



GEA Bock ATEX Compressors for zone 1

Semi-hermetic Compressors in Explosion-risk Environments

Device category 2G
according directive 94/9/EC

ATEX Compressors

Semi-hermetic compressors for explosion-risk environments

Our solutions are customer-oriented and user-friendly, because they are low-priced, energy-efficient, long-lasting and tailored to your individual needs.

Within the European Union, electrical and mechanical machinery operated in explosive atmospheres must comply with the ATEX (ATmospheres EXplosibles) conditions.

The system designer must use correspondingly marked and certified components for these applications.

GEA Bock is the first European manufacturer who offers compressors which are conform to ATEX machine category 2.

Information on the compressors

The models of the HG Series are the basic compressors for ATEX versions.

Detailed descriptions and information on the basic compressor can be found in the brochure "Semi-hermetic GEA Bock Compressors".

GEA Bock maintains a quality management system referred to EN 80079-34 and in accordance with the guide line 94/9/EC.

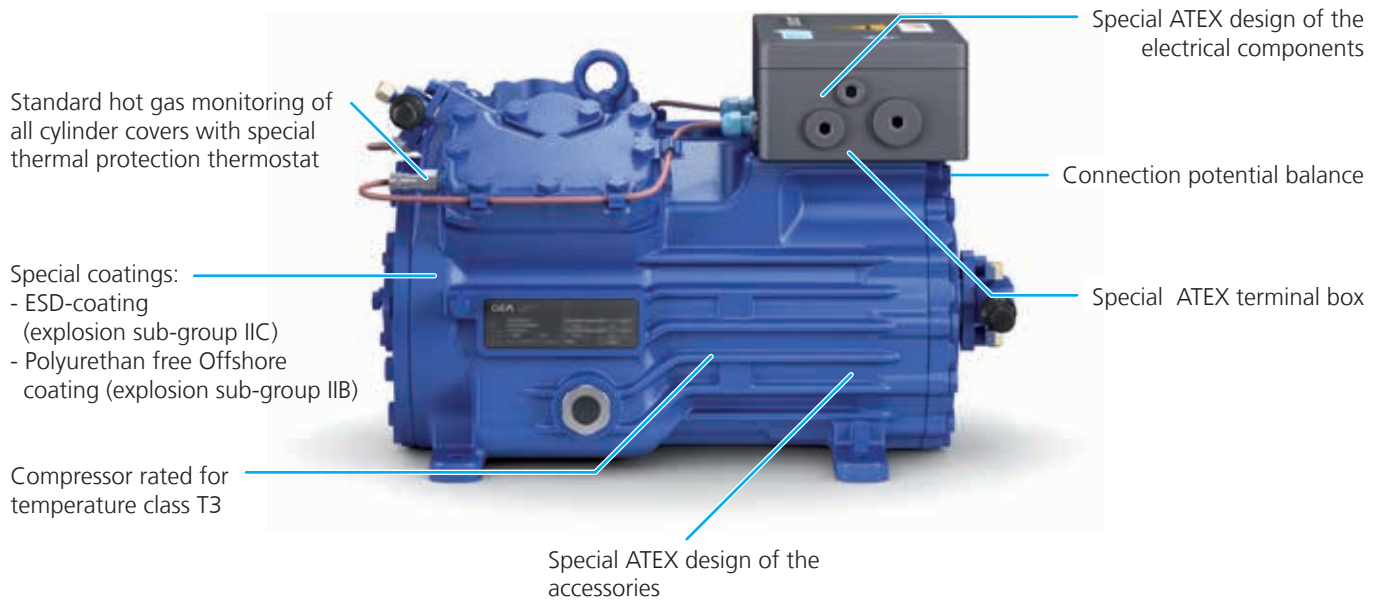
Disclaimer

This brochure has been produced for you with the greatest of care. Nevertheless it is not possible to rule out mistakes completely. In such cases we cannot assume any liability. The contents correspond to the status on going to print. Illustrations may include optional equipment. Deviations cannot be ruled out because of the ongoing development process of our products.

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Differences to standard compressors



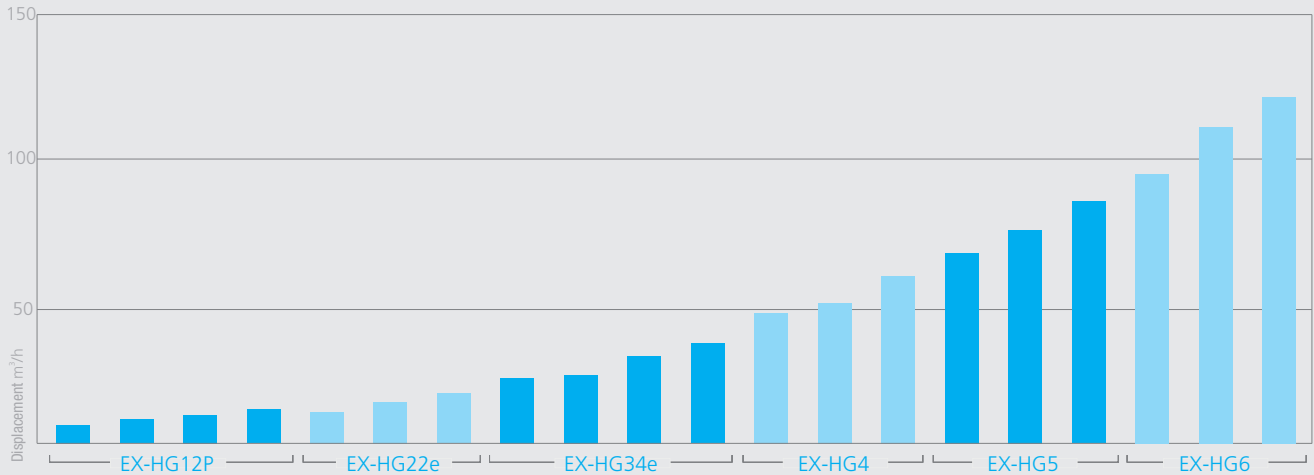
Electronic motor protection MP10 **supplied separately** for installation in the switchboard (outside the EX zone)



Safety barrier supplied separately for installation in the switchboard (outside the EX zone).

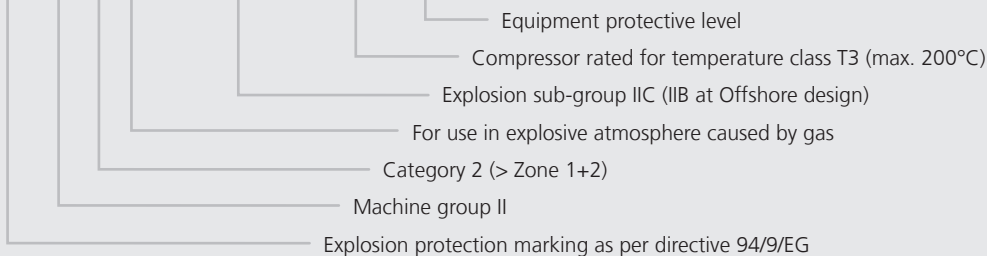
The current program

...6 model sizes with 20 capacity stages from 5,4 to 122,4 m³/h (50 Hz)



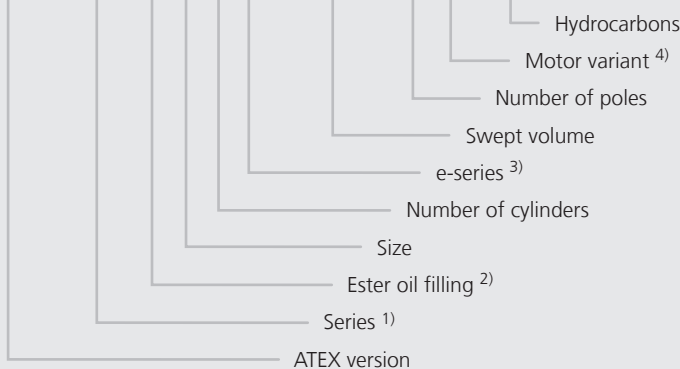
ATEX classification

Ex II 2G IIB/IIC T3 Gb



Type key - ATEX compressor

EX-HGX34e/215-4S HC



¹⁾ HG = Compressor Hermetic Gas-cooled (suction gas-cooled)

²⁾ X = Ester oil filling (HFC refrigerants e.g. R134a, R404A, R507, R407C)

³⁾ e = Additional declaration for e-Series compressors
P = Additional declaration for Pluscom compressors

⁴⁾ S = More powerful motor e.g. air-conditioning applications

General information about ATEX

Explosion protection and ATEX

According to the dictionary, an explosion is a “sudden change in forces based on the expansion efforts of gases and vapours”. Explosions are accompanied by an abrupt and usually simultaneous increase in temperature and pressure. Here it is possible to reach values exceeding 2000°C and 10 bar. The Professional Association of the Chemical Industry estimates that in Germany alone, altogether three minor to medium explosions occur every day.

There is an explosion-risk in nearly all process engineering systems: in the chemical and petrochemical industry, in mining, and in crude oil and natural gas production.

In many branches of industry, flammable gases, vapours and mist are generated during manufacturing, processing, transport and storage (e.g. paint shops, refineries, chemicals companies, research establishments, hydrogen production).

An explosive atmosphere normally requires oxygen and flammable substances in a certain ratio to each other. All it then needs for an explosion to occur is a corresponding ignition source. Naked flames, hot surfaces and visible electrical or mechanical sparks immediately come to mind.

But explosions can also be triggered by static discharge (e.g. even tiny quantities of ignition energy from the clothing worn by workers), electrical equalising currents, ultrasonic sound, electromagnetic radiation, shock waves and adiabatic compression.

