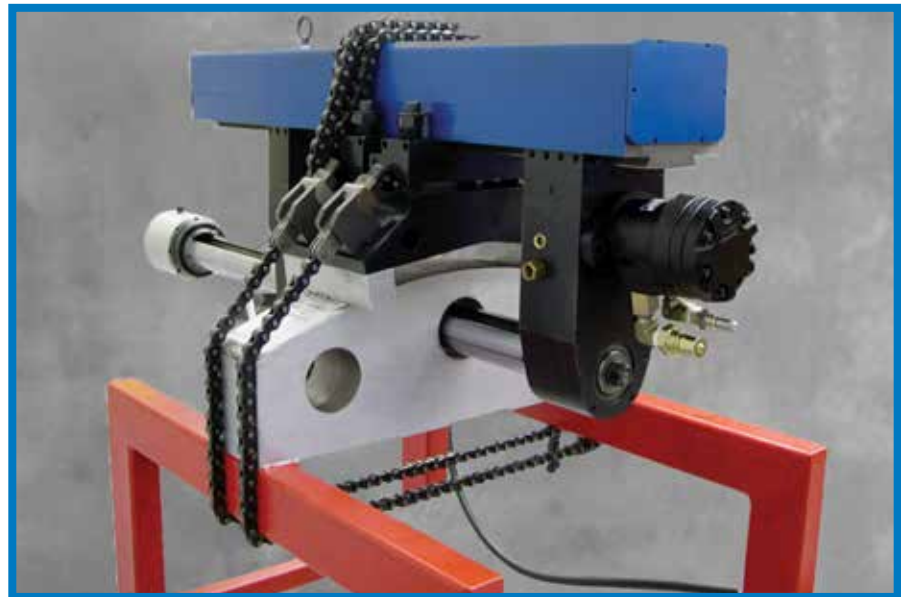


## Designed specifically for boring precise fitted bolt holes in large couplings and flanges.

Designed to bore precision coupling bolt holes on turbine and other coupling applications, this machine is optimized for boring fitted bolt holes in large couplings. Minimize shutdown time during turbine overhauls with features that allow quick setup and precision, round and straight bores.

### Powerful, versatile and easy to use

- Quickly bores precisely aligned bolt holes the first time.
- Eliminates the need for lengthy honing procedures.
- Universal coupling mounting system adapts to all sizes of commercially available turbine couplings.
- Quick removal of the boring bar without disturbing setup. This allows measuring and inspection of the bore.
- Multiple feed options to suit your requirements.
- Reversing mechanical feed for limited space applications that allows back spot facing and counterboring.
- Electric feed allows reversing and also rapid tool return.
- Multiple drive options—hydraulic, pneumatic, or contact your sales representative for custom electric drive options.
- Switch easily between high speed steel or carbide tooling.



