L20
Sliding Headstock Type CNC Automatic Lathe
Our bestselling L20, completely renewed

A machine synonymous with the history of Cincom has been designed for the new age with 3 models in a modular design. Ranging from a 5-axis machine with excellent cost performance to a high-end machine equipped with B axis and a back spindle Y axis, you can select the machine according to the functions you require.

This concept offers unrivalled versatility – two types of gang tool post, five types of opposite tool post and three types of back tool post are available to be specified according to the functions required.
With the current shift in the manufacturing industry, the requirement is for variable-lot machining of a wide range of workpieces. In order to meet this requirement, Citizen has introduced Modular Design. We allow the selection of functions corresponding to a diverse range of machining needs, and help customers optimize their manufacturing by combining these functions to achieve their ideal machine configuration.

Non-guide bushing type
Guide bushing type

Ability to use with or without a guide bushing
Guide bushing or non-guide bushing type can be selected as appropriate when machining long, thin workpieces, when using cold drawn material, and in order to leave short remnant bars.

Ø20mm max. bar as standard; Ø25mm as option
Supply of bar stock up to Ø25mm is supported as an option. The machining length per chucking is 200mm (Ø20mm) and 188mm (Ø25mm).

The long workpiece unit (optional) supports workpieces up to Ø20mm.
The new L20 – now with 3 models...

Each model can be specified to deliver the functions you need: from simple to complex workpieces and for small, medium and large lot sizes.

<table>
<thead>
<tr>
<th>Position adjustable operation panel</th>
<th>By swiveling the position adjustable operation panel, you can perform operations while viewing the machining area.</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-machine lighting</td>
<td>Low energy LED lighting provides excellent brightness, clarity and visibility.</td>
</tr>
<tr>
<td>NC program I/O</td>
<td>NC programs can be input and output using a USB memory stick or compact flash card.</td>
</tr>
</tbody>
</table>

...and with Citizen’s renowned ‘ease of use’
Selectable modules to improve your productivity & profitability

Function modules that can be combined without restrictions

**Rotary tools on the gang tool post**

- **U35B**
  - Type VIII, X
  - 4 rotary tools + 3 single ended spindles manually adjustable from 0° to 90°

- **U33B**
  - Type XII
  - 3 rotary tools + B axis with 4 double ended spindles for front and back working over a 135° range (+90° to -45°)

**Opposite tool post**

- **U120B**
  - Type VIII
  - 3 fixed tools

- **U121B**
  - Type VIII
  - 3 fixed tools (for deep hole machining)

- **U126B**
  - Type VIII
  - 6 fixed tools (3 for deep hole machining)

- **U125B**
  - Type X, XII
  - 6 fixed tools

- **U128B**
  - Type X, XII
  - 3 fixed tools + 3 rotary tools

**Back tool post**

- **U153B**
  - Type VIII
  - 4 rotary tools

- **U154B**
  - Type VIII
  - 4 fixed tools

- **U155B**
  - Type X, XII
  - 4 fixed tools + 4 rotary tools

Features a B axis for rotary tools on the gang tool posts of Type XII machine as standard; it can be set over a 135° range from 90° to -45°.

For the opposite tool post, a tool post that is capable of pinch milling or one that can handle deep hole machining can also be selected as options.

The back tool post on Type X and XII machines can accommodate a total of 8 tools: 4 rotary tools in the upper row and 4 fixed tools in the lower row.
**Equipped with high-speed NC**
The latest NC model drastically reduces the start-up and screen switching time compared to conventional machines with advanced functions.

**On-machine program check function**
Using manual handle feed, operations can be run in the forward or reverse directions, and you can temporarily stop program operation, edit the program and then restart the operation.

**Display of easily understood illustrations**
Illustrations appropriate for each item are displayed. You can see what they mean at a glance (the screen shown above displays the machining data).

**Code list display**
The function displays the list of G and M codes including explanations to aid programming.

**Eco screen**
The current power consumption is shown on the screen, along with the cumulative power consumption, and the power regeneration (generation) status.

**Eco screen (example graph display)**
The machine’s power consumption can also be shown in the form of an easy to understand graph.

