

AUXILIARY INSTALLATIONS

Apart from a wide range of mechanical seals offered by ANGA, we also provide our Customers with auxiliary installations, without which some applications for many seals would not be possible.

At present, adapting to our Customers' needs, we mainly offer auxiliary installations according to the four Plans described in the API 682 standard:

- [Plan 23](#)
- [Plan 52](#)
- [Plan 53A](#)
- [Plan 74](#)

Of course, on the Customer's request we can deliver installations adapted to other [API Plans](#). Installations and their components are selected individually, in accordance with the Customer's requirements and the nature of the sealed process.

PLAN 23

Installation to Plan 23 involves the cooler of working liquid circulating in the pump gland box and appropriate connectors and piping. The pumping ring in the gland box enforces recirculation of working liquid. Liquid flows through the cooler and then back to the gland box. The external cooling water circuit is connected to the coil located in the cooler. This system is applied in case of high temperature liquids.

More information concerning Plan 23 can be found in the "Technique" section in the site [API Plans](#).

APPLICATION EXAMPLE

Application: single seals, e.g., [BC](#), [BD](#).

PLAN 52

This system is an unpressurized buffer liquid installation, comprising a buffer liquid tank, necessary connectors and valves and control and measuring equipment. The installation is connected to a double seal. During normal operation, the buffer liquid circulation is forced and maintained by the internal pumping ring of the seal. The tank is normally vented continuously to the gas recovery system and the pressure in it is lower than the pressure in the stuffing box. This installation is applied in case of liquids which crystallize in contact with the air, which can be environmentally hazardous. The main functions of buffer liquid involve, among other things, seal lubrication and cooling as well as washing sealed liquid out of the seal.

More information concerning Plan 52 can be found in the "Technique" section in the site [API Plans](#).

APPLICATION EXAMPLE

Legend:

- 1** – Tank with cooler,
- 2** – Pressure and temperature measuring unit,
- 3** – Liquid level indicator
- 4** – Vent valve

A – Mechanical seal

Application: double seal, e.g., [USP](#), [BED](#), [BPD](#), [BUV](#), [EPD](#).

PLAN 53A

This system is a pressure barrier liquid installation, comprising a barrier liquid tank, a manual pump for barrier liquid refilling, necessary connectors and valves and control and measuring equipment. The installation is connected to a double seal. During normal operation, the barrier liquid circulation is forced and maintained by the internal pumping ring of the seal. Pressure in the tank is higher than the pressure in the gland box and thus, the sealed medium is fully hermetic, and only a slight amount of the barrier liquid goes into the product and out into the atmosphere. Pressure in the tank is maintained by connecting an external pressure source, e.g., compressed nitrogen from plant installation or cylinder. This installation is used with contaminated liquids which crystallize in contact with the air, which can be environmentally hazardous or toxic. The main functions of the barrier liquid involve, among other things, seal lubrication and cooling as well as preventing the sealed medium from getting inside the seal.

More information concerning Plan 53A can be found in the "Technique" section in the site [API Plans](#).

APPLICATION EXAMPLE

Legend:

- 1 – Tank with cooler,
- 2 – Pressure and temperature measuring unit,
- 3 – Pressure drop indicator
- 4 – Manual pump

- A – Mechanical seal
- B – Connection of external gas source

Application: double seals, e.g., [USP](#), [BED](#), [BPD](#), [BUV](#), [EPD](#), [VD](#), [M2/M2L](#), [M3/M3L](#), [M4/M4L](#).

PLAN 74

Barrier gas installation operating according to Plan 74 comprises a power supply unit equipped with appropriate connectors and valves and control and measuring equipment. This installation is used with double gas-lubricated seals. Externally supplied barrier gas is used to ensure contactless seal operation and to block leakages of the pumped liquid. Barrier gas pressure is higher than the pumped liquid pressure.

More information concerning Plan 74 can be found in the "Technique" section in the site [API Plans](#).

APPLICATION EXAMPLE

Legend:

- 1.1 - valve to cut off gas supply to the unit
- 1.2 - cut-off valve
- 2 - pressure reducing valve with fine filter
- 3 - low range rotameter
- 4 - high range rotameter
- 5 - gas pressure gauge at the unit outlet
- 6 - check valve
- 7 - pneumo electric relay

Connection designations:

A - gas inlet to the unit from the compressed gas source

B - gas outlet from the unit to the seal

Application: double gas-lubricated seals, e.g., [GF](#), [GK](#).

