BRIDGEPORT GX SERIES

VERTICAL MACHINING CENTER

GX 480 / GX 710
GX 1000
GX 1300 / GX 1600

Bridgeport®

GX series vertical machining centers with thousands installed worldwide. These 40 taper spindle machines include superior design characteristics to ensure many years of accurate and reliable performance.

Higher Efficiency -

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

- Spindle motor 11/15/18.5 kW for GX 1000,22/26/35 KW for GX 1300/1600 feature higher cutting efficiency.
- Equipped 12000 rpm (All models) spindle as standard ; 15000 rpm as optional for different cutting requirements.
- Max. rapid on X, Y and Z axes is 36 m/min on GX 1000, GX 1300/1600.

Rigid Structure -

Longer tool life and increased heavy cutting ability.

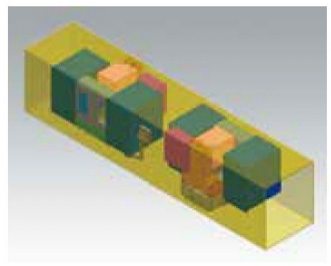
- Three linear guideways design on X and Y axes, provides more stiffness and machining consistency (GX 1000).
- Roller linear guideways on each axis, low static and dynamic friction providing longer machine life and greater positioning accuracy (GX 1300/1600).
- Direct drive-nut ball screws feature low noise, low thermal growth and heavy-duty transmission.
- 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.

Excellent and Stable Accuracy -

Stable cutting accuracy

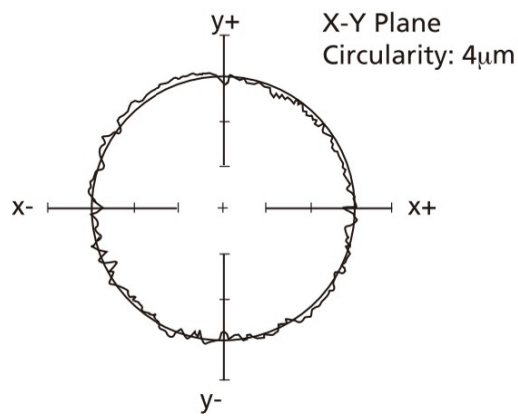
- Accurate Positioning Accuracy ISO230-2
  Full Stroke Positioning 0.01 mm (GX 1000)
  Full Stroke Positioning 0.014 mm (GX 1300/1600)
- Accurate Repeatability Accuracy ISO230-2
  Full Stroke Repeatability 0.005 mm (GX 1000)
  Full Stroke Repeatability 0.007 mm (GX 1300/1600)
- Ball-Bar accuracy, example accuracy 0.004mm on X-Y plane.
- "Circle-Diamond-Square" cutting complies with ISO 10791-7

- **Load Into HQ Container !**



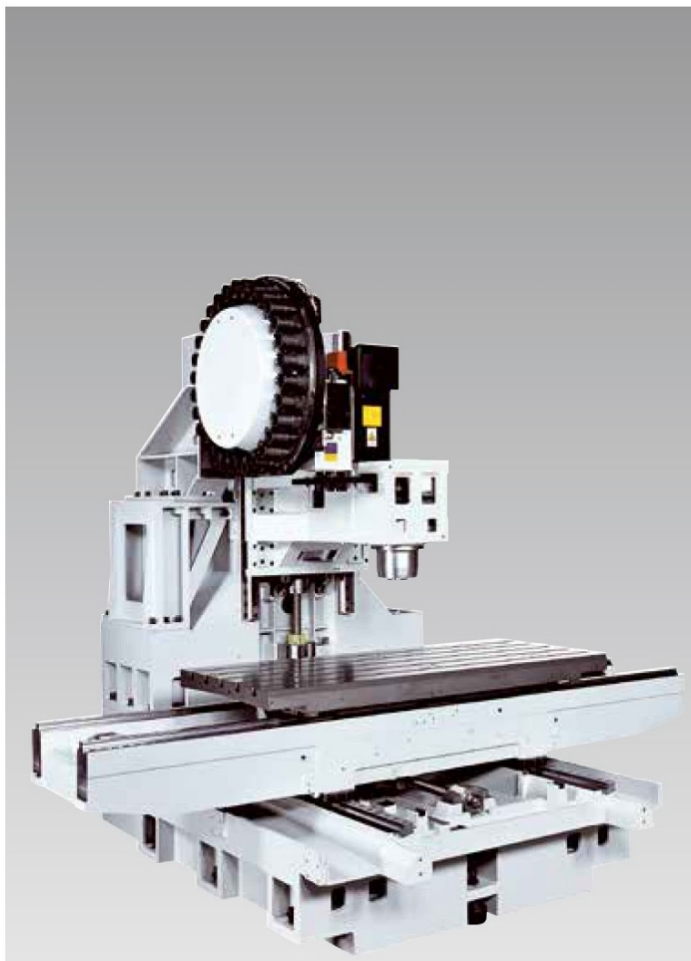
2 units GX 1600 machines in 40' HQ container, saving more trasportation cost.

