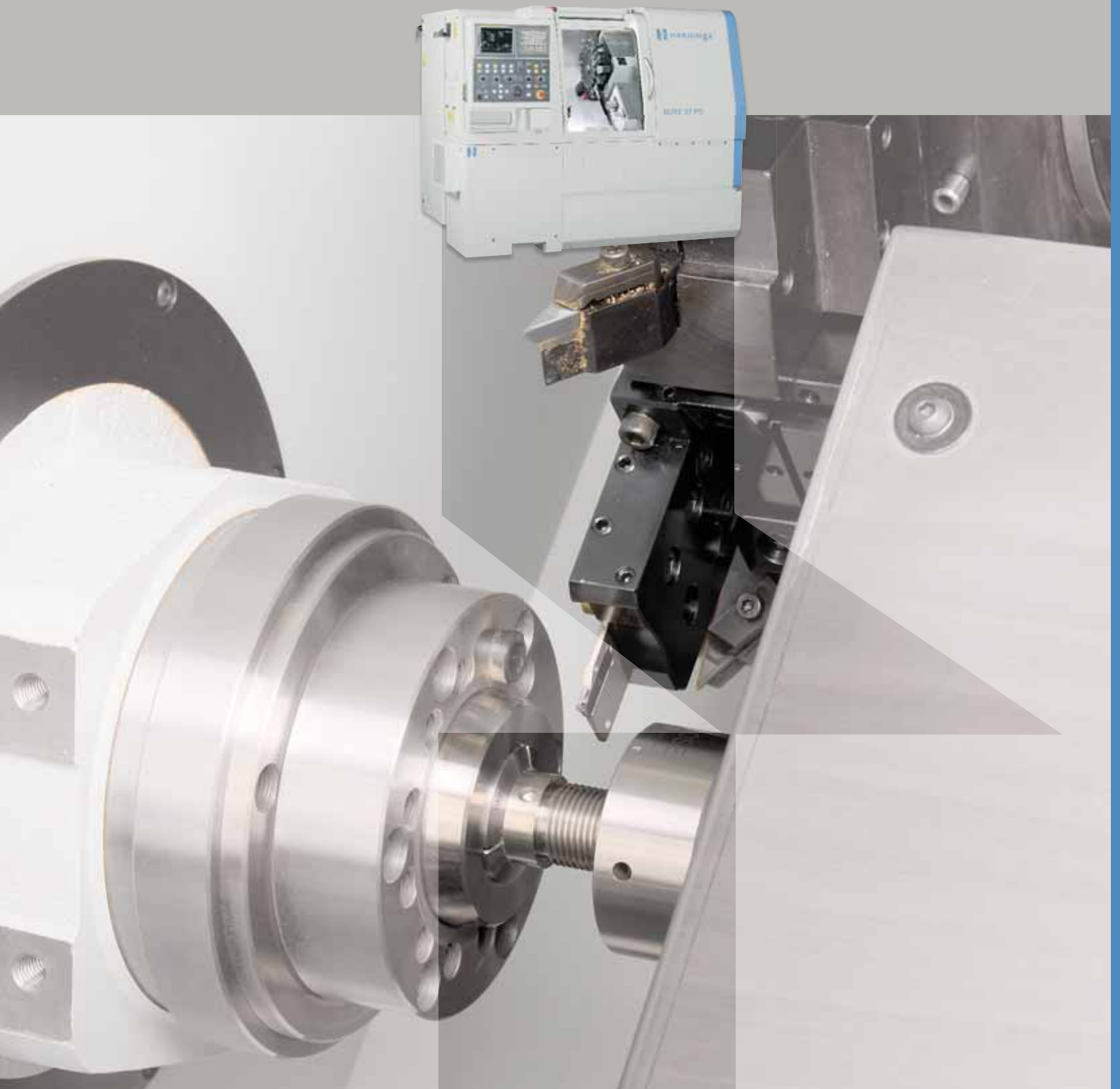


TURNING

ELITE®
Performance Turning Centers



TURNING MILLING GRINDING WORKHOLDING
www.hardinge.com

 **HARDINGE**
EXPECT MORE™

ELITE®-Series Performance Turning Centers

An outstanding machine value...standard live tooling, C-axis and robust sub spindle or tailstock*

ELITE-Series turning centers are unlike all competitive machine tools in that they include our unique quick-change collet-ready spindle, live tooling, C-axis contouring and tailstock as standard equipment (MS models include a sub spindle as standard equipment). We have also made significant enhancements to the ELITE machine since it was introduced in 2002, making it an even more outstanding value for the money. Plus we've added the ELITE 27 MS model that features a quick-change 5C collet-ready spindle with 1¹/₁₆" (27mm) bar capacity for high-precision machining on smaller diameter parts. We also beefed up the machine base, added a new door design and an improved operator panel. A Hardinge ELITE turning center will allow you to reduce operating expenses, while improving flexibility and throughput—at an astounding price.



