



## Selection: Open-Type Reciprocating Compressors

### Input Values

Compressor model	4H.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

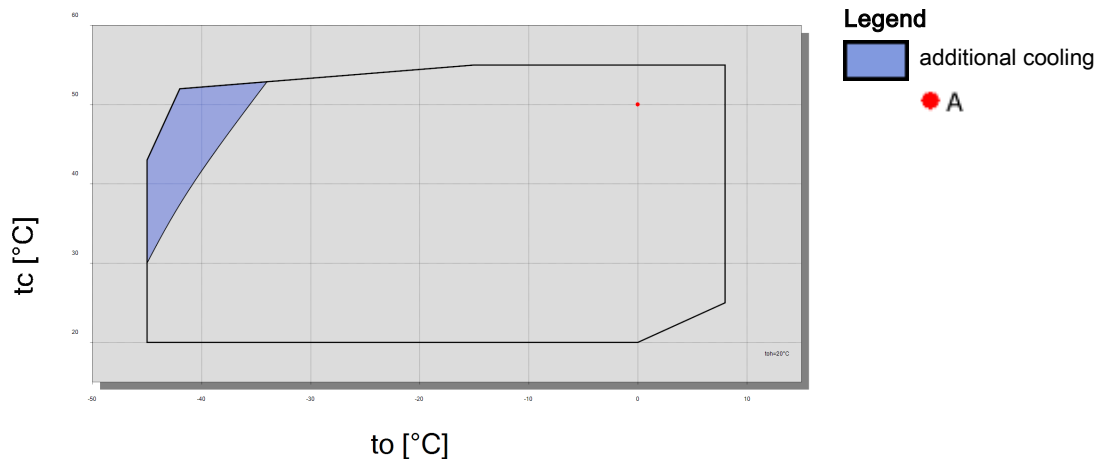
Q [W]	Cooling capacity	COP [ - ]	COP/EER
Q* [W]	Cooling capacity *	COP* [ - ]	COP/EER *
P [kW]	Power input	m [kg/h]	Mass flow
Qc [W]	Condenser capacity	n [/min]	Compr. speed

tc	to	0°C	-5°C	-10°C	-15°C	-20°C	-25°C	-30°C	-35°C
30°C	Q [W]	69409	57868	47870	39232	31799	25437	20024	15454
	Q* [W]	69409	57868	47870	39232	31799	25437	20024	15454
	P [kW]	14,95	14,41	13,65	12,71	11,63	10,46	9,25	8,03
	Qc [W]	84356	72279	61519	51938	43427	35896	29270	23485
	COP [ - ]	4,64	4,02	3,51	3,09	2,73	2,43	2,17	1,92
	COP* [ - ]	4,64	4,02	3,51	3,09	2,73	2,43	2,17	1,92
	m [kg/h]	1764	1454	1191	968	779	619	485	373
	n [/min]	1450	1450	1450	1450	1450	1450	1450	1450
40°C	Q [W]	60016	49979	41247	33675	27135	21517	16719	12651
	Q* [W]	60016	49979	41247	33675	27135	21517	16719	12651
	P [kW]	17,15	16,28	15,19	13,94	12,58	11,16	9,74	8,36
	Qc [W]	77171	66255	56433	47611	39713	32679	26460	21015
	COP [ - ]	3,50	3,07	2,72	2,42	2,16	1,93	1,72	1,51
	COP* [ - ]	3,50	3,07	2,72	2,42	2,16	1,93	1,72	1,51
	m [kg/h]	1722	1415	1155	934	747	588	454	342
	n [/min]	1450	1450	1450	1450	1450	1450	1450	1450
50°C	Q [W]	50320	41860	34458	28005	22404	17568	13416	9875
	Q* [W]	50320	41860	34458	28005	22404	17568	13416	9875
	P [kW]	19,50	18,30	16,91	15,38	13,77	12,14	10,54	9,03
	Qc [W]	69817	60158	51366	43386	36179	29711	23960	18905
	COP [ - ]	2,58	2,29	2,04	1,82	1,63	1,45	1,27	1,09
	COP* [ - ]	2,58	2,29	2,04	1,82	1,63	1,45	1,27	1,09
	m [kg/h]	1676	1373	1116	897	711	553	420	307
	n [/min]	1450	1450	1450	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)

