

BOCK® HGX12P/110-4 S

Engine: 220-240V Δ / 380-420V Y -3- 50Hz

Refrigerant: R452A



Subject:

Performance data

Application: Refrigeration & AC

| | | | |
|------------------------------------|------------------|--------------------------------------|-----------------------|
| Refrigerant | R452A | Compressor refrigeration capacity | 4.20 kW |
| Reference temperature | Dew point | Evaporator refrigeration capacity | 4.20 kW |
| Power supply | 50 Hz, 400 V | Power consumption | 2.25 kW |
| Supply frequency | 50 Hz | Current draw (400 V) | 4.25 A |
| Evaporating temperature | -10.0 °C | Coefficient of performance (COP/EER) | 1.87 |
| <i>Evaporating pressure (abs.)</i> | <i>3.99 bar</i> | Condensing capacity | 6.45 kW |
| Condensing temperature | 45.0 °C | Mass flow | 0.040 kg/s |
| <i>Condensing pressure (abs.)</i> | <i>19.83 bar</i> | Discharge end temperature | 81.0 °C ¹⁾ |
| Suction gas superheat | 10 K | | |
| Subcooling (outside cond.) | 0 K | | |
| Usable superheat | 100% | | |

Preliminary capacity data.

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- 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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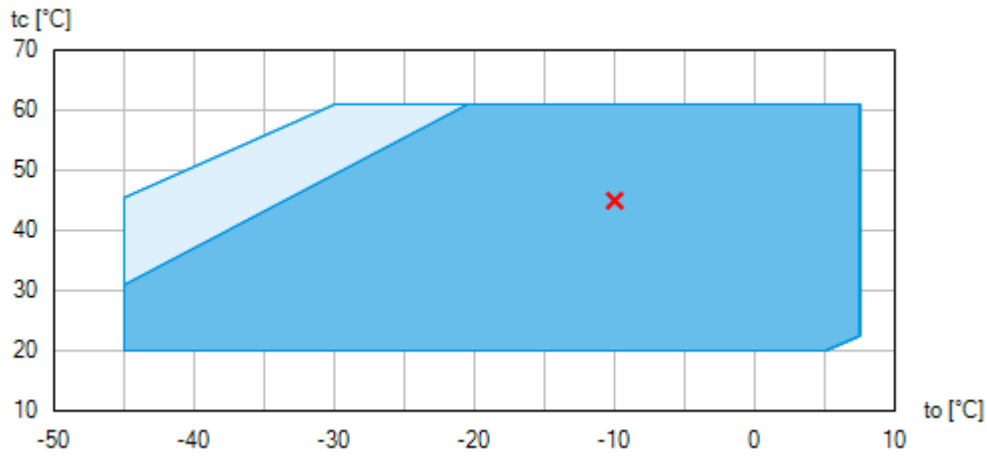
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Subject:

Operating limits



-  Unlimited application range
-  Supplementary cooling or 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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Subject:

Technical data

| | |
|--|----------------------------------|
| Number of cylinders / Bore / Stroke | 2 / 45 mm / 34 mm |
| Displacement 50/60 Hz (1450/1740 1/min) | 9,40 / 11,30 m ³ /h |
| Voltage ¹⁾ | 220-240V Δ / 380-420V Y -3- 50Hz |
| | 265-290V Δ / 440-480V Y -3- 60Hz |
| Max. working current ²⁾ | 10.6 / 6.1 A |
| Max. power consumption ²⁾ | 3.6 kW |
| Starting current (rotor blocked) ²⁾ | 45.0 / 26.0 A |
| Motor protection | INT69 G |
| Protection terminal box | IP 66 |
| Weight | 49 kg |
| Frequency range ³⁾ | 30 -70 Hz |
| Max. permissible overpressure (g) (LP/HP) ⁴⁾ | 19 / 28 bar |
| Connection suction line SV | 16 mm - 5/8 " |
| Connection discharge line DV | 12 mm - 1/2 " |
| Lubrication | Oil pump |
| Oil type R134a, R404A, R407A/C/F, R448A, R449A, R450A, R513A | BOCKlub E55 |
| Oil type R22 | BOCKlub A46 |
| Oil charge | 0,8 Ltr. |
| Dimensions Length / Width / Height | 412 / 223 / 280 mm |
| Sound power level L _{WA} ⁵⁾ | 68 dB(A) @ -35 °C / +40 °C |
| | 67 dB(A) @ -10 °C / +45 °C |
| | 66 dB(A) @ +5 °C / +50 °C |
| Sound pressure level L _{pA} ⁵⁾ | 56 dB(A) @ -35 °C / +40 °C |
| | 55 dB(A) @ -10 °C / +45 °C |
| | 54 dB(A) @ +5 °C / +50 °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