- **Ball-Bar Accuracy Example**

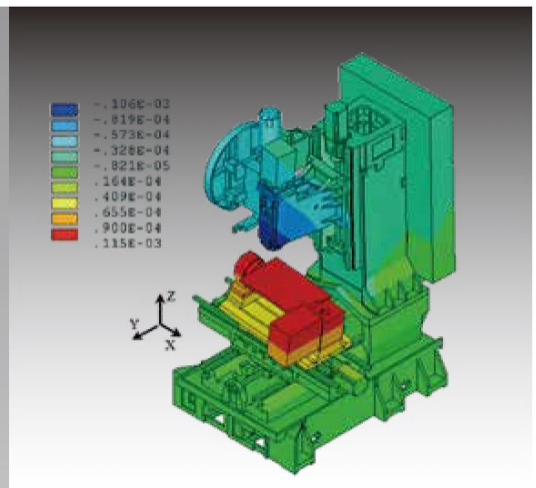


- **ISO 10791-7 "Circle-Diamond -Square" Cutting Example**

Rigid Structure, Superior Reliability



GX 1300/1600



FEA (Finite Element Analysis)

FEA techniques were used to analyze the structure deviation, stress, themal rise and vibration. This process ensures excellent geometric accuracy and cutting surface shown by our Hardinge engineering team.

Stiff and Thermally-Stable Spinde

Significant radial and axial stiffness with quad-set of angular-contact bearings on the front and taper bore roller bearing on the rear. Non-contact magnetic encoder design eliminates noise and vibration, also provides more accurate spindle orientation feedback.

Rigid Linear Guideways

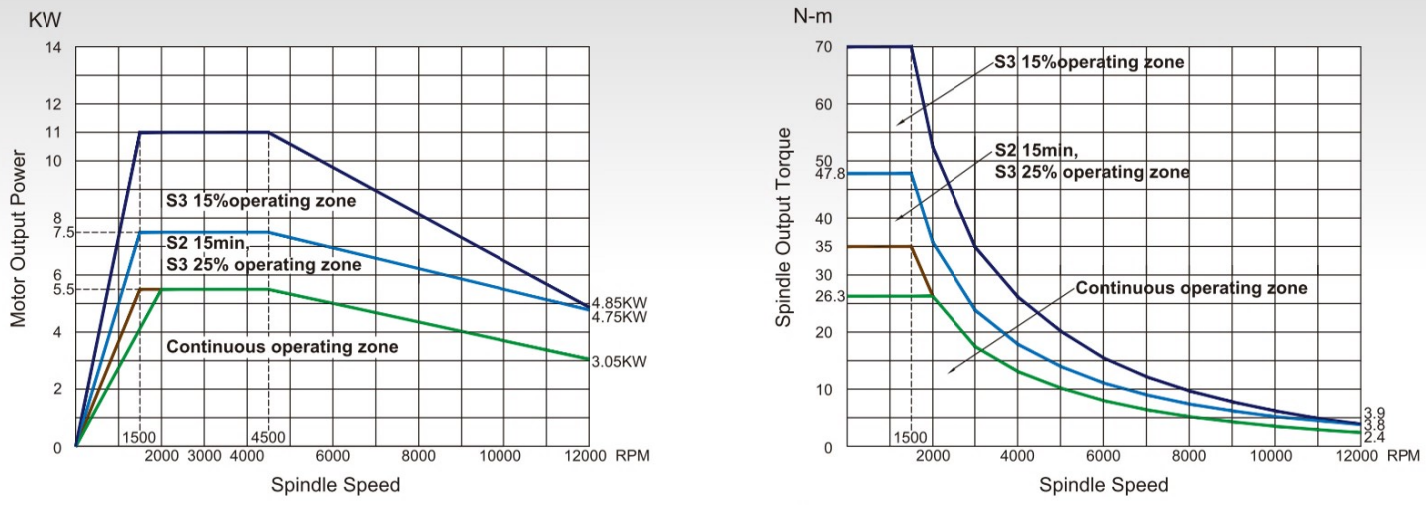
Three(3) guideways and five(5) blocks for stable support in X / Y axes,two(2) guideways and six(6) blocks for optimum rigidity and stability in Z axis (GX 1000).
For GX 1300/1600, 45mm width roller type linear guideway on X / Y / Z axes, 45mm dia. ball screw features rigidity, superior positioning & repeatability accuracy.

