BB6000 LINE BORING MACHINE

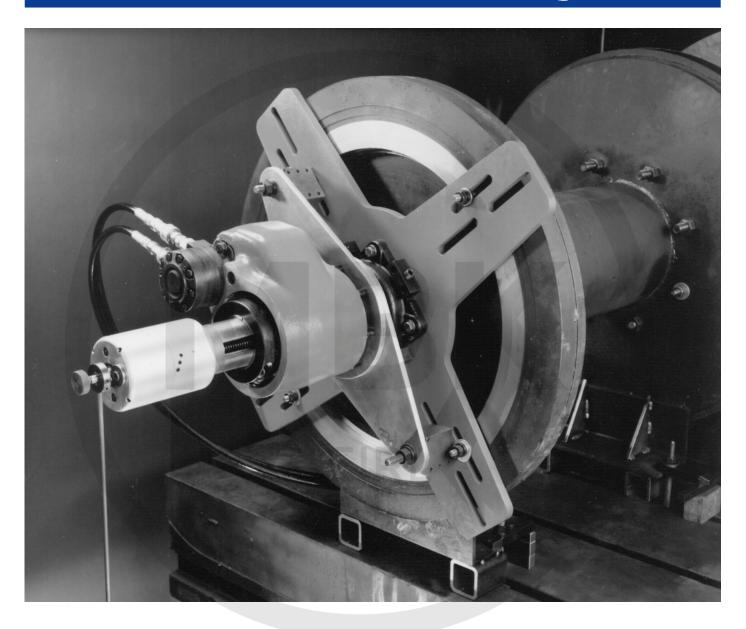
Esta herramienta ha sido reemplazada por BB6100 LINE BORING MACHINE

Aunque esta herramienta ya no se produce y ha sido reemplazada por otra, la seguimos teniendo en nuestra flota de alquiler. Contáctenos para mayores detalles

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Model BB6000 Portable Boring Bar





BB6000 Design Features & Benefits

Bore 6-inch to 36-inch diameters on site... Modular versatility The rotational drive unit mounts anywhere on the bar for maximum setup flexibility. Four-arm • Feed unit attaches to either end. bearing support Optional ID mounting spiders have jacking screws for centering. • 3-arm or 4-arm end-mount bearing supports. • When space is really tight, mount the bearing cartridge right on the workpiece. Boring bar/ Tool holder leadscrew Three arm bearing support Torque arm Rotational drive unit Split tool carrier Axial feed unit Powerful Hydraulic Hydraulic power provides smooth and trouble-free motor

Compact

The Model BB6000 is the smallest in our line of traveling head portable boring bars (the smaller BB3000 and BB5000 models feed by moving the bar). Boring diameter range is 6" to 36" (152.4 to 914.4 mm). The compact hydraulic rotational drive unit provides almost 1300 ft•lb of torque. Compared to competitive machines, the rotational drive unit provides a high power-to-weight ratio. Efficient design and cast aluminum housing keep the rotational drive weight at only 110 lbs. (50 kg), with the hydraulic motor attached. The compact mechanical axial feed unit is only a little larger in diameter than the bar itself.

Hydraulic power provides smooth and trouble-free power transmission to the boring head. Several hydraulic motors are available to provide a range of rpm and torque. The Model BB6000 requires a minimum 5 hp hydraulic power unit.

Rugged, practical design

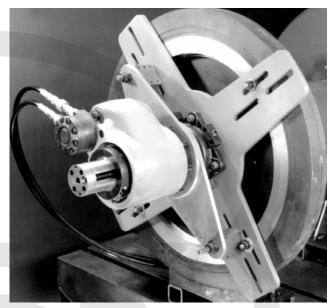
- Support fixtures feature ball bearings rather than bronze bushings.
- Split tool carrier is easy to mount on the bar.
- Tool head spacer blocks can be added to increase the boring diameter.
- The leadscrew is mounted in the boring bar with roller bearings, not bushings.
- Facing heads, taper boring systems, and other accessories increase the versatility of the machine.
- Easy setup and operation.
- High quality, precision design means many years of trouble-free service.

Setup & Operation

Easy setup and operation help minimize downtime.

There are several ways to set up the Model BB6000 depending on the application and clearances around the work area. If you have to mount one of the bearing supports on the surface that needs boring, weld standoffs on the workpiece to allow access for tool adjustment.

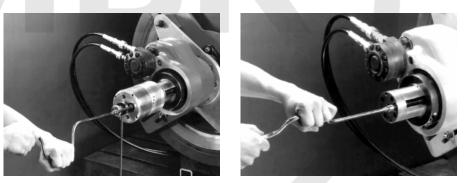
- Insert the bar into the bore, allowing it to rest on wooden V-blocks.
- Slip the bearing support assemblies onto each end.
- Lift the bar to bore center and into the support spiders attached to the workpiece, either internally or externally.



