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Fig. 1: Unit view (example version)

Type code

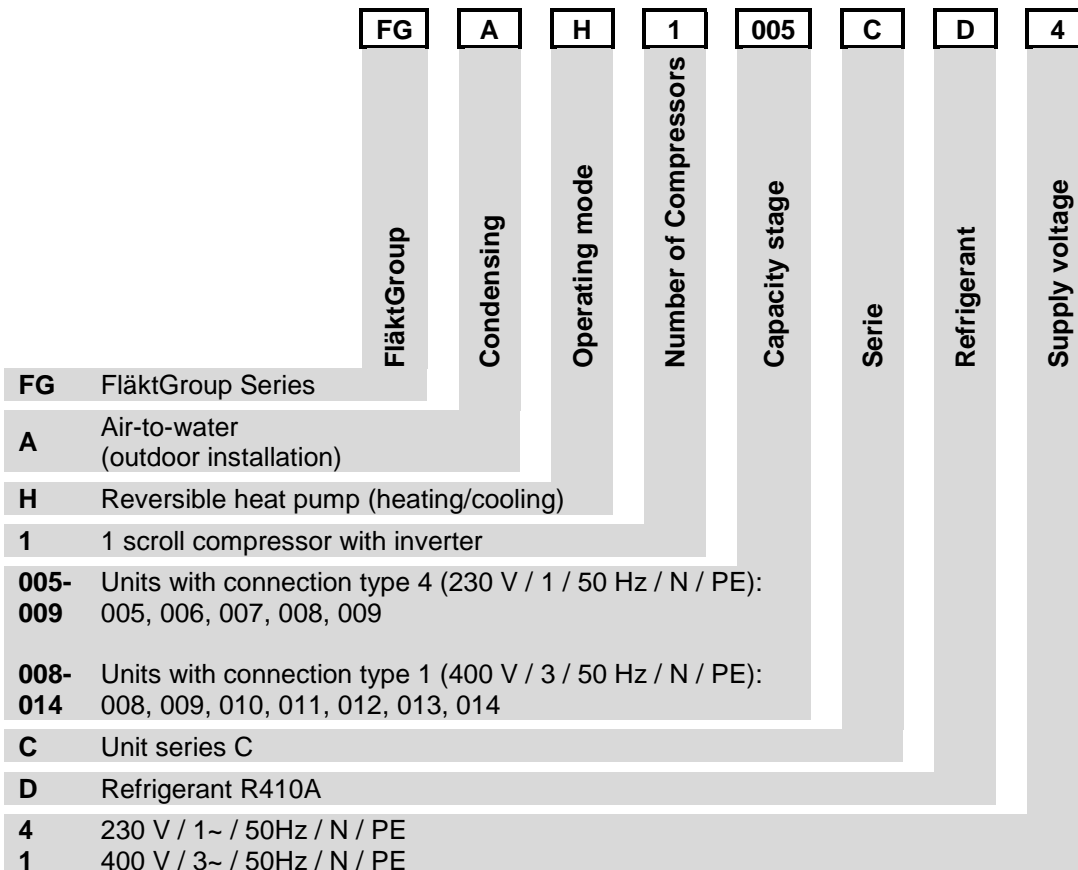


Fig. 2: Explanation of unit type code

Unit description

FläktGroup reversible air-to-water heat pump with inverter scroll compressor

- Air-to-water for outdoor installation
- ErP-conform according to 813/2013 EU;
- High energy efficiency at full and part-load mode
- Refrigerants R-410A (GWP 2088)
- Capacity range approx. 4 kW to 35 kW cooling capacity and 5 kW to 38 kW heating capacity in 10 unit sizes
- Built-in pump optionally available, highly efficient, speed- or pressure-controlled
- Substructure buffer storage optionally possible (for water-glycol mixture)
- 1 refrigerant circuit
- 1 fully hermetic scroll compressor with incoming-side inverter
- Control range 25 to 100%
- Electronic Expansion valve
- Air-side heat exchanger with Cu/Al fins and horizontal air flow
- Optional with epoxy polymer coating (Option .I18)
- Standard delivery with protection grille
- Plate heat exchanger as water-side heat exchanger, incl. frost-protection heating
- Direct-drive axial fans, 6-pole with contact protection against intrusion (IP54 protection)
- Fan speed control via transformer
- Water outlet temperature in cooling operation -8 to +18 °C
- Water outlet temperature in heating operation +24 to +45 °C or up to +60 °C depending on outdoor temperature
- Air-inlet temperature from +5 °C to + 45 °C in cooling operation (for details see operating limits diagram)
- Air-inlet temperature down to -16°C* in heating operation (for details see operating limits diagram)
- *and down to -20 °C dependent on unit size and operating point
- Power supply 230 V / 1 / 50 Hz / N / PE or 400V / 3 / 50 Hz / N / PE depending on unit size available
- Numbered connecting terminals
- Automatic circuit breaker for the compressor circuit
- Pump relay for controlling an on-site water pump
- Electric heating rod on the bottom of the unit to prevent condensate from forming ice during heating operation
- FläktGroup controller Step IV, small black display with 8-line display
- Control of the water-outlet temperature as a constant setpoint or as a function of the outdoor temperature measured on the unit.
- Seasonal switchover heating - cooling via external digital input or automatically depending on the outdoor temperature measured on the unit
- For the electrical connections of the 400 V units (type FGAH 1008-1014 CD1), the correct phase sequence L1-L2-L3 (right rotating field) must be observed! Failure to observe this warning may result in damage to the unit!
- Flow switch installed inside the unit
- Safety valve 6 bar installed inside the unit. Opening prepared for blow-off line to be provided on site at the unit casing. Particularly when glycol is used, the regional regulations regarding a receptacle must be observed!
- Ventilation valve inside the unit casing
- Water filter DN25 (1" internal thread) or DN32 (1" internal thread) is part of the scope of delivery of the basic unit (supplied separately) and must be installed on site immediately before the unit inlet. *When planning, consider the pressure losses of the water filter! See separate data sheet.*
- Built-in expansion tank, prefilled to 1 bar, volume 2 L (units FGAH1005-1010), 5 L (units FGAH1011-1012), or 8 L (units FGAH1013-1014) (applies only to units with integrated pump)
- On site, pipe expansion joints must be installed to decouple vibrations, noise transmission and longitudinal expansion.
- All units of the series FGAH 1005-1014 CD 4/1 are Eurovent certified.

