M 8

VERTICAL MACHINING CENTER



KELLENBERGER

OUTSTANDING FEATURE OF HIGH PERFORMANCE, HIGH RELIABILITY AND HIGH PRODUCTIVITY, LEAD THE DESIGN TREND!

The M 8 series of high-performance vertical machining centers designed and manufactured by Kellenberger can meet various machining application requirements



M8 1600

HIGH EFFICIENCY

Shorter machining duty cycle time and lower non-cutting time

- Spindle Motor Power: 18.5kW
- M8 comes standard with 6000 rpm BT 50 spindle,optional with 1gear box, 12000 rpm direct drive BT 40 spnidle
- High Feed rate: Maximum rapid traverse rate of 36m / min on X,Y axes
- Maximum cuttingfeed rate up to 12m / min

HIGH RIGIDITY

Extend tool life and improve heavy cutting capabilities

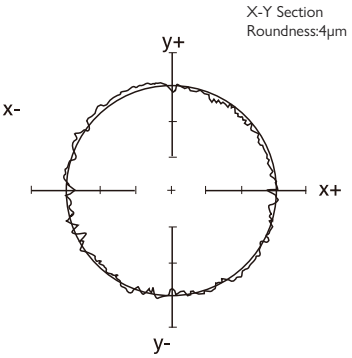
- Using FEA finite element analysis technology to make the machine more rigid, more balanced structure, and improving the service life of the machine.
- The design complies with the international standard ISO230-2
- Roller linear guideways design on X, Y & Z axes, low static and dynamic.
- Grinding grade ball screw features low noise, low thermal growth and heavy duty loading.
- Rigid C-frame structure design, head stock, column, and base are made of high-quality cast iron, contributing to overall rigidity and machining capabilities.

HIGH PRECISION

Excellent static accuracy and Machining Accuracy

- Full stroke positioning accuracy is 0.012 mm (ISO 230-2)
- Full stroke repeatability is 0.006mm (ISO 230-2)
- Circular machining, roundness reaches 4
- NAS 979 round-diamond-shaped integrated cutting processing example, parallelism 7μm, verticality 8μm

•Circular Processing Test



- NAS 979 round-diamond-shaped integrated cutting processing example



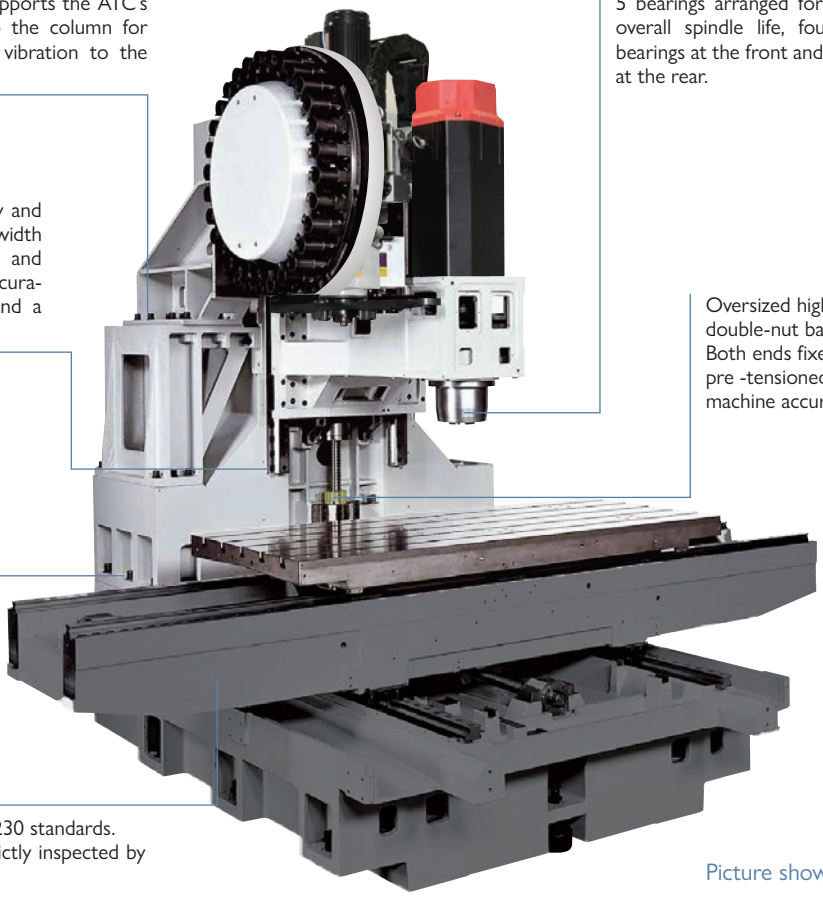
0.007	0.008
Parallelism：7μm	Verticality：8μm

