

HST™ 40 Turbocompressor

SULZER

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

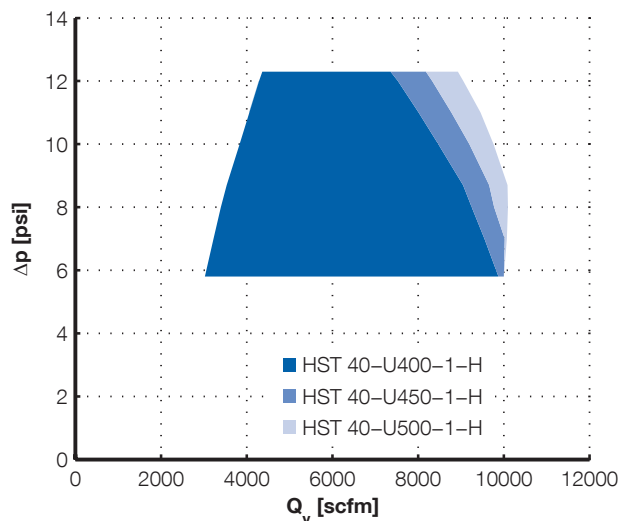
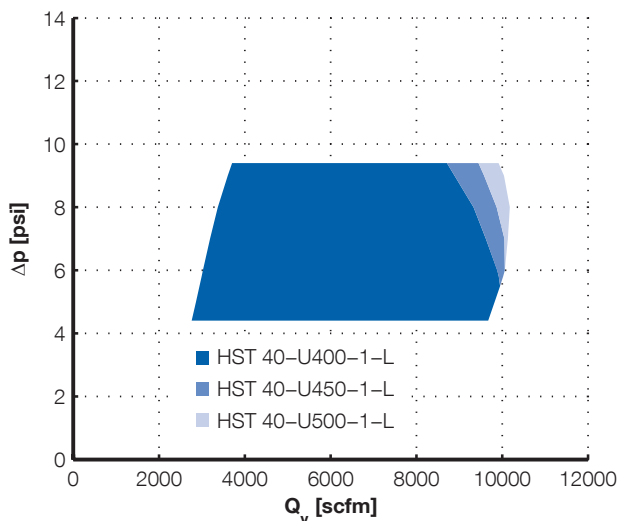
The built-in local Human-Machine-Interface (HMI) provides control and monitoring for the safe and efficient operation of the machine. Flow may be controlled directly by the operator, or alternatively, the turbocompressor can follow a given reference value. The local HMI uses a keypad and text display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

Connections

Analog and digital control and monitoring connections are built in. Fieldbus connections such as Profibus, 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 $\pm 2\%$ 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:

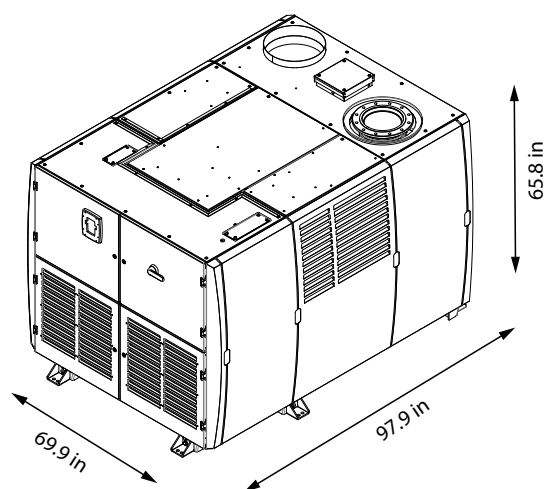
- UL 1450
- CSA C22.2 No. 68

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.

Installation Conditions ⁽¹⁾

Altitude	
Maximum altitude	8200 ft above sea level
Air quality	
Permitted chemical vapors	IEC 60721-3-3 class 3C3
Ambient conditions	
Ambient temperature range ⁽¹⁾	Min. 14 °F, max. +113 °F
Ambient relative humidity	< 95 %, non-condensing, non-corrosive, no dripping water
Inlet conditions	
Air temperature range for ducted process air inlet	Min. -22 °F, max. +122 °F

⁽¹⁾ Sulzer may approve applications outside these criteria.



Compressor Data

	HST 40-	U400-1-L	U450-1-L	U500-1-L	U400-1-H	U450-1-H	U500-1-H
Air flow range [scfm]		2800-9900	2800-10000	2800-10100	3100-9900	3100-10000	3100-10100
Pressure rise [psi]		4.4-9.4	4.4-9.4	4.4-9.4	5.8-12.3	5.8-12.3	5.8-12.3
Noise level [dB]		67	70	70	65	66	69
Input power [hp]		400	450	500	400	450	500
Power supply [V]		460-600	460-600	460-600	460-600	460-600	460-600
Input power frequency [Hz]		50/60	50/60	50/60	50/60	50/60	50/60
480 V	Max. input current [A] ⁽²⁾	389	437	486	389	437	486
	Cable size [AWG or MCM]	2x(3x250+2/0)	2x(3x300+2/0)	2x(3x350+3/0)	2x(3x250+2/0)	2x(3x300+2/0)	2x(3x350+3/0)
	Fuse size [A]	400	600	600	400	600	600
580 V	Max. input current [A] ⁽²⁾	322	362		322	362	
	Cable size [AWG or MCM]	2x(3x4/0+1/0)	2x(3x250+2/0)		2x(3x4/0+1/0)	2x(3x250+2/0)	
	Fuse size [A]	400	400		400	400	
Auxiliary current [A]		10	10	10	10	10	10
Auxiliary supply [V]		360-550	360-550	360-550	360-550	360-550	360-550
Weight [lb]		4130	4130-4200	4200	4130	4130-4200	4200

⁽²⁾ 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].