

# BRIDGEPORT V480/V710

POWERFUL DRILLING / TAPPING CENTER



 **HARDINGE**<sup>®</sup>

***Bridgeport***<sup>®</sup>

# BRIDGEPORT V480/V710

POWERFUL DRILLING / TAPPING CENTER

## HIGHER EFFICIENCY

Faster machining duty cycle time, lower non-cutting time.

- Spindle motor 3.7/5.5/9.0kW 15,000 rpm direct drive with Max. torque 28.7 Nm at base speed.
- Fanuc axial servo motor 1.6 kW on X, Y axes, 3kW on Z Axis.
- Rapid traverse feed, max. rapid and jog 48m/min.
- Max. rigid tapping speed 6,000 rpm.
- Acceleration reaches 1.0G on X, Y Axes and 0.8G on Z Axis.



V480



V710

## RIGID STRUCTURE

Longer tool life and higher heavy cutting ability

- FEA (Finite Element Analysis) techniques were used to design and build a rigid, structurally-balanced machine to assure optimum rigidity and life.
- Two linear guideways on X Axis and two guide trucks per guideway. The Y and Z Axes feature two linear guideways with two heavy-duty guide trucks, per guideway,
- Ground ballscrew features low noise, low thermal growth and heavy-duty transmission.
- Low inertia coupling connect between ballscrews and axial servo motor directly.
- Rigid, C-frame fixed column design. Spindle carrier, column and base are manufactured from high-quality cast iron, contributing to overall rigidity and machining capabilities.

## BRIDGEPORT DESIGNED AND BUILT A COMPLETE RANGE OF V SPEEDMILL SERIES TO SUIT VARIOUS MACHINING REQUIREMENTS

### V480/V710 (#30) MACHINING CAPABILITY (MAX SPINDLE SPEED: 15,000 RPM)

Machining	Drilling		Tapping		Machining	Facing
Part Material	S45C	ADC12	S45C	ADC12	Part Material	S45C
Tool	Ø16 HSS	Ø30 HSS	M16xP2.0	M24xP3.0	Tool Diameter (mm)	Ø40 (4 Inserts)
Spindle Speed (rpm)	500	930	300	220	Spindle Speed (rpm)	3,000
Feed Rate (mm/min)	90	232	600	660	Cutting Amount (cm <sup>3</sup> /min)*	72: 30x4x600

### V480/V710 (#40) MACHINING CAPABILITY (MAX SPINDLE SPEED: 10,000 RPM)

Machining	Drilling		Tapping		Machining	Facing
Part Material	S45C	ADC12	S45C	ADC12	Part Material	S45C
Tool	Ø24 HSS	Ø24 HSS	M20xP2.5	M30xP3.5	Tool Diameter (mm)	Ø80 (6 Inserts)
Spindle Speed (rpm)	330	740	400	200	Spindle Speed (rpm)	1,500
Feed Rate (mm/min)	66	222	1000	700	Cutting Amount (cm <sup>3</sup> /min)*	189: 60 x 3.5 x 900

# VERTICAL MACHINING CENTER



Chip Conveyor Option



## FANUC Oi MF CONTROL UNIT & PANEL

8.4" color LCD PCMCIA card slot for operator use. 1280 meters (512KB) memory length, graphic display, manual guide Oi, tool life management, etc. Standard versatile operator's panel designed for user-friendly, including cycle start, feed hold, option stop, feed/rapid/spindle override, and machine mold selection switches. Manual pulse generator provided as standard feature.

Conversational programming features offered on the CNC control is the CNC control builder's standard product, which may not fully support all machine functions. It is recommended the end user reference the control system documentation, or contact the control manufacturer, for further details of use or customization.