The column of M8 is heavily ribbed design throughout to ensure high overall rigidity. The ATC mount design deflects the ATC weight overhang and properly supports the ATC's weight by putting the force directly into the column for superior stability, rigidity and minimized vibration to the cutting zone.

The machine is equipped with high-quality and low-maintenance requirements. 45mm width roller-type linear guideways, low friction and high rigidity to achieve better positioning accuracy, excellent cutting surface roughness and a longer machine life.

High engineered machine structure manufactured from high-quality grey cast iron,heavily ribbed throughout to ensure high overall rigidity and thermal stability.

All geometric alignments conform to ISO 230 standards. Each machine from Hardinge has been strictly inspected by laser interferometer and ball-bar tests.



Optimal spindle structure design among same level spindles.
5 bearings arranged for superior rigidity and overall spindle life, four(4) angular contact bearings at the front and one (1) roller bearing at the rear.

Oversized high-class 45mm(1.77") double-nut ballscrews.
Both ends fixed and ballscrew is pre -tensioned to provide superior machine accuracy and repeatability.

Picture shown is VC1600

Wide Space Table

M8 1300 1425x700mm/1500ka

M8 1600 1700x700mm/1500ka

SWING ARM TYPE ATC

Standard mechanical arm type automatic tool changer, 24 Tools. Tool changing time: 3.5 seconds (BT50)/2.5 seconds (BT40), bi-direction random tool changing, fast and stable, special design of 90 -degree tool sleeve inversion to prevent tool sagging, fast and accurate.

OPTIONAL TOOL CHANGER

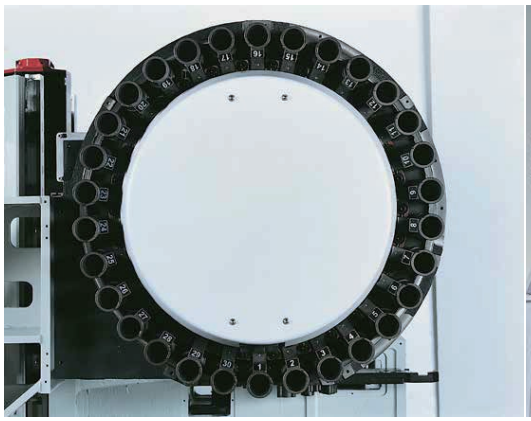
Optional Mechanical arm-type automatic tool changer

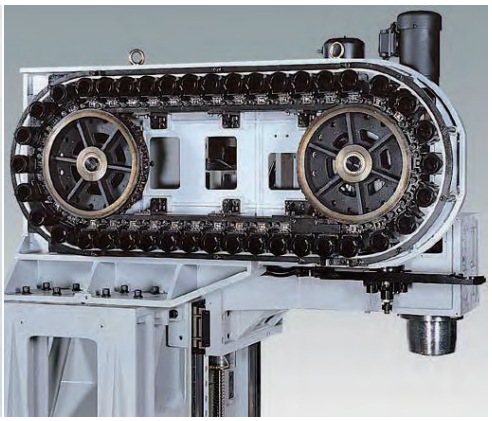
32 tools (BT50)/40 tools (BT40)

2000 hours product life cycle test. Twenty-four seven life testing of VMC prototypes ensures high reliability.

