

MILLING



XR-Series
High-Performance
Vertical Machining Centers



TURNING MILLING GRINDING WORKHOLDING ROTARY

www.bpt.com

 **BRIDGEPORT**
EXPECT MORE™

XR-Series High-Performance Vertical Machining Centers

An investment in Bridgeport's latest generation of XR-Series vertical machining centers is guaranteed to bring instant and positive results. All models feature the latest WEISS spindle technology, providing high radial and axial rigidity for fast and ultra-productive machining. Our unrivalled technology coupled with an unswerving commitment to improving our customers' productivity and business performance have contributed to a large, and loyal, customer base. Always at the cutting-edge of innovative and technological developments, the Bridgeport name is synonymous with quality and engineering excellence that is second to none.



XR 610
XR 760
XR 1000



XR 1270
XR 1500



Final assembly of the XR 1000 in Elmira, NY.



Unique features that make the XR-Series Vertical Machining Centers the best in the industry!

Rigid machine base

See page 4



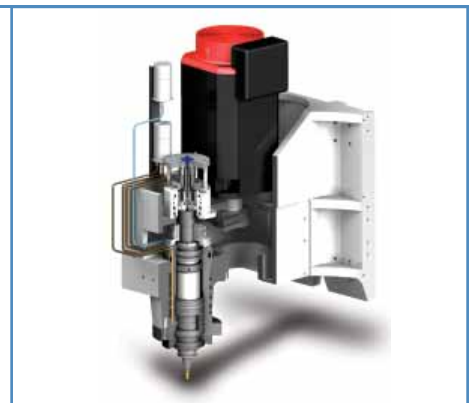
Heavy-duty linear guideways, ballscrews and axis drives

See page 5



Unprecedented spindle technology

See page 6-7



Advanced digital CNC control systems

See page 10-11



XR-Series High-Performance Vertical Machining Centers

Rigidity...built like a rock from the ground up

Best overall working cube in its class—610mm (24-inch) Y-axis travel on XR 760 and XR 1000

Unique ATC mount design for superior rigidity and minimized vibration to the cutting zone.

Large 45mm high-quality, low maintenance linear guideways provide greater positioning accuracy and superior finishes—very low friction and high stiffness for long machine life.

Highly engineered machine structure manufactured from grey cast iron—heavily ribbed throughout to ensure high overall rigidity and thermal stability.

XR 1000 shown

Best-in-class spindle design incorporates five (5) bearings for superior rigidity and overall spindle life—four (4) angular contact bearings on the front; one (1) roller bearing on the rear.

Massive 40- or 50-taper WEISS spindle offers unique grease replenishment system along with a dual-contact (BIG-PLUS) flange fit system.

Oversized high-class 45mm double-nut ballscrews—fixed and pre-tensioned to provide superior machine accuracy and repeatability.

All geometric alignments conform to ISO 230 standards—every machine passes strict laser and ballbar tests.

Standard features include:

- 12,000-rpm Spindle Speed
- CT40 or BT40 Taper WEISS Spindle
- BIG-PLUS Face Taper Contact
- High-Retention Draw Bar
- Thermal Compensation¹
- Chip Auger or Conveyor with Chip Washdown²
- Chip Conveyor with Chip Washdown³
- Cutter Air Blast
- 300-psi Through-Spindle Coolant⁴
- Rigid Tapping
- 4th Axis Preparation

¹ XR 610, XR 760 and XR 1000 only

² Unit supplied as standard varies by market on XR 610

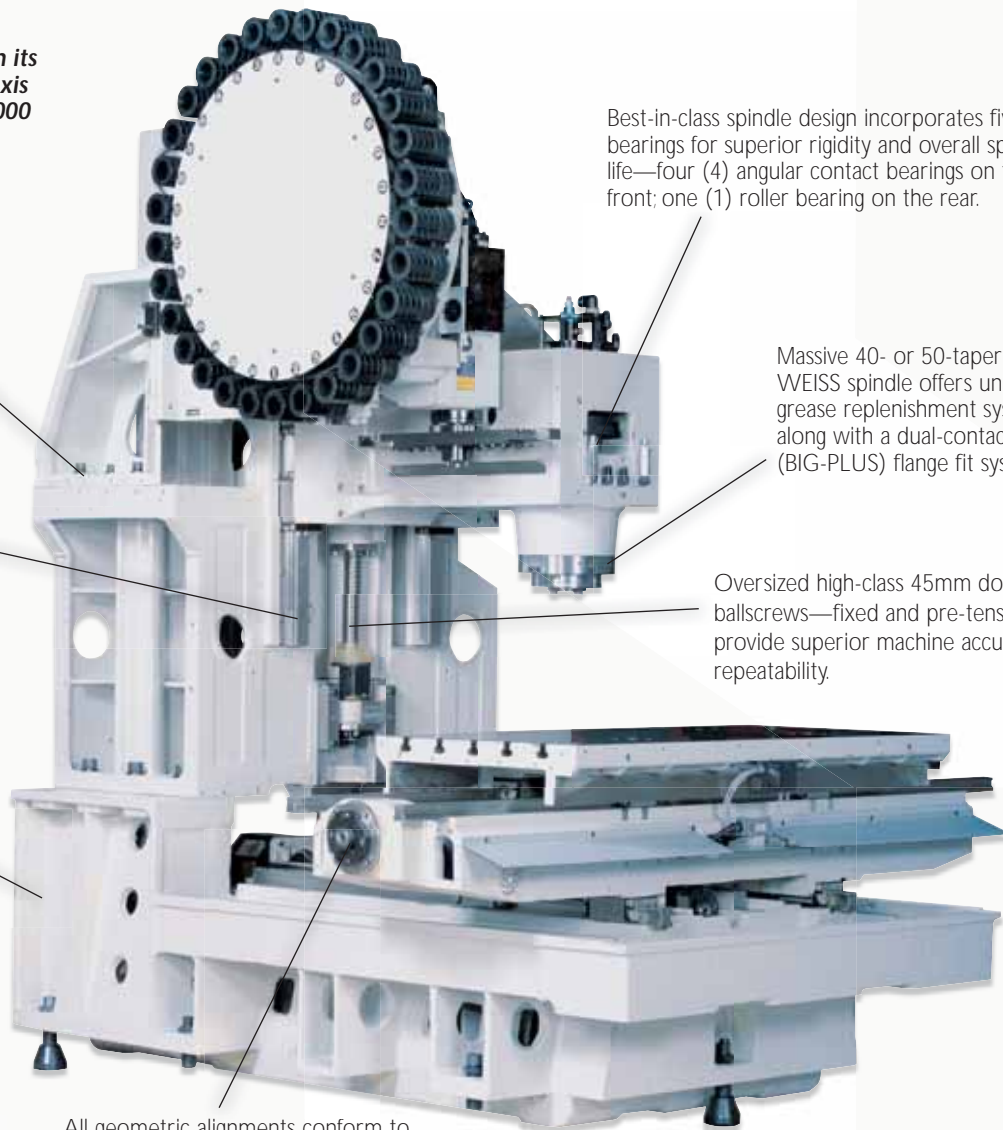
³ XR 760, XR 1000, XR 1270 and XR 1500

⁴ Optional on XR 610 in certain markets

Optional features include:

- Larger Capacity ATCs
- Heidenhain iTNC 530 CNC Control
- 15,000-rpm High-Speed Spindle
- Absolute Linear Glass Scales
- Tool Setting Probes
- Spindle Probe
- 4th Axis Interface
- Hardinge 5C and 16C Indexers and Rotary Tables
- Hand-held Manual Pulse Generator

XR 1500 shown



Heavy-duty linear guideways, ballscrews

and fast tool changes add speed and rigidity

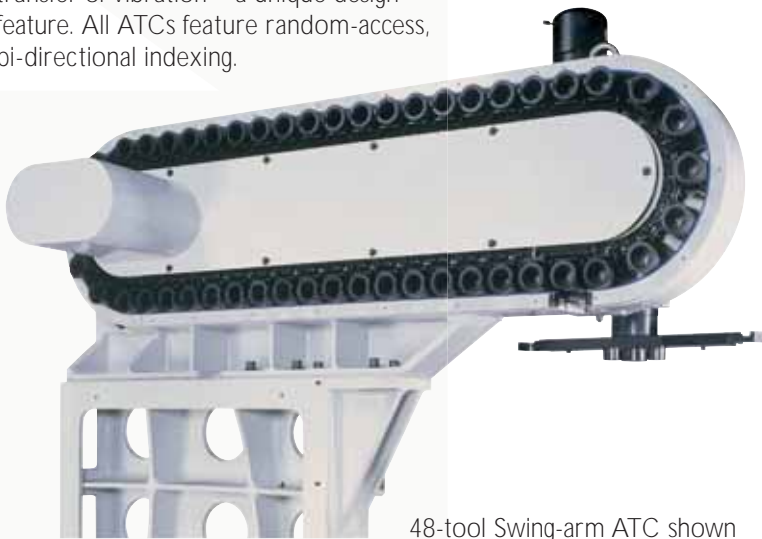
Heavy-duty linear guideways, ballscrews and axis drives

Wide-spaced, oversized linear guideways provide optimum stiffness with less friction, less heat and less thermal growth for faster traverse rates, longer machine life and greater positioning accuracy. The linear way modules consist of slide members (guide trucks) and linear rails to provide a large load rating, stable accuracy, high rigidity and low friction. The wide spacing between all axes rails provides optimum stiffness for the overall machine structure. Oversized 45mm (1.77") ballscrews are featured on all the XR-Series VMCs shown in this brochure.



Large capacity, fast performance ATC (Automatic Tool Changer)

To ensure smooth and vibration-free tool changing, all XR-Series machines have their tool changer strategically located for minimal transfer of vibration—a unique design feature. All ATCs feature random-access, bi-directional indexing.



48-tool Swing-arm ATC shown

Model	ATC Tool Positions	ATC Option	Tool Shank Taper
XR 610	24	—	40
XR 760	30	48	40
XR 1000	30	48	40
XR 1270	30	48 or 60	40
XR 1270 HP	30	48 or 60	40
XR 1270 HPD	30	—	50
XR 1500	48	60	40
XR 1500 HP	48	60	40
XR 1500 HPD	30	—	50



30-tool Swing-arm ATC shown



XR-Series High-Performance Vertical Machining Centers

Unprecedented spindle technology second to none

Revolutionary WEISS spindle—the latest in spindle technology

XR-Series VMCs are equipped with the very latest, high-performance WEISS spindle technology. The XR 610 through XR 1000 models are supplied with a powerful 12,000-rpm, 18.5-kW (25-hp) belted spindle drive; 30-kW (40-hp) on the XR 1270 and XR 1500 models. Other speeds and drive system options offered.

The XR 1270 HP and XR 1500 HP models feature a directly-coupled 15,000-rpm 30-kW (40-hp) spindle, while the 50-taper XR 1270 HPD and XR 1500 HPD models include a 375-to-7,500-rpm 30-kW (40-hp) gear-box driven spindle. Other speeds available.

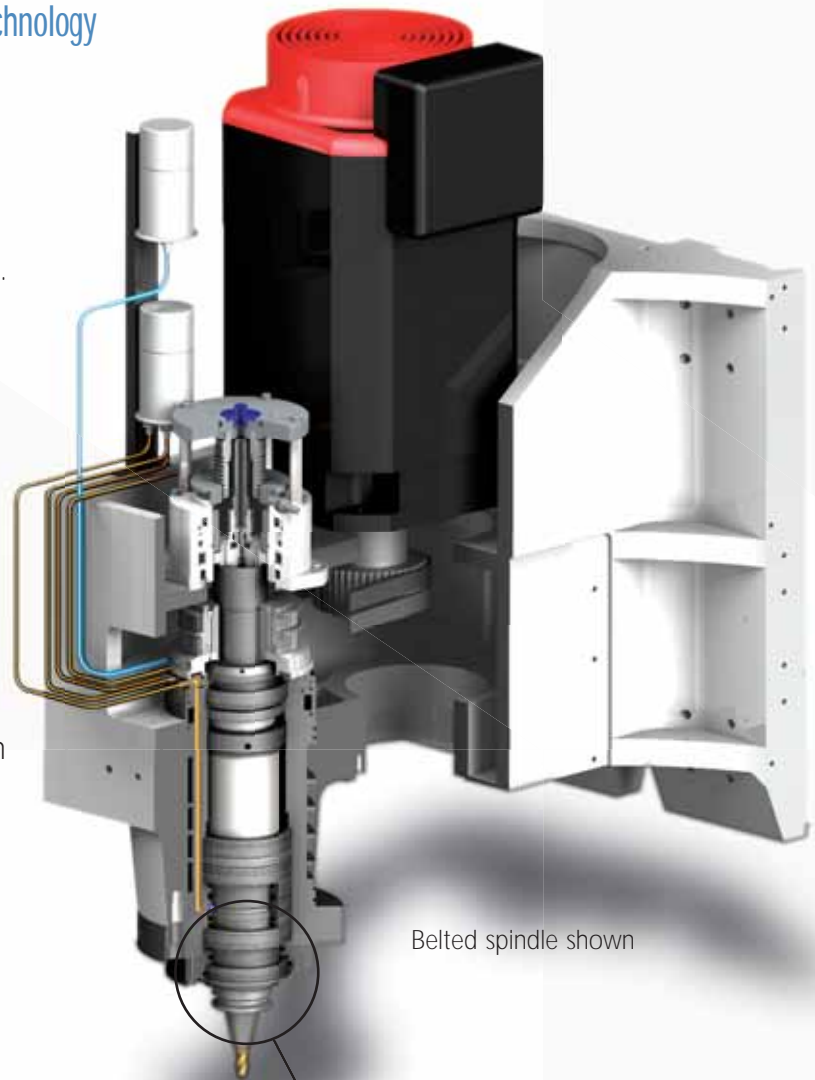
The WEISS directly-coupled spindle configuration reduces spindle inertia and increases accel/decel times for increased productivity. Main features include low vibration and high power density—giving even greater rigidity and radial stiffness. The absence of drive traverse forces permits extremely high accuracy on the workpiece due to smooth, accurate spindle motion even at very low speeds.

