

# HGX34/190-4 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	51.60 kW
Reference temperature	Dew point	Evaporator refrigeration capacity	51.60 kW
Supply frequency	50 Hz	Power consumption	19.60 kW
Power supply	50 Hz, 400 V	Current draw (400 V)	34.80 A
Evaporating temperature	0.1 °C	Coefficient of performance (COP/EER)	2.63
<i>Evaporating pressure (abs.)</i>	<i>34.94 bar</i>	Gas cooler heat rejection	71.20 kW
High pressure (abs.)	90.00 bar	Mass flow	0.347 kg/s
Gas cooler outlet temperature	35.0 °C	Discharge end temperature	93.1 °C <sup>1)</sup>
Suction gas superheat	10 K		
Subcooling (outside cond.)	-- K		
Usable superheat	100%		

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 to change without notice

To: Промышленная Холодильная  
Компания info@phk-holod.ru

From:

26.10.2022  
Page 1 of 9

VAP 11.12.0

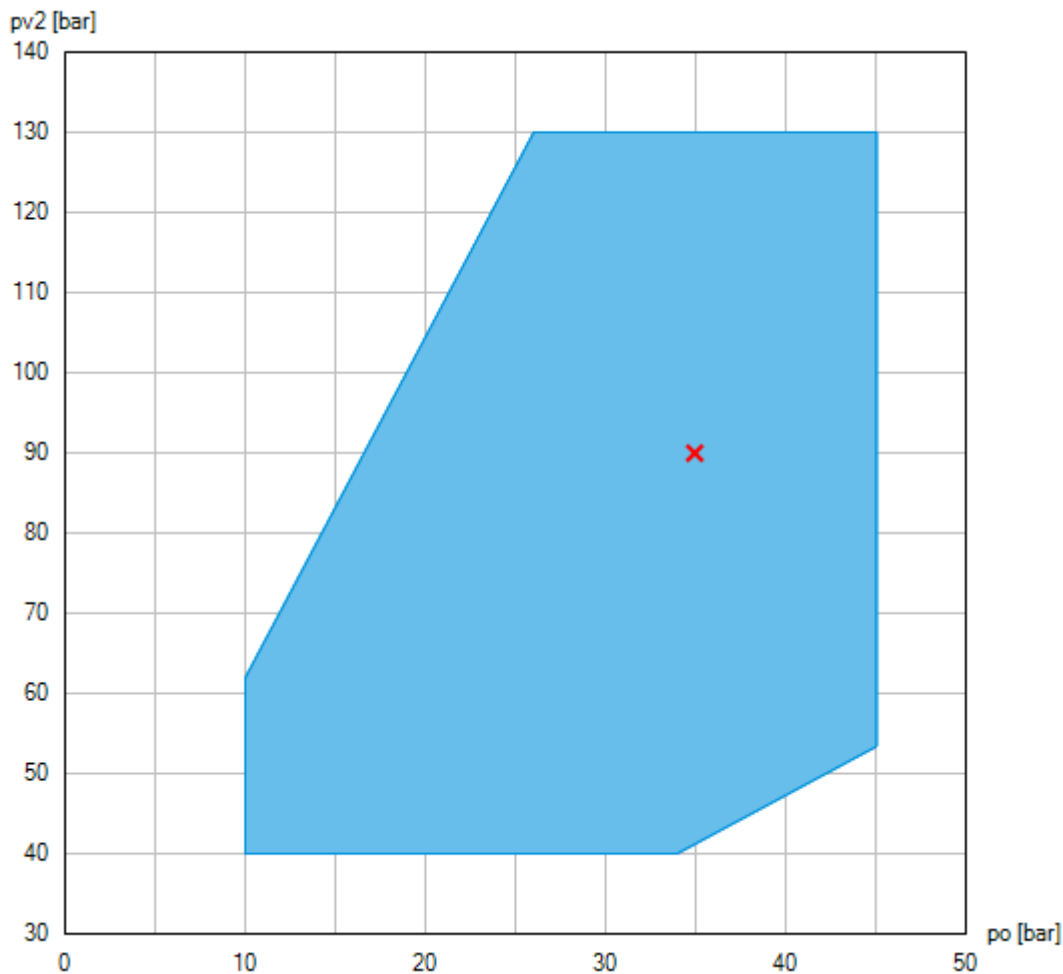
# HGX34/190-4 S CO2 T


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

Refrigerant: R744

Subject: Предварительный расчет

## 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.

Subject to change without notice

To: Промышленная Холодильная  
Компания info@phk-holod.ru

From:

26.10.2022  
Page 2 of 9

VAP 11.12.0

# HGX34/190-4 S CO2 T

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

Refrigerant: R744

Subject: Предварительный расчет

## Technical data

Number of cylinders / Bore / Stroke	4 / 36 mm / 46 mm
Displacement 50/60 Hz (1450/1740 1/min)	16,30 / 19,60 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>	47.8 A
Max. power consumption <sup>2)</sup>	28.6 kW
Starting current (rotor blocked) <sup>2)</sup>	149.0 / 246.0 A
Motor protection	INT69 G
Protection terminal box	IP 65
Weight	208 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>	77 dB(A) @ -10 °C / 15 °C / 10 K
	77 dB(A) @ -10 °C / 90 bar / 10 K
	77 dB(A) @ +5 °C / 100 bar / 10 K
Sound pressure level L <sub>pA</sub> <sup>5)</sup>	64 dB(A) @ -10 °C / 15 °C / 10 K
	64 dB(A) @ -10 °C / 90 bar / 10 K
	64 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.

Subject to change without notice

To: Промышленная Холодильная  
Компания info@phk-holod.ru

From:

26.10.2022  
Page 3 of 9

VAP 11.12.0

# HGX34/190-4 S CO2 T

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

Refrigerant: R744

**Subject: Предварительный расчет**

---

- 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.

Subject to change without notice

---

To: Промышленная Холодильная  
Компания info@phk-holod.ru

From:

26.10.2022  
Page 4 of 9

VAP 11.12.0

# HGX34/190-4 S CO2 T

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

Refrigerant: R744

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]		85800	73000	61700	51700	43000	35400	28800	23100	18200
	P [kW]		6.71	8.06	9.06	9.74	10.10	10.20	10.20	9.98	9.60
	I [A]		20.50	21.70	22.60	23.20	23.60	23.80	23.70	23.50	23.10
15.0	Q [W]	92400	79100	67200	56700	47500	39400	32300	26300	21000	16600
	P [kW]	7.31	8.84	9.98	10.70	11.20	11.40	11.40	11.20	10.80	10.20
	I [A]	21.00	22.40	23.50	24.20	24.70	25.00	24.90	24.70	24.30	23.80
20.0	Q [W]	84000	71900	61000	51400	42900	35500	29100	23600	18900	14800
	P [kW]	9.69	10.90	11.90	12.50	12.70	12.80	12.50	12.10	11.60	10.90
	I [A]	23.20	24.50	25.40	26.10	26.40	26.40	26.20	25.70	25.10	24.40
25.0	Q [W]	74500	63700	54000	45400	37900	31300	25600	20700	16500	
	P [kW]	12.00	13.10	13.80	14.20	14.20	14.10	13.60	13.00	12.30	
	I [A]	25.60	26.80	27.60	28.00	28.10	27.90	27.40	26.70	25.90	
30.0	Q [W]	60600	51800	43900	36900	30700	25300	20700	16700		
	P [kW]	14.50	15.30	15.70	15.90	15.70	15.30	14.70	13.90		
	I [A]	28.30	29.30	29.80	30.00	29.80	29.30	28.60	27.70		

### 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]	65500	55900	47300	39800	33200	27400	22400	18100		
	P [kW]	15.30	16.00	16.40	16.40	16.20	15.70	15.10	14.20		
	I [A]	29.30	30.20	30.70	30.70	30.40	29.80	29.00	28.00		
35	pV2 [bar]	85	90	90	90	90	90	90	80		
	Q [W]	56900	51400	43500	36500	30400	25100	20400	10900		
	P [kW]	18.10	19.60	19.50	19.20	18.60	17.70	16.70	14.70		
	I [A]	32.80	34.80	34.70	34.20	33.40	32.30	31.00	28.60		
40	pV2 [bar]	100	100	105	105	105	100	90			
	Q [W]	53300	45500	39700	33300	27700	22100	14300			
	P [kW]	21.70	21.70	22.30	21.50	20.60	18.80	16.70			
	I [A]	37.70	37.70	38.50	37.50	36.10	33.80	31.00			
45	pV2 [bar]	115	115	115	120	115	100				
	Q [W]	49100	41800	35400	30400	24700	16400				
	P [kW]	25.00	24.60	24.00	23.80	21.80	18.80				
	I [A]	42.50	41.90	40.90	40.60	37.90	33.80				
50	pV2 [bar]	130	130	130	130	115	100				
	Q [W]	44800	38200	32300	27200	20000	10600				
	P [kW]	28.20	27.50	26.50	25.30	21.80	18.80				
	I [A]	47.30	46.20	44.70	42.90	37.90	33.80				

Subject to change without notice

To: Промышленная Холодильная  
Компания info@phk-holod.ru

From:

26.10.2022  
Page 5 of 9

VAP 11.12.0

# HGX34/190-4 S CO2 T

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

Refrigerant: R744

**Subject: Предварительный расчет**

---



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

Subject to change without notice

---

To: Промышленная Холодильная  
Компания info@phk-holod.ru

From:

