



MILLING

# BRIDGEPORT GX-SERIES Performance Vertical Machining Centers



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## Small Package - 24/7 Production

The GX 300 and GX 510 machining centers are designed and built for a production environment. A unique design allows for these machines to literally overlap one another to better utilize valuable floor space and to promote cell manufacturing. The design allows access to only be necessary from the front and back of the machine allowing you to stack these machines side by side. This type of floor plan and machine design is perfect for automation. Add some robots or a gantry system and you can increase your productivity with virtually no labor costs.

Don't let the compact footprint fool you, these machines pack a powerful punch! With 20HP and 99 ft-lbs of torque these machines are sure to be a market leader!. These specifications make the GX 300 and GX 510 ideal for the aerospace, medical, defense, 3C, automotive and other industries who require high-value, complex parts from difficult to machine materials.

Ask a certified Bridgeport representative for a quote today to learn more about these new production machining centers.

### GX 300

- X,Y,Z Travel: 11.80" x 15.76" x 16.94"  
(299.72 x 400.30 x 430.28mm)
- 20 HP (14.92kW) (30min.)
- Max Spindle Speed: 7,083 RPM
- 98.8 ft-lbs (133.95Nm) torque
- Swing Arm ATC: 20-Station
- Dual Augar Conveyor
- FANUC OiMD

### GX 510

- X,Y,Z Travel: 20" x 15.76" x 16.94"  
(508 x 400.30 x 430.28mm)
- 20 HP (14.92kW) (30min.)
- Max Spindle Speed: 7,083 RPM
- Torque: 98.8 ft-lbs (133.95Nm)
- Swing Arm ATC: 20-Station
- FANUC OiMD

### Key Differentiators:

- Unique design allows machines to be stacked side by side
- Robust spindle with 20 horsepower and 99 ft-lbs of torque
- Heavy-duty linear roller guide-ways
- 20-station swing arm ATC as standard equipment for high production
- Rear chip discharge
- Programmable auto-door
- 8 additional M-codes

### Hardinge's Rotary Tables

Both the GX 300 & GX 510 have the ability to utilize Hardinge's line of rotary products to enhance your machining capabilities. Ask one of our certified workholding representatives to learn more about our rotary product offering.



GX-Series vertical machining centers have thousands of installations worldwide. These 40-50 taper spindles VMCs include superior design characteristics to ensure many years of accurate and reliable performance. GX-Series machines are ideal for mold and die manufacturers, aerospace, medical, defense, 3C, automotive, and other industries, requiring high-value, complex parts from difficult to machine materials.

## COMPACT FOOTPRINT



### GX 480

- X,Y,Z Travel: 19" x 16" x 17"  
(480.60 x 406.40 x 431.80mm)
- 20HP (14.92kW) (1min.)
- Spindle Speed: 10,000 RPM
- Swing Arm ATC: 20-Station
- Control: i-Series GX



### GX 480 APC

- X,Y,Z Travel: 19" x 16" x 17"  
(480.60 x 406.40 x 431.80mm)
- 20HP (14.92kW) (1min.)
- Spindle Speed: 10,000 RPM
- Swing Arm ATC: 20-Station
- Control: i-Series GX
- Integrated Pallet Changer

## MID SIZE FOOTPRINT



### GX 710

- X,Y,Z Travel: 28" x 16" x 17"  
(711.20 x 406.40 x 431.80mm)
- 20HP (14.92kW) (1min.)
- Spindle Speed: 10,000 RPM
- Swing Arm ATC: 20-Station
- Control: i-Series GX



### GX1000 OSP

- X,Y,Z Travel: 40" x 21" x 21"  
(1016 x 533.40 x 533.40mm)
- 20HP (14.92kW) (30min.)
- Spindle Speed: 10,000 RPM
- Swing Arm ATC: 30-Station
- Control: OSP P300

## LARGE FOOTPRINT



### GX 1300

- X,Y,Z Travel: 51" x 27.5" x 25"  
(1295.40 x 698.50 x 635mm)
- 25HP (18.65kW) (30 min.)
- Spindle Speed: 10,000 RPM
- Swing Arm ATC: 30-Station
- Control: i-Series GX
- 50 Taper Option  
(10k & 6k Gearbox)



### GX 1600

- X,Y,Z Travel: 63" x 27.5" x 25"  
(1600.20 x 698.50 x 635mm)
- 25 HP (30 min.)
- Spindle Speed: 10,000 RPM
- Swing Arm ATC: 30-Station
- Control: i-Series GX
- 50 Taper Option  
(10k & 6k Gearbox)

## GX 1600 40 taper 10k shown

The GX 1300 and GX 1600 column mount design deflects ATC weight overhang, providing superior rigidity and minimized vibration to the cutting zone.

