

BRIDGEPORT XT630 5AX

5-AXIS CNC MACHINING CENTERS



 **HARDINGE**[®]

Bridgeport[®]

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FEATURES

- 15,000 RPM Direct Coupled Spindle with Oil Chiller & Air/Oil Mist
- BIG-PLUS® BBT 40 Spindle
- 24-station Swing Arm ATC
- CNC Control – Heidenhain iTNC 640
- Coolant Chip Flush System
- Coolant Wash down Gun-Automatic
- Auto Central Grease Lubrication
- A-Axis Rotary Encoder
- Leveling Pad and Screw
- Retention Knobs
- CTS Preparation with Deublin Rotary Union
- Auto Door Magazine
- Spindle Circular Flushing
- Scraper Type Conveyor
- Auto Power Off
- Work Light
- Three Color Stack Light

5-AXIS TECHNOLOGY

The Bridgeport XT630 5AX 5-Axis CNC machining centers are designed for accuracy, speed and productivity. They are built to provide years of dependable machining on parts requiring consistent tolerances, tough to machine materials and fine surface finishes.

The XT630 5AX features a robust traveling beam design on an extremely rigid cast iron base.

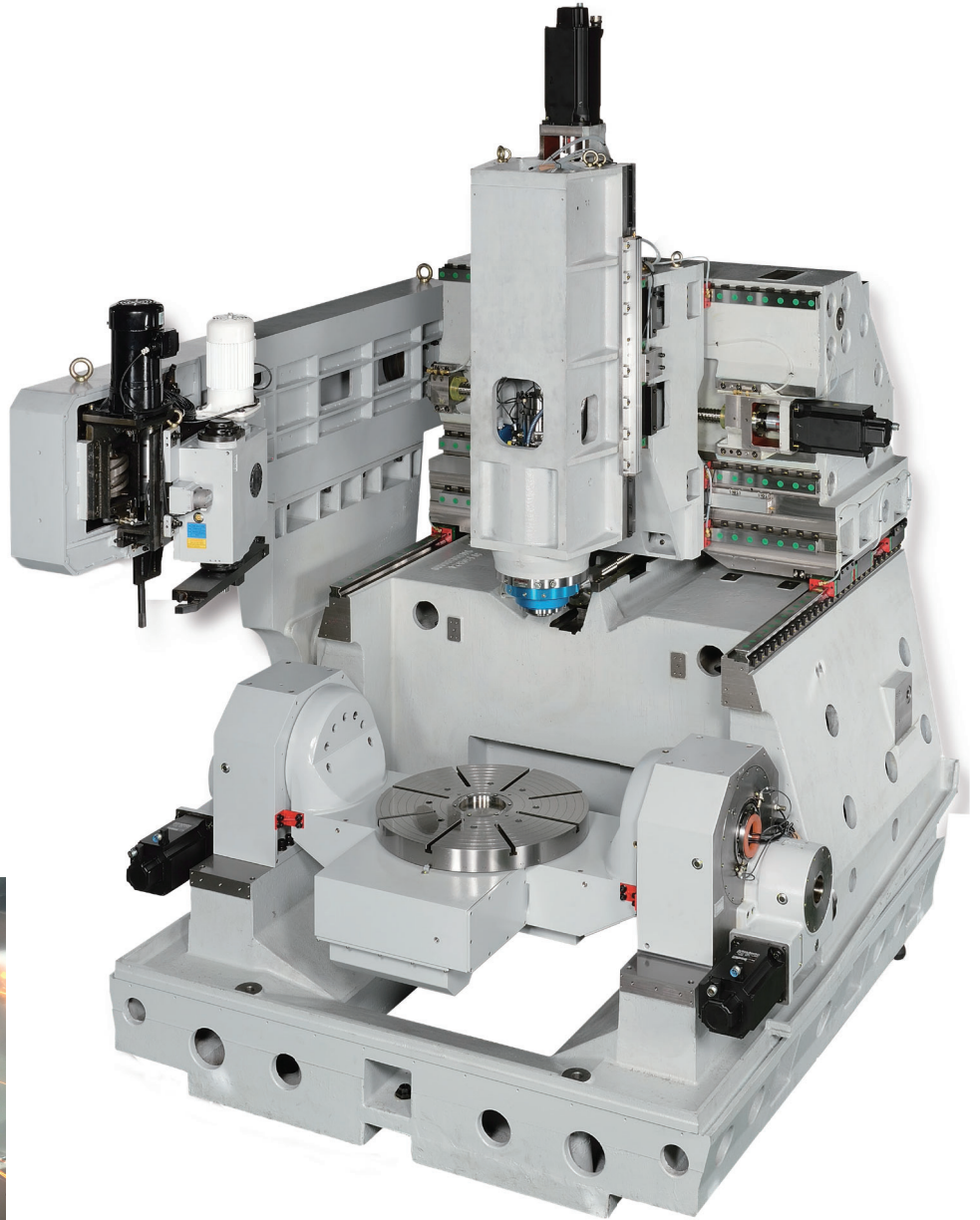
The Bridgeport XT630 5AX has been designed to stand above all other machines in its class. With a wide range of options to choose from, this makes this 5-axis machine the best in class against competitive machining centers worldwide. Higher end features have been designed into the XT630 5AX machines, while streamlining overall cost to provide a very price competitive machine for the higher end market.



