



BOCK Semi-hermetic Compressors

Single- and two-stage reciprocating
Bock compressors (HG/HA)

BOCK

colour the world
of tomorrow



HG semi-hermetic compressors

1

HA semi-hermetic compressors

2

HGZ two-stage semi-hermetic compressors

3



ASERCOM Certification

Based on the requirements of the EU Ecodesign Directive and the corresponding regulation.

ASERCOM, the association of European manufacturers of components for refrigeration and air conditioning, addresses scientific and technical challenges, promotes performance and safety standards, supports better environmental protection, and serves the refrigeration and air conditioning industry and its customers. ASERCOM's compressors certification

program enables an objective performance comparison of the wide range of products on the market.

Many of the BOCK compressors are certified.

An overview can be found here:

<https://www.asercom.org/list-of-certified-compressors/>

Overview

HG (gas-cooled)

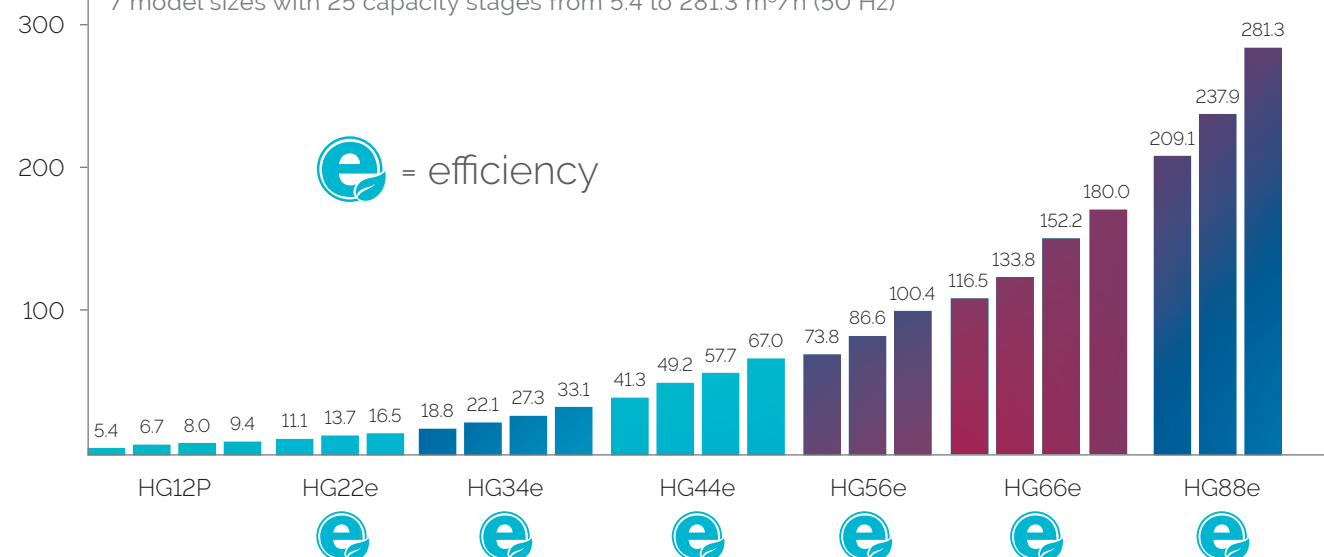
The BOCK HG range of semi-hermetic compressors offers traditional suction-gas-cooled compressor technology. These compressors are state-of-the-art, excelling in ease of running, simple maintenance, high efficiency, and reliability.



HG66e

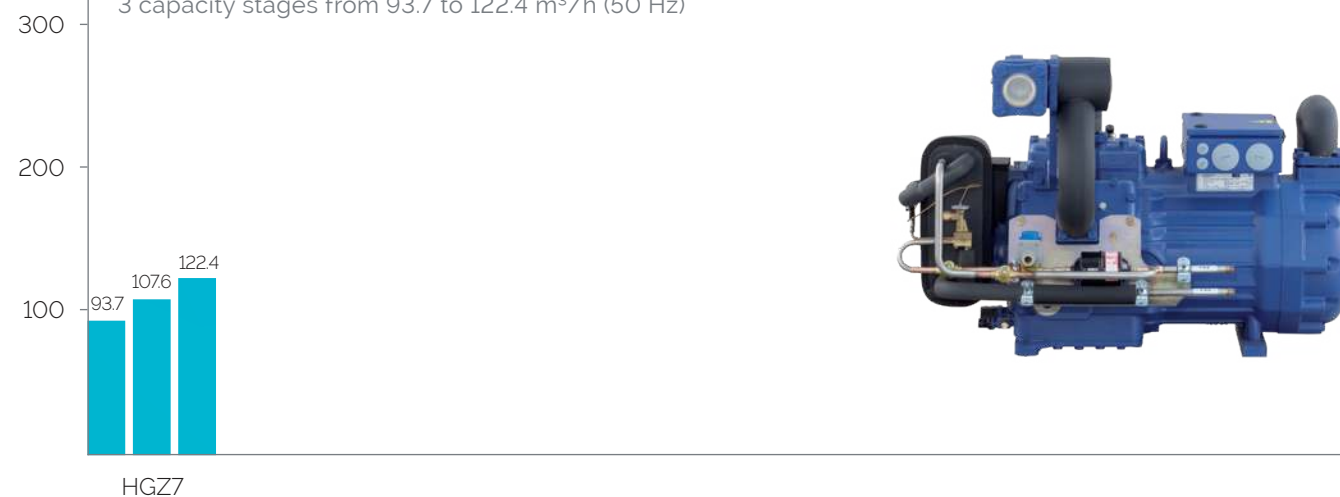
HG Single-Stage

7 model sizes with 25 capacity stages from 5.4 to 281.3 m³/h (50 Hz)



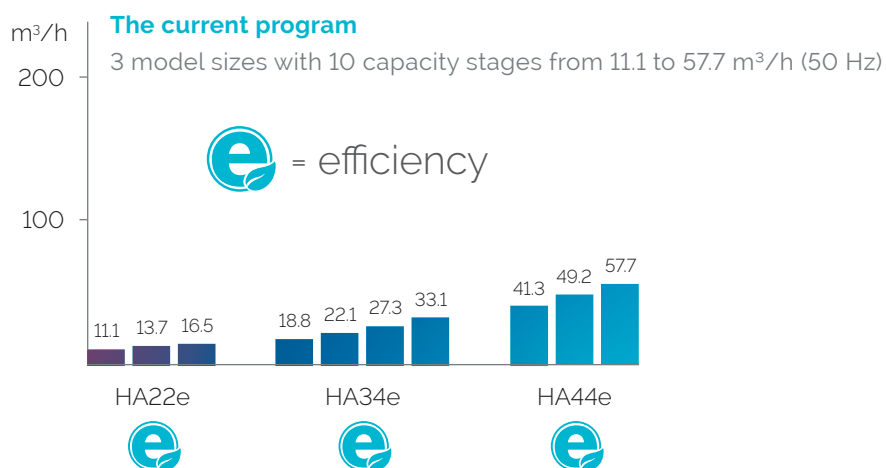
HGZ Two-Stage

3 capacity stages from 93.7 to 122.4 m³/h (50 Hz)



HA (air-cooled)

The BOCK HA range of semi-hermetic compressors has been specially engineered for low temperature applications. While gas-cooled compressors can reach their temperature limit due to heat-up of the suction gas by the drive motor, the unique BOCK HA principle prevents this: Drive motor and cylinder heads are air-cooled via a compact ventilation unit, and the suction gas is fed directly to the compressor without passing through the motor. HA compressors are suitable as standard for conventional or chlorine-free HFC refrigerants and are particularly offered for the refrigerants R404A, R507, R407A, R407F, R448A, R449A, R22.



Improved HG/HA Series

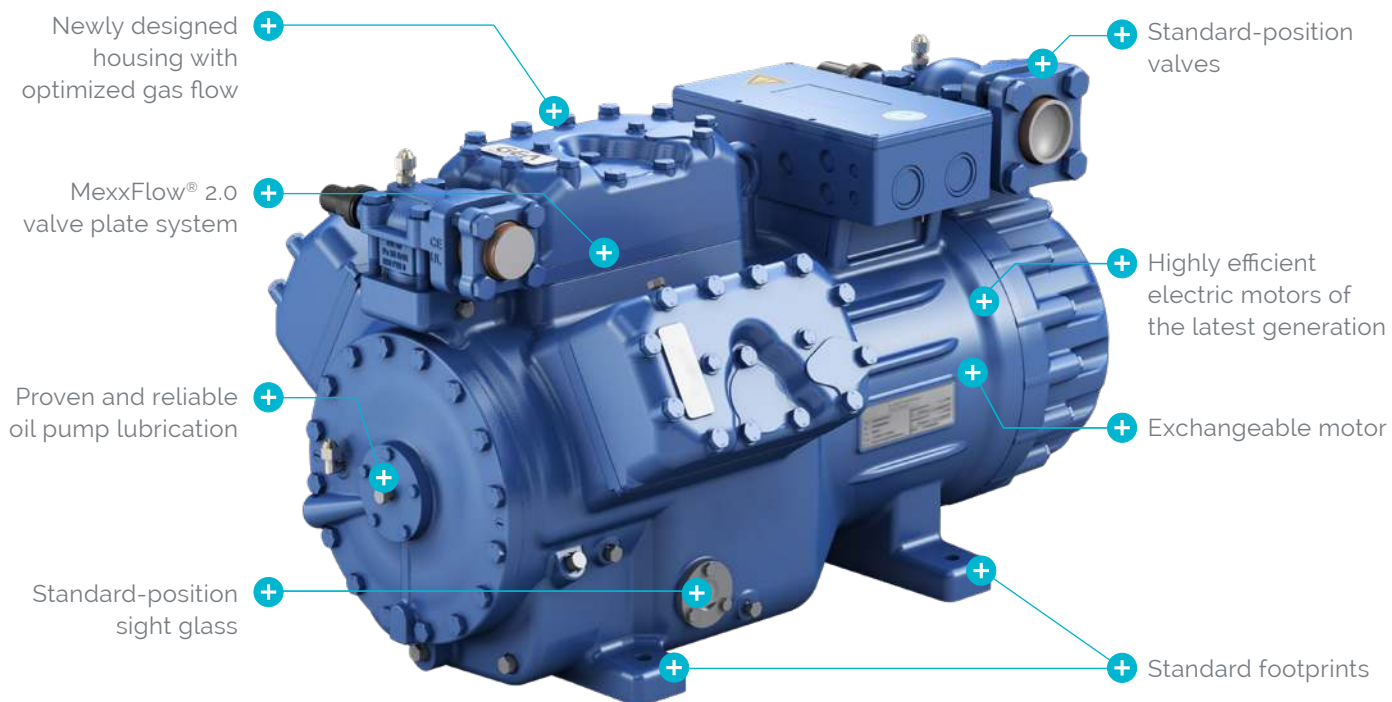
For new advancements in efficiency, BOCK has now updated its entire semi-hermetic compressor range. The new models, marked with the letter "e" (= efficiency), all offer decisive mechanical improvements, a more compact design and easier-to-use connections.

The entire range of gas-cooled commercial BOCK compressors is now available in the new, optimized design. In addition to their uses in the fields 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, a more compact structural design, and a new configuration of connections.

To increase efficiency and reduce energy consumption, the new models profit from a new and advanced valve plate system, electrical motors from the latest generation, and enhanced gas flow.

The re-designed 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.





HG66e

HG88e

HA22e

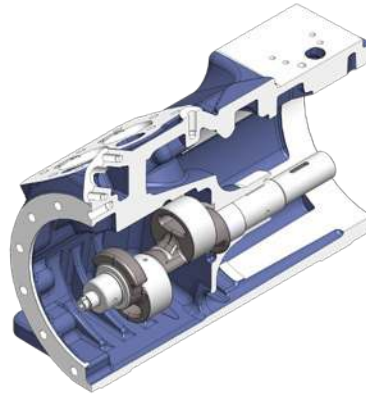
HA34e

HA44

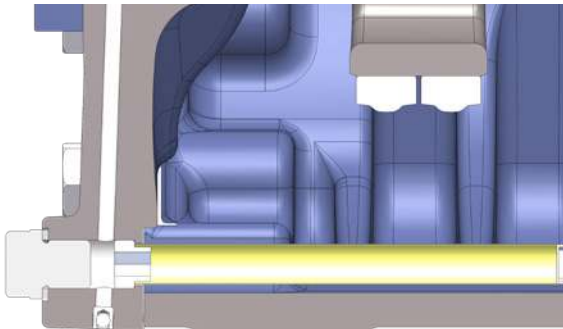
Improved technology

Optimized drive gear

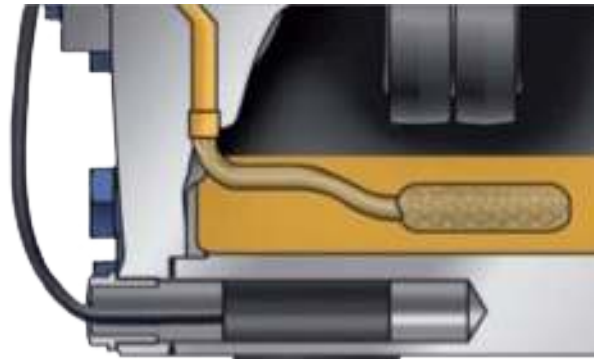
- Optimized drive gear with thrust washer, improving emergency-mode operation and resistance against damage in case of insufficient lubrication



New, easy-to-maintain strainer

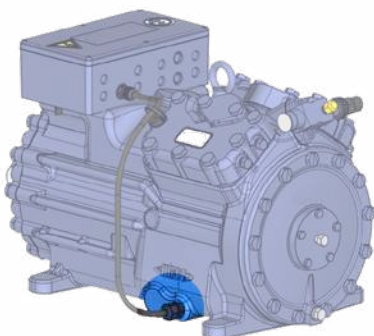


- New, easy-to-remove oil strainer for easier maintenance and increased availability

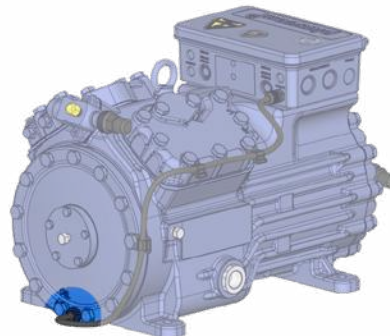


- Former version

Optimized fastening of oil sump heater

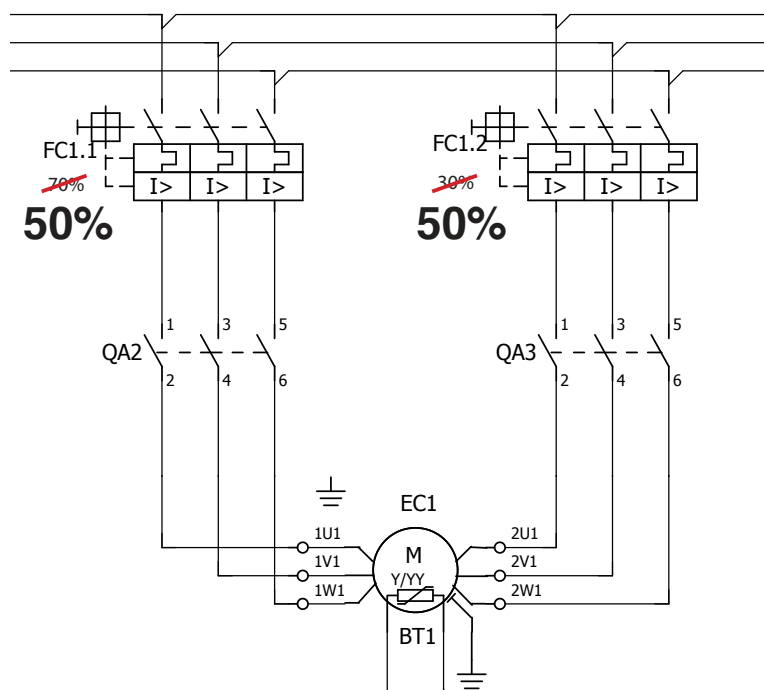


- New, optimized fastening of oil sump heater



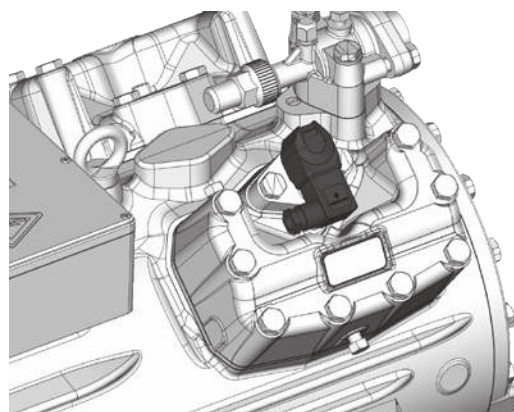
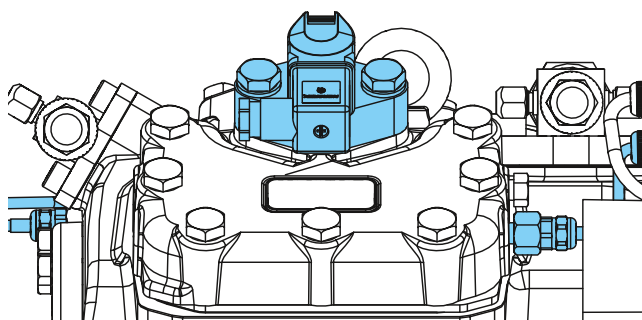
- Former version

50 / 50 winding sectioning



- HG44e, HG56e, HG66e & HG88e
state-of-the-art 50/50 performance

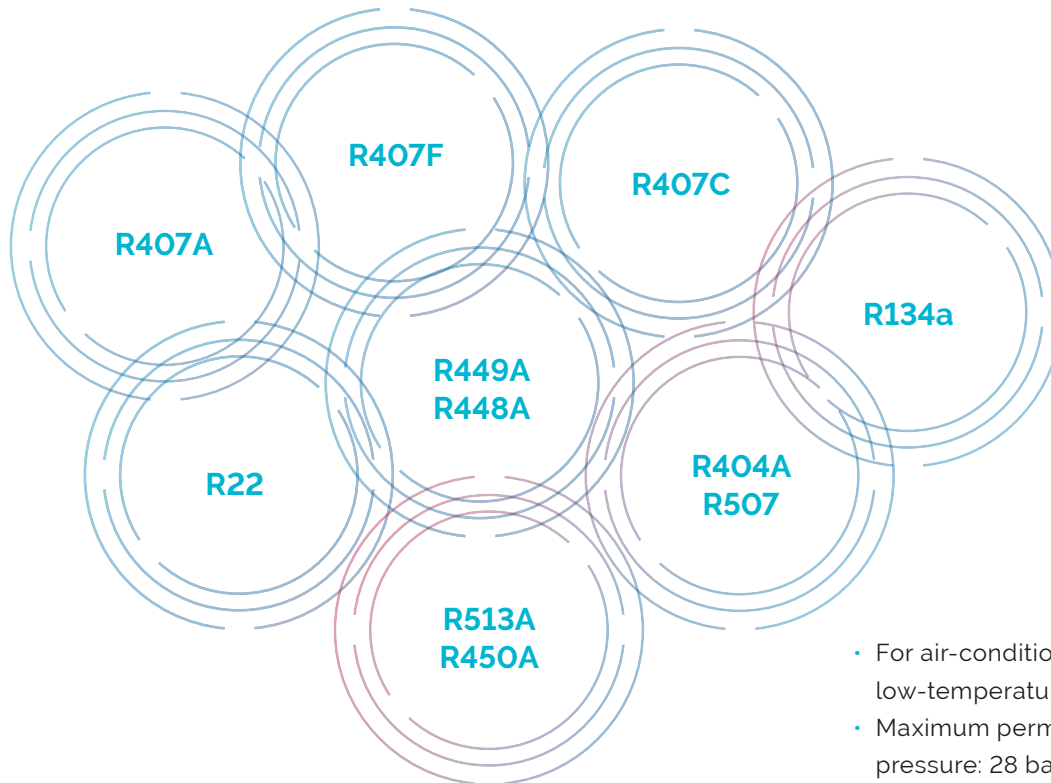
Digital Capacity Regulator DCR14 (HG34e / HG44e / HG56e / HA34e / HA44e)



- Digital control with the possibility of high switching frequency
- Almost infinite capacity regulation
- Economical alternative to a frequency converter

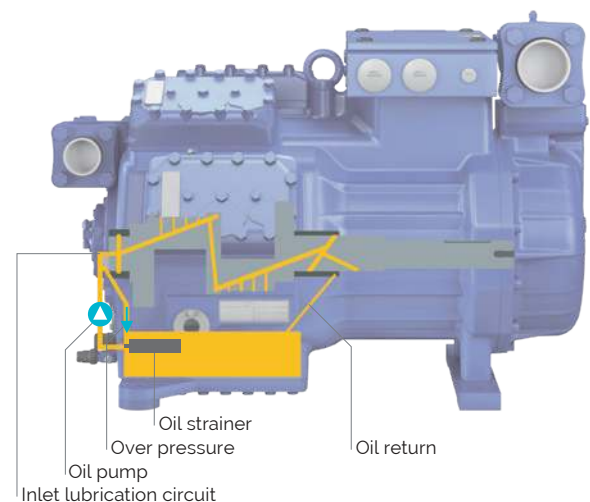
Unique features and advantages

One compressor design for all standard refrigerants



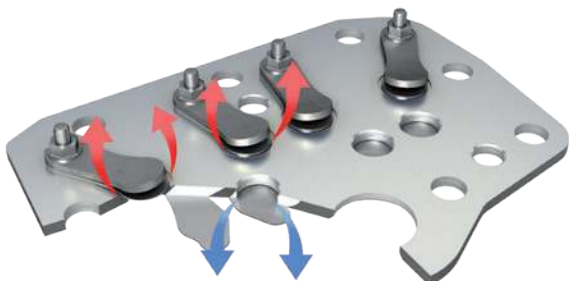
- For air-conditioning, medium and low-temperature application
- Maximum permissible operating pressure: 28 bar

Safe, reliable oil supply



- All compressors with a conventional single circuit lubricating system
- All compressors with oil pump lubrication independent of direction of rotation
- Minimized oil carryover
- Service-friendly oil strainer
- Oil pump lubrication independent of direction of rotation
- Connection possibility for oil pressure monitoring
- Large-volume oil sump
- Coupling option for oil level regulator included as standard

Standard valve plate design



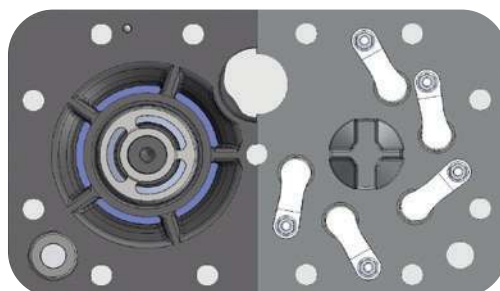
HG12P-56e

- Valves made of high-quality, impact-resistant spring steel
- Universally proven valve design with suction and discharge finger reed valves

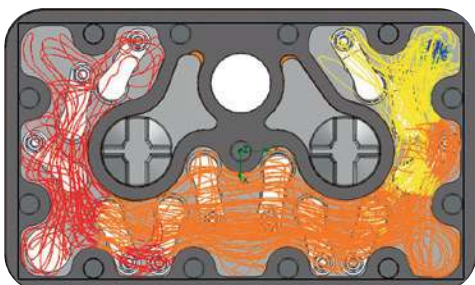
Valve plate innovation: mexxFlow®, only from BOCK



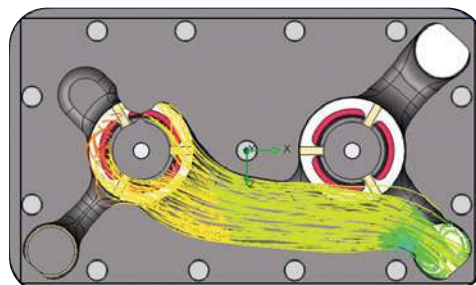
HG66e
HG88e



mexxFlow® vs. previous design



Previous cylinder cover – high pressure drops and turbulences



mexxFlow® – reduced pressure drops and improved gas flow

- With the mexxFlow® system pressure losses can be minimized thanks to a flow-optimized double ring fin construction of the valve plate, in combination with a cylinder head that is specially adapted to the valve plate. Thus, the efficiency of the compressor is increased significantly

Wear-resistant durable driving gear



2- and 4-cylinder compressor
HG12P to HG34e

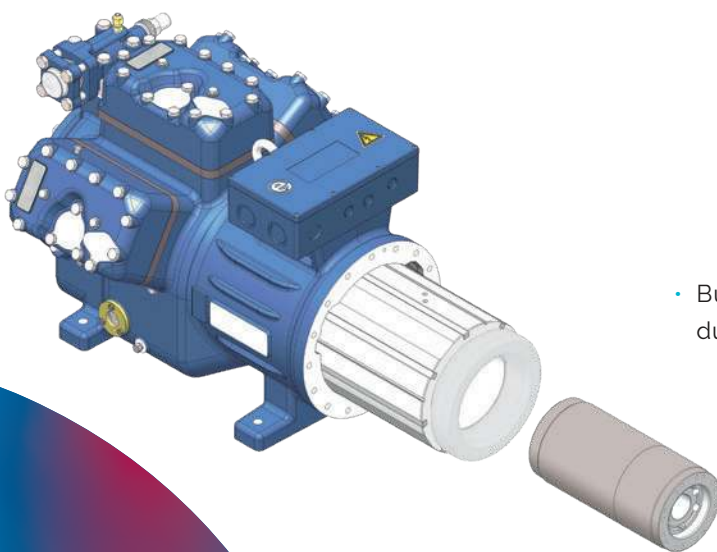
- Solid design of excentric shaft
- High durability due to low-friction sleeve bearings
- Low oil carryover due to aluminum pistons with double ring assembly



4-, 6- and 8-cylinder compressor
HG44e to HG88e

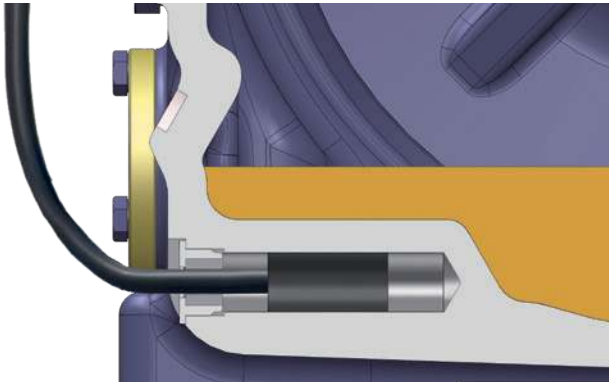
- Solid design of crankshaft
- High durability due to low-friction sleeve bearings
- Aluminum pistons with triple ring assembly, hard-chromium-plated sealing ring, HG44e and HG56e with double ring assembly
- Aluminum connecting rod with high-resistance piston bolt bearings, for HG44e and upwards
- Heavy-duty and robust, split-forged connecting rod

Service-friendly design

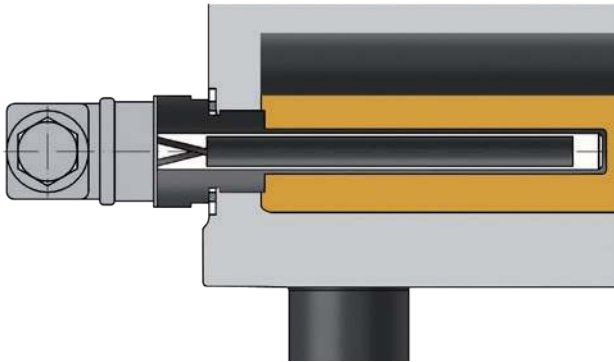


- Built-in motor, easy to replace due to slide fit (not press fit)

Oil sump heater

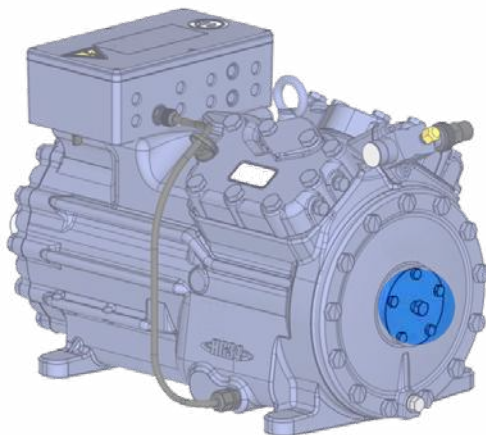


- PTC heater, self-regulating for HG12P up to HG34e
- Constant power for HG44e up to HG66e



- Standard in 8-cylinder compressors HG88e

Connection plug for oil monitoring with oil pressure safety switch MP55



- For HG12P up to HG34e compressors

Variable suction line valve position HG

1



4-cylinder

2

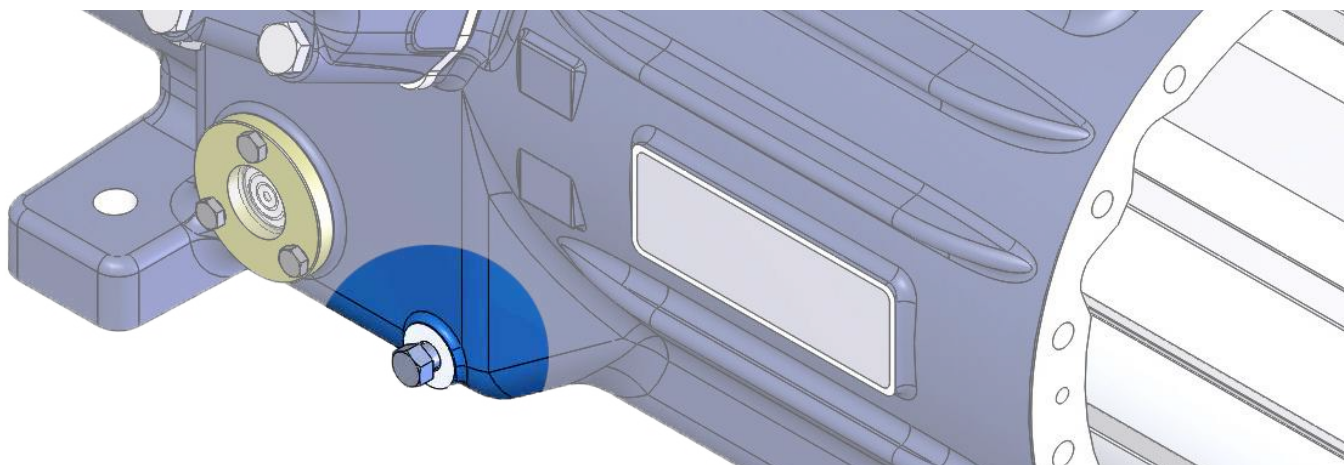


8-cylinder

- **1** Shut-off valve rotates 90°
- **2** Suction cover rotates 90°
- **1+2** Flexible position for suction line connection

	Shut-off valve rotation	Suction cover rotation
HG12P, HG22e, HG34e, HG44e	90°	–
HG56e	180°	90°
HG66e	180°	90°
HG88e	180°	90°

Connection facility oil temperature sensor



- Available for HG44e – HG88e

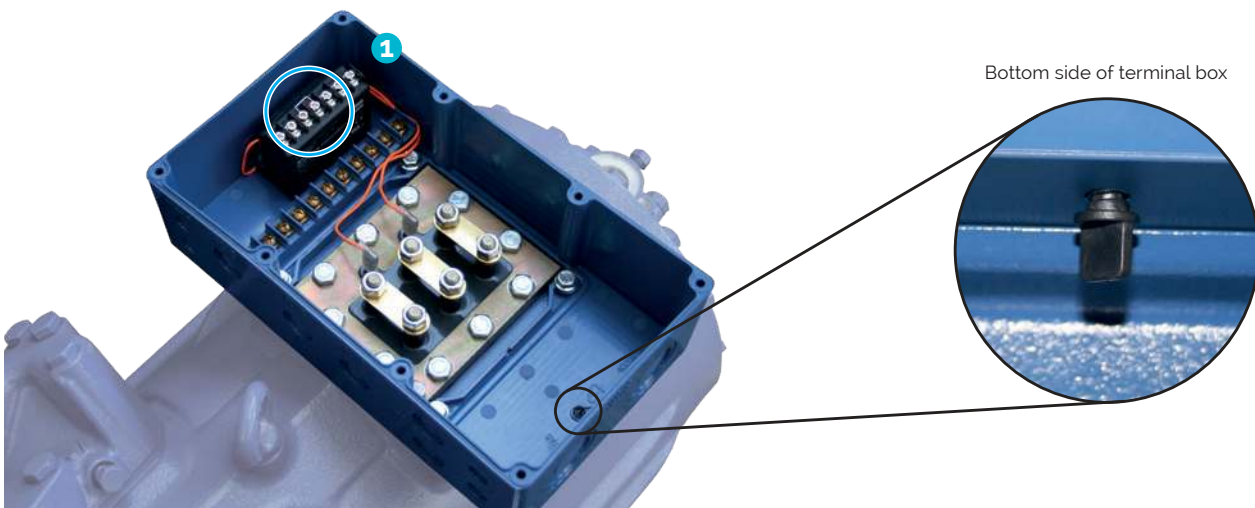
Electronic motor protection INT69 G



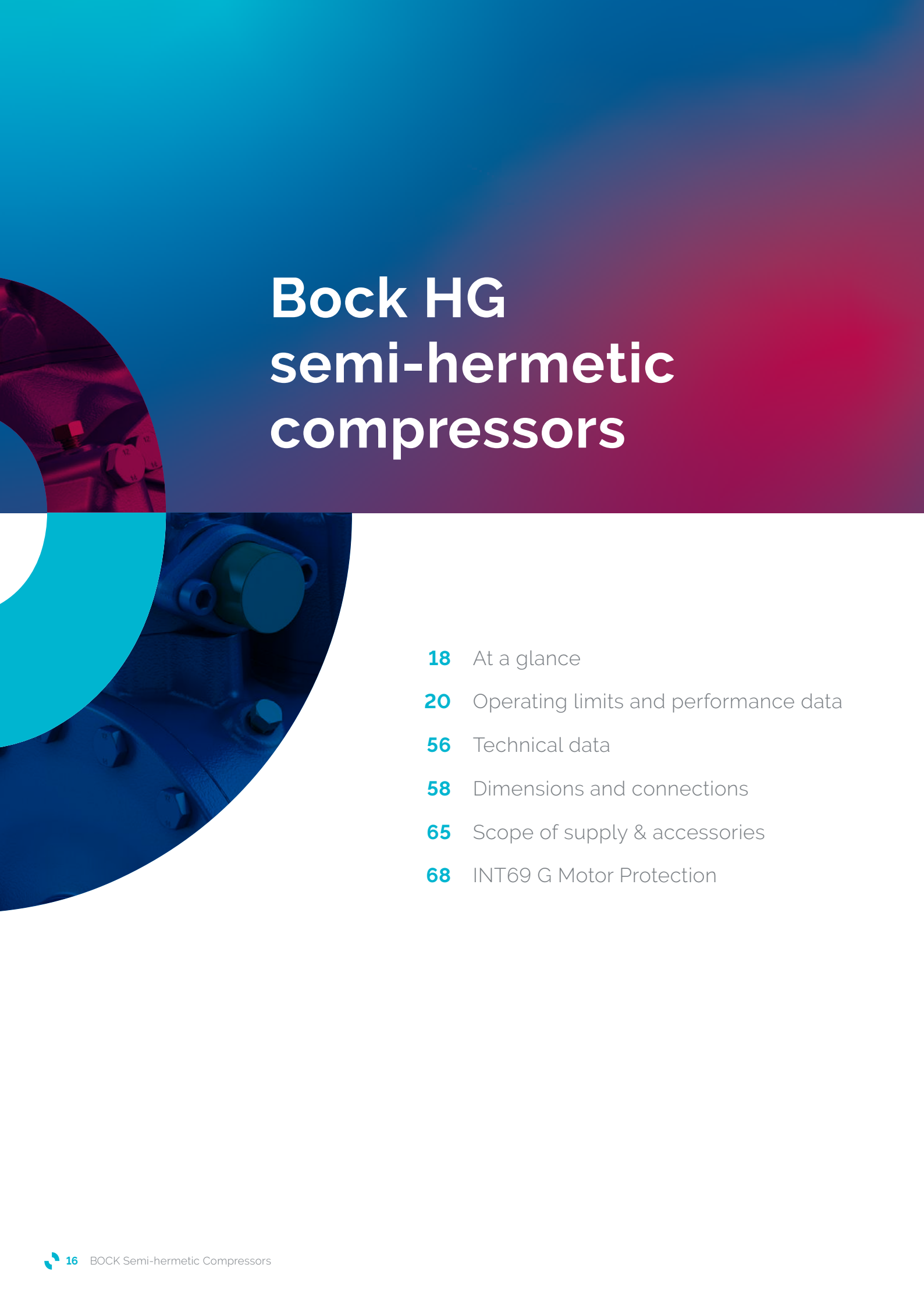
Temperature safety drive for the drive motor

- The INT69 G also provides the usual functions, such as:
- Motor temperature monitoring
- Hot gas temperature monitoring
- Reconnection preventing device
- Reset function
- **1** PTC sensors
- Connection of up to nine PTC sensors possible

State-of-the-art terminal box



- Easy electrical installation due to large internal volume
- Terminal board with cable entry points in glass seal model
- **1** Electrical motor protection INT69 G integrated
- High level of protection IP66
- HG12P to HG66e equipped with plug to drain condensed water from the terminal box under unfavorable circumstances (when in use, Ip protection is reduced)



Bock HG semi-hermetic compressors

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Bock HG12P – HG88e



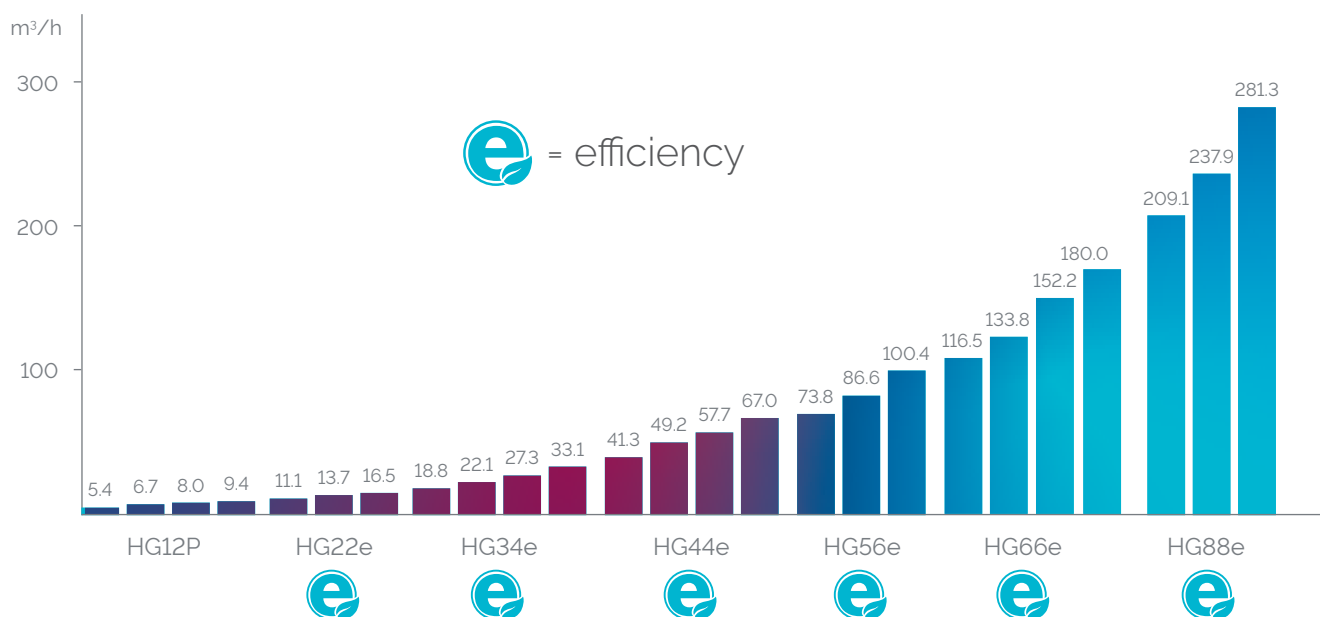
Bock HG

semi-hermetic compressors

The Bock HG (Hermetic Gas-cooled) range of single-stage, semi-hermetic compressors offers traditional suction-gas-cooled compressor technology. These compressors of the highest quality standard excel in their running comfort, easy maintenance, efficiency and reliability. They are suitable as standard for conventional or chlorine-free HFC refrigerants.

HG Single-Stage

7 model sizes with 25 capacity stages from 5.4 to 281.3 m³/h (50 Hz)

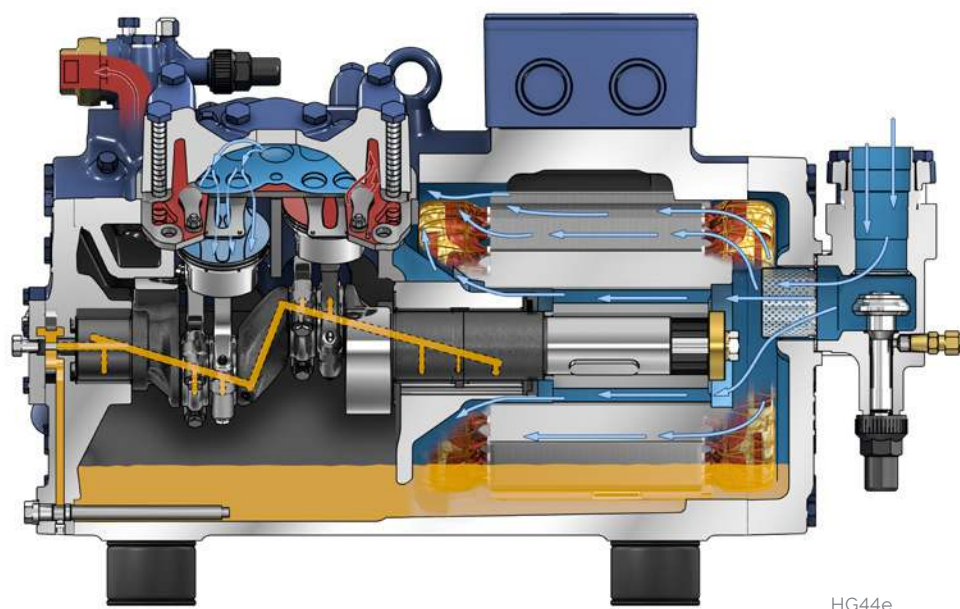


HG semi-hermetic compressors

At a glance

Special features:

- Outstanding running comfort
- Efficiency and reliability on the highest level of quality
- Service-friendly design, e.g. with replaceable drive motors
- Oil pump lubrication
- Electronic motor protection
- Suitable components for conventional or chlorine-free HFC refrigerants



Type key

HGX66e / 2070-4S

- Motor variant ⁴⁾
- Number of poles
- Swept volume
- e-series ³⁾
- 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, R448A, R449A)

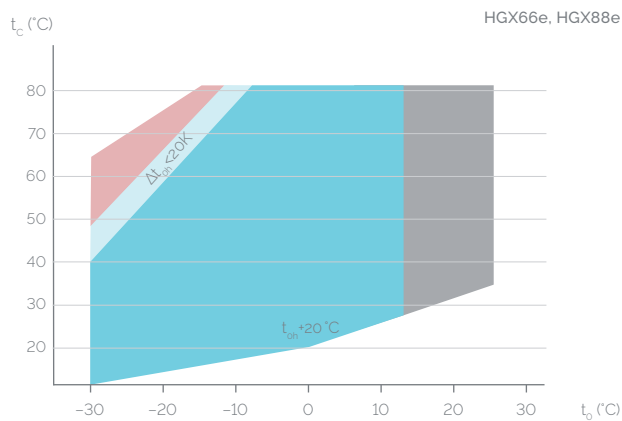
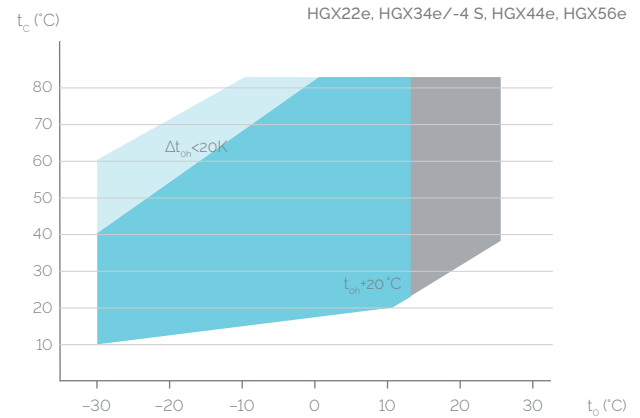
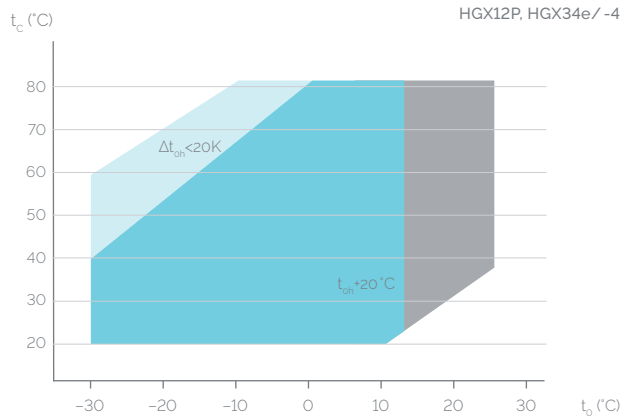
³⁾ = Additional declaration for e-series compressors

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

HG semi-hermetic compressors

Operating limits

R134a



- t_o Evaporating temperature (°C)
- t_c Condensing temperature (°C)
- Δt_{oh} Suction gas superheat (K)
- t_{oh} Suction gas temperature (°C)
- Unlimited application range
- Supplementary cooling or reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Supplementary cooling and reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Motor version -S- (more powerful motor)

Max. permissible operating pressure (LP/HP) ¹⁾: 19/28 bar
¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

Restrictions to operating limits may occur when using a frequency converter. For further explanations consult www.bock.de

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.

A comprehensive modification to 20 °C suction gas temperature will follow at a later date.

Conversion factor for 60 Hz = 1.2

Performance data for other operating points, see BOCK VAP software (vap.bock.de).

ASERCOM certified performance data



For compressors with this label, the performance data are certified according 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 and www.bock.de.