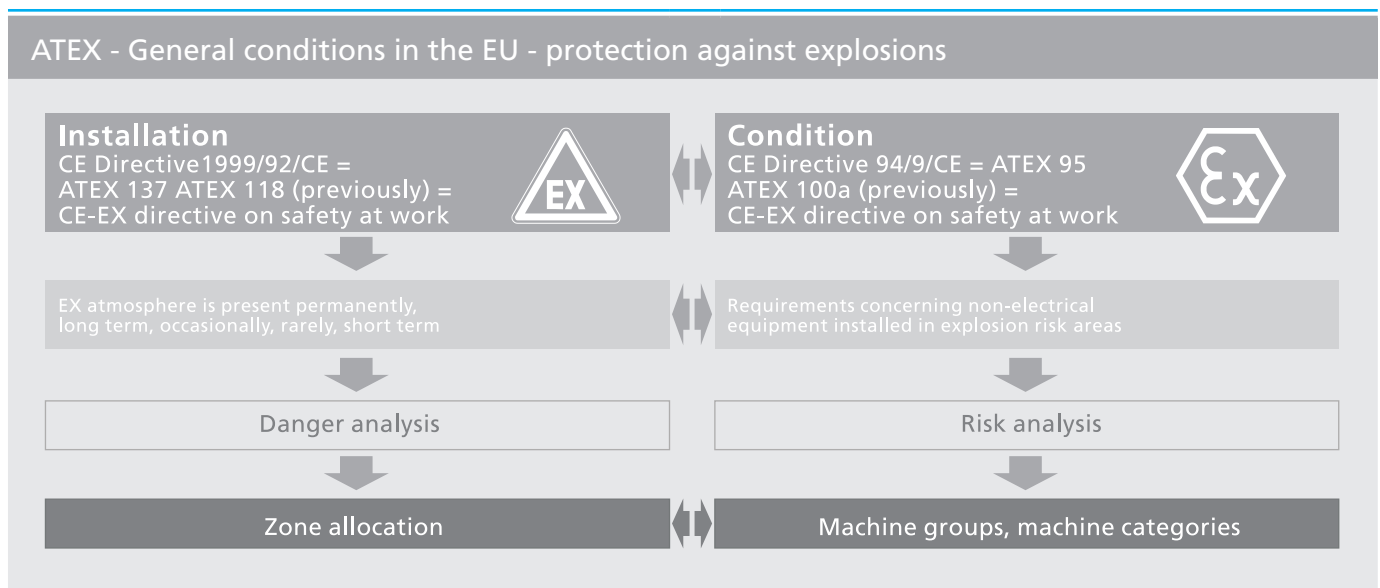
The origins of these regulations to prevent explosion risks date back to the mining industry. With the introduction of electricity, also the electronic protection against explosions started to develop. Today, explosion protection in Europe is regulated by a European directive (ATEX).

What is ATEX?

The so-called ATEX Directive (ATEX is derived from the French Atmosphères EXplosibles) was drawn up to create uniform minimum standards throughout Europe. In spite of the 7-year transitional phase, when the Directive became a legal requirement as of 1 July 2003, many were still surprised.

ATEX now contains aspects pertaining to dust explosion protection and mechanical explosion protection which were previously neglected in many national regulations.

This is why today even non-electric equipment (mechanical parts) is subject to mandatory testing or at least appraisal.



The ATEX directives

1. EC directive 1999/92/EC (ATEX 137)

It contains "minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres". It stipulates above all the requirements made of workplaces, including:

- Compilation of explosion protection documents with a comprehensive consideration of risks
- Allocation of zones (zone 0, 1, 2, 20, 21, 22) and corresponding marking
- Safety measures
- Requirements made of the employees
- Regulations for work approval and permitting work
- Choice of working equipment

This Directive therefore primarily addresses the machine owners. This ATEX directive came into effect on 28 January 2000. Existing workplaces must fulfill the new regulations at the latest on the expiry of the interim period on 30 June 2006.

2. EC directive 94/9/EC (ATEX 95)

This stipulates the requirements made of the products used in explosion-risk areas. This refers to:

- Machines and protection systems for intended use in explosion-risk atmospheres
- Safety, control and regulating devices contributing to the safe operation of the machines and protection systems
- All electrical, mechanical, hydraulic and pneumatic operating equipment with inherent ignition sources

This directive primarily addresses the manufacturers. It has been a legal requirement since 1st July 2003.

Protection principles

1.

The safest machines are machines which rule out the risk of creating an explosive atmosphere right from the very start. Primary explosion protection means for example using nonflammable substitute substances. Other possibilities include avoiding the generation of corresponding mixtures by suitable ventilation measures or by changing the concentration levels.

2.

Unfortunately, primary explosion protection is frequently not possible. For this reason, in such cases it is necessary to avoid the ignition of an explosive atmosphere as secondary explosion protection. This consists of using corresponding machines, parts and materials, as well as complying with corresponding instructions and procedures for working in such areas.

3.

Finally, the last possibility can then only consist of limiting the effects of an explosion to a harmless level. This can consist of a corresponding encapsulation, for example, or cautious selection of the erection site.



Zone allocation

The obligations of the machine operator include drawing up a so-called explosion protection document, as stipulated in ATEX 137. This also includes an appraisal of the explosion risks. Accordingly, certain zones are to be introduced.

Explosion risk areas are broken down into zones and marked accordingly, depending on the frequency and duration with which explosive atmospheres occur:

Zone 0:

The explosive atmosphere is present constantly, for long periods of time or frequently.

Zone 1:

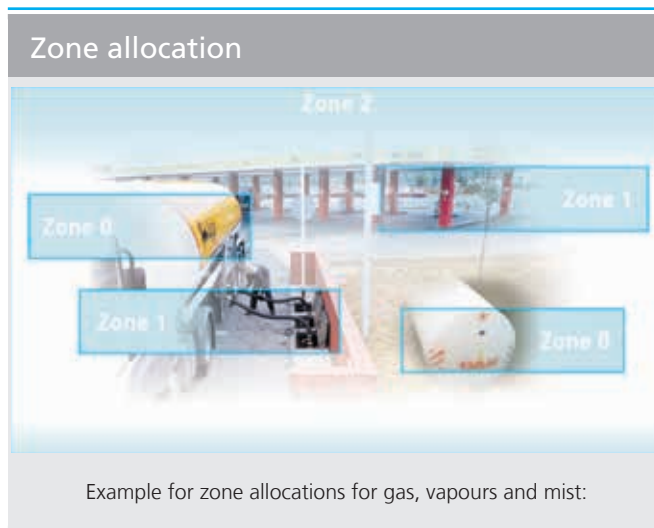
The explosive atmosphere is occasionally present during normal operation.

Zone 2:

The explosive atmosphere is not present during normal operation, or only briefly.

Flammable refrigerants

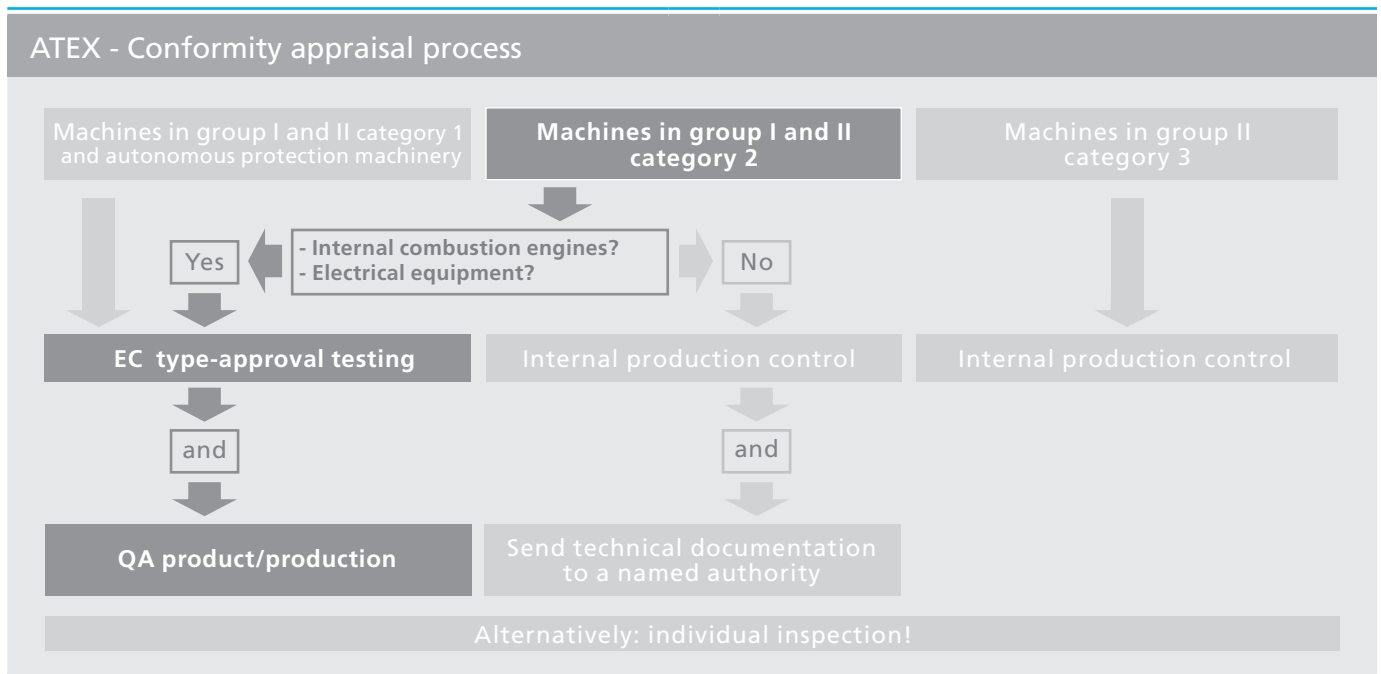
If no particular safety measures are taken for refrigeration- or air-conditioning systems with refrigerants of the safety group A2, or especially with refrigerants of the safety group A3, it is expected that, at least temporarily, an explosive atmosphere can occur at leakage, charging or maintenance. This is why an allocation of zones according to EC directive 1999/92/EC has to be made at the installation site and therefore the compressors have to comply with the EC directive 94/9EC as well.



General measures for explosion-risk areas

- The machine owner must draw up an explosion protection document (ATEX 137)
- The employer must provide employees with adequate, appropriate instructions about explosion protection
- In the case of dangerous work, written work permit must be obtained from the machine owner before commencing
- Explosion-risk areas must be marked with the warning sign at the access points
- Ignition sources (smoking, naked lights, soldering) must be prohibited
- Unauthorised access to the area must be prohibited by clear, indelible warning signs
- Working equipment must comply with the requirements for explosion protection
- The tests and inspections prescribed in the explosion protection document and in the operating instructions must be carried out punctually and corresponding records kept
- Machines with faults must not be operated

Conformity appraisal process



What does this mean for refrigerating machines?

Equipment in explosive atmospheres has to comply with ATEX requirements, when operating within the European Union.

According to ATEX requirements all electrical and mechanical equipment must be examined.

All equipment is defined according to Regulation 94/9/EG: machines, resources, stationary and moveable devices, control and plant components, as well as alarm and preventative systems which can, individually or in combination, cause the generation, transfer, accumulation, reading, control and conversion, of energy and/or are intended for processing materials and demonstrate their own potential ignition source which itself could cause an explosion.

Thus almost all components (compressor, evaporator, condenser – but also valves, pressure gauges, sensors...) of a refrigeration plant must be examined and evaluated.