20,000 Hour Life Test for Reliability and Quality

VMC prototype life test confirms :

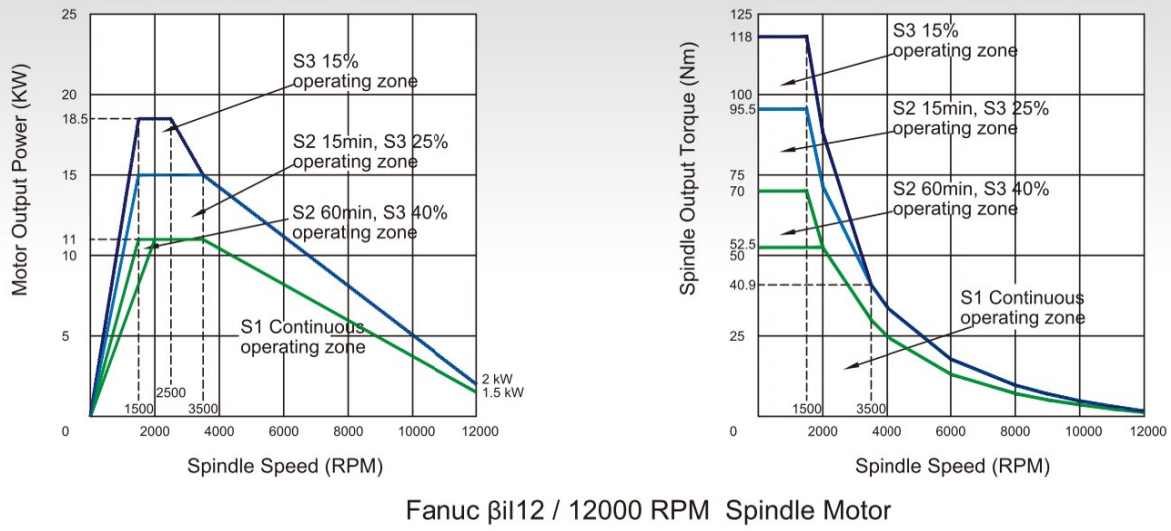
- Benchmarking test
- MTBF test
- Wear test
- Accuracy test
- Vibration test
- Noise test
- Leakage test
- Safety test
- Thermal test

Fanuc Spindle Motor 12000rpm power & torque characteristic curve (GX 480 / GX 710):