HG semi-hermetic compressors

Performance data

R134a | 50 Hz

Type			Cooling capacity Q_0 [kW]							Power consumption P_e [kW]			
			Evaporating temperature °C										
Cond. temp. °C		12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	
HGX12P/60-4S	30	Q	4920	4490	4080	3700	3010	2420	1910	1480	1130	836	605
		P	0.703	0.710	0.711	0.706	0.682	0.645	0.597	0.544	0.491	0.443	0.403
	40	Q	4260	3880	3520	3190	2590	2070	1630	1250	932	670	456
		P	0.851	0.843	0.830	0.813	0.768	0.713	0.653	0.592	0.535	0.487	0.453
	50	Q	3630	3300	2990	2700	2190	1740	1350	1030	742	505	302
		P	0.991	0.968	0.942	0.912	0.846	0.774	0.701	0.631	0.571	0.523	0.494
HGX12P/75-4	60	Q	3020	2740	2480	2240	1800	1420	1100	806	558	341	146
		P	1.11	1.08	1.04	0.999	0.910	0.821	0.735	0.657	0.593	0.546	0.521
	70	Q	2450	2220	2010	1810	1450	1130	847	602	381	-	-
		P	1.22	1.17	1.12	1.06	0.956	0.849	0.750	0.664	0.595	-	-
	30	Q	6150	5610	5100	4620	3760	3020	2390	1850	1410	1050	756
		P	0.879	0.887	0.888	0.882	0.853	0.805	0.746	0.680	0.614	0.553	0.503
HGX12P/90-4	40	Q	5320	4850	4400	3980	3230	2590	2030	1560	1170	837	569
		P	1.06	1.05	1.03	1.01	0.959	0.891	0.815	0.739	0.668	0.609	0.565
	50	Q	4530	4120	3730	3380	2730	2170	1690	1280	927	630	377
		P	1.23	1.21	1.17	1.14	1.05	0.967	0.875	0.789	0.713	0.654	0.617
	60	Q	3780	3430	3100	2800	2250	1780	1370	1010	697	425	182
		P	1.39	1.35	1.30	1.24	1.13	1.02	0.918	0.821	0.741	0.682	0.651
HGX12P/110-4	70	Q	3070	2780	2510	2260	1800	1410	1060	751	476	-	-
		P	1.53	1.46	1.40	1.33	1.19	1.06	0.937	0.829	0.743	-	-
	30	Q	7300	6670	6070	5520	4510	3630	2870	2230	1700	1260	912
		P	1.08	1.10	1.12	1.12	1.10	1.06	0.997	0.915	0.826	0.735	0.649
	40	Q	6380	5820	5290	4790	3890	3110	2440	1880	1410	1020	708
		P	1.33	1.33	1.32	1.30	1.24	1.16	1.06	0.955	0.846	0.742	0.649
HGX12P/125-4	50	Q	5490	4990	4520	4080	3290	2610	2030	1540	1130	793	522
		P	1.59	1.56	1.53	1.48	1.38	1.26	1.14	1.01	0.885	0.770	0.672
	60	Q	4620	4180	3780	3400	2720	2140	1640	1230	876	592	359
		P	1.82	1.77	1.71	1.65	1.51	1.35	1.20	1.05	0.914	0.790	0.690
	70	Q	3780	3410	3060	2750	2180	1690	1280	937	653	-	-
		P	2.00	1.93	1.84	1.76	1.58	1.40	1.22	1.05	0.903	-	-
HGX12P/160-4	30	Q	8620	7860	7150	6480	5280	4240	3350	2600	1980	1470	1060
		P	1.23	1.24	1.24	1.23	1.19	1.13	1.04	0.954	0.861	0.776	0.706
	40	Q	7460	6790	6170	5580	4530	3620	2850	2190	1640	1180	798
		P	1.49	1.47	1.45	1.42	1.34	1.24	1.14	1.03	0.938	0.854	0.793
	50	Q	6350	5770	5230	4730	3830	3040	2370	1790	1300	884	529
		P	1.73	1.69	1.65	1.59	1.48	1.35	1.22	1.10	1.00	0.917	0.866
HGX22e/125-4	60	Q	5290	4800	4350	3920	3160	2490	1920	1420	978	596	255
		P	1.96	1.89	1.82	1.75	1.59	1.43	1.28	1.15	1.03	0.957	0.914
	70	Q	4300	3890	3520	3160	2530	1970	1490	1060	668	-	-
		P	2.15	2.05	1.96	1.86	1.67	1.48	1.31	1.16	1.04	-	-
	30	Q	10200	9270	8440	7660	6220	4960	3860	2930	2160	1550	1090
		P	1.30	1.35	1.38	1.39	1.39	1.34	1.25	1.14	1.02	0.891	0.765
HGX22e/160-4	40	Q	8990	8200	7450	6740	5440	4300	3310	2480	1790	1260	860
		P	1.69	1.70	1.69	1.67	1.59	1.48	1.35	1.20	1.05	0.903	0.769
	50	Q	7800	7090	6420	5780	4630	3620	2750	2020	1440	978	657
		P	2.02	1.98	1.94	1.88	1.75	1.59	1.41	1.24	1.06	0.908	0.773
	60	Q	6570	5950	5360	4810	3810	2940	2200	1590	1110	744	504
		P	2.27	2.21	2.13	2.04	1.86	1.66	1.45	1.25	1.07	0.909	0.783
HGX22e/190-4	70	Q	5330	4800	4310	3840	3000	2280	1690	1200	829	-	-
		P	2.48	2.38	2.27	2.16	1.93	1.70	1.47	1.25	1.06	-	-
	30	Q	12800	11600	10600	9560	7780	6240	4920	3810	2870	2110	1490
		P	1.63	1.65	1.66	1.65	1.63	1.59	1.51	1.41	1.29	1.15	0.983
	40	Q	11200	10200	9200	8330	6750	5390	4230	3240	2410	1730	1160
		P	2.07	2.05	2.03	2.00	1.92	1.81	1.68	1.53	1.36	1.17	0.962
HGX22e/250-4	50	Q	9640	8760	7930	7170	5780	4580	3560	2680	1940	1310	783
		P	2.46	2.41	2.36	2.29	2.15	1.99	1.80	1.60	1.38	1.14	0.884
	60	Q	8230	7460	6730	6060	4840	3790	2880	2100	1430	844	335
		P	2.80	2.72	2.63	2.54	2.33	2.11	1.87	1.61	1.34	1.04	0.744
	70	Q	6880	6210	5580	4990	3930	3000	2190	1490	862	-	-
		P	3.09	2.97	2.85	2.72	2.45	2.17	1.87	1.56	1.23	-	-
HGX22e/315-4	30	Q	15300	14000	12900	11700	9630	7800	6180	4790	3610	2640	1870
		P	2.04	2.06	2.06	2.05	2.00	1.92	1.80	1.65	1.48	1.29	1.09
	40	Q	13600	12500	11400	10400	8460	6810	5360	4110	3060	2200	1530
		P	2.59	2.55	2.51	2.46	2.33	2.17	1.98	1.78	1.57	1.34	1.11
	50	Q	11900	10800	9840	8940	7270	5800	4520	3430	2520	1790	1220
		P	3.09	3.01	2.92	2.83	2.62	2.39	2.14	1.89	1.63	1.37	1.12
HGX22e/355-4	60	Q	10100	9160	8320	7520	6070	4800	3700	2770	2010	1410	959
		P	3.54	3.41	3.28	3.14	2.86	2.56	2.26	1.96	1.66	1.37	1.10
	70	Q	8280	7510	6790	6110	4880	3810	2900	2150	1540	-	-
		P	3.91	3.74	3.57	3.39	3.03	2.68	2.32	1.97	1.64	-	-

Relating to 20 °C suction gas temperature
without liquid subcooling

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R134a | 50 Hz

Type			Cooling capacity Q ₀ [kW]							Power consumption P _e [kW]			
			Evaporating temperature °C										
Cond. temp. °C		12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	
HGX34e/215-4	30	Q	17200	15700	14400	13000	10600	8450	6590	5000	3670	2610	1800
		P	2.27	2.30	2.32	2.31	2.25	2.14	1.98	1.80	1.59	1.38	1.18
	40	Q	15200	13800	12600	11400	9120	7190	5530	4120	2970	2060	1400
		P	2.87	2.84	2.78	2.72	2.55	2.34	2.11	1.87	1.64	1.42	1.22
	50	Q	13000	11800	10700	9540	7590	5890	4440	3240	2270	1540	1040
		P	3.38	3.27	3.16	3.03	2.76	2.47	2.18	1.90	1.64	1.42	1.24
HGX34e/255-4 ¹⁾	30	Q	10800	9690	8690	7750	6070	4620	3400	2420	1660	1120	784
		P	3.79	3.62	3.45	3.27	2.90	2.54	2.20	1.89	1.61	1.39	1.24
	40	Q	8590	7680	6830	6040	4630	3440	2480	1730	1190	-	-
		P	4.12	3.89	3.66	3.43	2.99	2.56	2.17	1.84	1.56	-	-
	50	Q	20600	18800	17200	15600	12700	10100	7800	5890	4320	3080	2190
		P	2.61	2.67	2.71	2.71	2.66	2.53	2.34	2.12	1.88	1.63	1.41
HGX34e/315-4 ¹⁾	30	Q	18100	16500	15000	13600	11000	8660	6660	4960	3570	2490	1710
		P	3.36	3.35	3.31	3.25	3.08	2.84	2.57	2.27	1.97	1.68	1.43
	40	Q	15600	14200	12900	11600	9310	7280	5540	4070	2880	1960	1330
		P	4.02	3.93	3.83	3.71	3.42	3.08	2.73	2.36	2.01	1.68	1.41
	50	Q	13100	11900	10700	9610	7640	5920	4450	3220	2240	1510	1030
		P	4.56	4.41	4.24	4.06	3.66	3.23	2.80	2.37	1.96	1.61	1.32
HGX34e/380-4 ¹⁾	30	Q	10500	9430	8480	7590	5970	4570	3380	2410	1660	-	-
		P	4.98	4.77	4.54	4.30	3.79	3.28	2.76	2.28	1.83	-	-
	40	Q	25500	23300	21100	19200	15500	12400	9660	7390	5520	4040	2920
		P	3.40	3.43	3.43	3.40	3.29	3.11	2.88	2.61	2.32	2.02	1.72
	50	Q	22300	20300	18500	16700	13500	10700	8260	6260	4620	3320	2330
		P	4.22	4.17	4.10	4.01	3.78	3.49	3.16	2.80	2.43	2.07	1.73
HGX34e/475-4	30	Q	19200	17400	15800	14200	11400	8950	6880	5140	3720	2600	1740
		P	4.97	4.85	4.71	4.55	4.19	3.79	3.36	2.91	2.47	2.04	1.65
	40	Q	16100	14600	13100	11800	9350	7280	5520	4050	2850	1900	1170
		P	5.63	5.44	5.22	5.00	4.51	4.00	3.46	2.93	2.41	1.92	1.47
	50	Q	13100	11800	10600	9390	7380	5660	4200	3000	2010	-	-
		P	6.18	5.91	5.62	5.33	4.71	4.08	3.44	2.82	2.22	-	-
HGX34e/565-4	30	Q	30700	28100	25600	23200	19000	15300	12100	9310	7060	5250	3860
		P	4.27	4.28	4.26	4.22	4.06	3.83	3.53	3.20	2.83	2.46	2.09
	40	Q	27000	24600	22400	20300	16600	13300	10400	8000	6020	4420	3180
		P	5.26	5.19	5.09	4.97	4.67	4.30	3.89	3.46	3.00	2.56	2.13
	50	Q	23200	21200	19300	17400	14100	11300	8760	6670	4940	3540	2450
		P	6.17	6.01	5.83	5.63	5.18	4.69	4.16	3.62	3.07	2.55	2.06
HGX44e/665-4 ¹⁾	30	Q	19600	17800	16100	14600	11700	9240	7130	5350	3860	2650	1690
		P	6.97	6.73	6.46	6.18	5.59	4.96	4.31	3.66	3.02	2.42	1.86
	40	Q	16000	14500	13100	11800	9340	7290	5530	4040	2800	-	-
		P	7.65	7.31	6.97	6.60	5.86	5.09	4.32	3.56	2.83	-	-
	50	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
HGX44e/745-4	30	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
	40	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
	50	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
HGX44e/845-4	30	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	-	-
	40	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
	50	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
HGX44e/945-4	30	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
	40	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
	50	Q	25000	22600	20400	18400	14700	11600	8910	6610	4590	-	-
		P	10.7	10.3	9.90	9.44	8.47	7.45	6.41	5.36	4.32	-	-
HGX44e/1045-4	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	10.2	10.0	9.73	9.42	8.72	7.92	7.06	6.16	5.26	4.37	3.54
HGX44e/1145-4	30	Q	36000	32700	29500	26600	21300	16800	13000	9700	7030	4850	3110
		P	11.6	11.3	10.8	10.4	9.45	8.42	7.35	6.27	5.22	4.22	3.30
	40	Q	29400	26500	23900	21400	17000	13200	10100	7380	5200	-	-
		P	12.8	12.3	11.7	11.1	9.90	8.64	7.38	6.14	4.95	-	-

Relating to 20 °C suction gas temperature without liquid subcooling

Supplementary cooling or reduced suction gas temperature

¹⁾ ASERCOM certified

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HG semi-hermetic compressors

Performance data

R134a | 50 Hz

Type		Cooling capacity $\dot{Q}_0$ [kW]										Power consumption P_e [kW]	
		Evaporating temperature °C											
		Cond. temp. °C	12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30
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	11.5	11.2	11.0	10.7	9.97	9.14	8.23	7.26	6.28	5.30	4.35
HHGX56e/850-4	60	Q	41300	37500	33900	30600	24700	19600	15300	11600	8390	5630	3160
		P	13.2	12.8	12.3	11.9	10.9	9.82	8.66	7.48	6.29	5.13	4.02
	70	Q	34000	30700	27700	24900	19900	15600	12000	8810	6070	-	-
		P	14.5	13.9	13.4	12.7	11.5	10.1	8.74	7.32	5.93	-	-
	30	Q	71500	65200	59400	53900	43900	35300	28000	21700	16500	12300	8870
		P	8.74	8.80	8.79	8.74	8.49	8.08	7.52	6.86	6.11	5.30	4.45
HHGX56e/850-4	40	Q	62900	57400	52200	47300	38500	30900	24300	18800	14200	10400	7330
		P	11.1	10.9	10.8	10.5	9.99	9.27	8.43	7.50	6.51	5.48	4.45
	50	Q	54500	49600	45000	40700	33000	26400	20700	15900	11900	8470	5720
		P	13.2	12.9	12.5	12.1	11.2	10.2	9.11	7.93	6.71	5.47	4.26
	60	Q	46000	41800	37900	34200	27600	21900	17100	13000	9440	6520	4060
		P	15.1	14.6	14.1	13.5	12.3	10.9	9.57	8.13	6.68	5.24	3.85
HGX56e/995-4	70	Q	37600	34100	30800	27700	22200	17500	13400	9960	7050	-	-
		P	16.7	16.0	15.3	14.6	13.0	11.4	9.77	8.09	6.41	-	-
	30	Q	82900	75700	68900	62500	51000	41000	32400	25100	19000	14000	10100
		P	10.1	10.1	10.1	10.1	9.81	9.29	8.62	7.81	6.92	5.98	5.03
	40	Q	73100	66600	60600	54900	44700	35800	28100	21600	16200	11700	8050
		P	12.7	12.6	12.4	12.1	11.4	10.6	9.60	8.51	7.36	6.20	5.05
HGX56e/995-4	50	Q	63200	57600	52300	47300	38300	30500	23900	18100	13300	9260	5930
		P	15.2	14.8	14.4	13.9	12.9	11.6	10.3	8.98	7.58	6.19	4.85
	60	Q	53300	48500	43900	39700	32000	25300	19500	14600	10400	6770	3720
		P	17.4	16.8	16.1	15.5	14.0	12.4	10.8	9.16	7.49	5.88	4.35
	70	Q	43500	39400	35600	32000	25600	20000	15200	11000	7380	-	-
		P	19.1	18.3	17.5	16.6	14.7	12.8	10.9	8.94	7.02	-	-
HGX56e/1155-4	30	Q	94600	86200	78400	71100	57800	46400	36600	28400	21600	16000	11700
		P	13.0	12.9	12.8	12.6	12.0	11.2	10.3	9.31	8.24	7.16	6.12
	40	Q	83600	76200	69200	62600	50800	40700	32000	24700	18600	13600	9550
		P	15.9	15.6	15.3	14.9	13.9	12.8	11.5	10.2	8.85	7.51	6.24
	50	Q	72600	66000	59900	54100	43800	34900	27300	20800	15500	11000	7340
		P	18.7	18.2	17.6	17.0	15.6	14.1	12.5	10.8	9.21	7.60	6.08
HGX56e/1155-4	60	Q	61500	55800	50500	45500	36700	29000	22500	17000	12300	8370	5090
		P	21.3	20.5	19.7	18.9	17.1	15.1	13.2	11.1	9.20	7.29	5.50
	70	Q	50400	45600	41100	37000	29500	23200	17700	13100	9130	-	-
		P	23.5	22.5	21.4	20.3	18.1	15.7	13.3	11.0	8.69	-	-
	30	Q	109000	99700	91100	82900	68000	54900	43600	33900	25800	19100	13800
		P	14.0	14.2	14.2	14.1	13.6	12.9	12.0	10.8	9.66	8.40	7.16
HGX66e/1340-4	40	Q	97000	88700	80800	73400	59900	48000	37800	29100	21800	15800	11100
		P	17.7	17.5	17.2	16.8	15.8	14.5	13.1	11.6	10.1	8.65	7.22
	50	Q	84400	76900	69900	63300	51300	40800	31800	24200	17900	12700	-
		P	20.9	20.4	19.7	19.0	17.5	15.8	14.0	12.1	10.3	8.62	-
	60	Q	71300	64800	58600	52900	42500	33500	25900	19500	14200	-	-
		P	23.6	22.8	21.8	20.8	18.8	16.6	14.4	12.3	10.2	-	-
HGX66e/1340-4	70	Q	57900	52400	47200	42400	33800	26400	20200	15100	-	-	-
		P	25.8	24.6	23.4	22.1	19.6	17.0	14.4	12.0	-	-	-
	30	Q	125000	115000	105000	95200	78200	63300	50400	39300	30000	22300	16200
		P	16.1	16.2	16.3	16.2	15.7	14.9	13.8	12.5	11.1	9.74	8.33
	40	Q	112000	102000	92900	84400	69000	55500	43900	33900	25500	18700	13200
		P	20.4	20.2	19.8	19.4	18.2	16.8	15.2	13.5	11.8	10.1	8.50
HGX66e/1540-4	50	Q	97000	88500	80500	73000	59300	47400	37100	28400	21100	15200	-
		P	24.2	23.6	22.9	22.1	20.3	18.3	16.3	14.2	12.1	10.2	-
	60	Q	82100	74700	67700	61200	49300	39100	30400	23000	16900	-	-
		P	27.5	26.4	25.4	24.3	21.9	19.4	16.9	14.5	12.1	-	-
	70	Q	66900	60600	54700	49200	39400	31000	23900	18100	-	-	-
		P	30.1	28.7	27.3	25.9	23.0	20.0	17.1	14.3	-	-	-
HGX66e/1750-4	30	Q	143000	131000	120000	109000	89400	72400	57600	44900	34300	25600	18600
		P	18.4	18.6	18.6	18.5	17.9	17.0	15.8	14.4	12.8	11.2	9.67
	40	Q	128000	117000	107000	96600	79000	63600	50200	38800	29300	21400	15200
		P	23.3	23.0	22.6	22.1	20.8	19.2	17.5	15.5	13.6	11.7	9.89
	50	Q	111000	102000	92200	83600	67900	54300	42500	32600	24200	17400	-
		P	27.6	26.9	26.1	25.2	23.2	21.0	18.7	16.3	14.0	11.8	-
HGX66e/1750-4	60	Q	94100	85600	77600	70100	56600	44900	34900	26500	19500	-	-
		P	31.3	30.2	29.0	27.7	25.1	22.3	19.4	16.7	14.0	-	-
	70	Q	76700	69500	62800	56500	45200	35600	27500	20800	-	-	-
		P	34.3	32.8	31.2	29.6	26.3	23.0	19.7	16.5	-	-	-

Relating to 20 °C suction gas temperature
without liquid subcooling

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R134a | 50 Hz

Type			Cooling capacity $\dot{Q}_0$ [W]										Power consumption P_e [kW]	
			Evaporating temperature °C											
Cond.			12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	
HGX66e/2070-4	30	Q	168000	154000	141000	129000	106000	85300	67900	53000	40500	30200	22000	
		P	217	219	219	218	211	20.0	18.6	16.9	15.0	13.1	11.2	
	40	Q	150000	137000	125000	114000	93000	74900	59200	45800	34500	25300	17900	
		P	27.6	27.2	26.7	26.1	24.6	22.7	20.6	18.3	15.9	13.7	11.5	
	50	Q	131000	120000	109000	98300	79900	63900	50100	38400	28600	20600	-	
		P	32.8	31.9	30.9	29.9	27.5	24.8	22.0	19.2	16.4	13.8	-	
HGX88e/2400-4 <td rowspan="2">30</td> <td>Q</td> <td>111000</td> <td>101000</td> <td>91100</td> <td>82400</td> <td>66500</td> <td>52800</td> <td>41100</td> <td>31200</td> <td>23000</td> <td>-</td> <td>-</td>	30	Q	111000	101000	91100	82400	66500	52800	41100	31200	23000	-	-	
		P	37.3	35.9	34.4	32.9	29.7	26.3	22.9	19.6	16.5	-	-	
	40	Q	89900	81500	73700	66300	53200	41900	32400	24600	-	-	-	
		P	40.9	39.0	37.1	35.2	31.2	27.2	23.2	19.4	-	-	-	
	50	Q	197000	181000	165000	151000	124000	99900	79500	62000	47400	35300	25700	
		P	26.1	26.3	26.3	26.1	25.4	24.2	22.5	20.6	18.4	16.1	13.8	
HGX88e/2735-4 <td rowspan="2">30</td> <td>Q</td> <td>176000</td> <td>161000</td> <td>147000</td> <td>134000</td> <td>110000</td> <td>87800</td> <td>69400</td> <td>53700</td> <td>40500</td> <td>29600</td> <td>21000</td>	30	Q	176000	161000	147000	134000	110000	87800	69400	53700	40500	29600	21000	
		P	32.8	32.4	31.8	31.1	29.4	27.2	24.8	22.2	19.5	16.8	14.2	
	40	Q	154000	141000	128000	116000	94000	75100	58900	45100	33600	24200	-	
		P	38.8	37.8	36.7	35.4	32.7	29.7	26.5	23.3	20.1	17.0	-	
	50	Q	131000	119000	108000	97100	78400	62200	48300	36700	27100	-	-	
		P	44.0	42.4	40.7	38.9	35.3	31.5	27.6	23.8	20.2	-	-	
HGX88e/3235-4 <td rowspan="2">30</td> <td>Q</td> <td>107000</td> <td>96400</td> <td>87100</td> <td>78400</td> <td>62800</td> <td>49400</td> <td>38200</td> <td>29000</td> <td>-</td> <td>-</td> <td>-</td>	30	Q	107000	96400	87100	78400	62800	49400	38200	29000	-	-	-	
		P	48.2	46.1	43.9	41.6	37.1	32.5	28.0	23.7	-	-	-	
	40	Q	225000	206000	188000	171000	141000	114000	90500	70600	53900	40200	29300	
		P	29.9	30.1	30.1	29.9	29.0	27.6	25.8	23.5	21.1	18.5	15.8	
	50	Q	201000	184000	168000	152000	125000	100000	79000	61100	46100	33700	23900	
		P	37.4	36.9	36.3	35.5	33.5	31.1	28.4	25.4	22.3	19.2	16.3	
HGX88e/3235-4 <td rowspan="2">30</td> <td>Q</td> <td>176000</td> <td>160000</td> <td>146000</td> <td>132000</td> <td>108000</td> <td>85600</td> <td>67100</td> <td>51400</td> <td>38200</td> <td>27500</td> <td>-</td>	30	Q	176000	160000	146000	132000	108000	85600	67100	51400	38200	27500	-	
		P	44.1	43.0	41.7	40.3	37.3	33.9	30.3	26.7	23.0	19.5	-	
	40	Q	149000	136000	123000	111000	89400	70900	55100	41800	30900	-	-	
		P	49.8	48.1	46.2	44.3	40.2	35.9	31.5	27.2	23.1	-	-	
	50	Q	122000	111000	99400	89400	71600	56300	43500	33000	-	-	-	
		P	54.5	52.2	49.7	47.2	42.2	37.0	32.0	27.1	-	-	-	
HGX88e/3235-4 <td rowspan="2">30</td> <td>Q</td> <td>265000</td> <td>243000</td> <td>222000</td> <td>202000</td> <td>166000</td> <td>135000</td> <td>107000</td> <td>83300</td> <td>63500</td> <td>47300</td> <td>34400</td>	30	Q	265000	243000	222000	202000	166000	135000	107000	83300	63500	47300	34400	
		P	35.2	35.4	35.4	35.2	34.2	32.5	30.3	27.6	24.7	21.6	18.5	
	40	Q	237000	217000	198000	180000	147000	118000	93200	72000	54200	39600	28000	
		P	44.1	43.5	42.7	41.8	39.4	36.6	33.3	29.8	26.1	22.5	18.9	
	50	Q	207000	189000	172000	156000	127000	101000	78900	60400	44900	32300	-	
		P	52.0	50.6	49.1	47.5	43.8	39.8	35.6	31.2	26.9	22.7	-	
HGX88e/3235-4 <td rowspan="2">30</td> <td>Q</td> <td>176000</td> <td>160000</td> <td>145000</td> <td>131000</td> <td>106000</td> <td>83400</td> <td>64700</td> <td>49100</td> <td>36100</td> <td>-</td> <td>-</td>	30	Q	176000	160000	145000	131000	106000	83400	64700	49100	36100	-	-	
		P	58.7	56.6	54.4	52.1	47.2	42.1	37.0	31.8	26.9	-	-	
	40	Q	144000	130000	117000	106000	84200	66200	51100	38600	-	-	-	
		P	64.3	61.4	58.5	55.6	49.5	43.4	37.4	31.5	-	-	-	

Relating to 20 °C suction gas temperature
without liquid subcooling

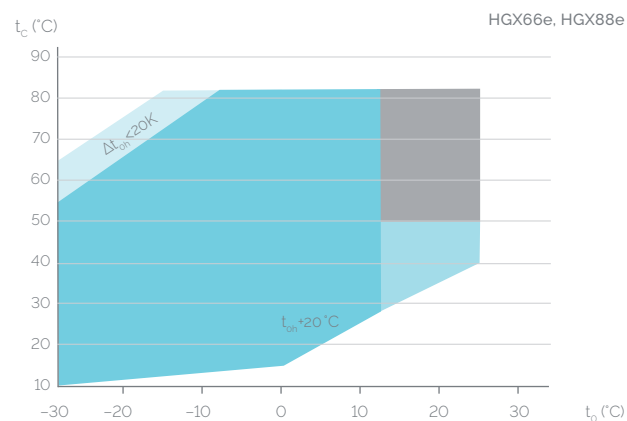
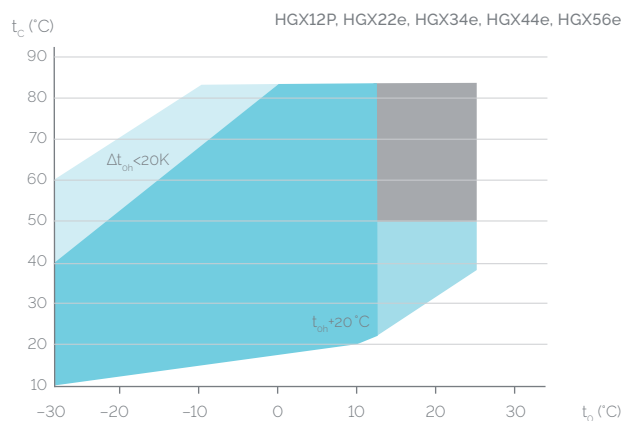
 Supplementary cooling or
reduced suction gas temperature

vap.bock.de 

HG semi-hermetic compressors

Operating limits

R513A



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

- Unlimited application range
- Supplementary cooling or reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Motor version -S- (more powerful motor)
- Required minimum superheating $\Delta t_{oh} = 20K$

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

¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

Restrictions to operating limits may occur when using a frequency converter. For further explanations consult www.bock.de

Performance data

The performance data for R513A are based on European Standard EN 12900 with a 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. A comprehensive modification to 20 °C suction gas temperature will follow at a later date.

Conversion factor for 60 Hz = 1.2

Performance data for other operating points, see BOCK VAP software (vap.bock.de).

HG semi-hermetic compressors

Performance data

R513A | 50 Hz

Type			Cooling capacity Q_o [kW]							Power consumption P_e [kW]			
			Evaporating temperature °C										
Cond. temp. °C		12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	
HGX12P/60-4 S	30	Q	5040	4610	4210	3830	3150	2550	2040	1600	1230	925	677
		P	0.722	0.732	0.735	0.732	0.713	0.679	0.633	0.581	0.527	0.475	0.431
	40	Q	4320	3950	3600	3270	2680	2170	1720	1340	1020	745	520
		P	0.879	0.873	0.862	0.847	0.805	0.751	0.691	0.629	0.569	0.516	0.474
	50	Q	3620	3310	3010	2730	2230	1800	1420	1090	809	570	365
		P	1.02	1.00	0.981	0.953	0.888	0.816	0.741	0.668	0.603	0.548	0.508
	60	Q	2950	2690	2450	2220	1800	1440	1130	850	611	401	213
		P	1.16	1.12	1.08	1.04	0.956	0.865	0.777	0.694	0.622	0.566	0.529
	70	Q	2320	2110	1910	1730	1400	1110	849	625	424	-	-
		P	1.27	1.22	1.17	1.11	1.00	0.895	0.792	0.699	0.622	-	-
HGX12P/75-4 HGX12P/75-4 S)	30	Q	6280	5750	5260	4790	3930	3190	2550	2000	1540	1160	846
		P	0.970	0.987	0.998	1.00	0.891	0.848	0.791	0.726	0.658	0.594	0.538
	40	Q	5500	5030	4590	4180	3350	2700	2150	1680	1270	931	650
		P	1.19	1.18	1.18	1.16	1.00	0.939	0.864	0.786	0.711	0.645	0.592
	50	Q	4690	4280	3890	3530	2790	2240	1770	1360	1010	712	456
		P	1.39	1.37	1.34	1.31	1.10	1.01	0.926	0.835	0.753	0.684	0.635
	60	Q	3840	3500	3170	2870	2250	1800	1410	1070	763	501	266
		P	1.57	1.54	1.49	1.44	1.19	1.08	0.970	0.867	0.777	0.707	0.660
	70	Q	2990	2710	2440	2200	1740	1380	1060	780	529	-	-
		P	1.75	1.69	1.63	1.57	1.25	1.11	0.990	0.874	0.777	-	-
HGX12P/90-4 HGX12P/90-4 S	30	Q	7550	6890	6270	5690	4710	3830	3060	2410	1860	1400	1030
		P	1.15	1.17	1.19	1.19	1.14	1.10	1.04	0.963	0.874	0.780	0.689
	40	Q	6570	5990	5440	4940	4030	3250	2580	2010	1530	1130	800
		P	1.42	1.42	1.41	1.39	1.30	1.22	1.12	1.01	0.908	0.799	0.698
	50	Q	5590	5090	4620	4180	3370	2700	2130	1640	1230	880	600
		P	1.67	1.65	1.62	1.58	1.45	1.34	1.21	1.08	0.953	0.831	0.723
	60	Q	4600	4180	3790	3420	2730	2170	1690	1280	940	658	426
		P	1.90	1.86	1.80	1.75	1.58	1.43	1.28	1.12	0.983	0.850	0.737
	70	Q	3600	3260	2940	2650	2110	1660	1280	956	689	-	-
		P	2.10	2.03	1.96	1.88	1.66	1.48	1.30	1.12	0.969	-	-
HGX12P/110-4 HGX12P/110-4 S	30	Q	8820	8070	7370	6710	5510	4470	3570	2800	2160	1620	1190
		P	1.26	1.28	1.28	1.28	1.25	1.18	1.10	1.01	0.923	0.833	0.755
	40	Q	7560	6910	6300	5730	4690	3790	3010	2350	1780	1310	911
		P	1.54	1.53	1.51	1.48	1.41	1.31	1.21	1.10	0.997	0.904	0.831
	50	Q	6340	5790	5270	4780	3900	3140	2480	1910	1420	998	640
		P	1.80	1.76	1.71	1.66	1.55	1.42	1.29	1.17	1.05	0.960	0.891
	60	Q	5170	4710	4280	3880	3150	2520	1970	1490	1070	702	373
		P	2.03	1.97	1.90	1.82	1.67	1.51	1.36	1.21	1.09	0.991	0.926
	70	Q	4050	3690	3340	3020	2440	1940	1490	1100	741	-	-
		P	2.23	2.14	2.05	1.95	1.76	1.56	1.38	1.22	1.08	-	-
HGX22e/125-4 HGX22e/125-4 S	30	Q	10400	9540	8730	7970	6540	5280	4170	3210	2410	1750	1240
		P	1.31	1.37	1.41	1.43	1.44	1.40	1.32	1.22	1.09	0.964	0.832
	40	Q	9130	8370	7640	6950	5670	4540	3550	2700	1990	1420	975
		P	1.73	1.74	1.74	1.73	1.66	1.56	1.43	1.28	1.13	0.980	0.837
	50	Q	7810	7130	6490	5880	4760	3770	2920	2190	1580	1100	741
		P	2.08	2.05	2.01	1.97	1.83	1.68	1.51	1.33	1.15	0.986	0.839
	60	Q	6440	5860	5310	4790	3840	3010	2290	1690	1210	825	558
		P	2.36	2.30	2.23	2.15	1.95	1.76	1.55	1.35	1.15	0.986	0.843
	70	Q	5060	4580	4130	3700	2920	2260	1700	1240	875	-	-
		P	2.57	2.48	2.38	2.28	2.03	1.80	1.57	1.35	1.15	-	-
HGX22e/160-4 HGX22e/160-4 S	30	Q	13100	12000	11000	10100	8150	6600	5270	4130	3160	2360	1700
		P	1.71	1.75	1.77	1.79	1.71	1.66	1.59	1.50	1.38	1.24	1.07
	40	Q	11500	10600	9600	8740	7010	5660	4490	3490	2640	1930	1340
		P	2.17	2.16	2.15	2.12	2.00	1.90	1.78	1.63	1.46	1.27	1.07
	50	Q	9850	8990	8170	7400	5930	4750	3740	2870	2120	1490	944
		P	2.56	2.51	2.46	2.40	2.25	2.09	1.91	1.71	1.49	1.26	1.00
	60	Q	8170	7420	6720	6050	4870	3860	2990	2230	1580	1010	505
		P	2.89	2.80	2.71	2.61	2.44	2.22	1.99	1.73	1.47	1.18	0.888
	70	Q	6490	5850	5260	4700	3830	2980	2230	1580	994	-	-
		P	3.15	3.03	2.91	2.78	2.57	2.30	2.00	1.70	1.38	-	-
HGX22e/190-4 HGX22e/190-4 S	30	Q	15700	14500	13300	12200	10100	8230	6620	5200	3990	2970	2140
		P	2.11	2.13	2.14	2.14	2.10	2.02	1.90	1.76	1.59	1.41	1.21
	40	Q	13700	12600	11600	10600	8760	7130	5690	4430	3360	2460	1740
		P	2.64	2.62	2.59	2.55	2.45	2.29	2.11	1.91	1.69	1.47	1.24
	50	Q	11800	10800	9840	8980	7420	5990	4740	3660	2740	1980	1380
		P	3.15	3.08	3.01	2.93	2.76	2.53	2.28	2.03	1.77	1.51	1.25
	60	Q	9740	8920	8150	7410	6070	4850	3800	2900	2140	1540	1070
		P	3.61	3.50	3.38	3.25	3.01	2.72	2.41	2.11	1.81	1.52	1.23
	70	Q	7780	7100	6460	5850	4710	3730	2880	2170	1600	-	-
		P	4.00	3.84	3.68	3.51	3.20	2.84	2.49	2.14	1.80	-	-

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R513A | 50 Hz

Type			Cooling capacity Q ₀ [kW]							Power consumption P _e [kW]				
			Evaporating temperature °C											
Cond. temp. °C			12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	
HGX34e/215-4 HGX34e/215-4 S	30	Q	17600	16200	14800	13500	11100	8960	7080	5460	4080	2960	2070	
		P	2.36	2.39	2.41	2.41	2.36	2.25	2.10	1.92	1.71	1.50	1.29	
	40	Q	15400	14100	12800	11700	9470	7570	5900	4480	3290	2320	1590	
		P	3.00	2.96	2.91	2.84	2.68	2.47	2.24	2.00	1.76	1.53	1.32	
	50	Q	13000	11800	10800	9680	7790	6130	4700	3490	2500	1720	1160	
		P	3.54	3.43	3.31	3.19	2.91	2.62	2.33	2.04	1.76	1.52	1.32	
HG34e/255-4 HGX34e/255-4 S	60	Q	10600	9550	8610	7730	6120	4730	3550	2570	1800	1220	839	
		P	3.98	3.81	3.63	3.45	3.08	2.71	2.36	2.03	1.73	1.49	1.30	
	70	Q	8170	7340	6560	5830	4530	3420	2510	1790	1250	-	-	
		P	4.33	4.10	3.87	3.64	3.18	2.75	2.34	1.98	1.67	-	-	
	30	Q	21000	19300	17700	16200	13300	10700	8420	6470	4820	3490	2470	
		P	2.69	2.77	2.81	2.83	2.79	2.67	2.50	2.28	2.03	1.78	1.53	
HG34e/315-4 HGX34e/315-4 S	40	Q	18300	16800	15400	14000	11500	9140	7140	5420	3980	2820	1940	
		P	3.48	3.47	3.45	3.40	3.24	3.01	2.74	2.45	2.14	1.84	1.56	
	50	Q	15600	14200	13000	11800	9550	7590	5870	4400	3180	2210	1490	
		P	4.16	4.09	3.99	3.88	3.60	3.28	2.92	2.55	2.18	1.84	1.53	
	60	Q	12700	11600	10600	9520	7670	6040	4620	3420	2430	1670	1130	
		P	4.73	4.59	4.43	4.25	3.86	3.44	3.01	2.57	2.15	1.77	1.44	
HG34e/380-4 HGX34e/380-4 S	70	Q	9810	8920	8070	7260	5790	4500	3390	2480	1750	-	-	
		P	5.17	4.96	4.74	4.51	4.01	3.50	2.99	2.49	2.02	-	-	
	30	Q	26200	23900	21900	19900	16300	13200	10400	8050	6110	4520	3280	
		P	3.53	3.56	3.57	3.56	3.46	3.29	3.07	2.80	2.50	2.19	1.89	
	40	Q	22700	20700	18900	17200	14000	11200	8810	6770	5080	3700	2620	
		P	4.38	4.34	4.28	4.20	3.98	3.69	3.37	3.01	2.64	2.26	1.90	
HG34e/475-4 HGX44e/475-4 S	50	Q	19200	17500	15900	14400	11700	9290	7240	5500	4060	2890	1970	
		P	5.16	5.05	4.92	4.77	4.42	4.02	3.59	3.15	2.69	2.25	1.83	
	60	Q	15800	14300	13000	11700	9390	7410	5710	4270	3080	2110	1350	
		P	5.85	5.66	5.46	5.24	4.76	4.25	3.72	3.18	2.65	2.14	1.67	
	70	Q	12400	11200	10100	9020	7170	5580	4220	3090	2150	-	-	
		P	6.41	6.15	5.88	5.59	4.99	4.36	3.73	3.10	2.48	-	-	
HG34e/565-4 HGX44e/565-4 S	30	Q	31400	28800	26400	24100	19900	16200	12900	10100	7760	5840	4320	
		P	4.44	4.46	4.45	4.42	4.28	4.06	3.77	3.44	3.07	2.69	2.31	
	40	Q	27300	25100	22900	20900	17200	13900	11100	8610	6560	4880	3540	
		P	5.47	5.41	5.32	5.21	4.92	4.56	4.16	3.72	3.26	2.80	2.35	
	50	Q	23200	21200	19400	17600	14400	11600	9170	7090	5340	3890	2730	
		P	6.42	6.27	6.09	5.90	5.46	4.98	4.45	3.90	3.35	2.81	2.29	
HG34e/665-4 HGX44e/665-4 S	60	Q	19100	17500	15900	14400	11700	9350	7320	5580	4120	2910	1930	
		P	7.25	7.01	6.76	6.48	5.90	5.28	4.63	3.97	3.32	2.70	2.12	
	70	Q	15100	13700	12400	11200	9020	7140	5510	4120	2940	-	-	
		P	7.95	7.62	7.28	6.93	6.20	5.44	4.67	3.90	3.16	-	-	
	HG34e/765-4 HGX44e/765-4 S	30	Q	40400	37000	33800	30800	25200	20500	16500	13000	10100	7610	5570
			P	4.97	5.03	5.05	5.04	4.86	4.66	4.39	4.06	3.68	3.28	2.87
40		Q	35300	32300	29400	26800	21800	17700	14200	11100	8490	6310	4470	
		P	6.24	6.20	6.14	6.04	5.71	5.36	4.95	4.49	4.00	3.49	2.98	
50		Q	30200	27500	25100	22800	18500	14900	11900	9180	6950	5040	3390	
		P	7.42	7.29	7.14	6.96	6.47	5.97	5.41	4.82	4.20	3.59	2.98	
HG34e/865-4 HGX44e/865-4 S	60	Q	25100	22800	20700	18700	15100	12100	9500	7290	5400	3760	2320	
		P	8.46	8.23	7.99	7.72	7.08	6.41	5.71	4.98	4.24	3.51	2.80	
	70	Q	19900	18000	16300	14700	11700	9230	7150	5370	3820	-	-	
		P	9.28	8.96	8.62	8.27	7.46	6.64	5.78	4.91	4.04	-	-	
	HG34e/965-4 HGX44e/965-4 S	30	Q	48200	44100	40300	36700	30100	24500	19700	15600	12200	9220	6800
			P	5.90	5.96	5.99	5.97	5.76	5.52	5.20	4.80	4.35	3.87	3.37
40		Q	42200	38600	35200	32000	26100	21200	17000	13400	10400	7710	5520	
		P	7.41	7.36	7.28	7.17	6.79	6.37	5.87	5.32	4.73	4.12	3.51	
50		Q	36200	33000	30100	27300	22200	17900	14300	11200	8510	6230	4260	
		P	8.81	8.66	8.47	8.26	7.70	7.10	6.43	5.71	4.98	4.23	3.51	
HG34e/1065-4 HGX44e/1065-4 S	60	Q	30100	27400	24900	22600	18200	14700	11600	8950	6700	4730	2980	
		P	10.0	9.78	9.48	9.16	8.44	7.64	6.79	5.91	5.02	4.14	3.29	
	70	Q	24000	21800	19700	17800	14200	11300	8810	6690	4830	-	-	
		P	11.0	10.6	10.2	9.81	8.91	7.91	6.87	5.82	4.78	-	-	
	HG34e/1165-4 HGX44e/1165-4 S	30	Q	56200	51500	47000	42800	36000	29300	23400	18400	14200	10700	7760
			P	6.87	6.94	6.97	6.96	6.96	6.69	6.29	5.78	5.21	4.58	3.93
40		Q	49100	44800	40900	37200	31200	25200	20100	15700	11900	8800	6300	
		P	8.66	8.60	8.50	8.37	8.17	7.63	7.00	6.29	5.54	4.77	4.00	
50		Q	41900	38200	34800	31600	26300	21100	16700	12900	9670	7030	4890	
		P	10.3	10.1	9.91	9.66	9.18	8.40	7.55	6.65	5.73	4.82	3.95	
HG34e/1265-4 HGX44e/1265-4 S	60	Q	34700	31600	28600	25900	21400	17000	13300	10200	7490	5330	3570	
		P	11.7	11.4	11.1	10.7	9.96	8.94	7.88	6.79	5.73	4.69	3.73	
	70	Q	27500	24900	22500	20200	16400	13000	9950	7480	5430	-	-	
		P	12.9	12.4	12.0	11.5	10.4	9.21	7.94	6.69	5.48	-	-	

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R513A | 50 Hz

Type		Cooling capacity $\dot{Q}_0$ [kW]											Power consumption P_e [kW]	
		Evaporating temperature °C												
		Cond. temp. °C	12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	
HGX44e/770-4 HGX44e/770-4 S	30	Q	65200	59700	54600	49700	41000	33400	26800	21200	16500	12500	9160	
		P	793	8.01	8.04	8.03	7.86	7.55	7.11	6.57	5.96	5.31	4.64	
	40	Q	57000	52100	47500	43300	35500	28800	23100	18200	14000	10400	7400	
		P	10.0	9.95	9.83	9.68	9.24	8.68	8.02	7.27	6.47	5.65	4.83	
	50	Q	48800	44500	40500	36800	30100	24300	19400	15100	11500	8350	5680	
		P	11.9	11.7	11.4	11.1	10.4	9.66	8.76	7.80	6.81	5.81	4.82	
HGX56e/850-4 HGX56e/850-4 S	30	Q	40500	36900	33500	30300	24700	19800	15700	12100	8970	6300	3940	
		P	13.6	13.2	12.8	12.4	11.4	10.3	9.24	8.06	6.87	5.68	4.53	
	40	Q	32200	29200	26400	23800	19200	15300	11900	8940	6420	-	-	
		P	15.0	14.4	13.9	13.3	12.0	10.7	9.36	7.95	6.55	-	-	
	50	Q	73600	67400	61600	56200	46100	37400	30000	23600	18200	13700	10100	
		P	9.23	9.29	9.30	9.26	8.96	8.57	8.03	7.37	6.62	5.80	4.94	
HGX56e/995-4 HGX56e/995-4 S	30	Q	64200	58800	53600	48800	39900	32400	25800	20200	15500	11600	8310	
		P	11.6	11.5	11.3	11.1	10.5	9.83	9.00	8.08	7.09	6.05	5.00	
	40	Q	54800	50000	45600	41400	33700	27200	21600	16900	12800	9360	6530	
		P	13.7	13.4	13.1	12.7	11.8	10.8	9.76	8.58	7.35	6.11	4.87	
	50	Q	45300	41300	37500	34000	27600	22100	17500	13500	10100	7170	4750	
		P	15.6	15.2	14.7	14.1	12.9	11.6	10.2	8.85	7.40	5.95	4.53	
HGX56e/1155-4 HGX56e/1155-4 S	30	Q	35800	32500	29500	26600	21400	17000	13300	10100	7350	-	-	
		P	17.3	16.6	15.9	15.2	13.8	12.2	10.5	8.89	7.21	-	-	
	40	Q	85100	78000	71300	65000	53500	43400	34700	27200	20900	15700	11500	
		P	10.5	10.6	10.6	10.6	10.3	9.86	9.20	8.40	7.51	6.56	5.57	
	50	Q	74300	68100	62200	56600	46400	37500	29900	23300	17700	13100	9200	
		P	13.3	13.2	13.0	12.7	12.0	11.2	10.2	9.18	8.03	6.84	5.66	
HGX56e/1340-4 HGX56e/1340-4 S	30	Q	63400	58000	52800	48000	39200	31600	25000	19300	14500	10400	6940	
		P	15.8	15.5	15.1	14.6	13.6	12.4	11.1	9.73	8.32	6.90	5.51	
	40	Q	52400	47800	43500	39400	31900	25600	20000	15300	11200	7660	4660	
		P	18.0	17.5	16.9	16.2	14.8	13.2	11.6	9.98	8.30	6.65	5.07	
	50	Q	41300	37600	34000	30700	24700	19600	15100	11300	7910	-	-	
		P	19.8	19.1	18.2	17.4	15.6	13.7	11.8	9.84	7.91	-	-	
HGX66e/1540-4 HGX66e/1540-4 S	30	Q	98000	89700	81900	74500	60700	49200	39300	30800	23700	17900	13200	
		P	13.8	13.8	13.7	13.5	12.7	11.9	11.0	10.0	8.95	7.83	6.72	
	40	Q	85900	78500	71600	65100	52800	42700	34000	26500	20300	15100	10800	
		P	16.8	16.5	16.2	15.8	14.7	13.6	12.3	11.0	9.65	8.26	6.91	
	50	Q	73500	67100	61100	55500	44800	36100	28600	22200	16700	12200	8410	
		P	19.5	19.1	18.5	18.0	16.5	15.0	13.4	11.7	10.1	8.43	6.83	
HGX66e/1750-4 HGX66e/1750-4 S	30	Q	61000	55500	50400	45700	36700	29400	23100	17700	13200	9280	6030	
		P	22.1	21.4	20.6	19.8	18.0	16.1	14.2	12.1	10.1	8.21	6.34	
	40	Q	48300	43900	39700	35800	28500	22600	17600	13300	9600	-	-	
		P	24.2	23.3	22.3	21.3	19.1	16.8	14.5	12.1	9.76	-	-	
	50	Q	116000	106000	96700	88100	72200	58700	47000	36900	28500	21500	15800	
		P	15.4	15.5	15.4	15.3	14.6	13.7	12.7	11.5	10.3	9.06	7.85	
HGX66e/1950-4 HGX66e/1950-4 S	30	Q	102000	93100	84900	77200	62900	50800	40300	31400	23800	17600	12500	
		P	18.9	18.6	18.3	17.8	16.7	15.4	13.9	12.4	10.8	9.33	7.90	
	40	Q	87200	79600	72400	65600	53000	42500	33400	25700	19300	14000	9660	
		P	21.9	21.4	20.8	20.1	18.4	16.7	14.9	13.0	11.1	9.36	7.74	
	50	Q	72100	65500	59300	53600	42900	34100	26600	20400	15200	11000	7580	
		P	24.5	23.7	22.8	21.9	19.8	17.6	15.4	13.2	11.0	9.09	7.29	
HGX66e/2150-4 HGX66e/2150-4 S	30	Q	56500	51100	46100	41500	32900	26000	20300	15600	11800	8800	-	
		P	26.6	25.5	24.4	23.2	20.7	18.1	15.5	13.0	10.6	8.45	-	
	40	Q	133000	122000	111000	102000	83100	67600	54300	42800	33100	25100	18600	
		P	17.6	17.7	17.6	17.5	16.8	15.8	14.7	13.3	11.9	10.5	9.13	
	50	Q	117000	107000	97700	88900	72500	58700	46700	36500	27800	20700	14900	
		P	21.7	21.4	21.0	20.5	19.3	17.8	16.1	14.4	12.6	10.9	9.29	
HGX66e/2350-4 HGX66e/2350-4 S	30	Q	101000	91600	83400	75700	61300	49200	38900	30100	22700	16600	11700	
		P	25.3	24.7	24.0	23.2	21.4	19.4	17.3	15.2	13.0	11.0	9.22	
	40	Q	83100	75600	68500	62000	49800	39700	31200	24000	18000	13200	9310	
		P	28.4	27.5	26.5	25.4	23.1	20.6	18.1	15.5	13.1	10.8	8.85	
	50	Q	65300	59200	53400	48100	38400	30500	23900	18500	14200	10800	-	
		P	30.9	29.7	28.4	27.1	24.2	21.3	18.3	15.5	12.8	10.3	-	
HGX66e/2550-4 HGX66e/2550-4 S	30	Q	151000	138000	126000	115000	95000	77300	62000	48900	37900	28700	21300	
		P	20.2	20.3	20.2	20.0	19.2	18.1	16.8	15.3	13.7	12.1	10.5	
	40	Q	133000	122000	111000	101000	82900	67100	53500	41800	31900	23700	17100	
		P	24.8	24.5	24.1	23.5	22.0	20.4	18.5	16.5	14.5	12.6	10.7	
	50	Q	114000	104000	94700	86000	70200	56400	44600	34500	26100	19100	13500	
		P	29.0	28.3	27.5	26.6	24.5	22.2	19.8	17.4	15.0	12.8	10.7	
HGX66e/2750-4 HGX66e/2750-4 S	30	Q	94300	85800	77900	70500	57100	45600	35800	27600	20800	15200	10800	
		P	32.6	31.5	30.4	29.1	26.4	23.6	20.7	17.9	15.2	12.6	10.3	
	40	Q	74200	67200	60800	54800	44000	35000	27500	21300	16400	12500	-	
		P	35.5	34.0	32.6	31.0	27.7	24.4	21.1	17.9	14.8	12.0	-	

