



## Selection: Semi-hermetic Screw Compressors HS

### Input Values

Compressor model	HSN8591-160	Operating mode	Standard
Refrigerant	R404A	Power supply	400V-3-50Hz
Reference temperature	Dew point temp.	Useful superheat	100%
Liq. subc. (in condenser)	0 K	Additional cooling	Automatic
Suct. gas superheat	10/00 K	Max. discharge gas temp.	80/0 °C

### Result

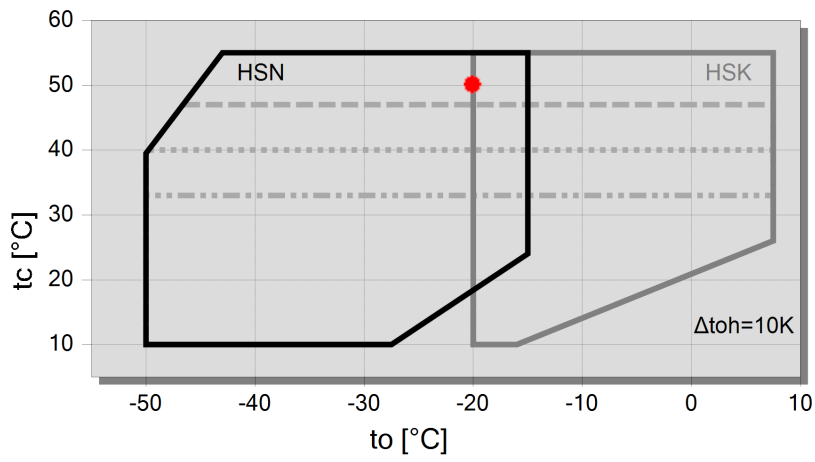
Q [W]	Cooling capacity	mHP [kg/h]	Mass flow HP
P [kW]	Power input	Qac [kW]	Additional cooling
I [A]	Current	tcu [°C]	Liquid temp.
COP [-]	COP/EER	pm [bar(a)]	ECO pressure
mLP [kg/h]	Mass flow LP	Qsc [kW]	sub cooler capacity (ECO)

tc	to	-10°C	-15°C	-20°C	-25°C	-30°C	-35°C	-40°C	-45°C
<b>30°C</b>	Q [W]	--	287055	232911	187031	148403	116111	89323	67286
	P [kW]	--	102/6	95/9	90/2	85/3	81/0	77/1	73/4
	I [A]	--	170/2	159/9	151/2	143/9	137/6	131/9	126/6
	COP [-]	--	2/80	2/43	2/07	1/74	1/43	1/16	0/92
	mLP [kg/h]	--	8387	6975	5747	4683	3767	2983	2315
	mHP [kg/h]	--	8387	6975	5747	4683	3767	2983	2315
	Qac [kW]	--	--	--	--	--	--	7/56	17/39
	tcu [°C]	--	29/6	29/6	29/6	29/6	29/6	29/6	29/6
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
<b>40°C</b>	Q [W]	--	242636	195550	155779	122411	94621	71660	52852
	P [kW]	--	118/0	111/2	105/4	100/3	95/7	91/3	87/0
	I [A]	--	194/4	183/8	174/7	166/7	159/6	153/0	146/5
	COP [-]	--	2/06	1/76	1/48	1/22	0/99	0/78	0/61
	mLP [kg/h]	--	8157	6764	5551	4499	3593	2814	2150
	mHP [kg/h]	--	8157	6764	5551	4499	3593	2814	2150
	Qac [kW]	--	--	--	--	9/27	19/86	29/5	37/9
	tcu [°C]	--	39/6	39/6	39/6	39/6	39/6	39/6	39/6
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
<b>50°C</b>	Q [W]	--	194734	155163	121857	94014	70904	51872	36322
	P [kW]	--	137/7	130/7	124/5	118/9	113/7	108/7	103/6
	I [A]	--	226	215	205	195/9	187/7	179/7	171/8
	COP [-]	--	1/41	1/19	0/98	0/79	0/62	0/48	0/35
	mLP [kg/h]	--	7817	6444	5246	4202	3297	2515	1840
	mHP [kg/h]	--	7817	6444	5246	4202	3297	2515	1840
	Qac [kW]	--	13/55	23/0	32/4	41/5	50/1	58/0	64/8
	tcu [°C]	--	49/7	49/7	49/7	49/7	49/7	49/7	49/7
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--

-- No calculation possible (see message in single point selection)