ELITE 27 MS

- A2-4 5C spindle with 1-1/16" (27mm) bar capacity
- 10-hp/7.5-kW spindle drive system
- 8,000-rpm main spindle speed
- 4"/100mm jaw chuck capacity
- 8,000-rpm sub spindle



ELITE 42 M

- A2-5 16C spindle with 1-5/8" (42mm) bar capacity
- 15-hp/11-kW spindle drive system
- 6,000-rpm spindle speed
- 6"/150mm jaw chuck capacity
- No. 3MT tailstock

ELITE 42 MS

- A2-5 16C spindle with 1-5/8" (42mm) bar capacity
- 15-hp/11-kW spindle drive system
- 6,000-rpm main spindle speed
- 6"/150mm jaw chuck capacity
- 6,000-rpm sub spindle



ELITE 51 M

- A2-6 20C spindle with 2" (51mm) bar capacity
- 15-hp/11-kW spindle drive system
- 5,000-rpm spindle speed
- 8"/200mm jaw chuck capacity
- No. 3MT tailstock

ELITE 51 MS

- A2-6 20C spindle with 2" (51mm) bar capacity
- 15-hp/11-kW spindle drive system
- 5,000-rpm main spindle speed
- 8"/200mm jaw chuck capacity
- No. 3MT tailstock
- 6,000-rpm sub spindle



* Sub spindle standard on ELITE MS models.
Tailstock not offered on ELITE 27 MS model.

Rigid machine design and construction

Direct feed of coolant to the cutting operation enhances workpiece quality and chip management.

12-Station VDI 30 turret top plate on ELITE 42 and 51 machines; 16-station VDI 25 on ELITE 27 MS. Bidirectional indexing allows shortest path indexing for reduced non-cut time.

Standard live tooling and C-axis contouring eliminates the need for multiple set-ups and additional machining operations.

The industry's most reliable motors and drives provide superior machining capability.

Unique Hardinge designed and built quick-change, collet-ready precision spindle.

Large 45-degree carriage mounts to the extra stable base for precision tolerances and fine surface finishes—unhindered chip flow from the cutting area to the chip pan.

Environmentally-friendly grease lubrication minimizes overall maintenance cost and eliminates coolant contamination.

Heavy-duty X- and Z-axes ballscrews and linear guideways provide fast traverse rates for reduced cycle times. The double-nut hardened and ground ballscrews are grease lubricated.

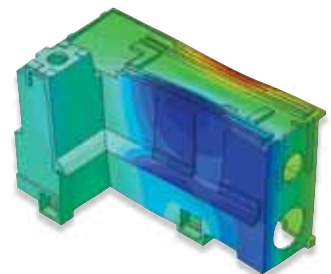
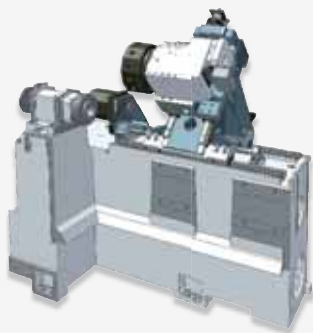
Spindle drives are fan cooled and permanently sealed and lubricated for minimal maintenance.

Sub spindle standard on MS models (ELITE 42 and 51 MS shown).

HARCRETE®-reinforced cast iron base for optimum rigidity.

Fully-programmable MT No. 3 tailstock standard on ELITE 42 M and 51 M models.

The latest software design platform and FEA (finite element analysis) techniques were used to design and build a rigid, structurally-balanced machine to assure optimum performance and machine life. The FEA software accurately depicts the structural deflection, stress levels, thermal response and vibration response of the assembled components and the assembled machine. Extreme-case loadings are used to verify adverse machining conditions.



ELITE®-Series Performance Turning Centers

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

Heavy machine base

Our beefed-up cast iron base weighs an impressive 2,998 pounds/1,360 kilograms with HARCRETE® polymer composite (synthetic granite) added into strategically-located cavities. This greatly adds to the machine's overall stability and damping characteristics for optimum tolerances and surface finishes. The large 45-degree carriage mounts directly to the base.



Heavy-duty linear guideways and ballscrews

The X- and Z-axis ballscrews, 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 1.26"/32mm double-nut hardened & ground ball screws and guide trucks are grease lubricated... heavy-duty ballscrew supports are featured. Fast traverse rates of 1,181ipm / 30m/min provide reduced cycle times. AC digital drive servomotors feature encoders for optimum axis positioning accuracy.



