



## Selection: Semi-hermetic Screw Compressors HS

### Input Values

Compressor model	HSK6451-50	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

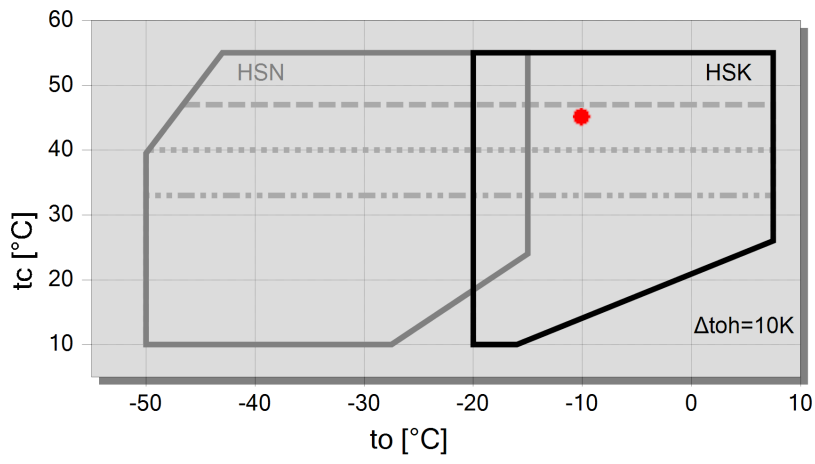
Q [W]	Cooling capacity	mHP [kg/h]	Mass flow HP
P [kW]	Power input	Qac [kW]	Additional cooling
I [A]	Current	tcu [°C]	Liquid temp.
COP [-]	COP/EER	pm [bar(a)]	ECO pressure
mLP [kg/h]	Mass flow LP	Qsc [kW]	sub cooler capacity (ECO)

tc	to	10°C	5°C	0°C	-5°C	-10°C	-15°C	-20°C	-25°C
<b>30°C</b>	Q [W]	--	166340	138640	114715	94138	76524	61530	--
	P [kW]	--	29,0	28,4	28,0	27,7	27,4	27,0	--
	I [A]	--	48,0	47,2	46,6	46,2	45,7	45,2	--
	COP [-]	--	5,73	4,88	4,10	3,40	2,80	2,28	--
	mLP [kg/h]	--	4448	3785	3200	2686	2236	1843	--
	mHP [kg/h]	--	4448	3785	3200	2686	2236	1843	--
	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]	--	142325	118167	97367	79542	64345	51468	--
	P [kW]	--	35,4	35,0	34,6	34,2	33,8	33,3	--
	I [A]	--	57,3	56,6	56,1	55,5	54,9	54,2	--
	COP [-]	--	4,02	3,38	2,82	2,33	1,91	1,55	--
	mLP [kg/h]	--	4324	3675	3104	2602	2163	1780	--
	mHP [kg/h]	--	4324	3675	3104	2602	2163	1780	--
	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]	--	116773	96300	78734	63739	51009	40276	--
	P [kW]	--	43,2	42,9	42,4	41,9	41,4	40,9	--
	I [A]	--	68,8	68,3	67,7	66,9	66,1	65,3	--
	COP [-]	--	2,70	2,25	1,86	1,52	1,23	0,99	--
	mLP [kg/h]	--	4158	3525	2967	2477	2048	1673	--
	mHP [kg/h]	--	4158	3525	2967	2477	2048	1673	--
	Qac [kW]	--	--	--	--	4,63	8,88	12,90	--
	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



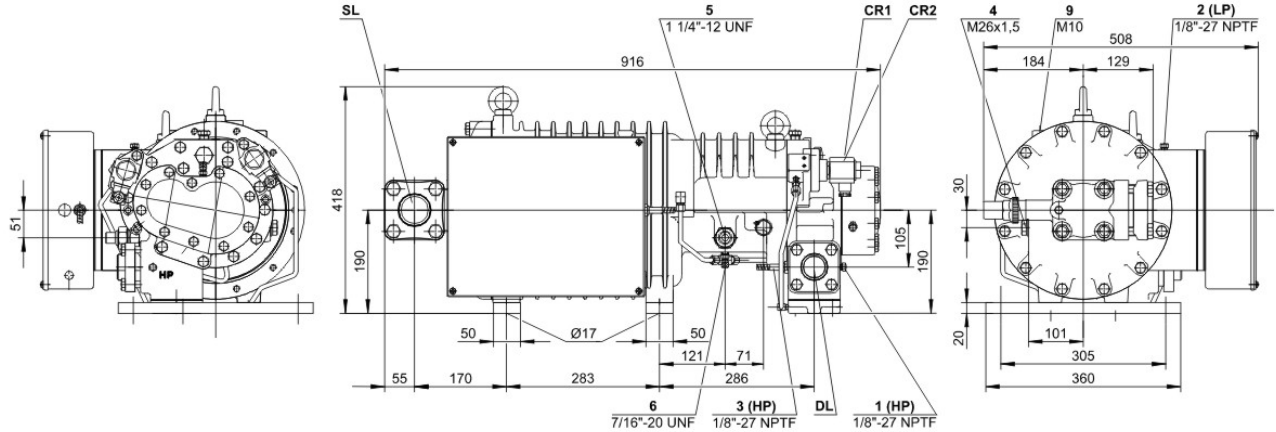
**Legend**

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



## Technical Data: HSK6451-50

### Dimensions and Connections



### Technical Data

#### Technical Data

Displacement (2900 RPM 50 Hz)	140 m <sup>3</sup> /h
Displacement (3500 RPM 60 Hz)	168 m <sup>3</sup> /h
Weight	238 kg
Max. pressure (LP/HP)	19 / 28 bar
Connection suction line	54 mm - 2 1/8"
Connection discharge line	42 mm - 1 5/8"
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	79.0 A
Starting current (Rotor locked)	206.0 A D / 355.0 A DD
Max. Power input	50,0 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)	86,0 dB(A)
Sound pressure level @ 1m (-10°C / 45°C)	78,0 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.