

# HARDINGE QUEST SERIES

SUPER-PRECISION<sup>®</sup> TURNING CENTERS

HARDINGE CHNC 27/42

HARDINGE GT27



# HARDINGE QUEST SERIES

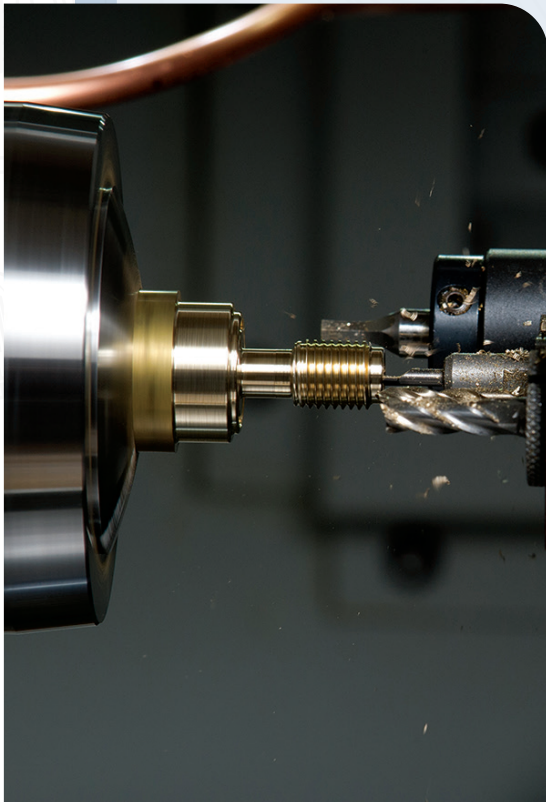
## FEATURES

- Rigid tapping
- Headwall coolant
- Run time/parts counter
- Custom macro B
- Worklight

## MACHINE OPTIONS

- Tool touch probe
- Chip conveyor
- Parts catcher
- Auto door
- Air blast
- High pressure coolant
- Thru-spindle coolant
- 125 psi coolant pump
- Barfeed interface

Hardinge's SUPER-PRECISION® QUEST-Series turning centers are unlike any gang tool or gang turret machine in that they include our patented interchangeable top plate and world-renowned, quick-change collet-ready spindle. The small footprint is perfect for producing high-quality parts for all industries but standout in medical and aerospace. Every Hardinge QUEST-Series turning center undergoes strict certification to assure you that your machine meets the quality standards our customers expect when buying from Hardinge. Depending on how you outfit your machine, it can be used as a stand-alone unit, a higher capacity system with a bar feed, or a fully automated system with a robot combining both versatility and value in one machine.



## QUEST CHNC 27 & CHNC 42

- A2-4 5C spindle (CHNC 27)
- A2-5 16C spindle (CHNC 42)
- 10HP/7.5kW spindle drive system
- 8,000 RPM spindle (CHNC 27)
- 5,000 RPM spindle (CHNC 42)
- Part surface finish:  
8 micro-inch/.20 micron
- Part roundness: .000015"/.40 micron
- Continuous machining accuracy:  
.0002"/5 micron

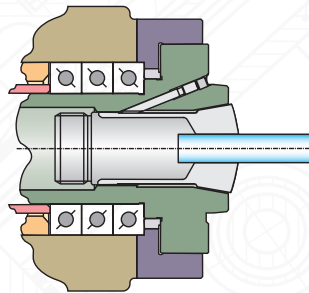
## QUEST GT 27

- A2-4 5C spindle
- A2-5 16C Big Bore option
- 10HP/7.5kW spindle drive system
- 8,000 RPM spindle (5C)
- 5,000 RPM (16C option)
- Part surface finish:  
8 micro-inch/.20 micron
- Part roundness: .000015"/.40 micron
- Continuous machining accuracy:  
.0002"/5 micron

## COLLET-READY MAIN SPINDLE

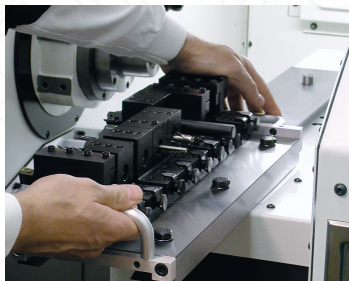
The Hardinge collet-ready spindle is the most versatile machine spindle in the industry – it is uniquely designed to accept both collets and jaw chucks without the use of an adaptor. Because the collet seats directly in the spindle, the workpiece is held close to the spindle bearings which provides the ultimate in accuracy, rigidity and gripping force. It also allows for maximum spindle RPMs which increases productivity. This exclusive design also offers numerous workholding capabilities including solid collets, master collets, dead length collets, step chucks, 3-jaw chucks and FlexC collets systems.

