HOFIM® compression solution

MAN Energy Solutions
Future in the making

HOFIM® for exploration and production
The HOFIM® compression solution radically improves the oil & gas business with its unmatched system reliability. It features a wide operating range and highest efficiency, with low life-cycle costs and no impact on the environment. The HOFIM® technology enables subsea gas compression that increases gas field recovery rate while substantially reducing CO₂ emissions at the lowest investment and operational costs.
Subsea

Subsea compression requires an extremely reliable remotely operated compressor on the seafloor. The substantially reduced system complexity of the modular HOFIM® compressor design only involves electrical and process interfaces.

Thanks to the robustness and proven longevity of its components, the compressor features greatly extended maintenance intervals.

As demonstrated in the Åsgard subsea gas field, the subsea compression design and unmatched efficiency of the HOFIM® can deliver up to 20% higher recovery rates.

Platform, FPSO and onshore

Especially in space-constrained brown-field applications, space and weight factors impact your options. The ultra-compact design of HOFIM® units typically weighs in at 40% less than conventional compressor packages. The compression unit is qualified for wet gas operation and significantly reduces the process complexity by eliminating liquid separation.

The technology allows for fully remote and unmanned operation.
Available in different material grades

Modular electric motor for different power ranges

HV electrical interface (motor terminal box)

State-of-the-art barrel compressor

Designed to ease maintenance and upgrades

Modular concept for maximum process design flexibility

Design reflects three decades of operating experience

The modular concept of the HOFIM® compression systems provides the highest flexibility in component and process configuration and facilitates extremely simple system integration.

The fully electrical HOFIM® system consists of a high-speed motor driving a multi-stage centrifugal compressor, levitated by active magnetic bearings. The unit is hermetically sealed and fully encapsulated, providing the highest possible level of safety.
The motor design incorporates various frame sizes from 1,300 HP (1 MW) to 24,000 HP (18 MW).

**Design aspects and features:**

- The magnetically-levitated system ensures highest reliability and availability.
- Qualified for wellstream compression (up to 30% LMF) and suitable for wet and sour gas
- Motor and bearings cooled by process gas extracted from compressor
- No external cooling medium, no lube oil nor sealing gas
- Proven magnetic bearing technology
- Solid core, non-laminated electric motor rotor
- Solid axial thrust disc between motor and compressor shafts for high thrust loads and safety during transient operation
- Highly effective symmetrical internal motor cooling system
- Simple integration due to minimum number of interfaces
- Suitable for use with most high-speed VFDs
- Minimised utilities
MAN Energy Solutions is the pioneer in the development and application of high-speed, integrated motor-compressor systems. Originating in the midstream industry for gas storage and gas transport applications, the wealth of experience gained over 30 years of development, deployment and operation of high-speed motor compression units has culminated in the construction and delivery of topside and subsea HOFIM® compression systems. The two subsea HOFIM® units were successfully put into commercial operation at Åsgard in 2015. Since then, they have performed with an availability of well above 99%.
World's 1st centrifugal compressor for subsea

1990 Hermetically-sealed, magnetic bearing motor-compressor unit
1991 First HOFIM®
1997 First tandem HOFIM®
2000 First HOFIM® offshore
2000 First integrated single HOFIM®
2002 First integrated tandem HOFIM®
2007 Successful testing of new motor generation for wet and sour gas
2009 Upstream qualification program completed
2015 Subsea compression station in production
2017 First topside HOFIM® in production
2017 Subsea HOFIM® TRL7 achieved
2018 Wellstream qualification completed

more than 100 units in operation with exceptionally high availability
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