BOCK® **HGX44e/770-4**

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

Refrigerant: R449A

Subject:

Performance data

Application: Refrigeration & AC

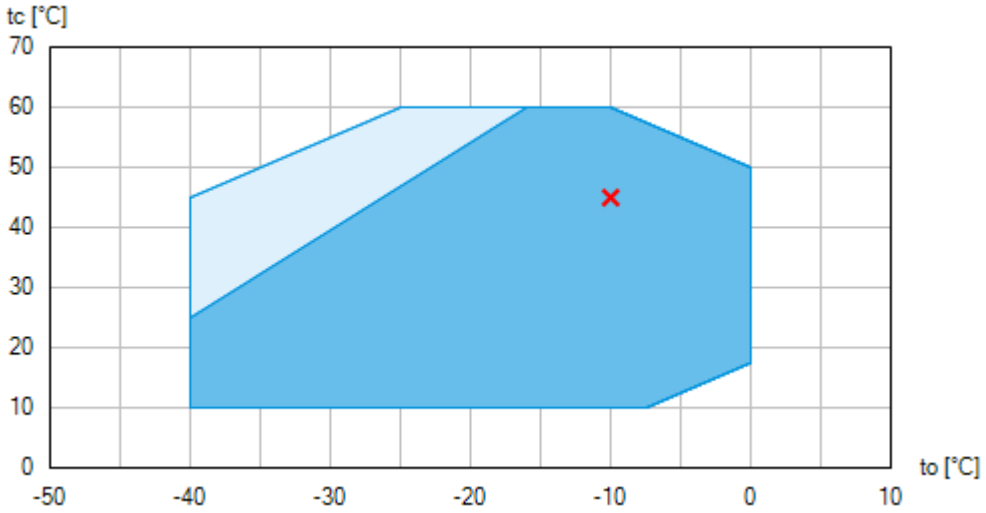
Refrigerant	R449A		Compressor refrigeration capacity	31.60 kW
Reference temperature	Dew point		Evaporator refrigeration capacity	31.60 kW
Power supply	50 Hz, 400 V		Power consumption	12.80 kW
Supply frequency	50 Hz		Current draw (400 V)	22.50 A
Evaporating temperature	-10.0 °C		Coefficient of performance (COP/EER)	2.46
Evaporating pressure (abs.)	*3.58 bar*		Condensing capacity	44.50 kW
Condensing temperature	45.0 °C		Mass flow	0.228 kg/s
Condensing pressure (abs.)	*18.75 bar*		Discharge end temperature	80.1 °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	4 / 70 mm / 50 mm
Displacement 50/60 Hz (1450/1740 ¹/min)	67,00 / 80,40 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)]	30.0 A
Max. power consumption [2)]	17.8 kW
Starting current (rotor blocked) [2)]	101.0 / 174.0 A
Motor protection	INT69 G
Protection terminal box	IP 66
Weight	171 kg
Frequency range [3)]	25 - 70 Hz
Max. permissible overpressure (g) (LP/HP) [4)]	19 / 28 bar
Connection suction line SV	42 mm - 1 5/8 "
Connection discharge line DV	28 mm - 1 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	2,7 Ltr.
Oil sump heater	230 V - 1 - 50/60 Hz, 160 W
Dimensions Length / Width / Height	695 / 361 / 383 mm
Sound power level L_{WA} [5)]	80 dB(A) @ -35 °C / +40 °C
	78 dB(A) @ -10 °C / +45 °C
Sound pressure level L_{pA} [5)]	67 dB(A) @ -35 °C / +40 °C
	65 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]			52200 7.48 16.00	41600 7.38 15.90	32700 7.06 15.50	25300 6.56 15.00	19200 5.93 14.40	14300 5.20 13.70	10400 4.42 13.10	
15.0	Q [W] P [kW] I [A]		61000 8.25 16.80	49300 8.22 16.80	39300 7.95 16.50	30900 7.48 16.00	23900 6.86 15.30	18100 6.12 14.60	13500 5.30 13.80	9730 4.45 13.10	
20.0	Q [W] P [kW] I [A]	70400 9.20 17.90	57600 9.24 17.90	46500 9.01 17.70	37000 8.57 17.20	29100 7.96 16.50	22400 7.20 15.70	17000 6.35 14.80	12600 5.44 14.00	9010 4.51 13.10	
25.0	Q [W] P [kW] I [A]	66300 10.40 19.30	54100 10.20 19.10	43600 9.84 18.60	34700 9.22 17.90	27200 8.45 17.00	20900 7.56 16.10	15800 6.59 15.10	11700 5.58 14.10	8220 4.57 13.20	
30.0	Q [W] P [kW] I [A]	62100 11.60 20.90	50500 11.20 20.40	40700 10.60 19.60	32300 9.87 18.60	25200 8.93 17.60	19400 7.90 16.40	14600 6.80 15.30	10600 5.69 14.20	7350 4.60 13.20	
35.0	Q [W] P [kW] I [A]	57900 12.90 22.50	47000 12.30 21.70	37700 11.40 20.60	29800 10.40 19.40	23200 9.38 18.10	17800 8.19 16.70	13300 6.97 15.40	9500 5.75 14.30	6400 4.57 13.20	
40.0	Q [W] P [kW] I [A]	53600 14.10 24.20	43400 13.20 23.00	34700 12.20 21.60	27300 11.00 20.10	21200 9.75 18.50	16100 8.41 17.00	11900 7.06 15.50	8330 5.72 14.20	5370 4.45 13.10	
45.0	Q [W] P [kW] I [A]	49300 15.20 25.80	39700 14.10 24.20	31600 12.80 22.50	24800 11.40 20.60	19100 10.00 18.80	14400 8.53 17.10	10400 7.04 15.50	7080 5.58 14.10	4260 4.21 12.90	
50.0	Q [W] P [kW] I [A]	45000 16.20 27.20	36000 14.80 25.30	28500 13.40 23.20	22200 11.80 21.10	16900 10.10 19.00	12500 8.52 17.10	8830 6.88 15.40	5740 5.30 13.80		
55.0	Q [W] P [kW] I [A]		32200 15.50 26.20	25300 13.80 23.70	19500 12.00 21.30	14600 10.10 19.00	10600 8.34 16.90	7210 6.55 15.00			
60.0	Q [W] P [kW] I [A]			22000 14.00 24.00	16700 12.00 21.30	12300 9.98 18.80	8590 7.98 16.50				

