



NR Series Reservoirs

Easy-to-maintain reservoirs for liquid-lubricated dual mechanical seals

Enable optimum environments for dual mechanical seals for the highest reliability

Liquid-lubricated, dual mechanical seals require a continuous supply of clean, cool buffer or barrier fluid. Flowserve NR Series reservoirs are ideally suited for sustaining Plan 52 unpressurized and Plan 53A pressurized operations.

Available in many pre-engineered configurations or customizable to your requirements, these reservoirs are easy to install and maintain with water or other barrier/buffer fluids. NR Series reservoirs are specifically designed to meet the needs of a variety of industries, including chemical, food processing, pulp and paper, municipal water and wastewater applications.

Features and benefits

- Two convenient sizes, 7.6 L (2 gal) or 19 L (5 gal), are available for easy plant standardization.
- Robust weld pad level gauge is included for at-a-glance liquid level measurement.
- Water management system (optional) utilizes an air vent valve for easy automatic filling to the ideal liquid level from a plant water line and a visual flow indicator for easy identification of an inboard seal leak.
- Pressure indicator accurately displays barrier/buffer pressure in the reservoir.
- Optional cooling coils control the reservoir temperature by heating or cooling with water to maintain the optimum seal operating temperature.
- Optional pressure switch triggers an alarm if the reservoir pressure decreases on a Plan 53A system or increases on a Plan 52 system.
- Optional level switch monitors the barrier/buffer fluid level and activates a low- or high-level alarm, alerting the operator to adjust the fluid level.
- Optional stand securely supports the reservoir assembly.
- Reservoirs are designed in accordance with ASME VIII, Div 1 and PED.
- U-stamp, PED (2014/68/EU) Cat II, CRN, SELO, AS1210 are available.



Design parameters

Reservoir material	316 stainless steel
Reservoir pressure	Up to 34.5 bar (500 psi)*
Temperature	-29°C to 93.3°C (-20°F to 200°F)*
Volume	7.6 L (2 gal) or 19 L (5 gal)

*Limits vary by configuration; see BOM drawing for details.



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Standard and optional equipment

Component	Plan 52	Plan 53A	Plan 53A WM
MAWP	10.3 bar (150 psi) @ 93.3°C (200°F)	20.7 bar (300 psi) @ 93.3°C (200°F)	10.0 bar (145 psi) @ 82.2°C (180°F)
Level indicator	Standard	Standard	Standard
Ball valve	Standard (2 valves)	Standard (2 valves)	Standard (1 valve)
Orifice	Standard	None	None
Pressure indicator	Optional	Optional	Optional
Pressure switch	Optional	Optional	Optional
Level switch	Optional	Optional	Optional
Cooling coil	Optional	Optional	Optional
Stand kit	Optional	Optional	Optional
Flow indicator	None	None	Standard
Pressure regulator	None	None	Standard
Air vent valve	None	None	Standard

Model numbers

	Model	Size	Piping Plan	Material of Construction	Cooling Coil	Pressure Gauge	Pressure Switch	Level Switch	Certifications	Stand
Example: NR236Y12311	NR	2	3	6	Y	1	2	3	1	1
NR										
2 or 5 (gal)										
0 (Bare), 2 (Plan 52), 3 (Plan 53 A), W (Water Management)										
6 (316)										
Y (Yes), N (No)										
0 (None), 1 (0 to 60 psi), 2 (0 to 160 psi), 3 (0 to 300 psi)										
0 (None), 1 (Low), 2 (High)										
0 (None), 1 (Low), 2 (High), 3 (Both)										
0 (None), 1 (U-stamp), 2 (PED), 3 (CRN), 4 (SELO), 5 (Australia)										
0 (None), 1 (Yes)										

Piping plans and applications

Piping plan	Description	Purpose	Application
Plan 52	Unpressurized buffer fluid circulation with an orifice in the vent line	Reduces process emissions by allowing the outboard seal to act as a safety back-up and directs emissions to vent for proper disposal	Critical process fluids in applications that require minimizing process leakage to the atmosphere and additional safety of a spare back-up seal
Plan 53A	Pressurized barrier fluid circulation set 1 to 2 bar (15 to 30 psi) above process pressure	Barrier fluid lubricates the mechanical seal faces, improving reliability and seal life while effectively isolating the process fluid for zero process emissions	Hazardous or dirty fluids, where leakage is not allowed or where process fluid affects the performance or life of the mechanical seal

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