Face mounted 4-arm mounting spider for up to 36" (914.4mm) dia. Torque arms prevent rotational drive turning.



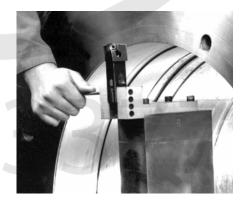
Three-arm mounting assembly for up to 20" (508 mm) diameters.



Speed wrench or portable drill motor can be used to move tool head from either end of the bar, with or without the axial feed unit attached.

- Make final centering adjustments with the jacking screws on the bearing plates.
- Once the bar is accurately positioned, slip the rotational drive unit in place and lock to the bar with the two locking collars.
- Tie-down arms are provided to secure the rotational drive and keep it form turning during boring operations.
- Place the axial feed unit on either end of the bar.
- Install the tool carrier, spacer blocks, and one or two tool heads.

The machine is ready to make the first boring pass. Boring operations are simply a matter of adjusting the boring depth at the cutter, setting the feed rate, and engaging the feed in forward or reverse mode. The hydraulic power unit is turned on and bar rotation is started with the control pendant.



Tool head accepts either HSS tool bits or carbide insert holders as shown here.

Components & Accessories

Modular components allow you to choose exactly what you need for your application.

The Model BB6000 Portable Boring Bar is designed in modules for as wide a range of applications as possible. Select only those components you need for your particular situation. A complete machine must have the following components to be functional:

- 1. Rotational drive unit
- 2. Hydraulic drive motor
- 3. Axial feed unit
- 4. Boring bar
- 5. Tool carrier
- 6. Boring head
- 7. Hydraulic power unit
- 8. Bearing supports (2)



Rotational drive unit Compact cast aluminum unit mounts anyplace along the bar, and weighs 86 lbs (40 kg) with a 6:1 gear reduction. Clamp collars lock the unit to the bar securely. Torque arms keep unit from turning with the bar. Maximum torque at the bar with the largest displacement hydraulic motor is almost 1300 ft•lbs (1768 N•m). Fits any 3.5" (88.9mm) diameter bar.



Drive motors Hydraulic motors in various displacements are available and provide the smoothest power transmission for most boring operations. Standard SAE flange mount reversible motors with 2-bolt mounting.

Axial feed unit Reversible automatic feed with manual feed rate and direction controls, mounts on either end of the boring bar. Variable feed rate from .003"-.020" (.08-.51mm) per revolution.



Boring bars Chromed bars are 3.5" (88.9mm) dia. with full length lead screws and replaceable ends. Bar lengths from 5 to 12 ft (1.5-3.7m) with longer bars available on special order.

Tool carrier Split tool carrier may be positioned anywhere along bar. Way wipers are provided for carrier and bar protection. A threaded key drives the carrier along bar during boring operations. If you are using this carrier with an existing bar, be sure the



key threads are compatible with the leadscrew.

Boring heads Boring heads are available in two sets that cover 6" to 24" (152.4-609.6 mm) and 6" to 36" (152.4-914.4mm) respectively. Boring heads mount directly to both sides of tool carrier with or without spacers. Use boring heads alone or in tandem. Spacers increase boring diameter. Heads accept .5" (12mm) square tool bits or 1" (25.4mm) square indexable carbide tooling.



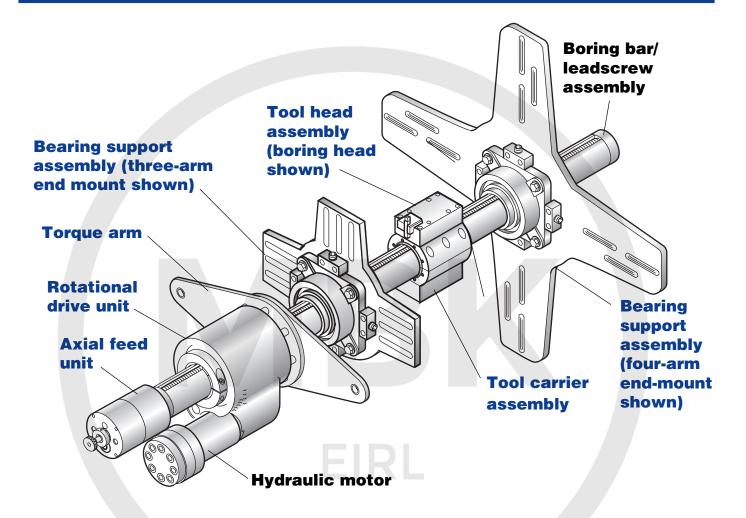
Facing head The facing head mounts on the tool carrier in place of the boring head. The unit can face from 10.5" to 36" (267-914.4mm) in 4" (101mm) increments.