Test Content:

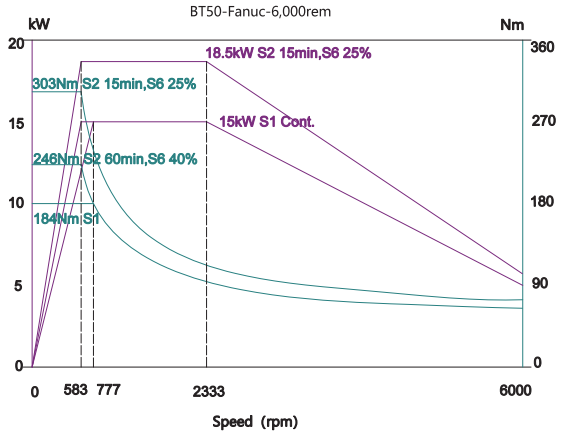
- Lifetime test
- Mean time to failure test
- Wear test
- Accuracy test
- Vibration test
- Noise test



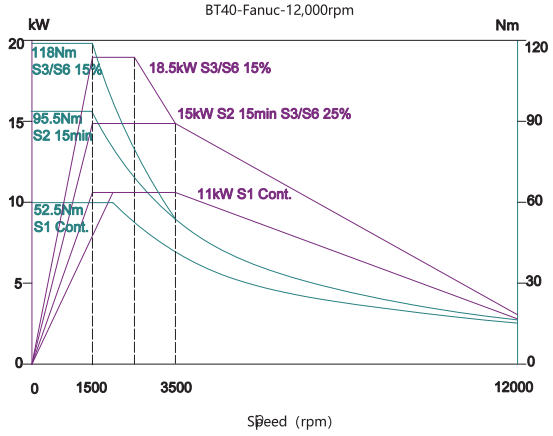


POWER / TORQUE

BT50-6000 rpm



BT40-12000 rpm



Two-speed gearbox (Optional)

German planetary gearbox, double speed(2000 / 6000rpm), high torque and herringbone belt transmission. Ensures the features of low speed with high torque and high speed with low noise.



Tool Probe (Optional)

Automatic tool setting instrument eliminates manual setting operations,reduces non-cutting time, which can quickly measure tool length and tool diameter, also could check tool damage.



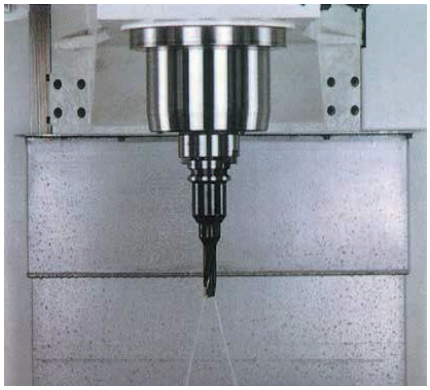
Part Probe (Optional)

Realize rapid workpiece alignment and establish coordinate system, real-time monitoring of key dimensions, determine whether the workpiece is out of tolerance and give an alarm. Effectively improve production efficiency, ensure processing accuracy, and fully improve the effective production capacity of the equipment.



Coolant Through Spindle (Optional)

Allows deep hole drilling, stainless steel and other special materials machining by supplying 20 bar high-pressure coolant to the cutting edge, quickly discharge chips and enhance to tool life and machining accuracy.



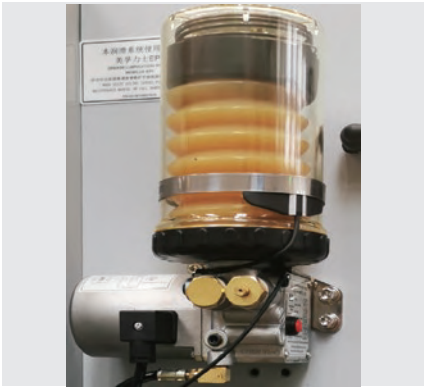
Spindle Oil Chiller

The BT40-12000rpm spindle is equipped with a spindle oil chiller device as standard, which can effectively control the temperature rise caused by high-speed machining of the motor and improve the spindle life and machining accuracy.



