

FEELER EH-500 Series

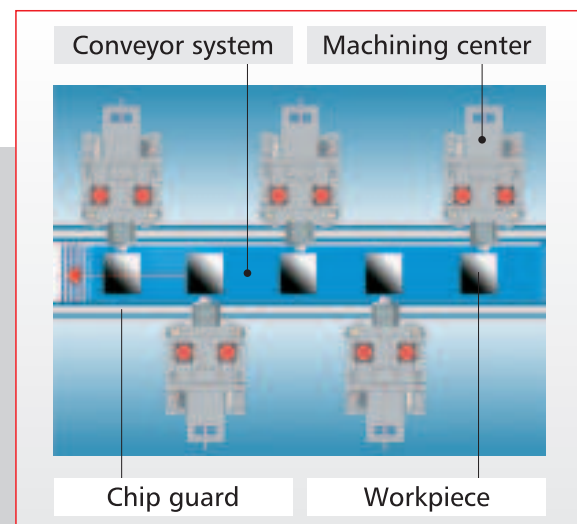
Designed for Extending Your Competitive Edge



With the Feeler EH-500 horizontal machining center, you get full capability for high speed and high precision machining. You also get some of the exclusive design concepts that will keep your production staying competitive.

Conversion Model for Production Lines

To meet the flexible machining requirements on a production line, various conversion models are available. The figure shows one conversion model that is suitable for production lines with conveyor belts.



Ideal Machining Applications Include:

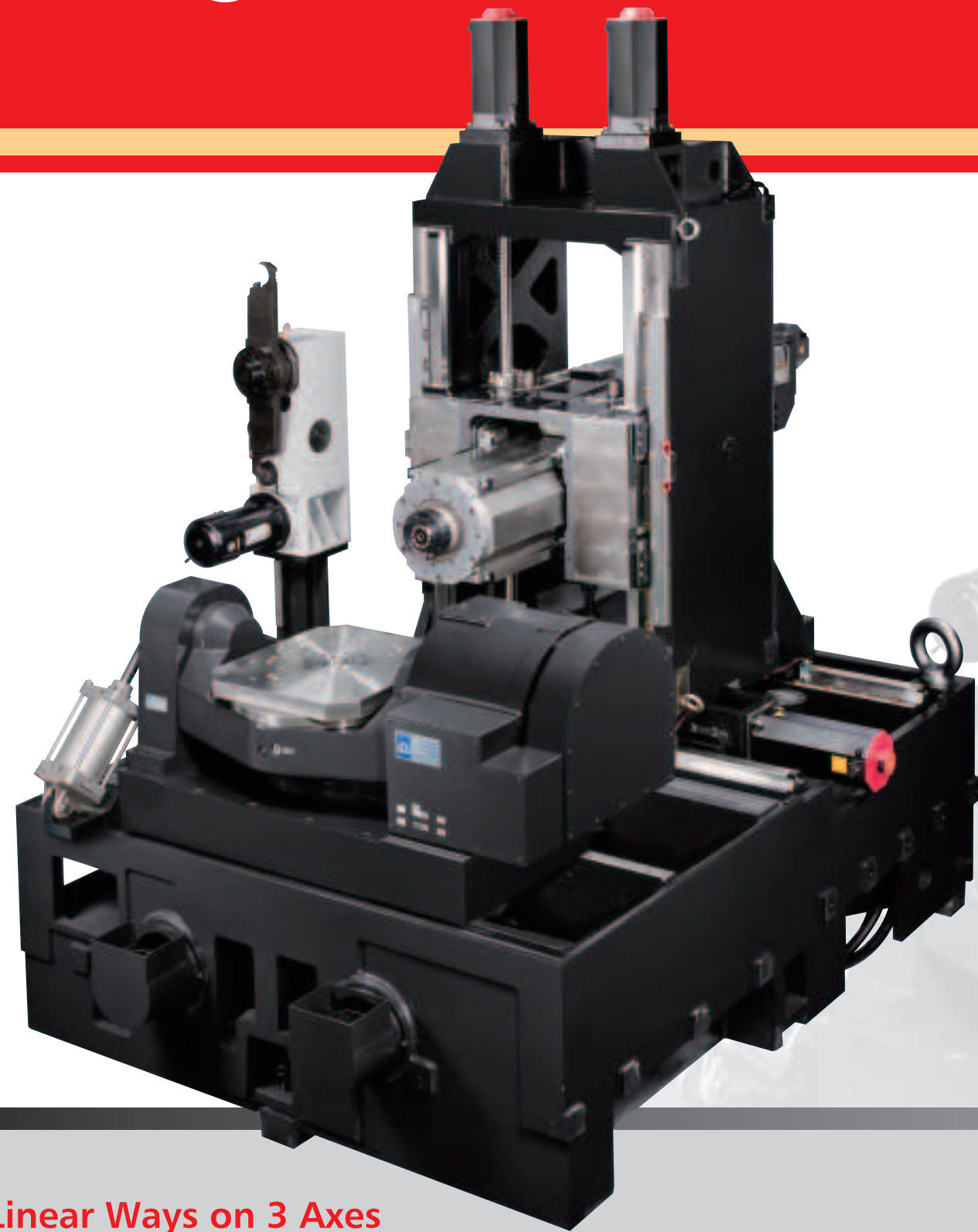
- Automotive parts production line
- Automotive industry
- Aerospace industry