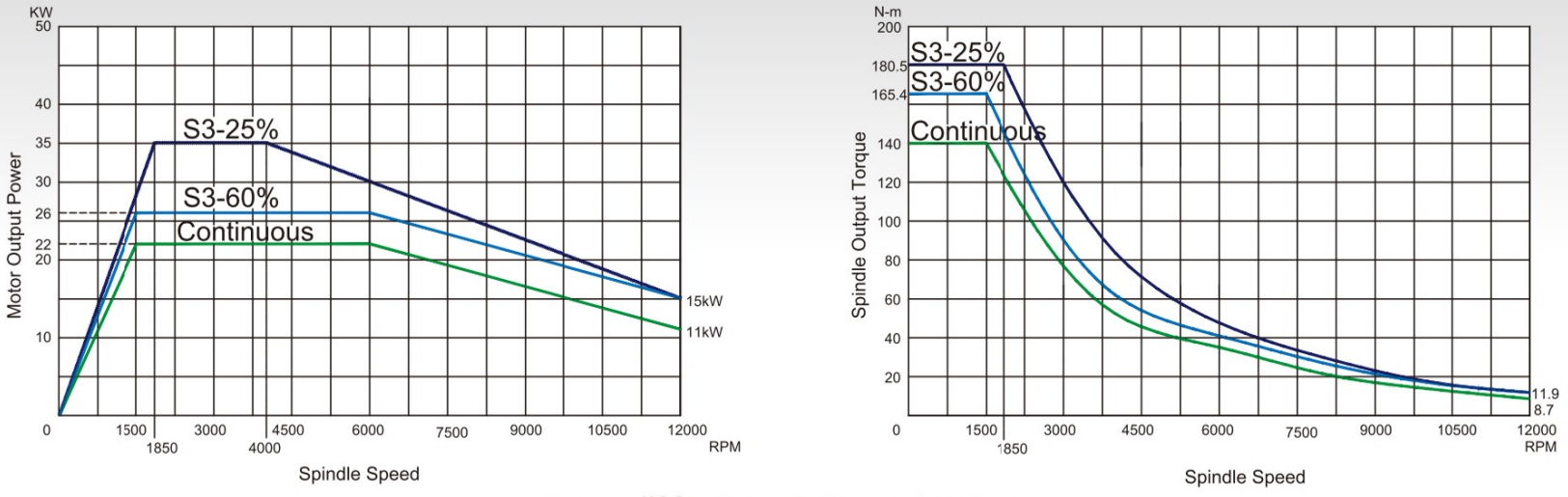
Fanuc βil6 / 12000 RPM Spindle Motor

Fanuc Spindle Motor 12000rpm power & torque characteristic curve (GX 1000):



Fanuc βil12 / 12000 RPM Spindle Motor

Fanuc Spindle Motor 12000rpm power & torque characteristic curve (GX 1300 / GX 1600):



Fanuc αil22 / 12000 RPM Spindle Motor

Fanuc Control Features

- 10.4" LCD Color Display
- Linear / Circular / Helical Interpolation
- Programmable Data Input
- PCMCIA Card Slot
- Workpiece Coordinate System
- Manual Pulse Generator (Handwheel)
- Coordinate System Rotation
- Rigid Tapping
- Tool Life Management
- Tool Length compensation
- Background Editing
- Ethernet Ready/ USB Slot
- Additional Workpiece Coordinate System
- Manual Guide i

Siemens Control Features

- 10.4" Color Display
- RJ45 Ethernet Port / Network Drive
- USB 2.0
- Compact Flash (CF) interface
- Intuitive Jog Mode
- Tool and Workpiece Measurement
- Intuitive & Transparant Tool Management
- Graphical Interative Programming & Operation
- Mold Making Quick Viewer
- Transformation - Cycle800
- MDynamics - Mold & Die

