BOCK® **HGX88e/2735-4**

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

Refrigerant: R452A

Subject:

Performance data

Application: Refrigeration & AC

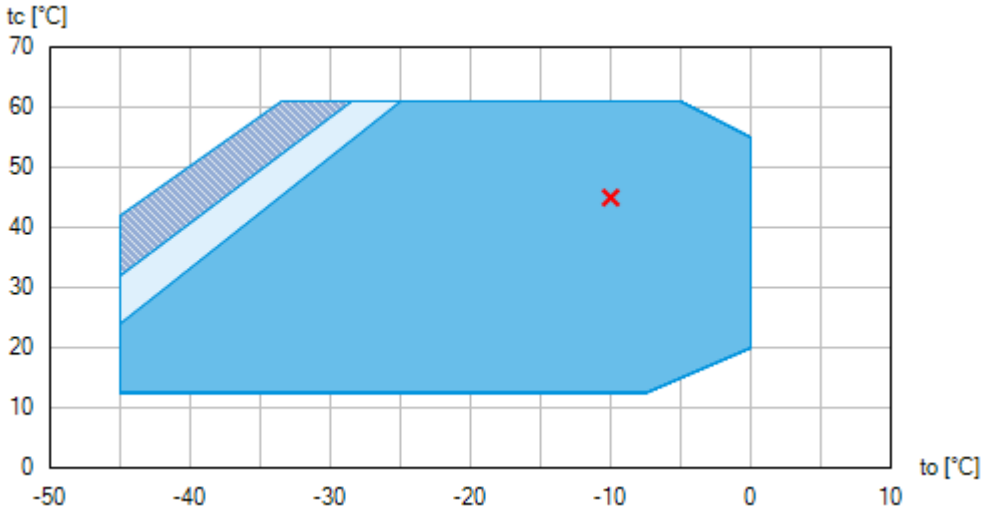
Refrigerant	R452A	Compressor refrigeration capacity	117.00 kW
Reference temperature	Dew point	Evaporator refrigeration capacity	117.00 kW
Power supply	50 Hz, 400 V	Power consumption	51.40 kW
Supply frequency	50 Hz	Current draw (400 V)	91.00 A
Evaporating temperature	-10.0 °C	Coefficient of performance (COP/EER)	2.26
Evaporating pressure (abs.)	*3.99 bar*	Condensing capacity	168.00 kW
Condensing temperature	45.0 °C	Mass flow	1.122 kg/s
Condensing pressure (abs.)	*19.83 bar*	Discharge end temperature	70.0 °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)

Supplementary cooling and 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]	116.0 A
Max. power consumption [2]	67.1 kW
Starting current (rotor blocked) [2]	433.0 / 610.0 A
Motor protection	INT69 G
Protection terminal box	IP 65
Weight	455 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
Sound pressure level L_{pA} [5]	75 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/2735-4**

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]		228000 33.40 66.50	188000 33.00 65.90	152000 31.80 64.50	122000 30.00 62.40	95800 27.80 59.80	74200 25.20 57.00	56200 22.40 54.10	41500 19.40 51.20	29600 16.40 48.60
20.0	Q [W] P [kW] I [A]	260000 38.40 72.80	215000 37.90 72.20	177000 36.70 70.60	143000 34.80 68.20	114000 32.40 65.20	89000 29.60 61.90	68300 26.50 58.40	51200 23.30 55.00	37100 19.90 51.70	25600 16.60 48.80
25.0	Q [W] P [kW] I [A]	245000 43.40 79.60	202000 42.10 77.80	165000 40.10 75.10	133000 37.60 71.80	106000 34.60 67.90	82000 31.20 63.80	62500 27.70 59.70	46200 24.00 55.70	32900 20.30 52.10	22000 16.80 49.00
30.0	Q [W] P [kW] I [A]	229000 48.20 86.40	189000 46.10 83.30	153000 43.40 79.50	123000 40.10 75.10	96900 36.50 70.40	75000 32.70 65.50	56600 28.60 60.80	41400 24.60 56.30	28900 20.60 52.40	18600 16.80 49.00
35.0	Q [W] P [kW] I [A]	213000 52.70 92.80	175000 49.80 88.60	141000 46.30 83.70	113000 42.40 78.30	88300 38.30 72.70	67900 33.90 67.10	50900 29.40 61.70	36700 25.00 56.80	25100 20.70 52.50	15500 16.70 48.90
40.0	Q [W] P [kW] I [A]	196000 56.80 99.00	160000 53.10 93.60	129000 49.00 87.50	103000 44.50 81.10	79700 39.80 74.70	60900 34.90 68.30	45200 30.00 62.40	32200 25.20 57.00	21500 20.70 52.40	12700 16.40 48.60
45.0	Q [W] P [kW] I [A]	179000 60.70 105.00	145000 56.30 98.10	117000 51.40 91.00	91600 46.30 83.70	71000 41.00 76.40	53800 35.70 69.30	39600 30.40 62.80	27900 25.30 57.10	18300 20.40 52.20	
50.0	Q [W] P [kW] I [A]	162000 64.20 110.00	130000 59.10 103.00	104000 53.60 94.20	81000 47.90 85.90	62300 42.10 77.80	46800 36.30 70.10	34200 30.60 63.10	23800 25.20 57.00	15300 20.10 51.90	
55.0	Q [W] P [kW] I [A]	144000 67.40 115.00	115000 61.60 107.00	90400 55.50 96.90	70200 49.20 87.80	53500 42.90 78.80	39900 36.60 70.50	28800 30.60 63.00	19900 24.80 56.60		
60.0	Q [W] P [kW] I [A]		98900 63.80 110.00	77200 57.00 99.30	59300 50.20 89.20	44800 43.40 79.60	33100 36.70 70.70	23700 30.30 62.80			

