BOCK® **HGX88e/2400-4 S**

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

Refrigerant: R513A

Subject:

Performance data

Application: Refrigeration & AC

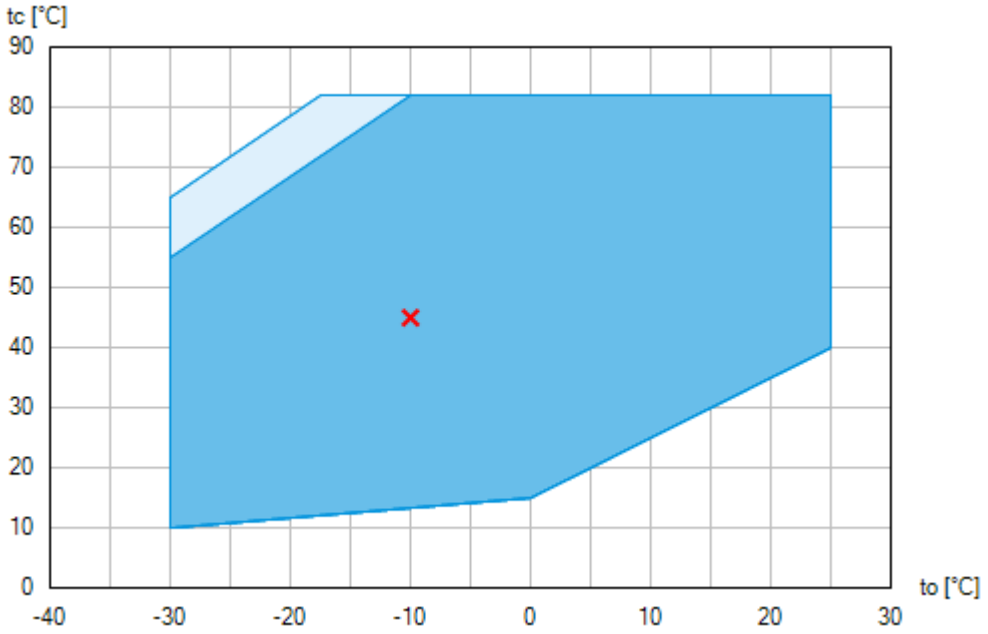
Refrigerant	R513A		Compressor refrigeration capacity	64.30 kW
Reference temperature	Dew point		Evaporator refrigeration capacity	64.30 kW
Power supply	50 Hz, 400 V		Power consumption	27.80 kW
Supply frequency	50 Hz		Current draw (400 V)	63.00 A
Evaporating temperature	-10.0 °C		Coefficient of performance (COP/EER)	2.31
Evaporating pressure (abs.)	*2.23 bar*		Condensing capacity	92.20 kW
Condensing temperature	45.0 °C		Mass flow	0.549 kg/s
Condensing pressure (abs.)	*12.17 bar*		Discharge end temperature	68.0 °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 / 75 mm / 68 mm
Displacement 50/60 Hz (1450/1740 ¹/min)	209,1 / 250,9 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]	120.0 A
Max. power consumption [2]	69.8 kW
Starting current (rotor blocked) [2]	466.0 / 657.0 A
Motor protection	INT69 G
Protection terminal box	IP 65
Weight	452 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
	85 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
	71 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.

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]									39300 14.10 49.00	
15.0	Q [W] P [kW] I [A]			152000 20.90 55.50	124000 20.70 55.40	99600 20.10 54.70	79100 19.00 53.60	61900 17.60 52.30	47800 16.10 50.80	36300 14.50 49.30	
20.0	Q [W] P [kW] I [A]		176000 23.30 58.00	145000 23.20 58.00	118000 22.60 57.40	94400 21.60 56.30	74600 20.20 54.80	58100 18.50 53.20	44400 16.70 51.40	33300 14.80 49.70	
25.0	Q [W] P [kW] I [A]	202000 25.80 60.80	168000 26.00 61.00	138000 25.50 60.40	112000 24.50 59.30	88800 23.00 57.80	69900 21.30 56.00	54000 19.30 54.00	40900 17.20 51.90	30200 15.20 50.00	
30.0	Q [W] P [kW] I [A]	191000 28.90 64.30	158000 28.60 63.90	130000 27.60 62.80	105000 26.20 61.20	83000 24.40 59.20	64900 22.30 57.00	49800 20.10 54.70	37300 17.70 52.40	27200 15.40 50.20	
35.0	Q [W] P [kW] I [A]	180000 31.90 67.70	149000 31.10 66.70	121000 29.70 65.10	97200 27.80 63.00	76900 25.70 60.60	59800 23.20 58.00	45400 20.70 55.40	33700 18.10 52.80	24200 15.60 50.40	
40.0	Q [W] P [kW] I [A]	169000 34.70 71.10	139000 33.40 69.50	113000 31.60 67.30	89800 29.30 64.70	70700 26.80 61.90	54500 24.10 58.90	41100 21.30 55.90	30100 18.50 53.10	21300 15.80 50.50	
45.0	Q [W] P [kW] I [A]	157000 37.30 74.40	128000 35.50 72.20	104000 33.30 69.40	82300 30.70 66.30	64300 27.80 63.00	49300 24.80 59.60	36800 21.70 56.40	26700 18.70 53.30	18600 15.80 50.60	
50.0	Q [W] P [kW] I [A]	145000 39.80 77.50	118000 37.50 74.70	94300 34.90 71.30	74600 31.90 67.70	57900 28.70 64.00	44100 25.30 60.30	32700 22.00 56.70	23500 18.80 53.40	16300 15.70 50.50	
55.0	Q [W] P [kW] I [A]	132000 42.00 80.50	107000 39.40 77.00	85100 36.30 73.10	66900 32.90 69.00	51600 29.40 64.80	39000 25.80 60.70	28700 22.20 56.90	20600 18.80 53.40	14200 15.60 50.30	
60.0	Q [W] P [kW] I [A]	119000 44.10 83.20	95700 41.00 79.00	75900 37.50 74.60	59200 33.80 70.00	45300 29.90 65.40	34000 26.00 61.00	25000 22.20 56.90	18000 18.60 53.20	12600 15.20 50.10	
65.0	Q [W] P [kW] I [A]	107000 45.90 85.60	84800 42.40 80.90	66700 38.50 75.90	51600 34.40 70.80	39200 30.30 65.80	29400 26.10 61.10	21600 22.10 56.80	15700 18.30 52.90	11400 14.80 49.60	
70.0	Q [W] P [kW] I [A]	93300 47.50 87.80	73800 43.60 82.50	57500 39.30 76.90	44100 34.90 71.40	33400 30.50 66.10	25000 26.10 61.00	18600 21.80 56.50	13900 17.80 52.50		
75.0	Q [W] P [kW] I [A]	80300 48.90 89.70	62900 44.50 83.70	48500 39.90 77.70	36900 35.20 71.70	27800 30.40 66.00	21000 25.80 60.70	16000 21.30 56.00			