26.10.2022  
Page 6 of 9

VAP 11.12.0

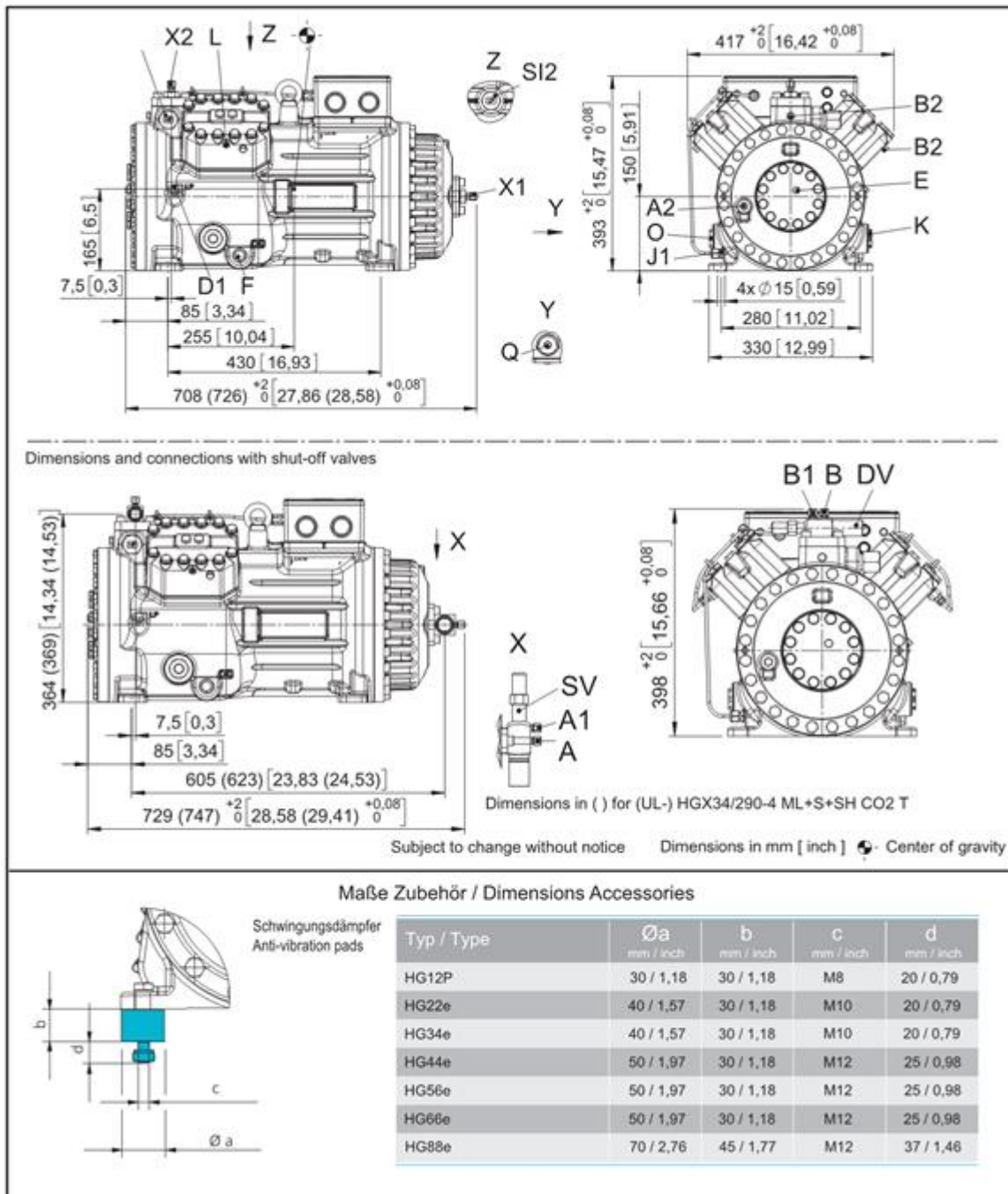
# HGX34/190-4 S CO2 T

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

Refrigerant: R744

Subject: Предварительный расчет

## Dimensions and connections



Subject to change without notice

To: Промышленная Холодильная  
Компания info@phk-holod.ru

From:

26.10.2022  
Page 7 of 9

VAP 11.12.0

# HGX34/190-4 S CO2 T

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

Refrigerant: R744

**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

Subject to change without notice

To: Промышленная Холодильная  
Компания info@phk-holod.ru

From:

26.10.2022  
Page 8 of 9

VAP 11.12.0



## HGX34/190-4 S CO2 T

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

Refrigerant: R744

Subject: Предварительный расчет

---

**BOCK** colour the world  
of tomorrow

### Product photo

*Picture similar and/or with accessories.*



---

Subject to change without notice

To: Промышленная Холодильная  
Компания info@phk-holod.ru

From:

26.10.2022  
Page 9 of 9

VAP 11.12.0