

# HGX34/110-4 SH CO2 T

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

Refrigerant: R744

Subject: Предварительный расчет

## Performance data

### Application: Refrigeration & AC

Refrigerant	R744	Compressor refrigeration capacity	35.90 kW
Reference temperature	Dew point	Evaporator refrigeration capacity	35.90 kW
Supply frequency	50 Hz	Power consumption	11.60 kW
Power supply	50 Hz, 400 V	Current draw (400 V)	20.90 A
Evaporating temperature	5.1 °C	Coefficient of performance (COP/EER)	3.08
Evaporating pressure (abs.)	39.80 bar	Gas cooler heat rejection	47.60 kW
High pressure (abs.)	90.00 bar	Mass flow	0.245 kg/s
Gas cooler outlet temperature	35.0 °C	Discharge end temperature	86.1 °C <sup>1)</sup>
Suction gas superheat	10 K		
Subcooling (outside cond.)	-- K		
Usable superheat	100%		

*Evaporation temperatures < 5°C (40 bar) with the compressor type SH on request!*

## Certifications



### ASERCOM certified performance data

The performance data of compressors bearing this label has been certified to the strict requirements of ASERCOM.

ASERCOM is the Association of European Refrigeration Compressors and Controls Manufacturers. Information about the Association and the constantly updated overview of certified Bock compressors can be found at [www.asercom.org](http://www.asercom.org).

This certification is based on EN 12900. This signifies: 10 K suction gas superheat without liquid subcooling at 50 Hz power supply frequency.

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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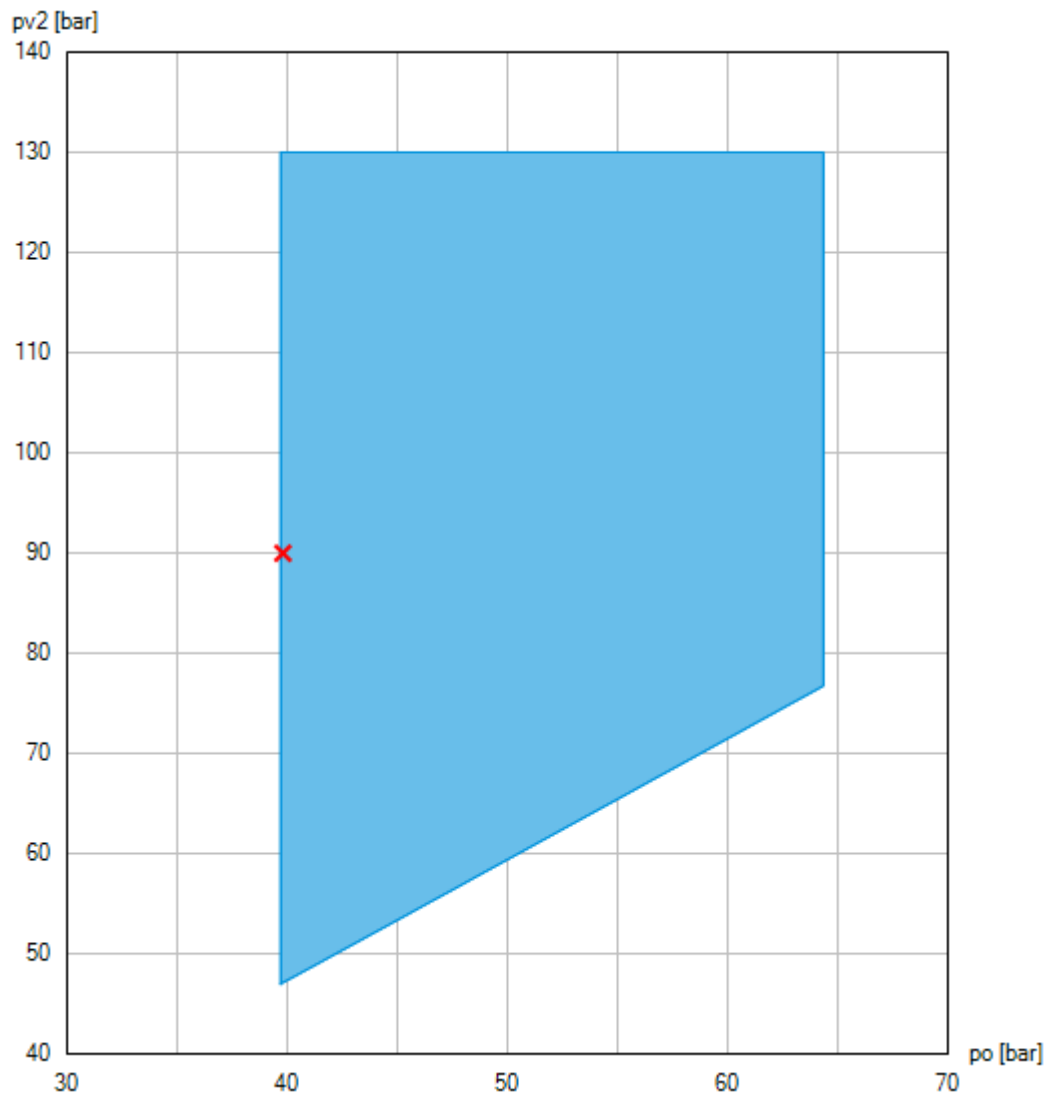
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## Operating limits