### Compact Design

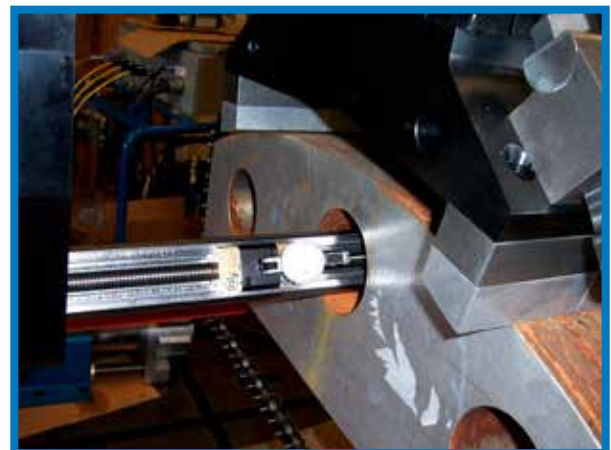
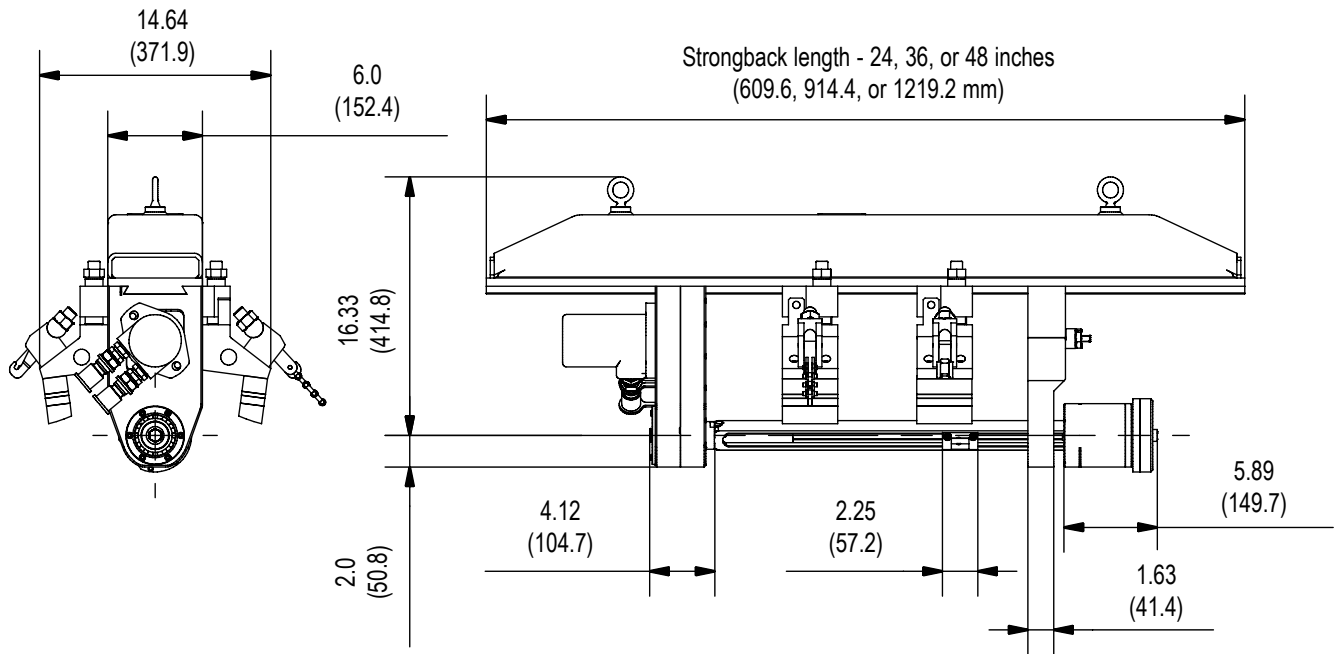
- Extremely rigid and very compact.
- Easily fits into confined spaces.
- Simple one operator setup.
- Minimum clearance Rotation Drive and Axial Feed only requires 2.0 inches (50.8 mm) clearance between the coupling hub OD and the bolt center.



# SPECIFICATIONS

	US	Metric
BB5500 bar manufacturing tolerances are within 0.0005 inches (0.0127 mm) per 12 inch (304.8 mm)		
Boring Diameter	2.1 - 4.2 inches	53.3 - 106.7 mm
Coupling OD range:	27 - 60 inches	685.8 - 1524.0 mm
(The upper diameter is only limited by the amount of mounting chain. Please contact your Climax representative if you require larger diameter.)		
<b>Axial feed rate:</b>		
Mechanical feed	0 - 0.010 in/rev.	0 - 0.254 mm/rev.
Electric feed	0 - 3.5 inches/min.	0 - 88.9 mm/min.
Drive ratio	1.13:1 speed increase	1.13:1 speed increase
<b>Torque produced at the boring bar</b> (all with 5 Hp Hydraulic Power Unit)		
2.2 cubic inch Hydraulic Motor	19.5 ft-lbs	26.4 N•m
3.6 cubic inch Hydraulic Motor	35.4 ft-lbs	48.0 N•m
5.9 cubic inch Hydraulic Motor	57.5 ft-lbs	78.0 N•m
Perpendicularity and alignment dependent on operator set-up		
<b>Mounting System</b>		
Lateral fine adjustment	+/- 0.125 inches	+/- 3.175 mm
Radial fine adjustment	+/- 0.500 inches	+/- 12.7 mm
Typical Machine Ship Weight	700 lbs	318 kg
<b>Shipping Dimensions</b> (Machine shipped in 1 metal container)		
Machine W, D, H	30 x 60 x 37 inches	762 x 1524 x 940 mm
<b>Bearing Spacing:</b>		
Cutting should take place no further from a bearing than 5 times the bar diameter.		
Maximum recommended bearing spacing to achieve specs is as follows:		
<u>Bar Diameter</u>	<u>Max Bearing Spacing:</u>	
1-7/8 inch (47.6 mm)	19 inches (482.6 mm)	
2-1/2 inch (63.5 mm)	25 inches (635.0 mm)	
<b>Max. Distance between RDU &amp; bearing hanger:</b>		
24 inch (609.6 mm) strongback:	18.4 inches (467.4 mm)	
36 inch (914.4 mm) strongback:	30.4 inches (772.2 mm)	
48 inch (1219.2 mm) strongback:	42.4 inches (1077.0 mm)	
The BB5500 mounts to OD of coupling. Due to length of RDU and bearing hanger, distance from coupling OD to bolt circle diameter is limited, and varies by coupling diameter.		
<b>Bolt Circle Range Examples:</b>		
Coupling OD	Min. bolt circle diameter	Max bolt circle diameter
27 inches (685.8 mm)	18.2 inches (462.3 mm)	22.9 inches (581.5 mm)
44 inches (1117.7 mm)	36.3 inches (922.0 mm)	40.9 inches (1038.9 mm)
60 inches (1524.0 mm)	52.9 inches (1343.7 mm)	57.5 inches (1460.5 mm)
To reduce minimum bolt circle diameter, order spacer blocks (see accessories, p.6)		