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R513A | 50 Hz

Type			Cooling capacity $\dot{Q}_0$ [kW]								Power consumption P_e [kW]			
			Evaporating temperature °C											
Cond. temp. °C			12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	
HGX66e/2070-4 HGX66e/2070-4 S	30	Q	177000	163000	149000	136000	112000	91100	73100	57700	44700	33900	25100	
		P	238	239	238	236	226	213	198	180	161	141	123	
	40	Q	157000	143000	131000	119000	97600	79100	63000	49200	37600	28000	20200	
		P	293	290	284	278	260	240	218	194	170	147	126	
	50	Q	134000	123000	112000	102000	82500	66400	52500	40700	30800	22600	15900	
		P	343	335	325	315	290	263	234	205	177	150	125	
HGX88e/2400-4 HGX88e/2400-4 S	60	Q	111000	101000	91500	82800	67100	53600	42200	32500	24500	18000	12800	
		P	386	373	360	345	313	279	245	211	178	148	121	
	70	Q	87100	78900	71400	64300	51700	41200	32400	25100	19300	14700	-	
		P	421	404	386	368	329	289	249	210	174	140	-	
	30	Q	209000	192000	175000	160000	131000	107000	85600	67500	52300	39600	29400	
		P	289	289	288	286	271	257	239	218	196	173	151	
HGX88e/2735-4 HGX88e/2735-4 S	40	Q	185000	169000	155000	141000	115000	92800	73900	57700	44100	32900	23700	
		P	351	347	341	334	310	288	262	235	208	181	155	
	50	Q	159000	145000	132000	120000	97100	78100	61700	47800	36100	26500	18800	
		P	407	398	387	375	344	314	281	248	215	184	155	
	60	Q	132000	120000	109000	98400	79100	63200	49600	38300	28900	21200	15200	
		P	455	441	426	410	371	333	294	255	218	182	150	
HGX88e/3235-4 HGX88e/3235-4 S	70	Q	104000	94100	85000	76600	61100	48600	38200	29700	22800	17500	-	
		P	494	475	456	436	391	345	299	255	213	174	-	
	30	Q	237000	218000	199000	182000	150000	122000	97500	76900	59500	45100	33500	
		P	326	326	325	322	309	293	273	250	225	199	173	
	40	Q	210000	192000	176000	160000	131000	106000	84200	65800	50300	37400	27000	
		P	397	392	385	377	354	328	300	269	238	207	177	
HGX88e/3235-4 HGX88e/3235-4 S	50	Q	181000	165000	150000	137000	111000	89000	70300	54500	41200	30200	21400	
		P	461	450	438	424	392	358	321	284	247	211	177	
	60	Q	150000	137000	124000	112000	90200	72000	56600	43600	32900	24200	17300	
		P	516	500	482	464	422	380	336	292	249	209	172	
	70	Q	118000	107000	96500	86900	69700	55400	43500	33800	26000	19900	-	
		P	561	539	517	494	444	393	342	292	244	199	-	
HGX88e/3235-4 HGX88e/3235-4 S	30	Q	280000	257000	235000	215000	177000	144000	116000	90700	70100	53100	39300	
		P	384	385	384	380	364	345	321	293	263	233	202	
	40	Q	248000	227000	207000	189000	155000	125000	99200	77500	59100	43900	31600	
		P	468	462	454	444	416	386	352	316	279	242	207	
	50	Q	213000	195000	177000	161000	131000	105000	82800	64000	48300	35400	25000	
		P	543	530	515	499	461	420	377	333	288	246	206	
HGX88e/3235-4 HGX88e/3235-4 S	60	Q	177000	161000	146000	132000	107000	84700	66500	51100	38500	28200	20100	
		P	607	588	567	545	497	446	393	341	290	242	199	
	70	Q	139000	126000	114000	103000	82000	65100	51000	39600	30400	23200	-	
		P	659	634	607	579	521	461	400	340	283	230	-	

Relating to 20 °C suction gas temperature
without liquid subcooling



Motor version -S-
(more powerful motor)



Supplementary cooling or
reduced suction gas temperature

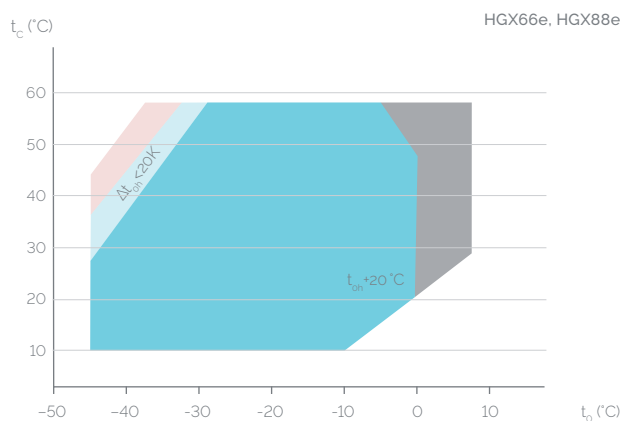
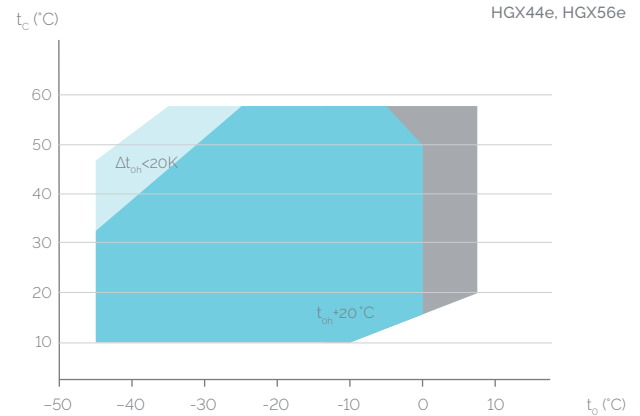
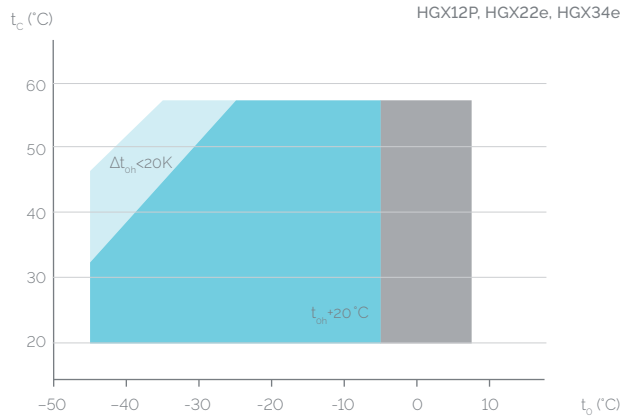
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HG semi-hermetic compressors

Operating limits

R404A/R507



- t_o Evaporating temperature (°C)
- t_c Condensing temperature (°C)
- Δt_{oh} Suction gas superheat (K)
- t_{oh} Suction gas temperature (°C)
- Unlimited application range
- Supplementary cooling or reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Supplementary cooling and reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Motor version -S- (more powerful motor)

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

¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

Restrictions to operating limits may occur when using a frequency converter. For further explanations consult www.bock.de.

Performance data

The performance data for R404A/R507 are based on European Standard EN 12900 with a 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 BOCK VAP software (vap.bock.de).

ASERCOM certified performance data



For compressors with this label, the performance data are certified according to the strict requirements of ASERCOM.

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HG semi-hermetic compressors

Performance data

R404A/R507 | 50 Hz

Type			Cooling capacity Q ₀ [kW]								Power consumption P _e [kW]				
			Evaporating temperature °C												
Cond. temp. °C		7.5	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45		
HGX12P/60-4 S ¹⁾	30	Q P	6540 120	5990 121	5000 122	4110 120	3340 115	2670 108	2100 100	1610 0.908	1210 0.810	879 0.712	617 0.618	415 0.533	
		Q P	5540 148	5070 147	4200 143	3430 136	2770 127	2200 117	1710 106	1300 0.945	959 0.827	685 0.713	466 0.609	296 0.519	
	40	Q P	4540 172	4130 168	3400 159	2750 149	2200 136	1730 123	1330 109	994 0.959	722 0.825	503 0.700	330 0.589	- -	
		50	Q P	8160 152	7500 154	6290 155	5230 150	4290 144	3470 136	2770 126	2170 115	1670 103	1250 0.908	911 0.789	648 0.680
	HGX12P/75-4 S ¹⁾	30	Q P	6940 190	6360 189	5310 183	4420 172	3610 162	2910 150	2300 136	1790 122	1370 108	1020 0.939	734 0.807	513 0.689
			50	Q P	5730 2.21	5240 2.16	4350 2.05	3640 1.92	2950 1.77	2360 1.62	1860 1.45	1440 1.28	1090 1.12	805 0.963	577 0.821
HGX12P/90-4 S ¹⁾	30	Q P	9740 185	8950 186	7510 185	6090 177	5000 168	4060 157	3240 145	2530 132	1940 117	1450 103	1050 0.888	731 0.745	
		40	Q P	8290 2.27	7600 2.24	6350 2.17	5150 2.02	4210 1.87	3390 1.72	2680 1.55	2080 1.38	1580 1.21	1160 1.04	818 0.876	550 0.719
	50	Q P	6870 2.66	6280 2.60	5220 2.46	4220 2.25	3420 2.05	2730 1.85	2140 1.64	1640 1.44	1230 1.23	886 1.04	611 0.857	-	
		30	Q P	11300 2.16	10400 2.17	8700 2.15	7220 2.15	5970 2.04	4870 1.91	3920 1.76	3100 1.59	2400 1.41	1820 1.22	1340 1.05	947 0.883
	40		Q P	9590 2.64	8800 2.61	7370 2.52	6130 2.47	5040 2.29	4100 2.10	3280 1.89	2570 1.67	1980 1.45	1480 1.24	1070 1.05	728 0.877
		50	Q P	7880 3.12	7220 3.05	6010 2.88	5020 2.73	4100 2.49	3310 2.24	2620 1.98	2040 1.73	1550 1.48	1150 1.25	804 1.05	-
HGX22e/125-4 S ¹⁾	30		Q P	13400 2.18	12400 2.22	10500 2.26	8790 2.24	7250 2.16	5870 2.03	4650 1.88	3590 1.69	2680 1.49	1920 1.28	1320 1.07	857 0.878
		40	Q P	11600 2.77	10700 2.75	8970 2.68	7460 2.58	6090 2.41	4880 2.22	3820 2.00	2900 1.76	2120 1.52	1490 1.28	992 1.06	640 0.853
	50	Q P	9650 3.26	8860 3.20	7390 3.03	6080 2.84	4910 2.60	3880 2.34	2990 2.07	2230 1.80	1610 1.53	1110 1.27	749 1.03	-	
		30	Q P	17000 2.70	15700 2.75	13200 2.78	10900 2.73	8980 2.62	7320 2.47	5850 2.29	4560 2.07	3450 1.84	2510 1.59	1750 1.34	1170 1.08
	40		Q P	14600 3.42	13400 3.40	11200 3.31	9170 3.17	7540 2.96	6090 2.72	4810 2.47	3700 2.19	2750 1.91	1960 1.62	1330 1.34	851 1.07
		50	Q P	12100 4.01	11100 3.93	9150 3.73	7480 3.51	6090 3.22	4860 2.90	3790 2.58	2860 2.25	2090 1.92	1460 1.60	972 1.30	-
HGX22e/190-4 S ¹⁾	30		Q P	20800 3.47	19200 3.49	16100 3.47	13300 3.41	11000 3.26	8920 3.07	7140 2.84	5620 2.57	4330 2.29	3240 2.00	2350 1.70	1620 1.41
		40	Q P	17800 4.29	16300 4.24	13700 4.09	11300 3.93	9200 3.68	7450 3.39	5940 3.08	4640 2.74	3540 2.39	2620 2.03	1860 1.68	1230 1.35
	50	Q P	14800 5.04	13500 4.92	11300 4.65	9150 4.40	7460 4.06	6000 3.68	4750 3.27	3680 2.85	2780 2.43	2020 2.01	1390 1.61	-	
		30	Q P	23900 3.83	21900 3.85	18200 3.84	14600 3.70	11900 3.52	9470 3.26	7390 2.94	5610 2.58	4120 2.21	2900 1.84	1940 1.49	1220 1.18
	40		Q P	20200 4.72	18500 4.65	15300 4.48	12200 4.26	9840 3.94	7770 3.56	5990 3.14	4480 2.70	3230 2.27	2220 1.85	1430 1.47	851 1.15
		50	Q P	16500 5.48	15000 5.33	12200 4.99	9770 4.67	7800 4.23	6090 3.75	4630 3.25	3420 2.74	2420 2.26	1630 1.81	1040 1.42	-
HGX34e/215-4 S ¹⁾	30		Q P	28000 4.57	25700 4.61	21500 4.59	17200 4.44	14200 4.23	11500 3.95	9120 3.61	7080 3.22	5350 2.81	3900 2.39	2730 1.97	1820 1.58
		40	Q P	23800 5.64	21800 5.58	18100 5.38	14500 5.14	11800 4.76	9460 4.33	7430 3.86	5680 3.37	4210 2.87	3010 2.38	2050 1.92	1320 1.50
	50	Q P	19500 6.55	17700 6.40	14600 6.02	11700 5.68	9410 5.15	7450 4.58	5760 4.00	4330 3.41	3150 2.84	2200 2.30	1480 1.80	-	
		30	Q P	33800 5.86	31000 5.82	26000 5.67	21300 5.47	17600 5.20	14300 4.85	11400 4.43	8840 3.98	6700 3.49	4930 2.99	3490 2.49	2370 2.01
	40		Q P	28700 7.05	26300 6.92	22000 6.59	17900 6.29	14700 5.83	11900 5.32	9350 4.76	7220 4.18	5400 3.58	3880 2.98	2650 2.40	1690 1.86
		50	Q P	23500 8.13	21500 7.90	17800 7.39	14500 6.97	11800 6.34	9430 5.67	7370 4.96	5600 4.25	4100 3.54	2840 2.85	1820 2.20	-

¹⁾ ASERCOM certified

Relating to 20 °C suction gas temperature without liquid subcooling

Motor version -S- (more powerful motor)

Supplementary cooling or reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R404A/R507 | 50 Hz

Type		Cooling capacity $\dot{Q}_0$ [kW]											Power consumption P_e [kW]	
		Evaporating temperature °C												
		Cond. temp. °C	7.5	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
HGX34e/380-4 HGX34e/380-4 S	30	Q	40900	37600	31700	25800	21200	17300	13800	10900	8300	6200	4490	3120
		P	7.20	7.15	6.98	6.84	6.45	5.98	5.46	4.88	4.28	3.67	3.05	2.45
	40	Q	34600	31800	26700	21600	17700	14300	11400	8850	6730	4960	3510	2340
		P	8.75	8.59	8.18	7.84	7.25	6.59	5.90	5.18	4.45	3.72	3.00	2.33
	50	Q	28400	26000	21800	17600	14300	11500	9030	6960	5210	3760	2550	-
		P	10.1	9.86	9.23	8.73	7.92	7.08	6.22	5.34	4.47	3.62	2.81	-
HGX44e/475-4 HGX44e/475-4 S	30	Q	52500	48300	40200	33500	27500	22400	18000	14300	11100	8340	6060	4110
		P	7.73	7.85	7.91	7.80	7.52	7.10	6.57	5.94	5.26	4.54	3.81	3.11
	40	Q	45200	41400	34200	28300	23200	18800	15000	11800	9010	6670	4650	2870
		P	9.97	9.90	9.62	9.16	8.57	7.88	7.12	6.31	5.47	4.64	3.84	3.11
	50	Q	37600	34300	28100	23100	18800	15100	12000	9260	6970	5000	3270	-
		P	11.8	11.5	11.0	10.2	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	47800	39800	32800	26800	21600	17200	13400	10200	7470	5140
		P	9.18	9.32	9.45	9.31	8.97	8.47	7.82	7.07	6.24	5.38	4.51	3.66
	40	Q	54000	49600	40700	33700	27700	22500	18100	14300	11100	8230	5820	3680
		P	11.8	11.7	11.5	10.9	10.2	9.42	8.49	7.51	6.50	5.50	4.55	3.67
	50	Q	45100	41200	33400	27500	22500	18200	14500	11400	8620	6270	4180	-
		P	14.0	13.7	13.2	12.3	11.2	10.1	9.01	7.85	6.72	5.64	4.66	-
HGX44e/665-4 HGX44e/665-4 S	30	Q	73100	67100	56000	46500	38300	31100	25000	19800	15300	11600	8340	5630
		P	10.7	10.9	11.0	10.9	10.5	9.94	9.19	8.32	7.36	6.35	5.33	4.34
	40	Q	62700	57400	47500	39300	32200	26000	20800	16300	12500	9160	6360	3910
		P	13.9	13.8	13.4	12.8	12.0	11.0	9.97	8.83	7.66	6.49	5.37	4.34
	50	Q	52000	47500	38900	32000	26000	20900	16500	12800	9570	6840	4440	-
		P	16.5	16.1	15.4	14.3	13.1	11.8	10.5	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	12.4	12.6	12.8	12.6	12.1	11.5	10.6	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	16.1	16.0	15.5	14.8	13.8	12.7	11.5	10.2	8.86	7.51	6.22	5.02
	50	Q	60300	55100	45700	37600	30700	24700	19600	15300	11600	8360	5530	-
		P	19.2	18.8	17.8	16.5	15.2	13.7	12.2	10.6	9.15	7.70	6.37	-
HGX56e/850-4 HGX56e/850-4 S	30	Q	93700	86100	71800	59800	49300	40200	32400	25800	20100	15300	11200	7710
		P	13.7	13.9	14.1	13.9	13.4	12.6	11.7	10.6	9.38	8.08	6.77	5.49
	40	Q	80500	73800	61100	50600	41600	33800	27200	21400	16600	12400	8720	5520
		P	17.7	17.6	17.1	16.3	15.3	14.0	12.7	11.2	9.76	8.27	6.83	5.50
	50	Q	67000	61200	50100	41300	33800	27300	21800	17000	13000	9410	6280	-
		P	21.1	20.6	19.6	18.3	16.8	15.1	13.4	11.7	10.0	8.48	7.00	-
HGX56e/995-4 HGX56e/995-4 S	30	Q	111000	102000	85000	70800	58300	47400	38000	29800	22900	17100	12200	8120
		P	18.6	18.3	17.6	16.7	15.8	14.6	13.4	12.1	10.7	9.21	7.61	5.94
	40	Q	94300	86600	72100	59800	49000	39600	31500	24500	18500	13400	9110	5480
		P	22.0	21.5	20.4	19.2	17.8	16.3	14.7	12.9	11.1	9.23	7.23	5.15
	50	Q	78000	71400	59000	48600	39500	31700	24900	19100	14100	9800	6130	-
		P	25.3	24.6	23.1	21.4	19.6	17.6	15.5	13.4	11.1	8.75	6.30	-
HGX56e/1155-4 HGX56e/1155-4 S	30	Q	127000	117000	97500	81100	66800	54500	43900	34800	27100	20600	15000	10300
		P	19.4	19.7	20.0	19.7	19.0	17.9	16.6	15.0	13.2	11.4	9.59	7.80
	40	Q	109000	99900	83000	68800	56400	45800	36700	28900	22200	16600	11700	7280
		P	25.1	24.9	24.4	23.2	21.7	19.9	18.0	15.9	13.8	11.7	9.68	7.80
	50	Q	90600	82800	68200	56200	45800	36900	29300	22900	17300	12500	8270	-
		P	29.9	29.2	27.9	26.0	23.8	21.5	19.1	16.6	14.2	12.0	9.91	-
HGX66e/1340-4 HGX66e/1340-4 S	30	Q	150000	138000	115000	95700	78800	64100	51300	40400	31000	23100	16500	11000
		P	25.0	24.9	24.2	23.2	21.9	20.3	18.5	16.5	14.4	12.3	10.3	8.30
	40	Q	129000	118000	97900	81200	66600	53800	42800	33400	25400	18500	12700	-
		P	30.3	29.7	28.4	26.6	24.5	22.3	19.9	17.4	14.9	12.5	10.1	-
	50	Q	106000	97000	79900	65900	53700	43100	34100	26400	19800	14200	-	-
		P	34.9	33.9	31.8	29.3	26.6	23.8	20.9	17.9	15.0	12.2	-	-
HGX66e/1540-4 HGX66e/1540-4 S	30	Q	172000	158000	132000	110000	90700	73900	59400	46900	36200	27100	19500	13200
		P	28.8	28.6	28.0	26.9	25.4	23.5	21.5	19.2	16.9	14.5	12.1	9.87
	40	Q	148000	136000	113000	93400	76800	62300	49700	39000	29800	21900	15300	-
		P	35.1	34.4	32.9	30.9	28.6	26.0	23.3	20.4	17.6	14.7	12.0	-
	50	Q	122000	112000	91900	75900	62100	50100	39800	31000	23400	17000	-	-
		P	40.5	39.4	37.1	34.2	31.1	27.9	24.5	21.1	17.8	14.6	-	-

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R404A/R507 | 50 Hz

Type		Cooling capacity $\dot{Q}_0$ [kW]											Power consumption P_e [kW]	
		Evaporating temperature °C												
		Cond. temp. °C	7.5	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
HGX66e/1750-4 HGX66e/1750-4 S	30	Q P	195000 32.9	180000 32.8	151000 31.9	126000 30.7	104000 28.9	84700 26.9	68000 24.5	53700 22.0	41500 19.3	31100 16.6	22400 14.0	15200 11.4
	40	Q P	167000 40.1	154000 39.4	129000 37.6	107000 35.3	88000 32.6	71400 29.7	57100 26.6	44800 23.4	34200 20.2	25200 17.0	17600 13.9	-
	50	Q P	138000 46.3	127000 45.1	106000 42.3	87000 39.1	71200 35.6	57500 31.9	45700 28.1	35600 24.3	27000 20.5	19600 16.9	-	-
HGX66e/2070-4 HGX66e/2070-4 S	30	Q P	229000 39.1	211000 38.9	177000 38.0	148000 36.4	122000 34.4	99600 31.9	80000 29.1	63200 26.0	48900 22.8	36700 19.6	26500 16.4	17900 13.4
	40	Q P	196000 47.8	180000 46.9	151000 44.8	126000 42.0	104000 38.8	83800 35.3	67100 31.6	52700 27.7	40300 23.8	29800 20.0	20800 16.4	-
	50	Q P	162000 55.4	148000 53.8	123000 50.6	102000 46.7	83400 42.4	67400 37.9	53700 33.3	41900 28.7	31800 24.2	23100 19.9	-	-
HGX88e/2400-4 HGX88e/2400-4 S	30	Q P	272000 46.0	251000 45.8	209000 44.8	175000 43.0	144000 40.6	118000 37.8	94200 34.6	74300 31.1	57400 27.4	43100 23.7	31100 20.1	21100 16.6
	40	Q P	235000 55.6	216000 54.6	179000 52.7	149000 49.5	122000 45.8	99000 41.8	79100 37.5	62000 33.1	47400 28.6	35100 24.3	24500 20.1	-
	50	Q P	194000 63.9	178000 62.2	147000 59.4	121000 54.9	98900 50.0	79800 44.8	63400 39.6	49400 34.3	37500 29.2	27300 24.2	-	-
HGX88e/2735-4 HGX88e/2735-4 S	30	Q P	309000 52.2	284000 51.9	239000 50.7	199000 48.7	164000 46.1	134000 42.9	108000 39.3	84700 35.5	65400 31.4	49100 27.2	35400 23.0	24000 19.0
	40	Q P	266000 63.3	244000 62.1	204000 59.5	170000 55.9	140000 51.8	113000 47.4	90200 42.6	70700 37.7	54100 32.7	39900 27.8	27900 23.0	-
	50	Q P	220000 73.1	202000 71.0	168000 67.0	139000 61.9	113000 56.5	91100 50.8	72400 44.9	56400 39.1	42700 33.3	31100 27.7	-	-
HGX88e/3235-4 HGX88e/3235-4 S	30	Q P	365000 61.5	336000 61.1	282000 59.8	235000 57.5	194000 54.3	158000 50.6	127000 46.3	99800 41.6	77000 36.8	57700 31.8	41500 26.9	28100 22.1
	40	Q P	314000 74.5	288000 73.1	241000 70.2	200000 66.0	165000 61.1	133000 55.7	107000 50.1	83200 44.2	63500 38.3	46800 32.4	32600 26.8	-
	50	Q P	260000 85.9	238000 83.5	198000 79.1	163000 73.0	133000 66.5	108000 59.7	85100 52.7	66200 45.8	50100 38.9	36400 32.2	-	-

Relating to 20 °C suction gas temperature
without liquid subcooling

 Motor version -S-
(more powerful motor)

 Supplementary cooling or
reduced suction gas temperature

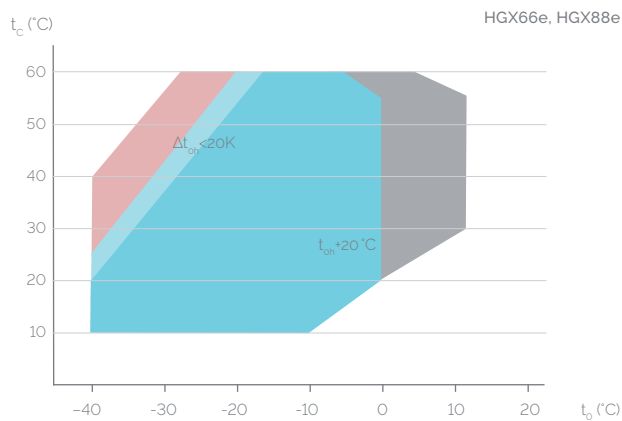
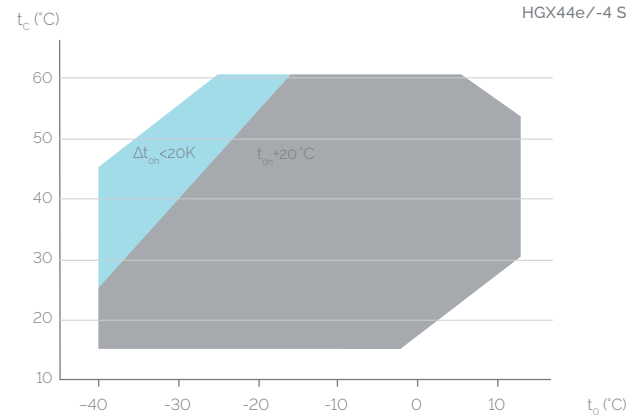
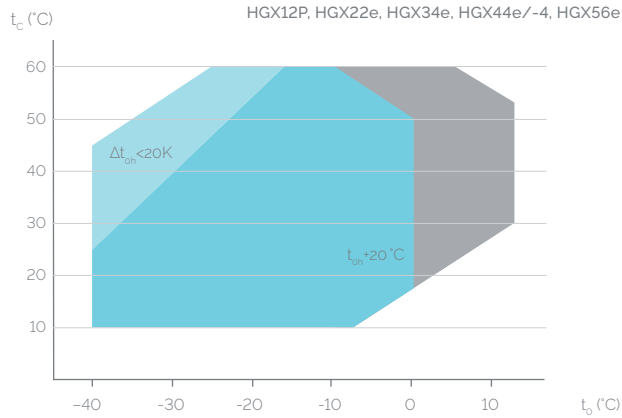
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HG semi-hermetic compressors

Operating limits

R448A/R449A



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

- Unlimited application range
- Supplementary cooling or reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Supplementary cooling and reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Motor version -S- (more powerful motor)

Max. permissible operating pressure (LP/HP) ¹⁾: 19/28 bar
¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

Compressor operation is possible within the limits shown on the application diagrams. Please note the colored 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 R448A and R449A 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 BOCK VAP software (vap.bock.de).

ASERCOM certified performance data



For compressors with this label, the performance data are certified according to the strict requirements of ASERCOM.

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HG semi-hermetic compressors

Performance data

R448A 50 Hz																
Type			Cooling capacity $\dot{Q}_0$ [W]								Power consumption P_e [kW]					
			Evaporating temperature °C													
Cond. temp. °C		12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	-35	-40		
HGX12P/60-4 S	30	Q P	7620 112	6970 114	6360 115	5790 115	4760 113	3870 109	3110 103	2460 0.957	1920 0.871	1470 0.780	1100 0.687	790 0.597	543 0.515	
		Q P	6730 142	6140 141	5590 140	5070 137	4140 132	3350 124	2670 114	2100 104	1630 0.931	1230 0.817	907 0.705	644 0.600	428 0.507	
	40	Q P	5850 174	5320 171	4820 167	4360 162	3540 152	2830 140	2240 127	1740 113	1330 0.988	988 0.847	712 0.712	487 0.588	- -	
		Q P	9480 138	8680 140	7920 141	7220 142	5940 140	4840 135	3900 128	3090 118	2420 107	1860 0.962	1400 0.845	1020 0.732	703 0.629	
	HGX12P/75-4 HGX12P/75-4 S	30	Q P	8380 176	7640 175	6960 174	6320 171	5180 165	4190 155	3350 143	2650 130	2060 116	1570 101	1170 0.875	835 0.743	563 0.626
		40	Q P	7290 218	6630 214	6020 209	5450 203	4420 192	3550 176	2820 160	2200 142	1690 124	1270 106	924 0.893	641 0.737	- -
HGX12P/90-4 HGX12P/90-4 S	30	Q P	11300 167	10400 170	9430 171	8590 172	7070 167	5760 160	4650 151	3700 140	2900 127	2230 113	1680 0.997	1230 0.861	857 0.736	
		Q P	9960 213	9090 213	8280 211	7530 208	6160 196	5000 185	4010 170	3170 155	2470 138	1890 120	1410 103	1020 0.881	694 0.739	
	40	Q P	8670 264	7890 260	7160 254	6490 247	5270 229	4240 211	3370 191	2640 170	2040 148	1540 127	1130 106	789 0.880	- -	
		Q P	13200 196	12100 199	11100 201	10100 202	8280 196	6750 189	5450 178	4340 165	3410 149	2630 133	1990 116	1460 100	1020 0.857	
	HGX12P/110-4 HGX12P/110-4 S	30	Q P	11700 252	10700 251	9680 248	8800 245	7210 232	5850 218	4700 201	3720 182	2910 162	2230 142	1670 122	1210 103	828 0.865
		40	Q P	10200 314	9200 308	8360 301	7570 293	6150 271	4960 250	3950 226	3100 201	2400 175	1820 150	1340 126	942 103	- -
HGX22e/125-4 HGX22e/125-4 S	30	Q P	16600 200	15200 206	13800 210	12600 212	10300 212	8330 206	6680 196	5290 182	4130 166	3160 148	2370 130	1710 112	1170 0.958	
		Q P	14500 264	13200 265	12000 263	10900 260	8870 251	7170 237	5730 219	4510 199	3500 178	2660 156	1950 135	1370 115	853 0.987	
	40	Q P	12400 322	11200 316	10200 310	9180 302	7470 283	6010 261	4770 237	3730 211	2870 185	2150 160	1540 137	1010 116	- -	
		Q P	16600 200	15200 206	13800 210	12600 212	10300 212	8330 206	6680 196	5290 182	4130 166	3160 148	2370 130	1710 112	1170 0.958	
	HHGX22e/160-4 HGX22e/160-4 S	30	Q P	20300 294	18600 290	17000 285	15400 279	12600 262	10200 254	8180 241	6480 223	5060 203	3880 180	2900 157	2100 135	1440 115
		40	Q P	17700 365	16100 355	14700 345	13400 335	10900 311	8760 292	7000 270	5520 245	4290 218	3260 190	2400 164	1670 139	1050 118
HGX22e/190-4 HGX22e/190-4 S	30	Q P	15200 434	13800 419	12600 404	11400 388	9110 352	7330 324	5820 293	4560 260	3510 227	2630 196	1880 166	1230 140	- -	
		Q P	24500 357	22400 351	20500 345	18700 339	15400 335	12700 314	10300 293	8260 270	6570 247	5170 223	3980 198	2980 172	2110 144	
	40	Q P	21300 445	19500 433	17800 422	16200 409	13400 395	11000 364	8890 333	7140 303	5670 272	4430 241	3380 210	2460 179	1630 147	
		Q P	18300 533	16700 514	15200 496	13900 477	11500 451	9300 409	7510 368	6010 329	4740 290	3660 252	2730 214	1880 178	- -	
	HGX34e/215-4 HGX34e/215-4 S	30	Q P	27600 348	25200 349	23000 348	20900 345	16800 336	13700 319	10900 296	8490 270	6500 242	4830 213	3470 184	2370 157	1500 134
		40	Q P	24200 458	22000 448	20000 437	18100 424	14400 401	11600 367	9060 330	6980 293	5240 255	3810 219	2650 186	1740 157	1030 133
HGX34e/255-4 HGX34e/255-4 S	30	Q P	20600 559	18600 538	16800 517	15100 495	11900 457	9380 408	7280 358	5520 310	4080 264	2920 221	2010 185	1320 154	- -	
		Q P	32200 359	29600 372	27100 380	24700 386	20000 392	16400 382	13200 363	10400 336	7970 303	5960 267	4300 229	2950 192	1880 158	
	40	Q P	27900 483	25600 485	23400 484	21300 480	17200 473	14000 446	11200 411	8720 370	6660 326	4930 279	3490 233	2310 189	1370 150	
		Q P	23300 595	21300 587	19400 576	17600 563	14100 543	11400 499	9040 449	7040 394	5350 338	3930 281	2750 227	1790 177	- -	
	HGX34e/315-4 HGX34e/315-4 S	30	Q P	41100 484	37500 490	34100 492	30900 492	25000 475	20200 458	16200 433	12800 400	9840 362	7440 320	5470 276	3850 231	2510 187
		40	Q P	35700 623	32500 618	29500 611	26700 601	21500 567	17300 533	13800 491	10800 443	8230 391	6140 337	4410 282	2960 227	1720 174
HGX34e/315-4 HGX34e/315-4 S	50	Q P	30300 755	27400 740	24800 722	22400 703	17900 650	14300 598	11300 539	8770 476	6660 409	4910 342	3430 274	2170 209	- -	

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R448A | 50 Hz

Type			Cooling capacity Q ₀ [kW]										Power consumption P _e [kW]			
			Evaporating temperature °C													
Cond. temp. °C		12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	-35	-40		
HGX34e/380-4 HGX34e/380-4 S	30	Q	48800	44600	40600	37000	30000	24500	19800	15700	12300	9440	7070	5090	3430	
		P	6.17	6.20	6.20	6.17	5.95	5.71	5.38	4.97	4.50	3.98	3.44	2.88	2.33	
	40	Q	42400	38700	35200	32000	25800	21000	16900	13400	10400	7890	5790	3990	2420	
		P	7.82	7.74	7.62	7.48	7.06	6.62	6.09	5.50	4.87	4.20	3.52	2.85	2.19	
	50	Q	35900	32600	29600	26900	21600	17500	14000	11100	8530	6410	4590	2990	-	
		P	9.40	9.19	8.96	8.70	8.08	7.42	6.69	5.92	5.11	4.28	3.46	2.65	-	
HGX44e/475-4 HGX44e/475-4 S	30	Q	61800	56500	51700	47100	38600	31500	25400	20200	15800	12200	9150	6660	4620	
		P	7.17	7.30	7.37	7.39	7.26	7.00	6.62	6.12	5.54	4.89	4.21	3.53	2.85	
	40	Q	54300	49600	45200	41100	33500	27300	21900	17300	13500	10300	7590	5340	3430	
		P	9.44	9.40	9.30	9.17	8.77	8.23	7.58	6.84	6.05	5.21	4.37	3.55	2.76	
	50	Q	46700	42500	38700	35100	28400	22900	18200	14300	11000	8150	5790	3760	-	
		P	11.5	11.3	11.0	10.7	10.0	9.25	8.33	7.34	6.32	5.28	4.26	3.28	-	
HGX44e/565-4 HGX44e/565-4 S	30	Q	73700	67500	61700	56200	45900	37500	30300	24200	19000	14700	11200	8160	5710	
		P	8.52	8.66	8.75	8.77	8.65	8.35	7.88	7.28	6.58	5.80	4.99	4.16	3.36	
	40	Q	64900	59300	54100	49200	40000	32600	26200	20900	16300	12500	9300	6620	4320	
		P	11.2	11.1	11.0	10.8	10.4	9.83	9.04	8.15	7.19	6.19	5.18	4.19	3.25	
	50	Q	55900	51000	46400	42100	33800	27400	21900	17300	13400	10100	7190	4750	-	
		P	13.7	13.4	13.1	12.7	12.1	11.0	9.95	8.75	7.52	6.27	5.04	3.87	-	
HGX44e/665-4 HGX44e/665-4 S ¹⁾	30	Q	87000	79500	72600	66000	53700	43800	35300	28100	22000	16900	12700	9210	6350	
		P	9.92	10.1	10.2	10.2	10.1	9.81	9.26	8.57	7.75	6.85	5.90	4.93	3.99	
	40	Q	76200	69500	63300	57500	46600	37900	30400	24000	18700	14200	10500	7330	4670	
		P	13.0	13.0	12.9	12.7	12.2	11.5	10.6	9.58	8.47	7.30	6.12	4.96	3.86	
	50	Q	65400	59500	54000	48800	39300	31700	25200	19800	15100	11300	7930	5120	-	
		P	16.0	15.7	15.3	14.9	14.1	12.9	11.6	10.2	8.84	7.39	5.97	4.59	-	
HGX44e/770-4 HGX44e/770-4 S	30	Q	99500	91100	83200	75900	62600	51100	41300	32900	25800	19900	15100	11000	7650	
		P	11.5	11.7	11.8	11.8	11.7	11.3	10.7	9.91	8.96	7.92	6.82	5.71	4.61	
	40	Q	87300	79800	72800	66300	54500	44300	35600	28300	22100	16900	12600	8860	5760	
		P	15.3	15.2	15.0	14.8	14.1	13.3	12.2	11.0	9.79	8.44	7.08	5.74	4.46	
	50	Q	75100	68400	62200	56500	46200	37300	29800	23400	18000	13500	9620	6320	-	
		P	18.8	18.4	18.0	17.4	16.3	14.9	13.4	11.8	10.2	8.55	6.90	5.31	-	
HGX56e/850-4 HGX56e/850-4 S	30	Q	110000	101000	92100	83900	69000	56300	45500	36300	28600	22100	16700	12300	8560	
		P	12.7	12.9	13.0	13.1	12.9	12.5	11.8	10.9	9.87	8.72	7.49	6.25	5.04	
	40	Q	96600	88400	80600	73400	60000	48900	39400	31300	24500	18800	14000	9920	6480	
		P	16.8	16.7	16.5	16.3	15.6	14.7	13.5	12.2	10.7	9.29	7.78	6.29	4.87	
	50	Q	83100	75800	69000	62600	50800	41200	32900	25900	20000	15100	10800	7130	-	
		P	20.6	20.2	19.7	19.1	18.0	16.5	14.8	13.1	11.2	9.41	7.58	5.82	-	
HGX56e/995-4 HGX56e/995-4 S	30	Q	129000	119000	108000	98500	81100	66400	53800	43000	33900	26200	19800	14400	9760	
		P	15.6	15.8	15.9	15.9	15.6	15.0	14.1	13.1	11.8	10.5	9.08	7.60	6.11	
	40	Q	113000	104000	94300	86000	70500	57600	46600	37100	29100	22300	16500	11400	6880	
		P	20.3	20.1	19.9	19.5	18.7	17.5	16.1	14.6	12.9	11.1	9.34	7.50	5.70	
	50	Q	96900	88500	80700	73300	59800	48700	39200	31000	24000	18000	12700	7940	-	
		P	24.6	24.2	23.6	22.9	21.5	19.8	17.8	15.8	13.6	11.4	9.22	7.01	-	
HGX56e/1155-4 HGX56e/1155-4 S	30	Q	150000	137000	125000	114000	93500	76400	61600	49100	38600	29800	22500	16500	11500	
		P	18.0	18.3	18.5	18.5	18.3	17.7	16.7	15.4	13.9	12.3	10.6	8.88	7.17	
	40	Q	132000	120000	110000	99500	81300	66200	53200	42300	33000	25200	18800	13300	8620	
		P	23.8	23.7	23.4	23.1	22.2	20.8	19.2	17.3	15.3	13.1	11.0	8.93	6.93	
	50	Q	113000	103000	93500	84800	68900	55700	44400	34900	26900	20200	14400	9460	-	
		P	29.2	28.6	27.9	27.2	25.6	23.4	21.1	18.5	15.9	13.3	10.7	8.26	-	
HGX66e/1340-4 HGX66e/1340-4 S	30	Q	160000	146000	133000	123000	109000	88300	71200	56700	44500	34200	25600	18400	-	
		P	22.8	22.6	22.4	22.4	21.6	20.5	19.2	17.6	15.8	14.0	12.1	10.1	-	
	40	Q	140000	128000	116000	116000	94100	76500	61400	48700	37900	28800	21100	-	-	
		P	27.9	27.4	26.8	26.8	25.3	23.6	21.6	19.4	17.1	14.8	12.4	-	-	
	50	Q	120000	109000	98600	98600	79700	64400	51400	40400	31000	23100	-	-	-	
		P	32.6	31.7	30.8	30.8	28.7	26.2	23.6	20.8	17.9	14.9	-	-	-	
HGX66e/1540-4 HGX66e/1540-4 S	30	Q	183000	167000	152000	98500	125000	102000	82100	65500	51600	39800	30000	21700	-	
		P	26.2	26.1	25.8	15.9	25.0	23.7	22.2	20.4	18.4	16.3	14.1	11.9	-	
	40	Q	161000	146000	133000	86000	109000	88100	71000	56400	44100	33700	24900	-	-	
		P	32.2	31.6	31.0	19.5	29.4	27.4	25.1	22.6	20.0	17.3	14.6	-	-	
	50	Q	138000	125000	114000	73300	91800	74400	59600	47000	36400	27300	-	-	-	
		P	37.9	36.9	35.8	22.9	33.4	30.6	27.5	24.3	21.0	17.7	-	-	-	

¹⁾ ASERCOM certified

Relating to 20 °C suction gas temperature without liquid subcooling

Motor version -S- (more powerful motor)

Supplementary cooling or reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R448A | 50 Hz

Type		Cooling capacity Q_0 [kW]										Power consumption P_e [kW]			
		Evaporating temperature °C													
		12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	-35	-40	
HGX66e/1750-4 HGX66e/1750-4 S	30	Q	207000	189000	173000	98500	143000	117000	94000	75100	59100	45700	34400	24900	-
		P	30.0	29.8	29.5	15.9	28.5	27.1	25.3	23.3	21.1	18.7	16.2	13.7	-
	40	Q	182000	166000	151000	86000	124000	101000	81300	64700	50600	38700	28600	-	-
		P	36.8	36.2	35.4	19.5	33.5	31.3	28.7	25.9	22.9	19.9	16.8	-	-
	50	Q	156000	142000	129000	73300	106000	85200	68300	54000	41800	31400	-	-	-
		P	43.3	42.2	40.9	22.9	38.1	34.9	31.5	27.9	24.1	20.3	-	-	-
HGX66e/2070-4 HGX66e/2070-4 S	30	Q	244000	223000	203000	98500	167000	137000	111000	88300	69600	53800	40600	29400	-
		P	35.5	35.3	35.0	15.9	33.8	32.1	30.0	27.6	24.9	22.0	19.1	16.1	-
	40	Q	213000	195000	177000	86000	146000	119000	95500	76100	59600	45600	33700	-	-
		P	43.8	43.0	42.1	19.5	39.9	37.2	34.1	30.7	27.1	23.4	19.8	-	-
	50	Q	183000	166000	151000	73300	123000	99900	80200	63400	49200	37000	-	-	-
		P	51.7	50.3	48.7	22.9	45.5	41.6	37.5	33.1	28.5	24.0	-	-	-
HGX88e/2400-4 HGX88e/2400-4 S	30	Q	289000	264000	241000	98500	197000	161000	130000	104000	81700	63200	47600	34500	-
		P	42.0	41.8	41.4	15.9	39.9	38.0	35.6	32.9	29.8	26.5	23.1	19.7	-
	40	Q	255000	232000	211000	86000	172000	140000	113000	89600	70100	53600	39600	-	-
		P	51.1	50.3	49.3	19.5	47.0	43.9	40.3	36.5	32.4	28.2	24.0	-	-
	50	Q	219000	199000	181000	73300	146000	119000	94800	74900	58000	43600	-	-	-
		P	59.8	58.3	56.7	22.9	53.6	49.1	44.3	39.2	34.1	28.9	-	-	-
HGX88e/2735-4 HGX88e/2735-4 S	30	Q	328000	300000	273000	98500	225000	184000	149000	119000	93100	72000	54200	39300	-
		P	47.5	47.2	46.8	15.9	45.3	43.2	40.5	37.4	34.0	30.3	26.5	22.6	-
	40	Q	289000	263000	240000	86000	196000	160000	129000	103000	79900	61100	45100	-	-
		P	58.1	57.1	55.9	19.5	53.2	49.7	45.7	41.4	36.9	32.2	27.4	-	-
	50	Q	248000	226000	205000	73300	167000	136000	109000	85400	66100	49700	-	-	-
		P	68.3	66.5	64.6	22.9	60.5	55.5	50.2	44.6	38.8	33.0	-	-	-
HGX88e/3235-4 HGX88e/3235-4 S	30	Q	387000	354000	323000	98500	265000	217000	175000	140000	110000	84700	63800	46100	-
		P	55.9	55.6	55.1	15.9	53.4	50.9	47.7	44.0	39.9	35.5	31.0	26.4	-
	40	Q	341000	311000	283000	86000	232000	189000	152000	121000	94000	71800	53000	-	-
		P	68.4	67.2	65.8	19.5	62.7	58.6	53.9	48.7	43.3	37.7	32.1	-	-
	50	Q	293000	267000	242000	73300	197000	160000	128000	101000	77700	58300	-	-	-
		P	80.3	78.2	75.9	22.9	71.3	65.4	59.0	52.4	45.5	38.6	-	-	-

