

# Компрессорные уплотнители

## Технические характеристики

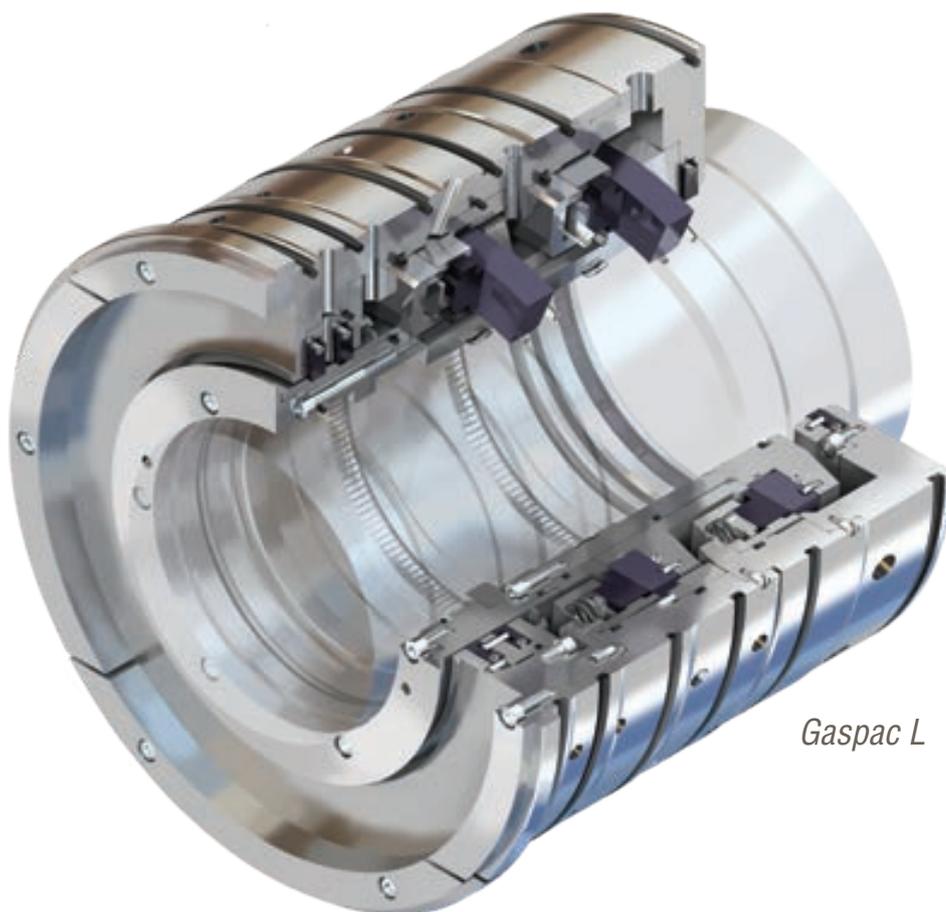
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The logo for FLOWSERVE, featuring the brand name in a bold, sans-serif font with a stylized white arc above and below the letters.



*Gaspac L*

## COMPRESSOR SEALS AND SYSTEMS

Our Gaspac, Circpac, and Turbopac seals have earned their reputation as the most advanced compressor sealing solutions available. Even more, they're backed by a global team that leads the industry in dry gas seal retrofits, high-end compressor seal troubleshooting, seal support engineering, and world-class gas conditioning systems. By combining leading-edge technologies and service, Flowserve allows compressor customers to reach higher pressure, efficiency and profitability.