Mounting system Combinations of ID or endmounted bar support systems are available. Selfaligning bearings and jacking screws for centering allow fast setup. ID mounts are available for 12" to 36" (304.8-914.4mm) dia. End mounted bearing support assemblies are available for 12" to 38" (304.8-965.2mm) mounting diameters.

Special adaptations One-off accessories such as tapered boring systems, and bar extension couplings have been designed to fit particular customer applications.

Hydraulic power units Variable displacement piston pump hydraulic power units are available in 5 or 10 hp (3.73 or 7.46 kW) models. These are compact units designed for portable machining applications.

BB6000 Work Sheet



Model BB6000 Portable Boring Bar

To accommodate a wide range of applications, the Model BB6000 is sold as a combination of components. To get a complete machine, you must specify:

Axial feed assembly Rotational drive assembly Bearing support assemblies, ID or end mount (at least two required) Tool carrier assembly Tool head assembly: boring or facing Tool kit (not shown) Items shown in blue are included in all component packages.

BB6000 Worksheet

Component packages:

Component packages include: rotational drive unit, axial feed assembly, two three-arm end-mount bearing support assemblies, tool carrier assembly, 6" to 24" (152.4 to 609.6mm) diameter boring head set, and tool kit with instruction manual. Customer must order bar/ leadscrew assembly, hydraulic power unit, and hydraulic motor separately.

6" -24" boring bar package	23222
6" -36" boring bar package	23223

Components:

Choose a bar/leadscrew assembly, a hydraulic motor, and a hydraulic power unit to complete your machine. Other parts are offered separately for spares.

Component			Part	number
Mechanical	axial	feed	assemb 232	-

Rotational drive assembly^{1,2}: 22221

Hydraulic motor:

3.6 in ³	25472
5.6 in ³	25473
7.3 in ³	25474
8.9 in ³	25475 _
11.3 in ³	25476 _
14.3 in ³	25477
17.9 in³	25478

Hydraulic motor fitting kit:

···, ····	
3/8" fittings	25492
1/2" fittings	25495

Bearing support assembly

(at least two recommended): Three-arm end-mount bearing support assembly, 20" diameter¹: 22072 Three-arm spider only: 22073 Four-arm end-mount bearing support assembly, 38" diameter²: 22091 Four-arm spider only: 22092 ID-mount bearing support assembly, 22.53": 23228 ID-mount bearing support assembly, 37.53": 23230

Components, continued:

Component		Part number			
Tool carrier asse	embly ^{1,2} :	22377			
Tool head assembly: Boring head set 6"-24" ID 227691					
Boring head set 6					
Mechanical feed	facing he				
		22680			
Boring bar/leads	crew ass				
4 IL 5 ft		25221 22107			
6 ft		22108			
7 ft 8 ft		22109 22110			
9 ft		22110			
10 ft		22112			
11 ft 12 ft		22113 <u>22114</u>			
12 IL 22117					
Tool kit ^{1,2} :		22771			
Hydraulic power unit - 5 hp:					
3-Ph/230V/60 Hz 3-Ph/460V/60 Hz		25318			
3-Ph/460V/60 Hz 3-Ph/550V/50 Hz		25319			
3-Ph/575V/60 Hz					

Components, continued:

Component	Part number
Hydraulic power unit -	10 hp:
3-Ph/230V/60 Hz	24596
3-Ph/460V/60 Hz	24597
3-Ph/550V/50 Hz	24598
3-Ph/575V/60 Hz	24599
3-Ph/440V/50 Hz	24602
3-Ph/220V/50 Hz	24603
3-Ph/380V/50 Hz	24604
3-Ph/200V/50 Hz	24605

Optional remote pendant for 10 hp electric powered hydraulic power units:

Replacement hydraulic filter element: 25882

- 1

Optional remote pendant for 5 hp electric powered hydraulic power units:

25322

25323

24592

24593

24594

24595

- 1

1-Ph/230V/60 Hz

1-Ph/220V/50 Hz

3-Ph/440V/50 Hz

3-Ph/220V/50 Hz

3-Ph/380V/50 Hz

3-Ph/200V/50 Hz

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¹ Included in component package 23222. ²Included in component package 23223.