BIG-PLUS dual contact spindle system

The BIG-PLUS spindle system assures higher rigidity, stiffness and accuracy of toolholders in high-speed and difficult machining applications. The dual contact precisely positions the toolholder within 1 micron following a tool change.

Elimination of Z-axial movement

At high rotational spindle speeds, the mouth of the machine spindle can expand slightly due to centrifugal force. As the machine spindle expands, the conventional toolholder, which under constant draw bar pulling pressure, moves further into the spindle. On high tolerance applications, this slight pull back of the cutter can affect dimensional accuracy of the Z-axis. Pull back can also cause the toolholder to get locked into the machine spindle taper. The face contact provided by the BIG-PLUS Spindle System prevents the toolholder from being drawn back into the machine spindle.



Belted spindle shown



Taper Contact

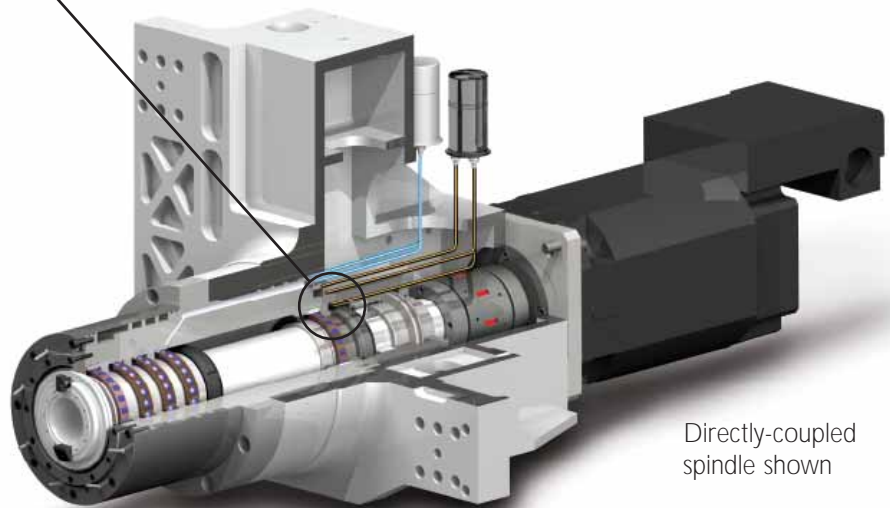
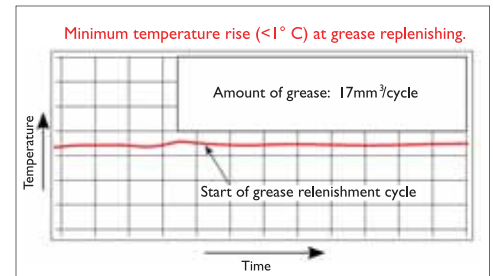
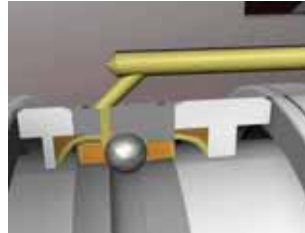
Flange Contact



Thermally stable system for optimal spindle performance

Grease lubrication “on-the-fly”

Longer grease life leads to longer spindle service life. Bridgeport XR-Series spindles offer 2-to-3 times longer life due to our grease replenishment technology that keeps the grease quality at a consistently high level. Lubrication cycles are controlled by an external grease replenishing unit, which is triggered based on cumulative spindle run time. Most other brand VMCs have no way to replenish grease. Not so with our system! The grease replenishing unit is integrated in the spindle, thus maintaining a totally sealed spindle. Fresh grease is injected very close to the raceway, pushing older grease away from the bearings. The benefit to this technology is higher permissible bearing preloads, resulting in higher rigidity, higher metal removal rates and the ability to run at higher spindle speeds for longer periods of time.



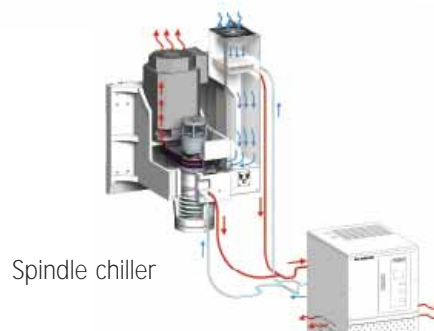
Eco Cooling heat exchanger system

This heat exchanger system, which is standard on XR 610, XR 760 and XR 1000 machines, cools the spindle to minimize thermal expansion, prolonging spindle life and allowing higher workpiece accuracy.



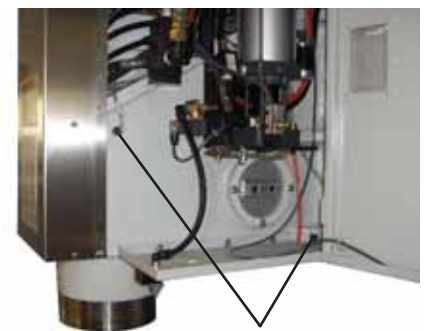
Spindle chiller

For extreme duty cycles, a spindle chiller offers the best solution to maintain constant spindle temperature. The chiller is standard equipment on all XR 1270 and XR 1500 models (available as an option on all other models).



Dynamic thermal compensation

To minimize the effects of thermal expansion in the spindle head of XR 610, XR 760 and XR 1000 machines, thermal compensation sensors (thermistors) positioned around the spindle casting are linked directly to the machine's control system. This ensures rapid and real time adjustment to the machine position, thus minimizing the effects of thermal expansion.



