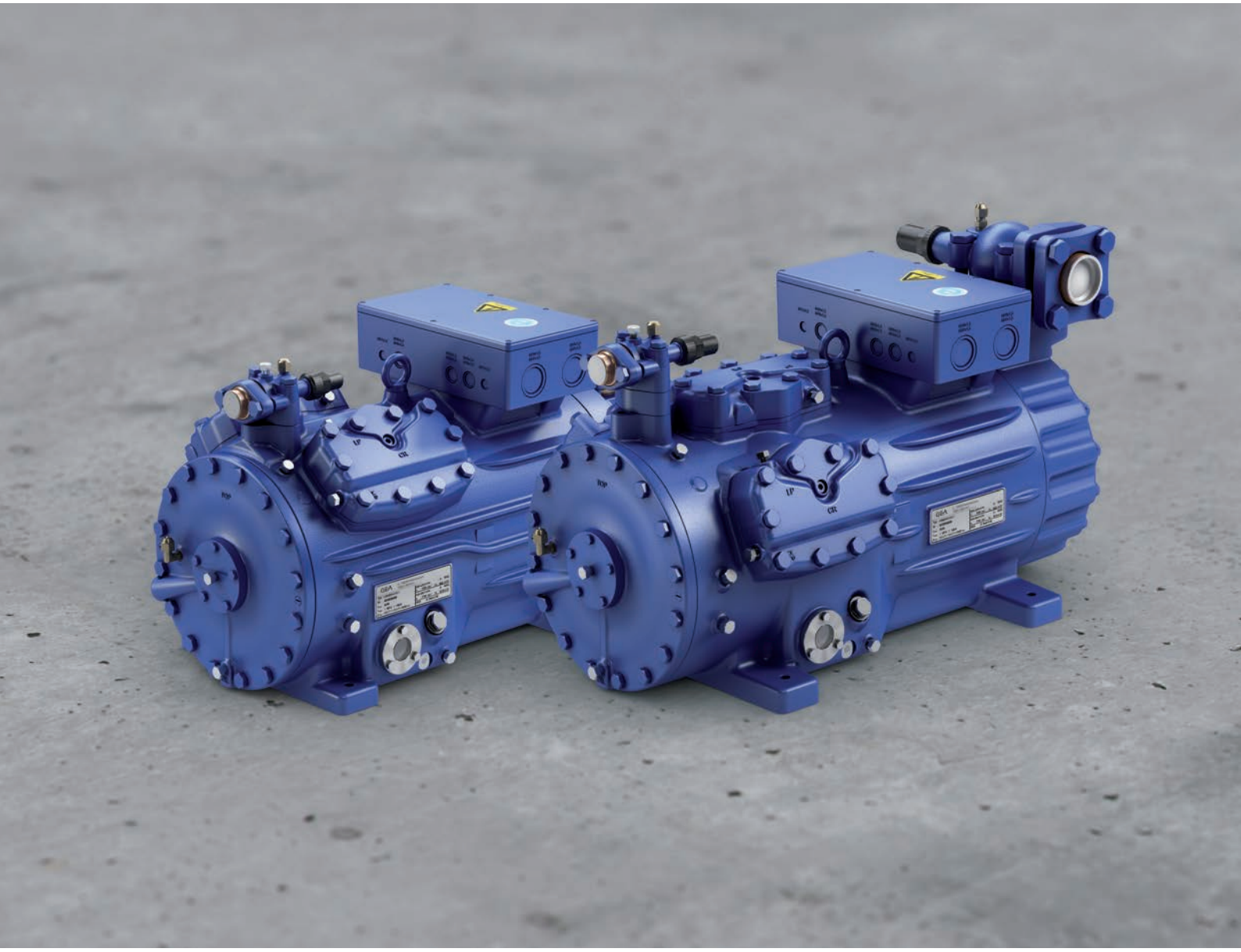


GEA Bock Compressors HG44e and HG56e

Semi-hermetic GEA Bock Compressors

engineering for a better world

GEA Refrigeration Technologies

GEA Bock compressors HG44e and HG56e

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

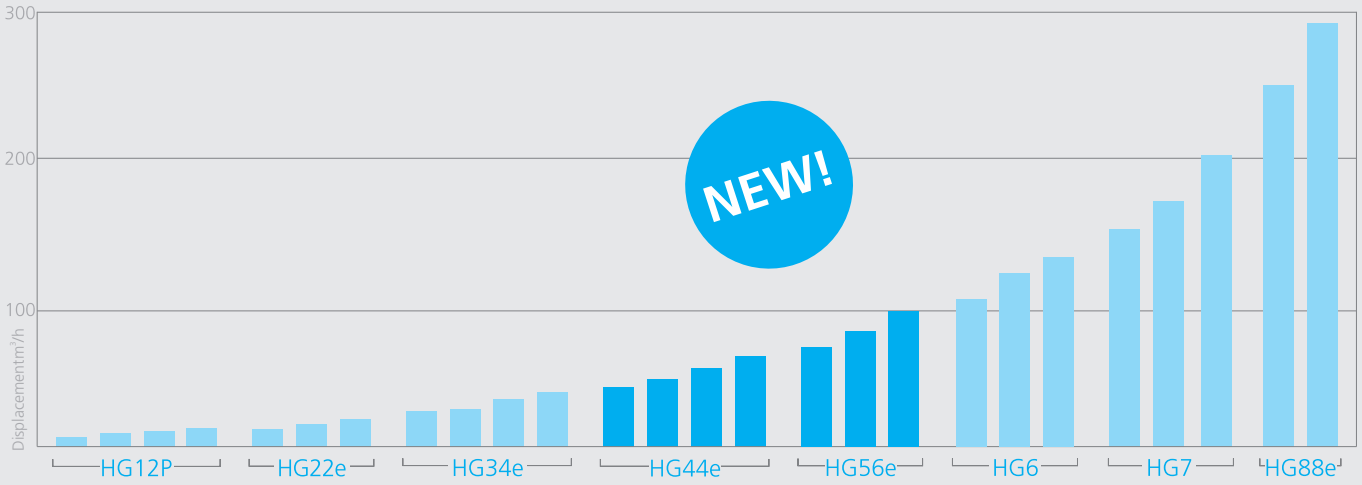
With its GEA Bock HG44e and HG56e compressor ranges, GEA Refrigeration Technologies introduces new, more efficient semi-hermetic compressors to the market – models that replace its HG4 and HG5 ranges. In addition to their uses in the field of refrigeration and air-conditioning, the new compressors are ideally suited for refrigeration in supermarkets. They offer improved efficiency over their predecessors, greater displacement stages, more compact structural design, and a new configuration of connections. These connections match the gas connections normally found in the sector, to ensure that no adaptation work is necessary when the user invests in a replacement compressor. The foot mountings of the new compressor likewise conform to sector standards. In the four-cylinder HG44e range, four model sizes cover the area of maximum displacement from 41.3 m^3/h to 67.0 m^3/h. Three six-cylinder HG56e models round the spectrum off toward the top with displacements of 73.8 m^3/h to 100.4 m^3/h.

Special features

Both new ranges profit from a new and advanced valve plate system, electrical motors from the latest generation, and enhanced gas flow – which increase efficiency and lower energy consumption. In comparison to its predecessors, the GEA Bock HG44e range includes four instead of three model sizes. In addition, the largest version, the HG44e/770-4 compressor, offers with its 67 m^3/h, almost 20 % more displacement than the largest HG4 model. As a result, this compressor range demonstrates the greatest power density in the sector. With the GEA Bock HG56e range, six-cylinder models are available throughout, instead of the four-cylinder HG5 versions. In comparison to the four-cylinder compressor models usually found on the market, the increase of the number of cylinders leads to enhanced efficiency and optimized running smoothness. Here as well, the largest compressor – with 100.4 m^3/h displacement – exceeds that of its predecessor by around one-fifth. The GEA Bock oil-pump design, proven over many years, further assures reliable lubrication of all moving parts. The new models furthermore demonstrate excellent service friendliness – for example, simple exchange of the drive motor, as before. With its new GEA Bock HG44e and HG56e compressors, GEA Refrigeration Technologies sets new standards in efficiency and performance.

The current program

...8 model sizes with 26 capacity stages from 5,4 to 281,3 m³/h (50 Hz)



Type key

HGX56e / 1155 - 4S

- Motor variant [3]
- Number of poles
- Swept volume
- e-series
- Number of cylinders
- Size
- Ester oil filling [2]
- Series [1]

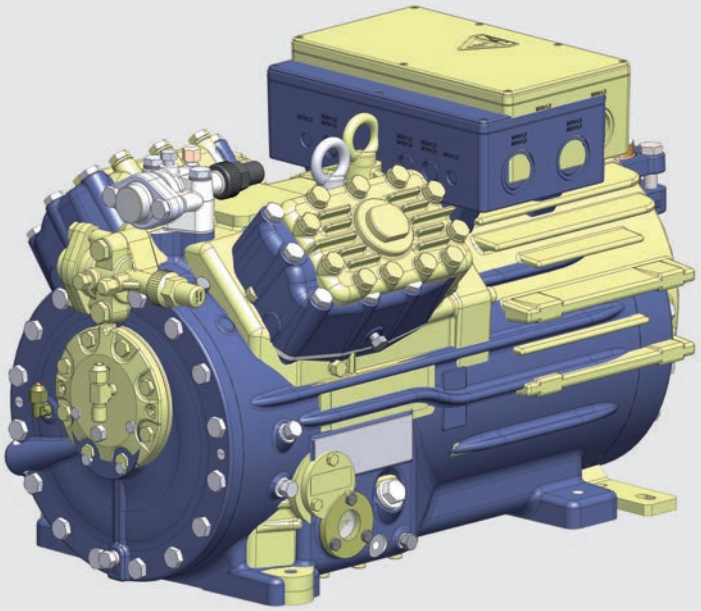
[1] HG = Hermetic Gas-Cooled (suction gas-cooled)

