

# BB7100 PORTABLE BORING MACHINE

FEATURES • SETUP & OPERATION  
COMPONENTS & ACCESSORIES • TECHNICAL DATA

**One of a family of new, improved large boring bars, the BB7100 packs big boring capability into a compact, modular machine, maximizing efficiency and minimizing downtime.**

## Powerful Yet Compact

- Take the power of a stationary machine to the job site to solve tough machining challenges in record time.
- Using 11.3 in<sup>3</sup> (185 cm<sup>3</sup>) Hydraulic motor, produces 1224 ft-lbs (1665 N•m) of torque at the bar, at 32 rpm.
- Compact, modular components, many which can be lifted by hand, allow fast, easy setup, maximizing efficiencies, and minimizing downtime.

## Versatile and Flexible

- Huge machining range bores from 10.25 - 57.5 inches (260.4 - 1460.5 mm) in diameter, and faces from 9.6 - 62.5 inches (243.8 - 1587.5 mm).
- ID and End mount bearings feature spherical taper-lock roller bearings.
- End mount can be fine adjusted by +/- 0.625 inches (15.9 mm) to center the bar.
- Optional dual action boring/facing arms increase facing range, and allow for both boring and facing without switching equipment. Full-length square ways on boring/facing arms allow for quick positioning anywhere along the arm. Attaches to the net fit tool carrier by compression-clamping, to provide maximum tool stability.
- Machine is highly adjustable. The tool carrier, half nut, alignment of boring/facing arm, and tool carriage can each be adjusted to maximize machining performance.
- Net fit tool carrier can be clamped to bar for facing operations. For boring operations, carrier can be adjusted to remove clearance between carrier and the bar. This flexibility also ensures maximum rigidity for either operation
- Net fit tool carrier designed with a split frame to simplify installation on the boring bar. It can be configured to use either the boring head set for boring



or facing, or the new boring/facing arm assembly.

- With leading & trailing boring head configuration, 2 boring heads can be used simultaneously.
- For even greater facing range and longer continuous stroke, the new boring/facing arms are available. Setup is quick & easy, featuring industry standard quick-change tooling for both boring and facing operations.
- Highly versatile tool holder block accepts industry standard tooling with a nominal 1 inch (25.4 mm) square shank.
- Tool post on the boring/facing arm can be rotated to provide maximum flexibility in machining setup (including some cantilevered configurations).

## High Quality Design

- Features a uniquely-designed modular tool carrier which provides a new level of strength and rigidity by channeling machining forces directly to the boring bar through strategically-located adjustable guide shoes.
- Chromed bars, straight to within 0.001 inch per foot (0.0254 per 304.8 mm)
- Gun-drilled bars with optical targets available.
- Adjustable, removable half nut increases net fit tool carrier flexibility. Easy removal of tool carrier allows for machining of multiple bores.
- Backlash adjustment nut allows in-the-field adjustment to eliminate backlash in the tool carrier, and extend the life of the machine.



**CLIMAX®**  
Portable Machine Tools, Inc.

Bringing the solution to you.