### Compressor Seals and Systems – Quick Reference

Product	Sub-Type	Pressures	Temperatures	Speeds to	Sizes
<b>Gaspac® T, L, D and S</b>	Gas Compressor Process	650 bar (9427 psi)	to 230°C (450°F)	250 m/s (820 fps)	to 360 mm (14.125 in)
<b>Circpac™ CB, LO and HP</b>	Gas Compressor Process	10 bar (150 psi)	-40°C to 180°C (-40°F to 350°F)	140 m/s (460 fps)	to 280 mm (11.000 in)
<b>Turbopac™ 378 and 2100</b>	Gas Compressor Process	300 bar (4300 psi)	to 180°C (550°F)	100 m/s (330 fps)	40 to 260 mm (1.500 to 10.250 in)
<b>Supplypac™</b>	Gas Support System	414 bar (6000 psi)	to 240°C (400°F)	—	—
<b>Cleanpac™ D, F and DL</b>	Gas Support System	550 bar (8000 psi)	to 204°C (400°F)	—	—
<b>Ampliflow™</b>	Gas Support System	550 bar (8000 psi)	to 204°C (400°F)	—	—
<b>Drypac™</b>	Gas Support System	550 bar (8000 psi)	to 204°C (400°F)	—	—
<b>N2 Genpac™</b>	Gas Support System	13 bar (190 psi)	to 50°C (122°F)	—	—

# COMPRESSOR SEALS AND SYSTEMS

## GAS COMPRESSOR PROCESS

### Gaspac T, L, D and S

The Gaspac is a proven platform of dry gas seals for turbomachinery equipment and features either bi-directional T-Groove or Advanced Pattern Groove (APG) non-contacting seal face technologies.



- Environmental regulatory compliance and energy savings assured by controlled gas flow rates over the widest operating conditions
- Increased reliability with precision face topography that offers high film stiffness and damping, and maintains a stable gas film under slow roll and high speeds
- Application versatility from a wide range of single and dual configurations with process barrier and oil exclusion features
- Increased uptime via innovative solutions for secondary sealing, reverse rotation, reverse pressurization and component centering

#### SPECIFICATIONS

Press. to: 650 bar (9427 psi)  
Temp. to: 230°C (450°F)  
Speeds to: 250 m/s (820 fps)  
Sizes: to 360 mm (14.125 in)  
Refer to literature FSD113 at /library.

## GAS COMPRESSOR PROCESS

### Circpac CB, LO and HP

This high-performance segmented circumferential gas seal series is engineered for gas compressors as part of a Gaspac assembly (Circpac CB and LO) or as a stand-alone cartridge (Circpac HP).



- Consistent performance from carbon ring construction designed for non-contacting operation that exceeds the pressure capability of typical circumferential seals
- Increased reliability via pressure-balanced ring design and hydrodynamic surface features, resulting in low gas consumption and long life
- Enhanced application versatility enabled by multiple ring combinations with optimized purge and vent options
- Lower cost of ownership with fewer spare parts provided by bi-directional capability for reverse rotation

#### SPECIFICATIONS

Press. to: 10 bar (150 psi)  
Temp: -40°C to 180°C (-40°F to 350°F)  
Speeds to: 140 m/s (460 fps)  
Sizes: to 280 mm (11.000 in)  
Refer to literature FSD113 at /library.

## GAS COMPRESSOR PROCESS

### Turbopac 378 and 2100

The Turbopac is a highly dependable oil-lubricated, bi-directional mechanical seal designed for screw, turbo and high-pressure, high-speed applications.



- Increased performance and rotational speeds from stationary spring assembly
- Enhanced safety of operations during emergency shutdowns enabled by dual-acting static seal that allows for product containment under reverse pressure conditions
- Improved ease of installation via cartridge design
- Reduced leakage and added efficiency from design that minimizes oil loss
- Application flexibility owing to availability of single and double arrangements

#### SPECIFICATIONS

Press. to: 300 bar (4300 psi)  
Temp: to 180°C (550°F)  
Speeds to: 100 m/s (330 fps)  
Sizes: 40 to 260 mm  
(1.500 to 10.250 in)  
Refer to literature FSD113 at /library.

## An Ultra-High Bar

In compressor services — where higher pressure often means higher efficiency and greater profitability — Gaspac seals set the performance benchmark. Able to handle high speeds and ultra-high pressures, Gaspac seals are driving innovation, achieving ever-greater pressures. This gas-lubricated, dry-running seal employs some of the most advanced non-contacting, lift-off technology available. It also boasts unequaled reliability, outlasting multiple compressor turnaround cycles.