Grease lubrication system

Grease lubrication is provided for all ballscrews and linear guide truck bearings. 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



Operator friendly

Designed with the operator in mind for maximum uptime, ELITE machines feature the Hardinge®/GE Fanuc 21i-TB or 18i-TB CNC control with Manual Guide i conversational programming and many standard features other machine tool builders charge extra for (see page 8). Also included is a swing-out CNC control panel for ease of operation, along with an air line with nozzle and tool shelf. Crash protection features are also included.

Reliable spindle drive motor

The main spindle drive on ELITE 42 and 51 machines features an impressive 15-hp/11-kW power rating with 70 ft-lb/95 Nm torque intermittent rating for optimum metal removal rates. The ELITE 27 MS machine features a 10-hp/7.5-kW power rating with 35 ft-lb/47 Nm torque rating.



Easy access and serviceability

The inside door configuration provides optimum coolant management, while sporting a large window for machining visibility. The wide door opening allows easy access to the machine interior for tool setting. Removable covers facilitate machine maintenance and convenient access to grease fittings.



Unique Hardinge quick-change collet-ready spindles

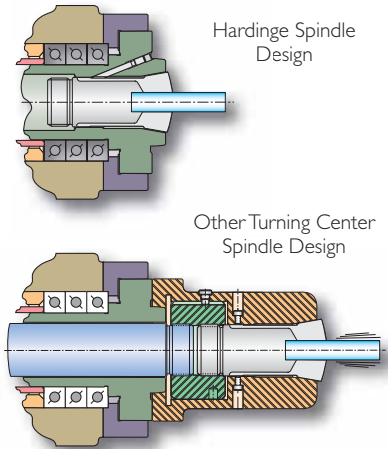


Jaw chuck/collet-ready spindles

Hardinge-designed and -built quick-change, collet-ready spindles permit bar diameter work up to 1½"/27mm on ELITE 27 MS, 1½"/42mm on ELITE 42, and 2"/51mm on ELITE 51 turning centers. Maximum part rigidity is an added bonus since parts are gripped close to the spindle bearings, resulting in increased concentricity. The unique design of the Hardinge collet seat/A2 spindle mount allows quick changeover from through-spindle bar work using collets to second operation and chucking work using step chucks or jaw chucks—unlike competitive machines that require a collet adapter.

Hardinge spindle tooling

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



Collet adapters create an extreme overhang from the spindle bearings. Any error in the spindle is then multiplied by the overhang distance. The use of a collet adapter on competitive machines is not rigid, is not easily adjusted and creates poor T.I.R. Ask for "The Hardinge Advantage" Technical Information Bulletin, TIB-229.



ELITE®-Series Performance Turning Centers

The best combination of standard features for the machining predictability you need to be more productive and profitable

VDI top plate—standard

ELITE 27 MS machines feature a 16-station VDI 25 top plate; 12-station VDI 30 on ELITE 42 and 51 models. Bidirectional indexing of the top plate allows shortest path indexing for reduced non-cut time... non-lift turret indexing ensures contaminant-free operation. And since there are a large number of tool stations, easier processing of part families and fewer setups are realized. Fast setup times are possible by using quick-change VDI tool holders. Coolant is fed through turret ports, allowing tool holders to direct coolant to the cutting operation and enhance chip management. The turret pivot (safety shear) feature and the indexing drive motor torque limiter help prevent damage to the machine.



ELITE 27 16-station VDI 25 top plate.



ELITE 42 and ELITE 51 12-station VDI 30 top plate.

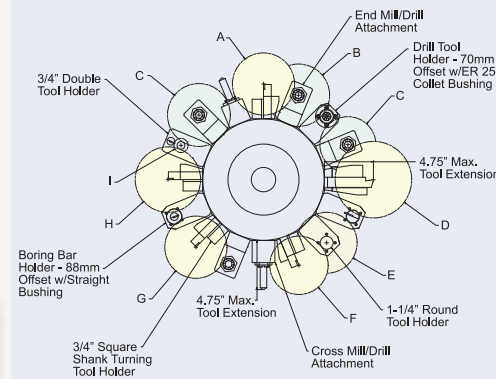
Live tooling—standard

Every station on the top plate can be equipped with a driven tool for cross-, angular-, or end-milling/drilling operations in the toughest materials (only one station is actively driven at a time). Live tooling eliminates the need for additional milling machine operations and the need for special mill fixturing. Maximum live tool speed is 6,000 rpm for the ELITE 27 MS machine; 5,000 rpm on ELITE 42 and 51 models. C-axis and one-degree spindle orient is included.