Applicable Parts Materials

- Steel
- Cast iron
- Aluminum alloy

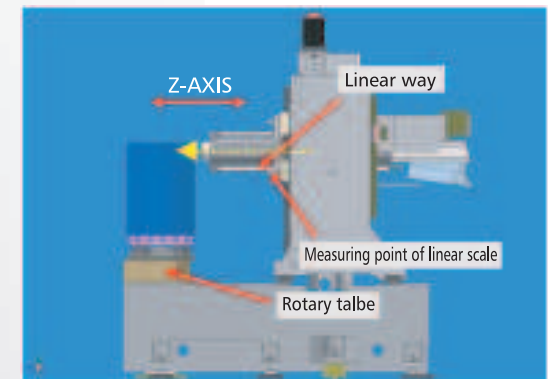
EH-500-5AX

Perfect Formula for Lightweight and High Performance



Three Axes Crossing Quill Type Design

The machine is specially designed with 3 axes overlap construction combined with traveling quill. The 3 axes transmission systems provide maximum stability of movement and minimum deformation of structural weight.

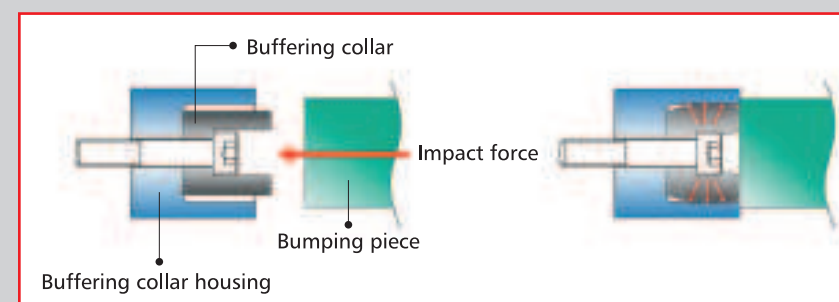


High Accuracy Axes Movements

Each axis structure is driven at the center of the mass combined with linear scales on 3 axes for position feedback, assuring outstanding movement accuracy.

