3-Axis Linear and Gantry Milling

The CLIMAX LM6200 Linear/Gantry Milling Machine revolutionizes both the capabilities and functionality of portable mills. Four main features make this one of the best milling machines on the market today:

1. Extremely rigid, modular bed design.
2. Powerful, precise machining.
3. Innovative configuration options allow setup for both Linear AND Gantry Milling in one machine.
4. Reduced Friction Rail Technology.

Rigid, Modular Design

• Unique modular bed design allows shorter bed sections to be combined to fit the length of the work area without losing rigidity.
• Unique bed length section design provide superior rigidity across the entire bed length.
• Connection plates and fasteners optimized to provide the ultimate in rigidity, even when bed is extended by 2 or 3 times the original length.

Powerful, Precise Machining

• Features heavy duty spindle design and a choice of Hydraulic Power Units - a 25 Hp (18.6 kW) HPU allows use of cutter heads of up to 10 inches (254.0 mm) in diameter.
• Milling can be done in any axis, with a milling head that can rotate 360° with an optional swivel plate for optimal spindle flexibility. An optional Z-axis slide assembly can be used for side milling and to increase the stroke needed for drilling or extended milling operations.

Flexible Configuration & Operation

• Innovative design allows machine to be configured for traditional linear milling, or simply split the rails lengthwise to configure for gantry milling!!
• Electric feeds can be mounted on the X, Y or Z axis.
• Machining capabilities include milling, drilling and even boring.

Reduced Friction Rail Technology

• Reduced friction rail system allows extremely smooth, continuous, and non stick-slip travel.
• Precisely machined and aligned rails with advanced lubrication make machining applications smooth and efficient.
• Low friction system reduces maintenance costs and extends product life.
• Precision ball screws in X, Y and Z-axis assemblies allow precise location of milling head.
SPECIFICATIONS

Operating Ranges:

<table>
<thead>
<tr>
<th>Travel</th>
<th>Length</th>
<th>Travel</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>LM6200 Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32 inches (812.8 mm)</td>
<td>48 inches (1219.2 mm)</td>
<td>26 inches (660.4 mm)</td>
<td>36 inches (914.4 mm)</td>
</tr>
<tr>
<td>56 inches (1422.4 mm)</td>
<td>72 inches (1828.8 mm)</td>
<td>38 inches (965.2 mm)</td>
<td>48 inches (1219.2 mm)</td>
</tr>
<tr>
<td>80 inches (2032.0 mm)</td>
<td>96 inches (2438.4 mm)</td>
<td>72 inches (1828.8 mm)</td>
<td>82 inches (2082.8 mm)</td>
</tr>
<tr>
<td>104 inches (2641.6 mm)</td>
<td>120 inches (3048.0 mm)</td>
<td>106 inches (2692.4 mm)</td>
<td>116 inches (2946.4 mm)</td>
</tr>
<tr>
<td>128 inches (3251.2 mm)</td>
<td>144 inches (3667.6 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>152 inches (3860.8 mm)</td>
<td>168 inches (4267.2 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>176 inches (4470.4 mm)</td>
<td>192 inches (4876.8 mm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

US Metric

Spindle Assembly:
- Milling Head Spindle with #50 Taper: NMTB or CATV
- Spindle Drive: Hydraulic
- Axial Tool Head Travel: 8 inches (203.2 mm)
- Milling Head Gearbox Ratio: 1 : 1
- Tool Head Position: in 90° increments (infinite 360° position w/ optional swivel plate)
- Gearbox Position Adjustment: 180° in 90° increments (3 positions)

Electric Feed
- Drive Power: Modified Baldor GP3303 1/2 HP DC gear motor
- Gearbox Reduction: 20 : 1
- Feed Rate: 0.5 - 24 in/min (12.7 - 609.6 mm/min)
- Power Input Requirements: 5 amps @ 120V / 2.5 amps @ 230V

