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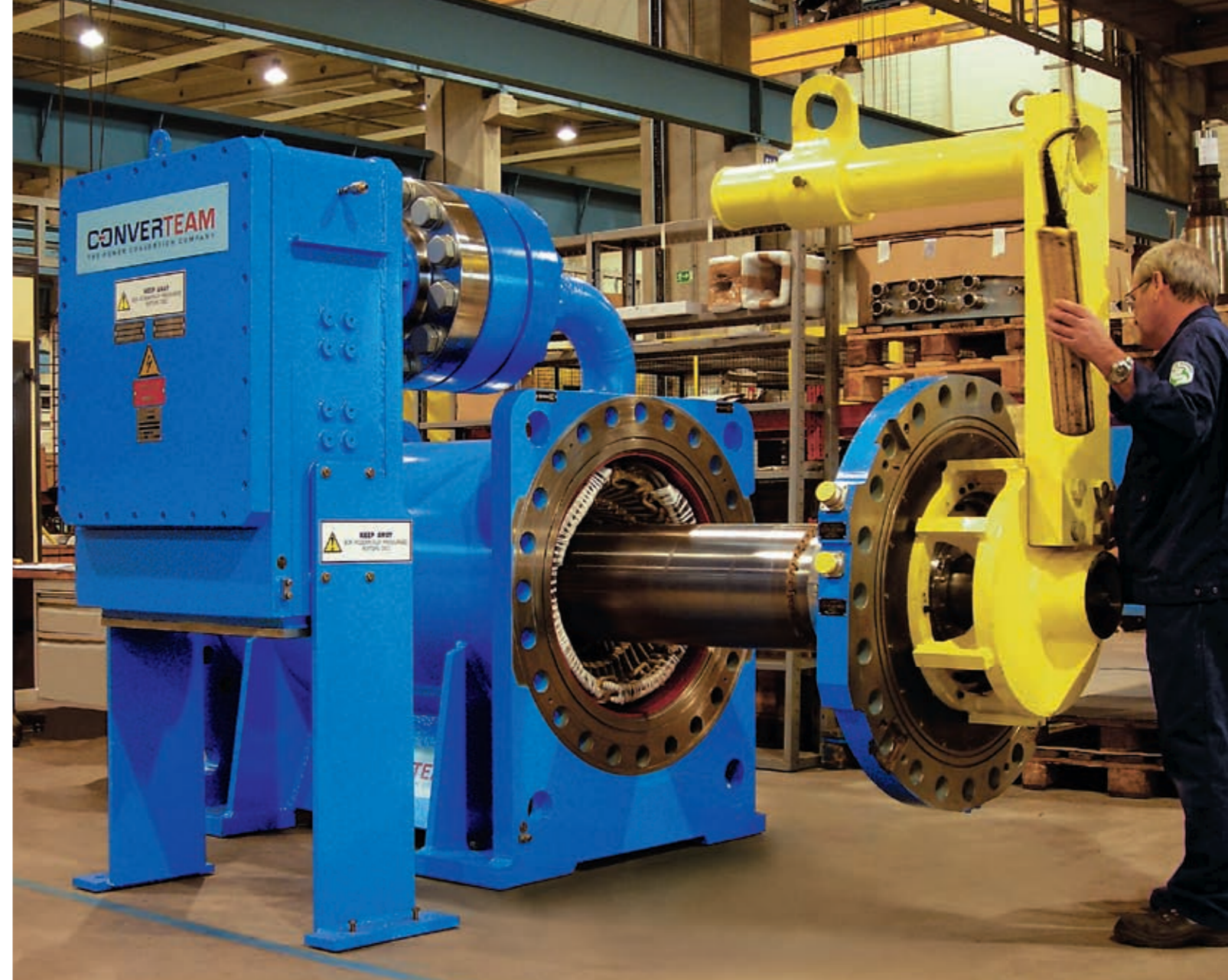
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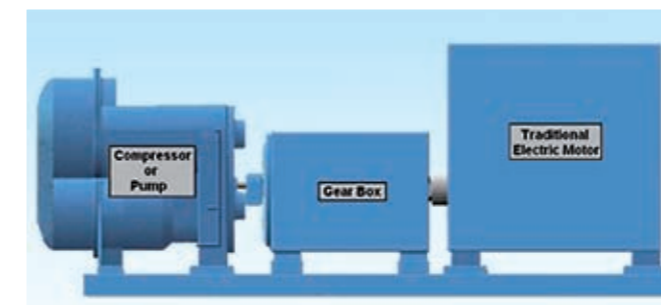
**High-Speed Direct-Drive Solution
with Induction Motors**