\*According to EN12900 (10K suction gas superheat, 0K liquid subcooling)

## Application Limits Standard HSN8591-160



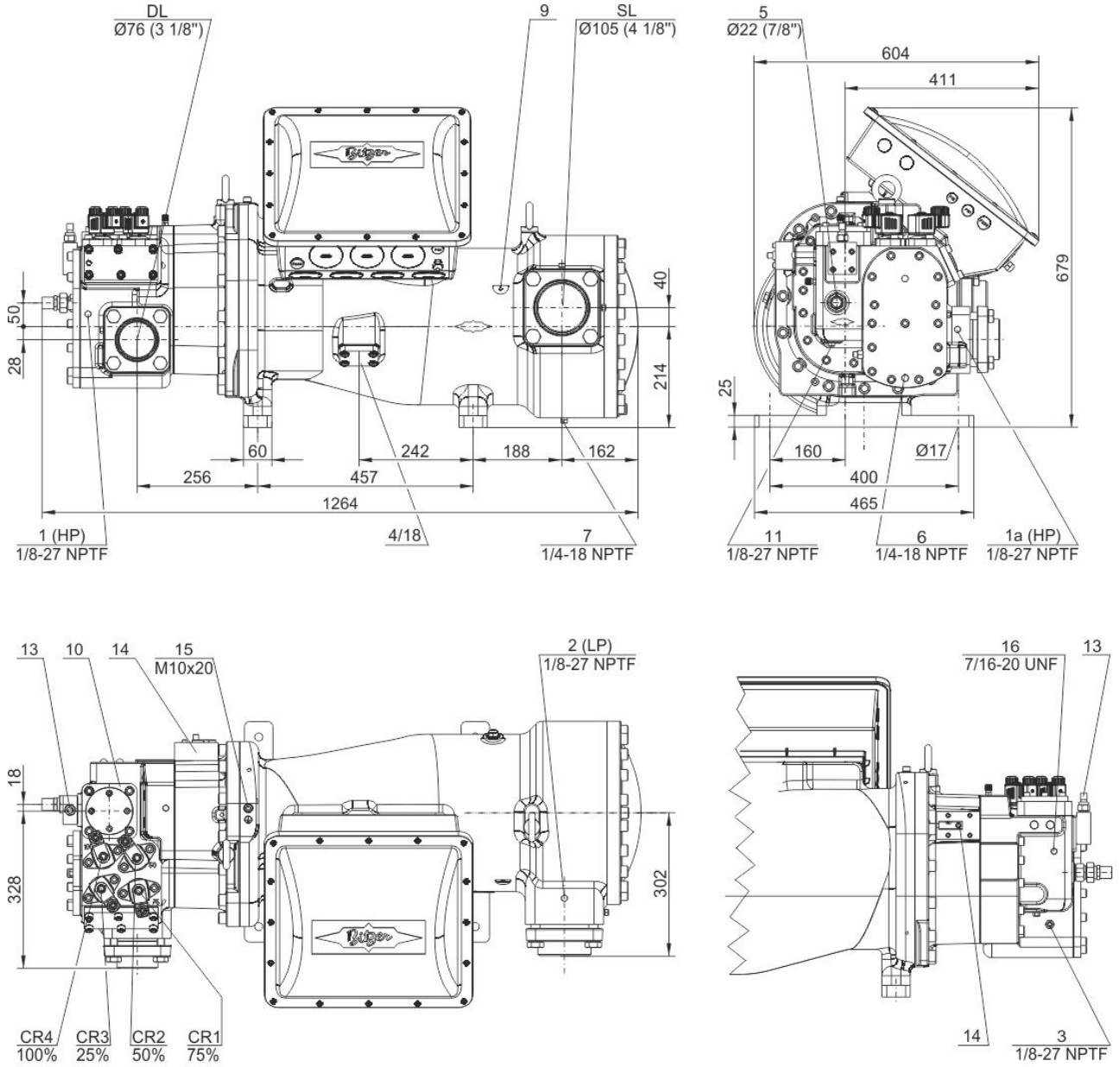
**Legend**

- max. tc for frequencies = 20Hz
- .... max. tc for frequencies = 25Hz
- max. tc for frequencies = 35Hz
- A



