

# Turbocompressor type ABS HST 40

Single-stage radial centrifugal compressor for absolutely oil-free supply of air. The turbocompressor featuring variable speed control for continuously variable power optimization according to the changes in inlet temperature and differential pressure.

## Construction

- Integrated high speed electric motor
- Frequency converter
- Total oil-free magnetic bearings
- Blow-off valve
- Local control
- All safety control required for monitoring
- Sound isolation enclosure
- All mounted on a common base plate
- Accessories for inlet/outlet (as options)

## High speed electric motor

Air cooled variable speed high frequency electric motor. The impeller and the motor cooling fan are mounted directly to the motor shaft. Horizontally mounted motor with magnetic bearings and variable rotation speed.

## Frequency converter

In-built frequency converter for variable motor speed control and optimal efficiency at all operation points. Start-up with soft start function. Including Rfi-filter that filters the radio frequency interference emitted by the frequency converter.

## Impeller

Impeller shaped from a solid forged piece of DURAL Aluminium alloy on a numerical machining center in CAM technology. Impeller design with 3 dimensional shaped blades, individually optimized to the design range of the compressor.

## Magnetic bearings

Two radial bearings with 8 pole magnets each and two axial magnetic bearing with 2 pole magnets each and continuous rotor position measurement controlled by active magnetic bearing controller. Including Rfi-filter.

### Features:

- No mechanical contact between surfaces
- No friction
- No wearing
- No oil lubrication
- Vibration free operation
- Continuous rotor balancing monitoring



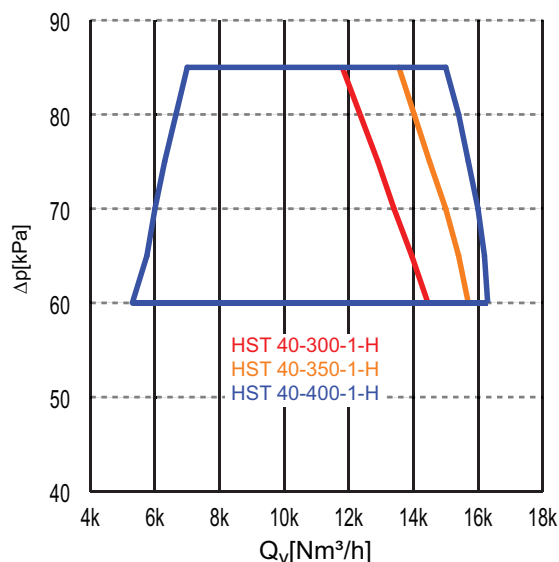
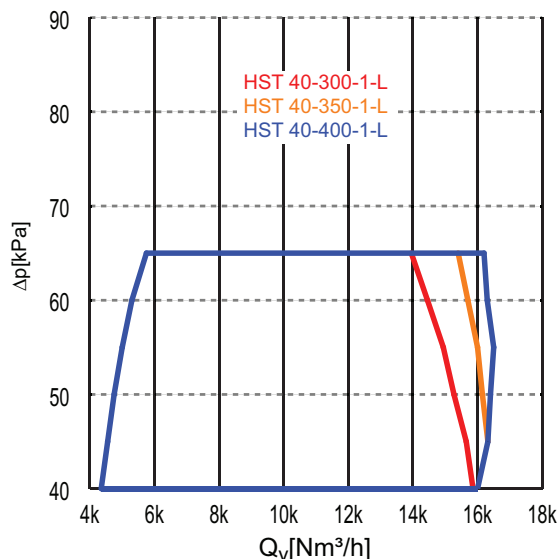
## Directives

- Machinery Directive (MD), 98/37/EC
- Low Voltage Directive (LVD), 2006/95/EC
- Electromagnetic Compatibility (EMCD), 89/336/EEC + 93/31/EEC + 93/68/EEC

Product has been designed and manufactured to be connected to industrial network in accordance with EN61800-3 standard. (EMC product standard for adjustable speed electrical power drive system.)

