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BITZER Software v6.10.2 rev2250

Selection: Semi-hermetic Reciprocating Compressors

Input Values

(4N-20.2Y) Refrigeration and Air 20,00 °C Compressor model Mode Suction gas temperature Operating mode Auto

conditioning Refrigerant 400V-3-50Hz R404A Power supply Reference temperature Dew point temp. Capacity control 100% Liq. subc. (in condenser) Useful superheat 100%

Result

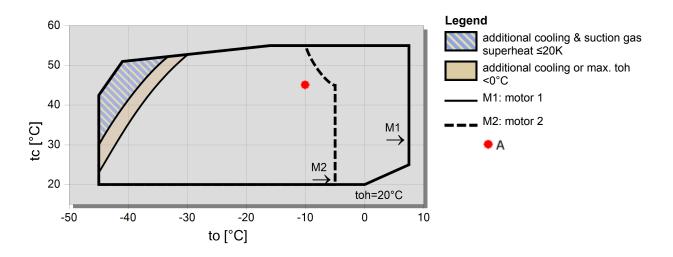
Q [W] Qu* [W] P [kW] Cooling capacity COP[-] COP/EER Evaporator capacity m [kg/h] Mass flow Op. th [°C] Power input Operating mode

Current Discharge gas temp. w/o cooling Qc [W] Condenser Capacity (w. HX)

tc	to	5°C	0°C	-5°C	-10°C	-15°C	-20°C	-25°C	-30°C
30°C	Q [W]	63606	53277	44316	36552	29842	24067	19121	14913
	Qu* [W]	63606	53277	44316	36552	29842	24067	19121	14913
	P [kW]	12,20	11,68	11,13	10,53	9,86	9,12	8,29	7,36
	I [A]	21,5	20,8	19,99	19,19	18,33	17,41	16,42	15,38
	Qc [W]	75200	64375	54888	46551	39211	32733	27000	21903
	COP [-]	5,21	4,56	3,98	3,47	3,03	2,64	2,31	2,03
	m [kg/h]	1640	1354	1113	909	736	589	466	361
	Op.	Standard							
	th [°C]	57,0	62,6	68,6	75,1	82,2	90,1	98,6	107,7
40°C	Q [W]	54802	45848	38056	31289	25434	20390	16071	12398
	Qu* [W]	54802	45848	38056	31289	25434	20390	16071	12398
	P [kW]	14,11	13,42	12,66	11,81	10,89	9,91	8,87	7,77
	I [A]	24,2	23,2	22,1	20,9	19,68	18,39	17,10	15,83
	Qc [W]	68207	58601	50079	42509	35783	29806	24496	19781
	COP [-]	3,88	3,42	3,01	2,65	2,33	2,06	1,81	1,60
	m [kg/h]	1597	1315	1077	876	705	561	439	337
	Op.	Standard							
	th [°C]	66,7	72,6	78,9	85,6	92,9	100,9	109,8	119,6
50°C	Q [W]	44845	37506	31089	25496	20645	16459	12871	9820
	Qu* [W]	44845	37506	31089	25496	20645	16459	12871	9820
	P [kW]	16,05	15,21	14,24	13,16	11,98	10,73	9,42	8,09
	I [A]	27,2	25,9	24,4	22,8	21,2	19,46	17,78	16,19
	Qc [W]	60094	51959	44618	37995	32024	26650	21824	17503
	COP [-]	2,79	2,47	2,18	1,94	1,72	1,53	1,37	1,21
	m [kg/h]	1521	1249	1020	825	661	522	405	307
	Op.	Standard							
	th [°C]	77,8	84,1	90,8	97,9	105,6	114,0	123,1	133,3

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

Application Limits 100% 4N-20.2

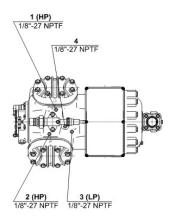


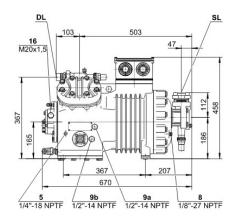
^{*}According to EN12900 (20°C suction gas temp., 0K liquid subcooling)

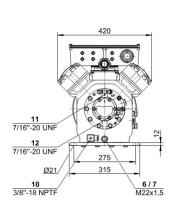


Technical Data: (4N-20.2Y)

