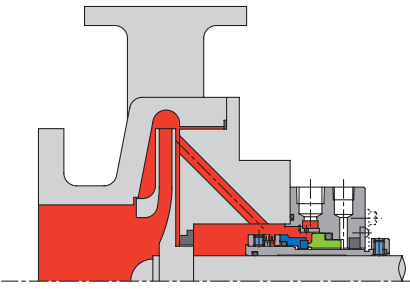
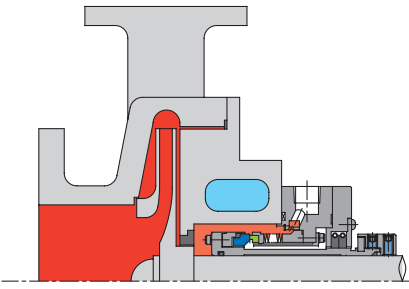


### PLAN 01 ( Internal Flushing )



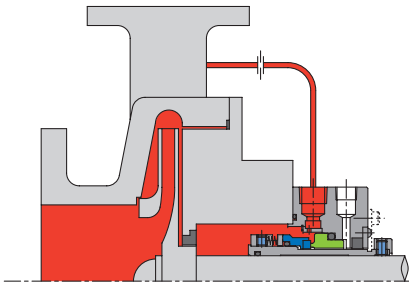
- PLAN01 is similar to a PLAN11 except internal port.
- PLAN01 is useful with liquids that thicken or solidify at ambient temperatures to minimize freezing the fluid.

### PLAN 02 ( Dead end )



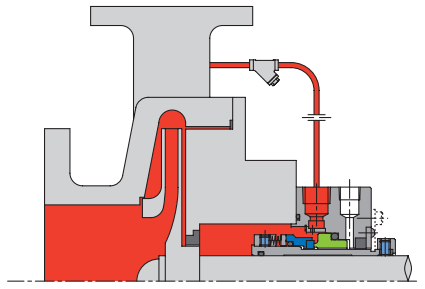
- Cooling/Heating with pump jacket.
- PLAN02 is more common in hot oil service of low seal chamber pressure.
- PLAN02 is common in the Chemical industry.

### PLAN 11 ( Self Flushing )



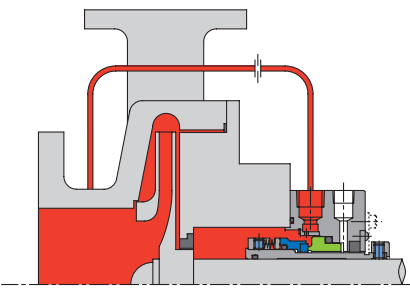
- PLAN11 is the default plan for single sale.
- Recirculation from pump discharge through a orifice to the seal.

### PLAN 12 ( PLAN11 + Strainer )



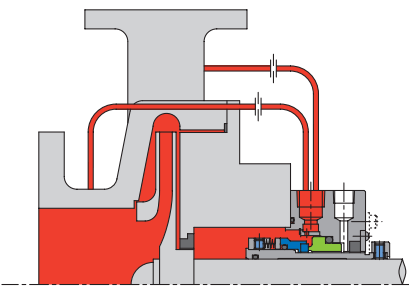
- PLAN12 is used to protect orifice and seal face in service including solids.
- Clean strainer regularly to preventing blockage.

### PLAN 13 ( Reverse Flushing )



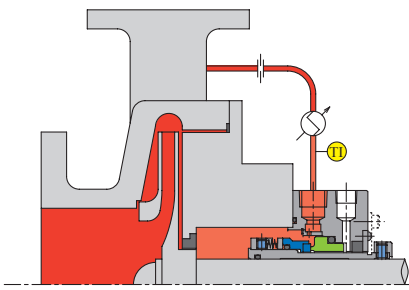
- Standard selection for vertical pumps.
- Product is routed from the seal chamber back to the pump suction to provide cooling and to vent air from the seal chamber.

### PLAN 14 ( Through flushing )



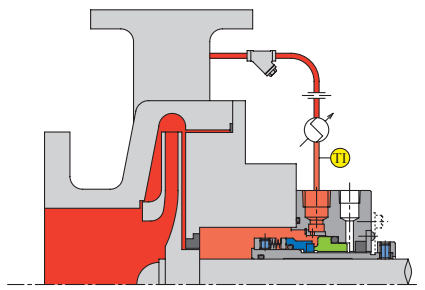
- PLAN14 is the combination of PLAN11 and PLAN13 to enhance cooling.
- Commonly used on vertical pumps and/or LPG application.

### PLAN 21 ( PLAN11 + Cooler )



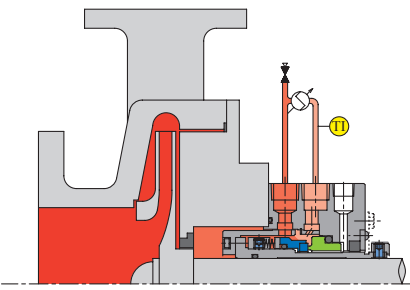
- Plan21 provides a discharge cool flush to the seal.
- This is chosen to improve the margin to vapour formation, to meet secondary sealing element temperature limits, or to improve lubricity.

