

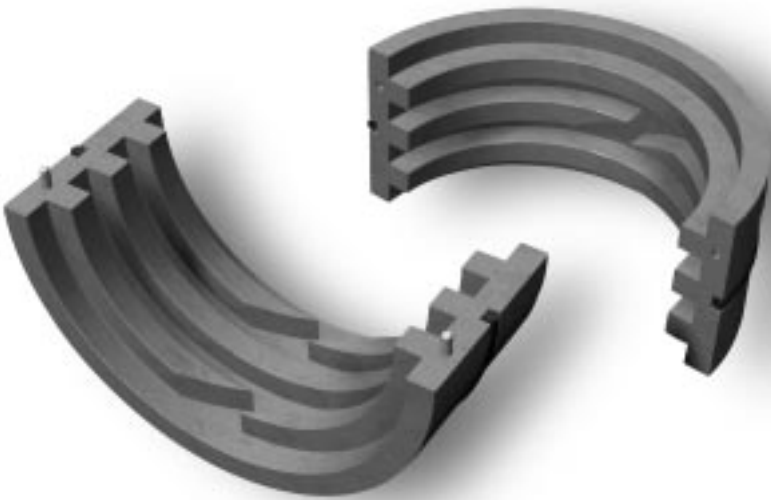


# *Installation Instructions*

## **SEB**

Solids Excluder Bushing

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## Description

The Solids Excluder Bushing (SEB) is an engineered device specifically designed to extend the mean time between failure (MTBF) of a mechanical seal. Pumps that operate with standard bore seal chambers (packing boxes) tend to accumulate solids in the seal chamber in the seal chamber. Over time, the accumulated solids in the seal chamber can cause component clogging, erosive or abrasive wear, and seal face overheating. Seal chambers are commonly flushed with an external clean fluid to help reduce seal damage, however flush rates come at the expense of additional resources and maintenance. When an SEB is installed in the throat of a seal chamber, it transfers solids from the seal chamber to the pumpage, leaving behind a clean environment for the mechanical seal. Removing solids from the seal chamber reduces seal component erosion, shaft sleeve wear, and seal hang-up resulting in greater reliability of the mechanical seal.

Installation according to the following steps will assure long trouble free life of the SEB.

## 1 Equipment Check

1.1 **Follow plant safety regulations** prior to equipment disassembly:

- **lock out** motor and valves.
- **wear** designated personal safety equipment.
- **relieve any pressure** in the system.
- **consult plant Material Safety Data Sheet (MSDS)** files for hazardous material regulations.

1.2 **Disassemble equipment** in accordance with equipment manufacturer's instructions to allow access to seal installation area.

1.3 **Remove existing mechanical seal and bushing** or compression packing and packing gland.

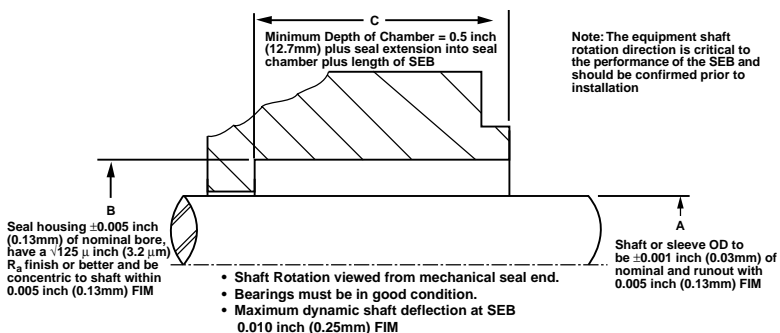
1.4 **Make sure the bore of the seal housing is clean** and free of burrs, cuts, dents, or corrosion that might inhibit proper seating of the SEB at the throat of the seal housing.

1.5 **Check equipment dimensions and Shaft Rotation.** They must agree with the dimensions shown in Figure 1 and the assembly drawing supplied with the SEB. Critical dimensions include the shaft OD (**A**), the seal chamber bore (**B**) and the chamber depth (**C**).

1.6 **Handle SEB with care**, it is manufactured to precise tolerances.

## Seal Chamber Requirements

Figure 1



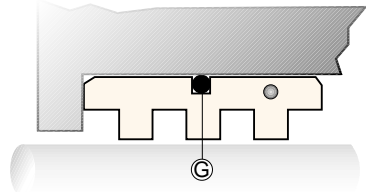
## 2 SEB Installation

- 2.1 **No tools** are required for installation.
- 2.2 **Lightly lubricate O-ring** Ⓒ
- 2.3 **Remove warning tape** from OD of the SEB

**Note:** After the warning tape has been removed, the SEB can be separated into two halves. Care must be taken when handling the SEB after removing this tape, in order to assure the individual halves do not separate unintentionally.

- 2.4 **Align each individual half of the SEB around the shaft** by engagement of the alignment pins.
- 2.5 **While compressing the OD of the SEB** gently slide the assembly into the seal chamber bore and fully seat the SEB against the throat restriction. See Figure 2. Note the SEB can be installed in either direction inside its target seal chamber.

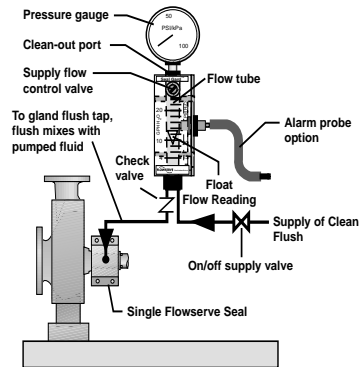
**SEB** Figure 2



**Caution:** Not fully seating the SEB against the throat restriction may result in SEB contact with the mechanical seal rotating components, therefore, resulting in damage and performance degradation of the SEB or the mechanical seal.

- 2.6 Complete the seal installation and equipment assembly. The SEB performance is enhanced with a clean fluid flush. The recommended flush should be from a clean external source (Plan 32). Connect the flush line and follow operational recommendations. See Figure 3.

**Typical Seal Gard** Figure 3



## 3 Operational Recommendations

- 3.1 **Do not exceed corrosion limits.** The SEB is designed to resist corrosion by most chemicals. However, do not expose the SEB materials of construction to products outside of their corrosion limits. Consult your Flowserve Representative for chemical resistance recommendations.
- 3.2 **Do not exceed the recommended temperature limits** of 32° to 250° F (0 to 121° C).
- 3.3 **Do not exceed the speed limits** of 10 to 80 fps (3-25 m/s).
- 3.4 **Seal chamber should be flooded and properly vented prior to pump start up.**

For special problems encountered during installation, contact your nearest Flowserve Sales and Service Representative or Authorized Distributor.



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## 4 Repair

The SEB can not be reconditioned and must be replaced if damaged. The SEB is designed to provide reliable operation under a wide range of operating conditions.

The design and dimensional tolerances are critical to its performance. Only parts supplied by Flowserve should be used when replacing this device. These parts are available from numerous Flowserve stocking locations. When ordering replacement parts refer to the SEB assembly part code.

If the SEB must be returned, a signed certificate of decontamination must be attached. An MSDS must be enclosed for any product that came in contact with the device.

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