Linear Ways on 3 Axes

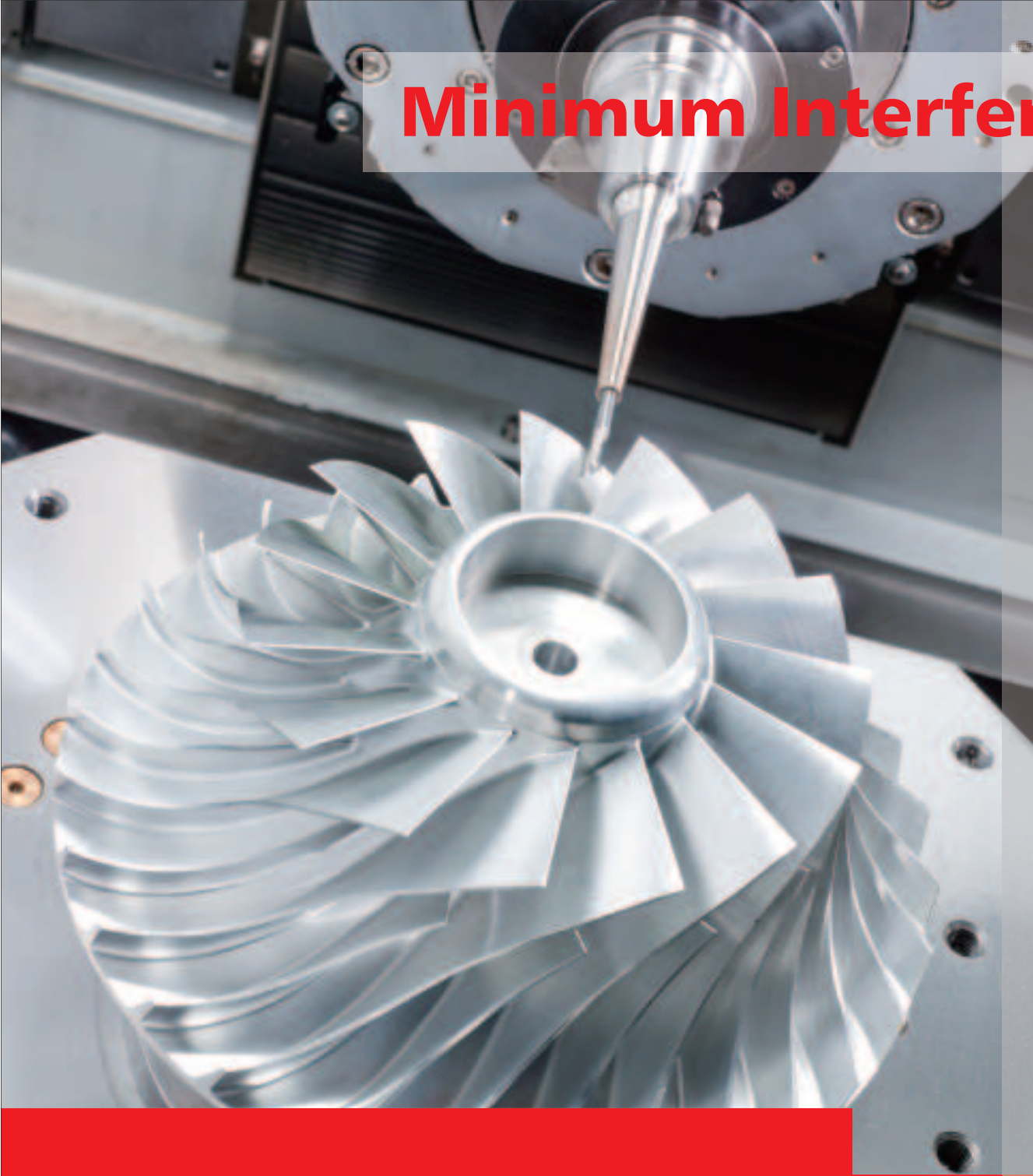
- The 3 axes are equipped with heavy duty linear ways featuring high traverse speed, low noise, long maintenance frequency and heavy loading capability.
- No slip at high speed traverse. High positioning accuracy.
- Outstanding damping capability for heavy duty machining.



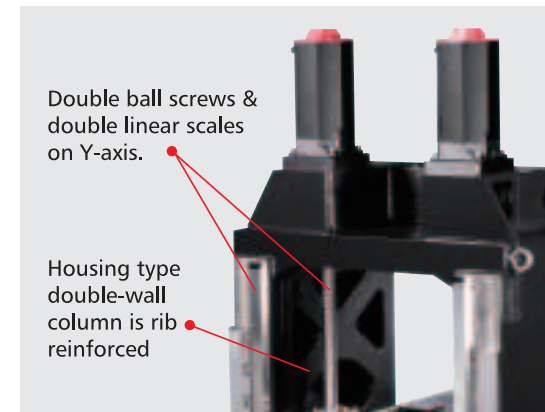
Unique Over-travel Protection (Patented)

3 axes are equipped with special buffering collars for protection in case of over-travel.

Minimum Interference with Maximum Working Space



EH-500-5AX

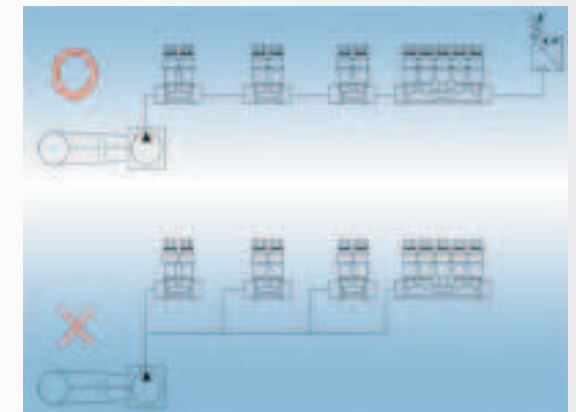


Double ball screws & double linear scales on Y-axis.