The operator must produce a corresponding zone allocation. This has to be recorded in the explosion protection document.

In addition the important material properties pertinent to explosion protection must also be declared. The outcome of this provides the conditions under which the components can be used (group, category, explosion subgroup, temperature class).

Accordingly the plant operator should only use correspondingly marked and identified components with the necessary documentation (e.g. manufacturer's declaration or declaration of conformity).

The declarations issued by the component manufacturers only refer to the product itself.

It is presumed that the corresponding installation standards, installation and operating instructions (e.g. assembly instruction) are heeded during installation and operation.

Most manufacturers offer series products for a wide range of different applications, so that they can only consider their own product as such.

Interaction with other machinery in the system and with the environment must be taken into consideration by the system designer, particularly with regard to potential ignition sources.

When the results are positive, the system designer must draw up a corresponding declaration for the machine group or system.

The machine owner is responsible for registering the machinery with the supervisory authorities and requesting possibly necessary acceptance.

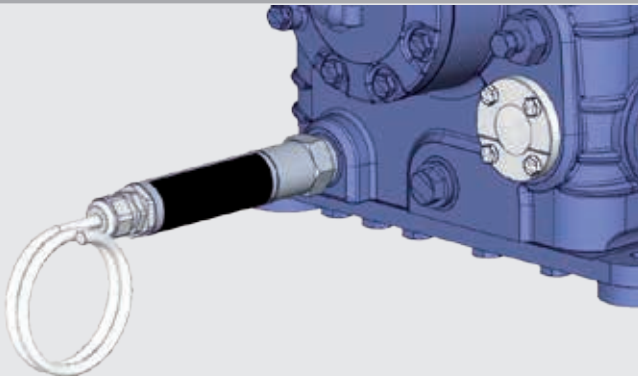


Ambient temperature and power supply



- Maximum permissible ambient temperature -20°C to 60°C. If a capacity regulator is used, the maximum ambient temperature is -20°C to 50°C.
- All models are approved for a power supply of 400 - 690 V

Oil sump heater



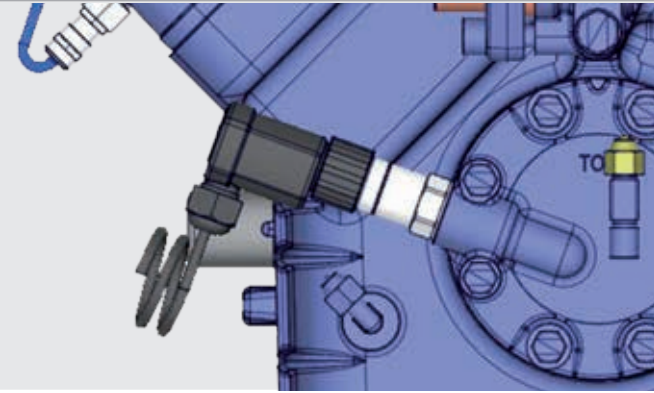
- Optional for all models
- Replacement without opening the refrigeration circuit (HG12-34)
- Ex d heating element, power-limited (HG12-34)
- Ex e heating element, power-limited (HG4-6)
- Oil sump heater at HC compressor designs generally required

Offshore coating



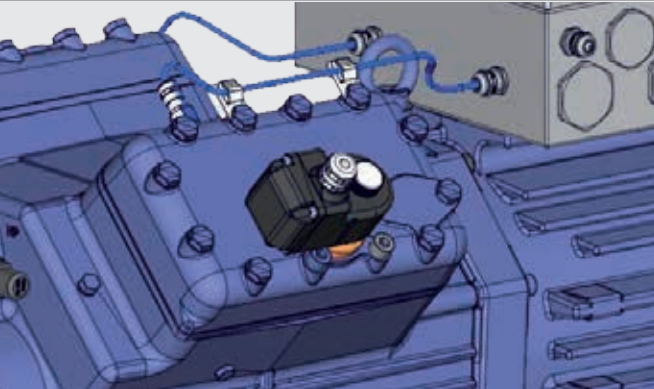
- Optional for all models
- Corrosion resistant multilayered Offshore coating, polyurethan free (explosion sub-group IIB)

Oil differential pressure sensor (INT 250 EX make Kriwan)



- Optional for EX-HG4 up to EX-HG6

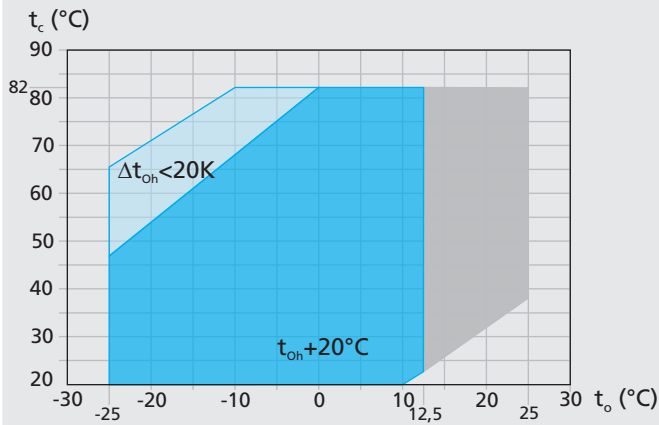
Capacity regulator



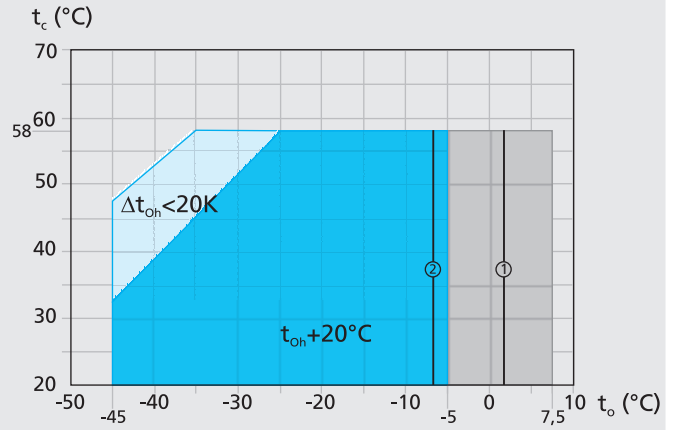
- Optional for all 4 cylinder models

Operating limits

R134a

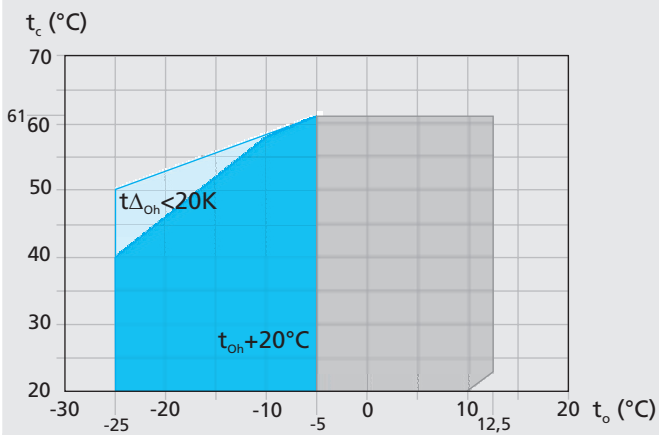


R404A / R507 ①②

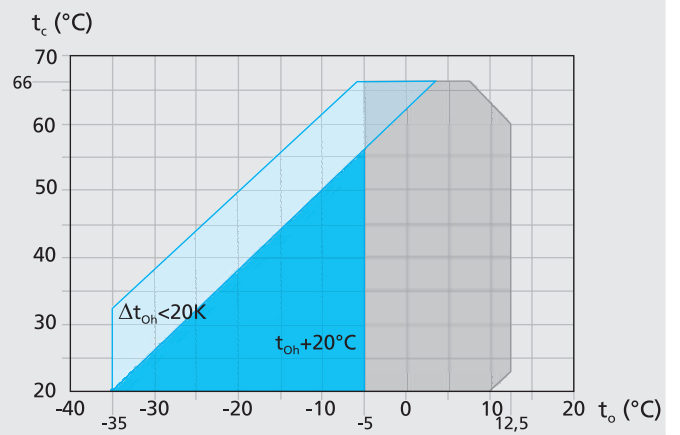


- ① **EX-HGX6/1410-4S**
Max. evaporating temperature $t_o = 2\text{ °C}$
- ② **EX-HGX6/1410-4**
Max. evaporating temperature $t_o = -7\text{ °C}$

R407C



R22



The use of other hydrocarbons is permitted only following prior written approval from GEA Bock

Max. permissible operating pressure (LP/HP)¹⁾: 19/28 bar

¹⁾ LP = low pressure HP = high pressure

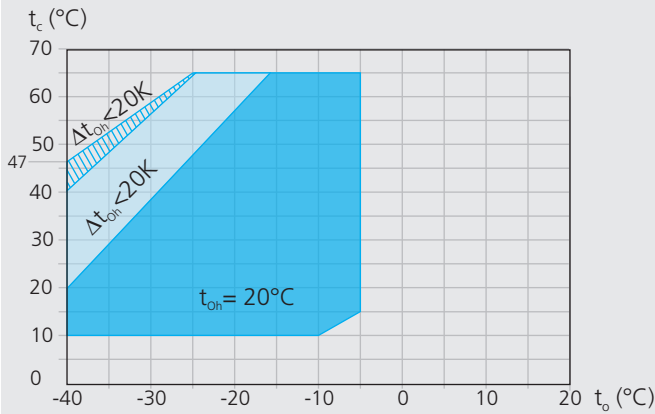
- t_o Evaporating temperature (°C)
- t_c Condensation temperature (°C)
- Δt_{oh} Suction gas superheat (K)
- t_{oh} Suction gas temperature (°C)

- Unlimited application range
- Reduced suction gas temperature
- Motor version -S- (more powerful motor)