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

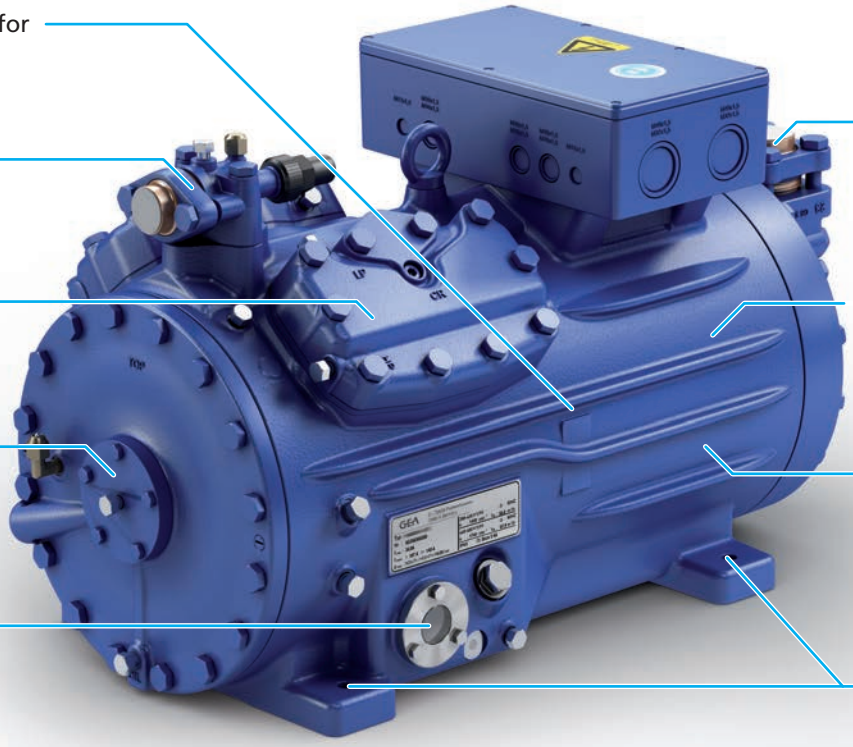
[3] S = More powerful motor e.g. air-conditioning applications

Special features

Comparison HG44e vs. HG4



Blue: GEA Bock HG44e
Yellow: GEA Bock HG4



Length (cm)	Width (cm)	Height (cm)
-3	-1	-2

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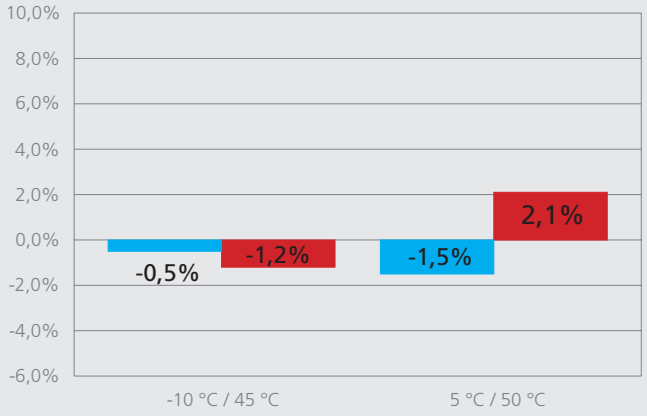
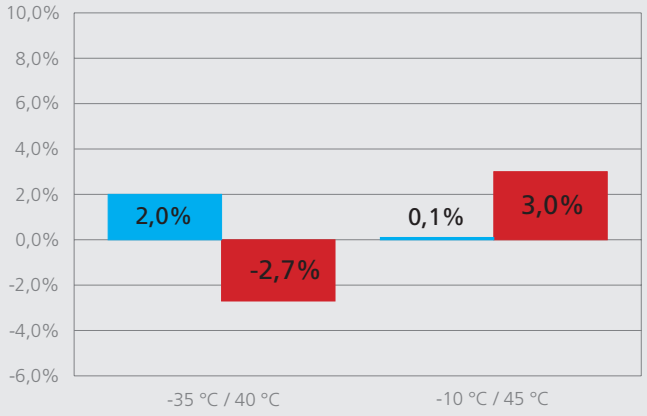
Special features

