‘THE PROFESSIONAL’
High Performance Variable Speed Toolroom Lathes

18" and 21" Swing Models Available with Optional Digital Readout and Constant Surface Speed...

Constant Surface Speed
Digital Readout is Standard on 13" x 25" and 15 x 50" Models...

13", 15", 18" & 21" Swing Variable Speed Lathes

Simply the best
'THE PROFESSIONAL' setting a new standard for Toolroom performance

1. **AC Inverter Variable Speed Spindle Drive**
   - State of the art AC Spindle Drive featuring surface mount technology to give compact size and high reliability... 4 years parts and labor warranty on drive

2. **Interlocked End Guard Door**
   - Easy access for maintenance and changing end train gears

3. **Leadscrew Reversing Box**
   - Faster Thread Cutting - Reversal of the Leadscrew with the spindle running (at low speed)

4. **Three Headstock Gear Ranges**
   - A wide spread of constant power - 33 to 1 - better than most CNC lathes

5. **Infinitely Variable Spindle Speeds**
   - The right spindle speed very quickly with a response like a CNC lathe

6. **Newall Constant Surface Speed DRO**
   - Standard on 13 inch and 15 inch swing models

7. **Chuck Guard**
   - Chuck guard with limit switch

8. **Anti-Friction Carriage Ways**
   - Low friction “Moglice” PTFE material – minimal bed wear – longer machine life

9. **Extra Wide Heavy-duty Cast Iron Bed**
   - Very wide bed with triangular webs for torsional stiffness and excellent chip clearance

10. **Full Rear Splash Guard**
    - Heavy Duty Tailstock
    - Excellent rigidity - with extra heavy-duty quill

11. **Covered Leadscrew**
    - Single Piece Leadscrew Cover protects leadscrew from chips

12. **Wheeled Chip Bin**
    - Large capacity rollout chip bin for easy chip disposal

13. **Saddle Mounted Controls & Rapid Power Traverse (18” & 21” models)**
    - Saddle mounted controls for spindle speeds, feeds, Power feed and 2 axis rapid traverse available from one lever mounted on saddle (18” & 21” models)
Big Productivity Gains—Fast Payback…
‘THE PROFESSIONAL’ with Constant Surface Speed (CSS) Cutting DRO System

The last word in Toolroom lathe productivity. The latest CSS Digital Readout System gives you productivity gains up to 25% on Clausing/Colchester ‘THE PROFESSIONAL’ over conventional engine lathes.

Only Clausing/Colchester ‘THE PROFESSIONAL’ Toolroom Lathes gives you features that will let you achieve cutting performance similar to a CNC lathe. CSS automatically controls spindle speed during machining, allowing high performance tooling and very high cutting speeds during finishing operations.

- Extended tool life due to optimum cutting speeds
- 25% productivity increase
- Gain full use of high performance cutting tools
- Better surface finish

newall Outstanding Features with Leading Edge Technology

The NEWALL C80-CSS Features

The C80-CSS is a powerful Constant Surface Speed DRO that sets a new standard for performance and utilizes the latest in DRO technology. The C80-CSS is easy to use and loaded with features...

- Rugged die cast chassis
- One touch selection of CSS or DRO mode
- 2 axes DRO with optional 3rd axis
- Sealed wipe down key pad
- Absolute/Incremental operation
- Inch/metric conversion
- Zero approach warning
- Zero reset/data preset
- Data recall
- Radius/diameter reading
- Center find
- Home reference
- Linear error compensation
- Gear change detection
- Self diagnostic
- Encoder failure alert
- 0.0002" resolution
- Surface speed rate display
- Upgradeable software via Internet
- Tool library - 49 tools
- Assignable tool speeds - up to 49 tools

Encoders Benefits

- IP67 environmental rating (fully submersible), completely sealed
- Withstands dust, dirt, oil and other environmental conditions
- No mechanical wear characteristics
- Vibration and shock resistant
- No more broken or scratched glass scales
- Requires no cleaning or maintenance
- Vibration and shock resistant
- Stainless steel armored cables for maximum protection

Linear Encoders

Consistent accuracy and reliability even under the harshest shop condition...

