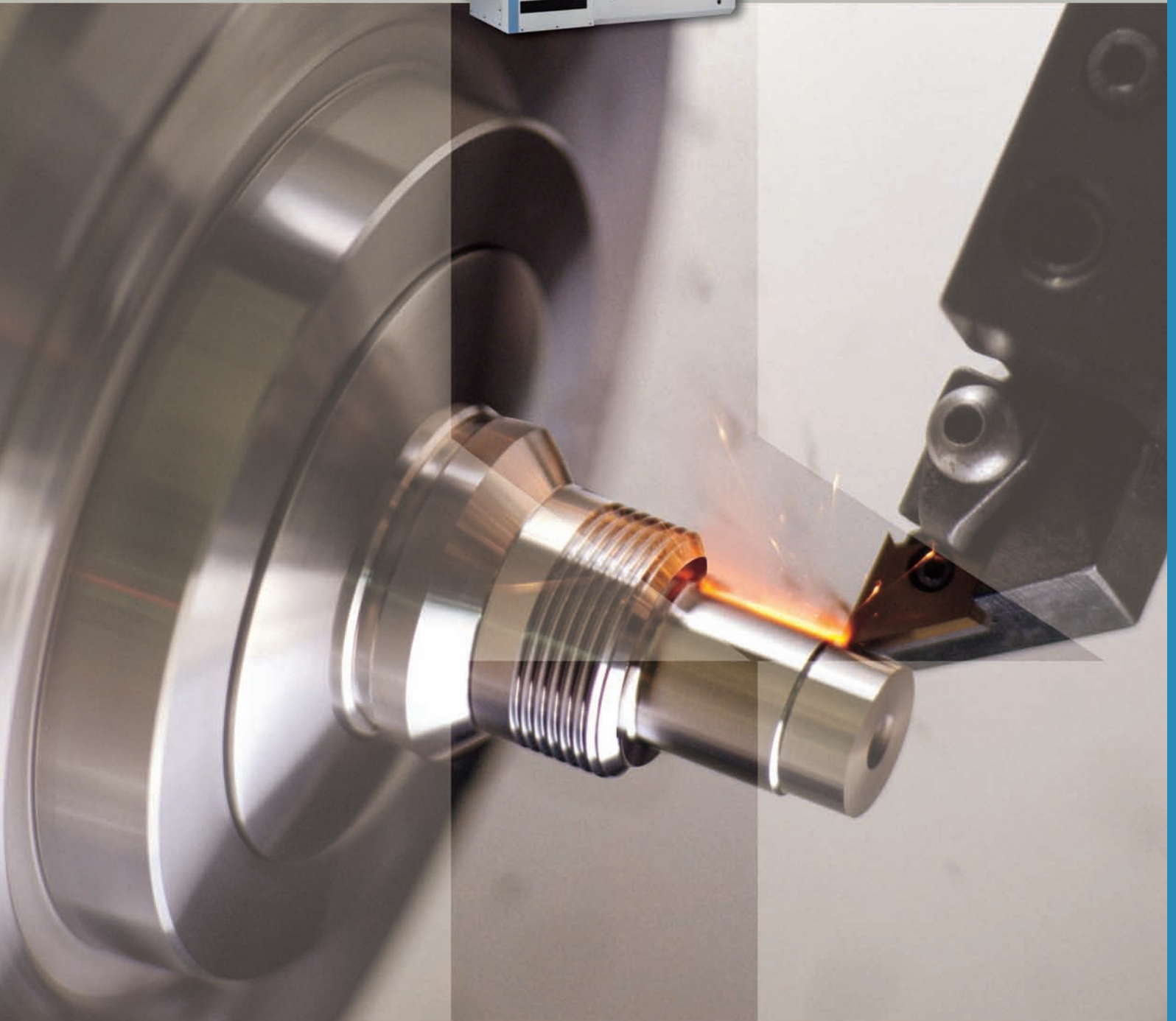


TURNING

QUEST® Multi-Tasking and
Hard Turning CNC Lathes

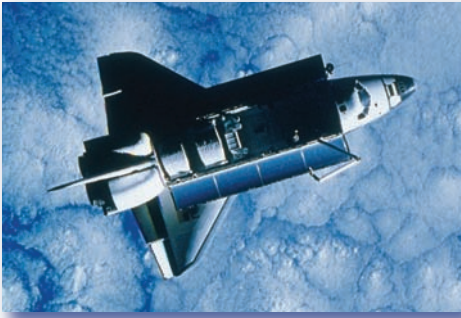


TURNING MILLING GRINDING WORKHOLDING
www.hardinge.com

 **HARDINGE**
EXPECT MORE™

QUEST® Multi-Tasking and Hard Turning CNC Lathes

Not your traditional lathe



QUEST CNC lathes are unlike all competitive machine tools. They are available with a wide selection of multi-tasking features and include our world-renowned, jaw chuck/collet-ready spindle. Selecting the desired module configuration will allow the user to run small to high volume production with the ability to transfer parts for complete machining in one setup. Our Super-Precision® models are industry recognized for their superior rigidity and unparalleled “hard turning” capability. So whether you are a job shop or OEM (original equipment manufacturer), we have the right size QUEST lathe that will allow you to reduce operating expenses, reduce cycle time, and minimize crash potential, resulting in improved flexibility and throughput. Let a QUEST lathe make significant machining advancements in your manufacturing process.