MACHINE CONSTRUCTION

MACHINE STRUCTURE

- The honey-comb like reinforced-rib radial and peripheral design provides optimum strength to weight ratio at minimum weight.
- The head casting is symmetrically designed about the X-axis and appropriate weight balance in the Z-axis and minimizes heat migration to the head structure.
- The machine design incorporates a twin drive system on the A-axis for higher overall stiffness with minimal for better distribution of cutting forces.



OPTIONS

- C-Axis Rotary Encoder
- X/Y/Z Axis Linear Scale
- Chip Conveyor, Hinge Type (W=500)
- Coolant through Spindle (280PSI)
- Mist Collector (1.5Kw, Airflow 33.3m³/min)
- Renishaw Tool & Part Probe (OMP40-+OTS)
- Blum Tool & Part Probe (TC 52 + TC S4-20)
- Dynamic Collision Monitoring
- 48 Position 40 Taper Tool Magazine
- 60 Position 40 Taper Tool Magazine
- Siemens KinematicAlignment Software

KEY FEATURES

HIGH-PERFORMANCE LINEAR GUIDES, RECIRCULATING BALL SCREW AND AXIS DRIVE

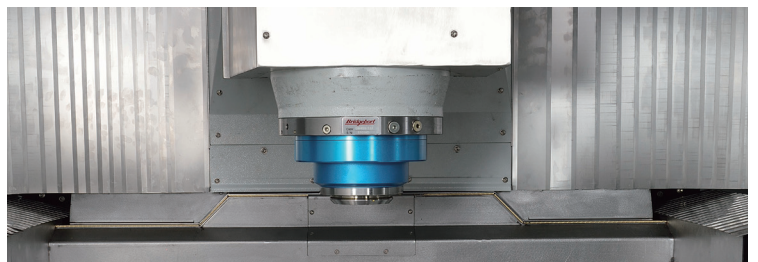
Heavy duty hardened and ground recirculating ball screws for slide movements \varnothing - 45 mm (X, Z axis), \varnothing 50 mm (Y axis). Ball screws are driven by powerful direct-drive servo motors. Use of powerful roller guides for all axis guides. X and Y axis guides are 45 mm wide. Z-axis guides are 55 mm wide. Linear guides generate less friction, less heat and less thermal expansion compared to conventional box guides. Absolute encoders are used on all axes.

FAST AUTOMATIC HIGH CAPACITY TOOL CHANGER

The standard ATC is located on a separate base - this ensures fast vibration-free operation. At the same time, machining precision and surface quality are improved, which are otherwise exposed to vibrations due to the movement of the tool chain during machining operations. The ATC cam is driven by an inverter motor, which enables rapid tool change and thus prompt resumption of operation in the event of a collision or malfunction. This inverter motor allows the swivel arm to be moved in both forward and reverse directions, thus allowing step-by-step navigation through the ATC recovery procedure. Using a reference sensor for the tool position in the ATC magazine, the tool location is located. #1 for quick tool change and prompt continuation of operation. Optional tool chains with 48 or 60 places are available.

STANDARD BIG-PLUS® SPINDLE CONFIGURATION (TWO-CONTACT SYSTEM) WITH ISO-40 TOOL HOLDER

ISO-40 "V" flange spindle system with dual contact. (tool holder - spindle) and fully enclosed hardened and precision ground preloaded ball bearings. Blow air through the taper minimizes spindle contamination during tool changes. In addition, a labyrinth seal and low-pressure air purge prevent coolant from entering the spindle bearings. Tools with CAT-V-40 V flange are available from Hardinge.