XR-Series High-Performance Vertical Machining Centers

Choose the machine variation that suits your current and future needs



XR 610

- Travels
 - X-axis - 610mm (24")
 - Y-axis - 510mm (20")
 - Z-axis - 610mm (24")
- Worktable
 - Length - 900mm (35.4")
 - Width - 500mm (19.68")
- Rapid rates (X/Y)—43m/min (1,692ipm)
(Z)—36m/min (1,417ipm)
- Spindle horsepower
 - 18.5-kW (25-hp) Fanuc
 - 21-kW (28-hp) Heidenhain
- Spindle speeds—12,000-rpm; 40 taper
9,000- or 15,000-rpm option available
- Fanuc 18i-MB or Heidenhain iTNC 530 control



XR 760

- Travels
 - X-axis - 760mm (30")
 - Y-axis - 610mm (24")
 - Z-axis - 610mm (24")
- Worktable
 - Length - 900mm (35.4")
 - Width - 600mm (23.6")
- Rapid rates (X/Y)—43m/min (1,692ipm)
(Z)—36m/min (1,417ipm)
- Spindle horsepower
 - 18.5-kW (25-hp) Fanuc
 - 21-kW (28-hp) Heidenhain
- Spindle speeds—12,000-rpm; 40 taper
9,000- or 15,000-rpm option available
- Fanuc 18i-MB or Heidenhain iTNC 530 control



XR 1000

- Travels
 - X-axis - 1020mm (40")
 - Y-axis - 610mm (24")
 - Z-axis - 610mm (24")
- Worktable
 - Length - 1200mm (47.2")
 - Width - 600mm (23.6")
- Rapid rates (X/Y)—43m/min (1,692ipm)
(Z)—36m/min (1,417ipm)
- Spindle horsepower
 - 18.5-kW (25-hp) Fanuc
 - 21-kW (28-hp) Heidenhain
- Spindle speeds—12,000-rpm; 40 taper
9,000- or 15,000-rpm option available
- Fanuc 18i-MB or Heidenhain iTNC 530 control

As your needs grow, Bridgeport has solutions

for increased capacity

Whether you're machining simple workpieces, quality molds and dies, or complex prismatic parts, we've got just the right Bridgeport XR-Series machining center for your operation. Bridgeport XR machines easily satisfy the most demanding production and precision component machining requirements in the aerospace, automotive, mold and toolmaking, power engineering and oil/gas sectors to name a few.

The XR 610 is a highly rigid machine in a small footprint. When a larger working cube is required, then the XR 760 is ideal. This model has the best Y-axis travel in the industry for a VMC in its size. When more X-axis travel is needed, then the XR 1000 satisfies the requirement nicely. Rounding out the XR-Series line is our larger XR 1270 and XR 1500 models—available with either a 40- or

50-taper spindle. These robust machines offer exceptional stiffness and rigidity to deliver outstanding results in the most demanding production environments. They are particularly well suited to machine exotic metals, such as Titanium and Nimonics (nickel-based alloys).

To further increase productivity, XR-Series VMCs are configured for 4-axis machining via an optional interface and rotary table.



XR 1270

- Travels
 - X-axis - 1270mm (50")
 - Y-axis - 700mm (27.55")
 - Z-axis - 610mm (24")
- Worktable
 - Length - 1397mm (55")
 - Width - 700mm (27.55")
- Rapid rates (x/y/z)—36m/min (1,417ipm)
- Spindle horsepower—30-kW (40-hp) (Fanuc and Heidenhain)
- Spindle speeds—12,000-rpm; 40 taper 9,000- or 15,000-rpm option available HP model—15,000-rpm; 40 taper HPD model—7,500-rpm; 50 taper
- Fanuc 18i-MB or Heidenhain iTNC 530 control



XR 1500

- Travels
 - X-axis - 1500mm (59.05")
 - Y-axis - 700mm (27.55")
 - Z-axis - 610mm (24")
- Worktable
 - Length - 1702mm (67")
 - Width - 700mm (27.55")
- Rapid rates (x/y/z)—36m/min (1,417ipm)
- Spindle horsepower—30-kW (40-hp) (Fanuc and Heidenhain)
- Spindle speeds—12,000-rpm; 40 taper 9,000- or 15,000-rpm option available HP model—15,000-rpm; 40 taper HPD model—7,500-rpm; 50 taper
- Fanuc 18i-MB or Heidenhain iTNC 530 control

XR-Series High-Performance Vertical Machining Centers

Advanced digital control systems to unleash your productivity



Fanuc 18i-MB Control—Standard

- 264mm (10.4") LCD Color Monitor
- AI Nano Contour Control—High-Speed Machining Software
 - Bell Shaped ACC/DEC after cutting feed interpolation
 - Advanced Feed Forward Control
 - Auto Corner Override and more
- HRV3—allows for fine digital tuning of the servo drives
- Dynamic Graphic Display
- Ethernet Ready
- PCMCIA Card Slot—can be used to run large files directly from a memory card
- Manual Pulse Generator
- Part Program Memory 256KB (640M)
- Rigid Tapping
- Extended Editing Functions—cut, copy and merge
- Tool Life Management
- Custom Macro B—Parametric Part Programming (Part Family's)
- Tool Offset type C—Separate Length and Diameter
- Tool Offsets—200 pairs
- Tool Length Measurement
- Cutter Compensation Type C
- 200 Registered Programs
- Run Hour and Parts Count Display
- Helical Interpolation
- Work Coordinate Systems (G54-G59)
- Additional Work Coordinate System (G54.1–G54.48)
- Coordinate System Rotation
- Scaling
- Programmable Mirror Image
- Program Restart (Mid program restart)
- Chamfering and Corner Rounding
- Background Editing
- Program input of offset data (G10)
- Embedded Macro Function
- Reader/Puncher Interface (RS232)
- Stroke Limit Check prior to move
- Pitch Error Compensation
- Controlled Axis Expansion—used for the 4th axis
- Simultaneously Controlled Axis Expansion—used for the 4th axis
- High Speed Skip
- Inch/Metric Conversion



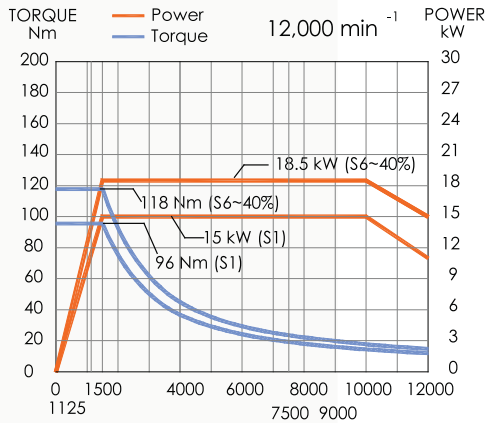
Heidenhain iTNC 530 Control—Option*

- 383mm (15.1") TFT Color Flat Panel Display with Soft Keys
- Program Memory Hard Disk (Minimum 6GB)
- Interpolation
 - Straight Line in 4 Axes
 - Helix: Combination of Circular and Linear Motion
 - Circle in 2 Axes
- 3.6ms Block Processing Time
- Data Interfaces
- Heidenhain Conversational Programming as per ISO
- Tool Compensation
- Several Tool Tables with Any Number of Tools
- Cutting Data Tables
- Constant Contouring Speed
- Parallel Operation—create programs with graphic support while another program is running
- Contour Elements—line segment, chamfer, circular arc, circle center, circle radius, tangentially connecting circular arc and corner rounding
- Contour Approach and Departure
- FK Free Contour Programming
- Program Jumps
- Fixed Cycles
- Coordinate Transformations
- Q Parameters
- Programming Aids
- Actual Position Capture
- Verification Graphics
- Programming Graphics
- Program Run Graphics
- Machining Time
- Returning to the Contour
- Datum Tables
- Pallet Tables
- Touch Probe Cycles
- Preset Table