# OPERATIONAL DIMENSIONS



# TOOL CONFIGURATIONS

Configure your BB5500 in 8 easy steps.

To configure your BB5500 Coupling Boring Machine:

- 1 Select a Base Unit
- 2 Select a Strong Back Assembly
- 3 Select a Lower Bar Hanger Bearing Assembly
- 4 Select a Boring Bar
- 5 Select a Tool Holder
- 6 Select a Tool Bit
- 7 Select a Feed System
- 8 Select a Drive Option

To configure the Coupling Boring Machine you require, simply select the option you need in each step, then contact your CLIMAX representative.

## 1 Base Unit

(Includes the rotational drive unit (RDU), tool kit, mounting system, universal coupling mounting system, and instruction manual. The unit comes packed in a durable metal container.)  
Base Model Package 47270

## 2 Strong Back Assembly

24 inch (609.6 mm) strong back assembly 46530  
36 inch (914.4 mm) strong back assembly 46493  
48 inch (1219.2 mm) strong back assembly 46486  
\* Multiple units may be ordered.

## 3 Lower Bar Hanger Bearing Assembly

For 1-7/8 inch (47.625 mm) diameter bar 56331  
For 2-1/2 inch (63.5 mm) diameter bar 56340  
\* Multiple units may be ordered.

## 4 Boring Bar with Tool Slide

1-7/8 inch (47.625 mm) dia. 18 inches (457.2 mm) 47276  
1-7/8 inch (47.625 mm) dia. 24 inches (609.6 mm) 47277  
1-7/8 inch (47.625 mm) dia. 30 inches (762.0 mm) 47278  
1-7/8 inch (47.625 mm) dia. 34 inches (863.6 mm) 47279  
2-1/2 inch (63.5 mm) dia. 36 inches (914.4 mm) 47273  
2-1/2 inch (63.5 mm) dia. 42 inches (1066.8 mm) 47274  
2-1/2 inch (63.5 mm) dia. 48 inches (1219.2 mm) 47275  
\* Multiple units may be ordered.

## 5 Tool Holder

Tool insert holder, 5/16 inch square bit, small 46636  
Tool insert holder, 5/16 inch square bit, medium 47189  
#2 Microbore small tool holder 78531  
#2 Microbore medium tool holder 78532  
#3 Microbore small tool holder 78342  
#3 Microbore medium tool holder 78343  
#3 Microbore large tool holder 78344  
All tool holders & tools, microbore & HSS kit 81374

## 6 Tool Bit

Tool bit HSS 5/16 x 1.25 LH 15 degree lead 46661  
Tool bit HSS 5/16 x 0.78 LH 15 degree lead 50413  
#2 Metric microbore cartridge kit 78358  
TCM-06 insert for #2 microbore 78420  
#3 metric microbore cartridge kit 78359  
TCM-09 insert for #3 microbore 78421