Based on the principle of electromagnetics, Newall’s Spherosyn® and Microsyn® encoders are truly innovative design in which all of the electronic and measuring components are sealed and protected.
## Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>13&quot; VS</th>
<th>15&quot; VS</th>
<th>18&quot; VS</th>
<th>21&quot; VS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height of center</td>
<td>6.7&quot;</td>
<td>7.67&quot;</td>
<td>9&quot;</td>
<td>11.02&quot;</td>
</tr>
<tr>
<td>Swing over bed</td>
<td>13.75&quot;</td>
<td>15.75&quot;</td>
<td>18.1&quot;</td>
<td>21.81&quot;</td>
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<tr>
<td>Swing in gap</td>
<td>21&quot;</td>
<td>23&quot;</td>
<td>28.74&quot;</td>
<td>32.68&quot;</td>
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<tr>
<td>Width in front of faceplate</td>
<td>6.5&quot;</td>
<td>6.5&quot;</td>
<td>8.5&quot;</td>
<td>8.5&quot;</td>
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<tr>
<td>Swing over cross slide</td>
<td>7.75&quot;</td>
<td>9.75&quot;</td>
<td>10.62&quot;</td>
<td>14.57&quot;</td>
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<tr>
<td>Bedway width</td>
<td>12.5&quot;</td>
<td>12.5&quot;</td>
<td>15.75&quot;</td>
<td>15.75&quot;</td>
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<tr>
<td><strong>Headstock</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle bore</td>
<td>1.65&quot;</td>
<td>2.12&quot;</td>
<td>3&quot;</td>
<td>4.09&quot;</td>
</tr>
<tr>
<td>Spindle nose (camlock)</td>
<td>D1-4</td>
<td>D1-6</td>
<td>D1-8</td>
<td>D1-11</td>
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<tr>
<td>Spindle nose taper</td>
<td>3MT</td>
<td>4MT</td>
<td>5MT</td>
<td>5MT</td>
</tr>
<tr>
<td>Number of spindle speeds</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Spindle Speed Range (rpm)</td>
<td>0-3250</td>
<td>14-2500</td>
<td>20-2000</td>
<td>18-1800</td>
</tr>
<tr>
<td>Low range (rpm)</td>
<td>17-340</td>
<td>15-275</td>
<td>20-225</td>
<td>18-200</td>
</tr>
<tr>
<td>Mid range (rpm)</td>
<td>50-1010</td>
<td>45-795</td>
<td>60-675</td>
<td>55-605</td>
</tr>
<tr>
<td>High range (rpm)</td>
<td>160-3250</td>
<td>125-2500</td>
<td>175-2000</td>
<td>100-1800</td>
</tr>
<tr>
<td><strong>Cross/Top Slide</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel of cross slide</td>
<td>9.8&quot;</td>
<td>9.8&quot;</td>
<td>11.8&quot;</td>
<td>11.8&quot;</td>
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<tr>
<td>Width of cross slide</td>
<td>7.09&quot;</td>
<td>7.09&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Travel of top slide</td>
<td>3.9&quot;</td>
<td>5.1&quot;</td>
<td>7.5&quot;</td>
<td>7.5&quot;</td>
</tr>
<tr>
<td>Width of top slide</td>
<td>3.54&quot;</td>
<td>3.93&quot;</td>
<td>6.8&quot;</td>
<td>6.8&quot;</td>
</tr>
<tr>
<td><strong>Tailstock</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quill travel</td>
<td>5.5&quot;</td>
<td>5.5&quot;</td>
<td>7&quot;</td>
<td>7&quot;</td>
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<tr>
<td>Quill Diameter</td>
<td>2.48&quot;</td>
<td>2.87&quot;</td>
<td>3.74&quot;</td>
<td>3.74&quot;</td>
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<tr>
<td>Quill taper</td>
<td>4MT</td>
<td>5MT</td>
<td>6MT</td>
<td>6MT</td>
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<tr>
<td><strong>Feeds and Threading</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Longitudinal feed range</td>
<td>0.018-1.2 in/rev</td>
<td>0.018-1.2 in/rev</td>
<td>0.0016-0.11 in/rev</td>
<td>0.0016-0.11 in/rev</td>
</tr>
<tr>
<td>Cross feed range</td>
<td>0.007-0.04 in/rev</td>
<td>0.007-0.04 in/rev</td>
<td>0.0008-0.065 in/rev</td>
<td>0.0008-0.065 in/rev</td>
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<tr>
<td>Number of inch pitches</td>
<td>56</td>
<td>56</td>
<td>73</td>
<td>73</td>
</tr>
<tr>
<td>Range of inch pitches</td>
<td>2-56 TPI</td>
<td>2-56 TPI</td>
<td>2-84 TPI</td>
<td>2-84 TPI</td>
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<tr>
<td>Number of metric pitches</td>
<td>51</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Range of metric pitches</td>
<td>0.2-14 mm</td>
<td>0.2-14 mm</td>
<td>0.2-14 mm</td>
<td>0.2-14 mm</td>
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<tr>
<td>Number of diametral pitches</td>
<td>20</td>
<td>20</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>Range of diametral pitches</td>
<td>8-56</td>
<td>8-56</td>
<td>8-72</td>
<td>8-72</td>
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<tr>
<td>Number of module pitches</td>
<td>51</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Range of module pitches</td>
<td>0.2-3.5</td>
<td>0.2-3.5</td>
<td>0.2-3.5</td>
<td>0.2-3.5</td>
</tr>
<tr>
<td><strong>Motor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle motor</td>
<td>10 hp</td>
<td>10 hp</td>
<td>15 hp</td>
<td>15 hp</td>
</tr>
</tbody>
</table>

