Selection: Open-Type Reciprocating Compressors

Input Values

Compressor model	2N.2Y-K	Useful superheat	100%
Refrigerant	R404A	Motor speed	1450 /min
Reference temperature	Dew point temp.	Drive	Coupling (1:1)
Liq. subc. (in condenser)	0 K	Capacity control	100%
Suction gas temperature	20,00 °C		

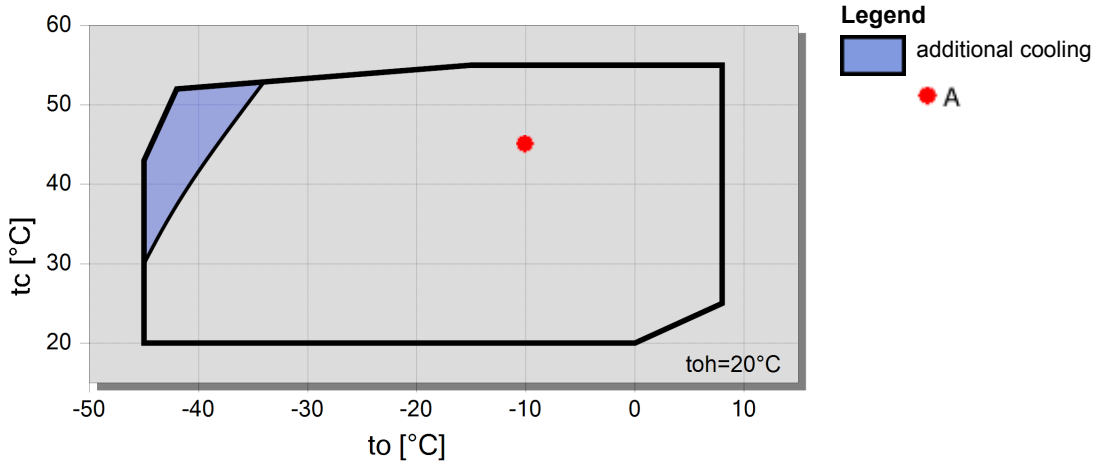
Result

Q [W]	Cooling capacity	COP [-]	COP/EER
Q* [W]	Cooling capacity *	COP* [-]	COP/EER *
P [kW]	Power input	m [kg/h]	Mass flow
Qc [W]	Condenser capacity	n [/min]	Compr. speed

tc	to	10°C	0°C	-10°C	-20°C	-30°C	-40°C	-50°C	-60°C
30°C	Q [W]	--	27881	19249	12798	8061	4669	--	--
	Q* [W]		27881	19249	12798	8061	4669		
	P [kW]		5,60	5,15	4,46	3,63	2,78		
	Qc [W]		33476	24396	17254	11689	7445		
	COP [-]		4,98	3,74	2,87	2,22	1,68		
	COP* [-]		4,98	3,74	2,87	2,22	1,68		
	m [kg/h]		709	479	313	195,3	112,3		
	n [/min]		1450	1450	1450	1450	1450		
40°C	Q [W]	--	23922	16448	10833	6695	3727	--	--
	Q* [W]		23922	16448	10833	6695	3727		
	P [kW]		6,36	5,69	4,83	3,88	2,96		
	Qc [W]		30279	22136	15658	10573	6683		
	COP [-]		3,76	2,89	2,25	1,73	1,26		
	COP* [-]		3,76	2,89	2,25	1,73	1,26		
	m [kg/h]		686	460	298	182,0	100,4		
	n [/min]		1450	1450	1450	1450	1450		
50°C	Q [W]	--	19918	13641	8885	5355	2806	--	--
	Q* [W]		19918	13641	8885	5355	2806		
	P [kW]		7,19	6,32	5,30	4,26	3,28		
	Qc [W]		27105	19959	14190	9612	6089		
	COP [-]		2,77	2,16	1,67	1,26	0,85		
	COP* [-]		2,77	2,16	1,67	1,26	0,85		
	m [kg/h]		663	442	282	167,6	86,9		
	n [/min]		1450	1450	1450	1450	1450		

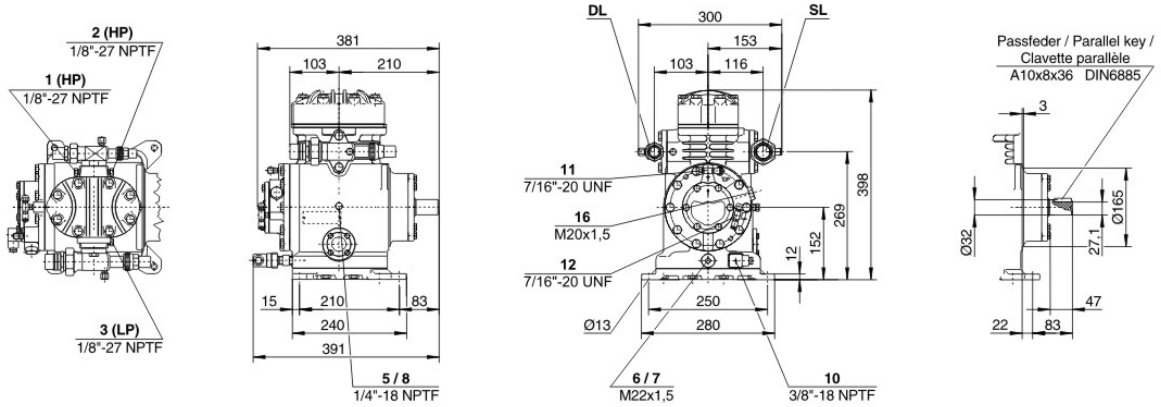
-- No calculation possible (see message in single point selection)
*According to EN12900 (20°C suction gas temp., 0K liquid subcooling)