Order related documentation

NOTICE!

For detailed planning please only use the order-related documentation. Detailed dimensional drawings can be obtained on request from your responsible FläktGroup sales office. Specifications and technical data are subject to regular updates. The manufacturer reserves the right to make necessary changes to information without prior written notice.

Options and accessories

Accessories for controls

- Serial card for connection to a building management system or for master/slave control*

 - **Unit information can be called up via the Internet and LAN**
 - **Unit connection to the building management system (BMS) using a serial card.**

The following protocols are used to transmit digital and analog values:

 - Reading a collective fault message
 - Retrieval of temperature and pressure values provided by the controller
 - Specification of the setpoint for the water flow (cooling/heating)
 - Enabling the unit
 - Switching over the operating mode cooling/heating.
- Option .E14*

 - **Modbus (RS485),**
Built-in modbus interface for connection to the building management system.
- Option FGZAHCASCADE*

 - **Cascading control unit**
Lead/follow control. Up to 4 identical units of the same model size (with the same firmware) can be used in a hydraulic circuit and connected to the cascade management. The cascade manager consists of a compact display that must be installed in an external control cabinet door on site. The option FGZAHPROBE must be ordered as well. This is a temperature sensor which must be installed in the shared buffer tank, e.g. in the FGHM100H or FGHM200H buffer tank. The individual units are switched on or off depending on the difference between the setpoint value and the common water outlet temperature. Each unit requires its own or on-site water pump, which must also be controlled by the reversible heat pump.
- Option FGZAHPROBE*

 - **Temperature sensor for cascade control unit**
Temperature sensor which must be installed in the common buffer tank, e.g. in the buffer tank FGHM100H or FGHM200H. The temperature sensor must be connected to the controller of the master unit.

Installation of accessories

- Option .I02*

 - **Rubber isolator**
Anti-vibration isolators with rubber elements to minimize vibration transmission (supplied separately).
The on-site installation of suitable anti-vibration mounts is a prerequisite for warranty claims!
- Option .I18*

 - **Corrosion-resistant coating for fins of Cu/Al heat exchanger.**
100% epoxy polymer coating for the entire air-side heat exchanger to protect against corrosion, UV radiation and for increased weather resistance in moderate aggressive air pollution and use in moderate salty air near the coast.
- Option .I45*

 - **Piping connection kit for FGHM30H/ FGHM60H**
Hydraulic connection between unit and buffer tank. A flexible, insulated pipe is supplied separately for on-site installation.

Mechanics accessories

- Option FGHM30H or FGHM60H*

 - **Buffer tank 30 or 60 L (outdoor installation)**
Buffer tank for outdoor installation directly under the basic unit. Single-circuit buffer to ensure the minimum system content. Due to the risk of frost, the media circuit or the primary circuit with water-glycol mixture must be planned. Option I.45 must also be ordered for connection to the basic unit. Volume 30 liter (units FGAH1005-1009), or 60 L (units FGAH1010-1013).
See separate document "Planning aid FGAC/H1005-1014CD4/1" for the hydraulic components to be used!
- (except for unit size 1014)*

