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Fig. 1: Unit view (example – with vertical heat exchangers in longitudinal axis)

Type code

	FG	A	C	2	020	A	G	1	_
	Unit series	Condensing	Operating mode	Number of compressors	Capacity stage	Series	Refrigerant	Supply voltage	Unit model
FG	FläktGroup Series								
A	Air cooled (outdoor installation)								
C	Chiller								
2	2 Scroll compressors								
020-026	Standard units with 400 V / 3~ / 50 / N / PE 020, 025, 026,								
030-081	Standard units with 400 V / 3~ / 50 / PE: 030, 035, 040, 045, 050, 056, 061, 071, 081								
020-081	SL units with 400 V / 3~ / 50 / PE: 020, 025, 026, 030, 035, 041, 046, 051, 056, 061, 071, 081								
A	Unit series A								
G	Refrigerant R-454B								
1	400 V / 3~ / 50 Hz / N / PE								
2	400 V / 3~ / 50 Hz / PE								
_	Standard								
.D	With desuperhater for partial heat recovery								
.SL	SL unit - super low noise version								
.SD	SL unit - super low noise version with desuperhater for partial heat recovery								

Fig. 2: Explanation of unit type code

Unit description

FläktGroup Chillers with scroll compressors

- Air-cooled for outdoor installation
- Refrigerant R-454B (GWP 466), safety class A2L according to ISO 817
- ErP 2021 compliant according to (EU) 2016/2281
- 12 unit sizes available
- 2 unit models:
  - Standard model
  - SL model: noise-optimized with sound reduction by approx. 7 dB(A)
  - D - model with desuperheater for partial heat recovery
  - SD - model noise-optimized with noise reduction by approx. 7dB(A) and desuperheater for partial heat recovery
- High energy efficiency at full and part-load mode
- Capacity range approx. 53 kW to 218 kW cooling capacity
- Built-in FGPE pump modules or FGHM hydraulic modules according to the model size available
- FGPE pump modules consisting of one on/off pump or two parallel on/off pumps
- GLHM hydraulic modules consisting of one on/off pump or two parallel on/off pumps, buffer tank and expansion tank
- 1 cooling circuit with 2 compressors
- 2 smooth running, low-vibration, fully hermetic scroll compressors as tandem unit
- Electronic expansion valve
- Solenoid valve for liquid line
- • EC fans
- Al/Al microchannel heat exchanger as condenser, optionally with coating (option .I55/ .I56)
- Optional with protective grille (Option .I04)
- Plate heat exchanger as evaporator, incl. freeze protection heating for unit stand-by without glycol at ambient temperatures above -10 °C
- Built-in safety valve 6 bar
- Water outlet temperature -10 to +15 °C (partly depending on outdoor temperature)
- Air inlet temperature up to min. -20 °C and max. +46 °C possible (depending on selected medium and water temperature; see application limits diagram)
- Extended application range for cold water temperatures below 0 °C for outdoor temperatures below -10 °C to -20 °C on request
- Wind protected installation required for operation below -10 °C outdoor temperature
- If the temperature falls below the minimum air inlet temperature or exceeds the maximum air inlet temperature, the unit must be disabled
- Power supply 400 V / 3~ / 50 Hz / N / PE or 400 V / 3~ / 50 Hz / PE depending on model size
- Numbered connecting terminals
- Built-in phase sequence protection relay
- Automatic circuit breaker for load and control circuit
- Pump relay for controlling an on-site water pump provided by the customer for units without built-in pump(s)
- Demand limit contact to reduce electrical power consumption by deactivating compressors or their capacity stages (optional)
- FläktGroup controller with TA software
- Compact display with 8-line display
- Water-inlet temperature control as standard
- Setpoint shift with 4-20 mA signal (option .E21)
- Flow monitor for on-site mounting available as accessory (option .I67)
- Water strainer for on-site mounting available as accessory (option .I68 - .I72)
- On-site pipe expansion joints must be installed to decouple vibrations, noise transmission and linear expansion
- Lifting rods for unloading and shipping included
- All units of the FGAC 2020-2081 CD 1/2(.SL) series are Eurovent certified

Options and accessories

Mechanics accessories

FGPE modules

Built-in pump module
Consisting of one pump or two parallel pumps with redundancy function. The water connections are equipped with internal screw threads.
The other components are:
- Steel pipes, steam-tight insulated
- Pump protection with overcurrent relay
- Pump control with pump supply line and overrun time
- Prevention of pump blockages through regular activation

Pump modules assembled and wired by the manufacturer result in significant savings in installation costs.

Pumps or two parallel pumps with standard delivery head or increased delivery head are available. All pumps are designed as on/off pumps.

No FGPE or FGHM modules are available for the standard units with model sizes 2020 and 2025 as well as for the SL model of size 2025

Only pumps with standard head are available for the standard units of size 2026 and the SL units of size 2020.

No double pumps with increased head are available for the standard size 2030 units.

FGHM modules

Built-in hydraulic module
Consisting of one pump or two parallel pumps with redundancy function, as well as a horizontal single circuit buffer tank to increase the system volume. The water connections are equipped with internal screw threads and lead out of the unit.
The other components are:
- Steel pipes, steam-tight insulated
- Expansion tank (dimensioned for internal buffer tank)
- Safety valve
- Inlet, ventilation and relief valve
- Pressure indication
- Pump protection with overcurrent relay
- Pump control with pump supply line and overrun time
- Prevention of pump blockages through regular activation

Hydraulic modules assembled and wired by the manufacturer result in significant savings in installation costs.

Pumps or two parallel pumps with standard delivery head or increased delivery head are available. All pumps are designed as on/off pumps.

No FGPE or FGHM modules are available for the standard units with model sizes 2020 and 2025 as well as for the SL model of size 2025

Only pumps with standard head are available for the standard units of size 2026 and the SL units of size 2020.

No double pumps with increased head are available for the standard size 2030 units.

