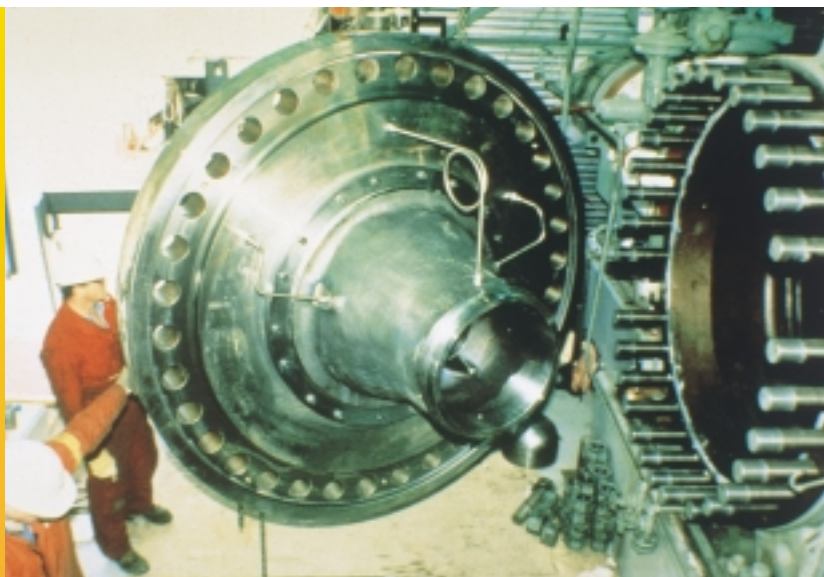


Compressor Gas Seal Retrofit Services



Flow Solutions Division



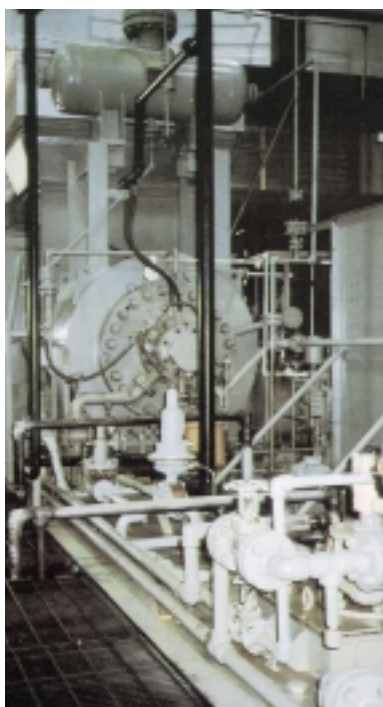
Flowserve has extensive experience in dry gas seal retrofits, including many of the world's first retrofits. Our expertise has been developed by retrofitting many compressors and turbo expanders for various customers around the world, with a very successful track record. Flowserve has the technology and experience to economically retrofit your equipment and achieve in excess of 50,000 hours seal reliability.

Why Do Companies Retrofit Their Equipment?

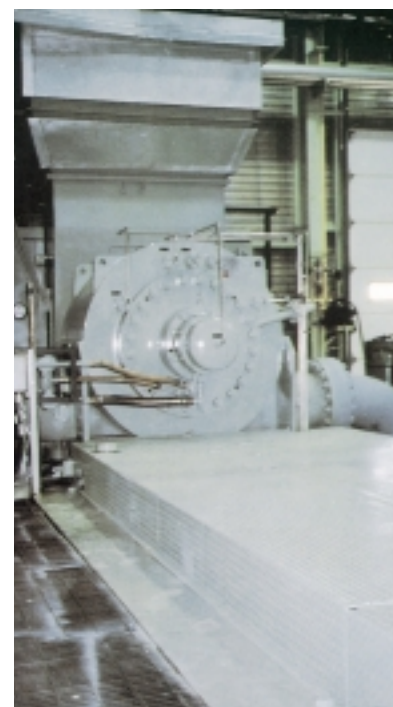
- Improved safety
- Increased equipment reliability
- Increased pipeline throughput by reducing contamination
- Improved efficiency by eliminating process contamination
- Reduced product losses
- Reduced emissions to environment
- Reduced oil consumption
- Reduced shaft horsepower losses
- Reduced utility consumption
- Economic return and quick payback

Reducing or Eliminating the Need for Unit and Shaft Modifications

Our Specialty



Before a Retrofit



After a Retrofit

Flowserve's Retrofit Services

- Engineering services including:
 - Complete application design
 - Rotor dynamic analysis
 - Machine design
- Finite element analysis
- Project management
- Installation and commissioning
- Dry gas seals
- Flowserve products including
 - Modular Panel
 - AMPLIFLOW
 - Specialized tooling for installation
 - SealVIEW
 - Nitrogen systems
- Training and technology transfer back

Over 20 years of Experience

Compressor Gas Seal Retrofits

Equipment

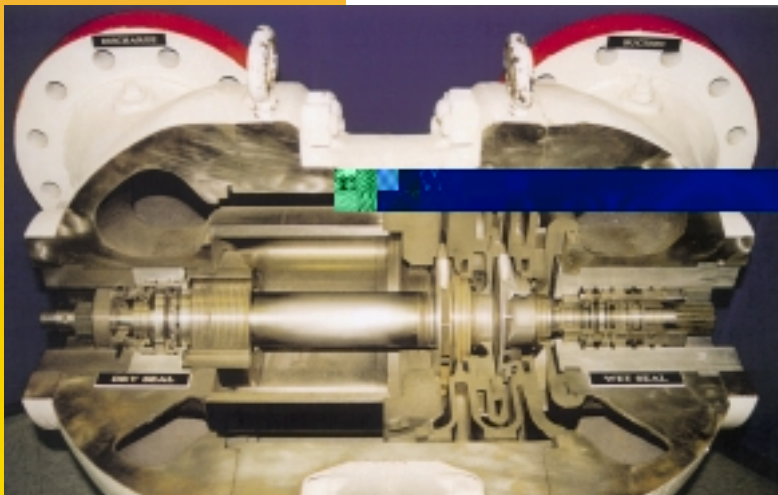
Cooper
Dresser-Rand
Solar
Elliott
De Laval
Clark
Demag
AC Compressor
Kobe
Ingersol Rand
Rateau
Nuovo Pignone

Industries

Gas Pipelines
Refineries
Chemical Plants

Applications

Natural Gas
Ammonia
Ethylene & Polyethylene
Propylene
Hydrogen
Wet Gas
Sour Gas



C-16 Compressor Cutaway

Flowserve's 50K Plus™ Program

50k Plus™ is a program to ensure dry gas seal reliability in excess of 50,000 hours. Flowserve works with customers to minimize risks that contribute to seal failures by reviewing the entire system and operation.



Flow Solutions Division

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