-003 |

## X connector

| Thread | Order codes |
|---|---|
| G1/8“ | N457-000 |
| G1/4“ | N457-001 |
| G3/8“ | N457-002 |
| G1/2“ | N457-003 |

## X connector 1x external, 3x internal threads

| External thread | Internal thread | Order codes |
|---|---|---|
| R1/8“ | G1/8“ | N485-000-000 |
| R1/4“ | G1/4“ | N485-001-001 |
| R3/8“ | G3/8“ | N485-002-002 |
| R1/2“ | G1/2“ | N485-003-003 |

## Bulkhead fitting

| Internal thread | External thread | Order codes |
|---|---|---|
| M5 | M10x1 | N446-005 |
| G1/8“ | M16x1.5 | N446-000 |
| G1/4“ | M20x1.5 | N446-001 |
| G3/8“ | M26x1.5 | N446-002 |
| G1/2“ | M28x1.5 | N446-003 |

## Y connector 3x internal threads

| Thread | Order codes |
|---|---|
| G1/8“ | N498A-000 |
| G1/4“ | N498A-001 |
| G3/8“ | N498A-002 |
| G1/2“ | N498A-003 |

## Y connector 1x external, 2x internal threads

| External thread | Internal thread | Order codes |
|---|---|---|
| R1/8“ | G1/8“ | N498-000-000 |
| R1/4“ | G1/4“ | N498-001-001 |
| R3/8“ | G3/8“ | N498-002-002 |
| R1/2“ | G1/2“ | N498-003-003 |

## Double nipple

| Thread | Order codes |
|---|---|
| M5 | N442-005-005* |
| G1/8“ | N442-000-000 |
| G1/4“ | N442-001-001 |
| G3/8“ | N442-002-002 |
| G1/2“ | N442-003-003 |
| G3/4“ | N442-006-006* |

## Reduced double nipple

| Thread | Thread | Order codes |
|---|---|---|
| M5 | G1/8“ | N443-005-000* |
| G1/8“ | G1/4“ | N443-000-001 |
| G1/4“ | G3/8“ | N443-001-002 |
| G1/4“ | G1/2“ | N443-001-003 |
| G3/8“ | G1/2“ | N443-002-003 |

## Coupling

| Thread | Order codes |
|---|---|
| M5 | N450-005-005* |
| G1/8“ | N450-000-000 |
| G1/4“ | N450-001-001 |
| G3/8“ | N450-002-002 |
| G1/2“ | N450-003-003 |
| G3/4“ | N450-006-006 |

## Reduced coupling

| Thread | Thread | Order codes |
|---|---|---|
| G1/4“ | G1/8“ | N451-001-000 |
| G3/8“ | G1/8“ | N451-002-000 |
| G3/8“ | G1/4“ | N451-002-001 |
| G1/2“ | G1/8“ | N451-003-000 |
| G1/2“ | G1/4“ | N451-003-001 |
| G1/2“ | G3/8“ | N451-003-002 |

See page 10-9 for technical data

For dimensions, check our website sappv.cz

## Square distribution block

**Material**: anodized dural

| Thread | Order codes |
|---|---|
| 4x G1/8“ | 3920 0404 0000 0020 |
| 4x G1/4“ | 3920 0406 0000 0020 |
| 4x G3/8“ | 3920 0408 0000 0020 |
| 4x G1/2“ | 3920 0410 0000 0020 |

## Rectangular distribution block

**Material**: anodized dural

| Inlet thread | Outlet thread | Order codes |
|---|---|---|
| 1x G1/4“ | 3x G1/8“ | 3921 0106 0304 0020 |
| 1x G1/4“ | 4x G1/8“ | 3921 0106 0404 0020 |
| 2x G1/4“ | 5x G1/8“ | 3921 0206 0504 0020 |
| 2x G1/4“ | 6x G1/8“ | 3921 0206 0604 0020 |
| 1x G3/8“ | 3x G1/4“ | 3921 0108 0306 0020 |
| 1x G3/8“ | 4x G1/4“ | 3921 0108 0406 0020 |
| 2x G3/8“ | 5x G1/4“ | 3921 0208 0506 0020 |
| 2x G3/8“ | 6x G1/4“ | 3921 0208 0606 0020 |
| 1x G1/2“ | 3x G3/8“ | 3921 0110 0308 0020 |
| 1x G1/2“ | 4x G3/8“ | 3921 0110 0408 0020 |
| 2x G1/2“ | 5x G3/8“ | 3921 0210 0508 0020 |
| 2x G1/2“ | 6x G3/8“ | 3921 0210 0608 0020 |
| 1x G3/4“ | 3x G1/2“ | 3921 0112 0310 0020 |
| 1x G3/4“ | 4x G1/2“ | 3921 0112 0410 0020 |
| 2x G3/4“ | 5x G1/2“ | 3921 0212 0510 0020 |
| 2x G3/4“ | 6x G1/2“ | 3921 0212 0610 0020 |

For dimensions, check our website sappv.cz

## Blow gun

**Working pressure**: 0 to 1.2 MPa, **Nozzle length**: 100 mm
**Temp. range**: -20°C to +50°C, **Material**: plastic, aluminium

| Thread | Order codes |
|---|---|
| G1/4“ | 3910 3010 0600 0010 |

For dimensions, check our website sappv.cz

*) The item has a different shape, material and finish compared to other items in the series and may have different technical parameters

**Technical data:**
**Working pressure**: 0 to 1.2 MPa
**Temperature range**: -10°C to +80°C
**Material**: sintered bronze, brass nipple
**Medium**: air

## Sintered bronze/brass silencer

| Thread | Order codes |
|---|---|
| M5 | NSE05S |
| G1/8“ | NSE10S |
| G1/4“ | NSE25S |
| G3/8“ | NSE37S |
| G1/2“ | NSE50S |
| G3/4“ | NSE75S |
| G1“ | NSE100S |

## Sintered bronze silencer

| Thread | Order codes |
|---|---|
| G1/8“ | NU010051 |
| G1/4“ | NU010052 |
| G3/8“ | NU010053 |
| G1/2“ | NU010054 |
| G3/4“ | NU010055 |
| G1“ | NU010056 |

## Sintered bronze low profile silencer

| Thread | Order codes |
|---|---|
| G1/8“ | NSF10B |
| G1/4“ | NSF25B |
| G3/8“ | NSF37B |
| G1/2“ | NSF50B |
| G3/4“ | NSF75B |
| G1“ | NSF100B |

## Sintered bronze short silencer

| Thread | Order codes |
|---|---|
| M5 | NSFG05S |
| G1/8“ | NSFG10S |
| G1/4“ | NSFG25S |
| G3/8“ | NSFG37S |
| G1/2“ | NSFG50S |
| G3/4“ | NSFG75S |
| G1“ | NSFG100S |

**Technical data:**
**Working pressure**: vacuum to 1.2 MPa
**Temperature range**: -10°C to +80°C
**Material**: sintered bronze, brass nipple, stainless steel spring, **Medium**: air

## Silencer with speed control

| Thread | Order codes |
|---|---|
| G1/8“ | NSE10RM |
| G1/4“ | NSE25RM |
| G3/8“ | NSE37RM |
| G1/2“ | NSE50RM |
| G3/4“ | NSE75RM |
| G1“ | NSE100RM |

**Technical data:**
**Working pressure**: 0 to 1.0 MPa
**Temperature range**: -10°C to +70°C
**Material**: polyethylene
**Medium**: air

## Sintered plastic PE silencer

| Thread | Order codes |
|---|---|
| M5 | NSE05K |
| G1/8“ | NSE10K |
| G1/4“ | NSE25K |
| G3/8“ | NSE37K |
| G1/2“ | NSE50K |
| G3/4“ | NSE75K |
| G1“ | NSE100K |

## Push-in sint. plastic PE silencer

| ∅ mm | Order codes |
|---|---|
| 4 | NSE04KP |
| 6 | NSE06KP |
| 8 | NSE08KP |
| 10 | NSE10KP |
| 12 | NSE12KP |

**Technical data:**
**Working pressure**: 0 to 1.0 (4.0) MPa
**Temperature range**: -25°C to +100°C
**Material**: aluminium, steel, fibre
**Medium**: air (flow at 0.6 MPa)

## High flow silencer up to 1 MPa

R1/8“-2“

R3“-6“

| Thread | Flow [Nl/min] | Order codes |
|---|---|---|
| G1/8“ | 1 500 | NSE10HB |
| G1/4“ | 3 100 | NSE25HB |
| G3/8“ | 6 200 | NSE37HB |
| G1/2“ | 9 000 | NSE50HB |
| G3/4“ | 19 700 | NSE75HB |
| G1“ | 28 200 | NSE100HB |
| G1 1/4“ | 45 100 | NSE125HB |
| G1 1/2“ | 73 300 | NSE150HB |
| G2“ | 118 600 | NSE200HB |
| G3“ | 254 000 | NSE300HB |

## High flow silencer up to 4 MPa

R1/8“-2“

R3“-6“

| Thread | Flow [Nl/min] | Order codes |
|---|---|---|
| G1/8“ | 1 500 | NSE10HP |
| G1/4“ | 3 100 | NSE25HP |
| G3/8“ | 6 200 | NSE37HP |
| G1/2“ | 9 000 | NSE50HP |
| G3/4“ | 19 700 | NSE75HP |
| G1“ | 28 200 | NSE100HP |
| G1 1/4“ | 45 100 | NSE125HP |
| G1 1/2“ | 73 300 | NSE150HP |
| G2“ | 118 600 | NSE200HP |
| G3“ | 254 000 | NSE300HP |

A For dimensions, check our website sappv.cz

## Plastic tube cutter

**For tubes**: PA6, PA11, PU, PE, PTFE

| Max. tube diameter ∅ D | Order codes |
|---|---|
| 12 | N125-468 |

## Metal tube cutter

**For tubes**: PA6, PA11, PU, PE, PTFE

| Max. tube diameter ∅ D | Order codes |
|---|---|
| 12 | NTCM468 |
| 25 | NTCM468-25 |

## Multiple tube holder

**Temp. range**: -10°C to +60°C, **Material**: polyethylene

| For tube ∅ D | No. of tube positions | Order codes |
|---|---|---|
| 4 | 8 | 3095 1004 0000 0000 |
| 6 | 8 | 3095 1006 0000 0000 |
| 8 | 7 | 3095 1008 0000 0000 |
| 10 | 6 | 3095 1010 0000 0000 |
| 12 | 5 | 3095 1012 0000 0000 |

Particular holders are detachable, each holder has mounting hole for fixing by screw.