QUEST 6/42 and 6/42SP

- 15-hp/11-kW spindle drive system
- 6”/150mm jaw chuck capacity



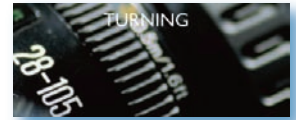
QUEST 8/51 and 8/51SP

- 20-hp/15-kW spindle drive system
- 8”/200mm jaw chuck capacity



QUEST 10/65 and 10/65SP

- 35-hp/26-kW spindle drive system
- 10”/250mm jaw chuck capacity



Accuracy and precision built from the ground up

Rigid machine base

FEA (finite element analysis) techniques were used to design a rigid, structurally balanced machine. Our rugged cast iron bases with HARCRETE® polymer composite (synthetic granite) reinforcement offer added stiffness with superior damping characteristics of vibration to the workpiece for finer surface finishes and increased tool life. HARCRETE is strategically located in the base cavities as well as directly above the feet to assure maximum rigidity. What you end up with is a superior machine structure compared to machines made solely with a cast iron base.

Powerful and rigid spindles

Our powerful belted main spindle drives provide all the power and torque you'll need to do heavy roughing operations and fine surface finishing (see previous page for power ratings). Torque is an impressive 214ft-lb/290Nm on QUEST 10/65 lathes, 200ft-lb/272Nm on QUEST 8/51 and 69ft-lb/94Nm on QUEST 6/42 models. Hardinge-built spindles are hardened & ground and of one-piece construction. They are mounted in a high-strength ductile cast iron headstock housing and mounted to the HARCRETE-reinforced cast iron base for optimum stiffness, rigidity and damping. The unique spindle design allows the preferred method of cutting operations close to the spindle bearings, resulting in superior performance and rigidity. The thru-spindle coolant and thru-spindle air blast options help minimize chip buildup. In addition to a labyrinth seal, a shield further helps to divert coolant from the spindle bearings. This design accommodates the use of higher pressure coolant systems. (Optional high-speed wraparound main and sub-spindles are offered on QUEST 10/65 and 8/51 models.)

Heavy-duty linear guideways, ball screws and axis drives

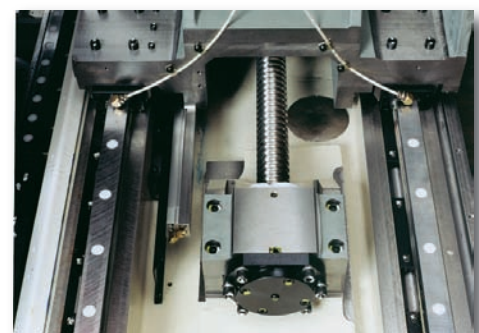
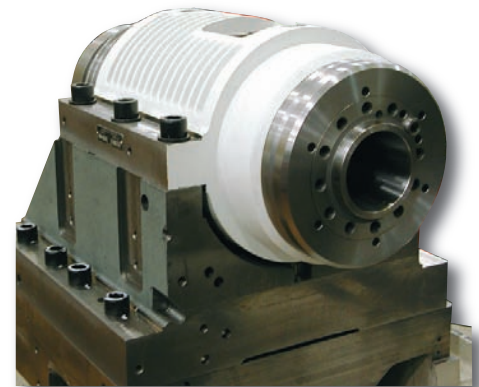
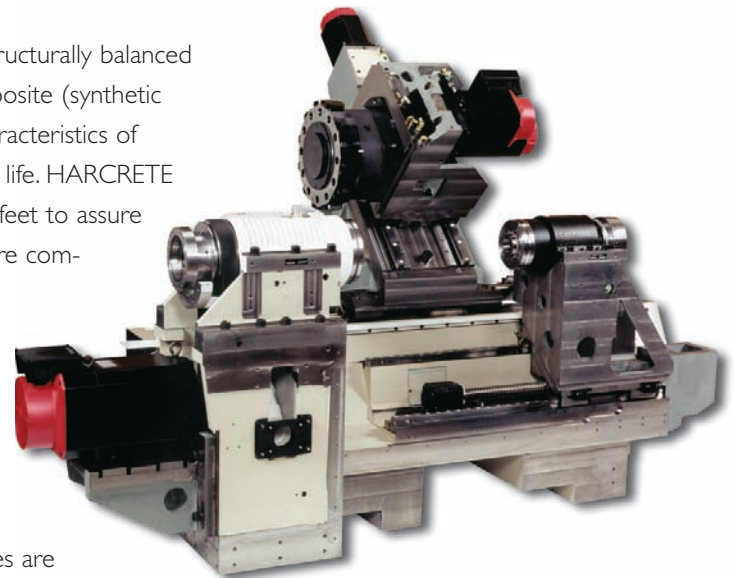
Wide-spaced, oversized linear guideways provide optimum stiffness with less friction, less heat and less thermal growth for faster traverse rates, longer machine life and greater positioning accuracy. Oversized hardened and ground, double-nut ball screws are used for X, Y, Z and sub-spindle axis movements. Torque limiters are provided for most axes to minimize machine damage in the event of a crash—easily reset for maximum uptime.