## Specifications

|                                                                                                                                                                                                                                          | <b>US</b>                  | <b>Metric</b>                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------|
| Boring diameter range, standard stack block assembly:                                                                                                                                                                                    | 10.25 - 57.5 inches        | 260.4 - 1460.5 mm            |
| Boring diameter range, boring/facing arm assembly:                                                                                                                                                                                       |                            |                              |
| with 18 inch (457.2 mm) boring/facing arm                                                                                                                                                                                                | 22.1 - 30.5 inches         | 561.3 - 774.7 mm             |
| with 23 inch (584.2 mm) boring/facing arm                                                                                                                                                                                                | 25.1 - 40.5 inches         | 637.5 - 1028.7 mm            |
| with 34 inch (863.6 mm) boring/facing arm                                                                                                                                                                                                | 35.9 - 62.5 inches         | 911.9 - 1587.5 mm            |
| Facing diameter range, mechanical facing head assembly:                                                                                                                                                                                  | 12.0 - 57.5 inches         | 304.8 - 1460.5 mm            |
| Facing diameter range, boring/facing arm assembly:                                                                                                                                                                                       |                            |                              |
| with 18 inch (457.2 mm) boring/facing arm                                                                                                                                                                                                | 17.8 - 30.5 inches         | 452.1 - 774.7 mm             |
| with 23 inch (584.2 mm) boring/facing arm                                                                                                                                                                                                | 17.8 - 40.5 inches         | 452.1 - 1028.7 mm            |
| with 34 inch (863.6 mm) boring/facing arm                                                                                                                                                                                                | 17.8 - 62.5 inches         | 452.1 - 1587.5 mm            |
| Facing diameter range, boring/facing arm assembly (tool post reversed):<br>("tool post reversed" refers to rotating the tool post so that the tool is on the bar side of the tool post.)                                                 |                            |                              |
| with 18 inch (457.2 mm) boring/facing arm                                                                                                                                                                                                | 9.6 - 17.4 inches          | 243.8 - 442.0 mm             |
| with 23 inch (584.2 mm) boring/facing arm                                                                                                                                                                                                | 9.6 - 27.4 inches          | 243.8 - 696.0 mm             |
| with 34 inch (863.6 mm) boring/facing arm                                                                                                                                                                                                | 9.6 - 49.4 inches          | 243.8 - 1254.8 mm            |
| Rotational Drive Unit (RDU) Gear Ratio:                                                                                                                                                                                                  | 10.59:1 gear reduction     |                              |
| Hydraulic motor size affects torque and speed<br>Theoretical values calculated using a 25 Hp hydraulic power unit producing 2000 psi (13790 kPa) continuous,<br>[normal operation is 1200 psi (8270 kPa)] and pumping 15 gpm (68 l/min). |                            |                              |
| Hydraulic motor size range:                                                                                                                                                                                                              | 3.6 - 17.9 in <sup>3</sup> | 59.9 - 293.3 cm <sup>3</sup> |
| Boring Bar Torque:                                                                                                                                                                                                                       | 750 - 2900 ft•lb           | 1020 - 3930 N•m              |
| Max boring rpm:                                                                                                                                                                                                                          | 90 - 18 rpm                | 90 - 18 rpm                  |
| For example, with 11.3 in <sup>3</sup> (185.3 cm <sup>3</sup> ) hydraulic motor (43457):                                                                                                                                                 |                            |                              |
