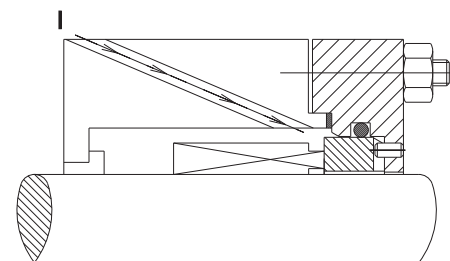
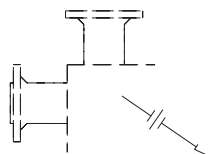


A P I PLAN



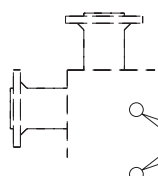
PLAN - 01



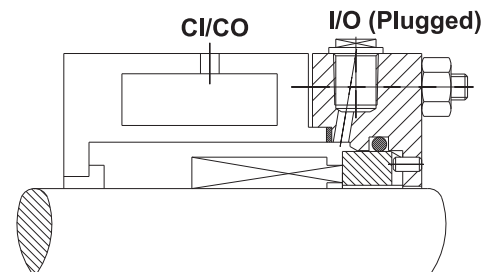
Integral (internal) recirculation from pump discharge to seal. Recommended for clean pumpage only. Care must be taken to ensure that integral recirculation is sufficient to maintain stable face conditions.

I - Inlet

PLAN - 02



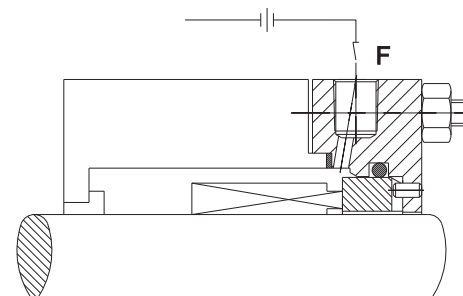
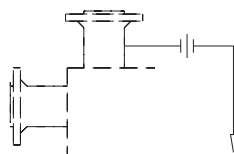
I/O Connections for possible future circulation fluid



Dead-ended seal chamber with no circulation of flushed fluid.

I - INLET
O - OUTLET
CI - COOLING INLET
CO - COOLING OUTLET

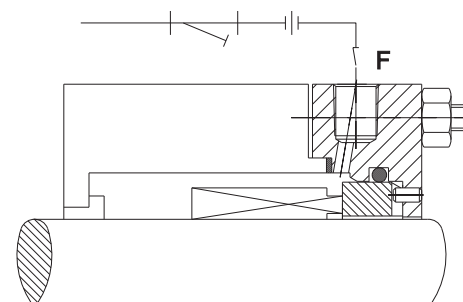
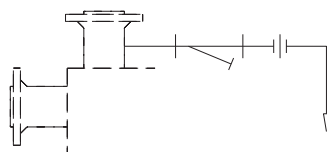
PLAN - 11



Recirculation from pump discharge through a flow control orifice to the seal. The flow enters the seal chamber adjacent to the mechanical seal faces, flushes the faces and flows across the seal back into the pump.

F - FLUSHING

PLAN - 12



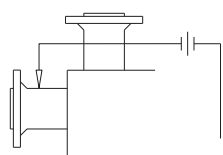
Recirculation from pump discharge through a strainer and flow control orifice to the seal. This plan is similar to plan 11 but with the addition of the strainer to remove occasional particles. Strainers are not normally recommended because blockages could cause seal failure.

F - FLUSHING

API PLAN

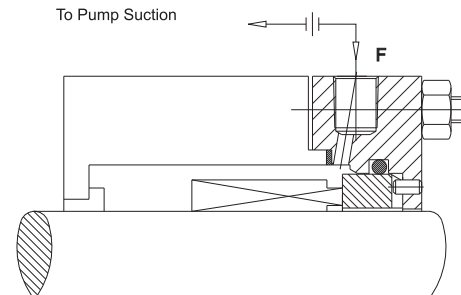


PLAN - 13



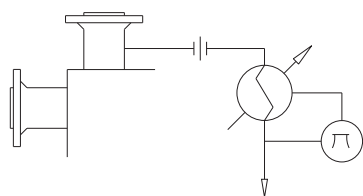
F - FLUSHING

To Pump Suction

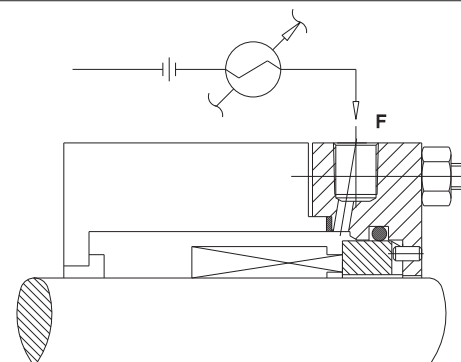


Recirculation from seal chamber through a flow control orifice & back to pump suction.