## 7 Feed System

Mechanical axial feed assembly (AFU)	26659
Mechanical axial feed assembly (AFU), reversible	47287
Electrical axial feed assembly with pendant	47294
Adapter sleeve for AFU (PN 26659), 1-7/8 - 2-1/2 inch (47.625 - 63.5 mm)	26444
Short adapter sleeve for AFU (PN 47287 or PN 47294), 1-7/8 - 2-1/2 inch (47.625 - 63.5 mm)	55578

## 8 Drive System

### Hydraulic Motor Assembly

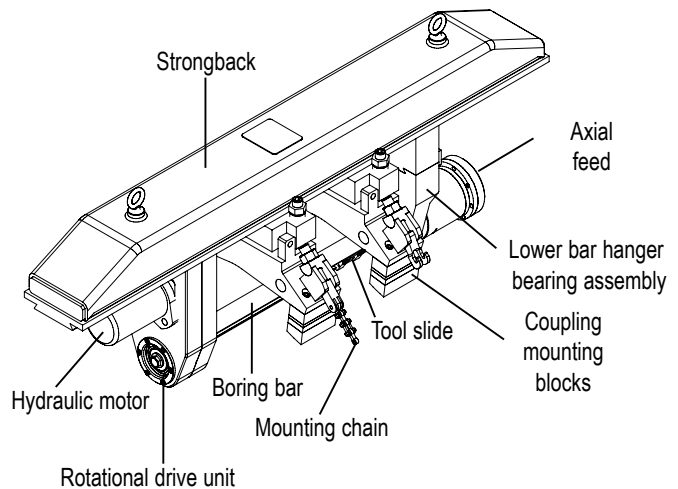
Motor Capacity		Max Bar RPM at		Torque at Bar, - Calculated - ft-lbs, (N•m)	Part No. Motors with 60 Series QD Fittings	Part No. Motors with ISO 16028 QD Fittings
In <sup>3</sup>	cm <sup>3</sup>	8.3 gpm (31.5 L/min) with 50 Hz mains power	10 gpm (37.9 L/min) with 60 Hz mains power			
2.2	36	204	246	92 (124.7)	<b>39837</b>	<b>65384</b>
3.6	59	124	150	159 (215.6)	<b>39843</b>	<b>63425</b>
5.7	93.4	76	92	270 (367)	<b>39844</b>	<b>63429</b>

### Pneumatic Motor Assembly

Part Number.	Max Bar RPM	Torque at the bar (calculated value)
28614 (CE)	120 rpm	115 ft-lb (155.9 N•m)
28697 (CE)	57 rpm	234 ft-lb (317.3 N•m)

\*Multiple units may be ordered.

Please contact your sales representative for custom electric motors.



# SETUP AND OPERATION

## A Fast Six-Step Process

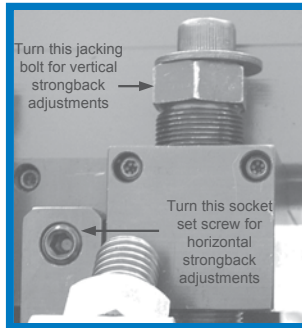
Setup of the BB5500 Coupling Boring Machine is quick and easy. An experienced operator can set up the machine in most typical coupling applications in about an hour (depending on alignment tolerances).

**1** Remove the machine from the shipping container. Attach the correct spacers for the mounting feet based on coupling OD and BC dimensions. Make sure the base mounting adjustment bolts are centered.



Elapsed time: 10 minutes.

**2** Position the strong back base supports, RDU and bearing hanger based on the coupling width. Lock the gib adjustments in place.



Elapsed time: 5 minutes.

**3** Lift the machine onto the coupling OD. Roughly center the RDU spindle with the first bolt hole and secure by tightening the chain clamps.

Elapsed time: 10 minutes.

**4** Install the boring bar. Tighten the bearing hanger clamp assembly.

Elapsed time: 5 minutes.