COLLET  
READY  
SPINDLE

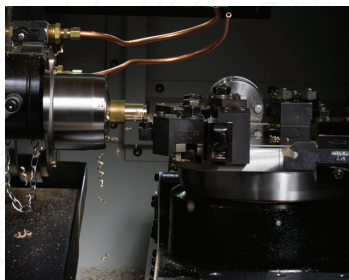


## PATENTED INTERCHANGEABLE TOP PLATE-STANDARD

Pre-tooled top plates can be quickly interchanged in less than a minute for a new part or family of parts within .0002" repeatability. Once a component operation is set and proven out, the tooled top plate, program, work shift and tool offsets can be removed from the machine and stored until needed for the next batch of similar parts. Repeat jobs can typically save 50% to 80% on setup time over other manufacturer's gang-type machines. Plus, you can add or remove cutting tools from any location without disturbing any other tools on the top plate. Cut-to-cut time is drastically reduced with gang-tool configuration—there's no time lost on turret indexing (on the GT27). And you can produce many different parts without changing the top plate tool setup.



\* GT27



\* CHNC 27/42

## HARDINGE SUPER-PRECISION®

- Series turning centers will exceed expectations with superior .000015" part roundness and 0.000008" (Ra) surface finish

## HIGH-PRECISION LINEAR GUIDEWAYS, BALLSCREWS AND AXIS DRIVES

- The 1" (25mm) hardened and ground, double-nut ballscrews and guide trucks used for the X and Z axes are grease lubricated
- Fast traverse rates of 708ipm/18mpm on the X-axis and 945ipm/24mpm on the Z-axis (GT 27) provide reduced cycle times

## IMPROVED MACHINE MAINTENANCE

- Grease lubrication provides several advantages over way lube oil systems
  - No oil skimmer required
  - No degradation of water-base coolants
  - Environmentally friendly with no need to dispose of contaminated oil

