TURNING

GS-Series

Performance

Horizontal Turning Centers

TURNING MILLING GRINDING WORKHOLDING ROTARY

www.hardinge.com

HARDINGE

GS-Series Overview

The GS-Series horizontal turning centers have been a market leader for rigid and reliable CNC lathes for years. These proven workhorses are sure to give you a truly versatile machine at a competitive price. With three unique classifications (Compact Footprint, Large Footprint, and MSY Configuration) the GS-Series is sure to have the machine configuration you are looking for. Everyone knows with the name Hardinge on it you can expect the best quality and customer service!

Compact & Large Format Footprint (pages 3-13)

GS 150

GS 200

GS 42

GS 51

GS 51 A

GS 200/66

GS 200/66 L

GS 250

GS 250 L

M, S, Y (Live Tooling, Sub Spindle, Y Axis) Configuration (Pages 14-22)

GS 200 MY

GS 200 MS

GS 200 MSY

GS 250 MY

GS 250 MS

GS 250 MSY

Exceptional combination of features for speed, power, accuracy, and durability in a compact design and affordable price

GS-Series turning centers are rigid and reliable machines that feature a robust one-piece cast iron base, heavy-duty linear guideways and ballscrews, and many standard value-added features—heavy-duty dual-wound spindle motor, 3-jaw chuck, 40-psi through-tool and headwall coolant, foot switch, chip conveyor interface, air hose with air gun, a swing-out CNC control panel for ease of operation, and much more. Oi-MD CNC controls include many value-added features that are offered as options by other machine builders. Choose from the numerous productivity options and you'll have a truly versatile machine—and with the level of quality you would expect with any Hardinge product.

GS 150

- A2-5 spindle nose
- 11-kW (15-hp) spindle drive system
- 171.5Nm (126.5ft-lb) torque
- 6,000-rpm spindle speed
- 150mm (6") jaw chuck standard

GS 200

- A2-6 spindle nose
- 11-kW (15-hp) spindle drive system
- 206Nm (152ft-lb) torque
- 5,000-rpm spindle speed
- 200mm (8") jaw chuck standard

GS 42

- A2-5, 16C spindle nose
- 11-kW (15-hp) spindle drive system
- 171.5Nm (126.5ft-lb) torque
- 6,000-rpm spindle speed
- 42mm (1.65") bar capacity

GS 51

- A2-6, 20C spindle nose
- 11-kW (15-hp) spindle drive system
- 206Nm (152ft-lb) torque
- 5,000-rpm spindle speed
- 51mm (2") bar capacity

GS 200/66 and GS 200/66 L

- A2-6 spindle nose
- 18.5-kW (25-hp) spindle drive system
- 408Nm (301.1ft-lb) torque
- 4,200-rpm spindle speed
- 200mm (8") jaw chuck standard

GS 250 and GS 250 L

- A2-8 spindle nose
- 18.5-kW (25-hp) spindle drive system
- 490Nm (361.3ft-lb) torque
- 3,500-rpm spindle speed
- 250mm (10") jaw chuck standard

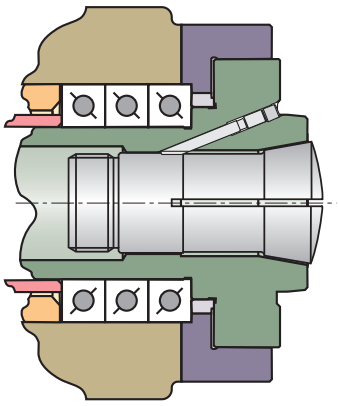
The Hardinge Advantage

The Hardinge spindle design is both collet and jaw chuck-ready and does NOT require a spindle adapter. Collet ready spindle only available on GS 42 & GS 51 models.

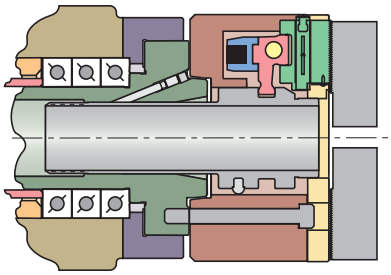
- Collet seats directly in the Hardinge spindle
- Minimum overhang from the spindle bearings assures that spindle accuracy is transferred directly to the workpiece
- Maximum rigidity and gripping power is transferred to the part
- Minimum weight on spindle
- Maximum utilization of RPM
- Optimum T.I.R.
- Gripping force directly over the workpiece
- Superior tolerances and finishes
- Capable of using maximum machine stroke capacity
- Quick changeover—collet draw tube is easily and accurately adjusted from the back of the spindle
- Longer tool life
- Ability to use a wide variety of workholding devices: Sure-Grip® 3-jaw chucks, collets, FlexC™ quick-change collets, step chucks, Sure Grip® expanding collets, Dead-Length® systems, fixture plates and others

Hardinge's Collet Ready Spindle

Hardinge Spindle shown with Collet

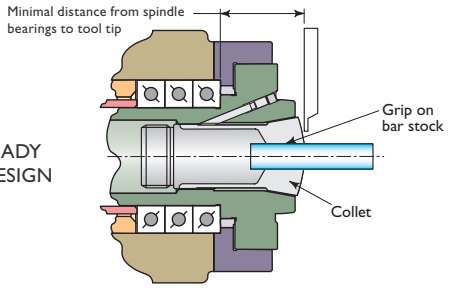


Hardinge Spindle shown with 3-Jaw Chuck

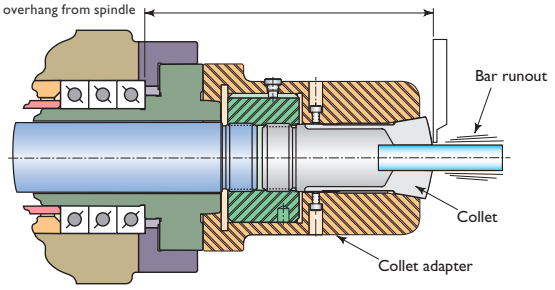


The Hardinge spindle design allows quick changeover from bar work to chucking work!

COLLET-READY SPINDLE DESIGN



COLLET ADAPTER CONFIGURATION



GS 200/66(L) and GS 250(L)

Industry's most reliable motors and drives. Heavy-duty axis motors and drives provide superior machine capability.

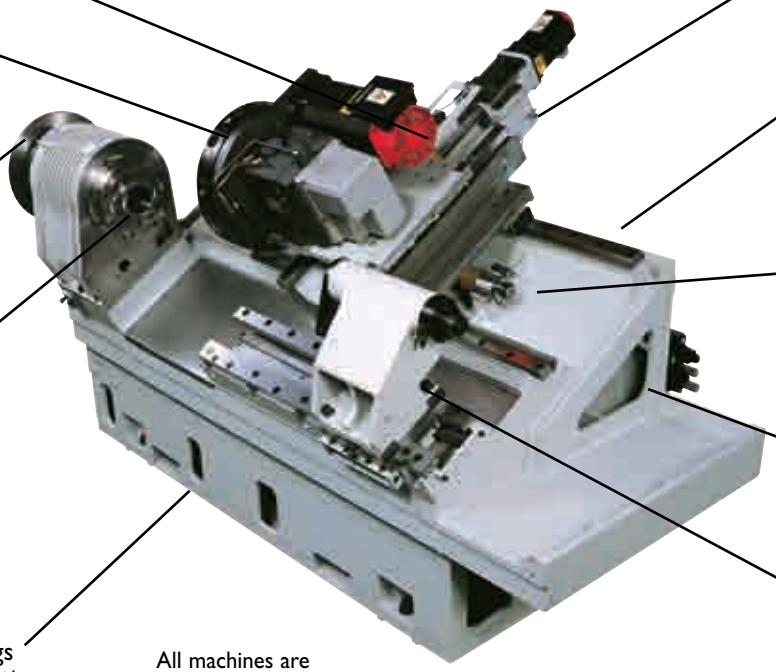
12-Station vertical block top plate standard—VDI top plate with or without live tooling is available as an option.

Non-contact magnetic spindle encoder eliminates the need for belted encoder, increasing overall reliability. One-degree spindle orient included.

Best-in-class spindle design incorporates 2-roller and 2-angular contact bearing for superior rigidity, thermal stability and overall spindle life.

Dual-wound spindle motor provides heavy-duty cutting capabilities.

Machine base and all major castings are made with high quality grey cast iron for superior rigidity, durability, and thermal stability.



All machines are laser inspeced to strict quality standards.

Environmentally friendly grease lubrication minimizes overall maintenance cost.

Heavy-duty linear guideways provide optimum stiffness and rigidity, resulting in heavier cutting capability and longer machine life.

Heavy-duty, fixed pretensioned double-nut C2-class ballscrews provide superior rigidity, machine accuracy and repeatability.

Strategically ribbed 30-degree slant bed design of one piece construction.

Fully-programmable #5 MT hydraulic tailstock option features robust boxway design for optimum tailstock rigidity.

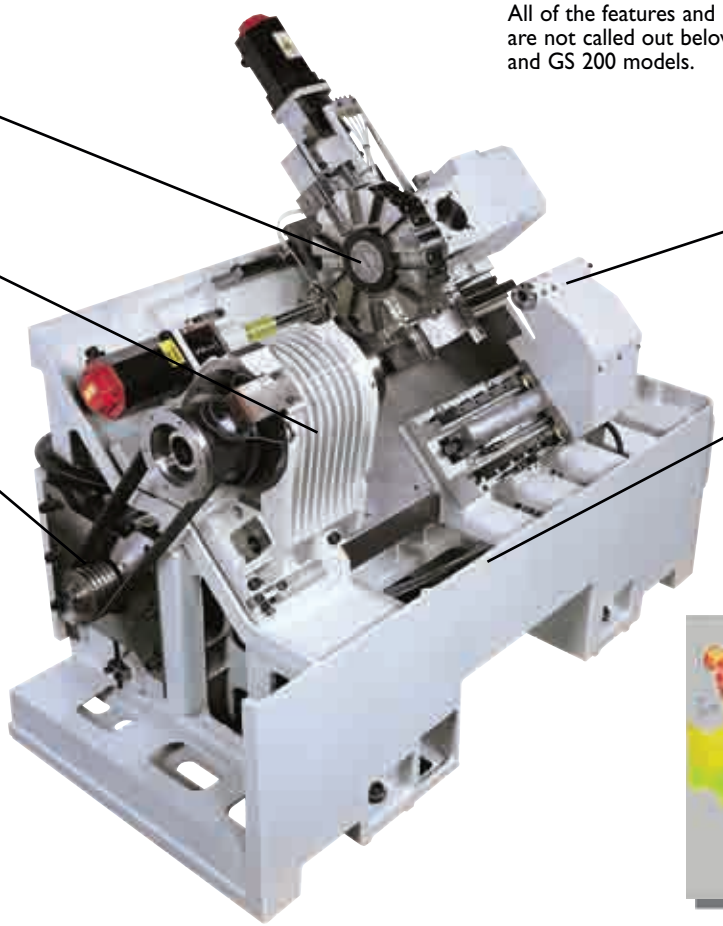
GS 150, GS 200, GS 42 & GS 51

All of the features and benefits listed above that are not called out below also apply to the GS 150 and GS 200 models.

