



Selection: Semi-hermetic Screw Compressors HS

Input Values

Compressor model	HSN7451-60	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

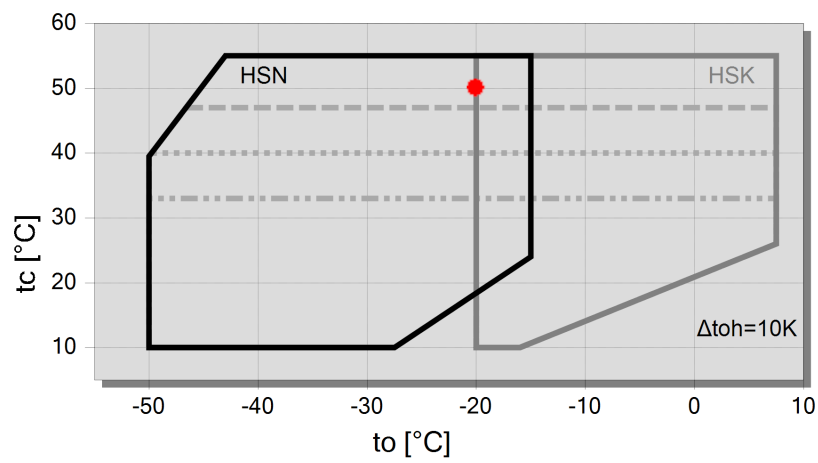
Q [W]	Cooling capacity	mHP [kg/h]	Mass flow HP
P [kW]	Power input	Qac [kW]	Additional cooling
I [A]	Current	tcu [°C]	Liquid temp.
COP [-]	COP/EER	pm [bar(a)]	ECO pressure
mLP [kg/h]	Mass flow LP	Qsc [kW]	sub cooler capacity (ECO)

tc	to	-10°C	-15°C	-20°C	-25°C	-30°C	-35°C	-40°C	-45°C
30°C	Q [W]	--	111099	89557	71336	56030	43274	32733	24107
	P [kW]	--	41/4	38/5	36/4	34/9	33/8	32/7	31/4
	I [A]	--	67/6	63/4	60/4	58/3	56/7	55/2	53/4
	COP [-]	--	2/69	2/33	1/96	1/60	1/28	1/00	0/77
	mLP [kg/h]	--	3246	2682	2192	1768	1404	1093	830
	mHP [kg/h]	--	3246	2682	2192	1768	1404	1093	830
	Qac [kW]	--	--	--	--	--	2/25	7/19	11/35
	tcu [°C]	--	29/6	29/6	29/6	29/6	29/6	29/6	29/6
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
40°C	Q [W]	--	93755	75113	59427	46329	35487	26599	19393
	P [kW]	--	47/5	45/2	43/4	42/1	41/0	40/0	38/9
	I [A]	--	76/6	73/2	70/6	68/6	67/0	65/5	64/0
	COP [-]	--	1/97	1/66	1/37	1/10	0/87	0/67	0/50
	mLP [kg/h]	--	3152	2598	2118	1703	1347	1045	789
	mHP [kg/h]	--	3152	2598	2118	1703	1347	1045	789
	Qac [kW]	--	--	--	2/40	7/62	12/54	17/00	20/8
	tcu [°C]	--	39/6	39/6	39/6	39/6	39/6	39/6	39/6
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
50°C	Q [W]	--	74381	59043	46220	35591	26866	19782	14103
	P [kW]	--	56/6	54/5	52/6	51/1	49/8	49/0	48/5
	I [A]	--	90/2	87/0	84/2	81/8	80/0	78/7	78/1
	COP [-]	--	1/31	1/08	0/88	0/70	0/54	0/40	0/29
	mLP [kg/h]	--	2986	2452	1990	1591	1249	959	714
	mHP [kg/h]	--	2986	2452	1990	1591	1249	959	714
	Qac [kW]	--	9/21	13/50	17/69	21/8	25/7	29/6	33/5
	tcu [°C]	--	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)

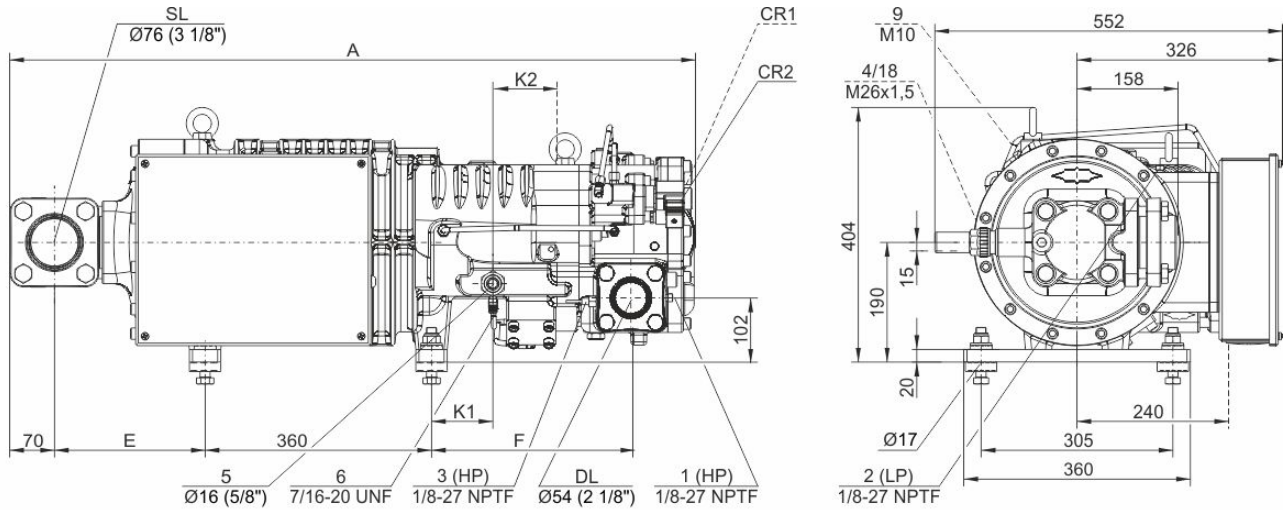
Application Limits Standard HSN7451-60





Technical Data: HSN7451-60

Dimensions and Connections



Model	A	E	F	K1	K2
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

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Displacement (2900 RPM 50 Hz)	192 m ³ /h
Displacement (3500 RPM 60 Hz)	232 m ³ /h
Weight	297 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)
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	98.0 A
Starting current (Rotor locked)	267.0 A D / 449.0 A DD
Max. Power input	65/0 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 (-35°C / 40°C)	86,5 dB(A)
Sound pressure level @ 1m (-35°C / 40°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.