Block feet

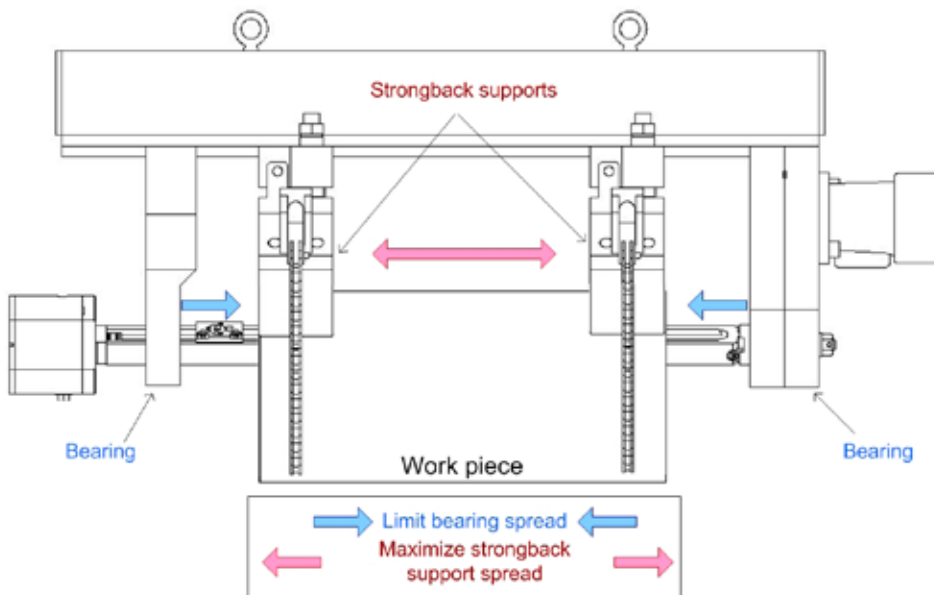
**5** Attach the drive motor to the RDU and the axial feed to the boring bar.

Elapsed time: 5 minutes.



**6** Dial indicate the bar to the hole by making fine lateral and radial adjustments on each base support. Install tooling and you are ready to start machining.

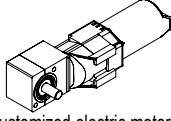
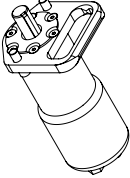
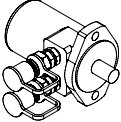
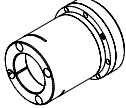

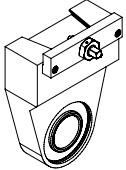
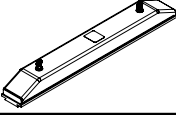
Elapsed time: 10 minutes.



Total elapsed time: approximately 45 minutes.

All subsequent bores on the same coupling require repeating only steps 3 thru 6.

Performance is dependent on experienced operators, proper machine set-up, and correct bearing spacing.