### PLAN 22 ( PLAN12 + Cooler )



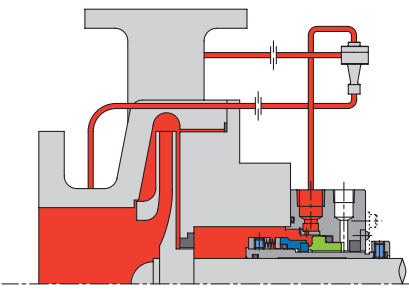
- PLAN22 is added a cooler to the orifice down stream of Plan12.
- Common in seal fluid is a high temperature, and solids.

### PLAN 23 ( Partial Circulation )



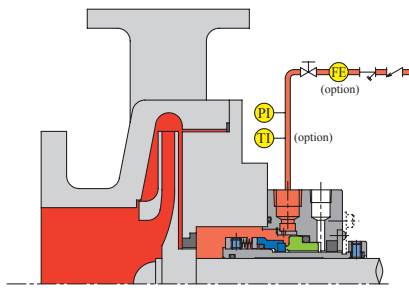
- Recirculation from a pumping ring in the seal chamber through a cooler and back into the seal chamber.
- The cooler only removes seal face-generated heat plus heat soak from the process.

### PLAN 31 ( PLAN11 + Cyclone separator )



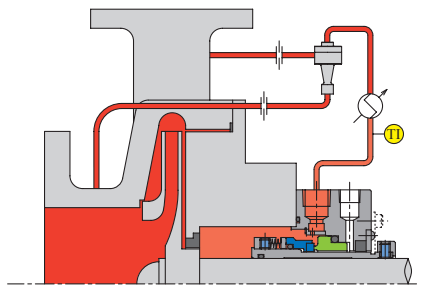
- Recirculation from discharge through a cyclone separator delivering the clean fluid to seal chamber for heat removal and solids removal.
- The solids are delivered to pump suction line.

### PLAN 32 ( External Flushing )



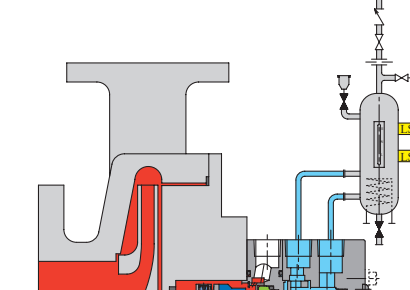
- Clean flush is injected into the seal chamber from external source.
- Commonly used for hot oil services such as the residue oil including solids at high temperature services.

### PLAN 41 ( PLAN21 + Cyclone separator )



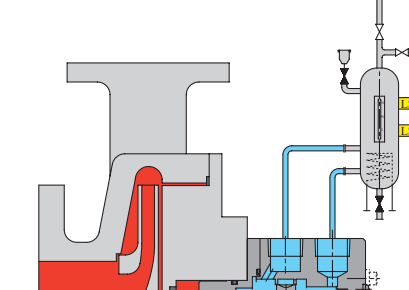
- PLAN41 is combination of PLAN21 and PLAN31 and is specified only for hot services containing solids.

### PLAN 52 ( Unpressurized buffer fluid )



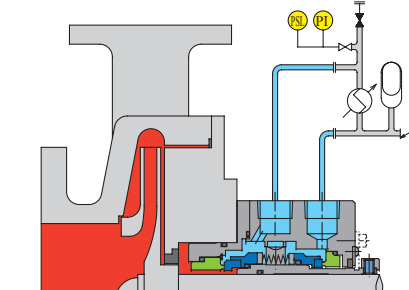
- PLAN52 is used with Arrangement2 wet seals (2CW-CW).
- It is normally used in services where process fluid leakage to atmosphere must be minimized.

### PLAN 53A ( Pressurized barrier fluid )



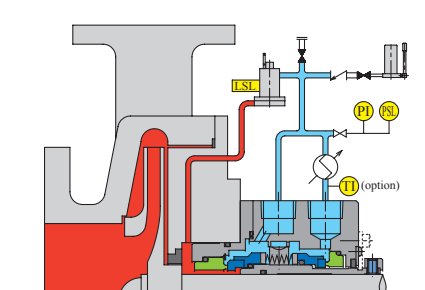
- PLAN53A is used with an Arrangement3 wet seals.
- Barrier fluid reservoir supplying clean fluid to the seal chamber.