12-Station vertical block top plate standard—VDI top plate with live tooling is available as an option.

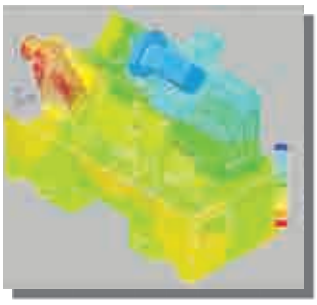
High class double-nut ball screws provide superior machine accuracy and repeatability.

Strategically ribbed 45-degree slant bed design of one piece construction.



Fully-programmable #4 MT hydraulic tailstock option eliminates human intervention compared to competitive designs.

High quality linear guideways provide greater positioning accuracy, faster traverse rates, less machine wear, longer machine life and overall machining consistency.



Standard features include:

- 3-Jaw wedge-style chuck (N/A GS 42/51)
- One-degree spindle orient
- Spindle reference (servo lock)
- Rigid tapping
- Run time and parts counter
- Chuck/collet closer foot switch
- Chip conveyor Interface
- Swing-out CNC pendant
- Air hose with air gun
- Complete operator's, programmer's and maintenance documentation

12-Station Vertical Top Plate

Standard 12-station vertical block top plate

Minimal tool interference

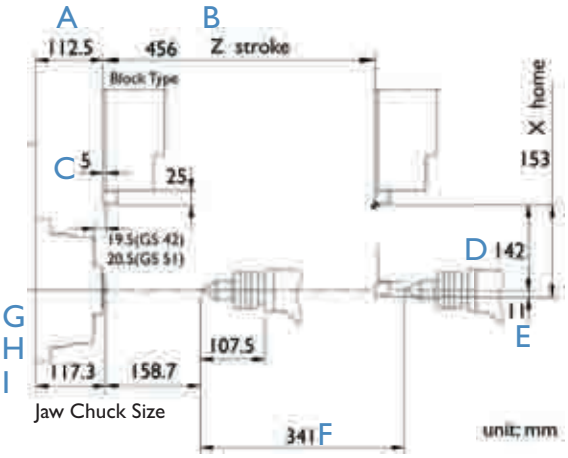
Bidirectional turret indexing allows shortest path indexing for reduced non-cut time. The non-lift turret indexing ensures contaminant-free operation—indexing is by a brushless servomotor with positive hydraulic clamping on a 3-piece curvic coupling. The turret pivot (safety shear) feature helps prevent damage to the machine. Coolant is fed through round shank tool holders via turret ports, allowing coolant to be precisely directed to the machining operation. Live tooling is not available.

Rigid tapping

Synchronization between the main spindle and the Z-axis motion provides precise and fast rigid tapping operations.

Large machining area

(collet ready spindle shown)

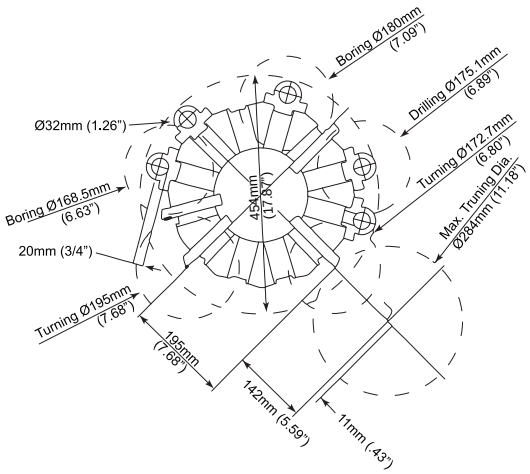


GS 150 and GS 200			
A	162.5mm (6.398")	B	406.0mm (15.984")
C	10.0mm (.394")	D	152.0mm (5.984")
E	11.0mm (.433")	F	341.0mm (13.425")
G	182.5mm (7.185")	H	207.5mm (8.169")
I	—		
GS 200/66 and GS 250			
A	186.5mm (7.340")	B	600.0mm (23.622")
C	10.0mm (.394")	D	210.5mm (8.288")
E	16.0mm (.630")	F	625.0mm (24.606") †
G	—	H	207.5mm (8.169")
I	231.5mm (9.114")		
GS 200/66 L and GS 250 L			
A	186.5mm (7.340")	B	1050.0mm (41.34")
C	10.0mm (.394")	D	210.5mm (8.288")
E	16.0mm (.630")	F	1075.0mm (42.322") †
G	—	H	207.5mm (8.169")
I	231.5mm (9.114")		

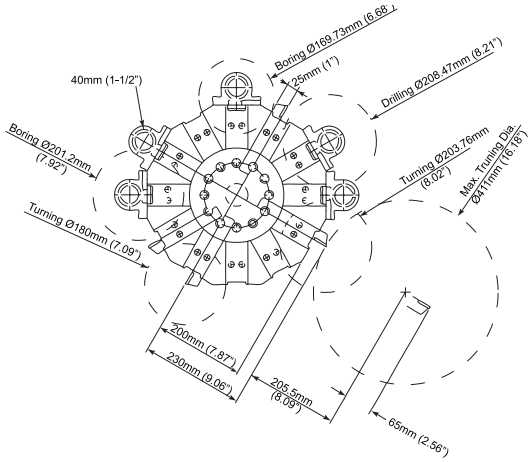
† plus 120mm (4.724") quill stroke

Minimal tool interference

GS 150, GS 200, GS 42, and GS 51



GS 200/66 and GS 250



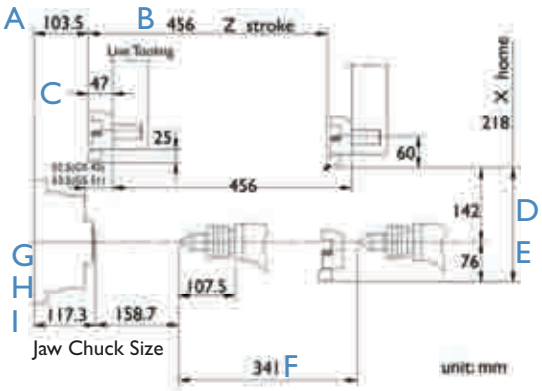
Optional VDI top plate

VDI top plate live tooling option

Bidirectional indexing of the 12-station VDI-30 turret top plate (VDI-40 on GS 200/66 and GS 250 models) allows shortest path indexing for reduced non-cut time. Easier processing of part families and fewer setups are realized due to the fact there are a large number of tool stations. Fast setup times are possible by using quick-change VDI tool holders. The non-lift turret indexing ensures contaminant-free operation—indexing is by a brushless servomotor with positive hydraulic clamping on a 3-piece curvic coupling. The turret pivot (safety shear) feature helps prevent damage to the machine. Coolant is fed through tool holders via turret ports. This allows the operator to direct coolant precisely to the machining operation, providing enhanced cutting and chip management. Live tooling is available as an option. Rigid tapping is included.

GS 150 and GS 200 shown
Static VDI top plate is a full lead time option.

Large machining area

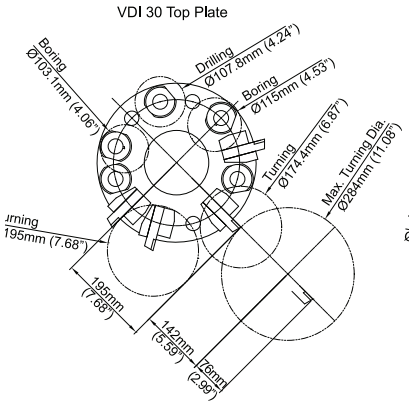


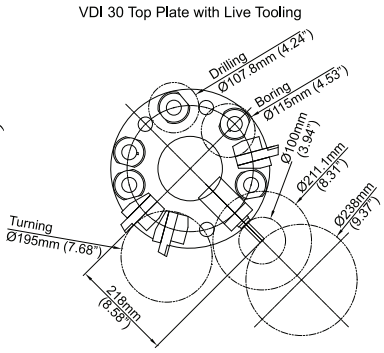
GS 150 and GS 200			
A	162.5mm (6.398")	B	406.0mm (15.984")
C	47.0mm (1.850")	D	152.0mm (5.984")
E	76.0mm (2.992")	F	341.0mm (13.425")
G	182.5mm (7.185")	H	207.5mm (8.169")
I	—		
GS 200/66 and GS 250			
A	179.5mm (7.067")	B	600.0mm (23.622")
C	47.0mm (1.850")	D	188.0mm (7.402")
E	93.5mm (3.681")	F	24.606"/ 625.0mm
†G	—	H	207.5mm (8.169")
I	231.5mm (9.114")		
GS 200/66 L and GS 250 L			
A	179.5mm (7.067")	B	1050.0mm (41.34")
C	47.0mm (1.850")	D	188.0mm (7.402")
E	93.5mm (3.681")	F	1075.0mm (42.322")
†G	—	H	207.5mm (8.169")
I	231.5mm (9.114")		

† plus 120mm (4.724") quill stroke

Minimal tool interference

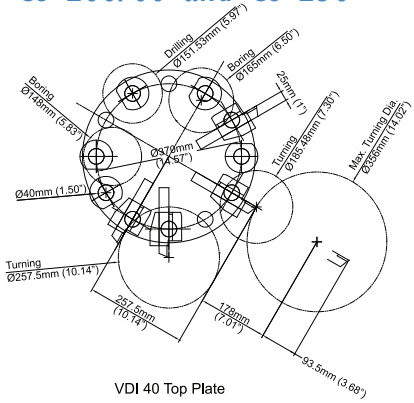
GS 150, GS 200, GS 42, and GS 51



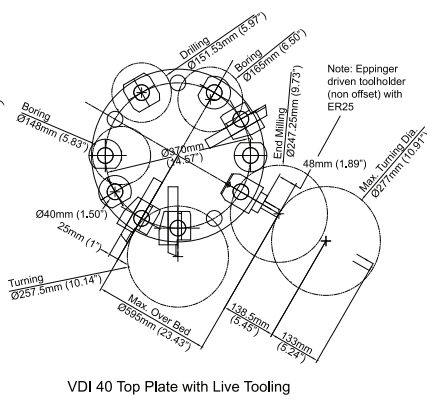


GS 200/66 and GS 250

The illustrations represent the maximum part diameters that can clear adjacent tool holders. A balanced weight distribution of tooling on the top plate is recommended.