| Boring Bar Torque:                                                                                                                                                                                                                       | 2280 ft•lb                 | 3090 N•m                     |
| Max boring rpm:                                                                                                                                                                                                                          | 29 rpm                     | 29 rpm                       |
| Feed Rate of mechanical Axial Feed Unit (AFU):                                                                                                                                                                                           | 0.003 - 0.025 in/min.      | 0.076 - 0.635 mm/rev.        |
| Feed Rate of electric Axial Feed Unit (AFU):                                                                                                                                                                                             |                            |                              |
| In "slow" speed                                                                                                                                                                                                                          | 0 - 0.3 in/min.            | 0 - 7.6 mm/min.              |
| In "fast" speed                                                                                                                                                                                                                          | 2.0 - 100 in/min.          | 50 - 2500 mm/min.            |
| Operating weight (estimated)                                                                                                                                                                                                             | 2012.3 lbs.                | 912.8 kg                     |
| Typical machine consisting of Rotational Drive Unit (RDU), Axial Feed Unit (AFU), boring head set, tool carrier, 2 bearing mounts, 12 foot (365.8 cm) bar, tool kit, and hydraulic motor.                                                |                            |                              |
| Shipping weight (estimated), for machine (metal crate)                                                                                                                                                                                   | 2203 lbs.                  | 999.3 kg                     |
| Shipping weight (estimated), for machine (wood crate)                                                                                                                                                                                    | 2117.3 lbs.                | 960.4 kg                     |
| (machine with RDU, AFU, boring head set, tool carrier, tool kit, and hydraulic motor.)                                                                                                                                                   |                            |                              |
| Shipping weight (estimated), set of 2 Bearings                                                                                                                                                                                           | 780 lbs.                   | 353.8 kg                     |
| Shipping weight (estimated), Boring Bar                                                                                                                                                                                                  | 5.9 lbs/inch               | 1.05 kg/cm                   |
| Shipping weight (estimated), 15 Hp Hydraulic Power Unit                                                                                                                                                                                  | 750 lbs                    | 340.2 kg                     |
| Shipping weight (estimated), 25 Hp Hydraulic Power Unit                                                                                                                                                                                  | 875 lbs                    | 396.9 kg                     |
| Shipping dimensions:                                                                                                                                                                                                                     |                            |                              |
| Machine, in wood crate, W, D, H                                                                                                                                                                                                          | 24 x 37 x 20.6 inches      | 610 x 940 x 524 mm           |
| Machine, in steel crate, W, D, H                                                                                                                                                                                                         | 43.3 x 29.5 x 22.5 inches  | 1099 x 749 x 571.5 mm        |
| Bearing (each bearing shipped separately) W, D, H                                                                                                                                                                                        | 36.5 x 36.5 x 17 inches    | 927 x 927 x 432 mm           |
| 12 foot (365.8 cm) bar W, D, H                                                                                                                                                                                                           | 15 x 14 x 158 inches       | 381 x 356 x 4013 mm          |
| 15 or 25 Hp Hydraulic Power Unit W, D, H                                                                                                                                                                                                 | 24 x 43 x 47 inches        | 610 x 1092 x 1194 mm         |