## EXCELLENT AND STABLE ACCURACY

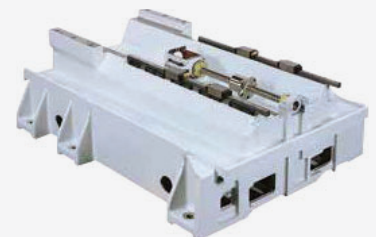
Stable static and cutting accuracy

- Accurate Positioning Accuracy ISO230-2: Full stroke positioning accuracy 0.01mm.
- Accurate Repeatability Accuracy ISO230-2: Full stroke repeatability accuracy 0.005mm.
- Ball-Bar contouring test and laser compensation for each machine to ensure geometric and cutting accuracy.
- Superior cutting capability

## RIGID STRUCTURE, SUPERIOR RELIABILITY



SA ATC TYPE  
V480 / V710

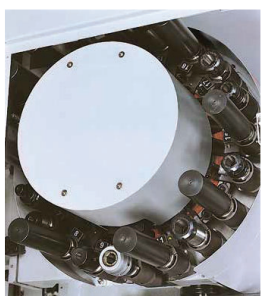


RIGID MACHINE BASE



## COOLANT TANK AND MOTOR

170 liter coolant tank capacity plus chip screens ensure good coolant flow. High-volume coolant chip flush system surround enclosure and auger type chip conveyor as optional allows chip evacuation on waycovers and enclosure into chip pans.



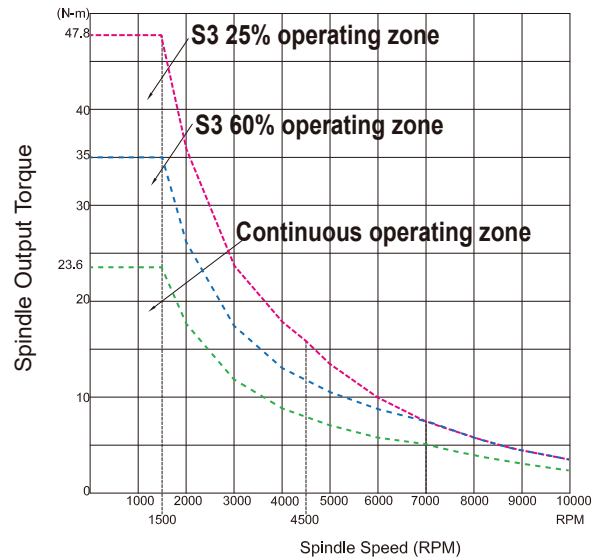
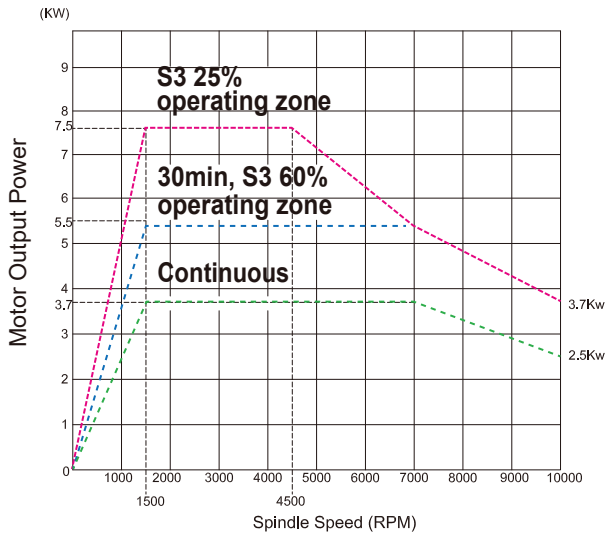
## SWING ARM ATC 20 TOOLS

Rapid and stable tool change system operated by cam type mechanism, 90° tool pocket prevents tool dropping. Synchronized swing arm ATC features superior tool changing capability.