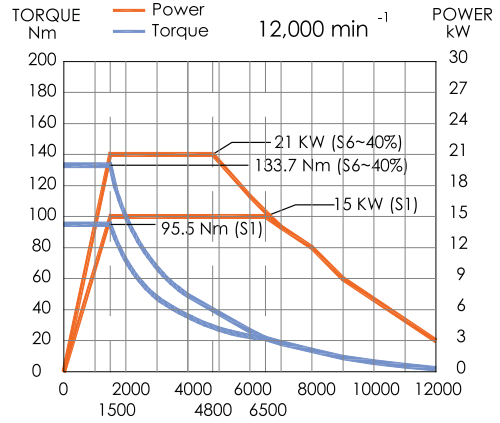
* Availability limited to certain countries

Spindle drives that provide the power and torque to machine the toughest materials

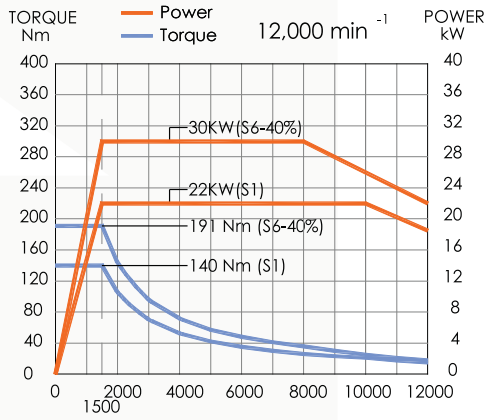
12,000-rpm Belted Spindle with Fanuc Control XR 610, XR 760 and XR 1000



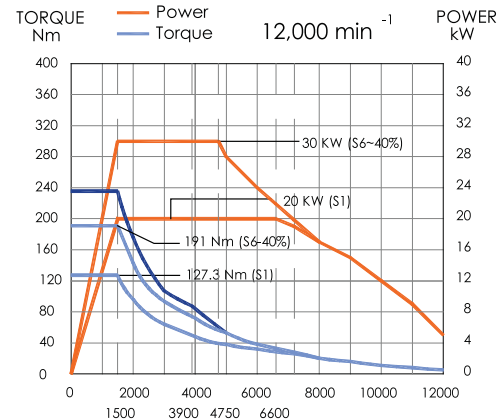
12,000-rpm Belted Spindle with Heidenhain Control XR 610, XR 760 and XR 1000



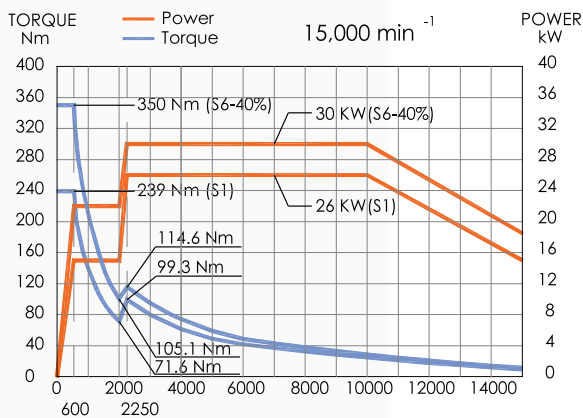
12,000-rpm Belted Spindle with Fanuc Control XR 1270 and XR 1500



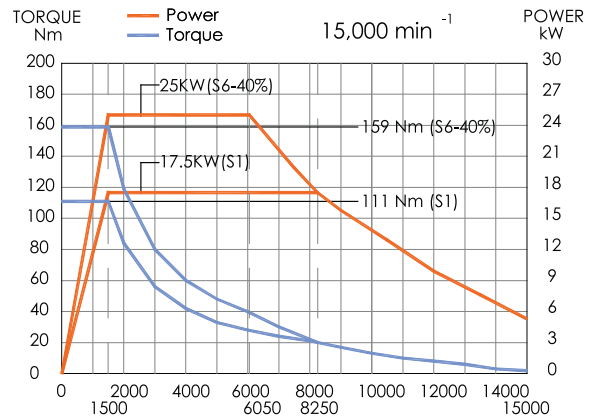
12,000-rpm Belted Spindle with Heidenhain Control XR 1270 and XR 1500



15,000-rpm Directly-Coupled Spindle with Fanuc Control XR 1270 HP and XR 1500 HP



15,000-rpm Directly-Coupled Spindle with Heidenhain Control XR 1270 HP and XR 1500 HP



See pages 14 and 15 for a complete listing of spindle drives available.

XR-Series High-Performance Vertical Machining Centers

Optional Rotary Solutions by Hardinge

Increase your productivity by adding affordable automation to your machining center for rapid positioning of single or multiple part setups.



Enhanced, entry-level 5C² Rotary Systems

- Beefy, dual-bearing spindle for heavier radial and axial loads
- 5C² single, dual, triple & quad, trunnion and 2-axis configurations
- Industry compatible for drop-in replacement
- 360 degrees-per-second
- Hardinge threaded-nose 5C spindle

Flexible, quick-change 16C and 3J Rotary Systems

- Beefy, dual-bearing spindle for heavier radial and axial loads
- 16C and 3J single, dual & triple, trunnion and 2-axis configurations
- A2-5, 16C or 3J collet-ready spindle
- 5C adapter available for small part processing

Zero backlash, gearless, Direct-Drive Rotary Systems

- Rare-earth, permanent magnet wraparound torque motor
- Rapid bidirectional movement
- High servo stiffness
- High-speed and Super-Precision[®] positioning and repeatability
- Direct-mount ± 0.077 arc-sec high resolution encoder
- DD100, DD200 & DD300, trunnion and 2-axis configurations

Hardinge Rotary Systems can be integrated into the machine, operating in a fully interpolated fashion with the other axes of the machine. The machining center must be configured for immediate or future 4th-axis operation. Refer to brochure 2372 for a complete rotary product offering with dimensions and specifications.



The most flexible Quick-Change workholding concept on the market...

Hardinge's collet-ready spindle nose design allows quick change between collets, expanding collets, step chucks, 3-jaw chucks and face plates. Common spindle tooling can be shared between the Hardinge Rotary System(s) and a lathe. The gripping is in the spindle, closest to the spindle bearings, unlike surface-mounted adapters used on traditional rotary tables. Multiple workholding options provide alternate gripping solutions for increased precision and capability.

The Hardinge Group™ . . .

Bridgeport® milling machines, Hardinge turning centers,
Hauser, Kellenberger®, Tripet and Tschudin grinding machines,
and Workholding and industrial products

The Hardinge Group produces more than just the XR-Series machining centers shown in this brochure. . . we build a full range of value-packed and high-precision turning centers; vertical and horizontal machining centers; high-speed and 5-axis milling machines; creep-feed, jig, universal cylindrical and ID/OD grinding machines; and workholding systems and equipment. Hardinge machine tool technology is not only the most comprehensive on the market, it's also creating new benchmarks for quality, productivity and reliability.

