



Water-Sourced Liquid Chillers/Heat Pumps with or without Integrated Hydronic Module

PRO-DIALOG

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Heating



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Unit with optional
hydronic module



Standard unit

61WG/30WG

Nominal cooling capacity 24-95 kW

Nominal heating capacity 30-116 kW

The new generation of 61WG heat pumps and 30WG liquid chillers was designed for commercial applications (offices, hotels etc.), residential applications (houses, apartments etc.) or industrial applications (low-temperature cooling or domestic hot-water production etc.).

The 61WG units were especially designed for heating applications with a leaving water temperature of 65°C (without supplementary heating) and a COP of above 5.

The 30WG units were designed for air-conditioning applications with an exceptionally high ESEER value.

A large number of options is available for both versions:

- hydronic kits with or without variable water flow rate,
- reinforced sound insulation,
- stacking and connection of two units, or operation with low-temperature glycol solution down to -12°C. This product range offers a unique combination of high performance and functionality in an exceptionally compact chassis.

Features

- Reduced footprint
- R-410A scroll compressor
- Variable-flow pump
- Low-noise option (-3 dB(A))
- Stacking of two units for increased capacity
- Compatible communication protocols: JBus, BacNet, LON
- Water connection at the top or rear

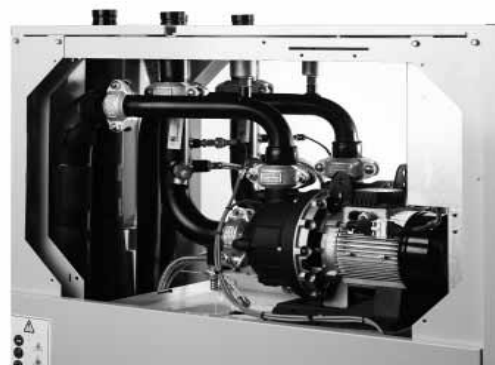
61WG - optimised for heating

- High temperature up to +65°C
- Evaporator temperature down to -5°C
- Needle valve control of domestic hot water

30WG - optimised for air conditioning

- Evaporator temperature down to -12°C
- Condenser temperature up to +60°C
- Three-way valve control of the condensing pressure

Detail view of the variable-speed pump



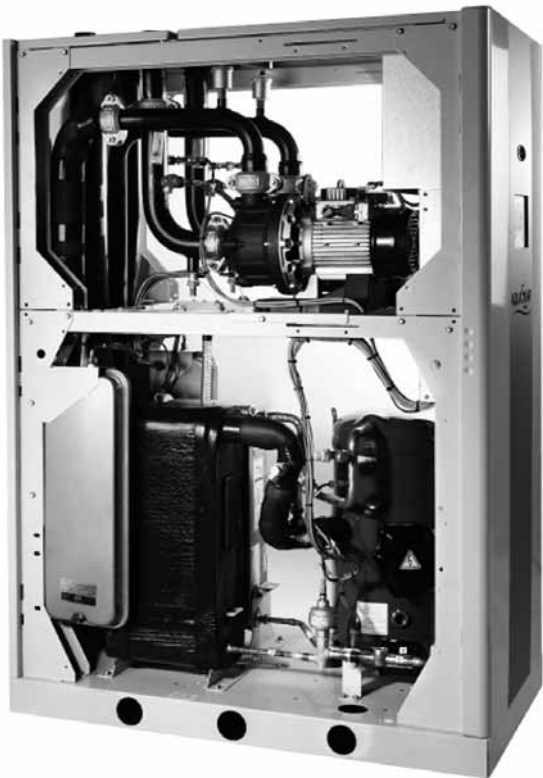
The right unit for any application

- The high temperature of the 61WG units makes them compatible with most heat sources, both in new and refurbished buildings and permits domestic hot water production in significant quantities (dual setpoint).
- The 61WG uses weather compensation control and controls four supplementary electric heating stages or a relief boiler.
- The 30WG includes automatic three-way valve control of the condensing pressure for optimised operation, even at low outside temperature.
- Option 157 (heating system manager) allows control of systems with several heat sources and different supplementary systems: electric heat, boiler or district heating for the most complex systems.

Adaptability and simple installation

- Complete hydronic kit for both evaporator and condenser with different levels of available pressure, with variable or fixed speed (see photos on the following pages).
- Needle valve control for easier transition from the comfort mode to domestic hot water production using a collection tank (not supplied)
- Reversibility by water flow inversion in the system.
- Pro-Dialog+ control and compatibility with the Aquasmart system
- Units available with connections at the top or at the rear (see photos)

Internal view of 61WG unit with hydronic kit



Water connections at the rear of the unit



Water connections at the top of the unit



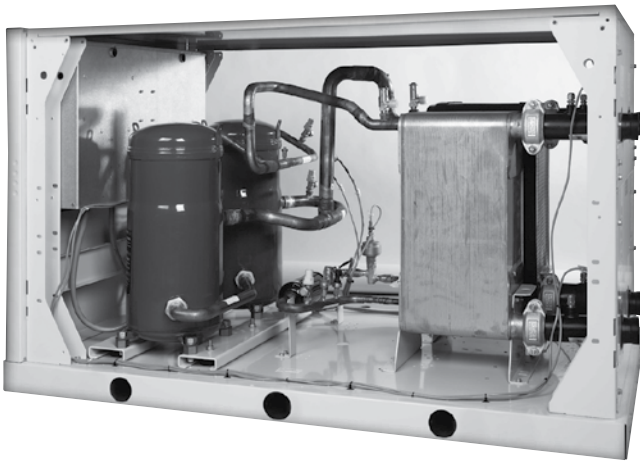
A compact high-performance product range

- Small footprint, ideal for refurbished buildings, allows access in very tight plant rooms.
- 61WG: A COP above 5 satisfies even the most stringent standards, with a leaving water temperature of up to 65°C without supplementary system.
- 30WG: The ESEER of over 5.5 for dual-compressor units - one of the highest in its category.
- The variable water flow (VWF) technology of the variable-flow pump, optimises system operation and enhances energy efficiency.
- The standard low sound level allows installation in any building type and the low-noise option ensures enhanced acoustic comfort (-3 dB(A)).
- 61WG and 30WG units are equipped with the latest generation R410A scroll compressor, optimised for high-performance robust water-to-water units.