**All dimensions should be considered reference.  
Contact your Climax Representative for precision dimensions.  
Specifications are subject to change without notice.**

# BB7100 Tool Configurations, Applications

## Configure your BB7100 in eight easy steps.

To configure your BB7100 Boring Machine:

- 1 Select a Base Unit**
- 2 Select an Axial Feed Assembly**
- 3 Select Bearing Assemblies**
- 4 Select a Boring Bar**
- 5 Select a Tool Head Assembly**
- 6 Select a Boring/Facing Arm Assembly**
- 7 Select a Hydraulic Motor**
- 8 Select a Shipping Container**

To configure the boring machine you require, simply select the option you need in each step, then contact your Climax representative.

|                                                                                               |       |
|-----------------------------------------------------------------------------------------------|-------|
| <b>1 Base Unit</b>                                                                            |       |
| Rotational drive unit, tool carrier assembly, tool kit, and instruction manual.               | 54399 |
| <b>2 Axial Feed Assembly</b>                                                                  |       |
| Mechanical axial feed assembly                                                                | 42407 |
| Electrical axial feed assembly, 120V                                                          | 43736 |
| Electrical axial feed assembly, 230V                                                          | 41563 |
| <b>3 Bearing Assemblies</b>                                                                   |       |
| Spider assembly end bearing support up to 34.5 inch (876.3 mm) diameter                       | 53711 |
| Spider assy end bearing support with extension up to 60 inch (1524.0 mm) diameter             | 54969 |
| ID Bearing mount assembly, jack bolt, for ID diameter of 19 - 46 inches (482.6 - 1168.4 mm)   | 54305 |
| ID Bearing mount assembly, face adjust, for ID diameter of 19 - 46 inches (482.6 - 1168.4 mm) | 54302 |
| ID Bearing mount assembly, jack bolt, for ID diameter of 19 - 72 inches (508.0 - 1828.8 mm)   | 54311 |
| ID Bearing mount assembly, face adjust, for ID diameter of 19 - 72 inches (508.0 - 1828.8 mm) | 54310 |
| * Multiple units may be ordered.                                                              |       |
| <b>4 Boring Bar (5 inch (127 mm) diameter)</b>                                                |       |
| Boring bar assembly, 8 ft (243.8 cm)                                                          | 45211 |
| Boring bar assembly, 10 ft (304.8 cm)                                                         | 45039 |
| Boring bar assembly, 12 ft (365.8 cm)                                                         | 45036 |
| Boring bar assembly, 14 ft (426.7 cm)                                                         | 45037 |
| Boring bar assembly, 16 ft (487.7 cm)                                                         | 45038 |
| Boring bar assembly, 18 ft (548.6 cm)                                                         | 45287 |
| Boring bar assembly, 20 ft (609.6 cm)                                                         | 44814 |

### Gun-drilled bars with optical targets:

|                                                    |       |
|----------------------------------------------------|-------|
| Boring bar assembly, with optics, 8 ft (243.8 cm)  | 54579 |
| Boring bar assembly, with optics, 10 ft (304.8 cm) | 42317 |
| Boring bar assembly, with optics, 12 ft (365.8 cm) | 54580 |
| Boring bar assembly, with optics, 14 ft (426.7 cm) | 54581 |
| Boring bar assembly, with optics, 16 ft (487.7 cm) | 54582 |
| Boring bar assembly, with optics, 18 ft (548.6 cm) | 54583 |
| Boring bar assembly, with optics, 20 ft (609.6 cm) | 54584 |