PLAN - 21

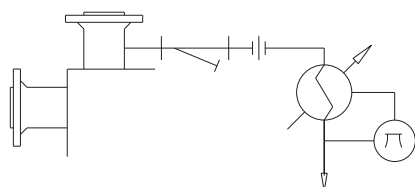


F - FLUSHING

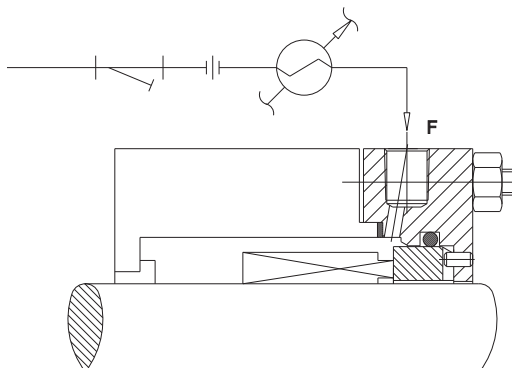


Recirculation from the pump discharge through a flow control orifice and a cooler, then into the seal chamber

PLAN - 22

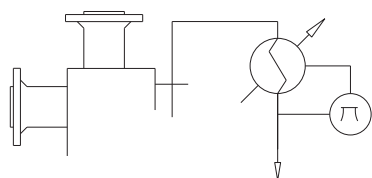


F - FLUSHING

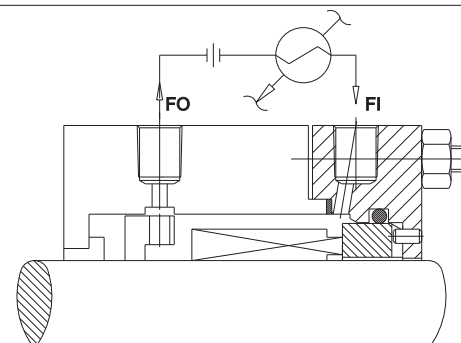


Recirculation from the pump discharge through a strainer, a flow control orifice and a cooler and into the seal chamber. Strainers are not normally recommended because blockages could cause seal failure.

PLAN - 23



FI - FLUSHING INLET
FO - FLUSHING OUTLET

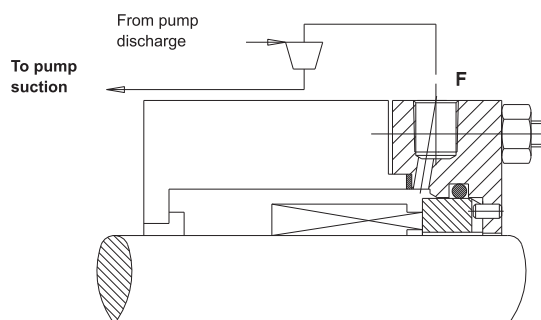
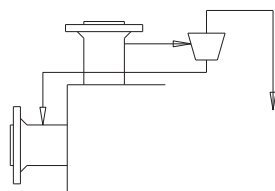


Recirculation from a pumping ring in the seal chamber through a cooler and back to the seal chamber. This plan can be used on hot applications to minimize heat load on the cooler by cooling only the small amount of liquid that is recirculated.

API PLAN



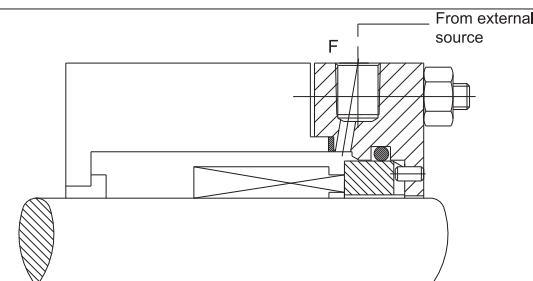
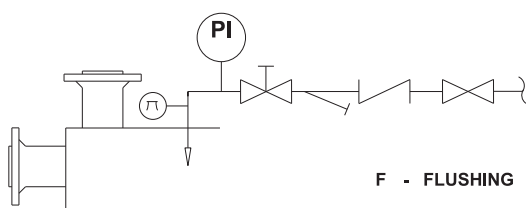
PLAN - 31



F - FLUSHING

Recirculation from pump discharge through a cyclone separator delivering the clean fluid to the seal chamber. The solids are delivered to the pump suction line.