Subject:

80.0	Q [W] P [kW] I [A]	67400 50.00 91.20	52100 45.20 84.70	39700 40.20 78.10	30000 35.20 71.70	22600 30.20 65.70	17400 25.30 60.20			

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

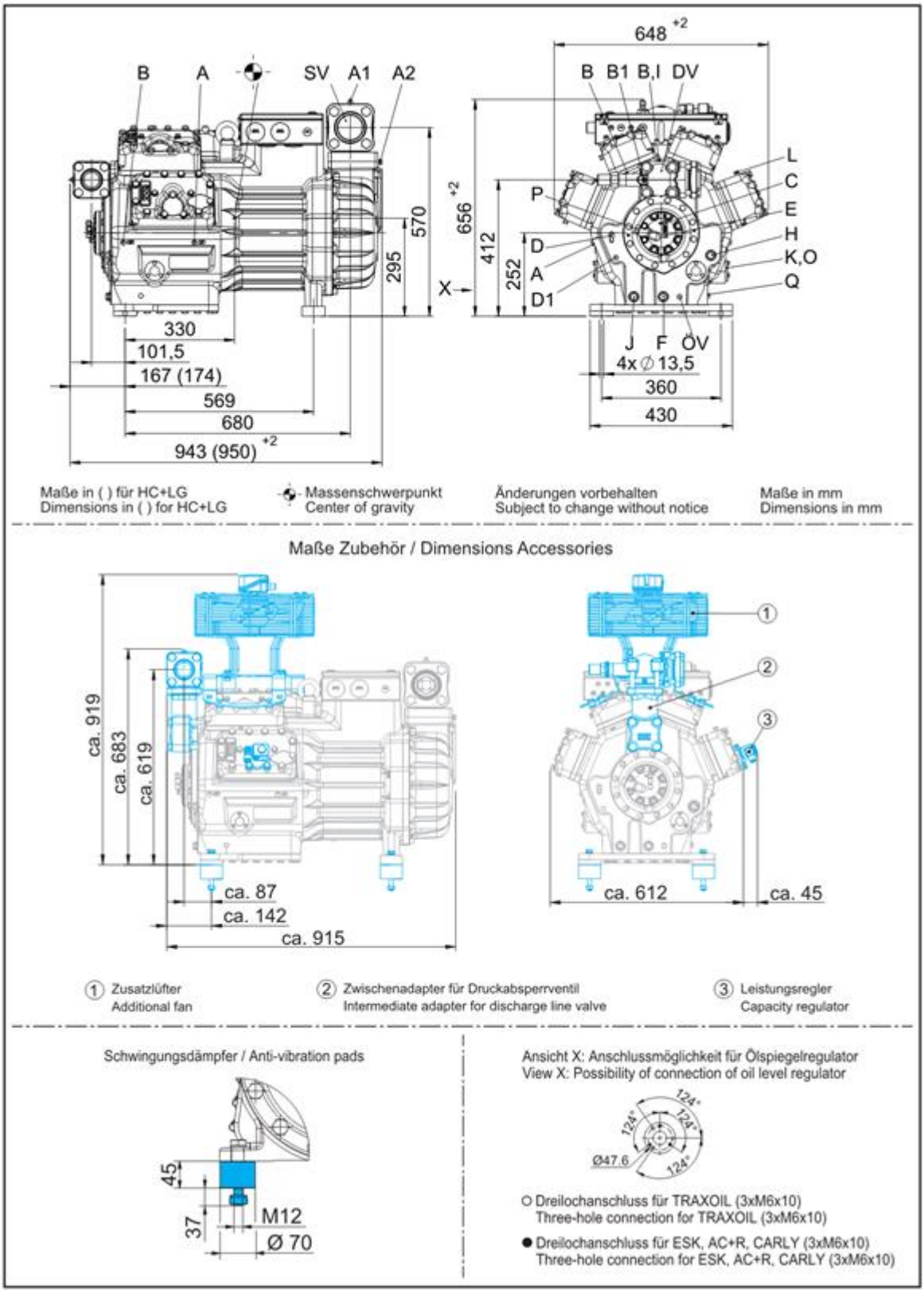
2) Capacity regulator premounted, control unit enclosed

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	3 x M 6
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