



Selection: Open-Type Reciprocating Compressors

Input Values

Compressor model	W4NA-K	Useful superheat	100%
Refrigerant	R717	Motor speed	1450 /min
Reference temperature	Dew point temp.	Drive	Coupling (1:1)
Liq. subc. (in condenser)	0 K	Capacity control	100%
Suct. gas superheat	1,00 K		

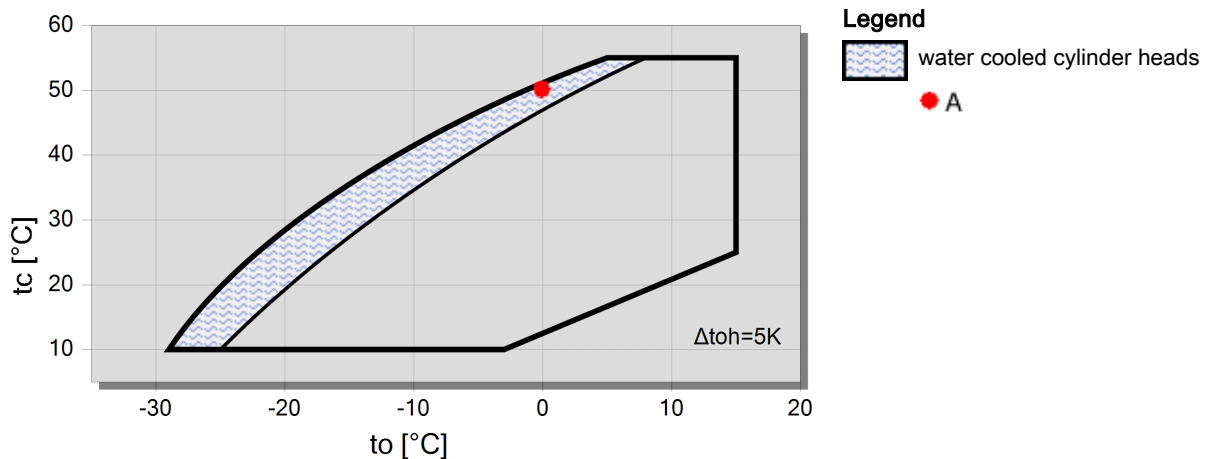
Result

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	5°C	0°C	-5°C	-10°C	-15°C	-20°C	-25°C
30°C	Q [W]	77038	63075	50827	40121	30793	22691	--	--
	Q* [W]	76259	62444	50322	39724	30489	22467		
	P [kW]	8,04	8,42	8,49	8,27	7,78	7,04		
	Qc [W]	85077	71498	59321	48393	38573	29729		
	COP [-]	9,58	7,49	5,98	4,85	3,96	3,22		
	COP* [-]	9,49	7,41	5,92	4,80	3,92	3,19		
	m [kg/h]	245	201	162,9	129,2	99,7	73,9		
	n [/min]	1450	1450	1450	1450	1450	1450		
40°C	Q [W]	72478	59047	47193	36745	27538	--	--	--
	Q* [W]	71774	58480	46743	36395	27277			
	P [kW]	11,08	10,99	10,57	9,86	8,88			
	Qc [W]	83559	70035	57768	46608	36413			
	COP [-]	6,54	5,37	4,46	3,73	3,10			
	COP* [-]	6,48	5,32	4,42	3,69	3,07			
	m [kg/h]	241	196,8	158,0	123,7	93,2			
	n [/min]	1450	1450	1450	1450	1450			
50°C	Q [W]	67972	54984	43407	--	--	--	--	--
	Q* [W]	67343	54480	43011					
	P [kW]	13,69	13,05	12,08					
	Qc [W]	81659	68030	55486					
	COP [-]	4,97	4,21	3,59					
	COP* [-]	4,92	4,18	3,56					
	m [kg/h]	236	191,9	152,2					
	n [/min]	1450	1450	1450					

-- No calculation possible (see message in single point selection)
 *According to EN12900 (5K suction gas superheat, 0K liquid subcooling)

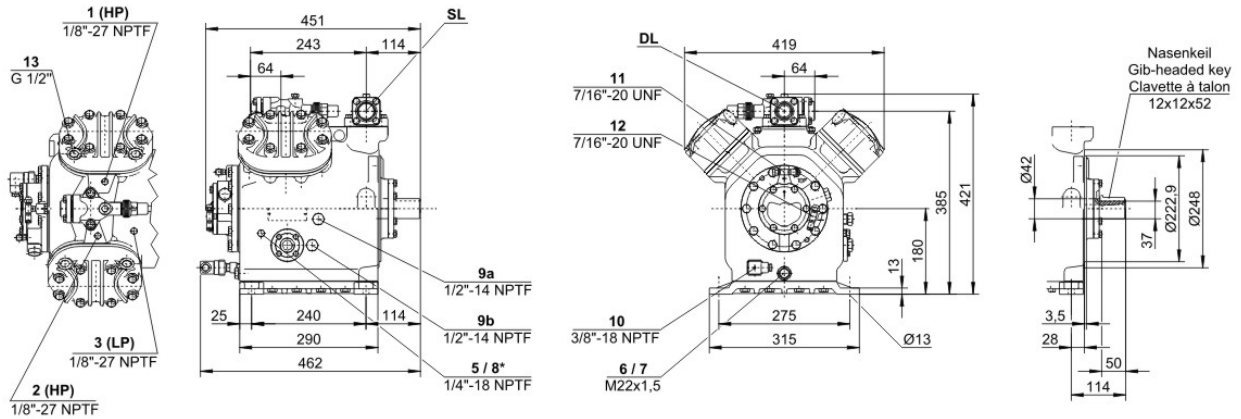
Application Limits Standard





Technical Data: W4NA-K

Dimensions and Connections



Technical Data

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Displacement (1450 RPM 50Hz)	56,1 m3/h
Displacement (1750 RPM 60Hz)	67,7 m3/h
No. of cylinder x bore x stroke	4 x 60 mm x 57 mm
Allowed speed range	750 .. 1750 1/min
Weight	77 kg
Max. pressure (LP/HP)	19 / 25 bar
Connection suction line	NW 32
Connection discharge line	NW 25
Oil type NH3	Reniso KC68 (Standard)

Extent of delivery (Standard)

Oil charge	4,0 dm3
Protective charge	Standard
Suction shut-off valve	Standard
Discharge shut-off valve	Standard
Water-cooled cylinder heads	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"
Capacity control	100-50% (Option)
Oil service valve	Option
Crankcase heater	100 W (Option)
Oil pressure monitoring	MP55A (Option)



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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 ₃	+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 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.