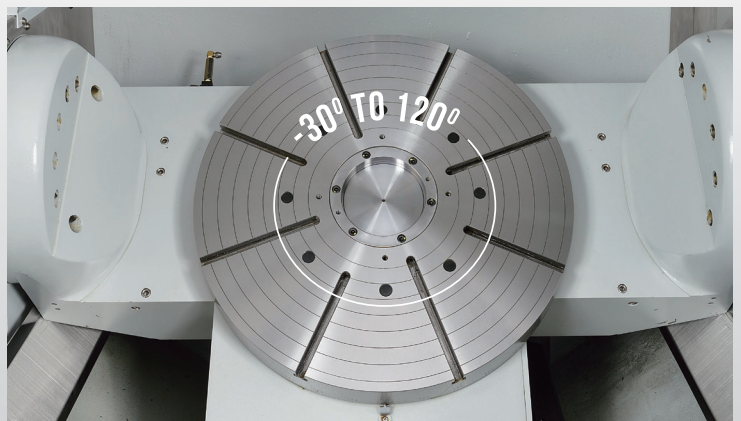


SPINDLE CONFIGURATION (TWO-CONTACT SYSTEM) WITH ISO-40 TOOL HOLDER

The spindle system with dual contact of the tool holder to the spindle is also known as BIG-PLUS®. This results in simultaneous contact at the face and taper after clamping the tool into the spindle. This system provides a more stable connection between the spindle and toolholder hand in hand with minimal running deviation when the tool is extended and overall improved rigidity. The operating principle of the BIG-PLUS® (BCV/BBT) spindle with dual-contact toolholder provides that the toolholder taper and the spindle taper are brought into contact with each other prior to clamping to ensure a stable taper fit without any face contact having already occurred. As soon as the machine's spindle drawbar is activated, the toolholder is pulled into the spindle, which expands elastically until the faces of the spindle and toolholder touch. This completes the simultaneous connection of the taper and flange of the toolholder with the spindle taper and face.

ROUND/SWIVEL TABLE

The XT630 5AX machining center is equipped with a 630 mm rotary/swivel table, which has A and C axes and ensures minimal backlash. The A-axis is the tilting axis with a programmable tilting range from -30° to 120° degrees, while the C-axis rotates continuously. Eight T-slots provide high flexibility in the choice of workholding systems. The max. table load is 350 kg with central clamping.



CONTROLS



SIEMENS

SIEMENS 840D SL

- 19" TFT LCD display with Innovative capacitive sensor technology
- Programmable Resolution .0001"/.001mm
- Inch/Metric data selection by G-Code
- MDI (Manual Data Input) Operation
- ShopMill
- 3D Simulation
- SINUMERIK Operate
- Animated element operation
- Easy Tool Management
- Measurement cycles
- Transmit and peripheral surface transformation
- CYCLE800
- MDynamics
- Advanced Surface
- Ethernet interface
- (Data Transfer Capability)
- FTP
- Part Program Storage/ Data input/ output on:
 - 10 MB CNC memory
 - 6 GB internal Compact Flash
 - USB 2.0
 - Network Drive



