BOCK® **HGX66e/2070-4**

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

Refrigerant: R452A

Subject:

Performance data

Application: Refrigeration & AC

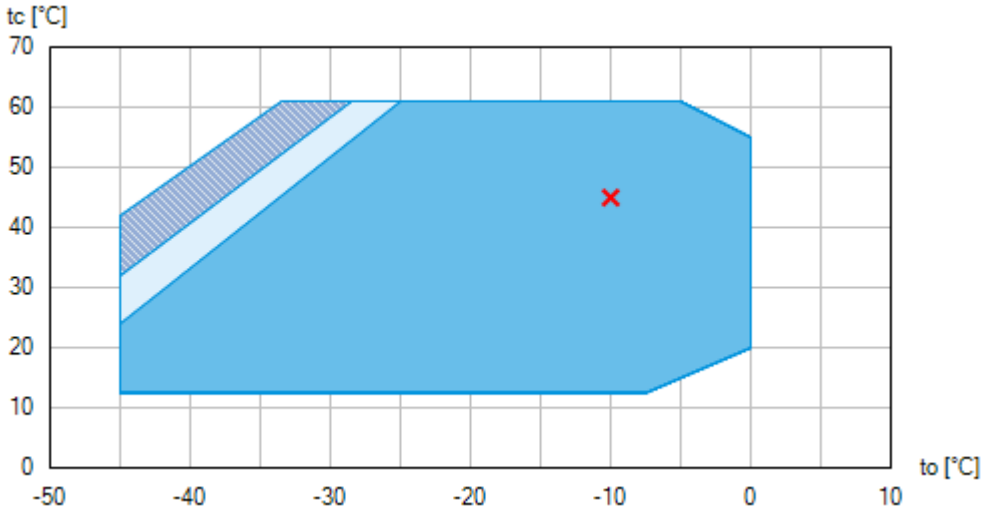
Refrigerant	R452A		Compressor refrigeration capacity	86.00 kW
Reference temperature	Dew point		Evaporator refrigeration capacity	86.00 kW
Power supply	50 Hz, 400 V		Power consumption	38.50 kW
Supply frequency	50 Hz		Current draw (400 V)	66.00 A
Evaporating temperature	-10.0 °C		Coefficient of performance (COP/EER)	2.24
Evaporating pressure (abs.)	*3.99 bar*		Condensing capacity	125.00 kW
Condensing temperature	45.0 °C		Mass flow	0.831 kg/s
Condensing pressure (abs.)	*19.83 bar*		Discharge end temperature	70.4 °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	6 / 87 mm / 58 mm
Displacement 50/60 Hz (1450/1740 ¹/min)	180,0 / 216,0 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)]	85.1 A
Max. power consumption [2)]	50.7 kW
Starting current (rotor blocked) [2)]	196.0 / 335.0 A
Motor protection	INT69 G
Protection terminal box	IP 66
Weight	276 kg
Frequency range [3)]	25 - 60 Hz
Max. permissible overpressure (g) (LP/HP) [4)]	19 / 28 bar
Connection suction line SV	64 mm - 2 5/8 "
Connection discharge line DV	42 mm - 1 5/8 "
Lubrication	Oil pump
Oil type R134a, R404A, R407A/C/F, R448A, R449A, R450A, R513A	BOCKlub E55
Oil type R22	BOCKlub A46
Oil charge	4,4 Ltr.
Oil sump heater	230 V - 1 - 50/60 Hz, 160 W
Dimensions Length / Width / Height	810 / 557 / 467 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)]	76 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.

