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TSA6 Barrier/buffer fluid system

Seal Supply Systems | Thermosiphon systems



Features

The EagleBurgmann barrier/buffer fluid systems of the TSA6 range meet all the requirements to supply mechanical seals in accordance with the API682 4th edition guidelines. The vessels are equipped with all essential connections for fitting additional components.

Available as bottom flanged version (TSB6) which can be dismantled for optimized and easy cleaning purpose of the inside of the vessel.

The modular system allows the TSA6/TSB6 vessels to be combined with a wide range of system components such as level transmitter, pressure transmitter, base frame, etc.

Functional description

The TS system performs all the basic functions of a barrier/buffer system for the operation of dual seals:

- To pressurize the barrier/buffer chamber
- As leakage compensation
- Barrier/buffer fluid is circulated by thermosiphon effect or forced circulation system
- To cool the seal

Advantages

- Operating limits up to 50 bar / 200 °C (725 PSI / 392 °F): suitable for a wide range of demanding operating conditions
- Robust design with weld-pad type sightglass for optimum visual level monitoring
- Modular system: combination possible with a wide range of system components

Standards and approvals

- API 682 4th ed. Cat. 2/3 - 2CW-CW
- API 682 4th ed. Cat. 2/3 - 3CW-FB
- API 682 4th ed. Cat. 2/3 - 3CW-BB
- API 682 4th ed. Cat. 2/3 - 3CW-FF
- API 682 4th ed. Cat. 1 - 2CW-CW
- API 682 4th ed. Cat. 1 - 3CW-FB
- Compliant to TA Luft (German Clean Air Act)

Recommended applications

- Refining technology
- Oil and gas industry
- Petrochemical industry
- Chemical industry
- Power plant technology

Recommended piping plans

[API Plan 52](#)
[API Plan 53A](#)

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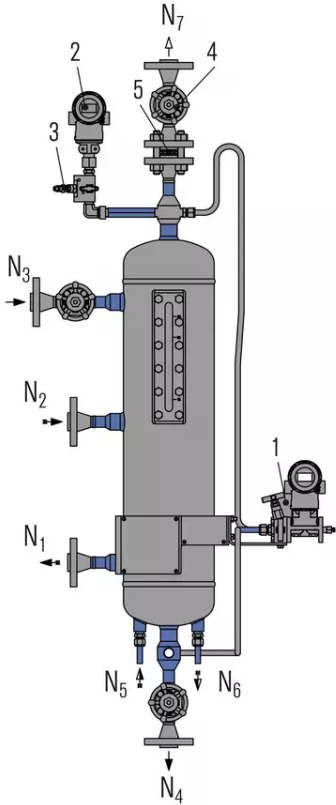
- To selectively absorb product leakage and prevent dry running (tandem arrangement)

Use nitrogen for pressurization; pressurization is monitored by a pressure transmitter (default). The incorporated level transmitter issues a signal whenever the level of barrier/ buffer fluid is too low.

Notes

Design, calculation and production in accordance with ASME VIII, Div. 1. Variant with approval according to EU Pressure Equipment Directive PED 2014/68/EU available.

Inspections like ASME-U-Stamp by 3rd party on request.



Thermosiphon System (API Plan 52)

- 1 Level transmitter
- 2 Pressure transmitter
- 3 Manifold
- 4 Shut-off valve
- 5 Orifice

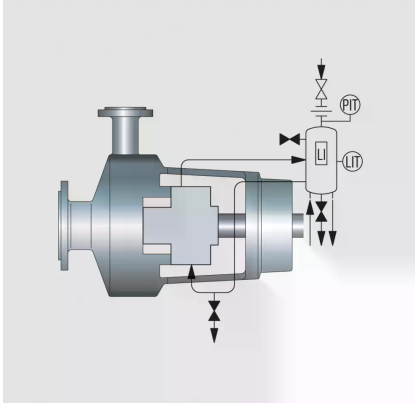
- N1 to the mechanical seal
- N2 from the mechanical seal
- N3 Filling connection

- Bottom
- N4 Drain
- N5 Cooling water IN
- N6 Cooling water OUT

- Cover
- N7 Connection to flare

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Installation, details, options



The TS vessel must always be installed higher than the mechanical seal. The buffer/barrier fluid flows via the return pipe into the vessel and is cooled. The exchange of fluid takes place by the thermosiphon principle or by forced circulation, e.g. with a pumping screw. Connection pipes to the seal should be designed with as little resistance as possible.

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Product variants

Designation	TSA6
Design code	ASME VIII, Div. 1
Approval	w/o-stamp / U-stamp / PED 2014/68/EU
For shaft diameters >60 mm(acc. to API 682)	■
Integrated cooling coil	■
Volume, vessel (liters)	26
Volume, tube (liters)	0.4
Allowable pressure – shell1)	50 bar (725 PSI)
Allowable pressure – tube1)	50 bar (725 PSI)
Allowable temperature – vessel1)	-29 °C ... +200 °C / (-20 °F ... +392 °F)
Allowable temperature – system1)	-29 °C ... 120 °C / (-20 °F ... +248 °F)
Liquid volume at NLL –Normal Liquid Level (liters)	20
Working volume MAX-MIN (liters)	6.5
Cooling capacity depending on process medium	(low flow / High flow)
Water	2.7 kW2) / 3.7 kW3)
Ethylene glycol water (30:70)	2.1 kW2) / 2.8 kW3)
oil ISO VG10	0.6 kW2) / 0.8 kW3)
Metal parts	316/316L
Sight-glass	Borosilicate
Gaskets	PTFE
Net weight (approx.)	75 kg (165 lb)

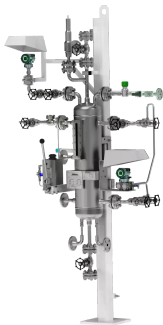
Other versions and connections (flanged, threaded, welded) on request.

1) Design data, permissible working values depend on the actual conditions of service.

2) Low Flow: 8 l/min (process fluid), 10 l/min (cooling water), $\Delta T = 40$ K

3) High Flow: 15 l/min (process fluid), 20 l/min (cooling water), $\Delta T = 40$ K

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Customized version including additional components.