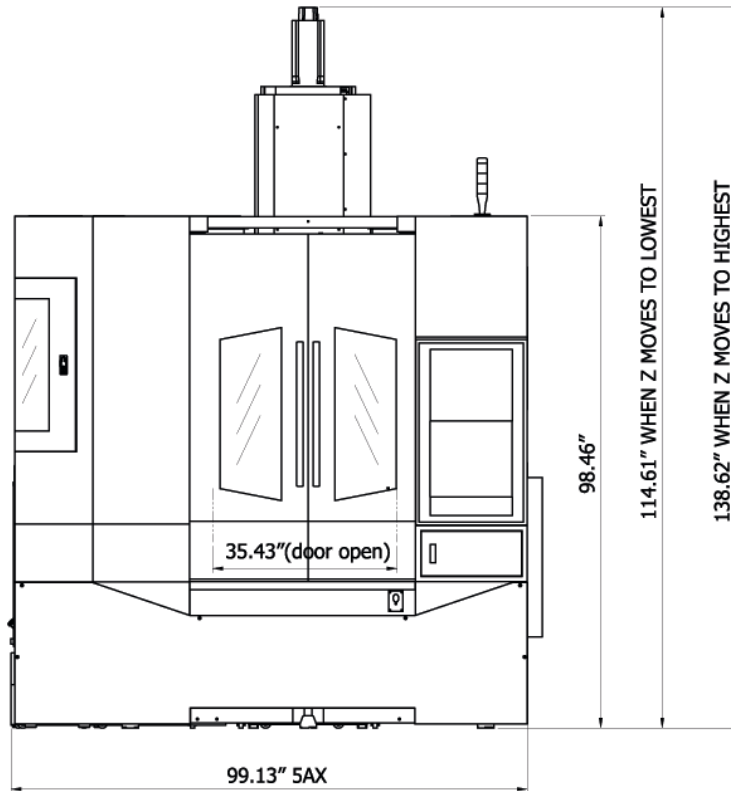
HEIDENHAIN

HEIDENHAIN ITNC 640 FS

- 19" TFT display with touchscreen for multi-touch operation
- Contouring control
- Axes: 20 control loops
- Uniformly digital with HSCI interface and EnDat interface
- Storage: HDR hard disk with 160GB or SSDR solid state disk with 32GB
- Programming in HEIDENHAIN conversational format or according to DIN/ISO
- Comprehensive cycle package for milling and turning operations
- Constant surface speed for turning operations
- Tool-tip radius compensation
- Touch probe cycles
- Free contour programming (FK)
- Special function for fast 3-D machining
- Short block processing time (0.5 ms)

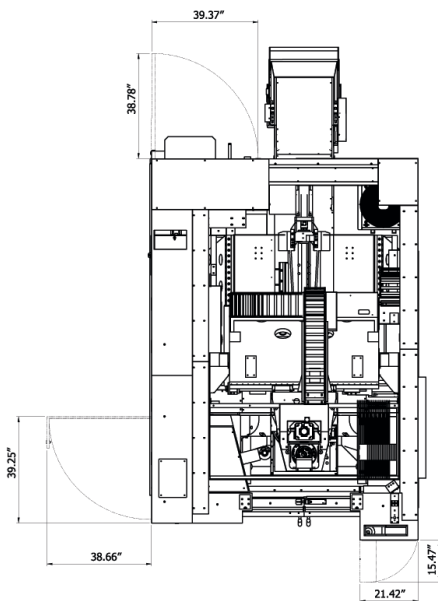
The conversational programming features provided on the CNC control are the CNC control manufacturer's standard product and may not fully support all machine functions. It is recommended that the end user consult the control system documentation or contact the control manufacturer for further details on use or customization.