Housing type double-wall column is rib reinforced

Rigid, Traveling Column (Patented), Guaranteed Positioning Accuracy

- The column is of a housing type double-wall construction for maximum rigidity and stability.
- Y-axis travel is transmitted by double ball screws and driven from the gravity center. This feature fully eliminates twisting problems when the spindle head is moving.



Lubrication System Pressure Detection

The lubrication system features a pressure detection function at the end of the oil circuit. It monitors the lubrication condition at all times, while avoiding machine parts damage due to lack of lubrication oil.



Side Vibration Dampening Device (Patented)

To avoid Z-axis elongation caused by "U" shaped saddle during machining or heat generated by servomotor, which may affect structure and movement accuracy. Fair Friend engineers have developed a bracket featuring "single direction loading." It may effectively absorb the deformation and vibration created by "U" shaped saddle.



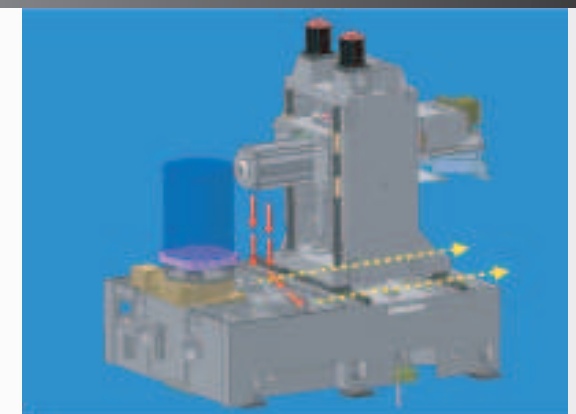
Linear ways

"U" shaped saddle

Linear scales

Additional Auxiliary Linear Way

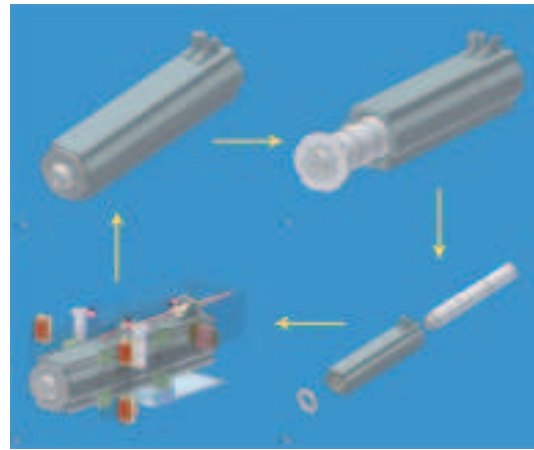
To avoid vibration or play at the end while the "U" shaped saddle is moving at high speed, the EH-500 is specially designed with a third auxiliary linear way. It ensures that the entire drive system is located at the geometrical center.



Efficient Chip Removing Design

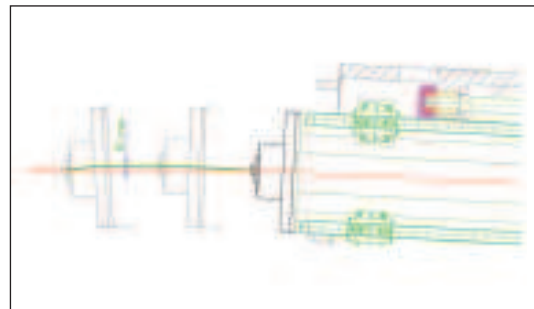
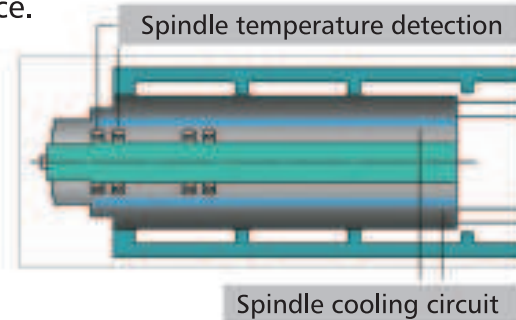
With the non-obstruction design between the workpiece and the machining area, the chips are easily flushed down to two chip augers for delivering to the backside of the machine. It minimizes the thermal deformation of the machine due to deposit of hot chips.