VDI 40 Top Plate



VDI 40 Top Plate with Live Tooling

Productivity options for enhanced machining performance

Live tooling/C-Axis contouring

The 5,000-rpm live tooling option (4,000-rpm on GS 200/66 and GS 250 models) eliminates the need for many secondary milling machine operations, reducing additional part handling and setup cost. All stations of the top plate are live-tool ready with only one station actively driven at one time. Separate servomotors are used for turret indexing and live tool operations. A disc-type hydraulic spindle brake provides positive locking during static machining operations.

C-axis provides positioning in increments of .001 degree. Three-dimensional contouring, complex round and prismatic machining, square shoulder and lettering are accomplished by synchronizing the spindle with the X and Z axes. Rigid tapping can be done with both cross-and end-working functions.

20-Bar (280-psi) thru-tool coolant

This high capacity coolant option provides direct flow of cooant to the active tool cutting operation, providing enhanced chip management, higher permissible feeds and speeds, cooler machining conditions for longer tool life and optimum surface finishes.

Part probe

The part probe with macros allows in-process workpiece size verifications and automatic CNC adjustment of work offsets. The probe is capable of performing rapid first-off inspection, in-process reporting and allows "lights out" machining.

Parts catchers

The catcher options allow the operator to conveniently retrieve finished work-pieces from outside the machining area during the machining cycle. A slide-type catcher is offered on GS 150 and GS 200 machines. Arm-type is offered on all GS models.

Slide-type
GS 150, GS 200

Arm-type
GS 42, GS 51
GS 200/66(L) and GS 250(L)

Automatic tool touch probe

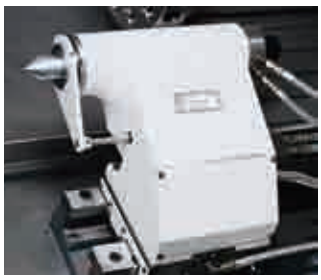
The retractable probe arm provides quick setup and easy use, enabling automatic insertion of tool offsets. The four-direction probe makes it possible to touch off both internal and external working tools. The machine can also be programmed to automatically touch off tools and be used for in-cycle tool wear and breakage detection. The probe arm swings up to storage position on the headwall.

Thermal Stabilization Package

Includes a spindle chiller, circulation fan and, X & Z-axis scales. This option will improve the overal thermal stability and minimize the warm up period. This productivity option makes the machine more thermally stable, requiring less human intervention for offset changes during the warm up period. Only available on the GS 42, 51, 150, and 200.

Robust hydraulic tailstocks

The fully-programmable tailstock options offer a robust design for greater stability when machining long components between centers, allowing closer tolerances, better surface finishes and higher speeds and feeds. It is hydraulically positioned and automatically controlled by the part program or manually pressure regulated via the control panel. GS 150 and GS 200 machines feature a MT #4 tailstock on with 3470N (780lb) thrust rating. GS 200/66 and GS 250 machines feature a MT #5 tailstock with 9354N (2103lb) thrust rating. A 5.5m/min (216ipm) maximum feedrate is featured on all machine models.



GS 200/66 (L) GS 250 (L)

Steady rest

The steady rest is available on GS 200/66 (L) and GS 250 (L) long bed models to support long cylindrical parts, allowing heavier cuts and reduced tooling chatter while maintaining precision tolerances and surface finishes.

Other optional features:

- Chip Conveyor
- VDI Turret Tooling
- Manual VDI Tool Presetter System
- Bar Feed Systems
- Power Transformers
- Stack light
- Mist collector

Hardinge Turnkey Solutions

As the only machine tool manufacturer offering turning, milling, grinding, workholding and custom solutions, Hardinge is ideally positioned within the market to provide you with an economical automation solution that meets your expectations

Let our experienced team discuss your custom solutions project;

Please call us at 607-378-4347

Easy Transportation and Installation

GS-Series Automatic Gantry Part Exchanger offers a unique compact design that harmoniously couples with the Hardinge GS-Series lathe for easy installation and transportation.

Patented Unique Module Pallet

The module pallet is flexible to care for different work-piece sizes. A slant design and auto center adjustment enlarges the workpiece capacity and saves space.

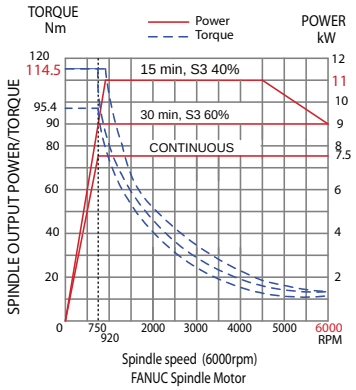
Fast Part Exchange Time

The Automatic Gantry system's compact design reduces the travel of the part. There is no need to open the front door allowing for faster part exchange times. The time to exchange parts including the auto-door action is within 9 seconds.

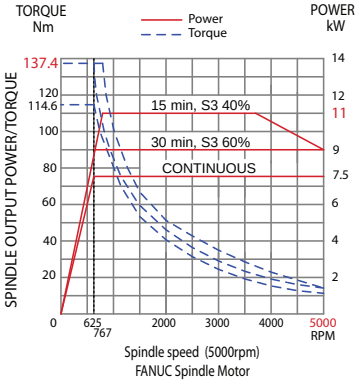
GS-Series Performance Turning Centers
Powerful spindle drives

Hardinge/Fanuc High Winding

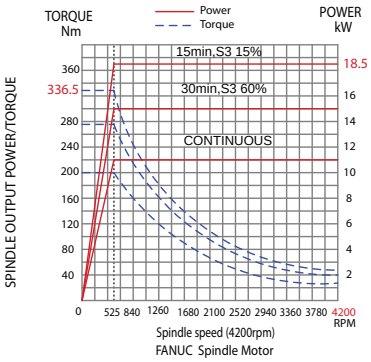
GS 150/42



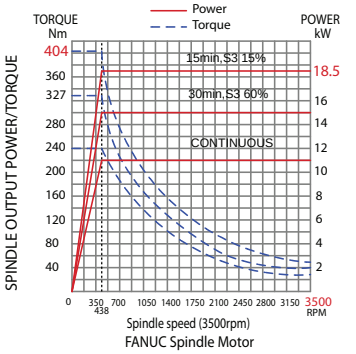
GS 200/51



GS 200/66 & GS 200/66 L

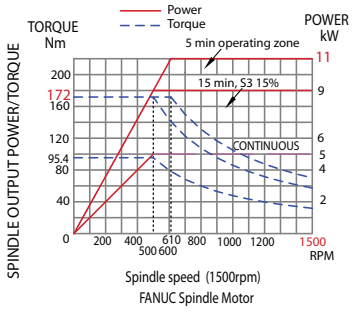


GS 250 & GS 250-L

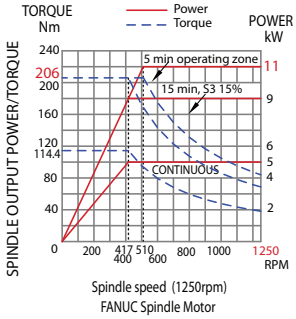


Hardinge/Fanuc Low Winding

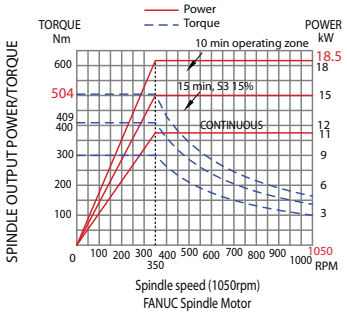
GS 150/42



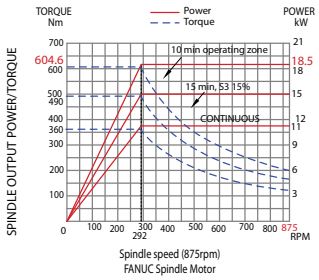
GS 200/51



GS 200/66 & GS 200/66 L



GS 250 & GS 250 L



GS Series Performance Turning Centers

Fanuc Oi-MD Control

General	
213mm (8.4")Color LCD Display	●
Two Interpolating Axes	●
Programmable Resolution— 0.001mm (0.0001")	●
Tool Offset Capability— 0.001mm (0.0001")	●
Tool Geometry and Tool Wear Offsets (64 pair each)	†
Inch/Metric Data Selection by G-Code	●
1280 Meters (512 KB) Part Program Storage	†
Flash Card Slot Capability (up to 128 MB)	†
Data Input/Output	
MDI (Manual Data Input) Operation	●
Reader/Punch Interface Connection(RS-232 Software/Hardware)	●
DNC (Remote Buffer)	†
Embedded Ethernet	●
Programming Functions	
Absolute/Incremental Programming	●
Additional Tool Offsets (64 pair total)	†
Additional Custom Macro Variables	†
AI Contour Control	●
Background Editing	●
Blueprint Programming	†
Canned Cycles (Drilling)	●
Chamfer/Corner Rounding	●
Constant Surface Speed Programming	●
Continual Thread Cutting	●
Coordinate System Setting (G50)	●
Custom Macro B	†
Diameter/Radius Programming	●
Extended Part Program Edit (Copy/Replace)	†
Graphic Display	†
Hardinge Safe Start Format	●
Input of Offset Value by Programming (G10)	●
Interpolation (Linear and Circular)	●
Manual Guide (G-Code Assist)	†
Multiple Repetitive Canned Cycles I (Turning)	†
Multiple Repetitive Canned Cycles II (Pockets)	†
Nano Intoplation	●
Registered Part Programs (200 total)	†
Rigid Tapping	†
Single Block Operation	●
Spare M-Codes (3)	†
Thread, Synchronous Cutting	●
Tool Life Management	†
Tool Nose Radius Compensation	●
Variable Lead Thread Cutting	†
Operation	
Block Delete	●
Clamp/Unclamp Indicator Light Switch	●
Coolant Control	●
Dry Run	●
Dwell Time	●
Emergency Stop	●
Feedhold	●
Feedrate Override (0 to 150%)	●
Incremental Jog	●
Jog Feed Override (0 to 1260 mm/min)	●
Machine Lock	●
Manual Pulse Generator (MPG Handwheel)	●
On-Screen Spindle & Axis Load Meters	●
Option Stop	●
Rapid Traverse Override (Low-25-50-100%)	●
Single Block	●
Spindle Speed and T-Code Displays on All Screens	●
Spindle Speed Override (50 to 120%)	●