Installation of accessories

Option .I02 or .I26 for SL units	-	**Rubber anti-vibration isolators for units without pump** Anti-vibration mounts with rubber elements to minimize vibration transmission (supplied separately).
Option .I03 or .I27 for SL units	-	**Rubber anti-vibration isolators for units with FGPE pump module** Anti-vibration mounts with rubber elements to minimize vibration transmission (supplied separately).
Option .I05 or .I28 for SL units	-	**Rubber anti-vibration isolator for units with FGHM hydraulic module** Anti-vibration mounts with rubber elements to minimize vibration transmission (supplied separately).
Option .I04	-	**Protection grille for air-cooled heat exchanger** Protection grille on external sides of the air-cooled heat exchanger for protecting fins against damage due to shipping and weather.
Option .I55 or .I56 for SL units	-	**Anti-corrosion coating for microchannel heat exchangers (MCHX)** 100% epoxy polymer e-coating process for the entire air-cooled microchannel heat exchanger as protection against corrosion, UV radiation and for increased weather resistance to medium aggressive air pollution and use with medium salty air near the coast
Option .I58	-	**Display protection**
Option .I67	-	**Flow monitor (supplied separately)** with paddle for installation in hydraulic circuit at chilled water outlet. The on-site installation and wiring of the flow monitor is a prerequisite for warranty claims!
Option .I68 to .I72	-	**Water strainer for installation in the hydraulic circuit at the unit inlet (supplied separately)** A water strainer must be installed before the direct inlet into the heat exchanger(s) to protect the heat exchanger(s) from dirt and deposits. The "Y-type" water strainer has a mesh width of 0.9 mm. The filter insert can be removed without difficulty and cleaned for maintenance purposes without dismantling the valve body. Option .I68 Filter 1 ½" (unit size 2020-2026) Option .I69 Filter 2" (unit size 2030-2035) Option .I70 Filter 2 ½" (unit size 2040-2046) Option .I71 Filter 3" (unit size 2050-2071) Option .I72 Filter 4" (unit size 2080-2081)
On request	-	**Cu/Al heat exchanger with corrosion protection coating for fins instead of microchannel heat exchanger** Anti-corrosion coating for fins of Cu/Al heat exchanger. The use of chemical cleaning methods and protective paint coating made of polyester resin ensures the following characteristics for the fins: - Corrosion resistance in a salt-spray test according to ASTM B117 for at least 1000 hours - UV durability ***Attention: Change in refrigerant charge volume and unit weight***
On request	-	**Cu/Al heat exchanger with polyurethane paint coating instead of microchannel heat exchanger** Cu/Al heat exchanger with polyurethane paint. The entire heat exchanger receives protective coating using polyurethane paint, so that the following qualities are ensured: - Corrosion resistance in a salt-spray test according to ASTM B117 for at least 4000 hours - UV durability ***Attention: Change in refrigerant charge volume and unit weight***

Refrigeration circuit accessories

Option .R02	**Shut-off valves for compressor, suction side** Service shut-off valve assembled for fast and easy maintenance
Option .R10	**Shut-off valves for compressor pressure side** Service shut-off valve assembled for fast and easy maintenance
Option .R13	**High and low pressure gauges** Refrigerant gauge for high and low pressure side for reading off current operating pressures.
Option .R19	**Safety valve in double model for high and low pressure side** Two safety valves are connected via a changeover valve on the high and low pressure side each. By using a changeover valve a trouble-free and fast replacement of safety valves without refrigerant loss is possible for maintenance and service jobs.
Option .R29 *Only for standard units* *On request*	**High pressure control for operation at very low air intake temperatures** High-pressure control on the refrigeration side to guarantee operation down to -20 ° C air intake temperatures at water temperatures below 0 ° C. See the operating limits diagrams for the exact operating range. **Attention: Change in refrigerant charge and device weight. Price on request.** FläktGroup recommends this option only for projects with corresponding special requirements. Alternatively, the release of the device can be withdrawn if the minimum outside temperature is undershot.

Electrical accessories

Option .E06	-	**Soft starters for compressors** Cannot be combined with idle-current compensators (option .E46).
Option .E13 /.E11	-	**Frost protection heating for operation without glycol** suitable for stand-by units without glycol at ambient temperatures above -10 °C. Standard for units without pumps and without buffer tank .E13 units with FGPE pump module (pump(s) without buffer tank) .E11 units with FGHM hydraulic module (pump(s) and buffer tank).
Option .E03	-	**Operation message of compressor** Floating contacts for status indication of each respective compressor.
Option .E21	-	**Sliding setpoint via a 4-20 mA signal provided on-site** Shifting the cold and hot water setpoint value in a fixed range via a 4-20 mA signal provided on-site. Changing the setpoint, e.g. during night mode operation, can realize significant savings potential.
Option .E22	-	**2nd setpoint via on-site normally open contact.** External changeover between two setpoint values set for unit by closing a field-provided dry contact. Raising the setpoint, e.g. during night mode operation, can realize significant savings potential.
Option .E23	-	**Demand limit / load limitation** Reduction of electrical power consumption by deactivating compressors or their capacity stages (demand limit switch) by opening an on-site floating contact. This function is used if a full electrical power supply is unavailable.
On request	-	**Variable setpoint temperature using outdoor temperature** The setpoint temperature can be controlled in a variable manner depending on the outdoor temperature. In addition, an external temperature sensor is supplied for on-site mounting.

On request	-	**Compensation of reactive current for individual compressor motors** Individual PFC capacitors are connected in parallel to each compressor motor in order to reduce the idle current to a minimum and to improve the cos-phi of the unit. Cannot be combined with soft starters (option .E06).

Accessories for controls

Option .E19/E20	-	**Second remote control connection for remote monitoring and control** Up to 10 units in the same controller family can be connected to an additional remote control *Option .E19* for remote controls up to 200 meters away Option .E20 for remote controls up to 500 meters away
Serial card for connection to a building management system or for master/slave control	- -	**Serial interface board for connecting the unit to a building management system (BMS)** The following protocols are used to transmit digital and analog values: – Retrieval of alarm signals – Retrieval of temperature and pressure values provided by the controller – Operating status of individual compressors – Enabling the unit – Setpoint shift
Option .E14	-	**Modbus (RS485),** Built-in Modbus interface for connection to the building management system or for internal group communication with a sequencer
Option .E15	-	**LonWorks® ,** Built-in LonWorks interface for connection to the building management system or to a sequencer
Option .E16	-	**BACnet via IP,** Built-in BACnet via IP interface for connection to the building management system or to a sequencer
Option .E17	-	**BACnet via MS/TP RS485,** Built-in BACnet via MS/TP RS485 interface for connection to the building management system
Option .E18	-	**Sequencer without connection to a BMS:** Upstream master/slave control. Up to a maximum 5 units of the FläktGroup Step I, II, III controller family can be used in a hydraulic circuit and connected to a sequencer. The sequencer is supplied in a separate switch cabinet with two temperature sensors that must be installed in a common water inlet and outlet. Depending on the water inlet temperature, individual capacity steps or units are switched on or off. Every unit needs a serial card of Modbus type (option .E14) in order to communicate with the sequencer and its own chilled-water pump that also must be controlled by the chiller/heat pump.
Option .E24	-	**Sequencer with connection to a BMS via Modbus protocol**
Option .E25	-	**Sequencer with integration to a BMS via LONWORKS® protocol**
Option .E27	-	**Sequencer with integration to a BMS via BACnet protocol MS/TP RS485**

Other accessories

Option .O01
Packaging in timber crate and nylon foil
The unit is supplied for shipping in a timber crate and is additionally shrink-wrapped in nylon foil to protect it from the weather and dirt.