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**The next process starts before the current one ends**

**Cincom Control**
We have developed a new control system unique to Citizen that realizes fast and smooth operation. It reduces idle time and achieves faster rapid feed together with substantial shortening of cycle time.

**Multiple tool post overlapping function**
Independent opposite and gang tool posts are provided. In front machining, idle time has been completely eliminated by using a unique control method whereby the tool post to be used next starts the preparation for machining without waiting for the other one to complete its retraction operation.

**Direct spindle indexing function**
This substantially reduces spindle indexing time. When indexing the spindle, this function allows the spindle to be decelerated and stopped at the required index position by specifying this position with a C-axis command while the spindle is rotating. This eliminates the idle time up until rotation stops, and improves working efficiency.
Machine layout

- **L20 Standard Machine**

- **L20 Option-installed Machine**

  - Long workpiece device
  - Chip conveyor
  - 3-color signal tower
Machine Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Type VIII</th>
<th>Type X</th>
<th>Type XII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. machining diameter (D)</td>
<td>Ø20 mm</td>
<td>Ø20 mm</td>
<td>Ø20 mm</td>
</tr>
<tr>
<td>Max. machining length (L)</td>
<td>Ø20 mm</td>
<td>Ø20 mm</td>
<td>Ø20 mm</td>
</tr>
<tr>
<td>Spindle through-hole diameter</td>
<td>Ø20 mm</td>
<td>Ø20 mm</td>
<td>Ø20 mm</td>
</tr>
<tr>
<td>Main spindle speed</td>
<td>10,000 rpm</td>
<td>10,000 rpm</td>
<td>10,000 rpm</td>
</tr>
<tr>
<td>Max. chuck diameter of back spindle</td>
<td>Ø20 mm</td>
<td>Ø20 mm</td>
<td>Ø20 mm</td>
</tr>
<tr>
<td>Max. protrusion length of back spindle workpiece</td>
<td>30 mm</td>
<td>30 mm</td>
<td>30 mm</td>
</tr>
<tr>
<td>Max. protrusion length</td>
<td>80 mm</td>
<td>80 mm</td>
<td>80 mm</td>
</tr>
<tr>
<td>Back spindle speed</td>
<td>8,000 rpm</td>
<td>8,000 rpm</td>
<td>8,000 rpm</td>
</tr>
<tr>
<td>Gang rotary tool spindle speed</td>
<td>Max. 6,000 rpm</td>
<td>Rating 6,000 rpm</td>
<td>Max. 6,000 rpm</td>
</tr>
<tr>
<td>Front rotary tool spindle speed (type X, XII)</td>
<td>Max. 7,500 rpm</td>
<td>Rating 7,500 rpm</td>
<td>Max. 7,500 rpm</td>
</tr>
<tr>
<td>Back tool post rotary tool spindle speed</td>
<td>Max. 7,500 rpm</td>
<td>Rating 7,500 rpm</td>
<td>Max. 7,500 rpm</td>
</tr>
<tr>
<td>Number of tools to be mounted (max.)</td>
<td>37</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>Gang turning tool</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gang rotary tool</td>
<td>25</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>Front drilling tool</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back drilling tool</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Tool size</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gang turning tool Ø</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleeve</td>
<td>1½”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chuck and bushing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main spindle collet chuck</td>
<td>TF26 (TF10: Ø12 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back spindle collet chuck</td>
<td>TF26 (TF10: Ø12 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotary tool collet chuck</td>
<td>ER11, ER16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chuck for drill sleeves</td>
<td>ER11, ER16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guide bushing</td>
<td>TD20S (CD25: Ø25 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid feed rate</td>
<td>32 m/min</td>
<td>8 m/min</td>
<td></td>
</tr>
<tr>
<td>All axes (except Y2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2 axis</td>
<td>32 m/min</td>
<td>8 m/min</td>
<td></td>
</tr>
<tr>
<td>Motors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle drive</td>
<td>2.2 / 3.7 kW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back spindle drive</td>
<td>1.0 kW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back tool post rotary tool drive</td>
<td>0.75 / 1.5 kW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front rotary tool drive</td>
<td>0.75 kW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coolant oil</td>
<td>0.4 kW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubricating oil</td>
<td>0.003 kW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center height</td>
<td>1,050 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated power consumption</td>
<td>7.3 kVA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-load current</td>
<td>32A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main breaker capacity</td>
<td>40A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air pressure</td>
<td>0.5 MPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>5,182 lbs</td>
<td>5,292 lbs</td>
<td></td>
</tr>
</tbody>
</table>