Fanuc Oi-MD Control

Miscellaneous	
Alarm Display	●
English Color LCD Display with Full Keyboard	●
French/German, Italian or Spanish	O
On-Screen "HELP" Functions for Alarms	†
Program Protect	●
Run Time and Parts Counter	†
Self-Diagnosis Function	†
Spindle Lock (Servo)	●
Spindle Orient—One-Degree	†
Stored Pitch Error Compensation	●

† Standard value-added features that may be offered as options by other machine builders
● Standard
O Optional

Specifications

GS-Series Performance Turning Centers

	GS 150/42	GS 200/51	GS 200/66	GS 200/66 L	GS 250	GS 250 L
Spindle						
Chuck-Ready Spindle Config.—ANSI [1]	A2-5	A2-6	A2-6	A2-6	A2-8	A2-8
Draw Tube Type	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Through Draw Tube Capacity	45mm (1.77")	52mm (2.05")	66mm (2.60")	66mm (2.60")	78mm (3.07")	78mm (3.07")
GS 42/GS 51	42 (1.65")	51mm(2")				
Jaw Chuck Size—Max.	150mm (6")	200mm (8")	200mm (8")	200mm (8")	250mm (10")	250mm (10")
Gripping Capacity135mm (5.31")	7.28"/185mm	7.28"/185mm	7.28"/185mm	9.00"/288.6mm	9.00"/288.6mm	
Machining Diameter—Max.	284mm (11.10")	284mm (11.10")	356mm (14.015")	356mm (14.015")	356mm (14.015")	356mm (14.015")
Turning Length—Max. [2,3]	406mm (15.98")	406mm (15.98")	600mm (23.62")	1050mm (41.34")	600mm (23.62")	1024.6mm (40.31")
GS 42/GS 51	456mm (17.95")	456mm (17.95")				
Hang Weight with Device and Part	34kg (75lb)	48kg (105lb)	70kg (154lb)	70kg (154lb)	117kg (258lb)	117kg (258lb)
Spindle Centerline Height	1,000mm (39.40")	1,000mm (39.40")	1,041mm (41.00")	1,041mm (41.00")	1,041mm (41.00")	1,041mm (41.00")
Operator's Reach to Spindle	280mm (11")	280mm (11")	432mm (17")	432mm (17")	432mm (17")	432mm (17")
AC Digital Spindle Drive System [4]						
Fanuc Control (S3)—High Winding						
Peak Power Rating	11kW (15hp)	11kW (15hp)	18.5kW (25hp)	18.5kW (25hp)	18.5kW (25hp)	18.5kW (25hp)
Torque Rating	114.5Nm (84.5ft-lb)	137.4Nm (101.3ft-lb)	336.5Nm (248.1ft-lb)	336.5Nm (248.1ft-lb)	404Nm (297.9ft-lb)	404Nm (297.9ft-lb)
Base Speed	750 rpm	625 rpm	525 rpm	525 rpm	438 rpm	438 rpm
Max. Speed—1-rpm Steps	6,000 rpm	5,000 rpm	4,200 rpm	4,200 rpm	3,500 rpm	3,500 rpm
Fanuc Control (S3)—Low Winding *						
Peak Power Rating	11kW (15hp)	11kW (15hp)	18.5kW (25hp)	18.5kW (25hp)	18.5kW (25hp)	18.5kW (25hp)
Torque Rating	172Nm (126.5ft-lb)	206Nm (152ft-lb)	504Nm (371.1ft-lb)	504Nm (371.1ft-lb)	604.6Nm (446ft-lb)	604.6Nm (446ft-lb)
Base Speed	500 rpm	417 rpm	350 rpm	350 rpm	292 rpm	292 rpm
Max. Speed—1-rpm Steps	1,500 rpm	1,250 rpm	1,050 rpm	1,050 rpm	875 rpm	875 rpm
Carriage and Cross Slide						
Swing Dia. Over Way Cover—Max.	457mm (18.00")	457mm (18.00")	595mm (23.42")	595mm (23.42")	595mm (23.42")	595mm (23.42")
Travel—Max.—X Axis	153mm (6.023")	153mm (6.023")	271.5mm (10.70")	271.5mm (10.70")	271.5mm (10.70")	271.5mm (10.70")
Z Axis	406mm (16.00")	406mm (16.00")	600mm (23.62")	1050mm (41.34")	600mm (23.62")	1050mm (41.34")
Traverse Rates—Max.						
X and Z Axes	30m/min (1,181ipm)	30m/min (1,181ipm)	30m/min (1,181ipm)	30m/min (1,181ipm)	30m/min (1,181ipm)	30m/min (1,181ipm)
Z-Axis Thrust—Max.						
With Fanuc Control	17,907N (4,026lb)	17,907N (4,026lb)	21,991N (4,944lb)	21,991N (4,944lb)	21,991N (4,944lb)	21,991N (4,944lb)
Ball Screw Diameter—X Axis	28mm (1.102")	28mm (1.102")	36mm (1.417")	36mm (1.417")	36mm (1.417")	36mm (1.417")
Z Axis	28mm (1.102")	28mm (1.102")	40mm (1.575")	40mm (1.575")	40mm (1.575")	40mm (1.575")
Accuracy—All Machines Laser Inspected						
Evaluation Standard	ISO 230-2	ISO 230-2	ISO 230-2	ISO 230-2	ISO 230-2	ISO 230-2
Repeatability—X and Z Axes	.0025mm (.0001")	.0025mm (.0001")	.0025mm (.0001")	.0025mm (.0001")	.0025mm (.0001")	.0025mm (.0001")

1—Optional collet adaptation chucks available in many configurations, including 5C, 16C, 20C, 3J, S15, S20, B42 and B60.
2—Dependent on type of live center used.
3—Maximum turning length with tailstock option.
4—Peak ratings used for power and torque specifications.
5—Index time (includes unclamp and clamp).
6—Original equipment only.
7—Available on VDI top plate only.
8—Balanced, 3-phase.
*—Availability may be limted to certain markets.

