BOCK® **HGX88e/3235-4**

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

Refrigerant: R513A

Subject:

Performance data

Application: Refrigeration & AC

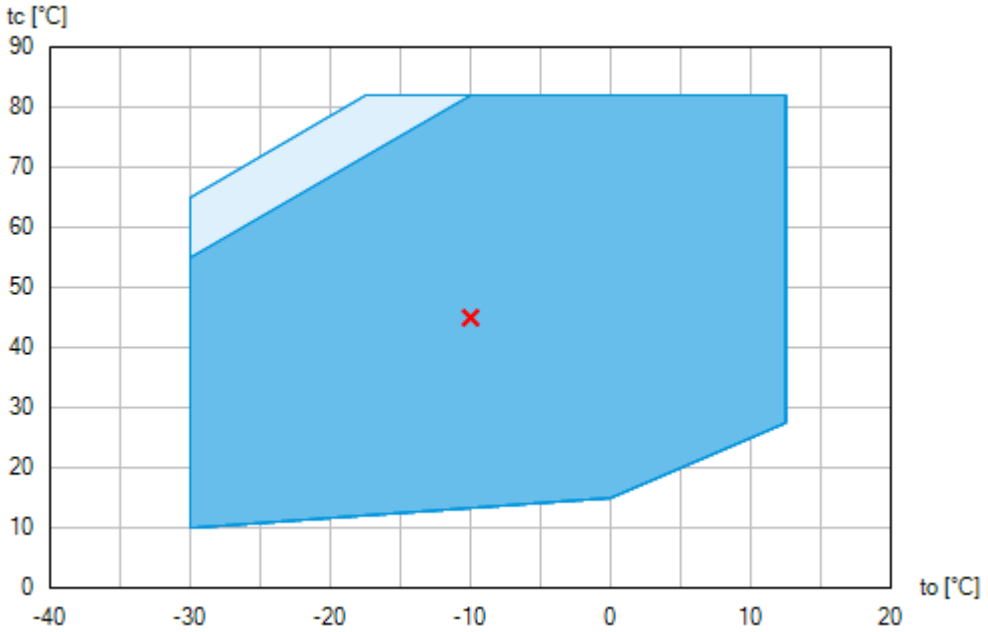
Refrigerant	R513A		Compressor refrigeration capacity	85.90 kW
Reference temperature	Dew point		Evaporator refrigeration capacity	85.90 kW
Power supply	50 Hz, 400 V		Power consumption	36.60 kW
Supply frequency	50 Hz		Current draw (400 V)	73.40 A
Evaporating temperature	-10.0 °C		Coefficient of performance (COP/EER)	2.35
Evaporating pressure (abs.)	*2.23 bar*		Condensing capacity	123.00 kW
Condensing temperature	45.0 °C		Mass flow	0.734 kg/s
Condensing pressure (abs.)	*12.17 bar*		Discharge end temperature	67.2 °C [1)]
Suction gas superheat	8 K			
Subcooling (outside cond.)	0 K			
Usable superheat	100%			

Preliminary capacity data.

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 (Δtoh<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).

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 m³/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)]	135.0 A
Max. power consumption [2)]	79.2 kW
Starting current (rotor blocked) [2)]	466.0 / 657.0 A
Motor protection	INT69 G
Protection terminal box	IP 65
Weight	459 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
Sound pressure level L_{pA} [5)]	76 dB(A) @ -35 °C / +40 °C
	72 dB(A) @ -10 °C / +45 °C

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

PW = part winding, motors for part winding starting
(no start unloaders required)
Designs for Y/D on request

Subject:

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 (Imax) 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 µPa), 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 = 1m to the reference box.

