

# Installation Guide for

## **BOULDEN B-835**



- Proprietary blend of PEEK reinforced with carbon fibers:
- Recommended primarily for clean services
- Temperatures –40 °F (-40 °C) to 275 °F (135 °C)
- Wear rings, throttle bushings, shaft bearings
- Coefficient of thermal expansion (radial):  $8.7 \times 10^{-6}$  in/in/°F ( $15.7 \times 10^{-6}$  mm/mm/°C)

All stock parts are  
6" (152mm) in length.

### Dimensional Tolerances:

OD + 0.125/- 0.000"  
+ 3.2/-0.0 mm

ID + 0.000/- 0.125"  
+ 0.0/-3.2 mm

Length + 0.125/- 0.000"  
+3.2/-0.0 mm

<b>B-835 Standard Stock Sizes</b>				
<b>Boulden P/N</b>	<b>OD (in)</b>	<b>ID (in)</b>	<b>OD (mm)</b>	<b>ID (mm)</b>
83516-06	2.0	Solid Rod	50.8	Solid Rod
83520-06	2.5	Solid Rod	63.5	Solid Rod
83524-06	3.0	Solid Rod	76.2	Solid Rod
83528-06	3.5	Solid Rod	88.9	Solid Rod
83524-06-12	3.0	1.5	76.2	38.1
83528-06-16	3.5	2.0	88.9	50.8
83532-06-20	4.0	2.5	101.6	63.5
83536-06-24	4.5	3.0	114.3	76.2
83540-06-28	5.0	3.5	127.0	88.9
83544-06-32	5.5	4.0	139.7	101.6
83548-06-36	6.0	4.5	152.4	114.3
83552-06-40	6.5	5.0	165.1	127.0
83556-06-44	7.0	5.5	177.8	139.7
83560-06-48	7.5	6.0	190.5	152.4
83564-06-52	8.0	6.5	203.2	165.1
83568-06-56	8.5	7.0	215.9	177.8
83572-06-60	9.0	7.5	228.6	190.5
83576-06-64	9.5	8.0	241.3	203.2
83580-06-68	10.0	8.5	254.0	215.9
83584-06-72	10.5	9.0	266.7	228.6
83588-06-76	11.0	9.5	279.4	241.3
83592-06-80	11.5	10.0	292.1	254.0
83596-06-88	12.0	10.5	304.8	266.7

All B-835 inserts should be installed with an interference fit as described in Table 1a and Table 1b

<b>Table 1a (Imperial): Interference at Installation</b>	
<b>Bore Diameter (in)</b>	<b>Recommended Interference Fit (in)</b>
0.001—1.000	0.002
1.001—2.000	0.003
2.001—3.000	0.004
3.001—4.000	0.005
4.001—5.000	0.006
5.001—6.000	0.007
6.001—7.000	0.008
7.001—8.000	0.009
8.100—9.000	0.010
9.001—10.000	0.011
10.001—11.000	0.013
11.001—12.000	0.014

<b>Table 1a (Metric): Interference at Installation</b>	
<b>Bore Diameter (mm)</b>	<b>Recommended Interference Fit (mm)</b>
1—25	0.06
26—50	0.07
51—75	0.10
76—100	0.12
101—125	0.15
126—150	0.17
151—175	0.20
176—200	0.23
201—225	0.26
226—250	0.29
251—275	0.32
275—300	0.35

Final insert ID should be machined to the clearances detailed in below tables.

For throat bushings, use recommended clearance from mechanical seal OEM

<b>Table 2a (Imperial): Recommended Minimum Clearance Horizontal Pumps: OH1-OH5, BB1-BB5</b>	
<b>Bore Diameter (in)</b>	<b>Case Wear Rings, throttle and center bushings (in)</b>
<2.999	0.006
3.001-3.499	0.007
3.500-3.999	0.007
4.000-4.499	0.008
4.500-4.999	0.008
5.000-5.999	0.009
6.000-6.999	0.009
7.000-7.999	0.010
8.000-8.999	0.010
9.000-9.999	0.011
10.000-10.999	0.011
11.000-11.999	0.012