Comparison HGX44e/475-4 vs. competitor

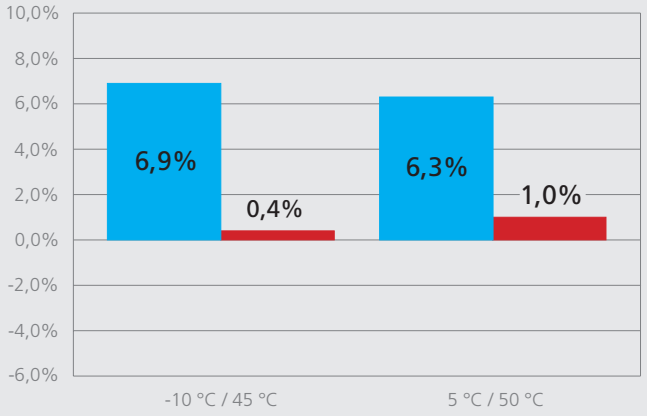
Refrigerant R134a

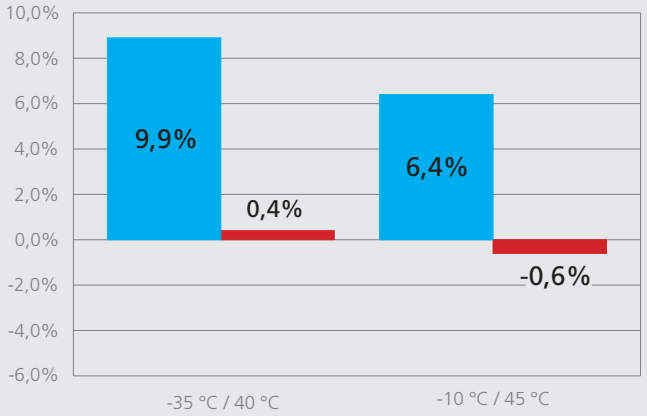


Refrigerant R404A



Comparison HGX44e/770-4 S vs. competitor

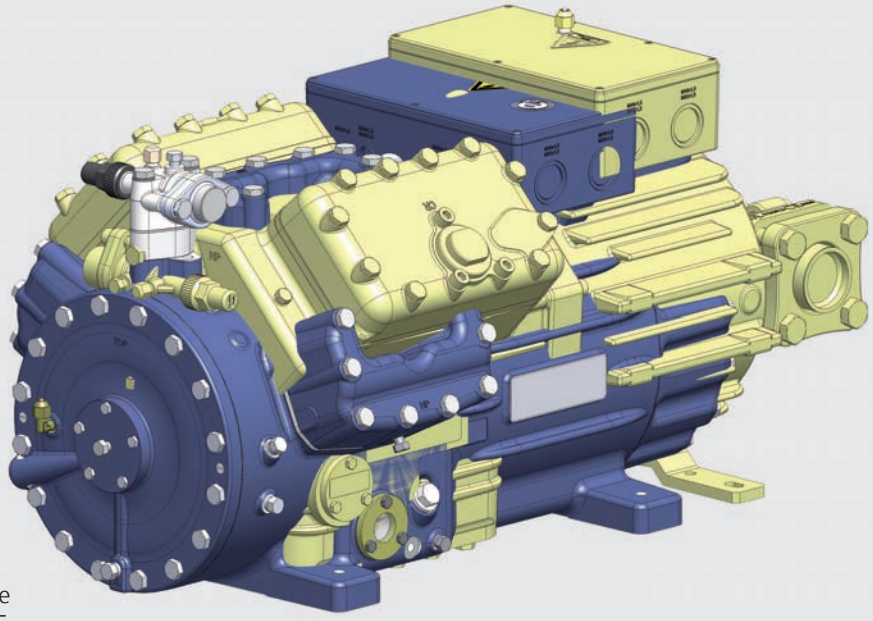




Cooling capacity COP

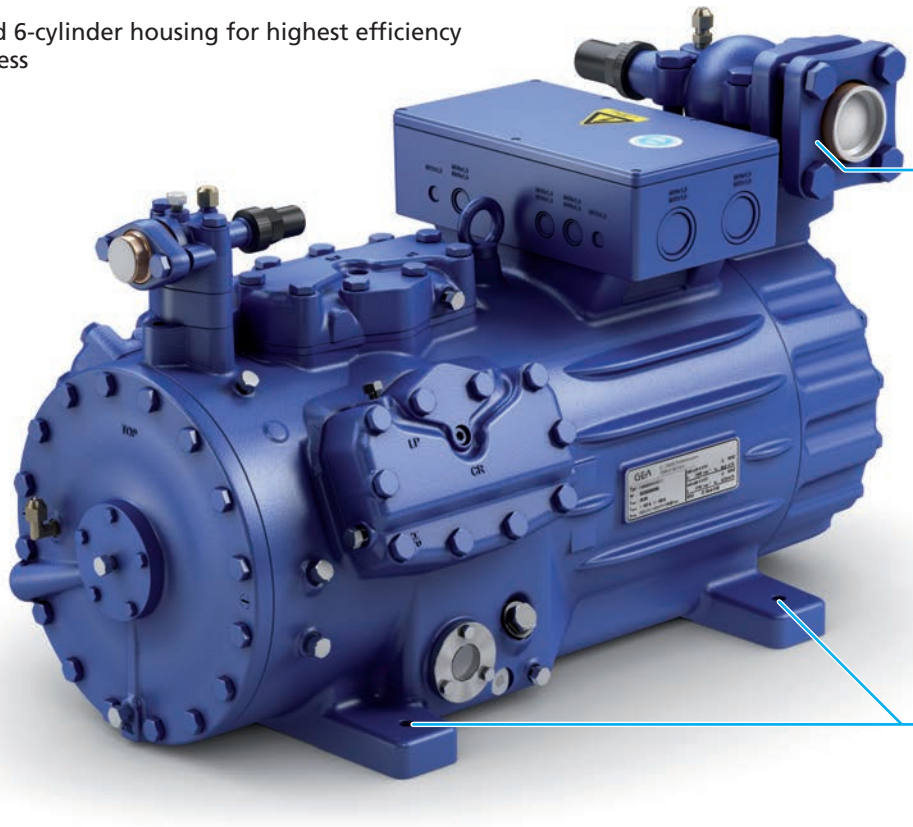
Special features

Comparison HG56e vs. HG5



Blue: GEA Bock HG56e
Yellow: GEA Bock HG5

New designed 6-cylinder housing for highest efficiency and smoothness



Length (cm)	Width (cm)	Height (cm)
-12,5	0	+3,5

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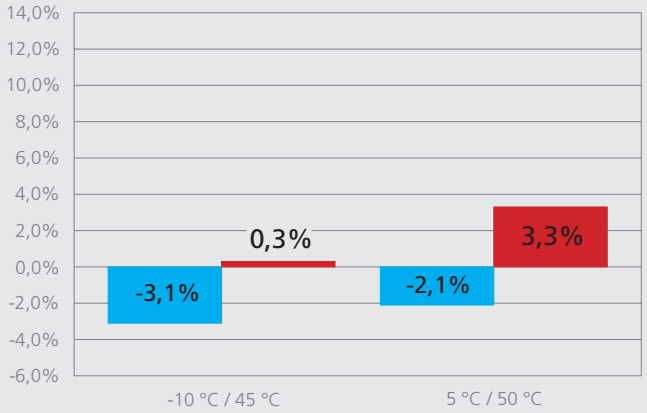
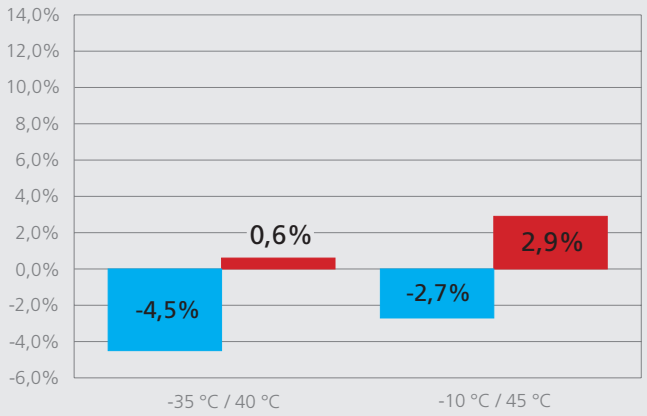
Special features

Comparison HGX56e/850-4 vs. competitor

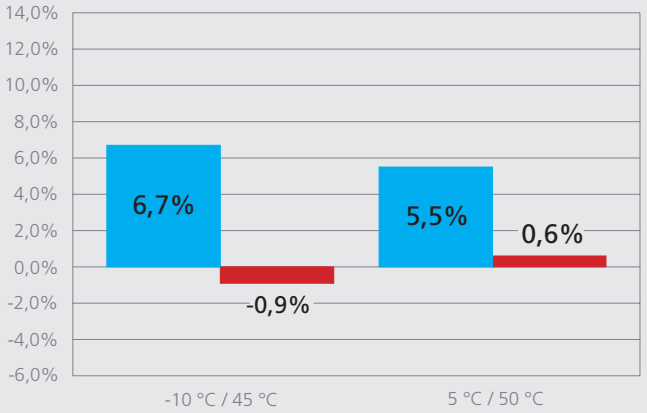
Refrigerant R134a

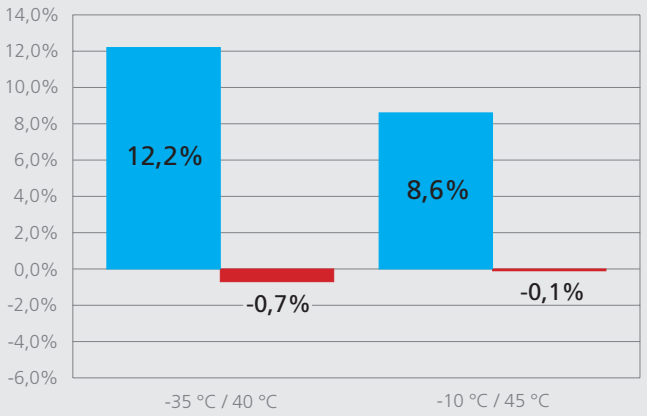


Refrigerant R404A



Comparison HGX56e/1150-4 S vs. competitor





Cooling capacity COP

INT69 G
Motor Protection

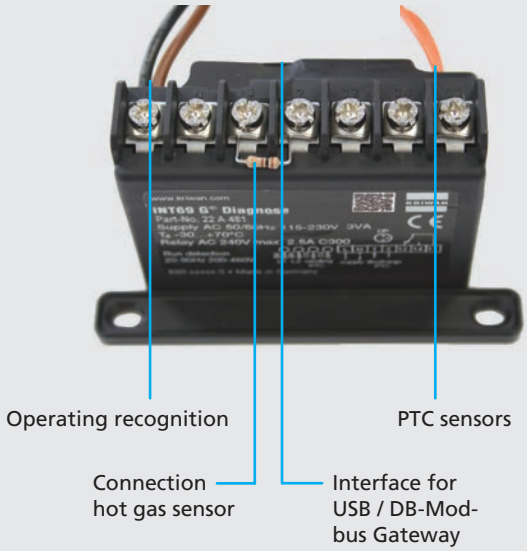
Electronic Motor Protection GEA Bock INT69 G

Temperature safety drive for the drive motor

The INT69 G is replacing, in the HG44e/HG56e and in all future new developments, the MP10 compressors used as standard at GEA Bock

The INT69 G also provides the usual functions, as:
- motor temperature monitoring
- hot gas temperature monitoring
- a reconnection preventing device
- a reset

INT69 G Diagnose



Technical data

Unit designation	INT69 G	INT69 G Diagnose
Connection voltage	AC 115-230 V - 1 - 50/60 Hz ± 10% 3 VA	AC 115-230 V - 1 - 50/60 Hz ± 10% 3 VA
Relay	AC 240 V, 2,5A, C300	AC 240 V, 2,5A, C300
Dimensions L/W/H	53 x 33 x 68 mm	50 x 33 x 68 mm

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INT69 G Diagnose Unit
Motor Protection

Read facility via INTelligence diagnosis software

With the INTelligence software, valuable information can be obtained on the status of the compressor and the system. The diagnosis function includes the plausibility checks of the logic sequences, all important operation and error values of the compressor and provides for its clear visualization.

Crucial evaluation parameters can be configured individually. This allows for a quick analysis and an efficient system management.

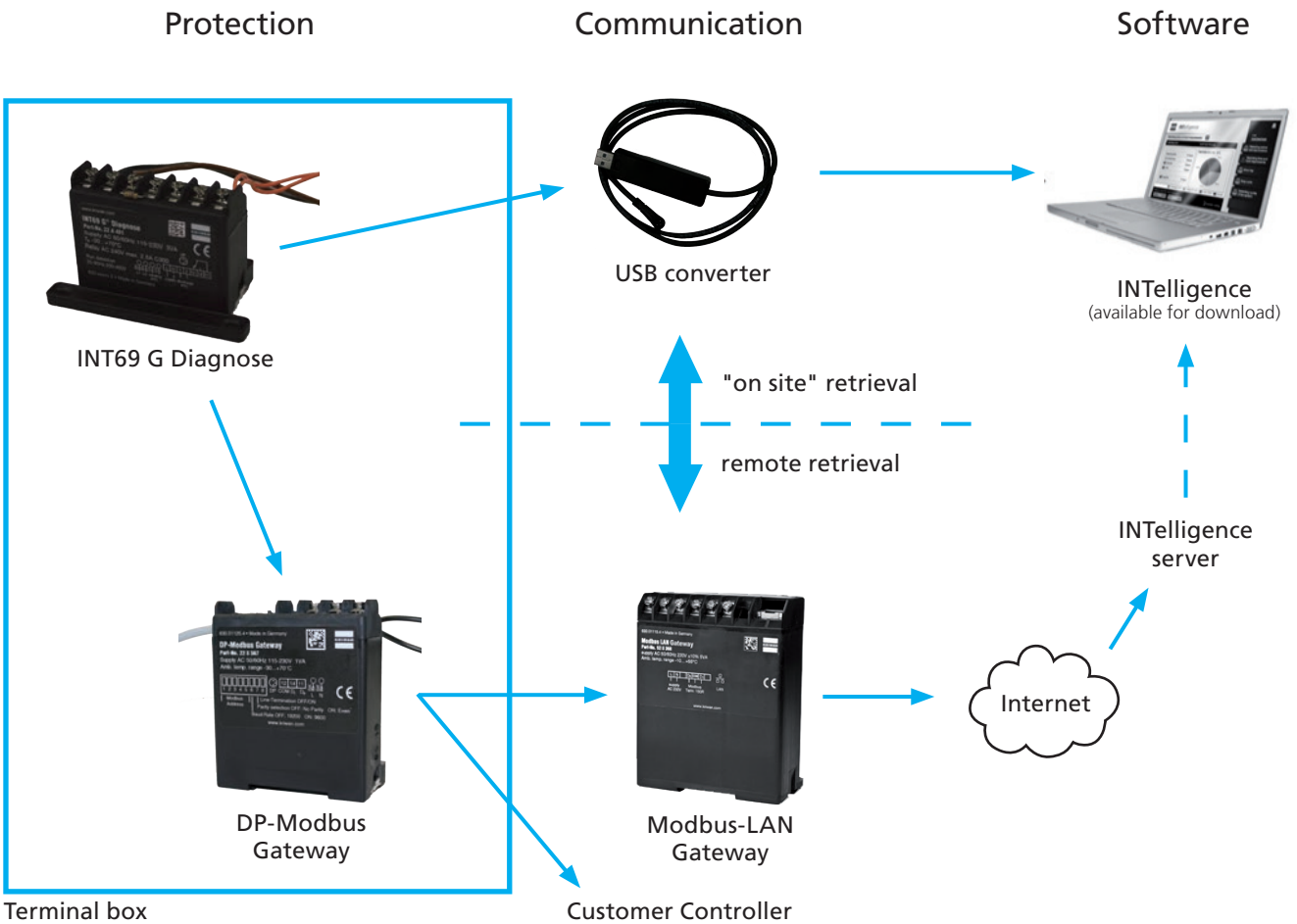
Advantages:

- Simple operation
- Immediate diagnosis and precise problem solving
- Specially adaptable to the user's needs

If required, data can be retrieved directly at each compressor via USB port. A Modbus interface is available for integration in a network.