Patented HydroGlide® hydrostatic linear guideway system option

Machines equipped with hydrostatic linear guideways can provide significantly improved machining results, especially when performing “hard turning” operations (refer to page 7).

Rigid turret, top plate and tooling systems

Our top plates allow fast setup times using simple, rigid round-shank tool holders that locate “on center” and parallel to the spindle centerline. The Hardinge-designed non-lift turret ensures rigid and accurate indexing and contaminant-free operation.



QUEST® Multi-Tasking and Hard Turning CNC Lathes

A wide range of features to enhance your throughput capability

Multi-tasking is what QUEST CNC lathes are all about. We offer packaged versions with popular multi-tasking features or you can configure your machine with the specific features you want. So whether you are producing simple 2-axis lathe parts or critical components for medical or aerospace use, QUEST lathes more than meet the requirement.



Choice of turret top plate

Choose from a VDI turret top plate with or without live tooling and Y-axis options, or a Hardinge T-style top plate for static tooling compatibility with CONQUEST® T42/T51/T65 lathes.

Rigid tapping

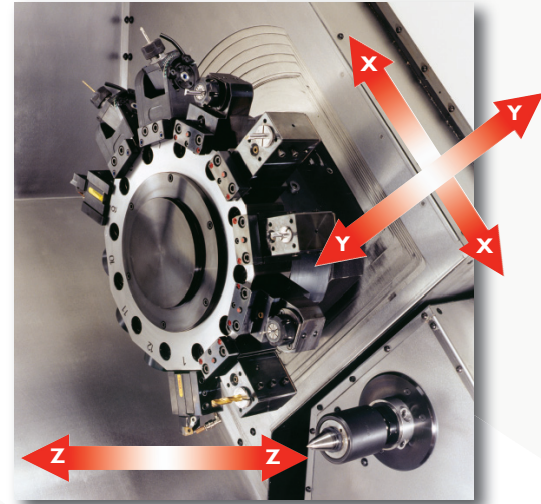
Rigid tapping is standard capability on the main spindle, as well as cross- and face-working operations on machines equipped with the live tooling option.

Live tooling

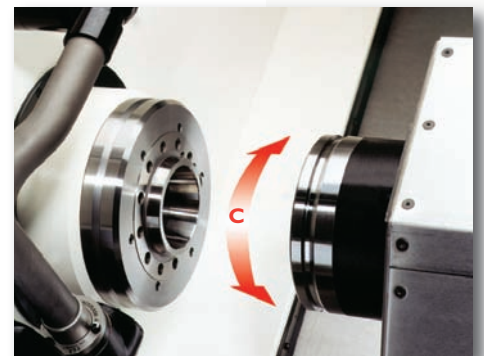
This option is available on VDI top plates to work on the main spindle or sub-spindle. Each station can be equipped with a driven tool for cross- or end-milling/drilling operations in the toughest materials. One-degree spindle orient is included. Internal and external coolant-style live tool holders are offered to direct coolant to the work area. Angular drilling or milling is easily accomplished using adjustable VDI live tooling attachments.

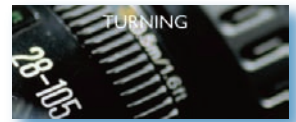
A2-5 Sub-spindle option

Offered in a belted or wraparound configuration, the sub-spindle offers a thru-capacity up to 1½"/42mm with 16C collets and a gripping capacity of 5½"/139mm with 6"/150mm jaw chucks. Exact synchronization between the main and sub at any rpm can be programmed for part transfer for secondary machining.