Due to ongoing design improvements, specifications and design are subject to change without notice.

## Standard Features:
- Newall CSS DRO (13" & 15" models)
- Spindle Center Bushing
- Two MT Centers
- Splash Guard
- Chuck Guard
- Leadscrew Cover
- Coolant System
- Inch Threading Dial
- Set of Wrenches and Keys
- Instruction and Parts Manual
- Accuracy Chart
- Emergency Stop Button
- Lockable Isolator Switch
- One Shot Saddle and Cross Slide
- Lubrication
- Rapid Power Traverse to Cross Slide and Carriage (18" & 21" models)
- Saddle Mounted Controls and Power Meter (18" & 21" models)
- Forward/Reverse/Stop Switch
- 208/230 v. or 460 v. 3 ph 60Hz

## Optional Equipment:
- Quick Change Toolpost
- Quick Change Rear Toolpost
- Turret Tool Post
- Full Range of Chucks
- Hi-speed Threading Attachment
- Live Center
- Drive Plate
- Face Plate
- Work Light
- Telescopic Taper Attachment
- Follower Steady Rest - Plain and Roller Fingers
- Steady Rest - Plain and Roller Fingers
- Single and 5 Position Bedstop
- 2 and 3 axis DRO, or CSS DRO for All Bed Lengths (18" & 21" models)

## Models and Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>Swing and Center Distance</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>8016CS</td>
<td>13&quot; x 25&quot; Gap</td>
<td>75&quot;</td>
<td>51&quot;</td>
<td>49&quot;</td>
<td>2,790 lbs</td>
</tr>
<tr>
<td>8044CS</td>
<td>15&quot; x 50&quot; Gap</td>
<td>99&quot;</td>
<td>51&quot;</td>
<td>49&quot;</td>
<td>3,300 lbs</td>
</tr>
<tr>
<td>8054VS</td>
<td>18&quot; x 60&quot; Gap</td>
<td>120&quot;</td>
<td>51&quot;</td>
<td>49&quot;</td>
<td>5,765 lbs</td>
</tr>
<tr>
<td>8116VS</td>
<td>21&quot; x 80&quot; Gap</td>
<td>140&quot;</td>
<td>51&quot;</td>
<td>49&quot;</td>
<td>6,283 lbs</td>
</tr>
<tr>
<td>8119VS</td>
<td>21&quot; x 120&quot; Gap</td>
<td>180&quot;</td>
<td>51&quot;</td>
<td>49&quot;</td>
<td>7,960 lbs</td>
</tr>
</tbody>
</table>