

# HA22e/190-4

Engine: 220-240V Δ / 380-420V Y -3- 50Hz

Refrigerant: R22

Subject: Предварительный расчет

## Performance data

### Application: Refrigeration & AC

Refrigerant	R22	Compressor refrigeration capacity	2.56 kW
Reference temperature	Dew point	Evaporator refrigeration capacity	2.56 kW
Power supply	50 Hz, 400 V	Power consumption	1.86 kW
Supply frequency	50 Hz	Current draw (400 V)	4.33 A
Evaporating temperature	-35.0 °C	Coefficient of performance (COP/EER)	1.38
<i>Evaporating pressure (abs.)</i>	<i>1.32 bar</i>	Condensing capacity	4.15 kW
Condensing temperature	40.0 °C	Mass flow	0.015 kg/s
<i>Condensing pressure (abs.)</i>	<i>15.33 bar</i>	Discharge end temperature	-- °C <sup>1)</sup>
Suction gas temperature	20 °C		
Subcooling (outside cond.)	0 K		
Usable superheat	100%		

*Preliminary capacity data.*

- 1) The information about the discharge end temperature is a purely calculated value. Among other things, the heat dissipation of the compressor is not taken into account. In reality, the deviations from the actually measured discharge end temperature can vary depending on e.g. the ambient temperature, superheat, etc. The displayed discharge end temperature is limited to a minimum value of 60°C, which is indicated by a preceding "<" sign.

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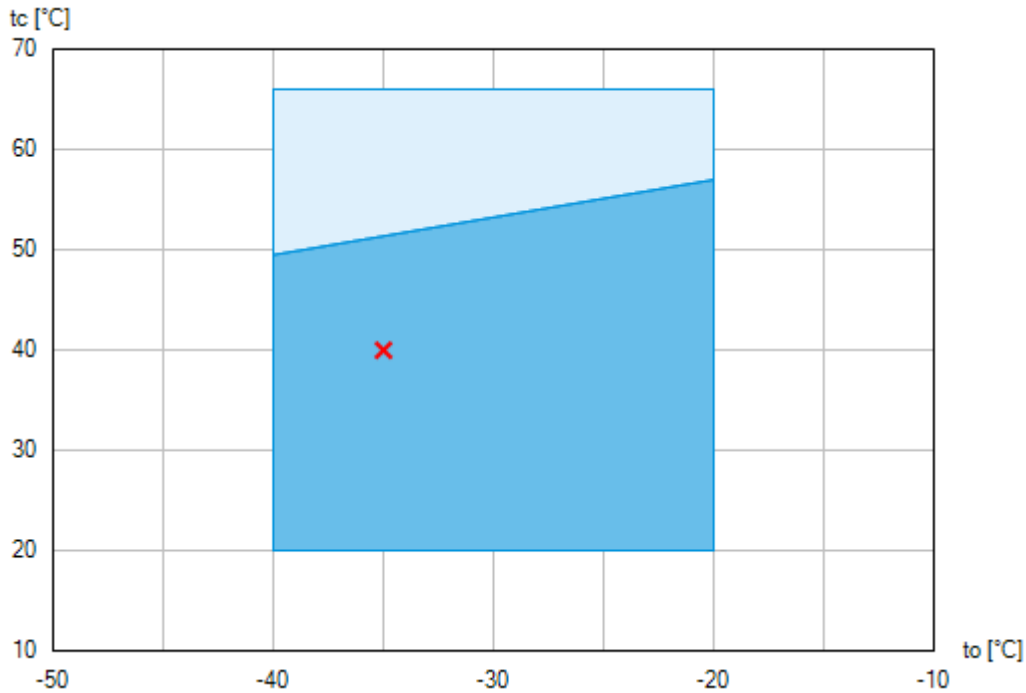
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## Operating limits



-  Unlimited application range
-  Reduced suction gas temperature ( $\Delta t_{oh} < 20K$ )

Compressor operation is possible within the limits shown on the diagrams of application. Please note the coloured areas. Compressor application limits should not be chosen for design purposes or continuous operation. Axis values refer to dew point (saturated vapour line).

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## Technical data

Number of cylinders / Bore / Stroke	2 / 55 mm / 40 mm
Displacement 50/60 Hz (1450/1740 <sup>1</sup> /min)	16,50 / 19,80 m <sup>3</sup> /h
Voltage <sup>1)</sup>	220-240V Δ / 380-420V Y -3- 50Hz
	265-290V Δ / 440-480V Y -3- 60Hz
Max. working current <sup>2)</sup>	10.9 / 6.3 A
Max. power consumption <sup>2)</sup>	3.5 kW
Starting current (rotor blocked) <sup>2)</sup>	87.0 / 50.0 A
Motor protection	INT69 G
Protection terminal box / HA-fan	IP 66 / IP 44
Voltage HA-fan	230 V - 1 - 50/60 Hz, 38 W
Weight	76 kg
Frequency range <sup>3)</sup>	30 -70 Hz
Max. permissible overpressure (g) (LP/HP) <sup>4)</sup>	19 / 28 bar
Connection suction line SV	16 mm - 5/8 "
Connection discharge line DV	12 mm - 1/2 "
Lubrication	Oil pump
Oil type R134a, R404A, R407A/C/F, R448A, R449A, R450A, R513A	BOCKlub E55
Oil type R22	BOCKlub A46
Oil charge	1,1 Ltr.
Dimensions Length / Width / Height	524 / 303 / 315 mm

1) Tolerance (± 10%) relates to the mean value of the voltage range. Other voltages and current types on request

All data are based on voltage rms values

2) - The stated value for the max. power consumption is valid for the adjusted power supply.