Option .O11
Packing of the unit with nylon cover
The unit is shrink-wrapped in nylon foil for shipping and storage to protect it from weather and dirt.

Option .O27 - **Refrigerant leak detection (Alarm)**
The compressor section is monitored for leaking refrigerant. A detected refrigerant leakage is indicated by the controller as an alarm message.

By using a leakage detection system, the test intervals prescribed in EU (No.) 517/2014 with regard to the air tightness of the refrigeration circuit can be reduced. See operating instructions.

Option .O28 - **Refrigerant leak detection (compressor switch off)**
The compressor section is monitored for leaking refrigerant. In the event of refrigerant leakage, the compressor is switched off and an alarm signal is triggered by the controller.

By using a leakage detection system, the test intervals prescribed in EU (No.) 517/2014 with regard to the air tightness of the refrigeration circuit can be reduced. See operating instructions.

Casing models

Depending on the size and type of unit, different casing designs are used. Observe the information under "Casing construction" in the chapter "General data".

Fig. 3: Model with V-shaped heat exchanger in longitudinal axis

Fig. 4: Model with W-shaped heat exchangers in transverse axis

Operating limits

On the water side, the operating limits according to table 1. The air and water side must comply with the limits of the selected options as shown in Figure 7. The indicated limits change when used with or without glycol in the range of approx. +/- 2 K. The exact operating limits are output in the design program.

If operation at ambient temperatures below -10 °C is required, the unit must be installed sheltered from the wind (speeds < 0.5 m/s).

Tab. 1: Operating limits water (glycol) circuit

		Min	Max
Water inlet (cooling)	[°C]	-7 or -5 (for .D/.SD units)	23
Water outlet (cooling)	[°C]	-10 or -8 (for .D/.SD units)	15
dT (for water outlet >5 °C) (cooling)	[K]	4	8
dT (for water outlet ≤5 °C) (cooling)	[K]	3	5
Water inlet Desuperheater (.D/.SD-units)	[°C]	30	55
Water outlet Desuperheater (.D/.SD-unit)	[°C]	35	60
Glycol concentration	[%]		50

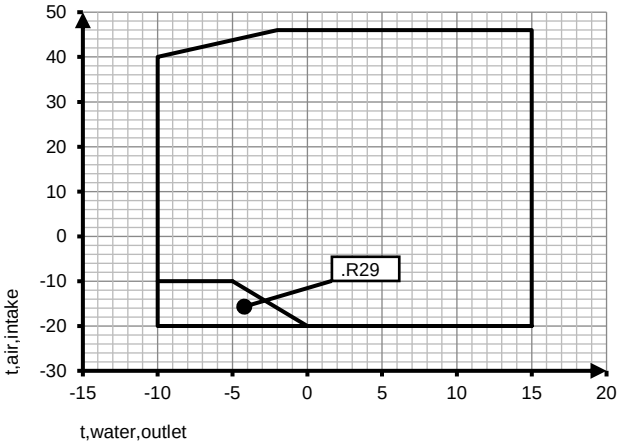


Fig. 5: Operating range – Standard units

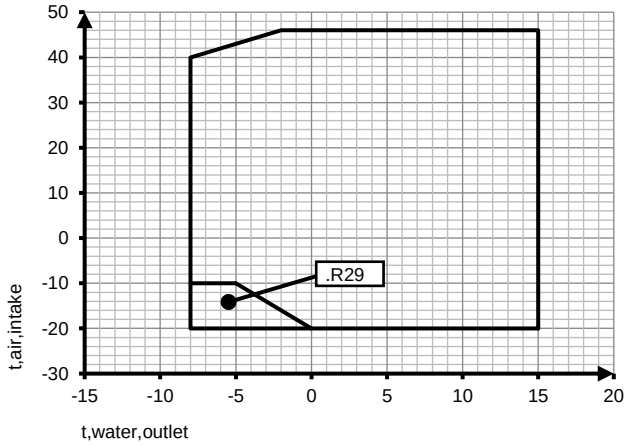


Fig. 6: Operating range Standard units with desuperheater (.D)

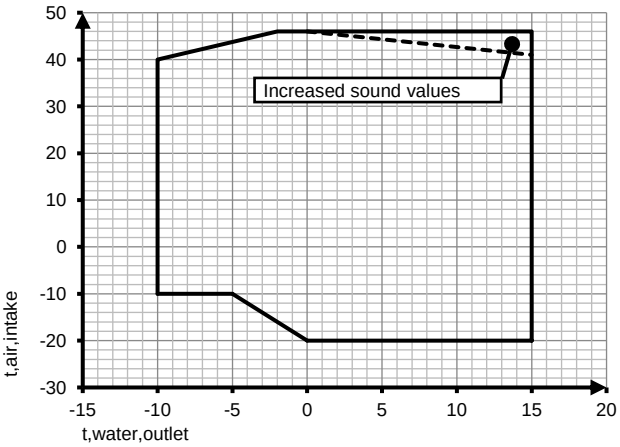


Fig. 7: Operating range – SL units;

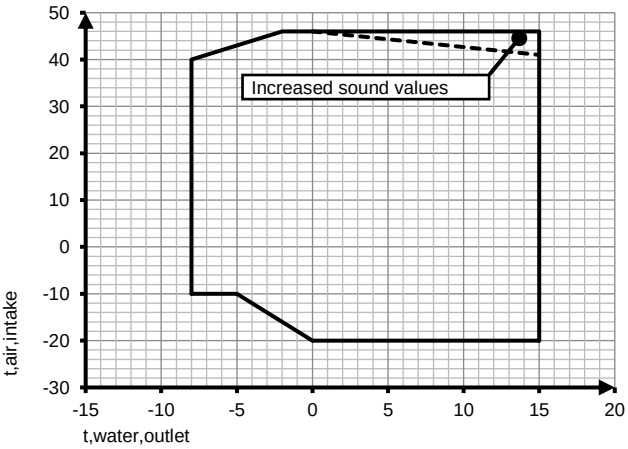


Fig. 8: Operating range – SL units with desuperheater (.SD)

Notices

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

The unit must be protected from freezing at ambient temperatures lower than 5 °C. Frost protection heating for the water-side heat exchanger is provided as standard for this purpose. 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.