# POWER & TORQUE

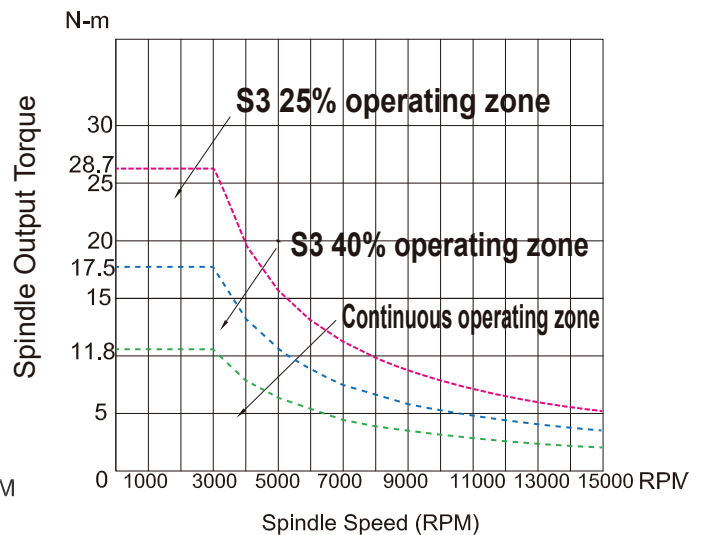
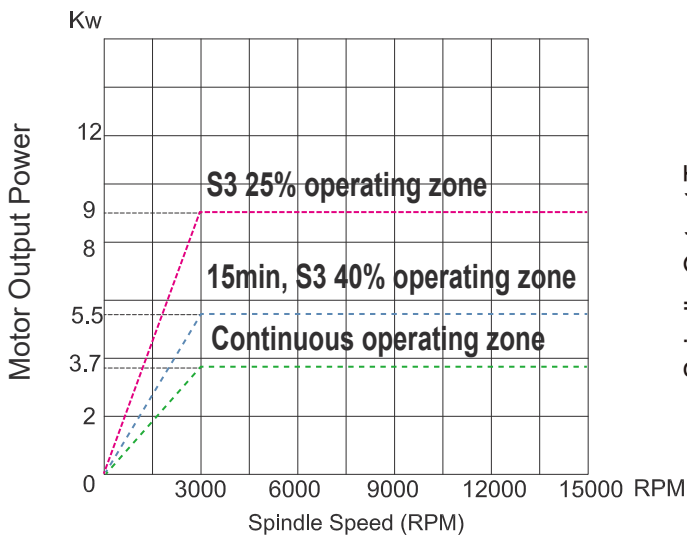
## V480 / V710 (#40 TAPER)-10,000 RPM POWER & TORQUE CHARACTERISTIC CURVE

Fanuc ail3 il3 / 10,000 RPM Spindle Motor



## V480 / V710 (#30 TAPER)-15,000 RPM POWER & TORQUE CHARACTERISTIC CURVE

Fanuc ail3 il2 / 20,000 RPM Spindle Motor (Speed Limit 15,000RPM)