No.	Description	No.	Description																																																																
	<p><b>Rotational Drive Unit (not shown)</b>  <b>46470</b> Features rigid steel housing with a #30MT spindle in adjustable preloaded sealed bearings. The drive motor is offset from the bar centerline for maximum clearance with a high performance toothed belt.</p>		<p><b>Boring Bars (not shown)</b>            Precision chromed with integral leadscrew. Available in a variety of diameters and lengths, with or without tool slide. Tool slides accept a variety of interchangeable tool holders for either HSS bits or micro adjustable indexable carbide inserts.</p> <table border="1"> <thead> <tr> <th>Part No.</th> <th>Bar Dia.</th> <th>Bar Length</th> <th>Tool Slide</th> </tr> </thead> <tbody> <tr><td>47276</td><td>1-7/8 (47.625)</td><td>18.0 (457.2)</td><td>Included</td></tr> <tr><td>47277</td><td>1-7/8 (47.625)</td><td>24.0 (609.6)</td><td>Included</td></tr> <tr><td>47278</td><td>1-7/8 (47.625)</td><td>30.0 (762.0)</td><td>Included</td></tr> <tr><td>47279</td><td>1-7/8 (47.625)</td><td>34.0 (863.6)</td><td>Included</td></tr> <tr><td>28177</td><td>1-7/8 (47.625)</td><td>18.0 (457.2)</td><td>Not included</td></tr> <tr><td>27286</td><td>1-7/8 (47.625)</td><td>24.0 (609.6)</td><td>Not included</td></tr> <tr><td>27287</td><td>1-7/8 (47.625)</td><td>30.0 (762.0)</td><td>Not included</td></tr> <tr><td>41089</td><td>1-7/8 (47.625)</td><td>34.0 (863.6)</td><td>Not included</td></tr> <tr><td>47273</td><td>2-1/2 (63.5)</td><td>36.0 (914.4)</td><td>Included</td></tr> <tr><td>47274</td><td>2-1/2 (63.5)</td><td>42.0 (1066.8)</td><td>Included</td></tr> <tr><td>47275</td><td>2-1/2 (63.5)</td><td>48.0 (1219.2)</td><td>Included</td></tr> <tr><td>27285</td><td>2-1/2 (63.5)</td><td>36.0 (914.4)</td><td>Not included</td></tr> <tr><td>28765</td><td>2-1/2 (63.5)</td><td>42.0 (1066.8)</td><td>Not included</td></tr> <tr><td>44173</td><td>2-1/2 (63.5)</td><td>48.0 (1219.2)</td><td>Not included</td></tr> <tr><td>47280</td><td>1-5/8 (41.275)</td><td>24.0 (609.6)</td><td>Included</td></tr> </tbody> </table>	Part No.	Bar Dia.	Bar Length	Tool Slide	47276	1-7/8 (47.625)	18.0 (457.2)	Included	47277	1-7/8 (47.625)	24.0 (609.6)	Included	47278	1-7/8 (47.625)	30.0 (762.0)	Included	47279	1-7/8 (47.625)	34.0 (863.6)	Included	28177	1-7/8 (47.625)	18.0 (457.2)	Not included	27286	1-7/8 (47.625)	24.0 (609.6)	Not included	27287	1-7/8 (47.625)	30.0 (762.0)	Not included	41089	1-7/8 (47.625)	34.0 (863.6)	Not included	47273	2-1/2 (63.5)	36.0 (914.4)	Included	47274	2-1/2 (63.5)	42.0 (1066.8)	Included	47275	2-1/2 (63.5)	48.0 (1219.2)	Included	27285	2-1/2 (63.5)	36.0 (914.4)	Not included	28765	2-1/2 (63.5)	42.0 (1066.8)	Not included	44173	2-1/2 (63.5)	48.0 (1219.2)	Not included	47280	1-5/8 (41.275)	24.0 (609.6)	Included
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 Customized electric motor   Pneumatic motor assembly   Hydraulic motor assembly	<p><b>Motor Assemblies</b>            Please contact your sales representative for custom electric motors.</p> <p><b>28614</b> Pneumatic, 3 Hp (2.2 kW), 540 bar rpm @ 90 psi and 95 CFM (2.7 m<sup>3</sup>/min.) (Includes air conditioning unit)</p> <p><b>28697</b> Pneumatic, 3 Hp (2.2 kW), 250 bar rpm @ 90 psi and 95 CFM (2.7 m<sup>3</sup>/min.) (includes air conditioning unit)</p> <p><b>39837</b> Hydraulic, 2.2 in<sup>3</sup> (36.0cm<sup>3</sup>), 550 bar rpm @ 5 GPM (18.9 L/min) with 1/2 inch (12.7 mm) fittings.</p> <p><b>39843</b> Hydraulic, 3.6 in<sup>3</sup> (60.0cm<sup>3</sup>), 340 bar rpm @ 5 GPM (18.9 L/min) with 1/2 inch (12.7 mm) fittings.</p> <p><b>39844</b> Hydraulic, 5.9 in<sup>3</sup> (96.7cm<sup>3</sup>), 210 bar rpm @ 5 GPM (18.9 L/min) with 1/2 inch (12.7 mm) fittings.</p>		<p><b>Tool Holders</b>            Select tool holder assembly from the table shown below.