R449A | 50 Hz

HGX12P/60-4 S	30	Q	7580	6940	6330	5760	4740	3860	3100	2460	1920	1470	1100	790	544
		P	112	113	114	114	113	108	102	0.955	0.870	0.779	0.686	0.597	0.515
	40	Q	6690	6100	5550	5040	4120	3330	2660	2090	1620	1230	905	644	429
		P	141	140	139	137	131	123	114	103	0.928	0.815	0.704	0.600	0.507
	50	Q	5810	5280	4790	4330	3510	2820	2230	1730	1320	985	711	487	-
		P	173	170	166	161	151	139	126	112	0.985	0.845	0.712	0.588	-
HGX12P/75-4 HGX12P/75-4 S	30	Q	9430	8630	7880	7180	5920	4820	3880	3080	2410	1850	1390	1020	703
		P	138	140	141	141	140	135	127	118	107	0.960	0.844	0.732	0.629
	40	Q	8320	7600	6920	6290	5150	4170	3340	2640	2050	1560	1170	834	564
		P	175	174	173	170	164	154	142	129	115	101	0.874	0.743	0.626
	50	Q	7240	6580	5970	5410	4390	3530	2800	2190	1680	1270	922	641	-
		P	216	213	208	202	191	176	159	141	123	106	0.892	0.736	-
HGX12P/90-4 HGX12P/90-4 S	30	Q	11300	10300	9380	8550	7040	5740	4630	3680	2890	2230	1680	1230	857
		P	167	169	171	171	166	160	151	140	127	113	0.995	0.860	0.736
	40	Q	9890	9030	8230	7480	6130	4970	3990	3160	2460	1880	1410	1020	694
		P	212	212	210	207	195	184	170	154	137	120	103	0.880	0.739
	50	Q	8600	7830	7110	6440	5230	4210	3350	2630	2030	1530	1130	789	-
		P	263	258	253	246	228	210	190	169	148	127	106	0.879	-
HGX12P/110-4 HGX12P/110-4 S	30	Q	13200	12100	11000	10000	8240	6730	5430	4320	3400	2620	1980	1460	1020
		P	195	199	200	201	195	188	178	164	149	133	116	100	0.857
	40	Q	11600	10600	9620	8750	7170	5820	4670	3710	2900	2220	1670	1210	829
		P	251	250	247	244	231	217	200	182	162	141	122	103	0.864
	50	Q	10100	9130	8300	7520	6110	4930	3930	3090	2390	1810	1340	942	-
		P	312	306	299	291	270	249	225	200	175	150	125	103	-
HGX22e/125-4 HGX22e/125-4 S	30	Q	16500	15100	13800	12500	10300	8300	6650	5270	4110	3150	2360	1710	1170
		P	199	205	209	211	211	206	195	181	165	147	129	111	0.956
	40	Q	14400	13100	11900	10800	8820	7130	5700	4490	3480	2640	1950	1360	850
		P	263	263	262	259	250	236	218	198	177	155	134	115	0.984
	50	Q	12300	11100	10100	9110	7420	5960	4740	3710	2850	2130	1530	1010	-
		P	320	314	308	300	282	260	236	210	185	160	136	116	-

HG semi-hermetic compressors

Performance data

R449A | 50 Hz

Type			Cooling capacity Q ₀ [kW]										Power consumption P _e [kW]			
			Evaporating temperature °C													
Cond. temp. °C		12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	-35	-40		
HGX22e/160-4 HGX22e/160-4 S	30	Q P	20200 2.92	18500 2.88	16900 2.83	15400 2.78	12600 2.61	10200 2.53	8150 2.40	6450 2.23	5040 2.02	3860 1.80	2900 1.57	2100 1.35	1440 1.14	
		Q P	17600 3.63	16000 3.53	14600 3.44	13300 3.34	10800 3.09	8710 2.91	6960 2.69	5490 2.44	4260 2.17	3240 1.90	2390 1.63	1670 1.39	1040 1.18	
	50	Q P	15000 4.31	13700 4.16	12500 4.01	11400 3.86	9040 3.50	7270 3.22	5780 2.91	4530 2.59	3490 2.26	2610 1.95	1870 1.66	1230 1.40		
HGX22e/190-4 HGX22e/190-4 S	30	Q P	24400 3.55	22300 3.50	20400 3.44	18600 3.37	15400 3.33	12600 3.13	10300 2.91	8220 2.69	6550 2.46	5150 2.22	3970 1.97	2970 1.71	2110 1.44	
		Q P	21200 4.43	19400 4.31	17700 4.19	16100 4.07	13400 3.93	10900 3.63	8840 3.32	7110 3.01	5650 2.71	4410 2.40	3360 2.09	2450 1.78	1630 1.47	
	50	Q P	18200 5.29	16600 5.11	15100 4.93	13800 4.74	11400 4.49	9230 4.07	7460 3.67	5970 3.27	4710 2.88	3640 2.51	2710 2.13	1870 1.77		
HGX34e/215-4 HGX34e/215-4 S	30	Q P	27400 3.46	25100 3.47	22800 3.46	20800 3.44	16800 3.35	13600 3.18	10800 2.95	8460 2.69	6470 2.41	4820 2.12	3460 1.84	2360 1.57	1500 1.34	
		Q P	24000 4.56	21800 4.46	19800 4.35	17900 4.22	14300 3.99	11500 3.65	9010 3.29	6940 2.91	5210 2.54	3790 2.18	2640 1.85	1730 1.56	1030 1.33	
	50	Q P	20400 5.55	18500 5.35	16700 5.14	15000 4.92	11800 4.55	9320 4.06	7230 3.56	5480 3.08	4050 2.62	2900 2.21	2000 1.84	1310 1.54		
HGX34e/255-4 HGX34e/255-4 S	30	Q P	32100 3.57	29400 3.70	26900 3.79	24600 3.84	19900 3.90	16300 3.81	13100 3.61	10300 3.35	7940 3.02	5940 2.66	4280 2.28	2940 1.91	1870 1.57	
		Q P	27800 4.81	25400 4.83	23200 4.82	21100 4.78	17100 4.71	13900 4.44	11100 4.09	8670 3.69	6630 3.24	4900 2.78	3470 2.32	2300 1.89	1360 1.50	
	50	Q P	23100 5.92	21100 5.84	19200 5.73	17500 5.60	14000 5.40	11300 4.96	8980 4.46	7000 3.92	5310 3.36	3900 2.80	2740 2.26	1790 1.76		
HGX34e/315-4 HGX34e/315-4 S	30	Q P	40900 4.81	37300 4.87	33900 4.90	30800 4.90	24900 4.73	20100 4.56	16100 4.31	12700 3.99	9800 3.61	7420 3.19	5460 2.75	3840 2.31	2510 1.87	
		Q P	35500 6.19	32300 6.15	29300 6.08	26500 5.98	21300 5.64	17200 5.30	13700 4.89	10700 4.41	8190 3.90	6120 3.36	4390 2.81	2940 2.26	1710 1.73	
	50	Q P	30000 7.50	27200 7.35	24600 7.18	22200 6.99	17800 6.47	14200 5.95	11300 5.36	8710 4.74	6620 4.08	4880 3.40	3410 2.73	2160 2.08		
HGX34e/380-4 HGX34e/380-4 S	30	Q P	48500 6.14	44300 6.17	40400 6.17	36800 6.14	29900 5.92	24400 5.69	19700 5.36	15700 4.95	12300 4.48	9410 3.97	7050 3.43	5080 2.88	3420 2.33	
		Q P	42100 7.78	38400 7.70	35000 7.58	31800 7.44	25700 7.03	20900 6.59	16800 6.06	13300 5.48	10400 4.85	7860 4.19	5760 3.51	3970 2.84	2410 2.18	
	50	Q P	35600 9.35	32400 9.14	29400 8.91	26600 8.65	21400 8.04	17400 7.38	13900 6.66	11000 5.89	8480 5.09	6370 4.27	4560 3.45	2980 2.64		
HGX44e/475-4 HGX44e/475-4 S	30	Q P	61400 7.14	56200 7.26	51400 7.33	46800 7.36	38400 7.22	31300 6.98	25300 6.59	20100 6.10	15800 5.52	12200 4.88	9120 4.20	6650 3.52	4610 2.85	
		Q P	53900 9.39	49300 9.35	44900 9.26	40900 9.12	33300 8.73	27100 8.19	21800 7.55	17300 6.81	13400 6.02	10300 5.20	7550 4.36	5320 3.54	3420 2.75	
	50	Q P	46300 11.4	42200 11.2	38400 11.0	34800 10.7	28100 10.0	22700 9.21	18100 8.29	14200 7.31	10900 6.29	8100 5.26	5760 4.25	3750 3.27		
HGX44e/565-4 HGX44e/565-4 S	30	Q P	73300 8.47	67100 8.62	61300 8.71	55900 8.73	45700 8.61	37400 8.31	30200 7.85	24100 7.25	19000 6.55	14700 5.78	11100 4.97	8140 4.15	5700 3.35	
		Q P	64400 11.1	58900 11.1	53700 10.9	48900 10.8	39700 10.4	32400 9.79	26100 9.01	20700 8.12	16200 7.16	12500 6.17	9260 5.16	6590 4.17	4300 3.24	
	50	Q P	55500 13.6	50600 13.3	46000 13.0	41800 12.7	33600 12.0	27200 11.0	21800 9.91	17200 8.72	13300 7.48	9950 6.24	7150 5.02	4730 3.86		
HGX44e/665-4 HGX44e/665-4 S ¹⁾	30	Q P	85400 9.91	78200 10.0	71400 10.1	65100 10.2	53500 10.1	43600 9.77	35200 9.23	28000 8.54	21900 7.72	16900 6.83	12700 5.88	9180 4.92	6340 3.98	
		Q P	74900 13.0	68400 13.0	62400 12.8	56700 12.7	46300 12.2	37600 11.4	30200 10.5	23900 9.54	18600 8.43	14200 7.28	10500 6.10	7310 4.95	4660 3.85	
	50	Q P	64200 16.0	58500 15.7	53200 15.3	48200 14.9	39000 14.0	31500 12.8	25100 11.6	19600 10.2	15100 8.81	11200 7.37	7890 5.95	5090 4.58		
HGX44e/770-4 HGX44e/770-4 S	30	Q P	98900 11.4	90600 11.6	82800 11.8	75500 11.8	62300 11.6	50900 11.2	41100 10.6	32700 9.87	25700 8.93	19900 7.90	15000 6.80	11000 5.69	7640 4.60	
		Q P	86800 15.2	79300 15.1	72300 14.9	65800 14.7	54100 14.1	44100 13.2	35400 12.2	28100 11.0	22000 9.75	16800 8.41	12500 7.06	8830 5.72	5740 4.45	
	50	Q P	74500 18.7	67900 18.3	61800 17.9	56000 17.4	45800 16.2	37000 14.8	29600 13.4	23200 11.8	17900 10.1	13400 8.52	9570 6.88	6290 5.30		

¹⁾ ASERCOM certified

Relating to 20 °C suction gas temperature without liquid subcooling

Motor version -S- (more powerful motor)

Supplementary cooling or reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R449A 50 Hz															
Type Cond. temp. °C			Cooling capacity 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	-40
HGX56e/850-4 HGX56e/850-4 S	30	Q	110000	101000	91600	83500	68600	56100	45300	36200	28500	22000	16700	12300	8550
		P	12.6	12.8	13.0	13.0	12.8	12.4	11.7	10.8	9.84	8.69	7.47	6.23	5.03
	40	Q	96000	87800	80100	72900	59600	48600	39200	31100	24400	18700	13900	9880	6450
P		16.7	16.6	16.4	16.2	15.5	14.6	13.4	12.1	10.7	9.26	7.75	6.27	4.86	
	50	Q	82500	75200	68400	62100	50400	40900	32700	25800	19900	15000	10800	7100	
		P	20.5	20.1	19.6	19.0	17.9	16.4	14.8	13.0	11.2	9.38	7.56	5.80	
	HGX56e/995-4 HGX56e/995-4 S	30	Q	129000	118000	108000	98000	80700	66100	53500	42800	33800	26200	19800	14400
P			15.6	15.7	15.8	15.8	15.5	14.9	14.1	13.0	11.8	10.4	9.06	7.58	6.10
40		Q	113000	103000	93700	85400	70100	57300	46300	36900	29000	22200	16400	11400	6860
	P	20.2	20.0	19.8	19.4	18.6	17.4	16.1	14.5	12.9	11.1	9.31	7.48	5.68	
	50	Q	96100	87800	80000	72800	59400	48400	38900	30800	23900	17900	12600	7900	
		P	24.5	24.0	23.5	22.8	21.4	19.7	17.8	15.7	13.6	11.4	9.19	6.99	
	HGX56e/1155-4 HGX56e/1155-4 S	30	Q	149000	136000	125000	114000	93100	76000	61400	48900	38500	29700	22400	16400
P			17.9	18.2	18.4	18.5	18.3	17.6	16.6	15.4	13.9	12.3	10.5	8.85	7.15
40		Q	131000	120000	109000	98800	80900	65800	52900	42000	32800	25100	18700	13300	8590
	P	23.7	23.5	23.3	23.0	22.1	20.7	19.1	17.2	15.2	13.1	11.0	8.90	6.91	
	50	Q	112000	102000	92800	84200	68400	55300	44100	34700	26700	20000	14400	9420	
		P	29.0	28.5	27.8	27.0	25.4	23.3	21.0	18.5	15.9	13.2	10.7	8.23	
	HGX66e/1340-4 HGX66e/1340-4 S	30	Q	159000	145000	132000	114000	108000	87900	71000	56500	44400	34200	25600	18400
P			22.7	22.6	22.3	18.5	21.5	20.5	19.1	17.5	15.8	14.0	12.0	10.1	
40		Q	139000	127000	115000	98800	93600	76100	61100	48500	37700	28700	21000		
	P	27.7	27.2	26.7	23.0	25.2	23.5	21.5	19.4	17.1	14.7	12.3			
	50	Q	119000	108000	97900	84200	79200	64000	51100	40200	30900	23000			
		P	32.5	31.6	30.6	27.0	28.5	26.1	23.5	20.7	17.8	14.9			
	HGX66e/1540-4 HGX66e/1540-4 S	30	Q	182000	166000	152000	114000	124000	102000	81800	65300	51400	39700	30000	21700
P			26.1	26.0	25.7	18.5	24.9	23.7	22.1	20.3	18.4	16.2	14.1	11.9	
40		Q	160000	146000	133000	98800	108000	87700	70600	56200	43900	33600	24800		
	P	32.1	31.5	30.8	23.0	29.3	27.3	25.0	22.6	20.0	17.3	14.5			
	50	Q	137000	124000	113000	84200	91200	73900	59200	46800	36200	27200			
		P	37.7	36.7	35.6	27.0	33.3	30.5	27.4	24.3	21.0	17.6			
	HGX66e/1750-4 HGX66e/1750-4 S	30	Q	206000	189000	172000	114000	142000	116000	93600	74800	58900	45600	34400	24900
P			29.9	29.7	29.4	18.5	28.4	27.0	25.3	23.3	21.0	18.6	16.2	13.7	
40		Q	181000	165000	150000	98800	124000	101000	81000	64400	50400	38600	28500		
	P	36.7	36.0	35.3	23.0	33.4	31.1	28.6	25.8	22.9	19.8	16.8			
	50	Q	155000	141000	128000	84200	105000	84700	68000	53700	41600	31300			
		P	43.1	42.0	40.7	27.0	38.0	34.8	31.4	27.8	24.1	20.3			
	HGX66e/2070-4 HGX66e/2070-4 S	30	Q	242000	222000	202000	114000	167000	136000	111000	88000	69400	53700	40500	29400
P			35.3	35.2	34.8	18.5	33.7	32.0	29.9	27.5	24.8	22.0	19.0	16.1	
40		Q	212000	194000	176000	98800	145000	118000	95100	75800	59400	45500	33600		
	P	43.6	42.8	41.9	23.0	39.7	37.0	33.9	30.6	27.0	23.4	19.7			
	50	Q	181000	165000	150000	84200	123000	99300	79700	63100	49000	36900			
		P	51.4	50.0	48.5	27.0	45.3	41.5	37.3	33.0	28.5	24.0			
	HGX88e/2400-4 HGX88e/2400-4 S	30	Q	287000	263000	239000	114000	196000	160000	130000	104000	81500	63000	47500	34500
P			41.8	41.6	41.2	18.5	39.7	37.9	35.5	32.8	29.7	26.5	23.1	19.7	
40		Q	253000	231000	210000	98800	171000	140000	113000	89200	69800	53500	39600		
	P	50.9	50.1	49.1	23.0	46.8	43.7	40.2	36.3	32.3	28.1	23.9			
	50	Q	218000	198000	180000	84200	146000	118000	94300	74500	57800	43500			
		P	59.6	58.0	56.4	27.0	53.3	48.9	44.1	39.1	34.0	28.8			
	HGX88e/2735-4 HGX88e/2735-4 S	30	Q	326000	298000	272000	114000	224000	183000	148000	118000	92900	71800	54100	39300
P			47.3	47.1	46.6	18.5	45.1	43.0	40.4	37.3	33.9	30.2	26.4	22.6	
40		Q	287000	262000	238000	98800	195000	159000	128000	102000	79600	60900	45100		
	P	57.9	56.9	55.7	23.0	53.0	49.5	45.6	41.3	36.8	32.1	27.4			
	50	Q	247000	224000	204000	84200	166000	135000	108000	85000	65800	49600			
		P	68.0	66.2	64.3	27.0	60.2	55.3	50.0	44.4	38.7	32.9			
	HGX88e/3235-4 HGX88e/3235-4 S	30	Q	385000	352000	321000	114000	264000	216000	175000	139000	110000	84500	63700	46100
P			55.7	55.4	54.9	18.5	53.2	50.7	47.6	43.9	39.8	35.5	30.9	26.4	
40		Q	339000	309000	281000	98800	230000	188000	151000	120000	93700	71600	52900		
	P	68.1	66.9	65.6	23.0	62.5	58.4	53.7	48.6	43.2	37.6	32.0			
	50	Q	291000	265000	240000	84200	196000	159000	127000	100000	77400	58100			
		P	79.9	77.8	75.5	27.0	71.0	65.1	58.8	52.2	45.4	38.5			

Relating to 20 °C suction gas temperature
without liquid subcooling

 Motor version -S-
(more powerful motor)

 Supplementary cooling or
reduced suction gas temperature

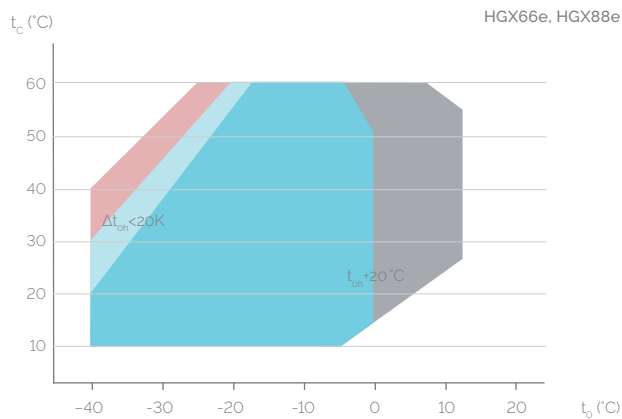
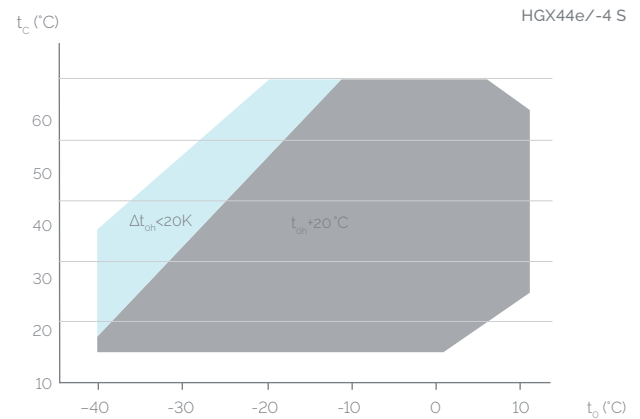
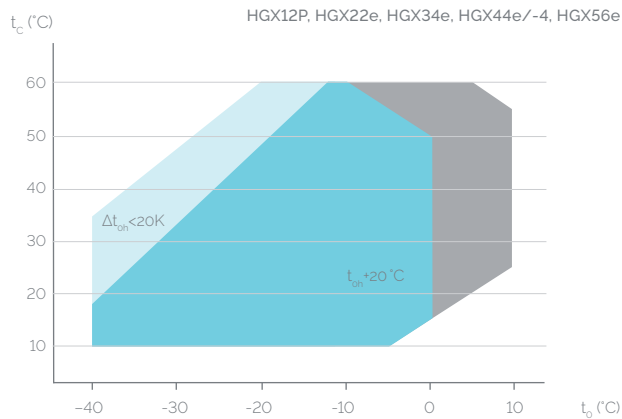
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HG semi-hermetic compressors

Operating limits

R407A



- t_o Evaporating temperature (°C)
- t_c Condensing temperature (°C)
- Δt_{oh} Suction gas superheat (K)
- t_{oh} Suction gas temperature (°C)
- Unlimited application range
- Supplementary cooling or reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Supplementary cooling and reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Motor version -S- (more powerful motor)

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

¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

Compressor operation is possible within the limits shown on the application diagrams. Please note the colored 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 R407A 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 BOCK VAP software (vap.bock.de).

ASERCOM certified performance data



For compressors with this label, the performance data are certified according 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 and www.bock.de.

HG semi-hermetic compressors

Performance data

R407A 50 Hz																
Type Cond. temp. °C			Cooling capacity Q _o [W]											Power consumption P _e [kW]		
			Evaporating temperature °C													
			10	7,5	5	0	-5	-10	-15	-20	-25	-30	-35	-40		
HGX12P/60-4 S	30	Q P	6820 105	6230 107	5680 108	4690 108	3810 104	3060 0.993	2420 0.921	1870 0.839	1430 0.753	1060 0.669	770 0.593	553 0.532		
		Q P	5900 132	5390 132	4900 130	4030 125	3260 118	2610 109	2050 0.996	1580 0.892	1200 0.791	884 0.697	639 0.618	-		
	50	Q P	5030 157	4570 154	4150 150	3390 140	2730 129	2170 117	1690 105	1300 0.927	968 0.811	-	-	-		
		Q P	8490 130	7760 133	7080 134	5850 134	4770 130	3830 123	3040 114	2360 103	1800 0.928	1350 0.823	989 0.728	715 0.653		
	HGX12P/75-4 HGX12P/75-4 S	40	Q P	7350 164	6710 164	6120 162	5030 157	4090 147	3270 136	2580 124	2010 111	1530 0.983	1140 0.866	828 0.768	-	
		50	Q P	6260 196	5710 192	5180 187	4240 177	3430 163	2730 148	2140 132	1650 116	1250 101	-	-	-	
HGX12P/90-4 HGX12P/90-4 S	30	Q P	10100 157	9240 160	8430 162	6960 159	5680 154	4570 146	3630 135	2830 122	2170 109	1630 0.970	1200 0.856	872 0.764		
		Q P	8740 199	7990 198	7280 196	5990 186	4870 176	3910 162	3100 147	2410 132	1840 117	1380 102	1010 0.909	-		
	50	Q P	7450 238	6790 234	6170 228	5050 211	4090 195	3270 177	2580 158	1990 139	1510 121	-	-	-		
		Q P	11900 184	10900 188	9870 190	8150 187	6660 181	5360 171	4260 158	3330 144	2550 128	1920 113	1420 100	1040 0.893		
	HGX12P/110-4 HGX12P/110-4 S	40	Q P	10300 235	9340 234	8510 231	7000 220	5710 207	4590 192	3640 174	2840 155	2170 137	1630 121	1200 107	-	
		50	Q P	8690 283	7930 277	7210 270	5910 250	4790 231	3840 209	3030 186	2350 164	1790 143	-	-	-	
HGX22e/125-4 HGX22e/125-4 S	30	Q P	15200 206	13800 208	12600 209	10200 208	8240 201	6580 190	5180 177	4000 162	3030 146	2220 129	1570 113	1030 0.992		
		Q P	13300 260	12000 257	10900 253	8810 243	7090 229	5630 212	4400 193	3370 174	2520 155	1830 137	1250 120	-		
	50	Q P	11300 308	10200 301	9170 293	7410 274	5920 253	4660 230	3620 207	2750 184	2040 163	-	-	-		
		Q P	19300 272	17500 269	15900 266	12600 258	10200 243	8120 230	6450 216	5060 202	3920 187	2960 169	2130 148	1360 122		
	HHGX22e/160-4 HGX22e/160-4 S	40	Q P	17000 330	15400 323	13900 315	11100 300	8860 279	7060 260	5580 241	4350 221	3310 199	2400 175	1580 148	-	
		50	Q P	14700 386	13200 374	11900 361	9540 340	7630 313	6050 288	4720 262	3600 235	2630 206	-	-	-	
HGX22e/190-4 HGX22e/190-4 S	30	Q P	22500 348	20500 340	18600 332	15300 326	12600 304	10200 282	8100 262	6400 241	4970 220	3760 198	2750 175	1870 149		
		Q P	19600 423	17800 410	16200 396	13400 381	10900 350	8760 321	6980 294	5490 267	4240 240	3180 213	2270 186	-		
	50	Q P	16800 500	15300 480	13900 461	11400 435	9190 395	7370 357	5850 322	4570 289	3510 256	-	-	-		
		Q P	24600 347	22400 347	20400 344	16500 334	13300 317	10600 294	8200 267	6230 238	4590 208	3270 179	2220 153	1430 131		
	HGX34e/215-4 HGX34e/215-4 S	40	Q P	21500 447	19500 436	17600 423	14100 399	11300 364	8800 327	6740 288	5020 250	3620 213	2500 180	1640 152	-	
		50	Q P	18200 537	16400 515	14800 493	11700 455	9170 404	7070 353	5310 303	3880 256	2730 214	-	-	-	
HGX34e/255-4 HGX34e/255-4 S	30	Q P	28900 372	26500 381	24100 386	19600 391	16000 381	12800 360	9990 332	7640 297	5670 260	4050 222	2760 185	1790 153		
		Q P	25000 486	22800 485	20800 481	16800 473	13600 444	10900 408	8440 365	6400 319	4690 271	3290 225	2180 182	-		
	50	Q P	20900 589	19000 578	17300 564	13900 542	11200 496	8820 443	6810 387	5110 328	3700 271	-	-	-		
		Q P	36600 489	33300 492	30200 492	24400 474	19700 456	15700 429	12300 395	9450 356	7100 313	5180 268	3630 223	2400 180		
	HGX34e/315-4 HGX34e/315-4 S	40	Q P	31700 619	28800 612	26100 602	21000 567	16900 530	13400 487	10400 437	7920 384	5870 328	4180 272	2790 217	-	
		50	Q P	26800 741	24300 723	21900 703	17600 650	14000 594	11000 533	8480 467	6370 398	4620 329	-	-	-	

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R407A | 50 Hz

Type		Cooling capacity $\dot{Q}_0$ [kW]											Power consumption P_e [kW]	
		Evaporating temperature °C												
		Cond. temp. °C	10	7,5	5	0	-5	-10	-15	-20	-25	-30	-35	-40
HGX34e/380-4 HGX34e/380-4 S	30	Q	43800	39900	36200	29300	23900	19200	15200	11900	9030	6720	4830	3290
		P	6.24	6.23	6.19	5.93	5.68	5.33	4.91	4.42	3.89	3.34	2.79	2.25
	40	Q	37900	34500	31300	25300	20500	16500	13000	10100	7560	5510	3790	-
		P	7.77	7.64	7.49	7.05	6.59	6.04	5.43	4.77	4.09	3.40	2.72	-
	50	Q	32000	29100	26300	21200	17200	13700	10700	8180	6060	-	-	-
		P	9.22	8.97	8.70	8.08	7.38	6.62	5.81	4.97	4.12	-	-	-
HGX44e/475-4 HGX44e/475-4 S	30	Q	56800	51900	47300	38700	31500	25300	20000	15600	11900	8840	6390	4420
		P	7.37	7.47	7.51	7.40	7.15	6.75	6.22	5.61	4.95	4.26	3.57	2.92
	40	Q	49700	45300	41200	33500	27100	21700	17100	13200	9960	7310	5130	-
		P	9.41	9.35	9.23	8.86	8.33	7.67	6.91	6.09	5.24	4.39	3.57	-
	50	Q	42500	38600	35000	28300	22800	18100	14100	10800	8040	-	-	-
		P	11.2	11.0	10.7	10.1	9.34	8.41	7.42	6.39	5.35	-	-	-
HGX44e/565-4 HGX44e/565-4 S	30	Q	67800	61900	56400	46000	37500	30200	24000	18800	14400	10800	7830	5480
		P	8.75	8.87	8.92	8.84	8.53	8.04	7.41	6.67	5.87	5.04	4.22	3.44
	40	Q	59400	54200	49300	39900	32400	26000	20600	16000	12200	8970	6380	-
		P	11.1	11.1	10.9	10.6	9.95	9.15	8.24	7.25	6.22	5.20	4.22	-
	50	Q	51000	46300	42000	33700	27300	21800	17100	13200	9890	-	-	-
		P	13.4	13.1	12.8	12.1	11.1	10.0	8.85	7.60	6.35	-	-	-
HGX44e/665-4 HGX44e/665-4 S ¹⁾	30	Q	79000	72100	65700	53800	43800	35200	27800	21600	16500	12300	8820	6070
		P	10.2	10.3	10.4	10.3	10.0	9.45	8.71	7.86	6.93	5.96	5.00	4.09
	40	Q	69000	62900	57100	46500	37700	30100	23700	18300	13800	10100	7030	-
		P	13.1	13.0	12.8	12.4	11.6	10.7	9.68	8.53	7.34	6.15	5.00	-
	50	Q	58900	53500	48500	39200	31500	25000	19500	14900	11100	-	-	-
		P	15.7	15.4	15.0	14.2	13.0	11.7	10.3	8.94	7.49	-	-	-
HGX44e/770-4 HGX44e/770-4 S	30	Q	91500	83600	76200	62700	51100	41100	32600	25400	19500	14600	10600	7340
		P	11.8	12.0	12.0	11.9	11.5	10.9	10.0	9.09	8.01	6.89	5.78	4.73
	40	Q	80000	72900	66300	54400	44100	35300	27900	21600	16400	12100	8530	-
		P	15.2	15.1	14.9	14.3	13.4	12.4	11.1	9.86	8.49	7.11	5.78	-
	50	Q	68400	62200	56400	46000	37100	29500	23100	17800	13300	-	-	-
		P	18.3	18.0	17.5	16.4	15.1	13.6	12.0	10.3	8.66	-	-	-
HGX56e/850-4 HGX56e/850-4 S	30	Q	99300	90700	82500	69100	56300	45400	36000	28100	21600	16200	11800	8220
		P	13.0	13.2	13.2	13.2	12.7	12.0	11.1	10.0	8.82	7.57	6.33	5.16
	40	Q	86800	79000	71800	59900	48700	39000	30900	24000	18200	13500	9570	-
		P	16.7	16.6	16.4	15.8	14.8	13.7	12.3	10.8	9.35	7.82	6.34	-
	50	Q	74300	67500	61100	50700	40900	32700	25700	19800	14900	-	-	-
		P	20.1	19.7	19.2	18.1	16.6	15.0	13.2	11.4	9.54	-	-	-
HGX56e/995-4 HGX56e/995-4 S	30	Q	116000	106000	96400	79600	65300	52900	42200	33100	25500	19000	13600	9140
		P	15.6	15.6	15.6	15.2	14.6	13.8	12.7	11.5	10.2	8.81	7.32	5.81
	40	Q	103000	93500	85300	70000	57100	45900	36400	28300	21400	15600	10700	-
		P	19.9	19.6	19.2	18.3	17.1	15.7	14.2	12.5	10.7	8.90	7.02	-
	50	Q	88600	80700	73300	59700	48300	38500	30100	23100	17100	-	-	-
		P	23.8	23.2	22.5	21.0	19.2	17.3	15.2	13.0	10.8	-	-	-
HGX56e/1155-4 HGX56e/1155-4 S	30	Q	138000	126000	115000	93400	75800	60800	48000	37300	28400	21100	15200	10500
		P	18.6	18.9	19.0	18.8	18.2	17.2	15.9	14.4	12.7	11.1	9.43	7.86
	40	Q	121000	110000	99300	80800	65400	52200	41000	31600	23900	17500	12200	-
		P	23.9	23.7	23.4	22.6	21.2	19.6	17.7	15.7	13.6	11.5	9.61	-
	50	Q	103000	93400	84500	68300	54900	43500	33900	25900	19200	-	-	-
		P	28.7	28.1	27.4	25.9	23.9	21.6	19.1	16.6	14.1	-	-	-
HGX66e/1340-4 HGX66e/1340-4 S	30	Q	156000	142000	129000	105000	85200	68400	54200	42300	32400	24100	17200	11200
		P	22.3	22.2	22.0	21.2	20.1	18.8	17.3	15.5	13.6	11.7	9.77	7.81
	40	Q	136000	124000	113000	90900	73600	58900	46500	36000	27200	19700	-	-
		P	27.6	27.0	26.4	25.0	23.2	21.2	19.0	16.7	14.3	11.9	-	-
	50	Q	117000	106000	95500	76900	61900	49300	38600	29500	21700	-	-	-
		P	32.4	31.5	30.5	28.3	25.8	23.1	20.3	17.3	14.4	-	-	-
HGX66e/1540-4 HGX66e/1540-4 S	30	Q	179000	163000	148000	121000	97900	78800	62600	49100	37700	28300	20300	13400
		P	25.7	25.5	25.3	24.5	23.3	21.8	20.0	18.0	15.9	13.7	11.4	9.24
	40	Q	156000	142000	129000	105000	84800	68000	53900	42000	31900	23300	-	-
		P	31.9	31.3	30.6	29.0	27.0	24.7	22.2	19.5	16.8	14.0	-	-
	50	Q	134000	122000	110000	88600	71600	57200	44900	34600	25700	-	-	-
		P	37.7	36.6	35.4	33.0	30.2	27.1	23.8	20.4	17.0	-	-	-

¹⁾ ASERCOM certified

Relating to 20 °C suction gas temperature
without liquid subcooling

 Motor version -S-
(more powerful motor)

 Supplementary cooling or
reduced suction gas temperature

vap.bock.de



HG semi-hermetic compressors

Performance data

R407A | 50 Hz

Type		Cooling capacity Q_o [kW]											Power consumption P_e [kW]		
		Evaporating temperature °C													
		10	7,5	5	0	-5	-10	-15	-20	-25	-30	-35	-40		
HGX66e/1750-4 HGX66e/1750-4 S	30	Q P	203000 29.4	185000 29.2	168000 28.9	138000 27.9	113000 26.6	90200 24.9	71700 22.9	56200 20.6	43300 18.2	32400 15.7	23300 13.2	15400 10.7	
		Q P	177000 36.4	161000 35.8	147000 35.0	120000 33.1	97100 30.8	78000 28.2	61800 25.4	48200 22.4	36700 19.3	26800 16.1	- -	- -	
	40	Q P	152000 43.0	138000 41.8	125000 40.5	102000 37.7	82000 34.4	65600 30.9	51600 27.3	39800 23.4	29600 19.6	- -	- -	- -	
		50	Q P	239000 34.8	218000 34.6	198000 34.3	162000 33.1	132000 31.5	107000 29.5	84400 27.0	66200 24.4	51000 21.5	38200 18.5	27500 15.5	18200 12.5
	HGX66e/2070-4 HGX66e/2070-4 S	30	Q P	208000 43.3	189000 42.5	172000 41.5	141000 39.4	114000 36.6	91600 33.5	72700 30.1	56700 26.5	43200 22.8	31600 19.0	- -	- -
			Q P	178000 51.3	161000 49.9	146000 48.3	119000 45.0	96100 41.0	77000 36.8	60700 32.3	46800 27.7	34800 23.1	- -	- -	- -
40		Q P	283000 41.2	258000 41.0	234000 40.6	191000 39.1	155000 37.3	125000 35.0	99200 32.2	77800 29.2	59900 25.9	44900 22.5	32300 19.0	21400 15.5	
		50	Q P	248000 50.6	226000 49.7	205000 48.7	166000 46.4	135000 43.2	108000 39.6	85600 35.8	66700 31.7	50800 27.4	37200 23.1	- -	- -
HGX88e/2400-4 HGX88e/2400-4 S		30	Q P	213000 59.5	194000 57.9	175000 56.2	141000 52.9	114000 48.4	91000 43.5	71600 38.4	55200 33.2	41100 27.9	- -	- -	- -
			40	Q P	321000 46.6	293000 46.4	266000 45.9	218000 44.4	177000 42.4	143000 39.8	114000 36.7	88600 33.3	68200 29.6	51100 25.7	36700 21.7
	40	Q P	281000 57.5	256000 56.5	232000 55.3	190000 52.5	154000 49.0	124000 45.0	97600 40.7	76100 36.1	57900 31.3	42400 26.4	- -	- -	
		50	Q P	242000 67.9	219000 66.0	199000 64.0	161000 59.8	131000 54.7	104000 49.3	81700 43.6	62900 37.8	46800 31.8	- -	- -	- -
	HGX88e/2735-4 HGX88e/2735-4 S	30	Q P	379000 54.9	346000 54.6	314000 54.1	257000 52.4	209000 49.9	168000 46.9	134000 43.2	105000 39.1	80300 34.7	60100 30.1	43100 25.4	28500 20.7
			40	Q P	332000 67.7	302000 66.5	274000 65.1	224000 61.9	181000 57.7	146000 53.0	115000 47.8	89500 42.3	68000 36.7	49700 30.9	- -
50		Q P	285000 79.8	259000 77.6	234000 75.2	190000 70.5	154000 64.5	123000 58.0	96100 51.2	73900 44.3	54900 37.2	- -	- -	- -	

Relating to 20 °C suction gas temperature
without liquid subcooling

 Motor version -S-
(more powerful motor)

 Supplementary cooling or
reduced suction gas temperature

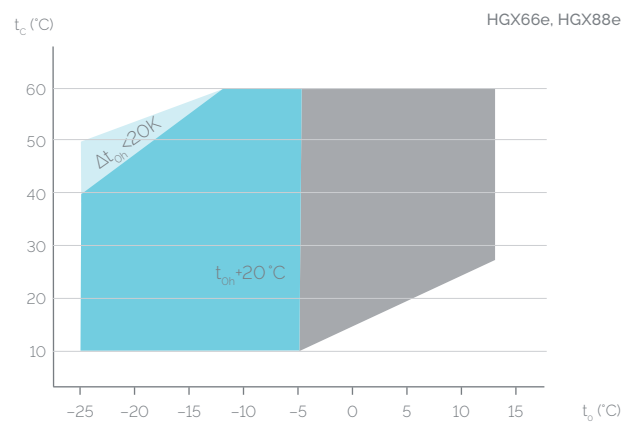
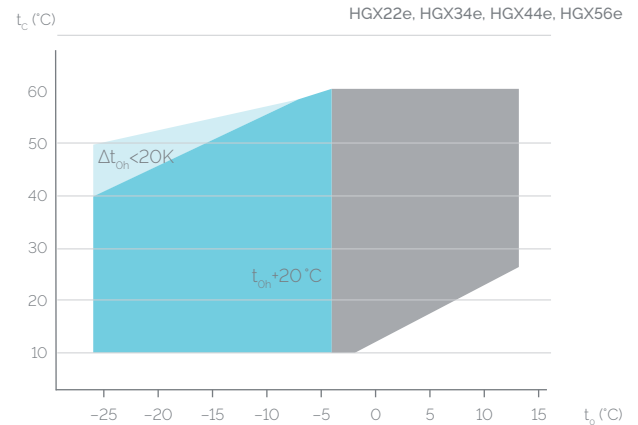
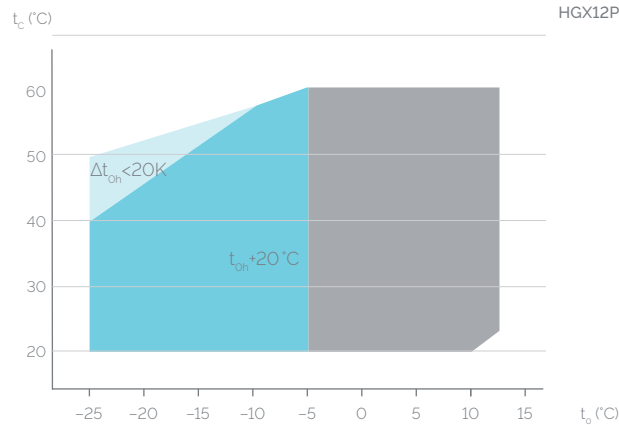
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HG semi-hermetic compressors

Operating limits

R407C



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

- Unlimited application range
- Supplementary cooling or reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Motor version -S- (more powerful motor)

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

¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

Restrictions to operating limits may occur when using a frequency converter. For further explanations consult www.bock.de.

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).

A comprehensive modification to 20 °C suction gas temperature will follow at a later date.

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 BOCK VAP software (vap.bock.de).