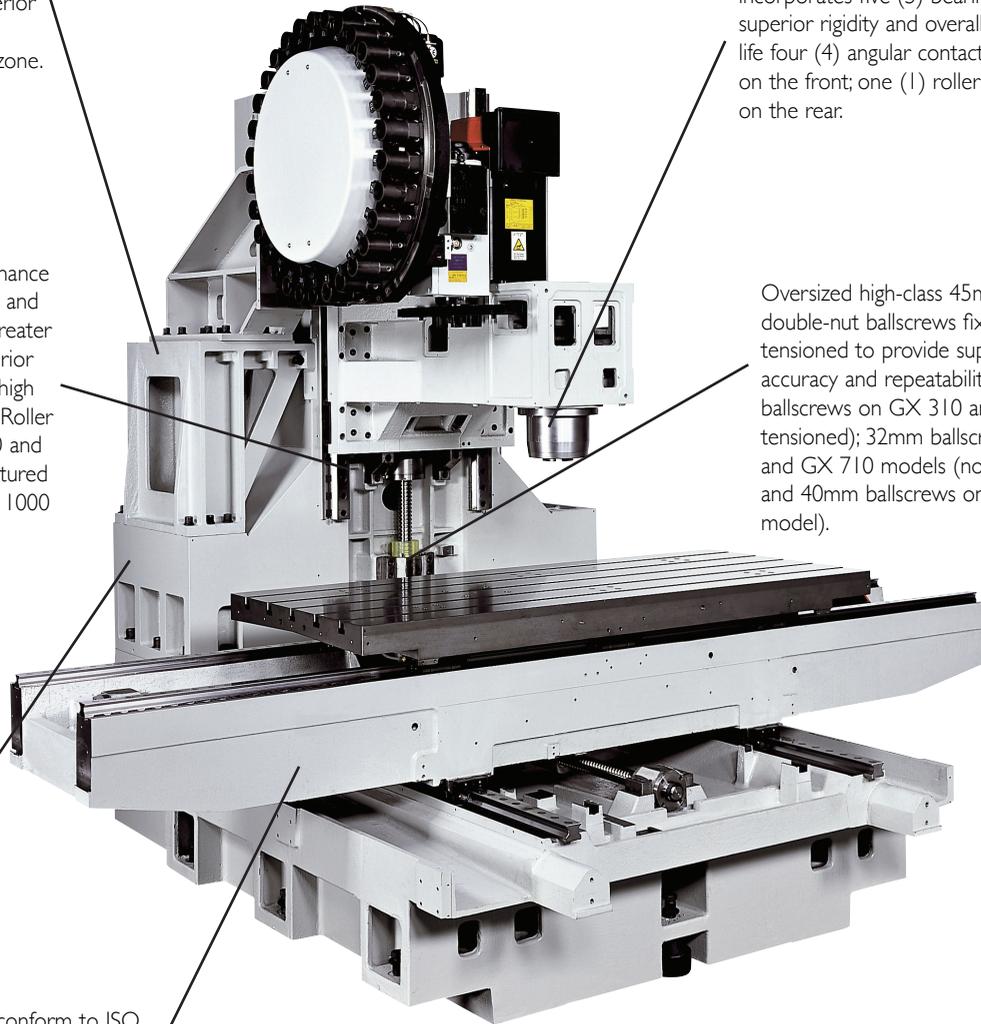
Best-in-class spindle design incorporates five (5) bearings for superior rigidity and overall spindle life four (4) angular contact bearings on the front; one (1) roller bearing on the rear.

Large high-quality, low maintenance roller guideways on GX 1300 and GX 1600 machines provide greater positioning accuracy and superior finishes very low friction and high stiffness for long machine life. Roller linear guides used on GX 300 and GX 510. Linear guideways featured on GX 480, GX 710 and GX 1000 OSP models.

Oversized high-class 45mm (1.77") double-nut ballscrews fixed and pre-tensioned to provide superior machine accuracy and repeatability (32mm ballscrews on GX 310 and GX 510 (pre-tensioned); 32mm ballscrews on GX 480 and GX 710 models (non pre-tensioned) and 40mm ballscrews on GX 1000 OSP model).

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

All geometric alignments conform to ISO 230 standards every machine must pass strict laser and ball-bar tests.

