HST™ 40 Turbocompressor

A highly efficient and reliable single-stage centrifugal compressor for the provision of oil-free, low-pressure air.

Construction

High-speed electric motor
A horizontally mounted high-frequency electric motor for variable speed operation. The motor is air-cooled by an integrated shaft mounted fan and the windings are protected by Pt100-sensors monitored by the local control system.

Air end
The impeller has been designed to optimize performance and is machined from a solid piece of high-strength aluminum alloy. The volute and other main components are made from cast aluminum. A non-contact seal between air-end and motor minimizes losses to maintain high efficiency.

Variable frequency drive
Flow control is provided by a built-in variable frequency drive which also accommodates variations in outlet pressure and ambient inlet conditions. The variable frequency drive’s soft-start facility eliminates peak starting currents.

Active magnetic bearings
Two radial bearings and two axial bearings support the rotor. The magnetic bearing controller uses data provided by multiple sensors to continuously manage the position of the rotor.

Blow-off valve
The blow-off valve is mounted within the acoustic enclosure with further attenuation provided by an integrated silencer.

Acoustic enclosure
The enclosure provides protection for the electrical and mechanical components and provides efficient noise attenuation for the machine. The enclosure is constructed from zinc-plated steel. It is suitable for indoor use (IP 33D / NEMA 2).

Integrated components
The filters for cooling air and the motor cooling air silencers are all integrated into the main assembly.

Compressor Control

Local control
The built-in local Human-Machine-Interface (HMI) provides control and monitoring for the safe and efficient operation of the machine. Flow may be controlled directly by the operator, or alternatively, the turbocompressor can follow a given reference value. The local HMI uses a keypad and text display to provide access to the operator.

Connections
Analog and digital control and monitoring connections are built in. Fieldbus connections such as Proflbus, Profinet, Modbus RTU, and Modbus TCP are available as options.

Remote connections
A secure connection facilitating service and monitoring can be ordered as an option.
Options
Various options for handling special requirements regarding e.g., temperature, dusty environments and locations with high moisture can be selected.

Accessories
Required accessories for installation such as flexible joints, valves, silencers, and air filters are available from Sulzer.

Performance Testing
Compressor performance tests are performed on every machine manufactured and certificates issued to confirm compliance. The tests are carried out at the Sulzer factory test facility. Performance is guaranteed with a manufacturing tolerance of ± 2% and a measurement tolerance according to ISO 5389. Optionally tests can be performed according to ISO 5389 or ASME PTC 10. The test can be witnessed by the customer or a third party inspector.

Certification and Standards
The compressor is certified according to the relevant UL and CSA standards:
• UL 1450
• CSA C22.2 No. 68
The product is designed and manufactured in accordance with EN 61800-3 standard and intended for use in second environment locations, e.g., in industrial areas.

Compressor Data

<table>
<thead>
<tr>
<th>Installation Conditions (1)</th>
<th>Altitude</th>
<th>Air quality</th>
<th>Ambient conditions</th>
<th>Inlet conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum altitude</td>
<td>8200 ft above sea level</td>
<td>IEC 60721-3-3 class 3C3</td>
<td>Min. 14 °F, max. +113 °F</td>
<td>Air temperature range for ducted process air inlet</td>
</tr>
</tbody>
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<tr>
<th>Altitude Conditions (1)</th>
<th>Air pressure</th>
<th>Max. air temp.</th>
<th>Ambient temperature rise</th>
<th>Ambient relative humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air pressure range [mbar]</td>
<td>2800-10000</td>
<td>Min. 14 °C, max. 113 °C</td>
<td>&lt;95 %, no-condensing, no-corrosive, no dripping water</td>
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<td>Weight</td>
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</tr>
<tr>
<td>-----------</td>
<td>----------------</td>
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<tr>
<td>Weight [lb]</td>
<td>4130</td>
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(1) The maximum input current is calculated using the nominal voltage. The cable and fuse sizes are recommendations and based on the supply current and cables rated to 70 °C [158 °F].

www.sulzer.com
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