Whether you are an OEM or sub-contract precision engineering company—regardless of the sectors you serve (aerospace, automotive, medical, autosport, mold, tool and die or general engineering)—the Hardinge product portfolio will interest you.

Our advanced manufacturing technologies in combination with our range of after-sales and support services (maintenance and service contracts; operator training; technical and applications support) have been designed to help you improve your performance and maintain your competitive advantage.

If you would like to know more about our manufacturing solutions, please contact us at the nearest location listed on the back cover.

Hardinge standard, performance and high-performance turning centers

We can help you turn your business around! From

our competitively-priced standard SV-Series machines to

our performance GS-Series and ELITE®-Series range of quick-changeover bar and chucking machines right through to our high-performance QUEST® GT gang tool, RS- and SR-Series multi-tasking machines, we can provide you with the optimum turning solution.



Bridgeport standard, performance and high-performance milling machines and machining centers

Our comprehensive line of Bridgeport milling machines have been designed to meet any manufacturing challenge you might be facing today or in the future. Our market-leading XR-Series of vertical machining centers continue to grow in popularity—and

we have similar expectations with our new competitively-priced XV and GX VMCs as well. For heavy-duty,

high metal removal we offer our HMC range of Horizontal Machining Centers and for increased manufacturing flexibility and improved productivity there's our 5-axis (5AX) model that is well worthy of consideration. If you are making your first step up to CNC machining, you will find that our entry-level GX 480 and GX 480 DT machines provide the ideal solution. For high-speed machining applications, our HSC machining centers are second to none.



Kellenberger, Hauser, Tripet and Tschudin grinding machines

The Hardinge grinding companies include Hauser, Kellenberger, Tripet, Tschudin and, most recently, Bridgeport. Collectively we have all the technology, experience and know-how you need to transform your manufacturing operations. From high-performance cylindrical and jig grinding machines through to multi-functional ID/OD and universal machines—not to mention Bridgeport's state-of-the-art Flexible Grinding Centers (FGC 2). It doesn't get more comprehensive than this.



Hardinge workholding and industrial products

Because we design and manufacture market-leading, technically-excellent machine tools

it's no surprise that we know more than a thing or two about

workholding solutions. From our extensive portfolio of CNC toolholders, collets and chucks—right through to our 5C Indexing systems—our workholding and fixturing technology will improve your performance when and where it matters most.

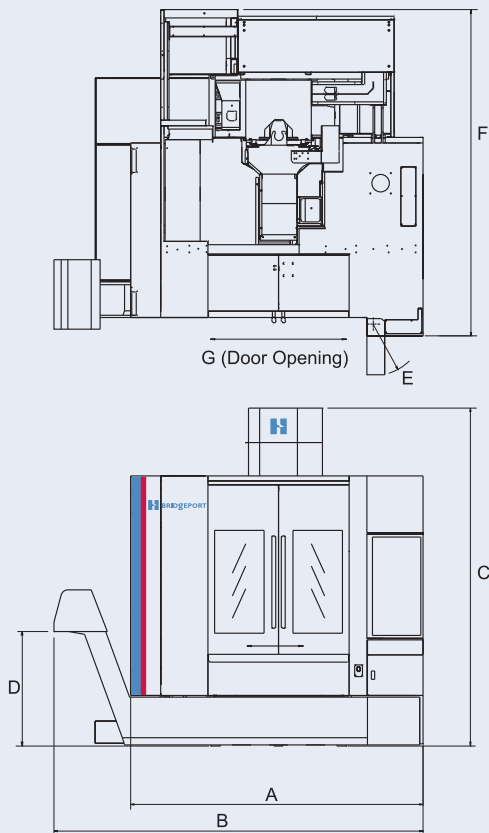


Hardinge rotary products



XR-Series High-Performance Vertical Machining Centers

Floor plan



XR 1000 floor plan shown.

Note: Metric (Inch) Measurements shown

Dim.	XR 610	XR 760	XR 1000	XR 1270	XR 1500
A	2020 (79.5)	2150 (85)	2528 (99)	2895 (114)	3695 (145)
B	2511 (99)*	2844 (112)	3192 (126)	3675 (144)	4500 (177)
C	2851 (112)	2921 (115)	2921 (115)	2950 (116)**	3020 (119)**
D	465 (18)*	975 (38.4)	975 (38.4)	1150 (45)	1150 (45)
E	445 (17.5)	445 (17.5)	445 (17.5)	—	—
F	2743 (108)	3000 (118)	3000 (118)	2635 (104)**	2635 (104)**
G	815 (32)	950 (37)	1100 (43)	1400 (55)	1700 (66)

* B = Distance to end of auger; D = Height to opening of auger.

** See listing for actual dimension of HP and HPD models.

- 1—Includes Oil Chiller.
- 2—Unit supplied as standard varies by market.
- 3—Other voltages require external transformer.
- 4—Optional in certain markets.