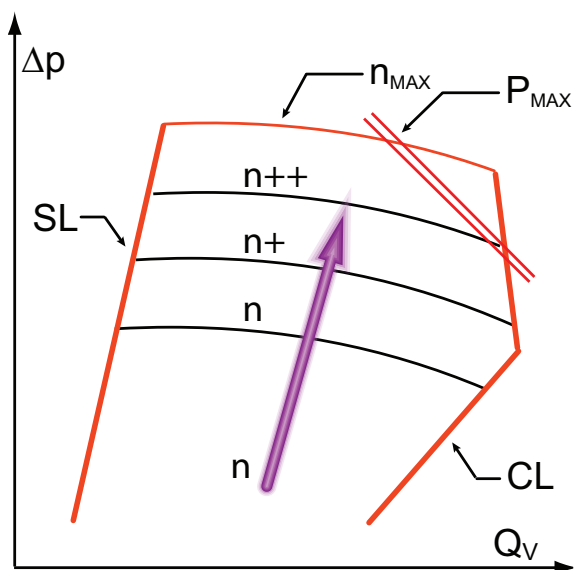
## Test run

Performance test and acceptance according to ISO 5389 will be performed on our test stand and attested. The design values of the performance table according to the contract must be within a manufacturing tolerance of  $\pm 2\%$  and a measuring tolerance of  $\pm 2\%$ .



## Flow control

The flow control of the compressor is based on indirect flow measurement via the internal load-proportional signals of the frequency converter.



The limits for these signals are programmed in our application software:

- surge limit [SL]
- choke limit [CL]
- power limit [ $P_{max}$ ]
- speed limit [ $n_{max}$ ]
- increasing speed [n]

## Compressor control

### Connections

Analog and Digital I/O as standard

Profibus or Modbus connection (as an option)

### Monitoring values

Alarm codes

Fault codes

Operation parameters

Magnetic Bearing Controller MBC-12

### Remote control

Surveillance via modem (as an option)

## Air quality

Permitted chemical vapours according to IEC 60721-3-3 class 3C3	Ave. / Max [mg/m <sup>3</sup> ]
Sulphur dioxide (SO <sub>2</sub> )	5,0 / 10
Hydrogen sulphur (H <sub>2</sub> S)	3,0 / 10
Chlorine (Cl)	0,3 / 1,0
Hydrogen chloride (HCl)	1,0 / 5,0
Hydrogen fluoride (HF)	0,1 / 2,0
Ammonia (NH <sub>3</sub> )	10 / 35
Ozone (O <sub>3</sub> )	0,1 / 0,3
Nitrogen oxides (NO <sub>x</sub> )	3,0 / 9,0

## Compressor data

	HST 40			HST 40		
	-300-1-L	-350-1-L	-400-1-L	-300-1-H	-350-1-H	-400-1-H
Air flow range [Nm <sup>3</sup> /h]	~4100-12000	~4100-12100	~4100-12200	~6000-14000	~6000-15000	~6000-16000
Pressure rise [kPa]	40-65	40-65	40-65	60-85	60-85	60-85
Max. noise level [dB(A)]	68	69	70	68	69	70
Input power [kW]	300	350	400	300	350	400
Max. current [400 V] [A]	470	550	620	470	550	620
Power supply [V]	380-690	380-690	380-690	380-690	380-690	380-690
Auxiliary power [kW]	1	1	1	1	1	1
Auxiliary current [A]	10	10	10	10	10	10
Auxiliary supply [V]	380-500	380-500	380-500	380-500	380-500	380-500
Input frequency [Hz]	50/60	50/60	50/60	50/60	50/60	50/60
Protection class	IP 33D	IP 33D	IP 33D	IP 33D	IP 33D	IP 33D
Thermal protection	2 x Pt100	2 x Pt100	2 x Pt100	2 x Pt100	2 x Pt100	2 x Pt100

# SULZER

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