General Data

Tab. 2: General data for standard units with 2 compressors

Unit type FGAC #### AG1/2			2020	2025	2026	2030	2035	2040	2045
Performance data (catalog) - [6]									
Cooling capacity [1]	Qe	[kW]	52.8	60.0	66.8	81.6	92.7	103.6	117.0
Power consumption [5]	P	[kW]	15,6	18,0	20,3	24,2	27,6	30,9	35,2
EER			3,39	3,35	3,29	3,37	3,36	3,35	3,32
Chilled water flow rate	Ve	[m³/h]	9.1	10.3	11.5	14.1	16.0	17.8	20.1
Chilled water pressure drop	Δpe	[kPa]	37.5	34.6	35.1	37.5	59.4	51.6	53.6
ERP conformity									
SEER (EU 2016/2281) [2]			4.10	4.14	4.18	4.27	4.22	4.19	4.26
η_S (EU 2016/2281) [2]		[%]	161	163	164	168	166	164	167
ERP-compliant 2021			☑	☑	☑	☑	☑	☑	☑
Application			Comfort	Comfort	Comfort	Comfort	Comfort	Comfort	Comfort
Performance values according to EN14511-3:2011									
Cooling capacity [1]	Qe	[kW]	52.7	59.8	66.7	81.4	92.4	103.3	116.8
EER			3.33	3.29	3.24	3,32	3,27	3,28	3,26
Controls			FläktGroup controller with TA software and compact display						
Casing construction			V-shaped heat exchanger (in longitudinal axis)						
Fans			**Axial fans**						
Number of fans		n	6	6	6	2	2	2	2
Total air volume flow		[m³/h]	26676	26676	26676	40824	42264	45108	45108
Compressors			**Scroll compressor**						
Number of compressors			2	2	2	2	2	2	2
Number of refrigeration circuits			1	1	1	1	1	1	1
Minimum part-load speed		[%]	50	50	50	50	50	50	50
Evaporator (chilled-water side)									
Min. water mass flow	$V_{e,min}$	[m³/h]	5.2	5.9	6.5	7.8	8.9	10.3	11.6
Max. water mass flow	$V_{e,max}$	[m³/h]	16.0	17.4	17.4	17.4	22.0	31.2	35.1
Max. operating pressure	p_{max}	[bar]	10	10	10	10	10	10	10
Minimum chilled water system content		[l]	138	156	174	213	242	270	305
Water charge of heat exchanger		[l]	3.3	3.6	4.1	5	5.8	6.6	7.4
Evaporator connection	VICTAULIC[2]		1 1/2“	1 1/2“	1 1/2“	2“	2“	2 1/2“	2 1/2“
Refrigeration circuit charge									
Refrigerant R-454B [3,4] (GWP 466)		[kg]	7.3	7.9	8	9.3	12.4	12.5	12.9
Oil charge		[kg]	5.4	5.4	5.4	5.4	5.4	5.4	8
Connectable cable cross-sections [7]									
Rectangular	Max	[mm]	16 x 3	16 x 3	16 x 3	16 x 3	16 x 3	20 x 4	20 x 4
Round	Max	[mm²]	50	50	50	50	50	120	120
Dimensions and weight									
A (length)		[mm]	2395	2395	2395	2825	3360	3360	3360
B (width)		[mm]	1195	1195	1195	1195	1195	1195	1195
H (height)		[mm]	1865	1865	1865	1980	1980	1980	1980
Weight [4,5]		[kg]	580	590	600	710	780	830	920

1) Performance data for input parameters: chilled water temperatures (inlet/outlet) 12/7 °C; outside-air temperature 35 °C; values partially rounded off
2) Applies to units in standard configuration without pumps
3) For exact refrigerant charge volume, refer to the unit name plate
4) Applies to units without option .R29 and with microchannel heat exchanger
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) Please observe the regionally applicable safety regulations and constructional conditions relevant to the dimensioning of the supply line.

Tab. 2: General data for standard units with 2 compressors (continued)

Unit type FGAC #### AG2			2050	2056	2061	2071	2081
Performance data (catalog) - [6]							
Cooling capacity [1]	Qe	[kW]	132.3	153.9	171.3	193.2	218
Power consumption [5]	P	[kW]	39,0	44,6	50,7	58,1	64,5
EER			3,39	3,45	3,38	3,33	3,38
Chilled water flow rate	Ve	[m³/h]	22.8	26.5	29.5	33.3	37.5
Chilled water pressure drop	Δpe	[kPa]	52.9	59.3	52.7	51.8	65.9
ERP conformity							
SEER (EU 2016/2281) [2]			4.24	4.28	4.28	4.36	4.17
η_S (EU 2016/2281) [2]		[%]	166	168	168	172	164
ERP-compliant 2021			☑	☑	☑	☑	☑
Application			Comfort	Comfort	Comfort	Comfort	Comfort
Performance values according to EN14511-3:2011							
Cooling capacity [1]	Qe	[kW]	132.0	153.6	171	192.8	217.6
EER			3,32	3,38	3,32	3,27	3,31
Controls			FläktGroup controller with TA software and compact display				
Casing construction			V-shaped [8]	W-shaped heat exchanger (in transverse axis)			
Fans					**Axial fans**		
Number of fans		n	3	4	4	4	5
Total air volume flow		[m³/h]	61344	81648	81648	81648	102060
Compressors					**Scroll compressor**		
Number of compressors			2	2	2	2	2
Number of refrigeration circuits			1	1	1	1	1
Minimum part-load speed		[%]	50	50	50	50	50
Evaporator (chilled-water side)							
Min. water mass flow	$V_{e,min}$	[m³/h]	13.0	14.7	16.9	19.4	21.1
Max. water mass flow	$V_{e,max}$	[m³/h]	39.1	39.1	39.1	43.0	43.0
Max. operating pressure	p_{max}	[bar]	10	10	10	10	10
Minimum chilled water system content		[l]	345	401	446	503	568
Water charge of heat exchanger		[l]	8.5	9.4	11.5	13.6	13.6
Evaporator connection	VICTAULIC[2]		2 1/2“	2 1/2“	2 1/2“	2 1/2“	2 1/2“
Refrigeration circuit charge							
Refrigerant R-454B [3,4] (GWP 466)		[kg]	17.5	19.8	20.3	20.8	23
Oil charge		[kg]	10.6	10.6	10.6	10.6	10.6
Connectable cable cross-sections [7]							
Rectangular	Max	[mm]	20 x 4	20 x 4	20 x 5	20 x 5	20 x 5
Round	Max	[mm²]	120	120	120	120	120
Dimensions and weight							
A (length)		[mm]	3980	3160	3160	3160	4335
B (width)		[mm]	1195	2250	2250	2250	2250
H (height)		[mm]	1980	2170	2170	2170	2170
Weight [4,5]		[kg]	1060	1460	1480	1490	1750