The data are sent periodically via the DP-Modbus gateway and the Modbus-LAN gateway to a server and can be retrieved remotely by the INTelligence diagnosis software.

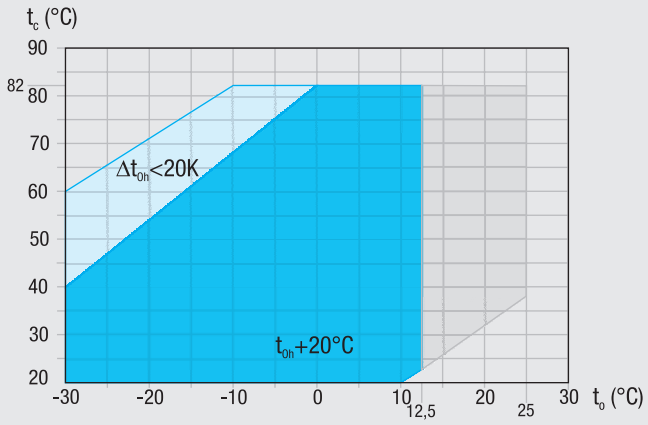
The INTelligence diagnosis software can be downloaded for free at www.kriwan.com.



Further explanation can be found at www.kriwan.com.
In the event of inquiries please contact our Department for Application Technology, phone +49 7022 9454-0.

Operating limits

R134a Operating limits



Unlimited application range

Supplementary cooling or reduced suction gas temperature

Motor version -S- (more powerful motor)

t_O Evaporation temperature (°C)
t_C Condensing temperature (°C)
Δt_{Oh} Suction gas superheat (K)
t_{Oh} Suction gas temperature (°C)

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

[1] LP = low pressure HP = high pressure

R134a Notes

Operating limits

Compressor operation is possible within the limits shown on the application diagrams. Please note the coloured areas. Compressor application limits should not be chosen for design purposes or continuous operation.

Restrictions to the operating limits may occur when using a frequency converter.

Performance data

The performance data for R134a are based on European Standard EN 12900 **50 Hz power supply frequency**.
This signifies: **20 °C suction gas temperature without liquid subcooling**.

This results in significant differences compared to specifications with liquid undercooling and/or suction-gas temperatures

Conversion factor for 60 Hz = 1,2

Performance data for other operating points, see GEA Bock software.

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Performance data

R134a — Performance data — 50 Hz

Type	Cond. temp. °C		Cooling capacity $\dot{Q}_o$ [W] / Power consumption P_e [kW] — Evaporating temperature °C										
			12,5	10	7,5	5	0	-5	-10	-15	-20	-25	-30
HGX44e/475-4	30	Q	39200	35700	32500	29500	24100	19400	15400	12100	9190	6850	4920
		P	4,71	4,75	4,76	4,74	4,62	4,41	4,13	3,79	3,42	3,03	2,63
	40	Q	34500	31400	28600	25900	21100	16900	13400	10400	7790	5670	3890
		P	5,95	5,90	5,82	5,71	5,43	5,07	4,65	4,19	3,70	3,20	2,72
	50	Q	29900	27200	24700	22300	18100	14400	11300	8660	6430	4520	2880
		P	7,12	6,97	6,80	6,61	6,16	5,64	5,08	4,49	3,88	3,27	2,69
	60	Q	25400	23000	20800	18800	15100	12000	9280	7000	5040	3340	1840
		P	8,16	7,91	7,65	7,36	6,74	6,06	5,35	4,62	3,89	3,17	2,49
	70	Q	20800	18800	16900	15200	12100	9450	7210	5280	3600		
		P	8,99	8,65	8,28	7,90	7,10	6,26	5,40	4,52	3,66		
HGX44e/565-4	30	Q	46600	42600	38700	35200	28800	23200	18500	14500	11100	8310	6010
		P	5,58	5,62	5,64	5,61	5,47	5,22	4,88	4,48	4,03	3,56	3,09
	40	Q	41100	37500	34100	30900	25200	20300	16100	12500	9480	6950	4820
		P	7,07	7,01	6,91	6,79	6,45	6,01	5,51	4,95	4,37	3,78	3,19
	50	Q	35700	32500	29500	26700	21700	17400	13700	10600	7890	5610	3640
		P	8,49	8,31	8,10	7,87	7,33	6,71	6,03	5,31	4,58	3,86	3,17
	60	Q	30400	27600	25000	22600	18200	14500	11400	8620	6280	4240	2410
		P	9,75	9,45	9,13	8,78	8,03	7,21	6,35	5,47	4,59	3,74	2,92
	70	Q	25000	22600	20400	18400	14700	11600	8910	6610	4590		
		P	10,70	10,30	9,90	9,44	8,47	7,45	6,41	5,36	4,32		
HGX44e/665-4	30	Q	55700	50900	46400	42100	34400	27700	21900	17000	12900	9520	6880
		P	6,61	6,71	6,76	6,76	6,62	6,33	5,92	5,40	4,82	4,20	3,57
	40	Q	49200	44900	40800	37000	30100	24100	18900	14600	10900	7930	5580
		P	8,52	8,45	8,34	8,18	7,76	7,21	6,57	5,86	5,11	4,35	3,61
	50	Q	42600	38800	35200	31800	25700	20400	15900	12100	8940	6360	4310
		P	10,20	10,00	9,73	9,42	8,72	7,92	7,06	6,16	5,26	4,37	3,54
	60	Q	36000	32700	29500	26600	21300	16800	13000	9700	7030	4850	3110
		P	11,60	11,30	10,80	10,40	9,45	8,42	7,35	6,27	5,22	4,22	3,30
	70	Q	29400	26500	23900	21400	17000	13200	10100	7380	5200		
		P	12,80	12,30	11,70	11,10	9,90	8,64	7,38	6,14	4,95		
HGX44e/770-4	30	Q	63600	58000	52800	47900	39100	31600	25100	19700	15100	11300	8100
		P	7,62	7,68	7,70	7,67	7,48	7,14	6,69	6,14	5,54	4,90	4,25
	40	Q	56000	51100	46400	42100	34200	27500	21800	16900	12800	9360	6460
		P	9,63	9,54	9,42	9,24	8,79	8,21	7,53	6,78	5,99	5,19	4,40
	50	Q	48700	44200	40100	36300	29500	23600	18600	14300	10700	7510	4830
		P	11,50	11,20	11,00	10,70	9,97	9,14	8,23	7,26	6,28	5,30	4,35
	60	Q	41300	37500	33900	30600	24700	19600	15300	11600	8390	5630	3160
		P	13,20	12,80	12,30	11,90	10,90	9,82	8,66	7,48	6,29	5,13	4,02
	70	Q	34000	30700	27700	24900	19900	15600	12000	8810	6070		
		P	14,50	13,90	13,40	12,70	11,50	10,10	8,74	7,32	5,93		

Relating to 20 °C suction gas temperature without liquid subcooling.

This performance data is preliminary data!

Supplementary cooling or reduced suction gas temp.

R134a — Performance data — 50 Hz

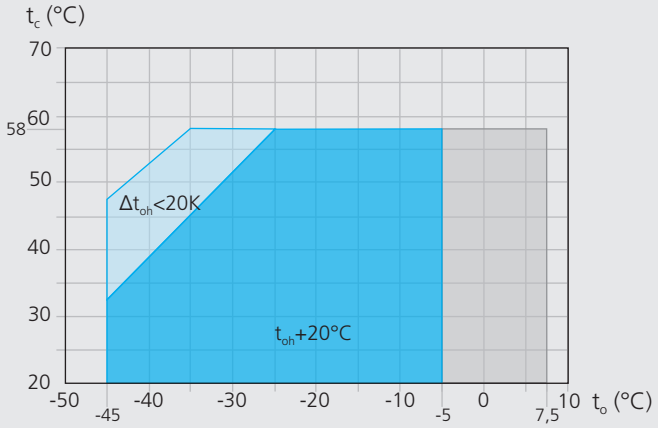
Type	Displacement m^3/h (50 Hz)	Cooling capacity $\dot{Q}_o$ [W] / Drive power P_e [kW] — Normal cooling, Evaporation temp. -10°C / Cond. temp. +45°C			Air-conditioning, Evaporation temp. +5°C / Cond. temp. +50°C		
		$\dot{Q}o$	Pe	COP	$\dot{Q}o$	Pe	COP
HGX56e/850-4	73,8	22300	8,68	2,57	40100	11,7	3,43
HGX56e/995-4	86,6	26000	10,0	2,60	46800	13,6	3,44
HGX56e/1155-4	100,4	30200	11,7	2,58	54400	15,9	3,42

Relating to 20 °C suction gas temperature without liquid subcooling.

This performance data is preliminary data!

Operating limits

R404A/R507 Operating limits



Unlimited application range

Supplementary cooling or reduced suction gas temperature

Motor version -S- (more powerful motor)

t_O Evaporation temperature (°C)
t_C Condensing temperature (°C)
Δt_{Oh} Suction gas superheat (K)
t_{Oh} Suction gas temperature (°C)

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

[1] LP = low pressure HP = high pressure

R404A/R507 Notes

Operating limits

Compressor operation is possible within the limits shown on the application diagrams. Please note the coloured areas. Compressor application limits should not be chosen for design purposes or continuous operation.

Restrictions to the operating limits may occur when using a frequency converter.

Performance data

The performance data for R404A/R507 are based on European Standard EN 12900 **50 Hz power supply frequency**.
This signifies: **20 °C suction gas temperature without liquid subcooling.**

This leads to significant differences compared to systems with liquid subcooling and/or other suction gas temperatures

Performance data were compiled for R404A and R507.
The base values are the data for R404A.

Conversion factor for 60 Hz = 1,2

Performance data for other operating points, see GEA Bock software.