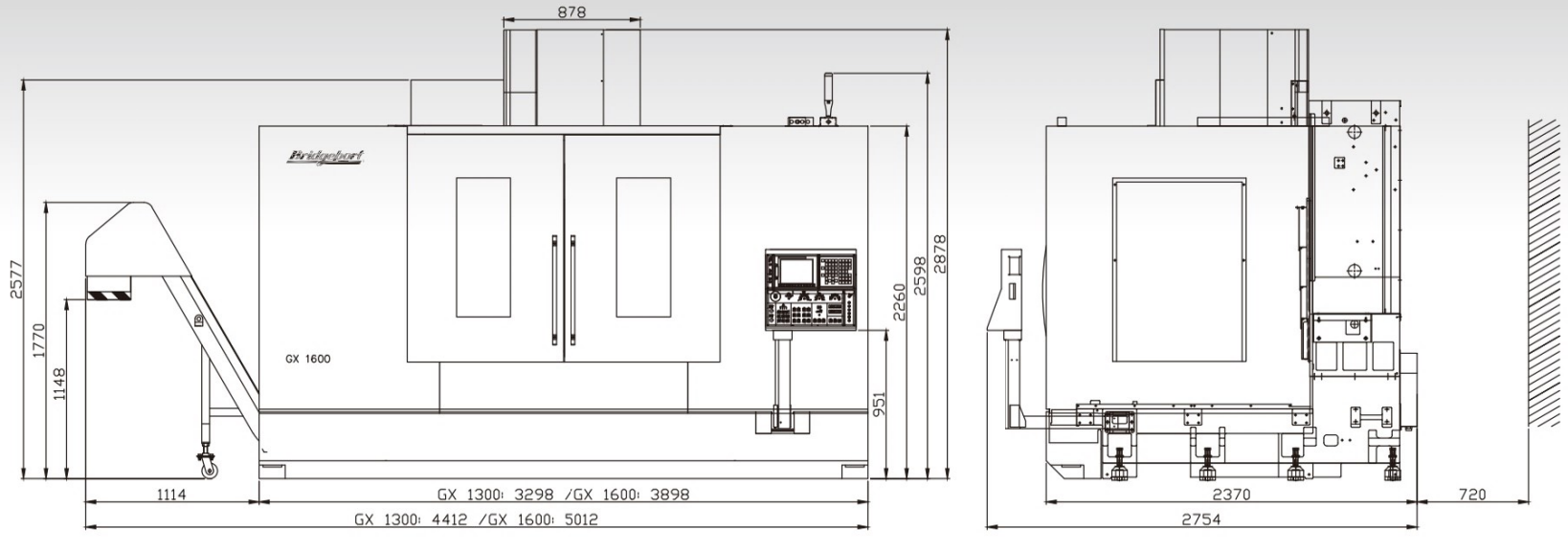
Optionable Features

- Travel to fixed stop with Force control
- Contour handwheel
- TRANSMIT cylinder surface transformation
- Leads crew error compensation bidirectional
- Generic coupling CP-Static eg counterspindle
- On network drive(windows Share/FTP)
- Residual material detection and machining
- Shopmill/Shopturn
- Simulation 1 in 3D representation
- Acess MyMachine/P2P
- Acess MyMachine/OPC UA
- Spline interploation
- Top surface
- Transmit/Tracyl transformation without Y axis
- Master slave basic for drives
- Replacement tools for tool management
- Measuring cycle

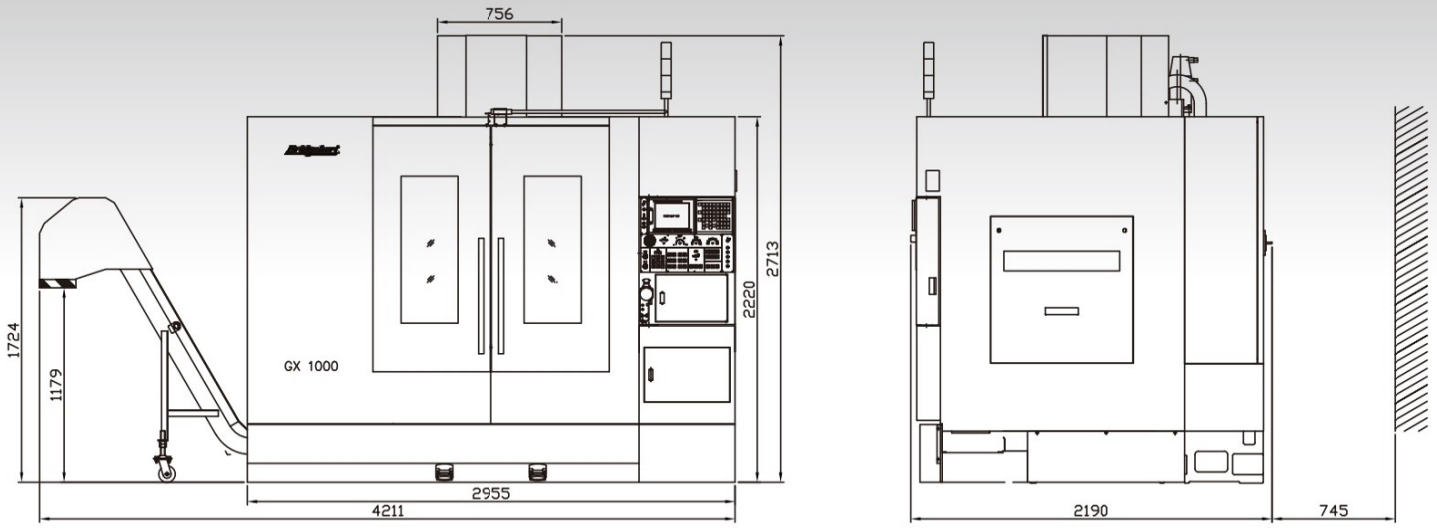
Heidenhain Control Features (GX 1000/ GX 1300/ GX 1600)