True Power, True Rigidity



Two-directions Spindle Dismantling (Patented)

Conventionally dismantling a spindle from front side is not easy to do. Feeler's EH-500 is exclusively designed with two-direction spindle dismantling, providing added convenience for spindle maintenance.



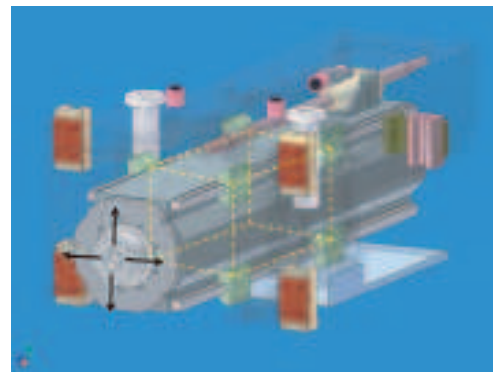
Minimum Deflection of Spindle Head

Many horizontal VMCs with traveling heads are facing a problem of head deflection when protruded, therefore Feeler's R&D engineers have spent great efforts to find solutions. We applied the machine assembly compensation and software parameter compensation to effectively solve the head deflection problem. The head deflection on the EH-500 has been reduced to a minimum, while ensuring outstanding head movement accuracy.

Unique Spindle Slide (Patented)

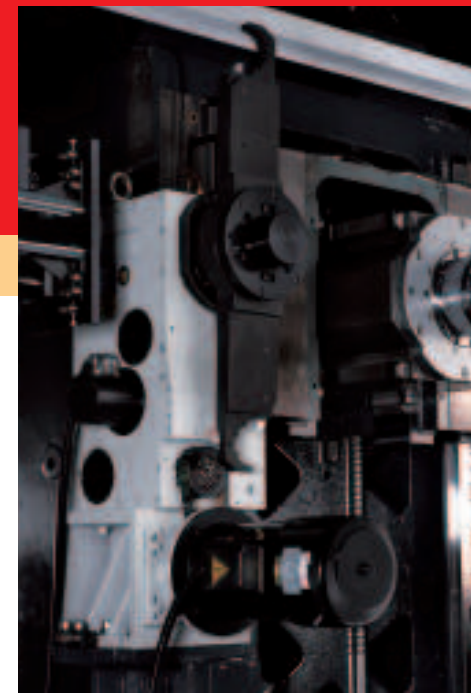
The spindle head moves on 4 linear ways with 8 blocks, assuring maximum stability when the spindle head extends in Z-axis.

Spindle Supported by 8 blocks The 8 blocks on 4 linear ways from a box-type support, which allows the cutting force uniformly distributed on the 8 blocks for assuring cutting accuracy.



Precision Spindle

- The spindle runs in high precision, high speed bearings with grease lubrication.
- The spindle has a temperature detecting function combined with air blast and spindle oil cooler. These features ensure lifetime accuracy and long service life of the spindle.



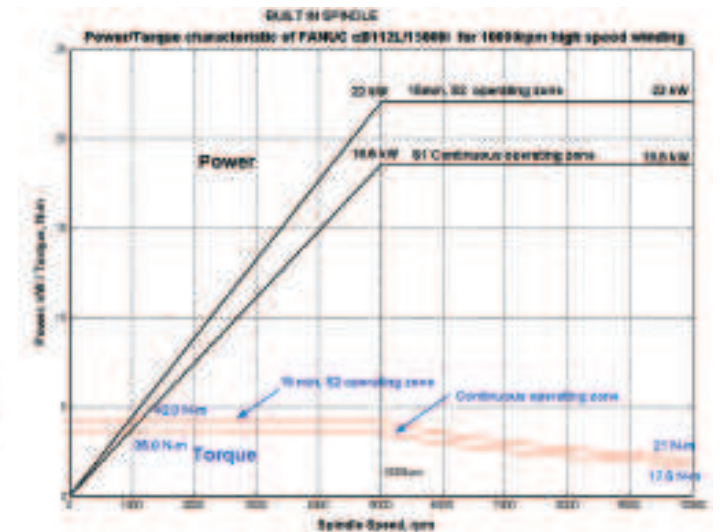
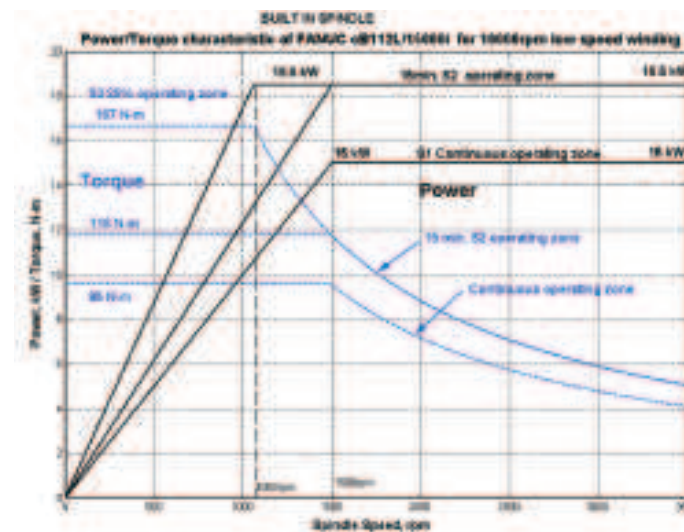
Three Tool Change Speeds (Opt)