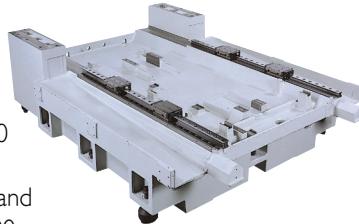


GX 1600

## Heavy Duty Linear Guideways, Ballscrews and Axis Drives

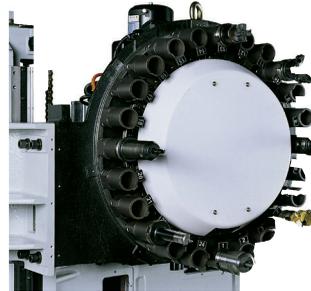
Wide-spaced, oversized linear guideways provide optimum stiffness with less friction, less heat and less thermal growth for faster traverse rates, longer machine life and greater positioning accuracy. The linear way modules consist of slide members (guide trucks) and linear rails to provide a large load 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 GX 1300 and GX 1600 VMCs; 40mm (1.57") ballscrews on GX 1000 OSP VMC and 32mm (1.26") ballscrews on GX 300, GX 510, GX 480 and GX 710 VMCs.



## Large Capacity, fast performance automatic tool changers

GX-Series VMCs have a fast tool change time of 2 seconds (Tool-Tool). The design of random bi-directional ATCs and cam type mechanism features accurate, rapid and stable tool change system. 90 degree tool pocket prevents tool dropping. To ensure smooth and vibration-free tool changing, GX 1300 and GX 1600 machines have their tool changer strategically located for minimal transfer of vibration--a unique design feature. All ATCs feature random-access, bi-directional indexing.



## Advanced digital control to unleash your productivity

GX-Series machines feature a custom-designed Fanuc or Okuma OSP (GX 1000) CNC control with the latest hardware and software technology, providing an operator-friendly, common platform. Many standard features are included that other machine tool builders charge extra for rigid tapping, tool life management, run time and parts counter are just some of those features.

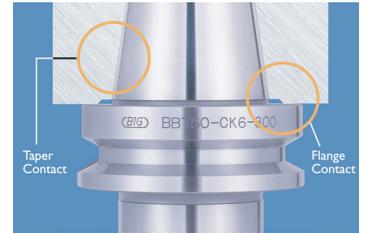


## User-friendly Manual Guide i software

Manual Guide i is an advanced conversational programming system available on Fanuc Controls. A fully animated version of the operator-generated part program can easily be viewed on the full-color display. Using Manual Guide i ensures that the process is proven prior to actual machining. If desired, the simple push of a button converts the conversational program into a standard G and M-code program. Manual guide Oi is offered on GX480 and GX 710 models.

## BIG-PLUS dual contact spindle system

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



## Elimination of Z-axis 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.



## Hardinge Rotary Solutions

Hardinge Rotary Systems can be integrated into GX-Series machines, 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.



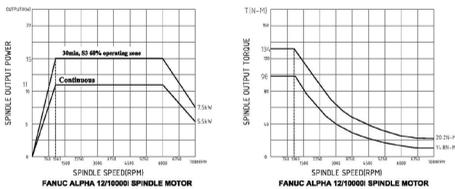
## Powerful Spindle Motors

GX-Series machining centers feature a powerful spindle motor for aggressive cutting capabilities. A 15kW (20-hp 1min) spindle drive is included on GX 300, GX 510, GX 480 and GX 710 machines; and GX 1000 machines feature a 15-kW (20-hp 30min) drive; GX 1300 and GX 1600 machines feature an 18.5-kW (25-hp 30min) drive. The rigid spindle design includes four angular contact bearings at the front and one roller bearing at the rear for optimum performance and long life. The non-contact magnetic encoder design eliminates noise and vibration, while providing more accurate spindle orientation feedback.

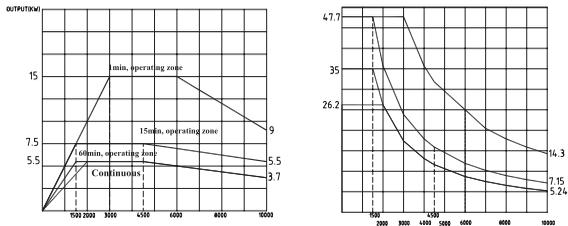
Model	Power †	Torque ‡	Max. Speed	Max. Speed Option
GX 300	15kW (20hp)	133.95Nm (98.8ft-lb)	7,083 rpm	10,000 rpm
GX 480	15kW (20hp)*	48Nm (35ft-lb)*	10,000 rpm	
GX 510	15kW (20hp)	133.95Nm (98.8ft-lb)	7,083 rpm	10,000 rpm
GX 710	15kW (20hp)*	48Nm (35ft-lb)*	10,000 rpm	
GX 1000	15kW (20hp)*	114Nm (84ft-lb)	10,000 rpm	12,000 rpm
GX 1300	18.5kW (25hp)	141Nm (104ft-lb)	10,000 rpm	12,000 rpm
GX 1600	18.5kW (25hp)	141Nm (104ft-lb)	10,000 rpm	12,000 rpm

