

# HGX88e/2735-4 S

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

Refrigerant: R404A, R507

**Subject:**

## Performance data

### Application: Refrigeration & AC

Refrigerant	R404A, R507	Compressor refrigeration capacity	127.00 kW
Reference temperature	Dew point	Evaporator refrigeration capacity	127.00 kW
Power supply	50 Hz, 400 V	Power consumption	54.20 kW
Supply frequency	50 Hz	Current draw (400 V)	96.60 A
Evaporating temperature	-10.0 °C	Coefficient of performance (COP/EER)	2.34
<i>Evaporating pressure (abs.)</i>	<i>4.34 bar</i>	Condensing capacity	181.00 kW
Condensing temperature	45.0 °C	Mass flow	1.054 kg/s
<i>Condensing pressure (abs.)</i>	<i>20.47 bar</i>	Discharge end temperature	90.4 °C <sup>1)</sup>
Suction gas temperature	20 °C		
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.

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From:

02.08.2022  
Page 1 of 10

VAP 11.12.0

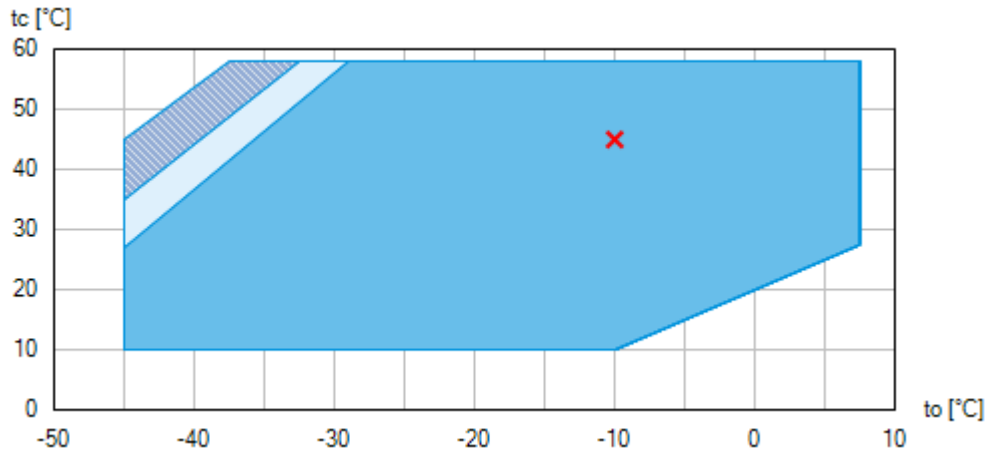
# HGX88e/2735-4 S




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## 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).

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To: venolia.stoffels@metraclark.co.za

From:

02.08.2022  
Page 2 of 10

VAP 11.12.0

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**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 m <sup>3</sup> /h
Voltage <sup>1)</sup>	380-420V Y/YY -3- 50Hz PW
	440-480V Y/YY -3- 60Hz PW
Winding divided into	50% / 50%
Max. working current <sup>2)</sup>	136.0 A
Max. power consumption <sup>2)</sup>	80.0 kW
Starting current (rotor blocked) <sup>2)</sup>	447.0 / 657.0 A
Motor protection	INT69 G
Protection terminal box	IP 65
Weight	464 kg
Frequency range <sup>3)</sup>	25 - 60 Hz
Max. permissible overpressure (g) (LP/HP) <sup>4)</sup>	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 / 655 mm
Sound power level L <sub>WA</sub> <sup>5)</sup>	89 db(A) @ -35/+40°C
	86 db(A) @ -10/+45°C
	87 db(A) @ +5/+50°C
Sound pressure level L <sub>pA</sub> <sup>5)</sup>	75 db(A) @ -35/+40°C
	72 db(A) @ -10/+45°C
	73 db(A) @ +5/+50°C

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To: venolia.stoffels@metraclark.co.za

From:

02.08.2022  
Page 3 of 10

VAP 11.12.0

# HGX88e/2735-4 S

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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 ( $\Delta/Y$ ) motors:  $\Delta / Y$- 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  $\mu$ 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.

