



Selection: Semi-hermetic Screw Compressors HS

Input Values

| | | | |
|---------------------------|-----------------|--------------------------|-------------|
| Compressor model | HSK7461-80 | 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

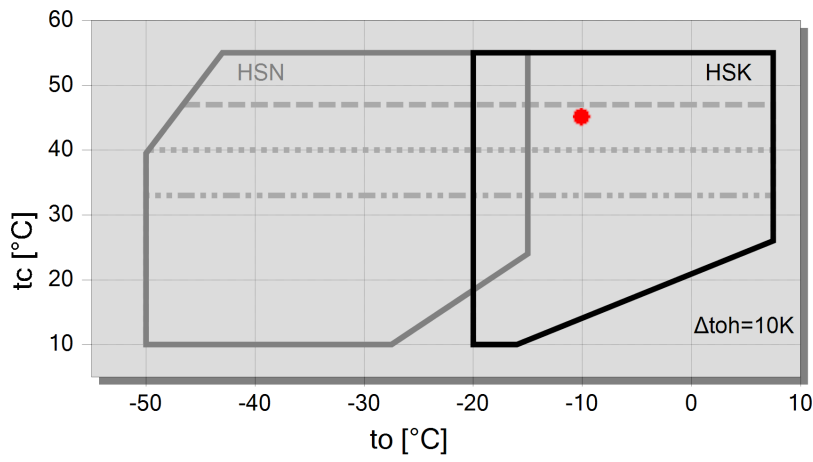
| | | | |
|------------|------------------|-------------|---------------------------|
| Q [W] | Cooling capacity | mHP [kg/h] | Mass flow HP |
| P [kW] | Power input | Qac [kW] | Additional cooling |
| I [A] | Current | tcu [°C] | Liquid temp. |
| COP [-] | COP/EER | pm [bar(a)] | ECO pressure |
| mLP [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 |
|-------------|-------------|------|--------|--------|--------|--------|--------|--------|-------|
| 30°C | Q [W] | -- | 276426 | 230444 | 190728 | 156569 | 127328 | 102436 | -- |
| | P [kW] | -- | 47,4 | 46,5 | 45,9 | 45,4 | 44,9 | 44,3 | -- |
| | I [A] | -- | 76,8 | 75,5 | 74,6 | 73,8 | 73,1 | 72,2 | -- |
| | COP [-] | -- | 5,83 | 4,95 | 4,15 | 3,45 | 2,84 | 2,31 | -- |
| | mLP [kg/h] | -- | 7392 | 6291 | 5320 | 4468 | 3720 | 3068 | -- |
| | mHP [kg/h] | -- | 7392 | 6291 | 5320 | 4468 | 3720 | 3068 | -- |
| | Qac [kW] | -- | -- | -- | -- | -- | -- | -- | -- |
| | tcu [°C] | -- | 29,6 | 29,6 | 29,6 | 29,6 | 29,6 | 29,6 | -- |
| | pm [bar(a)] | -- | -- | -- | -- | -- | -- | -- | -- |
| | Qsc [kW] | -- | -- | -- | -- | -- | -- | -- | -- |
| 40°C | Q [W] | -- | 236732 | 196600 | 162045 | 132431 | 107182 | 85786 | -- |
| | P [kW] | -- | 58,3 | 57,7 | 57,1 | 56,6 | 55,9 | 55,2 | -- |
| | I [A] | -- | 93,1 | 92,2 | 91,3 | 90,5 | 89,5 | 88,4 | -- |
| | COP [-] | -- | 4,06 | 3,41 | 2,84 | 2,34 | 1,92 | 1,55 | -- |
| | mLP [kg/h] | -- | 7192 | 6115 | 5166 | 4333 | 3603 | 2967 | -- |
| | mHP [kg/h] | -- | 7192 | 6115 | 5166 | 4333 | 3603 | 2967 | -- |
| | Qac [kW] | -- | -- | -- | -- | -- | -- | -- | -- |
| | tcu [°C] | -- | 39,6 | 39,6 | 39,6 | 39,6 | 39,6 | 39,6 | -- |
| | pm [bar(a)] | -- | -- | -- | -- | -- | -- | -- | -- |
| | Qsc [kW] | -- | -- | -- | -- | -- | -- | -- | -- |
| 50°C | Q [W] | -- | 194482 | 160443 | 131235 | 106299 | 85131 | 67279 | -- |
| | P [kW] | -- | 72,2 | 71,8 | 71,2 | 70,6 | 69,8 | 69,0 | -- |
| | I [A] | -- | 113,9 | 113,3 | 112,4 | 111,4 | 110,3 | 109,1 | -- |
| | COP [-] | -- | 2,69 | 2,23 | 1,84 | 1,51 | 1,22 | 0,97 | -- |
| | mLP [kg/h] | -- | 6926 | 5873 | 4946 | 4131 | 3417 | 2794 | -- |
| | mHP [kg/h] | -- | 6926 | 5873 | 4946 | 4131 | 3417 | 2794 | -- |
| | Qac [kW] | -- | -- | -- | -- | 8,34 | 15,55 | 22,4 | -- |
| | 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 HSK7461-80



