BOCK® **HGX88e/2735-4 S**

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

Refrigerant: R513A

Subject:

Performance data

Application: Refrigeration & AC

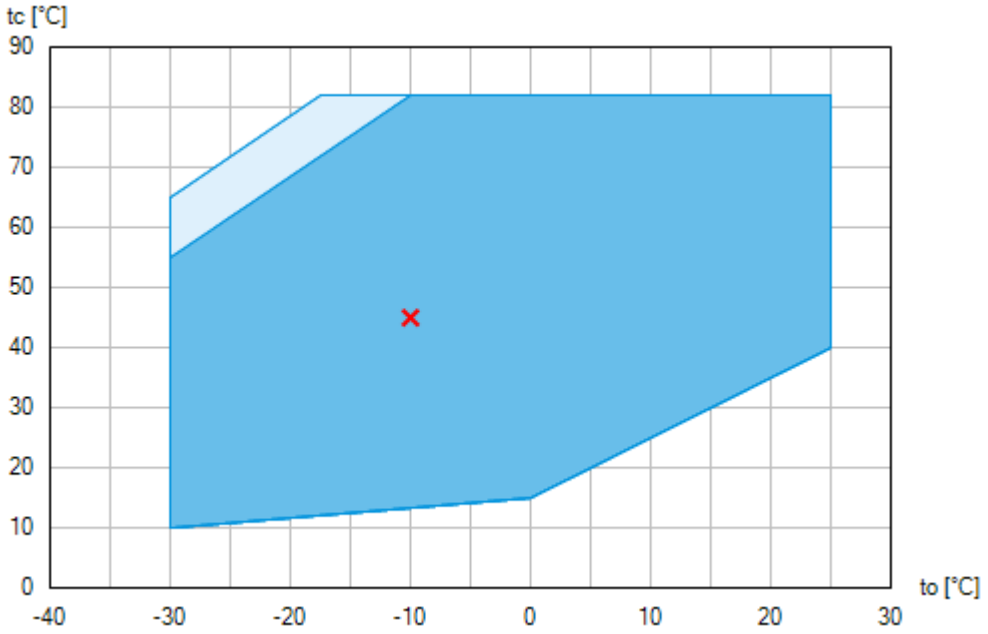
Refrigerant	R513A	Compressor refrigeration capacity	73.10 kW
Reference temperature	Dew point	Evaporator refrigeration capacity	73.10 kW
Power supply	50 Hz, 400 V	Power consumption	31.40 kW
Supply frequency	50 Hz	Current draw (400 V)	67.10 A
Evaporating temperature	-10.0 °C	Coefficient of performance (COP/EER)	2.33
Evaporating pressure (abs.)	*2.23 bar*	Condensing capacity	105.00 kW
Condensing temperature	45.0 °C	Mass flow	0.624 kg/s
Condensing pressure (abs.)	*12.17 bar*	Discharge end temperature	67.6 °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 / 80 mm / 68 mm
Displacement 50/60 Hz (1450/1740 ¹/min)	237,90 / 285,50 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]	136.0 A
Max. power consumption [2]	80.0 kW
Starting current (rotor blocked) [2]	466.0 / 657.0 A
Motor protection	INT69 G
Protection terminal box	IP 65
Weight	464 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]	89 dB(A) @ -35 °C / +40 °C
	86 dB(A) @ -10 °C / +45 °C
	87 dB(A) @ +5 °C / +50 °C
Sound pressure level L_{pA} [5]	75 dB(A) @ -35 °C / +40 °C
	72 dB(A) @ -10 °C / +45 °C
	73 dB(A) @ +5 °C / +50 °C

Subject:

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

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/2735-4 S**

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]									44600 15.90 50.70	
15.0	Q [W] P [kW] I [A]			173000 23.60 58.30	141000 23.40 58.20	114000 22.70 57.40	89900 21.50 56.10	70400 19.90 54.60	54300 18.20 52.80	41300 16.30 51.10	
20.0	Q [W] P [kW] I [A]		200000 26.20 61.20	165000 26.20 61.20	134000 25.50 60.50	108000 24.40 59.20	84800 22.80 57.50	66000 20.90 55.60	50500 18.80 53.50	37900 16.70 51.50	
25.0	Q [W] P [kW] I [A]	229000 29.10 64.50	190000 29.30 64.70	156000 28.70 64.10	127000 27.60 62.80	101000 26.00 61.00	79400 24.00 58.80	61400 21.80 56.50	46500 19.50 54.10	34400 17.10 51.80	
30.0	Q [W] P [kW] I [A]	217000 32.60 68.60	180000 32.20 68.10	147000 31.20 66.90	119000 29.50 65.00	94300 27.50 62.70	73700 25.20 60.10	56500 22.60 57.30	42400 20.00 54.60	30900 17.40 52.10	
35.0	Q [W] P [kW] I [A]	205000 36.00 72.70	169000 35.00 71.50	138000 33.50 69.60	111000 31.40 67.10	87400 28.90 64.30	67900 26.20 61.20	51600 23.30 58.10	38300 20.50 55.10	27500 17.70 52.30	
40.0	Q [W] P [kW] I [A]	192000 39.20 76.80	158000 37.70 74.80	128000 35.60 72.20	102000 33.10 69.10	80300 30.20 65.80	62000 27.10 62.20	46700 24.00 58.80	34300 20.80 55.50	24200 17.80 52.50	
45.0	Q [W] P [kW] I [A]	178000 42.20 80.70	146000 40.10 78.00	118000 37.60 74.70	93400 34.60 71.00	73100 31.40 67.10	56000 27.90 63.10	41900 24.50 59.30	30400 21.10 55.70	21200 17.90 52.50	
50.0	Q [W] P [kW] I [A]	164000 45.00 84.40	134000 42.40 81.00	108000 39.40 77.00	84700 36.00 72.70	65800 32.30 68.30	50100 28.60 63.90	37100 24.80 59.70	26700 21.20 55.90	18500 17.80 52.50	
55.0	Q [W] P [kW] I [A]	150000 47.60 87.90	122000 44.50 83.70	96700 41.00 79.10	75900 37.20 74.20	58600 33.10 69.20	44300 29.10 64.40	32600 25.00 59.90	23400 21.20 55.80	16200 17.60 52.30	
60.0	Q [W] P [kW] I [A]	136000 50.00 91.10	109000 46.40 86.20	86200 42.40 80.90	67200 38.10 75.40	51500 33.80 70.00	38700 29.40 64.80	28400 25.10 60.00	20400 21.00 55.60	14300 17.20 51.90	
65.0	Q [W] P [kW] I [A]	121000 52.10 94.10	96200 48.00 88.40	75700 43.50 82.40	58600 38.90 76.40	44600 34.20 70.50	33300 29.50 64.90	24500 24.90 59.80	17900 20.60 55.30	12900 16.70 51.40	
70.0	Q [W] P [kW] I [A]	106000 53.90 96.70	83700 49.40 90.30	65300 44.50 83.70	50100 39.40 77.10	37900 34.40 70.70	28400 29.40 64.80	21100 24.60 59.40	15800 20.10 54.70		
75.0	Q [W] P [kW] I [A]	91100 55.50 99.00	71300 50.50 91.80	55000 45.10 84.60	41900 39.70 77.40	31600 34.30 70.70	23800 29.00 64.40	18200 24.00 58.80			

Subject:

80.0	Q [W] P [kW] I [A]	76500 56.80 101.00	59100 51.30 93.00	45100 45.50 85.10	34000 39.80 77.50	25700 34.00 70.30	19800 28.50 63.70				