No.	Description	No.	Description	
23222	24" (152.4 to 609.6mm) diameters Component package includes: rotational drive unit, axial feed assembly, two three-arm end-mount bearing support assemblies, tool carrier assembly, 6" to 24" (152.4 to 609.6mm) diameter boring head set, and tool kit with instruction manual.		Hydraulic drive motors Reversible motors with SAE 2-flange to mount to the rotationa Motor ports are 7/8-14 SAE 0- power units, reduce the bar rpr the bar remains the same. Toro bar) are constant. Power unit specifications: 5 hp - max bar rpm @ 6 gpm (1 10 hp - max bar rpm @ 10 gpm	al drive housing. ring type. For 50 Hz n by 15%; torque at que ratings (at the 22.7 L/min)
	Customer must order bar/leadscrew assembly, hydraulic power unit, and hydraulic motor separately. BB6000 component package - 6" to	25472		10 hp 3.6 in ³ (59.1 cm ³)
	36" (152.4 to 914.4mm) diameters Component package includes: rotational drive unit, axial feed		motor rpm: 363 motor torque: 253 ft-lb (344 N•m)	617 244 ft-lb (332 N•m)
	assembly, two four-arm end mount bearing support assemblies, tool carrier assembly, 6" to 36" (152.4 to 914.4mm) diameter boring head set, and tool kit with instruction manual.	25473	bar rpm: 54 Hydraulic motor displacement 5.9 in ³ (96.8 cm ³) motor rpm: 221	92 5.9 in ³ (96.8 cm ³) 375
	Customer must order bar/leadscrew assembly, hydraulic power unit, and hydraulic motor separately.	25474	motor torque: 430 ft-lb (549 N•m) bar rpm: 33 Hydraulic motor	415 ft-lb (564 N•m) 56
23299'	² Mechanical axial feed assembly Assembly mounts to either end of the bar/leadscrew assembly.		(119.7 cm ³) motor rpm: 177 motor torque: 544 ft-lb	7.3 in ³ (119.7 cm ³) 302 527 ft-lb (717 N•m)
	Mechanical feed is reversible and variable, with a feed rate of .003" to .020" (.076 to .508mm) per revolution	RL 25475	bar rpm: 26 Hydraulic motor displacement 8.9 in ³ (146.0 cm ³) motor rpm: 145 motor torque: 663 ft-lb	45 8.9 in ³ (146.0 cm ³) 247 643 ft-lb (874 N•m)
		25476	bar rpm: 21 Hydraulic motor	37
222211	² Rotational drive assembly 6:1 gear ratio drive assembly mounts anywhere along the bar. Adjustable shaft collars hold the		motor rpm: 115 motor torque: 850 ft-lb	11.3 in ³ (185.3 cm ³) 196 827 ft-lb (1125 N•m)
	assembly securely to the bar. Includes torque arms for stability. Fits 3.5" (88.9mm) diameter bar/ leadscrew assemblies.	25477	bar rpm: 17 Hydraulic motor displacement 14.1 in ³ (231.2 cm ³) motor rpm: 93 motor torque: 1054 ft-lb	29 14.1 in ³ (231.2 cm ³) 158 1026 ft-lb
4		25478	bar rpm: 14 Hydraulic motor	(1395 N•m) 23 17.9 in ³
oficin		doc	motor rpm: 73 motor torque: 1330 ft-lb (1809 N•m)	(293.6 cm ³) 125 1292 ft-lb (1757 N•m)
Drawings may not r ¹ Included in compon ² Included in compone	ent package 23222.		bar rpm: 11	18

No. Description



Description

Hydraulic motor fitting kit Fitting kit to connect any hydraulic motor listed above to the hoses from customer's hydraulic power unit. Fittings are included with every Climax hydraulic power unit.

2 Hydraulic motor fitting kit - 3/8" fittings Fittings to connect motors above to power units with 3/8" female quick disconnect fittings. Standard for 5 hp units

25495 Hydraulic motor fitting kit - 1/2" fittings Fittings to connect motors above to power units with 1/2" female quick disconnect fittings. Standard for 10 hp units.

End-mount bearing support assembly

Bearing support assembly fits onto the end of the work piece through a slotted spider. Hold the bar in place with the self-aligning bearing and center the bar with the four adjusting screws. At least two bearing assemblies are required to adequately support the bar. Different styles may be used together.

22072 Three-arm end-mount bearing support assembly, 20" (508.0 mm) diameter

Bearing support assembly fits onto the end of the work piece with mounting diameters from 12.0" to 20.0" (304.8 to 508.0mm).