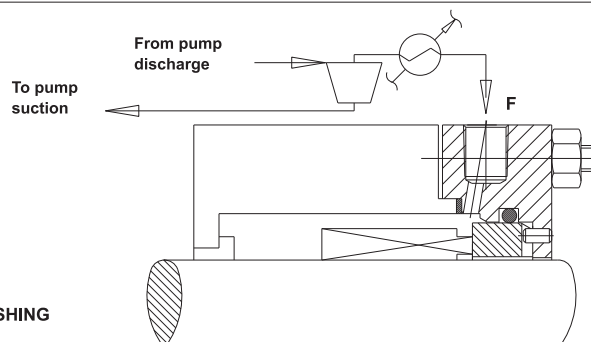
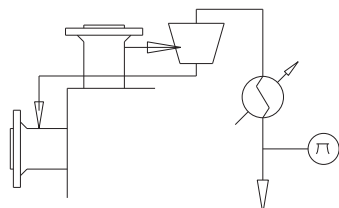
PLAN - 32



F - FLUSHING

Flush is injected into the seal chamber from an external source. Care must be exercised in choosing a proper source of seal flush to eliminate the potential for vaporization of the injected fluid and to avoid contamination of the fluid being pumped with the injected flush.

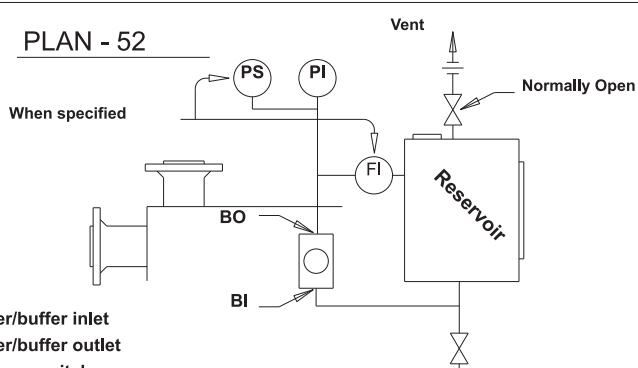
PLAN - 41



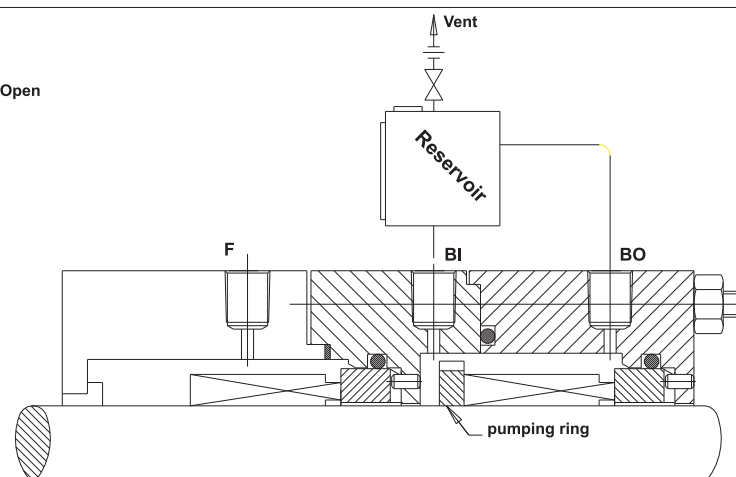
F - FLUSHING

Recirculation from pump discharge through a cyclone separator delivering the clean fluid to a cooler and then to the seal chamber. The solids are delivered to the pump suction line.

PLAN - 52



BI - barrier/buffer inlet
Bo - barrier/buffer outlet
PS - pressure switch
PI - pressure indicator
FI - flow indicator
F - flushing

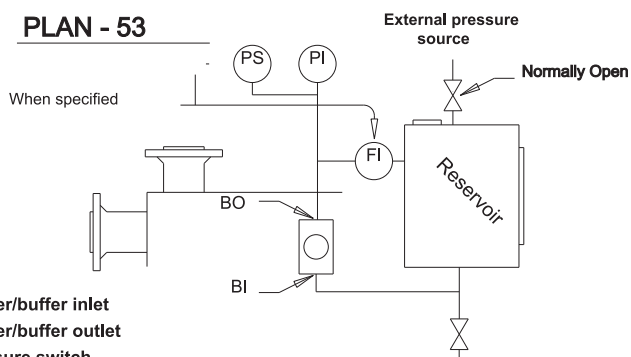


External reservoir providing buffer fluid for the outer seal of an unpressurized dual seal arrangement. During normal operation, circulation is maintained by an internal pumping ring. The reservoir is usually continuously vented to a vapor recovery system and is maintained at a pressure less than the pressure in the seal chamber.