</p> <table border="1"> <thead> <tr> <th rowspan="2">PN</th> <th rowspan="2">Tool Type</th> <th colspan="2">1-7/8 in. Bar</th> <th colspan="2">2-1/2 in. Bar</th> </tr> <tr> <th>Min</th> <th>Max</th> <th>Min</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td>46636</td> <td rowspan="2">5/16 in. sq HSS (PN 46661)</td> <td>2.087 (53.0)</td> <td>2.707 (68.8)</td> <td>2.520 (64.0)</td> <td>3.140 (79.8)</td> </tr> <tr> <td>47189</td> <td>2.660 (67.6)</td> <td>3.660 (93.0)</td> <td>2.756 (70.0)</td> <td>4.056 (103.0)</td> </tr> <tr> <td>78531</td> <td rowspan="2">No. 2 Microbore (PN 78358) Insert 78420</td> <td>2.067 (52.5)</td> <td>2.421 (61.5)</td> <td>NA</td> <td>NA</td> </tr> <tr> <td>78532</td> <td>2.412 (61.2)</td> <td>2.766 (70.2)</td> <td>2.492 (63.3)</td> <td>2.846 (72.3)</td> </tr> <tr> <td>78342</td> <td rowspan="3">No. 3 Microbore (PN 78359) Insert 78421</td> <td>2.650 (67.3)</td> <td>3.154 (80.1)</td> <td>2.730 (69.3)</td> <td>3.234 (82.1)</td> </tr> <tr> <td>78343</td> <td>3.145 (79.9)</td> <td>3.649 (92.7)</td> <td>3.225 (81.9)</td> <td>3.729 (94.7)</td> </tr> <tr> <td>78344</td> <td>3.635 (92.3)</td> <td>4.139 (105.1)</td> <td>3.720 (94.5)</td> <td>4.224 (107.3)</td> </tr> </tbody> </table>	PN	Tool Type	1-7/8 in. Bar		2-1/2 in. Bar		Min	Max	Min	Max	46636	5/16 in. sq HSS (PN 46661)	2.087 (53.0)	2.707 (68.8)	2.520 (64.0)	3.140 (79.8)	47189	2.660 (67.6)	3.660 (93.0)	2.756 (70.0)	4.056 (103.0)	78531	No. 2 Microbore (PN 78358) Insert 78420	2.067 (52.5)	2.421 (61.5)	NA	NA	78532	2.412 (61.2)	2.766 (70.2)	2.492 (63.3)	2.846 (72.3)	78342	No. 3 Microbore (PN 78359) Insert 78421	2.650 (67.3)	3.154 (80.1)	2.730 (69.3)	3.234 (82.1)	78343	3.145 (79.9)	3.649 (92.7)	3.225 (81.9)	3.729 (94.7)	78344	3.635 (92.3)	4.139 (105.1)	3.720 (94.5)	4.224 (107.3)																
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	<p><b>Axial Feed Unit</b>            Mechanical or electric options available for infinitely adjustable feed rates.</p> <p><b>26659</b> Mechanical, non-reversible</p> <p><b>47287</b> Mechanical, reversible</p> <p><b>47294</b> Electric, reversible, heavy-duty pendant</p>																																																																		
	<p><b>Feed Box Adapter Sleeves for AFU</b></p> <p><b>26444</b> 1-7/8 inch (47.625 mm) bar adapter</p> <p><b>55578</b> 1-7/8 inch (47.625 mm) short bar adapter</p> <p><b>42411</b> 1-5/8 inch (41.275 mm) bar adapter</p>																																																																		
	<p><b>Bearing Hanger</b></p> <p><b>56340</b> 2-1/2 inch (63.5 mm) diameter</p> <p><b>56331</b> 1-7/8 inch (47.625 mm) diameter</p> <p><b>42454</b> 1-5/8 inch (41.275 mm) diameter</p> <p>NOTE: Only one bearing hanger is required.</p>																																																																		
	<p><b>Strongback</b></p> <p><b>46530</b> 24.0 inch (609.6 mm) strongback</p> <p><b>46493</b> 36.0 inch (914.4 mm) strongback</p> <p><b>46486</b> 48.0 inch (1219.2 mm) strongback</p>																																																																		
	<p><b>Spacer Blocks (to reduce min. bolt circle diameter)</b></p> <p><b>54496</b> 2 inch (50.8 mm) spacer, for 4 inch (101.6 mm) diameter reduction</p> <p><b>54530</b> 4 inch (101.6 mm) spacer, for 8 inch (203.2 mm) diameter reduction</p> <p>(Both spacers above may be stacked, for a total diameter reduction of 12 inches (304.8 mm).</p>		<p><b>Tool Bits and Inserts</b></p> <p><b>27381</b> 5/16 inch (7.9 mm) square carbide bits unground</p> <p><b>46661</b> Tool bit HSS 5/16 inch (7.9375 mm) square 1.25 inch (31.75 mm) LH 15° lead</p> <p><b>78358</b> # 2 Metric microbore cartridge kit</p> <p><b>78420</b> TCM-06 insert for #2 microbore</p> <p><b>78359</b> #3 metric microbore cartridge kit</p> <p><b>78421</b> TCM-09 insert for #3 microbore</p> <p><b>46491</b> Tool Kit (included with base unit)</p> <p><b>29138</b> Dial Indicator</p> <p><b>47890</b> Dial Indicator Holder</p> <p>NOTE: Drawings are for reference only, are not to scale, and may not represent actual product.</p>																																																																