FLOOR PLANS

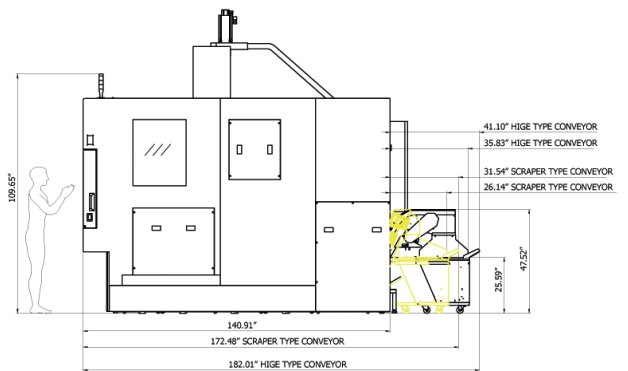


FRONT VIEW

TOP VIEW



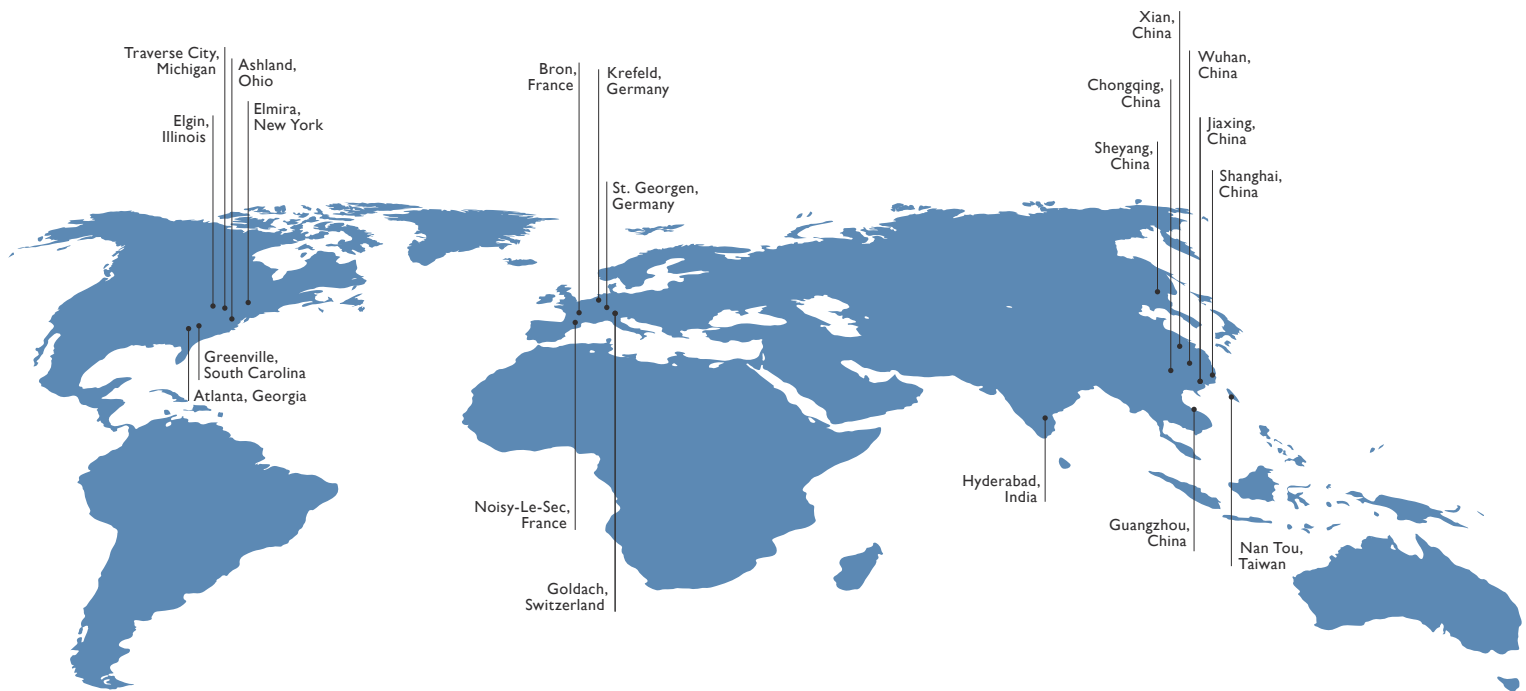
SIDE VIEW



SPECIFICATIONS

Travels				
X-Axis	30" (762mm)			
Y-Axis	24.8" (630mm)			
Z-Axis	24" (610mm)			
A Axis (Tilt)	+30° ~ -120°			
C Axis (Rotary)	360° (Continuous)			
Max. Swing diameter	C axis Ø900 at faceplate surface			
Spindle Nose To Table @ 0 deg.	5.9" - 71.2" (150mm-760mm)			
Spindle Nose To tilting @ 90 deg.	5.9" - 71.2" (150mm-760mm)			
5 Axis Rotary Table				
Table Diameter Size	Ø 24.8" (Ø 630mm)			
Max. Work Piece Range Diameter x Height	Ø 35.4" x 13.4" (Ø900 mm x 340mm)			
Load Capacity	771 lbs (350 kg)			
T-Slots (Size x Number of Slot)	.551" (14mm) x 8			
Table hole	Ø 5.51 H.28" (Ø140 H7)			
A axis CL to table	1.97" x 1.97" (50mm x 50mm)			
Clamping Torque in Rotary (C axis)	2360 ft-lbs (3200Nm)			
Clamping Torque in Tilt (A axis)	3687 ft-lbs (5000Nm)			
Working Torque in Rotary (C axis)	1843 ft-lbs (2500Nm)			
Working Torque in Tilt (A axis)	1843 ft-lbs (2500Nm)			
Spindle Transmission	Heidenhain + Siemens	Heidenhain	Siemens	Siemens
Taper	DIN 69893(HSK-A63)	BBT40 or HSK-A63	BBT40 or HSK-A63	NO.40 (BBT40)
Speed Range (Max. RPM)	30~18000 rpm	30~15000 rpm	30~15000 rpm	30~12000 rpm
Lubrication	Oil Air			
Cooling type	Oil spindle chiller			
Transmission	Motorized (GTW spindle)	DDS (GTW spindle)	DDS (GTW spindle)	DDS (HT spindle)
Motor	ATE	QAN200UH	1PH8107	1PH8107
Horsepower	40/50.9 hp (30kw/38kw)	13.4/18.7 hp (10kw/14kw)	17.4/26 hp (13kw/19.5kw)	17.4/26 hp (13kw/19.5kw)
Maximum Torque at Motor Base Speed (S6-40%)	91.3 ft-lbs (123.8Nm) @ 2930rpm	65.9 ft-lbs (89.4Nm) @ 1500rpm	65.2 ft-lbs (88.5Nm) @ 453rpm	65.2 ft-lbs (88.5Nm) @ 453rpm
Maximum Torque at Spindle Base Speed (S6-40%)	91.3 ft-lbs (123.8Nm) @ 2930rpm	65.9 ft-lbs (89.4Nm) @ 1500rpm	65.2 ft-lbs (88.5Nm) @ 453rpm	65.2 ft-lbs (88.5Nm) @ 453rpm
Automatic Tool Changer (ATC)				
Type	Swing Arm			
Tool Type	BT / CAT / ISO / HSK-A63			
Tool Selection	Bi-directional			
Tool Capacity	24 Tools / 48 Tools / 60 Tools			
Max. Tool Diameter (Full Drum)	3.15"(80mm) 24 Tool Magazine 2.95" (75mm) 48 & 60 Tool Magazines			
Max. Tool Diameter (Adj. Pockets Empty)	4.9" (125 mm)			
Max. Tool Length	11.81" (300 mm)			
Max. Tool Weight	17.6 lbs (8 kg)			
Tool Change Time (T-T)	< 2 sec			
Tool Change Time (C-C) ISO 10791-9	< 5 sec			
Axes Drives-Positioning				