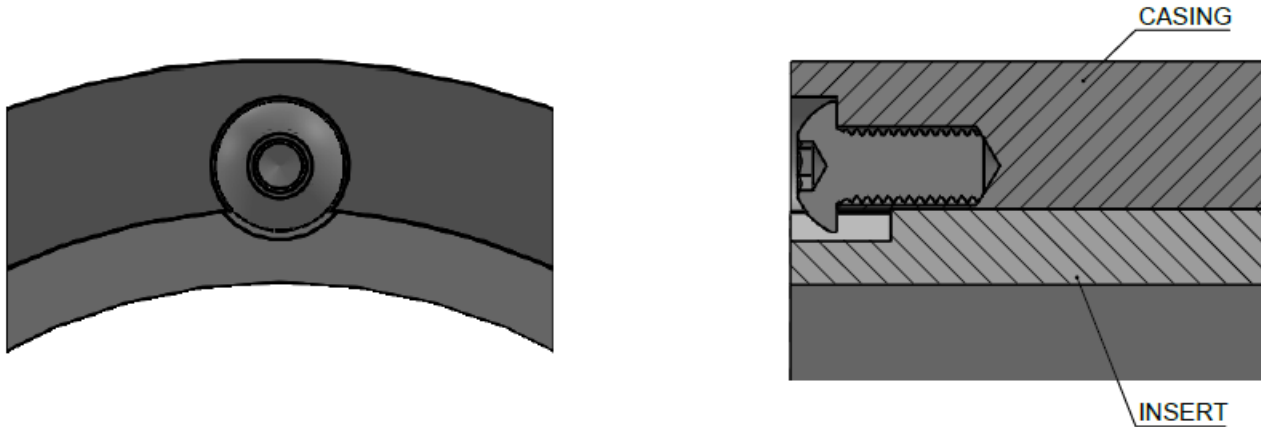
<b>Table 2b (Metric): Recommended Minimum Clearance Horizontal Pumps: OH1-OH5, BB1-BB5</b>	
<b>Bore Diameter (mm)</b>	<b>Case Wear Rings, throttle and center bushings (mm)</b>
<79.99	0.15
80-89.99	0.17
90-99.99	0.18
100-114.99	0.19
115-124.99	0.20
125-149.99	0.22
150-174.99	0.23
175-199.99	0.24
200-224.99	0.25
225-249.99	0.27
250-274.99	0.28
275-299.99	0.29

<b>Table 3a (Imperial): Recommended Minimum Clearance Vertically Suspended Pumps VS1-VS7</b>			
<b>Shaft/Sleeve Diameter (in)</b>	<b>Shaft Bearings (if OEM clearance is known)</b>	<b>Shaft Bearings (if OEM clearance is unknown)</b>	<b>Wear Rings</b>
<0.999	Use OEM Clearance	0.006	Use Shaft Bearing Clearance plus 0.002"
1.000-1.499		0.007	
1.500-1.999		0.008	
2.000-2.499		0.009	
2.500-2.999		0.010	
3.000-3.499		0.011	
3.500-3.999		0.012	
4.000-4.999		0.013	
5.000-5.999		0.014	
6.000-6.999		0.015	
7.000-7.999		0.016	

<b>Table 3b (Metric): Recommended Minimum Clearance Vertically Suspended Pumps VS1-VS7</b>			
<b>Shaft/Sleeve Diameter (mm)</b>	<b>Shaft Bearings (if OEM clearance is known)</b>	<b>Shaft Bearings (if OEM clearance is unknown)</b>	<b>Wear Rings</b>
<24.99	Use OEM Clearance	0.15	Use Shaft Bearing Clearance plus 0.05mm
25.00-37.49		0.18	
37.50-49.99		0.20	
50.00-62.49		0.23	
62.50-74.99		0.25	
75.00-87.49		0.28	
87.50-99.99		0.30	
100.0-124.9		0.33	
125.0-149.9		0.35	
150.0-174.9		0.38	
175.0-199.9		0.40	

## Anti-Rotation Screws

Boulden recommends that all B-835 inserts be installed with anti-rotation screws. A minimum of 3 screws per assembly is recommended. The below image shows a typical installation detail.



## Additional Notes

- For horizontal multistage pumps and high differential pressure situations consider Boulden PERF-SEAL® design
- Contact Boulden for guidance on split designs.
- Typical minimum radial wall thickness  
0.125" (3.2mm)