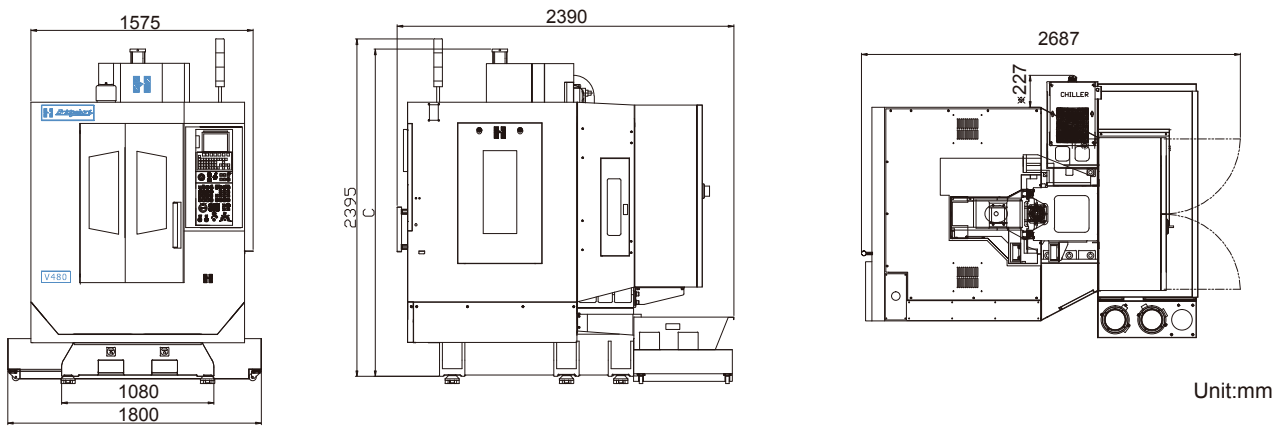


Size	V480 Standard		V710 Standard			
	V480 (#40)		V480 (#30)	V710 (#40)		V710 (#30)
	Spindle Type: DDS	Spindle Type: Belt		Spindle Type: DDS	Spindle Type: Belt	
A	2047	2047	2071	2047	2047	2071
B	2136	2136	2310	2136	2136	2310
C	1892~2322 2144~2572 (CTS)	1793~2223 1893~2323 (CTS)	1692~2122 (Fanuc) 1726~2156 (Siemens) 1885~2315 (Fanuc CTS)	1892~2322 2144~2572 (CTS)	1793~2223 1893~2323 (CTS)	1692~2122 (Fanuc) 1726~2156 (Siemens) 1885~2315 (Fanuc CTS)