## Tubing strap

**Temp. range**: -20°C to +70°C, **Material**: nylon

| Size | Order codes |
|---|---|
| 4.8 x 178 | 3095 2000 4801 7800 |
| 4.8 x 250 | 3095 2000 4802 5000 |

## Spiral wrap

**Temp. range**: -50°C to +90°C, **Material**: polyethylene

| Diameter | Order codes |
|---|---|
| 15 to 80 | 3095 2500 1500 8000 |

## Tube clamp

**Material**: zinc plated steel, **For tubes with pressure up to**: 2,5 MPa

| Diameter | Order codes |
|---|---|
| 8 to 12 | 3910 1000 8012 0000 |
| 10 to 16 | 3910 1001 0016 0000 |
| 12 to 20 | 3910 1001 2020 0000 |
| 16 to 25 | 3910 1001 6025 0000 |
| 20 to 32 | 3910 1002 0032 0000 |
| 25 to 40 | 3910 1002 5040 0000 |
| 32 to 50 | 3910 1003 2050 0000 |
| 50 to 70 | 3910 1005 0070 0000 |
| 70 to 90 | 3910 1007 0090 0000 |
| 90 to 110 | 3910 1009 0110 0000 |
| 110 to 130 | 3910 1011 0130 0000 |
| 130 to 150 | 3910 1013 0150 0000 |
| 140 to 160 | 3910 1014 0160 0000 |

STRÁNSKÝ A PETRŽÍK

## Tube PU polyurethan

**Technical data:**
Standard tube color is blue.
Temperature range: -20˚C to +60˚C

**With temperature the pressure changes as follows:**

| -20˚C | 0˚C | 20˚C | 40˚C | 60˚C |
|---|---|---|---|---|
| 180% | 140% | 100% | 70% | 50% |

| Diameter | | Min. bending radius | Max. pressure at 20˚C [MPa] | Order codes - color | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| outside D mm | inside d mm | | | blue | red | yellow | green | white | black |
| 4 | 2 (2.5) | 13 | 2.5 | **3020 0004 0200 0010** | 3020 0004 0200 0011 | 3020 0004 0200 0012 | 3020 0004 0200 0013 | 3020 0004 0200 0016 | 3020 0004 0200 0020 |
| 6 | 4 | 20 | 1.6 | **3020 0006 0400 0010** | 3020 0006 0400 0011 | 3020 0006 0400 0012 | 3020 0006 0400 0013 | 3020 0006 0400 0016 | 3020 0006 0400 0020 |
| 8 | 6 | 30 | 1.1 | **3020 0008 0600 0010** | 3020 0008 0600 0011 | 3020 0008 0600 0012 | 3020 0008 0600 0013 | 3020 0008 0600 0016 | 3020 0008 0600 0020 |
| 10 | 6.5 | 30 | 1.0 | **3020 0010 0600 0010** | 3020 0010 0600 0011 | | | 3020 0010 0600 0016 | |
| 10 | 8 | 40 | 0.9 | **3020 0010 0800 0010** | 3020 0010 0800 0011 | | | 3020 0010 0800 0016 | 3020 0010 0800 0020 |
| 12 | 8 | 35 | 1.2 | **3020 0012 0800 0010** | 3020 0012 0800 0011 | | | 3020 0012 0800 0016 | |
| 12 | 9 | 50 | 1.1 | **3020 0012 0900 0010** | 3020 0012 0900 0011 | | | 3020 0012 0900 0016 | |
| 16 | 11 | 55 | 1.0 | **3020 0016 1100 0010** | | | | | |

## Tube PA6 polyamide

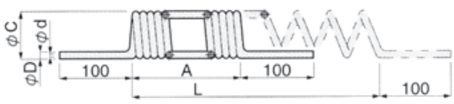
**Technical data:**
Standard tube color is blue
(black for tube dia. 12/9 and 15/12).
Temperature range: -20˚C to +90˚C

**With temperature the pressure changes as follows:**

| -20˚C | 0˚C | 20˚C | 40˚C | 60˚C | 80˚C | 90˚C |
|---|---|---|---|---|---|---|
| 180% | 140% | 100% | 70% | 50% | 45% | 38% |

| Diameter | | Min. bending radius | Max. pressure at 20˚C [MPa] | Order codes - color | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| outside D mm | inside d mm | | | blue | red | yellow | green | white | black |
| 4 | 2 | 25 | 4.9 | **3010 0004 0200 0010** | 3010 0004 0200 0011 | 3010 0004 0200 0012 | 3010 0004 0200 0013 | 3010 0004 0200 0016 | 3010 0004 0200 0020 |
| 6 | 4 | 35 | 3.0 | **3010 0006 0400 0010** | 3010 0006 0400 0011 | | | 3010 0006 0400 0016 | 3010 0006 0400 0020 |
| 8 | 6 | 45 | 2.1 | **3010 0008 0600 0010** | | | | 3010 0008 0600 0016 | 3010 0008 0600 0020 |
| 10 | 8 | 60 | 1.7 | **3010 0010 0800 0010** | 3010 0010 0800 0011 | | | 3010 0010 0800 0016 | 3010 0010 0800 0020 |
| 12 | 9 | 80 | 1.9 | | | | | | **3010 0012 0900 0020** |
| 12 | 10 | 70 | 1.3 | **3010 0012 1000 0010** | | | | 3010 0012 1000 0016 | |
| 15 | 12 | 100 | 1.5 | | | | | | **3010 0015 1200 0020** |
| 16 | 12 | 150 | 1.8 | 3010 0016 1200 0010 | | | | | |

## Spiral tube PU polyurethan




**Technical data:**
Standard tube color is blue.
Temperature range: -15˚C to +60˚C
Pressure range: -0.1 to 0.7 MPa at 20˚C

| ∅D | ∅d | ∅C | A | L | Order codes |
|---|---|---|---|---|---|
| 4 | 2.5 | 24 | 120 | 360 | PUML 04 - 2 |
| 4 | 2.5 | 24 | 180 | 540 | PUML 04 - 3 |
| 4 | 2.5 | 24 | 350 | 1100 | PUML 04 - 5 |
| 4 | 2.5 | 24 | 480 | 1500 | PUML 04 - 7 |
| 4 | 2.5 | 24 | 700 | 2100 | PUML 04 - 10 |
| 4 | 2.5 | 24 | 1040 | 3200 | PUML 04 - 14 |
| 4 | 2.5 | 24 | 1450 | 4400 | PUML 04 - 20 |

| ∅D | ∅d | ∅C | A | L | Order codes |
|---|---|---|---|---|---|
| 6 | 4 | 30 | 160 | 500 | PUML 06 - 2 |
| 6 | 4 | 30 | 230 | 700 | PUML 06 - 3 |
| 6 | 4 | 30 | 430 | 1300 | PUML 06 - 5 |
| 6 | 4 | 30 | 620 | 1900 | PUML 06 - 7 |
| 6 | 4 | 30 | 910 | 2800 | PUML 06 - 10 |
| 6 | 4 | 30 | 1300 | 3900 | PUML 06 - 14 |
| 6 | 4 | 30 | 1850 | 5600 | PUML 06 - 20 |

| ∅D | ∅d | ∅C | A | L | Order codes |
|---|---|---|---|---|---|
| 8 | 5 | 42 | 250 | 750 | PUML 08 - 3 |
| 8 | 5 | 42 | 390 | 1200 | PUML 08 - 5 |
| 8 | 5 | 42 | 540 | 1700 | PUML 08 - 7 |
| 8 | 5 | 42 | 770 | 2400 | PUML 08 - 10 |
| 8 | 5 | 42 | 1045 | 3200 | PUML 08 - 14 |
| 8 | 5 | 42 | 1550 | 4700 | PUML 08 - 20 |

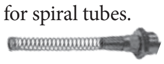
| ∅D | ∅d | ∅C | A | L | Order codes |
|---|---|---|---|---|---|
| 10 | 6.5 | 58 | 330 | 1000 | PUML 10 - 5 |
| 10 | 6.5 | 58 | 470 | 1400 | PUML 10 - 7 |
| 10 | 6.5 | 58 | 680 | 2100 | PUML 10 - 10 |
| 10 | 6.5 | 58 | 970 | 3000 | PUML 10 - 14 |
| 10 | 6.5 | 58 | 1380 | 4200 | PUML 10 - 20 |

| ∅D | ∅d | ∅C | A | L | Order codes |
|---|---|---|---|---|---|
| 12 | 8 | 72 | 310 | 1000 | PUML 12 - 5 |
| 12 | 8 | 72 | 450 | 1400 | PUML 12 - 7 |
| 12 | 8 | 72 | 660 | 2000 | PUML 12 - 10 |
| 12 | 8 | 72 | 920 | 2800 | PUML 12 - 14 |
| 12 | 8 | 72 | 1320 | 4000 | PUML 12 - 20 |

A ... length in idle condition
L ... working length
C ... spiral diameter
Values in table are mentioned in mm.

Other tube colors are available on request. Add the code for the desired color at the end of the order code:
- -B ... black
- -R ... red
- -O ... orange
- -T ... transparent
- -Y ... yellow

i We rocommend to use straight push-on fittings wirh tube guard for spiral tubes. See page 10-7.



## Spiral tube PA6 polyamide

**Technical data:**
Standard tube color is blue.
Temperature range: -20˚C to +90˚C

**With temperature the pressure changes as follows:**

| -20˚C | 0˚C | 20˚C | 40˚C | 60˚C | 80˚C | 90˚C |
|---|---|---|---|---|---|---|
| 180% | 140% | 100% | 70% | 50% | 45% | 38% |

| Outside diameter ∅ D mm | Inside diameter ∅ D mm | Spiral diameter | Max. pressure at 20˚C [MPa] | Order codes |
|---|---|---|---|---|
| 6 | 4 | 72 | 3.0 | 3010 1006 0400 0010 |
| 8 | 6 | 96 | 2.1 | 3010 1008 0600 0010 |
| 10 | 8 | 120 | 1.7 | 3010 1010 0800 0010 |
| 12 | 10 | 144 | 1.3 | 3010 1012 1000 0010 |

**The length of the coil hose is specified in the unfolded state.** The working length is maximum 1/2 length (0.3 to 0.4 times recommended) of the unfolded state. The maximum possible length is 30 m in the unfolded state. Tubes can be connected for longer lengths.

i We rocommend to use straight push-on fittings wirh tube guard for spiral tubes. See page 10-7.

## Tube PE-LD polyethylene

**Technical data:**
Temperature range: -5˚C to +40˚C
The tube is only suitable for low air pressure applications.

| Outside diameter ∅ D mm | Inside diameter ∅ D mm | Min. bending radius | Max. pressure at 20˚C [MPa] | Order codes - color | |
|---|---|---|---|---|---|
| | | | | transparent | blue |
| 6 | 4 | 28 | 1.7 | 3070 0006 0400 0015 | 3070 0006 0400 0010 |
| 8 | 6 | 40 | 1.3 | 3070 0008 0600 0015 | 3070 0008 0600 0010 |
| 10 | 8 | 57 | 0.9 | 3070 0010 0800 0015 | 3070 0010 0800 0010 |
| 12 | 9 | 75 | 0.7 | 3070 0012 0900 0015 | |

## Tube PTFE teflon

**Technical data:**
Standard tube color is transparent.
Temperature range: -200˚C to +250 (200)˚C under static (dynamic) using.

**With temperature the pressure changes as follows:**

| 20˚C | 50˚C | 100˚C | 150˚C | 200˚C |
|---|---|---|---|---|
| 100% | 50% | 35% | 30% | 10% |

| Outside diameter ∅ D mm | Inside diameter ∅ D mm | Min. bending radius | Max. pressure at 20˚C [MPa] | Order codes |
|---|---|---|---|---|
| 4 | 2 | 20 | 2.5 | 3030 0004 0200 0015 |
| 6 | 4 | 40 | 1.8 | 3030 0006 0400 0015 |
| 8 | 6 | 60 | 1.4 | 3030 0008 0600 0015 |
| 10 | 8 | 100 | 1.2 | 3030 0010 0800 0015 |
| 12 | 10 | 120 | 1.0 | 3030 0012 1000 0015 |

## Tube EPDM

**Technical data:**
Standard tube color is black.
Temperature range: -40˚C to +95˚C

| Outside diameter ∅ D mm | Inside diameter ∅ D mm | Min. bending radius | Max. pressure at 20˚C [MPa] | Order codes |
|---|---|---|---|---|
| 13 | 6 | 72 | 2.0 | 3090 0013 0600 0020 |
| 15 | 8 | 96 | 2.0 | 3090 0015 0800 0020 |
| 17 | 10 | 120 | 2.0 | 3090 0017 1000 0020 |
| 21 | 13 | 156 | 2.0 | 3090 0021 1300 0020 |
| 24 | 16 | 192 | 2.0 | 3090 0024 1600 0020 |
| 28 | 19 | 228 | 2.0 | 3090 0028 1900 0020 |
| 35 | 25 | 300 | 2.0 | 3090 0035 2500 0020 |

Multipurpose flexible tube with high resistance to weathering, many chemicals, higher temperatures and sunlight. It is particularly suitable as a main supply of unlubricated compressed air or for backbone distributions in individual applications. It is also used to supply air to cylinders of larger diameters.