BOCK® **HGX88e/3235-4**

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

Refrigerant: R513A

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]										
		10.0	**5.0**	**0.0**	**-5.0**	**-10.0**	**-15.0**	**-20.0**	**-25.0**	**-30.0**	**-35.0**
10.0	Q [W] P [kW] I [A]									52900 18.60 53.30	
15.0	Q [W] P [kW] I [A]			204000 27.50 62.70	166000 27.40 62.50	134000 26.50 61.50	106000 25.10 60.00	82700 23.30 58.10	63900 21.20 55.90	48900 19.10 53.70	
20.0	Q [W] P [kW] I [A]		236000 30.60 66.20	195000 30.60 66.20	158000 29.80 65.30	127000 28.50 63.70	99800 26.60 61.60	77500 24.40 59.20	59300 22.00 56.70	44800 19.50 54.10	
25.0	Q [W] P [kW] I [A]	270000 34.00 70.30	224000 34.20 70.50	184000 33.60 69.80	150000 32.20 68.10	119000 30.30 65.90	93400 28.00 63.20	72000 25.40 60.30	54500 22.70 57.40	40600 19.90 54.50	
30.0	Q [W] P [kW] I [A]	256000 38.20 75.50	212000 37.70 74.80	174000 36.40 73.20	140000 34.50 70.90	112000 32.10 68.00	86700 29.30 64.70	66300 26.30 61.30	49700 23.30 58.00	36400 20.20 54.90	
35.0	Q [W] P [kW] I [A]	241000 42.20 80.60	199000 41.00 79.10	162000 39.10 76.60	131000 36.60 73.50	103000 33.70 69.90	79800 30.50 66.10	60500 27.20 62.30	44900 23.80 58.60	32300 20.50 55.20	
40.0	Q [W] P [kW] I [A]	226000 46.00 85.70	186000 44.10 83.20	151000 41.60 79.90	121000 38.60 76.00	94400 35.20 71.80	72700 31.60 67.40	54800 27.90 63.10	40100 24.20 59.00	28500 20.70 55.30	
45.0	Q [W] P [kW] I [A]	210000 49.60 90.60	172000 47.10 87.20	139000 44.00 83.00	110000 40.40 78.30	85900 36.60 73.40	65700 32.50 68.50	49000 28.40 63.70	35500 24.40 59.30	24900 20.70 55.40	
50.0	Q [W] P [kW] I [A]	193000 52.90 95.30	157000 49.80 90.90	126000 46.10 85.90	99600 42.00 80.40	77300 37.70 74.90	58700 33.30 69.40	43500 28.80 64.20	31300 24.60 59.40	21600 20.60 55.20	
55.0	Q [W] P [kW] I [A]	176000 56.00 99.70	143000 52.30 94.30	114000 48.00 88.40	89200 43.40 82.30	68800 38.60 76.00	51900 33.80 70.00	38200 29.00 64.40	27300 24.50 59.30	18800 20.30 55.00	
60.0	Q [W] P [kW] I [A]	159000 58.90 104.00	128000 54.50 97.50	102000 49.70 90.70	78900 44.60 83.80	60500 39.30 76.90	45400 34.10 70.40	33300 29.00 64.40	23800 24.20 59.10	16500 19.90 54.50	
65.0	Q [W] P [kW] I [A]	142000 61.40 108.00	113000 56.40 101.00	88700 51.00 92.60	68800 45.50 85.00	52400 39.80 77.50	39200 34.20 70.50	28800 28.80 64.10	20700 23.80 58.50	14600 19.20 53.80	
70.0	Q [W] P [kW] I [A]	124000 63.60 111.00	98000 58.00 103.00	76500 52.10 94.10	58800 46.10 85.80	44600 40.00 77.80	33400 34.00 70.30	24700 28.30 63.60	18100 23.00 57.80		
75.0	Q [W] P [kW] I [A]	107000 65.50 114.00	83300 59.30 105.00	64400 52.90 95.20	49200 46.40 86.20	37200 39.90 77.60	28000 33.60 69.70	21100 27.60 62.70			

Subject:

80.0	Q [W] P [kW] I [A]	89200 67.10 116.00	68900 60.30 106.00	52600 53.30 95.80	40000 46.30 86.20	30300 39.40 77.10	23100 32.80 68.80				

Preliminary capacity data.

