



Lubricated Plug Valve Maintenance Single Point Lesson

BASIC INFORMATION

Why Service

A lubricated plug valve is typically constructed of two pieces of metal, a plug (valve) and a body. The plug sits inside the body but is not in intimate contact. The plug has a hole through the middle and allows flow when the plug is turned so that the hole is oriented with the pipe flow direction downstream. A gas-tight seal is created when a special sealant material is typically injected down through the fitting in the center of the valve stem.

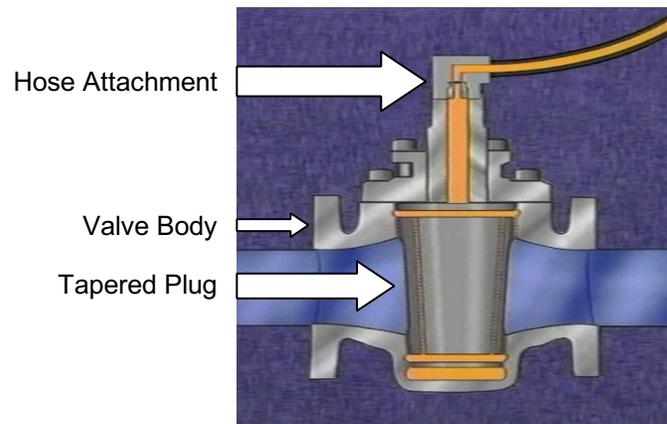


Figure 1: Cut Away of Valve

Standards

NFPA 86 Process Ovens and Furnaces

NFPA 85 Boiler and Combustion Systems Hazards Code

ASME CSD-1 Controls and Safety Devices for Automatically Fired Boilers

Equipment Operating Mode

Valve in the closed position, system not operating.



SERVICE PROCEDURE

The correct test procedure depends on the type of valve installed. This procedure is for valves already in service, not the initial fill of sealant. The following two (2) general procedures are common to most valves.

Stick Sealant Service Procedure (Manual Injection)

- Verify that equipment is shut down and automatic shutoff valves are closed.
- Place the lubricated plug valve in the fully open position.
- Remove the combination sealant screw and insert the appropriate size/type of sealant into the stem.
- Replace the sealant screw and slowly turn the screw until a ring of sealant is seen at the neck of the valve.
- Place the valve in the fully closed position.
- Slowly turn the screw again until a ring of sealant is visible at the neck of the valve.
- Rotate the valve several times to distribute the sealant.

Preferred Method: Sealant Gun Service (Using Injection Gun)

- Verify that equipment is shut down and the automatic shutoff valves are closed.
- Place the lubricated plug valve in the fully open position.
- Clean dirt from the top of the fitting.
- Connect the button head coupler over the zerk sealant fitting on the valve.
- Inject sealant into the valve as long as the needle on the pressure gauge climbs gradually to a plateau and decreases slightly at the end of the stroke.
- Continue to inject as long the valve will take sealant.
NOTE: After sealant addition, the valve is fully pressurized when the needle rises to a plateau and remains, without dropping back. (See below if this does not happen)
- Release pressure before attempting to remove the gun from the fitting.
- Rotate the valve several times to distribute the sealant.



Possible Problems:

- If pressure doesn't rise:



- Gun may be out of sealant.
- Valve seat may be leaking.
- Packing gland may be loose.
- If the pressure keeps rising without ever reaching a plateau:
 - Sealant injection system may be blocked within the valve.
 - Valve sealant fitting may be bad.
 - Valve may have seized.

RESOLVING PROBLEMS

- Caution: casing may break if excessive force is used
- If the valve has seized, determine whether one of these options will work:
 - Use valve purge compound to remove the blockage.
Contact the valve manufacturer to purchase the correct valve purge the compound.
 - Create a dam with plumber's putty and allow penetrating oil to leak into the valve stem.



- If the sealant is not being injected into the valve, use the valve flush purge compound to break up obstructions.