31 Four-arm end-mount bearing support assembly, 38" (965.2 mm) diameter

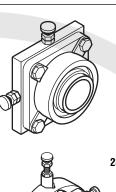
Bearing support assembly fits onto the end of the work piece with mounting diameters from 18.0" to 38.0" (457.2 to 965.2 mm).

Support spider only

22073

22092

Because both end-mount bearing assemblies use the same selfaligning bearing, spiders can be ordered separately to accommodate various size work pieces. Three-arm support spider only Four-arm support spider only



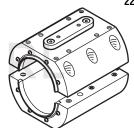


No. Description

ID-mount bearing support assembly Bearing support assembly provides four-way adjustable bar alignment. Bar is held in place by a self-aligning bearing. Center the bar by adjusting the four jacking screws. At least two bearing support assemblies are required to adequately support the bar. Different styles may be used together.

23228 ID-mount bearing support assembly, 22.53" (572.3mm) dia. One bearing + two chucks + jaws to fit inside bores with ID's from 12" to 22.53" (304.8 to 572.3mm)

23230 ID-mount bearing support assembly, 37.53" (953.2mm) dia. Same as above, but includes extra spacer and jaws to fit inside bores with ID's from 12" to 37.53" (304.8 to 953.2mm).



22377^{1,2} Tool carrier

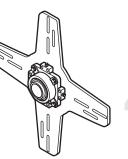
Split design tool carrier mounts anywhere along the boring bar. Builtin wipers protect the carrier and bar from dirt and chips. Boring and facing heads mount to the tool carrier with screws and, if required, spacers. Carrier includes axial leadscrew nut. **Customer must purchase boring head set and tool bits separately.**

Boring head set

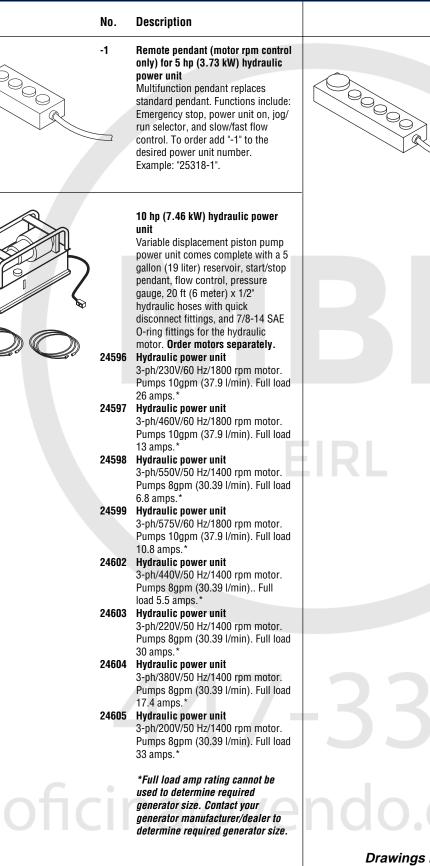
Boring heads mount to the tool carrier (above) with screws and, if required, spacers. The range of diameters the boring head will cut is determined by the number of spacers mounted between the tool carrier and the boring head. Small tool holders use .5" (12mm) square HSS tooling. Large tool holders use 1" (25.4mm) square HSS or indexable carbide tooling. **Customer must purchase tool carrier and tool bits separately.**

22769¹ Boring head set, 6" -24" (152.4-609.6 mm) ID 22383² Boring head set, 6"-36" (152.4 -914.4mm) ID

Drawings may not represent product. ¹ Included in component package 23222. ²Included in component package 23223.