The ATC provides three tool change speeds. All tools are classified into 3 weight ranges and allow for adjustment of tool change speed. This feature not only effectively extends the ATC life, but also achieves the optimal tool change speed.

60 Tool Chain Type Magazine

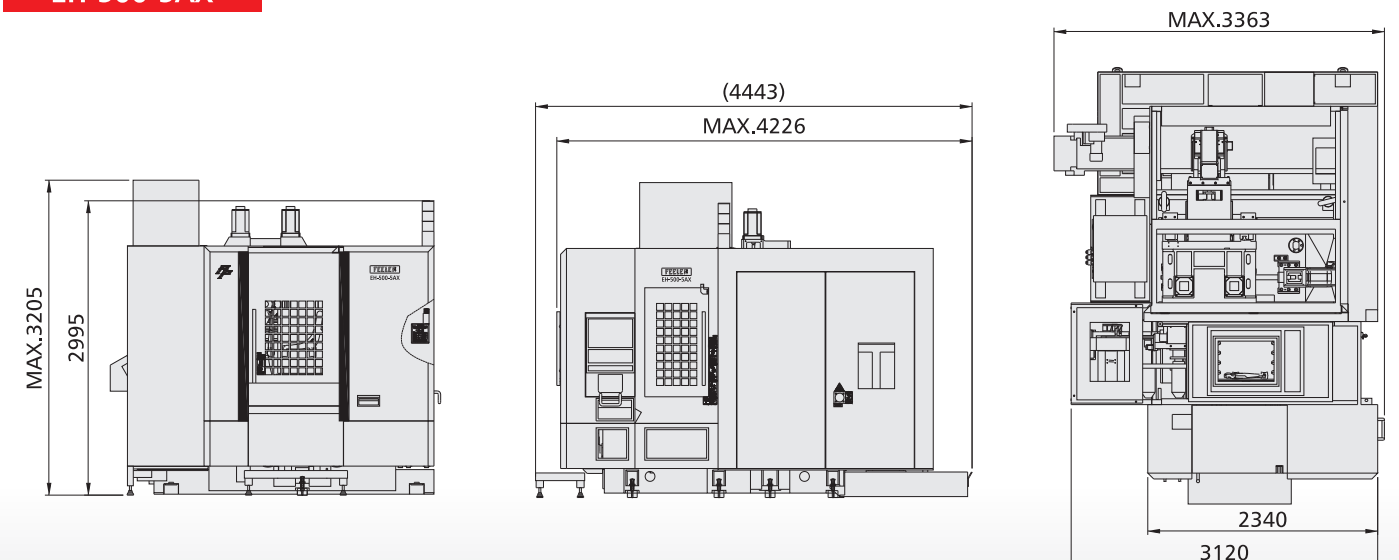
- 60 tool chain type magazine is standard.
- 40 tools magazine is optional.
- The magazine accommodates HSK-A63 tool shank.

Spindle Speed / Power Output Diagram



Machine Dimensions

EH-500-5AX



CNC CONTROL

Crystal Scanning Control Panel

The self-illuminated crystal scanning control panel provides operator easy identification in a poor working environment. Keys are coolant-resistant, bump-resistant, oil-resistant and changeable. The control panel is an information processing center and efficiently controls all functions.