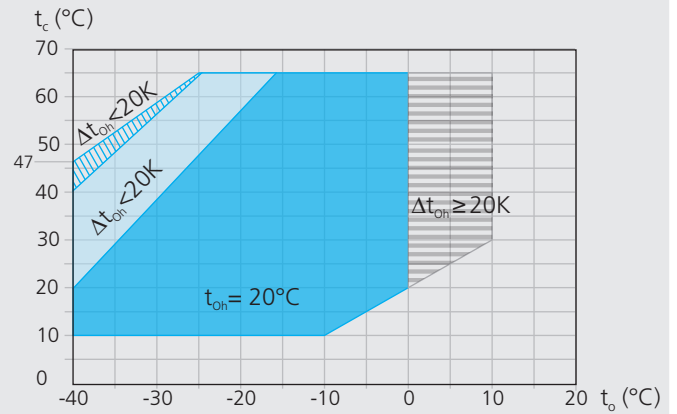
Operating limits HC

R290

EX-HG...-4 HC

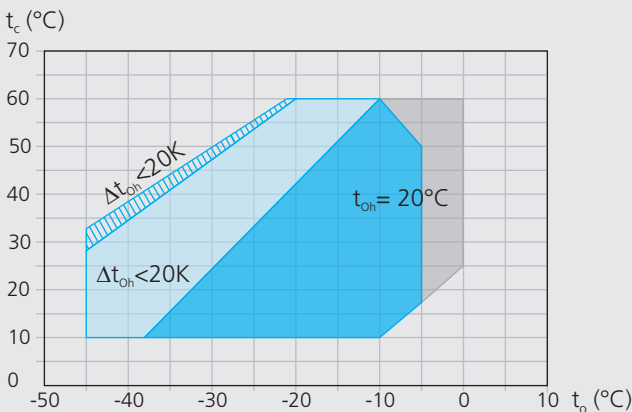


EX-HG...-4 S HC

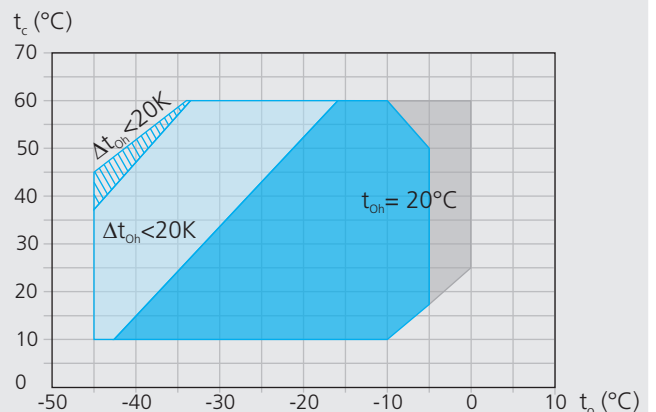


R1270

EX-HG12P HC



EX-HG22e HC to HG6 HC



Diagrams for other areas available on request

Max. permissible operating pressure (LP/HP)¹⁾: 19/28 bar

¹⁾ LP = low pressure HP = high pressure

The use of other hydrocarbons is permitted only following prior written approval from GEA Bock.

- t_o Evaporating temperature (°C)
- t_c Condensation temperature (°C)
- Δt_{oh} Suction gas superheat (K)
- t_{oh} Suction gas temperature (°C)

- Required minimum superheating $\Delta t_{oh} = 20$ K
- Motor version -S- (more powerful motor) Required minimum superheating $\Delta t_{oh} = 20$ K
- Required minimum superheating $\Delta t_{oh} = 20$ K, the suction gas temperature has to be adapted accordingly
- Supplementary cooling or reduced suction gas temperature
- Supplementary cooling and reduced suction gas temperature

Notes

Operating limits

Compressor operation is possible within the limits shown on the application diagrams. Please note the coloured areas. For the dark blue and gray application area a minimum superheating $\Delta t_{oh} = 20$ K must be applied. If necessary there must be planned an internal heat exchanger IHX.

Compressor application limits should not be chosen for design purposes or continuous operation.

Performance data

The performance data are based on 20 °C suction gas superheat without liquid subcooling, **at 50 Hz power supply frequency**. These are computed, preliminary values. Variations cannot be excluded.

Please follow the notes to the suction gas superheating.

Conversion factor for 60 Hz = 1,2

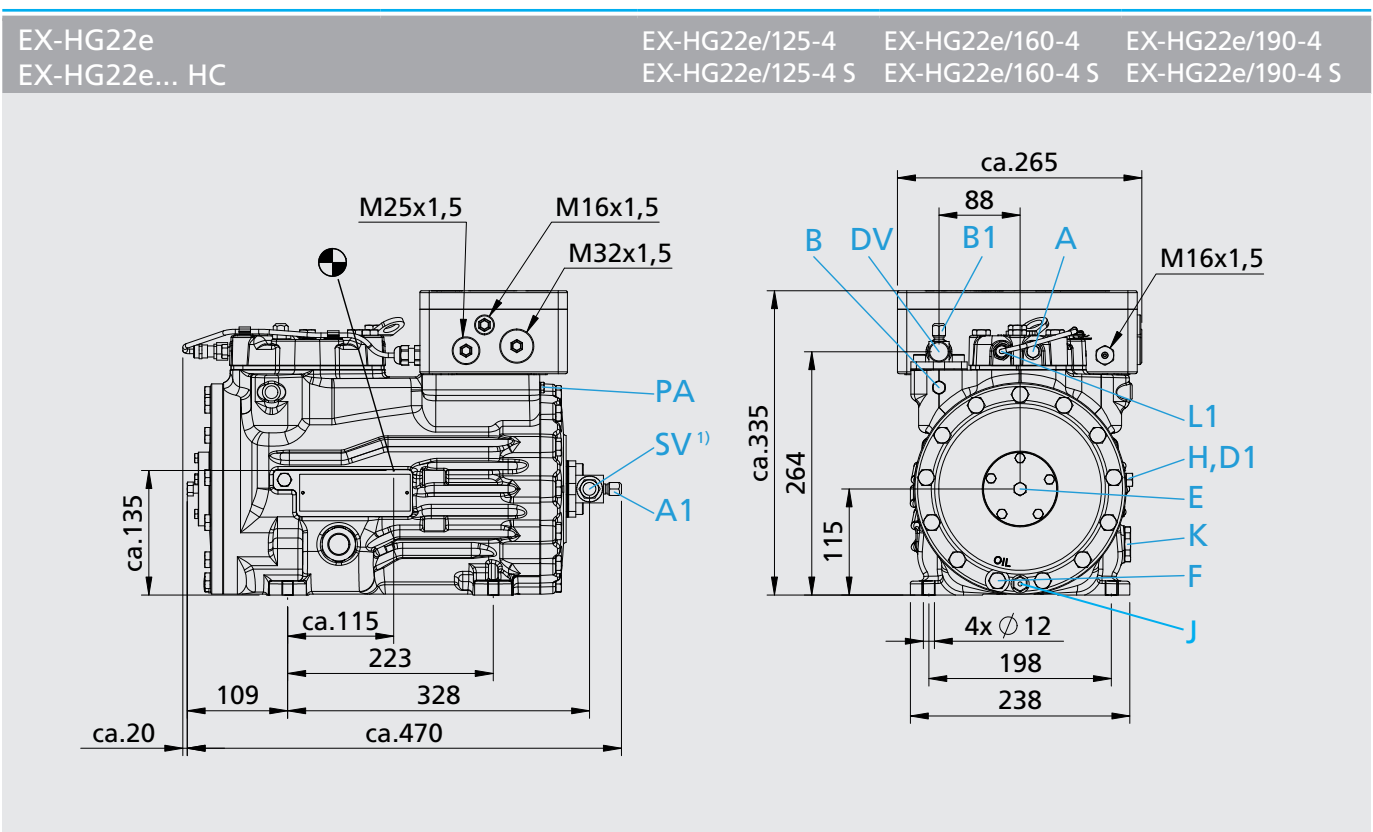
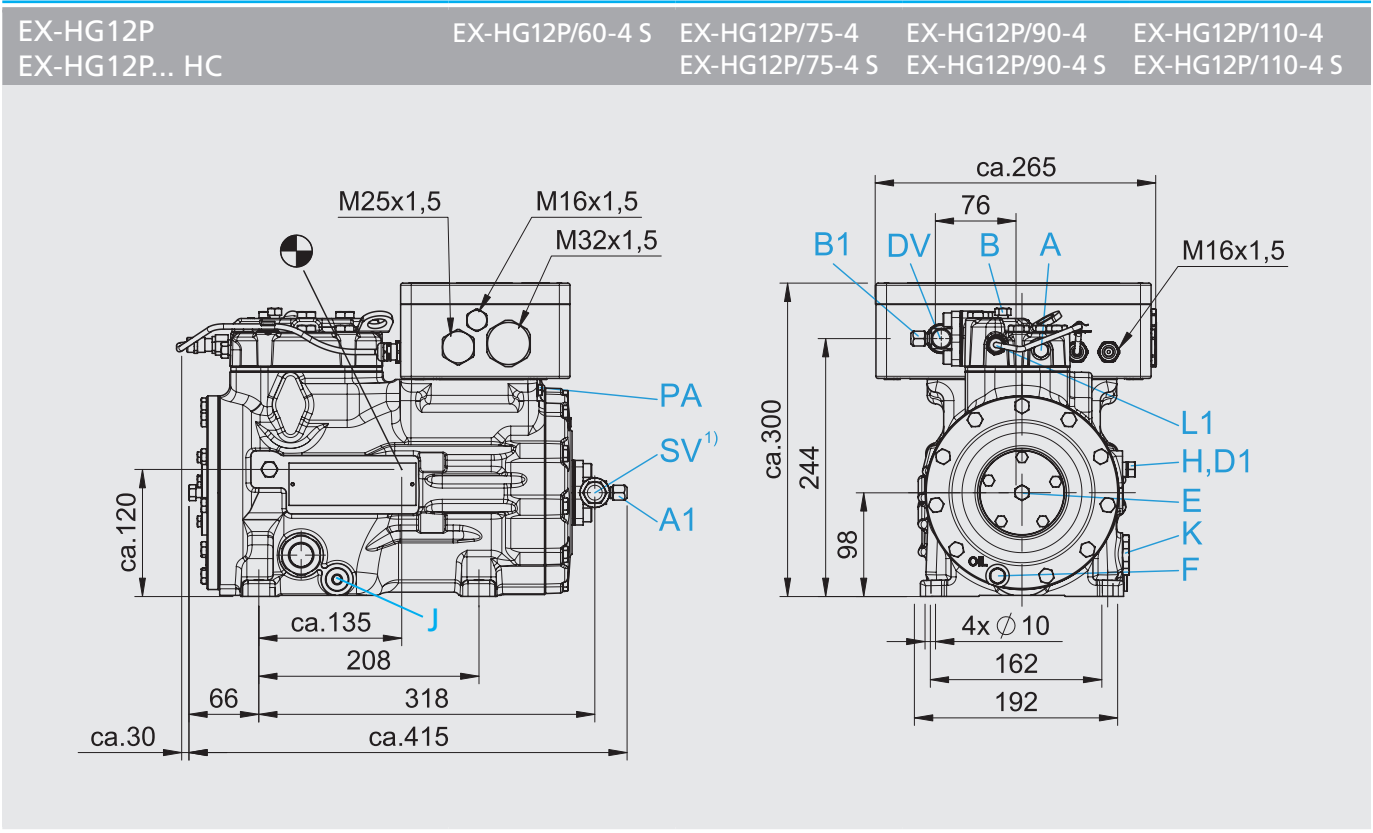
EX-HG EX-HG... HC Type	Number of cylinders	Displacement 50 / 60 Hz (1450 / 1740 rpm) m³/h	Electrical data				Weight kg	Connections ⑤		Oil charge Ltr.
			Voltage ①	Max. working current ② A Y	Max. power consump- tion ② kW	Starting current (rotor locked) A Y		Discharge line DV mm inch	Suction line SV mm inch	
EX-HG12P/60-4 S (HC)	2	5,40 / 6,40	③	3,9	2,2	23	48	12 1/2	16 5/8	0,8
EX-HG12P/75-4 (HC)	2	6,70 / 8,10	③	4,1	2,3	23	48	12 1/2	16 5/8	0,8
EX-HG12P/75-4 S (HC)	2	6,70 / 8,10	③	4,6	2,6	25	49	12 1/2	16 5/8	0,8
EX-HG12P/90-4 (HC)	2	8,00 / 9,60	③	4,9	2,8	25	49	12 1/2	16 5/8	0,8
EX-HG12P/90-4 S (HC)	2	8,00 / 9,60	③	5,3	3,0	26	49	12 1/2	16 5/8	0,8
EX-HG12P/110-4 (HC)	2	9,40 / 11,30	③	5,3	3,1	25	48	12 1/2	16 5/8	0,8
EX-HG12P/110-4 S (HC)	2	9,40 / 11,30	③	6,1	3,6	26	48	12 1/2	16 5/8	0,8
EX-HG22e/125-4 (HC)	2	11,10 / 13,30	③	5,4	3,0	40	73	16 5/8	22 7/8	1,0
EX-HG22e/125-4 S (HC)	2	11,10 / 13,30	③	6,2	3,6	40	74	16 5/8	22 7/8	1,0
EX-HG22e/160-4 (HC)	2	13,70 / 16,40	③	6,5	3,8	40	74	16 5/8	22 7/8	1,0
EX-HG22e/160-4 S (HC)	2	13,70 / 16,40	③	7,6	4,5	50	75	16 5/8	22 7/8	1,0
EX-HG22e/190-4 (HC)	2	16,50 / 19,80	③	8,0	4,8	40	74	16 5/8	22 7/8	1,0
EX-HG22e/190-4 S (HC)	2	16,50 / 19,80	③	9,4	5,6	50	75	16 5/8	22 7/8	1,0
EX-HG34e/215-4 (HC)	4	18,80 / 22,60	③	8,1	4,8	50	94	22 7/8	28 1 1/8	1,3
EX-HG34e/215-4 S (HC)	4	18,80 / 22,60	③	10,5	6,0	76	96	22 7/8	28 1 1/8	1,3
EX-HG34e/255-4 (HC)	4	22,10 / 26,60	③	9,8	6,0	50	94	22 7/8	28 1 1/8	1,3
EX-HG34e/255-4 S (HC)	4	22,10 / 26,60	③	12,2	7,2	76	96	22 7/8	28 1 1/8	1,3
EX-HG34e/315-4 (HC)	4	27,30 / 32,80	③	12,2	7,4	64	93	22 7/8	28 1 1/8	1,3
EX-HG34e/315-4 S (HC)	4	27,30 / 32,80	③	14,7	8,9	76	96	22 7/8	28 1 1/8	1,3
EX-HG34e/380-4 (HC)	4	33,10 / 39,70	③	15,1	9,3	64	91	22 7/8	28 1 1/8	1,3
EX-HG34e/380-4 S (HC)	4	33,10 / 39,70	③	18,0	11,1	76	94	22 7/8	28 1 1/8	1,3