X, Y, Z-Axis Rapid Traverse Rate	1417 in/min (36m/min)			
X, Y, Z-Axis Maximum Feedrate	17.6 lbs (8 kg)			
C Axis Rapid (Rotary)	25 rpm			
A Axis Rapid (Tilt)	20 rpm / 11.1 rpm			
X, Y, Z-Axis Acceleration	6 / 4 / 6 (m/s ²)			
Accuracy				
X, Y, Z-Axis Positioning, Full Travel (ISO 230-2) (with scale)	.00024" (0.006mm)			
X, Y, Z-Axis Repeatability (ISO 230-2) (with scale)	.00012" (0.003mm)			
X, Y, Z-Axis Positioning, Full Travel (ISO 230-2) (without scale)	.00039" (0.01mm)			
X, Y, Z-Axis Repeatability (ISO 230-2) (without scale)	.00016" (0.004mm)			
A Axis Positioning (Arc sec) with Scale	10			
C Axis Positioning (Arc sec) with Scale	10			
A Axis Repeatability (Arc sec) with Scale	4			
C Axis Repeatability (Arc sec) with Scale	4			
C Axis Positioning (Arc sec) without Scale	15			
C Axis Repeatability (Arc sec) without Scale	16			
General Specifications				
Machine Weight	32,187 lbs (14600kg)			
Machine Overall Length	99.1" (2518mm) / 102" (2590mm)			
Machine Overall Depth	182" (4623mm)			
Machine Overall Height	138.6" (3521mm)			
Coolant Tank Capacity (Conveyor Tank + Clean Tank)	51.7 Gal + 74 gal (196L + 281L)			
Coolant Flow Rate	58 Gal/min (220 L/min)			
Air Requirements pressure & flow	6 kg/cm ² & 500L/min (estimated)			
Power Requirements (Fla/Volts/Phase) Speed (S6-40%)	83A/400V/50Hz	59A/400V/50Hz	57A/400V/50Hz	50A / 400W / 3 phase@ 453rpm
Miscellaneous Standard Features				
Remote MPG Hand Wheel; A Axis Rotary Encoder; Leveling Pad and Screw; Retention Knobs; Worklight; Auto Central Grease Lubricant; Coolant Chip Flush; Coolant Wash Gun; Automatic; Surround Tool Coolant Spindle Chiller; Ball Nut & End Bearing Chiller (Option on V 630 5F); Tri-Color Light Tower; Tool Magazine Auto Door 32,187 lbs (14600kg)				
Options				
C Axis Rotary Encoder; X/Y/Z Axis Linear Scale; 500mm wide Chip Conveyor, Hinge Type & Scraper; Coolant Through Spindle (280 psi); CTS Preparation with Deublin Rotary Union; Mist Collector (1.5 Kw, Airflow 33.3 m/min); Front Door Light Curtain; Renishaw Tool & Part Probe (OMP40-2+OTS); Blum Tool & Part Probe (TC 52 + TC54-20); Heidenhain Tool & Part; Dynamic Collision Monitoring; Kinetic Alignment; Probe (TS460 + TT460)				
Options-In Process				
Front Door Auto Door; Top Cover Y Axis Ballows; Workpiece Clamping; 32,187 lbs (14600kg)				

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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