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]		170000 24.90 47.40	140000 24.50 46.90	114000 23.60 45.80	90800 22.20 44.20	71600 20.40 42.30	55400 18.40 40.20	42000 16.20 38.10	31000 13.90 36.20	22100 11.70 34.40
20.0	Q [W] P [kW] I [A]	193000 28.70 52.20	160000 28.30 51.70	132000 27.30 50.40	107000 25.80 48.60	84700 24.00 46.30	66400 21.80 43.80	51000 19.40 41.20	38200 16.80 38.70	27700 14.30 36.50	19200 11.80 34.50
25.0	Q [W] P [kW] I [A]	182000 32.50 57.40	150000 31.50 56.00	123000 29.90 53.80	98800 27.90 51.20	78500 25.60 48.20	61200 23.00 45.10	46600 20.20 42.10	34500 17.30 39.20	24600 14.50 36.70	16400 11.90 34.60
30.0	Q [W] P [kW] I [A]	170000 36.20 62.60	140000 34.50 60.20	114000 32.40 57.20	91300 29.90 53.70	72200 27.00 50.00	55900 24.00 46.30	42300 20.90 42.80	30900 17.70 39.60	21500 14.70 36.80	13900 11.80 34.50
35.0	Q [W] P [kW] I [A]	158000 39.60 67.70	129000 37.30 64.30	105000 34.60 60.30	83700 31.60 56.00	65800 28.30 51.70	50600 24.90 47.40	37900 21.40 43.40	27400 18.00 39.90	18700 14.70 36.80	11500 11.70 34.40
40.0	Q [W] P [kW] I [A]	145000 42.80 72.60	119000 39.90 68.10	95400 36.60 63.30	75900 33.10 58.20	59300 29.40 53.10	45300 25.60 48.30	33700 21.80 43.80	24000 18.10 40.00	16000 14.60 36.80	9400 11.40 34.20
45.0	Q [W] P [kW] I [A]	132000 45.70 77.20	108000 42.30 71.80	86000 38.50 66.00	68000 34.50 60.10	52800 30.30 54.30	40100 26.10 48.90	29500 22.00 44.10	20800 18.10 39.90	13500 14.40 36.60	
50.0	Q [W] P [kW] I [A]	119000 48.40 81.50	96000 44.40 75.10	76500 40.10 68.40	60100 35.60 61.70	46300 31.00 55.30	34900 26.50 49.40	25400 22.10 44.20	17600 17.90 39.80	11300 14.00 36.20	
55.0	Q [W] P [kW] I [A]	106000 50.90 85.50	84600 46.30 78.10	66900 41.40 70.50	52100 36.50 63.10	39800 31.60 56.00	29700 26.70 49.60	21400 22.00 44.00	14700 17.60 39.40		
60.0	Q [W] P [kW] I [A]		72900 47.90 80.70	57100 42.60 72.30	44000 37.20 64.10	33300 31.90 56.50	24600 26.70 49.60	17600 21.70 43.70			

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 six-cylinder reciprocating compressor with drive motor for part winding start
Single-section compressor housing with hermetically integrated electric motor

Rear bearing flange prepared for oil differential pressure sensor DELTA-P II

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

Possibility of connection of oil level controllers Traxoil [1)]

Oil charge:
HG: **BOCK**lub A46
HGX: **BOCK**lub E55

Sight glass

Internal safety valve

Suction and discharge line valve

Inert gas charge

Accessories

Capacitiy regulator 110 V - 1 - 50/60 Hz, IP65
1-2 capacity regulator = 66/33% residual capacity [2)]

Capacity regulator 230 V - 1 - 50/60 Hz, IP65
1-2 capacity regulator = 66/33% residual capacity [2)]

Cylinder cover prepared for capacity regulator [3)]

Oil sump heater 230 V - 1 - 50/60 Hz, 160 W [3)]

USB converter for INT69 G Diagnose [4)]

Oil service valve

INT69 G Diagnose 115-230 V AC, 50/60 Hz, IP00 (INT69 G not applicable) [3)]

Oil pressure safety switch MP54 230 V - 1 - 50/60 Hz, IP20 [4)]

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) [4)]

Thermal protection thermostat per cylinder cover [3)]

Oil differential pressure sensor DELTA-P II 220-240 V - 1 - 50/60 Hz [4)]

Subject:

Connection piece suction and discharge valve in welding design

Oil temperature sensor (Pt1000, for external evaluation) [3)]