Overall Dimensions
- Bed (overall length): Bed Length + 2.5 in. (609.6 mm)
- Ram (overall width): Ram Length + 2.5 in. (609.6 mm)
- Height without hand wheel: 24.0 inches (609.6 mm)
- Height with hand wheel: 32.1 inches (815.3 mm)

TEST DATA
All test cuts performed with a 25Hp (18.6 KW) HPU and a 18.7 cu in. (306.4 cu cm) hydraulic motor in A-36 steel

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Cutter Diameter</th>
<th>Inserts</th>
<th>Depth of Cut</th>
<th>Width of Cut</th>
<th>Feed Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Overhang</td>
<td>10 inches (254.0 mm)</td>
<td>10</td>
<td>0.020 inches (0.508 mm)</td>
<td>10 inches (254.0 mm)</td>
<td>14 in/min (355.6 mm/min)</td>
</tr>
<tr>
<td>Vertical Overhang</td>
<td>10 inches (254.0 mm)</td>
<td>10</td>
<td>0.020 inches (0.508 mm)</td>
<td>5 inches (127.0 mm)</td>
<td>14 in/min (355.6 mm/min)</td>
</tr>
<tr>
<td>82 inch (2082.8 mm) Gantry</td>
<td>8 inches (203.2 mm)</td>
<td>8</td>
<td>0.050 inches (1.27 mm)</td>
<td>8 inches (203.2 mm)</td>
<td>1 in/min (25.4 mm/min)</td>
</tr>
<tr>
<td>82 inch (2082.8 mm) Gantry</td>
<td>8 inches (203.2 mm)</td>
<td>8</td>
<td>0.075 inches (1.91 mm)</td>
<td>4 inches (101.6 mm)</td>
<td>1 in/min (25.4 mm/min)</td>
</tr>
<tr>
<td>Drilling</td>
<td>1.5 inch (38.1 mm) superdrill</td>
<td>n/a</td>
<td>2 inches (50.8 mm)</td>
<td>n/a</td>
<td>Spindle RPM: 250</td>
</tr>
<tr>
<td>Boring</td>
<td>2.5 inch (63.5 mm)</td>
<td>n/a</td>
<td>2 inches (50.8 mm)</td>
<td>n/a</td>
<td>Spindle RPM: 425</td>
</tr>
<tr>
<td>Side Milling w/ Z-Axis Slide</td>
<td>5 inches (127.0 mm)</td>
<td>6</td>
<td>0.100 inches (2.54 mm)</td>
<td>5 inches (127.0 mm)</td>
<td>10 in/min (254.0 mm/min)</td>
</tr>
<tr>
<td>Below the bed milling w/ Z-Axis Slide</td>
<td>5 inches (127.0 mm)</td>
<td>6</td>
<td>0.065 inches (1.65 mm)</td>
<td>5 inches (127.0 mm)</td>
<td>6 in/min (152.4 mm/min)</td>
</tr>
</tbody>
</table>

Flatness (Machine setup & flatness measurements performed with a Hamar laser)

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Cutter Diameter</th>
<th>Inserts</th>
<th>Material</th>
<th>Area</th>
<th>Total Flatness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Milling</td>
<td>8 inches (203.2 mm)</td>
<td>8</td>
<td>A-36 Steel Plate</td>
<td>4.0 x 48.0 inches (101.6 x 1219.2 mm)</td>
<td>0.002 inches (0.051 mm)</td>
</tr>
<tr>
<td>Gantry Milling</td>
<td>8 inches (203.2 mm)</td>
<td>8</td>
<td>A-36 Steel Plate</td>
<td>8.0 x 48.0 inches (203.2 x 1219.2 mm)</td>
<td>0.002 inches (0.051 mm)</td>
</tr>
</tbody>
</table>

All dimensions should be considered reference. Contact your Climax Representative for precision dimensions. Specifications are subject to change without notice. There are no systems or components on this machine that are capable of producing hazardous EMC, UV or other radiation hazards. The machine does not use lasers nor does it create hazardous materials such as gasses or dust.
Easy Conversion from Linear to Gantry Milling

The Climax LM5200 and LM6200 Milling Machines can be easily reconfigured to perform Linear or Gantry Milling. Below is a step by step overview of the conversion steps from traditional linear milling to gantry milling.

