

# HGX34/110-4 S 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	21.40 kW
Reference temperature	Dew point	Evaporator refrigeration capacity	21.40 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	-10.0 °C	Coefficient of performance (COP/EER)	1.83
<i>Evaporating pressure (abs.)</i>	<i>26.49 bar</i>	Gas cooler heat rejection	33.00 kW
High pressure (abs.)	90.00 bar	Mass flow	0.142 kg/s
Gas cooler outlet temperature	35.0 °C	Discharge end temperature	112.7 °C <sup>1)</sup>
Suction gas superheat	10 K		
Subcooling (outside cond.)	-- K		
Usable superheat	100%		

## 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.

<sup>1)</sup> 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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From:

26.10.2022  
Page 1 of 9

VAP 11.12.0

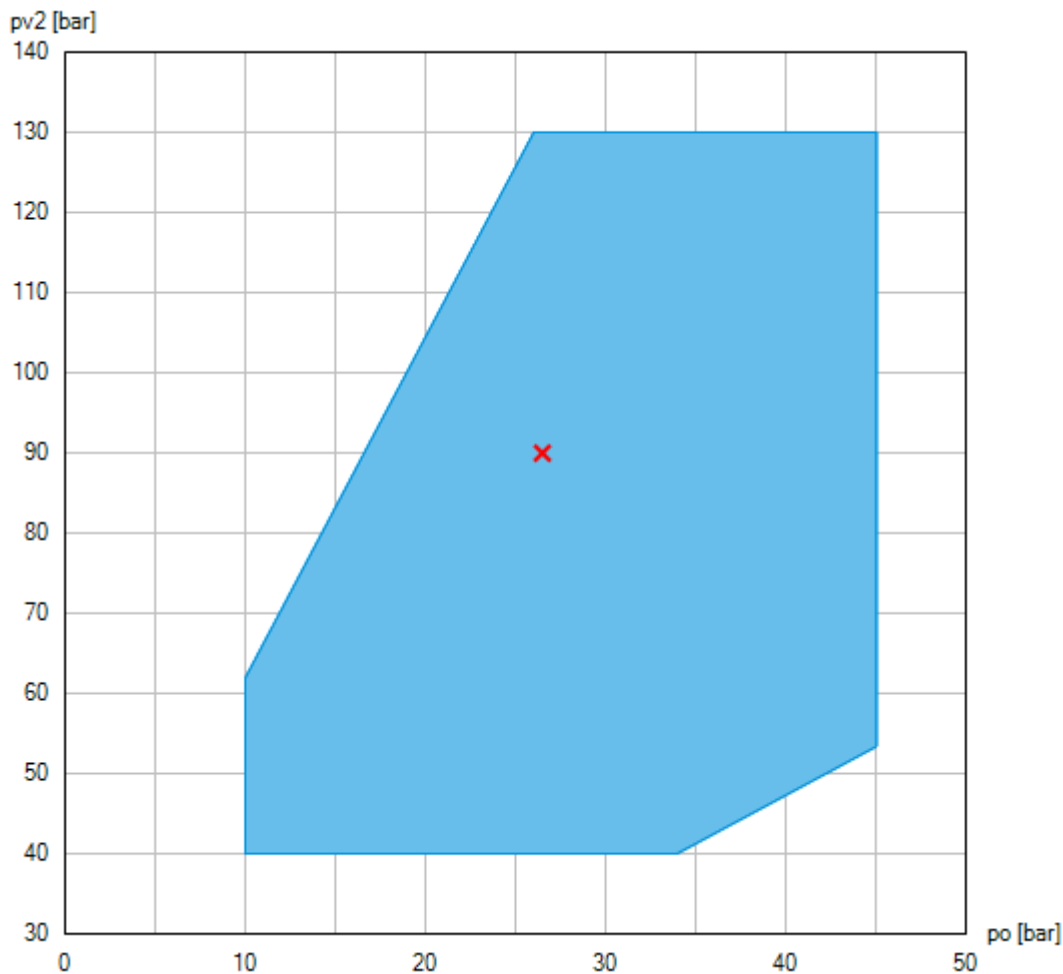
# HGX34/110-4 S CO2 T


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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.