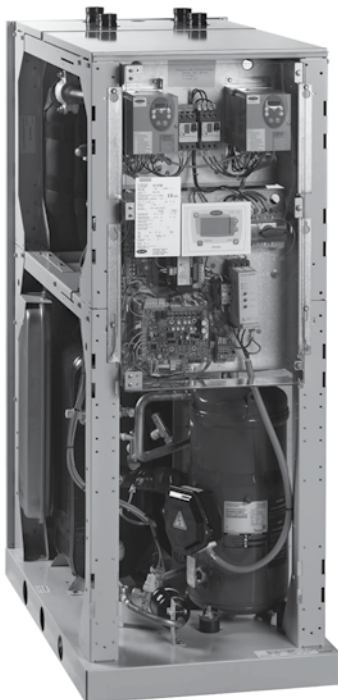
Component accessibility

See photos below.

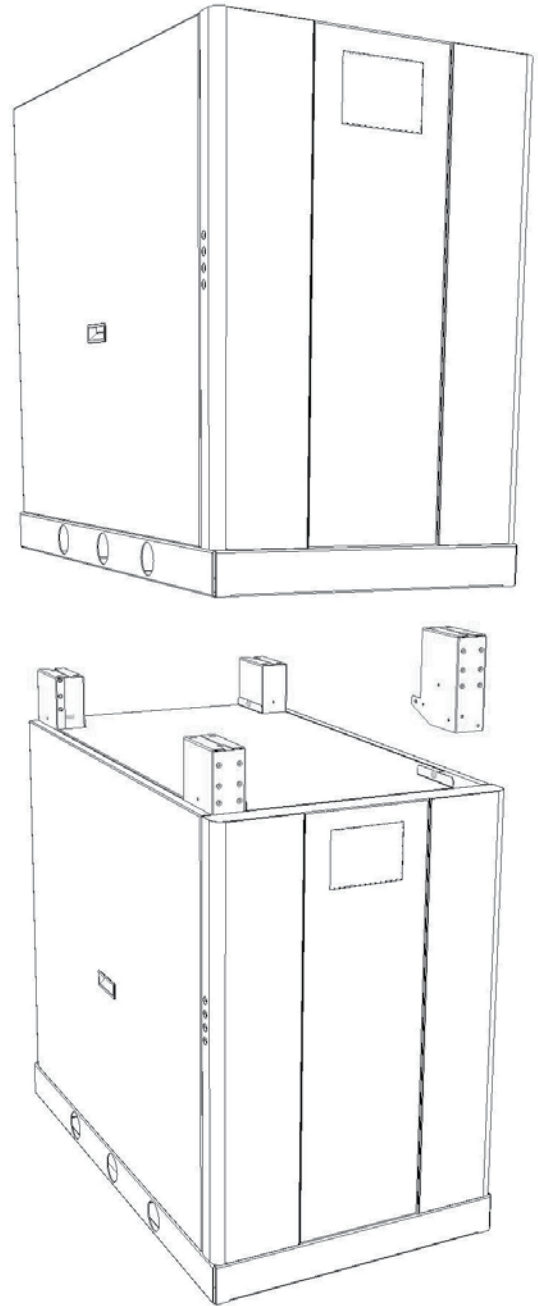
Access to scroll compressors



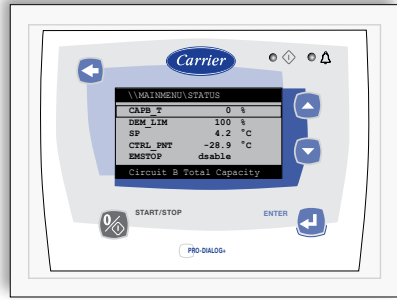
Access to control panel



Two-unit stacking option for reduced footprint



Pro-Dialog+ interface



Pro-Dialog+ control

Pro-Dialog+ is a numerical control that combines intelligence with operating simplicity. Depending on the options used, the unit manages the operation of compressors, evaporator and condenser water pumps and fans (drycooler)

■ Optimised energy management

- A patented auto-adaptive algorithm optimises the condensing pressure at part load to reduce compressor load and ensure perfect supply for the evaporator with liquid refrigerant. The algorithm controls the operation of the variable-speed condenser water pump and the fans (drycooler)
- Pro-Dialog+ automatically resets the chilled-water temperature setpoint based on the outside air temperature or the return water temperature. The control can also operate on a second setpoint (example: unoccupied mode).

■ Total unit protection

- A patented auto-adaptive algorithm controls compressor operation and permanently adapts to the system characteristics (water loop inertia). Dangerous compressor cycling is prevented. The unit can operate safely with a low water volume, and this frequently makes a buffer tank unnecessary (see minimum water volume later in this document).
- Pro-Dialog+ permanently analyses the compressor suction and discharge pressures and temperatures. If an abnormal situation is detected, the control reacts, e.g. by reducing the capacity. As a result the compressors always operate in their ideal temperature range and many unit shut-downs due to a fault can be prevented.