 Unlimited application range (compressor with DCR22 CO2 flexxCO2NTROL permitted - range preliminary)

Compressor operation is possible within the limits shown on the diagrams of application. Compressor application limits should not be chosen for design purposes or continuous operation. Evaporation temperatures < 5°C (40 bar) with the compressor type SH on request!

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## Technical data

Number of cylinders / Bore / Stroke	4 / 28 mm / 46 mm
Displacement 50/60 Hz (1450/1740 1/min)	9,90 / 11,80 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>	28.6 A
Max. power consumption <sup>2)</sup>	17.2 kW
Starting current (rotor blocked) <sup>2)</sup>	101.0 / 174.0 A
Motor protection	INT69 G
Protection terminal box	IP 65
Weight	199 kg
Frequency range <sup>3)</sup>	20 - 70 Hz
Max. permissible overpressure (g) (LP/HP) <sup>4)</sup>	100 / 150 bar
Connection suction line SV	28 mm - 1 1/8 "
Connection discharge line DV	22 mm - 7/8 "
Lubrication	Oil pump
Oil type R744	Bock C 170 E
Oil charge	2,3 Ltr.
Dimensions Length / Width / Height	708 / 417 / 393 mm
Sound power level L <sub>WA</sub> <sup>5)</sup>	73 dB(A) @ +5 °C / 100 bar / 10 K
Sound pressure level L <sub>pA</sub> <sup>5)</sup>	59 dB(A) @ +5 °C / 100 bar / 10 K

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

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

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- 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 R744 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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## Performance data table

Application: Refrigeration & AC

Supply frequency: 50 Hz

Voltage: 400 V

Suction gas superheat: 10 K

Subcooling (outside cond.): -- K

### Subcritical

tc [°C]		to [°C]									
		20.1	15.1	10.1	5.1						
15.0	Q [W]				55600						
	P [kW]				4.35						
	I [A]				13.00						
20.0	Q [W]			58700	50400						
	P [kW]			4.75	5.80						
	I [A]			13.40	14.30						
25.0	Q [W]		60100	52000	44600						
	P [kW]		5.23	6.36	7.26						
	I [A]		13.80	14.80	15.70						
30.0	Q [W]	55400	48500	42100	36200						
	P [kW]	5.79	7.01	7.98	8.73						
	I [A]	14.30	15.50	16.50	17.30						

### Transcritical

tga [°C]		to [°C]									
		20.1	15.1	10.1	5.1						
30	pV2 [bar]	72	73	73	74						
	Q [W]	55300	47300	39800	32700						
	P [kW]	5.80	7.12	8.17	8.98						
	I [A]	14.30	15.60	16.70	17.60						
35	pV2 [bar]	85	85	86	87						
	Q [W]	51900	46100	40400	35000						
	P [kW]	8.58	9.72	10.50	11.20						
	I [A]	17.20	18.50	19.50	20.30						
40	pV2 [bar]	97	98	99	101						
	Q [W]	47200	41900	36800	31900						
	P [kW]	11.00	12.00	12.70	13.10						
	I [A]	20.10	21.40	22.30	22.80						
45	pV2 [bar]	109	111	112	114						
	Q [W]	42800	38100	33400	29000						
	P [kW]	13.30	14.10	14.60	14.90						
	I [A]	23.10	24.20	25.00	25.30						
50	pV2 [bar]	121	123	125	127						
	Q [W]	38600	34500	30300	26300						
	P [kW]	15.50	16.10	16.50	16.60						
	I [A]	26.20	27.20	27.70	27.90						

Evaporation temperatures < 5°C (40 bar) with the compressor type SH on request!

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Optimal high pressure is outside of the operating limits. Performance data are indicated at minimal possible high pressure.

*t<sub>o</sub>* Evaporating temperature  
*t<sub>c</sub>* Condensing temperature  
*t<sub>ga</sub>* Gas cooler outlet temperature  
*p<sub>V2</sub>* High pressure (abs.)  
*Q* Compressor refrigeration capacity  
*P* Power consumption  
*I* Current draw