HG semi-hermetic compressors

Performance data

R407C 50 Hz												
Type Cond. temp. °C			Cooling capacity Q _o [W]					Power consumption P _e [kW]				
			Evaporating temperature °C									
			12.5	10	7.5	5	0	-5	-10	-15	-20	-25
HGX12P/60-4 S	30	Q	6780	6180	5610	5080	4140	3330	2650	2080	1610	1230
		P	0.88	0.90	0.92	0.92	0.91	0.88	0.82	0.76	0.69	0.62
	40	Q	5870	5340	4840	4380	3560	2860	2270	1780	1360	1020
		P	1.16	1.16	1.15	1.13	1.08	1.01	0.92	0.83	0.74	0.66
	50	Q	5010	4550	4120	3720	3020	2420	1920	1490	1130	827
		P	1.41	1.39	1.35	1.31	1.22	1.12	1.00	0.90	0.79	0.69
HGX12P/75-4 HGX12P/75-4 S	30	Q	8740	7960	7230	6550	5340	4300	3420	2680	2080	1580
		P	1.12	1.16	1.18	1.18	1.17	1.13	1.06	0.98	0.89	0.79
	40	Q	7560	6880	6240	5650	4590	3690	2920	2290	1760	1320
		P	1.50	1.49	1.48	1.46	1.39	1.30	1.19	1.07	0.96	0.84
	50	Q	6450	5860	5310	4800	3890	3120	2470	1920	1460	1070
		P	1.82	1.79	1.74	1.69	1.58	1.44	1.29	1.15	1.01	0.89
HGX12P/90-4 HGX12P/90-4 S	30	Q	10500	9490	8620	7810	6360	5120	4080	3200	2480	1890
		P	1.34	1.38	1.40	1.41	1.40	1.34	1.26	1.16	1.05	0.95
	40	Q	9020	8200	7440	6730	5470	4400	3490	2730	2090	1570
		P	1.79	1.78	1.77	1.74	1.66	1.55	1.42	1.28	1.13	1.00
	50	Q	7690	6990	6330	5720	4640	3720	2940	2290	1740	1280
		P	2.17	2.13	2.08	2.02	1.88	1.72	1.55	1.37	1.21	1.06
HGX12P/110-4 HGX12P/110-4 S	30	Q	12300	11200	10200	9180	7480	6020	4790	3760	2910	2220
		P	1.58	1.62	1.65	1.66	1.64	1.58	1.48	1.37	1.24	1.11
	40	Q	10600	9640	8750	7910	6430	5170	4100	3200	2460	1850
		P	2.10	2.10	2.08	2.05	1.95	1.82	1.67	1.50	1.33	1.18
	50	Q	9040	8210	7440	6730	5460	4370	3460	2690	2040	1500
		P	2.56	2.51	2.45	2.38	2.21	2.02	1.82	1.61	1.42	1.25
HGX22e/125-4 HGX22e/125-4 S	30	Q	14400	13100	11900	10800	8790	7070	5630	4420	3420	2600
		P	1.78	1.82	1.85	1.87	1.85	1.78	1.67	1.53	1.39	1.25
	40	Q	12500	11400	10300	9300	7560	6060	4800	3760	2890	2160
		P	2.36	2.35	2.33	2.30	2.19	2.04	1.87	1.68	1.5	1.32
	50	Q	10700	9640	8740	7910	6410	5120	4050	3150	2400	1760
		P	2.87	2.81	2.75	2.67	2.48	2.27	2.04	1.81	1.59	1.40
HHGX22e/160-4 HGX22e/160-4 S	30	Q	17600	16000	14500	13200	10700	8730	6950	5470	4240	3230
		P	2.18	2.24	2.28	2.30	2.27	2.30	2.16	1.99	1.79	1.61
	40	Q	15200	13800	12500	11300	9180	7500	5950	4650	3580	2680
		P	2.90	2.90	2.87	2.83	2.69	2.64	2.42	2.18	1.94	1.72
	50	Q	12900	11700	10700	9590	7780	6350	5020	3900	2970	2180
		P	3.53	3.46	3.38	3.28	3.05	2.93	2.64	2.34	2.06	1.81
HGX22e/190-4 HGX22e/190-4 S	30	Q	21800	19900	18100	16400	13300	10800	8550	6700	5180	3960
		P	2.67	2.74	2.79	2.81	2.78	2.83	2.65	2.44	2.20	1.98
	40	Q	18900	17200	15600	14100	11500	9220	7310	5710	4390	3290
		P	3.54	3.54	3.51	3.46	3.29	3.25	2.97	2.68	2.38	2.10
	50	Q	16100	14600	13300	12000	9700	7790	6170	4810	3650	2670
		P	4.31	4.23	4.13	4.01	3.73	3.60	3.24	2.87	2.53	2.22
HGX34e/215-4 HGX34e/215-4 S	30	Q	25600	23300	21100	19100	15600	12200	9720	7650	5910	4480
		P	3.45	3.49	3.50	3.48	3.39	3.16	2.94	2.67	2.38	2.09
	40	Q	22400	20300	18400	16600	13400	10400	8190	6410	4920	3700
		P	4.38	4.33	4.26	4.17	3.94	3.60	3.25	2.89	2.52	2.17
	50	Q	19100	17300	15600	14100	11300	8590	6820	5330	4100	3100
		P	5.19	5.06	4.91	4.75	4.39	3.98	3.54	3.09	2.66	2.27
HGX34e/255-4 HGX34e/255-4 S	30	Q	29600	27000	24600	22300	18300	14500	11500	9040	7030	5300
		P	4.30	4.30	4.28	4.23	4.08	3.84	3.54	3.20	2.85	2.48
	40	Q	26000	23600	21500	19500	15800	12300	9730	7660	5940	4430
		P	5.33	5.24	5.13	5.00	4.71	4.38	3.94	3.50	3.06	2.63
	50	Q	22200	20200	18300	16500	13400	10200	8080	6420	5050	3820
		P	6.25	6.08	5.89	5.69	5.25	4.83	4.29	3.76	3.26	2.79
HGX34e/315-4 HGX34e/315-4 S	30	Q	35900	32700	29800	27000	22100	17600	14100	11100	8590	6550
		P	4.95	5.00	5.01	4.99	4.86	4.69	4.34	3.96	3.55	3.11
	40	Q	31300	28500	25900	23500	19200	15100	12000	9420	7260	5500
		P	6.32	6.25	6.16	6.04	5.72	5.33	4.85	4.33	3.80	3.27
	50	Q	26800	24300	22100	20000	16200	12800	10200	7910	6060	4550
		P	7.63	7.45	7.24	7.02	6.50	5.87	5.25	4.63	3.99	3.37

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R407C | 50 Hz

Type			Cooling capacity Q_o [W]					Power consumption P_e [kW]				
			Evaporating temperature °C									
HGX34e/380-4 HGX34e/380-4 S	30	Q	43500	39600	36000	32700	26700	21600	17500	13900	10900	8310
		P	6.40	6.35	6.27	6.17	5.93	5.84	5.38	4.91	4.42	3.90
	40	Q	38000	34600	31400	28400	23200	18700	15100	12000	9320	7140
		P	7.95	7.78	7.59	7.39	6.94	6.71	6.08	5.45	4.82	4.18
	50	Q	32200	29300	26500	24000	19600	15800	12800	10100	7900	6070
		P	9.52	9.23	8.92	8.60	7.93	7.49	6.69	5.91	5.13	4.36
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 ¹⁾	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
HGX56e/850-4 HGX56e/850-4 S	30	Q	101000	92000	83900	76300	62800	50900	41000	32600	25400	19300
		P	12.7	12.8	12.8	12.7	12.4	11.8	11.1	10.2	9.23	8.17
	40	Q	89400	81500	74200	67400	55200	44500	35700	28100	21700	16100
		P	16.2	16.0	15.8	15.4	14.7	13.7	12.5	11.3	10.0	8.68
	50	Q	77600	70600	64100	58100	47300	38000	30200	23600	18000	13000
		P	19.3	18.8	18.3	17.8	16.5	15.2	13.7	12.1	10.5	8.93
HGX56e/995-4 HGX56e/995-4 S	30	Q	121000	111000	101000	91500	75400	61200	49300	39100	30500	23200
		P	14.3	14.5	14.6	14.6	14.4	13.8	13.0	11.9	10.7	9.45
	40	Q	107000	96900	88300	80300	65900	53300	42700	33600	25900	19400
		P	18.8	18.7	18.5	18.2	17.3	16.2	14.8	13.3	11.6	10.0
	50	Q	92100	83900	76400	69300	56700	45600	36300	28400	21600	15800
		P	23.1	22.6	22.0	21.4	19.9	18.2	16.3	14.3	12.2	10.2
HGX56e/1155-4 HGX56e/1155-4 S	30	Q	139000	127000	115000	105000	85600	69200	55500	43800	33900	25400
		P	18.2	18.3	18.3	18.2	17.7	16.9	15.7	14.4	12.8	11.2
	40	Q	123000	112000	102000	91800	74900	60100	47800	37300	28400	20700
		P	23.1	22.9	22.5	22.0	20.8	19.4	17.6	15.7	13.7	11.7
	50	Q	106000	96100	87100	78700	63800	50800	40000	30800	23000	16100
		P	27.4	26.8	26.0	25.2	23.4	21.3	19.0	16.6	14.1	11.6
HGX66e/1340-4 HGX66e/1340-4 S	30	Q	164000	149000	136000	123000	101000	80800	64600	51000	39500	29900
		P	21.3	21.1	20.9	20.6	19.8	18.8	17.6	16.1	14.5	12.6
	40	Q	144000	131000	119000	108000	87800	70300	56000	43900	33700	25100
		P	26.4	25.9	25.4	24.8	23.4	21.7	19.9	17.9	15.6	13.2
	50	Q	124000	113000	102000	92200	74900	59600	47300	36800	27900	20300
		P	31.3	30.5	29.6	28.6	26.5	24.2	21.7	19.0	16.1	13.1
HGX66e/1540-4 HGX66e/1540-4 S	30	Q	187000	171000	156000	141000	116000	92900	74500	59000	45900	34800
		P	24.4	24.3	24.0	23.7	22.8	21.7	20.3	18.7	16.8	14.7
	40	Q	165000	150000	137000	124000	102000	81000	64800	51000	39300	29400
		P	30.5	29.9	29.3	28.6	27.0	25.2	23.1	20.8	18.3	15.5
	50	Q	142000	129000	118000	107000	86400	69000	54900	43000	32800	24000
		P	36.3	35.3	34.3	33.2	30.8	28.2	25.4	22.3	19.0	15.5

¹⁾ ASERCOM certified

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

vap.bock.de



HG semi-hermetic compressors

Performance data

R407C | 50 Hz

Type			Cooling capacity $\dot{Q}_0$ [kW]					Power consumption P_e [kW]				
			Evaporating temperature °C									
Cond. temp. °C			12.5	10	7.5	5	0	-5	-10	-15	-20	-25
HGX66e/1750-4 HGX66e/1750-4 S	30	Q P	212000 28.0	194000 27.8	177000 27.5	160000 27.1	132000 26.2	107000 24.8	85300 23.2	67500 21.4	52500 19.3	39900 16.9
		Q P	187000 34.9	171000 34.2	155000 33.5	141000 32.7	115000 31.0	92800 28.8	74200 26.4	58500 23.8	45100 21.0	33800 17.8
	50	Q P	161000 41.5	147000 40.4	133000 39.2	121000 38.0	98100 35.3	79100 32.3	63000 29.0	49400 25.5	37700 21.8	27600 17.8
		Q P	250000 33.1	228000 32.8	208000 32.5	189000 32.0	155000 30.9	126000 29.3	101000 27.5	79500 25.3	61900 22.8	47100 19.9
	40	Q P	220000 41.4	200000 40.6	182000 39.8	165000 38.8	135000 36.7	109000 34.2	87300 31.3	68800 28.2	53200 24.8	39800 21.0
		Q P	189000 49.5	172000 48.1	156000 46.7	142000 45.2	116000 41.9	92800 38.4	74000 34.4	58100 30.2	44400 25.7	32500 21.0
HGX88e/2400-4 HGX88e/2400-4 S	30	Q P	296000 39.3	270000 39.0	246000 38.6	223000 38.1	183000 36.9	147000 34.8	118000 32.7	93300 30.2	72600 27.3	55200 24.1
		Q P	261000 48.5	238000 47.7	217000 46.7	196000 45.7	161000 43.3	129000 40.4	103000 37.2	81000 33.6	62500 29.6	46800 25.4
	50	Q P	226000 57.5	206000 56.0	187000 54.4	169000 52.7	138000 49.1	110000 45.3	87400 40.8	68500 36.0	52300 30.9	38400 25.5
		Q P	336000 44.4	306000 44.1	279000 43.6	253000 43.1	208000 41.7	168000 39.6	135000 37.3	107000 34.5	82700 31.2	62900 27.5
	40	Q P	296000 55.1	270000 54.1	246000 53.0	223000 51.8	182000 49.1	147000 45.9	118000 42.3	92300 38.2	71200 33.8	53300 29.1
		Q P	257000 65.5	233000 63.8	212000 61.9	192000 60.0	156000 55.8	126000 51.3	99700 46.3	78100 40.9	59600 35.2	43700 29.2
HGX88e/2735-4 HGX88e/2735-4 S	30	Q P	336000 44.4	306000 44.1	279000 43.6	253000 43.1	208000 41.7	168000 39.6	135000 37.3	107000 34.5	82700 31.2	62900 27.5
		Q P	296000 55.1	270000 54.1	246000 53.0	223000 51.8	182000 49.1	147000 45.9	118000 42.3	92300 38.2	71200 33.8	53300 29.1
	50	Q P	257000 65.5	233000 63.8	212000 61.9	192000 60.0	156000 55.8	126000 51.3	99700 46.3	78100 40.9	59600 35.2	43700 29.2
		Q P	396000 52.3	362000 51.9	329000 51.4	299000 50.8	245000 49.1	198000 46.7	159000 43.9	126000 40.5	97500 36.7	74000 32.3
	40	Q P	350000 64.9	319000 63.7	290000 62.4	263000 61.0	215000 57.8	173000 54.0	139000 49.7	109000 44.9	83800 39.7	62700 34.0
		Q P	303000 77.1	275000 75.0	250000 72.8	226000 70.5	184000 65.6	148000 60.4	118000 54.4	91800 48.0	70000 41.2	51300 34.1

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

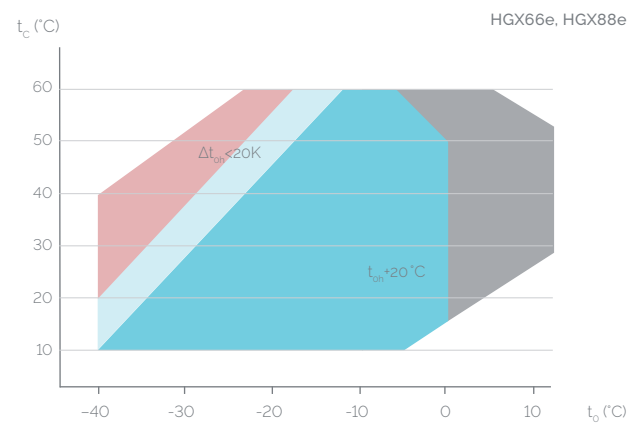
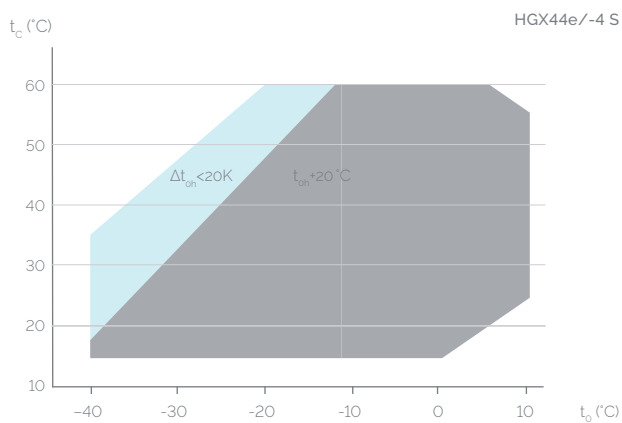
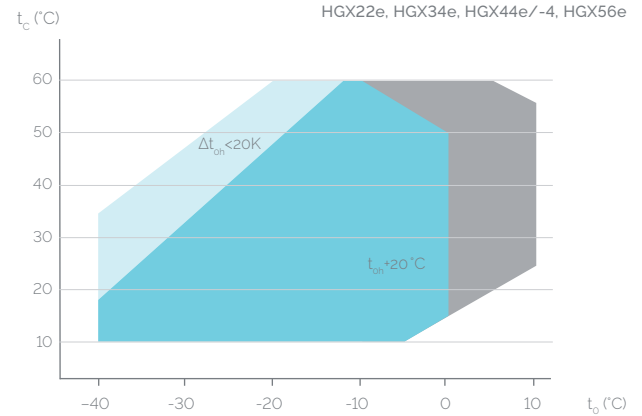
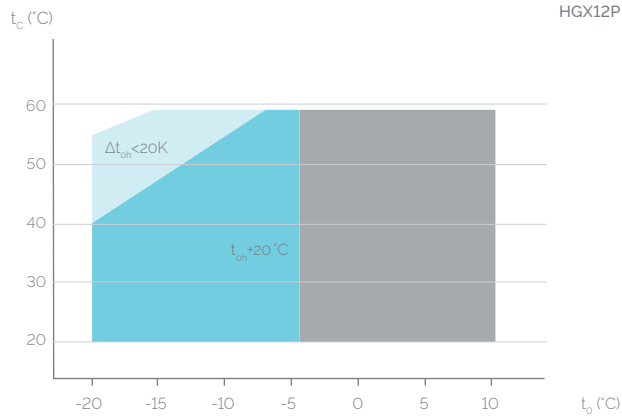
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HG semi-hermetic compressors

Operating limits

R407F



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

● Unlimited application range
 ● Supplementary cooling or reduced suction gas temperature ($\Delta t_{oh} < 20K$)
 ● Supplementary cooling and reduced suction gas temperature ($\Delta t_{oh} < 20K$)
 ● Motor version -S- (more powerful motor)
 Max. permissible operating pressure (LP/HP) ¹⁾: 19/28 bar
¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

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

For further explanations consult www.bock.de.

Performance data

The performance data for R407F are based on European Standard EN 12900 with a 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 BOCK VAP software (vap.bock.de).

ASERCOM certified performance data



For compressors with this label, the performance data are certified according 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 and www.bock.de.

HG semi-hermetic compressors

Performance data

R407F | 50 Hz

Type			Cooling capacity Q ₀ [kW]								Power consumption P _e [kW]			
			Evaporating temperature °C											
HGX12P/60-4 S	30	Q P	7240 110	6570 113	5950 115	4840 115	3890 112	3080 106	2410 0.982	1850 0.894	-	-	-	-
		Q P	6290 141	5700 142	5150 140	4180 136	3340 127	2640 117	2040 106	1540 0.948	-	-	-	-
	40	Q P	5300 167	4800 164	4330 160	3490 151	2780 138	2170 124	1660 110	1220 0.963	-	-	-	-
		Q P	9010 139	8200 143	7440 146	6090 146	4950 140	3960 133	3130 123	2430 112	-	-	-	-
HGX12P/75-4 HGX12P/75-4 S	30	Q P	7850 182	7140 182	6470 180	5290 174	4310 162	3440 149	2690 136	2070 121	-	-	-	-
		Q P	6670 2.15	6060 2.11	5490 2.06	4480 1.94	3670 1.78	2910 1.61	2260 1.44	1720 1.27	-	-	-	-
	40	Q P	10800 171	9780 174	8880 176	7270 175	5760 166	4620 155	3650 143	2840 129	-	-	-	-
		Q P	9380 2.18	8530 2.17	7740 2.14	6320 2.06	5020 1.89	4000 1.73	3140 1.55	2400 1.38	-	-	-	-
HGX12P/90-4 HGX12P/90-4 S	30	Q P	7990 2.60	7260 2.55	6580 2.48	5370 2.32	4270 2.09	3370 1.87	2620 1.65	1980 1.44	-	-	-	-
		Q P	12500 2.01	11300 2.04	10300 2.06	8420 2.03	6830 2.01	5510 1.88	4390 1.73	3440 1.57	-	-	-	-
	40	Q P	10900 2.54	9860 2.52	8960 2.50	7330 2.40	5970 2.31	4800 2.11	3790 1.89	2940 1.68	-	-	-	-
		Q P	9160 3.04	8330 2.98	7560 2.91	6180 2.72	5070 2.54	4040 2.27	3170 2.00	2430 1.74	-	-	-	-
HGX22e/125-4 HGX22e/125-4 S	30	Q P	15400 2.25	14100 2.26	12800 2.26	10600 2.22	8560 2.14	6860 2.03	5410 1.89	4190 1.74	3180 1.57	2350 1.39	1690 1.22	1160 1.05
		Q P	13600 2.81	12400 2.77	11200 2.72	9180 2.60	7420 2.44	5910 2.26	4630 2.07	3560 1.87	2670 1.66	1940 1.46	1360 1.27	-
	40	Q P	11700 3.35	10600 3.25	9580 3.16	7800 2.94	6260 2.71	4950 2.47	3840 2.22	2920 1.97	2160 1.73	-	-	-
		Q P	19600 2.98	17900 2.93	16300 2.88	13100 2.77	10600 2.61	8470 2.46	6740 2.32	5300 2.17	4110 2.01	3120 1.81	2280 1.58	1520 1.30
HHGX22e/160-4 HGX22e/160-4 S	30	Q P	17500 3.59	15900 3.49	14400 3.39	11600 3.22	9300 2.99	7440 2.79	5890 2.58	4580 2.37	3490 2.14	2540 1.87	1690 1.57	-
		Q P	15300 4.20	13800 4.05	12500 3.90	10200 3.67	8140 3.37	6460 3.09	5040 2.80	3820 2.51	2770 2.19	-	-	-
	40	Q P	22700 3.85	20800 3.73	19000 3.62	15800 3.52	13000 3.27	10600 3.04	8450 2.82	6680 2.60	5200 2.38	3960 2.14	2940 1.88	2100 1.59
		Q P	20000 4.64	18300 4.46	16700 4.30	13900 4.12	11400 3.77	9180 3.46	7330 3.16	5770 2.87	4460 2.58	3370 2.29	2450 1.98	-
HGX22e/190-4 HGX22e/190-4 S	30	Q P	17400 5.47	15900 5.24	14500 5.02	11900 4.72	9680 4.27	7790 3.85	6180 3.46	4830 3.09	3700 2.72	-	-	-
		Q P	25900 3.62	23600 3.61	21400 3.57	17200 3.48	13900 3.29	11100 3.05	8570 2.77	6520 2.47	4820 2.17	3430 1.88	2320 1.61	1450 1.38
	40	Q P	22700 4.70	20600 4.57	18600 4.43	14800 4.18	11800 3.81	9230 3.41	7080 3.01	5290 2.62	3840 2.24	2680 1.91	1770 1.63	-
		Q P	19400 5.68	17500 5.45	15700 5.20	12300 4.80	9650 4.26	7460 3.72	5650 3.20	4180 2.72	3020 2.29	-	-	-
HGX34e/215-4 HGX34e/215-4 S	30	Q P	30300 3.83	27700 3.92	25200 3.98	20500 4.05	16700 3.94	13400 3.73	10500 3.44	8020 3.10	5970 2.72	4280 2.33	2910 1.96	1820 1.61
		Q P	26300 5.05	24000 5.04	21800 4.99	17600 4.92	14300 4.62	11400 4.25	8860 3.81	6760 3.34	5000 2.86	3540 2.39	2360 1.94	-
	40	Q P	22000 6.15	20000 6.03	18100 5.88	14500 5.67	11700 5.19	9230 4.65	7190 4.07	5470 3.47	4050 2.89	-	-	-
		Q P	38500 5.04	34900 5.07	31700 5.07	25600 4.91	20600 4.72	16400 4.45	12900 4.11	9900 3.71	7460 3.27	5450 2.82	3800 2.36	2430 1.91
HGX34e/315-4 HGX34e/315-4 S	30	Q P	33500 6.44	30400 6.36	27500 6.25	22100 5.90	17700 5.52	14000 5.07	11000 4.57	8350 4.02	6230 3.46	4470 2.89	3000 2.32	-
		Q P	28500 7.76	25700 7.57	23200 7.35	18500 6.80	14800 6.23	11600 5.59	8990 4.92	6840 4.22	5070 3.51	-	-	-

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R407F | 50 Hz

Type			Cooling capacity Q ₀ [kW]								Power consumption P _e [kW]			
			Evaporating temperature °C											
			10	7,5	5	0	-5	-10	-15	-20	-25	-30	-35	-40
HGX34e/380-4 HGX34e/380-4 S	30	Q	45700	41600	37800	30700	25000	20100	15900	12400	9460	7040	5030	3320
		P	6.39	6.39	6.36	6.15	5.88	5.53	5.09	4.60	4.07	3.51	2.94	2.38
	40	Q	39900	36200	32900	26500	21500	17200	13600	10600	8000	5870	4050	
		P	8.05	7.93	7.77	7.34	6.85	6.29	5.67	5.00	4.31	3.61	2.92	
HGX44e/475-4 HGX44e/475-4 S	30	Q	58200	53100	48400	39600	32300	26000	20600	16100	12400	9210	6640	4520
		P	7.56	7.67	7.73	7.62	7.37	6.98	6.45	5.84	5.15	4.43	3.71	3.00
	40	Q	51000	46500	42400	34500	28100	22600	17900	13900	10500	7620	5210	
		P	9.81	9.74	9.63	9.22	8.67	7.99	7.21	6.36	5.46	4.55	3.65	
HGX44e/565-4 HGX44e/565-4 S	30	Q	69400	63400	57800	47100	38500	31000	24700	19400	14900	11200	8120	5600
		P	9.05	9.18	9.24	9.13	8.84	8.36	7.73	6.99	6.16	5.30	4.42	3.57
	40	Q	61000	55700	50700	41100	33500	27000	21500	16700	12800	9330	6460	
		P	11.7	11.6	11.5	11.1	10.4	9.61	8.66	7.63	6.54	5.44	4.36	
HGX44e/665-4 HGX44e/665-4 S ¹⁾	30	Q	81800	74700	68000	55700	45400	36500	29000	22600	17300	12900	9260	6270
		P	10.5	10.6	10.7	10.6	10.2	9.72	9.00	8.15	7.20	6.20	5.18	4.19
	40	Q	71600	65300	59400	48500	39400	31600	25000	19400	14700	10700	7220	
		P	13.6	13.5	13.4	12.8	12.0	11.1	10.0	8.88	7.63	6.36	5.11	
HGX44e/770-4 HGX44e/770-4 S	30	Q	93600	85500	77900	64300	52400	42200	33600	26300	20200	15100	10900	7350
		P	12.1	12.3	12.4	12.3	11.9	11.3	10.4	9.50	8.42	7.29	6.16	5.08
	40	Q	82000	74900	68200	56100	45700	36700	29100	22600	17100	12500	8480	
		P	15.8	15.7	15.5	14.9	14.0	12.9	11.7	10.3	8.99	7.58	6.20	
HGX56e/850-4 HGX56e/850-4 S	30	Q	104000	94600	86300	70700	57800	46600	37100	29100	22400	16800	12200	8390
		P	13.5	13.7	13.8	13.6	13.2	12.5	11.6	10.4	9.26	7.96	6.64	5.36
	40	Q	90800	82900	75500	61800	50400	40600	32200	25100	19100	14100	9680	
		P	17.5	17.4	17.2	16.5	15.5	14.3	12.9	11.4	9.82	8.18	6.55	
HGX56e/995-4 HGX56e/995-4 S	30	Q	122000	112000	102000	83700	68600	55500	44200	34600	26600	19800	14100	9420
		P	16.5	16.5	16.4	16.0	15.4	14.5	13.4	12.1	10.7	9.23	7.65	6.04
	40	Q	108000	98400	89700	73600	60000	48200	38100	29600	22300	16200	11000	
		P	20.9	20.6	20.2	19.3	18.0	16.6	15.0	13.2	11.3	9.38	7.36	
HGX56e/1155-4 HGX56e/1155-4 S	30	Q	141000	129000	117000	96000	78300	63100	50200	39300	30100	22500	16300	11100
		P	18.9	19.2	19.3	19.2	18.6	17.6	16.3	14.8	13.1	11.3	9.59	7.89
	40	Q	124000	113000	103000	83800	68200	54900	43500	33800	25600	18700	12700	
		P	24.6	24.4	24.1	23.4	22.0	20.3	18.3	16.2	14.0	11.8	9.65	
HGX66e/1340-4 HGX66e/1340-4 S	30	Q	164000	149000	136000	111000	89600	71900	56900	44300	33800	25000		
		P	23.1	23.0	22.8	22.1	21.0	19.6	17.9	16.1	14.2	12.2		
	40	Q	144000	131000	119000	96300	78000	62400	49100	38000	28700			
		P	29.0	28.5	27.8	26.3	24.4	22.3	19.9	17.5	15.0			
HGX66e/1540-4 HGX66e/1540-4 S	30	Q	187000	171000	156000	127000	103000	82900	65800	51400	39300	29300		
		P	34.5	33.4	32.3	30.0	27.3	24.4	21.4	18.3				
	40	Q	165000	150000	137000	111000	89800	72000	57000	44300	33600			
		P	33.6	32.9	32.2	30.5	28.3	25.9	23.3	20.5	17.6			
HGX66e/1540-4 HGX66e/1540-4 S	30	Q	143000	130000	118000	94600	76400	61000	47900	36900				
		P	40.1	38.9	37.6	35.0	31.9	28.6	25.1	21.6				

¹⁾ ASERCOM certified

Relating to 20 °C suction gas temperature without liquid subcooling

Motor version -S- (more powerful motor)

Supplementary cooling or reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R407F | 50 Hz

Type		Cooling capacity Q_o [kW]										Power consumption P_e [kW]	
		Evaporating temperature °C											
		Cond. temp. °C	10	7,5	5	0	-5	-10	-15	-20	-25	-30	-35
HGX66e/1750-4 HGX66e/1750-4 S	30	Q P	212000 30.5	194000 30.4	177000 30.1	145000 29.1	118000 27.7	94900 25.9	75300 23.8	58900 21.4	45100 18.9	33600 16.4	
	40	Q P	187000 38.3	171000 37.6	155000 36.8	127000 34.8	103000 32.3	82600 29.6	65300 26.6	50800 23.5	38600 20.2		
	50	Q P	162000 45.8	147000 44.4	133000 43.0	109000 40.0	87600 36.4	69900 32.7	55000 28.8	42400 24.8			
HGX66e/2070-4 HGX66e/2070-4 S	30	Q P	250000 36.1	228000 36.0	207000 35.7	171000 34.5	139000 32.8	112000 30.7	88700 28.1	69300 25.3	53100 22.3	39700 19.3	
	40	Q P	219000 45.6	200000 44.8	182000 43.8	149000 41.4	121000 38.5	97000 35.1	76800 31.5	59800 27.7	45400 23.9		
	50	Q P	189000 54.7	172000 53.1	156000 51.3	127000 47.8	103000 43.5	82000 38.9	64600 34.2	49900 29.3			
HGX88e/2400-4 HGX88e/2400-4 S	30	Q P	296000 42.7	270000 42.5	246000 42.2	201000 40.8	163000 38.9	132000 36.4	105000 33.5	81400 30.3	62400 26.9	46500 23.3	
	40	Q P	262000 53.2	239000 52.3	217000 51.1	176000 48.8	143000 45.4	115000 41.6	90500 37.4	70400 33.1	53400 28.7		
	50	Q P	227000 63.2	207000 61.4	187000 59.5	151000 56.1	122000 51.2	97100 45.9	76300 40.5	58800 35.0			
HGX88e/2735-4 HGX88e/2735-4 S	30	Q P	336000 48.3	307000 48.1	279000 47.7	230000 46.3	187000 44.2	150000 41.5	119000 38.3	93000 34.7	71200 30.9	53100 26.9	
	40	Q P	297000 60.5	271000 59.4	246000 58.1	202000 55.0	164000 51.4	131000 47.2	104000 42.7	80400 37.9	61000 33.0		
	50	Q P	258000 72.2	234000 70.1	212000 67.9	173000 63.0	140000 57.7	112000 52.0	87300 46.1	67200 40.0			
HGX88e/3235-4 HGX88e/3235-4 S	30	Q P	397000 56.9	362000 56.7	330000 56.2	270000 54.5	220000 52.0	177000 48.7	140000 44.9	110000 40.6	83700 36.0	62300 31.3	
	40	Q P	351000 71.3	320000 69.9	290000 68.4	237000 65.1	192000 60.6	154000 55.5	122000 50.0	94400 44.3	71600 38.4		
	50	Q P	304000 84.9	276000 82.4	250000 79.8	203000 74.7	164000 68.2	131000 61.2	103000 54.0	78800 46.7			

Relating to 20 °C suction gas temperature
without liquid subcooling

 Motor version -S-
(more powerful motor)

 Supplementary cooling or
reduced suction gas temperature

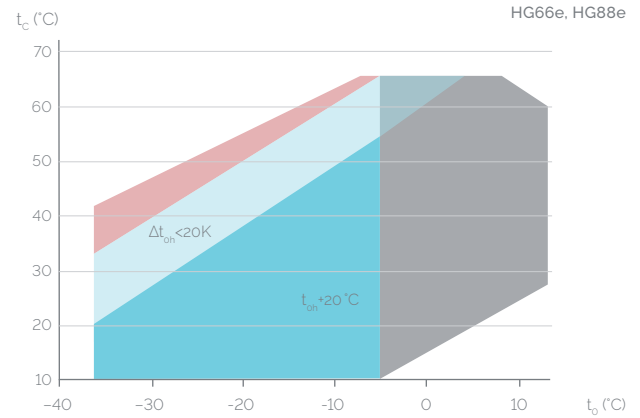
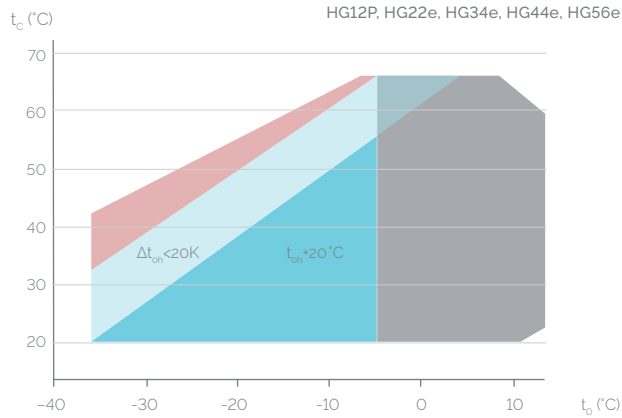
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HG semi-hermetic compressors

Operating limits

R22



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

- Unlimited application range
- Supplementary cooling or reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Supplementary cooling and reduced suction gas temperature ($\Delta t_{oh} < 20K$)
- Motor version -S- (more powerful motor)

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

¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

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

For further explanations consult www.bock.de.

Performance data

The performance data for R22 are based on European Standard EN 12900 with a 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. A comprehensive modification to 20 °C suction gas temperature will follow at a later date.

Conversion factor for 60 Hz = 1.2

Performance data for other operating points, see BOCK VAP software (vap.bock.de).

HG semi-hermetic compressors

Performance data

R22 | 50 Hz

Type			Cooling capacity Q ₀ [kW]								Power consumption P _e [kW]				
			Evaporating temperature °C												
Cond. temp. °C		12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	-35		
HGX12P/60-4 S ¹⁾	30	Q P	7120 0.889	6530 0.911	5980 0.927	5460 0.936	4520 0.939	3710 0.921	3000 0.886	2390 0.837	1870 0.776	1430 0.707	1040 0.632	708 0.553	
		Q P	6290 1.19	5760 1.19	5270 1.18	4800 1.17	3960 1.13	3230 1.08	2600 1.01	2050 0.936	1570 0.849	1160 0.758			
	40	Q P	5500 1.46	5030 1.44	4590 1.41	4170 1.38	3430 1.30	2780 1.21	2210 1.12	1720 1.01	1290 0.906				
		Q P	8890 1.11	8150 1.13	7460 1.15	6820 1.17	5650 1.17	4630 1.15	3750 1.10	2990 1.04	2340 0.970	1780 0.883	1300 0.789	885 0.691	
	HGX12P/75-4 S ¹⁾	40	Q P	7860 1.49	7200 1.49	6580 1.48	6000 1.46	4950 1.42	4040 1.35	3240 1.26	2560 1.16	1970 1.06	1450 0.947		
		50	Q P	6870 1.83	6280 1.80	5730 1.76	5210 1.72	4280 1.63	3470 1.52	2760 1.40	2150 1.26				
HGX12P/90-4 S ¹⁾	30	Q P	10600 1.32	9720 1.35	8900 1.38	8130 1.39	6740 1.39	5520 1.37	4470 1.32	3570 1.24	2790 1.15	2120 1.05	1550 0.941	1060 0.825	
		Q P	9380 1.78	8590 1.77	7850 1.76	7160 1.75	5900 1.69	4810 1.61	3870 1.51	3050 1.39	2340 1.26	1730 1.12			
	40	Q P	8190 2.18	7490 2.15	6830 2.10	6220 2.06	5100 1.94	4140 1.81	3290 1.66	2560 1.51					
		50	Q P	12500 1.55	11500 1.59	10500 1.62	9560 1.64	7920 1.64	6490 1.61	5260 1.55	4190 1.46	3280 1.36	2500 1.23	1820 1.10	1240 0.970
	HGX12P/110-4 S ¹⁾	40	Q P	11100 2.09	10100 2.09	9230 2.08	8410 2.05	6940 1.99	5660 1.89	4550 1.77	3590 1.63	2750 1.48	2030 1.32		
		50	Q P	9630 2.57	8800 2.52	8030 2.48	7310 2.42	6000 2.29	4860 2.13	3870 1.96	3010 1.77				
HGX22e/125-4 S ¹⁾	30	Q P	15700 1.94	14400 1.97	13200 1.99	12000 2.00	9930 1.98	8150 1.91	6630 1.82	5340 1.69	4250 1.55	3340 1.40	2580 1.25	1960 1.09	
		Q P	13800 2.54	12700 2.53	11600 2.50	10600 2.47	8740 2.37	7170 2.24	5840 2.08	4700 1.90	3730 1.72	2900 1.52			
	40	Q P	12000 3.11	11000 3.06	10000 2.99	9120 2.91	7540 2.73	6170 2.53	5010 2.31	4010 2.07					
		50	Q P	19400 2.40	17800 2.44	16300 2.46	14900 2.47	12300 2.44	10100 2.36	8190 2.24	6590 2.09	5240 1.92	4120 1.73	3190 1.54	2420 1.35
	HHGX22e/160-4 S ¹⁾	40	Q P	17100 3.13	15600 3.12	14300 3.09	13100 3.05	10800 2.93	8860 2.77	7200 2.57	5790 2.35	4590 2.11	3580 1.88		
		50	Q P	14800 3.84	13500 3.77	12400 3.69	11300 3.60	9300 3.38	7620 3.13	6180 2.85	4940 2.55				
HGX22e/190-4 S ¹⁾	30	Q P	23400 2.90	21400 2.94	19600 2.97	17900 2.98	14800 2.94	12200 2.84	9850 2.70	7920 2.52	6300 2.31	4950 2.09	3840 1.86	2910 1.63	
		Q P	20600 3.78	18900 3.76	17200 3.72	15700 3.67	13000 3.52	10700 3.32	8680 3.09	6980 2.83	5540 2.55	4320 2.27			
	40	Q P	17800 4.63	16300 4.54	14900 4.44	13600 4.33	11200 4.06	9200 3.76	7450 3.43	5960 3.08					
		50	Q P	26500 3.30	24300 3.35	22200 3.38	20300 3.39	16800 3.35	13900 3.25	11300 3.08	9010 2.88	7160 2.64	5620 2.38	4360 2.12	3310 1.86
	HGX34e/215-4 S ¹⁾	40	Q P	23300 4.31	21400 4.29	19600 4.25	17900 4.19	14800 4.02	12200 3.80	9870 3.53	7930 3.23	6290 2.91	4910 2.58		
		50	Q P	20200 5.29	18500 5.19	17000 5.07	15500 4.94	12800 4.64	10500 4.29	8480 3.91	6780 3.51				
HGX34e/255-4 S ¹⁾	30	Q P	31200 3.87	28600 3.94	26200 3.98	23900 3.99	19800 3.94	16300 3.82	13200 3.62	10600 3.37	8440 3.10	6630 2.80	5130 2.49	3890 2.19	
		Q P	27400 5.06	25100 5.04	23000 4.99	21000 4.92	17400 4.72	14300 4.46	11600 4.14	9330 3.79	7410 3.42	5780 3.03			
	40	Q P	23700 6.21	21800 6.09	19900 5.96	18200 5.80	15000 5.45	12300 5.04	9970 4.59	7970 4.12					
		50	Q P	38500 4.79	35300 4.87	32300 4.92	29500 4.93	24500 4.87	20100 4.71	16400 4.49	13200 4.19	10500 3.83	8200 3.45	6340 3.07	4800 2.70
	HGX34e/315-4 S ¹⁾	40	Q P	33900 6.26	31100 6.23	28500 6.17	26000 6.09	21600 5.84	17700 5.51	14400 5.13	11600 4.69	9160 4.22	7140 3.74		
		50	Q P	29400 7.67	26900 7.53	24600 7.37	22500 7.18	18600 6.74	15200 6.23	12400 5.69	9850 5.10				

¹⁾ ASERCOM certified

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R22 | 50 Hz

Type			Cooling capacity $\dot{Q}_0$ [kW]										Power consumption P_e [kW]			
			Evaporating temperature °C													
Cond. temp. °C		12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	-35			
HGX34e/380-4 HGX34e/380-4 S	30	Q P	46700 5.82	42800 5.92	39100 5.97	35700 5.99	29600 5.91	24300 5.72	19800 5.43	16000 5.06	12700 4.64	9950 4.19	7690 3.73	5830 3.29		
		Q P	41000 7.60	37600 7.56	34400 7.49	31400 7.39	26100 7.08	21400 6.68	17400 6.21	14000 5.68	11200 5.12	8650 4.54				
	50	Q P	35500 9.31	32500 9.14	29800 8.93	27200 8.70	22500 8.16	18500 7.56	15000 6.89	12000 6.18						
HGX44e/475-4 HGX44e/475-4 S	30	Q P	58200 7.16	53600 7.27	49100 7.34	45000 7.36	37500 7.29	30800 7.02	25100 6.68	20300 6.25	16100 5.73	12500 5.16	9390 4.55	6730 3.93		
		Q P	52700 9.17	48300 9.15	44300 9.08	40500 8.97	33600 8.66	27400 8.19	22200 7.63	17800 6.99	14000 6.29	10700 5.54				
	50	Q P	47000 11.0	43100 10.8	39300 10.6	35900 10.4	29600 9.90	24000 9.24	19300 8.46	15300 7.62						
HGX44e/565-4 HGX44e/565-4 S	30	Q P	69400 8.50	63900 8.64	58600 8.71	53700 8.74	44800 8.65	36700 8.37	30000 7.96	24300 7.43	19300 6.81	15100 6.12	11400 5.39	8180 4.64		
		Q P	62900 10.8	57700 10.8	52900 10.7	48400 10.6	40200 10.2	32600 9.79	26600 9.11	21300 8.33	16800 7.48	12900 6.58				
	50	Q P	56300 13.1	51500 12.9	47100 12.6	43000 12.4	35500 11.7	28600 11.0	23200 10.1	18400 9.10						
HGX44e/665-4 HGX44e/665-4 S	30	Q P	81000 9.95	74500 10.1	68300 10.1	62600 10.2	52100 10.1	43300 9.73	35300 9.26	28500 8.66	22600 7.94	17500 7.15	13200 6.30	9410 5.44		
		Q P	73100 12.7	67100 12.7	61500 12.6	56200 12.5	46600 12.0	38400 11.3	31200 10.5	24900 9.69	19600 8.71	14900 7.68				
	50	Q P	65200 15.4	59700 15.2	54600 14.9	49700 14.5	41000 13.8	33600 12.8	27000 11.7	21400 10.5						
HGX44e/770-4 HGX44e/770-4 S	30	Q P	93900 11.5	86300 11.7	79200 11.8	72600 11.8	60500 11.7	50000 11.3	40900 10.8	33000 10.1	26200 9.28	20400 8.35	15400 7.36	11100 6.36		
		Q P	84700 14.8	77800 14.8	71300 14.6	65200 14.5	54100 13.9	44500 13.2	36200 12.3	29000 11.3	22800 10.1	17500 8.97				
	50	Q P	75600 17.9	69300 17.7	63300 17.3	57800 16.9	47700 16.0	39000 14.9	31500 13.6	25000 12.3						
HGX56e/850-4 HGX56e/850-4 S	30	Q P	104000 12.7	95400 12.9	87600 13.0	80200 13.0	66900 12.9	55000 12.5	45000 11.9	36400 11.1	29000 10.2	22600 9.19	17100 8.10	12300 6.97		
		Q P	93700 16.3	86000 16.2	78800 16.1	72100 15.9	59900 15.3	49000 14.6	39900 13.6	32000 12.4	25200 11.2	19400 9.88				
	50	Q P	83700 19.6	76600 19.4	70100 19.0	64000 18.6	52900 17.6	43000 16.5	34800 15.1	27600 13.6						
HGX56e/995-4 HGX56e/995-4 S	30	Q P	122000 14.9	112000 15.1	103000 15.2	93700 15.3	78000 15.1	64700 14.5	52800 13.8	42600 12.9	33800 11.8	26200 10.6	19700 9.42	14100 8.14		
		Q P	110000 19.1	101000 19.1	91900 18.9	84000 18.7	69700 18.0	57400 16.9	46600 15.7	37300 14.4	29200 13.0	22300 11.4				
	50	Q P	97500 23.1	89300 22.8	81600 22.4	74400 21.9	61300 20.7	50200 19.0	40400 17.4	32000 15.7						
HGX56e/1155-4 HGX56e/1155-4 S	30	Q P	141000 18.0	130000 18.2	119000 18.4	109000 18.5	90700 18.3	74700 17.7	61000 16.9	49300 15.8	39200 14.4	30500 13.0	23100 11.4	16600 9.89		
		Q P	128000 23.1	117000 23.0	107000 22.9	97800 22.6	81200 21.8	66500 20.7	54000 19.3	43300 17.7	34100 15.9	26100 14.0				
	50	Q P	114000 27.9	105000 27.5	95100 27.0	86800 26.4	71700 24.9	58300 23.4	47000 21.4	37300 19.3						
HGX66e/1340-4 HGX66e/1340-4 S	30	Q P	168000 21.4	155000 21.6	142000 21.7	131000 21.6	109000 21.2	89400 20.3	73100 19.2	59000 17.8	46800 16.2	36400 14.4	27700 12.6	20400 10.8		
		Q P	152000 27.4	140000 27.1	128000 26.8	118000 26.3	97600 25.1	79700 23.5	64800 21.7	51900 19.7	40900 17.5	31400 15.3				
	50	Q P	135000 32.8	124000 32.1	114000 31.3	104000 30.4	86600 28.4	69500 26.2	56100 23.8	44600 21.2						
HGX66e/1540-4 HGX66e/1540-4 S	30	Q P	192000 24.6	177000 24.8	163000 24.9	150000 24.9	126000 24.4	103000 23.5	84200 22.2	68100 20.6	54200 18.8	42300 16.8	32300 14.7	24000 12.6		
		Q P	174000 31.7	160000 31.4	147000 30.9	135000 30.4	113000 29.0	91800 27.3	74800 25.2	60200 22.9	47500 20.5	36700 17.9				
	50	Q P	155000 38.1	142000 37.3	130000 36.3	119000 35.3	98600 33.1	80200 30.6	65000 27.8	51900 24.8						

Relating to 20 °C suction gas temperature
without liquid subcooling

Motor version -S-
(more powerful motor)

Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Performance data

R22 | 50 Hz

Type	Cooling capacity Q_o [kW]												Power consumption P_e [kW]	
	Cond. temp. °C		Evaporating temperature °C											
			12.5	10	7.5	5	0	-5	-10	-15	-20	-25	-30	-35
HGX66e/1750-4 HGX66e/1750-4 S	30	Q P	218000 28.2	201000 28.4	185000 28.5	170000 28.5	142000 27.9	118000 26.8	96400 25.4	78000 23.6	62100 21.5	48500 19.3	37100 16.9	27500 14.5
	40	Q P	197000 36.2	182000 35.8	167000 35.4	153000 34.8	128000 33.2	710600 31.2	85800 28.8	69000 26.2	54500 23.5	42200 20.6		
	50	Q P	175000 43.5	161000 42.6	148000 41.6	135000 40.4	112000 37.8	91900 34.9	74600 31.7	59600 28.4				
HGX66e/2070-4 HGX66e/2070-4 S	30	Q P	256000 33.3	236000 33.6	217000 33.7	200000 33.7	167000 33.0	139000 31.8	114000 30.0	91700 27.9	73100 25.4	57100 22.7	43700 19.9	32400 17.1
	40	Q P	231000 43.0	213000 42.6	196000 42.0	180000 41.3	150000 39.4	124000 37.1	101000 34.2	81100 31.1	64200 27.8	49700 24.3		
	50	Q P	205000 51.9	189000 50.8	173000 49.5	158000 48.1	132000 45.0	108000 41.6	87500 37.8	70000 33.7				
HGX88e/2400-4 HGX88e/2400-4 S	30	Q P	304000 39.6	280000 39.9	258000 40.0	237000 40.0	198000 39.3	163000 37.6	134000 35.7	108000 33.2	85900 30.4	67200 27.3	51400 24.1	38100 20.8
	40	Q P	276000 50.3	254000 49.9	233000 49.2	214000 48.4	179000 46.3	146000 43.8	119000 40.6	95500 37.0	75500 33.1	58500 29.2		
	50	Q P	246000 60.1	226000 58.9	207000 57.5	190000 56.0	157000 52.6	128000 49.1	104000 44.7	82700 40.0				
HGX88e/2735-4 HGX88e/2735-4 S	30	Q P	345000 44.7	318000 45.1	292000 45.3	269000 45.2	225000 44.4	186000 42.8	152000 40.6	123000 37.8	97900 34.7	76500 31.2	58500 27.5	43400 23.8
	40	Q P	313000 57.2	288000 56.6	265000 55.9	243000 55.0	202000 52.6	167000 49.6	136000 46.0	109000 42.0	86100 37.7	66600 33.3		
	50	Q P	279000 68.6	256000 67.2	235000 65.5	215000 63.8	179000 59.8	146000 55.5	119000 50.6	94300 45.4				
HGX88e/3235-4 HGX88e/3235-4 S	30	Q P	407000 52.7	376000 53.1	346000 53.3	317000 53.2	266000 52.3	219000 50.4	180000 47.8	145000 44.5	116000 40.7	90100 36.6	68800 32.3	51000 27.9
	40	Q P	370000 67.3	340000 66.7	313000 65.8	286000 64.7	239000 61.8	196000 58.4	160000 54.1	129000 49.4	102000 44.3	78300 39.0		
	50	Q P	329000 80.7	303000 79.0	277000 77.1	254000 75.0	210000 70.3	172000 65.4	140000 59.5	111000 53.3				

Relating to 20 °C suction gas temperature
without liquid subcooling

 Motor version -S-
(more powerful motor)

 Supplementary cooling or
reduced suction gas temperature

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HG semi-hermetic compressors