Preliminary capacity data.

Supplementary cooling or 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 four-cylinder reciprocating compressor with drive motor
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)]

Possibility for connection of oil pressure safety switch MP54

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

Sight glass

Pressure relief valve

Suction and discharge line valve

Inert gas charge

Accessories

(Digital) capacity regulator DCR14 230 V - 1 - 50/60 Hz, IP65
possible equippment see Capacity regulator 09900-DGbF

Cylinder cover prepared for digital capacity regulator

Oil sump heater 230 V - 1 - 50/60 Hz, 160 W

USB converter for INT69 G Diagnose [2)]

Intermediate flange for discharge line valve on right or left seen from oil pump

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) [2)]

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

Oil pressure safety switch MP54 230 V - 1 - 50/60 Hz, IP20 [2)]

Oil differential pressure sensor DELTA-P II 220-240 V - 1 - 50/60 Hz [3)]

Connection piece suction and discharge valve in welding design

Thermal protection thermostat per cylinder cover

Subject:

Oil temperature sensor (Pt1000, for external evaluation) [2)]

Hot gas temperature sensor (Pt1000, for external evaluation) [4)]

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 [2)]

Step protection

Injection nozzle for liquid injection [2)]

4 anti-vibration pads enclosed

Special voltage and/or frequency (on request)