- Contour Approach and Departure
- FK Free Contour Programming
- Program Jumps
- Fixed Cycles
- Coordinate Transformations
- Q Parameters
- Programming Aids
- Actual Position Capture
- Verification Graphics
- Program Run Graphics
- Machining Time
- Returning to the Contour
- Datum Tables
- Preset Table
- Data Interfaces
- Tool Compensation
- Cutting Data Tables
- Constant Contouring Speed
- Parallel Operaton

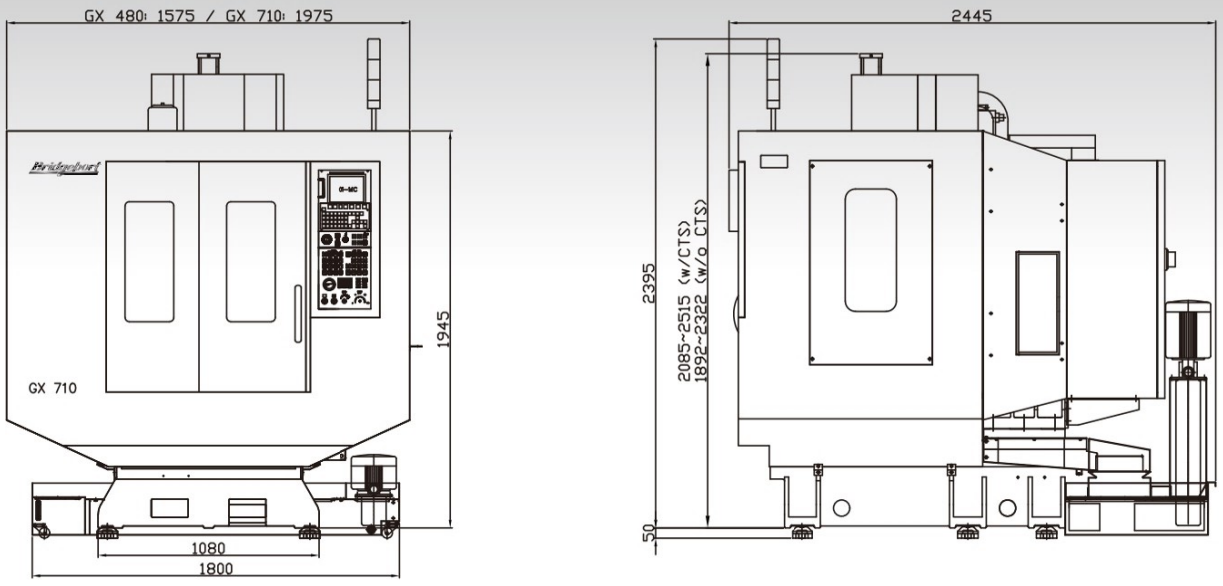
Dimensional Drawings GX 1300 / GX 1600



Dimensional Drawings GX 1000



Dimensional Drawings GX 480 / GX 710



Machine Specification

Unit: mm

	GX 480 (#40 Taper)	GX 710 (#40 Taper)
Travel		
X/Y/Z Axes	480 x 400 x 430	710 x 400 x 430
Spindle Nose to Table	150 - 580	
Y-Throat Distance	429	
Table		
Table Size	600 x 400	800 x 400
Load Capacity	300 kg	
T-Slots (Width x No. x Size)	14 x 3 x 125	
Spindle		
Taper	No. 40 (BBT 40)	
Transmission	DDS	
Spindle Speed (RPM)	STD: 12000 (Grease) OPT: 12000 (Oil-Air) OPT: 15000 (Oil-Air)	
Motor Power Maximum Torque at Base Speed	5.5kW/ 11kW (Cont./ S3-15%) Fanuc 35N-m/ 70N-m (Cont./ S3-15%) Fanuc	
Automatic Tool Changer		
Tool Capacity	STD: 24/ OPT:30	
Type/Tool Selection	Swing Arm/ Bi-Directional	
Pull Stud Type	BT/ CAT/ SK/ ANSI 40	
Max. Tool Dia. (Full Drum/Adj. Pocket Empty)	80/ 150	
Max. Tool Length	200	
Max. Tool Weight	7 kg	
Tool Change Time (T-T)	2.5 sec	