## Technical Data: HSN8591-160

### Dimensions and Connections





## Technical Data

### Technical Data

Displacement (2900 RPM 50 Hz)	535 m <sup>3</sup> /h
Displacement (3500 RPM 60 Hz)	646 m <sup>3</sup> /h
Weight	680 kg
Max. pressure (LP/HP)	19 / 28 bar
Connection suction line	DN 100
Connection discharge line	76 mm - 3 1/8"
Adapter/shut-off valve for ECO	28 mm - 1 1/8" (Option)
Oil type R22	B150SH, B100 (Option)
Oil type R134a/R404A/R507A/R407A/R407F	BSE170
Oil type R448A/R449A/R454C	BSE170

### Motor data

Motor version	1
Motor voltage (more on request)	380-415V PW-3-50Hz
Max operating current	274.0 A
Starting current (Rotor locked)	729.0 A D / 1114.0 A DD
Max. Power input	175/0 kW

### Extent of delivery (Standard)

Discharge gas temperature sensor	Standard
Start unloading	Standard
Oil flow control	SE-B3 (Standard)
Motor protection	SE-E1 + SE-B3 (Standard), SE-E3 (Standard for 660-690V)
Capacity control	100-75-50% or 100-50% (Standard)
Enclosure class	IP54

### Available Options

Suction shut-off valve	Option
Discharge shut-off valve	Option
ECO connection with shut-off valve	Option
Motor protection	SE-i1 (200-690V)

### Sound measurement



## Semi-hermetic Screw Compressors HS

**HSK** = Application for air-conditioning and medium temperature cooling.

**HSN** = Application for low temperature cooling.

### Notes regarding application limits (see "Limits")

- \* Ranges are valid for standard operation and at full-load conditions.
- \* With high pressure conditions, part-load operation is partly limited (see application limits in applications manual SH-100).
- \* With Economizer operation the maximum admissible evaporation temperature is shifted by 10K downward (otherwise there is a danger of excessive compression and overload of the motor because of a higher mass flow). At pull-down conditions from higher evaporation temperatures, the ECO injection must remain closed until the evaporation temperature is below the maximum admissible value and a stable operation is achieved (e.g. control of the ECO solenoid valve by means of a low pressure cut-out). The use of the ECO-system with higher evaporation temperatures requires individual consultation with Bitzer.

### HS 64/74

- \* Capacity control with ECO operation at the same time is limited to one single regulating step (CR 75%). At CR 50% the ECO injection should be closed.

### Data for sound emission

Data are based on 50Hz application (IP-units 60Hz) and R404A.

Sound pressure level: values are based on open air test sites with semi-spherical sound emissions at 1 meter distance. For further information see Technical Information "Sound Data".

### Legend of connection positions according to "Dimensions":

- 1 High pressure connection (HP)  
Connection for high pressure switch (HP)
- 1a Additional high pressure connection (HP)  
Not suitable for pressure switch or pressure transmitter!
- 1b Connection for high pressure transmitter (HP)
- 2 Low pressure connection (LP)  
Connection for low pressure switch
- 2a Additional low pressure connection (LP)
- 2b Connection for low pressure transmitter (LP)
- 2c Low pressure connection for the minimum pressure differential control valve
- 3 Connection for discharge gas temperature sensor (HP)
- 4 Connection for economiser (ECO)  
HS.85: ECO valve with connection line (option)  
OS.85, OS.95, OS.105, HS.95: ECO valve (option)
- 5 Connection/valve for oil injection
- 6 Oil pressure connection
- 7 Oil drain (compressor or motor housing)
- 7a Oil drain (suction gas filter)
- 7b Oil drain from shaft seal (maintenance connection)
- 7c Oil drain hose (shaft seal)
- 8 Threaded bore for foot fastening
- 9 Threaded bore for pipe fixture (ECO and LI lines)
- 10 Maintenance connection for oil filter
- 11 Oil drain (oil filter)
- 13 Oil filter monitoring
- 14 Oil flow switch
- 15 Earth screw for housing
- 16 Pressure blow-off (oil filter chamber)
- 17 Maintenance connection for shaft seal
- 18 Liquid injection (LI)
- 19 Compressor module
- 20 Slider position indicator
- 21 Oil level switch
- 22 Oil pressure transmitter



- 23 Connection for oil and gas return (for systems with flooded evaporator adaptor optional)
- 24 Access to oil circulation restrictor
- 25 Oil inlet for shaft seal cooling
- 26 Oil outlet for shaft seal cooling
- 27 Temperature sensor in the shaft seal
- 28 Vibration sensor connection
- SL Suction gas line
- DL Discharge gas line

Dimensions can show tolerances according to EN ISO 13920-B.