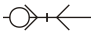
## Metal protective tube

| Outside diameter ∅ D mm | Inside diameter ∅ d mm | Suitable for tube diameter ∅ D/d mm | Order codes |
|---|---|---|---|
| 10 | 8 | 6/4 | 3080 0006 0000 0000 |
| 13 | 10 | 8/9 | 3080 0008 0000 0000 |
| 16 | 13 | 10/8 | 3080 0010 0000 0000 |
| 19 | 16 | 12/10 a 12/9 | 3080 0012 0000 0000 |
| 21 | 18 | 15/12 | 3080 0015 0000 0000 |

Metal protective tubes are used where external influences could damage the surface of plastic tubes, for example:
- spark protection during welding
- protection against flying chips during machining
- crush protection, etc.

Material: galvanized steel

## Quick coupling type 21

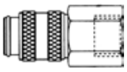
The body is with a non-return valve as a standard, the plug is through.

**Technical data:**
**Working pressure**: 0 to 3.5 MPa
**Temperature range**: -20°C to +100°C
**Flow**: 700 l/min, cross section 5 mm
**Material - body**: body - brass, sleeve - brass, balls and spring - stainless steel, seals - NBR
**Material - plug**: brass
**Medium**: air

### Body with external thread

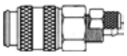
| Thread | Order codes |
|---|---|
| G1/8“ | 3930 0211 0104 0000 |
| G1/4“ | 3930 0211 0106 0000 |
| G3/8“ | 3930 0211 0108 0000 |

### Body with internal thread



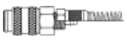
| Thread | Order codes |
|---|---|
| G1/8“ | 3930 0211 0204 0000 |
| G1/4“ | 3930 0211 0206 0000 |
| G3/8“ | 3930 0211 0208 0000 |

### Body with push-on fitting



| ∅ mm | Order codes |
|---|---|
| 6/4 | 3930 0211 1032 0000 |
| 8/6 | 3930 0211 1033 0000 |

### Body with push-on fitting with tube guard

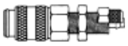


| ∅ mm | Order codes |
|---|---|
| 6/4 | 3930 0211 1232 0000 |
| 8/6 | 3930 0211 1233 0000 |

### Bulkhead body with tube socket

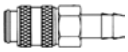
| ∅ mm | Order codes |
|---|---|
| 4 | 3930 0211 2174 0000 |
| 6 | 3930 0211 2176 0000 |
| 8 | 3930 0211 2178 0000 |

### Bulkhead body with push-on fitting



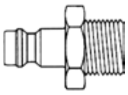
| ∅ mm | Order codes |
|---|---|
| 6/4 | 3930 0211 1132 0000 |
| 8/6 | 3930 0211 1133 0000 |

### Body with tube socket



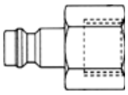
| ∅ mm | Order codes |
|---|---|
| 4 | 3930 0211 2074 0000 |
| 6 | 3930 0211 2076 0000 |
| 8 | 3930 0211 2078 0000 |
| 9 | 3930 0211 2079 0000 |
| 10 | 3930 0211 2080 0000 |

### Plug with external thread



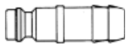
| Thread | Order codes |
|---|---|
| G1/8“ | 3930 0212 0104 0000 |
| G1/4“ | 3930 0212 0106 0000 |
| G3/8“ | 3930 0212 0108 0000 |

### Plug with internal thread



| Thread | Order codes |
|---|---|
| G1/8“ | 3930 0212 0204 0000 |
| G1/4“ | 3930 0212 0206 0000 |
| G3/8“ | 3930 0212 0208 0000 |

### Plug with tube socket

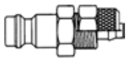


| ∅ mm | Order codes |
|---|---|
| 4 | 3930 0212 2074 0000 |
| 6 | 3930 0212 2076 0000 |
| 8 | 3930 0212 2078 0000 |
| 9 | 3930 0212 2079 0000 |
| 10 | 3930 0212 2080 0000 |

### Plug with push-on fitting with tube guard

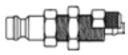
| ∅ mm | Order codes |
|---|---|
| 6/4 | 3930 0212 1232 0000 |
| 8/6 | 3930 0212 1233 0000 |

### Plug with push-on fitting



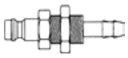
| ∅ mm | Order codes |
|---|---|
| 6/4 | 3930 0212 1032 0000 |
| 8/6 | 3930 0212 1033 0000 |

### Bulkhead plug with push-on fitting



| ∅ mm | Order codes |
|---|---|
| 6/4 | 3930 0212 1132 0000 |
| 8/6 | 3930 0212 1133 0000 |

### Bulkhead plug with tube socket



| ∅ mm | Order codes |
|---|---|
| 4 | 3930 0212 2174 0000 |
| 6 | 3930 0212 2176 0000 |
| 8 | 3930 0212 2178 0000 |
| 9 | 3930 0212 2179 0000 |

For dimensions, check our website sappv.cz

## Quick coupling type 26

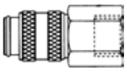

The body is with a non-return valve as a standard, the plug is through.

**Technical data:**
**Working pressure**: 0 to 3.5 MPa
**Temperature range**: -20°C to +100°C
**Flow**: 1500 l/min, cross section 7.2 mm
**Material - body**: body - brass, sleeve - brass, balls and spring - stainless steel, seals - NBR
**Material - plug**: brass
**Medium**: air

### Body with external thread

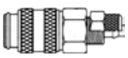
| Thread | Order codes |
|---|---|
| G1/8“ | 3930 0261 0104 0000 |
| G1/4“ | 3930 0261 0106 0000 |
| G3/8“ | 3930 0261 0108 0000 |
| G1/2“ | 3930 0261 0110 0000 |

### Body with internal thread



| Thread | Order codes |
|---|---|
| G1/4“ | 3930 0261 0206 0000 |
| G3/8“ | 3930 0261 0208 0000 |
| G1/2“ | 3930 0261 0210 0000 |

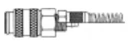
### Body with push-on fitting



| ∅ mm | Order codes |
|---|---|
| 8/6 | 3930 0261 1033 0000 |
| 10/8 | 3930 0261 1034 0000 |
| 12/9 | 3930 0261 1035 0000 |

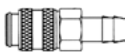
For dimensions, check our website sappv.cz

### Body with push-on fitting with tube guard



| ∅ mm | Order codes |
|---|---|
| 8/6 | 3930 0261 1233 0000 |
| 10/8 | 3930 0261 1234 0000 |
| 12/9 | 3930 0261 1235 0000 |

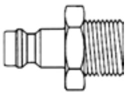
### Body with tube socket



| ∅ mm | Order codes |
|---|---|
| 6 | 3930 0261 2076 0000 |
| 8 | 3930 0261 2078 0000 |
| 9 | 3930 0261 2079 0000 |
| 10 | 3930 0261 2080 0000 |
| 13 | 3930 0261 2083 0000 |

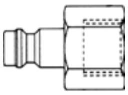
## Quick coupling type 26 - continued

### Plug with external thread



| Thread | Order codes |
|---|---|
| G1/8“ | 3930 0262 0104 0000 |
| G1/4“ | 3930 0262 0106 0000 |
| G3/8“ | 3930 0262 0108 0000 |
| G1/2“ | 3930 0262 0110 0000 |

### Plug with internal thread



| Thread | Order codes |
|---|---|
| G1/8“ | 3930 0262 0204 0000 |
| G1/4“ | 3930 0262 0206 0000 |
| G3/8“ | 3930 0262 0208 0000 |
| G1/2“ | 3930 0262 0210 0000 |

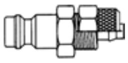
See page 10-14 for technical data

For dimensions, check our website sappv.cz

### Plug with push-on fitting with tube guard

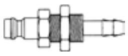
| ∅ mm | Order codes |
|---|---|
| 6/4 | 3930 0262 1232 0000 |
| 8/6 | 3930 0262 1233 0000 |
| 10/8 | 3930 0262 1234 0000 |
| 12/9 | 3930 0262 1235 0000 |

### Plug with push-on fitting



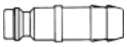
| ∅ mm | Order codes |
|---|---|
| 6/4 | 3930 0262 1032 0000 |
| 8/6 | 3930 0262 1033 0000 |
| 10/8 | 3930 0262 1034 0000 |
| 12/9 | 3930 0262 1035 0000 |

### Bulkhead plug with tube socket



| ∅ mm | Order codes |
|---|---|
| 6 | 3930 0262 2176 0000 |
| 8 | 3930 0262 2178 0000 |
| 10 | 3930 0262 2180 0000 |

### Plug with tube socket



| ∅ mm | Order codes |
|---|---|
| 4 | 3930 0262 2074 0000 |
| 6 | 3930 0262 2076 0000 |
| 8 | 3930 0262 2078 0000 |
| 9 | 3930 0262 2079 0000 |
| 10 | 3930 0262 2080 0000 |
| 13 | 3930 0262 2083 0000 |

### Plug with tube socket with non-return valve

| ∅ mm | Order codes |
|---|---|
| 6 | 3930 0262 3076 0000 |
| 8 | 3930 0262 3078 0000 |
| 9 | 3930 0262 3079 0000 |
| 10 | 3930 0262 3080 0000 |
| 13 | 3930 0262 3083 0000 |

## Quick coupling type 27

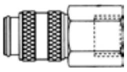
The body is with a non--return valve as a standard, the plug is through.

**Technical data:**
**Working pressure**: 0 to 3.5 MPa
**Temperature range**: -20°C to +100°C
**Flow**: 3300 l/min, cross section 10.5 mm
**Material - body**: body - brass, sleeve - brass, balls and spring - stainless steel, seals - NBR
**Material - plug**: brass
**Medium**: air

### Body with external thread

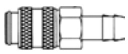
| Thread | Order codes |
|---|---|
| G1/4“ | 3930 0271 0106 0000 |
| G3/8“ | 3930 0271 0108 0000 |
| G1/2“ | 3930 0271 0110 0000 |
| G3/4“ | 3930 0271 0112 0000 |

### Body with internal thread



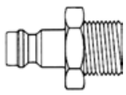
| Thread | Order codes |
|---|---|
| G1/4“ | 3930 0271 0206 0000 |
| G3/8“ | 3930 0271 0208 0000 |
| G1/2“ | 3930 0271 0210 0000 |
| G3/4“ | 3930 0271 0212 0000 |

### Body with tube socket



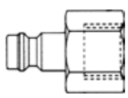
| ∅ mm | Order codes |
|---|---|
| 6 | 3930 0271 2076 0000 |
| 8 | 3930 0271 2078 0000 |
| 9 | 3930 0271 2079 0000 |
| 10 | 3930 0271 2080 0000 |
| 13 | 3930 0271 2083 0000 |
| 16 | 3930 0271 2086 0000 |
| 19 | 3930 0271 2089 0000 |

### Plug with external thread



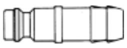
| Thread | Order codes |
|---|---|
| G1/4“ | 3930 0272 0106 0000 |
| G3/8“ | 3930 0272 0108 0000 |
| G1/2“ | 3930 0272 0110 0000 |
| G3/4“ | 3930 0272 0112 0000 |

### Plug with internal thread



| Thread | Order codes |
|---|---|
| G1/4“ | 3930 0272 0206 0000 |
| G3/8“ | 3930 0272 0208 0000 |
| G1/2“ | 3930 0272 0210 0000 |
| G3/4“ | 3930 0272 0212 0000 |

### Plug with tube socket



| ∅ mm | Order codes |
|---|---|
| 6 | 3930 0272 2076 0000 |
| 8 | 3930 0272 2078 0000 |
| 9 | 3930 0272 2079 0000 |
| 10 | 3930 0272 2080 0000 |
| 13 | 3930 0272 2083 0000 |
| 16 | 3930 0272 2086 0000 |
| 19 | 3930 0272 2089 0000 |

For dimensions, check our website sappv.cz

**Technical data:**
**Max. pressure**: vacuum to 1.6 MPa
**Temperature range**: -15°C to +65°C
**Tube material**: aluminium alloy EN AW 6060, powder coating
**Coupling material**: HR-polymer PA6, seals NBR
**Medium**: air, liquids and gases according to compatibility with fitting and tube materials

The QUICK LINE distribution system brings a number of advantages in the solution of compressed air distribution. It is a system of quality materials with excellent resistance to corrosion and shocks, which can be implemented quickly, efficiently and without the need to purchase other equipment. It can be used to implement complex distributions, thanks to a wide range of different sizes and distribution elements.