1) Performance data for input parameters: chilled water temperatures (inlet/outlet) 12/7 °C; outside-air temperature 35 °C; values partially rounded off
2) Applies to units in standard configuration without pumps
3) For exact refrigerant charge volume, refer to the unit name plate
4) Applies to units without option .R29 and with microchannel heat exchanger
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) Please observe the regionally applicable safety regulations and constructional conditions relevant to the dimensioning of the supply line.
8) V-shaped heat exchanger (in longitudinal axis)

Tab. 3: General data for SL units with 2 compressors

Unit type FGAC #### AG2.SL			2020	2025	2026	2030	2035	2041	2046
Performance data (catalog) - [6]									
Cooling capacity [1]	Qe	[kW]	53.1	59.7	66.4	78.7	90.7	101.8	113.9
Power consumption [5]	P	[kW]	15,2	17,3	19,5	23,4	26,5	29,3	33,5
EER			3,49	3,45	3,41	3,38	3,42	3,47	3,40
Chilled water flow rate	Ve	[m³/h]	9.1	10.3	11.4	13.5	15.6	17.5	19.6
Chilled water pressure drop	Δpe	[kPa]	38.0	34.4	34.7	34.9	56.8	49.7	50.8
ERP conformity									
SEER (EU 2016/2281) [2]			4.47	4.26	4.30	4.43	4.48	4.44	4.49
η_S (EU 2016/2281) [2]		[%]	176	167	169	174	176	175	176
ERP-compliant 2021			☑	☑	☑	☑	☑	☑	☑
Application			Comfort	Comfort	Comfort	Comfort	Comfort	Comfort	Comfort
Performance values according to EN14511-3:2011									
Cooling capacity [1]	Qe	[kW]	53.0	59.6	66.3	78.5	90.4	101.5	113.5
EER			3,43	3,40	3,35	3,32	3,34	3,40	3,33
Controls			FläktGroup controller with TA software and compact display						
Casing construction			V-shaped heat exchanger (in longitudinal axis)					W-shaped heat exchanger (in transverse axis)	
Fans			**Axial fans**						
Number of fans		n	2	2	2	2	3	4	4
Total air volume flow		[m³/h]	23400	30456	30456	30456	35568	43920	43920
Compressors			**Scroll compressor**						
Number of compressors			2	2	2	2	2	2	2
Number of refrigeration circuits			1	1	1	1	1	1	1
Minimum part-load speed		[%]	50	50	50	50	50	50	50
Evaporator (chilled-water side)									
Min. water mass flow	$V_{e,min}$	[m³/h]	5.2	5.9	6.5	7.8	8.9	10.3	11.6
Max. water mass flow	$V_{e,max}$	[m³/h]	16.0	17.4	17.4	17.4	22.0	31.2	35.1
Max. operating pressure	p_{max}	[bar]	10	10	10	10	10	10	10
Minimum chilled water system content		[l]	138	156	174	213	242	270	305
Water charge of heat exchanger		[l]	3.3	3.6	4.1	5	5.8	6.6	7.4
Evaporator connection	VICTAULIC[2]		1 1/2“	1 1/2“	1 1/2“	2“	2“	2 1/2“	2 1/2“
Refrigeration circuit charge									
Refrigerant R-454B [3,4] (GWP 466)		[kg]	7.7	9.0	9.7	9.8	11.7	14.2	14.9
Oil charge		[kg]	5.4	5.4	5.4	5.4	5.4	5.4	8.0
Connectable cable cross-sections [7]									
Rectangular	Max	[mm]	16 x 3	16 x 3	16 x 3	16 x 3	16 x 3	20 x 4	20 x 4
Round	Max	[mm²]	50	50	50	50	50	120	120
Dimensions and weight									
A (length)		[mm]	2825	3360	3360	3360	3980	3160	3160
B (width)		[mm]	1195	1195	1195	1195	1195	2250	2250
H (height)		[mm]	1980	1980	1980	1980	1980	2170	2170
Weight [4,5]		[kg]	700	790	800	810	890	1280	1370

1) Performance data for input parameters: chilled water temperatures (inlet/outlet) 12/7 °C; outside-air temperature 35 °C; values partially rounded off
2) Applies to units in standard configuration without pumps
3) For exact refrigerant charge volume, refer to the unit name plate
4) Applies to units with microchannel heat exchanger
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) Please observe the regionally applicable safety regulations and constructional conditions relevant to the dimensioning of the supply line.

