

BITZER Software v6.15.0 rev2454

01.07.2020 / All data subject to change.

Selection: Open-Type Reciprocating Compressors

Input Values

Compressor model 4P.2Y-K Useful superheat 100% R404A Refrigerant 1450 /min Motor speed Reference temperature Dew point temp. Drive Coupling (1:1) Liq. subc. (in condenser) 0 K Capacity control 100% 20,00 °C Suction gas temperature

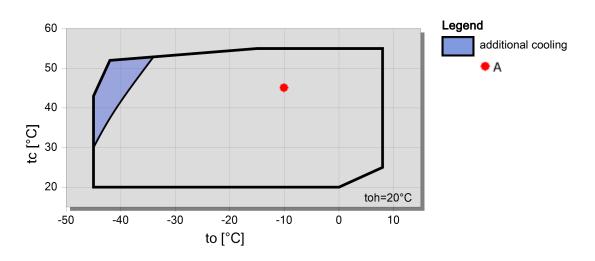
Result

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	15°C	5°C	-5°C	-15°C	-25°C	-35°C	-45°C	-55°C
30°C	Q [W] Q* [W]		54311 54311	38070 38070	25885 25885	16863 16863	10330 10330	5746 5746	-
	P [kW]		10,07	9,58	8,47	7,03	5,55	4,32	
	Qc [W]		64380	47649	34355	23893	15880	10064	
	COP [-]		5,39	3,97	3,06	2,40	1,86	1,33	
	COP* [-]		5,39	3,97	3,06	2,40	1,86	1,33	
	m [kg/h]		1400	956	639	411	249	137,8	
	n [/min]		1450	1450	1450	1450	1450	1450	
40°C	Q [W] Q* [W]		47099 47099	32991 32991	22313 22313	14342 14342	8519 8519	4385 4385	
	P [kW]		11,58	10,57	9,10	7,46	5,96	4,87	
	Qc [W]		58676	43558	31412	21806	14476	9253	
	COP [-]		4,07	3,12	2,45	1,92	1,43	0,90	
	COP* [-]		4,07	3,12	2,45	1,92	1,43	0,90	
	m [kg/h]		1373	934	619	392	230	117,8	
	n [/min]		1450	1450	1450	1450	1450	1450	
50°C	Q [W] Q* [W]		39550 39550	27688 27688	18600 18600	11743 11743	6672 6672		
	P [kW]		13,05	11,63	9,93	8,22	6,79		
	Qc [W]		52596	39322	28527	19959	13467		
	COP [-]		3,03	2,38	1,87	1,43	0,98		
	COP* [-]		3,03	2,38	1,87	1,43	0,98		
	m [kg/h]		1342	908	596	370	208		
	n [/min]		1450	1450	1450	1450	1450		

⁻⁻ No calculation possible (see message in single point selection)

Application Limits Standard 4P.2



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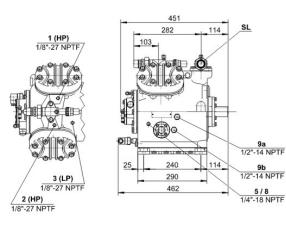
^{*}According to EN12900 (20°C suction gas temp., 0K liquid subcooling)

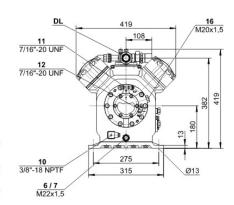


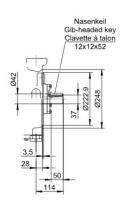
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Technical Data: 4P.2Y-K

Dimensions and Connections







Technical Data

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Displacement (1450 RPM 50Hz) 47,14 m3/h Displacement (1750 RPM 60Hz) 56,9 m3/h

No. of cylinder x bore x stroke $4 \times 55 \text{ mm } \times 57 \text{ mm}$ Allowed speed range $750 \dots 1750 \text{ 1/min}$

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 charge4,0 dm3Protective chargeStandardSuction shut-off valveStandardDischarge shut-off valveStandard

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





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		
NH₃	+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 \square 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



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DL Discharge gas line

Dimensions can show tolerances according to EN ISO 13920-B.

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