- Starting current (rotor blocked):

- Part winding (PW) motors: Winding 1 / Winding 1+2
- Delta/Star (Δ/Y) motors: Δ / Y

- Take account of the max. operating current / max. power consumption for designing motor contractors, feed lines, fuses and motor protection switches. Motor contractors: Consumption category AC3.

3) The maximum permissible working current of the compressor (I<sub>max</sub>) must not be exceeded. Take account of the guidelines for use of frequency inverter (see compressor assembly instruction or selection software).

4) LP = Low pressure  
HP = High pressure

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## Performance data table

Application: Refrigeration & AC

Reference temperature: Dew point

Supply frequency: 50 Hz

Voltage: 400 V

Suction gas temperature: 20 °C

Subcooling (outside cond.): 0 K

tc [°C]		to [°C]										
		-20.0	-25.0	-30.0	-35.0	-40.0						
15.0	Q [W]											
	P [kW]											
	I [A]											
20.0	Q [W]	7110	5690	4480	3460	2610						
	P [kW]	2.25	2.09	1.92	1.73	1.54						
	I [A]	4.75	4.57	4.39	4.20	4.01						
25.0	Q [W]	6760	5390	4220	3240	2420						
	P [kW]	2.39	2.20	1.99	1.78	1.56						
	I [A]	4.90	4.69	4.46	4.24	4.03						
30.0	Q [W]	6400	5080	3960	3010	2230						
	P [kW]	2.52	2.29	2.06	1.82	1.57						
	I [A]	5.05	4.79	4.53	4.28	4.04						
35.0	Q [W]	6030	4770	3700	2790	2030						
	P [kW]	2.64	2.38	2.11	1.84	1.58						
	I [A]	5.19	4.89	4.59	4.31	4.04						
40.0	Q [W]	5670	4460	3430	2560	1840						
	P [kW]	2.74	2.45	2.15	1.86	1.57						
	I [A]	5.31	4.97	4.64	4.33	4.04						
45.0	Q [W]	5310	4150	3170	2340	1640						
	P [kW]	2.83	2.51	2.19	1.86	1.55						
	I [A]	5.43	5.04	4.67	4.33	4.02						
50.0	Q [W]	4950	3840	2910	2120	1450						
	P [kW]	2.92	2.56	2.21	1.86	1.52						
	I [A]	5.53	5.10	4.70	4.32	3.99						
55.0	Q [W]	4580	3540	2650	1890	1260						
	P [kW]	2.99	2.60	2.21	1.84	1.48						
	I [A]	5.61	5.14	4.70	4.31	3.95						

*Preliminary capacity data.*



Reduced suction gas temperature ( $\Delta t_{oh} < 20K$ )

- to Evaporating temperature
- tc Condensing temperature
- Q Compressor refrigeration capacity
- P Power consumption
- I Current draw

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### Scope of supply

Semi-hermetic two cylinder reciprocating compressor with drive motor  
Single-section compressor housing with hermetically integrated electric motor

Winding protection with PTC resistor sensors and electronic trigger unit INT69 G  
115-230 V AC, 50/60 Hz, IP00

Motor is cooled by an integrated ventilator with air deflection hood.  
230 V - 1 - 50/60 Hz, 38 W, 0,17 A

Oil pump

Possibility for connection of oil pressure safety switch MP55

Possibility of connection of oil level controllers ESK, Traxoil, AC+R or CARLY <sup>1)</sup>

Oil charge:

HA: **BOCK**lub A46

HAX: **BOCK**lub E55

Sight glass

Suction and discharge line valve

Inert gas charge

### Accessories

Oil sump heater  
110-240 V - 1 - 50/60 Hz, 50-120 W, IP66  
PTC heater self-regulating

Oil pressure safety switch MP55 230 V - 1 - 50/60 Hz, IP20 <sup>2)</sup>

USB converter for INT69 G Diagnose <sup>2)</sup>

Thermal protection thermostat per cylinder cover <sup>3)</sup>

INT69 G Diagnose 115-230 V AC, 50/60 Hz, IP00 (INT69 G not applicable)

DP-Modbus Gateway 115-230 V AC, 50/60 Hz, IP00 including adapter cable <sup>2)</sup>

Modbus-LAN Gateway 230 V AC, 50/60 Hz, IP00 <sup>2)</sup>

4 anti-vibration pads enclosed

Special voltage and/or frequency (on request)

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1) Only with additional adapter possible

