

PRESSURE BALANCED PLUG INSTALLATION & MAINTENANCE MANUAL

1. INTRODUCTION

The Mitech pressure balanced (PB) plug is used to reduce forces on the plug caused by high line pressure enabling a smaller actuator to be selected. Fluid is able to pass through the plug to a chamber above the plug head. A seal in the outside diameter of the plug head prevents flow downstream.

2. SIGNIFICANT EQUIPMENT DETAILS

Mitech manufactures three types of PB plugs:

- One-piece plug with PTFE ring backed by “O” rings (Ambient temperature applications) – See figure 1
- One-piece plug with metal piston ring. (High temperature applications) – see figure 2
- Two-piece plug with energised lip seal (Ambient temperature applications)

The flow direction of the valve with a PB plug will generally be opposite to the normal flow direction. I.e.: Under the plug for fail closed / over the plug for fail open.

The medium must be clean to avoid damage occurring between the plug and the pressure-balanced sleeve.

3. DISASSEMBLY OF VALVE AND PLUG

- 3.1. Disassemble the valve according to the Globe Control Valve Maintenance Manual.
- 3.2. Once the seals in the plug are visible, check for wear. If the seals are worn they will have to be replaced. Do not remove the seals if they are not worn as removing them will cause damage and they will then have to be replaced.
- 3.3. To remove the energised lip seal, the PB retaining ring has to be unscrewed first.
- 3.4. As some seals work in certain directions, **Note sealing direction of the seal.**

4. COMPONENT INSPECTION

- 4.1. Check seals for wear and flatness. “O” rings and PTFE seals should always be replaced when valve has been dismantled.
- 4.2. Check bore of retainer for scoring.
- 4.3. Inspect the plug head for damage.

5. REASSEMBLY OF VALVE

- 5.1. Replace the seals. Ensure the seals have been correctly seated in either the recess or groove on the plug.
- 5.2. If the plug is made up of two or more parts, they need to be screwed back together in the correct order.
- 5.3. Re-build the valve according to the Globe Control Valve Maintenance Manual.
- 5.4. Take care when inserting the plug into the P.B sleeve not to damage the seals.

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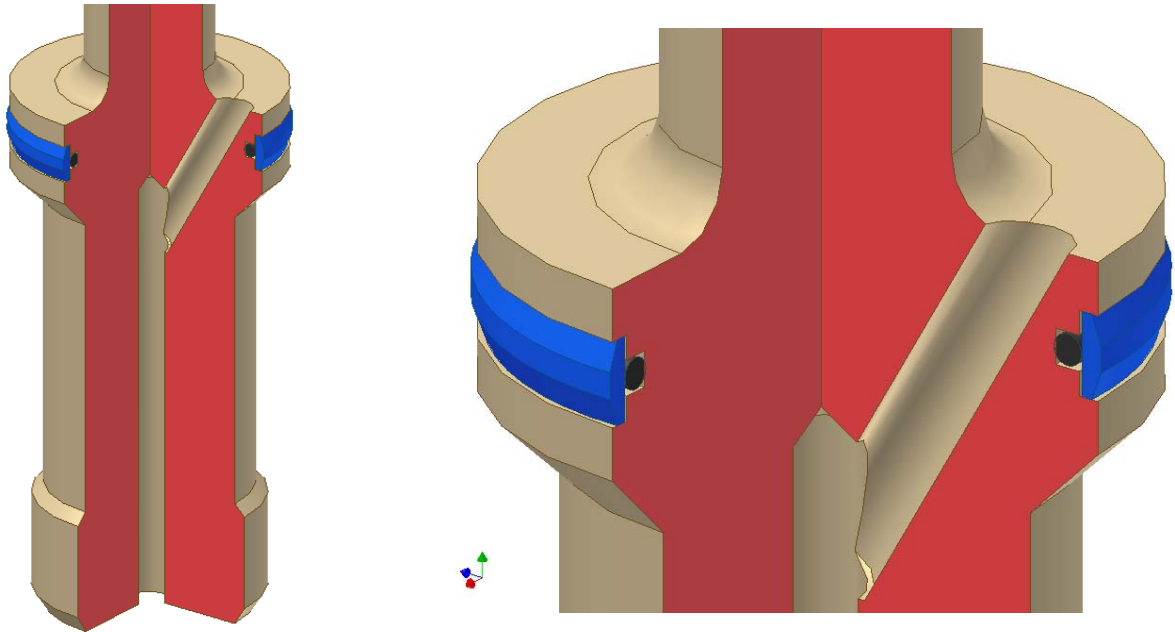


Figure 1: Pressure Balanced Sleeve with "O" ring and PTFE seal, showing pathways through plug

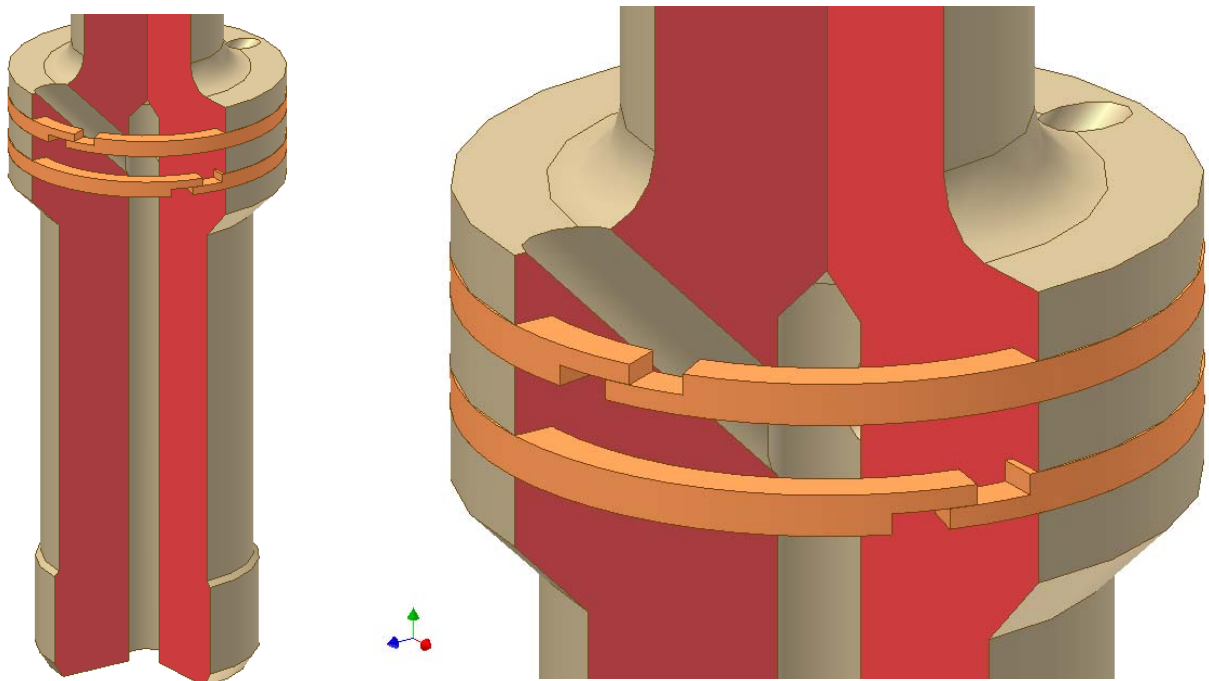


Figure 2: Pressure Balanced Sleeve with metal seals, showing pathways through plug and joining of metal seals.