Exact part transfer between main and sub-spindle





High-speed and high-production options for fast cycle times

Polygon turning

This option in conjunction with the live tooling option 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 spindle is synchronized with the live tooling spindle outfitted with special insert cutters.

Y-Axis

Available for performing thread milling and complex off-center milling and drilling operations on the main or sub-spindle when using the live tooling option, the Y-axis option features an impressive 3.38"/85.85mm overall stroke.

C-Axis contouring

Available 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.



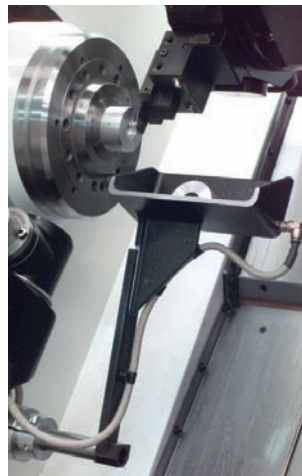
High-Speed Wraparound Main Spindle—QUEST 8/51, 8/51SP, 10/65 & 10/65SP



A2-5 Belted or Wraparound Sub-Spindle



Part Present Sensor (Sub-Spindle)



Thru-Door Parts Catcher (#1)



Basket-type (Catcher #1)



Sub-Spindle Parts Catcher (#2)



Conveyor-type (Catcher #1)



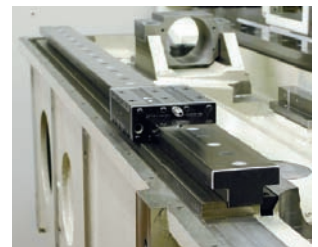
Through Sub-Spindle Parts Catcher (#3)



PC Front-End Control



Automatic Tool Touch Probe

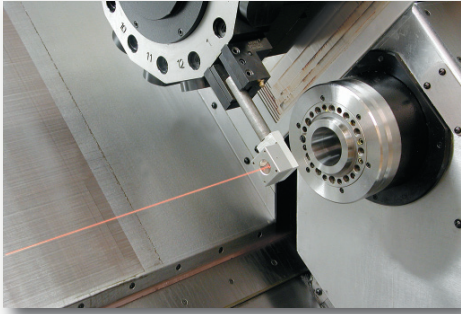


HydroGlide® Hydrostatic Linear Guideways

Other optional features:
 Part Probe
 Air Blast System (Main Spindle)
 1,000-psi High-Pressure Coolant
 Thru-Spindle Coolant (Main or Sub-Spindle)
 Collet Closer Foot Switch
 Chip Conveyor
 Hardinge Spindle and Turret Tooling
 Power Transformers
 3-Position Stack Light
 Manual VDI Tool Presetter System

QUEST® Multi-Tasking and Hard Turning CNC Lathes

Super-Precision® machining



The Hardinge CNC lathe product line includes Super-Precision models designed to produce parts in the .0002"/5 micron or better diametric tolerance range. Customers frequently choose a Super-Precision model to provide high throughput with less frequent tool replacement and offsets. Super-Precision is a registered trademark of Hardinge and each machine that carries this designation is factory certified for accuracy capability before delivery to the customer.

Exacting part roundness and surface finish

QUEST 6/42SP

- .000015" Part Roundness
- 8 micro-inch Part Surface Finish

QUEST 8/51SP

- .000020" Part Roundness
- 8 micro-inch Part Surface Finish

QUEST 10/65SP

- .000025" Part Roundness
- 8 micro-inch Part Surface Finish

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 (68° ±3°F) and type of machine foundation.

Designed for accuracy

Super-Precision CNC lathes are designed and manufactured to provide solutions for extremely close tolerances and very fine surface finishes. Heat shields and isolation blocks are built into the spindle motor for controlled thermal growth. Spindle motor and collet closer assemblies are dynamically balanced in two planes to a G-1 specification. X- and Z-axis error compensation is performed to fine tune positioning and compensate offset at the tool tip. Programmable resolution and tool offset capability is .000010"/.00010mm.

Spindle assembly

The special-accuracy main spindles for Super-Precision machines are assembled in an environmentally-controlled spindle room to ensure consistent results. After assembly the spindles are finish ground to a TIR (taper runout) of less than 15 millionths/.38 microns on QUEST 6/42SP, 20 millionths/.5 micron on QUEST 8/51SP and 25 millionths/.63 micron on QUEST 10/65SP lathes.

Headstock cooling

The spindle cartridge and headstock casting are designed to allow radial dissipation of heat. A fan is also added to the headstock for additional cooling to ensure that ambient air draws over the thermally-symmetrical headstock frame, allowing heat to dissipate radially as compared to linearly. This design allows the spindle centerline to remain in a "fixed" location. Conventional machine spindles may migrate vertically as a result of thermal growth.