■ Ease-of-use

- The Pro-Dialog+ interface includes five keys that permit navigation via intuitive tree-structure menus. Access to the information is very quick.
- This new backlit LCD interface includes control by a contrast potentiometer for optimised visibility in all lighting conditions.
- The information is clearly displayed in English, French, German, Italian and Spanish (for other languages please consult Carrier Service).
- The Pro-Dialog+ navigation uses intuitive tree-structure menus, similar to the Internet navigators. The menus are user-friendly and permit quick access to the principal operating parameters: number of compressors operating, suction/discharge pressure, compressor operating hours, setpoint, temperatures.

■ Remote control option

Pro-Dialog+ permits control and monitoring of the unit using a wired interface:

- Start/stop,
- Operating mode selection: cooling or heating,
- Demand limit,
- Dual setpoint,
- User safety loop.

The control remotely reports any problem.

The CCN clock board connection offers other control possibilities:

Two independent time schedules to control:

- Unit start/stop,
- Operation at a second chilled-water setpoint (for example: unoccupied mode),
- Operation of two units in parallel (master/slave function), and remote control via a communication bus (RS 485 serial port).

30WG compatible the Carrier 09 series drycoolers

The drycoolers of the Carrier 09 series are supplied ready for installation with a control box. A simple communication bus connects the unit to the heat rejection unit. As all control components are installed and tested in the factory, installation and start-up of the unit and its associated drycooler are simplified.

