



Subject:

Performance data

Application: Refrigeration & AC

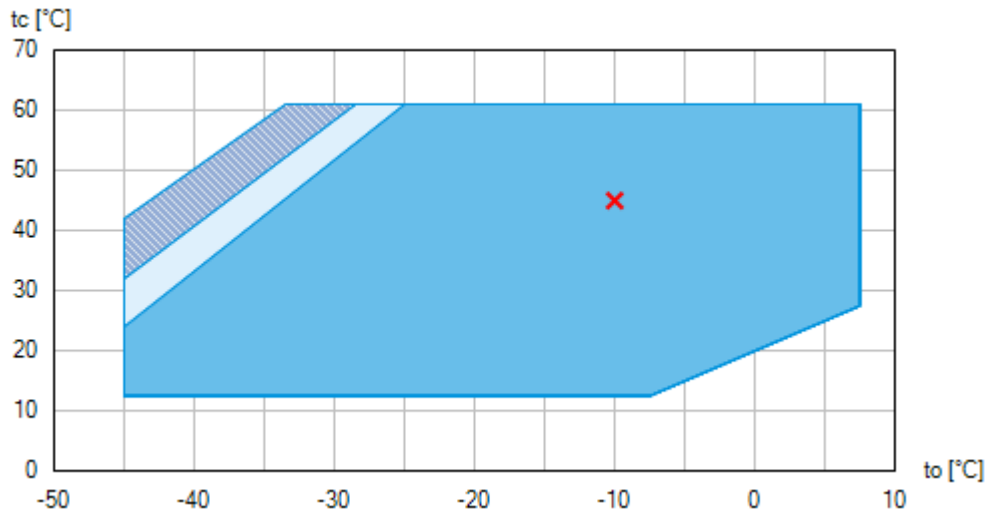
Refrigerant	R452A	Compressor refrigeration capacity	138.00 kW
Reference temperature	Dew point	Evaporator refrigeration capacity	138.00 kW
Power supply	50 Hz, 400 V	Power consumption	60.40 kW
Supply frequency	50 Hz	Current draw (400 V)	106.00 A
Evaporating temperature	-10.0 °C	Coefficient of performance (COP/EER)	2.28
<i>Evaporating pressure (abs.)</i>	<i>3.99 bar</i>	Condensing capacity	198.00 kW
Condensing temperature	45.0 °C	Mass flow	1.328 kg/s
<i>Condensing pressure (abs.)</i>	<i>19.83 bar</i>	Discharge end temperature	69.7 °C ¹⁾
Suction gas superheat	8 K		
Subcooling (outside cond.)	0 K		
Usable superheat	100%		




Preliminary capacity data.

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- 1) The stated value of the discharge end temperature is a mere calculated value. Additional cooling and heat dissipation are not considered. Deviations (particularly in deep freezing applications) from the real measured discharge temperature during operation are possible.

Subject:

Operating limits



-  Unlimited application range
-  Supplementary cooling or reduced suction gas temperature ($\Delta t_{oh} < 20K$)
-  Supplementary cooling and 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).

BOCK® HGX88e/3235-4 S

Engine: 380-420V Y/YY -3- 50Hz PW

Refrigerant: R452A

**Subject:****Technical data**

Number of cylinders / Bore / Stroke	8 / 87 mm / 68 mm
Displacement 50/60 Hz (1450/1740 ¹ /min)	281,30 / 337,60 m ³ /h
Voltage ¹⁾	380-420V Y/YY -3- 50Hz PW
	440-480V Y/YY -3- 60Hz PW
Winding divided into	50% / 50%
Max. working current ²⁾	162.0 A
Max. power consumption ²⁾	93.9 kW
Starting current (rotor blocked) ²⁾	466.0 / 657.0 A
Motor protection	INT69 G
Protection terminal box	IP 65
Weight	467 kg
Frequency range ³⁾	25 - 60 Hz
Max. permissible overpressure (g) (LP/HP) ⁴⁾	19 / 28 bar
Connection suction line SV	76 mm - 3 1/8 "
Connection discharge line DV	54 mm - 2 1/8 "
Lubrication	Oil pump
Oil type R134a, R404A, R407A/C/F, R448A, R449A, R450A, R513A	BOCKlub E55
Oil type R22	BOCKlub A46
Oil charge	9,6 Ltr.
Oil sump heater	230 V - 1 - 50/60 Hz, 200 W
Dimensions Length / Width / Height	943 / 648 / 656 mm
Sound power level L _{WA} ⁵⁾	90 dB(A) @ -35 °C / +40 °C
	86 dB(A) @ -10 °C / +45 °C
	86 dB(A) @ +5 °C / +50 °C
Sound pressure level L _{pA} ⁵⁾	76 dB(A) @ -35 °C / +40 °C
	72 dB(A) @ -10 °C / +45 °C
	72 dB(A) @ +5 °C / +50 °C