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R404A/R507 — Performance data — 50 Hz

Type	Cond. temp. °C		Cooling capacity $\dot{Q}_o$ [W] / Power consumption P_e [kW] — Evaporating temperature °C											
			7,5	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
HGX44e/475-4 HGX44e/475-4 S	30	Q	52500	48300	40500	33500	27500	22400	18000	14300	11100	8340	6060	4110
		P	7,73	7,85	7,94	7,80	7,52	7,10	6,57	5,94	5,26	4,54	3,81	3,11
	40	Q	45200	41400	34600	28300	23200	18800	15000	11800	9010	6670	4650	2870
		P	9,97	9,90	9,61	9,16	8,57	7,88	7,12	6,31	5,47	4,64	3,84	3,11
	50	Q	37600	34300	28500	23100	18800	15100	12000	9260	6970	5000	3270	
		P	11,80	11,50	10,90	10,20	9,41	8,49	7,55	6,59	5,65	4,76	3,94	
HGX44e/565-4 HGX44e/565-4 S	30	Q	62700	57700	48400	39800	32800	26800	21600	17200	13400	10200	7470	5140
		P	9,18	9,32	9,43	9,31	8,97	8,47	7,82	7,07	6,24	5,38	4,51	3,66
	40	Q	54000	49600	41400	33700	27700	22500	18100	14300	11100	8230	5820	3680
		P	11,80	11,70	11,40	10,90	10,20	9,42	8,49	7,51	6,50	5,50	4,55	3,67
	50	Q	45100	41200	34200	27500	22500	18200	14500	11400	8620	6270	4180	
		P	14,00	13,70	13,00	12,30	11,20	10,10	9,01	7,85	6,72	5,64	4,66	
HGX44e/665-4 HGX44e/665-4 S	30	Q	73100	67100	56300	46500	38300	31100	25000	19800	15300	11600	8340	5630
		P	10,70	10,90	11,00	10,90	10,50	9,94	9,19	8,32	7,36	6,35	5,33	4,34
	40	Q	62700	57400	47900	39300	32200	26000	20800	16300	12500	9160	6360	3910
		P	13,90	13,80	13,30	12,80	12,00	11,00	9,97	8,83	7,66	6,49	5,37	4,34
	50	Q	52000	47500	39300	32000	26000	20900	16500	12800	9570	6840	4440	
		P	16,50	16,10	15,30	14,30	13,10	11,80	10,50	9,22	7,91	6,66	5,51	
HGX44e/770-4 HGX44e/770-4 S	30	Q	84600	77800	65300	54300	44700	36500	29400	23300	18100	13800	10100	6840
		P	12,40	12,60	12,80	12,60	12,10	11,50	10,60	9,62	8,51	7,34	6,16	5,02
	40	Q	72600	66500	55600	46100	37800	30700	24500	19300	14900	11100	7750	4860
		P	16,10	16,00	15,50	14,80	13,80	12,70	11,50	10,20	8,86	7,51	6,22	5,02
	50	Q	60300	55100	45700	37600	30700	24700	19600	15300	11600	8360	5530	
		P	19,20	18,80	17,80	16,50	15,20	13,70	12,20	10,60	9,15	7,70	6,37	

Relating to 20 °C suction gas temperature without liquid subcooling.

This performance data is preliminary data!

Motor version -S- (more powerful motor)

Supplementary cooling or reduced suction gas temp.

R404A/R507 — Performance data — 50 Hz

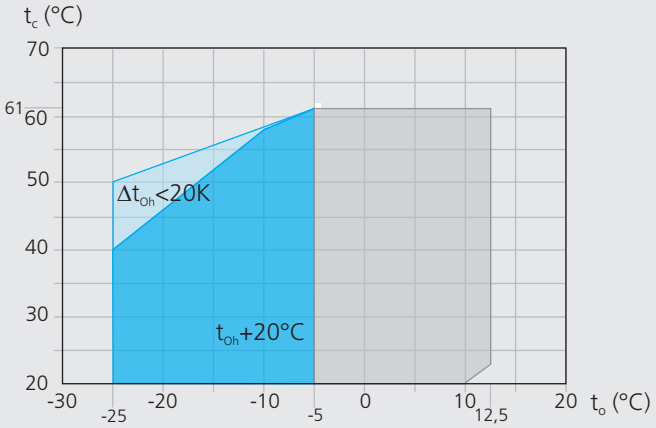
Type	Displacement m^3/h (50 Hz)	Cooling capacity $\dot{Q}_o$ [W] / Drive power P_e [kW]								
		Deep freezing Evaporation temp. -35°C / Condensing temp. +40°C			Normal cooling Evaporation temp. -10°C / Condensing temp. +45°C			Air-conditioning Evaporation temp. +5°C / Condensing temp. +50°C		
		$\dot{Q}o$	Pe	COP	$\dot{Q}o$	Pe	COP	$\dot{Q}o$	Pe	COP
HGX56e/850-4	73,8	12400	8,26	1,50	37700	16,0	2,36			
HGX56e/850-4 S	73,8				38100	16,0	2,38	61200	20,6	2,97
HGX56e/995-4	86,6	14300	9,69	1,48	44000	18,8	2,34			
HGX56e/995-4 S	86,6				44300	18,7	2,37	71300	24,2	2,95
HGX56e/1155-4	100,4	16600	11,1	1,50	51200	21,8	2,35			
HGX56e/1155-4 S	100,4				51700	21,8	2,37	83400	27,9	2,99

Relating to 20 °C suction gas temperature without liquid subcooling.

This performance data is preliminary data!

Operating limits and performance data

R407C Operating limits



Unlimited application range

Supplementary cooling or reduced suction gas temperature

Motor version -S- (more powerful motor)

t_O Evaporation temperature (°C)
t_C Condensing temperature (°C)
Δt_{Oh} Suction gas superheat (K)
t_{Oh} Suction gas temperature (°C)

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

[1] LP = low pressure HP = high pressure

R407C Notes

Operating limits

Compressor operation is possible within the limits shown on the application diagrams. Please note the coloured areas. Compressor application limits should not be chosen for design purposes or continuous operation.

Restrictions to the operating limits may occur when using a frequency converter.

Performance data

The performance data for R407C are based on European Standard EN 12900 **50 Hz power supply frequency**.
This signifies: **20 °C suction gas temperature without liquid subcooling.**
Evaporation and condensing temperatures are based on the dew point values (saturated vapour conditions).

Conversion factor for 60 Hz = 1,2

Performance data for other operating points, see GEA Bock software.

R407C Performance data 50 Hz

Type	Cond. temp. °C		Cooling capacity $\dot{Q}_o$ [W] Evaporating temperature °C 12,5	10	7,5	5	0	-5	-10	-15	-20	-25	Power consumption P_e [kW]
HGX44e/475-4 HGX44e/475-4 S	30	Q	56600	51700	47100	42800	35200	28500	22900	18100	14100	10700	
		P	7,20	7,25	7,25	7,21	7,03	6,66	6,24	5,73	5,18	4,59	
	40	Q	50200	45800	41700	37800	30900	24900	19900	15600	12000	8850	
		P	9,13	9,03	8,89	8,72	8,28	7,69	7,05	6,35	5,61	4,87	
	50	Q	43600	39700	36000	32600	26500	21200	16800	13100	9850	7100	
		P	10,80	10,50	10,30	10,00	9,33	8,54	7,69	6,80	5,90	5,02	
HGX44e/565-4 HGX44e/565-4 S	30	Q	67400	61600	56200	51100	42000	33900	27300	21700	17000	12900	
		P	8,54	8,60	8,61	8,56	8,34	7,93	7,42	6,81	6,14	5,44	
	40	Q	60000	54700	49800	45200	37000	29700	23800	18700	14500	10800	
		P	10,80	10,70	10,50	10,30	9,83	9,18	8,40	7,55	6,67	5,78	
	50	Q	52200	47500	43100	39000	31800	25300	20100	15700	12000	8650	
		P	12,80	12,50	12,20	11,80	11,00	10,20	9,18	8,10	7,01	5,95	
HGX44e/665-4 HGX44e/665-4 S	30	Q	78700	71900	65500	59600	48900	40000	32200	25500	19800	15000	
		P	10,00	10,00	10,00	10,00	9,76	9,23	8,65	7,95	7,17	6,36	
	40	Q	69800	63600	57900	52500	42900	34900	27900	21900	16800	12400	
		P	12,70	12,50	12,30	12,10	11,50	10,60	9,77	8,80	7,78	6,75	
	50	Q	60600	55100	49900	45200	36700	29700	23500	18300	13800	9890	
		P	15,10	14,70	14,40	13,90	13,00	11,80	10,60	9,43	8,18	6,96	
HGX44e/770-4 HGX44e/770-4 S	30	Q	92000	84000	76600	69600	57100	46300	37100	29300	22700	17000	
		P	11,60	11,70	11,70	11,60	11,30	10,80	10,00	9,22	8,26	7,23	
	40	Q	81400	74200	67400	61200	49900	40300	32000	25000	19000	13900	
		P	14,80	14,70	14,40	14,10	13,30	12,40	11,30	10,00	8,82	7,51	
	50	Q	70400	64000	58000	52400	42500	34000	26800	20600	15400	10800	
		P	17,60	17,20	16,70	16,20	15,00	13,60	12,10	10,60	9,06	7,49	

Relating to 20 °C suction gas temperature without liquid subcooling
This performance data is preliminary data!

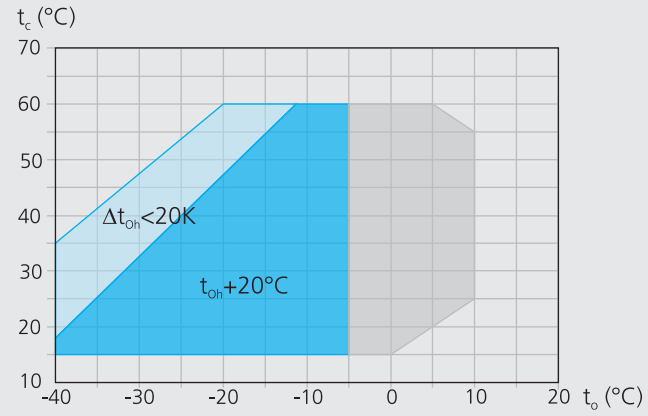
Motor version -S- (more powerful motor)

Supplementary cooling or reduced suction gas temp.