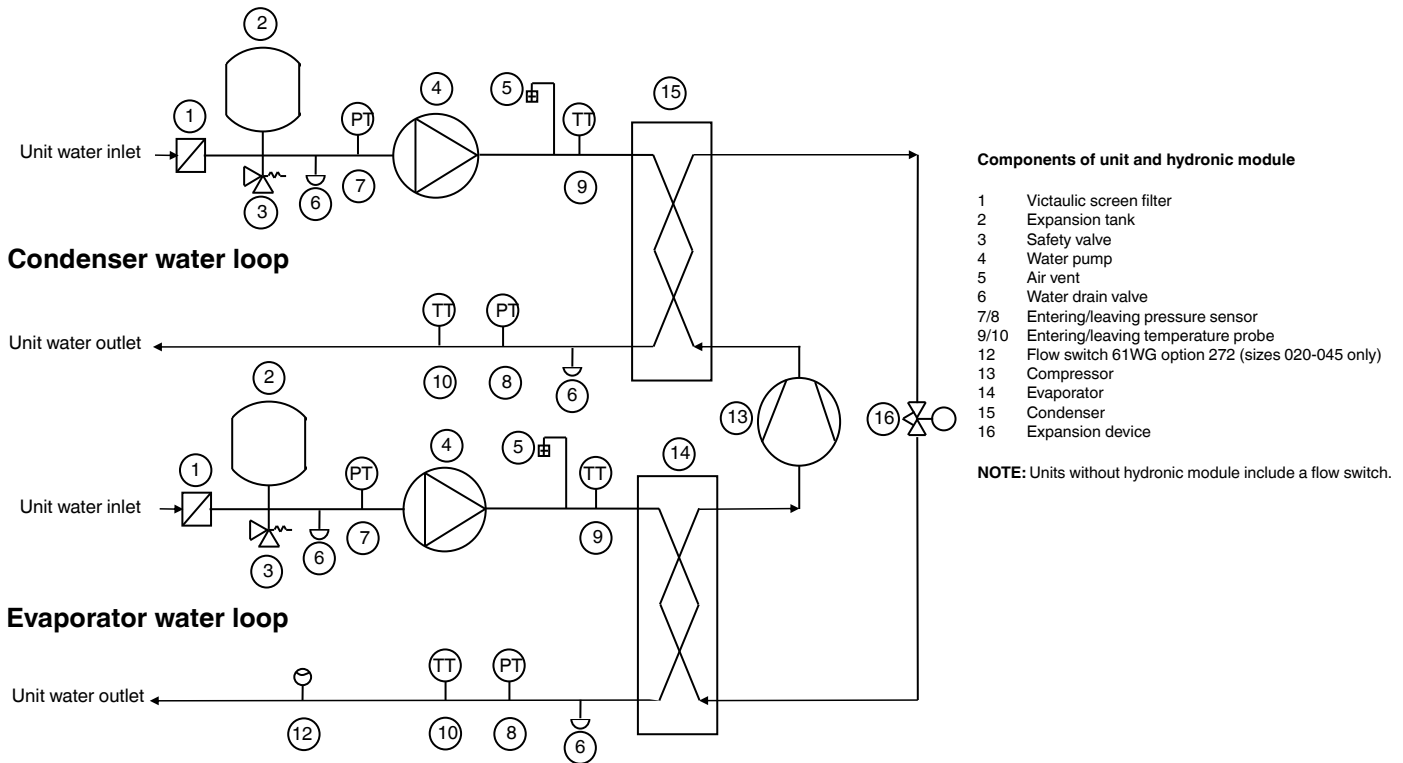


Options

Options	No.	Description	Advantages	Use
Very low temperature glycol solution	6	Low temperature glycol solution production down to -12°C with ethylene glycol	Covers specific applications such as ice storage and industrial processes	30WG 020-090
Soft starter	25	Electronic compressor starter	Reduced compressor start-up current	30WG 020-090 61WG 020-090
Twinning	58	Unit equipped with an additional field-installed leaving water temperature sensor, allowing master/slave operation of two units connected in parallel.	Optimised operation of two units connected in parallel with operating time equalisation	30WG 020-090 61WG 020-090
External disconnect handle	70F	The handle of the electrical disconnect switch is on the outside of the unit	Quick access to the unit disconnect switch	30WG 020-090 61WG 020-090
Condenser insulation	86	Thermal condenser insulation	Optimisation for heating applications	61WG 020-090
Low-pressure single-pump hydronic module, evaporator side	116F	See hydronic module chapter	Easy and fast installation	30WG 020-090 61WG 020-090
High-pressure single-pump hydronic module, evaporator side	116J	See hydronic module chapter	Easy and fast installation, reduced power consumption of the water circulation pump.	30WG 020-090 61WG 020-090
JBus gateway	148B	Two-directional communications board, complies with JBus protocol	Easy connection by communication bus to a building management system	30WG 020-090 61WG 020-090
BacNet gateway	148C	Two-directional communications board, complies with BacNet protocol	Easy connection by communication bus to a building management system	30WG 020-090 61WG 020-090
LON gateway	148D	Two-directional communications board, complies with LON protocol	Easy connection by communication bus to a building management system	30WG 020-090 61WG 020-090
Specific single-source heating control	153	Control board factory-installed on the unit, control using weather compensation, control of supplementary electric heater (4 stages) or boiler, needle valve for domestic hot-water production with programmable time schedule.	Permits easy control of a basic heating system	61WG 020-090
Specific cooling control	154	Control box to be installed on the Carrier drycooler for communication with the unit via a bus.	Permits the use of an energy-efficient plug-and-play system	30WG 020-090
Control of multi-source heating system	157	Additional control box for remote installation to control the various heating system components	Allows control of pre-configured heating systems	61WG 020-090
Low sound level (-3 dB(A) compared to standard unit)	257	Compressor sound insulation		30WG 020-090 61WG 020-090
Evaporator screw connection sleeves	264	Evaporator inlet/outlet screw connection sleeves	Allows unit connection to a screw connector	30WG 020-090 61WG 020-090
Screw water connection between the customer condenser and the unit	265	Condenser inlet/outlet screw connection sleeves	Allows unit connection to a screw connector	30WG 020-090 61WG 020-090
Welded evaporator connection sleeves	266	Welded evaporator inlet/outlet connection sleeves	Allows welding of customer connections to the unit	30WG 020-090 61WG 020-090
Welded water connection between the customer condenser and the unit	267	Welded condenser inlet/outlet connection sleeves	Allows welding of customer connections to the unit	30WG 020-090 61WG 020-090
Low-pressure single-pump hydronic module, condenser side	270F	See hydronic module chapter	Easy and fast installation	30WG 020-090 61WG 020-090
High-pressure hydronic module with single variable-speed pump, condenser side	270J	See hydronic module chapter	Easy and fast installation, reduced power consumption of the water circulation pump.	30WG 020-090 61WG 020-090
High-temperature water production, condenser side, with glycol solution on the evaporator side	272	Condenser side water production up to 65°C, with glycol solution on the evaporator side to -5°C	Geothermal application and domestic hot-water production	61WG 020-090
Unit stackable for operation	273	Unit stackable for operation	Reduced footprint size	30WG 020-090 61WG 020-090
Customer water connection at the top of the unit	274	Customer water connection at the top of the unit	Reduced footprint size	30WG 020-090 61WG 020-090
Remote user interface	275	User interface for remote installation	Remote control of the unit and its operating parameters	30WG 020-090 61WG 020-090

Hydronic module (options 116F, 270F)

Typical water piping diagram



Physical data, units with hydronic module

61WG/30WG (option 116J/270J)		020	025	030	035	040	045	050	060	070	080	090
Operating weight*	kg	305	313	313	321	327	334	513	521	533	544	574
Height**	mm	1463	1463	1463	1463	1463	1463	1463	1463	1463	1463	1463
Hydronic module												
Maximum operating pressure	kPa	300	300	300	300	300	300	300	300	300	300	300
Water filter (max. removed particle diameter)	mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Expansion tank capacity***	l	8	8	8	8	8	8	12	12	12	12	12
Water connections	in	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	2	2

* Weight shown is a guideline only.

** The length and width dimensions are the same as for the standard unit.

*** When delivered, the standard pre-inflation of the tanks is not necessary the optimal value for the system. To permit changing the water volume, change the inflation pressure to a pressure that is close to the static head of the system. Fill the system with water (purging the air) to a pressure value that is 10 to 20 kPa higher than the pressure in the tank.

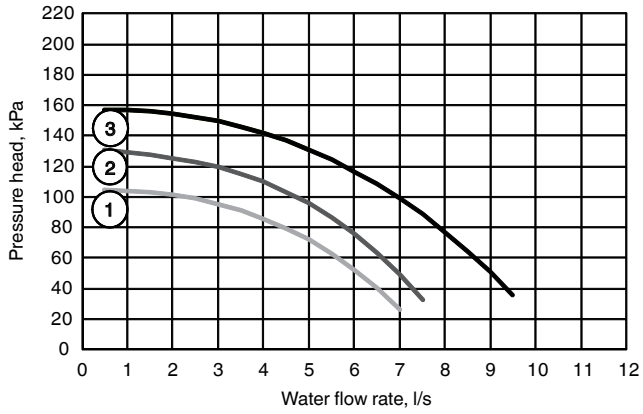
Electrical data, options 116F, 270F

The original pumps that are factory-installed in these units have motors with efficiency class IE2. The additional electrical data required by regulation 640/2009 are given in the installation, operation and maintenance instructions.

This regulation regards the application of directive 2005/32/CE on the eco-design requirements for electric motors.