Environmental Information

**Basic Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Type VIII</th>
<th>Type X</th>
<th>Type XII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Usage</td>
<td>4200 V</td>
<td>4200 V</td>
<td>4200 V</td>
</tr>
<tr>
<td>Power supply voltage</td>
<td>4200 V</td>
<td>4200 V</td>
<td>4200 V</td>
</tr>
<tr>
<td>Electrical power requirement (Max)</td>
<td>4200 V</td>
<td>4200 V</td>
<td>4200 V</td>
</tr>
<tr>
<td>Required pressure</td>
<td>35 MPa</td>
<td>35 MPa</td>
<td>35 MPa</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>2.0 kW</td>
<td>2.0 kW</td>
<td>2.0 kW</td>
</tr>
<tr>
<td>Power Consumption with model workpiece</td>
<td>0.0113 kW/cycle</td>
<td>0.0113 kW/cycle</td>
<td>0.0113 kW/cycle</td>
</tr>
<tr>
<td>Power consumption value above converted to a CO2 value</td>
<td>0.4 kg CO2</td>
<td>0.4 kg CO2</td>
<td>0.4 kg CO2</td>
</tr>
<tr>
<td>Air Consumption</td>
<td>0.4 kg m³/min</td>
<td>0.4 kg m³/min</td>
<td>0.4 kg m³/min</td>
</tr>
<tr>
<td>Lubrication Consumption</td>
<td>0.3 kg m³/min</td>
<td>0.3 kg m³/min</td>
<td>0.3 kg m³/min</td>
</tr>
<tr>
<td>Noise Level</td>
<td>75.2 dBA</td>
<td>75.2 dBA</td>
<td>75.2 dBA</td>
</tr>
<tr>
<td>Weight</td>
<td>5,182 lbs</td>
<td>5,292 lbs</td>
<td>5,392 lbs</td>
</tr>
</tbody>
</table>

**Environmental Performance Information**

<table>
<thead>
<tr>
<th>Item</th>
<th>Type VIII</th>
<th>Type X</th>
<th>Type XII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental load reduction</td>
<td>109 %</td>
<td>109 %</td>
<td>109 %</td>
</tr>
<tr>
<td>Environmental management</td>
<td>ISO14001</td>
<td>ISO14001</td>
<td>ISO14001</td>
</tr>
</tbody>
</table>

**Approach to Environmental Issues**

- We are ISO14001 accredited.
- We pursue "Green Procurement" by prioritizing purchases for goods and services that show consideration for the environment.
- We measure our environmental performance and publish this information on our website.

**Standard accessories**

- Main spindle chucking unit
- Back spindle chucking unit
- Rotary guide bushing unit
- Gang rotary tool driving unit
- Coolant unit (with level detector)
- Lubricating oil supply unit (with level detector)
- Front rotary tool unit (type X, XII)
- Back tool post rotary unit
- Machine relocation detector

**Optional accessories**

- Knock-out jig for through-hole workpiece
- Workpiece conveyor
- Chip conveyor
- Coolant flow rate detector
- Signal lamp
- 3-color signal tower

**Standard NC functions**

- Spindle synchronized function
- Spindle C-axis function
- Milling interpolation
- Back spindle C-axis function
- Back spindle chancing function
- canned cycle drilling
- Rigid tapping function
- High speed rigid tapping function
- Synchronized tapping phase adjustment function
- Differential speed rotary tool function
- Tool life management I
- Tool life management II
- External memory program driving
- User macros
- Helical interpolation function
- Hob function
- Polygon function
- Inch command
- Sub inch command
- Network I/O function

**Optional NC functions**

- Tool offset pairs: 80
- Optional block skip (9 sets)
- Back machining program skip function
- Program storage capacity 600m (approx. 240x4B)

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