SO-1 BARRIER FLUID TANK FOR DUAL MECHANICAL SEALS

The SO-1 barrier fluid tank is designed to contain barrier fluid for a tandem or double mechanical seal, to provide its cooling and to control mechanical seal performance.The SO-1 barrier fluid tank can be used with API Plans 52 or 53 as per API682.

TECHNICAL DATA	
Heat exchanger type - shell and tube, floating head, four-way, vertical	
Cooling power	up to 3.8 kW
Barrier fluid volume	6.4 - 7.8 liters
Maximum barrier fluid pressure in tank	40 bar
Maximum barrier fluid temperature after mechanical seal entering tank	150°C
Triggering pressure of the installed safety valve	6 - 8 bar
Heat exchanger cooling area	0,55 m^2
Heat exchanger effective volume	1,2 liters
Heat exchanger tube pack length	0,58 m
Heat exchanger tube cross-section	16x2 mm
Heat exchanger tubes quantity	5x4=20 pcs
Heat exchanger cooling fluid	water 15-25°C
Cooling water flow rate	0.6 - 1.2 m^3/hour
Minimum service life	10 years
Weight	55 kg

Design Features

The SO-1 barrier fluid tank can be easily disassembled, so the heat exchanger can be mechanically cleaned.

Materials of parts:

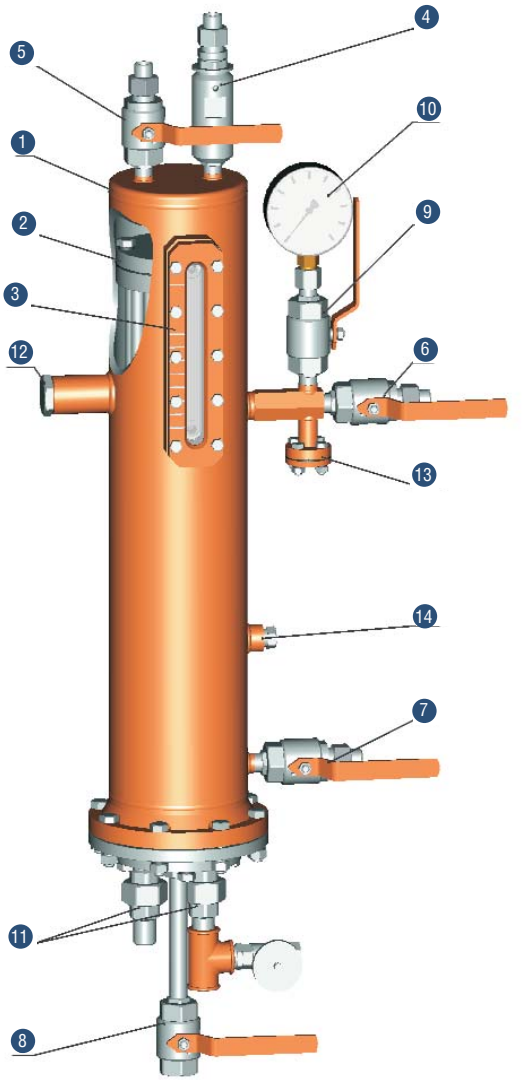
- metal parts - ss304
- gaskets - reinforced flexible graphite MG140-1 or PTFE

Barrier fluid tank is supplied with ball valves with fittings for welded connections to fit barrier fluid tubes.

The basic version of the SO-1 heat exchanger includes a 1/2" safety valve, a pressure indicator, and a level gauge.

The system can be fitted with instrumentation and control for automatic checking of mechanical seal performance and pump shut-down in case of mechanical seal failure. The instrumentation and control version of SO-1 can additionally include a level sensor, a pressure switch, and a temperature sensor. Sensors and switches are either intrinsically safe or explosion proof depending on customer's order.

SO-1 Barrier fluid tank. Full option system shown



1 - Tank
2 - Heat exchanger
3 - Pressure indicator
4 - Level gauge
5 - Safety valve
6 - Barrier fluid low level sensor
7 - Temperature sensor
8 - Pressure switch
9 - Ball valve DN15mm
10 - Valve DN15mm
11 - Ball valve DN15mm
12 - Ball valve DN20mm
13 - Temp. switch flange
14 - Pressure switch slot