- Option FGHM100H or FGHM200H* - **Buffer tank 100 L or 180 L (indoor installation)**
 The tank can be used for 1-circuit or 2-circuit systems.
 Four pipework connections 1 ¼". When used as a 1-circuit buffer, 2 connections must be sealed by the customer with plugs. Two ½" connections for drain and air vent valves to be installed on site. Material steel welded with corrosion protection coating, closed-porous insulation, 50 mm.
See separate document "Planning aid FGAC/H1005-1014CD4/1" for the hydraulic components to be used!
- Option FGHM35H* - **Hydraulic separator 40 L (wall mounting, inside)**
 For hydraulic decoupling of primary circuit and secondary circuit in 2-circuit systems. Four pipe connections 1". Connections for draining and air venting valves to be installed on site available. Material steel welded with corrosion protection coating, insulation, 30 mm.
See separate document "Planning aid FGAC/H1005-1014CD4/1" for the hydraulic components to be used!
- Pumps* - **Built-in water pump**
 High-efficiency pump Wilo, electronically controlled, wet rotor.
See separate document "Planning aid FGAC/H1005-1014CD4/1" for the hydraulic components to be used!
Refer to separate pump data information sheet!
Mandatory accessories for unit size 1005

Operating limits

On the water side, the operating limits according to Table 1, and on the air and water side, the limits according to the following operating limit chart must be observed. The minimum air intake temperature for the heating mode varies from -16 to -20 °C dependent on the unit size.

Tab. 1: Operating limits water (glycol) circuit

| | | Min | Max |
|---|------|------------|----------|
| Water inlet (cooling) | [°C] | -5* or 9** | 26 |
| Water outlet (cooling) | [°C] | -8* or 5** | 18 |
| dT (with water outlet > 5 °C) (cooling) | [K] | 4 | 8 |
| dT (for water outlet ≤ 5 °C) (cooling) | [K] | 3 | 5 |
| Water inlet (heating) | [°C] | 18 | 61 |
| Water outlet (heating) | [°C] | 24 | 65 |
| dT (heating) | [K] | 3 | 6...9*** |
| Glycol Concentration | [%] | | 40 |

* only valid when using a water-glycol mixture with a concentration selected according to the expected outdoor temperatures.

** applies when using water without glycol

*** depends on temperature range

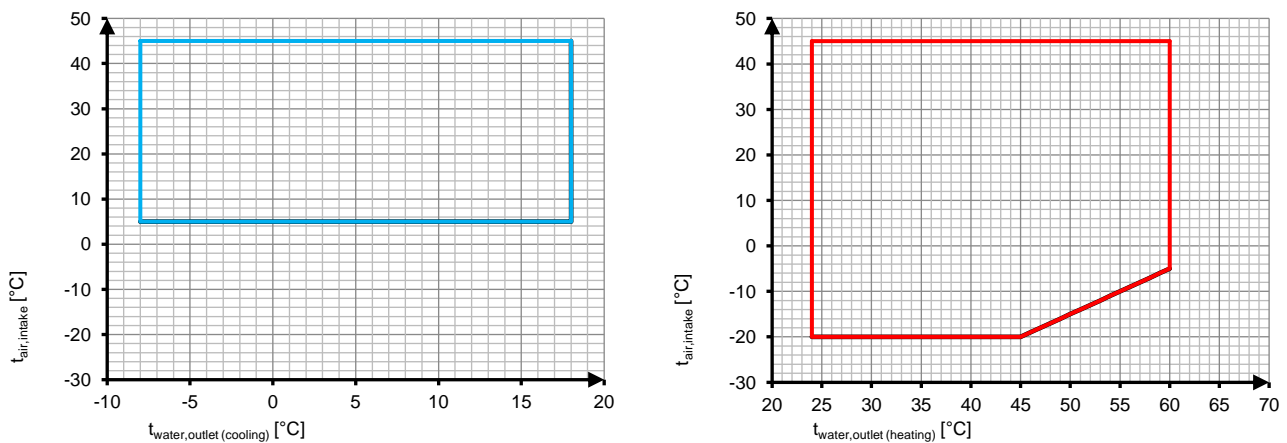


Fig. 3: General operating range (left cooling, right heating)

Notices

For operational reasons, water at evaporator outlet temperatures below 5°C must be protected from freezing by adding glycol. FläktGroup recommends to use at least 30% ethylene glycol.

The unit must be protected from freezing at ambient temperatures less than 5°C.

A frost protection heater for the water-side heat exchanger is provided as standard for this purpose.

In standby mode, frost protection is implemented by cyclically switching on the water pump as soon as the outdoor temperature falls below 4.5 °C (+/- 0.5 hysteresis) or the water temperature drops below 4.5 °C (deactivation if +7 °C is exceeded).

The frost protection heaters are designed for outdoor temperatures down to -10 °C. In installation locations where colder outdoor temperatures may occur, the unit must be configured with glycol. When using the external buffer tanks Option FGHM30/60H, the use of glycol is always mandatory.

Note

In heating operation, the defrost mode of the air-side heat exchanger is implemented via reverse switching. The defrost mode starts and ends depending on the evaporation pressure. The maximum duration is limited to 8 minutes. The frequency is limited to a minimum interval of 30 minutes.

For particularly critical applications in which a temporary drop in hot water temperature and heating output has a noticeable influence on comfort (e.g. supply to a heater of a central air-handling unit), take appropriate compensation measures into account. FläktGroup recommends without obligation: Consider an addition for the heating output (e.g. 15%), design the rev. heat pump with 5 K higher hot water temperatures than the consumer and dimension the buffer tank generously (e.g. 8 min x design volume flow in l/min).

