



Selection: Semi-hermetic Screw Compressors HS

Input Values

Compressor model	HSN8591-160	Operating mode	Standard
Refrigerant	R22	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

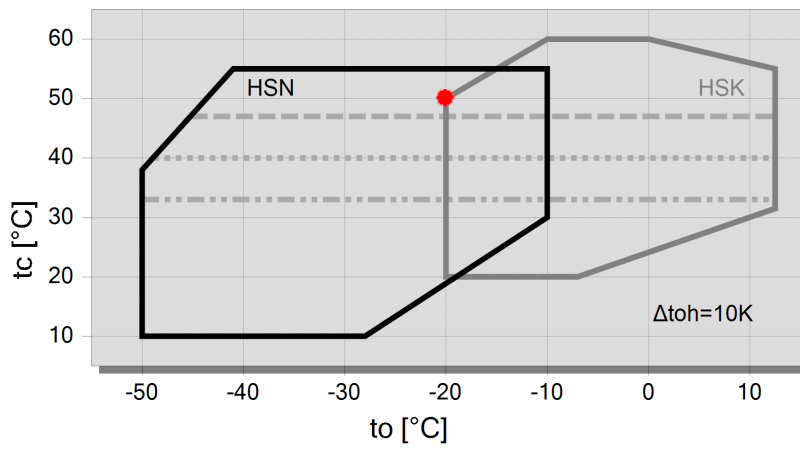
Q [W]	Cooling capacity	mHP [kg/h]	Mass flow HP
P [kW]	Power input	Qac [kW]	Additional cooling
I [A]	Current	t _{cu} [°C]	Liquid temp.
COP [-]	COP/EER	pm [bar(a)]	ECO pressure
mLP [kg/h]	Mass flow LP	Qsc [kW]	sub cooler capacity (ECO)

tc	to	-10°C	-15°C	-20°C	-25°C	-30°C	-35°C	-40°C	-45°C
30°C	Q [W]	336098	277630	227203	183977	147169	116049	89942	68220
	P [kW]	97/9	91/5	86/2	81/6	77/7	74/3	71/1	68/0
	I [A]	163/0	153/3	145/2	138/5	132/8	127/9	123/3	118/9
	COP [-]	3/43	3/03	2/64	2/25	1/89	1/56	1/27	1/00
	mLP [kg/h]	7034	5885	4881	4007	3251	2602	2047	1577
	mHP [kg/h]	7034	5885	4881	4007	3251	2602	2047	1577
	Qac [kW]	4/16	9/55	15/17	20/8	26/3	31/4	35/9	39/8
	t _{cu} [°C]	30/0	30/0	30/0	30/0	30/0	30/0	30/0	30/0
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
40°C	Q [W]	304382	250655	204357	164705	130971	102475	78590	58731
	P [kW]	112/8	106/5	101/2	96/6	92/5	88/7	85/1	81/4
	I [A]	186/2	176/4	168/1	161/0	154/7	149/0	143/6	138/1
	COP [-]	2/70	2/35	2/02	1/71	1/42	1/16	0/92	0/72
	mLP [kg/h]	6890	5753	4759	3893	3144	2499	1949	1481
	mHP [kg/h]	6890	5753	4759	3893	3144	2499	1949	1481
	Qac [kW]	28/6	32/8	37/2	41/8	46/2	50/2	53/8	56/6
	t _{cu} [°C]	40/0	40/0	40/0	40/0	40/0	40/0	40/0	40/0
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
50°C	Q [W]	270073	221386	179445	143528	112964	87130	65447	--
	P [kW]	131/6	125/2	119/6	114/7	110/1	105/8	101/5	--
	I [A]	216	206	197/1	189/2	182/1	175/3	168/5	--
	COP [-]	2/05	1/77	1/50	1/25	1/03	0/82	0/64	--
	mLP [kg/h]	6682	5561	4579	3723	2980	2340	1790	--
	mHP [kg/h]	6682	5561	4579	3723	2980	2340	1790	--
	Qac [kW]	59/6	61/9	64/7	67/6	70/5	73/2	75/3	--
	t _{cu} [°C]	50/0	50/0	50/0	50/0	50/0	50/0	50/0	--
	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



