



Compressor Selection: Semi-hermetic Reciprocating Compressors

Input Values

Compressor model Mode	(2N-7.2Y) Refrigeration and Air conditioning	Suction gas temperature Operating mode	20,00 °C Auto
Refrigerant Reference temperature Liq. subc. (in condenser)	R404A Dew point temp. 0 K	Power supply Capacity Control Useful superheat	400V-3-50Hz 100% 100%

Result

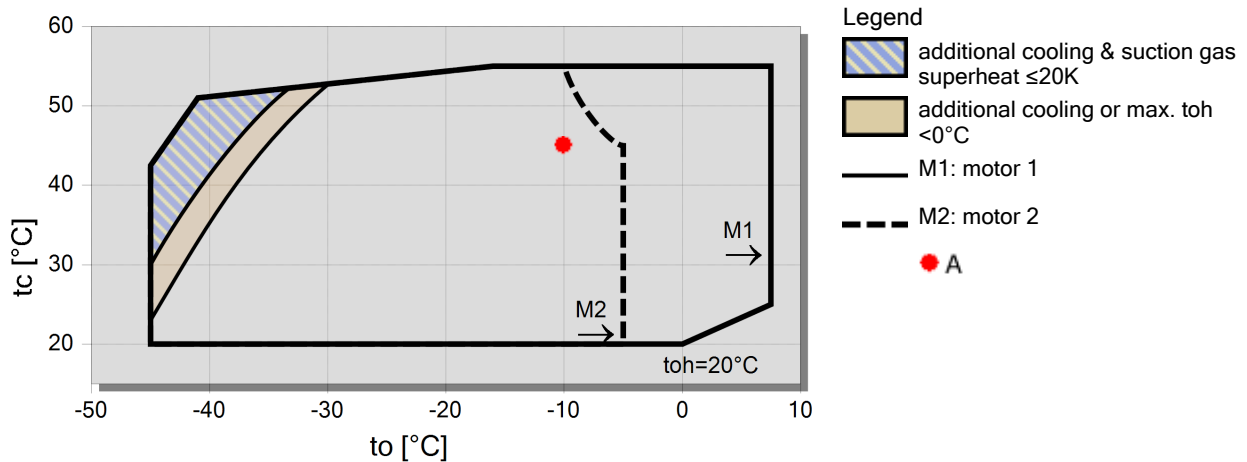
Q [W] Qu* [W] P [kW] I [A] Qc [W]	Cooling capacity Evaporator capacity Power input Current Condenser Capacity	COP [-] m [kg/h] Op. th [°C]	COP/EER Mass flow Operating mode Discharge gas temp. w/o cooling
---	---	---	---

tc	to	0°C	-5°C	-10°C	-15°C	-20°C	-25°C	-30°C	-35°C
30°C	Q [W]	26602	22111	18230	14885	12011	9551	7459	--
	Qu* [W]	26602	22111	18230	14885	12011	9551	7459	--
	P [kW]	6,10	5,80	5,47	5,11	4,73	4,32	3,88	
	I [A]	11,66	11,25	10,81	10,34	9,86	9,37	8,88	
	Qc [W]	32699	27908	23700	19998	16740	13869	11337	
	COP [-]	4,36	3,81	3,33	2,91	2,54	2,21	1,92	
	m [kg/h]	680	560	458	372	298	236	183,6	
	Op.	Standard	Standard	Standard	Standard	Standard	Standard	Standard	
	th [°C]	64,4	70,4	76,9	84,0	91,9	100,8	110,8	
	40°C	Q [W]	22916	19007	15623	12701	10188	8037	6205
Qu* [W]		22916	19007	15623	12701	10188	8037	6205	--
P [kW]		7,00	6,58	6,14	5,67	5,16	4,63	4,06	
I [A]		12,95	12,35	11,73	11,07	10,41	9,74	9,09	
Qc [W]		29912	25591	21764	18368	15350	12664	10269	
COP [-]		3,28	2,89	2,54	2,24	1,97	1,74	1,53	
m [kg/h]		670	550	448	361	288	226	173,6	
Op.		Standard	Standard	Standard	Standard	Standard	Standard	Standard	
th [°C]		74,3	80,5	87,2	94,5	102,6	111,5	121,5	
50°C		Q [W]	18758	15542	12746	10324	8236	6446	4922
	Qu* [W]	18758	15542	12746	10324	8236	6446	4922	--
	P [kW]	7,93	7,40	6,84	6,25	5,62	4,95	4,26	
	I [A]	14,34	13,55	12,73	11,88	11,01	10,14	9,30	
	Qc [W]	26685	22945	19589	16572	13854	11400	9178	
	COP [-]	2,37	2,10	1,86	1,65	1,47	1,30	1,16	
	m [kg/h]	651	533	432	347	275	214	162,3	
	Op.	Standard	Standard	Standard	Standard	Standard	Standard	Standard	
	th [°C]	85,4	91,8	98,8	106,5	114,8	124,0	134,0	