† 30 min rating      \* 1min rating      ‡ Fanuc model

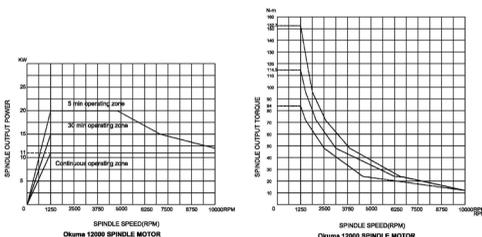
### GX 300/510 7080 RPM Spindle



### GX 480 & GX 710 10,000 RPM Spindle (Standard)



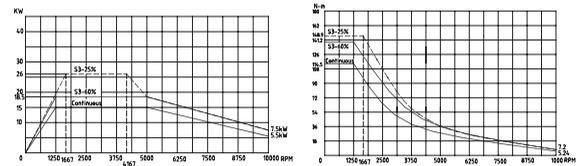
### GX 1000 OSP 10,000 RPM Spindle (Standard)



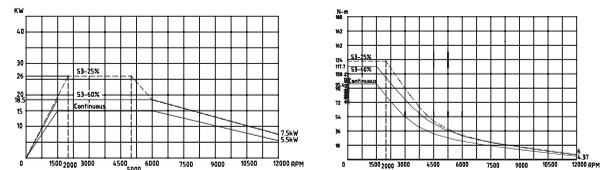
The high-speed spindle option is ideal for mold and fixture work when machining hardened materials, as well as high-speed cutting of aluminum or magnesium alloy.

Through-spindle coolant is available as an option to supply coolant to the cutting edge at 20 bar (300 psi and 1000psi on select models), allowing faster speeds, enhanced deep hole drilling and blind pocket milling.

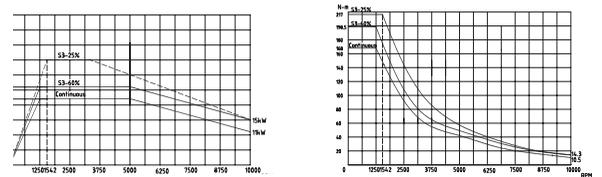
### GX 1300 & GX 1600 10,000 RPM Spindle (Standard)



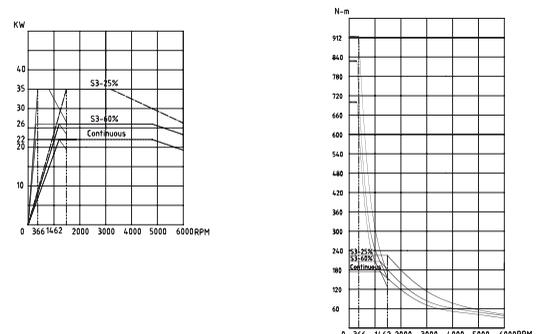
### GX 1300 & GX 1600 12,000 RPM Spindle (Option)



### GX 1300 & GX 1600 - 50 Taper 10,000 RPM Spindle



### GX 1300 & GX 1600 - 50 Taper 6,000 RPM Spindle (Gearbox)





## OSP P300 Standard Features

- Panel PC
- Windows 7 OS
- Intel Core i7-620LE
- 15" Color Touch-Screen LCD
- 160GB Hard Disk (built-in)
- 2GB (DRAM)
- Program Storage Capacity 2GB
- Operation Buffer Capacity 2MB
- 2 USB ports, 1 RS-232 port
- 1-Ethernet 10Base/100Base TX

### Okuma Absolute Position Encoder

Most machine tools cannot retain the machine's exact position in the event of a power loss. The Okuma Position Encoder has these benefits:

- Eliminates time consuming machine re-zoning and restart processes.
- Non-Volatile: Unique mechanical design senses and retains tool position relative to machine zero at all times. Okuma is ready to go at power up.
- Wear-free. No brushes or contacts.
- 1,296,000 pulses per single ball screw revolution.
- Fast serial communication, 10Mbps.