Preliminary capacity data.

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

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

Subject:

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

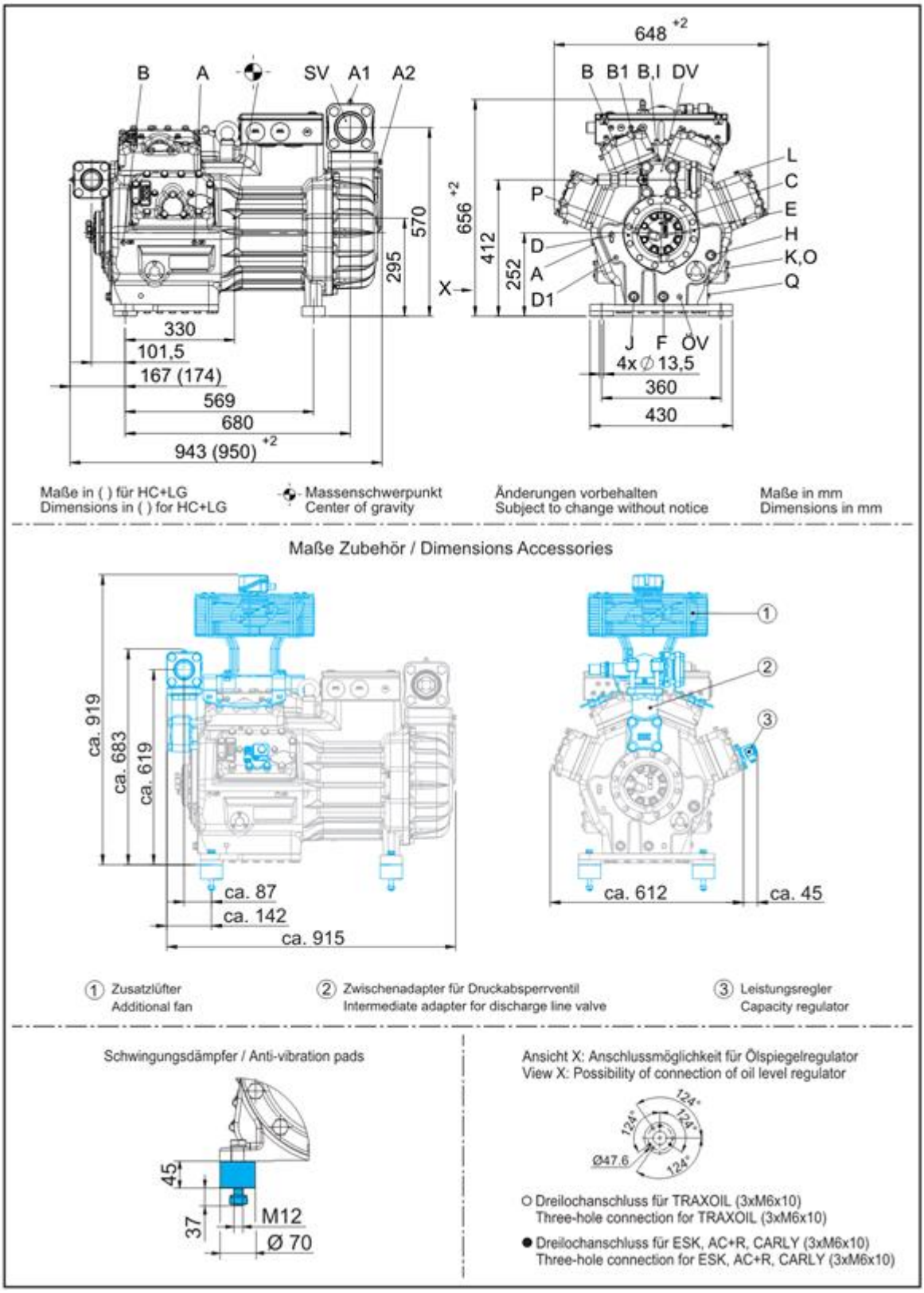
2) Capacity regulator premounted, control unit enclosed

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