General Specifications

Tab. 2: General data for 1-phase units (230 V / 1 / 50Hz / N / PE)

| unit type FGAH ##### CD4 | | | 1005 ⁹⁾ | 1006 ⁹⁾ | 1007 | 1008 | 1009 |
|---|--------------------|---------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Performance data cooling (catalogue) 6) | | | | | | | |
| Refrigeration capacity ¹⁾ | Q _e | [kW] | 4.2 | 5.90 | 7.5 | 9.9 | 12.4 |
| Power consumption ⁵⁾ | P | [kW] | 1.55 | 2.08 | 2.72 | 3.64 | 4.54 |
| EER | | | 2.71 | 2.84 | 2.76 | 2.72 | 2.73 |
| ESEER | | | 4.24 | 4.32 | 4.45 | 4.21 | 4.24 |
| Chilled water flow rate | V _e | [l/s] | 0.20 | 0.28 | 0.36 | 0.47 | 0.59 |
| Pressure drop evaporator | Δp _{pe} | [kPa] | 8.1 | 13.9 | 12.5 | 13.9 | 15.0 |
| Residual delivery head pump ²⁾ | Δp _{pe} | [kPa] | 51.4 | 39.8 | 66.5 | 57.7 | 56.6 |
| Pressure drop of water filter | Δp _{pe} | [kPa] | 0.4 | 0.8 | 1.4 | 2.3 | 1.6 |
| Residual delivery head after subtraction of filter | Δp _{pe} | [kPa] | 51.0 | 39.0 | 65.1 | 55.4 | 55.0 |
| Heating performance data (catalogue) 6) | | | | | | | |
| Heating capacity ⁷⁾ | | | 4.63 | 6.36 | 8.51 | 11.00 | 14.3 |
| Unit power consumption | | | 1.55 | 2.03 | 2.65 | 3.65 | 4.53 |
| COP | | | 3.07 | 3.13 | 3.21 | 3.01 | 3.16 |
| ERP conformity | | | | | | | |
| SCOP ⁸⁾ | | | 3.59 | 3.89 | 4.15 | 3.54 | 3.81 |
| η _{st(h)} ⁸⁾ | | [%] | 140 | 153 | 163 | 139 | 149 |
| ERP conform (813/2013 EU) ⁸⁾ | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Seasonal room heating energy efficiency class | | | A+ | A++ | A++ | A+ | A+ |
| Cooling performance values according to EN14511-3:2011 | | | | | | | |
| Cooling capacity | Q _e | [kW] | 4.20 | 5.90 | 7.51 | 9.91 | 12.40 |
| EER | | | 2.76 | 2.88 | 2.81 | 2.73 | 2.75 |
| ESEER | | | 4.61 | 4.56 | 4.83 | 4.26 | 4.37 |
| Heating performance values according to EN14511-3:2011 | | | | | | | |
| Heating capacity | Q _e | [kW] | 4.62 | 6.37 | 8.50 | 11.0 | 14.3 |
| COP | Q _e | [kW] | 3.12 | 3.19 | 3.26 | 3.02 | 3.19 |
| CONTROL SYSTEM | | | | | Step IV with black display | | |
| Fans | | | | | | | |
| Axial Fans | | | | | | | |
| Fan Quantity | n | | 1 | 1 | 1 | 2 | 2 |
| Total air volume flow | | [m ³ /h] | 3672 | 3528 | 3564 | 6480 | 6120 |
| Scroll compressor with inverter | | | | | | | |
| Number of compressors | | | 1 | 1 | 1 | 1 | 1 |
| Number of refrigeration circuits | | | 1 | 1 | 1 | 1 | 1 |
| Minimum part-load speed | | [%] | 25 | 25 | 25 | 25 | 25 |
| Heat exchanger water-side | | | | | | | |
| Min. water mass flow | V _{e,min} | [l/s] | 0.13 | 0.19 | 0.24 | 0.30 | 0.39 |
| Max. water mass flow | V _{e,max} | [l/s] | 0.35 | 0.49 | 0.64 | 0.80 | 1.05 |
| MAX WORKING PRESSURES | p _{max} | [bar] | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| On-site minimum system content | | [l] | 37 | 51 | 68 | 88 | 114 |
| Water charge of heat exchanger | | [l] | 1.0 | 1.0 | 1.5 | 1.8 | 2.0 |
| Connection heat exchanger | | | 1" | 1" | 1" | 1" | 1 ¼" |
| Refrigeration circuit charge | | | | | | | |
| Refrigerant R410A ³⁾ | | [kg] | 1.47 | 2.20 | 3.70 | 3.95 | 4.45 |
| Oil charge | | [kg] | 0.35 | 0.35 | 0.40 | 0.87 | 1.40 |
| Electrical connection | | | | | | | |
| Main switch integrated | | | no | no | no | no | no |
| Max. cable dimensions Voltage supply L/N/PE | | [mm ²] | 6 | 6 | 6 | 6 | 6 |
| Dimensions and weight | | | | | | | |
| A (length) | | [mm] | 900 | 900 | 900 | 900 | 900 |
| B (width) | | [mm] | 370 | 370 | 420 | 420 | 420 |
| H (height) | | [mm] | 940 | 940 | 1240 | 1240 | 1390 |
| Weight ^{4,5)} | | [kg] | 80 | 85 | 100 | 115 | 135 |

1) Performance data for input parameters: chilled water temperatures (inlet/outlet) 12/7°C; ambient temperature 35°C; values partially rounded off

2) Pump optional; subtract filter pressure loss from residual delivery head

3) For exact refrigerant charge volume, refer to the unit identification plate.

