RIKT 71
Isothermal Turbocompressor
RIKT 71 – Isothermal Turbocompressor

MAN’s RIKT isothermal turbocompressor family has a new member: the RIKT 71.
In 2001, MAN introduced the RIKT to the market and many clients soon recognized the high efficiency and reliability of the unique design. With the RIKT 71, the advantages of our inline, isothermal design are now available for flow rates between 95,000 and 165,000 m³/h.

**Your Application**
- Plant air
- Air separation industry
- Fertilizer industry
- Nitric acid
- Enhanced oil recovery
- Compressed air energy storage
- Liquid air energy storage
- All industries in which large volumes of air are needed

**Our Solution**
The RIKT 71 is based on the proven RIKT series of which 200 units have already been sold with a track record of over 3 million operating hours. The latest technology (RIKT 2nd generation) is used for all components. The RIKT 71 uses pre-engineered modules that are configured to match client’s requirements. Several standard rotors cover the flow and pressure range and are combined with optimized coolers and stator parts. Auxiliary components and instrumentation are selected for maximum availability and various customizing options are available.

**Features**
- Skid-mounted, single-lift unit for quick and easy installation
- Unique inline, isothermal design, referenced over 1400 times
- Standardized rotors with referenced impellers: excellent performance predictability and possibility to exchange rotors
- All 3D RIKT 2nd-generation impellers for maximum efficiency and wide operating range
- Inline shaft with robust mechanical running behavior
- No external intercoolers or piping
- Long overhaul intervals
- Simple and easy maintenance
- Bearing inspection and maintenance without opening of casing
- Rotor disassembly not required for regular maintenance
- Compact design and small footprint
Advantages

Easy handling
The compact machine comes completely packaged, together with gearbox and oil system. The skid with fully mounted machine is designed for land transportation by truck. Due to the single-lift skid design with integrated coolers, the installation time is minimized. Furthermore, no field welding of process piping is required.

Efficient
The concept behind this machine focuses on achieving the highest possible levels of efficiency. Each component is designed in line with this aim and is coordinated to an optimized compression system. The 3-dimensional, backward leaning impellers combine maximum efficiency with a wide operating range. The integrated coolers are optimized to maximize heat transfer with minimum pressure loss.

Minimized footprint
Since no external coolers are needed, the footprint of this unit is minimized compared to other standard multi-shaft compressors.

Reliable
With only one moving part, this machine is very robust and ensures long-term efficient operation. The small number of moving parts result in a safer, more reliable compressor with less downtime and less maintenance as compared to standard multi-shaft compressors. The rotor is heavy, and thus insensitive to imbalance due to accumulated fouling. The rotor is dynamically balanced to ensure low vibration. Each impeller must pass a 15% overspeed test. In addition, each open impeller must pass a ring test to ensure resonance-free operation.

Easy to maintain
The unique design allows for long overhaul intervals and reduces maintenance time and costs. All components are easy to maintain. The bearings are accessible through a man-hole, without removing the top half of the casing. The coolers can be easily lifted through the top covers. The inlet guide vanes have maintenance-free bearings and sliders. An optional impeller on-line washing system is available to ensure long-term efficient operation. There are no wearing parts requiring regular replacement.

Low total cost of ownership
Over time, the energy required to power a compressor system is the largest operating cost. However, to evaluate the return on investment over the entire life cycle, the initial investment, energy consumption and maintenance must be considered. MAN isothermal compressors have a lower total life cost of ownership than other models. Due to their unique design, long-term efficient operation is ensured. And with low wear and tear, the maintenance intervals are long, with short downtimes. Many of our compressors have run for 40 or more years to our customers’ full satisfaction!
Basic Scope of Supply

**Compressor**
Single-shaft compressor with 3 impellers and 2 integrated intercoolers

**Coolers**
Two pairs of extended surface, water in tubes plate fin intercooler bundles with condensate separators

**Coupling**
Two flexible disc type couplings with guards

**Casing**
Horizontally-split, welded casing, with cast inlet and outlet section

**Lube Oil System**
Integrated lube oil system with CS oil tank and oil mist evacuation fan, single plate heat exchanger and complete piping

**Rotor**
Single-shaft rotor with 3 impellers

**Bearings**
Tilting pad journal bearings and combined journal and thrust bearing on the suction side

**Driver**
Synchronous or asynchronous motor supplied by purchaser

**Instrumentation**
Single RTDs for all bearings and casing vibration measurements

**Options and accessories**
Upgrade packages for instrumentation, process piping, auxiliary piping, lube oil system and coolers are available.
## Technical Specifications

<table>
<thead>
<tr>
<th>Component/Type</th>
<th>RIKT 71 Inline</th>
<th>Standard Multishaft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotating parts</td>
<td>1</td>
<td>many</td>
</tr>
<tr>
<td>Bearings</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Shaft seals</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Coolers</td>
<td>integrated</td>
<td>external</td>
</tr>
<tr>
<td>Interstage process piping</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Single-lift unit</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Footprint</td>
<td>Up to 40% less due to integrated coolers</td>
<td>Standard due to external coolers</td>
</tr>
</tbody>
</table>

### 50/60Hz

<table>
<thead>
<tr>
<th>Working Pressure</th>
<th>Effective Flow Rate</th>
<th>Installed Motor Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>bara</td>
<td>psi</td>
<td>m³/h</td>
</tr>
<tr>
<td>min</td>
<td>max</td>
<td>min</td>
</tr>
<tr>
<td>RIKT 71</td>
<td>5</td>
<td>7.5</td>
</tr>
</tbody>
</table>

### Size & weight

<table>
<thead>
<tr>
<th>RIKT 71</th>
<th>Dimensions</th>
<th>Single-Lift Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>m</td>
<td>in</td>
</tr>
<tr>
<td>L</td>
<td>W</td>
<td>H</td>
</tr>
<tr>
<td>Overall installation (approx.)</td>
<td>11.9</td>
<td>4.6</td>
</tr>
<tr>
<td>Compressor skid</td>
<td>5.67</td>
<td>3.89</td>
</tr>
<tr>
<td>Maintenance (approx.)</td>
<td>8.9</td>
<td></td>
</tr>
</tbody>
</table>
All data provided in this document is non-binding. This data serves informational purposes only and is especially not guaranteed in any way. Depending on the subsequent specific individual projects, the relevant data may be subject to changes and will be assessed and determined individually for each project. This will depend on the particular characteristics of each individual project, especially specific site and operational conditions.

Copyright © MAN Diesel & Turbo Schweiz AG • CH-8-7-2016