1. Linear Mill set up for overhead milling.

2. Separate main bed and RAM.

3. Split the bed & saddle pictured above into two separate rails for Gantry Milling as pictured below.

4. Reattach RAM to saddle and rails for a complete Gantry Mill.
Configure your LM6200 in 14 steps:

1. Select a Base Unit
   - Base Unit, 32 Inch (812.8 mm) Travel, Bed Length 48 Inch (1219.2 mm)  
   - Base Unit, 56 Inch (1422.4 mm) Travel, Bed Length 72 Inch (1828.8 mm)  
   - Base Unit, 80 Inch (2032.0 mm) Travel, Bed Length 96 Inch (2438.4 mm)  
   - Base Unit, 104 Inch (2641.6 mm) Travel, Bed Length 120 Inch (3048.0 mm)  
   - Base Unit, 128 Inch (3251.2 mm) Travel, Bed Length 144 Inch (3657.6 mm)  
   - Base Unit, 152 Inch (3860.8 mm) Travel, Bed Length 168 Inch (4267.2 mm)  
   - Base Unit, 176 Inch (4470.4) Travel, Bed Length 192 Inch (4876.8 mm)

2. Select a Gantry Kit
   - Gantry Kit For 32 Inch (812.8 mm) Travel, Bed Length 48 Inch (1219.2 mm)  
   - Gantry Kit For 56 Inch (1422.4 mm) Travel, Bed Length 72 Inch (1828.8 mm)  
   - Gantry Kit For 80 Inch (2032.0 mm) Travel, Bed Length 96 Inch (2438.4 mm)  
   - Gantry Kit For 104 Inch (2641.6 mm) Travel, Bed Length 120 Inch (3048.0 mm)  
   - Gantry Kit For 128 Inch (3251.2 mm) Travel, Bed Length 144 Inch (3657.6 mm)  
   - Gantry Kit For 152 Inch (3860.8 mm) Travel, Bed Length 168 Inch (4267.2 mm)  
   - Gantry Kit For 176 Inch (4470.4) Travel, Bed Length 192 Inch (4876.8 mm)

3. Select a RAM Assembly
   - RAM Assembly 26 Inch (660.4 mm) Travel, Length 36 Inch (914.4 mm)  
   - RAM Assembly 38 Inch (965.2 mm) Travel, Length 48 Inch (1219.2 mm)  
   - RAM Assembly 72 Inch (1828.8 mm) Travel, Length 82 Inch (2082.8 mm)  
   - RAM Assembly 106 Inch (2692.4 mm) Travel, Length 116 Inch (2946.4 mm)

4. Select a Shipping Container
   - Wooden Crate for 32 Inch (812.8 mm) Travel Bed 65078  
   - Metal Container for 32 Inch (812.8 mm) Travel Bed 65397  
   - Wooden Crate for 56 Inch (1422.4 mm) Travel Bed 65079  
   - Metal Container for 56 Inch (1422.4 mm) Travel Bed 65398  
   - Wooden Crate for 32 Inch (812.8 mm) or 56 Inch (1422.4 mm) Travel Bed w/ Long RAM 65080  
   - Metal Container for 32 Inch (812.8 mm) or 56 Inch (1422.4 mm) Travel Bed w/ Long RAM 65399  
   - Wooden Crate for 80 Inch (2032.0 mm) Travel Bed 65080  
   - Metal Container for 80 Inch (2032.0 mm) Travel Bed 65399  
   - Wooden Crate for 104 Inch (2641.6 mm) Travel Bed 65081  
   - Metal Container for 104 Inch (2641.6 mm) Travel Bed 65400  
   - Wooden Crate for 128 Inch (3251.2 mm) Travel Bed 65082  
   - Metal Container for 128 Inch (3251.2 mm) Travel Bed 65401  
   - Wooden Crate for 152 Inch (3860.8 mm) Travel Bed 65083  
   - Metal Container for 152 Inch (3860.8 mm) Travel Bed 65402  
   - Wooden Crate for 176 Inch (4470.4) Travel Bed 66293  
   - Metal Container for 176 Inch (4470.4) Travel Bed 66294

