



MOPICO®

Gas pipeline compression system

Engineering the Future – since 1758.

MAN Diesel & Turbo



MOPICO®

Gas pipeline compression systems

MOPICO® is a unique, state-of-the-art, integrated motor-driven pipeline compression system. The simple, compact and cost-effective design concept results in a highly reliable and largely maintenance-free system with highest efficiencies over the complete operating range.

Design characteristics

MOPICO® compression systems are available in various frame sizes, determined by the required motor rating. The programme can accommodate flow rates of between 0.2 to 2.0 x 10⁶ Nm³/h and pressure ratios of approximately 2.

- **Basic design:** the ultimate in conceptual simplicity – single rotating element, two radial and one axial bearing, no couplings, no gear box, no lube oil, no shaft seals to atmosphere
- **Motor:** high-frequency, variable speed induction motor. The rotor shaft is extended on both sides, on to each of which a single, overhung impeller is mounted
- **Bearings:** the rotor shaft is levitated in two radial magnetic bearings and positioned by a single axial magnetic bearing
- **Cooling:** the motor and magnetic bearings are cooled by process gas, bled after the first compression stage and subsequently recycled into the suction system.
- **Hermetically sealed, pressurised system:** dictated by the motor cooling, the complete system operates at a pressure approximately equal to the system intake pressure. The three-

piece, vertically split outer casing is designed for operation at pressures of up to 150 bar

- **Drive system:** the motor is driven by a solid state, variable frequency drive system (VSDS), located remote from the compressor housing

Product range

MOPICO® is available with motor powers ranging from approximately 4 to 24 MW based on three motor frame sizes. Power requirements for specific projects are optimised by varying the length of the active section of the motor rotor, while maintaining the external geometry of the unit for any given frame size. A wide selection of impeller types with varying widths and diameters ensures optimal thermodynamic efficiencies.

Principal features

MOPICO® is an hermetically sealed, integrated electric motor/compressor-system, designed especially for gas pipeline applications. The unique concept of the system results in lowest capital, operating and maintenance costs.

Main features:

- high-frequency, squirrel-cage induction motor directly connected to two separate compression stages at each end of the motor shaft. The motor is cooled by process gas at a pressure approximately equal to the pipeline suction pressure
- two separate compression stages which can be connected in both series and/or parallel, which, together with the motor speed variation, provide the widest possible operating range
- the rotating assembly is a stiff shaft design with a margin greater than 25% to the first lateral bending mode
- the hermetically sealed design and the elimination of oil systems result in an environmentally neutral system, having no effect on the local environment with respect to pollutive emissions
- contact-free magnetic bearings, together with the elimination of couplings, gears and shaft seals to atmosphere result in a largely wear and maintenance-free system

System concept

MOPICO® is an integrated, engineered system comprising the motor/compressor unit, the variable frequency drive and the unit/station control system. By means of a dedicated pipe/valve system, the two compression stages can be connected either in series and/or in parallel with change over from one mode to the other.

Control and safety systems

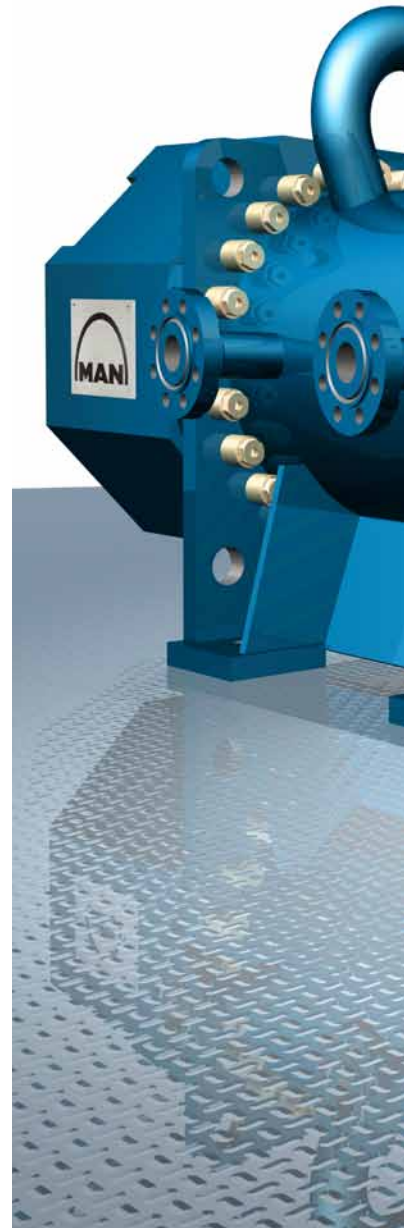
The control system performs unit and overall station control functions, such as valve sequencing and surge control. The system connects with the pipeline SCADA system for remote operation and monitoring. Key process data are trended and recorded and can be called up remotely through a standard computer link.