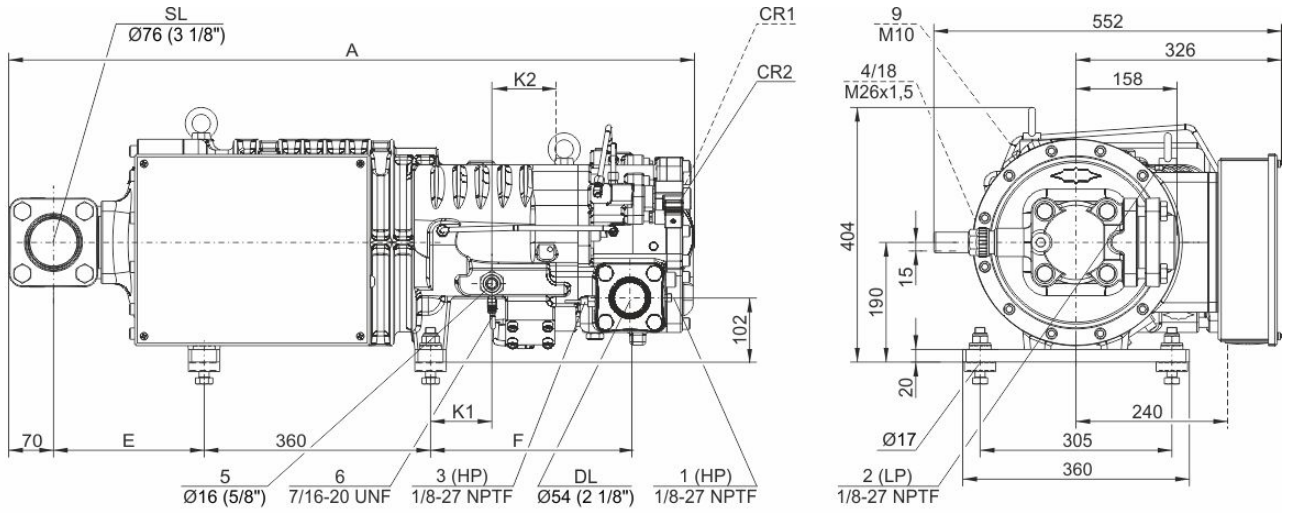
Legend

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



Technical Data: HSK7461-80

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) | 220 m ³ /h |
| Displacement (3500 RPM 60 Hz) | 266 m ³ /h |
| Weight | 314 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 | 144.0 A |
| Starting current (Rotor locked) | 350.0 A D / 585.0 A DD |
| Max. Power input | 85,0 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) | 86,5 dB(A) |
| Sound pressure level @ 1m (-10°C / 45°C) | 78,5 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.

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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.