Selection: Semi-hermetic Screw Compressors HS

Input Values

Compressor model	HSK7471-90	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

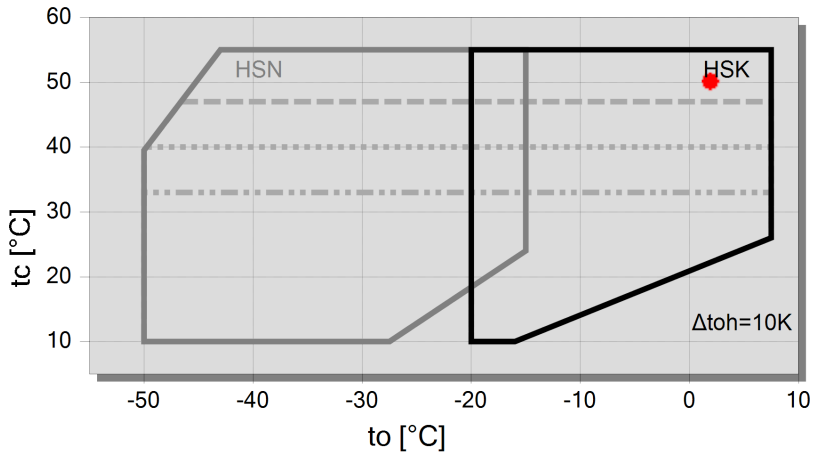
Result

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	5°C	2°C	-1°C	-4°C	-7°C	-10°C	-13°C	-16°C
30°C	Q [W]	299426	268919	240936	215300	191849	170430	150895	133113
	P [kW]	56/3	55/3	54/3	53/3	52/4	51/4	50/6	49/7
	I [A]	97/5	96/1	94/7	93/3	91/9	90/7	89/5	88/3
	COP [-]	5/32	4/86	4/44	4/04	3/66	3/31	2/98	2/68
	mLP [kg/h]	8007	7280	6605	5979	5400	4863	4367	3908
	mHP [kg/h]	8007	7280	6605	5979	5400	4863	4367	3908
	Qac [kW]	--	--	--	--	--	--	--	--
	tcu [°C]	29/6	29/6	29/6	29/6	29/6	29/6	29/6	29/6
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
40°C	Q [W]	258678	231740	207059	184476	163842	145021	127878	112293
	P [kW]	67/2	66/2	65/2	64/3	63/3	62/4	61/6	60/8
	I [A]	112/9	111/5	110/1	108/7	107/4	106/1	104/9	103/7
	COP [-]	3/85	3/50	3/18	2/87	2/59	2/32	2/08	1/85
	mLP [kg/h]	7859	7139	6471	5852	5277	4745	4252	3796
	mHP [kg/h]	7859	7139	6471	5852	5277	4745	4252	3796
	Qac [kW]	--	--	--	--	--	--	--	--
	tcu [°C]	39/6	39/6	39/6	39/6	39/6	39/6	39/6	39/6
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
50°C	Q [W]	213191	190122	169025	149758	132190	116200	101670	88493
	P [kW]	81/0	80/0	79/1	78/2	77/3	76/4	75/6	74/7
	I [A]	133/6	132/2	130/7	129/3	127/9	126/6	125/3	124/0
	COP [-]	2/63	2/38	2/14	1/92	1/71	1/52	1/35	1/18
	mLP [kg/h]	7592	6882	6223	5611	5043	4516	4028	3576
	mHP [kg/h]	7592	6882	6223	5611	5043	4516	4028	3576
	Qac [kW]	--	--	--	--	3/79	8/41	12/93	17/34
	tcu [°C]	49/7	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 HSK7471-90