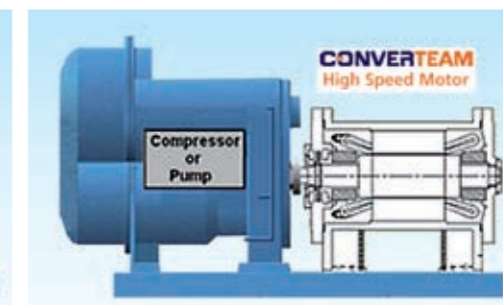
High-Speed Direct-Drive Solution Brings Increased Value to your Company

Converteam is a pioneer in high-speed direct-drive technology and has developed a complete range of solutions (both synchronous and induction) which meet the most demanding speed and performance requirements for direct-drives of pump and compressor systems. The induction solution from Converteam called MGV is based on a patented design which remains unique in the marketplace.

Converteam's high-speed direct-drive solution, which is a well-proven technology, has a clear edge on mechanical solutions (gas turbines or motors + hydraulic couplings) and offers increased value versus traditional geared electrical solution.



Traditional solution



Converteam high-speed direct-drive solution

A state-of-the-art solution:

- No gearbox
- No lube oil system when using magnetic bearings
- No emissions
- High efficiency
- Maximum flexibility

Features of Converteam solution:

- More compact (50% footprint reduction on geared solution):
 - reduced motor size and weight
 - gearbox elimination
 - no need for auxiliaries (e.g.: air cooler, oil lube system, etc)
 - easier installation
- Higher reliability and availability:
 - no gearbox -> fewer spare parts required
 - use of magnetic bearings (no wear parts)
- Higher efficiency:
 - higher efficiency compared to mechanical solutions (gas & steam turbines or hydraulic coupling)
- Environmentally friendly:
 - no gas emissions (integrated motor-compressor solution)
 - no seal leakage (integrated motor-compressor solution)
 - no bearing lube oil (magnetic bearing)
 - low noise (-50%)
 - low vibration (sub-critical speed rotor design)

Customer benefits:

- Lower Capital Expenditures (CAPEX):
 - for both equipment and installation
- Lower Operating Expenditures (OPEX):
 - reduced maintenance and unavailability costs
- Lower Operating Expenditures (OPEX):
 - energy savings
- Lower Capital Expenditures and Operating Expenditures (CAPEX and OPEX):
 - no additional equipment
 - no green tax

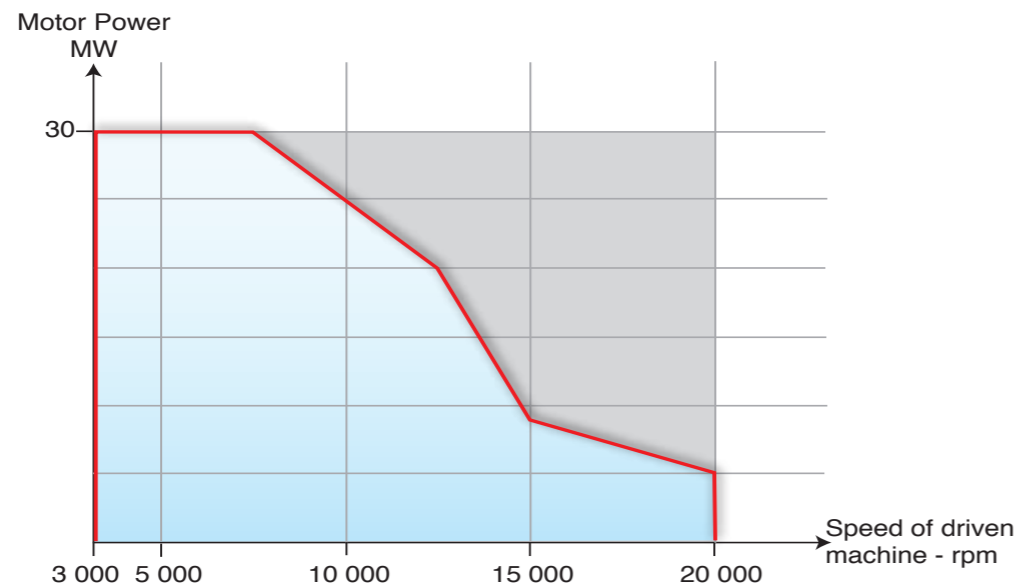
Converteam — a world leading company in electrical solutions

Converteam is an engineering company providing customized solutions and systems converting electrical energy into productive performance. These solutions are built around three core components: rotating machines, variable speed drives, automation and process controls.