Tab. 3: General data for SL units with 2 compressors

Unit type FGAC #### AG2.SL			2051	2056	2061	2071	2081
Performance data (catalog) - [6]							
Cooling capacity [1]	Qe	[kW]	127.7	145.6	165.4	187.1	208.9
Power consumption [5]	P	[kW]	38,0	42,9	47,8	55,9	61,9
EER			3,36	3,39	3,46	3,35	3,38
Chilled water flow rate	Ve	[m³/h]	22.0	25.1	28.5	32.2	36.0
Chilled water pressure drop	Δpe	[kPa]	49.3	53.1	49.1	48.5	60.5
ERP conformity							
SEER (EU 2016/2281) [2]			4.50	4.58	4.57	4.67	4.43
η_S (EU 2016/2281) [2]		[%]	177	180	180	184	174
ERP-compliant 2021			☑	☑	☑	☑	☑
Application			Comfort	Comfort	Comfort	Comfort	Comfort
Performance values according to EN14511-3:2011							
Cooling capacity [1]	Qe	[kW]	127.4	145.3	165.1	186.7	208.5
EER			3,29	3,33	3,39	3,29	3,31
Controls			FläktGroup controller with TA software and compact display				
Casing construction			W-shaped heat exchanger (in transverse axis)				
Fans			**Axial fans**				
Number of fans		n	4	5	6	6	7
Total air volume flow		[m³/h]	43920	54900	65880	65880	76860
Compressors			**Scroll compressor**				
Number of compressors			2	2	2	2	2
Number of refrigeration circuits			1	1	1	1	1
Minimum part-load speed		[%]	50	50	50	50	50
Evaporator (chilled-water side)							
Min. water mass flow	$V_{e,min}$	[m³/h]	13.0	14.7	16.9	19.4	21.1
Max. water mass flow	$V_{e,max}$	[m³/h]	39.1	39.1	39.1	43.0	43.0
Max. operating pressure	p_{max}	[bar]	10	10	10	10	10
Minimum chilled water system content		[l]	345	401	446	503	568
Water charge of heat exchanger		[l]	8.5	9.4	11.5	13.6	13.6
Evaporator connection	VICTAULIC[2]		2 1/2“	2 1/2“	2 1/2“	2 1/2“	2 1/2“
Refrigeration circuit charge							
Refrigerant R-454B [3,4] (GWP 466)		[kg]	17.4	21.6	23.5	23.6	27
Oil charge		[kg]	10.6	10.6	10.6	10.6	10.6
Connectable cable cross-sections [7]							
Rectangular	Max	[mm]	20 x 4	20 x 4	20 x 5	20 x 5	20 x 5
Round	Max	[mm²]	120	120	120	120	120
Dimensions and weight							
A (length)		[mm]	3160	4335	4335	4335	5510
B (width)		[mm]	2250	2250	2250	2250	2250
H (height)		[mm]	2170	2170	2170	2170	2170
Weight [4,5]		[kg]	1440	1690	1750	1770	2070

1) Performance data for input parameters: chilled water temperatures (inlet/outlet) 12/7 °C; outside-air temperature 35 °C; values partially rounded off
2) Applies to units in standard configuration without pumps
3) For exact refrigerant charge volume, refer to the unit name plate
4) Applies to units with microchannel heat exchanger
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) Please observe the regionally applicable safety regulations and constructional conditions relevant to the dimensioning of the supply line.

Noise levels

Tab. 4: Noise level

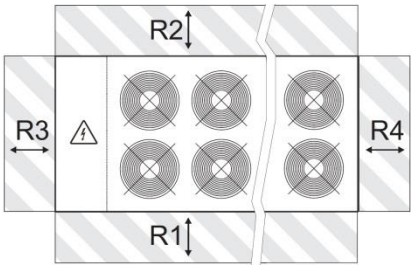
	Total sound level		Octave band [Hz]							
			Sound power level [dB]							
Unit type FGAC	**Sound power [dB(A)] 1)**	**Sound pressure level [dB(A)] 10 m 2)**	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
Standard units										
2020AG1	85	53	86	86	82	81	81	78	70	58
2025AG1	85	53	86	86	82	81	81	78	70	58
2026AG1	86	54	87	87	83	82	82	79	71	59
2030AG2	88	56	89	89	85	84	84	81	73	61
2035AG2	88	56	89	89	85	84	84	81	73	61
2040AG2	90	58	91	91	87	86	86	83	75	63
2045AG2	90	58	91	91	87	86	86	83	75	63
2050AG2	90	58	91	91	87	86	86	83	75	63
2056AG2	91	59	92	92	88	87	87	84	76	64
2061AG2	91	59	92	92	88	87	87	84	76	64
2071AG2	92	60	93	93	89	88	88	85	77	65
2081AG2	93	61	94	94	90	89	89	86	78	66
SL units (especially quiet model)										
2020AG2.SL	78	46	83	81	79	76	73	68	62	58
2025AG2.SL	79	47	84	82	80	77	74	69	63	59
2026AG2.SL	79	47	84	82	80	77	74	69	63	59
2030AG2.SL	79	47	84	82	80	77	74	69	63	59
2035AG2.SL	80	48	85	83	81	78	75	70	64	60
2041AG2.SL	81	49	85	84	82	79	76	71	65	61
2046AG2.SL	82	50	87	85	83	81	76	72	66	62
2051AG2.SL	82	50	87	85	83	81	76	72	66	62
2056AG2.SL	83	51	88	86	84	82	76	73	67	63
2061AG2.SL	84	52	89	87	85	83	77	74	68	64
2071AG2.SL	85	53	89	88	86	84	79	74	68	64
2081AG2.SL	86	54	89	89	87	85	80	75	69	64

Data on operating conditions
Data applies only to water inlet and discharge temperatures of 12 °C/ 7 C° and outside-air temperatures of 35 °C.

1) Specification of sound power (EUROVENT certified value)
The 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



CLEARANCE FOR AIR SUPPLY!
Unit must be able to freely discharge air upwards. 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

Unit sizes		R1	R2	R3	R4
2015-2081	[mm]	1000	1000	1000	1000

Fig. 9: Required clearances (example)

Anti-vibration mounts

Tab. 6: Required anti-vibration mounts according to the unit model (applies to units with micro channel condenser)