Technical parameters, dimensions, instructions, examples of implementations, and other information can be found on our website at sappv.cz

## Tube - length 4m, blue color

| ∅ mm | Order codes |
|---|---|
| 16 | RQL TUAL 4016S |
| 20 | RQL TUAL 4020S |
| 25 | RQL TUAL 4025S |
| 32 | RQL TUAL 4032S |
| 40 | RQL TUAL 4040S |
| 50 | RQL TUAL 4050S |
| 63 | RQL TUAL 4063S |

## Tube - length 5,8m, blue color

| ∅ mm | Order codes |
|---|---|
| 80 | RQL TUAL 080S |
| 110 | RQL TUAL 110S |

## Branch tube, blue color

| ∅ mm | Order codes |
|---|---|
| 16 | RQL SCI 016 |
| 20 | RQL SCI 020 |
| 25 | RQL SCI 025 |

## Straight coupling

| ∅ mm | Order codes |
|---|---|
| 16 | RQL MAPA 016 |
| 20 | RQL MAPA 020 |
| 25 | RQL MAPA 025 |
| 32 | RQL MAPA 032 |
| 40 | RQL MAPA 040 |
| 50 | RQL MAPA 050 |
| 63 | RQL MAPA 063 |

## Straight sliding copuling

| ∅ mm | Order codes |
|---|---|
| 32 | RQL MASPA 032 |
| 40 | RQL MASPA 040 |
| 50 | RQL MASPA 050 |
| 63 | RQL MASPA 063 |

## Elbow 90°

| ∅ mm | Order codes |
|---|---|
| 16 | RQL GO90PA 016 |
| 20 | RQL GO90PA 020 |
| 25 | RQL GO90PA 025 |
| 32 | RQL GO90PA 032 |
| 40 | RQL GO90PA 040 |
| 50 | RQL GO90PA 050 |
| 63 | RQL GO90PA 063 |

## Elbow 45°

| ∅ mm | Order codes |
|---|---|
| 20 | RQL GO45PA 020 |
| 25 | RQL GO45PA 025 |
| 32 | RQL GO45PA 032 |
| 40 | RQL GO45PA 040 |
| 50 | RQL GO45PA 050 |
| 63 | RQL GO45PA 063 |

## End cap

| ∅ mm | Order codes |
|---|---|
| 16 | RQL CAPA 016 |
| 20 | RQL CAPA 020 |
| 25 | RQL CAPA 025 |
| 32 | RQL CAPA 032 |
| 40 | RQL CAPA 040 |
| 50 | RQL CAPA 050 |
| 63 | RQL CAPA 063 |

## Elbow 90° with male thread

| ∅ mm | Thread | Order codes |
|---|---|---|
| 20 | R1/2“ | RQL GO90PM 020048 |
| 25 | R1/2“ | RQL GO90PM 025048 |
| 25 | R3/4“ | RQL GO90PM 025068 |

## Straight reduction

| ∅1 mm | ∅2 mm | Order codes |
|---|---|---|
| 25 | 20 | RQL RIDPA 025020 |
| 32 | 25 | RQL RIDPA 032025 |
| 40 | 25 | RQL RIDPA 040025 |
| 40 | 32 | RQL RIDPA 040032 |
| 50 | 40 | RQL RIDPA 050040 |

## Union, male thread

| ∅ mm | Thread | Order codes |
|---|---|---|
| 16 | R1/2“ | RQL MNPA 016048 |
| 20 | R1/2“ | RQL MNPA 020048 |
| 20 | R3/4“ | RQL MNPA 020068 |
| 25 | R1/2“ | RQL MNPA 025048 |
| 25 | R3/4“ | RQL MNPA 025068 |
| 25 | R1“ | RQL MNPA 025088 |
| 32 | R1“ | RQL MNPA 032088 |
| 32 | R1 1/4“ | RQL MNPA 032108 |
| 40 | R1“ | RQL MNPA 040088 |
| 40 | R1 1/4“ | RQL MNPA 040108 |
| 40 | R1 1/2“ | RQL MNPA 040128 |
| 50 | R1 1/2“ | RQL MNPA 050128 |
| 50 | R2“ | RQL MNPA 050168 |
| 63 | R2“ | RQL MNPA 063168 |

## Tee

| ∅ mm | Order codes |
|---|---|
| 16 | RQL TEPA 016 |
| 20 | RQL TEPA 020 |
| 25 | RQL TEPA 025 |
| 32 | RQL TEPA 032 |
| 40 | RQL TEPA 040 |
| 50 | RQL TEPA 050 |
| 63 | RQL TEPA 063 |

## Threaded tee with female thread


| ∅ mm | Thread | Order codes |
|---|---|---|
| 20 | R1/2“ | RQL TPPA 020048 |
| 25 | R1/2“ | RQL TPPA 025048 |

## Reducing tee


| Ø1 mm | Ø2 mm | Order codes |
|---|---|---|
| 20 | 16 | RQL TRPA 020016 |
| 25 | 16 | RQL TRPA 025016 |
| 25 | 20 | RQL TRPA 025020 |
| 32 | 20 | RQL TRPA 032020 |
| 32 | 25 | RQL TRPA 032025 |
| 40 | 20 | RQL TRPA 040020 |
| 40 | 25 | RQL TRPA 040025 |
| 40 | 32 | RQL TRPA 040032 |
| 50 | 20 | RQL TRPA 050020 |
| 50 | 25 | RQL TRPA 050025 |
| 50 | 32 | RQL TRPA 050032 |
| 50 | 40 | RQL TRPA 050040 |
| 63 | 20 | RQL TRPA 063020 |
| 63 | 25 | RQL TRPA 063025 |
| 63 | 40 | RQL TRPA 063040 |
| 63 | 50 | RQL TRPA 063050 |

## Ball valve with male thread

| Ø mm | Thread | Order codes |
|---|---|---|
| 16 | R1/2“ | RQL VAM 016048 |
| 20 | R1/2“ | RQL VAM 020048 |
| 25 | R3/4“ | RQL VAM 025068 |

## Ball valve with female thread

| Ø mm | Thread | Order codes |
|---|---|---|
| 16 | G1/2“ | RQL VAF 016048 |
| 20 | G1/2“ | RQL VAF 020048 |
| 25 | G3/4“ | RQL VAF 025068 |

## Compensator hose

| Ø mm | Order codes |
|---|---|
| 20 | RQL FLEX 020 |
| 25 | RQL FLEX 025 |
| 32 | RQL FLEX 032 |
| 40 | RQL FLEX 040 |
| 50 | RQL FLEX 050 |
| 63 | RQL FLEX 063 |

## Spigot with male thread

| Ø mm | Thread | Order codes |
|---|---|---|
| 16 | R3/8“ | RQL PUNM 016038 |
| 20 | R1/2“ | RQL PUNM 020048 |
| 20 | R3/4“ | RQL PUNM 020068 |
| 25 | R1“ | RQL PUNM 025088 |
| 32 | R1 1/4“ | RQL PUNM 032108 |
| 40 | R1 1/2“ | RQL PUNM 040128 |
| 50 | R2“ | RQL PUNM 050168 |
| 63 | R2“ | RQL PUNM 063168 |
| 80 | R3“ | RQL PUNM 080248 |

## Branch with pipe outlet


| Ø1 mm | Ø2 mm | Order codes |
|---|---|---|
| 25 | 16 | RQL DERPA 025016 |
| 25 | 20 | RQL DERPA 025020 |
| 32 | 16 | RQL DERPA 032016 |
| 32 | 20 | RQL DERPA 032020 |
| 40 | 16 | RQL DERPA 040016 |
| 40 | 20 | RQL DERPA 040020 |
| 40 | 25 | RQL DERPA 040025 |
| 50 | 16 | RQL DERPA 050016 |
| 50 | 20 | RQL DERPA 050020 |
| 50 | 25 | RQL DERPA 050025 |
| 63 | 20 | RQL DERPA 063020 |
| 63 | 25 | RQL DERPA 063025 |
| 63 | 32 | RQL DERPA 063032 |
| 80 | 20 | RQL DERPA 080020 |
| 80 | 25 | RQL DERPA 080025 |
| 80 | 32 | RQL DERPA 080032 |
| 110 | 25 | RQL DERPA 110025 |
| 110 | 32 | RQL DERPA 110032 |

## Branch with female thread outlet


| Ø mm | Thread | Order codes |
|---|---|---|
| 25 | G1/2“ | RDIR DERFF 025048 |
| 32 | G1/2“ | RDIR DERFF 032048 |
| 40 | G1/2“ | RDIR DERFF 040048 |
| 40 | G3/4“ | RDIR DERFF 040068 |
| 50 | G1/2“ | RDIR DERFF 050048 |
| 50 | G3/4“ | RDIR DERFF 050068 |
| 63 | G1/2“ | RDIR DERFF 063048 |
| 63 | G3/4“ | RDIR DERFF 063068 |
| 63 | G1“ | RDIR DERFF 063088 |
| 80 | G1/2“ | RDIR DERFF 080048 |
| 80 | G3/4“ | RDIR DERFF 080068 |
| 80 | G1“ | RDIR DERFF 080088 |
| 110 | G3/4“ | RDIR DERFF 110068 |
| 110 | G1“ | RDIR DERFF 110088 |

## Bracket with threaded insert

| Ø mm | Order codes |
|---|---|
| 16 | RDIR FEM8 016CF |
| 20 | RDIR FEM8 020CF |
| 25 | RDIR FEM8 025CF |
| 32 | RDIR FEM8 032CF |
| 40 | RDIR FEM8 040CF |
| 50 | RDIR FEM8 050CF |
| 63 | RDIR FEM8 063CF |
| 80 | RDIR FEM8 080CF |
| 110 | RDIR FEM8 110CF |

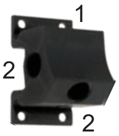
## Single port manifold


| Thr. 1 | Thr. 2 | Order codes |
|---|---|---|
| G1/2“ | G1/2“ | RDIR APMAL 048048 |

## Double ports manifold *


| Thr. 1 | Thr. 2 | Order codes |
|---|---|---|
| G1/2“ | 2x G1/2“ | RAP LAL 048 |
| G3/4“ | 2x G1/2“ | RAP LAL 068 |

## Three ports manifold *

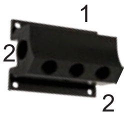



| Thr. 1 | Thr. 2 | Order codes |
|---|---|---|
| G1/2“ | 3x G1/2“ | RDIR APFRLAL 48048 |

## Four ports manifold *


| Thr. 1 | Thr. 2 | Order codes |
|---|---|---|
| G1/2“ | 4x G1/2“ | RDIR APLAL 048048 |
| G3/4“ | 2x G1/2“ + 2x G3/4“ | RDIR APLAL 068068 |

## Five ports manifold *




| Thr. 1 | Thr. 2 | Order codes |
|---|---|---|
| G3/4“ | 3x G1/2“ + 2x G3/4“ | RDIR PMUAL 120 |

## Seven ports manifold *


| Thr. 1 | Thr. 2 | Order codes |
|---|---|---|
| G3/4“ | 5x G1/2“ + 2x G3/4“ | RDIR PMUAL 200 |

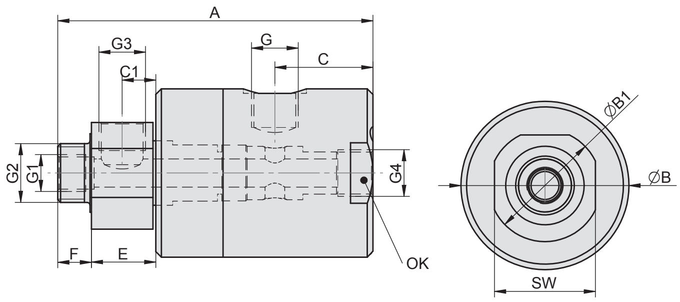
## Straight seven ports manifold


| Thr. 1 | Thr. 2 | Order codes |
|---|---|---|
| 2x G3/4“ | 5x G3/8“ | RAP LALL MUL 068038 |
| 2x G3/4“ | 5x G1/2“ | RAP LALL MUL 068048 |

The connections marked * have even a hidden threaded hole G1/4”, which is normally blinded and which can then be used to drain condensate.