	XR 610	XR 760
Axis Travel		
Table (X axis)	610mm (24")	760mm (30")
Saddle (Y axis)	510mm (20")	610mm (24")
Head (Z axis)	610mm (24")	610mm (24")
Table Surface to Spindle Gauge Plane Distance (Min to Max)	100 to 710mm (3.94" to 27.95")	100 to 710mm (3.94" to 27.95")
Positioning		
Auto Mode (X and Y axes)	43m/min (1,692ipm)	43m/min (1,692ipm)
Auto Mode (Z axis)	36m/min (1,417ipm)	36m/min (1,417ipm)
Feedrate Range (X and Y axes)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)
Feedrate Range (Z axis)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)
Minimum Increment	.001mm (.00004")	.001mm (.00004")
Ball Screw Dia. and Pitch (X and Y axes)	45 x 16mm (1.77" x .629")	45 x 16mm (1.77" x .629")
(Z axis)	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")
Spindle		
Fanuc—Motor Power Rating (S6-40%)	12,000 rpm Belted 18.5kW (25hp)	12,000 rpm Belted 18.5kW (25hp)
Torque (S6-40%)	118Nm (87ft-lb)	118Nm (87ft-lb)
Heidenhain—Motor Power Rating (S6-40%)	21kW (28hp)	21kW (28hp)
Torque (S6-40%)	134Nm (98ft-lb)	134Nm (98ft-lb)
Retention Force	12,010N (2,700 lbf)	12,010N (2,700 lbf)
Spindle Taper	No. 40	No. 40
Tool Holder	CT40 or BT40	CT40 or BT40
Spindle Options		
Speed (Belted)	9,000 rpm	9,000 rpm
Fanuc—Motor Power Rating (S6-40%)	18.5kW (25hp)	18.5kW (25hp)
Torque (S6-40%)	157Nm (116ft-lb)	157Nm (116ft-lb)
Heidenhain—Motor Power Rating (S6-40%)	21kW (28hp)	21kW (28hp)
Torque (S6-40%)	178Nm (131ft-lb)	178Nm (131ft-lb)
Speed (Belted)	15,000 rpm ¹	15,000 rpm ¹
Fanuc—Motor Power Rating (S6-40%)	18.5kW (25hp)	18.5kW (25hp)
Torque (S6-40%)	94Nm (70ft-lb)	94Nm (70ft-lb)
Heidenhain—Motor Power Rating (S6-40%)	21kW (28hp)	21kW (28hp)
Torque (S6-40%)	107Nm (79ft-lb)	107Nm (79ft-lb)
Speed (Directly Coupled)	—	15,000 rpm ¹
Fanuc—Motor Power Rating (S6-40%)	—	22kW (30hp)
Torque (S6-40%)	—	150Nm (110ft-lb)
Heidenhain—Motor Power Rating (S6-40%)	—	25kW (33hp)
Torque (S6-40%)	—	159Nm (117ft-lb)
Worktable		
Working Surface	900 x 500mm (35.4 x 19.68")	900 x 600mm (35.4 x 23.6")
Table Load	500kg (1,100lb)	700kg (1,540lb)
Number of T-Slots	5	5
T-Slot Size	18mm (.708")	18mm (.708")
T-Slot Center Dimension	100mm (3.937")	100mm (3.937")
Control—Fanuc		
	18i-MB	18i-MB
Optional Heidenhain		
	iTNC 530	iTNC 530
Automatic Tool Changer		
Magazine Capacity	24 Tools	30 Tools (48 opt)
Tool Select by Shortest Path and Random Select	Bi-Directional	Bi-Directional
Max. Tool Diameter	125mm (4.92")	125mm (4.92")
(adjacent pockets)	80mm (3.15")	85mm (3.35")
Max. Tool Length	300mm (11.81")	300mm (11.81")
Max. Tool Weight	7kg (15.43lb)	7kg (15.43lb)
Random Change Time (chip-to-chip)—ISO 10791-9	4 sec.	4 sec.
Coolant and Chip Management		
Swarf Removal	Chip Auger or Conveyor ²	Chip Conveyor
Coolant Tank Capacity	300L (79 US gal)	300L (79 US gal)
Wash Down	Standard	Standard
Wash Gun	Standard	Standard
Stainless Chip Pan	Not Available	Standard
Cutter Air Blast	Standard	Standard
Through Spindle Coolant	Prepped	Standard
Accuracy—ISO 230-2		
Positioning - A	0.010mm (0.0004")	0.010mm (0.0004")
Repeatability - R	0.004mm (0.00016")	0.004mm (0.00016")
Linear Scales Option		
Positioning	0.006mm (0.00024")	0.006mm (0.00024")
Repeatability	0.003mm (0.00012")	0.003mm (0.00012")
Machine Size		
Machine Dimensions (WxD)	2020 x 2743mm (79.5" x 108")	2150 x 3000mm (85" x 118")
Height	2851mm (112")	2921mm (115")
Mass of Machine	5500kg (12,100lb)	6000kg (13,200lb)
Installation Specifications		
Electrical Supply (Input)—Balanced 3-phase	50 or 60 Hz	50 or 60 Hz
Power	30 KVA	30 KVA
Voltage ³	208 - 230 or 380 - 440 volt	208 - 230 or 380 - 440 volt
Compressed Air (Pressure / Flow)	80 psi / 4.9 cfm	80 psi / 4.9 cfm
	5.5 bar / 140 L/min	5.5 bar / 140 L/min
Through Spindle Coolant Pressure	20 bar (300 psi) ⁴	20 bar (300 psi) Std
Nozzle Coolant	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)
Wash Down	125 L/min (33 gal/min)	125 L/min (33 gal/min)