	GS 150/42	GS 200/51	GS 200/66	GS 200/66 L	GS 250	GS 250 L
Turret Top Plate—Bidirectional	Vertical Block or VDI 30	Vertical Block or VDI 30	Vertical Block or VDI 40	Vertical Block or VDI 40	Vertical Block or VDI 40	Vertical Block or VDI 40
Number of Station	12	12	12	12	12	12
Square Shank Tool Size—Max.	20mm or ¾"	20mm or ¾"	25mm or 1"	25mm or 1"	25mm or 1"	25mm or 1"
Round Shank Tool Size—Max.	32mm or 1¼"	32mm or 1¼"	40mm or 1½"	40mm or 1½"	40mm or 1½"	40mm or 1½"
Index Time—Adjacent Station [5]						
Vertical Block	.46 Second	.46 Second	.3 Second	.3 Second	.3 Second	.3 Second
VDI	0.78 Second	0.78 Second	0.78 Second	0.78 Second	0.78 Second	0.78 Second
VDI Live Tooling/C-Axis Option [6,7]						
Tool Shank Diameter w/ER25 Collets	2 to 16mm	2 to 16mm	2 to 16mm	2 to 16mm	2 to 16mm	2 to 16mm
	.079 to .625"	.079 to .625"	.079 to .625"	.079 to .625"	079 to .625"	079 to .625"
Power Rating at Tool Tip [4]	3.7kW (5hp)	3.7kW (5hp)	8kW (10.5hp)	8kW (10.5hp)	8kW (10.5hp)	8kW (10.5hp)
Torque Rating at Tool Tip [4]	25Nm (18.44ft-lb)	25Nm (18.44ft-lb)	35.0Nm (25.80ft-lb)	35.0Nm (25.80ft-lb)	35.0Nm (25.80ft-lb)	35.0Nm (25.80ft-lb)
Maximum Speed—1-rpm Steps	5,000	5,000	4,000	4,000	4,000	4,000
C-Axis Contouring Resolution	.001 Degree	.001 Degree	.001 Degree	.001 Degree	.001 Degree	.001 Degree
Positioning Accuracy	± 1 Arc Min.	± 1 Arc Min.	± 1 Arc Min.	± 1 Arc Min.	± 1 Arc Min.	± 1 Arc Min.
Repeatability	1.75 Arc Min.	1.75 Arc Min.	1.75 Arc Min.	1.75 Arc Min.	1.75 Arc Min.	1.75 Arc Min.
Tailstock (Fully-Programmable) Option [6]						
Positioning	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Morse Taper Center	MT No. 4	MT No. 4	MT No. 5	MT No. 5	MT No. 5	MT No. 5
Travel of Tailstock Base	341mm (13.42")	341mm (13.42")	625mm (24.60")	1075mm (42.32")	625mm (24.60")	1075mm (42.32")
Part Length—Max. [2,8]	381mm (15.00")	381mm (15.00")	578mm (22.76")	1012.5mm (39.86")	565mm (23.62")	1012.5mm (39.86")
GS 42/GS 51	499.7mm (23.62")	499.7mm (23.62")				
Min. [2]	GS150 42.7mm (1.68")	GS200 42.7mm (1.68")	20.0mm (0.787")	20.0mm (0.787")	20.0mm (0.787")	20.0mm (0.787")
Feedrate—Max.	5.5 m/min (216ipm)	5.5 m/min (216ipm)	5.5 m/min (216ipm)	5.5 m/min (216ipm)	5.5 m/min (216ipm)	5.5 m/min (216ipm)
Thrust—Max.	3,470N (780lb)	3,470N (780lb)	9,354N (2,103lb)	9,354N (2,103lb)	9,354N (2,103lb)	9,354N (2,103lb)
Parts Catcher Option						
Workpiece Dia. x Length—Max.	52 x 100mm	52 x 100mm	65 x 160mm	65 x 160mm	65 x 160mm	65 x 160mm
	2.05 x 4"	2.05 x 4"	2.56 x 6.3"	2.56 x 6.3"	2.56 x 6.3"	2.56 x 6.3"
Miscellaneous						
Power Supply Requirement [8]						
Fanuc Control	220v/67FLA/3phase	220v/67FLA/3phase	220v/74FLA/3phase	220v/74FLA/3phase	220v/74FLA/3phase	220v/74FLA/3phase
Coolant Tank Capacity	125liter (33gal)	125liter (33gal)	290liter (76.62gal)	290liter (76.62gal)	290liter (76.62gal)	290liter (76.62gal)
Coolant Pressure—Standard	2.8bar (40psi)	2.8bar (40psi)	2.8bar (40psi)	2.8bar (40psi)	2.8bar (40psi)	2.8bar (40psi)
Thru-Tool Coolant Option	20bar (280psi)	20bar (280psi)	20bar (280psi)	20bar (280psi)	20bar (280psi)	20bar (280psi)
Machine Weight—Approx.	2694kg (5,940lb)	2794kg (6,160lb)	4950kg (10,915lb)	5550kg (12,236lb)	5000kg (11,024lb)	5600kg (12,346lb)
Shipping Weight—Approx.	3057kg (6,739lb)	3157kg (6,959lb)	5290kg (11,664lb)	5950kg (13,117lb)	5340kg (11,773lb)	6000kg (13,228lb)
Machine Dimensions						
Length	1998mm (78.66")	1998mm (78.66")	2988mm (117.64")	3792mm (149.29")	2988mm (117.64")	3792mm (149.29")
Length w/Chip Conveyor Option	2958mm (116.46")	2958mm (116.46")	3672mm (144.60")	4476mm (176.22")	3672mm (144.60")	4476mm (176.22")
Depth	1650mm (65")	1650mm (65")	2142mm (84.33")	2142mm (84.33")	2142mm (84.33")	2142mm (84.33")
Depth w/Control Unit at Max. Swivel	2153mm (84.76")	2153mm (84.76")	2453mm (96.58")	2453mm (96.58")	2453mm (96.58")	2453mm (96.58")
Height	1781mm (70.12")	1781mm (70.12")	1812mm (71.34")	1823mm (71.77")	1812mm (71.34")	1823mm (71.77")
Floor Area—Approx.	3.3m² (35.5ft²)	3.3m² (35.5ft²)	5.1m² (54.9ft²)	8.5m² (91.5ft²)	5.1m² (54.9ft²)	8.5m² (91.5ft²)

GS MSY Series Performance Multi-Tasking Turning Centers

Exceptional combination of features for speed, power, accuracy, and durability in a compact design and affordable price

GS-Series multi-tasking turning centers are rigid and reliable machines that feature a robust one-piece cast iron base, heavy-duty linear roller guideways, fixed pre-tensioned ballscrews, and many standard value-added features—wraparound main and sub spindle motors, 3-jaw chuck, 12-station universal BMT top plate with live tooling and C-axis, 20-bar (280-psi) through-tool coolant, foot switch, chip conveyor interface, air hose with air gun, a swing-out CNC control panel for ease of operation, and much more. Plus the standard Fanuc 18i-TB CNC control includes many value-added features that are offered as options by other machine builders. Because there are so many standard features included you'll have a truly versatile machine at a great price—and with the level of quality you would expect with any Hardinge product.

GS 200 MSY

- A2-6 spindle nose
- 15-kW (20-hp) spindle drive system
- 318Nm (235ft-lb) torque
- 4,500-rpm spindle speed
- 210mm (8.26") jaw chuck standard

GS 250 MSY

- A2-8 spindle nose
- 18.5-kW (25-hp) spindle drive system
- 539Nm (398ft-lb) torque
- 3,500-rpm spindle speed
- 254mm (10.00") jaw chuck standard

FEA (Finite Element Analysis)

Heavy cutting capability, extended tool life and fine surface finishes

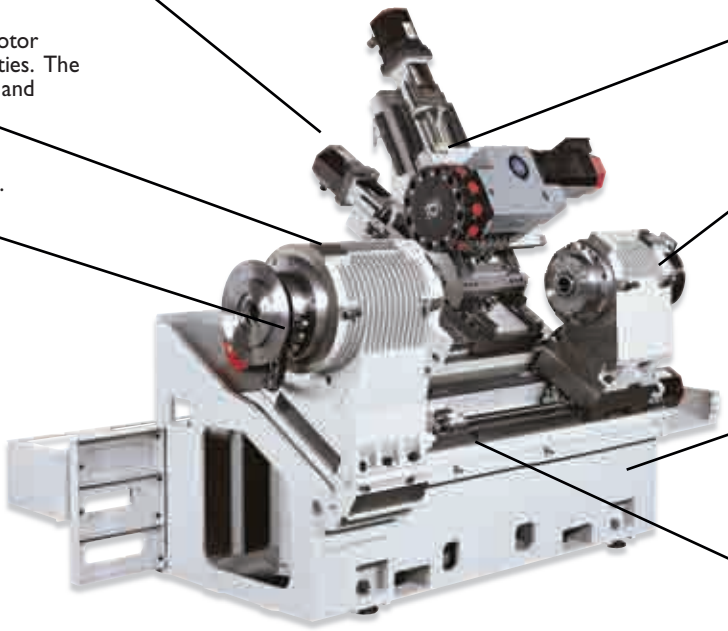
FEA techniques were used to design a rigid, structurally balanced machine, resulting in superior damping characteristics for minimized vibration to the workpiece.

Built the Hardinge® way for long lasting performance

Industry's most reliable motors and drives. Heavy-duty axis motors and drives provide superior machining capability.

Dual-wound wraparound spindle motor provides heavy-duty cutting capabilities. The spindle is cooled using an oil jacket and chiller for thermal stability.

One-degree spindle orient included.



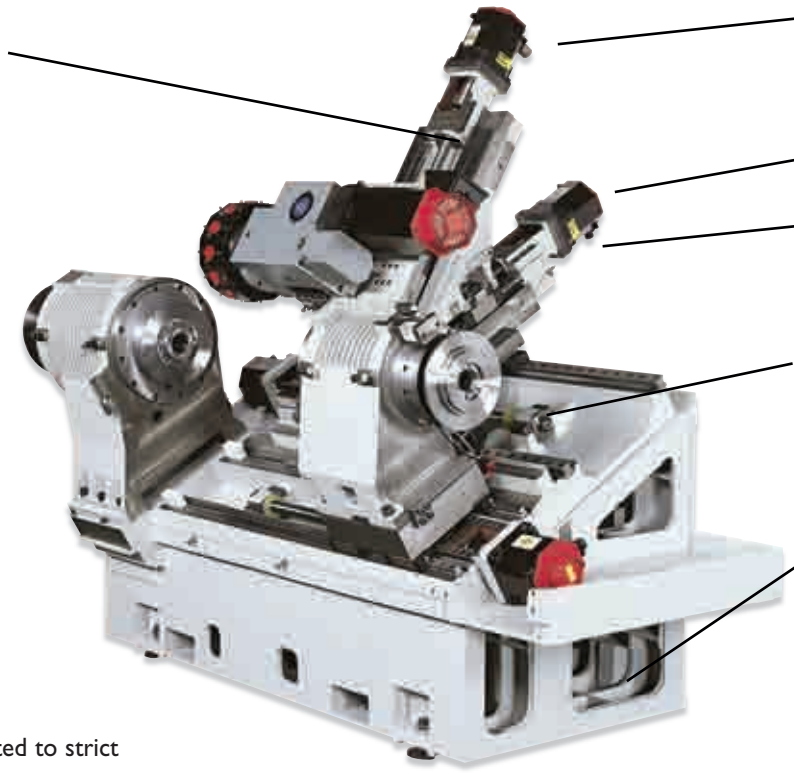
BMT-65 top plate features bi-directional indexing for fast cycle times. Live tooling capability on any station. (optional VDI-40 shown)

Wraparound sub spindle for superior rigidity, thermal stability and overall spindle life. Oil jacket cooled.

The one-piece machine base and all major castings are made with high quality grey cast iron for superior rigidity, durability, and thermal stability.

Heavy-duty #45 roller linear guideways provide optimum stiffness and rigidity, resulting in heavier cutting capability and longer machine life. All linear guides are lubricated for life.

Heavy-duty, 40mm fixed pre-tensioned double-nut ballscrews provide superior rigidity, machine accuracy and repeatability.



X2-axis.

Wedge-type Y-axis included.

X1-axis.

Electronic torque limiters on each axis.

Environmentally-friendly grease lubrication of ball screws minimizes overall maintenance cost.

Strategically ribbed 30-degree slant bed design of one piece construction.