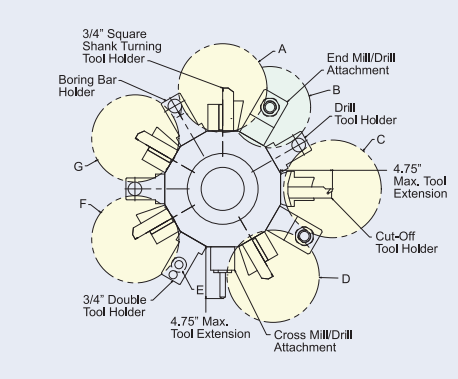


Minimal tool interference

ELITE 27 MS — 16-station



ELITE 42 & 51 — 12-station



Diameter	ELITE 27 MS	ELITE 42 & 51	Diameter	ELITE 27 MS	ELITE 42 & 51
A	6.03"/153.2mm	8.13"/206.5mm	F	5.66"/143.8mm	8.01"/203.5mm
B	6.05"/153.6mm	7.47"/189.7mm	G	6.03"/153.2mm	8.01"/203.5mm
C	5.43"/137.9mm	8.96"/227.6mm	H	6.35"/161.3mm	—
D	7.42"/188.5mm	8.47"/215.1mm	I	1.38"/35.0mm	—
E	5.90"/149.9mm	1.38"/35.1mm	J	6.10"/154.9mm	—

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.

Standard and optional features for optimal machining performance

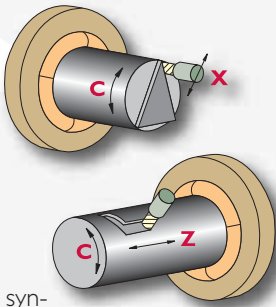
Sub spindle—standard

The ELITE 42 MS and 51 MS sub spindle offers workpiece capacity up to 1 $\frac{5}{8}$ "/42mm with 16C collets and a gripping capacity of 5.65"/144mm with a 6"/150mm jaw chuck. The ELITE 27 MS sub spindle offers workpiece capacity up to 1"/25.4mm with Dead-Length S25-HS collets. Exact synchronization between the main and sub at any rpm can be programmed for part transfer for secondary machining. The 5-hp/3.7-kW drive system provides speeds up to 6,000 rpm. C-axis, threading and rigid tapping are included. A part present sensor is available.

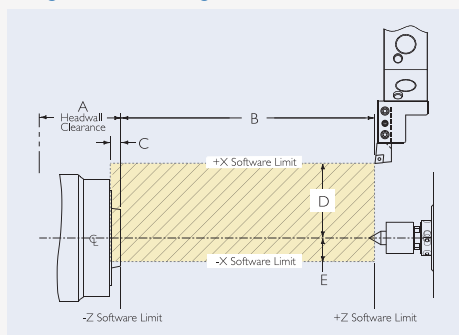
C-Axis contouring—standard

Included on both the main spindle and sub spindle, 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.



Large machining area



ELITE 42 & 51 Models with Tailstock

A	4.500"/114.30mm
B	14.234"/361.54mm
C	.766"/19.46mm
D	6.725"/170.82mm
E	1.525"/38.74mm



ELITE 42 MS and ELITE 51 MS sub spindle.



ELITE 27 MS sub spindle.

Robust hydraulic tailstock—standard

A MT No. 3 tailstock is standard equipment on ELITE 42 M and 51 M models. The tailstock features a robust design for greater stability when machining long components between centers. Tailstock motions are accomplished on linear guideways. The tailstock is hydraulically-actuated with pressure regulation automatically controlled by the part program or manually using a switch on the operator control panel. A patented breakaway safety feature is included.



Rigid tapping—standard

Rigid tapping is standard capability on the main and sub spindle ("MS" models), as well as cross- and face-working operations with live tooling.

Polygon turning—option*

Polygon turning in conjunction with live tooling allows square, hexagon or other polygon shapes to be cut on the outside diameter of the workpiece on the main spindle or sub spindle—in a fraction of the time associated with traditional live tooling cuts. Either the main spindle or the sub spindle is synchronized with the live tooling spindle outfitted with special insert cutters.

Optional features include:

- Polygon turning*
- Parts catcher
- Part present sensor (sub spindle)
- Part probe
- Tool Probe
- Air blast system (main spindle)
- 1,000-psi High-pressure coolant
- Thru-spindle coolant (main or sub spindle)
- Chip conveyor
- Mist collector
- Bar feed systems
- Power transformers
- Stack light
- Manual VDI tool presetter system*

* ELITE 42 and 51 models only

ELITE®-Series Performance Turning Centers

All the control you'll ever need right at your fingertips

Hardinge ELITE machines feature a custom-designed, swing-out 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, variable lead thread cutting, run time and parts counter, and Ethernet connection. The operator's panel providing an exceptional level of functionality and ease of use. A 21 i-TB control is included on ELITE 42 M and 51 M machines; an 18 i-TB control is included on ELITE 27 MS, 42 MS and 51 MS machines.



