EagleBurgmann
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RELY ON EXCELLENCE

TS3000

Seal supply systems | Thermosiphon systems

Features
Thermosiphon systems of the TS3000 range designed specifically for the operation and supply of mechanical seals in sterile processes. The TS3000 thermosiphon vessel is available in two standard sizes, designed for dismantling, with cooling coil. The modular system allows the TS3000 vessels to be combined with a wide range of system components.

Circulation based on API 682 / ISO 21049:
Plan 52, Plan 53A

Advantages
- Can be fully sterilized: TS3000 thermosiphon system, including all components and pipe couplings
- Surfaces are electropolished on all sides: effective cleaning and reduction of bacteria growth
- Vessel can be dismantled: the joint is sealed at the inner diameter by an O-ring without any gaps
- FDA-conform materials, therefore suitable for hygienic applications

Standards and approvals
- PED 2014/68/EU (Design and production in accordance with EU Pressure Equipment Directive)

Notes
Sterilization: CIP ands SIP is possible.

Making condensate: At the end of the sterilization cycle, valve 2.4 is closed, valve 2.3 is fully opened, and the cooling water supply is switched on again – condensate will be made. The level switch (3) responds when the TS vessel is full. The agitator can be started up again.

Recommended applications
- Food and beverage industry
- Pharmaceutical industry

Functional description
The TS system performs all the basic functions of a buffer/barrier system for the operation of double seals:
- to pressurize the buffer chamber
- leakage compensation
- buffer/barrier fluid is circulated by thermosiphon effects
- to cool the seal
- to selectively absorb product leakage and prevent dry running (tandem arrangement)

In addition to performing the basic functions of a buffer system, the TS3000 system can also be used to make condensate, provided the TS system is connected up to a steam pipe.

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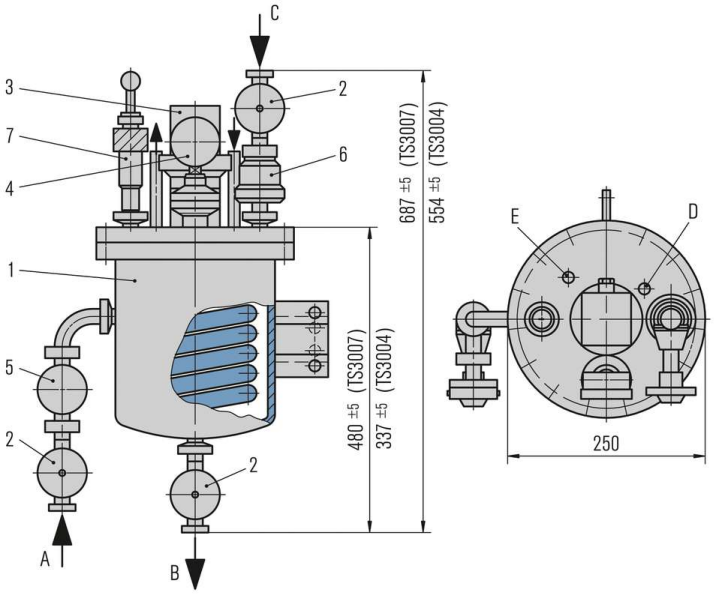
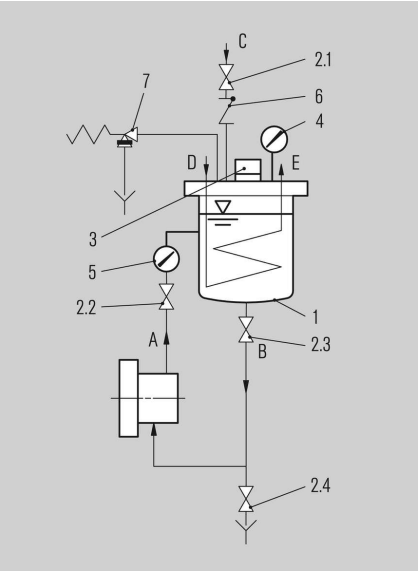


Item	Description
1	TS vessel with cooling coil
2	Shut-off valve
3	Level switch
4	Pressure gauge (membrane transducer)
5	Thermometer
6	Check valve
7	Safety valve (set pressure 8 bar)
A	Buffer/barrier fluid IN
B	Buffer/barrier fluid OUT
C	Pressure gas connection
E	Cooling water OUT
D	Cooling water IN

Installation, details, options



Operating and installation diagram for a TS3000 system.

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.

Sterilization: CIP and SIP is possible
Making condensate: At the end of the sterilization cycle, valve 2.4 is closed, valve 2.3 is fully opened and the cooling water supply is switched on again - condensate will be made. The level switch (3) responds when the TS vessel is full. The agitator can be startet up again.

Product variants

Designation	**TS3004**	**TS3007**
Design code	PED 2014/68/EU	PED 2014/68/EU
Integrated cooling coil	■	■
Volume, vessel (liters)	3.5	6.7
Volume, tube (liters)	0.2	0.5
Allowable pressure[1)]	8 bar (116 PSI)	8 bar (116 PSI)
Allowable temperature[1)]	-10 °C ... +140 °C (14 °F ... + 284 °F)	-10 °C ... +140 °C (14 °F ... + 284 °F)
Cooling capacity – natural circulation (kW)[2)]	1	2
Cooling capacity – forced circulation (kW)[2)]	2	4
Metal parts	1.4571	1.4571
Seal	EPDM	EPDM

1) Design data, permissible working values depend on the actual conditions of service.
2) The cooling performance depends on the available fluids, their temperatures and flow rates. Please contact EagleBurgmann for professionally selecting the correct heat exchanger.