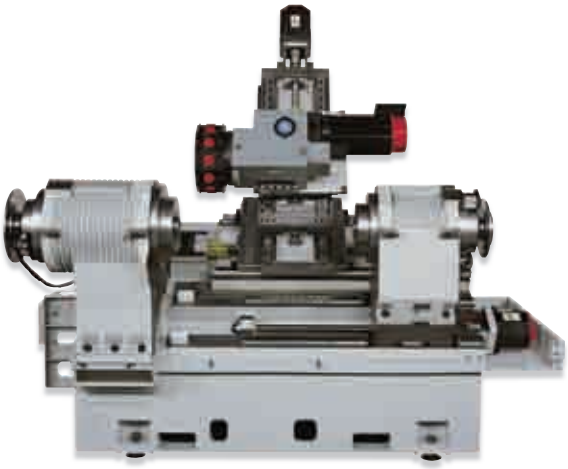
All machines are laser inspected to strict quality standards—ISO-230-2.

GS MSY Series Performance Multi-Tasking Turning Centers

Standard features that provide enhanced machining capabilities, longer machine life and ease of use

Extra-stable, heavy machine base

Our 30-degree one-piece, high-quality cast iron base features an impressive weight for heavy cutting, precision tolerances and fine surface finishes—2,450 kilograms (5,390 pounds). The robust base is strategically ribbed, providing superior rigidity and durability.



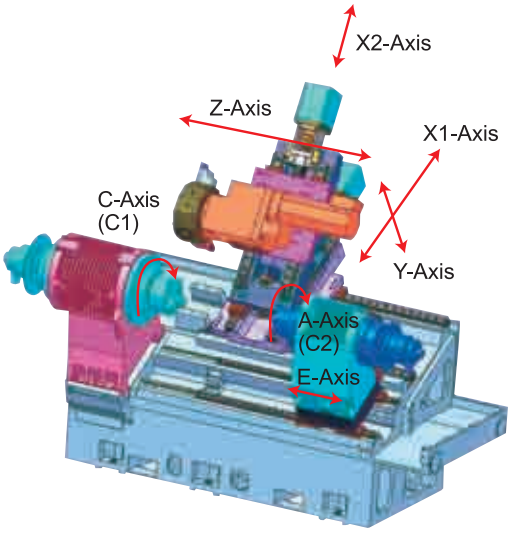
Heavy-duty linear guideways and ballscrews

All ball screws, linear guideways and guide trucks feature a large load rating with minimal friction, resulting in low heat and thermal growth, longer machine life, maximum static and dynamic stiffness, and overall machining consistency. The double-nut hardened & ground ball screws are laser calibrated and supported by heavy-duty ball screw supports. Fast traverse rates of 30m/min (1,181ipm) provide reduced cycle times. Linear guideways are "greased for life."

Grease lubrication system

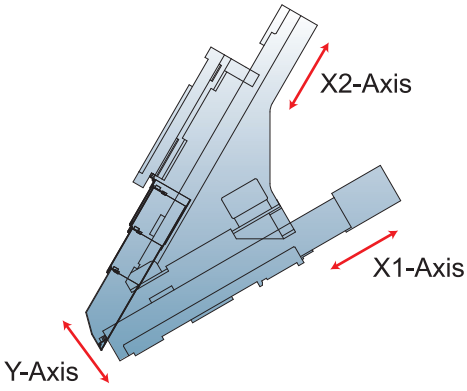
Grease lubrication is provided for all ballscrews. Grease lubrication provides several advantages over way lube oil systems—

- No oil skimmer required
- No degradation of water-base coolants
- Environmentally friendly—no need to dispose of contaminated oil
- Improves machine maintenance



Tailstock

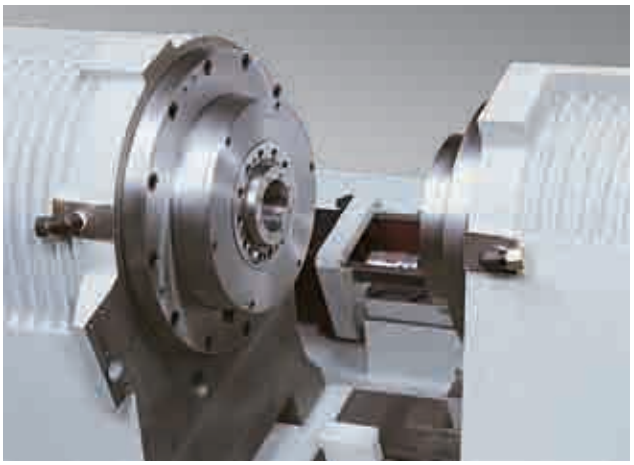
The Hardinge Servo Tailstock provides operator convenience, faster cycle times, precise positioning, reduced set-up times and superior part to part accuracies due to constistant repeatable applied force compared to hydraulic tailstock systems. Our servo tailstock features fully programmable axis speed control through the part program allowing fast approach/retract speed and provides precise part engagement and applied force. The result is reduced overall operating time when compared to hydraulic tailstock systems by over 20% while increasing part quality.



Powerful dual-wound, wraparound main spindle and motor

Main spindle

The AC digital wraparound spindle drive and motor are more accurate and responsive than analog spindle drives and motors. The motor is also more reliable and requires minimal maintenance, since it is liquid cooled, brushless, and permanently sealed and lubricated. The motor is dual wound, offering high torque at a low base speed. The motor automatically shifts to the second winding when speed requires it. Exact synchronization at any speed (within the main spindle range) with the sub spindle allows for accurate part transfer.



Model	Power	Torque†	Base Speed	Max. Speed
GS 200 MSY	15kW (20hp)	318Nm (235ft-lb)	450 rpm	4,500 rpm
GS 250 MSY	22kW (30hp)	539Nm (398ft-lb)	390 rpm	3,500 rpm

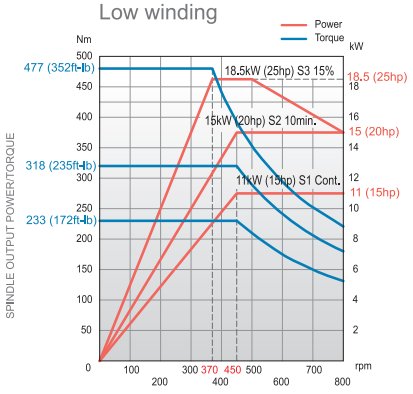
† Low speed winding specification

3-Jaw Chuck—Standard

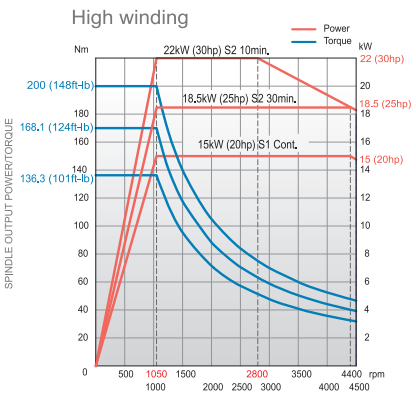
Standard equipment on GS 200 MSY machines is a 210mm (8.26)" 3-jaw chuck; 254mm (10") chuck included on GS 250 MSY machines. Hardinge offers a full range of jaws as well as spindle adapters for the GS 200 MSY—allows the use of the wide variety of work-holding devices from Hardinge.

Spindle Output (Power/Torque)
GS 200 MSY

Low winding

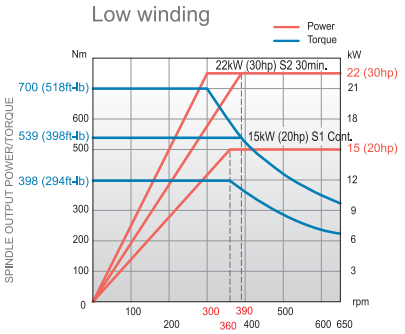


High winding

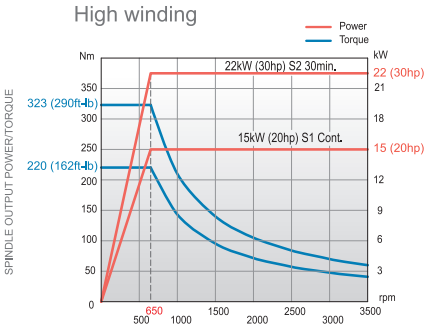


Spindle Output (Power/Torque)
GS 250 MSY

Low winding

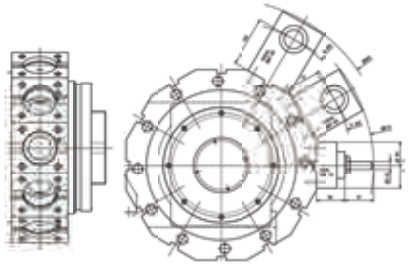


High winding



GS MSY Series Performance Multi-Tasking Turning Centers

BMT-65 turret top plate and tooling system to enhance your throughput capability



BMT top plate

Bidirectional indexing of the 12-station BMT-65 turret top plate allows shortest path indexing for reduced non-cut time. Easier processing of part families and fewer set-ups are realized due to the fact there are a large number of tool stations. Coolant is fed through tool holders via turret ports. This allows the operator to direct coolant precisely to the machining operation, providing enhanced cutting and chip management. The non-lift turret indexing ensures contaminant-free operation—indexing is by a brushless servomotor with positive hydraulic clamping on a 3-piece curvic coupling. The turret pivot (safety shear) feature helps prevent damage to the machine.

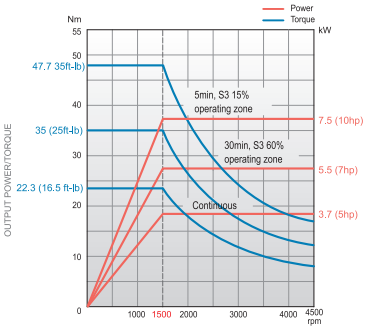
Cross-working operation

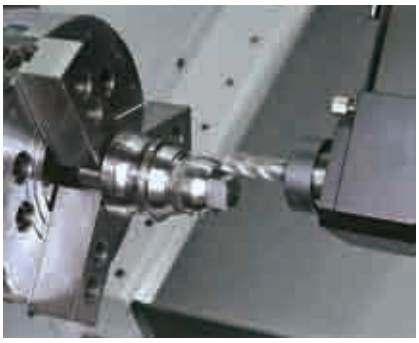
Rigid tapping—standard

Synchronization between the main spindle and the Z-axis motion provides precise and fast rigid tapping operations.

