

# HGX46/280-4 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	90.60 kW
Reference temperature	Dew point	Evaporator refrigeration capacity	90.60 kW
Supply frequency	50 Hz	Power consumption	29.10 kW
Power supply	50 Hz, 400 V	Current draw (400 V)	52.70 A
Evaporating temperature	5.1 °C	Coefficient of performance (COP/EER)	3.12
Evaporating pressure (abs.)	39.80 bar	Gas cooler heat rejection	120.00 kW
High pressure (abs.)	90.00 bar	Mass flow	0.617 kg/s
Gas cooler outlet temperature	35.0 °C	Discharge end temperature	85.8 °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!*

- 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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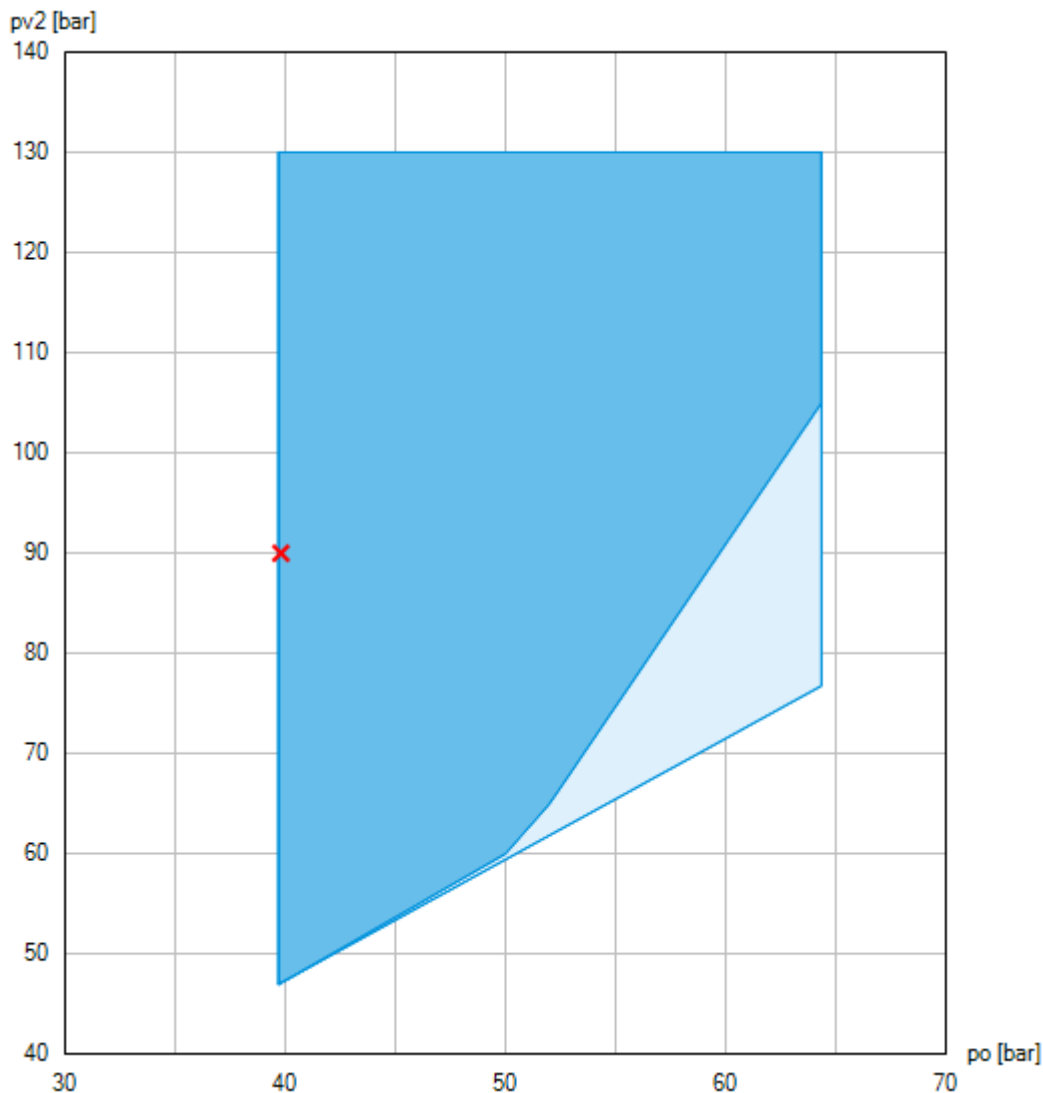
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## Operating limits



-  Unlimited application range
-  Unlimited application range (compressor with DCR22 CO2 flexxCO2NTROL not 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	6 / 36 mm / 46 mm
Displacement 50/60 Hz (1450/1740 1/min)	24,40 / 29,30 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>	73.4 A
Max. power consumption <sup>2)</sup>	43.4 kW
Starting current (rotor blocked) <sup>2)</sup>	196.0 / 335.0 A
Motor protection	INT69 G
Protection terminal box	IP 65
Weight	240 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	2,6 Ltr.
Dimensions Length / Width / Height	774 / 466 / 403 mm
Sound power level L <sub>WA</sub> <sup>5)</sup>	81 dB(A) @ +5 °C / 100 bar / 10 K
Sound pressure level L <sub>pA</sub> <sup>5)</sup>	68 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]				140000						
	P [kW]				11.10						
	I [A]				34.00						
20.0	Q [W]			147000	127000						
	P [kW]			12.20	14.60						
	I [A]			34.80	36.80						
25.0	Q [W]		150000	130000	112000						
	P [kW]		13.40	16.10	18.20						
	I [A]		35.70	38.10	40.10						
30.0	Q [W]	139000	122000	106000	90900						
	P [kW]	14.80	17.80	20.10	21.80						
	I [A]	36.90	39.70	42.00	43.90						

