



### Selection: Open-Type Reciprocating Compressors

#### Input Values

Compressor model	4T.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		

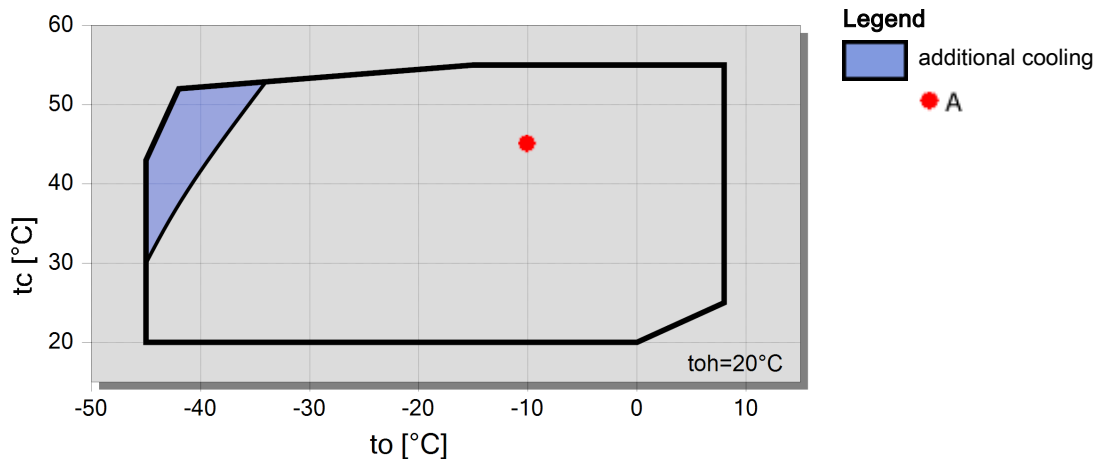
#### Result

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]	38121	31817	26355	21634	17572	14094	11134	8633
	Q* [W]	38121	31817	26355	21634	17572	14094	11134	8633
	P [kW]	8,23	7,99	7,61	7,11	6,55	5,95	5,35	4,78
	Qc [W]	46355	39808	33961	28749	24123	20044	16483	13417
	COP [ - ]	4,63	3,98	3,46	3,04	2,68	2,37	2,08	1,80
	COP* [ - ]	4,63	3,98	3,46	3,04	2,68	2,37	2,08	1,80
	m [kg/h]	969	799	656	534	430	343	270	208
	n [/min]	1450	1450	1450	1450	1450	1450	1450	1450
40°C	Q [W]	33057	27567	22790	18645	15064	11985	9353	7118
	Q* [W]	33057	27567	22790	18645	15064	11985	9353	7118
	P [kW]	9,33	8,85	8,26	7,62	6,94	6,28	5,66	5,11
	Qc [W]	42387	36413	31053	26262	22008	18263	15009	12232
	COP [ - ]	3,54	3,12	2,76	2,45	2,17	1,91	1,65	1,39
	COP* [ - ]	3,54	3,12	2,76	2,45	2,17	1,91	1,65	1,39
	m [kg/h]	948	780	638	517	414	328	254	192,6
	n [/min]	1450	1450	1450	1450	1450	1450	1450	1450
50°C	Q [W]	27768	23136	19081	15544	12471	9814	7530	5577
	Q* [W]	27768	23136	19081	15544	12471	9814	7530	5577
	P [kW]	10,40	9,73	9,00	8,26	7,53	6,86	6,27	5,80
	Qc [W]	38165	32863	28084	23804	20004	16673	13799	11378
	COP [ - ]	2,67	2,38	2,12	1,88	1,66	1,43	1,20	0,96
	COP* [ - ]	2,67	2,38	2,12	1,88	1,66	1,43	1,20	0,96
	m [kg/h]	925	759	618	498	396	309	236	173,6
	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)

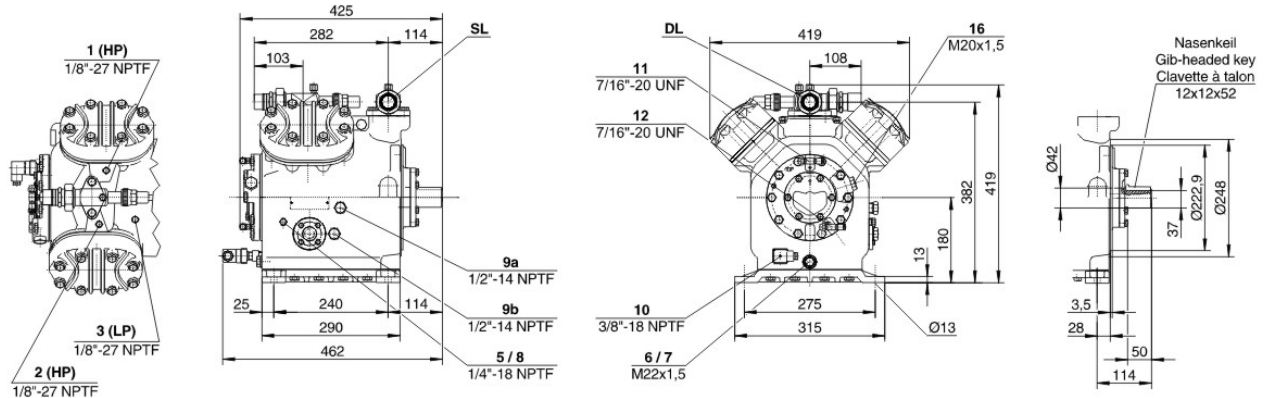
### Application Limits Standard 4T.2





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

### Dimensions and Connections



### Technical Data

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Displacement (1450 RPM 50Hz)	39,36 m3/h
Displacement (1750 RPM 60Hz)	47,5 m3/h
No. of cylinder x bore x stroke	4 x 60 mm x 40 mm
Allowed speed range	750 .. 1750 1/min
Weight	77 kg
Max. pressure (LP/HP)	19 / 25 bar
Connection suction line	35 mm - 1 3/8"
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	4,0 dm3
Protective charge	Standard
Suction shut-off valve	Standard
Discharge shut-off valve	Standard

#### Available Options

Coupling (...-K) w. A/C + medium	KK411 [<11kW] / KK420 [<22kW] (Option)
Coupling (...-K) w. low temp.	KK415 [<7.5kW] / KK425 [<22kW] (Option)
Coupling housing	Option
Motor pulley (...-S)	190, 210, 230 mm (Option)
V-belts	3 x SPA (Option)
Discharge gas temperature sensor	Option (incl. INT69VS)
Start unloading	Option
Connection cooling water	R 1/2" (Option)
Capacity control	100-50% (Option)
Additional fan	Option
Water-cooled cylinder heads	Option
Oil service valve	Option
Crankcase heater	100 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.