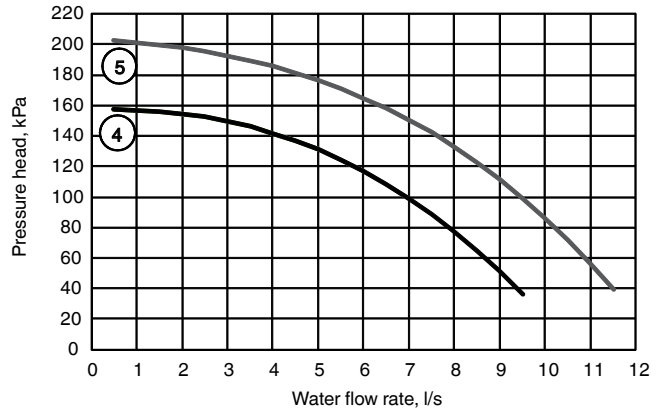
Available static pressure (options 116, 270)

Fixed-speed low-pressure pumps, 61WG/30WG (options 116F - 270F)











- 1 61WG-30WG 020-050
- 2 61WG-30WG 060-080
- 3 61WG-30WG 090

Variable-speed high-pressure pumps, 61WG/30WG (options 116J - 270J)



- 4 61WG-30WG 020-045
- 5 61WG-30WG 050-090

Physical data 61WG units

61WG		020	025	030	035	040	045	050	060	070	080	090	
	Heating capacity*	kW	29.0	34.4	38.3	44.2	50.2	57.2	68.6	78.2	88.4	100	117
	Power input	kW	5.3	6.5	7.4	8.4	9.4	10.8	12.5	14.6	16.2	19.0	21.9
	Coefficient of performance (COP)	kW/kW	5.42	5.29	5.20	5.29	5.34	5.32	5.49	5.36	5.46	5.28	5.33
	Eurovent class, heating	A	A	A	A	A	A	A	A	A	A	A	A
	Cooling capacity	kW	23.7	28.0	31.0	36.0	40.9	46.6	56.2	63.8	72.4	81.3	94.9
	EER	kW/kW	4.43	4.30	4.21	4.30	4.35	4.33	4.50	4.37	4.47	4.29	4.34
	Heating capacity**	kW	21.7	25.7	29.4	34.1	37.7	42.1	50.4	56.7	67.1	74.6	87.0
	Power input	kW	5.1	6.0	6.9	8.0	8.8	9.9	11.9	13.3	15.7	17.4	20.3
	Coefficient of performance (COP)	kW/kW	4.24	4.26	4.28	4.27	4.27	4.25	4.25	4.27	4.26	4.28	4.29
	Cooling capacity	kW	16.6	19.8	22.6	26.2	29.0	32.3	38.7	43.5	51.5	57.3	66.9
	EER	kW/kW	3.25	3.27	3.29	3.28	3.28	3.26	3.26	3.28	3.27	3.29	3.30
	Nominal heating capacity***	kW	27.7	33.1	36.7	42.7	48.7	54.8	66.4	75.7	84.2	95.3	109.00
	Power input	kW	6.4	7.6	8.8	10.0	11.3	12.6	14.7	17.5	19.3	22.3	25.3
	Coefficient of performance (COP)	kW/kW	4.35	4.34	4.19	4.27	4.32	4.36	4.51	4.32	4.35	4.27	4.31
	Eurovent class, heating	B	B	B	B	B	B	A	B	B	B	B	B
	Cooling capacity	kW	21.4	25.5	28.0	32.8	37.5	42.3	51.8	58.3	65.0	73.2	83.9
	EER	kW/kW	3.36	3.35	3.20	3.28	3.33	3.37	3.52	3.33	3.36	3.28	3.32
	Heating capacity****	kW	26.1	31.1	34.2	40.0	43.8	49.8	62.0	71.5	77.2	86.3	98.6
	Power input	kW	8.3	10.0	11.4	13.0	14.5	16.0	19.7	22.6	24.8	28.2	31.8
	Coefficient of performance (COP)	kW/kW	3.12	3.12	3.01	3.08	3.03	3.11	3.15	3.16	3.12	3.06	3.10
	Cooling capacity	kW	17.8	21.3	23.0	27.2	29.5	33.9	42.5	49.1	52.7	58.4	67.1
	EER	kW/kW	2.13	2.13	2.02	2.09	2.03	2.12	2.15	2.17	2.13	2.07	2.11
Sound levels†													
	Sound power level 10 ⁻¹² W, standard unit	dB(A)	67.0	68.5	69.0	69.3	70.0	70.1	71.5	72.0	72.0	73.0	73.4
	Operating weight	kg	191	200	200	207	212	220	386	392	403	413	441
Compressors			Hermetic scroll 48.3 r/s										
	Quantity		1	1	1	1	1	1	2	2	2	2	2
	Number of capacity stages		1	1	1	1	1	1	2	2	2	2	2
	Minimum capacity	%	100%	100%	100%	100%	100%	100%	50%	50%	50%	50%	50%
Dimensions, standard unit††													
	Width	mm	600	600	600	600	600	600	880	880	880	880	880
	Depth	mm	1044	1044	1044	1044	1044	1044	1474	1474	1474	1474	1474
	Height	mm	901	901	901	901	901	901	901	901	901	901	901
Refrigerant‡			R410A										
	Charge, standard unit	kg	3.5	3.5	3.6	3.7	4.0	4.6	7.6	7.8	7.9	8.7	11.5
	Charge, unit with option 272	kg	2.7	2.9	2.9	3.0	3.2	3.9	7.2	7.3	7.4	7.6	10.5
Oil			160SZ										
	Charge per compressor	l	3	3.3	3.3	3.3	3.3	3.6	3.3	3.3	3.3	3.3	3.6
Control			Pro-Dialog+										
Evaporator			Direct-expansion plate heat exchanger										
	Water volume	l	3.3	3.6	3.6	4.2	4.6	5.0	8.4	9.2	9.6	10.4	12.5
			Victaulic										
	Inlet/outlet	in	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	2	2
	Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Condenser			Plate heat exchanger										
	Net water volume	l	3.3	3.6	3.6	4.2	4.6	5.0	8.4	9.2	9.6	10.4	12.5
			Victaulic										
	Inlet/outlet	in	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	2	2
	Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Note: All performances are net values as specified by EN14511-3 2011.