☐ Supplementary cooling or reduced suction gas temperature (Δtoh<20K)

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

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

Capacitiy 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)]

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

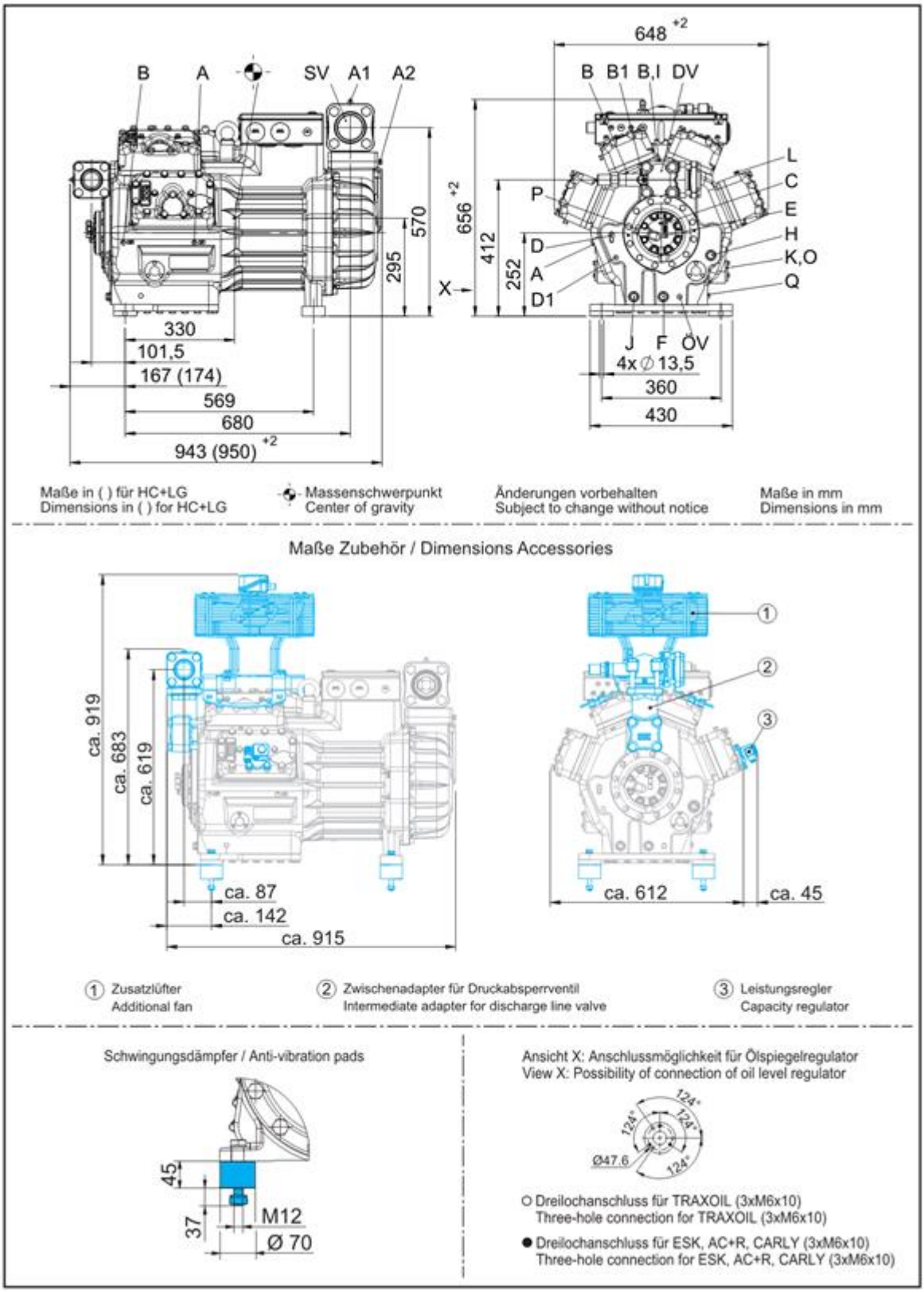
2) Capacity regulator premounted, control unit enclosed

3) Mounted

4) Enclosure

Subject:

Dimensions and connections



Subject to change without notice

Subject:

SV	Suction line valve, tube ø [1]	76 mm - 3 1/8 "
DV	Discharge line valve, tube ø [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

Subject:

Product photo