### Encoder Feedback Accuracy

The Okuma encoder is a small, compact, simple, multi-stage rotary device with a resolution of 0.00001" (ten millionths of an inch) and is used on over 100,000 Okuma machine tools. When under power the rate of movement of all slide ways is accurately, minutely controlled and monitored by the encoder feeding data to the Okuma OSP control. The direct motor-mounted unit eliminates coupling backlash.

### High-Response Motion Control

Designed and manufactured by Okuma, this brush less servomotor and amplifier system is a result of Okuma's long record of accomplishment in servomotor applications. Okuma's own patented brush less servo system is designed and optimized for the machine. The superb "mechatronics" combine the best of both motor and amplifier design.

## FANUC Standard Features



- 10.4" Color LCD (8.4" on GX 300, 480, 510 & 710)
- AI Contour Control (option on GX 480 & GX 710)
- Manual Guide i (manual guide Oi on GX 480 & GX 710)
- Max Controlled axes 5
- Simultaneous controlled axes 4
- DNC operation with memory card
- Program restart

- Dry run
- Least input increment - 0.001mm, 0.001deg.
- Fine Acc & Dec control
- Servo control HRV3
- Backlash compensation
- Linear interpolation
- Chamfering and corner rounding
- Coordinate system rotation
- Scaling
- Cylindrical interpolation
- Helical interpolation (Circular interpolation plus Max. 2 axes linear interpolation)
- Polar coordinate command
- Circular interpolation (Multi-quadrant is possible)
- Programmable mirror image
- Background editing
- Extended editing
- Dynamic graphic display
- Nano interpolation
- Rigid tapping
- Multi language display
- Run hour and parts count display
- Automatic acceleration /deceleration

- Automatic corner override
- Rapid traverse: linear Cutting feed: exponential
- Tool offset pairs,  $\pm 6$  digits, 400 pairs
- Tool length compensation
- Tool offset memory C
- Part program storage length 1280 m
- Number of registered programs 400
- Self-diagnosis function
- Alarm history display
- Operation history display
- Help function
- Stored pitch error compensation
- Sub call
- Custom Macro B
- Additional custom macro variables
- Canned cycles for drilling
- Small hole peck cycle
- Tool life management
- Workpiece coordinate system, G52 - G59
- Addition of workpiece coordinate system 48 pairs
- Automatic tool length measurement
- Inch / Metric
- Embedded Ethernet

# SPECIFICATIONS

	<b>GX 300</b>	<b>GX 510</b>
<b>Axis Travel</b>		
X-Axis	11.80" (300mm)	20" (510mm)
Y-Axis	15.8" (400mm)	15.8" (400mm)
Z-Axis	16.9" (430mm)	16.9" (430mm)
<b>Positioning</b>		
Rapid Traverse Rates (X,Y,Z Axes)	1,181" / min.	1,181" / min.
Manual Mode (X,Y,Z Axes)	0-354" / min.	0-354" / min.
Acceleration (X,Y,Z Axes)	190 in./s <sup>2</sup> (4.8m/s <sup>2</sup> )	190in./s <sup>2</sup> (4.8m/s <sup>2</sup> )
Minimum Increment	0.00004"	0.00004"
Ball Screw Diameter and Pitch (X,Y,Z Axes)	1.26"x10 pitch (32mm)	1.26"x10 pitch (32mm)
<b>Spindle</b>		
Speed Range	7,083RPM (10,000 option)	7,083RPM (10,000 option)
Motor HP 30 min. Rating	20HP (15kW)	20HP (15kW)
Torque	133.95Nm (98.8ft./lbs)	133.95Nm (98.8ft./lbs)
Retention Force	1,763lbs	1,763lbs
Taper	No. 40	No. 40
Tool Holder	CT40	CT40
Distance from table to Gauge Plane	5.9" min-22.8"	5.9" min-22.8"
<b>Worktable</b>		
Working Surface	23.6" x 15.8" (600 x 400mm)	23.6" x 15.8" (600 x 400mm)
Table Load	396lbs. (180kg)	550lbs. (250kg)
Number of T-Slots	3	3
T-Slot Size	0.70" (18mm)	0.70" (18mm)
<b>Control</b>		
Fanuc	OiMD	OiMD
<b>Automatic Tool Changer - Swing Arm</b>		
Magazine Capacity	20 Tools	20 Tools
Tool Select by Shortest Path & Random Select	Bi-Directional	Bi-Directional
Max.Tool Diameter (Adjacent Pockets)	3.15" (80mm)	3.15" (80mm)
Max.Tool Diameter (With Adjacent Pockets)	5.9" (150mm)	5.9" (150mm)
Max.Tool Length	8.86" (225mm)	8.86" (225mm)
Max.Tool Weight	13.2lbs. (6kg)	13.2lbs. (6kg)
Random Tool Change Time (tool to tool/c to c)	2.5/4/5 sec.	2.5/4/5 sec.
<b>Coolant Facilities</b>		
Coolant Capacity	31.7 Gallons (120L)	31.7 Gallons (120L)
<b>Accuracy Specifications (ISO - 230-2)</b>		
Positioning	0.0002" (.005mm)	0.0002" (.005mm)
Repeatability	0.00011" (.0025mm)	0.00011" (.0025mm)
<b>Miscellaneous</b>		
Power Supply Requirement	220v/3Phast/67FLA	220v/3Phase/67FLA
Program Resolution	0.0001" (0.001mm)	0.0001" (0.001mm)
Machine Lubrication	Grease	Grease
Machine Communication	RS-232-C , PCMCIA Card & USB	RS-232-C, PCMCIA Card & USB
<b>Machine Dimensions</b>		
Length	57.09" (1,450mm)	60.04" (1,524mm)
Depth	100.87" (2,562mm)	100.87" (2,562mm)
Height	93.35" (2,371mm)	93.35" (2,371mm)
Approx. Weight	10,913lbs (4,950kg)	11,244lbs (5,100kg)