STRÁNSKÝ A PETRŽÍK

# Rotary coupling




| | |
|---|---|
| Working pressure | 0.6 MPa |
| Min. pressure | 0 MPa |
| Max. pressure | 1.0 MPa |
| Temperature range | -20˚C to +80˚C |
| Working medium | modified compressed air |
| Cross section | DN 6 for G 1/8“, DN 12 for G 3/8“ |
| Working revolutions | 0 to 120 rpm, both directions |

## Materials

- body: dural, hard anodized
- shaft: stainless steel 1.4021
- gaskets: NBR

| Type | A | B | B1 | C | C1 | E | F | G | G1 | G2 | G3 | G4 | OK | SW | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| straight with branch | 81.5 | 45 | 30 | 22.5 | 9.5 | 18.5 | 12 | G1/8“ | M8 | G1/4“ | G1/8“ | G1/8“ | — | 27 | 0.35 | 2770 0300 0600 0001 |
| | 109.5 | 60 | 40 | 32 | 12 | 23 | 12 | G3/8“ | G1/4“ | G1/2“ | G3/8“ | G3/8“ | 56 | 36 | 0.90 | 2770 0300 1000 0001 |
| elbow with branch | 72 | 45 | 30 | 12.5 | 9.5 | 18.5 | 12 | G1/8“ | M8 | G1/4“ | G1/8“ | — | — | 27 | 0.31 | 2770 0200 0600 0001 |
| | 99.5 | 60 | 40 | 24 | 12 | 23 | 12 | G3/8“ | G1/4“ | G1/2“ | G3/8“ | — | — | 36 | 0.78 | 2770 0200 1000 0001 |
| elbow | 72 | 45 | 30 | 12.5 | — | 18.5 | 12 | G1/8“ | — | G1/4“ | — | — | — | 27 | 0.32 | 2770 0100 0600 0001 |
| | 91.5 | 60 | 40 | 24 | — | 15 | 12 | G3/8“ | — | G1/2“ | — | — | — | 36 | 0.83 | 2770 0100 1000 0001 |

# Tube PU polyurethan antistatic

**Technical data:**
Standard tube color is black.
Temperature range: -30˚C to +80˚C.
The length in the package is 50 m.

| Outside diameter ∅ D mm | Inside diameter ∅ D mm | Min. bending radius | Max. pressure at 20˚C [MPa] | Order codes |
|---|---|---|---|---|
| 4 | 2,5 | 9 | 3,4 | PUN 4X2,5 ANTISTAT |
| 6 | 3,9 | 15 | 3,3 | PUN 6X4 ANTISTAT |
| 8 | 5,7 | 28 | 2,2 | PUN 8X6 ANTISTAT |
| 10 | 7,5 | 35 | 2,2 | PUN 10X8 ANTISTAT |
| 12 | 9 | 50 | 2,2 | PUN 12X9 ANTISTAT |

**With temperature the pressure changes as follows:**

| ∅ D | 20˚C | 30˚C | 40˚C | 50˚C | 60˚C | 70˚C | 80˚C |
|---|---|---|---|---|---|---|---|
| 4 | 100% | 79% | 71% | 59% | 47% | 45% | 41% |
| 6 | 100% | 82% | 73% | 61% | 48% | 42% | 36% |
| 8 | 100% | 91% | 73% | 71% | 64% | 55% | 45% |
| 10 | 100% | 91% | 73% | 64% | 55% | 45% | 44% |
| 12 | 100% | 73% | 68% | 54% | 55% | 41% | 40% |

## Notice

**More information such as safety instructions and manufacturer‘s declaration can be found on our website www.sappv.cz/r/10-13a**

Electrically conductive special tubes are used where it is necessary to prevent the formation of a static electric charge. They are used mainly in the production of electronic components, in paint shops, in environments with a risk of explosion, in mining. The tubes are made of polyether polyurethane, are highly antistatic, have a surface resistance of $<10^6\Omega$ and have very good UV resistance. The tube can also be used for vacuum, while the minimum bending radius must be increased by approx. 20%. If the tube is used in environments with a risk of explosion, it is necessary to observe the conductivity of the entire system, i.e. use metal fittings with metal sealing rings.

**Safety instructions:**
Only qualified personnel who are familiar with assembly, commissioning and operation may install the tubes.

Environmental conditions in the area of use
The given data apply to hoses that are intended for use in an environment with a risk of explosion under atmospheric conditions. This applies to an ambient environment with a pressure from 0.08 MPa to 0.11 MPa, a temperature from -20 °C to +60 °C and for air with a normal oxygen content, usually 21% (v/v). The prerequisite for this is that all parts and connecting parts withstand the mechanical, thermal and chemical stress to which they are exposed during their expected service life. The connecting parts must be designed in such a way that the level of protection against explosion is not reduced by the connection. Hoses made of conductive or dissipative (semi-conductive) material are referred to as Ω-hoses. During the test, the Ω resistance of the hoses between the terminals must not exceed $10^6\,\Omega$ along the entire length. The most important protective measure is to connect and ground all conductive parts that could become dangerously charged. However, if non-conductive parts and materials are present, this protective measure is not sufficient. In this case, it is necessary to prevent dangerous discharges from non-conductive solids, liquids and dust.

Liquid flow
When liquid flows through a hose, electrical charges of opposite polarity appear on the inner wall of the hose and in the liquid. The amount of charge created mainly affects the surface resistance of the hose, the conductivity of the liquid and the flow rate. The amount of charge produced by the liquid increases with the size of the existing interfaces, e.g. at walls, and with the velocity of the flow. Furthermore, in immiscible phases, e.g. in dispersions or liquid/liquid mixtures, the charge increases significantly. Since liquids with low conductivity can be charged more strongly than liquids with high conductivity, liquids are classified for the purpose of selecting appropriate measures according to their conductivity K as follows: low conductivity: $K \leq 50$ pS/m; average conductivity: 50 pS/m $< K \leq$ 10 000 pS/m; high conductivity: 10 000 pS/m $< K$. Hazardous charge generation occurs particularly easily in liquids with low conductivity. For liquids with medium conductivity, charge formation is possible during flow through pipes, hoses and filters, as well as during mixing. For liquids with high conductivity, it is necessary to deal with dangerous charges only in processes that generate strong charges, e.g. when spraying or when the liquid is not in contact with the ground. The flow must be designed to prevent any significant splashing of the escaping liquids. The breaking up of a liquid stream into small droplets can create highly charged liquid streams or mist, regardless of the conductivity of the liquid.
Additional measures:
All conductive materials, equipment and objects must be grounded and all must be conductively connected to earth. Individual hose lines made of conductive or dissipative material must be conductively connected to each other and grounded. Conductive pipes can become very highly charged when using a liquid with low conductivity. To limit the formation of an electrostatic charge, the flow rate in the system should be limited to safe values, e.g. by choosing a larger hose diameter. This is especially important when handling flammable liquids and when filling and emptying containers.

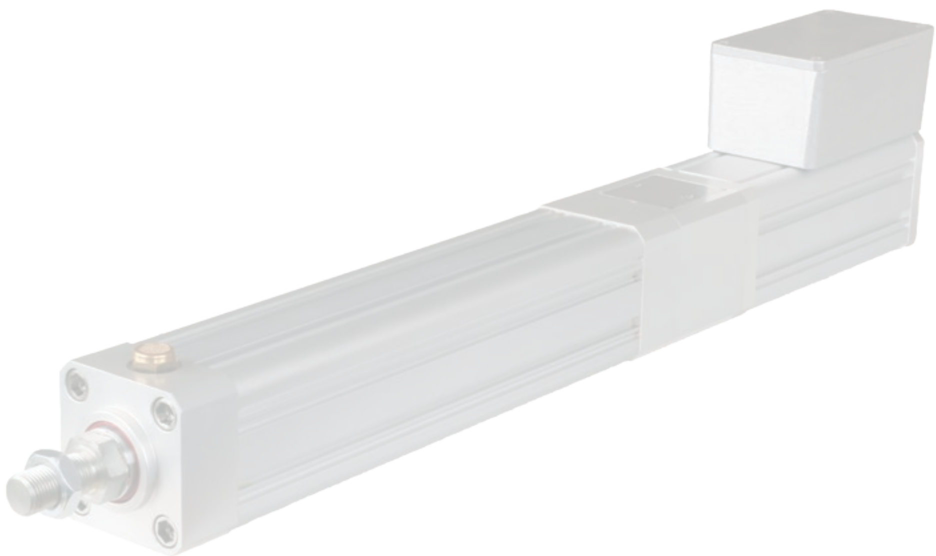
Flow of solid particles or liquid droplets
If solid particles or dust are flowing through the hose (pneumatic transport), an electric charge can be expected. The movement of pure gases or gas mixtures creates no electrostatic charge. However, if the gas stream contains solid particles or liquid droplets, these and all affected system parts and objects can become charged. Processes that can lead to significant electrostatic charges include pneumatic conveying, release of compressed gas containing solid or liquid particles, and leakage of liquid carbon dioxide. Such processes can lead to the ignition of spark discharges, to brush discharges and sliding discharges, or to mass cone discharges. The charging of the particles themselves cannot be avoided. In addition to avoiding insulating materials, the following measures are suitable for preventing dangerous charges:
- removal of particles or droplets,
- selection of sufficiently low flow rates,
- selection of suitable nozzle geometry to reduce filling density,
- the use of conductive objects or equipment that must be grounded
The most important protective measure is the grounding of all conductive parts of the equipment, that is, the hose must not be electrostatically isolated by installing non-conductive spacers.

**All conductive parts of the device must be assembled in such a way that no dangerous potential differences can arise between them. If there is a possibility that insulated metal parts may become charged and thus act as a source of ignition, earthing must be provided.**

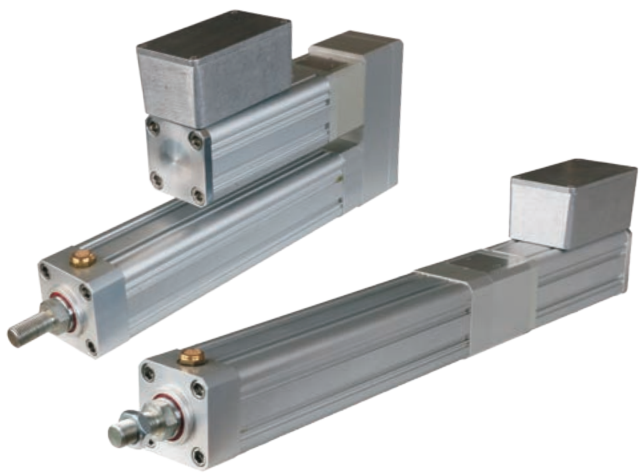
A statement is available declaring that these hoses have an antistatic design with a surface resistance of $\leq 10^6\,\Omega$ and are designed and suitable for use in potentially explosive atmospheres. Since hoses are not considered equipment, protective systems or components within the meaning of Directive 2014/34/EU, the manufacturer of such equipment or systems must check the conformity of equipment or systems covered by Directive 2014/34/EU. The suitability of the above hoses for use in equipment or systems in potentially explosive atmospheres has been demonstrated by the manufacturer in a technical report from TÜV SÜD Product Service GmbH. The following test specifications were used during the test: DIN EN ISO 80079-36:2016; DIN EN 1127-1:2011; TRGS 727:2016. The statement does not exempt the user and processor of the PU polyurethane antistatic hose PUN ... ANTISTAT from requesting approval of the intended use from the relevant institution.