### Transcritical

tga [°C]		to [°C]									
		20.1	15.1	10.1	5.1						
30	pV2 [bar]	72	73	73	74						
	Q [W]	138000	118000	99600	82100						
	P [kW]	14.80	18.10	20.60	22.40						
	I [A]	36.90	39.90	42.50	44.60						
35	pV2 [bar]	85	85	86	87						
	Q [W]	130000	116000	102000	88200						
	P [kW]	21.80	24.60	26.60	27.90						
	I [A]	43.80	47.00	49.50	51.20						
40	pV2 [bar]	97	98	99	101						
	Q [W]	118000	106000	92500	80400						
	P [kW]	28.10	30.40	32.00	32.80						
	I [A]	51.40	54.50	56.60	57.80						
45	pV2 [bar]	109	111	112	114						
	Q [W]	108000	95700	84200	73100						
	P [kW]	33.90	35.80	36.90	37.30						
	I [A]	59.30	62.00	63.60	64.20						
50	pV2 [bar]	121	123	125	127						
	Q [W]	97100	86800	76400	66300						
	P [kW]	39.30	40.90	41.60	41.70						
	I [A]	67.30	69.60	70.70	70.80						

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

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- Unlimited application range (compressor with DCR22 CO2 flexxCO2NTROL not permitted - range preliminary)
- 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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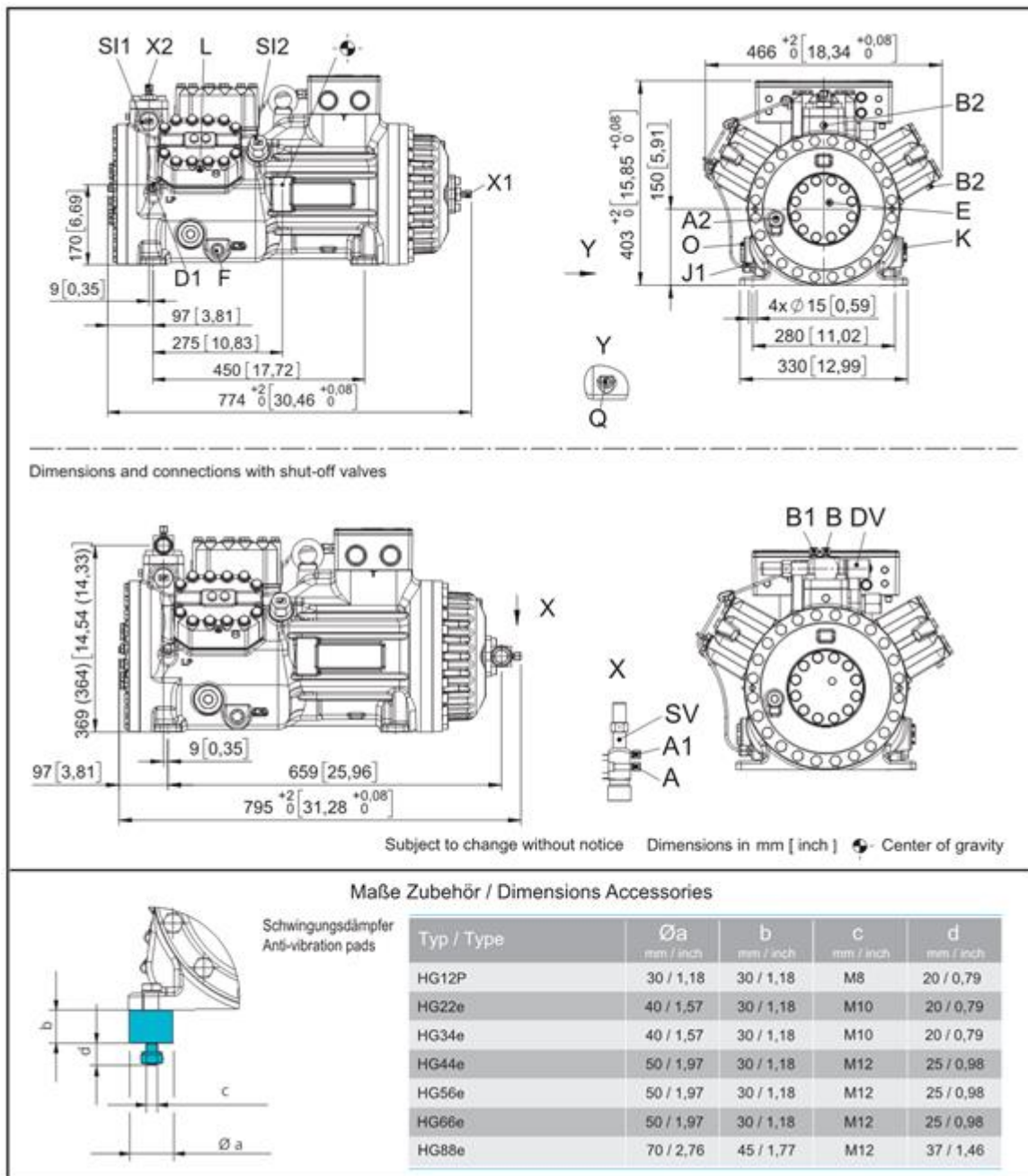
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## Dimensions and connections



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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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