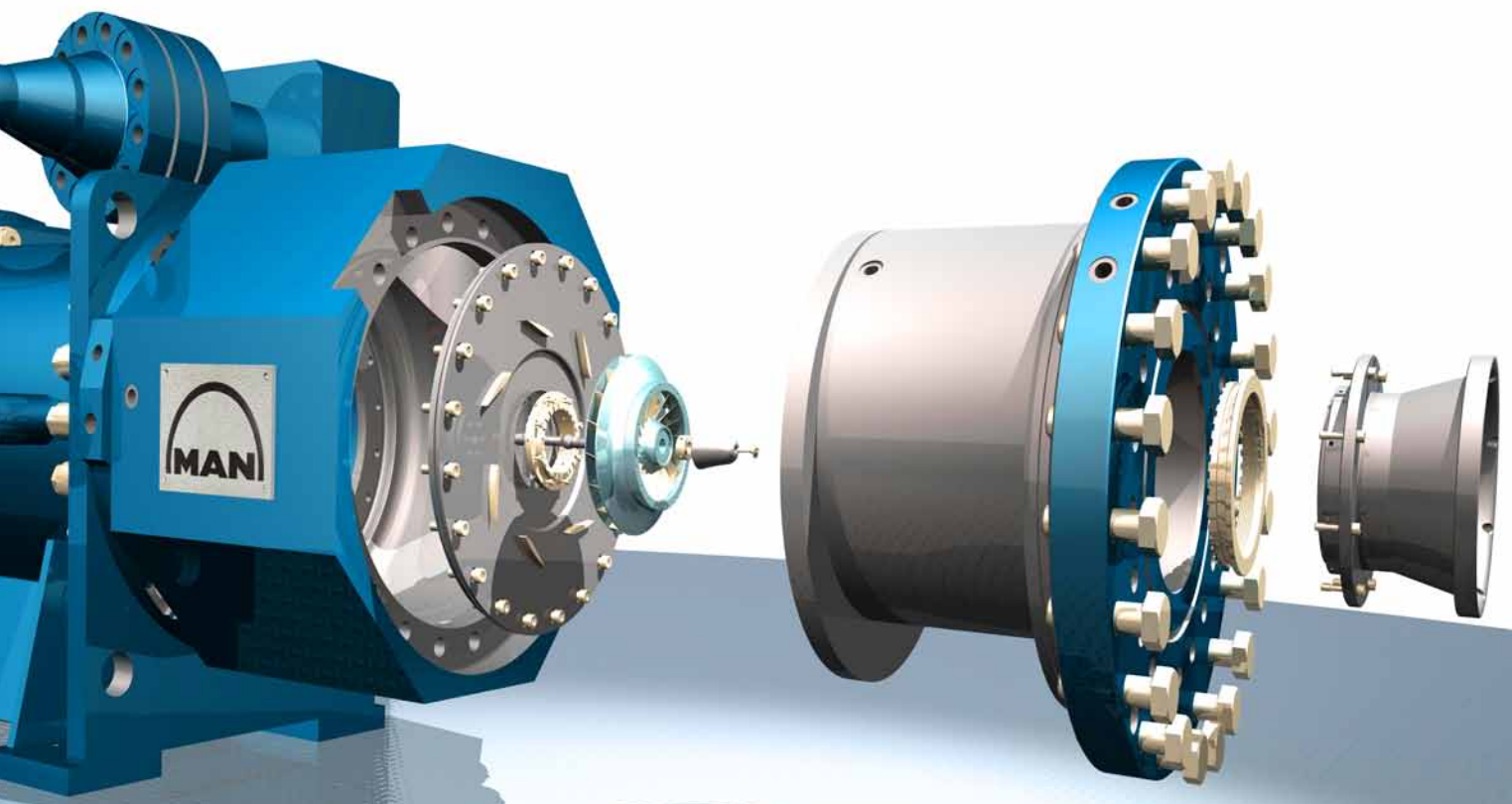
Station design

The compactness and low weight of MOPICO® allow for simple and cost-effective installation in functional industrial housings. The use of magnetic bearings virtually eliminates the transmission of vibrations from the unit, resulting in substantially reduced foundation costs. Thanks to the magnetic bearings and the thickness of the high-pressure motor casing, the MOPICO® noise emission