	GX 480	GX 480APC
<b>Axis Travel</b>		
X-Axis	18.90" (480mm)	
Y-Axis	15.8" (400mm)	
Z-Axis	16.9" (430mm)	
Table surface to spindle gauge distance	5.91"-22.83" (150-580mm)	
<b>Positioning</b>		
Auto Mode (X,Y,Z Axes)	36m/min (1,1417ipm)	
Feedrate Range (X,Y,Z Axes)	0.004-23.2m/min (0.1-590ipm)	
Minimum Increment	0.00004" (0.00001mm)	
Ball Screw Diameter and Pitch (X & Y Axes)	1.26" x 0.63" (32 x 16mm)	
Ball Screw Diameter and Pitch (X,Y,Z Axes)	1.26" x 0.472" (32 x 12mm)	
<b>Spindle</b>		
Speed, Belted	10,000RPM	
Motor Power Rating CT/30/15/1 min.	7.5/10/20HP (5.5/7.5/15kW)	
Torque (S3-60%)	35ft./lbs (47.7Nm)(1500RPM)	
Retention Force	6,375N (1430lbf)	
Spindle Taper	No. 40, BIG PLUS®	
Tool Holder	CT40 or BT40	
<b>Worktable</b>		
Working Surface	23.6" x 15.8" (600 x 400mm)	
Table Load	661lbs. (300kg)	
Number of T-Slots	3	
T-Slot Size	0.551" (14mm)	
T-Slot Center Dimension	4.92" (125mm)	
<b>Control</b>		
Bridgeport/FANUC/Okuma OSP	i-Series GX	
<b>Automatic Tool Changer - Swing Arm</b>		
Magazine Capacity	20 Tools	
Tool Select by Shortest Path & Random Select	Bi-Directional	
Max.Tool Diameter (Adjacent Pockets)	5.9" (150mm)	
Max.Tool Diameter (With Adjacent Pockets)	3.15" (80mm)	
Max.Tool Length	7.48" (190mm)	
Max.Tool Weight	15.7lbs. (7kg)	
Random Tool Change Time (tool to tool/c to c)	4.5 sec.	
<b>Coolant Facilities</b>		
Coolant Capacity	31.7 Gallons (120L)	
<b>Accuracy Specifications (ISO - 230-2)</b>		
Positioning	0.0004" (.010mm)	
Repeatability	0.0002" (.005mm)	
<b>Miscellaneous</b>		
Power Supply Requirement	64FLA	
Electrical Supply	50 or 60 Hz	
Voltage	220	
Compressed Air Requirement	70 psi (5kg/cm2)	
<b>Machine Dimensions</b>		
Length	62.01" (1,575mm)	
Depth	83.35" (2,168mm)	
Height	82.20" (2,088mm)	
Approx. Weight	6,204lbs (2820kg)	