### GAS SUPPORT SYSTEM

## Supplypac

Supplypac modular-based dry gas seal support systems simplify the typical dry gas seal control panel and provide safe, reliable seal operation.



- Supplypac modular-based dry gas seal support systems simplify the typical dry gas seal control panel and provide safe, reliable seal operation.
- Functional qualifications per API 614 design criteria and ASME B31.3 certification
- Wide operating range via flow paths that are scalable for lower pressure, larger bore and higher flow rates
- Ease of installation and improved inventory management from standardization of pre-manufactured components
- Available in multiple material and gasket options to meet specific requirements

### SPECIFICATIONS

Press. to: 414 bar (6000 psi)  
Temp: to 240°C (400°F)  
Refer to literature FSD113 at /library.

### GAS SUPPORT SYSTEM

## Cleanpac D, F and DL

The Cleanpac line of dry gas seal filtration systems includes heavy liquid removal units (Cleanpac D), pre-filter units (Cleanpac F), as well as single and dual coalescing filter units (Cleanpac DL).



- Lower operational costs and improved dry gas seal system reliability owing to filter elements with efficiency of  $\beta(0.3) > 1000$  (99.9% @ 0.3 $\mu$ m)
- Application versatility due to wide variety of materials of construction (including 316 SS, the standard for onshore and offshore applications) as well as high-temperature and high-pressure designs
- Reduced downtime resulting from a large coalescing element that enables extended operational periods between change-outs

### SPECIFICATIONS

Press. to: 550 bar (8000 psi)  
Temp: to 204°C (400°F)  
Refer to literature FSD113 at /library.

# COMPRESSOR SEALS AND SYSTEMS

## GAS SUPPORT SYSTEM

### Ampliflow



The Ampliflow seal supply gas boosting system ensures an adequate supply of clean, filtered gas is provided to the seals during periods of low differential pressure across the compressor.

- Optimal dry gas seal performance ensured by the system's ability to maintain flow through the conditioning system or seal gas panel
- Lower operating costs made possible by eliminating process contamination — the number one cause of dry gas seal failures
- Versatility via configuration options that include a portable unit, standalone panel, or integration with a Flowserve dry gas seal control panel or filter gas conditioning panel

#### SPECIFICATIONS

Press. to: 550 bar (8000 psi)  
Temp: to 204°C (400°F)

Refer to literature FSD113 at /library.

## GAS SUPPORT SYSTEM

### Drypac



The Drypac gas dryer reduces the potential of liquid formation between the seal faces as a best practice reliability improvement measure and recommended by API standards.

- Decreased liquid formation ensured by system that lowers the dew point of the gas and raises the temperature of the seal supply gas to at least 20°C (36°F) above the dew point
- Increased MTBF of dry gas seals when the dew point of the gas is a potential issue
- Low operating costs due to simplified installation, operation and maintenance
- Easily integrated within existing gas seal control panels

#### SPECIFICATIONS

Press. to: 550 bar (8000 psi)  
Temp: to 204°C (400°F)

Refer to literature FSD113 at /library.

## GAS SUPPORT SYSTEM

### N2 Genpac



The N2 Genpac system safely generates nitrogen gas from compressed air in hazardous conditions or remote locations.

- Optimal dry gas seal performance ensured by micron fiber filtration technology that extracts nitrogen gas at purities between 97% and 99%
- Uninterrupted nitrogen flow made possible by dual parallel filtration technology
- High uptime provided by monitoring system with differential pressure indicating transmitters and inlet/outlet pressure gauges
- Application flexibility arising from system that can operate independently or integrate with the Flowserve dry gas seal panel or Cleanpac and Drypac gas conditioning systems

#### SPECIFICATIONS

Press. to: 13 bar (190 psi)  
Temp: to 50°C (122°F)

Refer to literature FSD113 at /library.

## По вопросам продаж и поддержки обращайтесь:

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**Единый адрес для всех регионов: [fvr@nt-rt.ru](mailto:fvr@nt-rt.ru) || [www.flowserve.nt-rt.ru](http://www.flowserve.nt-rt.ru)**