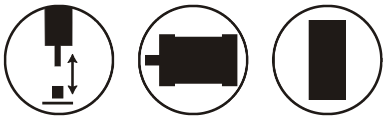
# ELECTRIC ACTUATORS - CONTENTS





# LINEAR ELECTRIC ACTUATORS
# WITH BALL SCREW
# SERIES 1E1 ISO 15552





The electric actuator is designed on the principle of converting rotary motion to rectilinear by means of a ball screw and a nut. Piston rod of the electric actuator is locked against accidental rotation. Radial load must correspond to the permitted values according to the charts. If load exceeds the permissible values, it must be secured by external guiding means. Profile of the pipe allows attachment of proximity switches using T-grooves. The wall for the use of proximity switches is marked on the dimensional drawings, and this surface can be oriented differently on request. The complete electric actuator offers precise positioning, defining of precise travel speeds, acting with precise force and the like. Compared to pneumatic cylinders, the electric actuator offers an increase in accuracy in all the listed physical parameters and it does not require an additional drive medium (compressed air), it is sufficient only with electrical energy. The mentioned electric actuators can even work at very low speeds, or can maintain the load for a limited time even in a static position.

| **Model** | **1E1 50** | |
|---|---|---|
| | **direct connection** | **side connection** |
| Positioning repeatability [mm] | 0,02 | |
| Minimum step of travel [mm] | 0,1 | |
| Ball screw lead [mm] | 5 | |
| Ball screw [mm] | C7 ∅16 | |
| Maximum speed [$mm.s^{-1}$] | 100 | |
| Maximum thrust force [N] | 1400 | |
| Gear ratio | 1:3,6 | |
| Maximum motor output [W] | 200 | |
| Maximum motor rotational speed [rpm] | 3000, 4000 for a short time | |
| Motor voltage [V] | 24 | |
| Maximum continuous current [A] | 5 | |
| Recommended minimum power source [W] | 200 | |
| Stroke [mm] | 50 to 800 | 100 to 800 |
| Weight 0 mm stroke [kg] | 5,3 | 7,1 |
| Weight add. per 1 mm stroke [kg] | 0,008 | |
| Recommended proximity switch | KT-50, RZT7, MZT8 | |

## Order codes

1E1 05 03 1 50 0100 00

| **Ball screw lead** | |
|---|---|
| 05 | screw 5mm/rot. |

| **Motor type** | |
|---|---|
| 00 | without motor |
| 03 | BLDC |

| **Motor connection** | |
|---|---|
| 0 | without motor |
| 1 | direct |
| 2 | side |

| **Size acc. to ISO15552** | |
|---|---|
| 50 | ø50 mm |

| **Stroke / Repair kit** | |
|---|---|
| xxxx | mm of stroke 50 to 800 e.g.: 0100 = stroke 100 mm |
| 9999 | repair kit |

## Construction / materials

- caps: dural, anodized
- body: drawn dural profile, anodized
- piston rod: grounded round steel bar CK45 with hard chrome plated surface

i For the variant without a motor, it is necessary to contact our technical department in order to design the corresponding connection flange for the intended type and size of the motor.

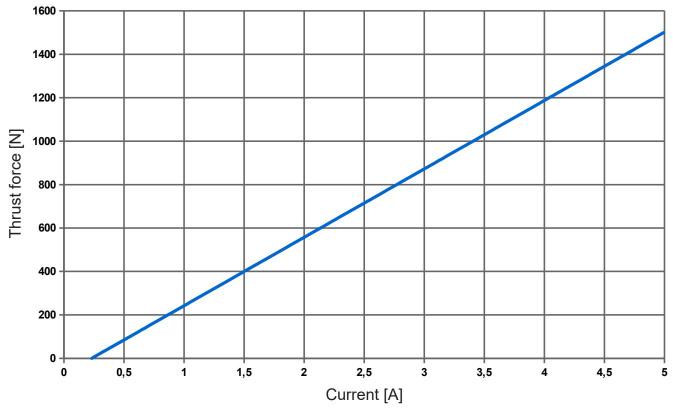
i For information on the electrical circuit, control and programming, please contact our technical department.