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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 (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 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 $d = 1$ m to the reference box.

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Subject:

Performance data table

Application: Refrigeration & AC

Reference temperature: Dew point

Supply frequency: 50 Hz

Voltage: 400 V

Suction gas superheat: 10 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 |
| 15.0 | Q [W] | | | | | | | | | | |
| | P [kW] | | | | | | | | | | |
| | I [A] | | | | | | | | | | |
| 20.0 | Q [W] | 9660 | 7960 | 6480 | 5200 | 4110 | 3190 | 2430 | 1820 | 1340 | 969.00 |
| | P [kW] | 1.69 | 1.69 | 1.65 | 1.57 | 1.47 | 1.34 | 1.21 | 1.06 | 0.92 | 0.77 |
| | I [A] | 3.61 | 3.61 | 3.57 | 3.49 | 3.39 | 3.28 | 3.16 | 3.05 | 2.94 | 2.85 |
| 25.0 | Q [W] | 9050 | 7440 | 6030 | 4820 | 3790 | 2930 | 2220 | 1640 | 1190 | 837.00 |
| | P [kW] | 1.88 | 1.85 | 1.78 | 1.67 | 1.55 | 1.41 | 1.25 | 1.09 | 0.94 | 0.79 |
| | I [A] | 3.82 | 3.78 | 3.70 | 3.59 | 3.47 | 3.33 | 3.20 | 3.07 | 2.96 | 2.86 |
| 30.0 | Q [W] | 8430 | 6900 | 5580 | 4440 | 3480 | 2680 | 2010 | 1470 | 1050 | 715.00 |
| | P [kW] | 2.07 | 2.00 | 1.90 | 1.77 | 1.63 | 1.46 | 1.29 | 1.12 | 0.95 | 0.80 |
| | I [A] | 4.03 | 3.95 | 3.84 | 3.70 | 3.54 | 3.39 | 3.23 | 3.09 | 2.97 | 2.87 |
| 35.0 | Q [W] | 7800 | 6360 | 5120 | 4060 | 3170 | 2420 | 1810 | 1310 | 911.00 | 603.00 |
| | P [kW] | 2.25 | 2.15 | 2.02 | 1.87 | 1.70 | 1.51 | 1.32 | 1.14 | 0.96 | 0.79 |
| | I [A] | 4.25 | 4.13 | 3.98 | 3.80 | 3.62 | 3.43 | 3.26 | 3.10 | 2.97 | 2.87 |
| 40.0 | Q [W] | 7160 | 5820 | 4660 | 3680 | 2860 | 2170 | 1610 | 1150 | 784.00 | 499.00 |
| | P [kW] | 2.43 | 2.30 | 2.14 | 1.96 | 1.76 | 1.56 | 1.35 | 1.15 | 0.96 | 0.78 |
| | I [A] | 4.48 | 4.31 | 4.11 | 3.90 | 3.68 | 3.47 | 3.28 | 3.11 | 2.97 | 2.86 |
| 45.0 | Q [W] | 6510 | 5260 | 4200 | 3290 | 2540 | 1920 | 1410 | 992.00 | 664.00 | 405.00 |
| | P [kW] | 2.60 | 2.44 | 2.25 | 2.04 | 1.82 | 1.59 | 1.36 | 1.15 | 0.95 | 0.76 |
| | I [A] | 4.71 | 4.49 | 4.25 | 4.00 | 3.75 | 3.51 | 3.30 | 3.11 | 2.96 | 2.85 |
| 50.0 | Q [W] | 5850 | 4700 | 3720 | 2900 | 2220 | 1670 | 1210 | 841.00 | 550.00 | |
| | P [kW] | 2.77 | 2.57 | 2.35 | 2.11 | 1.86 | 1.62 | 1.37 | 1.14 | 0.92 | |
| | I [A] | 4.94 | 4.67 | 4.37 | 4.08 | 3.80 | 3.53 | 3.30 | 3.11 | 2.95 | |
| 55.0 | Q [W] | 5170 | 4130 | 3240 | 2510 | 1910 | 1410 | 1020 | 695.00 | | |
| | P [kW] | 2.93 | 2.69 | 2.44 | 2.17 | 1.90 | 1.63 | 1.37 | 1.12 | | |
| | I [A] | 5.16 | 4.83 | 4.49 | 4.16 | 3.84 | 3.55 | 3.30 | 3.09 | | |
| 60.0 | Q [W] | 4490 | 3540 | 2760 | 2110 | 1590 | 1160 | 821.00 | | | |
| | P [kW] | 3.08 | 2.81 | 2.52 | 2.23 | 1.93 | 1.64 | 1.35 | | | |
| | I [A] | 5.38 | 4.99 | 4.60 | 4.22 | 3.87 | 3.56 | 3.28 | | | |