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SO-3 BARRIER FLUID TANK

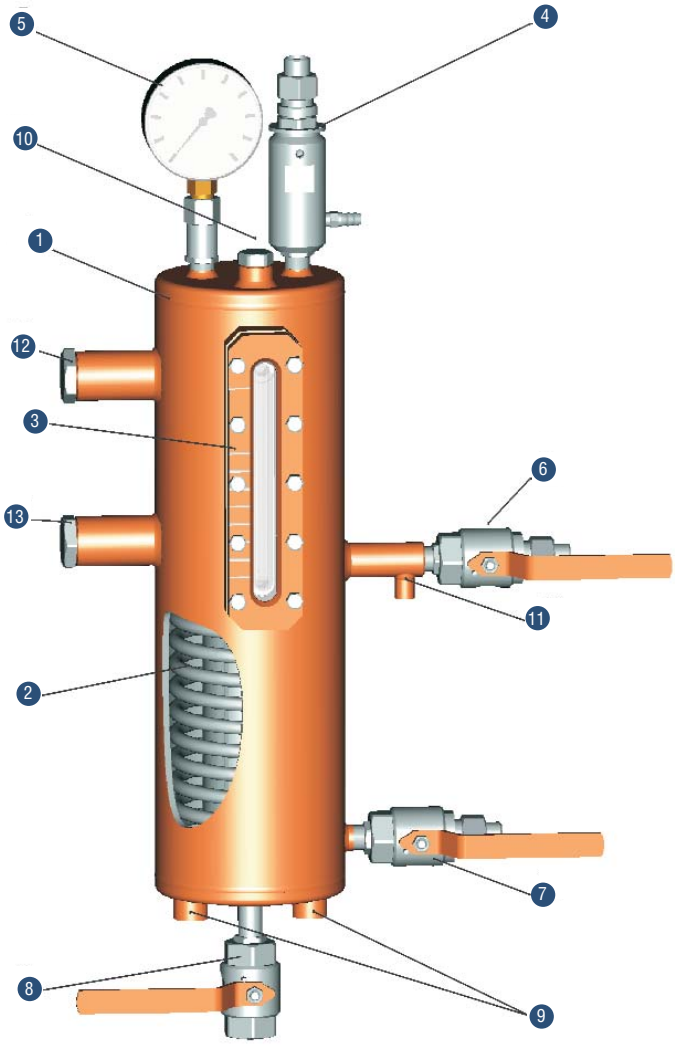
The SO-1 barrier fluid tank is designed to contain barrier fluid for a tandem or double mechanical seal, to provide its cooling and to control mechanical seal performance.
The SO-1 barrier fluid tank can be used with
API Plans 52 or 53 as per API682.

Technical data	
Heat exchanger type - spiral tube, vertical	
Metal parts material - SS304	
Gaskets - flexible graphite	
Barrier fluid volume, l	9
Barrier fluid pressure bar, max	45
Barrier fluid temperature, max	150
Cooling liquid (water, diesel, glycol) temperature	5…30 °C
Cooling water flow rate, m^3/hour	0,3…1,2
Weight, kg	25

Design features

1. The design is to be used as standard for majority applications
2. The system can be fitted with instrumentation and control for automatic checking of mechanical seal performance and pump shut-down in case of mechanical seal failure. The instrumentation and control version of SO-1 can additionally include a level sensor, a pressure switch, and a temperature sensor. Sensors and switches are either intrinsically safe or explosion proof depending on customer's order

Possible switches configuration	K0	K1	K2	K3	K4
Manometer	■	■	■	■	
Safety valve	■	■	■	■	■
Ball valves (3 pcs)		■	■	■	■
Level switch		■		■	
Pressure switch				■	■
Manometer pressure switch					■



1 - Vessel
2 - Spiral tube
3 - Level switch connection
4 - Safety valve
5 - Manometer
6 - Barrier fluid IN (ball valve and ball connector)
7 - Barrier fluid IN (ball valve and ball connector)
8 - Barrier drainage (ball valve)
9 - Cooling fluid IN/OUT
10 - Fill connection
11 -Temperature switch location
12 - High level switch ot pressure switch connection
13 - LOW level switch connection