General

- Two Interpolating Axes
- Programmable Resolution—0.0010"/0.010mm
- Tool Offset Capability—0.0010"/0.010mm
- Inch/Metric Data Selection by G-Code
- 160 Meters Part Program Storage
- Part Program Storage (320, 640 or 1,280 meters total)

Data Input/Output

- MDI (Manual Data Input) Operation
- Reader/Punch Interface and Ethernet Connection (RS-232 Software/Hardware)

Programming Functions

- Absolute/Incremental Programming
- Additional Tool Offsets (32 pair total)
- Additional Custom Macro Variables
- Background Editing
- Canned Cycles (Drilling)
- Chamfer/Corner Rounding
- Constant Surface Speed Programming
- Continual Thread Cutting
- Coordinate System Setting (G50)
- Custom Macro B
- Diameter/Radius Programming
- Direct Drawing Dimension Programming
- Extended Part Program Edit (Copy/Paste)
- Fixed Cycles for Drilling
- Graphic Display
- Hardinge Safe Start Format
- Input of Offset Value by Programming (G10)
- Interpolation (Linear and Circular)
- Manual Guide i
- Multiple Repetitive Canned Cycles I (Turning)
- Multiple Repetitive Canned Cycles II (Pockets)
- Polygon Turning Software¹
- Registered Part Programs (63 total)
- Registered Part Programs (125 or 200 total)
- Rigid Tapping
- Stored Stroke Check 2 & 3

Programming Functions (Continued)

- Thread, Synchronous Cutting
- Tool Life Management
- Tool Nose Radius Compensation
- Variable Lead Thread Cutting

Operation

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

Miscellaneous

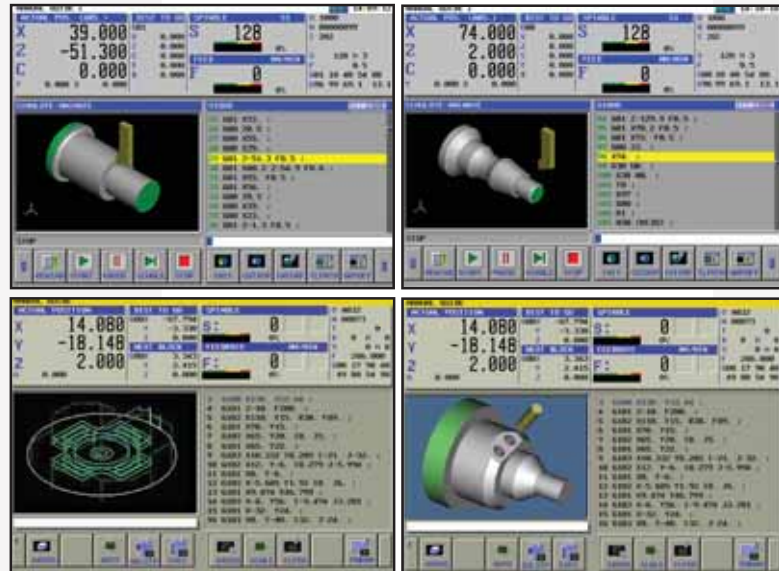
- Actual Cutting Speed Display
- C-Axis with Polar and Linear Interpolation
- Color LCD Display with Full Keyboard—English
- French/German, Italian or Spanish
- Flash Card Capability
- On-Screen "HELP" Functions for Alarms
- One-Degree Spindle Orient
- Run Time and Parts Counter
- Self-Diagnosis Function

- Standard
- Optional

¹ - Hardware package suggested

User-friendly Manual Guide i software to unleash your productivity

Manual Guide i is an advanced conversational 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.



The Hardinge® Group...

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

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

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

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

If you would like to know more about our manufacturing solutions, call us at 800.843.8801 or 607.734.2281 and request our Pocket Guide #1325. You can also e-mail us at info@hardinge.com or visit our web site at www.hardinge.com.

Hardinge precision and Super-Precision® CNC turning centers

We can help you turn your business around. From our competitively-priced SV-Series range of machines to our TALENT® and ELITE® Series II range of quick-changeover bar and chucking machines right through to our high-productivity RS-Series and SR-Series multi-tasking turning centers and QUEST® GT gang tool machines, we can provide you with the optimum turning solution.