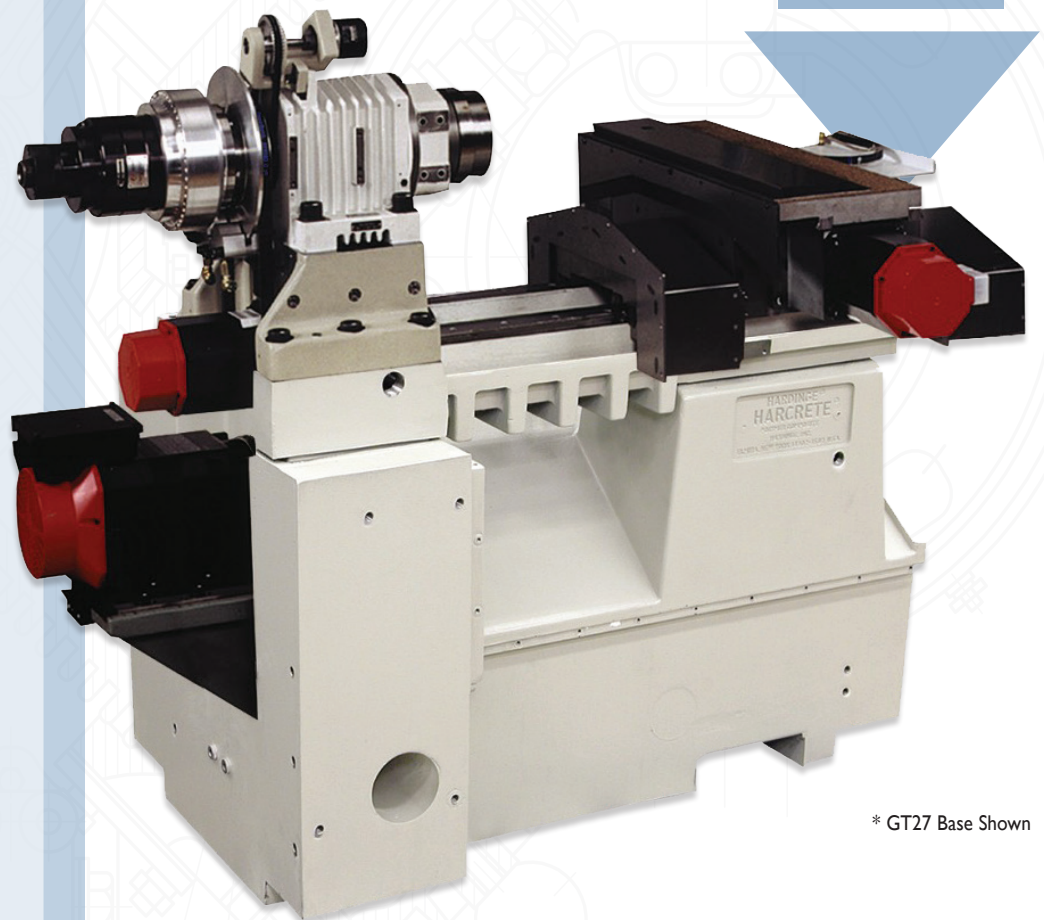


### MACHINE STRUCTURE

- Unique Hardinge designed and built quick-change, collet-ready precision spindle
- Headstock assembly with heavy ribbed construction allows minimal heat retention and optimum part size control
- Pneumatic collet closer design permits gripping of thin-walled and small, delicate parts
- The patented interchangeable top plate mounts securely to the dovetailed cross slide
- AC digital servomotors are used for the X- and Z-axes for optimal machining accuracy
- High-precision X and Z-axes ballscrews and linear guideways provide superior surface finishes and part accuracy. The double-nut hardened and ground ballscrews are grease lubricated
- The industry's most reliable motors and drives provide superior machining capability
- Unhindered chip flow from the cutting area to the chip pan

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.

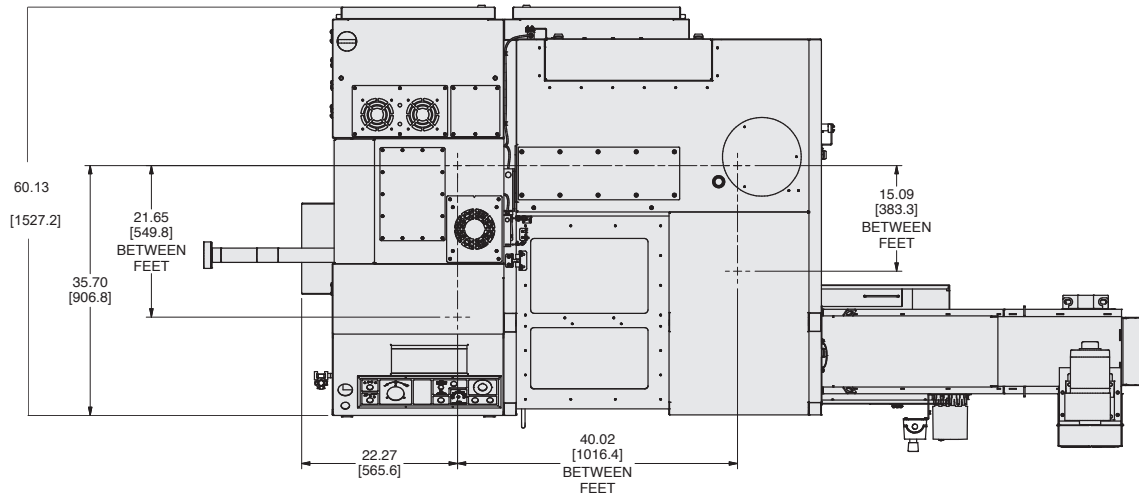
The super-stable HARCLETE® base is 10% stiffer and more rigid than cast iron for improved dynamic stability and reliability. 1/3 Less vibration at the spindle and 30% or more increased tool life allows high-precision machining while reducing tooling costs.