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

All data are based on voltage rms values

PW = part winding, motors for part winding starting
(no start unloaders required)
Designs for Y/D on request
- 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_{max}) 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
- 5) Declared dual-number noise emission values are in accordance with ISO 4871. The corresponding uncertainty to the sound power level is $K_{WA} = 2,5$ dB and to the sound pressure level is $K_{pA} = 2,5$ dB. The values are valid for 50 Hz with the refrigerant R404A at the standard rating points according to EN 12900.
 - A-weighted sound power level L_{WA} (re 1 pW), in decibel. To determine the values, measurement methods of the ISO 3740 standard with accuracy class 2 or higher were used .
 - A-weighted sound pressure level L_{pA} (re 20 μ Pa), in decibel. The values are calculated from the sound power level in accordance with ISO 11203: $L_{pA} = L_{WA} - Q_2$ at a distance of $d = 1$ m to the reference box.

BOCK® HGX88e/3235-4 S

Engine: 380-420V Y/YY -3- 50Hz PW

Refrigerant: R452A



Subject:

Performance data table

Application: Refrigeration & AC
 Reference temperature: Dew point
 Supply frequency: 50 Hz
 Voltage: 400 V
 Suction gas superheat: 8 K
 Subcooling (outside cond.): 0 K

tc [°C]		to [°C]										
		0.0	-5.0	-10.0	-15.0	-20.0	-25.0	-30.0	-35.0	-40.0	-45.0	
10.0	Q [W] P [kW] I [A]											
15.0	Q [W] P [kW] I [A]		270000 39.60 77.20	222000 39.00 76.50	180000 37.60 74.70	144000 35.50 72.10	114000 32.90 69.00	87500 29.90 65.30	66300 26.50 61.50	48900 22.90 57.70	35000 19.30 54.00	
20.0	Q [W] P [kW] I [A]	308000 45.30 84.80	255000 44.70 84.00	209000 43.30 82.10	169000 41.10 79.20	135000 38.30 75.60	105000 35.00 71.50	80500 31.40 67.20	60200 27.50 62.70	43600 23.60 58.30	30200 19.60 54.30	
25.0	Q [W] P [kW] I [A]	290000 51.20 92.80	240000 49.60 90.70	196000 47.30 87.50	157000 44.30 83.50	125000 40.80 78.90	96800 36.90 73.90	73600 32.70 68.80	54300 28.40 63.70	38500 24.00 58.80	25700 19.70 54.40	
30.0	Q [W] P [kW] I [A]	271000 56.60 101.00	223000 54.20 97.10	182000 51.00 92.60	146000 47.30 87.50	115000 43.10 81.90	88500 38.60 76.00	66700 33.90 70.10	48600 29.10 64.40	33700 24.30 59.10	21600 19.70 54.30	
35.0	Q [W] P [kW] I [A]	252000 61.80 108.00	207000 58.40 104.00	167000 54.50 97.40	134000 50.00 91.20	105000 45.10 84.50	80100 40.00 77.80	59900 34.80 71.20	43100 29.50 64.90	29300 24.40 59.20	18000 19.50 54.10	
40.0	Q [W] P [kW] I [A]	233000 66.60 116.00	190000 62.40 109.00	153000 57.60 102.00	121000 52.40 94.50	94200 46.90 86.90	71800 41.20 79.30	53200 35.40 72.00	37800 29.80 65.20	25100 24.30 59.10	14700 19.10 53.70	
45.0	Q [W] P [kW] I [A]	212000 71.10 122.00	172000 66.00 115.00	138000 60.40 106.00	109000 54.50 97.50	83900 48.30 88.90	63500 42.10 80.50	46600 35.90 72.60	32700 29.80 65.30	21300 24.00 58.80		
50.0	Q [W] P [kW] I [A]	191000 75.20 128.00	154000 69.20 119.00	123000 62.90 110.00	95600 56.30 100.00	73500 49.50 90.50	55200 42.70 81.40	40100 36.00 72.80	27800 29.60 65.00	17800 23.40 58.20		
55.0	Q [W] P [kW] I [A]	170000 78.90 134.00	136000 72.10 124.00	107000 65.10 113.00	82800 57.80 103.00	63100 50.40 91.80	46900 43.10 81.90	33800 36.00 72.70	23200 29.10 64.50			
60.0	Q [W] P [kW] I [A]	148000 82.20 139.00	117000 74.70 128.00	90800 66.90 116.00	69700 58.90 104.00	52600 51.00 92.60	38800 43.20 82.00	27700 35.60 72.30				

Preliminary capacity data.