Output (Power/Torque)

Live Tool Output (Power/Torque)



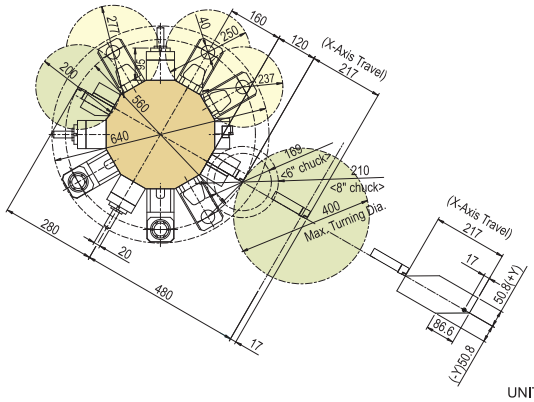


End-working operation

Live Tooling—standard

The 4,000-rpm live tooling feature eliminates the need for many secondary milling machine operations, reducing additional part handling and setup cost. All stations of the top plate are live-tool ready with only one station actively driven at one time. Separate servomotors are used for turret indexing and live tool operations. A disc-type hydraulic spindle brake provides positive locking during static machining operations.

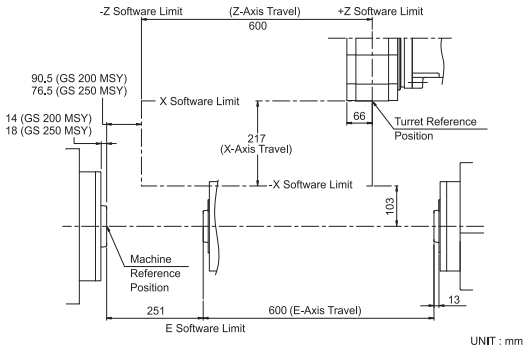
Minimal VDI (optional) tool interference



UNIT : mm

The illustration represents the maximum part diameters that can clear adjacent tool holders. A balanced weight distribution of tooling on the top plate is recommended.

Work envelope

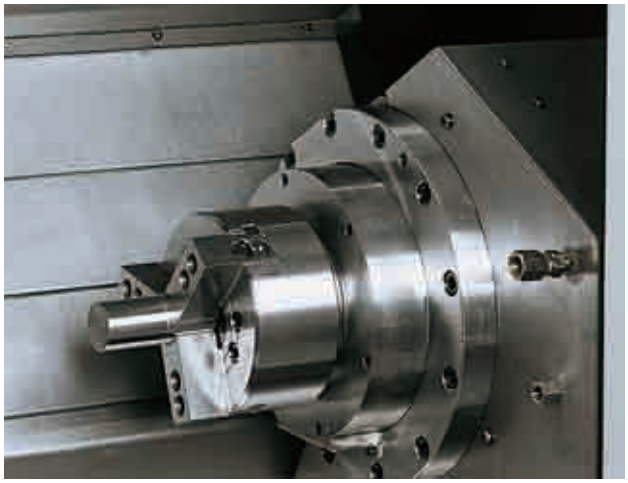


UNIT : mm

Powerful wraparound sub spindle and motor

Sub spindle—standard

The sub spindle features a wraparound design that is liquid cooled for thermal stability; it is brushless, permanently sealed and lubricated. The sub and main spindles can be synchronized at any speed (within the main spindle range) for accurate part transfers. C-axis, threading and rigid tapping are included. A laser-type part present detector, part ejector, chip flush and air blast are also included.



Model	Power	Torque	Base Speed	Max. Speed
GS 200 MSY	15kW (20hp)	102Nm (75ft-lb)	1,400 rpm	6,000 rpm
GS 250 MSY	15kW (20hp)	102Nm (75ft-lb)	1,400 rpm	6,000 rpm

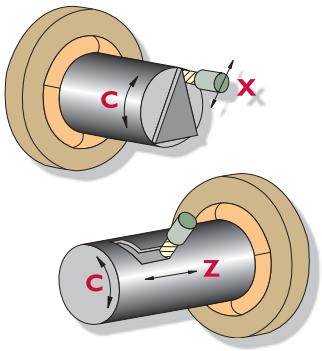
C-Axis contouring—standard

C-axis provides positioning in increments of .001 degree. Three-dimensional contouring, complex round and prismatic machining, square shoulder and lettering are accomplished by synchronizing the spindle with the X and Z axes. Rigid tapping can be done with both cross- and end-working functions.

Spindle synchronization—standard

M-62—M-63 code programming easily allows the programmer to synchronize the sub spindle with the main spindle for simultaneous machining with both spindles.

Exacting part transfer



3-Jaw Chuck—standard

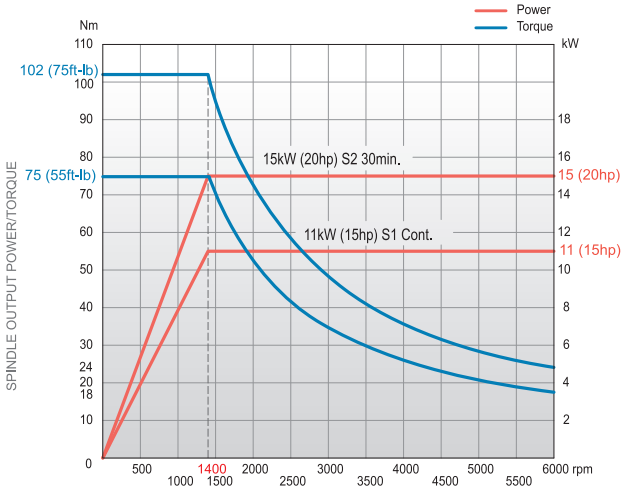
Standard equipment on all GS machines is a 169mm (6.65") 3-jaw chuck. Hardinge offers a full range of jaws for flexible workholding capabilities.

Part ejector—standard

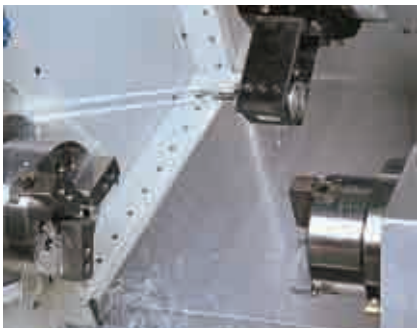
The spring ejector automatically ejects the finished workpiece into the standard parts catcher.

Spring-type part ejector

Spindle Output (Power/Torque)



Productivity options for enhanced machining performance



20-Bar (280-psi) through-tool coolant—standard

This high pressure coolant feature provides direct flow of coolant to the active tool cutting operation, providing enhanced chip management, higher feeds and speeds, cooler machining conditions for longer tool life and optimum surface finishes.

Other standard features:

- 3-Jaw wedge-style chuck
- One-degree spindle orient (main and sub spindles)
- Rigid tapping
- Chuck collet closer foot switch
- Swing-out CNC pendant
- Electrical torque limiters
- Run time and parts counter
- Air Blast (main and sub spindle)
- Air hose with air gun
- Spring-type part ejector (sub spindle)
- Laser-type part present detector (sub spindle)
- Chip conveyor interface
- Bar feed interface
- Manual Guide i programming
- Maintenance kit with grease gun
- Complete operator's, programmer's and maintenance documentation

Parts catcher—standard

The swing arm/conveyor-type catcher allows the operator to conveniently retrieve finished workpieces from outside the machining area during the machining cycle. Maximum part size is 78mm (3") OD x 160mm (6.3") length. Maximum part weight is 2.7kg (6lb).

Tool touch probe—option

The retractable probe arm provides quick setup and easy use, enabling automatic insertion of tool offsets. The four-direction probe makes it possible to touch off both internal and external working tools. The machine can also be programmed to automatically touch off tools and be used for in-cycle tool wear and breakage detection. The probe arm swings up to storage position on the headwall.

Spindle chiller—standard

This 24,000-BTU chiller unit supplies temperature controlled coolant to the main and sub spindles to maintain machining accuracy and extended machine life.

Part probe—option

The part probe with macros allows in-process workpiece size verifications and automatic CNC adjustment of work offsets. The probe is capable of performing rapid first-off inspection, in-process reporting and allows "lights out" machining.

Other optional features:

- Collet adaptation chucks (GS 200 MSY)
- BMT turret tooling
- Manual BMT tool presetter system
- Bar feed systems
- Auto door
- Hinge-type chip conveyor
- Scraper-type chip conveyor
- Power transformers
- Stack light

Fanuc 18i-TB CNC Control with Manual Guide i Programming

User-friendly software to unleash your productivity

General

264mm (10.4") LCD Display	●
Absolute Encoders	●
Two Interpolating Axes	●
Programmable Resolution—.0010mm (.00010")	●
Tool Offset Capability—.0010mm (.00010")	●
Inch/Metric Data Selection by G-Code	●
640 Meters Part Program Storage	●
Part Program Storage (1,280 meters total)	○

Data Input/Output

MDI (Manual Data Input) Operation	●
Ethernet and RS-232-C Communication Port	●

Programming Functions

Absolute/Incremental Programming	●
Additional Custom Macro Variables	●
Additional Tool Offsets—	
Geometry and Wear (64 pair total)	○
Auto Acceleration/Deceleration	●
Auto Coordinate System Setting	●
Background Editing	●
Canned Cycles (Drilling)	●
Chamfer/Corner Rounding	●
Constant Surface Speed Programming	●
Continual Thread Cutting	●
Coordinate System Setting (G50)	●
Custom Macro B	●
Decimal Point Programming	●
Diameter/Radius Programming	●
Direct Drawing Dimension Programming	●
Dynamic Graphics	●
Exact Stop	●
Extended Part Program Edit (copy/replace)	●
External Workpiece Number Search	●
Floating Reference Return	○
Graphic Toolpath Display	●
Hardinge Safe Start Format	●
Helical Interpolation	●

Programming Functions (cont'd)