1) Only with additional adapter possible

2) Enclosure

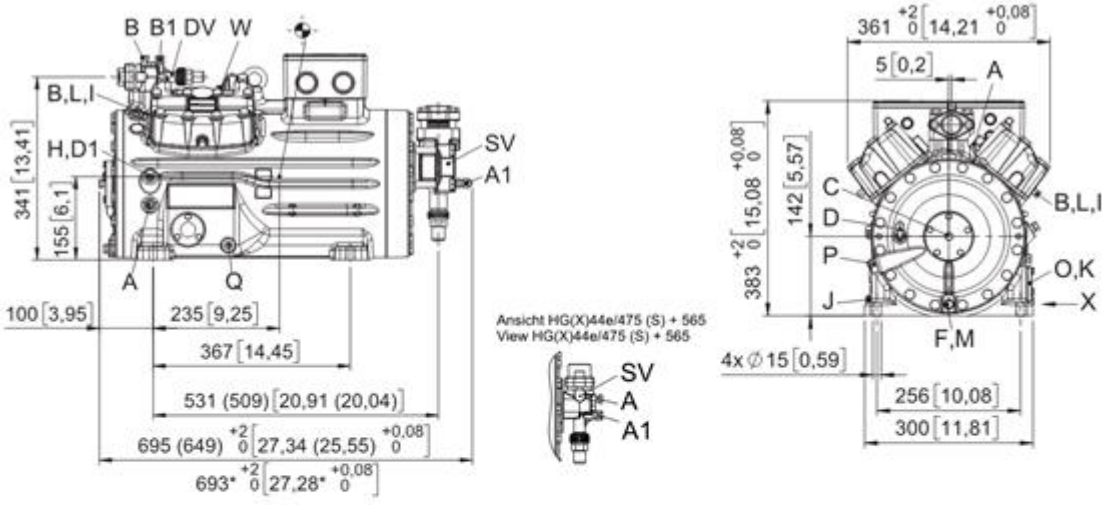
3) Enclosure (screw-in part mounted)

4) Mounted

Subject:

Dimensions and connections

Subject:



Maße in ( ) für HG(X)44e/475 (S) + 565 (HC + LG)
Dimensions in ( ) for HG(X)44e/475 (S) + 565 (HC + LG)

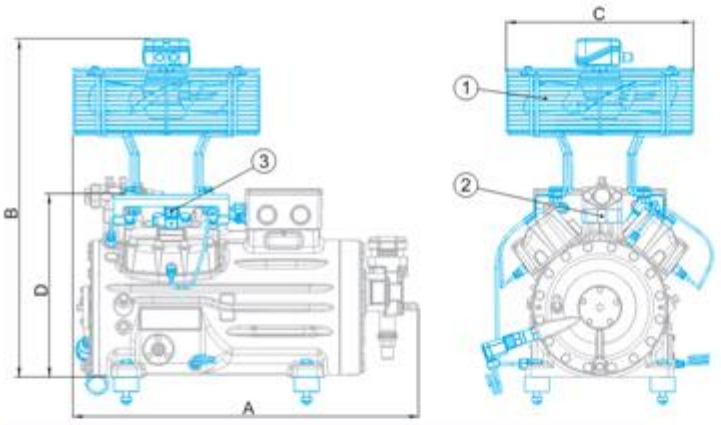
Maße mit * für HG(X)44e/565 S + 665 (S) + 770 (S) HC + LG
Dimensions with * for HG(X)44e/565 S + 665 (S) + 770 (S) HC + LG

Änderungen vorbehalten
Subject to change without notice

Massenschwerpunkt
Center of gravity

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

Maße Zubehör / Dimensions Accessories



① Zusatzlüfter
Additional fan

② Zwischenadapter für Druckabsperrventil
Intermediate adapter for discharge line valve

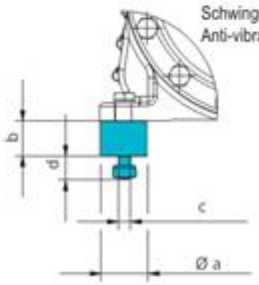
③ Leistungsregler
Capacity regulator

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	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)]	42 mm - 1 5/8 "
DV	Discharge line valve, tube ø [1)]	28 mm - 1 1/8 "
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
P	Connection oil differential pressure sensor	M 20 x 1.5
Q	Connection oil temperature sensor	1/8" NPTF
W	Connection for refrigerant injection	1/8" NPTF

1) Brazing connection

Subject:

Product photo