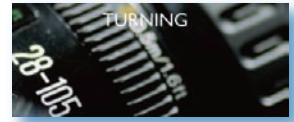
Linear glass scales

Digital glass scales are provided on the X and Z axes for continuous high machining accuracy. The closed-loop linear scale system for positioning feedback provides direct measurement of the slides, eliminating the need to compensate for ball screw thermal growth and wear over the life of the machine.

Rigorous testing and accuracy certification

All QUEST Super-Precision machines receive error compensation to the X and Z axes to correct positioning and offset errors at the tool tip, straightness checks (using laser measurement technology) to the X and Z axes, CMA (continuous machining accuracy) tests to verify machining accuracy, and sample checks on part diameters that must yield a total variation of less than .0002"/5 micron. Accuracy certification—personally signed by the President of Hardinge Inc.— is included as assurance that the machine is as accurate as we say.

Ask for a copy of our Technical Information Bulletin (TIB-138) for complete information on Super-Precision lathes.



One machine that will give you high precision machining results and grinding quality parts

SPC and “hard turning”

Hardinge is the recognized market leader in providing “hard turning” machines, workholding and process support. This is evidenced by our extensive technical resources at our web site—www.hardinge.com. Additionally, SPC (statistical process control) for size repeatability, surface finish quality and thermal stability is a hallmark for QUEST® lathes. All Super-Precision® machines are built and tested to ensure “in-tolerance” parts and surface finishes with predictable tool wear. Inherent design features for SPC control and “hard turning” capabilities include:

- HARCRETE®-reinforced cast iron base and its superior vibration damping
- Spindle tooling mounted directly in the spindle, providing minimum overhang and bearing loading
- Heavy-duty linear guideway systems
- Integrated heat management system—optimized location of ancillary equipment to minimize thermal effects on cutting performance



Parts with interrupted cuts easily produced on QUEST lathes

Why “hard turn” instead of grind?

Because you’ll reduce your costs in many ways:

- “Soft turn” and “hard turn” on the same machine
- Smaller floor space requirement
- Lower overall investment
- Metal removal rates of 4-to-6 times greater
- Turn complex contours
- Multiple operations in a single setup
- Low micro finishes
- Easier configuration changes
- Lower cost tooling inventory
- Higher metal removal rates
- Easier waste management (chips vs. “swarf”)

Commonly processed “hard turned” materials include steel alloys, such as bearing steels, hot and cold-work tool steels, high-speed steels, die steels, case-hardened steels and unique hard materials and aircraft types that fall within the hardness range of 45 to 68 Rc. Want in-depth information on “hard turning”? Go to www.hardinge.com/hardtun.

Add the patented HydroGlide linear guideway system to a QUEST Super-Precision machine and you can realize even greater results.



The patented HydroGlide® linear guideway system developed by Hardinge Inc. is unlike conventional box ways, ball linear guides or roller linear guides. The HydroGlide system features no metal-to-metal contact—the guide trucks move on a thin cushion of hydraulic fluid under high pressure. The end result... ZERO guideway wear and the following significant performance benefits over other “way” systems:

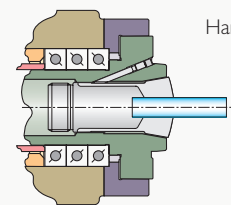
- Superior vibration damping
- Improved “hard turning” capabilities
 - Crash protection
 - Significantly longer tool life—as much as 36% longer insert life on hardened workpieces with interrupted cuts
- Longer machine life
- Increased axis speeds
- Improved part roundness
- Improved part surface finish—from 5.3 to 3.0 micro-inch (43% improvement)

Request Technical Information Bulletin TIB-228 for complete information.

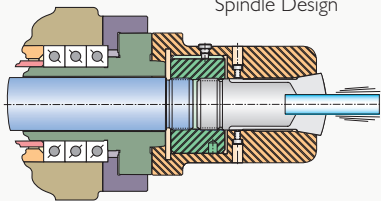
QUEST® Multi-Tasking and Hard Turning CNC Lathes

Unique Hardinge® jaw chuck/collet-ready spindles

Our unique jaw chuck/collet-ready spindle design permits faster spindle speeds for faster cycle times. Unlike lathes requiring the use of a collet adapter, Hardinge lathes offer a large machining area (up to 24"/609.6mm between centers) without sacrificing accuracy.



Hardinge Spindle Design



Other CNC Lathe Spindle Design

Jaw chuck/collet-ready spindles

Hardinge-designed and -built ANSI collet-ready spindles permit bar work up to 1 $\frac{5}{8}$ "/42mm on QUEST 6/42 lathes, 2"/51mm on QUEST 8/51 lathes and 2 $\frac{1}{2}$ "/65mm on QUEST 10/65 lathes. Maximum part rigidity is an added bonus since parts are gripped close to the spindle bearings, resulting in increased concentricity. The 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 lathes that require a collet adapter. 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" brochure 2327.