# SPECIFICATIONS

	GX 710	GX 1000	GX 1300
<b>Axis Travel</b>			
X-Axis	27.95" (710mm)	40.16" (1020mm)	51.80" (1300mm)
Y-Axis	15.8" (400mm)	21.25" (540mm)	27.55" (700mm)
Z-Axis	16.9" (430mm)	21.25" (540mm)	25" (635mm)
Table surface to spindle gauge distance	5.91"-22.83" (150-580mm)	5.70"-26.97" (145-685mm)	5.24"-30.24" (133-768mm)
<b>Positioning</b>			
Auto Mode (X,Y,Z Axes)	36m/min (1,1417ipm)	36m/min (1,1417ipm)	36m/min (1,1417ipm)
Feedrate Range (X,Y,Z Axes)	0.004-23.2m/min (0.1-590ipm)	0.0025-12m/min (0.1-472ipm)	0.0025-12m/min (0.1-472ipm)
Minimum Increment	0.00004" (0.0001mm)	0.0004" (0.001mm)	0.0004" (0.001mm)
Ball Screw Diameter and Pitch (X & Y Axes)	1.26" x 0.63" (32 x 16mm)	1.57" x 0.472" (40 x 12mm)	1.77" x 0.472" (45 x 12mm)
Ball Screw Diameter and Pitch (X,Y,Z Axes)	1.26" x 0.472" (32 x 12mm)	1.57" x 0.472" (40 x 12mm)	1.77" x 0.472" (45 x 12mm)
<b>Spindle</b>			
Speed, Belted	10,000RPM	10,000RPM	10,000RPM
Motor Power Rating CT/30/15/1 min.	7.5/10/20HP (5.5/7.5/15kW)	15/20/24.8HP (11/15/26kW)	15/20/24.8HP (11/15/26kW)
Torque (S3-60%)	35ft./lbs (47.7Nm)(1500RPM)	84ft./lbs (114Nm)	104ft./lbs (141Nm)
Retention Force	6,375N (1430lbf)	7,8295N (1,760lbf)	7,8295N (1,760lbf)
Spindle Taper	No. 40, BIG PLUS®	No. 40, BIG PLUS®	No. 40, BIG PLUS®
Tool Holder	CT40 or BT40	CT40 or BT40	CT40 or BT40
<b>Worktable</b>			
Working Surface	31.5" x 15.8" (800 x 400mm)	44.09" x 21.25" (1120 x 540mm)	56" x 27.55" (1425 x 700mm)
Table Load	661lbs. (300kg)	1,760lbs. (800kg)	3,300lbs. (1500kg)
Number of T-Slots	3	3	5
T-Slot Size	0.551" (14mm)	0.708" (18mm)	0.708" (18mm)
T-Slot Center Dimension	4.92" (125mm)	6.30" (160mm)	4.92" (125mm)
<b>Control</b>			
Bridgeport/FANUC/Okuma OSP	i-Series GX	OSP P300	i-Series GX
<b>Automatic Tool Changer - Swing Arm</b>			
Magazine Capacity	20 Tools	30 Tools	30 Tools (40 Opt)
Tool Select by Shortest Path & Random Select	Bi-Directional	Bi-Directional	Bi-Directional
Max.Tool Diameter (Adjacent Pockets)	5.9" (150mm)	5.9" (150mm)	5.9" (150mm)
Max.Tool Diameter (With Adjacent Pockets)	3.15" (80mm)	3" (76.2mm)	3" (76.2mm)
Max.Tool Length	7.48" (190mm)	11.81" (300mm)	13.70" (350mm)
Max.Tool Weight	15.7lbs. (7kg)	17.6lbs. (8kg)	17.6lbs. (8kg)
Random Tool Change Time (tool to tool/c to c)	4.5 sec.	4.5 sec.	4.5 sec.
<b>Coolant Facilities</b>			
Coolant Capacity	31.7 Gallons (120L)	95 Gallons (360L)	95 Gallons (360L)
<b>Accuracy Specifications (ISO - 230-2)</b>			
Positioning	0.0004" (.010mm)	0.0004" (.010mm)	0.014" (.0005mm)
Repeatability	0.0002" (.005mm)	0.0002" (.005mm)	0.0003" (.007mm)
<b>Miscellaneous</b>			
Power Supply Requirement	64FLA	82FLA	92FLA
Electrical Supply	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz
Voltage	220	208-230 or 380-440	208-230 or 380-440
Compressed Air Requirement	70 psi (5kg/cm2)	70 psi (5kg/cm2)	70 psi (5kg/cm2)
<b>Machine Dimensions</b>			
Length	80.12" (2,035mm)	116.30" (2,955mm)	129.84" (3,298mm)
Depth	83.35" (2,168mm)	86.22" (2,190mm)	108.43" (2,754mm)
Height	82.20" (2,088mm)	106.81" (2,713mm)	113.31" (2,2878mm)
Approx. Weight	6,460lbs (2930kg)	12,408lbs (5640kg)	20,680lbs (9400kg)