levels are extremely low. For most applications, no additional noise attenuation is required.

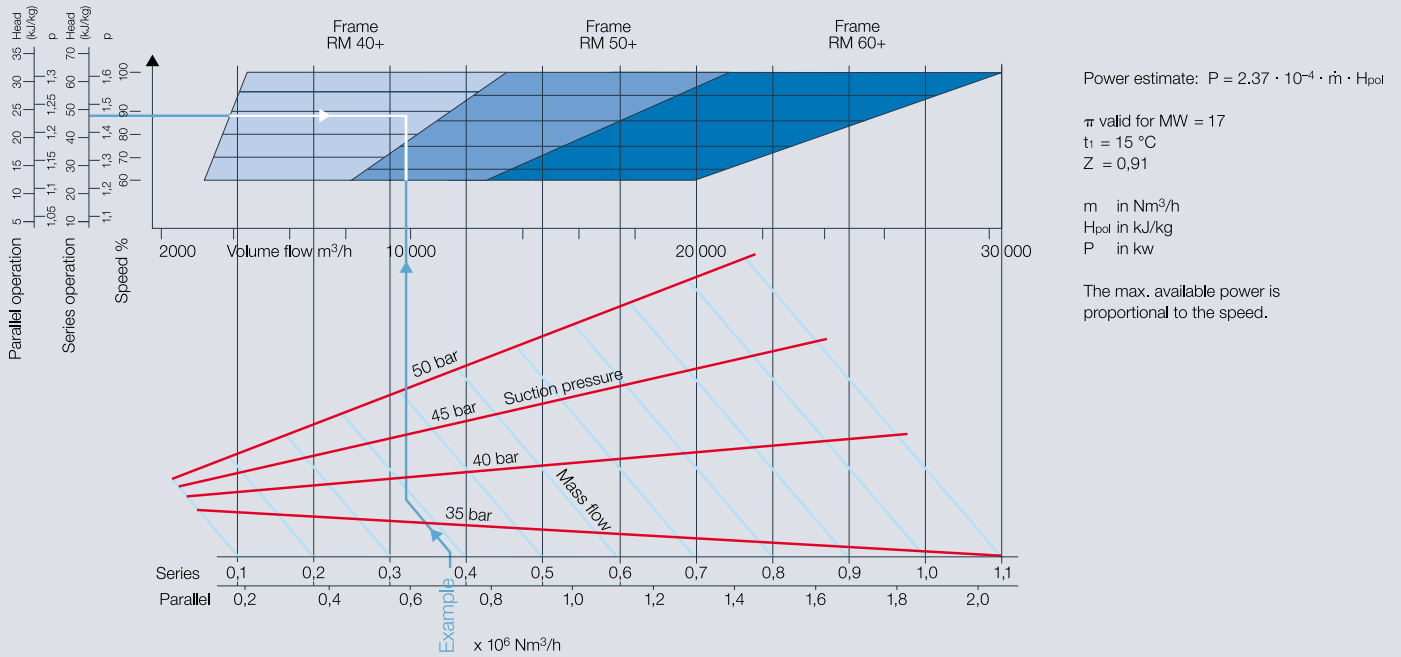


- 1 Booster station in Germany with three MOPICO® units
- 2 One of the three identical MOPICO® units
- 3 One of two MOPICO® systems in operation in France





Compressor selection map



Fully assembled pipeline package



Works test of a MOPICO® unit

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