EX-HG EX-HG... HC Type	Number of cylinders	Displacement 50 / 60 Hz (1450 / 1740 rpm) m ³ /h	Electrical data				Weight kg	Connections ^⑤		Oil charge Ltr.
			Voltage	Max. working current	Max. power consumption	Starting current (rotor locked)		Discharge line DV	Suction line SV	
			①	②	②	A		mm Zoll	mm Zoll	
				A	kW	A				
				* PW 1+2		*PW1 / PW 1+2				
EX-HG4/465-4 (HC)	4	40,50 / 48,60	④	20	11,8	57 / 75	151	28 1 1/8	35 1 3/8	2,7
EX-HG4/465-4 S (HC)	4	40,50 / 48,60	④	25	14,2	82 / 107	154	28 1 1/8	35 1 3/8	2,7
EX-HG4/555-4 (HC)	4	48,20 / 57,80	④	24	14,1	82 / 107	153	28 1 1/8	35 1 3/8	2,7
EX-HG4/555-4 S (HC)	4	48,20 / 57,80	④	30	16,9	107 / 140	156	28 1 1/8	35 1 3/8	2,7
EX-HG4/650-4 (HC)	4	56,60 / 67,90	④	29	16,8	82 / 107	155	28 1 1/8	42 1 5/8	2,7
EX-HG4/650-4 S (HC)	4	56,60 / 67,90	④	37	20,9	107 / 140	158	28 1 1/8	42 1 5/8	2,7
EX-HG5/725-4 (HC)	4	62,90 / 75,50	④	30	17,2	82 / 107	202	28 1 1/8	42 1 5/8	3,6
EX-HG5/725-4 S (HC)	4	62,90 / 75,50	④	37	21,0	107 / 140	205	28 1 1/8	42 1 5/8	3,6
EX-HG5/830-4 (HC)	4	72,20 / 86,70	④	35	20,3	82 / 107	200	28 1 1/8	42 1 5/8	3,6
EX-HG5/830-4 S (HC)	4	72,20 / 86,70	④	42	24,5	126 / 160	207	28 1 1/8	42 1 5/8	3,6
EX-HG5/945-4 (HC)	4	82,20 / 98,60	④	42	23,9	107 / 140	205	35 1 3/8	54 2 1/8	3,6
EX-HG5/945-4 S (HC)	4	82,20 / 98,60	④	49	28,6	126 / 160	209	35 1 3/8	54 2 1/8	3,6
EX-HG6/1080-4 (HC)	4	93,70 / 112,40	④	48	27,7	149 / 189	221	35 1 3/8	54 2 1/8	3,6
EX-HG6/1080-4 S (HC)	4	93,70 / 112,40	④	59	33,7	156 / 193	227	35 1 3/8	54 2 1/8	3,6
EX-HG6/1240-4 (HC)	4	107,60 / 129,10	④	57	32,5	156 / 193	225	35 1 3/8	54 2 1/8	3,6
EX-HG6/1240-4 S (HC)	4	107,60 / 129,10	④	75	41,8	204 / 250	228	35 1 3/8	54 2 1/8	3,6
EX-HG6/1410-4 (HC)	4	122,40 / 146,90	④	65	38,3	156 / 193	223	35 1 3/8	54 2 1/8	3,6
EX-HG6/1410-4 S (HC)	4	122,40 / 146,90	④	76	42,3	204 / 250	226	35 1 3/8	54 2 1/8	3,6

* PW = Part Winding, motors for part winding start 1 = 1. part winding 2 = 2. part winding