5. Select a Riser Assembly
   - Riser Assembly 1 Inch (25.4 mm) 64720  
   - Riser Assembly 3 Inch (76.2 mm) 64721  
   - Riser Assembly 5 Inch (127.0 mm) 64722  
   - Riser Assembly 7 Inch (177.8 mm) 64723

6. Select a Milling Head Assembly
   - Inch #50 Taper NMTB 62282  
   - Inch #50 Taper CATV 62734  
   - Metric #50 Taper NMTB 62644  
   - Metric #50 Taper CATV 62735

7. Select a Tooling (for inch NMTB milling head assy)
   - 50 Taper  
     - #50, 4 Inch (101.6 mm) Face Mill w/ Inserts 47383  
     - #50, 5 Inch (127.0 mm) Face Mill w/ Inserts 47384  
     - #50, 6 Inch (152.4 mm) Face Mill w/ Inserts 47385  
     - #50, 8 Inch (203.2 mm) Face Mill w/ Inserts 47386  
     - #50, 10 Inch (254.0 mm) Face Mill w/ Inserts 56175  
     - Carbide Inserts 47229

8. Select a Spindle Hydraulic Motor

<table>
<thead>
<tr>
<th>Motor Displacement</th>
<th>Max Spindle Speed</th>
<th>Hydraulic Motor PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>in³</td>
<td>cm³</td>
<td>@ 50 Hz Mains Power</td>
</tr>
<tr>
<td>6.2</td>
<td>101.6</td>
<td>668</td>
</tr>
<tr>
<td>8.0</td>
<td>131.1</td>
<td>468</td>
</tr>
<tr>
<td>9.6</td>
<td>157.3</td>
<td>386</td>
</tr>
<tr>
<td>11.9</td>
<td>195.0</td>
<td>311</td>
</tr>
<tr>
<td>14.9</td>
<td>244.2</td>
<td>249</td>
</tr>
<tr>
<td>18.7</td>
<td>306.4</td>
<td>198</td>
</tr>
<tr>
<td>24.0</td>
<td>393.3</td>
<td>156</td>
</tr>
<tr>
<td>29.8</td>
<td>488.3</td>
<td>124</td>
</tr>
</tbody>
</table>

Minimum speed is 10% of the maximum speed

NOTE: Drawings are for reference only, are not to scale, and may not represent actual product.
TOOL CONFIGURATIONS

9. Z-Axis Slide Assembly
   7 inch (177.8 mm) Travel
   74100

10. Milling Head Swivel Assy
    Milling Head Swivel Plate Assembly
    63250

11. Hydraulic Power Unit

12. Stand Alone Feed Control
    (Stand Alone Control Panel & Pendant with Cables) NOTE: Not needed if using a
    CLIMAX Hydraulic Power Unit

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Cable Length (ft)</th>
<th>PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>120V</td>
<td>20 ft (609.6 cm)</td>
<td>53398</td>
</tr>
<tr>
<td>50 ft (1524.0 cm)</td>
<td>53399</td>
<td></td>
</tr>
<tr>
<td>100 ft (3048.0 cm)</td>
<td>53400</td>
<td></td>
</tr>
<tr>
<td>230V</td>
<td>20 ft (609.6 cm)</td>
<td>53401</td>
</tr>
<tr>
<td>50 ft (1524.0 cm)</td>
<td>53402</td>
<td></td>
</tr>
<tr>
<td>100 ft (3048.0 cm)</td>
<td>53403</td>
<td></td>
</tr>
</tbody>
</table>