96321-10.2014-Gb Subject to change without notice

Operating limits and performance data

R407F Operating limits



Unlimited application range

Supplementary cooling or reduced suction gas temperature

Motor version -S- (more powerful motor)

t_o Evaporation temperature (°C)
t_c Condensing temperature (°C)
Δt_{Oh} Suction gas superheat (K)
t_{Oh} Suction gas temperature (°C)

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

[1] LP = low pressure HP = high pressure

R407F Notes

Operating limits

Compressor operation is possible within the limits shown on the application diagrams. Please note the coloured areas. Compressor application limits should not be chosen for design purposes or continuous operation.

Restrictions to the operating limits may occur when using a frequency converter.

Performance data

The performance data for R407C are based on European Standard EN 12900 **50 Hz power supply frequency**.
This signifies: **20 °C suction gas temperature without liquid subcooling.**
Evaporation and condensing temperatures are based on the dew point values (saturated vapour conditions).

Conversion factor for 60 Hz = 1,2

Performance data for other operating points, see GEA Bock software.

R407F Performance data 50 Hz

Type	Cond. temp. °C		Cooling capacity $\dot{Q}_o$ [W] / Power consumption P_e [kW] — Evaporating temperature °C										
			10	5	0	-5	-10	-15	-20	-25	-30	-35	-40
HGX44e/475-4 HGX44e/475-4 S	30	Q	58200	48400	39900	32500	26000	20600	16100	12400	9210	6640	4520
		P	7,56	7,73	7,68	7,45	6,98	6,45	5,84	5,15	4,43	3,71	3,00
	40	Q	51000	42400	34800	28300	22600	17900	13900	10500	7620	5210	
		P	9,81	9,63	9,27	8,74	7,99	7,21	6,36	5,46	4,55	3,65	
	50	Q	43900	36300	29700	24100	19100	15000	11500	8460			
		P	11,80	11,30	10,60	9,84	8,81	7,76	6,67	5,55			
HGX44e/565-4 HGX44e/565-4 S	30	Q	69400	57800	47700	38900	31000	24700	19400	14900	11200	8120	5600
		P	9,05	9,24	9,19	8,92	8,36	7,73	6,99	6,16	5,30	4,42	3,57
	40	Q	61000	50700	41700	34000	27000	21500	16700	12800	9330	6460	
		P	11,70	11,50	11,00	10,40	9,61	8,66	7,63	6,54	5,44	4,36	
	50	Q	52600	43600	35700	29000	22900	18100	14000	10400			
		P	14,10	13,50	12,70	11,70	10,60	9,35	8,02	6,66			
HGX44e/665-4 HGX44e/665-4 S	30	Q	81800	68000	56000	45600	36500	29000	22600	17300	12900	9260	6270
		P	10,50	10,70	10,60	10,30	9,72	9,00	8,15	7,20	6,20	5,18	4,19
	40	Q	71600	59400	48800	39700	31600	25000	19400	14700	10700	7220	
		P	13,60	13,40	12,90	12,10	11,10	10,00	8,88	7,63	6,36	5,11	
	50	Q	61600	50900	41600	33700	26700	20900	16000	11800			
		P	16,50	15,80	14,80	13,70	12,30	10,80	9,33	7,78			
HGX44e/770-4 HGX44e/770-4 S	30	Q	93600	77900	64300	52400	42200	33600	26300	20200	15100	10900	7350
		P	12,10	12,40	12,30	11,90	11,30	10,40	9,50	8,42	7,29	6,16	5,08
	40	Q	82000	68200	56100	45700	36700	29100	22600	17100	12500	8480	
		P	15,80	15,50	14,90	14,00	12,90	11,70	10,30	8,99	7,58	6,20	
	50	Q	70500	58400	47900	38900	31100	24400	18700	13900			
		P	19,20	18,30	17,20	15,80	14,30	12,70	11,00	9,27			

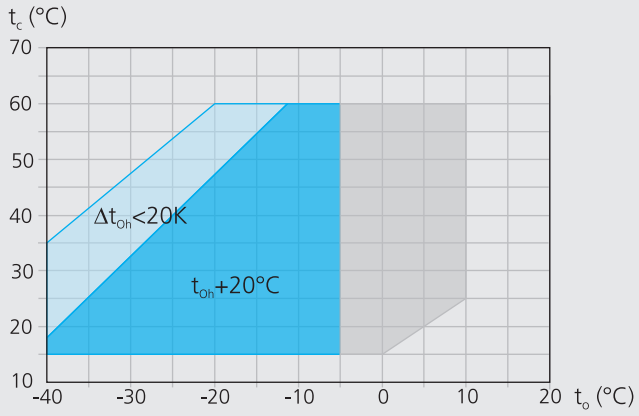
Relating to 20 °C suction gas temperature without liquid subcooling
This performance data is preliminary data!

Motor version -S- (more powerful motor)

Supplementary cooling or reduced suction gas temp.

Operating limits and performance data

R407A Operating limits



Unlimited application range

Supplementary cooling or reduced suction gas temperature

Motor version -S- (more powerful motor)

t_o Evaporation temperature (°C)
t_c Condensing temperature (°C)
Δt_{Oh} Suction gas superheat (K)
t_{Oh} Suction gas temperature (°C)

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

[1] LP = low pressure HP = high pressure

R407A Notes

Operating limits

Compressor operation is possible within the limits shown on the application diagrams. Please note the coloured areas. Compressor application limits should not be chosen for design purposes or continuous operation.

Restrictions to the operating limits may occur when using a frequency converter.

Performance data

The performance data for R407C are based on European Standard EN 12900 **50 Hz power supply frequency**.
This signifies: **20 °C suction gas temperature without liquid subcooling.**
Evaporation and condensing temperatures are based on the dew point values (saturated vapour conditions).

Conversion factor for 60 Hz = 1,2

Performance data for other operating points, see GEA Bock software.

R407A Performance data 50 Hz

Type	Cond. temp. °C		Cooling capacity $\dot{Q}_o$ [W] / Power consumption P_e [kW] — Evaporating temperature °C										
			10	5	0	-5	-10	-15	-20	-25	-30	-35	-40
HGX44e/475-4 HGX44e/475-4 S	30	Q	56900	47200	38800	31500	25000	19800	15300	11700	8630	6220	4300
		P	7,42	7,55	7,48	7,24	6,74	6,22	5,62	4,95	4,26	3,58	2,92
	40	Q	49700	41100	33600	27100	21500	16900	13000	9750	7130	4990	
		P	9,48	9,29	8,92	8,40	7,67	6,92	6,10	5,25	4,40	3,57	
	50	Q	42600	35000	28400	22800	17900	13900	10600	7870			
		P	11,30	10,80	10,10	9,37	8,41	7,42	6,39	5,35			
HGX44e/565-4 HGX44e/565-4 S	30	Q	66500	55300	45400	36900	29900	23700	18400	14100	10500	7610	5330
		P	8,73	8,90	8,82	8,53	8,03	7,41	6,68	5,88	5,05	4,23	3,45
	40	Q	58300	48200	39500	31900	25700	20200	15700	11900	8740	6190	
		P	11,10	10,90	10,50	9,91	9,16	8,25	7,26	6,24	5,21	4,22	
	50	Q	50000	41100	33500	26900	21500	16800	12900	9650			
		P	13,40	12,80	12,00	11,00	10,00	8,86	7,61	6,36			
HGX44e/665-4 HGX44e/665-4 S	30	Q	79000	65700	54100	44000	35200	27700	21500	16300	12100	8670	5960
		P	10,20	10,40	10,30	9,99	9,34	8,62	7,78	6,87	5,91	4,96	4,05
	40	Q	69000	57100	46800	37900	30100	23600	18200	13700	9930	6920	
		P	13,10	12,80	12,30	11,60	10,60	9,59	8,45	7,28	6,09	4,95	
	50	Q	59000	48500	39500	31700	25000	19500	14800	11000			
		P	15,70	15,00	14,10	12,90	11,60	10,20	8,86	7,42			
HGX44e/770-4 HGX44e/770-4 S	30	Q	91600	76000	62500	50800	40700	32100	25000	19000	14100	10200	7000
		P	11,90	12,10	12,00	11,60	11,00	10,10	9,24	8,20	7,12	6,06	5,06
	40	Q	80000	66100	54100	43800	34900	27400	21200	16000	11700	8130	
		P	15,30	15,00	14,40	13,50	12,50	11,30	10,00	8,75	7,44	6,18	
	50	Q	68400	56300	45800	36800	29200	22700	17400	12900			
		P	18,50	17,60	16,50	15,20	13,70	12,20	10,60	9,03			

Relating to 20 °C suction gas temperature without liquid subcooling
This performance data is preliminary data!

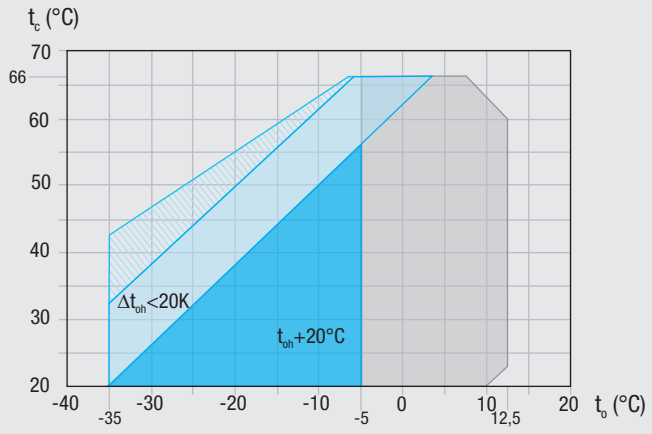
Motor version -S- (more powerful motor)

Supplementary cooling or reduced suction gas temp.

96321-10.2014-Gb Subject to change without notice

Operating limits and performance data

R22 Einsatzgrenzen



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

Unlimited application range

Supplementary cooling or reduced suction gas temperature

Supplementary cooling and reduced suction gas temperature

Motor version -S- (more powerful moto)

t_O Evaporation temperature (°C)
t_C Condensing temperatur (°C)
Δt_{Oh} Suction gas superheat (K)
t_{Oh} Suction gas temperature (°C)

[1] LP = low pressure HP = high pressure

R22 Notes

Operating limits

Compressor operation is possible within the limits shown on the application diagrams. Please note the coloured areas. Compressor application limits should not be chosen for design purposes or continuous operation.

Restrictions to the operating limits may occur when using a frequency converter.