	GX 480 (#40 Taper)	GX 710 (#40 Taper)
Axes Drives (X/Y/Z Servo Motors)		
Fanuc	1.8kW/ 1.8kW/ 1.8kW	
Siemens	2.29kW/ 2.29kW/ 2.29kW	
Ball Screws (X/Y/Z Axes)		
Size	32/ 32/ 32	
Pitch	12/ 12/ 12	
Lubrication	Grease Central Lubrication	
Linear Guideway (X/Y/Z Axes)		
Type	Ball Guide	
Size	25/ 25/ 30	
Linear Ways	2/ 2/ 2	
Linear Guide Trucks	4/ 4/ 4	
Lubrication	Grease Central Lubrication	
Rapid Traverse Rate	36 m/min	
Accuracy (ISO 230-2) (X/Y/Z Axes)		
Positioning	0.01	
Repeatability	0.005	
Positioning (w/ scales)	0.005	
Repeatability (w/ scales)	0.004	
General Specification		
Machine Overall Size (Width/Depth/Height)	1800 x 2445 x 1945~2515	1975 x 2445 x 1945~2515
Machine Weight	3800	3907
Coolant Tank Capacity	170 L	
Air Requirement	6 kg/cm²	
Power Requirement	64 FLA/ 220V/ 3 Phase (Fanuc) 37 FLA/ 400V/ 3 Phase (Siemens)	

※To keep improvement and developing new functions, Bridgeport Machine Company reserves the rights to change specifications without further notice.

※Due to varying cutting conditions, actual results may be greater or less than those listed.

Standard Features

- Manual Central Grease Lubrication (X/Y/Z Axes)
- Work Light
- Stack Light (3 colors)
- Retention Knobs
- Remote MPG

Optional Features

- Automatic Central Grease Lubrication
- Coolant Through Spindle 280 psi (20 Bar)
- Chip Conveyor: Auger/ Hinge Type/ Scraper
- Coolant Wash Gun with Manual/ Solenoid Valve
- 4th Axis Pre-Wiring/ Drive Package/ Rotary Table
- 5th Axis Drive Package (4+1)
- Spare M-Codes (8)
- Tool/ Part Probe (Wireless) (OMP 40-2 +OTS with OMI-2T)
- Linear Scales
- Z-Axis Column Riser 200mm
- Spindle Oil Chiller
- Surround Tool Coolant
- Cutter Air Blast (Spindle Side)
- Chip Flush System
- #30 Taper 15000/ 20000rpm DDS Spindle
- Auto Power OFF
- AICC II (Pre-read 200 Blocks)(Fanuc)