	No.	Description		No.	Description
	22680	Mechanical feed facing head assembly Facing head assembly mounts to	R	5 hp (3	. 73 kW) hydraulic power unit Variable displacement piston pump
		Facing head assembly mounts to tool carrier (not included) with screws and, if required, spacers. The range of diameters the facing head will machine is determined by the number of spacers (not included) mounted between the tool carrier and the facing head. When word with			power unit comes complete with a 5 gallon (19 liter) reservoir, start/stop pendant, flow control, pressure gauge, 20 foot (6 meter) x 3/8" hydraulic hoses with quick disconnect fittings, and 7/8-14 SAE O-ring fittings for hydraulic motors.
		and the facing head. When used with the spacers from the 24" boring head set (22769), the facing head will machine 10.5" to 24.0" (266.7 to 609.6 mm). When used with the spacers from the 36" boring head set		25325	Order motors separately Hydraulic power unit 3-ph/230V/60 Hz/1800 rpm motor. Pumps 6gpm (22.7 I/min). Full load 13.2 amps.* Hydraulic power unit
		(22383), the facing head will machine 10.5" to 36.0" (266.7 to 914.4 mm). Stroke is 4" (101.6 mm)		20019	3-ph/460V/60 Hz/1800 rpm motor. Pumps 6gpm (22.7 l/min). Full load
		and feed rate is up to .010" (.254 mm) per feed trip. Use multiple trip mechanisms to increase feed rate. Facing head uses .5" (12mm) tool		25320	6.6 amps.* Hydraulic power unit 3-ph/550/50Hz/1400 rpm motor. Pumps 6gpm (22.7 l/min). Full load
		bits. Customer must purchase boring head set (spacers), tool carrier and tool bits separately.	DR	25321	5.6 amps.* Hydraulic power unit 3-ph/575V/60 Hz/1800 rpm motor. Pumps 6gpm (22.7 l/min). Full load
	\	Devine hav//acdessess		25322	5.5 amps.* Hydraulic power unit 3-ph/230V/60 Hz/1800 rpm motor.
)	Boring bar/leadscrew assembly 3.5" (88.9 mm) diameter chromed bar with full-length leadscrew. Bar end caps enable the axial feed	ום	25323	Pumps 6gpm (22.7 l/min). Full load 22.8 amps.*
		assembly to be mounted to either end of the bar. Other length bars are available upon special request.	KL	24592	Pumps 5gpm 19.0 l/min). Full load 22 amps.* Hydraulic power unit
	25221 22107 22108	J , ()			3-ph/440/50 Hz/1400 rpm motor. Pumps 5gpm (19.0 l/min). Full load 5.5 amps.*
	22108 22109 22110 22111	Boring bar, 7 ft (2.13 m)		24593	Hydraulic power unit 3-ph/220V/50 Hz/1400 rpm motor. Pumps 5gpm (19.0 l/min). Full load 14 amps.*
	22113	Boring bar, 10 ft (3.05 m) Boring bar, 11 ft (3.35 m) Boring bar, 12 ft (3.66 m)		24594	Hydraulic power unit 3-ph/380V/50 Hz/1400 rpm motor. Pumps 5gpm (19.0 l/min). Full load
	22771	² Tool kit Complete set of tools needed to		24595	8.12 amps.* Hydraulic power unit 3-ph/200V/50 Hz/1400 rpm motor. Pumps 5gpm (19.0 l/min). Full load
22		operate the BB6000 Portable boring bar.	700		15.4 amps.*
			JJ		*Full load amp rating cannot be used to determine required generator size. Contact your generator manufacturer/dealer to determine required generator size.
OTICI		a@ver	ido.cc		n.pe
			¹ Included in con	npone	epresent product. ent package 23222. nt package 23223.



No. Description

-1

Remote pendant (motor rpm control only) for 10 hp (7.46 kW) electric powered hydraulic power unit Multifunction pendant replaces standard pendant. Functions include: Emergency stop, power unit on, pressure on, pressure off, jog/run selector, and slow/fast motor speed control. To order add "-1" to the desired power unit number. Example: "24596-1".

25882 Replacement hydraulic filter element, for 5 hp and 10 hp hydraulic power units.

Drawings may not represent product. ¹ Included in component package 23222. ²Included in component package 23223.

BB6000 Technical Information

Specifications in inches (mm) Specifications subject to change without notice. For precision dimensions consult your factory representative.

Boring diameter:

Standard

6 (152.4) min 36 (914.4) max.

Machine ship weight (approx.): 640 lb (291 kg) Typical machine consisting of rotational drive assembly (22221), axial feed assembly (23299), manual boring head set (22383), two three-arm bearing assemblies (22072), and 3.5" diameter x 8 foot boring bar (22110). Boring bar: Ship weight (approx.): 3.5" dia x 5 ft bar (22107): 175 lb (80 kg) 3.5" dia x 12 ft bar (22114): 518 lb (236 kg) Ship dimensions: 3.5" dia x 12 ft bar: 11 x 13 x 154 (28 x 33 x 392cm)

Hydraulic power unit (10 hp): Ship weight (approx.): 500 lb (228 kg) Ship dimensions (approx.): 27 x 33 x 48 (69 x 84 x 122 cm)

Components:

Mechanical axial feed assembly:

Feed rate variable, reversible, .003-.020/rev. (.076-.508/rev)

Rotational drive assembly:

Net weight (w/o motor): 86 lb (40 kg) Gear ratio: 6:1 gear reduction (Theoretical values calculated using a 5 hp hydraulic power unit producing 1200 psi (8268 kPa) continuous, 2000 psi (13780 kPa) intermittent and pumping 6 gpm (22.7 l/min.).