Milling machines and machining centers

Our comprehensive line of Bridgeport milling machines have been designed to meet any manufacturing challenge you might be facing today or in the future. Our market-leading XR range of vertical machining centers continue to grow in popularity—and we have similar expectations with our new competitively-priced XV and GX VMCs as well. For heavy-duty, high metal removal we offer our HMC range of Horizontal Machining Centers and for increased manufacturing flexibility and improved productivity there's our 5-axis (5AX) model that is well worthy of consideration. If you are making your first step up to CNC machining, you will find that our entry-level GX 480 and GX 480 DT machines provide the ideal solution. For high-speed machining applications, our HSC machining centers are second to none.



Grinding machines

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



Workholding

Because we design and manufacture market-leading, technically-excellent machine tools it's no surprise that we know more than a thing or two about workholding solutions. From our extensive portfolio of CNC toolholders, collets and chucks—right through to our 5C Indexing systems—our workholding and fixturing technology will improve your performance when and where it matters most.



ELITE®-Series Performance Turning Centers

Specifications

	ELITE 27 MS	ELITE 42 M	ELITE 42 MS	ELITE 51 M	ELITE 51 MS
Spindle					
Spindle Configuration (ANSI)	A2-4, 5C	A2-5, 16C	A2-5, 16C	A2-6, 20C	A2-6, 20C
Draw Tube Type	Pneumatic	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Round Collet (Through Capacity)	1.062"/27mm	1.625"/42mm	1.625"/42mm	2"/51mm	2"/51mm
Jaw Chuck Size (Max.) ¹	4"/100mm	6"/150mm	6"/150mm	8"/200mm	8"/200mm
(Gripping Capacity)	3.80"/96mm	5.65"/144.0mm	5.65"/144.0mm	7.25"/184.2mm	7.25"/184.2mm
Jaw Chuck Size (Suggested)	3.80"/96mm	6"/150mm	6"/150mm	6"/150mm	6"/150mm
(Gripping Capacity)	3.80"/96mm	5.65"/144.0mm	5.65"/144.0mm	5.65"/144.0mm	5.65"/144.0mm
Step Chuck Capacity (Gripping)	4"/100mm	6"/152.4mm	6"/152.4mm	6"/152.4mm	6"/152.4mm
Turning Length with Collet (Max.)	13"/330.2mm	14"/355.6mm	14"/355.6mm	14"/355.6mm	14"/355.6mm
Machining Diameter (Max.) ²	4.25"/108mm	13.40"/340.4mm	13.40"/340.4mm	13.40"/340.4mm	13.40"/340.4mm
Machining Diameter (Suggested)	4.25"/108mm	8.25"/209.6mm	8.25"/209.6mm	8.25"/209.6mm	8.25"/209.6mm
Hang Weight with Device and Part	75lb/34kg	75lb/34kg	75lb/34kg	100lb/45.3kg	100lb/45.3kg
Spindle Centerline Height	41"/1041mm	41"/1041mm	41"/1041mm	41"/1041mm	41"/1041mm
Operator's Reach to Spindle	15"/381mm	15"/381mm	15"/381mm	15"/381mm	15"/381mm
AC Digital Spindle Drive System					
Horsepower Rating—Intermittent ³	10hp/7.5kW	15hp/11kW	15hp/11kW	15hp/11kW	15hp/11kW
Torque Rating ³	35ft-lb/47Nm	70ft-lb/95Nm	70ft-lb/95Nm	70ft-lb/95Nm	70ft-lb/95Nm
Base Speed	1,100 rpm	1,100 rpm	1,100 rpm	1,100 rpm	1,100 rpm
Speed Range (1-rpm Steps)	100 to 8,000	100 to 6,000	100 to 6,000	100 to 5,000	100 to 5,000
Carriage and Cross Slide					
Swing Dia. Over Way Cover (Max.)	21.0"/533.4mm	21.0"/533.4mm	21.0"/533.4mm	21.0"/533.4mm	21.0"/533.4mm
Travel (Max.)					
X-Axis	8.25"/209.6mm	8.25"/209.6mm	8.25"/209.6mm	8.25"/209.6mm	8.25"/209.6mm
Z-Axis with Collet	12.25"/311.2mm	14.00"/355.6mm	14.00"/355.6mm	14.00"/355.6mm	14.00"/355.6mm
w/8" Jaw Chuck and Hard Jaws	—	—	—	8.89"/225.8mm	8.89"/225.8mm
w/6" Jaw Chuck and Hard Jaws	—	9.74"/247.4mm	9.74"/247.4mm	9.74"/247.4mm	9.74"/247.4mm
w/4" Jaw Chuck and Hard Jaws	8.69"/220.7mm	—	—	—	—
Traverse Rates (Max.)					
X-Axis	1,181 ipm / 30m/min	1,181 ipm / 30m/min	1,181 ipm / 30m/min	1,181 ipm / 30m/min	1,181 ipm / 30m/min
Z-Axis	1,181 ipm / 30m/min	1,181 ipm / 30m/min	1,181 ipm / 30m/min	1,181 ipm / 30m/min	1,181 ipm / 30m/min
Z-Axis Thrust (Max.)	1,200lb/5338N	1,500lb/6673N	1,500lb/6673N	1,900lb/8452N	1,900lb/8452N
Turret Top Plate (Bidirectional)					
VDI 25	VDI 25	VDI 30	VDI 30	VDI 30	VDI 30
Number of Stations	16	12	12	12	12
Square Shank Tool Size (Max.)	¾"	¾" or 1"	¾" or 1"	¾" or 1"	¾" or 1"
	20mm	20 or 25mm	20 or 25mm	20 or 25mm	20 or 25mm
Round Shank Tool Size (Max.)	1¼"	1¼" or 1½"	1¼" or 1½"	1¼" or 1½"	1¼" or 1½"
	32mm	32mm or 40mm	32mm or 40mm	32mm or 40mm	32mm or 40mm
Indexing Time (Station-to-Station) ⁴	.42 Second	.3 Second	.3 Second	.3 Second	.3 Second
Live Tooling—Standard					
Tool Shank Diameter	.079 to .625"	.079 to .625"	.079 to .625"	.079 to .625"	.079 to .625"
w/ER25 Collets	2 to 16mm	2 to 16mm	2 to 16mm	2 to 16mm	2 to 16mm
Power Rating at Tool Tip ⁵	5hp/3.7kW	5hp/3.7kW	5hp/3.7kW	5hp/3.7kW	5hp/3.7kW
Torque Rating at Tool Tip ⁵	17.5 ft-lb/23.7Nm	17.7 ft-lb/24Nm	17.7 ft-lb/24Nm	17.7 ft-lb/24Nm	17.7 ft-lb/24Nm
Speed Range (1-rpm Steps)	0 to 6,000	50 to 5,000	50 to 5,000	50 to 5,000	50 to 5,000