4) based on the entire unit (without pump)

5) Data apply to input parameters as described under 1) and without glycol; conversion required when using glycol

6) Performance data for input parameters: warm-water temperature (inlet/outlet) 40/45°C; outdoor-air temperature +7°C, 87 % r.h.; some values rounded off

7) Applies to units with pump, low temperature application in average climate (EN14825), data according to ERP guideline for heating units (EU law 813/2013 EU), which does not require stricter requirements from 2021, certified in Eurovent

8) Unit not available without pump

9) Unit not available without pump

Tab. 3: General data for 3-phase units (400 V / 3 / 50Hz / N / PE)

| Unit type FGAH #### CD1 | | | 1008 | 1009 | 1010 | 1011 | 1012 | 1013 | 1014 |
|---|--------|--------|------|------|----------------------------|---------|---------|---------|---------|
| Performance data (catalog) - 6) | | | | | | | | | |
| Refrigeration capacity 1) | Qe | [kW] | 10.5 | 12.8 | 14.7 | 18.7 | 24.7 | 29.4 | 35.1 |
| Power consumption 5) | P | [kW] | 3.64 | 4.54 | 5.24 | 7.00 | 8.99 | 10.5 | 12.7 |
| EER | | | 2.88 | 2.82 | 2.81 | 2.67 | 2.75 | 2.8 | 2.76 |
| ESEER | | | 4.24 | 4.49 | 4.31 | 3.88 | 3.93 | 3.89 | 3.93 |
| Chilled water flow rate | Ve | [l/s] | 0.50 | 0.61 | 0.70 | 0.89 | 1.18 | 1.41 | 1.68 |
| Pressure drop evaporator | Δpe | [kPa] | 15.7 | 16.0 | 18.3 | 19.7 | 19.9 | 17.9 | 23.7 |
| Residual delivery head pump 2) | Δpe | [kPa] | 53.3 | 53.0 | 78.7 | 74.6 | 61.5 | 91.3 | 73.5 |
| Pressure drop of water filter | Δpe | [kPa] | 2.6 | 1.6 | 1.8 | 2.5 | 4.4 | 6.5 | 9.2 |
| Residual delivery head after subtraction of filter | Δpe | [kPa] | 50.7 | 51.4 | 76.9 | 72.1 | 57.1 | 84.8 | 64.3 |
| Heating performance data (catalogue) 6) | | | | | | | | | |
| Heating capacity 7) | | | 11.4 | 14.7 | 17.2 | 21.7 | 26.1 | 32.3 | 38.1 |
| Unit power consumption | | | 3.66 | 4.55 | 5.15 | 6.90 | 8.31 | 10.3 | 12.0 |
| COP | | | 3.11 | 3.23 | 3.34 | 3.14 | 3.14 | 3.14 | 3.17 |
| ERP conformity | | | | | | | | | |
| SCOP (813/2013 EU) 8) | | | 3.64 | 3.99 | 3.67 | 3.56 | 3.77 | 3.80 | 3.70 |
| ηs (813/2013 EU) 8) | | [%] | 142 | 157 | 144 | 139 | 148 | 149 | 145 |
| ERP-conform 8) | | | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| Seasonal room heating energy efficiency class | | | A+ | A++ | A+ | A+ | A+ | A+ | A+ |
| Cooling performance values according to EN14511-3:2011 | | | | | | | | | |
| Refrigeration capacity 1) | Qe | [kW] | 10.5 | 12.8 | 14.7 | 18.7 | 24.7 | 29.5 | 35.2 |
| EER | | | 2.89 | 2.84 | 2.82 | 2.70 | 2.77 | 2.83 | 2.78 |
| ESEER | | | 4.29 | 4.58 | 4.38 | 3.99 | 4.03 | 4.00 | 4.01 |
| Heating performance values according to EN14511-3:2011 | | | | | | | | | |
| Heating capacity | | | 11.4 | 14.7 | 17.2 | 21.7 | 26.1 | 32.2 | 38.0 |
| COP | | | 3.12 | 3.24 | 3.36 | 3.16 | 3.16 | 3.13 | 3.19 |
| CONTROL SYSTEM | | | | | | | | | |
| | | | | | Step IV with black display | | | | |
| fans | | | | | | | | | |
| Axial Fans | | | | | | | | | |
| Fan Quantity | n | | 2 | 2 | 2 | 1 | 2 | 2 | 2 |
| Total air volume flow | | [m³/h] | 6408 | 6156 | 6480 | 8388 | 13536 | 15120 | 17496 |
| Compressor | | | | | | | | | |
| Scroll compressor with inverter | | | | | | | | | |
| Number of compressors | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Number of refrigeration circuits | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Minimum part-load speed | | [%] | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Heat exchanger water-side | | | | | | | | | |
| Min. water mass flow | Ve,min | [l/s] | 0.28 | 0.36 | 0.42 | 0.55 | 0.65 | 0.79 | 0.93 |
| Max. water mass flow | Ve,max | [l/s] | 0.84 | 1.02 | 1.17 | 1.57 | 1.97 | 2.35 | 2.80 |
| MAX WORKING PRESSURES | pmax | [bar] | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| On-site minimum system content | | [l] | 91 | 118 | 138 | 174 | 209 | 258 | 305 |
| Water charge of heat exchanger | | [l] | 1.8 | 2.0 | 2.1 | 2.5 | 3.1 | 4.2 | 4.9 |
| Heat exchanger connection | | | 1" | 1 ¼" | 1 ¼" | 1 ¼" | 1 ¼" | 1 ½" | 1 ½" |
| Refrigeration circuit charge | | | | | | | | | |
| Refrigerant R410A 3) | | [kg] | 3.95 | 4.45 | 5.10 | 6.70 | 8.10 | 10.0 | 11.0 |
| Oil charge | | [kg] | 0.87 | 1.40 | 1.40 | 1.40 | 1.40 | 2.30 | 2.30 |
| Electrical connection | | | | | | | | | |
| Main switch integrated | | | no | no | yes | yes | yes | yes | yes |
| Max. cable dimensions Voltage supply L1/L2/L3/N (PE) | | [mm²] | 4 | 4 | 16 (10) | 16 (10) | 16 (10) | 16 (10) | 16 (10) |
| Dimensions and weight | | | | | | | | | |
| A (length) | | [mm] | 900 | 900 | 1450 | 1450 | 1450 | 1450 | 1700 |
| B (width) | | [mm] | 420 | 420 | 550 | 550 | 550 | 550 | 650 |
| H (height) | | [mm] | 1240 | 1390 | 1200 | 1200 | 1700 | 1700 | 1700 |
| Weight 4,5) | | [kg] | 115 | 135 | 180 | 205 | 265 | 290 | 325 |