Easily Maintained Electrical Cabinet

The extra wide and well laid-out electrical cabinet, combined with air conditioning system, efficiently removes heat generated by the control components while ensuring the stability of control performance. The control circuit consists of electronic component modules that meet safety regulations. The control circuit is easy to maintain and minimum maintenance is required.

Machine Specifications

MODEL	Unit	EH-320	EH-500	EH-500-5AX
Travel				
X-Axis Travel	mm	250	750	750
Y-Axis Travel	mm	250	650	650
Z-Axis Travel	mm	270	500	500
A-Axis Roiation Angle		-	-	+20 ~ -110
B-Axis Roiation Angle		360	360	360
Spindle Center to Table Surface	mm	50 ~ 300	50 ~ 700	50 ~ 700
Spindle Nose to Table Center	mm	120 ~ 390	200 ~ 700	200 ~ 700
Table Surface to Floo	mm	1,160	1,245	1,245
TABLE				
Table Dimension	mm	320 x 320	500 x 500	500 x 500
Max.Loading Weight	kg	300	600	150
T-Slots		24-M12 x P1.75	24-M16 x P2.0	24-M16 x P2.0
Min Indexing Angle		0.001	0.001	0.001
SPINDLE				
Spindle Speed	rpm	10,000	10,000	10,000
Spindle Nos		BT-40	HSK-A63	HSK-A63
Spindle Motor	kw	5.5 / 7.5	Built in 22 kw	Built in 22 kw
FEEDRATE				
Rapid Traverse X Axis	m/min	48	48	48
Rapid Traverse Y Axis	m/min	48	48	48
Rapid Traverse Z Axis	m/min	48	48	48
Cutting Feedrate	m/min	20	20	20
AUTOMATIC TOOL CHANGER				
No. of Tools		16	60	60
Pull Stud		P40T-1	HSK-A63	HSK-A63
Max. Tool Weight	kg	8	8	8
Max. Tool Length	mm	220	300	350
Max. Tool Diameter	mm	Ø70	Ø85	Ø85
Max. Tool Diameter (No Adjacent Tool)	mm	Ø120	Ø140	Ø140
Tool Changing Time (Tool to Tool)	sec / Hz	2 sec (60 HZ)	2 sec (60 HZ)	2 sec (60 HZ)
Number of Pallets		2	2	1
Method of Pallet Change		ROTARY	ROTARY	-
Pallet Change Time		8	8	-
Floor Space	mm	1,500 x 3,500	3,500 x 5,000	3,500 x 4,400
Machine Weight	N.W	2,500	22,000	20,000
Max. Machine Height	mm	2,400	3,200	3,200
Power Capacity	kVA	40	80	80
Air Source	kgf/cm ²	6~8 (85 psi)	6~8 (85 psi)	6~8 (85 psi)

* Specifications are subject to change without prior notice.

EH-320

Standard Accessories:

- 3 axes lubrication system
- Heat exchanger for electrical cabinet
- 10000 rpm BT40 direct drive spindle
- 0.001° resolution rotary table
- 16-tool arm type ATC
- 3 axes roller type linear guideways
- Spindle air blast
- Twin chip augers
- Coolant pump
- 3-color pilot lamp and working lamp

- Dust proof electrical cabinet
- Fully enclosed splash guard
- Coolant shower
- Coolant gun
- Chip conveyor with chip cart

Optional Accessories

- Transformer
- Coolant through spindle
- Automatic tool length measurement and tool breakage detection system
- Automatic workpiece measurement
- CE specification
- 3 axes linear scale
- Oil skimmer
- 90° 4-position index B axis
- Spindle cooling system