Preliminary capacity data.



Supplementary cooling or 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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Subject:

Scope of supply

Semi-hermetic two 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 for connection of oil pressure safety switch MP55

Possibility of connection of oil level controllers ESK, Traxoil, AC+R or CARLY ¹⁾

Oil charge:

HG: **BOCK**lub A46

HGX: **BOCK**lub E55

Sight glass

Suction and discharge line valve

Inert gas charge

Accessories

Oil sump heater

110-240 V - 1 - 50/60 Hz, 50-120 W, IP66

PTC heater self-regulating

Oil pressure safety switch MP55 230 V - 1 - 50/60 Hz, IP20 ²⁾

Thermal protection thermostat per cylinder cover ³⁾

Hot gas temperature sensor (Pt1000, for external evaluation) ³⁾

Thermal protection thermostat per cylinder cover

Additional fan

230 V AC - 1 - 50 Hz, 72 W, IP44

230 V AC - 1 - 60 Hz, 68 W

²⁾

4 anti-vibration pads enclosed

Special voltage and/or frequency (on request)

1) Only with additional adapter possible

2) Enclosure

3) Mounted

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Subject:

Dimensions and connections

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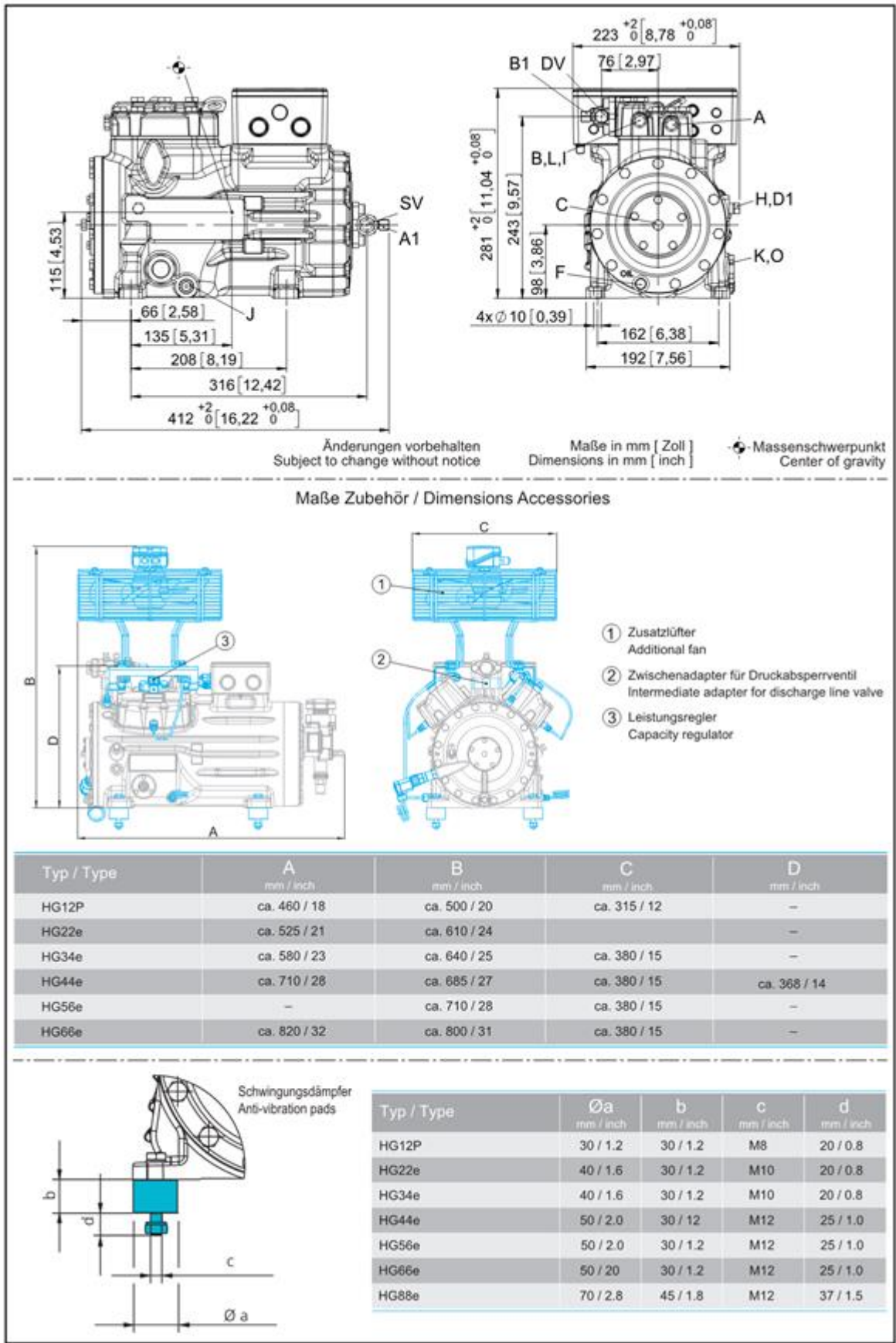
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**Subject:**

| | | |
|----|--|-------------------|
| SV | Suction line valve, tube \varnothing ¹⁾ | 16 mm - 5/8 " |
| DV | Discharge line valve, tube \varnothing ¹⁾ | 12 mm - 1/2 " |
| A | Connection suction side, not lockable | 1/8 " NPTF |
| A1 | Connection suction side, lockable | 7/16 " UNF |
| B | Connection discharge side, not lockable | 1/8 " NPTF |
| B1 | Connection discharge side, lockable | 7/16 " UNF |
| C | Connection oil pressure safety switch OIL | 1/8 " NPTF |
| D1 | Connection oil return from oil separator | 1/4 " NPTF |
| F | Oil drain | M 8 |
| H | Oil charge plug | 1/4 " NPTF |
| I | Connection hot gas temperature sensor | 1/8 " NPTF |
| J | Connection oil sump heater | 3/8 " NPTF |
| K | Sight glass | 1 1/8 " - 18 UNEF |
| L | Connection thermal protection thermostat | 1/8 " NPTF |
| O | Connection oil level regulator | 1 1/8 " - 18 UNEF |

1) Brazing connection

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Product photo



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