



SPO (Plan 53B)

Seal supply systems | Closed loop systems



Features

Pressurized barrier system (closed circuit) for use in seal systems with high pressures and/or for hazardous/ environmentally harmful processes. The SPO (Plan 53B) range is available with a pressure accumulator, cooler (finned tube, water or air cooler with fan) and a wide range of instruments.

Circulation in accordance with API 682 / ISO 21049: [Plan 53B](#)

Advantages

- Pressurization is by means of a pre-loaded bladder accumulator
- The nitrogen is separated from the barrier medium by membranes in the accumulator: nitrogen cannot get into the barrier medium or process medium
- Barrier pressure is created without any need for connection to a nitrogen supply
- Available with finned tube, water or air coolers with fan
- Modular system: combination with a wide range of system components/ instruments possible

Standards and approvals

- PED 2014/68/EU (Design and production in accordance with EU Pressure Equipment Directive)
- ASME VIII, Div. 1 (Design, calculation and production)

Notes

A refilling unit has to be provided.

Recommended applications

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

Functional description

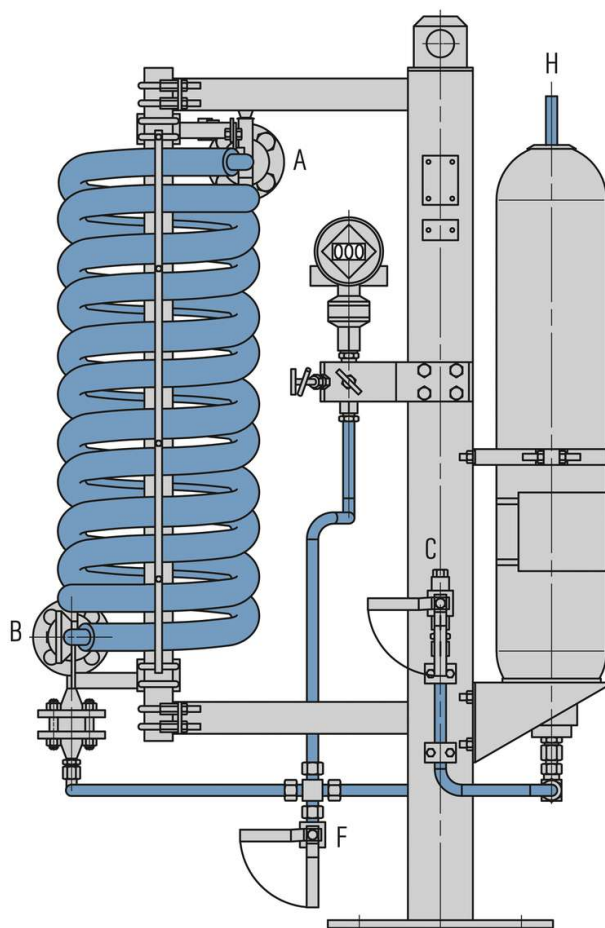
The SPO is designed to perform the following functions of a barrier system:

- to pressurize the barrier chamber
- leakage compensation
- to cool the seal

Pressurization (> process pressure) prevents the process medium from getting into the barrier circuit or the atmosphere. Pressurization is supplied by a pressure accumulator which is pre-loaded with nitrogen. Circulation in the barrier circuit takes place by the thermosiphon principle or by forced circulation, e.g. with a pumping screw.



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SPB6002A4 with air cooler

A From mechanical seal

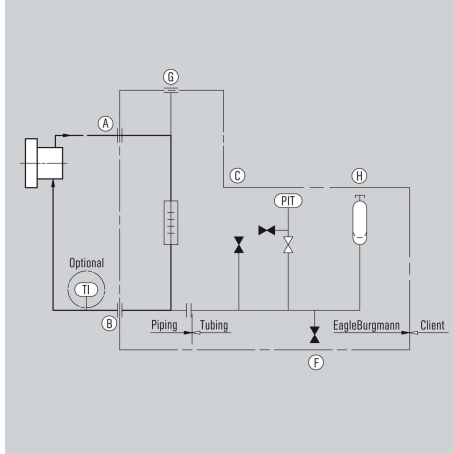
B To mechanical seal

C Fill

F Drain

H N₂ Precharge

Installation, details, options



Operating and installation diagram for a SPO
 (Plan 53).

- A From mechanical seal
- B To mechanical seal
- C Fill
- F Drain
- G Vent
- H N₂ Precharge



Product variants

Designation	SPB6000A4		SPB6001A4		SPB6000A4		SPB6001A4	
Design code	ASME VIII, Div.1		PED 2014/68/EU		ASME VIII, Div.1		PED 2014/68/EU	
Type of cooler	Air cooler ^{a)}	Water cooler ^{b)}	Air cooler ^{a)}	Water cooler ^{b)}	Air cooler ^{a)}	Water cooler ^{b)}	Air cooler ^{a)}	Water cooler ^{b)}
For shaft diameters ≤60 mm (acc. to API 682)	■		■		■		■	
For shaft diameters >60 mm (acc. to API 682)								
Bladder accumulator (liters)	20		20		35		35	
Allowable pressure ¹⁾	44 bar (638 PSI)		44 bar (638 PSI)		44 bar (638 PSI)		44 bar (638 PSI)	
Allowable temperature - bladder accumulator ¹⁾	-20 °C ... +90 °C (-4 °F ... +194 °F)		-20 °C ... +90 °C (-4 °F ... +194 °F)		-20 °C ... +90 °C (-4 °F ... +194 °F)		-20 °C ... +90 °C (-4 °F ... +194 °F)	
Allowable temperature - system ¹⁾	-20 °C ... +90 °C (-4 °F ... +194 °F)		-20 °C ... +90 °C (-4 °F ... +194 °F)		-20 °C ... +90 °C (-4 °F ... +194 °F)		-20 °C ... +90 °C (-4 °F ... +194 °F)	
Cooling capacity - with water cooled heat exchanger (kW) ²⁾	10		10		10		10	
Cooling capacity - with air cooled heat exchanger (kW) ²⁾	2.0		2.0		2.0		2.0	
Metal parts	316/316L		316/316L		316/316L		316/316L	
Accumulator	CrMo steel		CrMo steel		CrMo steel		CrMo steel	
Bladder	Nitrile		Nitrile		Nitrile		Nitrile	

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

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.

a) WEL6002A4

b) WEF6100A4



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SPO with a water cooler