 With 17.9 in³ (293.6 cm³) hydraulic motor (25478):

 Boring bar torque:
 1292 ft•lb (1757 n•m)

 Max boring rpm:
 12 rpm @ 6gpm

 (12 rpm @ 22.7 l/min)

 Boring bar:
 3.1 hp (2.3 kW)

Motor, hydraulic:

Displacement: Net weight: Fittings: 3.6 - 17.9 in³ (59.1 - 293.6 cm³) 15.5 - 19.2 lb (7.1 - 8.7 kg) 7/8-14 SAE O-ring

Bearing support assembly:

End mount three-arm bearing diameter range: 12-20 (304.8-508.0) End mount four-arm bearing diameter range: 18-38 (457.2-965.2) ID-mount bearing ID diameter range: 12-37.53 (304.8-953.3) Mounting spiders require 5/8" or smaller bolts

Manual boring head assembly:

.5" (12mm) square HSS tool bits
1" square indexable carbide
tooling (ass'y requires tool carrier)
6-36 (152.4-914.4)

Mechanical feed facing head assembly:

Feed rate: automatic, up to .010/rev (.254/rev) Stroke: 4 (101.6) Facing diameters: Using 24" boring head set spacers: 10.5 - 24.0 (266.7 - 609.6) Using 36" boring head set spacers: 10.5 - 36.0 (266.7 - 914.4) Tooling: .5" (12mm) and 1" (24mm) square HSS or 1" square indexable carbide tooling (ass'y requires tool carrier)

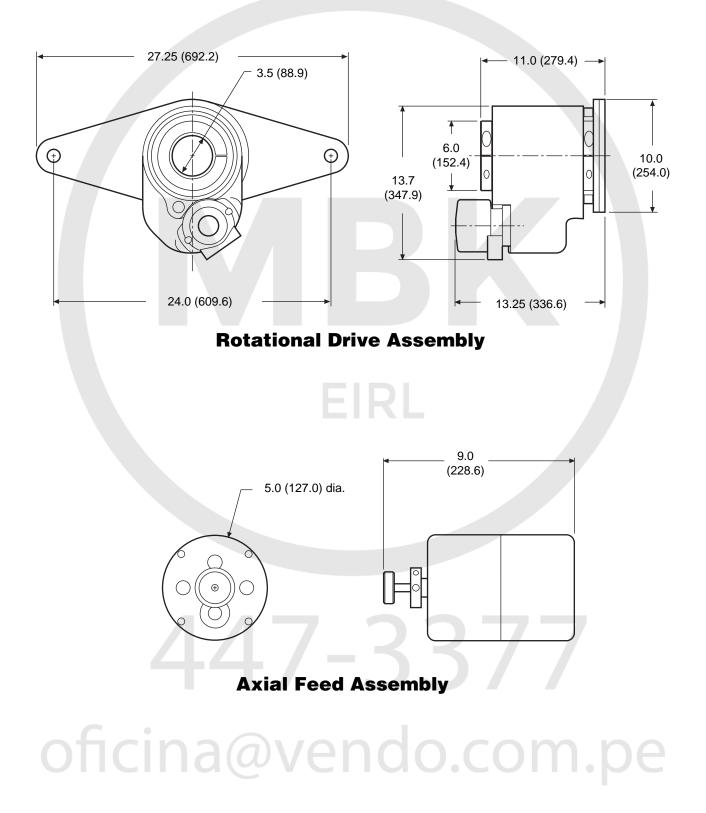
Boring bar:

Chromed, with full-length leadscrew. Bar end caps with anti-friction leadscrew bearings allow the axial feed assembly to be mounted to either end of the bar. Net weight: 3.5" dia. x 5 ft: 175 lb (80 kg) 3.5" dia. x 12 ft: 518 lb (236 kg)