Technical data

HG

Type	Number of cylinders	Displacement		Electrical data						Weight	Connections ⁵⁾				Oil charge	Fre- quency range		
				Voltage ¹⁾	Max. Working current ²⁾	Max. Power consump- tion ²⁾	Starting current (rotor locked)	Discharge line DV			Suction line SV							
		m³/h						A			kW		A				kg	
		50 Hz 1450 rpm	60 Hz 1,740 rpm		Δ	Y		Δ	Y									
HG12P/60-4 S	2	5.40	6.40	³⁾	6.8	3.9	2.2	40	23	48.0	12	½	16	⅝	0.8		30-70	
HG12P/75-4	2	6.70	8.10	³⁾	7.1	4.1	2.3	40	23	48.0	12	½	16	⅝	0.8		30-70	
HG12P/75-4 S	2	6.70	8.10	³⁾	8.0	4.6	2.6	43	25	49.0	12	½	16	⅝	0.8		30-70	
HG12P/90-4	2	8.00	9.60	³⁾	8.5	4.9	2.8	43	25	49.0	12	½	16	⅝	0.8		30-70	
HG12P/90-4 S	2	8.00	9.60	³⁾	9.1	5.3	3.0	45	26	49.0	12	½	16	⅝	0.8		30-70	
HG12P/110-4	2	9.40	11.30	³⁾	9.2	5.3	3.1	43	25	49.0	12	½	16	⅝	0.8		30-70	
HG12P/110-4 S	2	9.40	11.30	³⁾	10.6	6.1	3.6	45	26	49.0	12	½	16	⅝	0.8		30-70	
HG22e/125-4	2	11.10	13.30	³⁾	9.3	5.4	3.0	69	40	74.0	16	⅝	22	⅞	1.0		30-70	
HG22e/125-4 S	2	11.10	13.30	³⁾	10.8	6.2	3.6	69	40	74.0	16	⅝	22	⅞	1.0		30-70	
HG22e/160-4	2	13.70	16.40	³⁾	11.1	6.4	3.7	69	40	74.0	16	⅝	22	⅞	1.0		30-70	
HG22e/160-4 S	2	13.70	16.40	³⁾	13.1	7.6	4.4	87	50	76.0	16	⅝	22	⅞	1.0		30-70	
HG22e/190-4	2	16.50	19.80	³⁾	13.8	8.0	4.8	69	40	74.0	16	⅝	22	⅞	1.0		30-70	
HG22e/190-4 S	2	16.50	19.80	³⁾	16.2	9.4	5.6	87	50	75.0	16	⅝	22	⅞	1.0		30-70	
HG34e/215-4	4	18.80	22.60	³⁾	14.0	8.1	4.8	87	50	92.0	22	⅞	28	1⅛	1.2		25-70	
HG34e/215-4 S	4	18.80	22.60	³⁾	18.3	10.5	6.0	132	76	97.0	22	⅞	28	1⅛	1.2		25-70	
HG34e/255-4	4	22.10	26.60	³⁾	17.0	9.8	6.0	87	50	92.0	22	⅞	28	1⅛	1.2		25-70	
HG34e/255-4 S	4	22.10	26.60	³⁾	21.1	12.2	7.2	132	76	96.0	22	⅞	28	1⅛	1.2		25-70	
HG34e/315-4	4	27.30	32.80	³⁾	21.1	12.2	7.4	111	64	94.0	22	⅞	28	1⅛	1.2		25-70	
HG34e/315-4 S	4	27.30	32.80	³⁾	25.5	14.7	8.9	132	76	97.0	22	⅞	28	1⅛	1.2		25-70	
HG34e/380-4	4	33.10	39.70	³⁾	26.1	15.1	9.3	111	64	93.0	22	⅞	28	1⅛	1.2		25-70	
HG34e/380-4 S	4	33.10	39.70	³⁾	31.2	18.0	11.1	132	76	96.0	22	⅞	28	1⅛	1.2		25-70	
		PW 1+2*				PW1/PW1+2*												
HG44e/475-4	4	41.30	49.60	⁴⁾	19.0		11.0	83	109	164.0	28	1⅛	35	1⅜	2.3		25-70	
HG44e/475-4 S	4	41.30	49.60	⁴⁾	23.0		13.1	115	150	168.0	28	1⅛	35	1⅜	2.3		25-70	
HG44e/565-4	4	49.20	59.00	⁴⁾	22.0		13.2	83	109	164.0	28	1⅛	35	1⅜	2.3		25-70	
HG44e/565-4 S	4	49.20	59.00	⁴⁾	26.0		15.6	133	171	170.0	28	1⅛	42	1⅝	2.3		25-70	
HG44e/665-4	4	57.70	69.20	⁴⁾	26.0		15.4	115	150	171.0	28	1⅛	42	1⅝	2.3		25-70	
HG44e/665-4 S	4	57.70	69.20	⁴⁾	30.0		18.3	133	171	168.0	28	1⅛	42	1⅝	2.3		25-70	
HG44e/770-4	4	67.00	80.40	⁴⁾	30.0		17.8	133	171	168.0	28	1⅛	42	1⅝	2.3		25-70	
HG44e/770-4 S	4	67.00	80.40	⁴⁾	35.0		21.4	133	171	168.0	28	1⅛	42	1⅝	2.3		25-70	
HG56e/850-4	6	73.80	88.60	⁴⁾	32.6		19.7	133	171	194.3	35	1⅜	54	2⅛	2.7		25-70	
HG56e/850-4 S	6	73.80	88.60	⁴⁾	39.4		23.5	162	210	211.1	35	1⅜	54	2⅛	2.7		25-70	
HG56e/995-4	6	86.60	103.90	⁴⁾	38.9		23.2	162	210	194.3	35	1⅜	54	2⅛	2.7		25-70	
HG56e/995-4 S	6	86.60	103.90	⁴⁾	46.4		27.7	189	246	211.3	35	1⅜	54	2⅛	2.7		25-70	
HG56e/1155-4	6	100.40	120.50	⁴⁾	46.9		28.0	189	246	211.8	35	1⅜	54	2⅛	2.7		25-70	
HG56e/1155-4 S	6	100.40	120.50	⁴⁾	58.3		33.3	253	330	220.6	35	1⅜	54	2⅛	2.7		25-70	

*PW = Part Winding, motors for part winding start

1 = first part winding

2 = second part winding

HG semi-hermetic compressors

Technical data

HG

Type	Number of cylinders	Displacement		Electrical data						Weight	Connections ⁵⁾				Oil charge	Fre- quency range
		50 Hz/60Hz (1450/1740 rpm)		Voltage ¹⁾	Max. Working current ²⁾	Max. Power consump- tion ²⁾	Starting current (rotor locked)	Discharge line DV	Suction line SV							
		m³/h									A		kW			
		50 Hz 1450 rpm	60 Hz 1740 rpm		Δ	Y		Δ	Y		mm	inch	mm	inch	Ltr.	Hz
HG66e/1340-4	6	116.50	139.80	⁴⁾	53.7		31.9	170	275	282.0	42	1 5⁄8	54	2 1⁄8	4.4	25-60
HG66e/1340-4 S	6	116.50	139.80	⁴⁾	65.3		38.1	196	335	287.0	42	1 5⁄8	54	2 1⁄8	4.4	25-60
HG66e/1540-4	6	133.80	160.50	⁴⁾	62.1		37.2	170	275	280.0	42	1 5⁄8	54	2 1⁄8	4.4	25-60
HG66e/1540-4 S	6	133.80	160.50	⁴⁾	75.0		44.4	196	335	285.0	42	1 5⁄8	54	2 1⁄8	4.4	25-60
HG66e/1750-4	6	152.20	182.60	⁴⁾	71.9		42.4	196	335	280.0	42	1 5⁄8	54	2 1⁄8	4.4	25-60
HG66e/1750-4 S	6	152.20	182.60	⁴⁾	86.8		50.7	222	361	282.0	42	1 5⁄8	54	2 1⁄8	4.4	25-60
HG66e/2070-4	6	180.00	216.00	⁴⁾	85.1		50.7	196	335	276.0	42	1 5⁄8	64	2 1⁄8	4.4	25-60
HG66e/2070-4 S	6	180.00	216.00	⁴⁾	103.0		60.7	222	361	278.0	42	1 5⁄8	64	2 1⁄8	4.4	25-60
HG88e/2400-4	8	209.10	250.90	⁴⁾	101.0		59.5	298	438	452.0	54	2 1⁄8	76	3 1⁄8	9.6	25-60
HG88e/2400-4 S	8	209.10	250.90	⁴⁾	120.0		69.8	447	657	452.0	54	2 1⁄8	76	3 1⁄8	9.6	25-60
HG88e/2735-4	8	237.90	285.50	⁴⁾	116.0		67.1	386	567	455.0	54	2 1⁄8	76	3 1⁄8	9.6	25-60
HG88e/2735-4 S	8	237.90	285.50	⁴⁾	136.0		80.0	447	657	464.0	54	2 1⁄8	76	3 1⁄8	9.6	25-60
HG88e/3235-4	8	281.30	337.60	⁴⁾	135.0		79.2	447	657	459.0	54	2 1⁄8	76	3 1⁄8	9.6	25-60
HG88e/3235-4 S	8	281.30	337.60	⁴⁾	162.0		93.9	538	791	467.0	54	2 1⁄8	76	3 1⁄8	9.6	25-60

*PW = Part Winding, motors for part winding start

1 = first part winding

2 = second 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) 220 – 240 V Δ / 380 – 420 V Y - 3 - 50 Hz,
265 – 290 V Δ / 440 – 480 V Y - 3 - 60 Hz

- 4) PW = Part Winding, motors for part winding start (no start unloaders required)

- Winding ratios:
HG44e, HG56e, HG66e, HG88e = 50 % / 50 %
- Designs for Y/Δ on request

- 5) For soldering connections

Oil sump heater 110-240 V - 1 - 50 / 60 Hz (option)

- HG12P, HG22e, HG34e: 50-120 W
- PTC heater, self-regulating, installation in housing bore

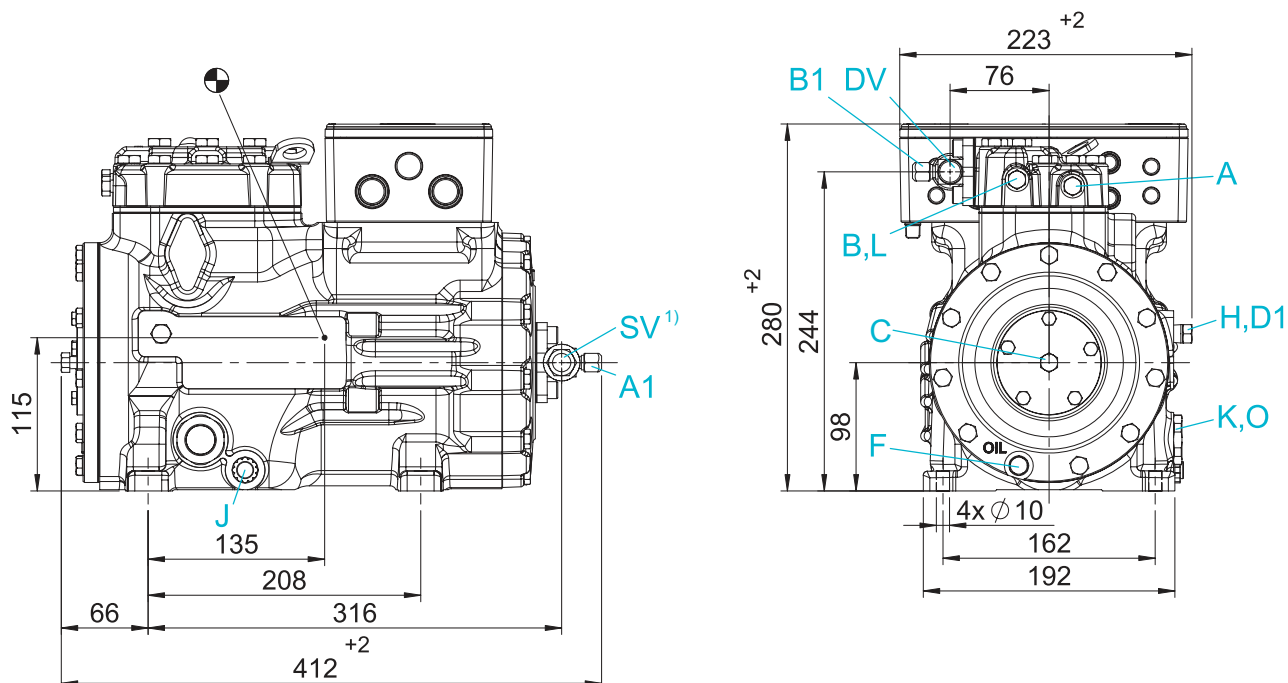
Oil sump heater 230 V - 1 - 50 / 60 Hz (option)

- HG44e, HG56e, HG66e: 160 W, installation in housing bore
- HG88e: 200 W, installation in immersion sleeve
- Permanently set version

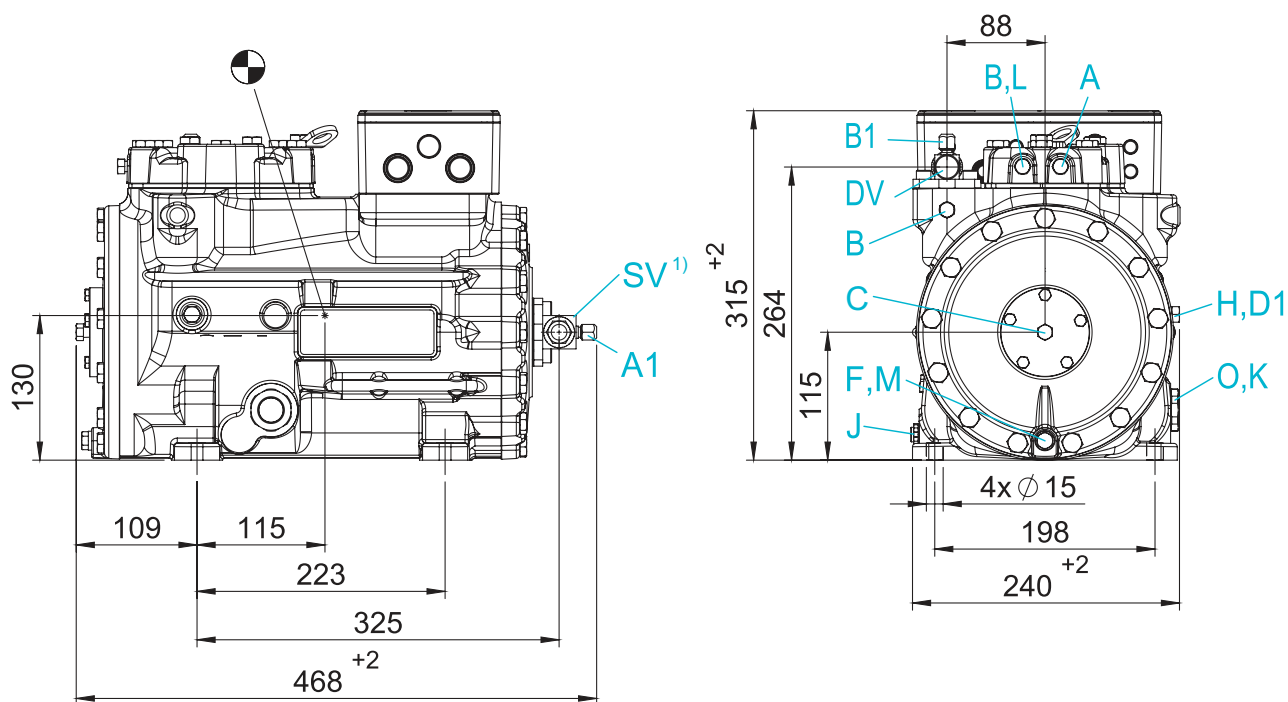
HG semi-hermetic compressors

Dimensions and connections

HG12P » HG12P/60-4 S » HG12P/75-4 » HG12P/75-4 S
HG12P/90-4 » HG12P/90-4 S » HG12P/110-4 » HG12P/110-4 S



HG22e » HG22e/125-4 » HG22e/125-4 S » HG22e/160-4 » HG22e/160-4 S
HG22e/190-4 » HG22e/190-4 S



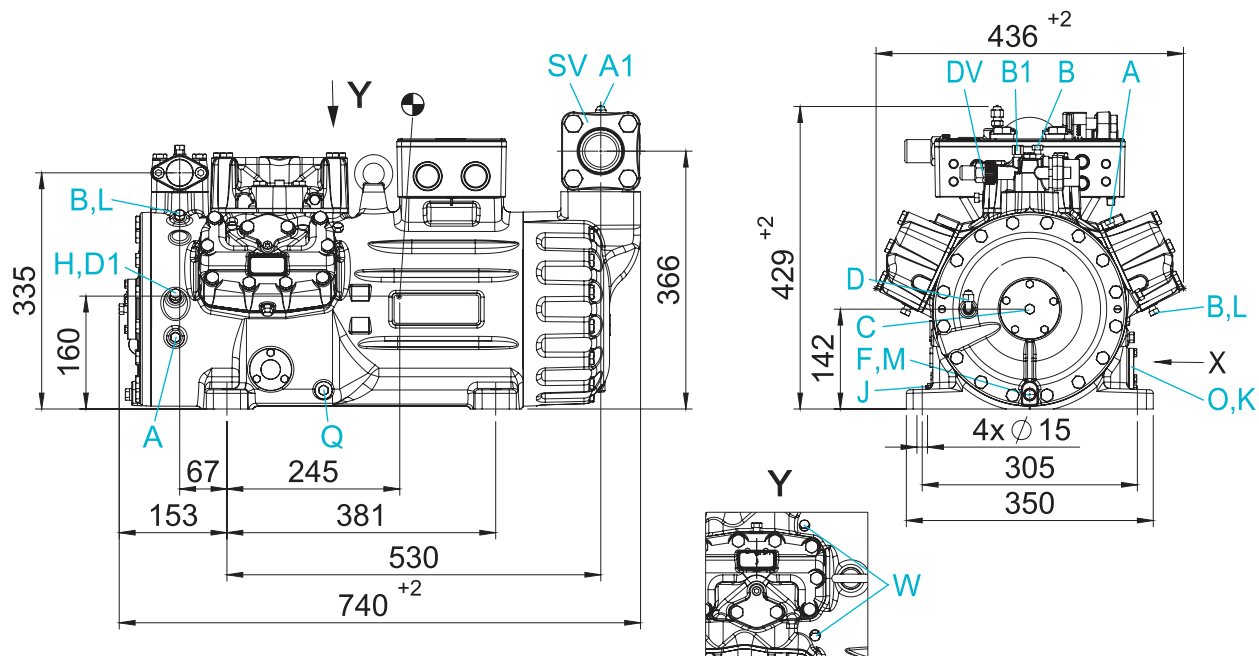
Dimensions in mm
 ● Center of gravity
¹⁾ SV 90° rotatable

Connections see page 64
 Dimensions for anti-vibration pad see page 61

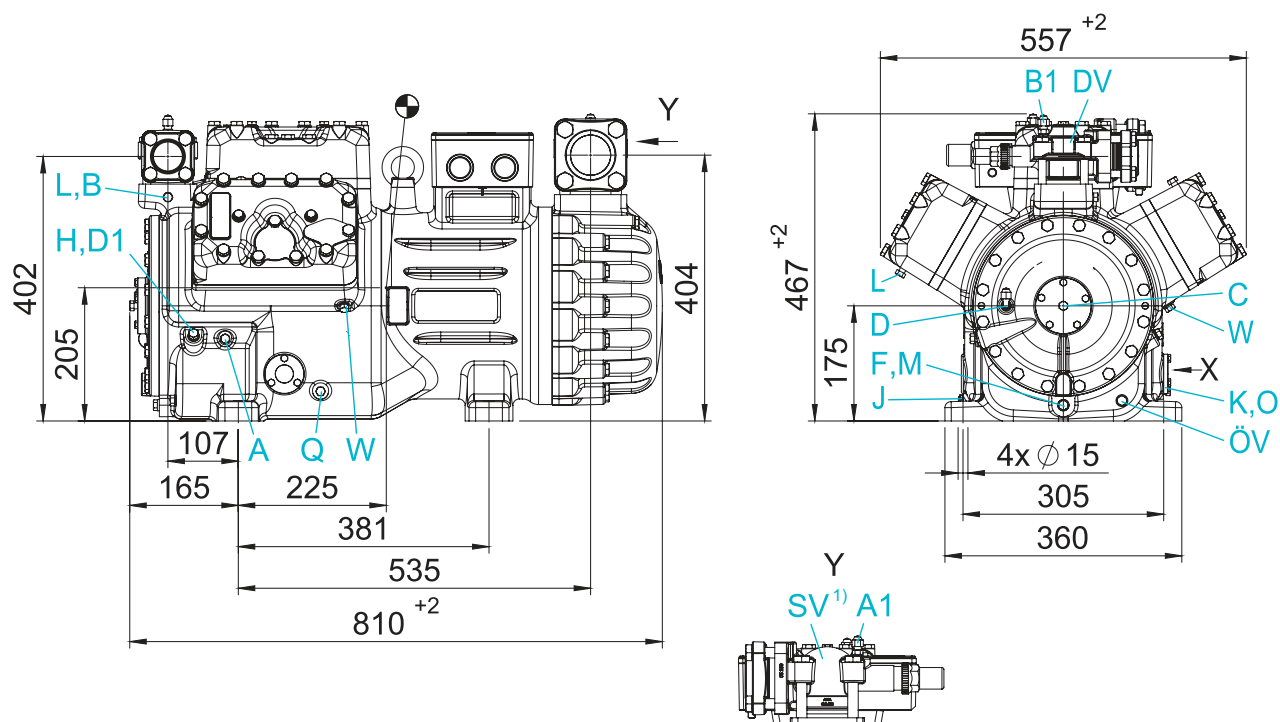
HG semi-hermetic compressors

Dimensions and connections

HG56e » HG56e/850-4 » HG56e/850-4 S » HG56e/995-4
HG56e/995-4 S » HG56e/1155-4 » HG56e/1155-4 S



HG66e » HG66e/1340-4 » HG66e/1340-4 S » HG66e/1540-4 » HG66e/1540-4 S
HG66e/1750-4 » HG66e/1750-4 S » HG66e/2070-4 » HG66e/2070-4 S



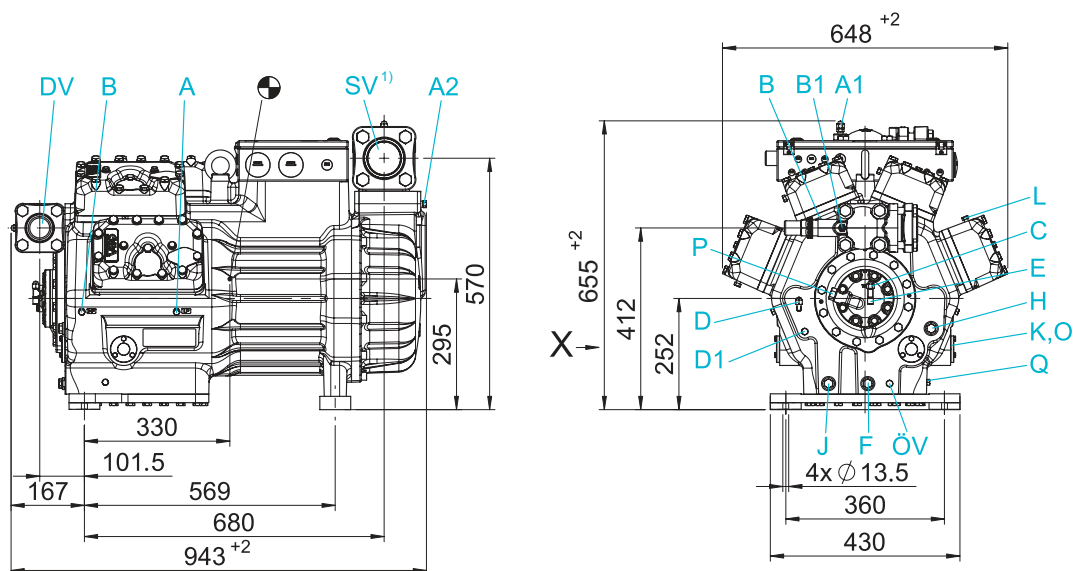
Dimensions in mm
● Center of gravity
¹⁾ SV 180° rotatable

Connections see page 64
Dimensions for anti-vibration pad see page 61

HG semi-hermetic compressors

Dimensions and connections

HG88e » HG88e/2400-4 » HG88e/2400-4 S » HG88e/2735-4
HG88e/2735-4 S » HG88e/3235-4 » HG88e/3235-4 S



Dimensions in mm

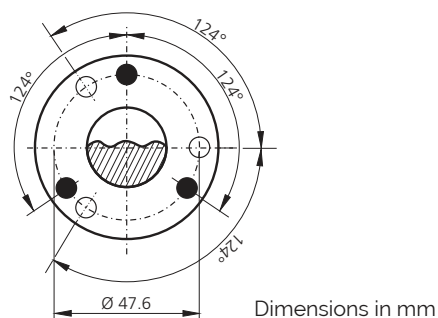
● Center of gravity

¹⁾ SV 180° rotatable

Connections see page 64

Dimensions for anti-vibration pad see below

View X



Possibility to connect to oil level regulator

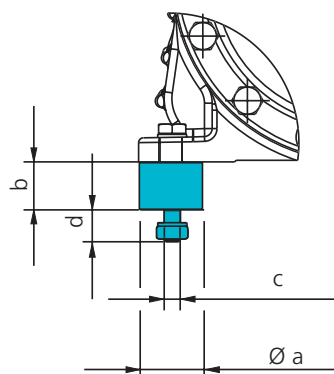
HG44e, HG56e, HG66e, HG88e

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

Dimensions for anti-vibration pad

Type	Ø a	b	c	d
HG12P	30	30	M8	20
HG22e	40	30	M10	20
HG34e	40	30	M10	20
HG44e	50	30	M12	25
HG56e	50	30	M12	25
HG66e	50	30	M12	25
HG88e	70	45	M12	37

Dimensions in mm

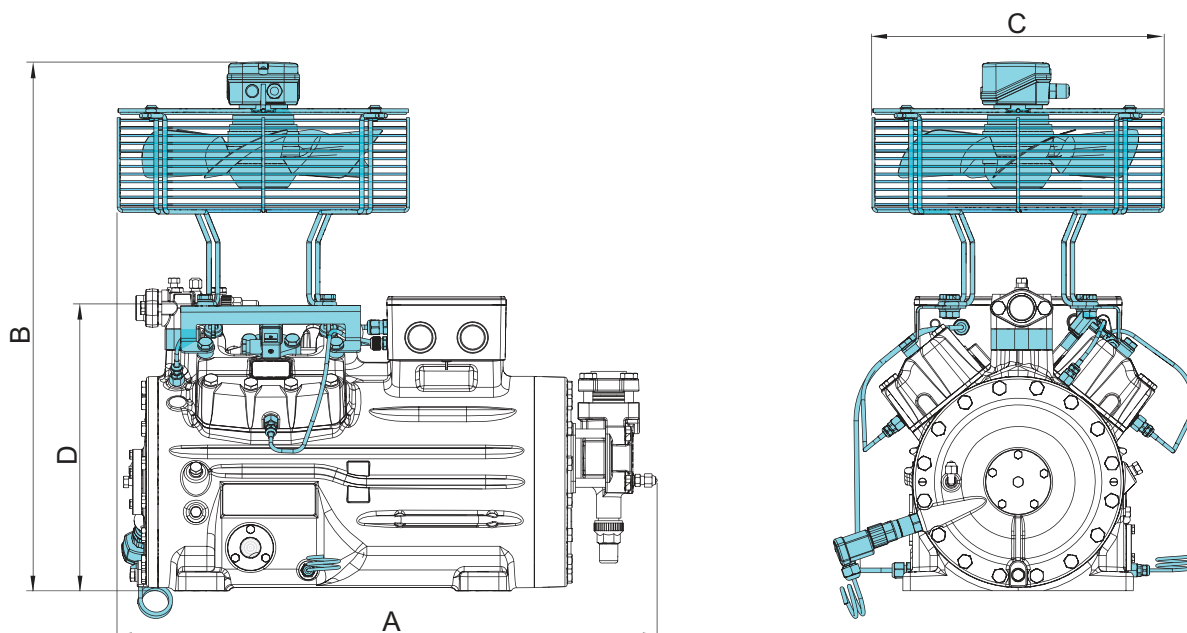


HG semi-hermetic compressors

Dimensions and connections

HG12P HG22e HG34e HG44e HG56e

Dimensions with accessories



Type	A	B	C	D
HG12P	ca. 460	ca. 500	ca. 315	–
HG22e	ca. 525	ca. 610	ca. 380	–
HG34e	ca. 580	ca. 640	ca. 380	–
HG44e	ca. 710	ca. 685	ca. 380	368
HG56e	–	ca. 710	ca. 380	–

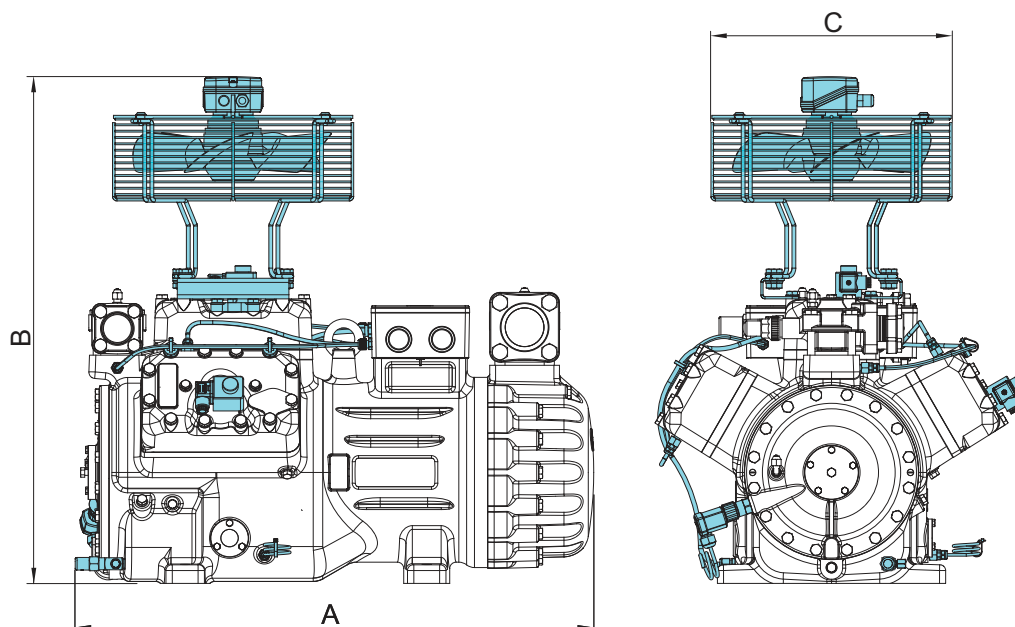
Dimensions in mm

HG semi-hermetic compressors

Dimensions and connections

HG66e

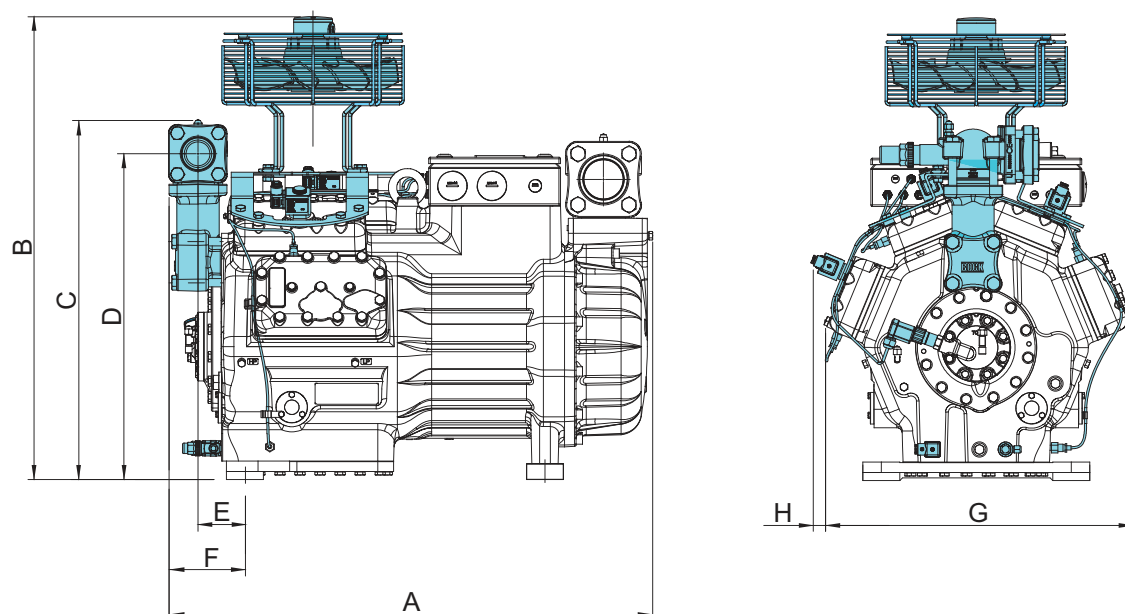
Dimensions with accessories



Type	A	B	C
HG66e	ca. 820	ca. 800	ca. 380
Dimensions in mm			

HG88e

Dimensions with accessories



Type	A	B	C	D	E	F	G	H
HG88e	ca. 920	ca. 880	ca. 680	617	90	145	ca. 610	ca. 20

Dimensions in mm

HG semi-hermetic compressors

Dimensions and connections

Connections		HG12P	HG22e	HG34e	HG44e	HG56e	HG66e	HG88e
SV	Suction line	Please refer to technical data page 56						
DV	Discharge line							
A	Connection suction side, not lockable	1/8" NPTF	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	7/16" UNF
A2	Connection suction side, not lockable	-	-	-	-	-	-	1/4" NPTF
B	Connection discharge side, not lockable	1/8" NPTF	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	7/16" UNF
C	Connection oil pressure safety switch HP	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	7/16" UNF
D	Connection oil pressure safety switch LP	-	-	-	7/16" UNF	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	1/4" NPTF
F	Oil drain plug	M8	M12 x 15	M12 x 15	M12 x 15	M12 x 15	M12 x 15	M22 x 15
H	Oil charge plug	1/4" NPTF	1/4" NPTF	1/4" NPTF	1/4" NPTF	1/4" NPTF	1/4" NPTF	M22 x 15
J	Connection oil sump heater	3/8" NPTF	3/8" NPTF	3/8" NPTF	3/8" NPTF	3/8" NPTF	3/8" NPTF	M22 x 15
K	Sight glass	1 1/8" - 18 UNEF	1 1/8" - 18 UNEF	1 1/8" - 18 UNEF	3 hole M6	3 hole M6	3 hole M6	3 hole M6
L	Connection thermal protection thermostat	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF
M	Oil strainer	-	M12 x 15	M12 x 15	M12 x 15	M12 x 15	M12 x 15	M22 x 15
O	Connection oil level regulator	1 1/8" - 18 UNEF	1 1/8" - 18 UNEF	1 1/8" - 18 UNEF	1)	1)	1)	1)
ÖV	Connection oil service valve	-	-	-	-	-	1/4" NPTF	1/4" NPTF
P	Connection oil pressure differential sensor	-	-	-	-	-	-	M20 x 15
Q	Connection oil temperature sensor	-	-	-	1/8" NPTF	1/8" NPTF	1/8" NPTF	1/8" NPTF
W	Connection for refrigerant injection	-	-	1/8" NPTF	1/8" NPTF	2 1/8" NPTF	2 1/8" NPTF	-

¹⁾ Dimensions see view X page 61

HG semi-hermetic compressors

Scope of supply and accessories

	HG12P	HG22e	HG34e	HG44e	HG56e	HG66e	HG88e
Semi-hermetic two-cylinder reciprocating compressor with drive motor for direct start 220 – 240 V Δ / 380 – 420 V Y - 3 - 50 Hz 265 – 290 V Δ / 440 – 480 V Y - 3 - 60 Hz	●	●	–	–	–	–	–
Semi-hermetic four-cylinder reciprocating compressor with drive motor for direct start 220 – 240 V Δ / 380 – 420 V Y - 3 - 50 Hz 265 – 290 V Δ / 440 – 480 V Y - 3 - 60 Hz	–	–	●	–	–	–	–
Semi-hermetic four-cylinder reciprocating compressor with drive motor for part winding start (50/50) 380 – 420 V Y/YY - 3 - 50 Hz 440 – 480 V Y/YY - 3 - 60 Hz	–	–	–	●	–	–	–
LSemi-hermetic six-cylinder reciprocating compressor with drive motor for part winding start (50/50) 380 – 420 V Y/YY - 3 - 50 Hz 440 – 480 V Y/YY - 3 - 60 Hz	–	–	–	–	●	●	–
Semi-hermetic eight-cylinder reciprocating compressor with drive motor for part winding start (50/50) 380 – 420 V Y/YY - 3 - 50 Hz 440 – 480 V Y/YY - 3 - 60 Hz	–	–	–	–	–	–	●
Special voltage and/or frequency	○ ³⁾	○ ³⁾	○ ³⁾	○ ³⁾	○ ³⁾	○ ³⁾	○ ³⁾
Winding protection with PTC resistor sensors with electronic triggering unit INT69 G (230 V)	●	●	●	●	●	●	●
① Thermal protection PTC	○ ²⁾	○ ²⁾	○ ²⁾	○ ²⁾	○ ²⁾	○ ²⁾	○ ²⁾
Oil pump	●	●	●	●	●	●	●
Oil charge: FUCHS Reniso SP46, HGX: FUCHS Rensio Triton SE55	●	●	●	●	●	●	●
Inert gas charge	●	●	●	●	●	●	●
4 anti-vibration pads	● ¹⁾	● ¹⁾	● ¹⁾	● ¹⁾	● ¹⁾	● ¹⁾	● ¹⁾
Internal safety valve	–	–	–	●	●	●	●
Suction and discharge line valve	●	●	●	●	●	●	●
Sight glasses	One	●	●	●	●	●	–
	Three	–	–	–	–	–	●
② Oil sump heater	110 – 240 V - 1 - 50 / 60 Hz, 50 – 120 W, PTC heater, self-regulating	○ ²⁾	○ ²⁾	–	–	–	–
	220 – 240 V - 1 - 50 / 60 Hz, 160 W	–	–	○ ²⁾	○ ²⁾	○ ²⁾	–
	220 – 240 V - 1 - 50 / 60 Hz, 200 W	–	–	–	–	–	○ ²⁾
Rear bearing flange prepared for oil differential pressure sensor	–	–	–	○ ²⁾	○ ²⁾	○ ²⁾	● ²⁾
③ Oil differential pressure sensor DELTA-P II 220 – 240 V - 1 - 50 / 60 Hz	–	–	–	○ ¹⁾	○ ¹⁾	○ ¹⁾	○ ¹⁾
④ Oil pressure safety switch	230 V - 1 - 50/60 Hz, IP20 MP54	–	–	○ ¹⁾	○ ¹⁾	○ ¹⁾	○ ¹⁾
	230 V - 1 - 50/60 Hz, IP20 MP55	○ ¹⁾	○ ¹⁾	○ ¹⁾	–	–	–
⑤ Oil service valve	–	–	–	–	–	○ ²⁾	○ ²⁾
⑥ Capacity regulator	1 capacity regulator = 50% residual capacity	–	–	○ ²⁾	–	–	–
	1–2 capacity regulators = 66/33% residual capacity	–	–	–	○ ²⁾	○ ²⁾	–
	1–3 capacity regulators = 75/50/25% residual capacity	–	–	–	–	–	○ ²⁾

¹⁾ Enclosed ²⁾ Mounted ³⁾ On request
⁴⁾ Only possible with additional adapter

● Scope of supply (standard)
○ Available accessories

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HG semi-hermetic compressors

Scope of supply and accessories

		HG12P	HG22e	HG34e	HG44e	HG56e	HG66e	HG88e
7	Prepared for capacity regulator			2)	2)	2)	2)	2)
	1 cylinder cover	–	–	–	–	–	–	–
	2 cylinder covers	–	–	–	–	–	–	–
	3 cylinder covers	–	–	–	–	–	–	2)
8	Oil temperature sensor	–	–	–	2)	2)	2)	2)
9	Start unloader by means of ESS (Electronic Soft Start) 400 V - 3 - 50 / 60 Hz, IP20, (connection clamps IPOO) for installation in switch cabinet	–	1)	1)	1)	1)	1)	–
10	Connection piece suction and discharge valve in welded construction	–	–	–	3)	3)	3)	3)
11	Additional fan							
	230 V - 1 - 50 Hz, 97 W, IP44,	1)	1)	1)	1)	1)	1)	1)
	230 V - 1 - 60 Hz, 128 W, Voltage range ± 10 %	1)	1)	1)	1)	1)	1)	1)
12	Intermediate flange for discharge line valve on right or left, seen from oil pump	–	–	–	1)	–	–	–
13	INT69 G Diagnose 115 / 230 V Ac, 50 / 60 Hz, IPOO (INT69 G not applicable)	–	1)	1)	1)	1)	1)	–
14	INT69 GTML Diagnose 115 / 230 V Ac, 50 / 60 Hz, IPOO, incl. oil differential pressure sensor INT250, thermal protection thermostat (PTC) per cylinder cover (INT69 G not applicable)	–	–	–	–	–	–	2)
15	DP – modbus gateway 115 / 230 V Ac, 50 / 60 Hz, IPOO incl. adapter cable	–	1)	1)	1)	1)	1)	1)
16	Modbus – LAN gateway 230 V Ac, 50 / 60 Hz, IPOO	–	1)	1)	1)	1)	1)	1)
17	USB converter for INT69 G Diagnose and INT69 GTML Diagnose	–	1)	1)	1)	1)	1)	1)
	Connection for oil level regulator of brands ESK, AC+ R or CARLY	4)	4)	4)	4)	4)	4)	4)
	Connection for oil level regulator of brand Traxoil	4)	4)	4)	4)	4)	4)	4)

1) Enclosed 2) Mounted 3) On request
4) Only possible with additional adapter

● Scope of supply (standard)
● Available accessories

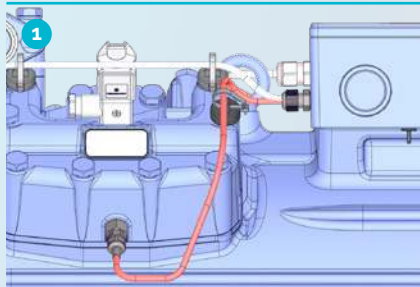
vap.bock.de



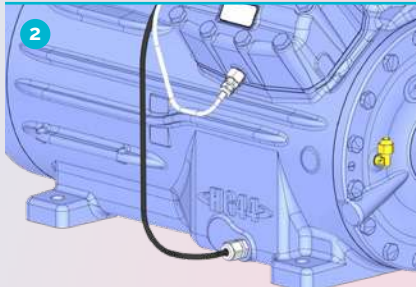
HG semi-hermetic compressors

Accessories

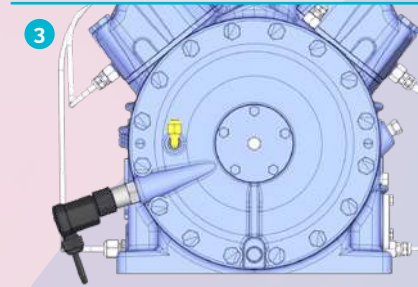
Thermal protection thermostat



Oil sump heater



Oil differential pressure sensor



Oil pressure safety switch



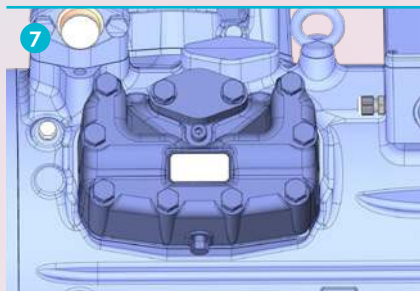
Oil service valve



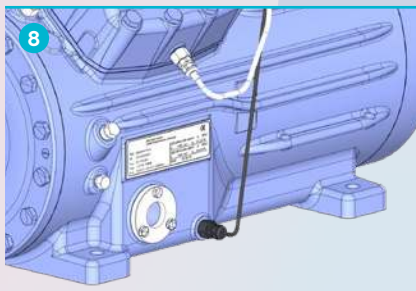
Capacity regulator



Prepared for capacity regulator



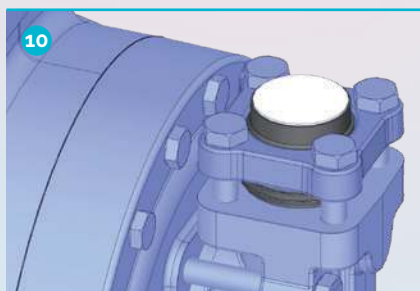
Oil temperature sensor



ESS Electronic Soft Start



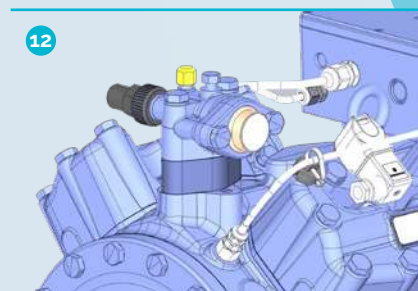
Connection piece in welded construction



Additional fan



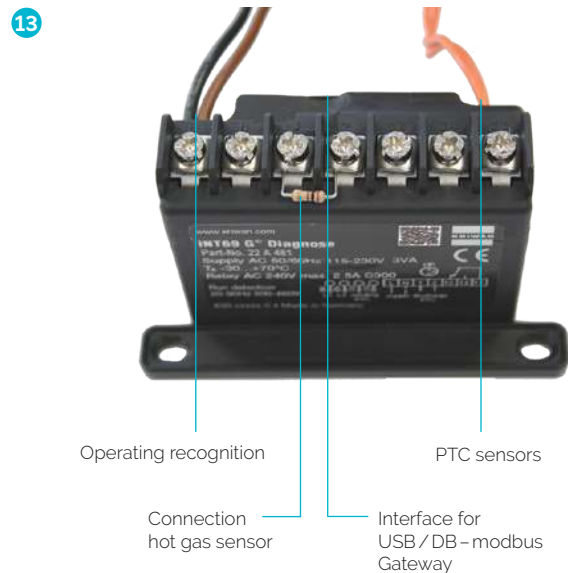
Intermediate flange for discharge line valve



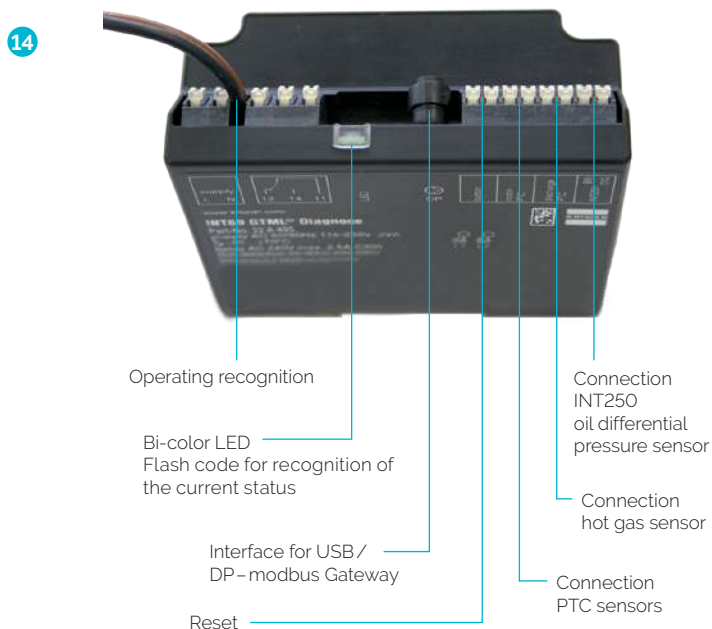
HG semi-hermetic compressors

Accessories

INT69 G Diagnose



INT69 GTML Diagnose



DP - modbus Gateway



Modbus - LAN Gateway



USB converter



INT69 G Motor Protection

Technical Data

Unit designation	INT69 G (Standard)	INT69 G Diagnose	INT69 GTML 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	AC 115–230 V - 1- 50/60 Hz ± 10% 3 VA
Relay	AC 240 V, 2.5 A, C300	AC 240 V, 2.5 A, C300	AC 240 V, 2.5 A, C300
Dimensions L/W/H	53 × 33 × 68 mm	50 × 33 × 68 mm	87 × 40 × 81.5 mm

HG semi-hermetic compressors

Accessories

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 it provides 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 into a network.

The data is 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.

Protection



Terminal box

Communication



Software





Bock HA semi-hermetic compressors

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- 76** Operating limits and performance data
- 88** Technical data
- 89** Dimensions and connections
- 94** Scope of supply & accessories

Bock HA22e – HA44e

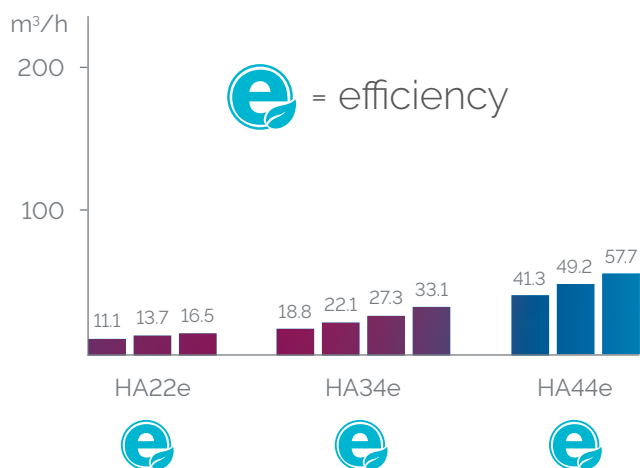


Bock HA semi-hermetic compressors

The “HA principle” of air-cooled compressors, specially developed by BOCK, is the most efficient semi-hermetic solution for low-temperature applications. It employs a direct-suction compressor combined with an air-cooled drive motor.

The current programm

3 model sizes with 10 capacity stages from 11.1 to 57.7 m³/h (50 Hz)



HA44e

HA semi-hermetic compressors

At a glance

Low-temperature applications place greater demands on compressors. This applies particularly to suction-gas-cooled semi-hermetic compressors. Within low-temperature applications the refrigerant mass flow is smaller and is heated up disproportionately by the drive motor. This has the following effects on the operation of the compressor.