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

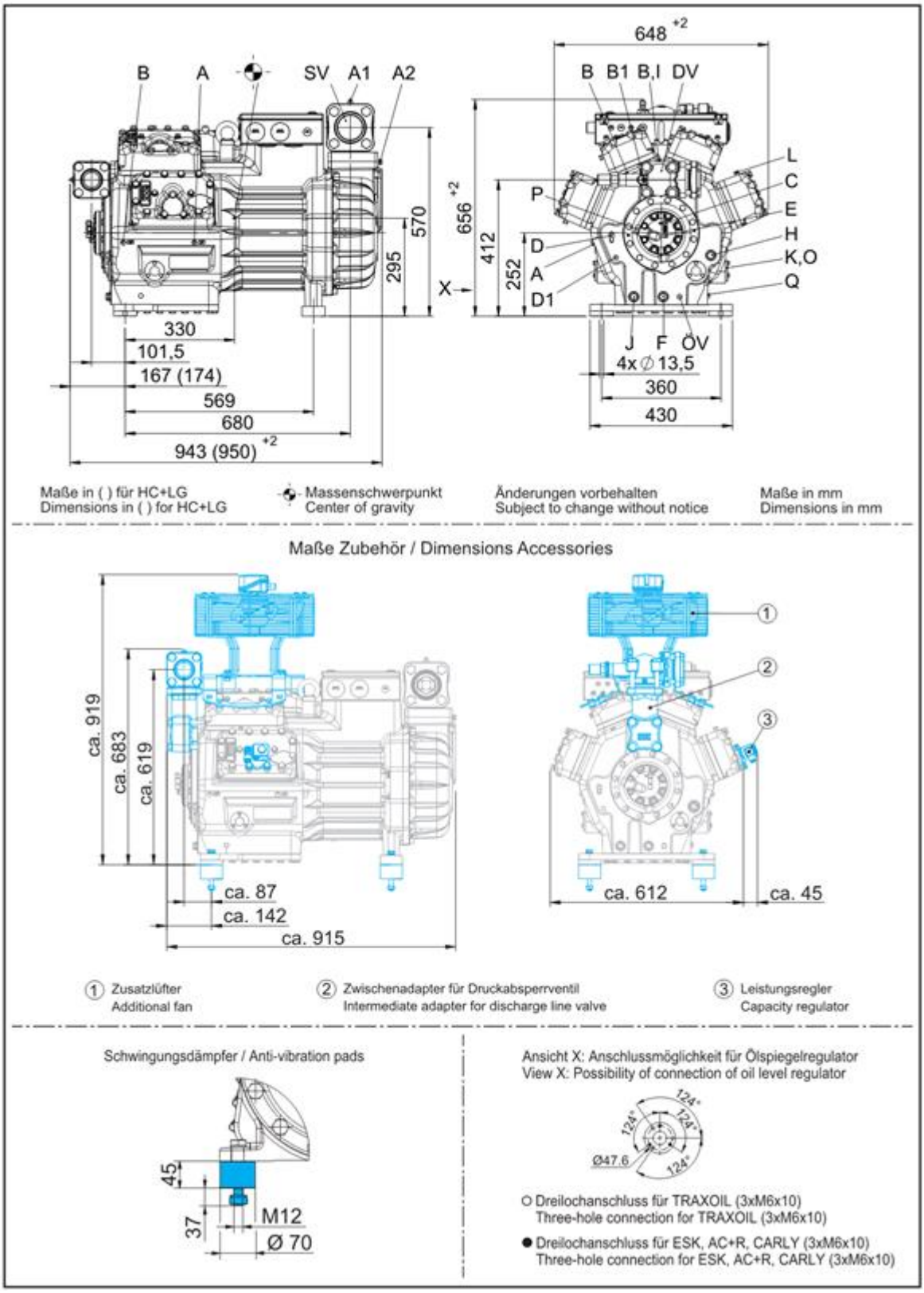
2) Capacity regulator premounted, control unit enclosed

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