* Conditions in heating mode: evaporator water entering/leaving temp. = 10°C/7°C, condenser water entering/leaving temp. = 30°C/35°C, evaporator and condenser fouling factor = 0

** Conditions in heating mode: evaporator water entering/leaving temp. = 0°C/-3°C, condenser water entering/leaving temp. = 30°C/35°C, evaporator and condenser fouling factor = 0

*** Conditions in heating mode: evaporator water entering/leaving temp. = 10°C/7°C, condenser water entering/leaving temp. = 40°C/45°C, evaporator and condenser fouling factor = 0




**** Conditions in heating mode: evaporator water entering/leaving temp. = 10°C/7°C, condenser water entering/leaving temp. = 55°C/65°C, evaporator and condenser fouling factor = 0

† In accordance with ISO 9614-1, measured in a free field. The sound levels only apply to units without options

†† The dimensions shown are for the standard unit. For other unit types please refer to the dimensional drawings.

‡ Weight shown is a guideline only. To find out the unit refrigerant charge, please refer to the unit nameplate.

Physical data 30WG units

30WG		020	025	030	035	040	045	050	060	070	080	090
 Nominal cooling capacity*	kW	24.6	28.7	31.5	36.7	41.8	46.6	58.1	63.4	73.8	83.9	94.6
Power input	kW	5.2	6.1	6.7	7.8	8.9	9.9	12.3	13.6	15.7	18.1	20.2
EER	kW/kW	4.72	4.72	4.69	4.73	4.69	4.72	4.72	4.65	4.69	4.65	4.68
Eurovent class, cooling	B	B	B	B	B	B	B	B	B	B	B	B
Part load performance ESEER	kW/kW	5.09	5.09	5.02	5.04	5.03	5.07	5.84	5.91	5.84	6.04	5.98
Heating capacity	kW	29.8	34.7	38.1	44.4	50.7	56.4	70.3	76.9	89.4	101.8	114.5
Coefficient of performance (COP)	kW/kW	5.71	5.71	5.68	5.72	5.68	5.71	5.71	5.64	5.68	5.64	5.67
 Nominal cooling capacity**	kW	33.9	39.3	43.0	50.1	56.6	65.6	78.6	86.0	101.7	113.2	129.4
Power input	kW	5.3	6.4	7.1	8.3	9.6	10.8	12.8	14.4	16.4	19.1	21.1
EER	kW/kW	6.42	6.10	6.03	6.04	5.90	6.06	6.12	5.95	6.19	5.93	6.13
Eurovent class, cooling	A	A	A	A	A	A	A	A	A	A	A	A
Heating capacity	kW	39.1	45.7	50.1	58.3	66.1	76.4	91.3	100.3	118.0	132.1	150.3
Coefficient of performance (COP)	kW/kW	7.41	7.09	7.02	7.04	6.89	7.05	7.11	6.95	7.18	6.92	7.12
 Nominal cooling capacity***	kW	20.0	23.5	25.2	29.6	34.1	37.5	46.8	52.3	57.6	67.1	73.5
Power input	kW	8.1	9.2	10.0	11.8	13.2	14.9	18.7	20.7	23.6	25.6	29.7
EER	kW/kW	2.48	2.54	2.51	2.49	2.57	2.52	2.51	2.53	2.44	2.62	2.47
Heating capacity	kW	28.0	32.6	35.1	41.3	47.2	52.2	65.2	72.7	81.0	92.4	102.9
Coefficient of performance (COP)	kW/kW	3.47	3.54	3.50	3.48	3.56	3.51	3.50	3.52	3.43	3.61	3.46
Sound levels****												
Sound power level 10 ⁻¹² W	dB(A)	67.0	68.5	69.0	69.3	70.0	70.1	71.5	72.0	72.0	73.0	73.4
Operating weight	kg	191	200	200	207	212	220	386	392	403	413	441
Compressors		Hermetic scroll 48.3 r/s										
Quantity		1	1	1	1	1	1	2	2	2	2	2
Number of capacity stages		1	1	1	1	1	1	2	2	2	2	2
Minimum capacity	%	100%	100%	100%	100%	100%	100%	50%	50%	50%	50%	50%
Dimensions, standard unit†												
Width	mm	600	600	600	600	600	600	880	880	880	880	880
Depth	mm	1044	1044	1044	1044	1044	1044	1474	1474	1474	1474	1474
Height	mm	901	901	901	901	901	901	901	901	901	901	901
Refrigerant††		R410A										
Charge, standard unit	kg	3.5	3.5	3.6	3.7	4.0	4.6	7.6	7.8	7.9	8.7	11.5
Oil		160SZ										
Charge per compressor	l	3	3.3	3.3	3.3	3.3	3.6	3.3	3.3	3.3	3.3	3.6
Control		Pro-Dialog+										
Evaporator		Direct-expansion plate heat exchanger										
Water volume	l	3.3	3.6	3.6	4.2	4.6	5.0	8.4	9.2	9.6	10.4	12.5
Water connections		Victaulic										
Inlet/outlet	in	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	2	2
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Condenser		Plate heat exchanger										
Net water volume	l	3.3	3.6	3.6	4.2	4.6	5.0	8.4	9.2	9.6	10.4	12.5
Water connections		Victaulic										
Inlet/outlet	in	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	2	2
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Note: All performances are net values as specified by EN14511-3 2011.