13. Electric Feed Assembly
    NOTE: 230V Feeds not for use with CLIMAX Hydraulic Power Units

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Cable Length (ft)</th>
<th>PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>120V</td>
<td>20 ft (609.6 cm)</td>
<td>64684</td>
</tr>
<tr>
<td>50 ft (1524.0 cm)</td>
<td>66310</td>
<td></td>
</tr>
<tr>
<td>100 ft (3048.0 cm)</td>
<td>66311</td>
<td></td>
</tr>
<tr>
<td>230V</td>
<td>20 ft (609.6 cm)</td>
<td>64743</td>
</tr>
<tr>
<td>50 ft (1524.0 cm)</td>
<td>66312</td>
<td></td>
</tr>
<tr>
<td>100 ft (3048.0 cm)</td>
<td>66313</td>
<td></td>
</tr>
</tbody>
</table>

14. Z-Axis Power Feed Adapter
    Z-Axis Feed Adapter Kit - I Axis 40 Taper
    64856

NOTE: Drawings are for reference only, are not to scale, and may not represent actual product.
**OPERATIONAL DIMENSIONS**

**Milling Area Dimensions - LINEAR MILLING**

**Milling Area Dimensions - GANTRY MILLING**
**OPERATIONAL DIMENSIONS**

Inverted Milling Area

Dimensions in Inch (mm)

* Without riser assembly. 5" (127.0 mm) required to clear bed assembly.

** Dimensions shown are with RAM at max recommended offset.

Spindle Travel

Gearbox can be rotated in 90° increments; motor may also be mounted on the underside of the gearbox.
OPERATIONAL DIMENSIONS

End View

Dimensions in Inch (mm)

"Y" Travel + 10" (254.0 mm)

6.3" (160.0 mm)

3.8" (96.5 mm)

35.1" (891.5 mm)
Mill Head Retracted

27.1" (688.3 mm)
Mill Head Extended

7.8" (198.1 mm)

0.9" (22.9 mm)

14.4" (365.8 mm)

360° Power Feed
Mounting Clearance

5.2" (132.1 mm)

33" (838.2 mm)
Maximum

15.5" (393.7 mm)

Side Milling (Without Z-Axis Slide Assembly)

Example of side milling. (No vertical movement in this configuration.)

Milling (With Z-Axis Assembly in Lowest Position)

14.4" (365.8 mm) without Riser

6.2" (157.5 mm)

11.7" (297.2 mm)
OPERATIONAL DIMENSIONS

Machining Ranges (Tool Center Travel) Using Z-Axis Slide Assembly

Dimensions in Inch (mm)

Middle Position

- 25.4 [645.7 mm]
- 24.3 [616.3 mm]
- 6.2 [158.7 mm]

Lower Position

- 21.4 [543.8 mm]
- 20.1 [511.7 mm]
- 2.2 [54.8 mm]

Upper Position

- 26.8 [681.4 mm]
- 9.6 [242.8 mm]
- 8.7 [220.8 mm]
OPERATIONAL DIMENSIONS

Overhead View - Standard Offset

Overhead View - RAM at Maximum Recommended Offset

Dimensions in Inch (mm)

**Dimensions shown are with RAM at maximum recommended offset.**
OPERATIONAL DIMENSIONS

Standard Mounting Pattern

Dimensions in Inch (mm)

Gantry Mounting Pattern

Dimensions in Inch (mm)
CLIMAX has been teaching the fundamentals and finer points of portable machine tool operation for more than 50 years. Whether it's a regularly scheduled course at one of our seven Global Training Centers or a custom curriculum conducted with your team, at your facility, your technicians will benefit from courses developed by the most experienced and respected professionals in the business.

Regularly scheduled courses in basic and advanced tool operation are available. A vast majority of every program is devoted to hands-on activities, skills development, and OEM Certification covering the following subject matters: operator safety, tool component review, setup and mounting, standard and advanced operational techniques, overview of cutting tools and recommended usage, and maintenance procedures. Training is available at the following seven Global Training Centers: Portland, Oregon; Houston, Texas; Gonzales, Louisiana; Wadsworth, Ohio; Manchester, United Kingdom; Düren, Germany; Dubai; and United Arab Emirates. Call us today to schedule training for your team!

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Custom turn-key system design services from the most experienced engineers and portable machining and welding experts!

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