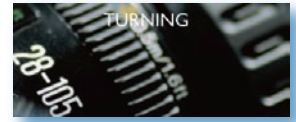
Large machining area

Since QUEST lathes do not require a spindle adapter for using collets, a larger machining area is available with an impressive bar length machining capacity of 15.8"/401mm on QUEST 6/42 machines and 24"/609.6mm on QUEST 8/51 and 10/65 machines. All QUEST models feature an impressive 20.4"/519mm swing diameter.

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 lathes.





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



Hardinge QUEST® lathes feature a custom-designed CNC control with many standard features other machine tool builders charge extra for—graphic toolpath display, rigid tapping, tool life management, stored stroke check 2 & 3, variable lead thread cutting, and run time and parts counter.

A 21i-T control is included on 2-axis machines equipped with tailstock, live tooling and C-axis. An 18i-T control is required on machines equipped with a sub-spindle or Y-axis option. A 16i-T control is required on machines equipped with the Y-axis option, and C-axis on both main and sub-spindles.

General

- Two Interpolating Axes
- Programmable Resolution—.00010"/.0010mm (Super-Precision® Models—.000010"/.00010mm)
- Tool Offset Capability—.00010"/.0010mm (Super-Precision Models—.000010"/.00010mm)
- 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 (RS-232 Software/Hardware)

Programming Functions

- Absolute/Incremental Programming
- Additional Tool Offsets (32 pair total)
- Additional Custom Macro Variables
- Auto Coordinate System Setting
- Auto Acceleration/Deceleration
- 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

Programming Functions (cont'd)

- Exact Stop
- Extended Part Program Edit
- External Workpiece Number Search
- Graphic Toolpath Display
- Hardinge Safe Start Format
- Input of Offset Value by Programming (G10)
- Interpolation (Linear and Circular)
- Multiple Repetitive Canned Cycles I (Turning)
- Multiple Repetitive Canned Cycles II (Pockets)
- Polygon Turning Software¹
- Program Number Search
- Reference Point Return
- Registered Part Programs (63 total)
- Registered Part Programs — (125, 200 or 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
- Variable Lead Thread Cutting

Operation

- Block Delete
- Dry Run
- Dwell Time
- Emergency Stop
- Feed Hold
- Feedrate Override (0 to 150%)

Operation (cont'd)

- 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
- 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
- Ladder Diagram Display
- Mechanical Run Meter
- On-Screen "HELP" Functions for Alarms
- One-Degree Spindle Orient²
- PC Front-End Control
- Program Protect
- Run Time and Parts Counter
- Self-Diagnosis Function
- Stored Pitch Error Compensation
- Y-Axis with offsets (32 pair)

- Standard
- Optional

¹ - Hardware package suggested
² - Included with Live Tooling Option

QUEST® Multi-Tasking and Hard Turning CNC Lathes



QUEST 6/42 & 6/42SP

QUEST 8/51 & 8/51SP

QUEST 10/65 & 10/65SP

Programmable Resolution/Tool Offset Capability
Precision Models
Super-Precision® Models

.00010"/.0010mm
.000010"/.00010mm

.00010"/.0010mm
.000010"/.00010mm

.00010"/.0010mm
.000010"/.00010mm

Spindle—Configuration (ANSI)

A2-5, 16C

A2-6, 20C

A2-6, 25C

Spindle Through-Hole

1.89"/48.0mm

2.378"/60.4mm

2.935"/74.5mm

Round Collet (Through Capacity)

1.625"/42mm

2"/51mm

2.5"/65mm

Jaw Chuck Size

6"/150mm

8"/200mm

10"/250mm

Step Chuck (Gripping Capacity)

6"/152.4mm

6"/152.4mm

6"/152.4mm

Nominal Work Size (OD x L) with Collet

1.625 x 15"/42 x 381.0mm

2.00 x 24.00"/51 x 609.6mm

2.50 x 24.00"/65 x 609.6mm

Nominal Work Size (OD x L) with Jaw Chuck

5.5 x 10.65"/139.7 x 270.5mm

7.25 x 20.50"/184.2 x 520.7mm

9.00 x 19.595"/228.6 x 497.7mm

Spindle Centerline Height

41.00"/1041.4mm

41.00"/1041.4mm

41.00"/1041.4mm

Spindle Reach

16.00"/406.4mm

16.00"/406.4mm

16.00"/406.4mm

Standard AC Digital Belted Drive System ¹

Base Speed

1,128 rpm

525 rpm

857 rpm

Power Rating at Base Speed

15hp/11kW

20hp/15kW

35hp/26kW

Torque Rating

69ft-lb/94Nm

200ft-lb/272Nm

214ft-lb/290Nm

Speed Range (1-rpm steps)