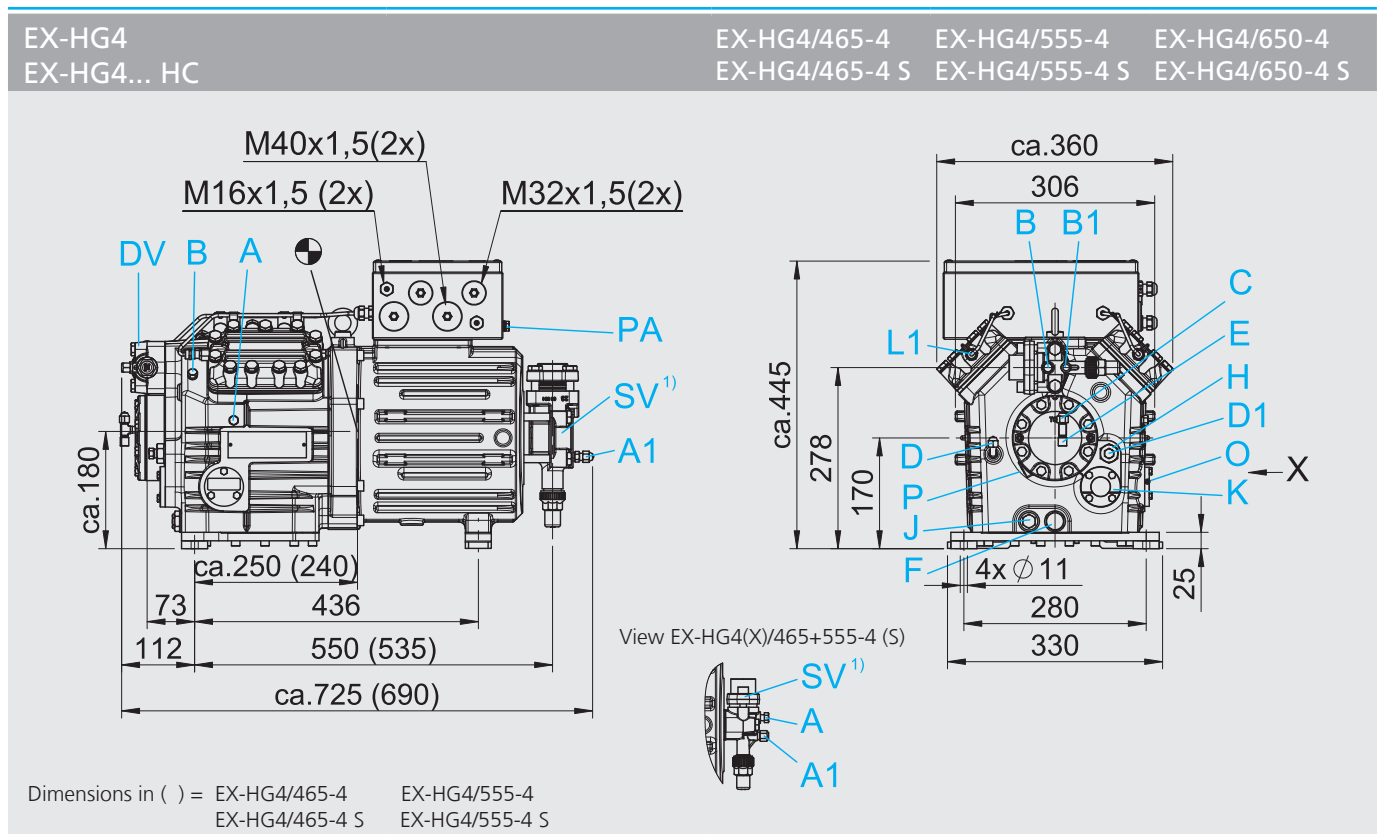
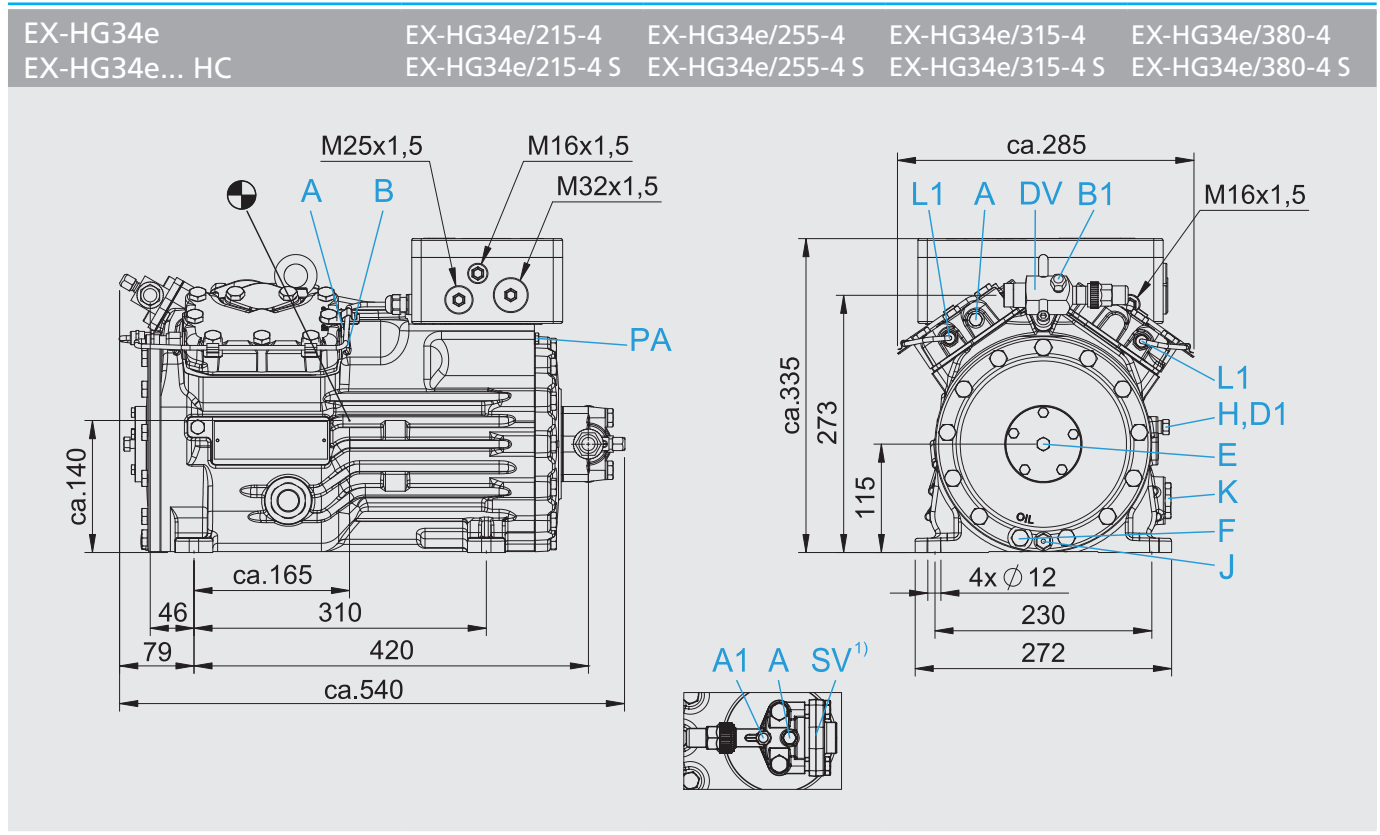
Explanations:

- ① Tolerance (± 10%) relates to the mean value of the voltage range. Other voltages and current types on request.
- ② - The specifications for max. power consumption apply for 50 Hz operation. For 60 Hz operation, the specifications have to be multiplied by the factor 1.2.
The max. working current remains unchanged.
- Take account of the max. operating current / max. power consumption when designing contactors, leads and fuses.
Switches: service category AC3
- ③ 380-420 V Y - 3 - 50 Hz
440-480 V Y - 3 - 60 Hz
- ④ 380-420 V Y/YY - 3 - 50 Hz PW
440-480 V Y/YY - 3 - 60 Hz PW
PW = Part Winding, motors for part winding start (no start unloaders required)
Winding ratio:
EX-HG4, EX-HG5, EX-HG6 = 66% / 33%
- ⑤ For soldering connections



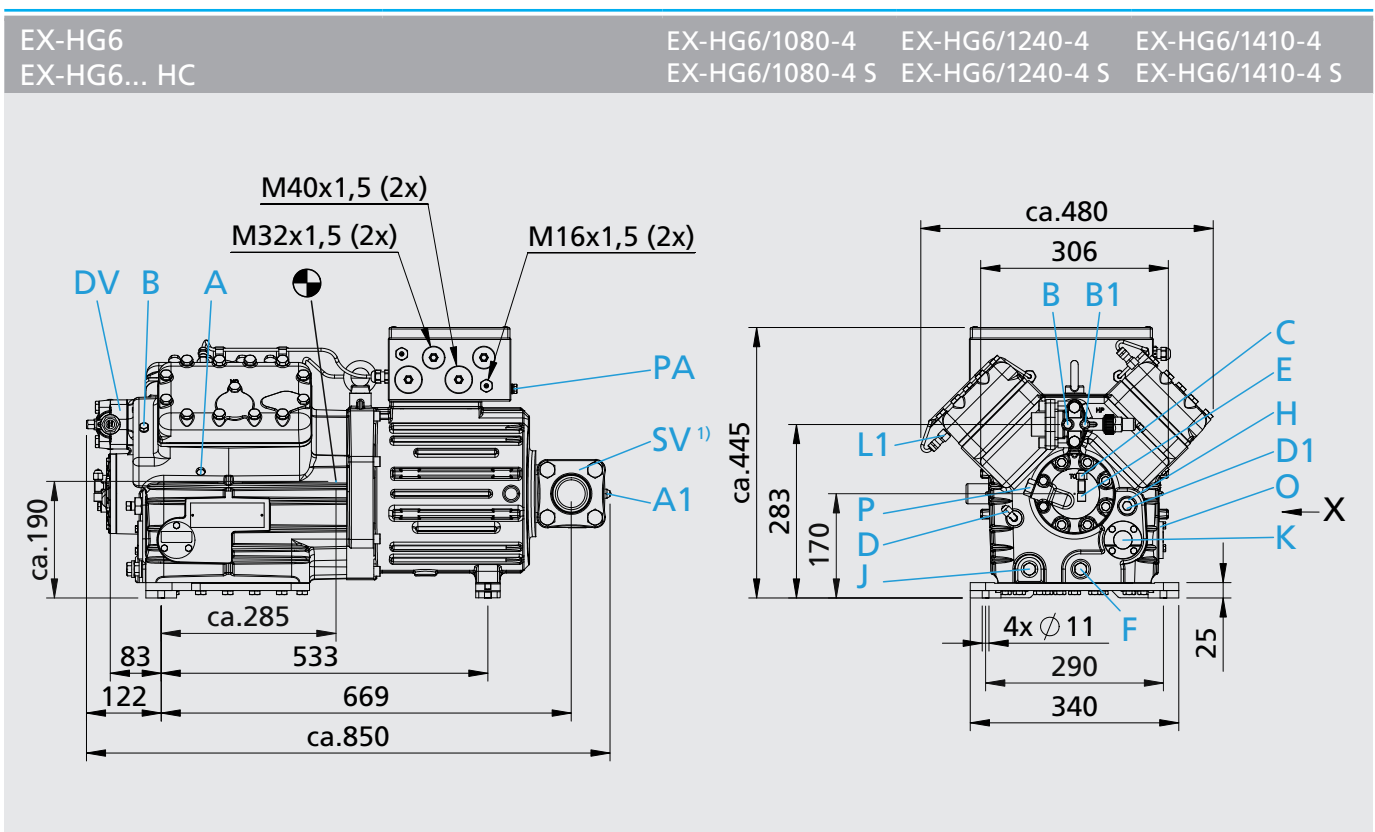
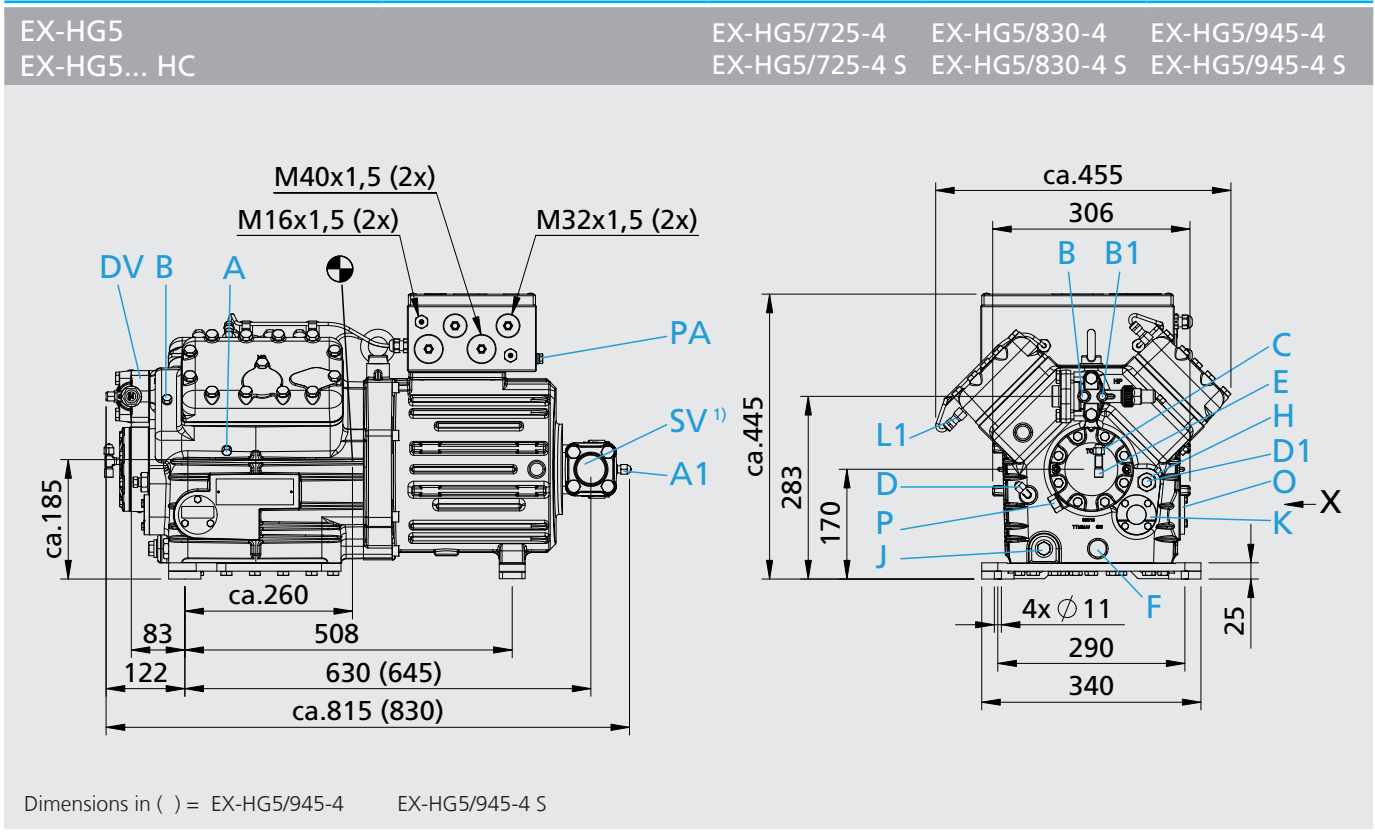
Dimensions in mm
¹⁾ SV 90° rotatable
 ☉ Centre of gravity