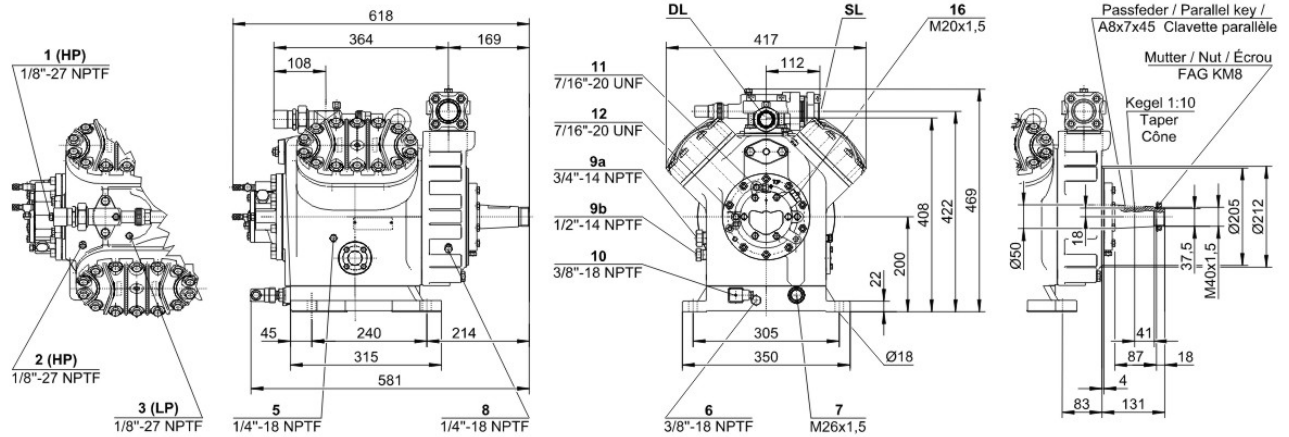
## Application Limits Standard 4H.2





## Technical Data: 4H.2Y-K

### Dimensions and Connections



### Technical Data

#### Technical Data

Displacement (1450 RPM 50Hz)	73,6 m3/h
Displacement (1750 RPM 60Hz)	88,8 m3/h
No. of cylinder x bore x stroke	4 x 70 mm x 55 mm
Allowed speed range	750 .. 1750 1/min
Weight	129 kg
Max. pressure (LP/HP)	19 / 25 bar
Connection suction line	42 mm - 1 5/8"
Connection discharge line	28 mm - 1 1/8"
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	4,7 dm3
Protective charge	Standard
Suction shut-off valve	Standard
Discharge shut-off valve	Standard
Pressure relief valve	Standard

#### Available Options

Coupling (...-K) w. A/C + medium	KK620 [<22kW] / KK630 [<45kW] (Option)
Coupling (...-K) w. low temp.	KK625 [<22kW] / KK630 [<45kW] (Option)
Coupling housing	Option
Motor pulley (...-S)	190, 210, 230 mm (Option)
V-belts	5 x SPA (Option)
Discharge gas temperature sensor	Option (incl. INT69VS)
Start unloading	Option
Connection cooling water	R 3/4" (Option)
Capacity control	100-50% (Option)
Additional fan	Option
Water-cooled cylinder heads	Option
Oil service valve	Option
Crankcase heater	140 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		+7,5 °C	-5 °C	-20 °C
R407F / R407A				
R22		+12,5 °C	-5 °C	-20 °C
NH <sub>3</sub>	+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 NH<sub>3</sub> 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 Refrigerant 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.