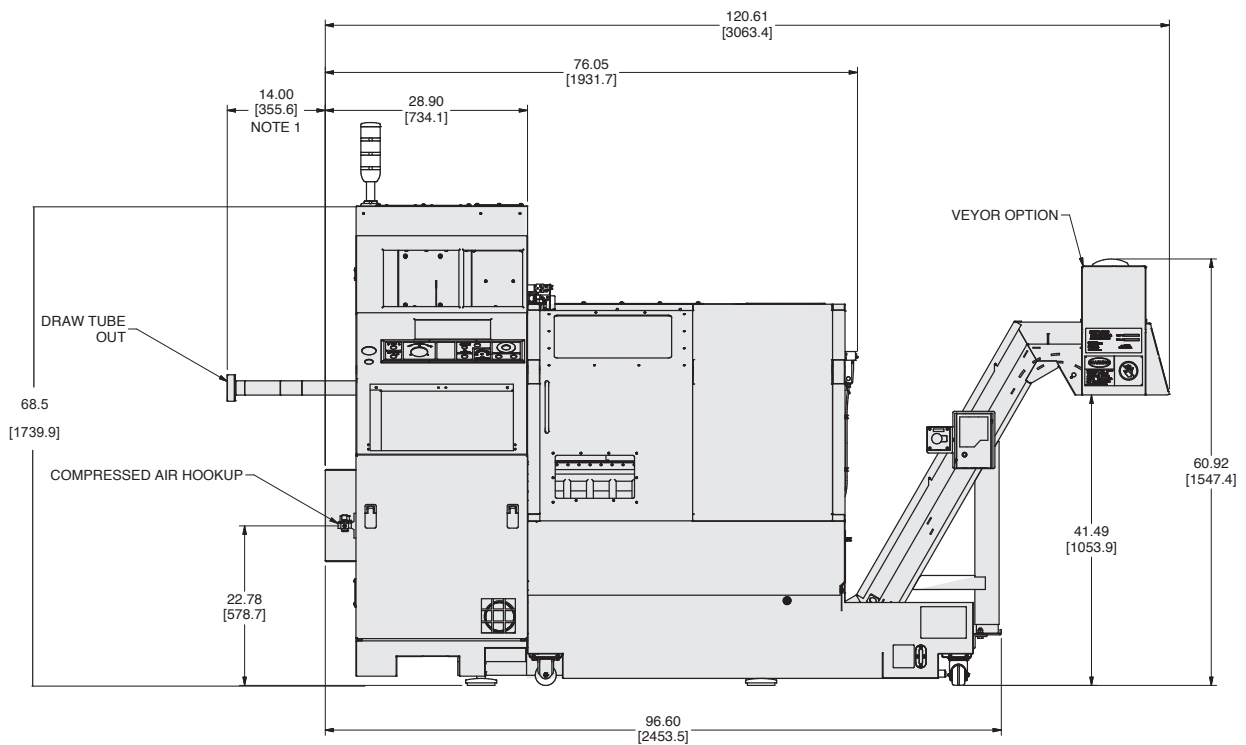
\* GT27 Base Shown



# QUEST SERIES FLOOR PLAN



## TOP VIEW



## FRONT VIEW

# SPECIFICATIONS QUEST SERIES

	QUEST GT27	QUEST CHNC 27/42
<b>COLLET-READY SPINDLE</b>		
Spindle Configuration (ANSI)	A2-4/5C	A2-4/5C (27) A2-5, 16C (42)
Round Collet (through capacity)	1.062"/27mm	1.062"/27mm / 1.625"/42mm
Step Chuck (gripping capacity)	6"/150mm	6"/150mm
AC Digital Spindle Drive System	10hp/7.5kW	10hp/7.5kW
Speed Range (1-RPM steps)	80 to 8,000 RPM	80 to 8,000 / 50 to 5,000 RPM
Spindle Orient	One-degree	One-degree
Chuck Size	4" (101.6mm)	4" (101.6mm)/ 6" (150mm)
<b>16C "BIG-BORE" SPINDLE OPTION 1, 2</b>		
Spindle Configuration	ANSI A2-5	_____
Round 16C Collet (through capacity)	1.625"/42mm	_____
16C Step Chuck (gripping capacity)	6.0"/151mm	_____
AC Digital Spindle Drive System	10hp/7.5kW	_____
Speed Range (1-RPM steps)	50 to 5,000 RPM	_____
Chuck Size	6" (150mm)	_____
<b>CAPACITY</b>		
Swing Diameter Over Way Cover (max.)	11.760" (298.7mm)	17.94" (455.6mm)
Square Shank Tool Size (max.)	1/2" (12mm)	1/2" (12mm)
Round Shank Tool Size (max.)	3/4" (20mm)	3/4" (20mm)
Bi-Directional Indexing Time (station to station)	_____	.25 sec.
Traverse Rate X-Axis (max.)	708ipm/18mpm	472ipm/12mpm
Traverse Rate Z-Axis (max.)	945ipm/24mpm	630ipm/16mpm
Travel X-Axis	11.968"/304.0mm	12.76"/324.2mm
Travel Z-Axis 5C Spindle	11.062"/281.0mm	12.45"/316.23mm
Travel Z-Axis 16C Spindle	10.412"/264.5mm	11.8"/299.7mm

	QUEST GT27	QUEST CHNC 27/42
<b>5C AND 16C SPINDLES</b>		
Collet Closer Stroke	.50"/12.7mm	.50"/12.7mm
