

# Isotherm Turbocompressors

With integrated cooling



Engineering the Future – since 1758.

**MAN Diesel & Turbo**



# Isotherm Turbocompressors

## With integrated cooling

- A unique product for air, nitrogen, oxygen and similar gases
- Single-shaft compressor with integrated cooling  
(Isotherm = cooling downstream of every stage)
- A system – of which more than 1,000 units have been built –  
with highest operational availability

### Type series

#### RIK / RIKT

Air compressor of radial design, up to 600,000 m<sup>3</sup>/h (350,000 acfm). More than 1,000 units sold. Well-proven as a process air compressor in all regions of the world.

#### ARI

Combination of axial/radial compressor, suitable for maximum volume flow up to 1,000,000 m<sup>3</sup>/h (590,000 acfm). MAN Diesel & Turbo's rich experience with axial and large radial compressors is combined in this product.

#### RIO

Process compressor for oxygen with minimum space requirement, up to 130,000 m<sup>3</sup>/h (77,000 acfm). This single-shaft compressor is of special design for safe oxygen operation in combination with the advantages of integrated cooling.

### Principal features

of this proven and robust turbocompressor for long operating periods:

- Low energy consumption
- Maximum reliability
- Compact design and low space requirements
- Sophisticated aerodynamics
- Coolers integrated in compressor casing
- Service-friendly design
- Low noise emissions

### Technical features

- **Casing:**
  - Cast iron (RIK/RIO) type 35–80
  - Welded type 90–160
- **Impellers:** milled/welded, for a long service life and optimum efficiency
- Adjustable **inlet guide vanes** allow good and energy-saving off-design load characteristics
- **Cooler bundles:** in various designs and material combinations for optimum heat transfer
- **Water separator:** in-house design, well-proven also in case of high humidity
- Materials according to requirements (for most components)

### Application

The isotherm compressor is a compressor for process air or oxygen with optimized energy consumption. The modular system permits accommodation of specific operational conditions. Since 1915, the principle of integrated cooling and the design of the remaining components have undergone continuous improvement. The large number of reference units confirms the success of this product which is unique in the market.

### System solution

Air separation plants require various types of compressors (air, dry-air booster, nitrogen, oxygen, etc.). In addition to the main air compressor (RIK, RIKT or ARI), MAN Diesel & Turbo can also supply compressors for the other requirements.

Apart from air separation, the RIK can also be used for other process air applications.

### Possible drive units

- Electric motor via gear unit
- Steam turbine or gas turbine with direct drive



### Operational safety and service

The customer is provided with a well-proven and economical solution for gas compression.

The installation of a single-shaft compressor for air or oxygen compression offers special reliability due to the rugged design and the service-friendly, easily accessible machine.

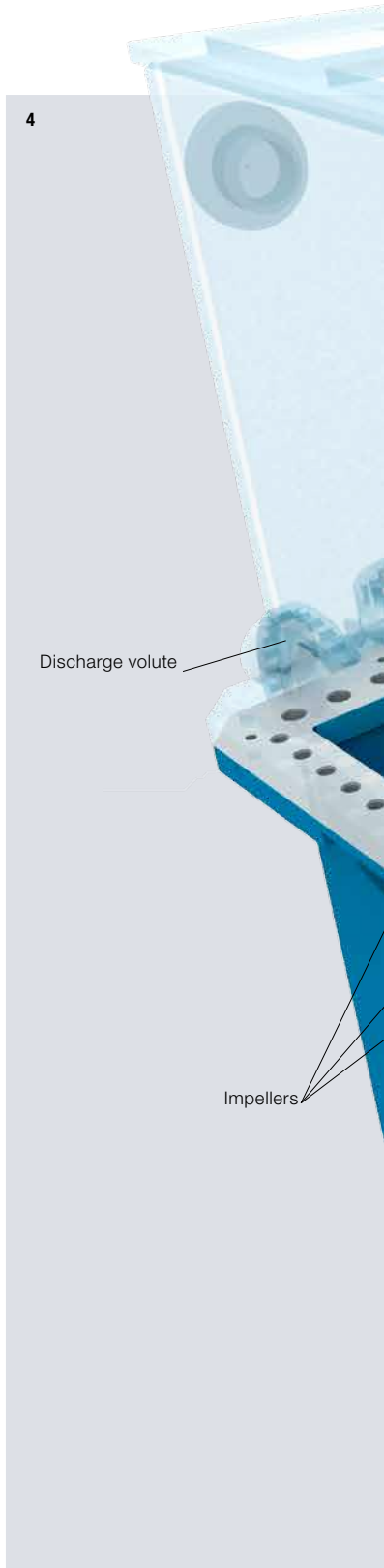
MAN Diesel & Turbo also provides erection and commissioning services – please contact us with regard to service contracts.