Our scope covers consulting, design, manufacturing, system integration, installation, commissioning and a broad range of services. Our worldwide workforce remains fully committed to one overriding goal: to bring you the best in technology, backing this up with truly effective service on all markets. Our expertise covers marine applications, industry, oil & gas and offshore, renewable sources of energy and more.

Relying on a solid background of experience, Converteam has developed and offers three different designs of high-speed induction motors to drive compressors and pumps up to 20 000 rpm and 30 MW.

Capacity versus speed of high-speed induction motor



Standalone design

Converteam high-speed motors can be provided in standalone arrangement. This solution is offered when the process gas cannot be used to cool the motor.

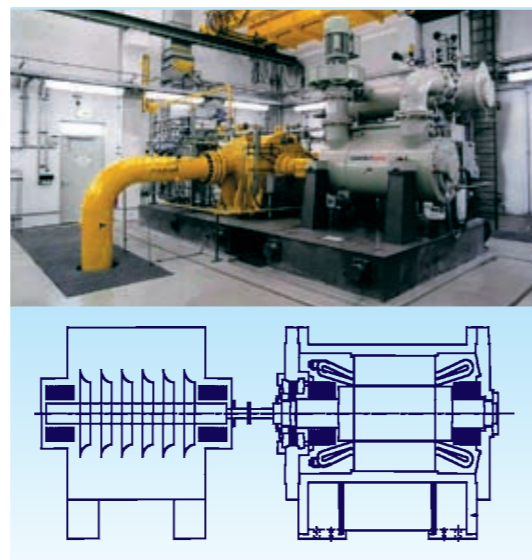
Up to 30 MW
Up to 20 000 rpm

Key features:

- Adaptable to all compressors or pumps
- Suitable for corrosive sour process gas
- Oil bearings or magnetic bearings
- Air or water-cooled.

Applications:

- Compressors for gas pipeline, gas injection, gas storage, petrochemical
- Boiler feed pumps for power stations
- Pumps for water injection
- Gas turbine replacement.



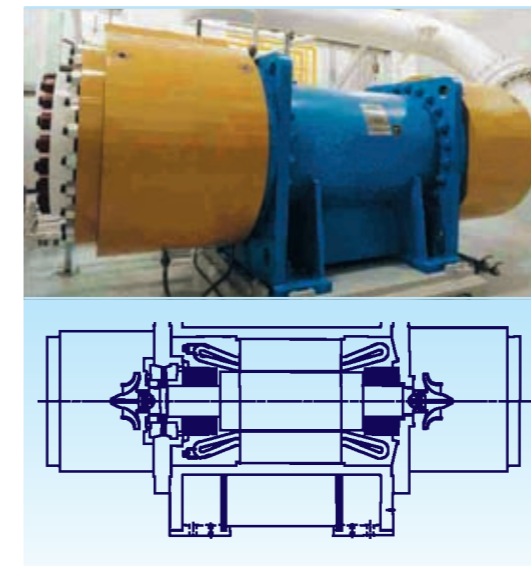
Integrated motor-compressor units

Converteam also proposes fully integrated compression systems. In that case, the high-speed motor and the centrifugal compressor are installed inside the same pressurized casing where the processed gas is used to cool the motor.

2 bearing design
Up to 15 MW
Up to 12 000 rpm

Key features:

- Motor and compressor housed in a single casing
- Assembly mounted on two magnetic bearings only
- No shaft seals
- Cooling and pressurization by process gas (no external cooling required).