Unit type FGAC…	FläktGroup sales number (complete as accessory)			FläktGroup individual part designation		
	Units without pump(s)	Units with pump(s) + FGPE	Units with pump(s) and buffer tank + FGHM	Units without pump(s)	Units with pump(s) + FGPE	Units with pump(s) and buffer tank + FGHM
Standard units						
2020AG1	FGZAC2020AG.I02	FGZAC2020AG.I03	FGZAC2020AG.I05	4 x FZ-200-51	4 x FZ-200-51	4 x FZ-200-51
2025AG1	FGZAC2025AG.I02	FGZAC2025AG.I03	FGZAC2025AG.I05	4 x FZ-200-51	4 x FZ-200-51	4 x FZ-200-51
2026AG1	FGZAC2026AG.I02	FGZAC2026AG.I03	FGZAC2026AG.I05	4 x FZ-200-51	4 x FZ-200-51	4 x FZ-200-51
2030AG2	FGZAC2030AG.I02	FGZAC2030AG.I03	FGZAC2030AG.I05	4 x FZ-200-51	4 x FZ-200-51	4 x FZ-200-57
2035AG2	FGZAC2035AG.I02	FGZAC2035AG.I03	FGZAC2035AG.I05	6 x FZ-100-57	6 x FZ-200-51	6 x FZ-200-51
2040AG2	FGZAC2040AG.I02	FGZAC2040AG.I03	FGZAC2040AG.I05	6 x FZ-100-57	6 x FZ-200-51	6 x FZ-200-57
2045AG2	FGZAC2045AG.I02	FGZAC2045AG.I03	FGZAC2045AG.I05	6 x FZ-200-51	6 x FZ-200-51	6 x FZ-200-57
2050AG2	FGZAC2050AG.I02	FGZAC2050AG.I03	FGZAC2050AG.I05	6 x FZ-200-51	6 x FZ-200-51	8 x FZ-200-51
2056AG2	FGZAC2056AG.I02	FGZAC2056AG.I03	FGZAC2056AG.I05	6 x FZ-200-57	6 x FZ-200-57	6 x FZ-400-51
2061AG2	FGZAC2061AG.I02	FGZAC2061AG.I03	FGZAC2061AG.I05	6 x FZ-200-57	6 x FZ-200-57	6 x FZ-400-51
2071AG2	FGZAC2071AG.I02	FGZAC2071AG.I03	FGZAC2071AG.I05	6 x FZ-200-57	6 x FZ-200-57	6 x FZ-400-51
2081AG2	FGZAC2081AG.I02	FGZAC2081AG.I03	FGZAC2081AG.I05	6 x FZ-200-57	8 x FZ-200-57	8 x FZ-400-51
SL units (super quiet model)						
2020AG2.SL	FGZAC2020AG.I26	FGZAC2020AG.I27	FGZAC2020AG.I28	4 x FZ-200-51	4 x FZ-200-51	4 x FZ-200-57
2025AG2.SL	FGZAC2025AG.I26	FGZAC2025AG.I27	FGZAC2025AG.I28	6 x FZ-100-57	6 x FZ-100-57	6 x FZ-200-51
2026AG2.SL	FGZAC2026AG.I26	FGZAC2026AG.I27	FGZAC2026AG.I28	6 x FZ-100-57	6 x FZ-100-57	6 x FZ-200-51
2030AG2.SL	FGZAC2030AG.I26	FGZAC2030AG.I27	FGZAC2030AG.I28	6 x FZ-100-57	6 x FZ-100-57	6 x FZ-200-51
2035AG2.SL	FGZAC2035AG.I26	FGZAC2035AG.I27	FGZAC2035AG.I28	6 x FZ-100-57	6 x FZ-200-51	8 x FZ-200-51
2041AG2.SL	FGZAC2041AG.I26	FGZAC2041AG.I27	FGZAC2041AG.I28	6 x FZ-200-51	6 x FZ-200-57	6 x FZ-400-51
2046AG2.SL	FGZAC2046AG.I26	FGZAC2046AG.I27	FGZAC2046AG.I28	6 x FZ-200-51	6 x FZ-200-57	6 x FZ-400-51
2051AG2.SL	FGZAC2051AG.I26	FGZAC2051AG.I27	FGZAC2051AG.I28	6 x FZ-200-57	6 x FZ-200-57	6 x FZ-400-51
2056AG2.SL	FGZAC2056AG.I26	FGZAC2056AG.I27	FGZAC2056AG.I28	6 x FZ-200-57	8 x FZ-200-57	8 x FZ-400-51
2061AG2.SL	FGZAC2061AG.I26	FGZAC2061AG.I27	FGZAC2061AG.I28	6 x FZ-200-57	8 x FZ-200-57	8 x FZ-400-51
2071AG2.SL	FGZAC2071AG.I26	FGZAC2071AG.I27	FGZAC2071AG.I28	6 x FZ-200-57	8 x FZ-200-57	8 x FZ-400-51
2081AG2.SL	FGZAC2081AG.I26	FGZAC2081AG.I27	FGZAC2081AG.I28	8 x FZ-200-57	8 x FZ-200-57	8 x FZ-400-51

NOTICE!