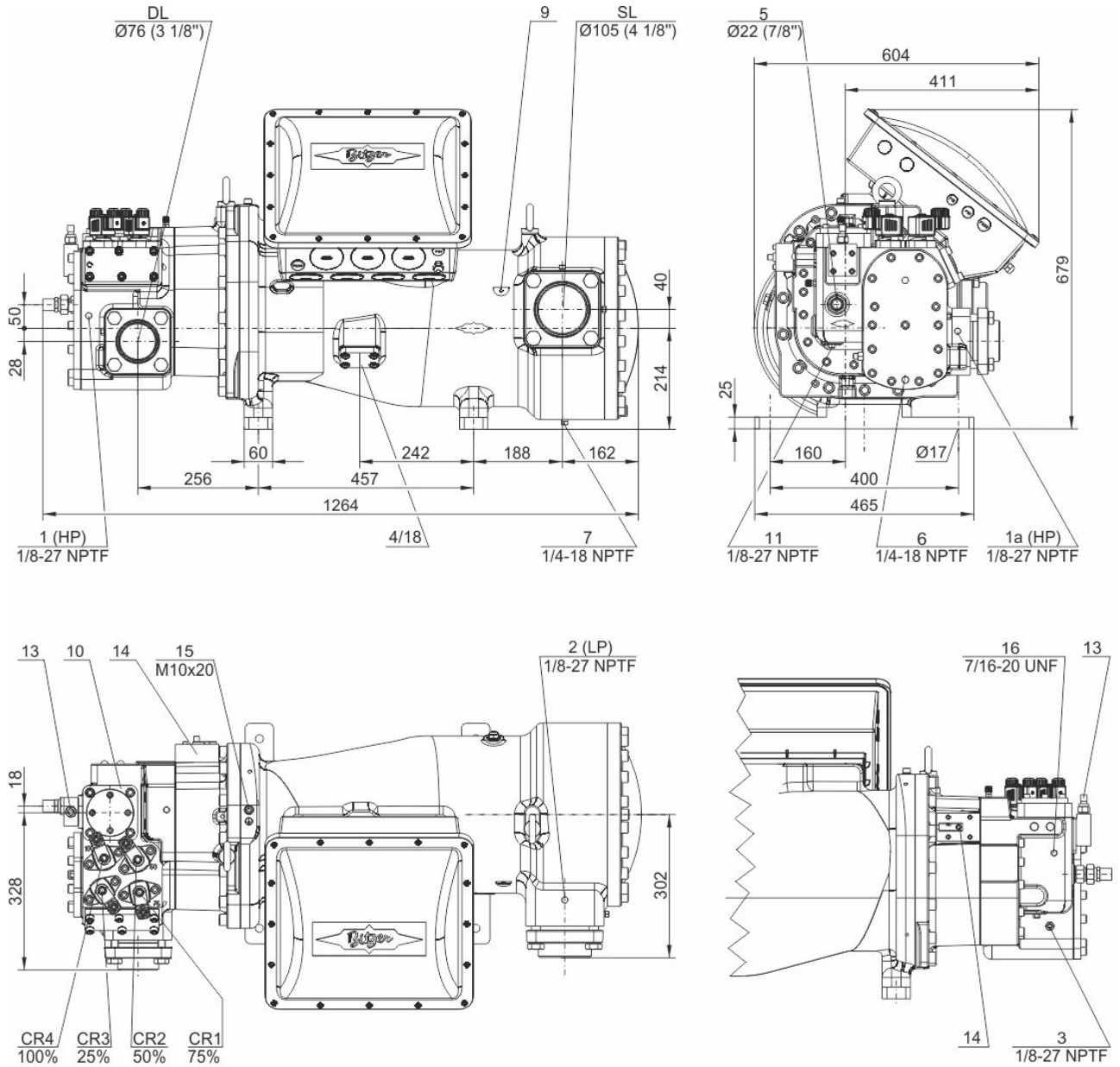
Legend

- 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 ³ /h
Displacement (3500 RPM 60 Hz)	646 m ³ /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.

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- * 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.