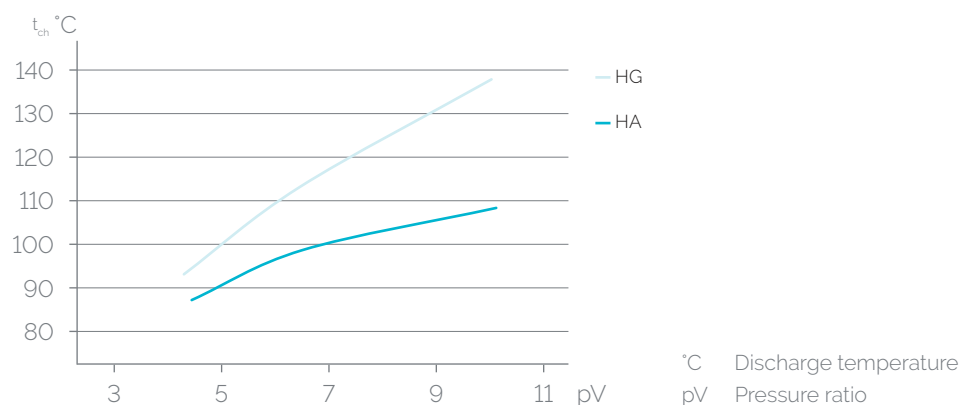
- The volumetric efficiency is reduced due to the decreasing specific density
- The discharge temperature and oil temperature are higher. This means that the oil ages more quickly and the lubrication properties deteriorate

This particularly affects refrigerants with a high isentropic exponent, such as the new HFO/HFC blends with lower GWP, which are envisaged as transitional R404A replacement refrigerants.

For these refrigerants in low-temperature applications with suction-gas-cooled semi-hermetic compressors it is important that special technical measures are envisaged for reduction of the discharge temperature!

The suction gas in BOCK air-cooled HA compressors is not heated additionally, but rather fed directly into the cylinders without diversions via the motor. A compact ventilation unit is integrated to cool the motor and provide air flow for the cylinder heads, partially cooling them as well. This solution reduces the discharge temperature, increasing capacity and extending the range of applications.

HA vs. HG R449A discharge temperature



Type key

HAX44e / 465-4

- Number of poles
- Swept volume
- Series ³⁾
- Number of cylinders
- Size
- Ester oil filling ²⁾
- Series ¹⁾

¹⁾ HA = Hermetic Air-Cooled (low temperature application)

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

³⁾ e = Additional marker for e-series compressors

P = Additional marker for Pluscom compressors

HA semi-hermetic compressors

Overview



HA22e



HA34e

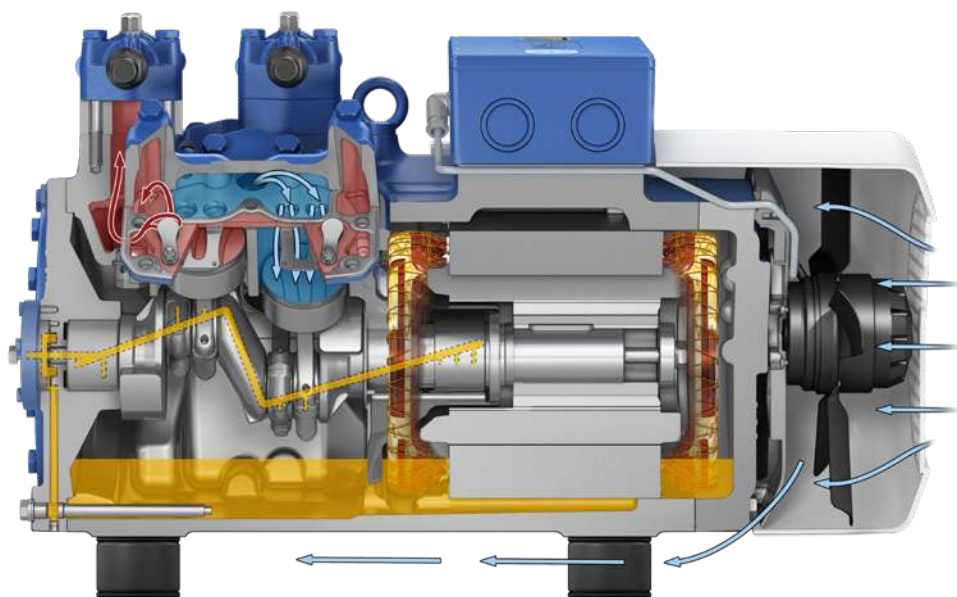


HA44e

HA semi-hermetic compressors

Overview

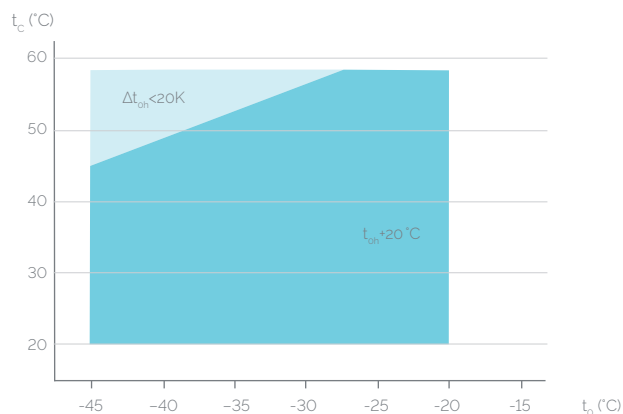
HA44e sectional drawing



HA semi-hermetic compressors

Operating limits

R404A/R507



t_o Evaporating temperature (°C)

t_c Condensing temperature (°C)

Δt_{oh} Suction gas superheat (K)

t_{oh} Suction gas temperature (°C)

● Unlimited application range

● Reduced suction gas temperature

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

¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

Restrictions to operating limits may occur when using a frequency converter. For further explanations consult www.bock.de.

Performance data

The performance data for R404A/R507 are based on European Standard EN 12900 with a 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 BOCK VAP software (vap.bock.de).

HA semi-hermetic compressors

Performance data

R404A/R507 | 50 Hz

Type			Cooling capacity Q_o [kW]					Power consumption	
			P_e [kW]						
			Evaporating temperature °C						
Cond. temp. °C			-20	-25	-30	-35	-40	-45	
HA22e/125-4	30	Q P	4730 1.91	3800 1.71	2990 1.51	2300 1.31	1720 1.13	1250 0.94	
		Q P	3960 2.09	3160 1.84	2470 1.60	1880 1.37	1390 1.14	978 0.92	
	50	Q P	3220 2.21	2540 1.92	1960 1.64	1460 1.36	1040 1.09	690 0.83	
		HA22e/160-4	30	Q P	5840 2.36	4690 2.11	3690 1.86	2830 1.62	2120 1.39
	Q P			4890 2.58	3900 2.27	3050 1.97	2320 1.69	1710 1.41	1210 1.13
	50		Q P	3970 2.73	3140 2.37	2420 2.02	1800 1.68	1290 1.35	851 1.03
HA22e/190-4			30	Q P	7070 2.86	5670 2.55	4460 2.25	3430 1.96	2570 1.68
	Q P			5920 3.12	4720 2.75	3690 2.39	2810 2.04	2070 1.70	1460 1.37
	50		Q P	4800 3.31	3800 2.87	2930 2.45	2180 2.04	1550 1.64	1030 1.24
		HA34e/215-4	30	Q P	8050 3.26	6450 2.90	5080 2.57	3900 2.24	2920 1.92
	Q P			6740 3.55	5380 3.13	4200 2.72	3200 2.33	2350 1.94	1670 1.56
	50		Q P	5470 3.77	4320 3.27	3330 2.79	2480 2.32	1770 1.86	1180 1.41
HA34e/255-4			30	Q P	9460 3.83	7590 3.42	5970 3.02	4590 2.63	3440 2.26
	Q P			7920 4.18	6320 3.68	4940 3.20	3760 2.74	2770 2.28	1960 1.84
	50		Q P	6430 4.43	5080 3.84	3920 3.28	2920 2.73	2080 2.19	1380 1.66
		HA34e/315-4	30	Q P	11700 4.73	9370 4.22	7370 3.73	5660 3.25	4240 2.79
	Q P			9780 5.16	7800 4.54	6090 3.95	4640 3.38	3420 2.82	2420 2.27
	50		Q P	7930 5.47	6270 4.75	4830 4.05	3600 3.37	2570 2.71	1710 2.06
HA34e/380-4			30	Q P	14200 5.50	11400 4.96	8910 4.39	6850 3.81	5130 3.22
	Q P			11900 5.95	9440 5.28	7370 4.58	5610 3.86	4130 3.16	2920 2.74
	50		Q P	9600 6.25	7590 5.43	5850 4.59	4360 3.74	3100 3.28	2060 2.07
		HA44e/475-4	30	Q P	18700 6.64	15100 6.01	11900 5.35	9100 4.66	6800 3.95
	Q P			15700 7.13	12600 6.32	9760 5.47	7430 4.62	5450 3.76	3810 2.91
	50		Q P	12900 7.44	10200 6.43	7830 5.41	5880 4.39	4230 3.38	2850 2.40
HA44e/565-4			30	Q P	21900 8.08	17600 7.36	13900 6.58	10800 5.77	8040 4.93
	Q P			18400 8.73	14700 7.79	11500 6.82	8770 5.83	6470 4.83	4530 3.84
	50		Q P	15100 9.17	11900 8.02	9230 6.85	6950 5.68	5020 4.52	3400 3.39
		HA44e/665-4	30	Q P	25000 9.33	20200 8.43	16000 7.49	12400 6.52	9310 5.53
	Q P			21100 10.10	16900 8.97	13300 7.79	10200 6.60	7480 5.42	5270 4.27
	50		Q P	17200 10.70	13700 9.29	10600 7.87	8010 6.47	5810 5.10	3960 3.78

Relating to 20 °C suction gas temperature
without liquid subcooling

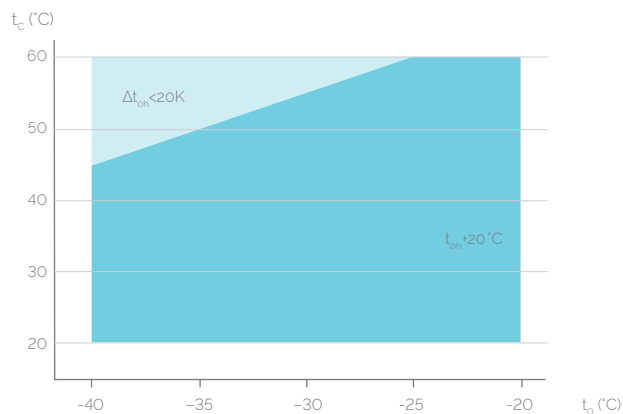
 Reduced suction gas temperature

vap.bock.de 

HA semi-hermetic compressors

Operating limits

R448A



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

- Unlimited application range
- Reduced suction gas temperature

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

¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

Restrictions to operating limits may occur when using a frequency converter. For further explanations consult www.bock.de.

Performance data

The performance data for R448A are based on European Standard EN 12900 with a 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 BOCK VAP software (vap.bock.de).

HA semi-hermetic compressors

Performance data

R448A | 50 Hz

Type		Cooling capacity $\dot{Q}_0$ [kW]				Power consumption	
						P_e [kW]	
		Evaporating temperature °C					
Cond. temp. °C		-20	-25	-30	-35	-40	
HA22e/125-4	30	Q	4190	3250	2450	1780	1230
		P	1.70	1.53	1.36	1.18	1.00
	40	Q	3530	2700	2000	1410	915
		P	1.81	1.59	1.38	1.16	0.96
	50	Q	2910	2190	1570	1060	631
		P	1.87	1.62	1.36	1.12	0.88
HA22e/160-4	30	Q	5220	4030	3020	2170	1470
		P	2.03	1.83	1.62	1.39	1.17
	40	Q	4420	3350	2450	1700	1070
		P	2.17	1.90	1.64	1.37	1.10
	50	Q	3640	2700	1910	1250	691
		P	2.25	1.93	1.61	1.30	1.00
HA22e/190-4	30	Q	6310	4940	3780	2810	2010
		P	2.48	2.23	1.97	1.71	1.45
	40	Q	5440	4210	3170	2300	1570
		P	2.67	2.35	2.03	1.71	1.40
	50	Q	4570	3470	2550	1780	1140
		P	2.80	2.41	2.03	1.66	1.30
HA34e/215-4	30	Q	6790	5230	3920	2810	1900
		P	2.59	2.32	2.03	1.74	1.44
	40	Q	5690	4300	3120	2130	1310
		P	2.78	2.41	2.04	1.67	1.31
	50	Q	4600	3370	2330	1460	731
		P	2.87	2.41	1.96	1.52	1.10
HA34e/255-4	30	Q	8250	6410	4850	3540	2460
		P	3.16	2.81	2.45	2.08	1.72
	40	Q	6980	5340	3960	2800	1840
		P	3.39	2.94	2.49	2.05	1.62
	50	Q	5740	4310	3100	2090	1240
		P	3.54	2.99	2.46	1.94	1.45
HA34e/315-4	30	Q	10400	8020	6020	4370	3010
		P	3.86	3.44	3.00	2.55	2.12
	40	Q	8790	6670	4890	3410	2220
		P	4.16	3.60	3.05	2.51	1.99
	50	Q	7190	5320	3770	2490	1460
		P	4.34	3.66	3.00	2.36	1.77
HA34e/380-4	30	Q	12700	9820	7430	5430	3780
		P	4.76	4.23	3.69	3.14	2.60
	40	Q	10800	8220	6070	4260	2770
		P	5.17	4.50	3.82	3.15	2.50
	50	Q	8860	6600	4690	3090	1760
		P	5.44	4.62	3.80	3.01	2.26
HA44e/475-4	30	Q	16300	12600	9480	6890	4750
		P	5.79	5.18	4.54	3.87	3.21
	40	Q	13900	10600	7750	5420	3490
		P	6.21	5.41	4.60	3.78	2.98
	50	Q	11500	8500	6040	3970	2250
		P	6.47	5.48	4.49	3.52	2.58
HA44e/565-4	30	Q	20200	15700	11900	8740	6130
		P	7.06	6.33	5.57	4.78	3.99
	40	Q	17400	13400	9920	7070	4710
		P	7.63	6.70	5.74	4.78	3.84
	50	Q	14600	11000	7950	5420	3310
		P	8.02	6.88	5.74	4.61	3.53
HA44e/665-4	30	Q	22800	17800	13600	9960	7030
		P	8.06	7.19	6.27	5.34	4.42
	40	Q	19700	15100	11300	8100	5450
		P	8.76	7.63	6.49	5.36	4.26
	50	Q	16500	12500	9090	6270	3910
		P	9.27	7.88	6.52	5.19	3.93

Relating to 20 °C suction gas temperature
without liquid subcooling

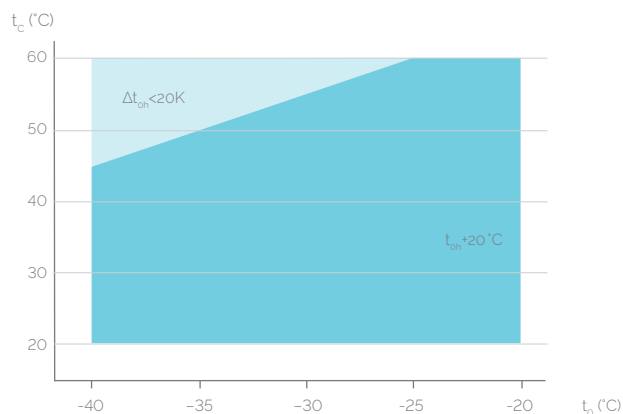
 Reduced suction gas temperature

vap.bock.de 

HA semi-hermetic compressors

Operating limits

R449A



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

- Unlimited application range
- Reduced suction gas temperature

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

¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

Restrictions to operating limits may occur when using a frequency converter. For further explanations consult www.bock.de.

Performance data

The performance data for R449A are based on European Standard EN 12900 with a 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 BOCK VAP software (vap.bock.de).

HA semi-hermetic compressors

Performance data

R449A | 50 Hz

Type		Cooling capacity $\dot{Q}_0$ [kW]				Power consumption	
						P_e [kW]	
		Evaporating temperature °C					
Cond. temp. °C		-20	-25	-30	-35	-40	
HA22e/125-4	30	Q	4170	3240	2440	1780	1230
		P	1.69	1.53	1.35	1.18	1.00
	40	Q	3520	2690	1990	1400	912
		P	1.80	1.59	1.37	1.16	0.96
	50	Q	2890	2170	1570	1060	628
		P	1.87	1.61	1.36	1.11	0.88
HA22e/160-4	30	Q	5200	4010	3010	2160	1470
		P	2.03	1.83	1.61	1.39	1.17
	40	Q	4400	3340	2440	1690	1070
		P	2.16	1.90	1.63	1.36	1.10
	50	Q	3620	2680	1900	1240	688
		P	2.24	1.92	1.60	1.29	1.00
HA22e/190-4	30	Q	6280	4920	3770	2800	2010
		P	2.47	2.22	1.96	1.70	1.44
	40	Q	5420	4190	3150	2290	1570
		P	2.66	2.34	2.02	1.70	1.40
	50	Q	4540	3450	2540	1770	1130
		P	2.79	2.40	2.02	1.65	1.30
HA34e/215-4	30	Q	6760	5220	3900	2810	1900
		P	2.59	2.31	2.03	1.74	1.44
	40	Q	5670	4280	3110	2130	1310
		P	2.76	2.40	2.03	1.67	1.31
	50	Q	4580	3350	2320	1450	728
		P	2.86	2.40	1.96	1.52	1.10
HA34e/255-4	30	Q	8220	6390	4830	3530	2460
		P	3.15	2.80	2.44	2.08	1.72
	40	Q	6940	5320	3940	2790	1830
		P	3.37	2.93	2.48	2.04	1.62
	50	Q	5700	4280	3080	2080	1240
		P	3.52	2.98	2.45	1.94	1.45
HA34e/315-4	30	Q	10400	7990	6010	4360	3010
		P	3.85	3.42	2.99	2.55	2.11
	40	Q	8740	6640	4870	3400	2210
		P	4.14	3.59	3.04	2.50	1.99
	50	Q	7150	5290	3750	2480	1450
		P	4.32	3.65	2.99	2.36	1.77
HA34e/380-4	30	Q	12600	9790	7410	5420	3770
		P	4.74	4.22	3.68	3.14	2.60
	40	Q	10800	8180	6040	4250	2760
		P	5.15	4.48	3.81	3.14	2.49
	50	Q	8800	6560	4660	3070	1750
		P	5.42	4.60	3.79	3.00	2.25
HA44e/475-4	30	Q	16200	12600	9450	6870	4740
		P	5.77	5.16	4.52	3.86	3.20
	40	Q	13800	10500	7720	5400	3480
		P	6.19	5.39	4.58	3.77	2.97
	50	Q	11400	8450	6000	3950	2240
		P	6.44	5.46	4.47	3.51	2.58
HA44e/565-4	30	Q	20100	15700	11900	8720	6120
		P	7.03	6.31	5.55	4.77	3.98
	40	Q	17300	13300	9880	7050	4690
		P	7.60	6.67	5.72	4.77	3.83
	50	Q	14500	11000	7910	5390	3290
		P	7.99	6.85	5.72	4.60	3.52
HA44e/665-4	30	Q	22700	17700	13500	9940	7020
		P	8.04	7.16	6.26	5.33	4.41
	40	Q	19600	15100	11300	8070	5430
		P	8.73	7.60	6.47	5.34	4.25
	50	Q	16400	12400	9040	6240	3890
		P	9.23	7.85	6.49	5.18	3.92

Relating to 20 °C suction gas temperature
without liquid subcooling

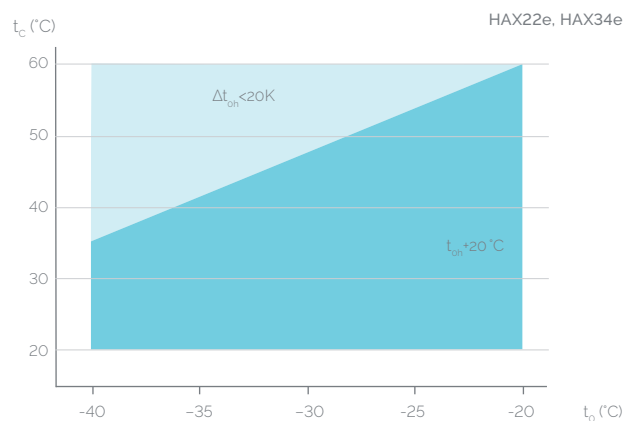
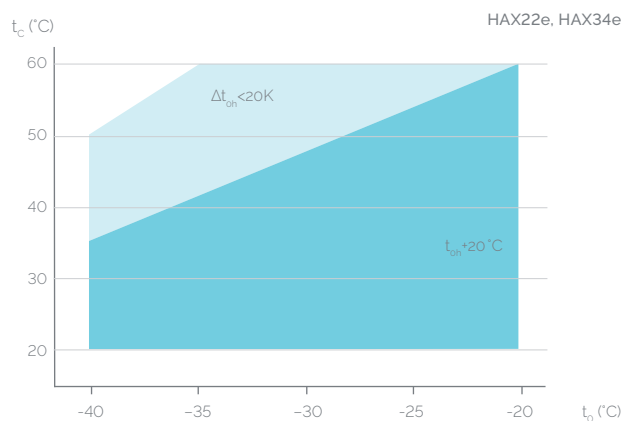
 Reduced suction gas temperature

vap.bock.de 

HA semi-hermetic compressors

Operating limits

R407A



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

● Unlimited application range
 ● Reduced suction gas temperature

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

¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

Restrictions to operating limits may occur when using a frequency converter. For further explanations consult www.bock.de.

Performance data

The performance data for R407A are based on European Standard EN 12900 with a 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 BOCK VAP software (vap.bock.de).

HA semi-hermetic compressors

Performance data

R407A | 50 Hz

Type		Cooling capacity Q_o [kW]					Power consumption	
							P_e [kW]	
		Evaporating temperature °C						
Cond. temp. °C		-20	-25	-30	-35	-40		
HA22e/125-4	30	Q	4090	3120	2330	1680	1140	
		P	1.65	1.48	1.30	1.12	0.95	
	40	Q	3460	2600	1900	1310	804	
		P	1.76	1.53	1.30	1.08	0.88	
	50	Q	2830	2070	1450	923	454	
		P	1.81	1.53	1.26	1.00	0.77	
HA22e/160-4	30	Q	5110	3890	2870	2030	1350	
		P	1.98	1.77	1.54	1.32	1.10	
	40	Q	4330	3230	2310	1550	920	
		P	2.10	1.82	1.54	1.27	1.00	
	50	Q	3530	2550	1730	1060	503	
		P	2.16	1.82	1.48	1.15	0.84	
HA22e/190-4	30	Q	6160	4750	3610	2670	1880	
		P	2.41	2.15	1.88	1.62	1.36	
	40	Q	5330	4060	3020	2150	1400	
		P	2.59	2.25	1.92	1.59	1.29	
	50	Q	4440	3310	2370	1560	844	
		P	2.70	2.28	1.87	1.48	1.12	
HA34e/215-4	30	Q	6700	5120	3790	2680	1770	
		P	2.51	2.25	1.97	1.68	1.39	
	40	Q	5630	4200	3000	2000	1170	
		P	2.69	2.33	1.97	1.60	1.24	
	50	Q	4540	3260	2200	1310	561	
		P	2.78	2.32	1.87	1.42	1.00	
HA34e/255-4	30	Q	8160	6290	4710	3390	2310	
		P	3.05	2.71	2.37	2.01	1.66	
	40	Q	6920	5240	3820	2640	1660	
		P	3.28	2.85	2.40	1.96	1.54	
	50	Q	5680	4190	2940	1900	1030	
		P	3.43	2.89	2.35	1.83	1.33	
HA34e/315-4	30	Q	10300	7850	5850	4180	2810	
		P	3.76	3.33	2.88	2.42	1.97	
	40	Q	8630	6500	4710	3220	1990	
		P	4.04	3.48	2.91	2.35	1.80	
	50	Q	7060	5180	3600	2280	1200	
		P	4.21	3.51	2.83	2.16	1.52	
HA34e/380-4	30	Q	12500	9590	7220	5230	3540	
		P	4.64	4.10	3.55	2.98	2.42	
	40	Q	10600	8010	5870	4060	2480	
		P	5.03	4.35	3.65	2.95	2.26	
	50	Q	8690	6420	4500	2860	1390	
		P	5.28	4.44	3.60	2.76	1.95	
HA44e/475-4	30	Q	15800	12200	9080	6510	4400	
		P	5.69	5.08	4.44	3.78	3.11	
	40	Q	13400	10100	7350	5050	3160	
		P	6.08	5.28	4.46	3.64	2.84	
	50	Q	11000	8090	5650	3620	1940	
		P	6.30	5.31	4.32	3.35	2.41	
HA44e/565-4	30	Q	19600	15200	11400	8280	5710	
		P	6.94	6.22	5.45	4.66	3.88	
	40	Q	16800	12800	9430	6630	4310	
		P	7.48	6.54	5.58	4.63	3.69	
	50	Q	14100	10500	7490	5000	2940	
		P	7.83	6.69	5.54	4.42	3.34	
HA44e/665-4	30	Q	22200	17200	13000	9450	6560	
		P	7.93	7.05	6.14	5.21	4.29	
	40	Q	19000	14600	10800	7600	5000	
		P	8.58	7.44	6.30	5.18	4.09	
	50	Q	15900	11900	8570	5800	3490	
		P	9.03	7.65	6.29	4.97	3.72	

Relating to 20 °C suction gas temperature
without liquid subcooling

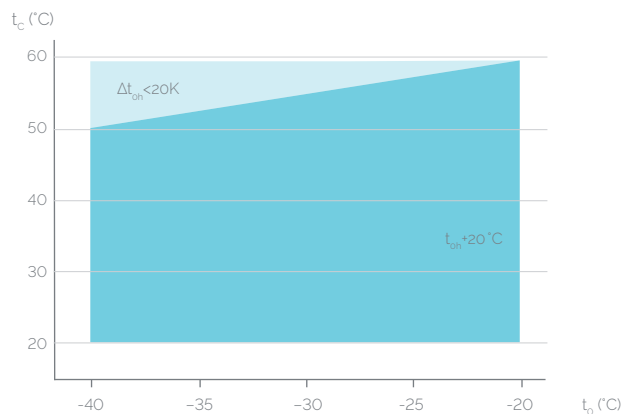
 Reduced suction gas temperature

vap.bock.de 

HA semi-hermetic compressors

Operating limits

R407F



t_o Evaporating temperature (°C)

t_c Condensing temperature (°C)

Δt_{oh} Suction gas superheat (K)

t_{oh} Suction gas temperature (°C)

● Unlimited application range

● Reduced suction gas temperature

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

¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

Restrictions to operating limits may occur when using a frequency converter. For further explanations consult www.bock.de.

Performance data

The performance data for R407F are based on European Standard EN 12900 with a 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 BOCK VAP software (vap.bock.de).

HA semi-hermetic compressors

Performance data

R407F | 50 Hz

Type		Cooling capacity Q_o [kW]				Power consumption	
						P_e [kW]	
		Evaporating temperature °C					
Cond. temp. °C		-20	-25	-30	-35	-40	
HA22e/125-4	30	Q	4300	3270	2420	1730	1190
		P	1.72	1.54	1.35	1.17	1.00
	40	Q	3670	2740	1990	1380	912
		P	1.84	1.60	1.37	1.15	0.96
	50	Q	3030	2220	1570	1060	669
		P	1.90	1.62	1.35	1.11	0.90
HA22e/160-4	30	Q	5370	4060	2980	2110	1420
		P	2.06	1.84	1.61	1.38	1.17
	40	Q	4590	3400	2440	1660	1060
		P	2.20	1.91	1.62	1.36	1.11
	50	Q	3790	2750	1900	1230	722
		P	2.28	1.93	1.59	1.29	1.02
HA22e/190-4	30	Q	6490	4990	3750	2740	1960
		P	2.52	2.24	1.96	1.70	1.45
	40	Q	5660	4280	3160	2260	1580
		P	2.72	2.36	2.02	1.70	1.41
	50	Q	4770	3540	2550	1780	1210
		P	2.84	2.41	2.01	1.65	1.33
HA34e/215-4	30	Q	7030	5370	3970	2820	1910
		P	2.67	2.37	2.06	1.75	1.45
	40	Q	5930	4440	3180	2150	1330
		P	2.86	2.47	2.07	1.68	1.32
	50	Q	4800	3480	2360	1450	726
		P	2.94	2.45	1.97	1.51	1.09
HA34e/255-4	30	Q	8540	6570	4920	3560	2480
		P	3.25	2.87	2.48	2.09	1.73
	40	Q	7270	5510	4040	2840	1880
		P	3.49	3.00	2.52	2.06	1.64
	50	Q	6000	4450	3170	2120	1290
		P	3.63	3.05	2.48	1.94	1.46
HA34e/315-4	30	Q	10800	8160	6000	4240	2860
		P	4.03	3.53	3.03	2.54	2.09
	40	Q	9110	6770	4860	3320	2120
		P	4.33	3.69	3.07	2.49	1.97
	50	Q	7460	5410	3760	2450	1450
		P	4.50	3.73	3.01	2.35	1.78
HA34e/380-4	30	Q	13100	9990	7400	5280	3580
		P	4.97	4.36	3.74	3.14	2.57
	40	Q	11200	8350	6030	4140	2630
		P	5.38	4.61	3.85	3.13	2.47
	50	Q	9190	6700	4650	3010	1720
		P	5.64	4.71	3.82	3.00	2.25
HA44e/475-4	30	Q	17000	13000	9640	6910	4670
		P	5.99	5.34	4.65	3.95	3.25
	40	Q	14500	11000	7980	5560	3570
		P	6.42	5.59	4.75	3.93	3.13
	50	Q	11900	8800	6260	4170	2460
		P	6.68	5.67	4.69	3.75	2.87
HA44e/565-4	30	Q	21100	16200	12100	8770	6050
		P	7.30	6.52	5.72	4.89	4.05
	40	Q	18200	13900	10300	7270	4850
		P	7.88	6.91	5.94	4.99	4.06
	50	Q	15200	11400	8270	5730	3640
		P	8.28	7.13	6.01	4.94	3.94
HA44e/665-4	30	Q	23900	18300	13800	10100	6950
		P	8.35	7.42	6.45	5.47	4.49
	40	Q	20600	15700	11700	8350	5620
		P	9.07	7.90	6.73	5.60	4.53
	50	Q	17200	13000	9480	6650	4310
		P	9.59	8.19	6.86	5.60	4.45

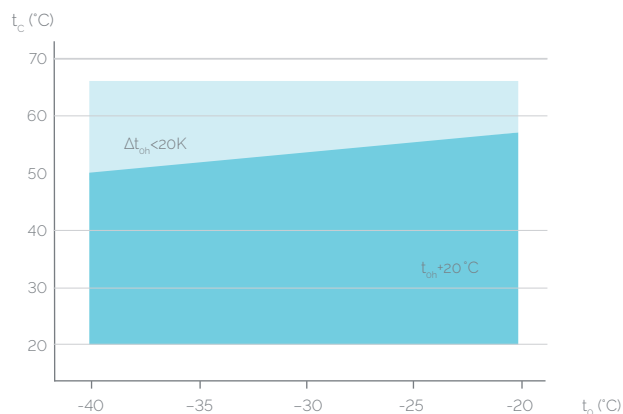
Relating to 20 °C suction gas temperature
without liquid subcooling



HA semi-hermetic compressors

Operating limits

R22



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

- Unlimited application range
- Reduced suction gas temperature

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

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

Restrictions to operating limits may occur when using a frequency converter. For further explanations consult www.bock.de.

Performance data

The performance data for R22 are based on European Standard EN 12900 with a 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. A comprehensive modification to 20 °C suction gas temperature will follow at a later date.

Conversion factor for 60 Hz = 1.2

Performance data for other operating points, see BOCK VAP software (vap.bock.de).

HA semi-hermetic compressors

Performance data

R22 | 50 Hz

Type		Cooling capacity Q_o [kW]				Power consumption	
						P_e [kW]	
		Evaporating temperature °C					
Cond. temp. °C		-20	-25	-30	-35	-40	
HA22e/125-4	30	Q	4270	3360	2590	1930	1390
		P	1.73	1.58	1.42	1.26	1.09
	40	Q	3710	2890	2190	1600	1100
		P	1.86	1.67	1.47	1.27	1.07
	50	Q	3180	2440	1820	1290	836
		P	1.96	1.73	1.49	1.25	1.03
HA22e/160-4	30	Q	5330	4180	3200	2370	1680
		P	2.07	1.89	1.70	1.50	1.29
	40	Q	4650	3600	2700	1950	1310
		P	2.23	2.00	1.75	1.50	1.26
	50	Q	3980	3040	2230	1540	960
		P	2.35	2.06	1.77	1.48	1.19
HA22e/190-4	30	Q	6400	5080	3960	3010	2230
		P	2.52	2.29	2.06	1.82	1.57
	40	Q	5670	4460	3430	2560	1840
		P	2.74	2.45	2.15	1.86	1.57
	50	Q	4950	3840	2910	2120	1450
		P	2.92	2.56	2.21	1.86	1.52
HA34e/215-4	30	Q	6950	5450	4180	3100	2200
		P	2.65	2.41	2.15	1.89	1.62
	40	Q	6030	4660	3490	2500	1670
		P	2.87	2.55	2.22	1.88	1.54
	50	Q	5110	3870	2800	1900	1140
		P	3.04	2.63	2.21	1.80	1.41
HA34e/255-4	30	Q	8420	6640	5130	3850	2780
		P	3.22	2.90	2.58	2.24	1.91
	40	Q	7340	5720	4350	3190	2220
		P	3.49	3.09	2.68	2.27	1.86
	50	Q	6290	4840	3600	2560	1680
		P	3.71	3.21	2.72	2.23	1.77
HA34e/315-4	30	Q	10600	8310	6380	4750	3410
		P	3.92	3.55	3.15	2.75	2.35
	40	Q	9240	7150	5390	3910	2690
		P	4.29	3.79	3.28	2.78	2.29
	50	Q	7890	6010	4420	3090	1990
		P	4.56	3.94	3.32	2.73	2.16
HA34e/380-4	30	Q	12900	10200	7830	5880	4250
		P	4.82	4.35	3.86	3.36	2.85
	40	Q	11300	8780	6650	4850	3350
		P	5.31	4.70	4.08	3.45	2.84
	50	Q	9670	7400	5460	3820	2430
		P	5.68	4.92	4.17	3.43	2.71
HA44e/475-4	30	Q	16600	13100	10100	7510	5390
		P	5.88	5.35	4.77	4.17	3.56
	40	Q	14600	11300	8550	6220	4270
		P	6.40	5.69	4.95	4.19	3.44
	50	Q	12600	9580	7070	4940	3150
		P	6.79	5.89	4.98	4.08	3.19
HA44e/565-4	30	Q	20500	16200	12500	9420	6850
		P	7.15	6.51	5.82	5.10	4.37
	40	Q	18100	14200	10900	7970	5590
		P	7.83	6.98	6.11	5.23	4.34
	50	Q	15800	12200	9120	6520	4330
		P	8.35	7.31	6.26	5.21	4.18
HA44e/665-4	30	Q	23200	18400	14300	10800	7850
		P	8.17	7.39	6.57	5.72	4.86
	40	Q	20500	16100	12300	9120	6450
		P	8.99	7.97	6.92	5.87	4.84
	50	Q	17900	13900	10500	7520	5070
		P	9.65	8.38	7.12	5.88	4.68

Relating to 20 °C suction gas temperature
without liquid subcooling

 Reduced suction gas temperature

vap.bock.de 

HA semi-hermetic compressors

Technical data

HA

Type	Number of cylinders	Displacement		Electrical data						Weight	Connections ⁵⁾				Oil charge	Fre- quency range
				Voltage ¹⁾	Max. Working current ²⁾	Max. Power consump- tion ²⁾	Starting current (rotor locked)	Discharge line DV			Suction line SV					
m³/h		A		kW		A		kg								
	50 Hz 1450 rpm	60 Hz 1740 rpm		Δ	Y		Δ	Y		mm	inch	mm	inch	Ltr.	Hz	
HA22e/125-4	2	11.10	13.30	³⁾	8.1	4.7	2.4	69	40	75.5	12	1½	16	5⁄8	0.9	30–70
HA22e/160-4	2	13.70	16.40	³⁾	9.6	5.5	2.9	87	50	77.5	12	1½	16	5⁄8	0.9	30–70
HA22e/190-4	2	16.50	19.80	³⁾	10.9	6.3	3.5	87	50	76.5	12	1½	16	5⁄8	0.9	30–70
HA34e/215-4	4	18.80	22.60	³⁾	12.1	7.0	4.0	87	50	94.0	16	5⁄8	22	7⁄8	1.2	25–70
HA34e/255-4	4	22.10	26.60	³⁾	13.8	8.0	4.7	87	50	93.5	16	5⁄8	22	7⁄8	1.2	25–70
HA34e/315-4	4	27.30	32.80	³⁾	17.1	9.9	5.8	111	64	96.5	16	5⁄8	22	7⁄8	1.2	25–70
HA34e/380-4	4	33.10	39.70	³⁾	19.4	11.2	6.4	132	76	96.0	16	5⁄8	22	7⁄8	1.2	25–70
	PW 1+2*						PW1/PW1+2*									
HA44e/475-4	4	41.30	49.60	⁴⁾	15.2		7.6	87	149	174.0	28	1⅞	35	1⅜	2.3	25–70
HA44e/565-4	4	49.20	59.00	⁴⁾	18.3		9.4	101	174	178.5	28	1⅞	35	1⅜	2.3	25–70
HA44e/665-4	4	57.70	69.30	⁴⁾	20.3		11.0	101	174	173.5	28	1⅞	35	1⅜	2.3	25–70

*PW = Part Winding, motors for part winding start

1 = first part winding

2 = second part winding

Explanations

- 1) Tolerance ($\pm 10\%$) 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) 220 – 240 V Δ / 380 – 420 V Y - 3 - 50 Hz,
265 – 290 V Δ / 440 – 480 V Y - 3 - 60 Hz

- 4) PW = Part Winding, motors for part winding start (no start unloaders required)
• Winding ratios: HA44e = 50 % / 50 %
• Designs for Y/ Δ on request

- 5) For soldering connections

Oil sump heater 110-240 V - 1 - 50 / 60 Hz (option)

- HA22e, HA34e: 50-120 W
- PTC heater, self-regulating, installation in housing bore

Fan motors for the HA version 230 V - 1 - 50/60 Hz

- HA22e, HA34e: 38 W / 0.17 A
- HA44e: 140 W / 0.71 A

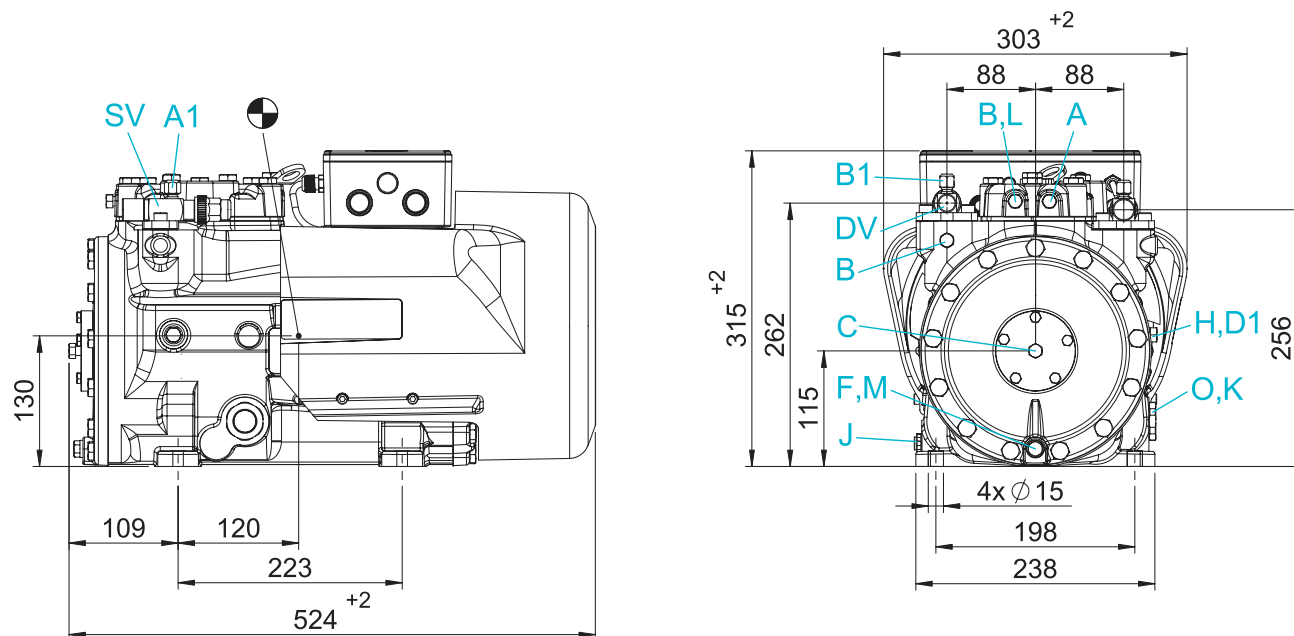
Oil sump heater 230 V - 1 - 50 / 60 Hz (option)

- HA44e: 160 W
- Permanently set version, installation in immersion sleeve

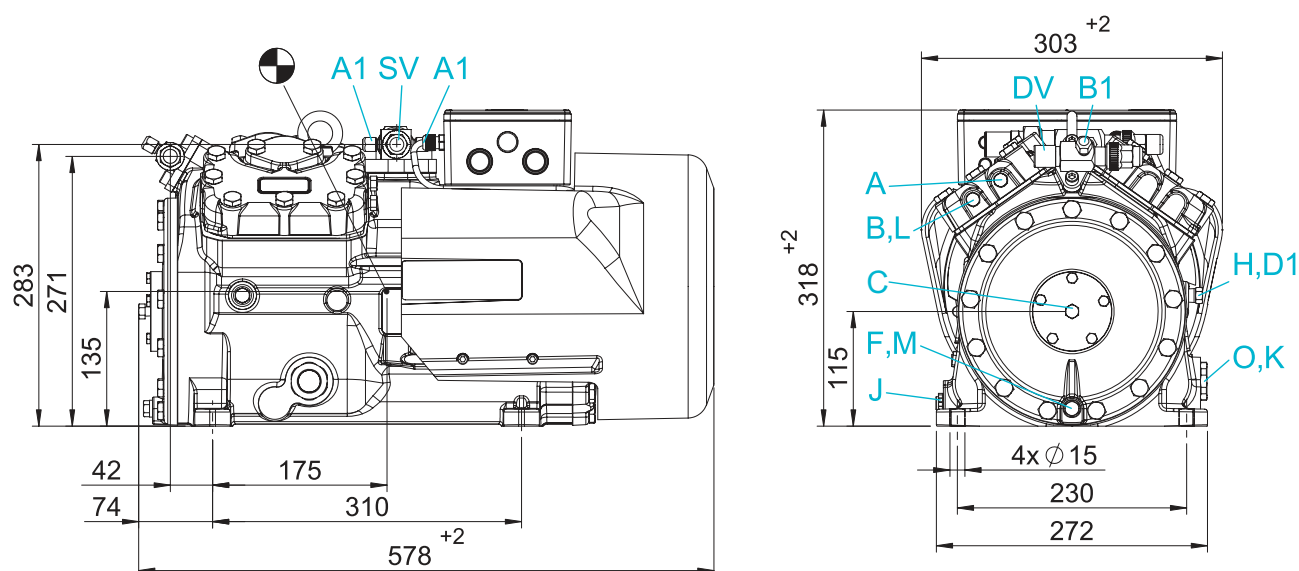
HA semi-hermetic compressors

Dimensions and connections

HA22e » HA22e/125-4 » HA22e/160-4 » HA22e/190-4



HA34e » HA34e/215-4 » HA34e/255-4 » HA34e/315-4 » HA34e/380-4



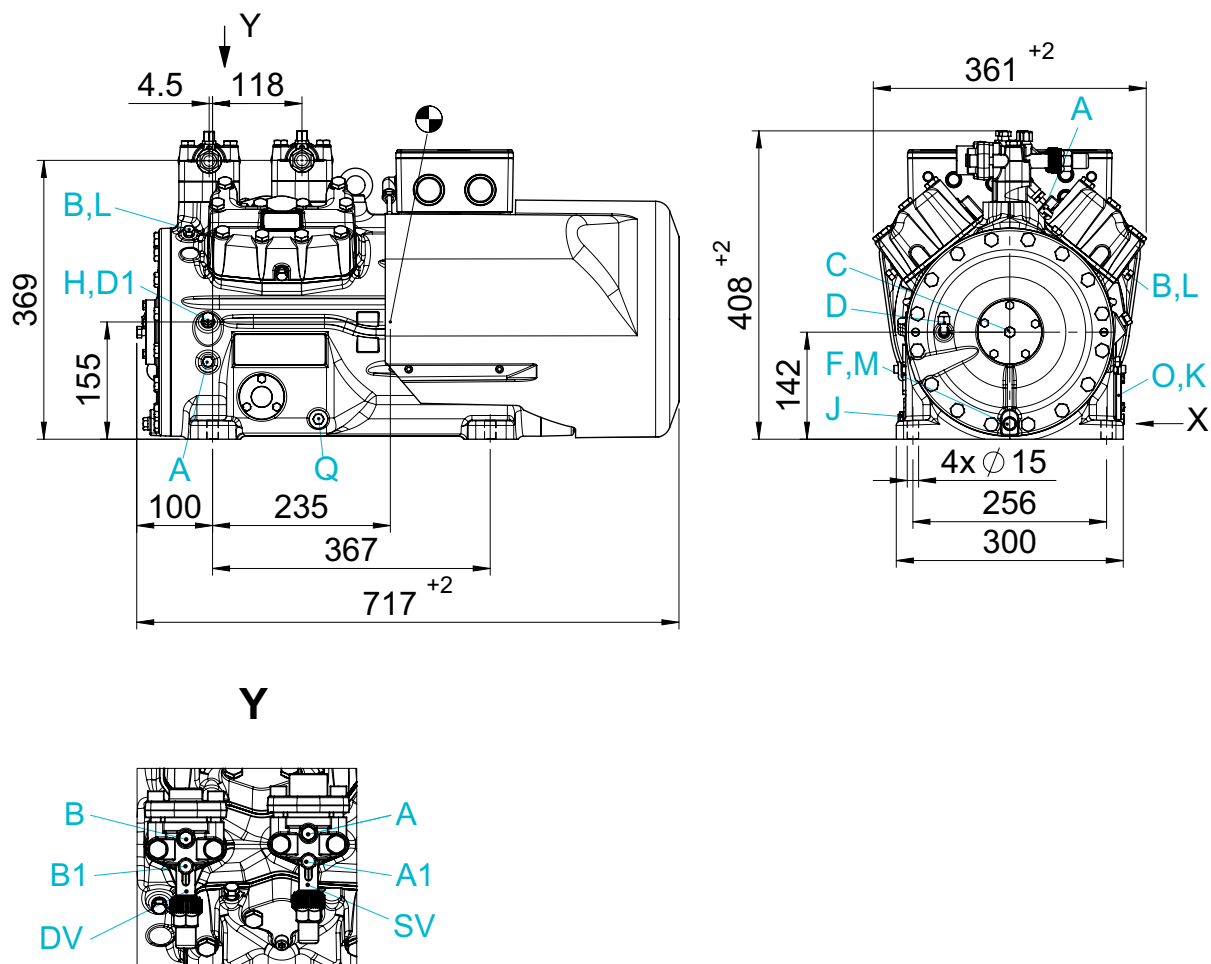
Dimensions in mm
 ● Center of gravity

Connections see page 93
 Dimensions for anti-vibration pad see page 91
 Dimensions for view X see page 91

