30.10.2023 / All data subject to change.

Selection: Semi-hermetic Reciprocating Compressors

Input Values

Compressor model4HE-18YSuction gas temperature20,00 °CModeRefrigeration and AirOperating modeAuto

conditioning

Refrigerant R404A Power supply 400V-3-50Hz
Reference temperature Dew point temp. Capacity control 100%
Liq. subc. (in condenser) 0 K Useful superheat 100%

Result

 Q [W]
 Cooling capacity
 COP [-]
 COP/EER

 Qu* [W]
 Evaporator capacity
 m [kg/h]
 Mass flow

 P [kW]
 Power input
 Op.
 Operating mode

I [A] Current th [°C] Discharge gas temp. w/o cooling

Qc [W] Condenser capacity

tc	to	10°C	0°C	-10°C	-20°C	-30°C	-40°C	-50°C	-60°C
30°C	Q [W]		72676	50001	33051	20597	11677		
	Qu* [W]		72676	50001	33051	20597	11677		
	P [kW]		15,66	14,20	12,12	9,71	7,21		
	I [A]		26,6	24,4	21,4	18,14	15,23		
	Qc [W]		88338	64199	45175	30304	18890		
	COP [-]		4,64	3,52	2,73	2,12	1,62		
	m [kg/h]		1847	1244	810	499	281		
	Ор.		Standard	Standard	Standard	Standard	Standard		
	th [°C]		62,1	74,6	88,4	104,7	126,3		
40°C	Q [W]		62246	42596	27879	17082	9391		
	Qu* [W]		62246	42596	27879	17082	9391		
	P [kW]		18,50	16,08	13,23	10,20	7,28		
	I [A]		31,0	27,2	22,9	18,77	15,29		
	Qc [W]		80748	58678	41104	27282	16667		
	COP [-]		3,36	2,65	2,11	1,67	1,29		
	m [kg/h]		1786	1192	767	464	253		
	Ор.		Standard	Standard	Standard	Standard	Standard		
	th [°C]		73,1	85,6	99,5	116,1	138,9		
50°C	Q [W]		51441	34980	22620	13568	7165		
	Qu* [W]		51441	34980	22620	13568	7165		
	P [kW]		20,9	17,61	14,03	10,44	7,14		
	I [A]		34,9	29,6	24,1	19,08	15,15		
	Qc [W]		72372	52593	36646	24013	14308		
	COP [-]		2,46	1,99	1,61	1,30	1,00		
	m [kg/h]		1713	1133	718	425	222		
	Op.		Standard	Standard	Standard	Standard	Standard		
	th [°C]		84,2	96,8	110,9	128,0	0		

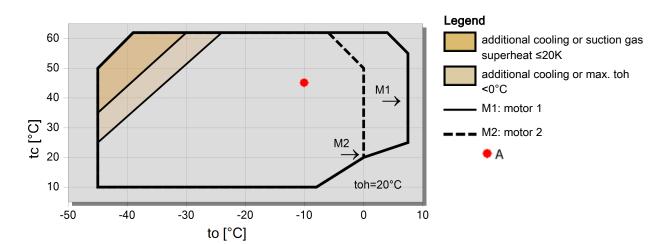
⁻⁻ No calculation possible (see message in single point selection)

Application Limits 100% 4HE-18

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

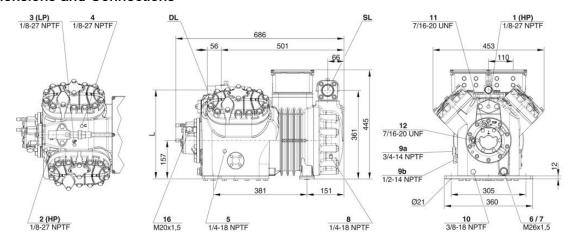






Technical Data: 4HE-18Y

Dimensions and Connections





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Technical Data

Technical Data

Displacement (1450 RPM 50Hz) 73,7 m³/h
Displacement (1750 RPM 60Hz) 88,83 m³/h

No. of cylinder x bore x stroke 4 x 70 mm x 55 mm

Weight 191 kg
Max. pressure (LP/HP) 19 / 32 bar
Connection suction line 42 mm - 1 5/8"
Connection discharge line 28 mm - 1 1/8"

Oil type R134a/R407C/R404A/R507A/R407A/R407F BSE32(Standard) | R134a tc>70°C: BSE55 (Option)

Oil type R22 (R12/R502) B5.2(Option)

Oil type R1234yf BSE32 (Standard) | R1234yf tc>70°C : BSE55 (Option)
Oil type R1234ze BSE55 (Standard) | to>15°C: BSE85K (Option) | tc>70°C:

BSE85K (Option)

Ölfüllung R454C/R455A BSE32 (Standard)

Oil type R515B BSE55 (Standard) | to>15°C: BSE85K (Option) | tc>70°C:

BSE85K (Option)

Motor data

Motor version 2

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

Max operating current 36.7 A Winding ratio 50/50

Starting current (Rotor locked) 97.0 A Y / 158.0 A YY

Max. Power input 22,0 kW

Extent of delivery (Standard)

Motor protection SE-B3(Standard), SE-B2(Option), CM-RC-01(Option)

Enclosure class IP54 (Standard), IP66 (Option)

Vibration dampersStandardOil charge4,00 dm³Discharge shut-off valveStandardSuction shut-off valveStandard

Available Options

Discharge gas temperature sensor Option
Start unloading Option

Capacity control 100-50% (Option)
Capacity Control - infinite 100-10% (Option)

Additional fan Option
Refrigerant Injection (RI) Option
Oil service valve Option

Crankcase heater 140 W (Option)

Oil pressure monitoring MP54 (Option), Delta-PII

Sound measurement

 Sound power level (-10°C / 45°C)
 $78,0 \text{ dB(A)} \otimes 50 \text{Hz}$

 Sound power level (-35°C / 40°C)
 $81,0 \text{ dB(A)} \otimes 50 \text{Hz}$

 Sound pressure level @ 1m (-10°C / 45°C)
 $70 \text{ dB(A)} \otimes 50 \text{Hz}$

 Sound pressure level @ 1m (-35°C / 40°C)
 $73 \text{ dB(A)} \otimes 50 \text{Hz}$

 Sound power level (-10°C / 45°C) R134a
 $76 \text{ dB(A)} \otimes 50 \text{Hz}$

Sound pressure level @ 1m (+5°C / 50°C) R134a

Sound pressure level @ 1m (-10°C / 45°C) R134a 68 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 \square 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)



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- 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)
- 24 IQ MODULE
- SL Suction gas line
- DL Discharge gas line

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