Legend

max. tc for frequencies = 20Hz

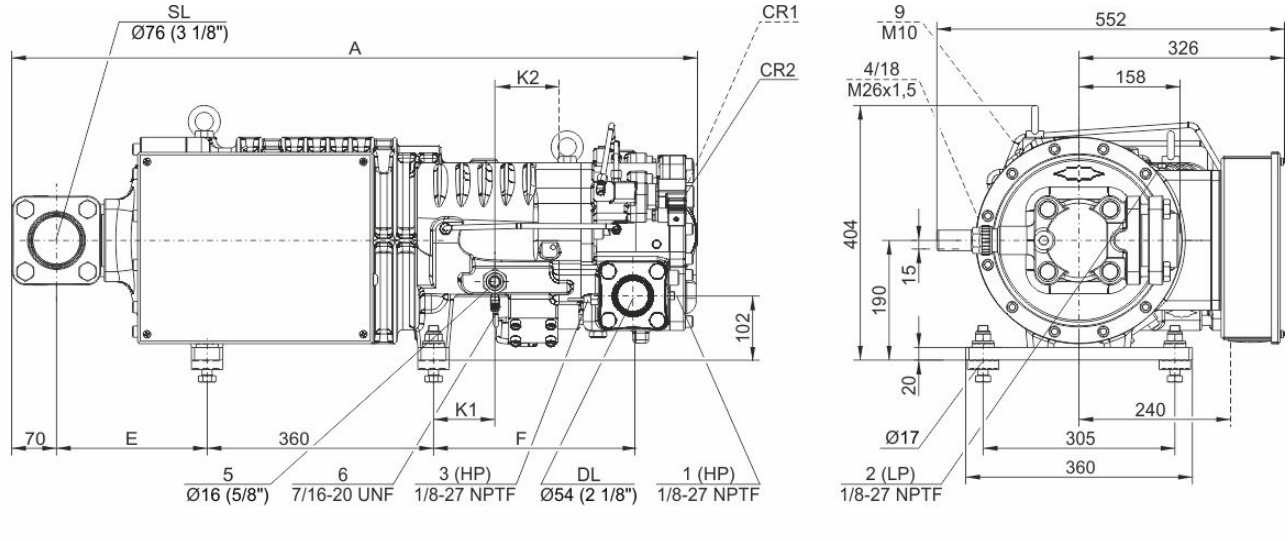
max. tc for frequencies = 25Hz

max. tc for frequencies = 35Hz

A

Technical Data: HSK7471-90

Dimensions and Connections



Model	A	E	F	K1	K2
	mm	mm	mm	mm	mm
HS.7451, HS.7461	1021	186	295	76	109
HSK7471-70, HSN7471-75	1034	186	318	98	97
HSK7471-90	1087	238	318	98	97

Technical Data

Technical Data	
Displacement (2900 RPM 50 Hz)	250 m³/h
Displacement (3500 RPM 60 Hz)	302 m³/h
Weight	336 kg
Max. pressure (LP/HP)	19 / 28 bar
Connection suction line	76 mm - 3 1/8"
Connection discharge line	54 mm - 2 1/8"
Adapter/shut-off valve for ECO	22 mm - 7/8" (Option)
Adapter for liquid injection	16 mm - 5/8" (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	162.0 A
Starting current (Rotor locked)	423.0 A D / 686.0 A DD
Max. Power input	92/0 kW
Extent of delivery (Standard)	
Discharge gas temperature sensor	Standard
Start unloading	Standard
Oil flow control	SE-B3 (Standard)
Motor protection	SE-E1 (Standard), SE-E3 (Standard for 660-690V)
Suction shut-off valve	Standard
Capacity control	100-75-50% (Standard)
Enclosure class	IP54
Available Options	
Discharge shut-off valve	Option
ECO connection with shut-off valve	Option
Motor protection	SE-i1 (200-690V)
Sound measurement	
Sound power level (-10°C / 45°C)	87,0 dB(A)
Sound pressure level @ 1m (-10°C / 45°C)	79,0 dB(A)

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 10 K 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 50 Hz application (IP-units 60 Hz) 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.