HA semi-hermetic compressors

Dimensions and connections

HA44e » HA44e/475-4 » HA44e/565-4 » HA44e/665-4



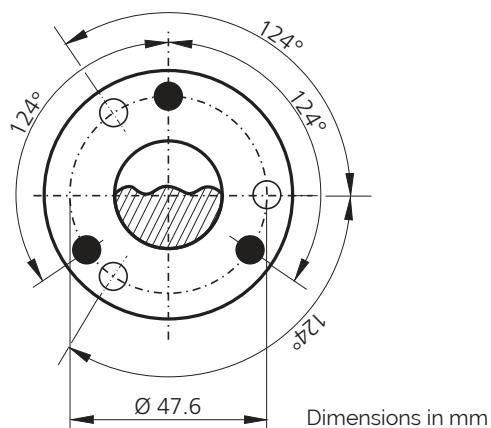
Dimensions in mm
 ● Center of gravity

Connections see page 93
 Dimensions for anti-vibration pad see page 91
 Dimensions for view X see page 91

HA semi-hermetic compressors

Dimensions and connections

View X



Possibility to connect to oil level regulator

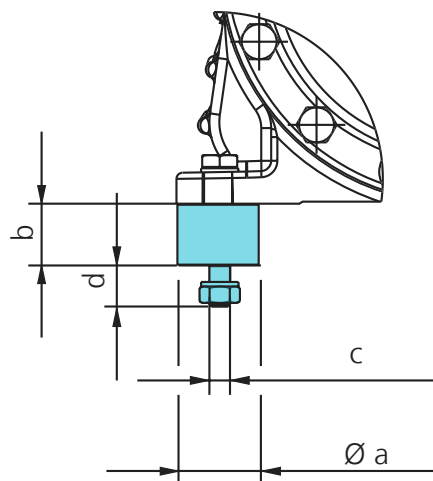
HA44e

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

Dimensions for anti-vibration pad

Type	Ø a	b	c	d
HA22e	40	30	M10	20
HA34e	40	30	M10	20
HA44e	50	30	M12	25

Dimensions in mm

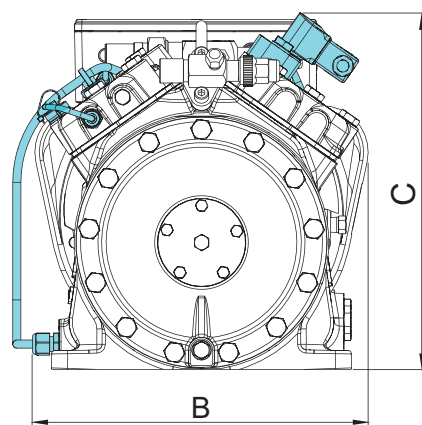
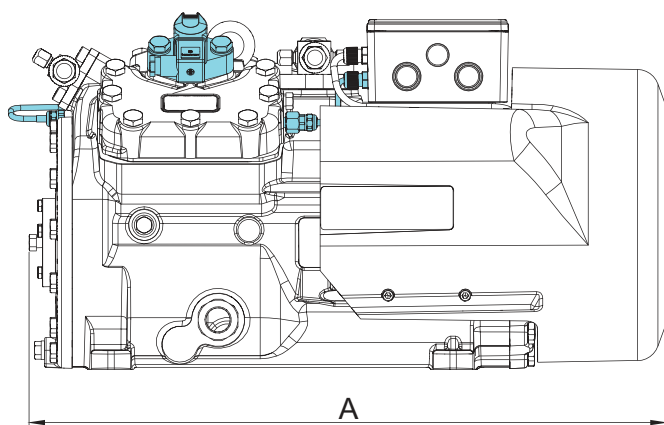


HA semi-hermetic compressors

Dimensions and connections

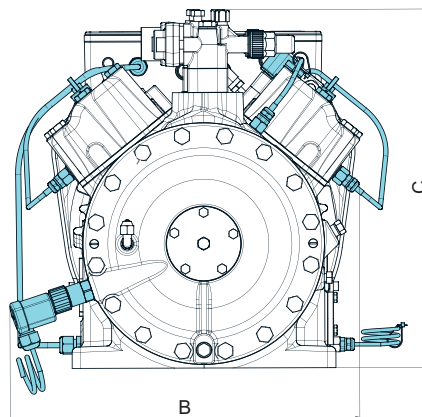
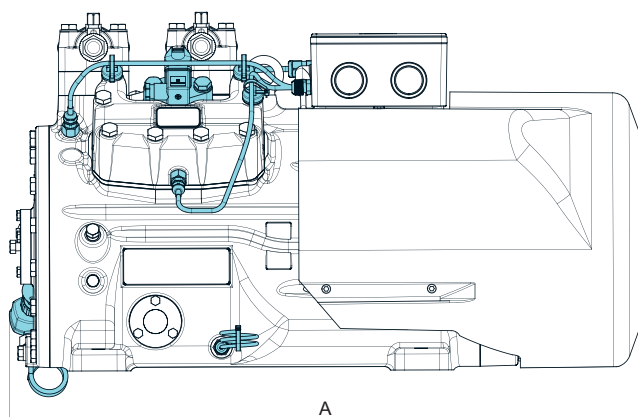
HA22e HA34e

Dimensions with accessories



HA44e

Dimensions with accessories



Type	A	B	C
HA22e	ca. 525	ca. 305	ca. 315
HA34e	ca. 600	ca. 305	ca. 325
HA44e	ca. 720	ca. 400	ca. 410

Dimensions in mm

HA semi-hermetic compressors

Connections

HA22e HA34e HA44e				
Connections		HA22e	HA34e	HA44e
SV	Suction line	Please refer to technical data page 88		
DV	Discharge line			
A	Connection suction side, not lockable	$\frac{1}{8}"$ NPTF	$\frac{1}{8}"$ NPTF	$\frac{1}{8}"$ NPTF
A1	Connection suction side, lockable	$\frac{7}{16}"$ UNF	$\frac{7}{16}"$ UNF	$\frac{7}{16}"$ UNF
B	Connection discharge side, not lockable	$\frac{1}{8}"$ NPTF	$\frac{1}{8}"$ NPTF	$\frac{1}{8}"$ NPTF
B1	Connection discharge side, lockable	$\frac{7}{16}"$ UNF	$\frac{7}{16}"$ UNF	$\frac{7}{16}"$ UNF
C	Connection oil pressure safety switch HP	$\frac{1}{8}"$ NPTF	$\frac{1}{8}"$ NPTF	$\frac{1}{8}"$ NPTF
D	Connection oil pressure safety switch LP	-	-	$\frac{7}{16}"$ UNF
D1	Connection oil return from oil separator	$\frac{1}{4}"$ NPTF	$\frac{1}{4}"$ NPTF	$\frac{1}{4}"$ NPTF
F	Oil drain plug	M12 x 1.5	M12 x 1.5	M12 x 1.5
H	Oil charge plug	$\frac{1}{4}"$ NPTF	$\frac{1}{4}"$ NPTF	$\frac{1}{4}"$ NPTF
J	Connection oil sump heater	$\frac{3}{8}"$ NPTF	$\frac{3}{8}"$ NPTF	$\frac{3}{8}"$ NPTF
K	Sight glass	$1\frac{1}{8}"-18$ UNEF	$1\frac{1}{8}"-18$ UNEF	3 hole M6
L	Connection thermal protection thermostat	$\frac{1}{8}"$ NPTF	$\frac{1}{8}"$ NPTF	$\frac{1}{8}"$ NPTF
M	Oil strainer	M12 x 1.5	M12 x 1.5	M12 x 1.5
O	Connection oil level regulator	$1\frac{1}{8}"-18$ UNEF	$1\frac{1}{8}"-18$ UNEF	3 hole M6
Q	Connection oil temperature sensor	-	-	$\frac{1}{8}"$ NPTF

HA semi-hermetic compressors

Scope of supply and accessories

	HA22e	HA34e	HA44e
Semi-hermetic two-cylinder reciprocating compressor with drive motor for direct start 220 – 240 V Δ / 380 – 420 V Y - 3 - 50 Hz 265 – 290 V Δ / 440 – 480 V Y - 3 - 60 Hz	●	–	–
Semi-hermetic four-cylinder reciprocating compressor with drive motor for direct start 220 – 240 V Δ / 380 – 420 V Y - 3 - 50 Hz 265 – 290 V Δ / 440 – 480 V Y - 3 - 60 Hz	–	●	–
Semi-hermetic four-cylinder reciprocating compressor with drive motor for part winding start (50/50) 380 – 420 V Y/YY - 3 - 50 Hz 440 – 480 V Y/YY - 3 - 60 Hz	–	–	●
Special voltage and/or frequency	○ ³⁾	○ ³⁾	○ ³⁾
Motor is cooled by an integrated fan with air deflection hood 230 V - 1 - 50 / 60 Hz, IP44 38 W, 0.17	●	●	–
Motor is cooled by an integrated fan with air deflection hood 230 V - 1 - 50 / 60 Hz, IP44 140 W, 0.71 A	–	–	●
Winding protection with PTC resistor sensors with electronic triggering unit INT69 G	●	●	●
1 Thermal protection PTC	○ ²⁾	○ ²⁾	○ ²⁾
Oil pump	●	●	●
Oil charge; HA: FUCHS Reniso SP46, HAX: FUCHS Reniso Triton SE55	●	●	●
Inert gas charge	●	●	●
4 anti-vibration pads	● ¹⁾	● ¹⁾	● ¹⁾
Internal safety valve	–	–	●
Suction and discharge line valve	●	●	●
Sight glasses	●	●	●
2 Oil sump heater 110 – 240 V - 1 - 50 / 60 Hz, 50 – 120 W, PTC heater, self-regulating	○ ²⁾	○ ²⁾	–
220 – 240 V - 1 - 50 / 60 Hz, 160 W	–	–	○ ²⁾
Rear bearing flange prepared for oil differential pressure sensor	–	–	○ ²⁾
3 Oil differential pressure sensor DELTA-P II 220 – 240 V - 1 - 50 / 60 Hz	–	–	○ ¹⁾
4 Oil pressure safety switch 230 V - 1 - 50/60 Hz, IP20 MP54	–	–	○ ¹⁾
230 V - 1 - 50/60 Hz, IP20 MP55	○ ¹⁾	○ ¹⁾	–
6 Capacity regulator 230 V - 1 - 50 / 60 Hz, IP65	–	○ ²⁾	○ ²⁾
1 capacity regulator = 50 % residual capacity	–	○ ²⁾	○ ²⁾

¹⁾ Enclosed ²⁾ Mounted ³⁾ On request

⁴⁾ Only possible with additional adapter

● Scope of supply (standard)

○ Available accessories

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● Pictures see page 67/68

HA semi-hermetic compressors

Scope of supply and accessories

	HA22e	HA34e	HA44e
7 Prepared for capacity regulator (1 cylinder cover)	–	● ²⁾	● ²⁾
8 Oil temperature sensor	–	–	● ²⁾
Start unloader by means of ESS (Electronic Soft Start)			
9 400 V – 3 – 50 / 60 Hz, IP20, (connection clamps IP00) for installation in switch cabinet	● ¹⁾	● ¹⁾	● ¹⁾
12 Intermediate flange for discharge line valve on right or left, seen from oil pump	–	–	● ¹⁾
13 INT69 G Diagnose 115 / 230 V Ac, 50 / 60 Hz, IP00 (INT69 G not applicable)	● ²⁾	● ²⁾	● ²⁾
15 DP – modbus gateway 115 / 230 V Ac, 50 / 60 Hz, IP00 incl. adapter cable	● ¹⁾	● ¹⁾	● ¹⁾
16 Modbus – LAN gateway 230 V Ac, 50 / 60 Hz, IP00	● ¹⁾	● ¹⁾	● ¹⁾
17 USB converter for INT69 G Diagnose and INT69 GTML Diagnose	● ¹⁾	● ¹⁾	● ¹⁾
Connection for oil level regulator of brands ESK, AC+ R or CARLY	● ⁴⁾	● ⁴⁾	●
Connection for oil level regulator of brand Traxoil	● ⁴⁾	● ⁴⁾	● ⁴⁾

¹⁾ Enclosed ²⁾ Mounted ³⁾ On request
⁴⁾ Only possible with additional adapter

● Scope of supply (standard)
 ● Available accessories



● Pictures see page 67/68



Bock HGZ semi-hermetic compressors

- 98** At a glance
- 100** Operating limits and performance data
- 104** Technical data
- 104** Dimensions and connections
- 107** Scope of supply & accessories

Bock HGZ7 two-stage



Bock HGZ two-stage semi-hermetic compressors

A two-stage variant based on the Bock HG semi-hermetic 6-cylinder range is available for extended use in the domain of deep-freezing.

The two stage system consists of:

- Liquid subcooler
- Re-injection valve
- Solenoid valve
- Sight glass
- Filter drier

Special features:

- 6-cylinder design
- LP/HP stage ratio 2:1
- 2-stage operation with liquid subcooler
- Re-injection valve adapted to refrigerant and application
- Extremely reliable and economic compressor design

For more information on the HG7 basic compressor see chapter "Single-stage semi-hermetic BOCK compressors".

Type	Displacement (50 Hz) LP	Displacement (50 Hz) HP
HGZ7/1620-4 R448A/R449A HGZX7/1620-4 R404A/R507 HGZX7/1620-4 R410A HGZ7/1620-4 R22	93.70 m³/h	46.90 m³/h
HGZ7/1860-4 R448A/R449A HGZX7/1860-4 R404A/R507 HGZX7/1860-4 R410A HGZ7/1860-4 R22	107.60 m³/h	53.80 m³/h
HGZ7/2110-4 R448A/R449A HGZX7/2110-4 R404A/R507 HGZX7/2110-4 R410A HGZ7/2110-4 R22	122.40 m³/h	61.20 m³/h

The two possible designs of the HGZ7

Design version: everything enclosed separately

Medium-pressure mixed line mounted on the compressor. Insulated, liquid subcooler, expansion valve, solenoid valve, sight glass, filter drier, everything enclosed separately for individual, external mounting.

Design version: mounted directly to the compressor

Liquid subcooler, expansion valve, solenoid valve, sight glass, filter dryer mounted directly to the compressor, lined and insulated.

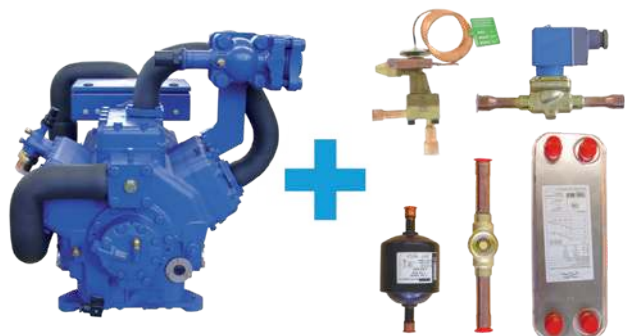
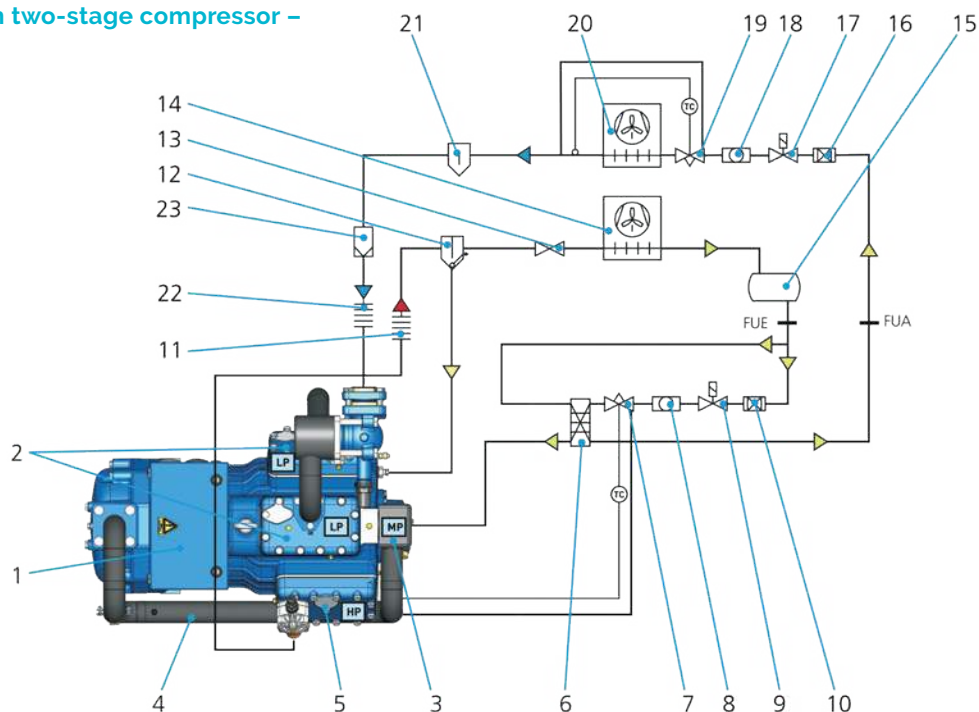


Image similar

HGZ two-stage semi-hermetic compressors

Spezial features

Refrigeration circuit with two-stage compressor – Schematic diagram



Explanations

- | | | |
|-------------------------------------|-------------------------------------|------------------------------------|
| 1) Compressor | 11) Vibration damper, pressure line | 21) Liquid separator |
| 2) Cylinder LP-stage | 12) Oil separator | 22) Vibration damper, suction line |
| 3) Intermediate pressure chamber MP | 13) Non-return valve | 23) Filter suction line |
| 4) Intermediate pressure line MP | 14) Condenser | |
| 5) Cylinder HP-stage | 15) Refrigerant receiver | |
| 6) Subcooler* | 16) Filter drier | |
| 7) Re-injection valve* | 17) Solenoid valve | LP = Low pressure |
| 8) Sight glass* | 18) Sight glass | MP = Medium pressure |
| 9) Solenoid valve* | 19) Expansion valve (evaporator) | HP = High pressure |
| 10) Filter drier* | 20) Evaporator | FUE = Liquid subcooler, inlet |
| | | FUA = Liquid subcooler, outlet |

* Components for subcooling system not supplied as standard

Type key

HGZX7 / 2110 - 4 R404A

- Refrigerant ³⁾
- Number of poles
- Swept volume
- Size
- Ester oil filling ²⁾
- Series ¹⁾

- ¹⁾ HGZ = Hermetic Gas-Cooled (suction-gas-cooled), two-stage
- ²⁾ X = Ester oil filling (HFC refrigerants R404A, R410A)
- ³⁾ e = Possible refrigerants are R404A, R410A, R22

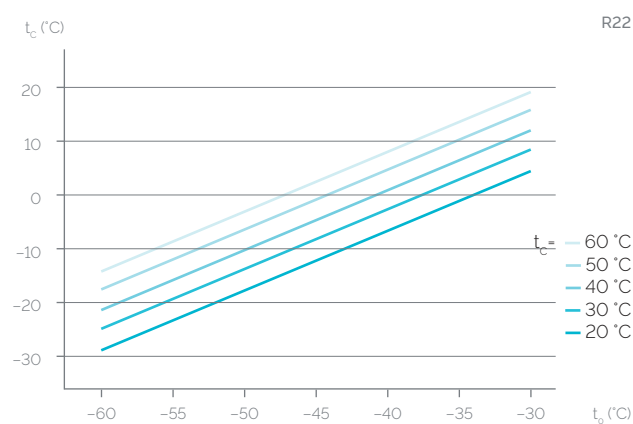
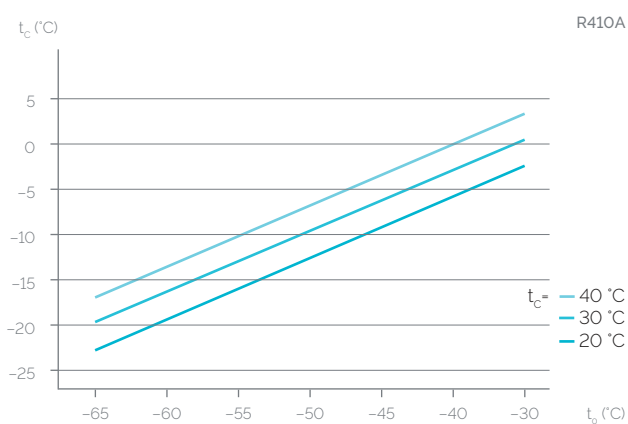
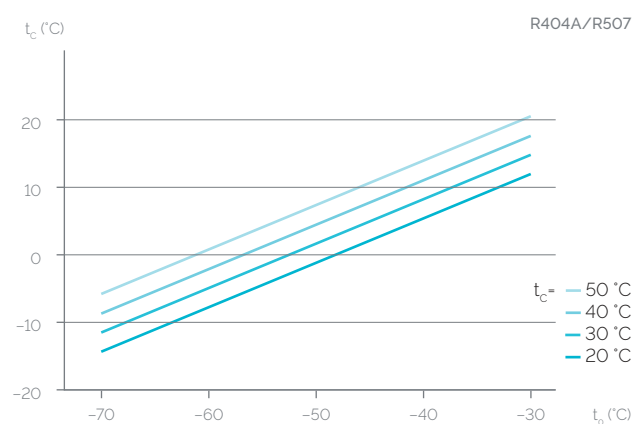
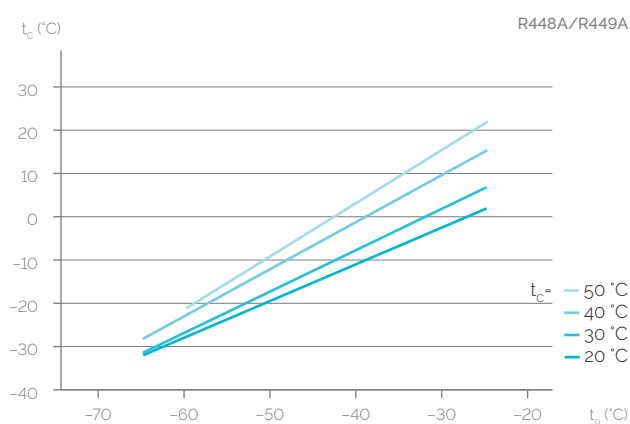
HGZ two-stage semi-hermetic compressors

Operating limits

Subcooling temperature

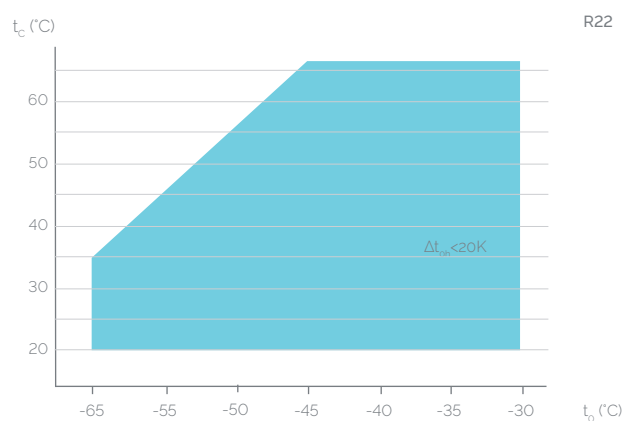
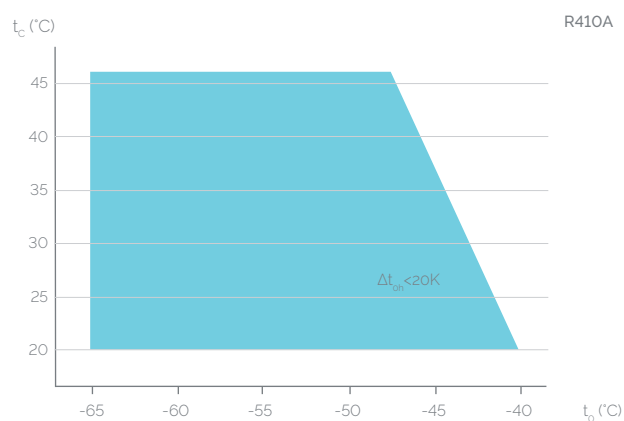
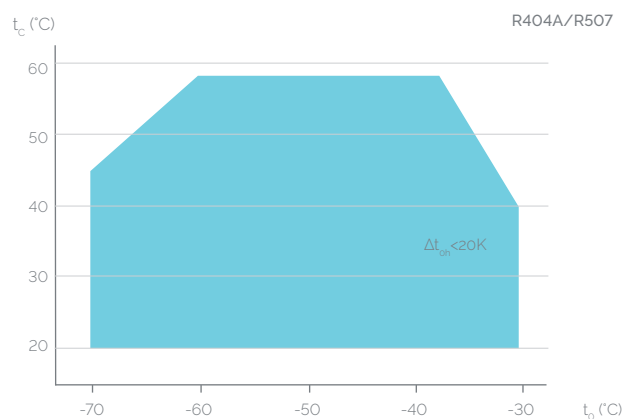
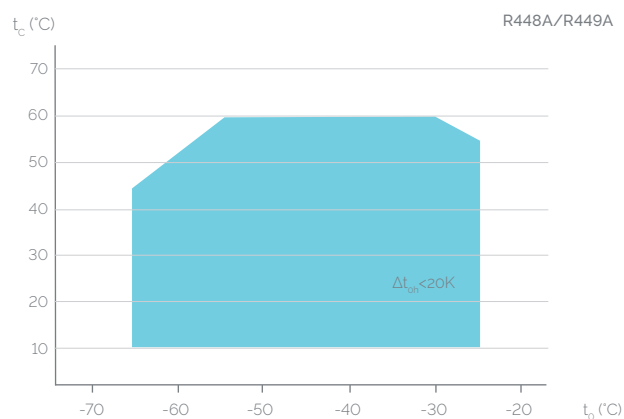
Defined with the help of the diagram by approximately calculating the subcooling temperature arising in the relevant operating conditions (t_o/t_c).

Subcooling temperature calculation diagram for the intermediate cooler outlet



HGZ two-stage semi-hermetic compressors

Operating limits



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

● Application range

Max. permissible operating pressure (LP/HP)¹⁾: 19/28 bar
¹⁾ LP = low pressure, HP = high pressure

Notes

Operating limits

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

Performance data

The stated performance values are based on 10 K suction gas superheat with liquid subcooling, operating at 50 Hz.

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

Conversion factor für 60 Hz = 1.2
 Performance data for other operating points, see BOCK VAP software (vap.bock.de).

HGZ two-stage semi-hermetic compressors

Performance data

R448A | 50 Hz

Type		Cooling capacity Q_o [kW]						Power consumption	
								P_e [kW]	
		Evaporating temperature °C							
Cond. temp. °C		-30	-35	-40	-45	-50	-55	-60	
HGZX7/1620-4	30	Q P 30500 1710	25000 15.50	19900 13.90	15500 12.30	11700 10.80	8650 9.51	6420 8.32	
	40	Q P 28900 19.10	23700 17.20	19000 15.40	14900 13.60	11400 12.00	8460 10.40	6360 9.06	
	50	Q P 27000 21.00	22300 19.00	18000 17.00	14200 15.10	10900 13.20	8260 11.50	6330 9.95	
HGZX7/1860-4	30	Q P 35100 19.70	28700 17.80	22900 15.90	17800 14.10	13500 12.40	9930 10.90	7370 9.56	
	40	Q P 33100 21.90	27200 19.80	21800 17.70	17100 15.70	13000 13.80	9720 12.00	7300 10.40	
	50	Q P 31000 24.20	25600 21.80	20600 19.60	16300 17.30	12500 15.20	9480 13.20	7270 11.40	
HGZX7/2110-4	30	Q P 39900 22.40	32600 20.20	26000 18.10	20200 16.10	15300 14.10	11300 12.40	8380 10.80	
	40	Q P 37700 24.90	31000 22.50	24800 20.20	19400 17.80	14800 15.60	11100 13.60	8310 11.80	
	50	Q P 35200 27.50	29100 24.90	23500 22.30	18500 19.70	14200 17.30	10800 15.00	8260 13.00	

R449A | 50 Hz

Type		Cooling capacity Q_o [kW]						Power consumption	
								P_e [kW]	
		Evaporating temperature °C							
Cond. temp. °C		-30	-35	-40	-45	-50	-55	-60	
HGZX7/1620-4	30	Q P 30500 17.00	24900 15.40	19900 13.80	15500 12.30	11700 10.80	8660 9.49	6430 8.31	
	40	Q P 28800 19.00	23700 17.20	19000 15.40	14900 13.60	11400 11.90	8470 10.40	6370 9.05	
	50	Q P 26900 20.90	22200 18.90	17900 17.00	14100 15.00	10900 13.20	8260 11.50	6340 9.93	
HGZX7/1860-4	30	Q P 35000 19.60	28600 17.70	22900 15.90	17800 14.10	13500 12.40	9950 10.90	7390 9.55	
	40	Q P 33000 21.80	27200 19.70	21800 17.60	17100 15.60	13000 13.70	9730 11.90	7320 10.30	
	50	Q P 30800 24.00	25500 21.80	20600 19.50	16200 17.30	12500 15.10	9490 13.20	7280 11.40	
HGZX7/2110-4	30	Q P 39800 22.30	32500 20.20	26000 18.10	20200 16.00	15300 14.10	11400 12.40	8400 10.80	
	40	Q P 37600 24.80	30900 22.40	24800 20.10	19400 17.80	14800 15.60	11100 13.60	8330 11.80	
	50	Q P 35100 27.40	29000 24.80	23400 22.20	18500 19.60	14200 17.20	10800 15.00	8280 12.90	

R404A/R507 | 50 Hz

Type		Cooling capacity Q_o [kW]						Power consumption		
								P_e [kW]		
		Evaporating temperature °C								
Cond. temp. °C		-30	-35	-40	-45	-50	-55	-60	-65	-70
HGZX7/1620-4	30	Q P 34869 21.17	28471 19.41	23098 17.63	18628 15.84	14936 14.05	11899 12.31	9394 10.61	7296 8.99	5482 7.46
	40	Q P 33437 23.42	27315 21.42	22181 19.40	17910 17.39	14380 15.41	11467 13.48	9047 11.61	6997 9.84	5192 8.17
	50	Q P -	25860 23.49	20950 21.24	16866 19.02	13484 16.84	10680 14.72	8332 12.68	6315 10.75	-
HGZX7/1860-4	30	Q P 40042 24.31	32694 22.29	26525 20.24	21391 18.18	17152 16.14	13665 14.13	10787 12.19	8378 10.32	6294 8.56
	40	Q P 38397 26.90	31367 24.60	25471 22.28	20567 19.97	16514 17.70	13169 15.48	10390 13.34	8035 11.30	5962 9.38
	50	Q P -	29696 26.98	24057 24.39	19367 21.84	15484 19.33	12265 16.90	9568 14.56	7252 12.35	-
HGZX7/2110-4	30	Q P 45550 27.66	37191 25.36	30173 23.03	24334 20.69	19511 18.36	15544 16.08	12271 13.86	9530 11.74	7160 9.74
	40	Q P 43679 30.60	35681 27.98	28974 25.34	23396 22.72	18785 20.13	14980 17.61	11819 15.17	9140 12.85	6782 10.67
	50	Q P -	33780 30.69	27366 27.75	22031 24.84	17614 21.99	13952 19.23	10884 16.57	8249 14.04	-

HGZ two-stage semi-hermetic compressors

Performance data

R410A | 50 Hz

Type			Cooling capacity Q_o [W]					Power consumption	
								P_e [kW]	
			Evaporating temperature °C						
Cond. temp. °C			-45	-50	-55	-60	-65		
HGZX7/1620-4	30	Q	25354	19967	15285	11396	8385		
		P	22.89	20.80	18.67	16.43	14.00		
	50	Q	-	19131	14630	10868	7930		
		P	-	22.87	20.63	18.25	15.68		
HGZX7/1860-4	30	Q	29182	22859	17530	13136	9614		
		P	26.28	23.89	21.44	18.87	16.08		
	50	Q	-	21959	16774	12508	9101		
		P	-	26.26	23.68	20.96	18.00		
HGZX7/2110-4	30	Q	33195	26003	19941	14943	10937		
		P	29.90	27.17	24.39	21.46	18.29		
	50	Q	-	24980	19082	14229	10352		
		P	-	29.87	26.94	23.84	20.48		

R22 | 50 Hz

Type			Cooling capacity Q_o [W]					Power consumption	
								P_e [kW]	
			Evaporating temperature °C						
Cond. temp. °C			-30	-35	-40	-45	-50	-55	-60
HGZX7/1620-4	30	Q	29711	24214	19448	15365	11921	9070	6765
		P	18.26	16.81	15.40	14.03	12.70	11.41	10.16
	40	Q	29059	23630	18930	14914	11537	8753	-
		P	20.23	18.52	16.86	15.23	13.64	12.10	-
	50	Q	28355	22992	18360	14411	11100	-	-
		P	22.30	20.33	18.41	16.53	14.69	-	-
HGZX7/1860-4	60	Q	27598	22302	17736	13854	-	-	-
		P	24.47	22.25	20.07	17.93	-	-	-
	30	Q	30088	27881	22408	17669	13664	10393	7855
		P	20.97	19.31	17.69	16.11	14.58	13.10	11.67
	40	Q	33296	27181	21800	17153	13240	10061	-
		P	23.23	21.27	19.36	17.49	15.67	13.89	-
	50	Q	32434	26411	21122	16567	12746	-	-
		P	25.60	23.35	21.14	18.98	16.68	-	-
HGZX7/2110-4	60	Q	31503	25572	20375	15912	-	-	-
		P	28.09	25.54	23.04	20.59	-	-	-
	30	Q	38811	31632	25406	20072	15573	11848	8837
		P	23.86	21.96	20.12	18.33	16.59	14.91	13.27
	40	Q	37960	30868	24729	19483	15071	11433	-
		P	26.43	24.20	22.02	19.89	17.82	15.80	-
	50	Q	37040	30035	23984	18825	14500	-	-
		P	29.13	26.56	24.05	21.59	19.18	-	-
	60	Q	36050	29133	23169	18097	-	-	-
		P	31.96	29.06	26.21	23.42	-	-	-

* Performance data 50 Hz relative to 10 K suction gas superheat with liquid subcooling

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HGZ two-stage semi-hermetic compressors

Technical data / Dimensions and connections

HGZ7

Two-Stage Compressors

Type	Number of cylinders	Displacement		Displacement		Electrical data					Weight	Oil charge			
		50 Hz (1450 rpm)		60Hz (1.740 rpm)		Voltage ¹⁾	Max. Working current ²⁾	Max. Power consump- tion ²⁾	Starting current (rotor locked)						
		m³/h		m³/h					A	kW			A		kg
		LP**	HP**	LP**	HP**				Δ / Y				Δ	Y	
							PW1+2*		PW1 / PW1+2*						
HGZ7/1620-4 R448A/R449A HGZX7/1620-4 R404A HGZX7/1620-4 R410A HGZ7/1620-4 R22	6	93.70	46.90	112.50	56.20	3)	50	27.0	175	269	294	4.5			
HGZ7/1860-4 R448A/R449A HGZX7/1860-4 R404A/R507 HGZX7/1860-4 R410A HGZ7/1860-4 R22	6	107.60	53.80	129.10	64.60	3)	55	30.0	175	269	291	4.5			
HGZ7/2110-4 R448A/R449A HGZX7/2110-4 R404A/R507 HGZX7/2110-4 R410A HGZ7/2110-4 R22	6	122.40	61.20	146.90	73.40	3)	68	36.0	232	357	289	4.5			

*PW = Part Winding, motors for part winding start

1 = first part winding

2 = second part winding

** LP = low pressure HP = high pressure

Oil sump heater 230 V - 1 - 50 / 60 Hz (option)

- Permanently set version, installation in immersion sleeve

Explanations

- 1) Tolerance ($\pm 10\%$) 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/YY - 3 - 50 Hz PW

440 – 480 V Y/YY - 3 - 60 Hz PW

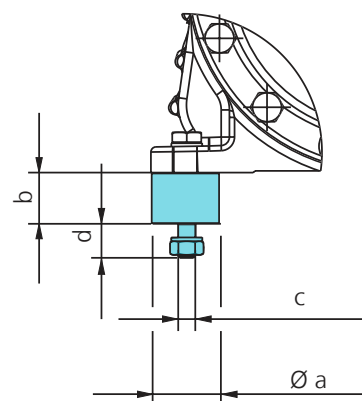
PW = Part Winding, motors for part winding start (no start unloaders required)

Winding ratios: 50 % / 50 %

Dimensions for anti-vibration pad

Type	Ø a	b	c	d
HGZ7	50	30	M10	25

Dimensions in mm

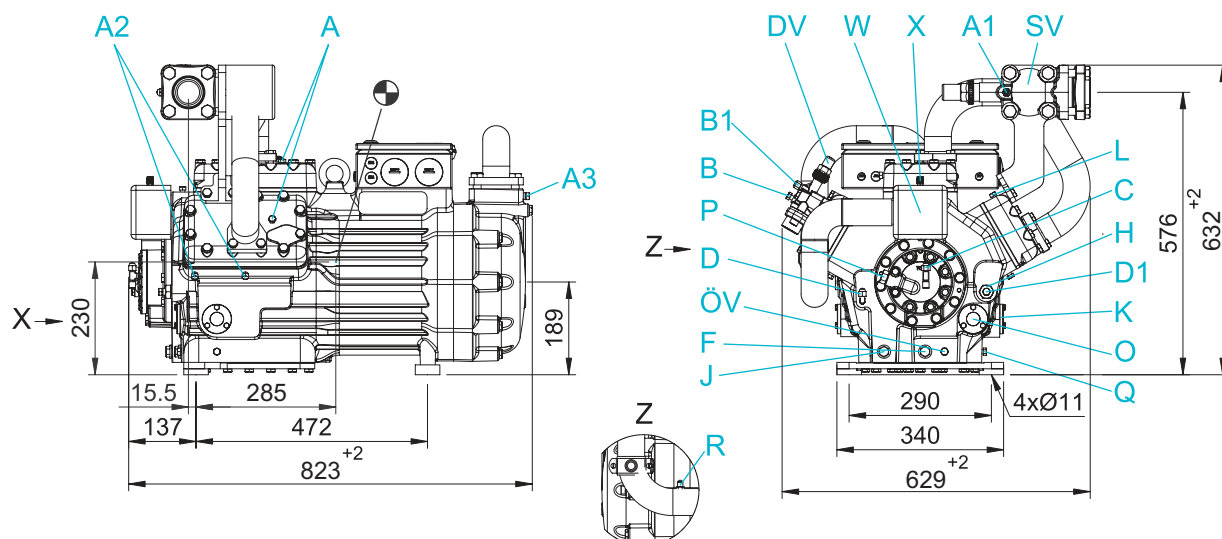


HGZ two-stage semi-hermetic compressors

Dimensions and connections

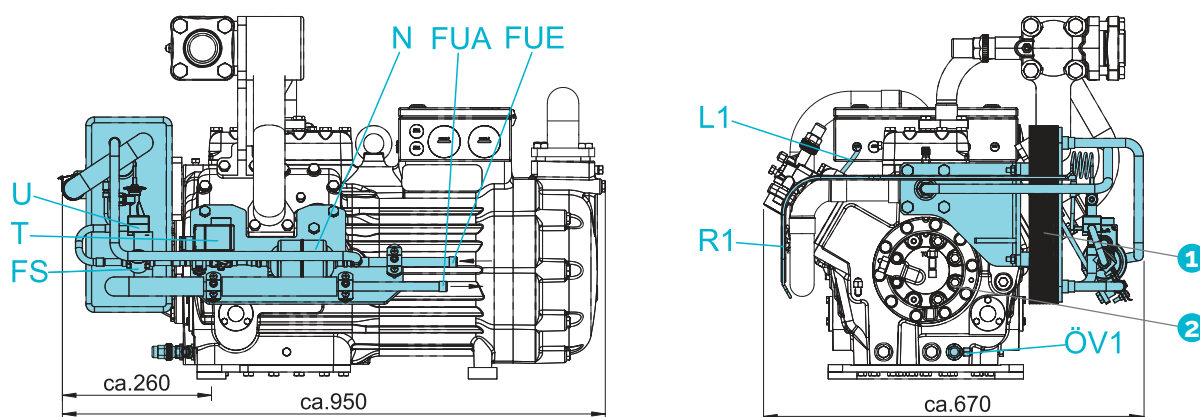
HGZ7 - Series

Liquid subcooler with accessories supplied separately



HGZ7 - Option

Liquid subcooler with complete accessories directly mounted onto the compressor



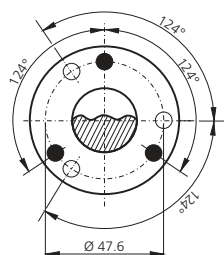
- 1 Liquid subcooler with accessories 2 Oil service valve

Dimensions in mm

Center of gravity

Connections see page 109
Rigid fixing without anti-vibration pad
Dimensions for view X see below

View X



Possibility to connect to oil level regulator

HGZ7

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

Dimensions in mm

HGZ two-stage semi-hermetic compressors

Dimensions and connections

Connections – Series		HGZ7
SV	Suction line	Ø 54 mm 2 1/8"
DV	Discharge line	Ø 35 mm 1 3/8"
A	Connection suction side, not lockable	1/8" NPTF
A1	Connection suction side, lockable	7/16" UNF
A2	Connection suction side, not lockable	1/8" NPTF
A3	Connection intermediate pressure, not lockable	1/4" NPTF
B	Connection discharge side, not lockable	1/8" NPTF
B1	Connection discharge side, lockable	7/16" UNF
C	Connection oil pressure safety switch HP	7/16" UNF
D	Connection oil pressure safety switch LP	7/16" UNF
D1	Connection oil return from oil separator	1/4" NPTF
F	Oil drain plug	M 22 x 1.5
H	Oil charge plug	M 22 x 1.5
J	Connection oil sump heater	M 22 x 1.5
K	Sight glass	3 hole M 6
L	Connection thermal protection thermostat	1/8" NPTF
O	Connection oil level regulator	¹⁾
ÖV	Connection oil service valve	1/4" NPTF
P	Connection oil pressure differential sensor	M 20 x 1.5
Q	Connection oil temperature sensor	1/8" NPTF
R	Connection equalizer for injection valve	7/16" UNF
W	Connection for refrigerant injection	M 22 x 1.5
X	Connection for Schrader valve for intermediate pressure manometer	7/16" UNF

¹⁾ Dimensions see view X page 105

Connections – Option		HGZ7
FUE	Liquid subcooler	Ø 16 mm 5/8"
FUA	Liquid subcooler	Ø 16 mm 5/8"
FS	Sight glass liquid subcooler	Ø 12 mm
L1	Thermal protection thermostat	1/8" NPTF
N	Filter drier	Ø 12 mm
ÖV1	Oil service valve	7/16" UNF
R1	Equalizer for injection valve	Ø 6 mm
T	Solenoid valve	Ø 12 mm
U	Re-injection valve – dependent on refrigerant	Ø 12 mm

HGZ two-stage semi-hermetic compressors

Scope of supply and accessories

	HGZ7
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	●
Special voltage and/or frequency	● ³⁾
Cylinder design in W form, LP/HP stage ratio 2:1	●
1 Intermediate pressure line mounted and insulated	●
2 Winding protection with PTC sensors and MP10 electronic motor protection	●
Oil pump	●
3 Oil pump cover with screw connection for oil differential pressure sensor DELTA-P II	●
4 Direct connection possibility for oil level regulators ESK, AC+R or CARLY	●
Direct connection possibility for oil level regulators Traxoil	● ⁴⁾
Oil charge HGZ: FUCHS Reniso SP46	●
HGZX: FUCHS Reniso Triton SE55	●
5 Two sight glasses	●
Internal safety valve	●
6 Suction line Shut-off valve	●
7 Discharge line Shut-off valve	●
Inert gas charge	●
4 anti-vibration pads	●
Liquid subcooler, re-injection valve, solenoid valve 230 V - 1 - 50 / 60 Hz, sight glass, filter drier, supplied separately for individual, external installation. Assembly is mandatory for the function of the compressor.	● ¹⁾
Liquid subcooler, re-injection valve, solenoid valve 230 V - 1 - 50 / 60 Hz, sight glass, filter drier, directly mounted onto the compressor, fully assembled and insulated with pipes ready for connection.	● ²⁾
10 Oil sump heater 220 – 240 V - 1 - 50 / 60 Hz, 140 W	● ²⁾
11 Thermal protection thermostat (PTC sensor) 230 V - 1 - 50 / 60 Hz	● ²⁾
12 Oil pressure safety switch MP 54, 230 V - 1 - 50 / 60 Hz, IP20	● ¹⁾
13 Oil differential pressure sensor DELTA-P II, 220 – 240 V - 1 - 50 / 60 Hz	● ¹⁾
14 Oil service valve	● ²⁾
15 Oil temperature sensor	● ²⁾

¹⁾ Enclosed ²⁾ Mounted ³⁾ On request

⁴⁾ Only possible with additional adapter

● Scope of supply (standard)
● Available accessories

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HGZ two-stage semi-hermetic compressors

Accessories

Intermediate pressure line



Winding protection



Oil pump cover



Direct connection possibility



Sight glasses



Suction line shut-off valve



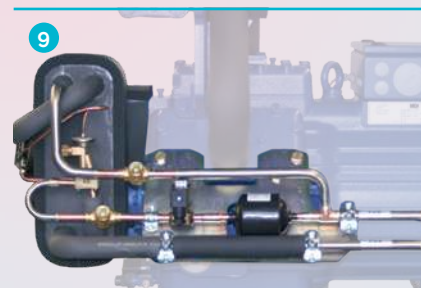
Discharge line shut-off valve



Components enclosed separately



Components mounted directly



HGZ two-stage semi-hermetic compressors

Accessories

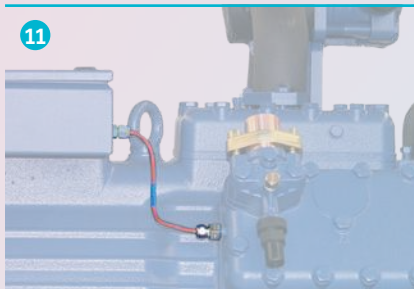
Oil sump heater

10



Thermal protection thermostat

11



Oil pressure safety switch

12



Oil differential pressure sensor

13



Oil service valve

14



Oil temperature sensor

15



BOCK service and support

Up-to-date information, training and tools about BOCK CO₂ compressors, compressors for hydrocarbons and solutions for other refrigerants. Use our expertise for your daily practice – online and free of charge



°Clever + Cool Experts^{live}

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BOCK CO₂Tool | 

BOCK VAP | 



From experts for experts – our new online formats can be used from any computer, regardless of location: Office, workshop or even at home.

To ensure that you can make the best possible use of the advantages of BOCK compressors, we support you online and personal with four service and support modules. There you will find valuable information: from plant planning and design to implementation and operation to retrofitting or upgrading existing systems.

BOCK training courses

Together with Danfoss, BOCK offers special (online) user training courses. For this purpose, a complete transcritical supermarket refrigeration system with the latest CO₂ technology is in operation at the BOCK training center – with heat recovery + air conditioning + parallel compression + ejector – in order to make the seminars more practical.

BOCKshop

The online catalog in the **BOCKshop** is the best choice to find spare parts for your BOCK compressor easily and quickly around the clock. Including all Ex-drawings and parts lists as well as further information also for printing.

» bockshop.bock.de

BOCKCO₂Tool

The strengths of the **BOCKCO₂Tool** based on Excel: Support for the selection of CO₂ compressors, e.g. by displaying the system schematic as RI flow diagram and refrigeration circuit in log-p-h-diagram, as well as selecting compressors in rack systems and for special CO₂ systems such as booster systems.

» **Usage on request:** vap@bock.de

BOCKVAP

The BOCK compressor selection program (VAP) is the perfect tool, to find suitable compressors or condensing units for your stationary or mobile application: Simply enter cooling capacity and operating conditions and the suitable components will be displayed immediately. In addition, the tool provides you with further information, e.g. application limits, performance data, dimensions and connections, scope of delivery, accessories, 3 D compressor models and much more.

Another advantage: **BOCKVAP** is available to you free of charge as an online and offline version for PC installation.

» vap.bock.de

BOCK is one of the world's technology and innovation leaders in the development of environmentally friendly, economical solutions in the field of refrigeration and air-conditioning technology, including heat pumps and heat recovery – with one of the world's largest portfolios of compressors for natural refrigerants such as CO₂ (R744), hydrocarbons and other low-GWP refrigerants.

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