HARDINGE

QUEST SERIES

QUEST Series
Hardinge CHNC 27/42
Hardinge GT27

800-843-8801
WWW.HARDINGE.COM
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.

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.

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 HARCRETE® 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.
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Quest GT27</th>
<th>Quest CHNC 27/42</th>
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</thead>
<tbody>
<tr>
<td><strong>Collet-Ready Spindle</strong></td>
<td></td>
</tr>
<tr>
<td>Spindle Configuration (ANSI)</td>
<td>A2-4/5C</td>
</tr>
<tr>
<td>Round Collet (through capacity)</td>
<td>1.062”/27mm</td>
</tr>
<tr>
<td>Step Chuck (gripping capacity)</td>
<td>6”/150mm</td>
</tr>
<tr>
<td>AC Digital Spindle Drive System</td>
<td>10hp/7.5kW</td>
</tr>
<tr>
<td>Speed Range (1-RPM steps)</td>
<td>80 to 8,000 RPM</td>
</tr>
<tr>
<td>Spindle Orient</td>
<td>One-degree</td>
</tr>
<tr>
<td>Chuck Size</td>
<td>4” (101.6mm)</td>
</tr>
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#### 16C “Big-Bore” Spindle Option 1, 2

<table>
<thead>
<tr>
<th>Quest GT27</th>
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</thead>
<tbody>
<tr>
<td>Spindle Configuration</td>
<td>ANSI A2-5</td>
</tr>
<tr>
<td>Round 16C Collet (through capacity)</td>
<td>1.625”/42mm</td>
</tr>
<tr>
<td>16C Step Chuck (gripping capacity)</td>
<td>4.0”/101.6mm</td>
</tr>
<tr>
<td>AC Digital Spindle Drive System</td>
<td>10hp/7.5kW</td>
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<tr>
<td>Speed Range (1-RPM steps)</td>
<td>50 to 5,000 RPM</td>
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<tr>
<td>Chuck Size</td>
<td>6” (150mm)</td>
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#### Capacity

<table>
<thead>
<tr>
<th>Quest GT27</th>
<th>Quest CHNC 27/42</th>
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<tbody>
<tr>
<td>Swing Diameter Over Way Cover (max.)</td>
<td>11.760” (298.7mm)</td>
</tr>
<tr>
<td>Square Shank Tool Size (max.)</td>
<td>1/2” (12mm)</td>
</tr>
<tr>
<td>Round Shank Tool Size (max.)</td>
<td>3/4” (20mm)</td>
</tr>
<tr>
<td>Bi-Directional Indexing Time (station to station)</td>
<td></td>
</tr>
<tr>
<td>Traverse Rate X-Axis (max.)</td>
<td>708ipm/18mpm</td>
</tr>
<tr>
<td>Traverse Rate Z-Axis (max.)</td>
<td>945ipm/24mpm</td>
</tr>
<tr>
<td>Travel X-Axis</td>
<td>11.968”/304.0mm</td>
</tr>
<tr>
<td>Travel Z-Axis 5C Spindle</td>
<td>11.062”/281.0mm</td>
</tr>
<tr>
<td>Travel Z-Axis 16C Spindle</td>
<td>10.412”/264.5mm</td>
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### 5C and 16C Spindles

<table>
<thead>
<tr>
<th>Quest GT27</th>
<th>Quest CHNC 27/42</th>
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<tbody>
<tr>
<td>Collet Closer Stroke</td>
<td>.50”/12.7mm</td>
</tr>
<tr>
<td>Hang Weight with Device and Part (max.)</td>
<td>75lb/34kg</td>
</tr>
<tr>
<td>Spindle Centerline Height</td>
<td>42.4”/1077mm</td>
</tr>
<tr>
<td>Operator’s Reach to Spindle</td>
<td>22.8”/580mm</td>
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#### Parts Catcher—Option

<table>
<thead>
<tr>
<th>Quest GT27</th>
<th>Quest CHNC 27/42</th>
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<tbody>
<tr>
<td>Workpiece Length (max.)</td>
<td>3’/76.2mm</td>
</tr>
<tr>
<td>Coolant Tank Capacity</td>
<td>20gal/76liter</td>
</tr>
<tr>
<td>Compressed Air Requirement</td>
<td>70-90 psi, 5-6 scfm</td>
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#### Machine Dimensions

<table>
<thead>
<tr>
<th>Quest GT27</th>
<th>Quest CHNC 27/42</th>
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<tbody>
<tr>
<td>Length w/Chip Pan</td>
<td>77.00” 1956mm</td>
</tr>
<tr>
<td>Length w/Chip Conveyor</td>
<td>120.61” 3063mm</td>
</tr>
<tr>
<td>Depth</td>
<td>60.13” 1527mm</td>
</tr>
<tr>
<td>Height</td>
<td>68.5” 1739mm</td>
</tr>
<tr>
<td>Floor Area</td>
<td>31.3ft²/3m</td>
</tr>
<tr>
<td>Approx. Machine Weight</td>
<td>5,230lb 2,370kg</td>
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#### Inspection Specifications

#### PART SURFACE FINISH

<table>
<thead>
<tr>
<th>5C Spindle</th>
<th>12 micro-inch</th>
<th>8 micro-inch/20 micron</th>
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<tbody>
<tr>
<td>16C Spindle</td>
<td>12 micro-inch</td>
<td>8 micro-inch/20 micron</td>
</tr>
</tbody>
</table>

#### PART ROUNDNESS

<table>
<thead>
<tr>
<th>5C Spindle</th>
<th>.000015”</th>
<th>.38 micron</th>
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</thead>
<tbody>
<tr>
<td>16C Spindle</td>
<td>.000025”</td>
<td>.63 micron</td>
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#### Continuous Machining Accuracy (Dia. Variation)

| 0.002” | 5 micron | .00002” | 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

**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
Hardinge is a leading international provider of advanced metal-cutting solutions. We provide a full spectrum of highly reliable CNC turning, milling, and grinding 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.

**HARDINGE COMPANIES WORLDWIDE**

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