Performance data

The performance data for R22 are based on European Standard EN 12900 **50 Hz power supply frequency**.
This signifies: **20 °C suction gas temperature without liquid subcooling**.

Conversion factor for 60 Hz = 1,2

Performance data for other operating points, see GEA Bock software.

R22 Performance data 50 Hz

Type	Cond. temp. °C		Cooling capacity $\dot{Q}_o$ [W] / Power consumption P_e [kW]											
			Evaporating temperature °C											
			12,5	10	7,5	5	0	-5	-10	-15	-20	-25	-30	-35
HG44e/475-4 HG44e/475-4 S	30	Q	58200	53600	49100	45000	37500	30800	25100	20300	16100	12500	9390	6730
		P	7,16	7,27	7,34	7,36	7,29	7,02	6,68	6,25	5,73	5,16	4,55	3,93
	40	Q	52700	48300	44300	40500	33600	27400	22200	17800	14000	10700	7780	5280
		P	9,17	9,15	9,08	8,97	8,66	8,19	7,63	6,99	6,29	5,54	4,78	4,02
	50	Q	47000	43100	39300	35900	29600	24000	19300	15300	11800	8800		
		P	11,00	10,80	10,60	10,40	9,90	9,24	8,46	7,62	6,73	5,82		
HG44e/565-4 HG44e/565-4 S	30	Q	69400	63900	58600	53700	44800	36700	30000	24300	19300	15100	11400	8180
		P	8,50	8,64	8,71	8,74	8,65	8,37	7,96	7,43	6,81	6,12	5,39	4,64
	40	Q	62900	57700	52900	48400	40200	32600	26600	21300	16800	12900	9460	6450
		P	10,80	10,80	10,70	10,60	10,20	9,79	9,11	8,33	7,48	6,58	5,66	4,74
	50	Q	56300	51500	47100	43000	35500	28600	23200	18400	14300	10800		
		P	13,10	12,90	12,60	12,40	11,70	11,00	10,10	9,10	8,02	6,91		
HG44e/665-4 HG44e/665-4 S	30	Q	81000	74500	68300	62600	52100	43300	35300	28500	22600	17500	13200	9410
		P	9,95	10,10	10,10	10,20	10,10	9,73	9,26	8,66	7,94	7,15	6,30	5,44
	40	Q	73100	67100	61500	56200	46600	38400	31200	24900	19600	14900	10900	7320
		P	12,70	12,70	12,60	12,50	12,00	11,30	10,50	9,69	8,71	7,68	6,63	5,57
	50	Q	65200	59700	54600	49700	41000	33600	27000	21400	16500	12300		
		P	15,40	15,20	14,90	14,50	13,80	12,80	11,70	10,50	9,33	8,07		
HG44e/770-4 HG44e/770-4 S	30	Q	93900	86300	79200	72600	60500	50000	40900	33000	26200	20400	15400	11100
		P	11,50	11,70	11,80	11,80	11,70	11,30	10,80	10,10	9,28	8,35	7,36	6,36
	40	Q	84700	77800	71300	65200	54100	44500	36200	29000	22800	17500	12800	8710
		P	14,80	14,80	14,60	14,50	13,90	13,20	12,30	11,30	10,10	8,97	7,74	6,51
	50	Q	75600	69300	63300	57800	47700	39000	31500	25000	19400	14500		
		P	17,90	17,70	17,30	16,90	16,00	14,90	13,60	12,30	10,90	9,43		

Relating to 20 °C suction gas temperature without liquid subcooling

This performance data is preliminary data!

Supplementary cooling or reduced suction gas temp.

Motor version -S- (more powerful motor)

Supplementary cooling and reduced suction gas temp.

Technical data

Type	Number of cylinders	Displacement 50 / 60 Hz (1450/1740 rpm)	Electrical data				Weight	Connections ④		Oil charge
			Voltage ①	Max. working current ②	Max. power consumption ②	Starting current (rotor locked)		Discharge line DV	Suction line SV	
		m³/h		A	kW	A	kg	mm I inch	mm I inch	Ltr.
				PW 1 + 2		PW 1 / PW 1 + 2				
HG44e/475-4	4	41,30 / 49,60	③	19	11,0	83 / 109	164	28 / 1 1/8	35 / 1 3/8	2,3
HG44e/475-4 S	4	41,30 / 49,60	③	23	13,1	115 / 150	168	28 / 1 1/8	35 / 1 3/8	2,3
HG44e/565-4	4	49,20 / 59,00	③	22	13,2	83 / 109	164	28 / 1 1/8	35 / 1 3/8	2,3
HG44e/565-4 S	4	49,20 / 59,00	③	26	15,6	133 / 171	170	28 / 1 1/8	42 / 1 5/8	2,3
HG44e/665-4	4	57,70 / 69,20	③	26	15,4	115 / 150	171	28 / 1 1/8	42 / 1 5/8	2,3
HG44e/665-4 S	4	57,70 / 69,20	③	30	18,3	133 / 171	168	28 / 1 1/8	42 / 1 5/8	2,3
HG44e/770-4	4	67,00 / 80,40	③	30	17,8	133 / 171	168	28 / 1 1/8	42 / 1 5/8	2,3
HG44e/770-4 S	4	67,00 / 80,40	③	35	21,4	133 / 171	168	28 / 1 1/8	42 / 1 5/8	2,3
HG56e/850-4	6	73,80 / 88,60	③	38	22,6	133 / 171	194	28 / 1 1/8	42 / 1 5/8	3,0
HG56e/850-4 S	6	73,80 / 88,60	③	43	25,3	162 / 210	211	28 / 1 1/8	54 / 2 1/8	3,0
HG56e/995-4	6	86,60 / 103,90	③	44	26,0	162 / 210	208	28 / 1 1/8	54 / 2 1/8	3,0
HG56e/995-4 S	6	86,60 / 103,90	③	50	29,9	189 / 246	211	28 / 1 1/8	54 / 2 1/8	3,0
HG56e/1155-4	6	100,40 / 120,50	③	51	30,4	189 / 246	212	28 / 1 1/8	54 / 2 1/8	3,0
HG56e/1155-4 S	6	100,40 / 120,50	③	61	34,5	253 / 330	221	28 / 1 1/8	54 / 2 1/8	3,0

* 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 50Hz operation. For 60Hz operation, the specifications have to be multiplied by the factor 1.2. The max. working current remains unchanged

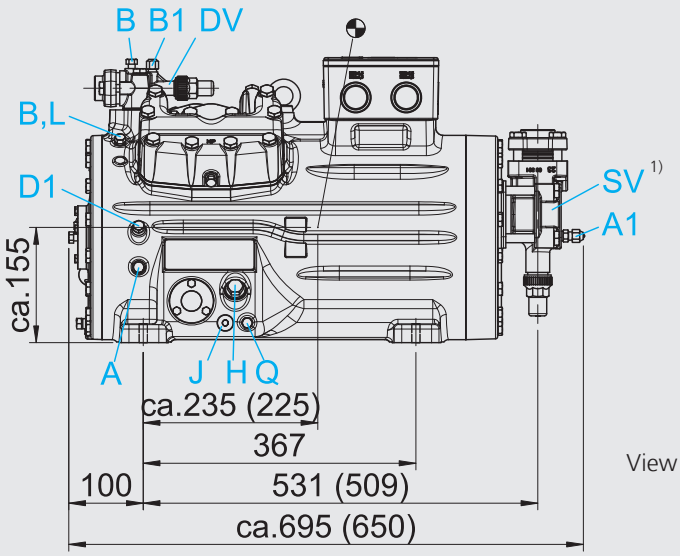
- Take account of the max. operating current / max. power consumption when designing contactors, leads and fuses. Switches: Service category AC3

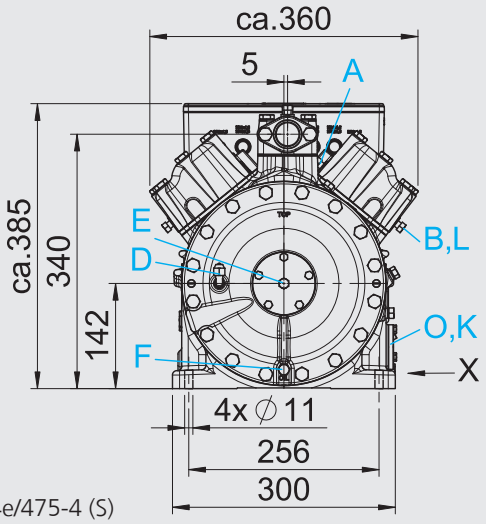
③ 380-420 V Y/ YY - 3 - 50 Hz PW
440-480 V Y/ YY - 3 - 60 Hz PW
PW = Part Winding, motors for part winding start (no start unloaders required)
- Winding ratios: 70% / 30%
- Designs for Y/Δ on request

④ For soldering connections

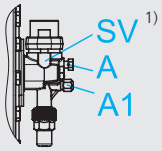
96321-10.2014-Gb Subject to change without notice

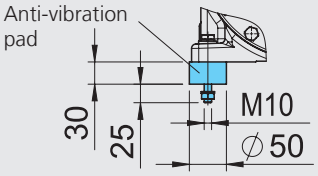
HG44e





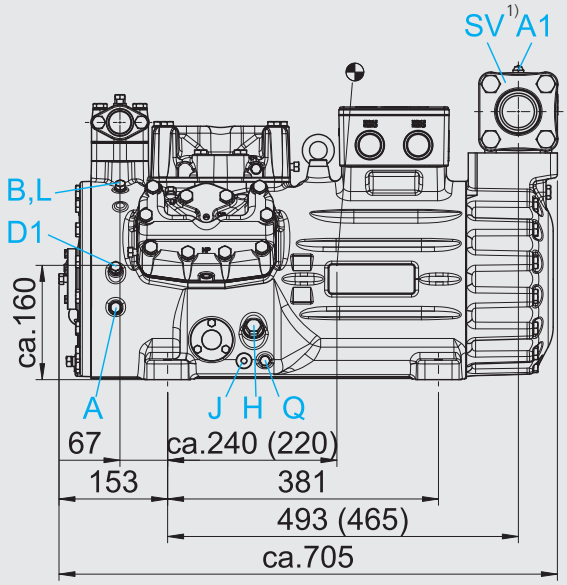
View HG(X)44e/475-4 (S)
HG(X)44e/565-4

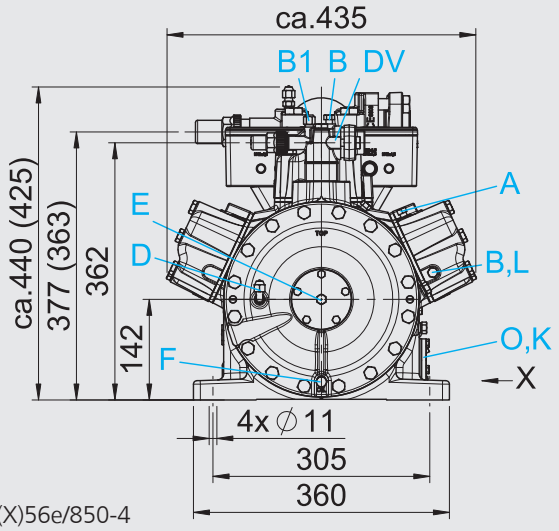




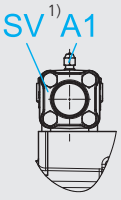
Dimensions in ( ) for HG(X)44e/475-4 (S) + 565-4