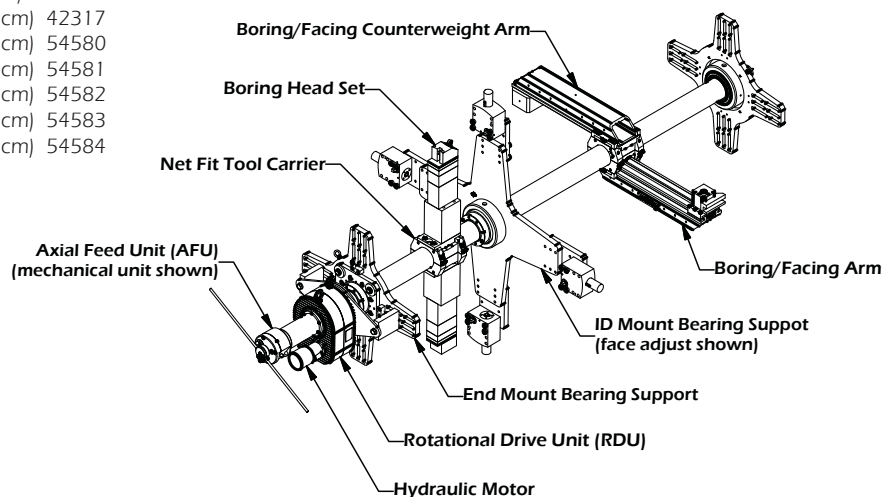
\* Multiple units may be ordered.

|                                                                                         |       |
|-----------------------------------------------------------------------------------------|-------|
| <b>5 Tool Head Assembly</b>                                                             |       |
| Boring head set, 10.25 - 27.5 inches (260.4 - 698.5 mm) tenthset                        | 54332 |
| Boring head set, 10.25 - 57.5 inches (260.4 - 1460.5 mm) tenthset                       | 54333 |
| Boring head set, 10.25 - 27.5 inches (260.4 - 698.5 mm) tenthset, leading and trailing  | 54338 |
| Boring head set, 10.25 - 57.5 inches (260.4 - 1460.5 mm) tenthset, leading and trailing | 54339 |
| Boring head set, 13 - 27.5 inches (330.2 - 698.5 mm) solid tooling                      | 54340 |
| Boring head set, 13 - 57.5 inches (330.2 - 1460.5 mm) solid tooling                     | 54341 |

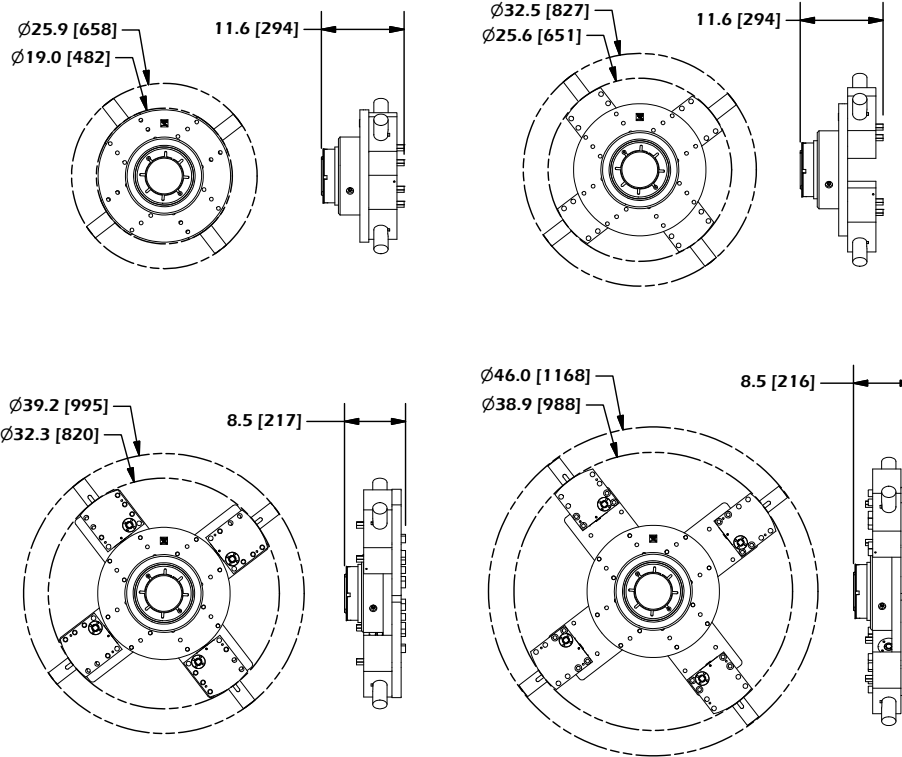
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|------------------------------------------------|-------|
| <b>6 Boring/Facing Arm Assembly</b>            |       |
| (for use with boring head set)                 |       |
| Mechanical facing head assy, 4 inch (101.6 mm) | 22680 |
| Mechanical facing head assy, 6 inch (152.4 mm) | 49753 |
| Mechanical facing head assy, 8 inch (203.2 mm) | 49754 |
| Boring/facing arm assembly, 18 inch (457.2 mm) | 54258 |
| Boring/facing arm assembly, 23 inch (584.2 mm) | 54259 |
| Boring/facing arm assembly, 34 inch (863.6 mm) | 54260 |
| * Additional arms may be purchased separately. |       |