	<b>GX 1600</b>	<b>GX 1300-50/1600-50</b>
<b>Axis Travel</b>		
X-Axis	62.99" (1600mm)	1300: 51" (1295mm) 1600: 62.99" (1600mm)
Y-Axis	27.55" (700mm)	27.55" (700mm)
Z-Axis	25" (635mm)	25" (635mm)
Table surface to spindle gauge distance	5.24"-30.24" (133-768mm)	5.24"-30.24" (133-768mm)
<b>Positioning</b>		
Auto Mode (X,Y,Z Axes)	36m/min (1,1417ipm)	36m/min (1,1417ipm)
Feedrate Range (X,Y,Z Axes)	0.0025-12m/min (0.1-472ipm)	0.0025-12m/min (0.1-472ipm)
Minimum Increment	0.0004" (0.001mm)	0.0004" (0.001mm)
Ball Screw Diameter and Pitch (X & Y Axes)	1.57" x 0.472" (40 x 12mm)	1.77" x 0.472" (45 x 12mm)
Ball Screw Diameter and Pitch (X,Y,Z Axes)	1.57" x 0.472" (40 x 12mm)	1.77" x 0.472" (45 x 12mm)
<b>Spindle</b>		
Speed, Belted	10,000RPM	10,000RPM
Motor Power Rating CT/30/15/1min.	15/20/24.8HP (11/15/26kW)	29.8/34.8/46.9HP (22/26/35kW)
Torque (S3-60%)	104ft./lbs (141Nm)	160ft./lbs (216Nm)
Retention Force	7,8295N (1,760lbf)	—
Spindle Taper	No. 40, BIG PLUS®	No. 40, BIG PLUS®
Tool Holder	CT40 or BT40	CT50 or BT50
<b>Worktable</b>		
Working Surface	27.55" x 66.93" (1700 x 700mm)	56/66.93" x 27.55" (1425/1700 x 700mm)
Table Load	3,300lbs. (1500kg)	3,300lbs. (1500kg)
Number of T-Slots	5	5
T-Slot Size	0.708" (18mm)	0.708" (18mm)
T-Slot Center Dimension	4.92" (125mm)	4.92" (125mm)
<b>Control</b>		
Bridgeport/FANUC/Okuma OSP	i-Series GX	i-Series GX
<b>Automatic Tool Changer - Swing Arm</b>		
Magazine Capacity	30 Tools (40 Opt)	24 Tools (32 Opt)
Tool Select by Shortest Path & Random Select	Bi-Directional	Bi-Directional
Max. Tool Diameter (Adjacent Pockets)	5.9" (150mm)	7.87" (200mm)
Max. Tool Diameter (With Adjacent Pockets)	3" (76.2mm)	4.29" (109mm)
Max. Tool Length	13.7" (350mm)	13.70" (350mm)
Max. Tool Weight	17.6lbs. (8kg)	33.7lbs. (15kg)
Random Tool Change Time (tool to tool/c to c)	4.5 sec.	5.8 sec.
<b>Coolant Facilities</b>		
Coolant Capacity	131 Gallons (500L)	131 Gallons (500L)
<b>Accuracy Specifications (ISO - 230-2)</b>		
Positioning	0.014" (.0005mm)	0.014" (.0005mm)
Repeatability	0.0003" (.007mm)	0.0003" (.007mm)
<b>Miscellaneous</b>		
Power Supply Requirement	92FLA	109FLA
Electrical Supply	50 or 60 Hz	50 or 60 Hz
Voltage	208-230 or 380-440	208-230 or 380-440
Compressed Air Requirement	70 psi (5kg/cm2)	70 psi (5kg/cm2)
<b>Machine Dimensions</b>		
Length	153.46" (3,898mm)	107/153.46" (3,298/3898mm)
Depth	108.43" (2,754mm)	108.43" (2754mm)
Height	113.31" (2,878mm)	113.31" (2,2878mm)
Approx. Weight	21,560lbs (9800kg)	21,560lbs (9800kg)

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Over the years, The Hardinge Group™ steadily diversified both its product offerings and operations. Today, the company has grown into a globally diversified player with manufacturing operations in North America, Europe and Asia. In addition to designing and building turning centers, and collets, Hardinge is a world leader in grinding solutions with the addition of the Kellenberger, Jones & Shipman, Hauser, Tschudin, Usach and Voumard brands to the Hardinge family. The company also designs and manufactures Bridgeport machining centers and other industrial products for a wide range of material cutting, turnkey automation and workholding needs.

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