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

Thermal protection thermostat per cylinder cover

Additional fan
230 V AC - 1 - 50 Hz, 97 W, IP44
230 V AC - 1 - 60 Hz, 128 W [4)]

Step protection [4)]

Injection nozzle for liquid injection [4)]

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:

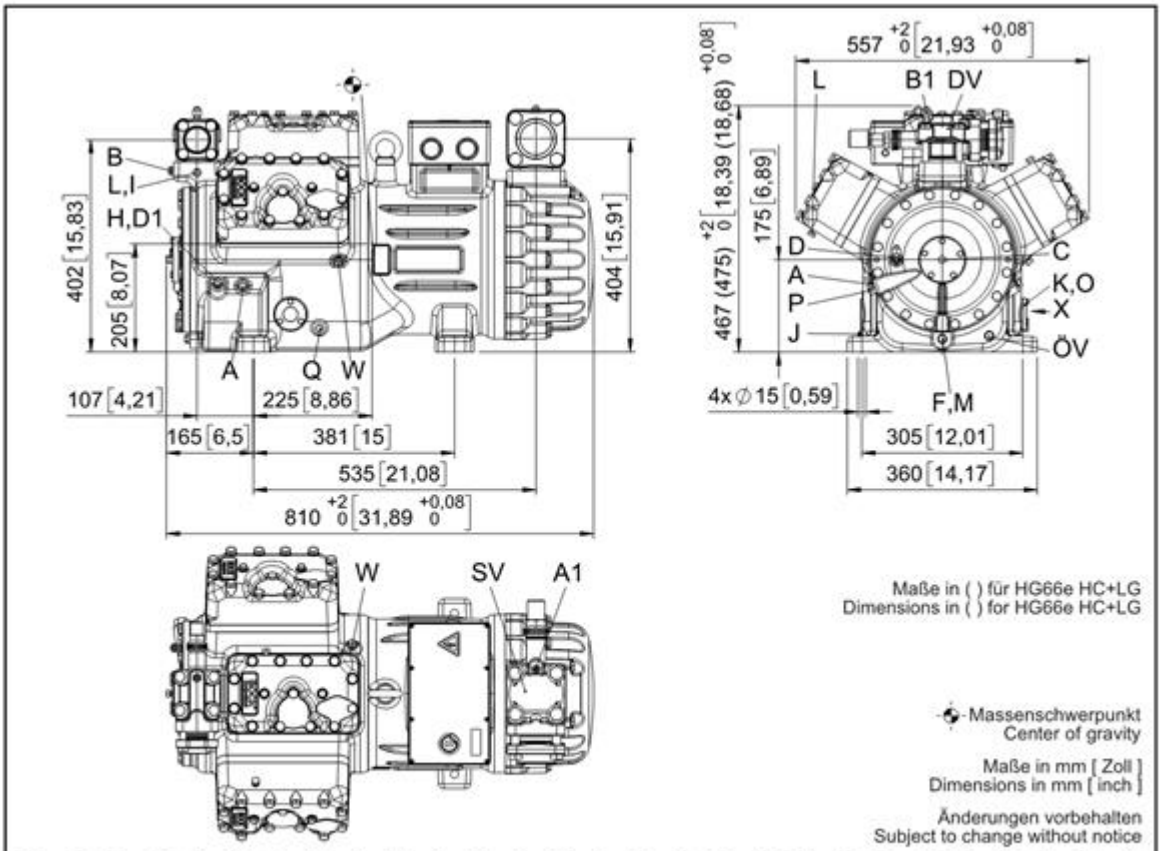
Dimensions and connections

BOCK® **HGX66e/2070-4**

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

Refrigerant: R452A

Subject:



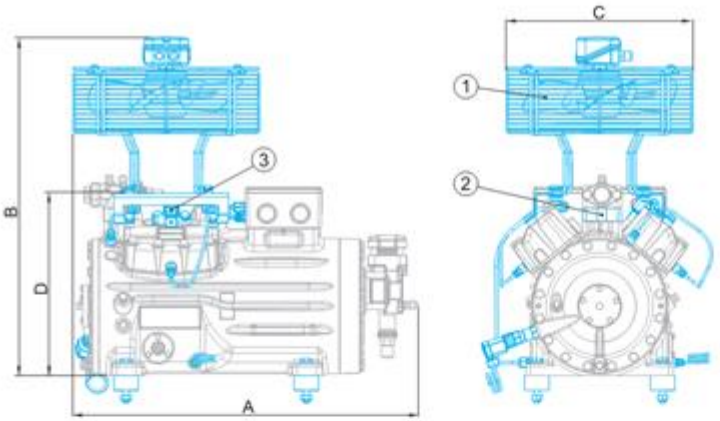
Maße in ( ) für HG66e HC+LG
Dimensions in ( ) for HG66e HC+LG

Massenschwerpunkt
Center of gravity

Maße in mm [Zoll]
Dimensions in mm [inch]

Änderungen vorbehalten
Subject to change without notice

Maße Zubehör / Dimensions Accessories



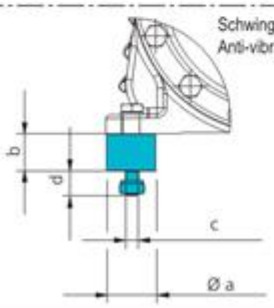
1. Zusatzlüfter
   Additional fan
2. Zwischenadapter für Druckabsperrventil
   Intermediate adapter for discharge line valve
3. Leistungsregler
   Capacity regulator

Typ / Type	A mm / inch	B mm / inch	C mm / inch	D mm / inch
HG12P	ca. 460 / 18	ca. 500 / 20	ca. 315 / 12	–
HG22e	ca. 525 / 21	ca. 610 / 24	ca. 380 / 15	–
HG34e	ca. 580 / 23	ca. 640 / 25	ca. 380 / 15	–
HG44e	ca. 710 / 28	ca. 685 / 27	ca. 380 / 15	ca. 368 / 14
HG56e	–	ca. 710 / 28	ca. 380 / 15	–
HG66e	ca. 820 / 32	ca. 800 / 31	ca. 380 / 15	–

Ansicht X: Anschlussmöglichkeit für Ölspiegelregulator
View X: Possibility of connection of oil level regulator

○ Dreilochanschluss für TRAXOIL (3xM6x10)
Three-hole connection for TRAXOIL (3xM6x10)

● Dreilochanschluss für ESK, AC+R, CARLY (3xM6x10)
Three-hole connection for ESK, AC+R, CARLY (3xM6x10)



Typ / Type	Øa mm / inch	b mm / inch	c mm / inch	d mm / inch
HG12P	30 / 1.2	30 / 1.2	M8	20 / 0.8
HG22e	40 / 1.6	30 / 1.2	M10	20 / 0.8
HG34e	40 / 1.6	30 / 1.2	M10	20 / 0.8
HG44e	50 / 2.0	30 / 1.2	M12	25 / 1.0
HG56e	50 / 2.0	30 / 1.2	M12	25 / 1.0
HG66e	50 / 2.0	30 / 1.2	M12	25 / 1.0
HG88e	70 / 2.8	45 / 1.8	M12	37 / 1.5

Subject:

SV	Suction line valve, tube ø [1)]	64 mm - 2 5/8 "
DV	Discharge line valve, tube ø [1)]	42 mm - 1 5/8 "
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
D	Connection oil pressure safety switch LP	7/16 " UNF
D1	Connection oil return from oil separator	1/4 " NPTF
F	Oil drain	M 12 x 1.5
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	3 x M 6
L	Connection thermal protection thermostat	1/8 " NPTF
M	Oil strainer	M 12 x 1.5
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
W	Connection for refrigerant injection	2 x 1/8" NPTF

1) Brazing connection

Subject:

Product photo

Picture similar and/or with accessories.