### PLAN 53B ( Pressurized barrier fluid )



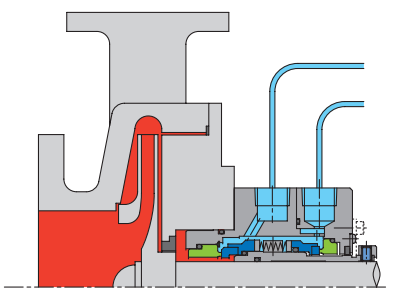
- PLAN53B is used with an Arrangement3 wet seals.
- Pre-pressurized bladder accumulator provides pressure to the circulation system.

### PLAN 53C ( Pressurized barrier fluid )



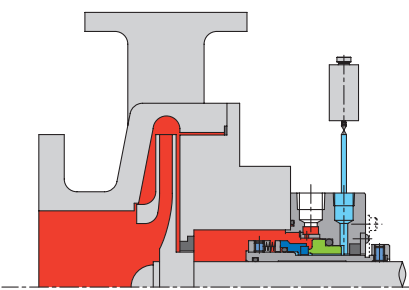
- PLAN53C is used with an Arrangement3 wet seals.
- Piston accumulator provides pressure to the circulation system (Dynamic tracking of process pressure).

### PLAN 54 ( Pressurized barrier fluid )



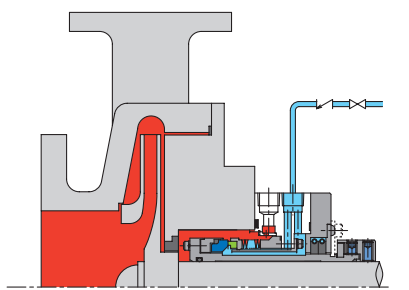
- PLAN54 is used with an Arrangement3 wet seals.
- In a PLAN54, a cool clean product from an external source is supplied to the seal as a barrier fluid.

### PLAN 51 ( Quench Pot )



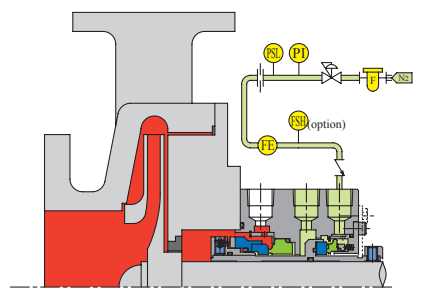
- PLAN51 supplies a fluid in the atmosphere side of mechanical seal with a quench pot.
- This is often for thawing mechanical seal in freezing temperature before pump start-up.

### PLAN 62 ( External Quench )



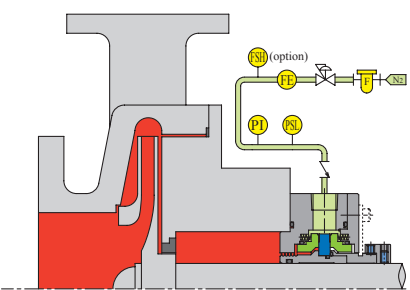
- A quench stream is brought from an external source to atmospheric side of the seal faces.
- To prevent solids buildup on the atmospheric side of the seal.

### PLAN 72 ( Unpressurized buffer gas )



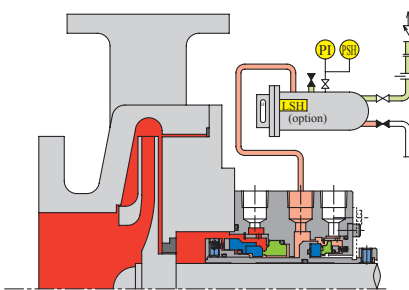
- PLAN72 can be used on Arrangement2 that use a dry-running containment seal.
- Buffer gas can be used to dilute seal leakage or in conjunction with PLAN75 or 76 to help sweep leakage into a closed collection system.

### PLAN 74 ( Pressurized barrier gas )



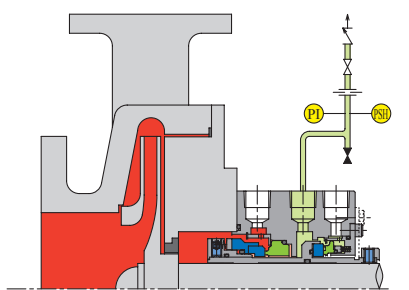
- PLAN74 is used on Arrangement3 where the barrier fluid is a gas.
- This is used in services which may contain toxic or hazardous materials whose leakage cannot be tolerated.

### PLAN 75 ( Drain tank )



- PLAN75 is used on Arrangement2 which utilize a dry-containment seal and where the leakage from the inner seal may condense.
- A large quantity of leaks of the inner seal detect it in LSH or PSH of the Drain tank.

### PLAN 76 ( Leakage collection )



- PLAN76 is used on Arrangement2 which utilize a dry-containment seal and where the leakage from the inner seal will not condense.
- A large quantity of leaks of the seal detect it in PSH of the Flare line.

### SYMBOL

	Flow control orifice		Pressure switch low
	Check valve		Level switch high
	Pressure control valve		Level switch low
	Temperature indicator		Filter
	Pressure indicator		Flow meter
	Pressure switch high		Flow switch high