Hang Weight with Device and Part (max.)	75lb/34kg	75lb/34kg
Spindle Centerline Height	42.40"/1077mm	44.84"/1138mm
Operator's Reach to Spindle	22.84"/580mm	22.84"/580mm
<b>PARTS CATCHER—OPTION</b>		
Workpiece Length (max.)	3"/76.2mm	3"/76.2mm 4"/101.6mm
<b>MISCELLANEOUS</b>		
Power Supply Requirement	230v/33FLA/ 3 phase	230v/33FLA/ 3 phase
Coolant Tank Capacity	20gal/76liter	20gal/76 liter
Compressed Air Requirement	70-90 psi, 5-6 scfm	70-90 psi, 5-6 scfm
<b>MACHINE DIMENSIONS</b>		
Length w/Chip Pan	77.00" 1956mm	77.00" 1956mm
Length w/Chip Conveyor	120.61" 3063mm	120.61" 3063mm
Depth	60.13" 1527mm	60.13" 1527mm
Height	68.5" 1739mm	68.5" 1739mm
Floor Area	31.3ft/3m	31.3ft/3m
Approx. Machine Weight	4,900lb 2,222kg	5,220lb 2,376kg
<b>INSPECTION SPECIFICATIONS</b>		
<b>PART SURFACE FINISH</b>		
5C Spindle	8 micro-inch .20 micron	8 micro-inch/ .20 micron
16C Spindle	12 micro-inch .30 micron	12 micro-inch .30 micron
<b>PART ROUNDNESS</b>		
5C Spindle	.000015" .38 micron	.000015" .38 micron
16C Spindle	.000025"/ .63 micron	.000025"/ .63 micron
Continuous Machining Accuracy (Dia. Variation)	.0002" 5 micron	.0002" 5 micron

# MACHINE CONTROLS

## FANUC 32i-T CONTROL

- Two Interpolating Axes
- Programmable Resolution—.000010"/.00010mm
- Tool Offset Capability—.000010"/.00010mm
- Inch/Metric Data Selection by G-Code
- 160 Meters Part Program Storage
- Part Program Storage (*optional*)  
(320, 640 or 1,280 meters total)
- Data Input/Output
- MDI (Manual Data Input) Operation
- Reader/Punch Interface
- Flash Card (PCMCIA) Capability
- Ethernet Ready