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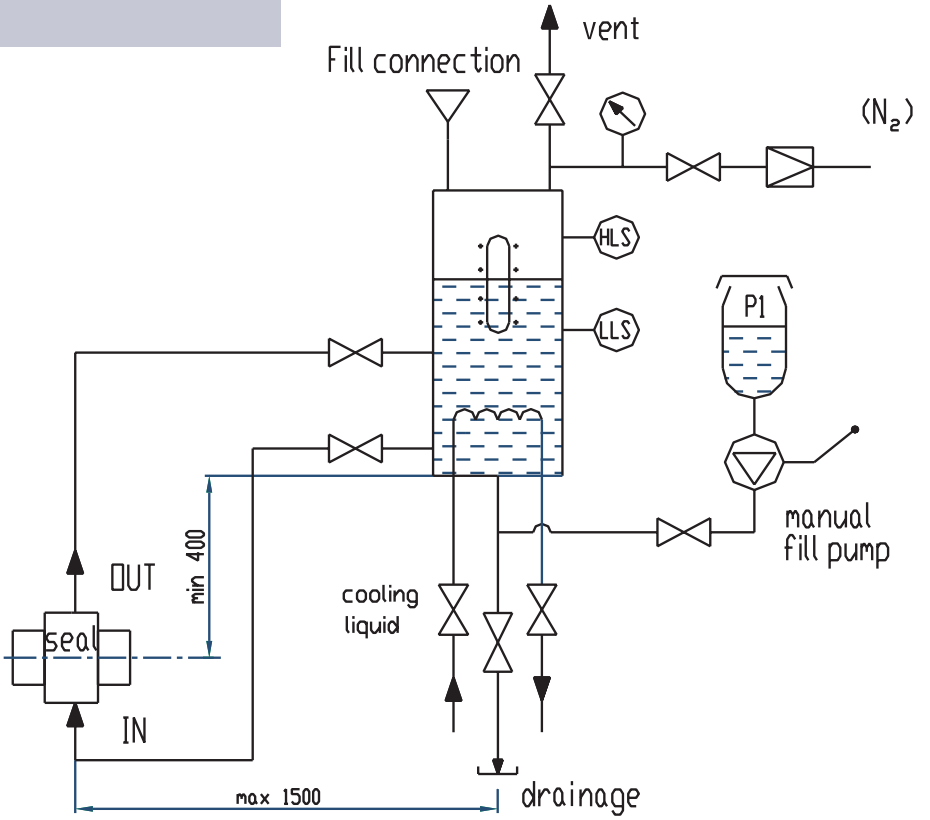
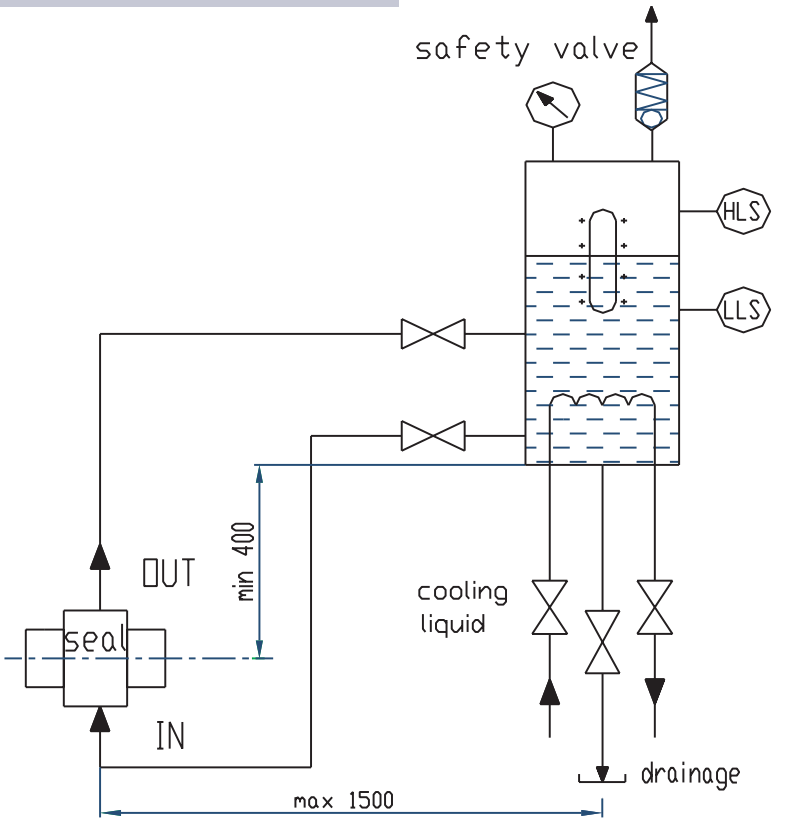
General double seal piping system

Plan 53 (API 682)



Plan 52 (API 682)



Designations:

MS - mechanical seal

IN - barrier fluid IN

OUT - barrier fluid OUT

LS - level switch

PS - pressure switch

P1 - filling vessel

V - thermo siphon vessel

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