3) Performance data for input parameters: chilled water temperatures (inlet/outlet) 12/7°C; ambient temperature 35°C; values partially rounded off

4) Pump optional; subtract filter pressure loss from residual delivery head

3) For exact refrigerant charge volume, refer to the unit identification plate.

5) based on the entire unit (without pump)

6) Data apply to input parameters as described under 1) and without glycol; conversion required when using glycol

7) Performance data for input parameters: warm-water temperature (inlet/outlet) 40/45°C; outdoor-air temperature +7°C, 87 % r.h.; some values rounded off

8) Applies to units with pump, low temperature application in average climate (EN14825), data according to ERP guideline for heating units (EU law 813/2013 EU), which does not require stricter requirements from 2021, certified in Eurovent

9) Unit not available without pump

Noise levels

Tab. 4: Noise level

| Unit type FGAH | Total sound level | | Octave band [Hz] | | | | | | | |
|-----------------------|-----------------------------------|---|------------------------|-----|-----|-----|------|------|------|------|
| | Sound power [dB(A)] ¹⁾ | Sound pressure level [dB(A)] 10 m ²⁾ | Sound power level [dB] | | | | | | | |
| | | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| Standard units | | | | | | | | | | |
| 1005CD4 | 64 | 33 | 64 | 65 | 63 | 62 | 57 | 56 | 52 | 41 |
| 1006CD4 | 65 | 34 | 64 | 65 | 64 | 62 | 58 | 59 | 53 | 42 |
| 1007CD4 | 66 | 35 | 67 | 68 | 65 | 66 | 59 | 56 | 52 | 48 |
| 1008CD4/1 | 69 | 38 | 70 | 71 | 68 | 69 | 62 | 59 | 55 | 49 |
| 1009CD4/1 | 70 | 39 | 71 | 72 | 69 | 70 | 63 | 60 | 56 | 50 |
| 1010CD1 | 74 | 43 | 73 | 74 | 63 | 74 | 67 | 65 | 64 | 52 |
| 1011CD1 | 74 | 43 | 73 | 74 | 63 | 74 | 67 | 65 | 64 | 52 |
| 1012CD1 | 75 | 43 | 73 | 74 | 65 | 75 | 68 | 66 | 65 | 52 |
| 1013CD1 | 76 | 44 | 74 | 75 | 66 | 76 | 69 | 67 | 66 | 53 |
| 1014CD1 | 77 | 45 | 75 | 76 | 67 | 77 | 70 | 68 | 67 | 54 |

Data on operating conditions

Data applies only to water inlet and outlet temperature of 12 °C/ 7 °C and ambient air temperatures of 35 °C.