Supplementary cooling or reduced suction gas temperature ($\Delta t_{oh} < 20K$)



Supplementary cooling and reduced suction gas temperature ($\Delta t_{oh} < 20K$)

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Engine: 380-420V Y/YY -3- 50Hz PW
Refrigerant: R452A



Subject:

t_o Evaporating temperature
t_c Condensing temperature
Q Compressor refrigeration capacity
P Power consumption
I Current draw

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BOCK® HGX88e/3235-4 S

Engine: 380-420V Y/YY -3- 50Hz PW

Refrigerant: R452A



Subject:

Scope of supply

Semi-hermetic eight-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

Oil pump

Possibility of connection of oil level controllers ESK, AC+R or CARLY

Oil pump cover with screw-in option for oil differential pressure sensor DELTA-P II

Possibility of connection of oil level controllers Traxoil ¹⁾

Possibility for connection of oil pressure safety switch MP54

Oil charge:

HG: **BOCK**lub A46

HGX: **BOCK**lub E55

Three sight glasses

Pressure relief valve

Suction and discharge line valve

Inert gas charge

Accessories

Capacity regulator 110 V - 1 - 50/60 Hz, IP65
1-3 capacity regulator = 75/50/25% residual capacity ²⁾

Capacity regulator 230 V - 1 - 50/60 Hz, IP65
1-3 capacity regulator = 75/50/25% residual capacity ²⁾

Cylinder cover prepared for capacity regulator

Oil sump heater 230 V - 1 - 50/60 Hz, 200 W ³⁾

Oil service valve ³⁾

INT69 GTML Diagnose 115-230 V AC, 50/60 Hz, IP00, including oil differential pressure sensor INT250G, thermal protection thermostat per cylinder covers, (INT69 G not applicable)

Oil pressure safety switch MP54 230 V - 1 - 50/60 Hz, IP20 ⁴⁾

Thermal protection thermostat per cylinder cover ³⁾

Connection piece suction and discharge valve in welding design

Oil differential pressure sensor DELTA-P II 220-240 V - 1 - 50/60 Hz ⁴⁾

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BOCK® HGX88e/3235-4 S

Engine: 380-420V Y/YY -3- 50Hz PW

Refrigerant: R452A



Subject:

Oil temperature sensor (Pt1000, for external evaluation) ³⁾

Hot gas temperature sensor (Pt1000, for external evaluation) ³⁾

Thermal protection thermostat per cylinder cover

USB converter for INT69 G Diagnose and INT69 GTML Diagnose ⁴⁾

Additional fan

230 V AC - 1 - 50 Hz, 97 W, IP44

230 V AC - 1 - 60 Hz, 128 W ⁴⁾

Intermediate adapter for discharge line valve ⁴⁾

Step protection

4 anti-vibration pads enclosed

Special voltage and/or frequency (on request)

-
- 1) Only with additional adapter possible
 - 2) Capacity regulator premounted, control unit enclosed
 - 3) Mounted
 - 4) Enclosure