Application Limits Standard 2N.2



Technical Data: 2N.2Y-K

Dimensions and Connections



Technical Data

Technical Data	
Displacement (1450 RPM 50Hz)	28,0 m3/h
Displacement (1750 RPM 60Hz)	33,84 m3/h
No. of cylinder x bore x stroke	2 x 60 mm x 57 mm
Allowed speed range	750 .. 1750 1/min
Weight	52 kg
Max. pressure (LP/HP)	19 / 25 bar
Connection suction line	28 mm - 1 1/8"
Connection discharge line	22 mm - 7/8"
Oil type R134a/R407C/R404A/R507A/R407A/R407F	tc<55°C: BSE32 / tc>55°C: BSE55 (Option)
Oil type R22 (R12/R502)	B5.2 (Standard)
Extent of delivery (Standard)	
Oil charge	1,75 dm3
Protective charge	Standard
Suction shut-off valve	Standard
Discharge shut-off valve	Standard
Available Options	
Coupling (..-K) w. A/C + medium	KK211 [<11kW] (Option)
Coupling (..-K) w. low temp.	KK215 [<7.5kW] (Option)
Coupling housing	Option
Motor pulley (..-S)	190, 210, 230, 250 mm (Option)
V-belts	2 x SPA (Option)
Discharge gas temperature sensor	Option (incl. INT69VS)
Start unloading	Option
Connection cooling water	R 1/2" (Option)
Additional fan	Option
Water-cooled cylinder heads	Option
Crankcase heater	70 W (Option)
Oil pressure monitoring	MP54 (Option)
Kit for marine application	Option

Open-Type Reciprocating Compressors

Motor Selection

The required driving motor is selected for starting conditions at direct start as well as at star-delta- or PW-start with start unloading (bypass + check valve). The starting conditions refer to the following defined operation points resp. to the maximum application limit of the compressor. Should the evaporation- or the condensing temperature of the plant be higher at the start, an individual motor selection is necessary.

Evaporation temperature for motor selection				
	HH	H	M	L
R134a	+20 °C	+12,5 °C	-5 °C	-20 °C
R404A / R507A R407F / R407A		+7,5 °C	-5 °C	-20 °C
R22		+12,5 °C	-5 °C	-20 °C
NH□	+15 °C	+10 °C	-5 °C	

The stated motor data refer to IEC motors at which the pull-up torque does not fall below 90 % of the max. torque. In addition the following starting torques (referring to direct starting torque) must be reached:

* 2-cylinder compressors 220 %
* 4-cylinder compressors 180 %
* 6-cylinder compressors 160 %

Should the motor not fulfil these criteria, an individual selection is also necessary.

Condenser capacity

The condenser capacity can be calculated with or without heat rejection. This option can be set in the menu Program □ Options. The heat rejection is constantly 5 % of the power consumption. The condensing capacity is to be found in the line cond.cap. (with HR) resp. cond.cap.

Legend of connection positions according to "Dimensions":

1 High pressure connection (HP)
2 Connection for discharge gas temperature sensor (HP) (for 4VE(S)-6Y .. 4NE(S)-20(Y) connection for CIC sensor as alternative)
3 Low pressure connection (LP)
4 CIC system: injection nozzle (LP)
4b Connection for CIC sensor
4c Connection for CIC sensor (MP / operation with liquid subcooler)
5 Oil fill plug
6 Oil drain
7 Oil filter (magnetic screw)
8 Oil return (oil separator)
8* Oil return with NH3 and insoluble oil
9 Connection for oil and gas equalization (parallel operation)
9a Connection for gas equalization (parallel operation)
9b Connection for oil equalization (parallel operation)
10 Oil heater connection
11 Oil pressure connection +
12 Oil pressure connection –
13 Cooling water connection
14 Intermediate pressure connection (MP)
15 Liquid injection (operation without liquid subcooler and with thermostatic expansion valve)
16 Connection for oil monitoring (opto-electrical oil monitoring "OLC-K1" or differential oil pressure switch "Delta-PII")
17 Refrigerant inlet at liquid subcooler
18 Referigerant outlet at liquid subcooler
19 Clamp space
20 Terminal plate
21 Maintenance connection for oil valve
22 Pressure relief valve to the atmosphere (discharge side)
23 Pressure relief valve to the atmosphere (suction side)
SL Suction gas line
DL Discharge gas line
Dimensions can show tolerances according to EN ISO 13920-B.