1) Specification of sound power (EUROVENT certified value)

Manufacturer determines the sound power value for Eurovent-certified units in accordance with ISO 9614 standard. This certification expressly refers to sound power in dB(A), which thus constitutes obligatory data in this case.

2) Specification of sound pressure level

The sound pressure level is determined according to enveloping surface method with a reflecting plane (Q = 2) The distance of 10 m refers to the external dimensions of the unit. For sound pressure level the following corrections can be used:

Sound pressure level at 5 m: +5 dB as compared to sound pressure level at 10 meters distance.

Sound pressure level at 15 m: -3 dB as compared to sound pressure level at 10 meters distance.

Sound pressure level at 20 m: -6 dB as compared to sound pressure level at 10 meters distance.

Only an externally engaged acoustics engineer should carry out specific sound level calculations to be valid for your installation site.

Footprint

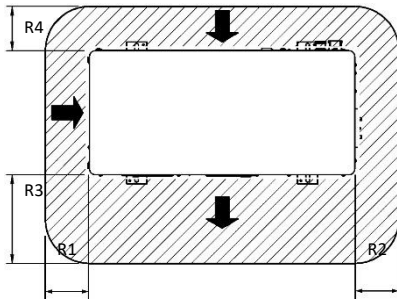


Fig. 4: Required clearances (example)

CLEARANCE FOR AIR SUPPLY!

Unit must be able to freely discharge air to the side. Air short-circuiting must be impossible! The necessary clearances near and over the unit may exceed the depicted maintenance clearance by many times.

Tab. 5: Clearances

| ALL UNIT SIZES | | R1 | R2 | R3 | R4 |
|---------------------|------|-----|-----|-----|-----|
| Required clearances | [mm] | 400 | 400 | 900 | 400 |

Anti-vibration isolators

Tab. 6: Required anti-vibration isolators according to unit model

| Unit type FGAH... | FläktGroup sales number (complete as accessory) | FläktGroup individual part designation |
|-----------------------|---|--|
| Standard units | | |
| 1005CD4 | FGZAH1005CD.I02 | 4 x AA/30/N |
| 1006CD4 | FGZAH1006CD.I02 | 4 x AA/30/N |
| 1007CD4 | FGZAH1007CD.I02 | 4 x AA/30/N |
| 1008CD4/1 | FGZAH1008CD.I02 | 4 x AA/50/N |
| 1009CD4/1 | FGZAH1009CD.I02 | 4 x AA/50/N |
| 1010CD1 | FGZAH1010CD.I02 | 4 x AA/50/N |
| 1011CD1 | FGZAH1011CD.I02 | 4 x AA/50/N |
| 1012CD1 | FGZAH1012CD.I02 | 4 x AA/50/N |
| 1013CD1 | FGZAH1013CD.I02 | 4 x AA/100/N |
| 1014CD1 | FGZAH1014CD.I02 | 4 x AA/100/N |

NOTICE!

If the units are operated without the appropriate anti-vibration mounts, the warranty is void!

Electrical Data

Tab. 7: Electrical data

| Unit Type | | | Compressor | | | Fans ³⁾ | | Total ^{1) 2) 3)} | | | |
|-----------------------|--------------|---|-------------|------------|------------|--------------------|------------|---------------------------|------------|------|----------------|
| FGAH... | Power supply | n | F.L.I. [kW] | F.L.A. [A] | L.R.A. [A] | F.L.I. [kW] | F.L.A. [A] | F.L.I. [kW] | F.L.A. [A] | S.A. | S.A. With Soft |
| Standard units | | | | | | | | | | | |
| 1005CD4 | 230/1/50 | 1 | 1.88 | 8.1 | N/A | 0.12 | 1 | 1.94 | 8 | N/A | N/A |
| 1006CD4 | 230/1/50 | 1 | 2.73 | 11.7 | N/A | 0.12 | 1 | 2.74 | 12 | N/A | N/A |
| 1007CD4 | 230/1/50 | 1 | 3.56 | 15.5 | N/A | 0.12 | 1 | 3.67 | 16 | N/A | N/A |
| 1008CD4 | 230/1/50 | 1 | 4.84 | 21.6 | N/A | 0.25 | 2 | 4.93 | 23 | N/A | N/A |
| 1009CD4 | 230/1/50 | 1 | 6.40 | 24.3 | N/A | 0.25 | 2 | 6.53 | 25 | N/A | N/A |
| 1008CD1 | 400/3+N/50 | 1 | 2.7 | 10.4 | N/A | 0.25 | 2 | 3.13 | 13 | N/A | N/A |
| 1009CD1 | 400/3+N/50 | 1 | 5.6 | 14.5 | N/A | 0.25 | 2 | 5.93 | 17 | N/A | N/A |
| 1010CD1 | 400/3+N/50 | 1 | 7.00 | 15.1 | N/A | 0.25 | 2 | 7.39 | 18 | N/A | N/A |
| 1011CD1 | 400/3+N/50 | 1 | 8.60 | 16.5 | N/A | 0.60 | 3 | 9.39 | 20 | N/A | N/A |
| 1012CD1 | 400/3+N/50 | 1 | 10.10 | 22.9 | N/A | 0.79 | 4 | 11.3 | 29 | N/A | N/A |
| 1013CD1 | 400/3+N/50 | 1 | 12.20 | 22.2 | N/A | 1.10 | 6 | 13.7 | 29 | N/A | N/A |
| 1014CD1 | 400/3+N/50 | 1 | 14.50 | 32.4 | N/A | 1.04 | 6 | 16.0 | 39 | N/A | N/A |