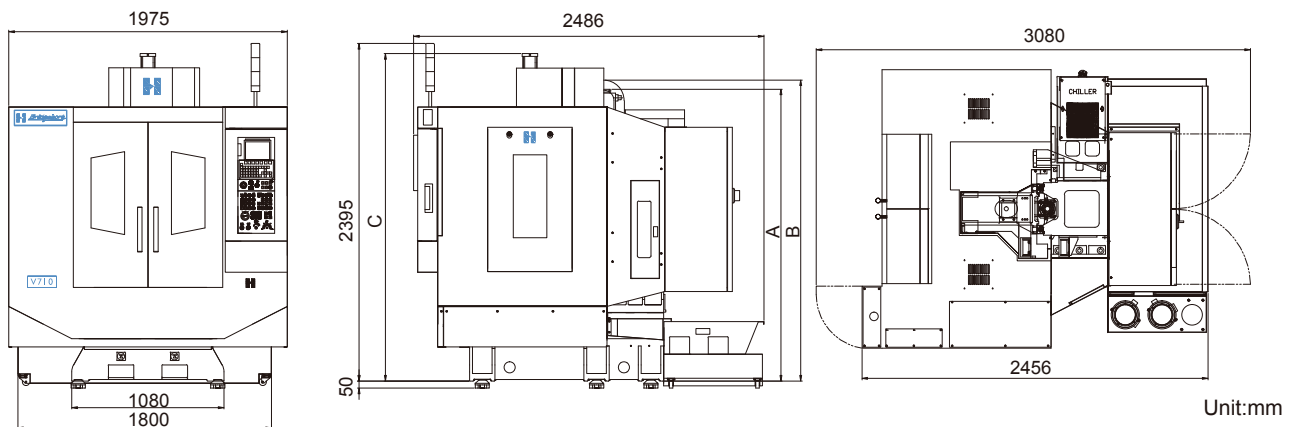
# FLOOR PLAN

## DIMENSIONAL DRAWINGS

### V480



### V710



# SPECIFICATIONS

## MACHINE WEIGHT

Type	V480 (#40)	V480 (#30)	V710 (#40)	V710 (#30)
Weight	3,800	3,800	3,907	3,907

## MACHINE CONFIGURATIONS

	V480 (#40 Taper)	V480 (#30 Taper)	Unit
<b>Travel</b>			
Carousel Type (X x Y x Z)	480 x 400 x 430	N/A	mm
SA ATC (X x Y x Z)	480 x 400 x 430		mm
Spindle Nose to Table Surface	150 - 580 (SA ATC & Carousel)	150 - 580 (SA ATC)	mm
Table Front End to Door	150		mm
Spindle Center to Column	429	420	mm
<b>Table</b>			
Table Dimension	600 x 400		mm
Weight on Table (Max.)	300	250	kg
T-Slots (Width x No. x Pitch)	14 mm x 3 x 125 mm		
<b>Spindle</b>			
Motor Rating (Max.)	10 hp / 7.5 kW (S3 25%)	10 hp / 9.0 kW (S3 25%)	
Speed (Max.)	10,000 Belt Drive	15,000 Direct Drive	rpm
Torque (Max.)	47.7	17.5	N-m
Tapping Speed (Max.)	3,000	6,000	rpm
<b>Ball Screw</b>			
Diameter	32		
<b>Feed Rates (All Axes)</b>			
Rapid and Traverse Rate	36	48	m/min
Cutting Feed Rate (Max.)	12	15	m/min.
<b>Tool Changer</b>			
Tool Capacity	16 (Carousel - Standard) 20 (Swing Arm - Option)	20 Swing Arm	
Tool Selection	Bi-Directional		
Tool Holder Type	BT or CAT or SK or ANSI 40	BT or CAT or SK or ANSI 30	
Tool Diameter Max. (Carousel Type)	94 (Full), 130 (Adj. Pockets Empty)	N/A	mm
Tool Diameter Max. (SA ATC Type)	80 (Full), 130 (Adj. Pockets Empty)		mm
Tool Length Max. (SA ATC Type)	190		mm
Tool Weight Max. (Carousel Type)	6	N/A	kg
Tool Weight Max. (SA ATC Type)	7	4	kg
Tool Change Time (Avg.) (Carousel Type)	2.5 (C-C 4.5)	N/A	sec
Tool Change Time (Avg.) (SA ATC Type)	2 (C-C 4)	0.8 (C-C 2.2)	sec

	V480 (#40 Taper)	V480 (#30 Taper)	Unit
<b>Accuracy (ISO 230-2)</b>			
Positioning (All Axes)	0.005		mm
Repeatability	0.003		mm
<b>Motors</b>			
Axis Motor Rating	1.8	1.6 (X, Y) / 3 (Z)	kW
Coolant & Flush Motor	0.52		kW
<b>Lubrication</b>			
Spindle Bearing	Grease		
Linear Guideways	Grease		
Ball Screw	Grease		
<b>Coolant Capability</b>			
Coolant Tank Capacity	170		liter
Chip Flush Rate	40		liter
<b>Miscellaneous</b>			
Compressed Air Reg. (Min.)	70 psi, 5 kg / cm <sup>2</sup>		
Power Supply Requirement	52A FLA / 220V / 3 Phase		
<b>Optional</b>			
Coolant Through Spindle 280 psi (20 Bar)			
Chip Flush System			
4th Axis Rotary Tables			
Chip Wash Down Hose			
Siemens 828D Controller			
10K RPM Direct Drive Spindle (#40)			
12K RPM Direct Drive Spindle (#40)			
15K RPM Direct Drive Spindle (#40)			
20K RPM Direct Drive Spindle (#30)			
24K RPM Direct Drive Spindle (#30)			
Chip Conveyor	Auger Type	Hinge Type	Scrapper Type
Z Axis Column Raiser 200 mm			
Tool Probe / Pre-Wiring			
Part Probe / Pre-Wiring			
Fast Ethernet Interface + D/ S 2GB Memory Card			
AICCII (Pre-read 200 Blocks)			

To keep improvements and developing new functions, Hardinge Taiwan reserves the rights to change specifications without further notice.  
Due to varying cutting conditions, actual results may be greater or less than those listed