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

Electrical data

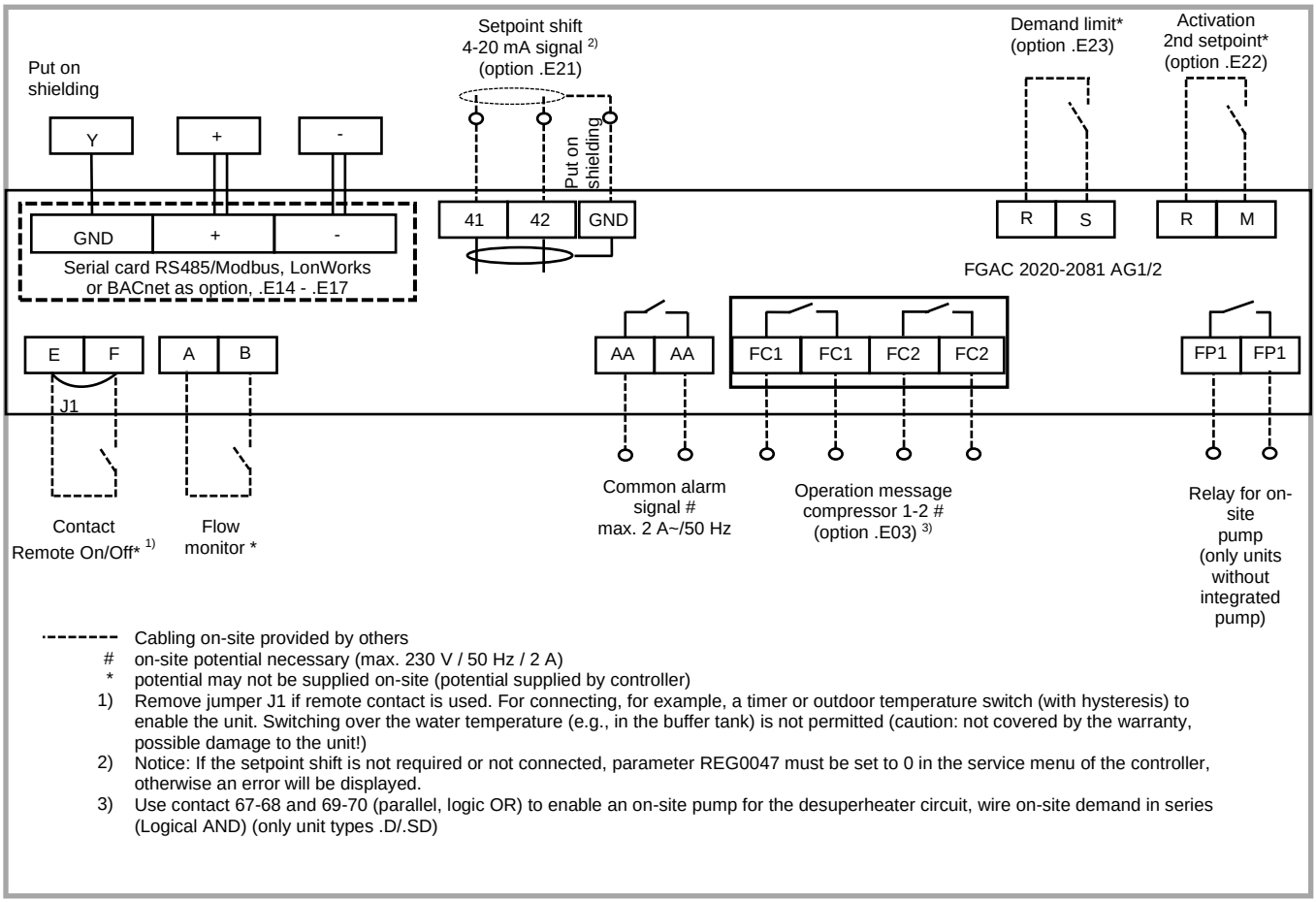
Tab. 7: Electrical data

Unit type			Compressors			Fans[3]		Total [1) 2) 3)]			
FGAC…	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											
2020AG1	400/3+N/50	2	2 x 10.5	2 x 16.6	2 x 123	2.1	12	23.1	46	153	103
2025AG1	400/3+N/50	2	2 x 11.5	2 x 18.3	2 x 138	2.1	12	25	50	170	114
2026AG1	400/3+N/50	2	2 x 13.1	2 x 20.8	2 x 145	2.1	12	28.2	55	179	120
2030AG2	400/3/50	2	2 x 15.4	2 x 24.9	2 x 172	3.4	6	34.1	55	202	135
2035AG2	400/3/50	2	1x15.4 + 1x21.4	1x24.9 + 1x34.2	1x172 + 1x211	3.4	6	40.2	65	241	158
2040AG2	400/3/50	2	2 x 21.4	2 x 34.2	2 x 211	6.4	10	49.2	78	255	171
2045AG2	400/3/50	2	1x21.4 + 1x27	1x34.2 + 1x42.5	1x211 + 1x210	6.4	10	54.8	87	255	171
2050AG2	400/3/50	2	2 x 27	2 x 42.5	2 x 210	5.1	9	59.1	93	261	178
2056AG2	400/3/50	2	1x27 + 1x34.5	1x42.5 + 1x55.1	1x210 + 1x326	6.8	12	68.3	108	379	251
2061AG2	400/3/50	2	2 x 34.5	2 x 55.1	2 x 326	6.8	12	75.8	121	392	263
2071AG2	400/3/50	2	2 x 37.8	2 x 62.3	2 x 326	6.8	12	83.3	135	399	270
2081AG2	400/3/50	2	2 x 42	2 x 68.4	2 x 298	8.5	15	92.5	150	380	263
SL units (especially quiet model)											
2020AG2.SL	400/3/50	2	2 x 10.5	2 x 16.6	2 x 123	3.4	6	24.4	39	145	97
2025AG2.SL	400/3/50	2	2 x 11.5	2 x 18.3	2 x 138	6.4	10	29.4	47	166	112
2026AG2.SL	400/3/50	2	2 x 13.1	2 x 20.8	2 x 145	6.4	10	32.6	52	176	118
2030AG2.SL	400/3/50	2	2 x 15.4	2 x 24.9	2 x 172	6.4	10	37.2	60	207	139
2035AG2.SL	400/3/50	2	1x15.4 + 1x21.4	1x24.9 + 1x34.2	1x172 + 1x211	5.1	9	41.9	67	244	161
2041AG2.SL	400/3/50	2	2 x 21.4	2 x 34.2	2 x 211	6.8	12	49.6	79	256	173
2046AG2.SL	400/3/50	2	1x21.4 + 1x27	1x34.2 + 1x42.5	1x211 + 1x210	6.8	12	55.2	88	256	173
2051AG2.SL	400/3/50	2	2 x 27	2 x 42.5	2 x 210	6.8	12	60.8	97	265	181
2056AG2.SL	400/3/50	2	1x27 + 1x34.5	1x42.5 + 1x55.1	1x210 + 1x326	8.5	15	70	111	382	254
2061AG2.SL	400/3/50	2	2 x 34.5	2 x 55.1	2 x 326	10.2	18	79.2	126	397	269
2071AG2.SL	400/3/50	2	2 x 37.8	2 x 62.3	2 x 326	10.2	18	85.8	140	397	276
2081AG2.SL	400/3/50	2	2 x 42	2 x 68.4	2 x 298	11.9	21	95.9	156	385	269

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 diagrams



Cabling on-site provided by others
\# on-site potential necessary (max. 230 V / 50 Hz / 2 A)
* potential may not be supplied on-site (potential supplied by controller)
1) Remove jumper J1 if remote contact is used. For connecting, for example, a timer or outdoor temperature switch (with hysteresis) to enable the unit. Switching over the water temperature (e.g., in the buffer tank) is not permitted (caution: not covered by the warranty, possible damage to the unit!)
2) Notice: If the setpoint shift is not required or not connected, parameter REG0047 must be set to 0 in the service menu of the controller, otherwise an error will be displayed.
3) Use contact 67-68 and 69-70 (parallel, logic OR) to enable an on-site pump for the desuperheater circuit, wire on-site demand in series (Logical AND) (only unit types .D/.SD)

Fig. 10: Terminal diagram for unit types FGAC 2020-2081 CD 1/2

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.