

A new cryomachine

to distribute and compress fluids at cryogenic temperatures



Leveraging more than 50 years of experience in the innovation, design, manufacture and operation of cryogenic turbomachines using magnetic bearings, Air Liquide is constantly developing new products.

Our teams address the specific needs of customers using a global approach that combines advice, solution and design.

A new range of cryomachines on magnetic bearings has been developed, based on cartridge architecture.

Applications

- Refrigeration < 4.5K
- Pumping and circulation of all cryogenic fluids

Key benefits

- Cryomachines can be integrated into compressors, pumps, turbo-alternators and turbo-compressors
- Oil-free technologies
- Greater reliability
- Magnetic bearings (no contact or wear)
- High-efficiency solution
- Low maintenance systems
- Standardized design for all cryogenic rotating machines (pumps and compressors)
- Cartridge architecture for easy assembly and maintenance



Key benefits

Those turbomachines are composed of 3 subassemblies:



Standard motor cartridge

- High speed synchronous motor
- Five axis active magnetic bearings
- Housing
- Motor and stator water cooling system
- Instrumentation (position, speed and motor temperature sensors)
- Safety ball bearings



Electrical cabinet

- Dedicated electrical cabinet including all required electronics and power for the control of the motor/ magnetic bearings
- Electrical cabinet can be customized

Customized parts

- Customized rotating parts: impeller and cryogenic shaft extension
- Customized cryogenic casing: scroll, diffuser and casing

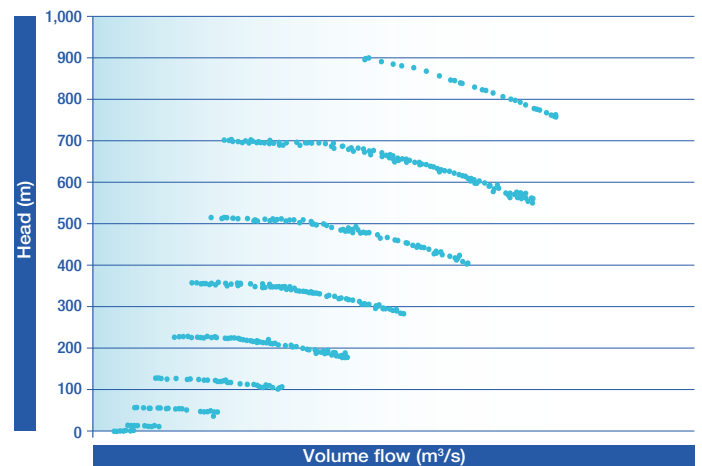
Technical advantages

- Easy installation
- High efficiency
- Wide range of flow rates and pressure ratio covered

References of turbomachines on magnetic bearings

- 50 cold compressors
- 5 cryogenic pumps
- 1 turbo-alternator
- 3 moto-turbo-compressors
- 1 moto-compressor

Pump compression map



Contacts

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