Auto Grease Lubrication

Both ball screws and linear guides use automatic grease lubrication systems. This lubrication system has the advantages of easy maintenance, environmental protection, low loss, etc., and can effectively reduce machine maintenance costs.



TYPICAL MACHINED PARTS



Parts: Oil pump housing Material: Aluminum alloy
Machining Content: Full processing
Machining Precision: Cylindricity and roundness 0.01



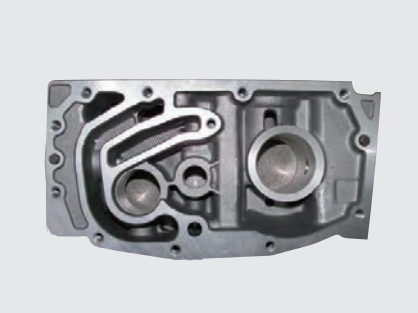
Parts: Bracket Material: Aluminum alloy
Machining Content: Full processing
Machining Precision: Level 7



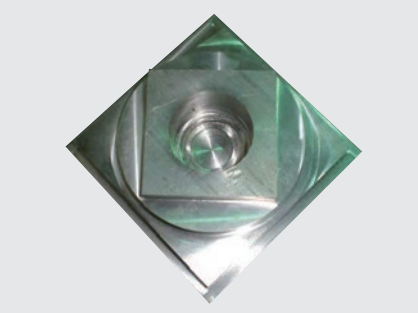
Parts: Gasoline Engine Material: Aluminum alloy
Machining Content: Full processing
Machining Precision: Level 7



Parts: Gasoline Engine Pump Material: Aluminum alloy
Machining Content: Full processing
Machining Precision: Level 7

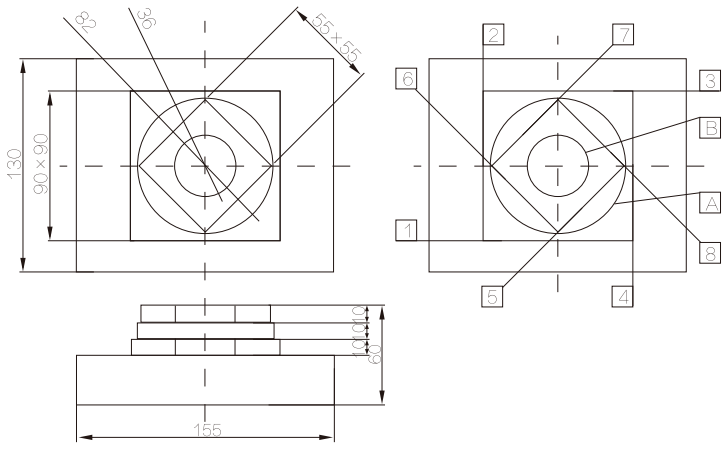


Parts: Cabinet Material: Aluminum alloy
Machining Content: Full processing
Machining Precision: Level 7



Standard Test Cutting Parts

STANDARD TEST CUTTING PARTS



Square	
a.The perpendicularity of plane 2 relative to plane 1	0.015 max
b.The perpendicularity of plane 4 relative to plane 1	0.015 max
c.Distance between plane 1 and plane 3	+/- 0.01
d.Distance between plane 2 and plane 4	+/- 0.01
e.Parallelism between plane 1 and plane 3	+/- 0.015
Diamond	
a.The perpendicularity of plane 6 relative to plane 5	0.015 max
b.The perpendicularity of plane 8 relative to plane 5	0.015 max
c.Parallelism between plane 5 and plane 7	0.015 max
d.Distance between plane 5 and plane 7	+/- 0.01
Round Table	
a. Roundness of Table A	0.03 max