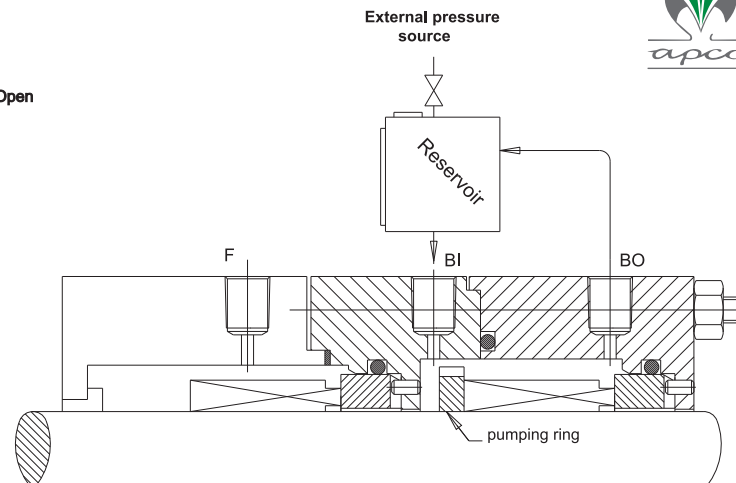
A P I PLAN



PLAN - 53

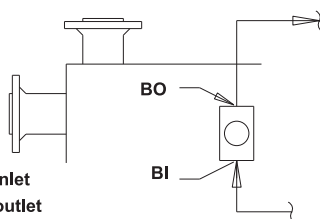


- BI - barrier/buffer inlet
- Bo - barrier/buffer outlet
- PS - pressure switch
- PI - pressure indicator
- FI - flow indicator
- F - flushing

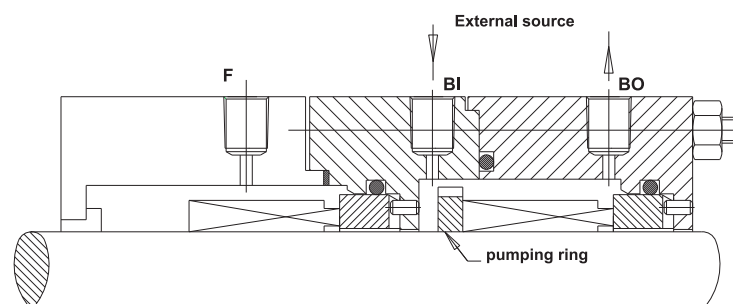


Pressurized external barrier fluid reservoir supplying clean fluid to the seal chamber. Circulation is by an internal pumping ring. reservoir pressure is greater than the process pressure being sealed. Typically used with an arrangement 3 pressurized dual seal.

PLAN - 54

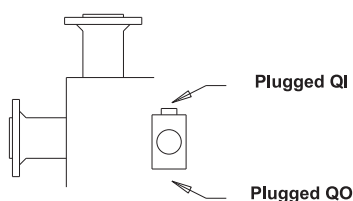


- BI - barrier/buffer inlet
- Bo - barrier/buffer outlet
- F - flushing

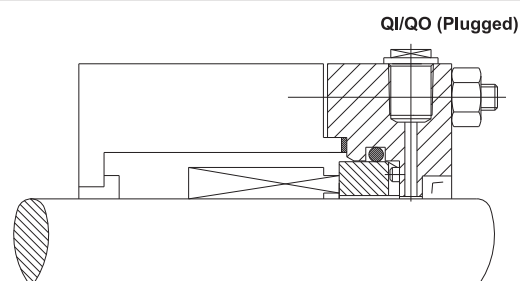


Pressurized external barrier fluid reservoir or system supplying clean fluid to the seal chamber. Circulation is by an external pump or pressure system. Reservoir pressure is greater than the process pressure being sealed. Typically used with an arrangement 3 pressurized dual seal.

PLAN - 61

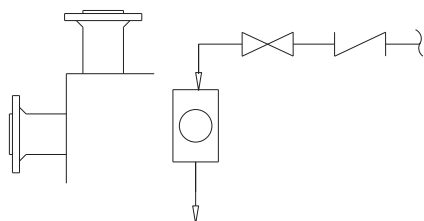


- QI - Quenching inlet
- QO - Quenching outlet

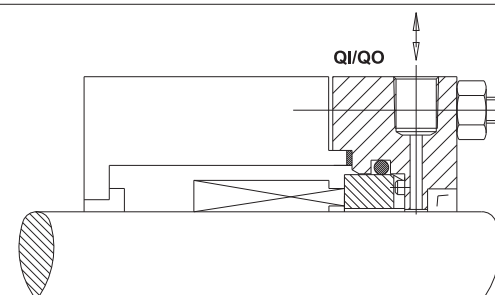


Tapped connections for the purchaser's use. typically this plan is used when the purchaser is to provide fluid (such as steam, gas or water) to an auxiliary sealing device.

PLAN - 62



- QI - Quenching inlet
- QO - Quenching outlet



External source providing a quench. The quench may be required required to prevent solids from accumulating on the atmospheric side of the seal. Typically used with a close-clearance throttle bushing.