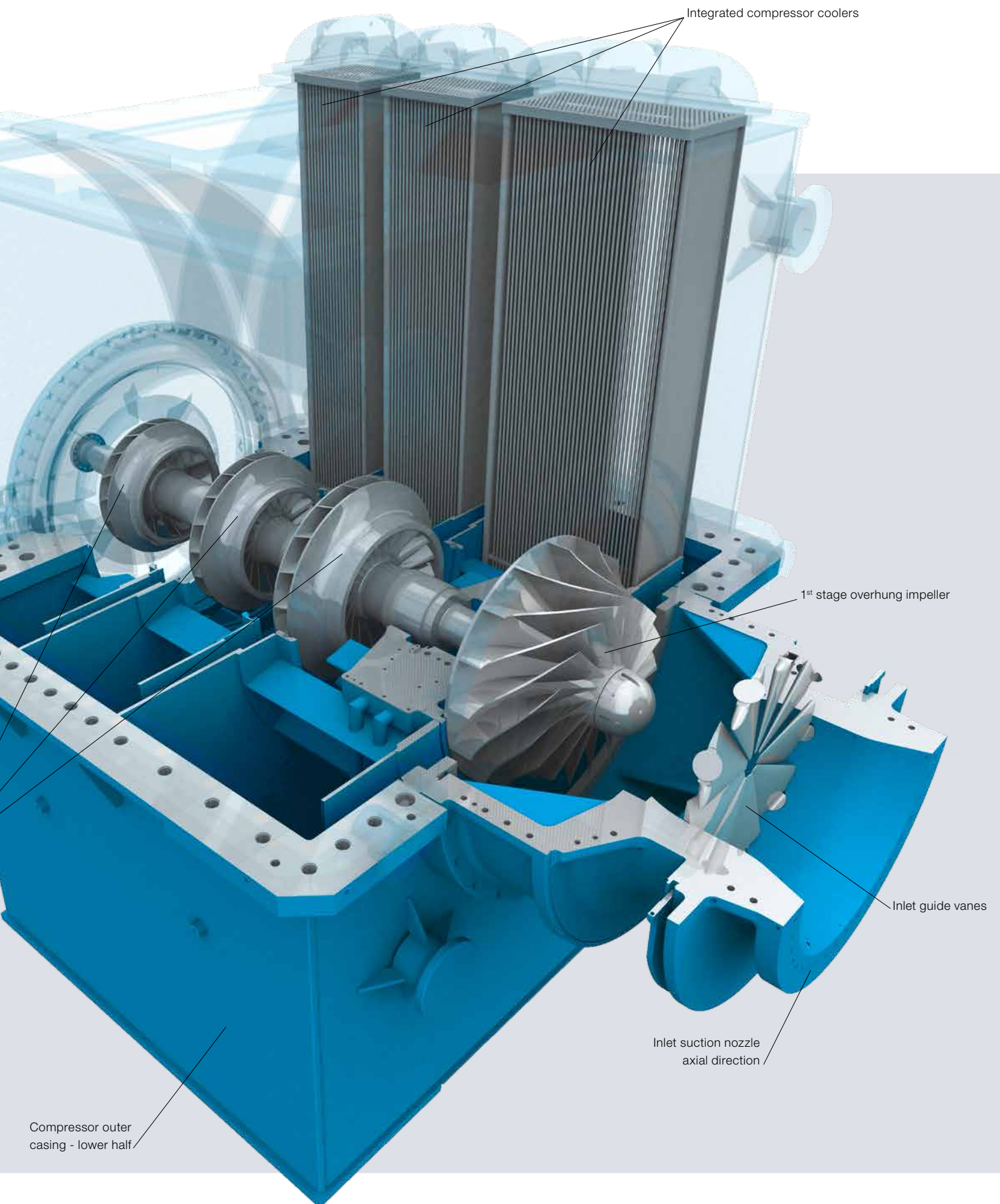
### Quality and know-how

A proven quality system accompanies the product throughout. Personnel with specialist knowledge takes care of order management and is at the customer's disposal with help and advice over the complete operating period.

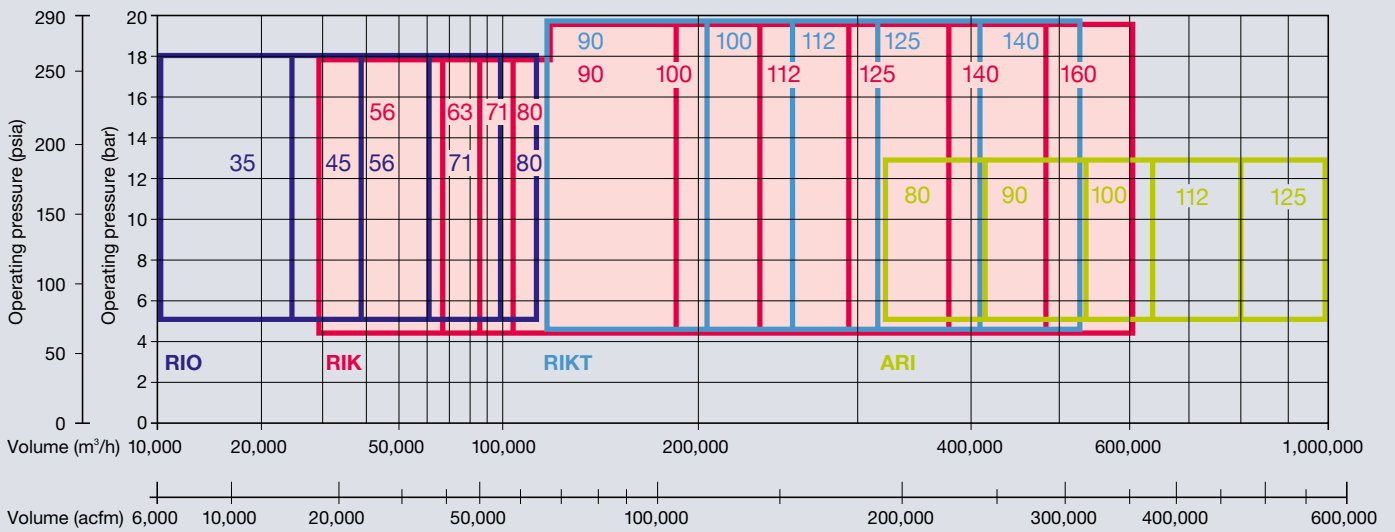


- 1 Oxygen compressor RIO 45 installed in a plant in the USA
- 2 Air separation plant for the production of oxygen, nitrogen and inert gases with RIK air compressor
- 3 RIK 56 with booster in an ammonia plant in Spain
- 4 RIKT with four stages and 3 x 2 cooler bundles





# Selection Diagram of RIK/RIKT, RIO and ARI



Latest development RIKT:  
First stage with axial inlet designed as open, overhung-mounted impeller



Air compressor RIK 100 in an air separation plant



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