Input of Offset Value by Programming (G10)	●
Interpolation (Linear and Circular)	●
Manual Guide i with Full Color Display	●
Multiple Repetitive Canned Cycles I (Turning)	●
Multiple Repetitive Canned Cycles II (Pocketing)	●
Program Number Search	●
Reference Point Return	●
Registered Part Programs (200 total)	●
Registered Part Programs (400 total)	○
Rigid Tapping	●
Sequence Number Search	●
Single Block Operation	●
Stored Stroke Check 2 & 3	●
Thread Cutting Cycle Retract	●
Thread, Synchronous Cutting	●
Tool Life Management	●
Tool Nose Radius Compensation	●
Tool Offsets—Geometry and Wear (32 pair total)	●
Variable Lead Thread Cutting	●

Operation

Block Delete	●
Dry Run	●
Dwell Time	●
Emergency Stop	●
Feed Hold	●
Feedrate Override (0 to 150%)	●
Incremental Jog	●
Jog Feed	●
Machine Lock	●
Manual Pulse Generator (MPG)	●
On-Screen Spindle & Axis Load Meters	●
Option Stop	●
Rapid Traverse Override (Low-25-50-100%)	●
Spindle Speed and T-Code Displays on All Screens	●
Spindle Synchronization (M62—M63)	●
Tool Geometry and Tool Wear Offsets — (32 pairs each)	●

Miscellaneous

Actual Cutting Speed and T-code Display	●
C-Axis with Polar and Cylindrical Interpolation	●
Color LCD Display with Full Keyboard — English	●
Chinese, French/German, Italian or Spanish	○
PCMCIA Flash Card Capability (up to 1GB)	●
Ladder Diagram Display	○
Mechanical Run Meter	●
On-Screen "HELP" Functions for Alarms	●
One-Degree Spindle Orient	●
Program Protect	●
Run Time and Parts Counter	●
Self-Diagnosis Function	●
Stored Pitch Error Compensation	●
Y-Axis with offsets (32 pair)	●
3D Coordinate System Conversion—Y-Axis with Angular Tool	○

● Standard ○ Optional

Manual Guide i

Manual Guide i is an advanced shop floor programming system. A fully animated version of the operator-generated part program can be easily viewed on the large 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.

Specifications

GS MSY Series Performance Multi-Tasking Turning Centers

	GS 200 MSY	GS 250 MSY
Spindle		
Chuck-Ready Spindle Config. (ANSI) [1]	A2-6	A2-8
Draw Tube Type	Hydraulic	Hydraulic
Through Draw Tube Capacity	65mm (2.56")	78mm (3.07")
Jaw Chuck Size (Max.)	8.26"/210mm	10.00"/254mm
(Gripping Capacity)	7.28"/185mm	9.00"/288.6mm
Machining Diameter (Max.)	380mm (15.00")	380mm (15.00")
Turning Length (Max.)	540mm (21.30")	540mm (21.30")
Hang Weight with Device and Part	90kg (200lb)	117kg (260lb)
Spindle Centerline Height	1,100mm (41.50")	1,100mm (41.50")
Operator's Reach to Spindle	418mm (16.46")	418mm (16.46")
AC Digital Spindle Drive System	Dual Wound - Wrap	Dual Wound - Wrap
Power Rating		
Low Range (S2-10 min)	15kW (20hp)	—
Low Range (S2-30 min)	—	22kW (30hp)
Torque Rating [2]	318Nm (235ft-lb)	539Nm (398ft-lb)
Base Speed—Low Range	450 rpm	390 rpm
Max. Speed (1-rpm Steps)	4,500 rpm	3,500 rpm
Carriage and Cross Slide		
Swing Dia. Over Way Cover (Max.)	620mm (24.41")	620mm (24.41")
Travel (Max.)—X Axis	218mm (8.58")	218mm (8.58")
Y Axis	±50.8mm (±2.00")	±50.8mm (±2.00")
Z and E Axes	600mm (23.62")	600mm (23.62")
Traverse Rates (Max.)		
X, Y, Z and E Axes	30m/min (1,181ipm)	30m/min (1,181ipm)
Thrust (Max.)— X, Y and Z Axes	21,991N (4,944lb)	21,991N (4,944lb)
Ball Screw Diameter		
Z and E Axes	40mm (1.57")	40mm (1.57")
X1 and X2 (Y Axis)	36mm (1.417")	36mm (1.417")
Accuracy—All Machines Laser Inspected		
Evaluation Standard	ISO 230-2	ISO 230-2
Repeatability	.0025mm (.0001")	.0025mm (.0001")
Turret Top Plate (Bidirectional)	BMT 65	BMT 65
Number of Stations	12	12
Square Shank Tool Size (Max.)	1" or 25mm	1" or 25mm
Round Shank Tool Size (Max.)	1½" or 40mm	1½" or 40mm
Index Time (Adjacent Station) [3]	2.5 Second	2.5 Second
Rotation Time (Adjacent Station)	.06 Second	.06 Second
Tailstock (Servo Drive) (MY Configuration)		
Servo Motor	Fanuc A12	Fanuc A12
Travel	600mm(12.6")	600mm(12.6")
Thrust Max	7500N (1680lbs)	7500N (1680lbs)
Morse Taper	MT #5	MT #5
Max Feed Rate	30m/min (1181 ipm)	30m/min (1181 ipm)
Max Part Length with Chuck	675mm (26.5")	675mm (26.5")
Min Part Length with Chuck	75mm (2.95")	75mm (2.95")

	GS 200 MSY	GS 250 MSY
Live Tooling/C-Axis		
Max. Tool Shank Dia. w/ER32 Collets	3/32 to 3/4"	3/32 to 3/4"
	3 to 20mm	3 to 20mm
Power Rating at Tool Tip (30 min.)	5.5kW (7.4hp)	5.5kW (7.4hp)
Torque Rating at Tool Tip (30 min.)	35Nm (25ft-lb)	35Nm (25ft-lb)
Maximum Speed (1-rpm Steps)	4,000	4,000
C-Axis—Contouring Resolution	.001 Degree	.001 Degree
Positioning Accuracy	± 1 Arc Min.	± 1 Arc Min.
Repeatability	1.75 Arc Min.	1.75 Arc Min.
Sub Spindle	Wraparound	Wraparound
Spindle Configuration (ANSI)	A2-5	A2-5
Jaw Chuck Size	169mm (6.65")	169mm (6.65")
Power Rating @ 1,400-rpm		
Base Speed (S2-30 min)	15kW (20hp)	15kW (20hp)
Torque Rating (S2-30%)	102Nm (75ft-lb)	102Nm (75ft-lb)
Speed Range (1-rpm steps)	60 to 6,000	60 to 6,000
Travel (Max.) [9]	600mm (23.62")	600mm (23.62")
Traverse Rate (Max.)	30m/min (1,181ipm)	30m/min (1,181ipm)
Hang Weight with Device and Part	34kg (75lb)	34kg (75lb)
Parts Catcher		
Workpiece Dia. x Length (Max.)	3 x 6.3"	3 x 6.3"
	78 x 160mm	78 x 160mm
Weight (Max.)	2.7 kg (6 lb)	2.7 kg (6 lb)
Miscellaneous		
Air Supply Requirement	4.8 - 6.2bar (70 - 90psi)	4.8 - 6.2bar (70 - 90psi)
Power Supply Requirement [4]	220v/146FLA/50KVA	220v/146FLA/50KVA
Coolant Tank Capacity	290liter (76gal)	290liter (76gal)
Coolant Pressure—Through Tool	20bar (280psi)	20bar (280psi)
Headwall Flush	2.8bar (40psi)	2.8bar (40psi)
Headwall Flush Flow	26 l/min (6.8 gpm)	26 l/min (6.8 gpm)
Lubrication—Ball Screws	Manual Grease	Manual Grease
Guideways	Lifetime Greased	Lifetime Greased
Machine Weight (Approx.)	6500kg (14,300lb)	6500kg (14,300lb)
Shipping Weight (Approx.)	6804kg (15,000lb)	6804kg (15,000lb)
Machine Dimensions		
Length	3048mm (117.72")	3048mm (117.72")
Length w/Chip Conveyor Option	3838mm (151.10")	3838mm (151.10")
Depth	2102mm (77.56")	2102mm (77.56")
Height	2320mm (71.34")	2320mm (71.34")
Floor Area (Approx.)	6.4m² (68ft²)	6.4m² (68ft²)

Floor Plan

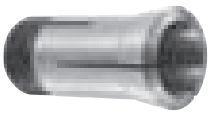
1—Optional collet adaptation chucks available in many configurations, including 5C, 16C, 20C, 3J, S15, S20, B42 and B60.
2—Low speed winding specification. 3—Index time (includes unclamp, rotate and clamp). 4—Balanced, 3-phase.

Hardinge spindle tooling options

Hardinge manufactures a full line of collets, jaw chucks and quick-change spindle tooling for the most demanding workholding applications. Collet adaptation chucks are available. Request brochure 2353 on Hardinge turning centers.

GS-Series Collet Ready Spindle

16C, 20C and 25C Collets, Hardened and Ground and Emergency



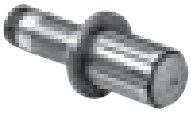
Step Chucks & Closers

16C and 20C Dead Length

Master Collets and Pads

Spindle Collet and Step Chuck Adapters

ID Sure Grip

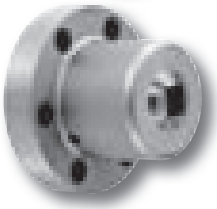


Flex C Collet Heads

3 Jaw Chucks

GS-Series Chuck Machines

Lever-Operated, Counter-Balanced Chucks



16C and 3J (GS 200) and 5C, 16C and 3J (GS 150) Pull-Back Collet Chucks

DIN Standard Push-to-Close Collet Chucks—Solid or B Master Collets with S-Pads

Dead-Length® Collet Chucks

Flex C (Quick Change) Collet Chuck with Flex C Collet Heads

A2-6 to A2-5 Spindle Nose (GS 200) and A2-5 Nose (GS 150) for Step Chucks

Sure-Grip® ID Expanding Arbor/Collet Systems

HARDINGE GROUP™

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 and Tschudin brands to the Hardinge family. The company also manufactures Bridgeport machining centers and other industrial products for a wide range of material cutting, turnkey automation and workholding needs.

Expect more from your Hardinge products. Choose Hardinge precision and reliability for increased productivity and value!

Call us today, we've got your answer.

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