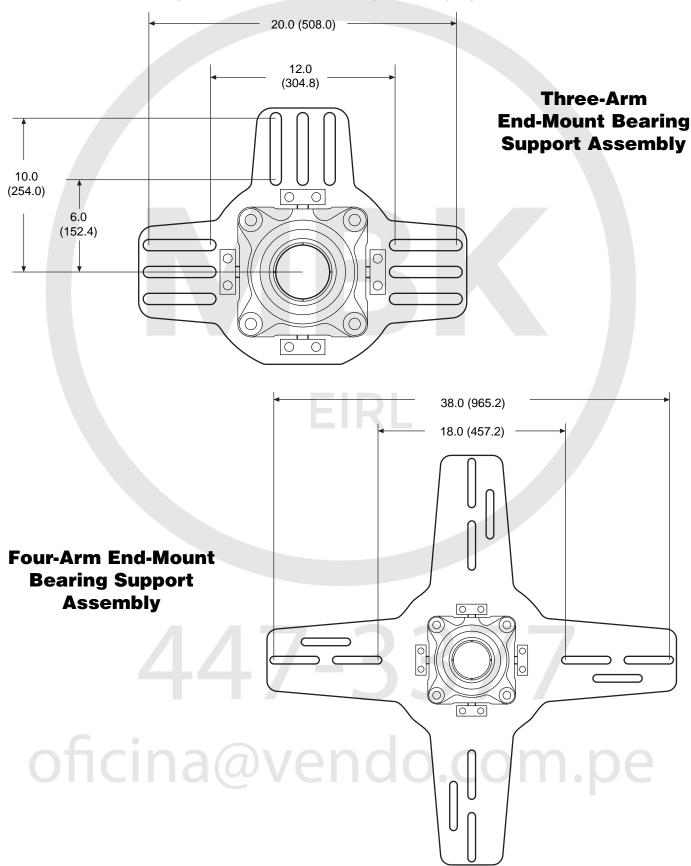
Hydraulic power unit:

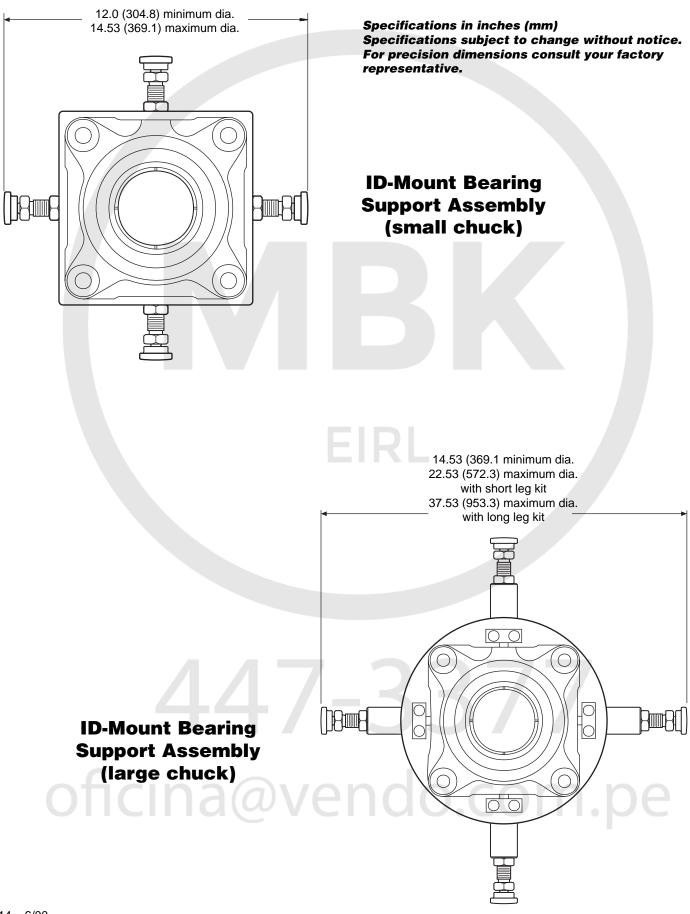
Net weight: 5 hp: 400 lb (182 kg) 10 hp: 500 lb (228 kg) Power sources: 3-phase electric or 1-phase electric

Specifications in inches (mm) Specifications subject to change without notice. For precision dimensions consult your factory representative.

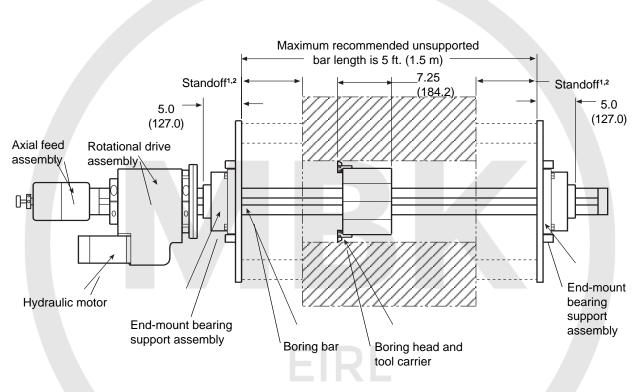


Specifications in inches (mm) Specifications subject to change without notice. For precision dimensions consult your factory representative.





Specifications in inches (mm) Specifications subject to change without notice. For precision dimensions consult your factory representative.



Total required bar length = 21 (533.4) + distance to bore + (2x standoff length) ¹Recommended minimum standoff length for boring = 7.5 (190.5) ²Recommended minimum standoff for facing = 14.0 (355.6)

Determining Required Bar Length

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