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Компания info@phk-holod.ru

From:

26.10.2022  
Page 2 of 9

VAP 11.12.0

# HGX34/110-4 S CO2 T

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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	BOCKlub E85
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) @ -10 °C / 15 °C / 10 K
	73 dB(A) @ -10 °C / 90 bar / 10 K
	73 dB(A) @ +5 °C / 100 bar / 10 K
Sound pressure level L <sub>pA</sub> <sup>5)</sup>	60 dB(A) @ -10 °C / 15 °C / 10 K
	60 dB(A) @ -10 °C / 90 bar / 10 K
	59 dB(A) @ +5 °C / 100 bar / 10 K

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

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.

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Компания info@phk-holod.ru

From:

26.10.2022  
Page 3 of 9

VAP 11.12.0

# HGX34/110-4 S CO2 T

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

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- 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 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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From:

26.10.2022  
Page 4 of 9

VAP 11.12.0

# HGX34/110-4 S CO2 T

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

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Subject: Предварительный расчет

## 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]									
		5.0	0.0	-5.0	-10.0	-15.0	-20.0	-25.0	-30.0	-35.0	-40.0
10.0	Q [W]		51400	43500	36600	30500	25200	20600	16600	13100	10200
	P [kW]		4.03	4.90	5.58	6.06	6.37	6.51	6.51	6.37	6.10
	I [A]		12.70	13.50	14.10	14.50	14.80	15.00	15.00	14.80	14.60
15.0	Q [W]	55400	47300	40000	33500	27900	23000	18700	15000	11900	9130
	P [kW]	4.38	5.33	6.08	6.62	6.98	7.17	7.20	7.08	6.82	6.44
	I [A]	13.00	13.90	14.60	15.10	15.50	15.70	15.70	15.60	15.30	14.90
20.0	Q [W]	50300	42800	36200	30300	25200	20700	16800	13500	10600	8110
	P [kW]	5.82	6.64	7.25	7.67	7.90	7.96	7.86	7.61	7.23	6.73
	I [A]	14.30	15.10	15.70	16.20	16.40	16.50	16.40	16.10	15.70	15.20
25.0	Q [W]	44500	37900	32000	26700	22100	18200	14700	11800	9190	
	P [kW]	7.28	7.95	8.42	8.70	8.79	8.71	8.48	8.10	7.59	
	I [A]	15.80	16.50	17.00	17.30	17.40	17.30	17.00	16.60	16.10	
30.0	Q [W]	36100	30800	25900	21700	17900	14700	11800	9400		
	P [kW]	8.74	9.27	9.58	9.71	9.66	9.44	9.06	8.54		
	I [A]	17.30	17.90	18.30	18.50	18.40	18.10	17.70	17.10		

### Transcritical

tga [°C]		to [°C]									
		5.0	0.0	-5.0	-10.0	-15.0	-20.0	-25.0	-30.0	-35.0	-40.0
30	pV2 [bar]	75	75	75	75	75	75	75	75		
	Q [W]	39000	33100	27900	23300	19300	15800	12800	10200		
	P [kW]	9.25	9.72	9.98	10.00	9.95	9.68	9.25	8.68		
	I [A]	17.90	18.50	18.80	18.90	18.70	18.40	17.90	17.30		
35	pV2 [bar]	85	90	90	90	90	90	90	80		
	Q [W]	33800	30400	25600	21400	17700	14500	11700	6090		
	P [kW]	10.80	11.80	11.80	11.60	11.20	10.70	10.00	8.90		
	I [A]	19.90	21.10	21.10	20.90	20.40	19.70	18.90	17.50		
40	pV2 [bar]	100	100	105	105	105	100	90			
	Q [W]	31600	26900	23400	19500	16100	12800	8140			
	P [kW]	13.00	13.10	13.40	13.00	12.40	11.30	10.00			
	I [A]	22.70	22.80	23.30	22.70	21.90	20.50	18.90			
45	pV2 [bar]	115	115	115	120	115	100				
	Q [W]	29100	24700	20800	17800	14300	9420				
	P [kW]	15.00	14.80	14.40	14.30	13.10	11.30				
	I [A]	25.50	25.20	24.70	24.50	22.80	20.50				
50	pV2 [bar]	130	130	130	130	115	100				
	Q [W]	26600	22600	19000	15900	11600	6080				
	P [kW]	17.00	16.50	15.90	15.20	13.10	11.30				
	I [A]	28.40	27.80	26.90	25.70	22.80	20.50				

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From:

26.10.2022  
Page 5 of 9

VAP 11.12.0

# HGX34/110-4 S CO2 T

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Optimal high pressure is outside of the operating limits. Performance data are indicated at maximal 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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From:

26.10.2022  
Page 6 of 9

VAP 11.12.0

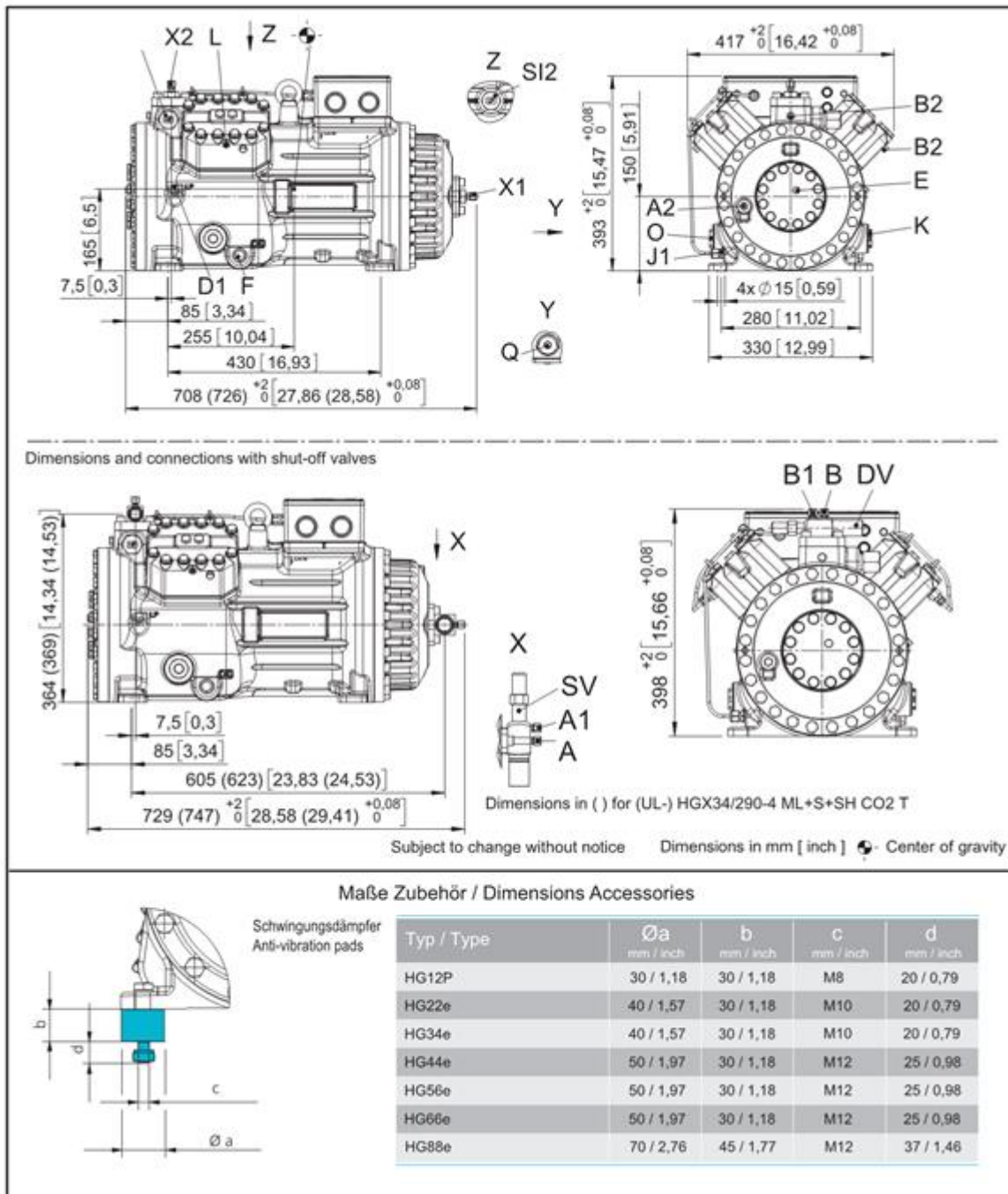
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## Dimensions and connections



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To: Промышленная Холодильная  
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From:

26.10.2022  
Page 7 of 9

VAP 11.12.0

# HGX34/110-4 S CO2 T

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**Subject: Предварительный расчет**

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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From:

26.10.2022  
Page 8 of 9

VAP 11.12.0



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### Product photo

*Picture similar and/or with accessories.*



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From:

26.10.2022  
Page 9 of 9

VAP 11.12.0