|                                                                                     |       |
|-------------------------------------------------------------------------------------|-------|
| <b>7 Hydraulic Motor Assembly</b>                                                   |       |
| Hydraulic motor assembly, 3.6 CIR (59 cm <sup>3</sup> /rev) 90 bar rpm @ 15 gpm**   | 43453 |
| Hydraulic motor assembly, 5.9 CIR (97 cm <sup>3</sup> /rev) 55 bar rpm @ 15 gpm**   | 43454 |
| Hydraulic motor assembly, 7.3 CIR (120 cm <sup>3</sup> /rev) 44 bar rpm @ 15 gpm**  | 43455 |
| Hydraulic motor assembly, 8.9 CIR (146 cm <sup>3</sup> /rev) 36 bar rpm @ 15 gpm**  | 43456 |
| Hydraulic motor assembly, 11.3 CIR (185 cm <sup>3</sup> /rev) 29 bar rpm @ 15 gpm** | 43457 |
| Hydraulic motor assembly, 14.1 CIR (231 cm <sup>3</sup> /rev) 22 bar rpm @ 15 gpm** | 43458 |
| Hydraulic motor assembly, 17.9 CIR (293 cm <sup>3</sup> /rev) 18 bar rpm @ 15 gpm** | 43459 |
| * Multiple units may be ordered.                                                    |       |
| ** Theoretical, calculated values shown                                             |       |

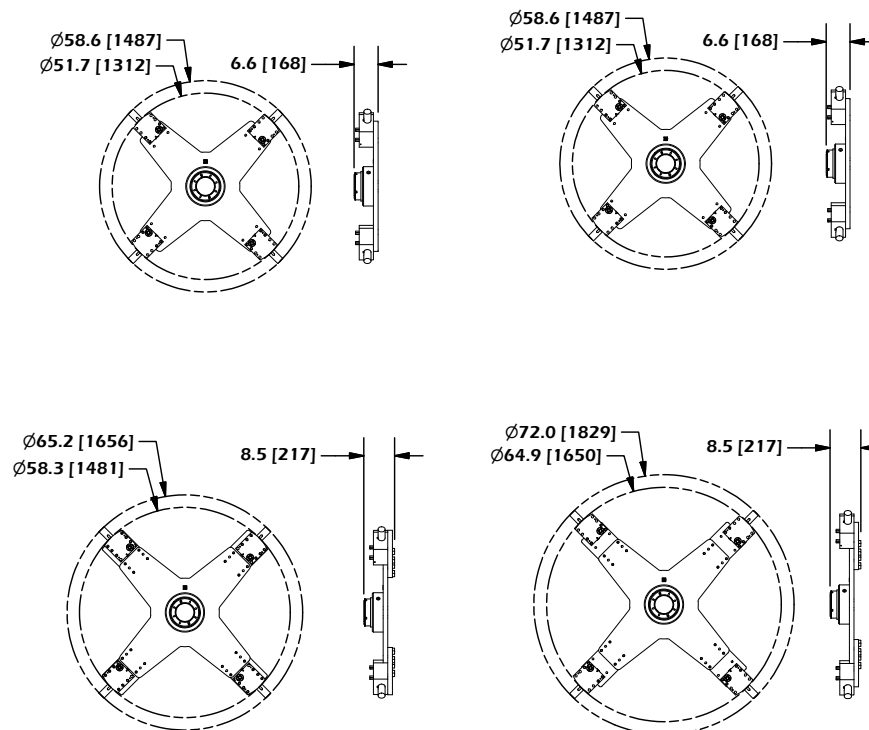
|                                                              |       |
|--------------------------------------------------------------|-------|
| <b>8 Shipping Container</b>                                  |       |
| Plywood hinged crate, 24 x 37 x 20-5/8 (610 x 940 x 524 mm)  | 28560 |
| Metal shipping container 43 x 30 x 23* (1092 x 762 x 584 mm) | 54352 |
| * Machine components only.                                   |       |
| Bars and bearings available in wood only.                    |       |