CONTROL SYSTEM

FANUC 0i MF Plus



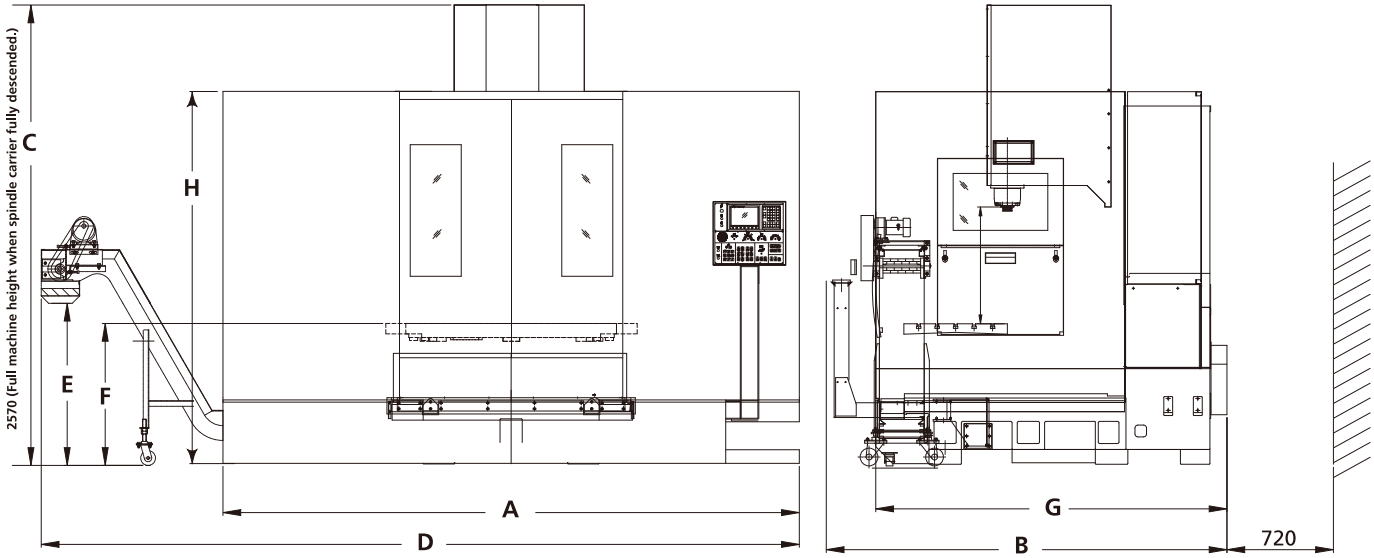
- 10.4" Display
- Max. Controlled axes:5,
- Simultaneous Controlled axes:4
- Servo Control HRV3
- Programming resolution 0.001mm
- Interpolation resolution
- 0.0001mm(nano interpolation)
- Metric/Inch Conversion
- Part program sotrage size 2MB
- Number of registered program 1000
- Dynamic graphic display function
- 400 Tool offset pairs
- PCMCIA interface
- Embedded ethernet interface
- (100base)
- USB interface
- Programmable Data Input
- Sub program call
- Custom macro
- Additional custom macro comman variables
- Coordinate scaling
- Coordinate system rotation
- Programmable mirror image
- Spiral interpolation
- Tool life management
- Memory Card Edit Run
- Tangential speed constant control
- Feed speed override
- JOG magnification
- Bell-shaped acceleration
- /deceleration for rigid tapping