EH-500 / EH-500-5AX

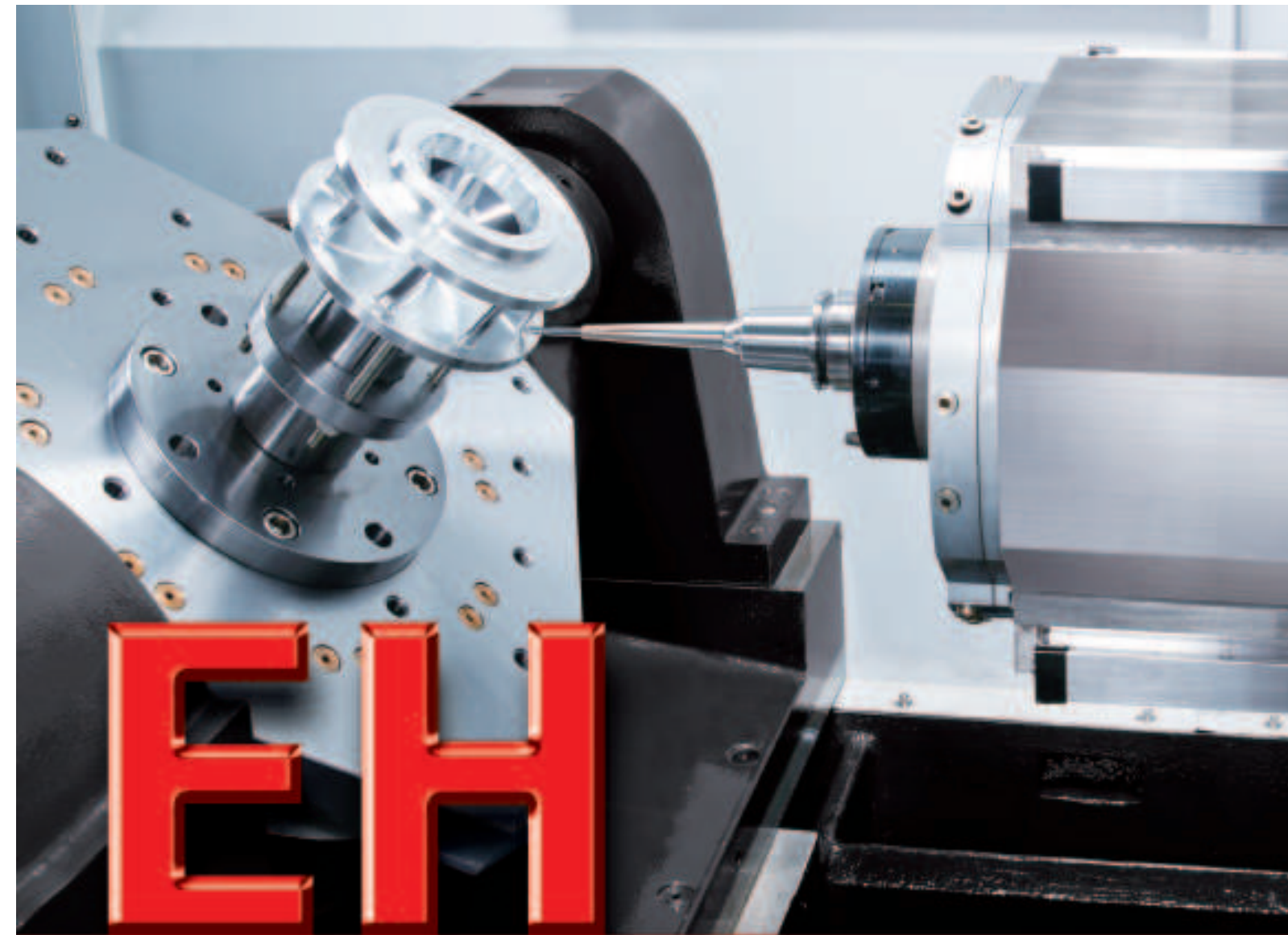
Standard Accessories:

- Spindle lubrication system
- 3 axes lubrication system
- Spindle cooling system
- Air conditioner for electrical cabinet
- 3 axes linear scale
- 10,000 rpm build-in spindle
- 60-tool arm type ATC
- 3 axes roller type linear guideways
- Spindle air blast
- Oil skimmer
- Twin chip auger
- Chip conveyor with buchet
- Coolant pump

- 3-color pilot lamp and working lamp
- Dust-proof electrical cabinet
- Fully enclose
- Coolant shower
- Coolant gun
- Automatic coolant suction at the bottom of ATC unit
- 1° index rotary table (EH-500)
- 4th / 5th axis oil cooling system (EH-500-5AX)
- 4th / 5th axis optical scale (EH-500-5AX)
- 0.001° direct drive servo motor for 4th / 5th axis (EH-500-5AX)

Optional Accessories

- Transformer
- Coolant through spindle
- Automatic tool length measurement and tool breakage detection system
- Automatic workpiece measurement
- CE specification



INNOVALUE & EXCELLENCE

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EH SERIES

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