## Dimensions in Inch (mm)

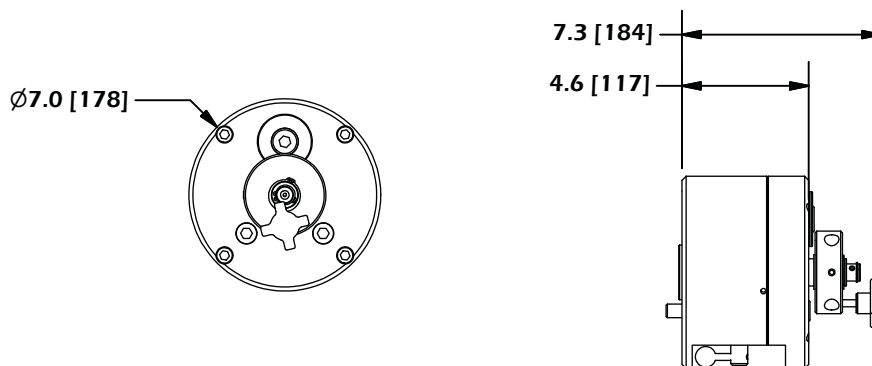


### 20 - 46 inch (508.0 - 1168.4 mm) ID Mount (Face Adjust shown. Jack screw adjust ranges are the same)

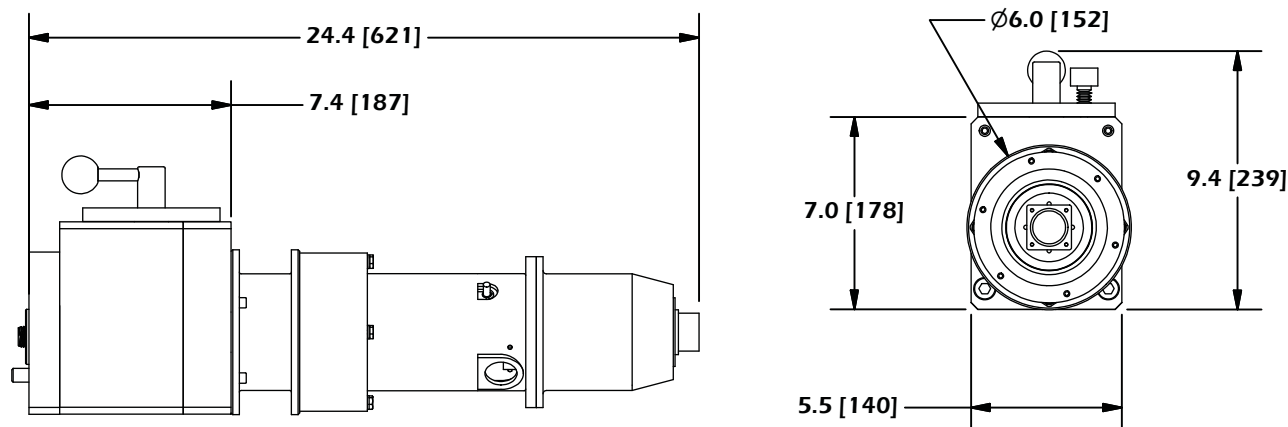


### 46 - 72 inch (1168.4 - 1828.8 mm) ID Mount (Face Adjust shown. Jack screw adjust ranges are the same)

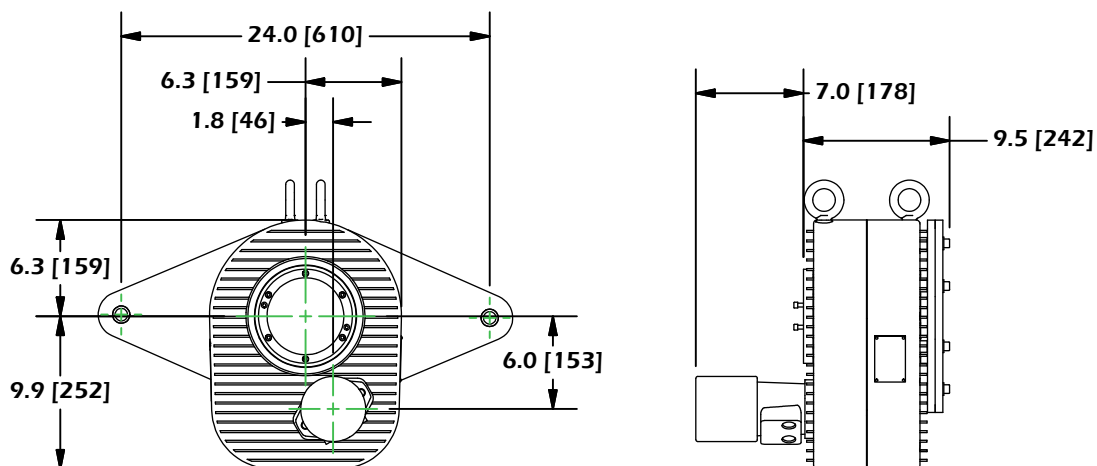
## Dimensions in Inch (mm)



### Mechanical Axial Feed Assembly



### Electrical Axial Feed Assembly

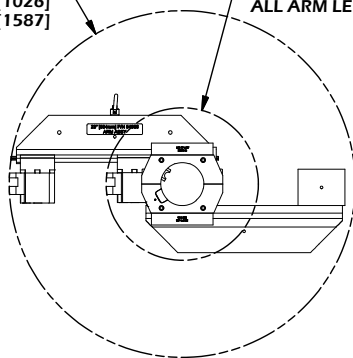


### Rotational Drive Unit

# BB7100 Operational Dimensions

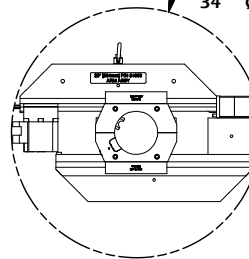
**MAX FACE/BORE**  
18" Ø30.5 [775]  
23" Ø40.5 [1026]  
34" Ø62.5 [1587]