1—Adjacent tool clearance limitations may exist depending on tooling arrangement.

2—Cutting limitations exist at this diameter.

3—30-minute intermittent ratings used for power and torque specifications.

4—Index only—does not include clamp and unclamp time.

5—15-minute rating.

6—10-minute intermittent ratings used for power and torque specifications.

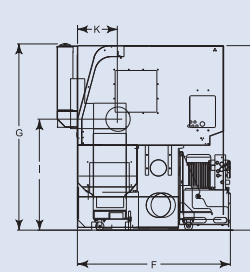
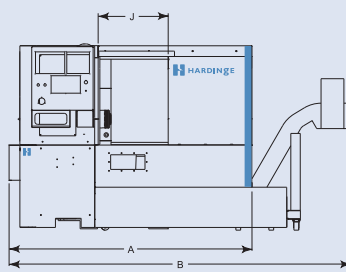
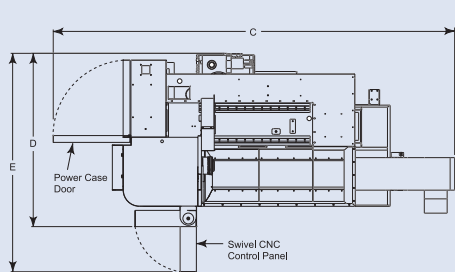
7—Dependent on type of live center used.

8—Inspected to ISO 230-2 standard. Actual results may be greater or less than those listed due to a number of factors, including but not limited to speeds, feeds, tooling, machine maintenance, coolant, material, ambient temperature and type of machine base.

NOTE: A supplementary power transformer is required for all voltages other than 230v, 50/60Hz