60 to 6,000

50 to 4,200

30 to 3,429

Optional High-Speed Wraparound Drive System ^{1,2}

Power Rating @ 450-rpm Base Speed

—

20hp/15kW

20hp/15kW

Torque Rating

—

215ft-lb/291Nm

233ft-lb/316Nm

Speed Range (1-rpm steps)

—

80 to 8,000

60 to 6,000

Carriage and Cross Slide

Swing Diameter Over Way Cover

20.44"/519.2mm

20.44"/519.2mm

20.44"/519.2mm

Turning Diameter (Max.)—VDI Turret ³

12.151"/308.6mm

12.151"/308.6mm

12.151"/308.6mm

Conventional T-Style Turret

14.551"/369.6mm

14.049"/356.8mm

14.049"/356.8mm

Travels (Max.)

X-Axis

7.45"/189.2mm

7.45"/189.2mm

7.45"/189.2mm

Z-Axis with Collet

16"/406.4mm

24.00"/609.6mm

24.00"/609.6mm

Z-Axis with 6"/150mm Sure-Grip® Jaw Chuck

10.65"/270.5mm

—

—

Z-Axis with 8"/200mm Sure-Grip Jaw Chuck

10.21"/259.3mm ⁴

20.50"/520.7mm

20.50"/520.7mm

Z-Axis with 10"/250mm Sure-Grip Jaw Chuck

—

—

19.595"/497.7mm

Y-Axis Option

+2.00 to -1.377"/+50.8 to -34.9mm

+2.00 to -1.377"/+50.8 to -34.9mm

+2.00 to -1.377"/+50.8 to -34.9mm

Traverse Rates (Max.)

X-Axis

1,100ipm / 28m/min

1,100ipm / 28m/min

1,100ipm / 28m/min

Z-Axis

1,500ipm / 38m/min

1,500ipm / 38m/min

1,500ipm / 38m/min

Z-Axis with HydroGlide Option

1,500ipm / 38m/min

2,300ipm / 58m/min

2,300ipm / 58m/min

Thrusts (Max.)

Z-Axis

1,450lb/6,450N

2,250lb/10,000N

2,250lb/10,000N

Y-Axis Option

1,175lb/5,227N

1,175lb/5,227N

1,175lb/5,227N

Inspection Specifications

Precision Models ⁶

Part Surface Finish

12 micro-inch/.30 micron

12 micro-inch/.30 micron

12 micro-inch/.30 micron

Overall Axis Repeatability

.000050"/1.27 micron

.000050"/1.27 micron

.000050"/1.27 micron

Turret Indexing Repeatability

.000080"/2 micron

.000080"/2 micron

.000080"/2 micron

Super-Precision® Models ⁶

Part Surface Finish

8 micro-inch/.20 micron

8 micro-inch/.20 micron

8 micro-inch/.20 micron

Part Roundness

.000015"/.38 micron

.000020"/.50 micron

.000025"/.63 micron

Part Continuous Machining Accuracy
(Total Variation on Diameter)