M

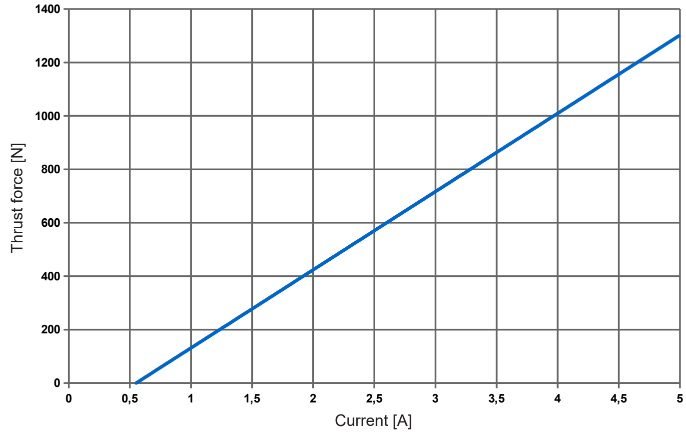
## Static and dynamic characteristics

### Dependence of force on current at speed v = 30 mm.s-1

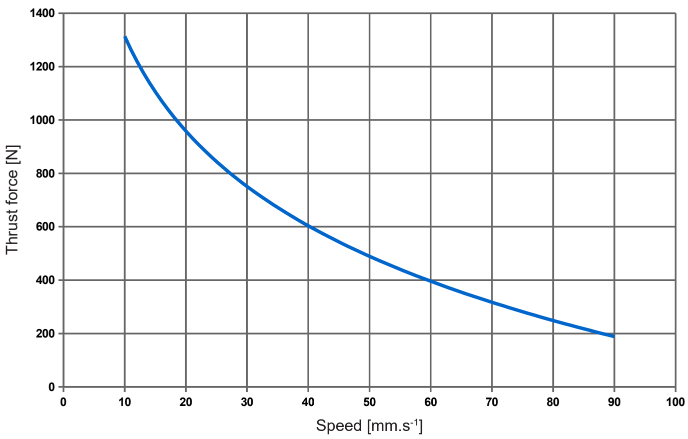
**Direct motor connection**



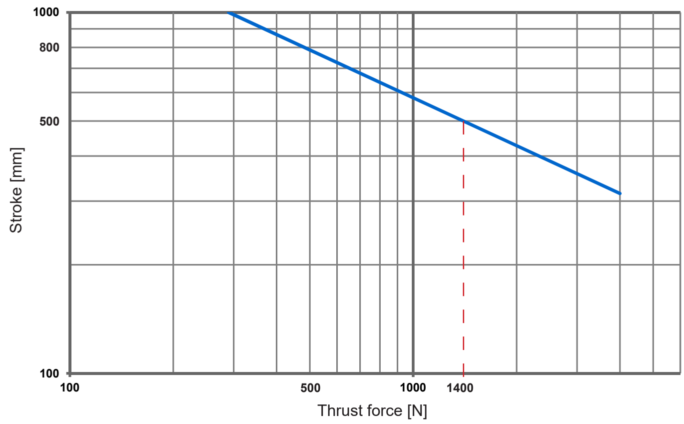

**Side motor connection**



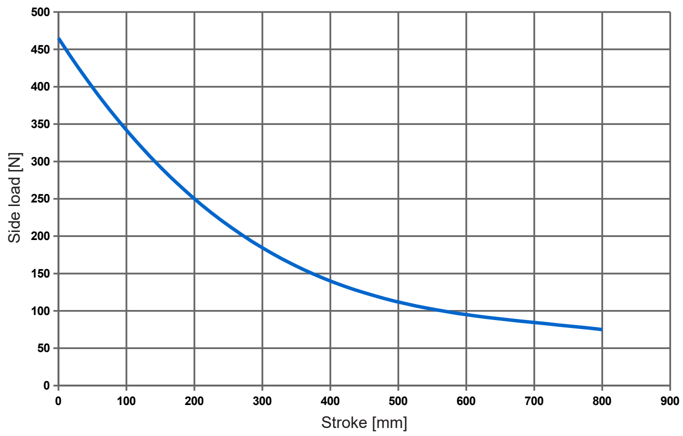

### Dependence of the force on the speed at a current of I = 3 A




### Dependence of permissible force on stroke

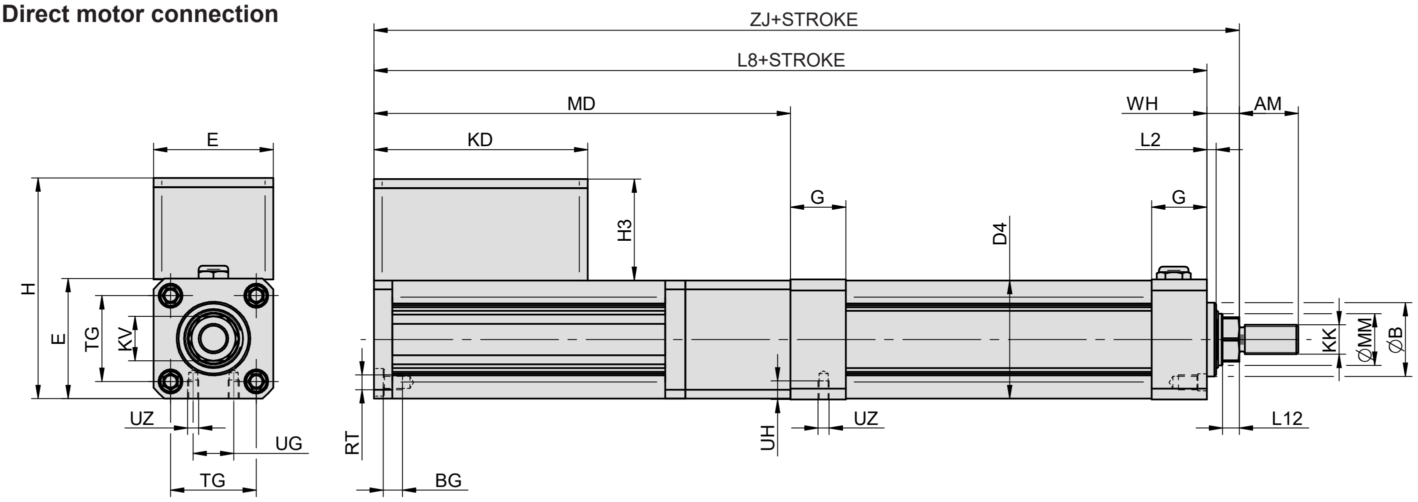



### Maximum permissible side load depending on the stroke at maximum extension



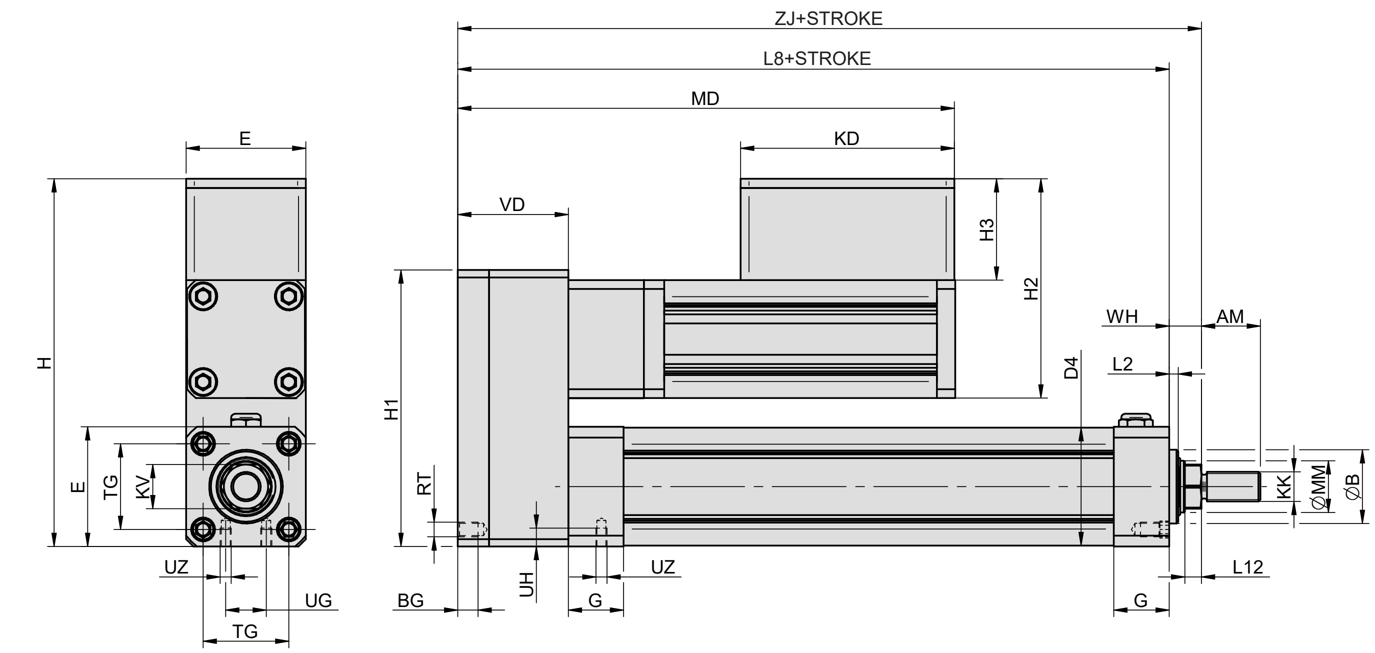
## Dimensions

### Direct motor connection




| Size | AM | B | BG | D4 | E | G | H | H3 | KD | KK | KV | L2 | L8 | L12 | MD | MM | RT | TG | UG | UH | UZ | WH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **50** | 32 | 40 | 10,5 | 64 | 65 | 30 | 119 | 55 | 116 | M16X1,5 | 24 | 5 | 358 | 9 | 226 | 28 | M8 | 46,5 | 22 | 10 | M6 | 17,5 | 375,5 |

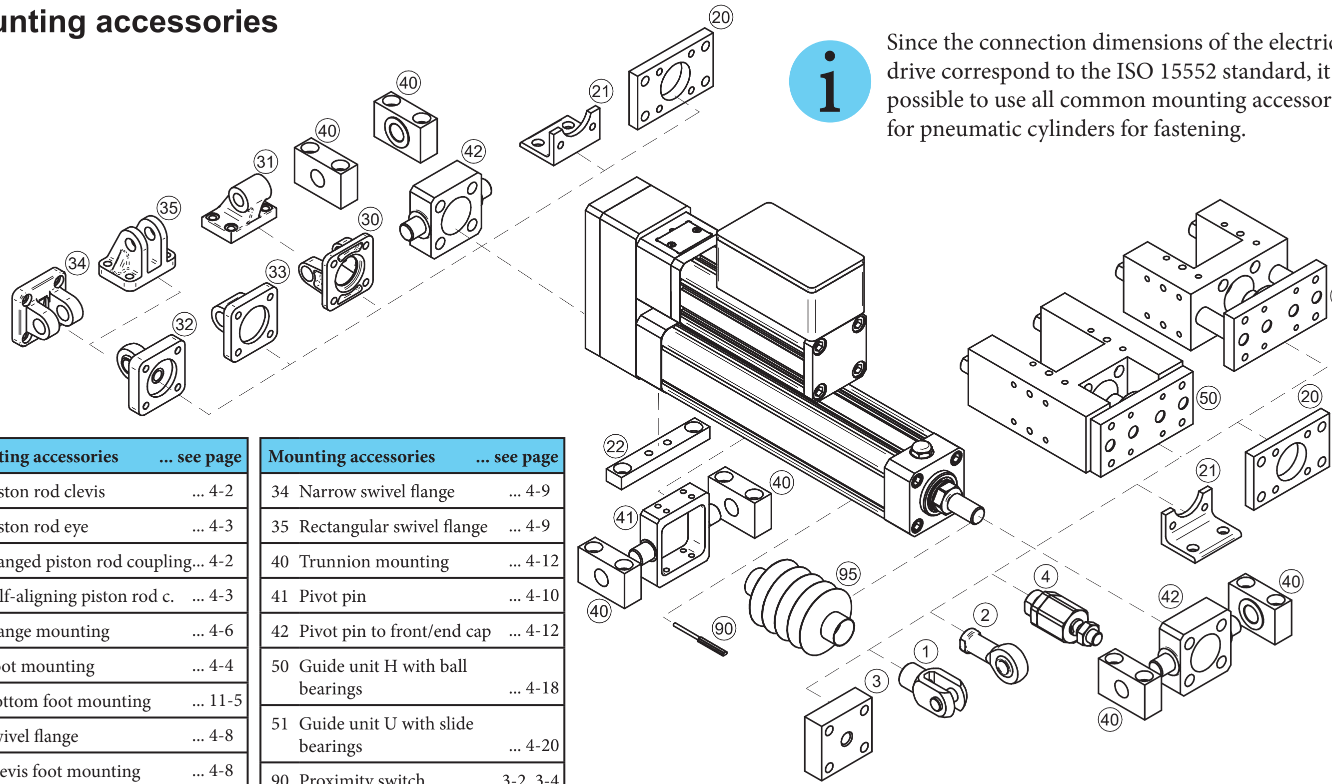
### Side motor connection




| Size | AM | B | BG | D4 | E | G | H | H1 | H2 | H3 | KD | KK | KV | L2 | L8 | L12 | MD | MM | RT | TG | UG | UH | UZ | VD | WH | ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **50** | 32 | 40 | 17 | 64 | 65 | 30 | 204 | 150 | 119 | 55 | 116 | M16x1,5 | 24 | 5 | 196 | 9 | 274 | 28 | M8 | 46,5 | 22 | 10 | M6 | 64 | 17,5 | 214 |

## Mounting accessories

Since the connection dimensions of the electric drive correspond to the ISO 15552 standard, it is possible to use all common mounting accessories for pneumatic cylinders for fastening.



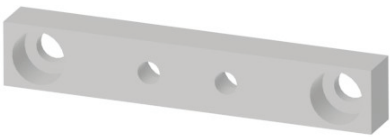
| Mounting accessories | ... see page |
|---|---|
| 1 Piston rod clevis | ... 4-2 |
| 2 Piston rod eye | ... 4-3 |
| 3 Flanged piston rod coupling | ... 4-2 |
| 4 Self-aligning piston rod c. | ... 4-3 |
| 20 Flange mounting | ... 4-6 |
| 21 Foot mounting | ... 4-4 |
| 22 Bottom foot mounting | ... 11-5 |
| 30 Swivel flange | ... 4-8 |
| 31 Clevis foot mounting | ... 4-8 |
| 32 Swivel flange with spherical bearing | ... 4-10 |
| 33 Swivel flange | ... 4-7 |

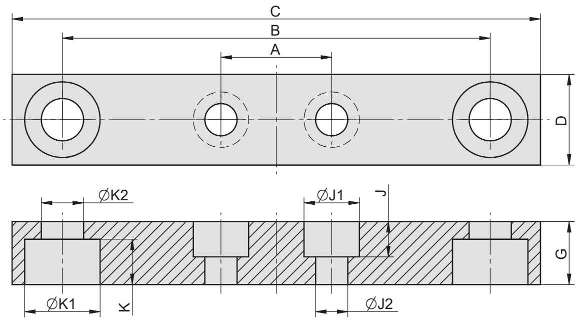
| Mounting accessories | ... see page |
|---|---|
| 34 Narrow swivel flange | ... 4-9 |
| 35 Rectangular swivel flange | ... 4-9 |
| 40 Trunnion mounting | ... 4-12 |
| 41 Pivot pin | ... 4-10 |
| 42 Pivot pin to front/end cap | ... 4-12 |
| 50 Guide unit H with ball bearings | ... 4-18 |
| 51 Guide unit U with slide bearings | ... 4-20 |
| 90 Proximity switch | ...3-2, 3-4 |
| 95 Piston rod protective cover | ... 4-24 |

For reliable operation, it is necessary that the body of the electric drive is fixed with a firm attachment in two places (e.g. foot and bottom foot, or front flange and bottom foot).

## Bottom foot mounting

Supply contains:
1 pc bottom foot mounting
2 pcs screws

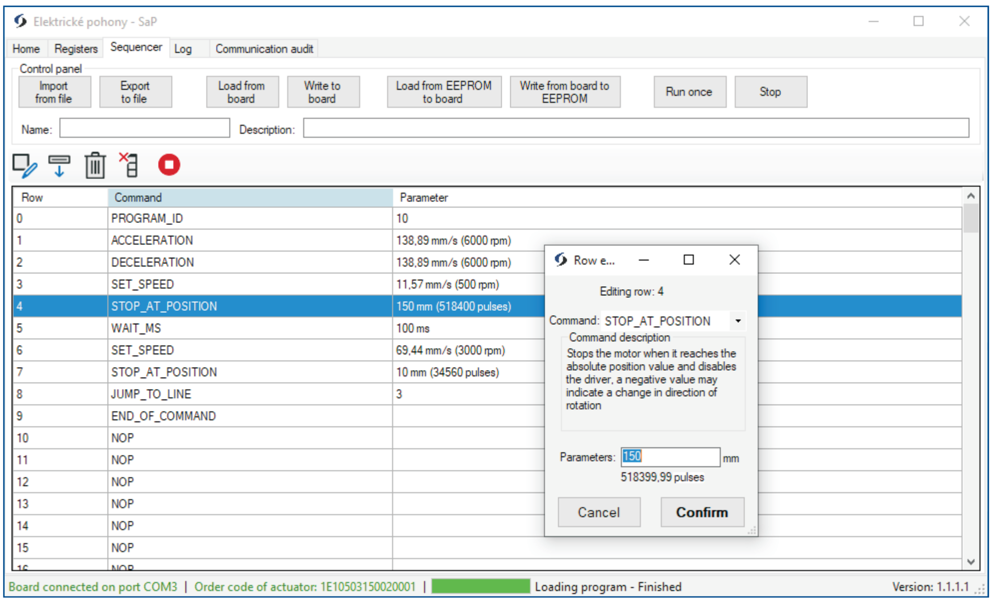





| Size | A | B | C | D | G | J | J1 | J2 | K | K1 | K2 | Weight | Order codes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 22 | 85 | 105 | 18 | 12,5 | 7 | 11 | 6,4 | 9 | 15 | 8,4 | 0,06 | 2115 2100 0050 0000 |

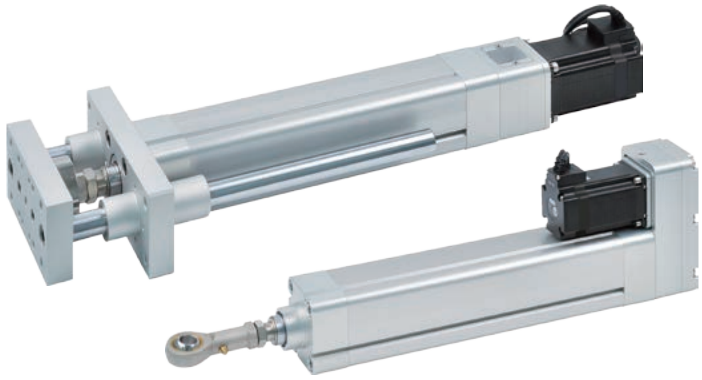
## Control unit

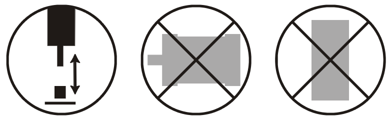
The integrated control unit can work completely independently after connecting to a power source. It is possible to program up to 200 program steps, in which you can easily control speeds, absolute and relative positioning, set the output, work with 5 inputs, compare values and branch the program according to the result of the comparison. It is possible to communicate with the unit via the RS485 bus, which can be connected, for example, to the USB port of a computer using a converter. An application for communication with the unit is available for the Windows operating system, which can be used to easily control the unit, set its parameters and create or modify the program.
RS232 bus can be used for simple continuous display of unit status.