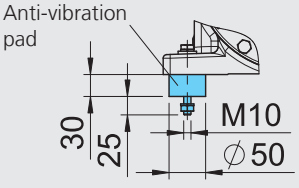
HG56e





View HG(X)56e/850-4





Dimensions in ( ) for HG(X)56e/850-4

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

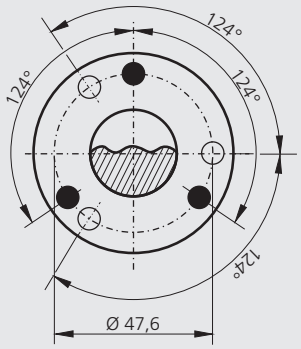
Connections see page 20

View X

Possibility to connect to oil level regulator

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

○ Three-hole connection for oil level regulator make TRAXOIL (3 x M6 x 10 deep)



Dimensions in mm

Connections

SV DV	Suction line Discharge line	please refer to Technical data page 18
A	Connection suction side, not lockable	1/8 " NPTF
A1	Connection suction side, lockable	7/16 " UNF
B	Connection discharge side, not lockable	1/8 " NPTF
B1	Connection discharge side, lockable	7/16 " UNF
D	Connection oil pressure safety switch LP	7/16 " UNF
D1	Connection oil return from oil separator	1/4 " NPTF
E	Connection oil pressure gauge	1/8 " NPTF
F	Oil drain	1/4 " NPTF
H	Oil charge plug	M 22 x 1,5
J	Connection oil sump heater	Ø 15 mm
K	Sight glass	-
L	Connection thermal protection thermostat	1/8 " NPTF
O	Connection oil level regulator	3 x M6
Q	Connection oil temperature sensor	1/8 " NPTF

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Scope of supply

Scope of supply	HG44e	HG56e
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 Single-section compressor housing with hermetically integrated electric motor	●	
Semi-hermetic six 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 Single-section compressor housing with hermetically integrated electric motor		●
Winding protection with PTC resistor sensors and electronic trigger unit INT69 G	●	●
Oil pump	●	●
Possibility to connect to oil level controllers makes ESK, AC+R or CARLY	●	●
Possibility to connect to oil level controllers make Traxoil	● [1)]	● [1)]
Oil charge: HG: FUCHS Reniso SP46 HGX: FUCHS Reniso Triton SE55	●	●
Sight glass	●	●
Decompression valve	●	●
Suction and discharge line valve	●	●
Inert gas charge	●	●
4 anti-vibration pads enclosed	●	●

1) Only possible with additional adapter

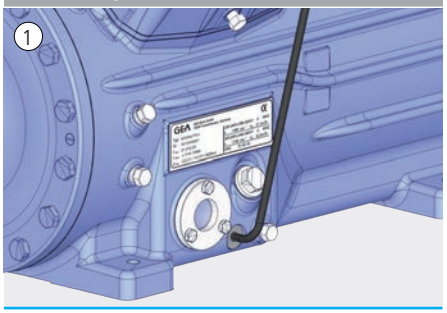
Accessories

Accessories	HG44e	HG56e
① Oil sump heater 220-240 V - 1 - 50/60 Hz, 160 W	●	●
② Thermal protection thermostat (PTC)	●	●
③ Capacity regulator 230 V - 1 - 50/60 Hz, IP65, 1 capacity regulator = 50% residual capacity	●	
Capacity regulator 230 V - 1 - 50/60 Hz, IP65, 1-2 capacity regulators = 66/33% residual capacity		●
④ Start unloader by means of a ESS (Electronic Soft Start) 400 V - 3 - 50/60 Hz, IP20, (connection clamps IP00) for installation in switch cabinet	● [1]	● [1]
⑤ Oil pressure safety switch MP 54 230 V - 1 - 50/60 Hz, IP20	● [1]	● [1]
⑥ Oil differential pressure sensor, (Δp-switch Kriwan make) 220-240 V - 1 - 50/60 Hz	● [1]	● [1]
⑦ INT69 G Diagnose 115 V / 230 V AC, 50/60 Hz, IP00 (INT69 G not applicable)	●	●
⑧ DP-Modbus Gateway 115 V / 230 V AC, 50/60 Hz, IP00 incl. adapter cable	● [1]	● [1]
⑨ Modbus-LAN Gateway 230 V AC, 50/60 Hz, IP00	● [1]	● [1]
⑩ USB converter for INT69 G Diagnose	● [1]	● [1]
⑪ Oil service valve	●	●
⑫ Additional fan 230 V D /400 V Y -3- 50 Hz, 120 W, 230-265 V Δ / 400-460 V Y - 3 - 60 Hz, 190 W, IP54	● [1]	● [1]
⑬ Cylinder cover prepared for capacity regulator	●	●
⑭ Rear bearing flange prepared for oil differential pressure sensor (Δp-switch Kriwan make)	●	●
⑮ Connection piece suction and discharge valve in welded construction	●	●
Special voltage and/or frequency	● [2]	● [2]

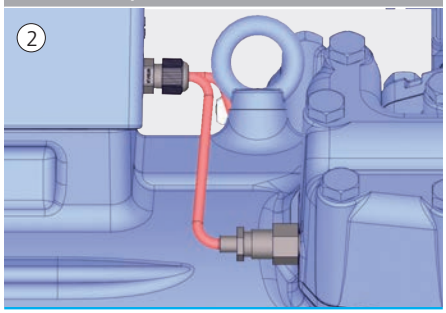
[1] Enclosed package

[2] On request

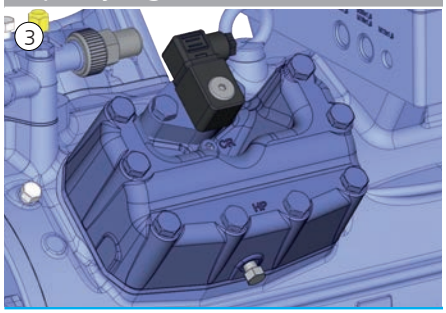
Oil sump heater



Thermal protection thermostat



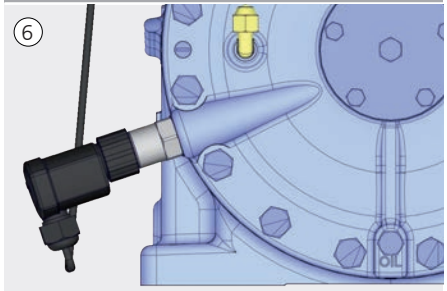
Capacity regulator



ESS Electronic Soft Start

Oil pressure safety switch

Oil differential pressure sensor



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Accessories

INT69 G Diagnose

⑦

DP-Modbus Gateway

⑧

Modbus-LAN Gateway

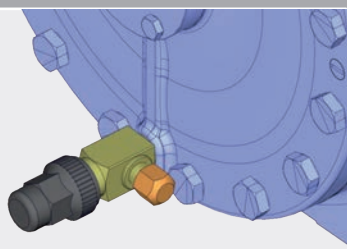
⑨

USB converter

⑩

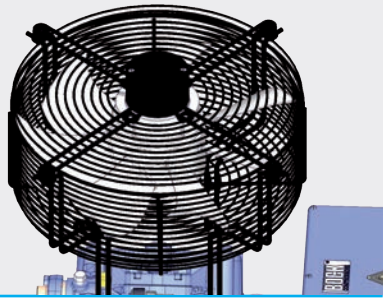
Oil service valve

⑪



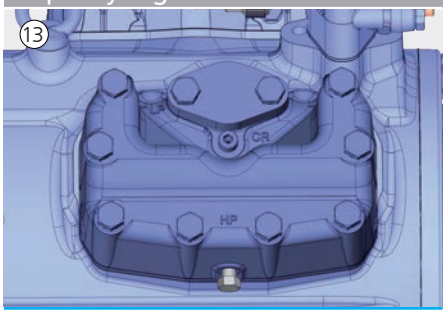
Additional fan

⑫



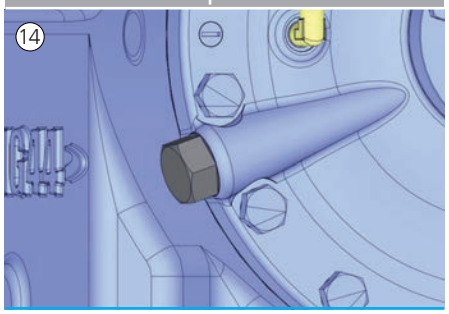
Cylinder cover prepared for capacity regulator

⑬



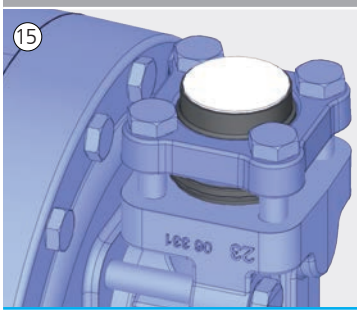
Rear bearing flange prepared for oil differential pressure sensor

⑭



Connection piece in welded construction

⑮



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