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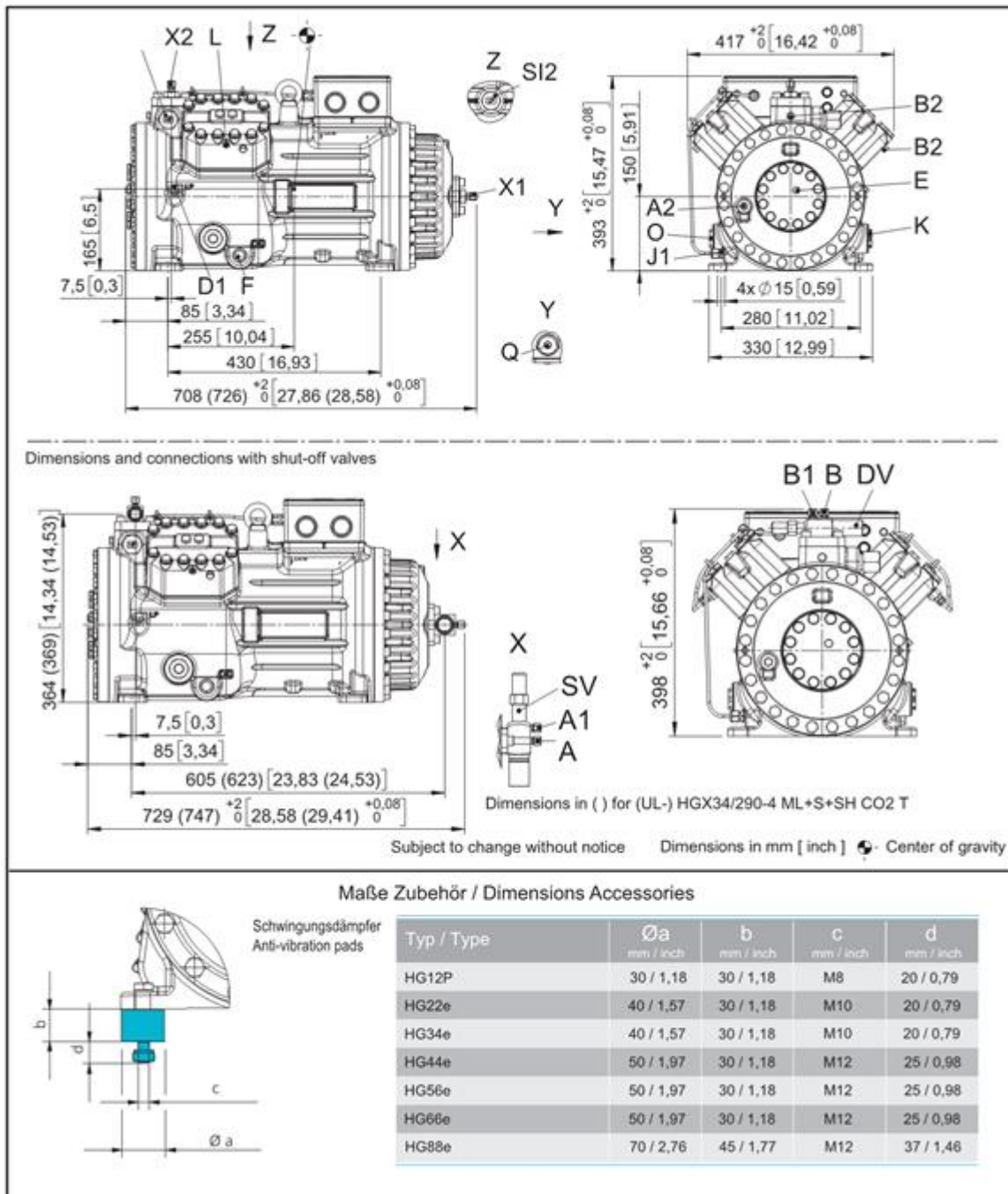
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## Dimensions and connections



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SV	Suction connection, tube $\varnothing$ <sup>1)</sup>	28 mm - 1 1/8 "
DV	Discharge connection, tube $\varnothing$ <sup>1)</sup>	22 mm - 7/8 "
A	Connection suction side, not lockable	7/16" UNF
A1	Connection suction side, lockable	7/16" UNF
A2	Connection suction side, not lockable	1/8" NPTF
B	Connection discharge side, not lockable	7/16" UNF
B1	Connection discharge side, lockable	7/16" UNF
B2	Connection discharge side, not lockable	1/8" NPTF
D1	Connection oil return from oil separator	1/4" NPTF
E	Connection oil pressure gauge	1/8" NPTF
F	Oil drain	M22x1,5
J1	Oil sump heater	3/8" NPTF
K	Sight glass	1 1/8 " - 18 UNEF
L	Connection thermal protection thermostat <sup>2)</sup>	1/8" NPTF
O	Connection oil level regulator	1 1/8 " - 18 UNEF
Q	Connection oil temperature sensor	1/8" NPTF
SI1	Decompression valve HP	M24x1,5
SI2	Decompression valve LP	M22x1,5
X1	Connection for schrader valve, suction side	7/16" UNF
X2	Connection for schrader valve, discharge side	7/16" UNF

1) Solder/ Welding connection, cutting ring

2) No connection discharge side

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### Product photo

*Picture similar and/or with accessories.*



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