- Connections see page 20
 - Dimensions for anti-vibration pad see page 19



Dimensions in mm
¹⁾ SV 90° rotatable
 ● Centre of gravity

- Connections see page 20
- Dimensions for anti-vibration pad see page 19
- Dimensions for view X see page 19



Dimensions in mm
¹⁾ SV 90° rotatable
 ● Centre of gravity

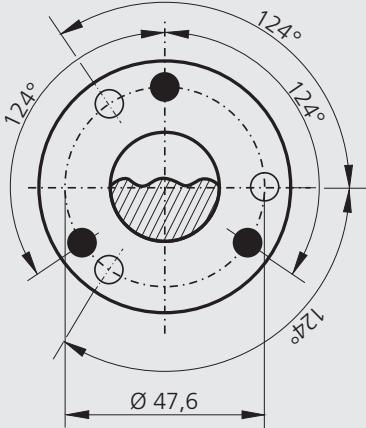
- Connections see page 20
 - Dimensions for anti-vibration pad see page 19
 - Dimensions for view X see page 19

View X

Possibility to connect to oil level regulator

EX-HG4, EX-HG5, EX-HG6

- Three-hole connection for oil level regulator make ESK, AC+R, CARLY (3x M6, 10 deep) ¹⁾
- Three-hole connection for oil level regulator make TRAXOIL (3 x M6 x 10 deep) ¹⁾

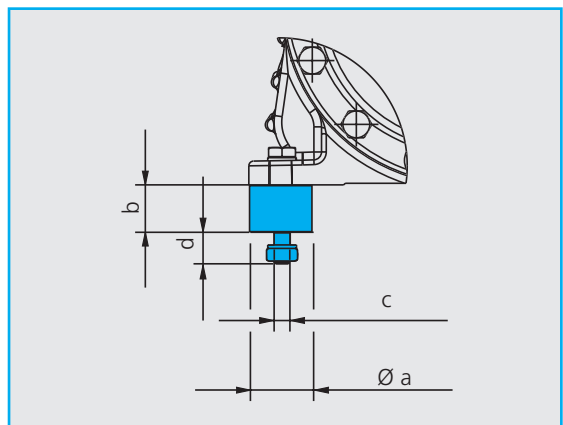


Dimensions in mm

¹⁾ Operation of these components only with suitable ignition protection.

Dimensions for anti-vibration pad

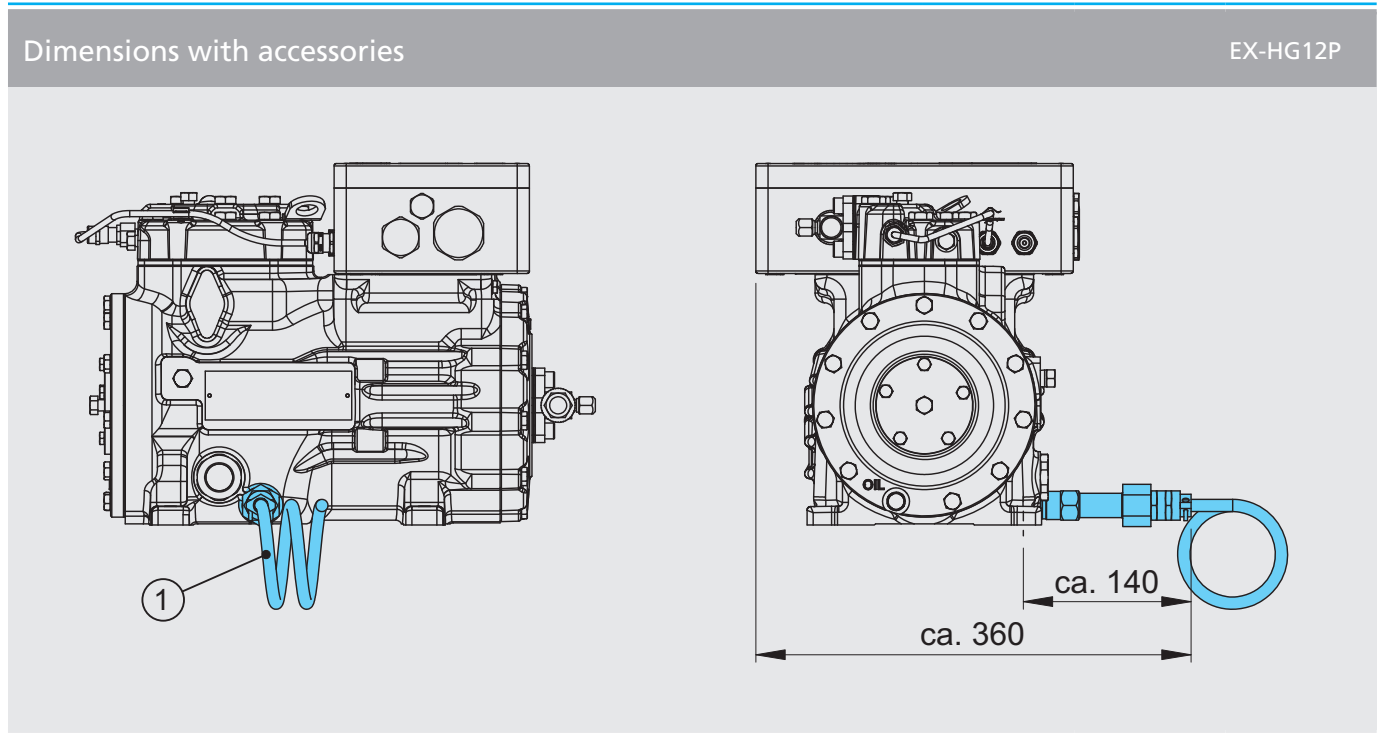
Type	Ø a mm	b mm	c mm	d mm
EX-HG12P (HC)	30	30	M8	20
EX-HG22e (HC)	40	30	M10	20
EX-HG34e (HC)	40	30	M10	20
EX-HG4 (HC)	40	30	M10	20
EX-HG5 (HC)	50	30	M10	25
EX-HG6 (HC)	50	30	M10	25