# CLIMAX Training Facilities

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.



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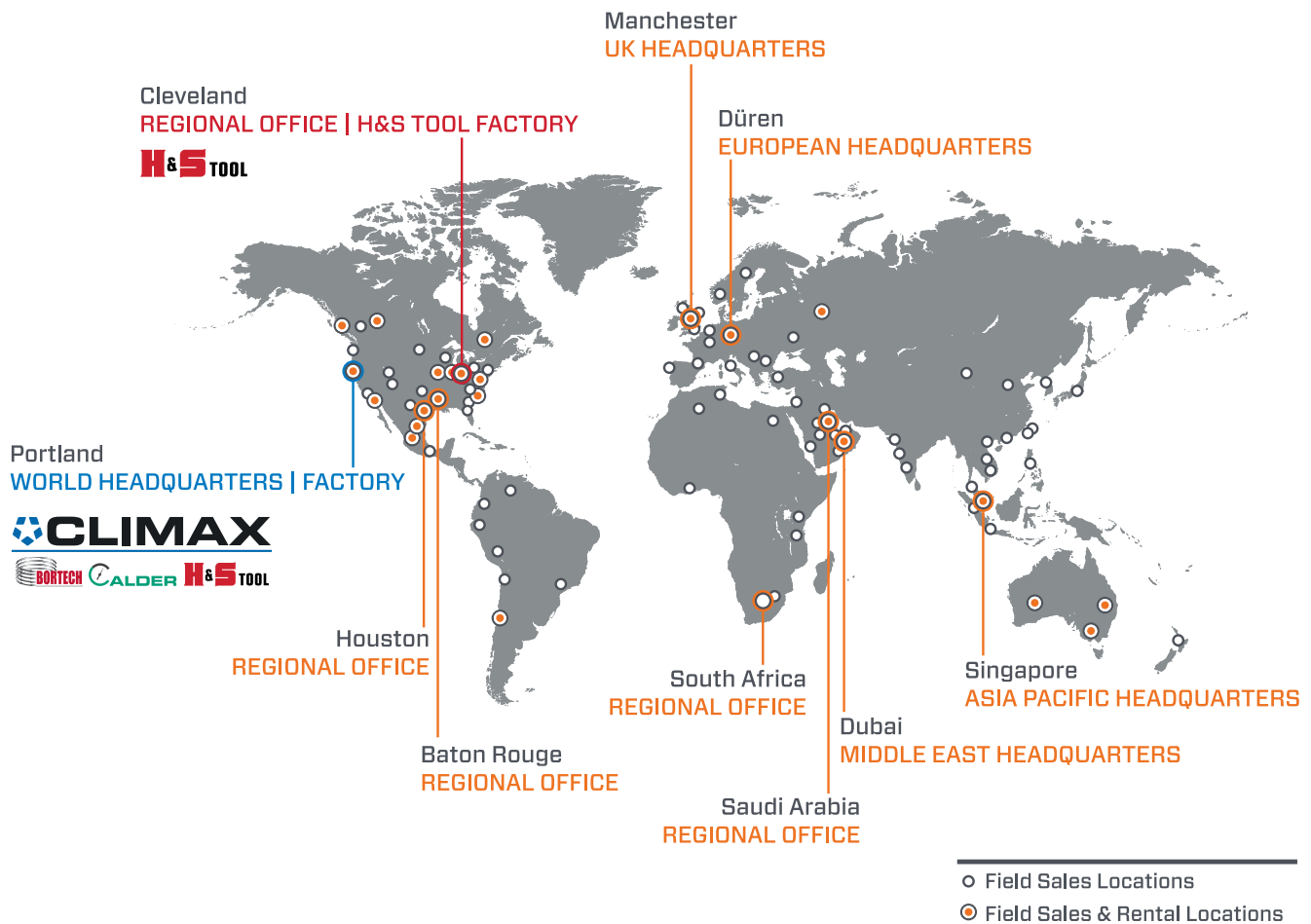
## Training is available at the following seven Global Training Centers:

- Portland, Oregon
- Houston, Texas
- Gonzales, Louisiana
- Wadsworth, Ohio
- Manchester, United Kingdom
- Düren, Germany
- Dubai, United Arab Emirates

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#### Regional Office - Cleveland

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