**MIN FACE**  
ALL ARM LENGTHS Ø17.8 [453]

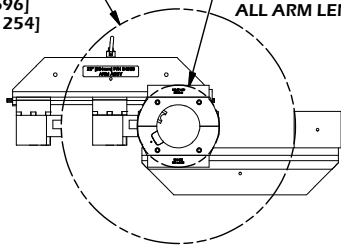


## Dimensions in Inch (mm)

**MIN FACE SWING**  
18" Ø24.3 [618]  
23" Ø29.2 [742]  
34" Ø40.0 [1016]

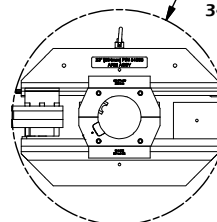


**MAX FACE**  
**TOOL POST REVERSED**  
18" Ø17.4 [442]  
23" Ø27.4 [696]  
34" Ø49.4 [1254]

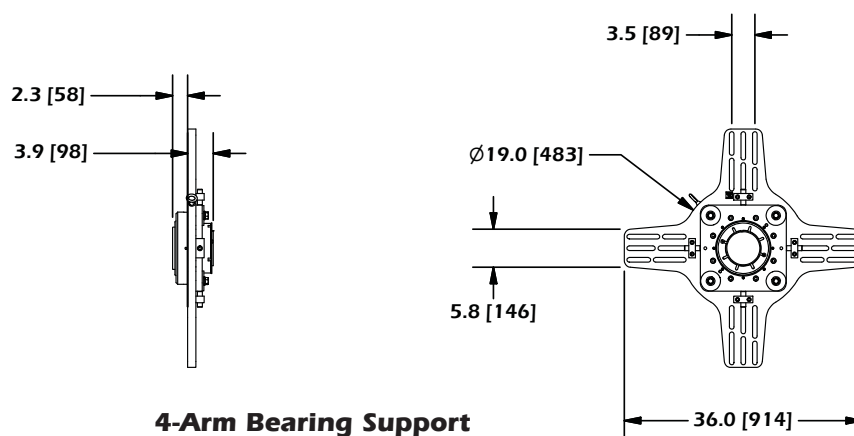


**MIN FACE**  
**TOOL POST REVERSED**  
ALL ARM LENGTHS 9.6 [244]

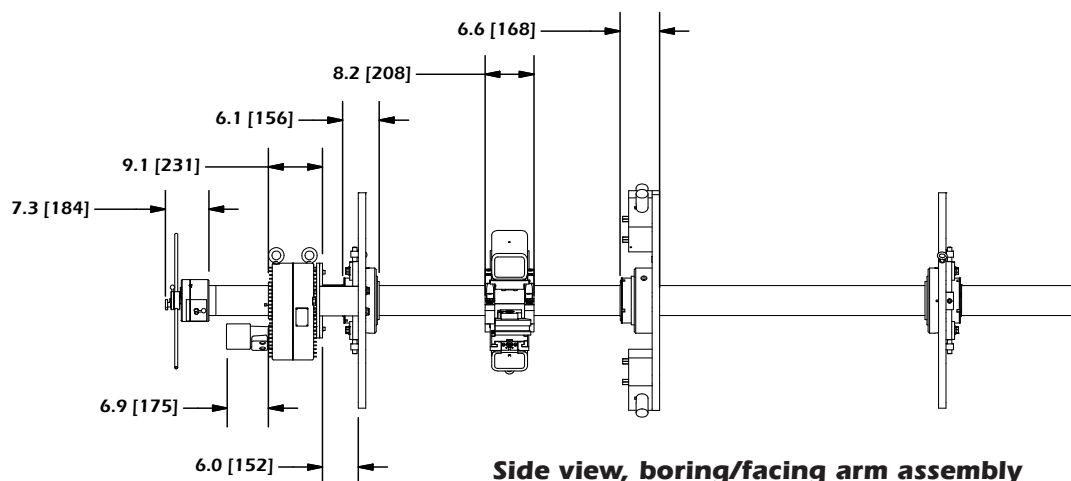
**MIN BORE**  
18" Ø22.1 [562]  
23" Ø25.1 [638]  
34" Ø35.9 [912]



## Boring/facing arm configurations



## 4-Arm Bearing Support



## Side view, boring/facing arm assembly

## Training at the Portable Machining Training Institute

Climax has been teaching the fundamentals and fine points of portable machine tool operation for practically as long as we've been inventing and building the tools.

At the Portable Machining Training Institute situated in our corporate headquarters near Portland, Oregon, we provide training for machine tool operators on portable machine tool safety, and machine setup and operation. Trainees also receive technical tips and tools to improve operational efficiencies, with the vast majority of every program devoted to hands-on activities and skill development.

The Climax instructional team includes specialists in shipbuilding, power generation, civil engineering, bridge re-building, and other industries.



Whether it's a regularly scheduled course at the Portable Machining Training Institute, or custom curriculum conducted at your facility, your machinists will benefit from courses developed by some of the most respected authorities in the business.



Call us today to register for a regularly scheduled class, or talk to us about how we can customize a training program for your specialized application.

## Climax Portable Machine Tools Worldwide Manufacturing, Sales & Rental Facilities



### Call Climax for:

#### Rentals

With five locations in the USA, two in Canada, one in Europe, and one in Asia, you are never far away from a Climax portable machine tool.

#### Special Projects

Climax has been solving complicated on-site machining problems for our customers since 1964.

#### On-site Training

Need some refresher courses in setting up and operating your Climax machine tool?

**Call us. We'll bring the solution to you.**

BB71-ELEC1109

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