Specifications

XR 1000	XR 1270	XR 1270 HP	XR 1270 HPD	XR 1500	XR 1500 HP	XR 1500 HPD
1020mm (40")	1270mm (50")	1270mm (50")	1270mm (50")	1500mm (59.05")	1500mm (59.05")	1500mm (59.05")
610mm (24")	700mm (27.55")	700mm (27.55")	700mm (27.55")	700mm (27.55")	700mm (27.55")	700mm (27.55")
610mm (24")	610mm (24")	610mm (24")	610mm (24")	610mm (24")	610mm (24")	610mm (24")
100 to 710mm (3.94" to 27.95")	150 to 760mm (5.9" to 29.9")	150 to 760mm (5.9" to 29.9")	190 to 800mm (7.48" to 31.5")	150 to 760mm (5.9" to 29.9")	150 to 760mm (5.9" to 29.9")	190 to 800mm (7.48" to 31.5")
43m/min (1,692ipm)	36m/min (1,417ipm)	36m/min (1,417ipm)	36m/min (1,417ipm)	36m/min (1,417ipm)	36m/min (1,417ipm)	36m/min (1,417ipm)
36m/min (1,417ipm)	36m/min (1,417ipm)	36m/min (1,417ipm)	36m/min (1,417ipm)	36m/min (1,417ipm)	36m/min (1,417ipm)	36m/min (1,417ipm)
.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)
.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)	.0025 - 20 m/min (0.1-787 ipm)
.001mm (0.00004")	.001mm (0.00004")	.001mm (0.00004")	.001mm (0.00004")	.001mm (0.00004")	.001mm (0.00004")	.001mm (0.00004")
45 x 16mm (1.77" x .629")	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")
45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")	45 x 12mm (1.77" x .472")
12,000 rpm Belted	12,000 rpm Belted ¹	15,000 rpm Direct ¹	375 - 7,500 rpm Gear Box ¹	12,000 rpm Belted ¹	15,000 rpm Direct ¹	375 - 7,500 rpm Gear Box ¹
18.5kW (25hp)	30kW (40hp)	30kW (40hp)	30kW (40hp)	30kW (40hp)	30kW (40hp)	30kW (40hp)
118Nm (87ft-lb)	191Nm (141ft-lb)	350Nm (258ft-lb)	764Nm (562ft-lb)	191Nm (141ft-lb)	350Nm (258ft-lb)	764Nm (562ft-lb)
21kW (28hp)	30kW (40hp)	25kW (34hp)	30kW (40hp)	30kW (40hp)	25kW (34hp)	30kW (40hp)
134Nm (98ft-lb)	191Nm (141ft-lb)	159Nm (117ft-lb)	764Nm (562ft-lb)	191Nm (141ft-lb)	159Nm (117ft-lb)	764Nm (562ft-lb)
12,010N (2,700 lbf)	12,010N (2,700 lbf)	12,010N (2,700 lbf)	25,000N (5,600 lbf)	12,010N (2,700 lbf)	12,010N (2,700 lbf)	25,000N (5,600 lbf)
No. 40	No. 40	No. 40	No. 50	No. 40	No. 40	No. 50
CT40 or BT40	CT40 or BT40	CT40 or BT40	CT50 or BT50	CT40 or BT40	CT40 or BT40	CT50 or BT50
9,000 rpm	9,000 rpm	—	—	9,000 rpm	—	—
18.5kW (25hp)	30kW (40hp)	—	—	30kW (40hp)	—	—
157Nm (116ft-lb)	255Nm (187ft-lb)	—	—	255Nm (187ft-lb)	—	—
21kW (28hp)	30kW (40hp)	—	—	30kW (40hp)	—	—
178Nm (131ft-lb)	255Nm (187ft-lb)	—	—	255Nm (187ft-lb)	—	—
15,000 rpm ¹	15,000 rpm ¹	—	—	15,000 rpm ¹	—	—
18.5kW (25hp)	30kW (40hp)	—	—	30kW (40hp)	—	—
94Nm (70ft-lb)	153Nm (112ft-lb)	—	—	153Nm (112ft-lb)	—	—
21kW (28hp)	30kW (40hp)	—	—	30kW (40hp)	—	—
107Nm (79ft-lb)	153Nm (112ft-lb)	—	—	153Nm (112ft-lb)	—	—
15,000 rpm ¹	—	15,000 rpm ¹	—	—	15,000 rpm ¹	—
22kW (30hp)	—	30kW (40hp)	—	—	30kW (40hp)	—
150Nm (110ft-lb)	—	350Nm (258ft-lb)	—	—	350Nm (258ft-lb)	—
25kW (33hp)	—	25kW (33hp)	—	—	25kW (33hp)	—
159Nm (117ft-lb)	—	159Nm (117ft-lb)	—	—	159Nm (117ft-lb)	—
1200 x 600mm (47.2 x 23.6")	1400 x 700mm (55 x 27.55")	1400 x 700mm (55 x 27.55")	1400 x 700mm (55 x 27.55")	1700 x 700mm (67 x 27.55")	1700 x 700mm (67 x 27.55")	1700 x 700mm (67 x 27.55")
900kg (2,000lb)	1200kg (2,640lb)	1200kg (2,640lb)	1200kg (2,640lb)	1500kg (3,300lb)	1500kg (3,300lb)	1500kg (3,300lb)
5	6	6	6	6	6	6
18mm (.708")	18mm (.708")	18mm (.708")	18mm (.708")	18mm (.708")	18mm (.708")	18mm (.708")
100mm (3.937")	100mm (3.937")	100mm (3.937")	100mm (3.937")	100mm (3.937")	100mm (3.937")	100mm (3.937")
18i-MB	18i-MB	18i-MB	18i-MB	18i-MB	18i-MB	18i-MB
iTNC 530	iTNC 530	iTNC 530	iTNC 530	iTNC 530	iTNC 530	iTNC 530
30 Tools (48 opt)	30 Tools (48 or 60 opt)	30 Tools (48 or 60 opt)	30 Tools	48 Tools (60 opt)	48 Tools (60 opt)	30 Tools
Bi-Directional	Bi-Directional	Bi-Directional	Bi-Directional	Bi-Directional	Bi-Directional	Bi-Directional
125mm (4.92")	125mm (4.92")	125mm (4.92")	200mm (7.87")	125mm (4.92")	125mm (4.92")	200mm (7.87")
85mm (3.35")	80mm (3.15")	80mm (3.15")	125mm (4.92")	80mm (3.15")	80mm (3.15")	125mm (4.92")
300mm (11.81")	300mm (11.81")	300mm (11.81")	350mm (13.81")	300mm (11.81")	300mm (11.81")	350mm (13.81")
7kg (15.43lb)	7kg (15.43lb)	7kg (15.43lb)	15kg (33lb)	7kg (15.43lb)	7kg (15.43lb)	15kg (33lb)
4 sec.	5.5 sec.	5.5 sec.	9 sec.	5.5 sec.	5.5 sec.	9 sec.
Chip Conveyor	Chip Conveyor	Chip Conveyor	Chip Conveyor	Chip Conveyor	Chip Conveyor	Chip Conveyor
400L (105 US gal)	600L (158 US gal)	600L (158 US gal)	600L (158 US gal)	600L (158 US gal)	600L (158 US gal)	600L (158 US gal)
Standard	Standard	Standard	Standard	Standard	Standard	Standard
Standard	Standard	Standard	Standard	Standard	Standard	Standard
Standard	Standard	Standard	Standard	Standard	Standard	Standard
Standard	Standard	Standard	Standard	Standard	Standard	Standard
Standard	Standard	Standard	Standard	Standard	Standard	Standard
0.010mm (0.0004")	0.015mm (0.00059")	0.015mm (0.00059")	0.015mm (0.00059")	0.015mm (0.00059")	0.015mm (0.00059")	0.015mm (0.00059")
0.004mm (0.00016")	0.008mm (0.00031")	0.008mm (0.00031")	0.008mm (0.00031")	0.008mm (0.00031")	0.008mm (0.00031")	0.008mm (0.00031")
0.006mm (0.00024")	0.008mm (0.00031")	0.008mm (0.00031")	0.008mm (0.00031")	0.008mm (0.00031")	0.008mm (0.00031")	0.008mm (0.00031")
0.003mm (0.00012")	0.004mm (0.00016")	0.004mm (0.00016")	0.004mm (0.00016")	0.004mm (0.00016")	0.004mm (0.00016")	0.004mm (0.00016")
2528 x 3000mm (99" x 118")	2895 x 2635mm (114" x 104")	2895 x 2635mm (114" x 104")	2895 x 3250mm (114" x 128")	3695 x 2635mm (145" x 104")	3695 x 2635mm (145" x 104")	3695 x 3250mm (145" x 128")
2921mm (115")	2950mm (116")	3200mm (126")	3250mm (128")	3020mm (119")	3270mm (129")	3320mm (131")
7000kg (15,400lb)	9000kg (19,800lb)	9000kg (19,800lb)	9600kg (21,120lb)	10,000kg (22,000lb)	10,000kg (22,000lb)	10,600kg (23,320lb)
50 or 60 Hz	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz
30 KVA	40 KVA	40 KVA	40 KVA	40 KVA	40 KVA	40 KVA
208 - 230 or 380 - 440 volt	208 - 230 or 380 - 440 volt	208 - 230 or 380 - 440 volt	208 - 230 or 380 - 440 volt	208 - 230 or 380 - 440 volt	208 - 230 or 380 - 440 volt	208 - 230 or 380 - 440 volt
80 psi / 4.9 cfm	80 psi / 4.9 cfm	80 psi / 4.9 cfm	80 psi / 4.9 cfm	80 psi / 4.9 cfm	80 psi / 4.9 cfm	80 psi / 4.9 cfm
5.5 bar / 140 L/min	5.5 bar / 140 L/min	5.5 bar / 140 L/min	5.5 bar / 140 L/min	5.5 bar / 140 L/min	5.5 bar / 140 L/min	5.5 bar / 140 L/min
20 bar (300 psi) Std	20 bar (300 psi) Std	20 bar (300 psi) Std	20 bar (300 psi) Std	20 bar (300 psi) Std	20 bar (300 psi) Std	20 bar (300 psi) Std
60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)
125 L/min (33 gal/min)	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)	60 L/min (15.8 gal/min)



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