	ELITE 27 MS	ELITE 42 M	ELITE 42 MS	ELITE 51 M	ELITE 51 MS
Sub Spindle					
Spindle Configuration (ANSI)	Dead-Length S25-HS	—	A2-5, I6C	—	A2-5, I6C
Draw Tube Type	Pneumatic	—	Hydraulic	—	Hydraulic
Round Collet (Through Cap.)	1"/25.4mm	—	1.625"/42mm	—	1.625"/42mm
Jaw Chuck Size	—	—	6"/150mm	—	6"/150mm
Step Chuck (Gripping Capacity)	—	—	6"/150mm	—	6"/152.4mm
Horsepower Rating—Intermittent ⁶	3hp/2.2kW	—	5hp/3.7kW	—	5hp/3.7kW
Torque Rating ⁶	5.3ft-lb/7.2Nm	—	17.5ft-lb/23.7Nm	—	17.5ft-lb/23.7Nm
Base Speed	3,000 rpm	—	1,500 rpm	—	1,500 rpm
Speed Range (1-rpm steps)	0 to 8,000	—	60 to 6,000	—	60 to 6,000
Travel (Max.)	12.50"/317.5mm	—	15.50"/393.7mm	—	15.50"/393.7mm
Traverse Rate (Max.)	945ipm / 24m/min	945ipm / 24m/min	945ipm / 24m/min	945ipm / 24m/min	945ipm / 24m/min
Tailstock					
Positioning	—	Hydraulic	—	Hydraulic	—
Morse Taper Center	—	MT No. 3	—	MT No. 3	—
Travel of Tailstock Base	—	11.50"/292.1mm	—	11.50"/292.1mm	—
Part Length (Max.) ⁷	—	14"/355.6mm	—	14"/355.6mm	—
(Min.) ⁷	—	2.5"/63.5mm	—	2.5"/63.5mm	—
Feedrate (Max.)	—	300ipm / 7.6m/min	—	300ipm / 7.6m/min	—
Thrust (Max.)	—	700lb/3114N	—	700lb/3114N	—
Parts Catcher—Option					
Workpiece Dia. x Length (Max.)	1.063x4"/ 27x101.6mm	2x4"/ 51x101.6mm	2x4"/ 51x101.6mm	2x4"/ 51x101.6mm	2x4"/ 51x101.6mm
Miscellaneous					
Power Supply Requirement	230v/9 IFLA/3phase	230v/9 IFLA/3phase	230v/9 IFLA/3phase	230v/9 IFLA/3phase	230v/9 IFLA/3phase
Coolant Tank Capacity	44gal/166.6liter	44gal/166.6liter	44gal/166.6liter	44gal/166.6liter	44gal/166.6liter
w/Chip Conveyor Option	59gal/223.3liter	59gal/223.3liter	59gal/223.3liter	59gal/223.3liter	59gal/223.3liter
Coolant Pressure	125psi/8.6bar	150psi/10.3bar	150psi/10.3bar	150psi/10.3bar	150psi/10.3bar
Coolant Flow Rate	8gpm/30.2liter/min	8gpm/30.2liter/min	8gpm/30.2liter/min	8gpm/30.2liter/min	8gpm/30.2liter/min
Approx. Shipping Weight	8,220lb/3,729kg	7,240lb/3,284kg	8,220lb/3,729kg	7,240lb/3,284kg	8,220lb/3,729kg
Machine Dimensions					
Length	89.75"/2279.7mm	89.75"/2279.7mm	89.75"/2279.7mm	89.75"/2279.7mm	89.75"/2279.7mm
Length w/Chip Conveyor Opt.	126.13"/3203.6mm	126.13"/3203.6mm	126.13"/3203.6mm	126.13"/3203.6mm	126.13"/3203.6mm
Depth	66.00"/1676.4mm	66.00"/1676.4mm	66.00"/1676.4mm	66.00"/1676.4mm	66.00"/1676.4mm
Depth w/Control Unit at Max. Swivel	86.50"/2197.1mm	86.50"/2197.1mm	86.50"/2197.1mm	86.50"/2197.1mm	86.50"/2197.1mm
Height	70.50"/1790.7mm	70.50"/1790.7mm	70.50"/1790.7mm	70.50"/1790.7mm	70.50"/1790.7mm
Approx. Floor Area	40ft ² /3.7m ²	40ft ² /3.7m ²	40ft ² /3.7m ²	40ft ² /3.7m ²	40ft ² /3.7m ²
Inspection Specifications					
Part Surface Finish ⁸	12 micro-inch/30 micron	12 micro-inch/30 micron	12 micro-inch/30 micron	12 micro-inch/30 micron	12 micro-inch/30 micron
Axis Repeatability (X and Z)	.000050"/1.27 micron	.000050"/1.27 micron	.000050"/1.27 micron	.000050"/1.27 micron	.000050"/1.27 micron
Turret Indexing Repeatability	.000050"/1.27 micron	.000050"/1.27 micron	.000050"/1.27 micron	.000050"/1.27 micron	.000050"/1.27 micron

Floor plan



- A - 89.75"/2279.7mm
- B - 126.13"/3203.6mm
- C - 148.29"/3766.6mm
- D - 66.00"/1676.4mm
- E - 86.50"/2197.1mm
- F - 56.63"/1438.4mm
- G - 68.00"/1727.2mm
- H - 70.50"/1790.7mm
- I - 41.00"/1041.4mm
- J - 24.00"/609.6mm
- K - 15.00"/381.0mm



Over the past 10 years Hardinge 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, Hauser, Tripet 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.

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