Machine Specification

Unit: mm

	GX 1000	GX 1300	GX 1600
Travel			
X/Y/Z Axes	1020 x 540 x 540	1300 x 700 x 635	1600 x 700 x 635
Spindle Nose to Table	145 - 685	133 - 768	
Y-Throat Distance	584	725	
Table			
Table Size	1120 x 540	1425 x 700	1700 x 700
Load Capacity	700 kg	1500 kg	
T-Slots (Width x No. x Size)	18 x 5 x 100	18 x 5 x 125	
Spindle			
Taper	40	40	
Transmission	DDS	DDS	
Spindle Speed (RPM)	STD: 12000 (Grease) OPT: 12000 (Oil-Air) OPT: 15000 (Oil-Air)	STD: 12000 (Grease) OPT: 12000 (Oil-Air) OPT: 15000 (Oil-Air)	
Motor Power	11kW/ 18.5kW (Cont./ S3-15%) Fanuc	22kW/ 35kW (Cont./ S3-25%) Fanuc	
Maximum Torque at Base Speed	52.5N-m/ 118N-m (Cont./ S3-15%) Fanuc	140N-m/ 180.5N-m (Cont./ S3-25%) Fanuc	
Automatic Tool Changer			
Tool Capacity	STD: 24/ OPT:30	STD: 30/ OPT:40	
Type/Tool Selection	Swing Arm/ Bi-Directional	Swing Arm/ Bi-Directional	
Pull Stud Type	BT/ CAT/ SK/ ANSI 40	BT/ CAT/ SK/ ANSI 40	
Max. Tool Dia. (Full Drum/Adj. Pocket Empty)	80/ 150	75/ 150 (non-CE) or 130 (CE)	
Max. Tool Length	300	350 (non-CE) or 340 (CE)	
Max. Tool Weight	7 kg	7 kg	
Tool Change Time (T-T)	1.6 sec	2.5 sec	
Axes Drives (X/Y/Z Servo Motors)			
Fanuc	1.8kW/ 3kW/ 3kW	4kW/ 4kW/ 7kW	
Siemens	3.05kW/ 3.05kW/ 3.55kW	4.87kW/ 4.87kW/ 4.87kW	
Heidenhain	2.64kW/ 2.64kW/ 5kW	5.7kW/ 5.7kW/ 7.2kW	
Ball Screws (X/Y/Z Axes)			
Size	40/ 40/ 40	45/ 45/ 45	
Pitch	12/ 12/ 12	12/ 12/ 12	
Lubrication	Manual Grease Central Lubrication	Manual Grease Central Lubrication	
Linear Guideway (X/Y/Z Axes)			
Type	Ball Guide	Roller Guide	
Size	30/ 30/ 30	45/ 45/ 45	
Linear Ways	3/ 3/ 2	2/ 2/ 2	
Linear Guide Trucks	5/ 5/ 6	4 /4 /6	
Lubrication	Grease Central Lubrication	Grease Central Lubrication	
Rapid Traverse Rate	36 m/min	36 m/min	
Accuracy (ISO 230-2) (X/Y/Z Axes)			
Positioning	0.01	0.014	
Repeatability	0.005	0.007	
Positioning (w/ scales)	0.005	0.005	
Repeatability (w/ scales)	0.004	0.004	
General Specification			
Machine Overall Size (Width/Depth/Height)	2955 x 2190 x 2713	3298 x 2754 x 2878	3898 x 2754 x 2878
Machine Weight	5500	9400	9800
Coolant Tank Capacity	360 L	400 L	500 L
Air Requirement	6 kg/cm²	6 kg/cm²	
Power Requirement	82 FLA/ 220V/ 3 Phase (Fanuc) 43 FLA/ 400V/ 3 Phase (Siemens) 43 FLA/ 400V/ 3 Phase (Heidenhain)	100 FLA/ 220V/ 3 Phase (Fanuc) 52 FLA/ 400V/ 3 Phase (Siemens) 65 FLA/ 400V/ 3 Phase (Heidenhain)	

Standard Features

- Manual Central Grease Lubrication (X/Y/Z Axes)
- Work Light
- Stack Light (3 colors)
- Remote MPG
- Retention Knobs

Optional Features

- Automatic Central Grease Lubrication
- Coolant Through Spindle 280 psi (20 Bar)
- Chip Flush System
- Coolant Wash Gun with Manual/ Solenoid Valve
- Chip Conveyor: Hinge/ Scraper/ Auger
- Spare M-Codes (8)
- 4th Axis Pre-Wiring/ Drive Package/ Rotary Table
- 5th Axis Drive Package(4+1)/ Rotary Table (4+1)
- Tool Probe/ Pre-Wiring
- Part Probe/ Pre-Wiring
- Automatic Power Off
- Linear Scales
- Z-Axis Column Riser 180mm (GX 1000)
- Z-Axis Column Riser 260mm (GX 1300/ GX 1600)
- Spindle Oil Chiller
- Surround Tool Coolant
- Cutter Air Blast (Spindle Side)
- #50 Taper 10000rpm Belted Spindle (GX 1300/ GX 1600)
- #50 Taper 6000rpm Belted Spindle with 2 Speed Gearbox (GX 1300/ GX 1600)

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