All values refer to units without built-in pumps. For units with built-in pumps, the pump data must be added.

n Number of compressors
F.L.I. El. FULL LOAD INPUT
F.L.A. Operating current
L.R.A. Starting current of each compressor
S.A. Starting current of entire unit

- 1) Please observe the regionally applicable safety regulations and constructional conditions relevant to the dimensioning of the supply line.
- 2) Please observe the regionally applicable standards for cable cross-sections and backup fuses. Voltage tolerance: max. 10%, voltage imbalance between phases: max. 3%.
- 3) Values are based on the total number of fans operating at maximum speed.

Terminal scheme

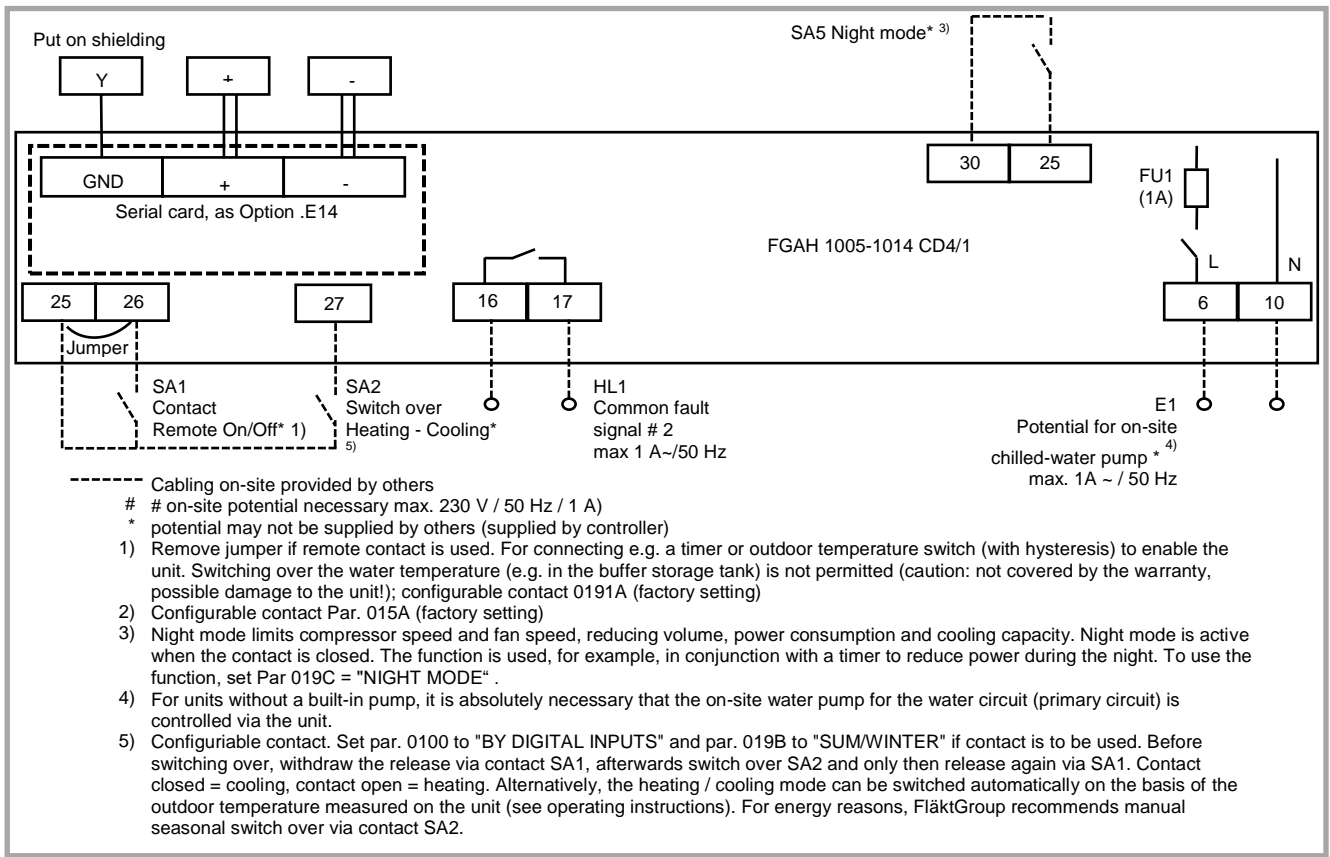


Fig. 5: Terminal scheme

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