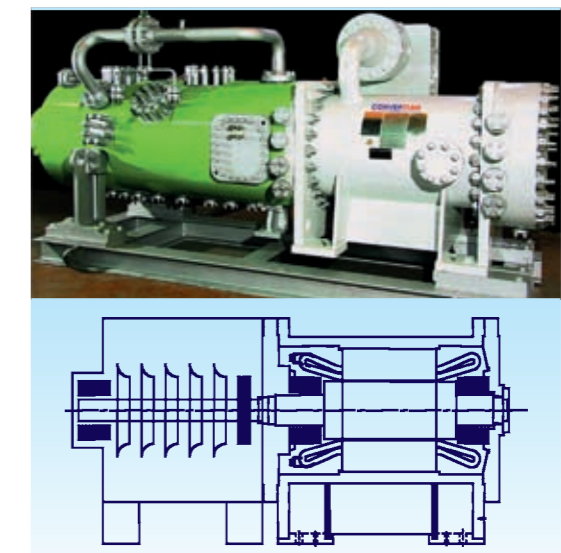
Applications:

- Compressors for gas pipeline.

3 or 4 bearing design
Up to 17 MW
Up to 19 000 rpm

Key features:

- Motor and compressor housed in a single casing
- Assembly on three or four magnetic bearings
- No shaft seals
- Possibility to fit one multi-stage compressor on both sides of the motor
- Cooling and pressurization by process gas (no external cooling required).



Applications:

- Compressors for gas pipeline, gas injection, gas storage, petrochemical
- Subsea applications.

Converteam's Solution is the Right One...

...for your High-Speed Direct-Drive Application

Due to our experience and track-record, the Converteam high-speed induction solution has a clear leading edge in the marketplace which will bring you:

- Better reliability
- Better efficiency
- Reduced risks on your project.

Superior technology

Converteam has a unique patented and unrivaled high-speed motor design and has developed a range of drives perfectly suited for high-speed applications.

Squirrel cage induction motor design

It gives the following benefits:

- No risk of hot spot
- Free thermal expansion of the cage.

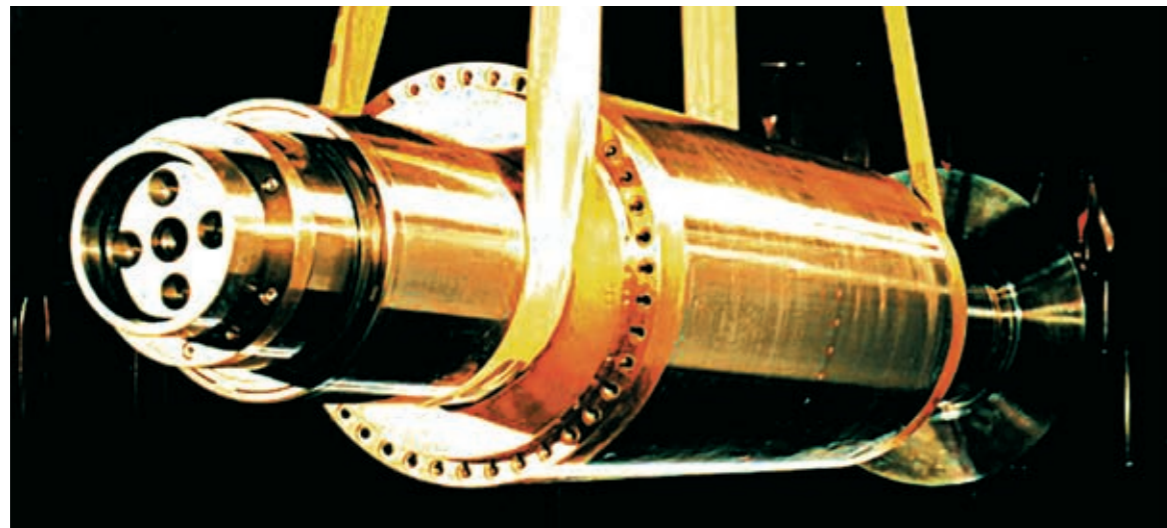
High-frequency IGBT drive

- Well suited for high-speed applications.