* Eurovent conditions in cooling mode: evaporator water entering/leaving temp. = 12°C/7°C, condenser water entering/leaving temp. = 30°C/35°C, evaporator and condenser fouling factor = 0

** Conditions in cooling mode, chilled beam and under-floor cooling: evaporator water entering/leaving temp. = 18°C/23°C, condenser water entering/leaving temp. = 30°C/35°C, evaporator and condenser fouling factor = 0

*** Conditions in cooling and heating mode (domestic hot water production): evaporator water entering/leaving temp. = 12°C/7°C, condenser water entering/leaving temp. = 50°C/55°C, evaporator and condenser fouling factor = 0

**** In accordance with ISO 9614-1, measured in a free field. The sound levels only apply to units without options.

† The dimensions shown are for the standard unit. For other unit types please refer to the dimensional drawings.

†† Weight shown is a guideline only. To find out the unit refrigerant charge, please refer to the unit nameplate.

Electrical data 61WG/30WG

61WG		020	025	030	035	040	045	050	060	070	080	090
Power circuit												
Nominal voltage	V-ph-Hz	400-3-50										
Voltage range	V	360-440										
Control circuit supply		24 V, via internal transformer										
Maximum start-up current draw (Un)*												
Standard unit	A	98	142	142	147	158	197	164	166	175	189	233
Unit with electronic starter option	A	53.9	78.1	78.1	80.9	86.9	108.4	100.1	102.1	108.9	117.9	144.4
Unit power factor at maximum capacity**		0.83	0.82	0.84	0.83	0.82	0.84	0.82	0.82	0.83	0.82	0.84
Maximum operating power input**		kW	9.7	11.4	12.7	14.6	16.5	18.6	22.8	25.4	29.2	37.2
Nominal unit operating current draw***		A	10.5	13.2	13.8	15.6	16.2	20.2	26.4	27.6	31.2	40.4
Maximum operating current draw (Un)****		A	16.1	19.6	21.1	24.4	26.7	30.9	39.2	42.2	48.8	61.8
Maximum operating current draw (Un-10%) †		A	19	22	24	28	31	36	44	48	56	72
Customer-side unit power reserve		Customer reserve at the 24 V control power circuit										
Short-circuit stability and protection		See table below "Short-circuit stability current"										
30WG		020	025	030	035	040	045	050	060	070	080	090
Power circuit												
Nominal voltage	V-ph-Hz	400-3-50										
Voltage range	V	360-440										
Control circuit supply		24 V, via internal transformer										
Maximum start-up current draw (Un)*												
Standard unit	A	98	142	142	147	158	197	163	165	174	188	233
Unit with electronic starter option	A	53.9	78.1	78.1	80.9	86.9	108.4	100.1	102.1	108.9	117.9	144.4
Unit power factor at maximum capacity**		0.83	0.82	0.84	0.83	0.82	0.84	0.82	0.82	0.83	0.82	0.84
Maximum operating power input**		kW	9.1	10.7	11.7	13.6	15	17	21.4	23.4	27.2	34
Nominal unit operating current draw***		A	10.6	12.9	13.3	15.2	16.5	19.7	25.8	26.6	30.4	39.4
Maximum operating current draw (Un)****		A	15.6	18.7	19.8	23.2	25.4	29	37.4	39.6	46.4	58
Maximum operating current draw (Un-10%) †		A	18	21	23	27	30	36	42	46	54	72
Customer-side unit power reserve		Customer reserve at the 24 V control power circuit										
Short-circuit stability and protection		See table below "Short-circuit stability current"										

* Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor).
 ** Power input, compressors and fans, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400 V (data given on the unit nameplate).
 *** Standardised Eurovent conditions: evaporator entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.
 **** Maximum unit operating current at maximum unit power input and 400 V (values given on the unit nameplate).
 † Maximum unit operating current at maximum unit power input and 360 V.

Short-circuit stability current (TN system*) - standard unit (with main disconnect switch)

61WG/30WG		020	025	030	035	040	045	050	060	070	080	090
Value without upstream protection												
Short-term current at 1 s - I _{cw} - kA rms	3	3	3	3	3	3	3	3	3	3	3	3
Admissible peak current - I _{pk} - kA pk	6	6	6	6	6	6	6	6	6	6	6	6
Value with upstream protection (circuit breaker)												
Conditional short-circuit current I _{cc} - kA rms	40	40	40	40	40	40	40	40	40	40	40	40
Schneider circuit breaker - Compact series	NSX 100N											
Reference number**	LV429795											

* Earthing system type
 ** If another current limitation protection system is used, its time-current and thermal constraint (I²t) trip characteristics must be at least equivalent to those of the recommended Schneider circuit breaker. Contact your nearest Carrier office.
 The short-circuit stability current values above are in accordance with the TN system.

Part load performances

With the rapid increase in energy costs and the care about environmental impacts of electricity production, the power consumption of air conditioning equipment has become an important topic. The energy efficiency of a unit at full load is rarely representative of the actual performance of the units, as on average a unit works less than 5% of the time at full load.

The heat load of a building depends on many factors, such as the outside air temperature, the exposure to the sun and its occupation.

Consequently it is preferable to use the seasonal energy efficiency, calculated at several operating points that are representative for the unit utilisation.