M

# ELECTRIC ACTUATORS WITH BALL SCREW WITHOUT MOTOR MEQI SERIES ISO 15552





**Main advantages:**
- without motor - preferred type can be used - servo or stepper motor
- sliding out piston rod with anti-rotation lock
- integrated slide guide
- two motor position options
- ideal as a pneumatic cylinder replacement due to the same mounting dimensions, according to ISO 15552

| Model | MEQI 50 | | | MEQI 63 | | |
|---|---|---|---|---|---|---|
| Positioning repeatability [mm] | ± 0.02 | | | ± 0.02 | | |
| Ball screw lead [mm] | 5 | 10 | 20 | 5 | 10 | 20 |
| Maximum speed [mm.s$^{-1}$] for servo motor / for stepper motor | 250 / 125 | 500 / 250 | 1000 / 500 | 250 / 125 | 500 / 250 | 1000 / 500 |
| Horizontal work load [kg]* for servomotor | 110 | 88 | 40 | 110 | 88 | 40 |
| Vertical work load [kg]* for servomotor | 33 | 22 | 10 | 33 | 22 | 10 |
| Rated thrust [N] for servomotor / for stepper motor | 1560 / 1120 | 780 / 560 | 390 / 280 | 1560 / 1120 | 780 / 560 | 390 / 280 |
| Possible stroke [mm] | 100 to 600, multiples of 50 | | | 100 to 800, multiples of 50 | | |
| Ball screw [mm] | C7 ∅16 | | | C7 ∅20 | | |
| Anti-rotation tolerance [°] | ± 0.4 | | | ± 0.4 | | |

*) An external guide is necessary to support the load. The operating speed under work load is less than maximum speed.

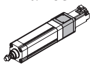
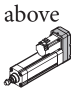
## Order codes

P MEQI - 50 L05 - 200 - BC - M40 B - A2 D

| Model | |
|---|---|
| 50 | MEQI 50 |
| 63 | MEQI 63 |

| Ball screw lead | |
|---|---|
| 05 | 5 mm |
| 10 | 10 mm |
| 20 | 20 mm |

| Stroke | |
|---|---|
| xxx | stroke in mm<br>100 to 600 (MEQI 50),<br>100 to 800 ( MEQI 63),<br>(always multiples of 50)<br>eg. 100 = stroke 100 mm |

| Motor position | |
|---|---|
| BC | in axes  |
| BA | above  |

| Motor brand | |
|---|---|
| M40 | Mitsubishi, servo 400W |
| P40 | Panasonic, servo 400W |
| Y40 | Yaskawa, servo 400W |
| T40 | Delta, servo 400W |
| S56 | Mindman, stepper □56 |

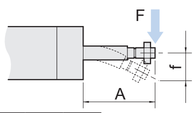
| Brake | |
|---|---|
| | no brake |
| B | with brake |

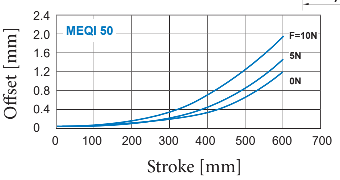
Note: brake is recommended for vertical use

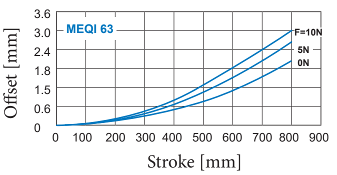
| Limit sensor | |
|---|---|
| | no sensor |
| A1 | 1 pc |
| A2 | 2 pcs |
| A3 | 3 pcs |

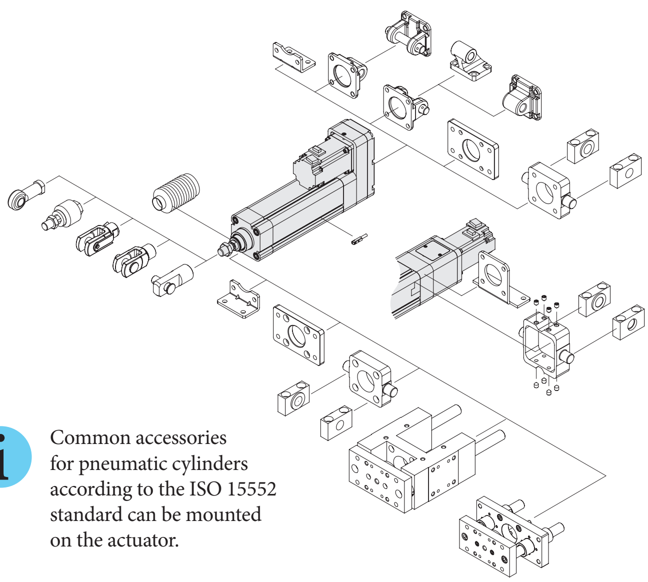
| Sensor type | |
|---|---|
| D | 2-wire |
| N | NPN |
| P | PNP |

### Rod bending offset under radial load

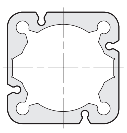


Common accessories for pneumatic cylinders according to the ISO 15552 standard can be mounted on the actuator.



The actuator profile is symmetrical and closed.

Technical parameters, dimensions and other information can be found on our website.

# ELECTRIC ACTUATORS WITH BELT TRANSMISSION WITHOUT MOTOR METB SERIES

This universal actuator with toothed belt transmission is designed for individual automation. Connect the actuator to the control unit you are used to and you get an electric linear actuator with a wide range of applications. The cover strip is made of stainless steel and the carriage has a seal against the ingress of dirt into the interior. Standard position sensors can be used with this actuator to obtain feedback for further control.

| | |
|---|---|
| Operating temperature | -5°C to +50°C |

| Model | 42 | 55 | 80 |
|---|---|---|---|
| Positioning repeatability[mm] | ± 0.05 | | |
| Maximum speed [m.s$^{-1}$] | 3 | | |
| Possible stroke [mm] | 100 to 6000 | | |
| Pulley drive ratio [mm] | 90 | 120 | 160 |
| Number of teeth of pulley | 18 | 24 | 32 |
| Belt width [mm] | 12 | 16 | 25 |
| Maximum rpm [g.min$^{-1}$] | 2000 | 1500 | 1150 |

| Model | 42 | 55 | 80 |
|---|---|---|---|
| Max. load Fx [N] | 460 | 820 | 1650 |
| Max. load Fy and Fz [N] | 1560 | 1850 | 4500 |
| Max. moment Mx [Nm] | 20 | 25 | 80 |
| Max. moment My and Mz [Nm] | 55 | 120 | 450 |
| Max. radial load on input shaft [N] | 220 | 300 | 300 |
| No load torque [Nm] | >0.1 | >0.5 | >0.9 |
| Weight 0 mm stroke [kg] | 1.6 | 4.4 | 6 |
| Weight added per 100 mm stroke [kg] | 0.25 | 0.37 | 0.90 |

## Order codes

PMETB <u>42</u> <u>0800</u> <u>M12</u> <u>L</u>

| Model | |
|---|---|
| 42 | METB-42 |
| 55 | METB-55 |
| 80 | METB-80 |

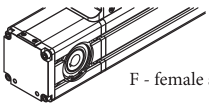
| Stroke | |
|---|---|
| xxxx | stroke in mm eg. 0100 = stroke 100 mm (in the range of 100 to 6000 mm) |

| Shaft versions | | For model |
|---|---|---|
| F08 | female shaft, Ø8 | METB-42 |
| M12 | male shaft, Ø12 | |
| D12 | double male shaft, Ø12 | |
| F08 | female shaft, Ø8 | METB-55 |
| M16 | male shaft, Ø16 | |
| D16 | double male shaft, Ø16 | |
| F19 | female shaft, Ø19 | METB-80 |
| M19 | male shaft, Ø19 | |
| D19 | double male shaft, Ø19 | |

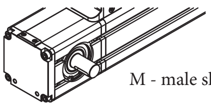
| Male shaft * | |
|---|---|
| L | left shaft |
| R | right shaft |

*) Applies only to the connections M12, M16 and M19

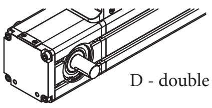
## Motor connection



F - female shaft



M - male shaft



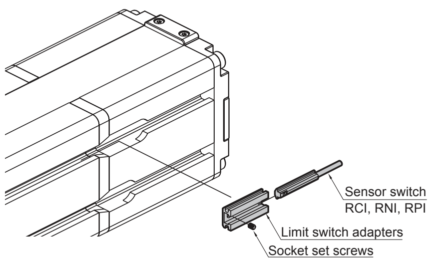
D - double male shaft

## Features

- transmission of movement by ATL5 toothed belt
- integrated guide with two guide blocks
- body is from drawn duralumin profile, hard anodized
- stainless steel protection band

Technical parameters, dimensions and other information can be found on our website.

## Sensor switch installation




For models METB-42 and 55, the sensor is attached directly to the actuator body, for model METB-80, it is necessary to use an adapter with order code PETB80-3.

Česká společnost pro jakost, z.s.
(Czech Society for Quality)

Management Systems Certification Body No. 3081 accredited
by Český institut pro akreditaci, o.p.s. (Czech Accreditation Institute)
in accordance with ČSN EN ISO/IEC 17021-1:2016

based on the accreditation issues

# CERTIFICATE

of compliance of the Quality Management System with the requirements of

## ČSN EN ISO 9001:2016

to company

## STRÁNSKÝ A PETRŽÍK, PNEUMATICKÉ VÁLCE, spol. s r.o.

**Limited liability company**
**č.p. 388, 544 72 Bílá Třemešná, Czech Republic**
**Company Identification Number: 25252062**

Scope:

**Produce and delivery of pneumatic cylinders and accessories, including installation**
**Produce and delivery of single-purpose machines and equipment, including installation**

Certificate registration number: 100000001/QMS/2024
Date of the first certification: 01.06.2000
Certification cycle: 15.10.2024 – 14.10.2027
Valid from: 15.10.2024
Head of the Management Systems Certification Centre:
Ilona Ježková

CERTIFIKAČNÍ ORGÁN ČSJ č. 3081 ČESKÁ SPOLEČNOST PRO JAKOST

S 3081

The certified company is subject to surveillance by Česká společnost pro jakost, z.s. (Czech Society for Quality). In the case of finding system nonconformity with requirements of ČSN EN ISO 9001:2016 the certificate effectiveness may be suspended or cancelled.

This is a translation. In case there is a dispute concerning the interpretation the original version of the certificate in the Czech language shall prevail.

Place of issue: Novotného lávka 200/5, Staré Město, 110 00 Praha

STRÁNSKÝ A PETRŽÍK

Stránský a Petržík,
Pneumatické válce spol. s r.o.
544 72 Bílá Třemešná 388
Czech Republic

phone: (+420) 499 628 600
Cell phone: (+420) 737 249 570

https://www.sappv.cz
e-mail: info@sappv.cz
stranskyapetrzikcz

Company ID: 25 25 20 62
VAT Nr.: CZ 25 25 20 62