.0002"/5 micron

.0002"/5 micron

.0002"/5 micron

Overall Axis Repeatability

.000030"/.76 micron

.000030"/.76 micron

.000030"/.76 micron

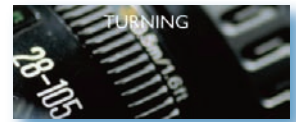
Turret Indexing Repeatability

.000080"/2 micron

.000080"/2 micron

.000080"/2 micron

Specifications



QUEST 6/42 & 6/42SP

QUEST 8/51 & 8/51SP

QUEST 10/65 & 10/65SP

Bidirectional VDI Turret Top Plate	12 Stations (10 Optional)	12 Stations (10 Optional)	12 Stations (10 Optional)
Standard VDI 30 Tool Configuration ²	16 Stations	—	—
VDI 30 16-Station Tool Configuration ²	1" / 25mm	1" / 25mm	1" / 25mm
Square Shank Tool Size (Max.)	1 1/2" / 40mm	1 1/2" / 40mm	1 1/2" / 40mm
Round Shank Tool Size (Max.)	0.1 Second	0.1 Second	0.1 Second
Indexing Time (Station-to-Station)	.062 to .625"/2 to 16mm	.062 to .625"/2 to 16mm	.062 to .625"/2 to 16mm
VDI 30 Live Tooling Option on All Stations ²	5hp/3.7kW	5hp/3.7kW	5hp/3.7kW
Tool Shank Diameter w/ER25 Collets	16ft-lb/21.7Nm	16ft-lb/21.7Nm	16ft-lb/21.7Nm
Power Rating at Tool Tip ⁷	80 to 8,000	80 to 8,000	80 to 8,000
Torque Rating at Tool Tip ⁸	—	10 Station	10 Station
Speed Range (1-rpm Steps)	—	1" / 25mm	1" / 25mm
Optional VDI 40 Tool Configuration ²	—	1 1/2" / 40mm	1 1/2" / 40mm
Square Shank Tool Size (Max.)	—	0.35 Second	0.35 Second
Round Shank Tool Size (Max.)	—	—	—
Indexing Time (Station-to-Station)	—	.093 to .750"/3 to 20mm	.093 to .750"/3 to 20mm
VDI 40 Live Tooling Option on All Stations ²	—	7.5hp/5.6kW	7.5hp/5.6kW
Tool Shank Diameter w/ER32 Collets	—	26ft-lb/35.3Nm	26ft-lb/35.3Nm
Power Rating at Tool Tip ¹	—	60 to 6,000	60 to 6,000
Torque Rating at Tool Tip ¹	—	—	—
Speed Range (1-rpm Steps)	—	—	—
Bidirectional Conventional	12 Stations	10 or 12 Stations	10 or 12 Stations
Hardinge T-Style Turret Top Plate ² (Inch or Metric)	3/4" / 20mm	1" / 25mm	1" / 25mm
Square Shank Tool Size (Max.)	1 1/4" / 32mm	1 1/2" / 40mm	1 1/2" / 40mm
Round Shank Tool Size (Max.)	.35 Second	.35 Second	.35 Second
Indexing Time (Station-to-Station)	A2-5, 16C	A2-5, 16C	A2-5, 16C
Sub-Spindle Option—Belted or Wraparound Design ^{1,2,5,9}	1.625"/42mm	1.625"/42mm	1.625"/42mm
Spindle Configuration (ANSI)	6"/150mm	6"/150mm	6"/150mm
Round 16C Collet (Through Capacity)	6"/152.4mm	6"/152.4mm	6"/152.4mm
Jaw Chuck Size	10hp/7.5kW	10hp/7.5kW	10hp/7.5kW
Step Chuck (Gripping Capacity)	35ft-lb/47.7Nm	35ft-lb/47.7Nm	35ft-lb/47.7Nm
Power Rating @ 1,500-rpm Base Speed	60 to 6,000	60 to 6,000	60 to 6,000
Torque Rating	—	100 to 10,000	100 to 10,000
Speed Range (1-rpm steps)—Belted Version	14.50"/368.3mm	23.75"/603.3mm	23.75"/603.3mm
Wraparound Version	1,500ipm / 38m/min	1,500ipm / 38m/min	1,500ipm / 38m/min
Travel (Max.) ¹⁰	MT 3	MT 4	MT 4
Traverse Rate (Max.)	300ipm / 7.6m/min	300ipm / 7.6m/min	300ipm / 7.6m/min
Hydraulic Tailstock with Encoder Feedback	230v/3 Phase	230v/3 Phase	230v/3 Phase
Traverse Rate (Max.)	Length (Tailstock Version)	Length (Sub-Spindle Version)	Length with Chip Conveyor Option
Power Requirements	91.58"/2326.1mm	101.43"/2576.3mm	139.69"/3548.1mm
Machine Dimensions	79.74"/2025.4mm	75.00"/1905.0mm	75.00"/1905.0mm
Length (Tailstock Version)	11,180lb/5071kg	12,240lb/5552kg	12,240lb/5552kg
Length (Sub-Spindle Version)			
Length with Chip Conveyor Option			
Depth			
Height			
Shipping Weight (Approx.)			

1—30-minute intermittent ratings used for power and torque specifications.

2—Available as original equipment only. 3—Based on 3/4-inch square shank tool.

4—With A2-5 to A2-6 adapter. 5—Wraparound not available on QUEST 6/42 models.

6—Results were derived from actual tests conducted at Hardinge. Due to varying cutting conditions, actual results may be greater or less than those listed.

7—15-minute rating. 8—30% duty cycle (3-minute rating).

9—Belted sub-spindle may be used with belted main spindles only. The same is

true for wraparound spindle configurations. The sub-spindle provides general precision

machining capabilities on Super-Precision lathes.

10—Maximum distance between spindle faces.

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



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 the U.S., Switzerland, China and Taiwan. 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.

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

Call us today, we've got your answer.

Hardinge Inc. One Hardinge Drive | P.O. Box 1507 | Elmira, New York 14902-1507 USA
USA: 800.843.8801 | Canada: 800.468.5946 | Phone: 607.734.2281 | Fax: 607.734.8819
Corporate Web Site: www.hardinge.com | E-mail: info@hardinge.com