



## 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

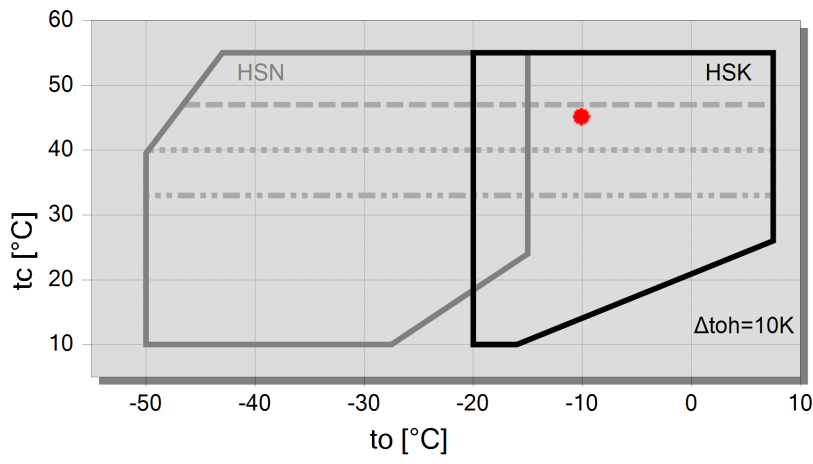
Q [W]	Cooling capacity	mHP [kg/h]	Mass flow HP
P [kW]	Power input	Qac [kW]	Additional cooling
I [A]	Current	tcu [°C]	Liquid temp.
COP [-]	COP/EER	pm [bar(a)]	ECO pressure
mLP [kg/h]	Mass flow LP	Qsc [kW]	sub cooler capacity (ECO)

tc	to	10°C	5°C	0°C	-5°C	-10°C	-15°C	-20°C	-25°C
<b>30°C</b>	Q [W]	--	299426	249994	207249	170430	138854	111909	--
	P [kW]	--	56,3	54,6	53,0	51,4	50,0	48,8	--
	I [A]	--	97,5	95,1	92,8	90,7	88,7	87,0	--
	COP [-]	--	5,32	4,58	3,91	3,31	2,78	2,29	--
	mLP [kg/h]	--	8007	6824	5781	4863	4057	3351	--
	mHP [kg/h]	--	8007	6824	5781	4863	4057	3351	--
	Qac [kW]	--	--	--	--	--	--	--	--
	tcu [°C]	--	29,6	29,6	29,6	29,6	29,6	29,6	--
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
<b>40°C</b>	Q [W]	--	258678	215045	177388	145021	117322	93740	--
	P [kW]	--	67,2	65,5	63,9	62,4	61,0	59,8	--
	I [A]	--	112,9	110,6	108,3	106,1	104,1	102,3	--
	COP [-]	--	3,85	3,28	2,77	2,32	1,92	1,57	--
	mLP [kg/h]	--	7859	6689	5655	4745	3944	3242	--
	mHP [kg/h]	--	7859	6689	5655	4745	3944	3242	--
	Qac [kW]	--	--	--	--	--	--	--	--
	tcu [°C]	--	39,6	39,6	39,6	39,6	39,6	39,6	--
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
<b>50°C</b>	Q [W]	--	213191	175847	143719	116200	92741	72854	--
	P [kW]	--	81,0	79,4	77,9	76,4	75,0	73,6	--
	I [A]	--	133,6	131,2	128,9	126,6	124,5	122,4	--
	COP [-]	--	2,63	2,21	1,85	1,52	1,24	0,99	--
	mLP [kg/h]	--	7592	6437	5417	4516	3723	3026	--
	mHP [kg/h]	--	7592	6437	5417	4516	3723	3026	--
	Qac [kW]	--	--	--	--	8,41	15,88	23,0	--
	tcu [°C]	--	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



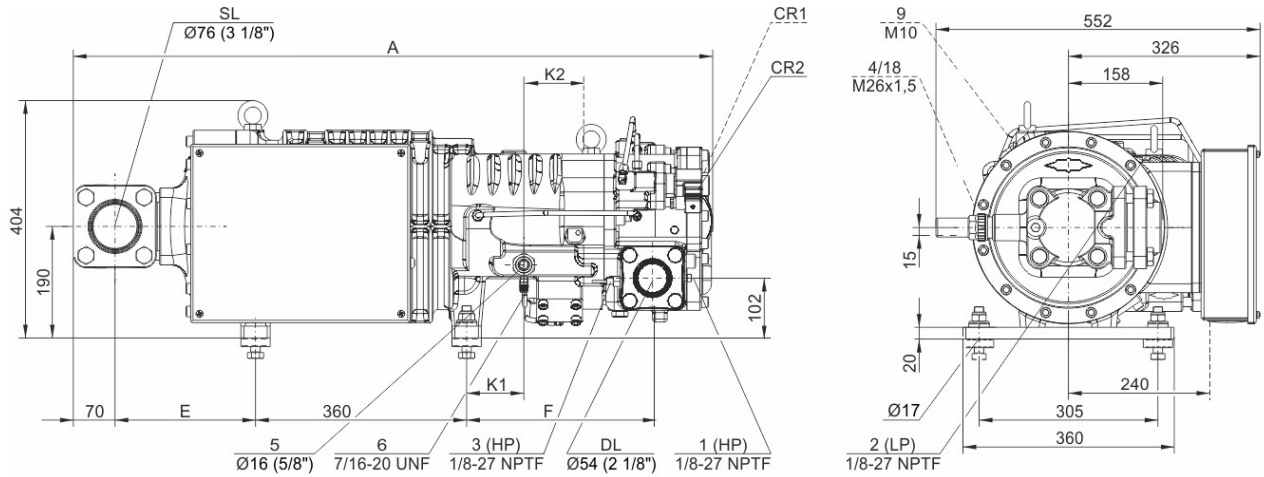
**Legend**

- max.  $t_c$  for frequencies = 20Hz
- ..... max.  $t_c$  for frequencies = 25Hz
- max.  $t_c$  for frequencies = 35Hz
- A



## Technical Data: HSK7471-90

### Dimensions and Connections



Typ	A	E	F	K1	K2
HS.7451,HS.7461	1015	190	295	76	109
HSK7471-70, HSN7471-75	1037	190	318	98	97
HSK7471-90	1087	240	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 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)
- 1a Additional high pressure connection
- 1b Connection for high pressure transmitter (HP)
- 2 Low pressure connection (LP)
- 2a Additional low pressure transmitter (LP)
- 2b Connection for low pressure transmitter (LP)
- 3 Discharge gas temperature sensor connection (HP)
- 4 Connection for economizer (ECO)
- HS.85: ECO valve with connection pipe (option)
- HS.95, OS.85, OS.95: ECO valve (option)
- 5 Oil injection connection
- 6 Oil pressure connection for HS.85 and OS.85:
  - Oil drain (compressor housing)
  - 7 Oil drain (motor housing)
  - 7a Oil drain (suction gas filter)
  - 7b Oil drain out of shaft seal (maintenance connection)
  - 7c Oil drain tube (shaft seal)
- 8 Threaded bore for foot fastening
- 9 Threaded bore for pipe support (ECO and LI line)
- 10 Maintenance connection (oil filter)
- 11 Oil drain (oil filter)
- 12 Monitoring of oil stop valve
- 13 Oil filter monitoring
- 14 Oil flow switch
- 15 Earth screw for housing
- 16 Pressure relief (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 Connection for oil pressure transmitter
- 23 Connection for oil and gas return (for systems with flooded evaporator adapter optional)
- 24 Access to oil circulation restrictor
- SL Suction gas line



DL Discharge gas line

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