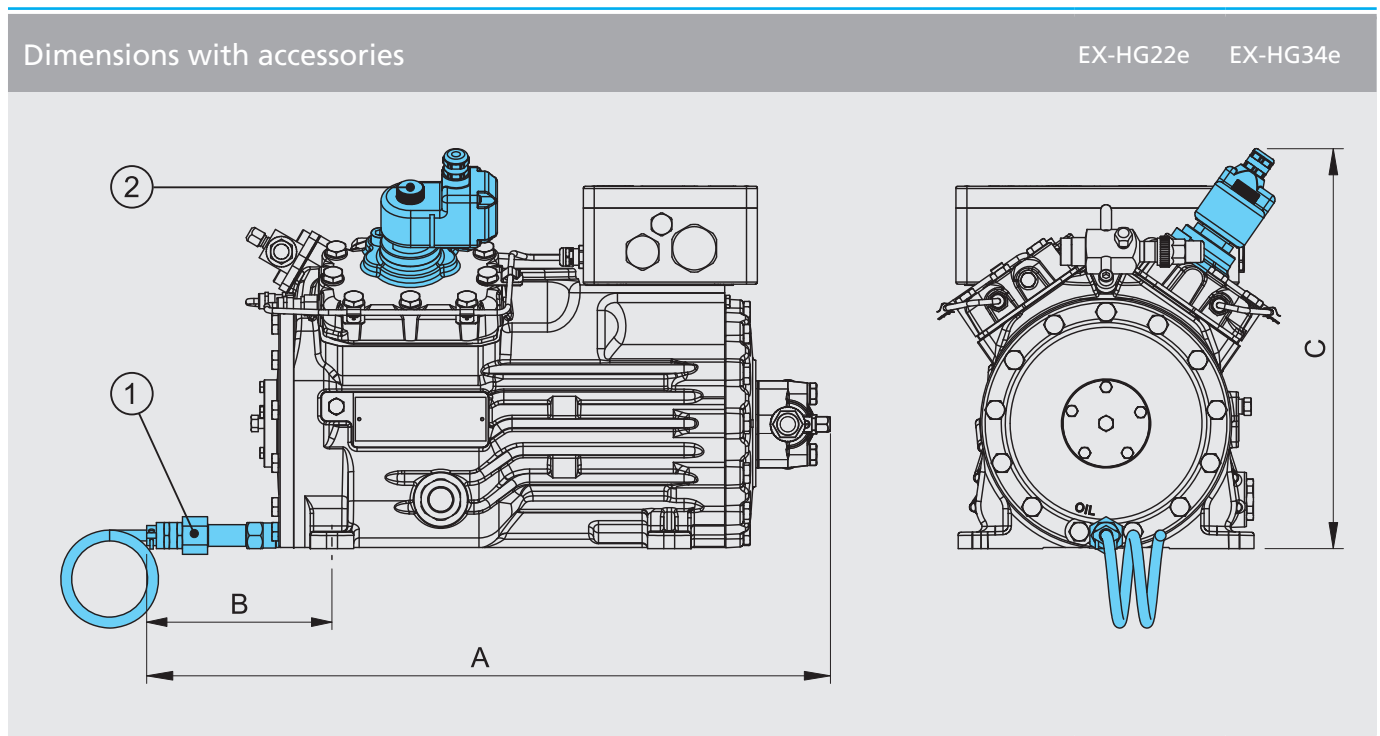
Connections	EX-HG12P (HC)	EX-HG22e (HC)	EX-HG34e (HC)	EX-HG4 (HC)	EX-HG5 (HC)	EX-HG6 (HC)
SV Suction line DV Discharge line	please refer to technical data page 13 and 14					
A Connection suction side, not lockable	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF
A1 Connection suction side, lockable	7/16" UNF	7/16" UNF	7/16" UNF	7/16" UNF	7/16" UNF	7/16" UNF
B Connection discharge side, not lockable	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF
B1 Connection discharge side, lockable	7/16" UNF	7/16" UNF	7/16" UNF	7/16" UNF	7/16" UNF	7/16" UNF
C Connection oil pressure safety switch OIL ¹⁾	-	-	-	7/16" UNF	7/16" UNF	7/16" UNF
D Connection oil pressure safety switch LP ¹⁾	-	-	-	7/16" UNF	7/16" UNF	7/16" UNF
D1 Connection oil return from oil separator	1/4" NPTF	1/4" NPTF	1/4" NPTF	1/4" NPTF	1/4" NPTF	1/4" NPTF
E Connection oil pressure gauge	1/8" NPTF	1/8" NPTF	1/8" NPTF	7/16" UNF	7/16" UNF	7/16" UNF
F Oil drain	M 8	M 10	M 10	M 22 x 1,5	M 22 x 1,5	M 22 x 1,5
H Oil charge plug	1/4" NPTF	1/4" NPTF	1/4" NPTF	M 22 x 1,5	M 22 x 1,5	M 22 x 1,5
J Connection oil sump heater ¹⁾	M 16 x 1,5	M 16 x 1,5	M 16 x 1,5	M 22 x 1,5	M 22 x 1,5	M 22 x 1,5
K Sight glass	1 1/8" - 18 UNEF	1 1/8" - 18 UNEF	1 1/8" - 18 UNEF	4 hole M 6	4 hole M 6	4 hole M 6
L1 Thermal protection thermostat	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF
O Connection oil level regulator ¹⁾	-	-	-	①	①	①
P Connection oil differential pressure sensor ¹⁾	-	-	-	M 20 x 1,5	M 20 x 1,5	M 20 x 1,5
PA Connection potential compensation	M 6	M 6	M 6	M 8	M 8	M 8

¹⁾ Operation of this component is permissible only with the appropriate type of protection

① Dimensions for view X see page 19

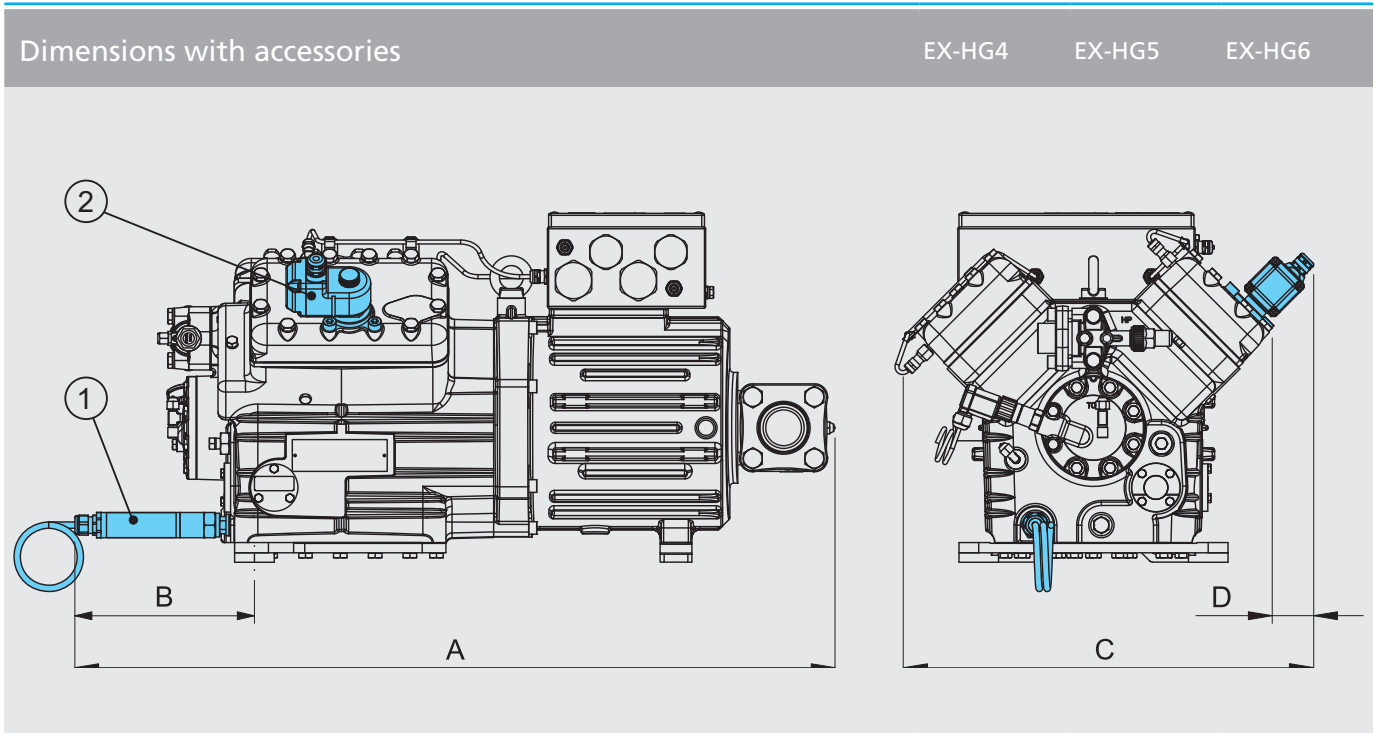


① Oil sump heater



① Oil sump heater ② Capacity regulator

Type	A mm	B mm	C mm
EX-HG22e	ca. 570	ca. 205	-
EX-HG34e	ca. 615	ca. 175	ca. 370



① Oil sump heater ② Capacity regulator

Type	A mm	B mm	C mm	D mm
EX-HG4	ca. 820	ca. 205	ca. 400	ca. 35
EX-HG5	ca. 940	ca. 230	ca. 500	ca. 55
EX-HG6	ca. 965	ca. 315	ca. 520	ca. 55

Accessories	EX-HG12P (HC)	EX-HG22e (HC)	EX-HG34e (HC)	EX-HG4 (HC)	EX-HG5 (HC)	EX-HG6 (HC)
Capacity regulator 230 V - 1 - 40-60 Hz, IP65 1 Capacity regulator = 50% residual capacity, explosion-proof, device category 2 according directive 94/9/EG			●	●	●	●
Oil sump heater 230 V - 1 - 50/60 Hz, 80 W, explosion-proof, device category 2 according directive 94/9/EG	● ^{1) 2)}	● ^{1) 2)}	● ^{1) 2)}	● ^{1) 2)}		
Oil sump heater 230 V - 1 - 50/60 Hz, 140 W, explosion-proof, device category 2 according directive 94/9/EG					● ^{1) 2)}	● ^{1) 2)}
Oil differential pressure sensor (INT 250 EX, make Kriwan), device category 2 according directive 94/9/EG				●	●	●
Offshore coating (multilayer)	●	●	●	●	●	●
Special voltage and/or -frequency (on request)	●	●	●	●	●	●

¹⁾ Enclosed package

²⁾ Oil sump heater at HC compressor designs generally required

Scope of supply	EX-HG12P (HC)	EX-HG22e (HC)	EX-HG34e (HC)	EX-HG4 (HC)	EX-HG5 (HC)	EX-HG6 (HC)
Semi-hermetic two cylinder reciprocating compressor with drive motor for direct start 380-420 V Y - 3 - 50 Hz 440-480 V Y - 3 - 60 Hz Single-section compressor housing with hermetically integrated electric motor	●	●				
Semi-hermetic four cylinder reciprocating compressor with drive motor for direct start 380-420 V Y - 3 - 50 Hz 440-480 V Y - 3 - 60 Hz Single-section compressor housing with hermetically integrated electric motor			●			
Semi-hermetic four cylinder reciprocating compressor with drive motor for part winding start 380-420 V Y/YY - 3 - 50 Hz 440-480 V Y/YY - 3 - 60 Hz Motor unit flanged onto the compressor housing				●	●	●
Winding protection with PTC resistor sensors and electronic triggering unit MP10 for installation in switch box	● ¹⁾	● ¹⁾	● ¹⁾	● ¹⁾	● ¹⁾	● ¹⁾
AC double barrier as energy limit in separate electrical circuit to avoid ignition. Suited for installation in switch box.	● ¹⁾	● ¹⁾	● ¹⁾	● ¹⁾	● ¹⁾	● ¹⁾
Oil pump	●	●	●	●	●	●
Oil pump cover with screwed connection for differential oil pressure sensor				● ²⁾	● ²⁾	● ²⁾
Connection possibility of oil level controllers makes ESK, AC+R, CARLY	● ^{2) 3)}	● ^{2) 3)}	● ^{2) 3)}	● ²⁾	● ²⁾	● ²⁾
Connection possibility of oil level controllers make Traxoil	● ^{2) 3)}	● ^{2) 3)}	● ^{2) 3)}	● ^{2) 3)}	● ^{2) 3)}	● ^{2) 3)}
Oil charge: HG: FUCHS Reniso SP 46 HGX: FUCHS Reniso Triton SE 55 HG...HC: FUCHS Reniso SYNTH 68	●	●	●	●	●	●
Sight glass	●	●	●	●	●	●
Decompression valve				●	●	●
Suction and discharge line valve	●	●	●	●	●	●
Thermal protection thermostat (PTC sensor) for each cylinder head	●	●	●	●	●	●
Inert gas charge	●	●	●	●	●	●
4 anti-vibration pads enclosed	●	●	●	●	●	●

1) Enclosed package

2) Operation of these components only with suitable ignition protection

3) Only possible with additional adapter



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