# SPECIFICATIONS

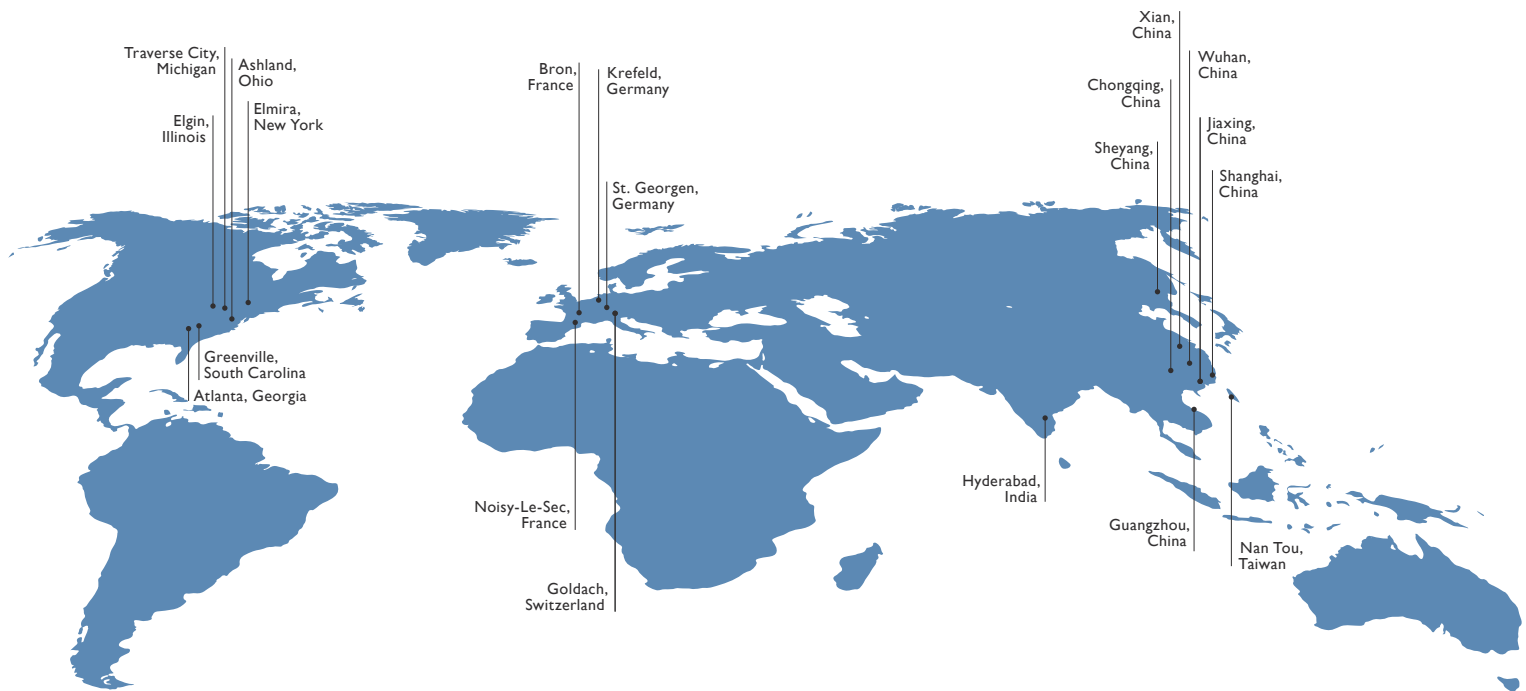
## MACHINE CONFIGURATIONS

	V710 (#40 Taper)	V710 (#30 Taper)	Unit
<b>Travel</b>			
Carousel Type (X x Y x Z)	710 x 400 x 430	N/A	mm
SA ATC (X x Y x Z)	100 x 400 x 430		mm
Spindle Nose to Table Surface	150 - 580 (SA ATC & Carousel)	150 - 580 (SA ATC)	mm
Table Front End to Door	150		mm
Spindle Center to Column	429	420	mm
<b>Table</b>			
Table Dimension	800 x 400		mm
Weight on Table (Max.)	300	250	kg
T-Slots (Width x No. x Pitch)	14 mm x 3 x 125 mm		
<b>Spindle</b>			
Motor Rating (Max.)	10 hp / 7.5 kW (S3 25%)	10 hp / 9.0 kW (S3 25%)	
Speed (Max.)	10,000 Belt Drive	15,000 Direct Drive	rpm
Torque (Max.)	47.7	17.5	N-m
Tapping Speed (Max.)	3,000	6,000	rpm
<b>Ball Screw</b>			
Diameter	32		
<b>Feed Rates (All Axes)</b>			
Rapid and Traverse Rate	36	48	m/min
Cutting Feed Rate (Max.)	12	15	m/min.
<b>Tool Changer</b>			
Tool Capacity	16 (Carousel - Standard) 20 (Swing Arm - Option)	20 Swing Arm	
Tool Selection	Bi-Directional		
Tool Holder Type	BT or CAT or SK or ANSI 40	BT or CAT or SK or ANSI 30	
Tool Diameter Max. (Carousel Type)	94 (Full), 130 (Adj. Pockets Empty)	N/A	mm
Tool Diameter Max. (SA ATC Type)	80 (Full), 130 (Adj. Pockets Empty)		mm
Tool Length Max. (Carousel Type)	250	N/A	mm
Tool Length Max. (SA ATC Type)	190		mm
Tool Weight Max. (Carousel Type)	6	N/A	kg
Tool Weight Max. (SA ATC Type)	6	3	kg
Tool Change Time (Avg.) (Carousel Type)	2.5 (C-C 4.5)	N/A	sec
Tool Change Time (Avg.) (SA ATC Type)	2 (C-C 4)	0.8 (C-C 2.2)	sec

	V710 (#40 Taper)	V710 (#30 Taper)	Unit
<b>Accuracy (ISO 230-2)</b>			
Positioning (All Axes)	0.005		mm
Repeatability	0.003		mm
<b>Motors</b>			
Axis Motor Rating	1.8	1.6 (X, Y) / 3 (Z)	kW