Dimensions and Connections







Technical Data

			ca		

Displacement (1450 RPM 50Hz) 56.10 m³/h Displacement (1750 RPM 60Hz) 67,71 m³/h No. of cylinder x bore x stroke 4 x 60 mm x 57 mm 155 kg Weight

Max. pressure (LP/HP) 19 / 28 bar 42 mm - 1 5/8" Connection suction line Connection discharge line 28 mm - 1 1/8" Connection cooling water R 1/2"

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) Oil type R290/R1270 SHC226E (Standard)

Motor data

Motor voltage (more on request) 380-420V PW-3-50Hz

Max operating current 37.0 A Winding ratio 50/50

Starting current (Rotor locked) 97.0 A Y / 158.0 A YY Max. Power input 19,5 kW

Extent of delivery (Standard)

Motor protection SE-B2

Enclosure class IP54 (Standard), IP66 (Option)

Vibration dampers Standard 3,00 dm³ Oil charge

Available Options

Connection suction line Option Discharge shut-off valve Option Discharge gas temperature sensor Option Start unloading Option

100-50% (Option) Capacity control

Additional fan Option Water-cooled cylinder heads Option Oil service valve Option

Crankcase heater 100 W (Option)

Oil pressure monitoring MP54 (Option), Delta-PII (Option, not for R290/R1270)

Sound measurement

Sound power level (+5°C / 50°C) 78,0 dB(A) @ 50Hz Sound power level (-10°C / 45°C) 78,5 dB(A) @ 50Hz Sound power level (-35°C / 40°C) (84.5) dB(A) @ 50Hz Sound pressure level @ 1m (+5°C / 50°C) 70,0 dB(A) @ 50Hz Sound pressure level @ 1m (-10°C / 45°C) 70,5 dB(A) @ 50Hz Sound pressure level @ 1m (-35°C / 40°C) (76,5) dB(A) @ 50Hz



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Semi-hermetic Reciprocating Compressors

Motor 1 = e.g. 4TES-12 with 12 "HP", primary for air-conditioning (e.g. R22,R407C) and air-conditioning with R134a at high ambient temperatures.

Motor 2 = e.g. 4TES-9 with 8 "HP", universal Motor for medium and low temperature application (e.g. R404A, R507A, R407A, R407F) and air-conditioning with R134a

Motor 3 = e.g. 4TES-8, for medium temperature applications and R134a

For more information concerning the application range use the "Limits" button.

Operation modes 4VES-7 to 6FE-44 and 44JE-30 to 66FE-88 with R407F/R407A/R22

CIC = liquid injection with low temperature application, suction gas cooled motor.

ASERCOM certified performance data

The Association of European Refrigeration Component Manufacturers has implemented a procedure of certifying performance data. The high standard of these certifications is assured by:

- * plausibility tests of the data performed by experts.
- * regular measurements at independent institutes.

These high efforts result in the fact that only a limited number of compressors can be submitted. Due to this not all BITZER compresors are certified until now. Performance data of compressors which fulfil the strict requirements may carry the label "ASERCOM certified". In this software you will find the label at the respective compressors on the right side below the field "result" or in the print out of the performance data. All certified compressors and further information are listed on the homepage of ASERCOM.

Condensing capacity

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

Data for sound emission

Data based on 50 HZ apllication (IP-units 60 Hz) and R404A if not declared.

Sound pressure level: values based on free field area conditions with hemisperhical sound emission in 1 meter distance.

General remarks regarding sound data

Listed sound data were measured under testing conditions in our laboratory. For this purpose the free-standing test sample is mounted on a solid foundation plate and the pipework is connected vibration-free to the largest extend possible. Suction and discharge lines are fixed in a flexible configuration, such that a transmission of vibrations to the environment can be largely excluded. In real installations considerable differences might be observed, compared to the measurements in the laboratory. The airborne sound emitted by the compressor can be reflected from surfaces of the system and this may increase the airborne sound level measured close to the compressor. Vibrations caused by the compressor are also transferred to the system by the compressor feet and piping depending on the damping ratio of the fixings. Thus, the vibrations can induce other components to such an extent that these components contribute to an increase in airborne sound emission. If required, the transfer of vibrations to the system can be minimized by suitable fixing and damping elements.

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")



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- 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)
- 24 IQ MODULE
- SL Suction gas line
 DL Discharge gas line
- Dimensions can show tolerances according to EN ISO 13920-B.

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