

MAP Application Solutions

Background

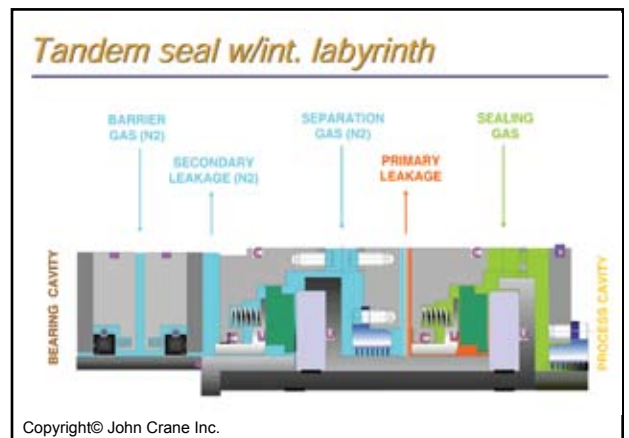
To reduce the volume of gases containing volatile organic compounds leaking to atmosphere, environmental agencies have instituted regulations limiting VOC emissions.

Many large pumps or compressors contain mechanical gas seals that operate as noncontacting, dry running seals. These seals isolate compressed gases containing VOC's from leaking to atmosphere. Mechanical gas seals are designed to perform with a wide variety of gases each having unique properties. These process gases can be harmful to workers and the surrounding area. The lubricating gas that is normally used to pressurize the seal is natural gas. A safer alternative to natural gas is dry, inert nitrogen gas. Nitrogen gas can be generated from standard compressed air at a very low cost.



Application / Case Study

A major manufacture of centrifugal gas compressors had received an order for several large systems for an overseas co-generation plant. In order to comply with emission regulations and maintain an absolutely tight seal to prevent natural gas from leaking from the mechanical seals, the seals had to be pressurized externally with a dry, inert gas. The compressor was located in a hazardous location in the plant, so it was critical that the inert gas always be available to ensure nonflammable conditions as well as provide proper lubrication for the seals when the compressor was in operation, which was continuous day and night.



No nitrogen or inert gas was available anywhere in this area of the plant, so the only reasonable option was generation of nitrogen on location. Instrument air was available, but only at 100 psig. The system had to be fail-proof, even with loss of plant air supply or electric power, so a redundant system with back-up storage for 4 hours was specified. Only Parker could deliver on all requirements, designing and fabricating a cost-effective custom system that operated under all contingencies, giving the client the total reliability and peace of mind he had demanded. This customer has specified Parker again and again for his gas sealing needs. Specify Parker nitrogen systems because there is no substitute for quality, experience, and unmatched performance.



Dry Gas Seal



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Model FB-608-1 with Membrane Dryer

Features and Benefits

- Continuous supply of dry N2 at selected purity
- Dependable, reliable and automatic operation
- Eliminates the need for natural gas for sealing
- Uses low pressure plant air supply and eliminates high pressure cylinders
- Built-in membrane air dryer is available
- Standard customer connections on cabinet models
- Designs available for hazardous locations
- Compact size affords easy shipping and installation

Performance Chart Standard Cabinet Models

Parker HiFluxx® Membrane Systems

Data based on variable feed air pressures at 68°F

Principal Specifications

Nitrogen Flow rates @95% Purity*								Principal Specifications	
Air Feed Pressure	FB Models							Model Number	
	608-1	608-2	608-3	1508-1	1508-2	1508-3	1508-4		
5 bar(g)	3.0	6.0	9.0	6.6	13.2	19.8	26.4	Compressed Air Specifications	
5 bar(g)	3.7	7.4	11.1	10.1	20.2	30.3	40.4	Maximum Pressure 175 to 188 psig	
6 bar(g)	4.9	9.8	14.7	13.2	26.4	39.6	52.8	Temperature Range 60°F to 120°F	
7 bar(g)	5.7	11.4	17.1	15.5	31.0	46.5	62.0	Dewpoint -40°F pressure dewpoint or lower	
8 bar(g)	6.6	13.2	19.8	17.1	34.2	51.3	68.4	Residual Oil Content Trace	
9 bar(g)	7.6	15.2	22.8	20.2	40.4	60.6	80.8	Particles <.01 micron	
10 bar(g)	8.2	16.4	24.6	21.8	43.6	65.4	87.2	Ambient Conditions	
11 bar(g)	9.3	18.6	27.9	24.9	49.8	74.7	99.6	Temperature 45°F - 110°F	
12 bar(g)	10.3	20.6	30.9	26.4	52.8	79.2	105.6	Ambient Pressure Atmospheric	
13 bar(g)	-	-	-	28.0	56.0	84.0	112.0	Air Quality Clean air without contaminants	
								Dimensions, Weight and Connections	
								Consult factory; based on performance requirements	

* Consult factory for higher N2 purities and feed air requirements.



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Custom Nitrogen Generators Features and Benefits

Parker Hannifin's reputation for building custom N2 generators for gas seal service is unparalleled in the industry. Some of these features, all supplied by us in the past, include:

- Redundant generators for 100% back-up capabilities
- PSA or membrane generators, at purities from 95-99.9+%
- Active/passive complete feed air compression systems
- Automatic N2 turndown designs for multiple gas sealing requirements
- Automatic high pressure storage vessels for back-up supply
- Integrated high pressure N2 boosters to recharge cylinders automatically
- Designed to exacting global customer specifications



100% Redundant membrane package with auto switch-over for hazardous environments



FB Cabinet model with back-up N2 cylinders



Model MB-600 Gas Seal unit



Parker Mono-bed PSA N2 generator



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MAP Mechanical Gas Seals-A
Reprinted in U.S.A. February 2008
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