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

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

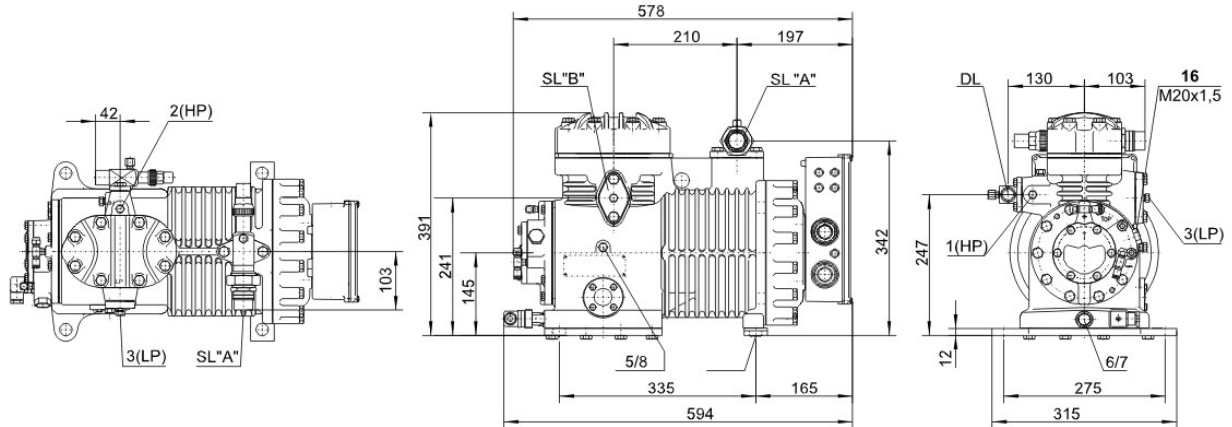
Application Limits 100%





Technical Data: (2N-7.2Y)

Dimensions and Connections



Technical Data

Technical Data

Displacement (1450 RPM 50Hz)	28,04 m ³ /h
Displacement (1750 RPM 60Hz)	33,84 m ³ /h
No. of cylinder x bore x stroke	2 x 60 mm x 57 mm
Weight	95 kg
Max. pressure (LP/HP)	19 / 28 bar
Connection suction line	28 mm - 1 1/8"
Connection discharge line	22 mm - 7/8"
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 Y-3-50Hz
Max operating current	18.0 A
Starting current (Rotor locked)	74.0 A
Max. Power input	9,8 kW

Extent of delivery (Standard)

Motor protection	INT69VS (Standard), INT389 (Option)
Enclosure class	IP54 (Standard), IP66 (Option)
Vibration dampers	Standard
Oil charge	2,00 dm ³

Available Options

Discharge gas temperature sensor	Option
Start unloading	Option
Additional fan	Option
Water-cooled cylinder heads	Option
Crankcase heater	70 W (Option)
Oil pressure monitoring	MP54 (Option), Delta-PII (Option, not for R290/R1270)

Sound measurement

Sound power level (+5°C / 50°C)	73,5 dB(A) @ 50Hz
Sound power level (-10°C / 45°C)	74,5 dB(A) @ 50Hz
Sound power level (-35°C / 40°C)	(80,5) dB(A) @ 50Hz
Sound pressure level @ 1m (+5°C / 50°C)	65,5 dB(A) @ 50Hz
Sound pressure level @ 1m (-10°C / 45°C)	66,5 dB(A) @ 50Hz
Sound pressure level @ 1m (-35°C / 40°C)	(72,5) dB(A) @ 50Hz



Semi-hermetic Reciprocating Compressors

Motor 1 = e.g. 4TES-12 (4TCS-12.2) 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 (4TCS-8.2) 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 (4VCS-6.2) to 6FE-44 (6F-40.2) and 44JE-30 (44J-26.2) to 66FE-88 (66F-80.2) 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 compressors 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 (www.ASERCOM.org).

Condensing capacity:

The condensing 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 Condensing cap. (with HR) resp. Condensing capacity.

Data for sound emission:

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

Sound pressure level: values based on free field area conditions with hemispherical 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")

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.