**FANUC**



## MITSUBISHI M70V CONTROL

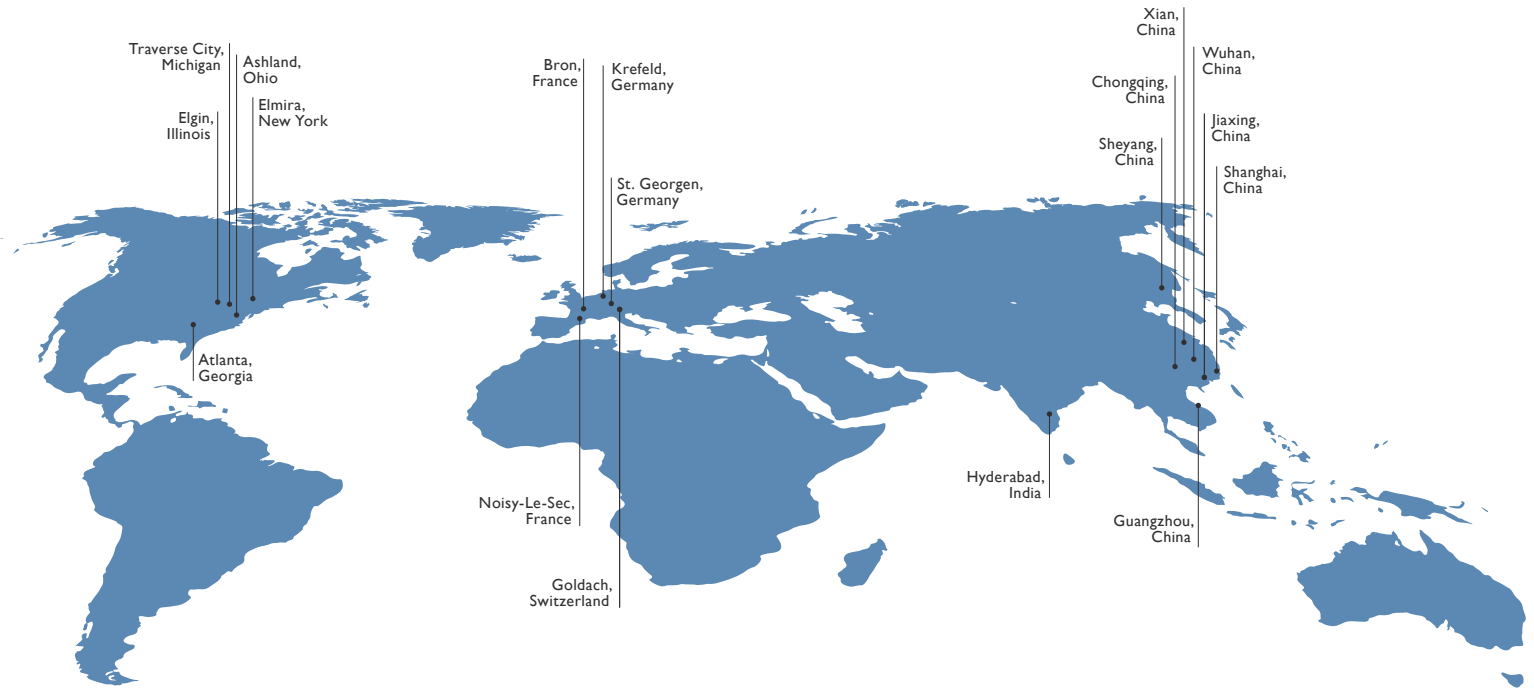
- Two Interpolating Axes
- Programmable Resolution—.000010"/.00010mm
- Tool Offset Capability—.000010"/.00010mm
- Inch/Metric Data Selection by G-Code
- 1280 Meters Part Program Storage
- Part Program Storage USB or Compact Flash
- Data Input/Output - USB or Compact Flash
- MDI (Manual Data Input) Operation
- Reader/Punch Interface RS232
- Ethernet Data Transfer Capability

 **MITSUBISHI  
ELECTRIC**





# HARDINGE WORLDWIDE



Hardinge is a leading international provider of advanced metal-cutting solutions. We provide a full spectrum of highly reliable CNC turning, grinding, and honing machines as well as technologically advanced workholding accessories.

The diverse products we offer enable us to support a variety of market applications in industries including aerospace, agricultural, automotive, construction, consumer products, defense, energy, medical, technology, transportation and more.

We've developed a strong global presence with manufacturing operations in North America, Europe, and Asia. Hardinge applies its engineering and applications expertise to provide your company with the right machine tool solution and support every time.

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