Unique laminated patented rotor design

It provides:

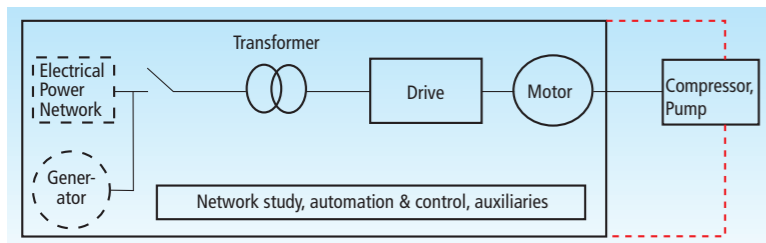
- High efficiency (up to 98%)
- Excellent power factor
- Very good thermal behavior.



A complete system approach

Converteam designs, manufactures and bears responsibility for the complete package (motor, drive, transformer, auxiliaries, etc).

Converteam has expertise on both motors and drives and thus is able to optimize the overall system, providing the customer with complete system responsibility.

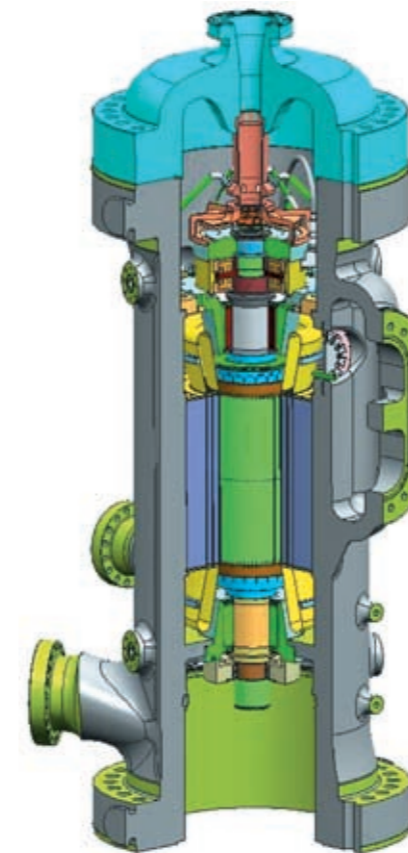
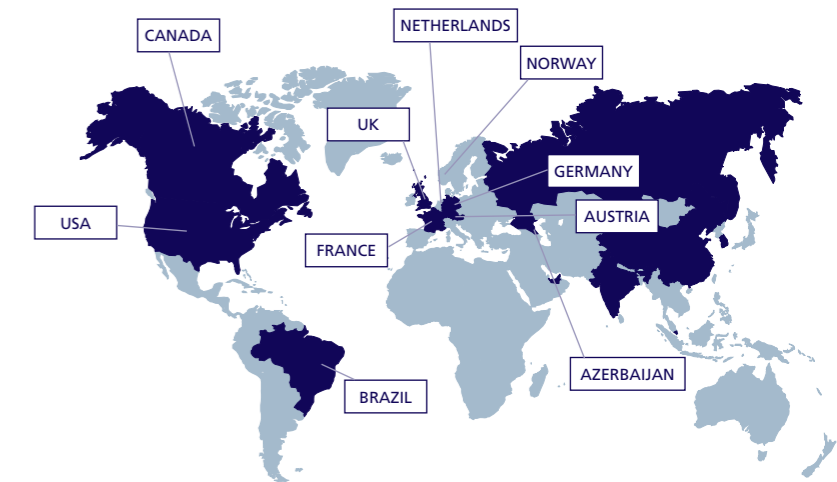


Converteam's engineering team will support you in tailoring our high-speed technology to your application.

Only proven high-speed direct-drive solution in the marketplace

- Over 20 years of experience in high-speed
- First commercial reference back in 1992
- Over 3 000 000 cumulated run hours.

More than 80 units installed worldwide as of August 2009:



High-speed motor for subsea application

Subsea application

Our teams work on equipment and systems to help the industry explore and produce in deeper waters, environmentally sensitive locations, and sites with harsh conditions.

In this context, Converteam signed a contract for the development (engineering, manufacturing and testing) of the pilot electrical package for the Ormen Lange subsea compression station at great depth.

Ormen Lange is a gas field located 120km off the northwest coast of Norway in water depths between 850 and 1 100 meters.

The subsea compression in Ormen Lange station will include four parallel compressor trains, identical to the current pilot.

The pilot is a 12.5 MW package that includes a high-speed motor (MGV) and a medium voltage/high-power drive operating 900 meters below sea level and which can function reliably and maintenance-free for a minimum of five years.

Main benefits:

- Half the cost of a standard offshore installation
- 30% additional extraction