Siemens 828D



- 10.4"Color display
- Intergrated QWERTY keyboard
- Advanced Surface
- Program Look Ahead
- Dynamic Servo Control (DSC)
- Acceleration control
- Tool management (with tool life monitoring)
- 256 Tools
- Workpiece coordinate offset quantity (100 groups)
- 5MB program memory
- USB/CF card expansion memory (>16G)
- DNC processing
- Graphical conversational programming
- Feed forward control
- Axis Synchronization in Machining
- SINUMERIK CNC programming language
- ISO language compiler
- Graphics processing simulation
- Polar coordinate programming
- Linear/circular/helical interpolation
- Coordinate System programmable
- mirror / scale/ rotate
- Pitch error compensation
- Backlash compensation
- Movement time and workpiece counting
- Help function
- User defined cycle
- User-defined global variables
- Additional user public R variables
- Minimum block switching time 2ms
- Drilling and milling of standard geometries
- Contour milling
- Combined drilling and thread milling
- Thread milling
- Polygon milling
- Letter engraving
- Imperial/Metric Conversion
- Operation history
- Alarm history
- Backlash compensation
- Movement time and workpiece counting

MACHINE DIMENSION DRAWING



Unit:mm

Size / mm	A	B	C	D	E	F	G	H
M8 1300	3298	2760	2878	4527	1097	1163	2394	2260
M8 1600	3898	2760	2878	5127	1097	1163	2394	2260

Machine Type	Net Weight (KG)
M8 1300	9800
M8 1600	10300

SPECIFICATIONS

	M8 1300	M8 1600
Processing Range		
X/Y/Z Axis Travel	1300 × 700 × 635mm	1600 × 700 × 635mm
Distance from Spindle nose to Table	133～768mm	
Distance from table to Main door	113.4mm	
Spindle center to Column Guideway	725mm	
Table		
Length×Width	1425 × 700mm	1700 × 700mm
Max. Load Capacity	1500kg	1500kg
T-slot (Size×Qty×Spacing)	5 × 18mm × 125mm	5 × 18mm × 125mm
Spindle (BT50)		
Max. Power	18.5KW	
Max. Speed	6,000rpm（Standard）	
Torque	302Nm	
Spindle (BT40)		
Max. Power	18.5KW	
Max. Speed	12,000rpm	
Torque	118Nm	
Feed Rate		
X/Y/Z Rapid Traverse Rates	36/36/30m/min	
Max. Cutting Feed Rate	12m/min	
Automatic Tool Changer (BT 50)		
Tool Capacity	24（Standard)/32（Optional）	
Tool Changer Type	Swing Arm Type	
Method Of Tool Selection	Bi-directional	
Max. Tool Diameter (Full Drum)	105mm（Standard 24）/125mm（Optional32）	
Max. Tool Diameter (Adj.Pockets Empty)	200mm（Standard 24）/229mm（Optional32）	
Max. Tool Length	350mm	
Max. Tool Length	15kg	
Tool Change Time	3.5sec	

	M8 1300	M8 1600
Automatic Tool Changer (BT 40)		
Tool Capacity	30	
Tool Changer Type	Swing Arm Type	
Method of Tool Selection	Bi-directional	
Tool holder specifications	BT40	
Max. Tool Diameter(Full Drum)	76mm	
Max. Tool Diameter(Adj. Pockets Empty)	150mm	
Max. Tool Length	300mm	
Max. Tool Weight	8kg	
Tool Change Time	2.5 sec	
Accuracy (ISO 230-2 standard)		
Positioning Resolution(Full Travel)	0.012mm	
Repositioning Resolution (Full Travel)	0.006mm	
Lubrication System		
Guide rails and ballscrews	Automatic centralized grease lubrication	
Grease capacity	0.7L	
Chip management system		
Coolant Capacity	400L	500L
Standard cooling pressure	2.8 bar	
Standard cooling flow	50 L/min	
Washing water flow	114 L/min	
Others		
Min. Compressed Air	5 bar	
Power Supply	3 Phase 380V， 35 KVA	
Size	3298 x 2754 x 2878	3898 x 2754 x 2878
Weight	9800 kg	10300 kg

Note: Data is based on the printing period only, Any technical and parameter changes without prior notice.

All prices and details are subject to change without notice. 1/2026

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