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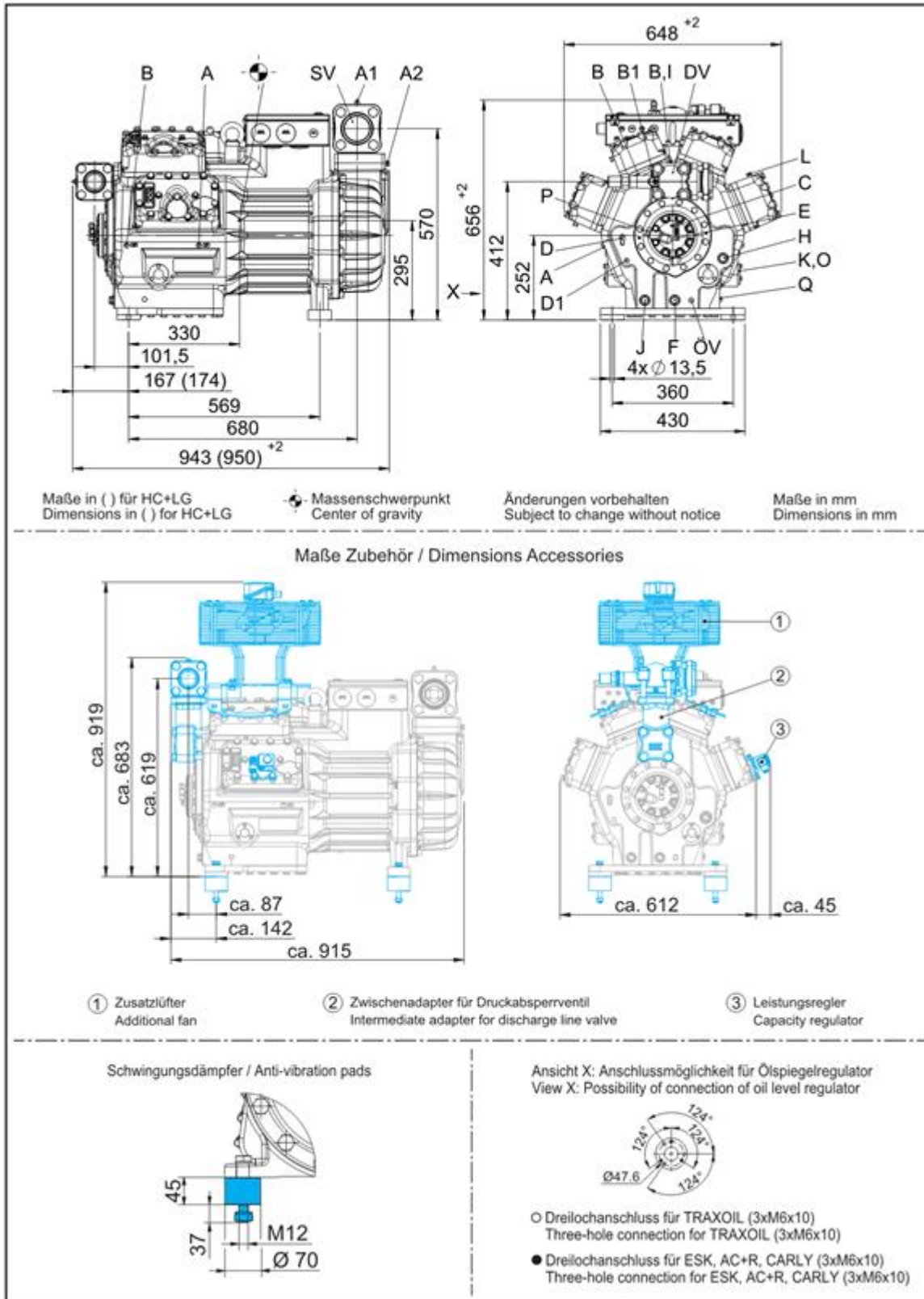
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Dimensions and connections



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Engine: 380-420V Y/YY -3- 50Hz PW

Refrigerant: R452A

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SV	Suction line valve, tube \varnothing ¹⁾	76 mm - 3 1/8 "
DV	Discharge line valve, tube \varnothing ¹⁾	54 mm - 2 1/8 "
A	Connection suction side, not lockable	1/8 " NPTF
A1	Connection suction side, lockable	7/16 " UNF
A2	Connection suction side, not lockable	1/4 " NPTF
B	Connection discharge side, not lockable	1/8 " NPTF
B1	Connection discharge side, lockable	7/16 " UNF
C	Connection oil pressure safety switch OIL	7/16 " UNF
D	Connection oil pressure safety switch LP	7/16 " UNF
D1	Connection oil return from oil separator	1/4 " NPTF
E	Connection oil pressure gauge	7/16 " UNF
F	Oil drain	M 22 x 1.5
H	Oil charge plug	M 22 x 1.5
I	Connection hot gas temperature sensor	1/8 " NPTF
J	Connection oil sump heater	M 22 x 1.5
K	Sight glass	-
L	Connection thermal protection thermostat	1/8 " NPTF
O	Connection oil level regulator	3 x M 6
ÖV	Connection oil service valve	1/4 " NPTF
P	Connection oil differential pressure sensor	M 20 x 1.5
Q	Connection oil temperature sensor	1/8 " NPTF

1) Brazing connection

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Refrigerant: R452A



Subject:

Product photo



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