2) Enclosure

3) Mounted

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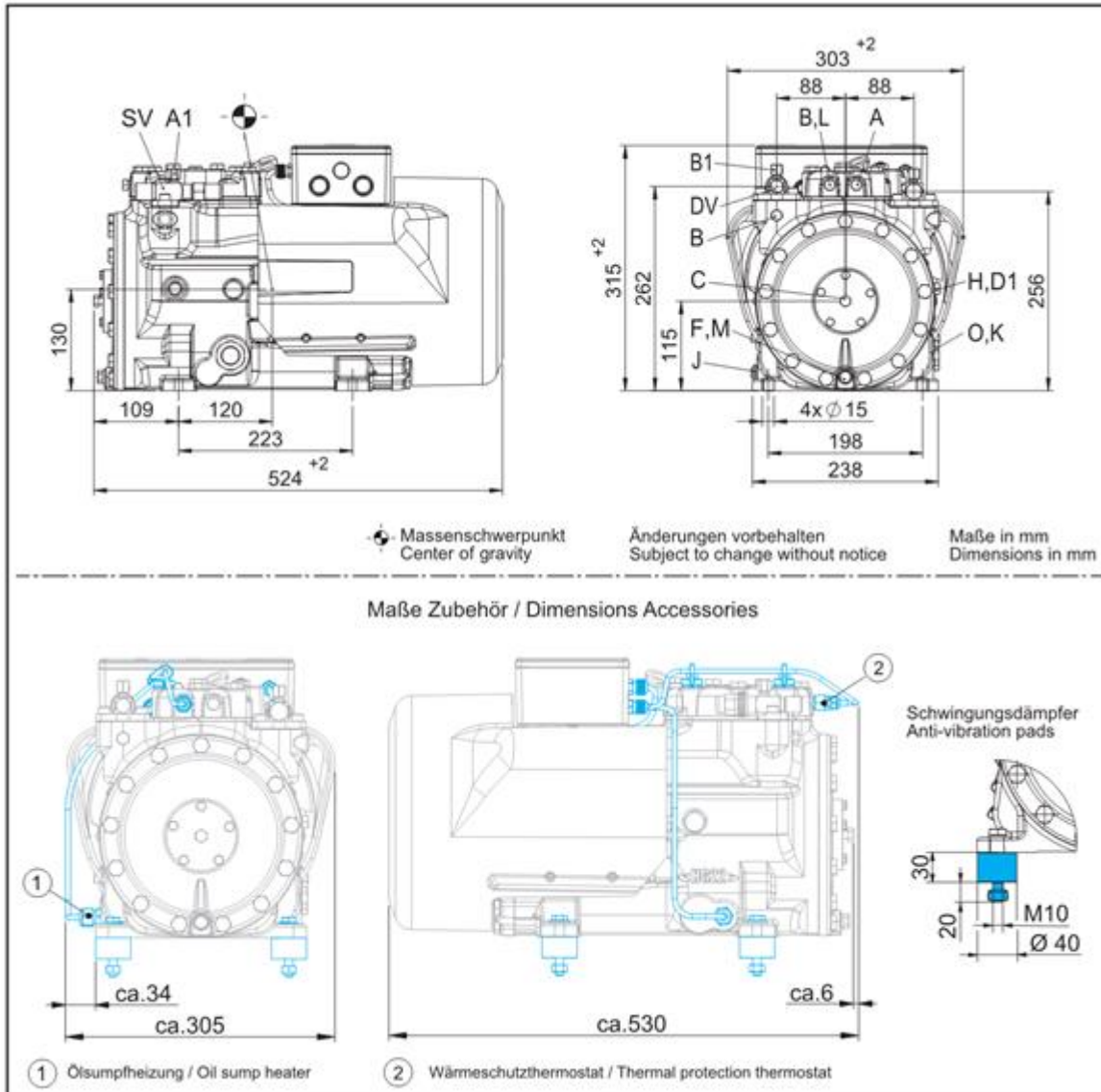
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## Dimensions and connections



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SV	Suction line valve, tube $\varnothing$ <sup>1)</sup>	16 mm - 5/8 "
DV	Discharge line valve, tube $\varnothing$ <sup>1)</sup>	12 mm - 1/2 "
A	Connection suction side, not lockable	1/8 " NPTF
A1	Connection suction side, lockable	7/16 " UNF
B	Connection discharge side, not lockable	1/8 " NPTF
B1	Connection discharge side, lockable	7/16 " UNF
C	Connection oil pressure safety switch OIL	1/8 " NPTF
D1	Connection oil return from oil separator	1/4 " NPTF
F	Oil drain	M 12 x 1.5
H	Oil charge plug	1/4 " NPTF
J	Connection oil sump heater	3/8 " NPTF
K	Sight glass	1 1/8 " - 18 UNEF
L	Connection thermal protection thermostat	1/8 " NPTF
M	Oil strainer	M 12 x 1.5
O	Connection oil level regulator	1 1/8 " - 18 UNEF

1) Brazing connection

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### Product photo



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