Coolant & Flush Motor	0.52		kW
<b>Lubrication</b>			
Spindle Bearing	Grease		
Linear Guideways	Grease		
Ball Screw	Grease		
<b>Coolant Capability</b>			
Coolant Tank Capacity	170		liter
Chip Flush Rate	40		liter/min
<b>Miscellaneous</b>			
Compressed Air Reg. (Min.)	70 psi, 5 kg / cm <sup>2</sup>		
Power Supply Requirement	64A FLA / 220V / 3 Phase		
<b>Optional</b>			
Coolant Through Spindle 280 psi (20 Bar)			
Chip Flush System			
4th Axis Rotary Tables			
Chip Wash Down Hose			
Siemens 828D Controller			
10K RPM Direct Drive Spindle (#40)			
12K RPM Direct Drive Spindle (#40)			
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Chip Conveyor	Auger Type	Hinge Type	Scraper Type
Z Axis Column Rasier 200 mm			
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Fast Ethernet Interface + D/ S 2GB Memory Card			
AICCII (Pre-read 200 Blocks)			

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# HARDINGE WORLDWIDE



Hardinge is a leading international provider of advanced metal-cutting solutions. We provide a full spectrum of highly reliable CNC turning, milling, grinding, and honing machines as well as technologically advanced workholding accessories.

The diverse products we offer enable us to support a variety of market applications in industries including aerospace, agricultural, automotive, construction, consumer products, defense, energy, medical, technology, transportation and more.

We've developed a strong global presence with manufacturing operations in North America, Europe, and Asia. Hardinge applies its engineering and applications expertise to provide your company with the right machine tool solution and support every time.

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