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To: venolia.stoffels@metraclark.co.za

From:

02.08.2022  
Page 4 of 10

VAP 11.12.0

# HGX88e/2735-4 S

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Subject:

## Performance data table

Application: Refrigeration & AC

Reference temperature: Dew point

Supply frequency: 50 Hz

Voltage: 400 V

Suction gas temperature: 20 °C

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]			209000	172000	139000	112000	87700	68100	52100	39400
	P [kW]			31.90	31.60	30.60	28.90	26.80	24.40	21.60	18.70
	I [A]			69.50	69.10	68.10	66.60	64.60	62.50	60.30	58.10
15.0	Q [W]		240000	199000	163000	132000	105000	82300	63400	47800	35200
	P [kW]		36.20	35.80	34.80	33.10	30.90	28.30	25.30	22.20	18.90
	I [A]		73.90	73.60	72.40	70.70	68.40	65.90	63.30	60.70	58.30
20.0	Q [W]	271000	227000	188000	154000	124000	98400	76800	58600	43600	31300
	P [kW]	40.90	40.60	39.50	37.80	35.40	32.70	29.50	26.10	22.60	19.10
	I [A]	79.40	79.00	77.70	75.70	73.10	70.20	67.10	64.00	61.10	58.40
25.0	Q [W]	256000	214000	177000	144000	116000	91800	71200	53900	39500	27500
	P [kW]	46.00	44.80	43.00	40.50	37.60	34.20	30.60	26.80	23.00	19.10
	I [A]	85.60	84.10	81.80	78.90	75.50	71.90	68.20	64.60	61.30	58.50
30.0	Q [W]	239000	200000	165000	134000	108000	84900	65600	49200	35500	24000
	P [kW]	50.70	48.70	46.20	43.10	39.50	35.70	31.60	27.40	23.20	19.00
	I [A]	91.80	89.20	85.80	81.90	77.70	73.40	69.10	65.10	61.50	58.40
35.0	Q [W]	223000	185000	153000	124000	99200	78000	59900	44600	31600	20700
	P [kW]	55.10	52.40	49.10	45.30	41.20	36.90	32.30	27.80	23.20	18.90
	I [A]	97.90	94.10	89.70	84.80	79.70	74.70	69.90	65.50	61.60	58.30
40.0	Q [W]	205000	170000	140000	114000	90500	70900	54200	40000	28000	17700
	P [kW]	59.20	55.80	51.80	47.40	42.70	37.90	32.90	28.00	23.20	18.60
	I [A]	104.00	98.80	93.30	87.40	81.50	75.80	70.50	65.70	61.50	58.10
45.0	Q [W]	187000	155000	127000	103000	81600	63700	48500	35500	24500	15000
	P [kW]	63.10	58.80	54.20	49.20	44.00	38.60	33.30	28.00	22.90	18.10
	I [A]	110.00	104.00	96.60	89.80	83.10	76.70	70.90	65.70	61.30	57.80
50.0	Q [W]	168000	139000	114000	91400	72600	56500	42800	31200	21200	
	P [kW]	66.60	61.60	56.30	50.80	45.00	39.20	33.50	27.90	22.50	
	I [A]	115.00	108.00	99.60	91.90	84.40	77.40	71.10	65.60	61.00	
55.0	Q [W]	149000	123000	99700	80100	63400	49200	37200	27000		
	P [kW]	69.80	64.10	58.20	52.00	45.80	39.60	33.50	27.60		
	I [A]	120.00	112.00	103.00	93.60	85.40	77.80	71.00	65.30		

Preliminary capacity data.



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



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

to Evaporating temperature

tc Condensing temperature

Q Compressor refrigeration capacity

P Power consumption

I Current draw

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From:

02.08.2022

Page 5 of 10

VAP 11.12.0

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**Subject:**

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### 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 <sup>1)</sup>

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 <sup>2)</sup>

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

Cylinder cover prepared for capacity regulator

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

Oil temperature sensor (Pt1000, for external evaluation) <sup>3)</sup>

Oil service valve <sup>3)</sup>

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)

Connection piece suction and discharge valve in welding design

Thermal protection thermostat per cylinder cover <sup>3)</sup>

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

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To: venolia.stoffels@metraclark.co.za

From:

02.08.2022  
Page 6 of 10

VAP 11.12.0

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---

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

DP-Modbus Gateway 115-230 V AC, 50/60 Hz, IP00 including adapter cable

Modbus-LAN Gateway 230 V AC, 50/60 Hz, IP00 <sup>4)</sup>

USB converter for INT69 G Diagnose and INT69 GTML Diagnose <sup>4)</sup>

Additional fan

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

230 V AC - 1 - 60 Hz, 128 W <sup>4)</sup>

Intermediate adapter for discharge line valve <sup>4)</sup>

Step protection

4 anti-vibration pads enclosed

Special voltage and/or frequency (on request)

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

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From:

02.08.2022  
Page 7 of 10

VAP 11.12.0





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## Subject:

SV	Suction line valve, tube $\varnothing$ <sup>1)</sup>	76 mm - 3 1/8 "
DV	Discharge line valve, tube $\varnothing$ <sup>1)</sup>	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
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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From:

02.08.2022  
Page 9 of 10

VAP 11.12.0

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**Subject:**

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**BOCK** colour the world  
of tomorrow

### Product photo



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From:

02.08.2022  
Page 10 of 10

VAP 11.12.0