ESEER (EUROVENT)

The ESEER (European seasonal energy efficiency ratio) permits evaluation of the average energy efficiency at part load, based on four operating conditions defined by Eurovent. The ESEER is the average value of energy efficiency ratios (EER) at different operating conditions, weighted by the operating time.

ESEER (European seasonal energy efficiency ratio)

Load %	Air temperature °C	Energy efficiency	Operating time, %
100	35	EER ₁	3
75	30	EER ₂	33
50	25	EER ₃	41
25	20	EER ₄	23

$$ESEER = EER_1 \times 3\% + EER_2 \times 33\% + EER_3 \times 41\% + EER_4 \times 23\%$$

Note: Constant leaving water temperature = 7°C

30WG		020	025	030	035	040	045	050	060	070	080	090
Standard units												
ESEER	kW/kW	5.09	5.09	5.02	5.04	5.03	5.07	5.84	5.91	5.84	6.04	5.98

Sound spectrum

61WG/30WG - standard unit

	Octave bands, Hz	Sound power level							
		125	250	500	1k	2k	4k		
020	dB(A)	60.1	52.8	51.6	63.2	60.8	56.5	dB(A)	67.0
025	dB(A)	63.9	56.3	55.7	63.2	59.8	58.2	dB(A)	68.5
030	dB(A)	61.1	58.8	57.6	64.0	62.6	59.9	dB(A)	69.0
035	dB(A)	64.1	59.2	59.0	63.9	61.2	57.8	dB(A)	69.3
040	dB(A)	58.6	59.7	58.4	66.7	63.6	58.5	dB(A)	70.0
045	dB(A)	56.9	56.1	56.8	66.2	64.8	62.1	dB(A)	70.1
050	dB(A)	47.2	59.6	64.6	67.9	65.7	56.3	dB(A)	71.5
060	dB(A)	43.2	60.9	65.2	67.5	67.2	56.7	dB(A)	72.0
070	dB(A)	46.3	61.4	66.8	67.4	65.9	54.8	dB(A)	72.0
080	dB(A)	40.1	61.2	65.4	69.6	67.6	54.8	dB(A)	73.0
090	dB(A)	50.6	64.1	63.9	69.2	68.9	58.4	dB(A)	73.4

61WG/30WG - Unit with low-noise option (option 257)

	Octave bands, Hz	Sound power level							
		125	250	500	1k	2k	4k		
020	dB(A)	58.7	57.9	49.8	60.3	57.2	51.2	dB(A)	65.0
025	dB(A)	58.2	57.4	55.2	61.6	57.5	54.2	dB(A)	65.8
030	dB(A)	58.2	57.4	55.5	60.8	58.7	54.3	dB(A)	65.8
035	dB(A)	58.2	57.4	58.5	62.2	58.8	53.8	dB(A)	66.6
040	dB(A)	63.9	58.2	56.4	63.6	59.8	53.0	dB(A)	68.4
045	dB(A)	58.2	57.4	56.3	64.6	62.5	58.0	dB(A)	68.4
050	dB(A)	47.5	57.4	61.0	65.4	61.8	50.7	dB(A)	68.4
060	dB(A)	43.2	58.5	61.3	64.7	63.1	50.9	dB(A)	68.6
070	dB(A)	46.6	59.4	63.3	65.0	62.2	49.3	dB(A)	69.0
080	dB(A)	39.4	58.1	60.9	66.1	62.8	48.2	dB(A)	69.0
090	dB(A)	50.4	61.5	59.8	66.2	64.6	52.3	dB(A)	69.9

Electrical data notes and operating conditions:

- 61WG and 30WG units have a single power connection point, located immediately upstream of the main disconnect switch.
- The control box includes the following standard features:
 - a main disconnect switch,
 - the starter and motor protection devices for each compressor and the pumps
 - the control devices
- Field connections:
 - All connections to the system and the electrical installations must be in full accordance with all applicable local codes.
- The Carrier 61WG and 30WG units are designed and built to ensure conformance with these codes. The recommendations of European standard EN 60204-1 (machine safety - electrical machine components - part 1: general regulations - corresponds to IEC 60204-1) are specifically taken into account, when designing the electrical unit equipment.

Notes:

- Generally the recommendations of IEC 60364 are accepted as compliance with the requirements of the installation directives. Conformance with EN 60204-1 is the best means of ensuring compliance with the Machines Directive § 1.5.1.
- Annex B of EN 60204-1 describes the electrical characteristics used for the operation of the machines.
- 1. The operating conditions for the units are specified below:
 - Environment* - Environment as classified in IEC 60364 § 3:
 - ambient temperature range: +5°C to +40°C, class AA4
 - humidity range (non-condensing)*:
 - 50% relative humidity at 40°C
 - 90% relative humidity at 20°C
 - altitude: ≤ 2000 m (see note for table 4.5 in the IOM)
 - indoor installation*

- presence of water: class AD2 (possibility of water droplets)
- presence of hard solids, class 4S2 (no significant dust present)
- presence of corrosive and polluting substances, class 4C2 (negligible)
- vibration and shock, class AG2, AH2
- competence of personnel, class BA4* (trained personnel - IEC 60364)
- 2. Power supply frequency variation: ± 2 Hz.
- 3. The neutral (N) conductor must not be connected directly to the unit (if necessary use a transformer).
- 4. Over-current protection of the power supply conductors is not provided with the unit.
- 5. The factory-installed disconnect switch(es)/circuit breaker(s) is (are) of a type suitable for power interruption in accordance with EN 60947.
- 6. The units are designed for simplified connection on TN(s) networks (IEC 60364). For IT networks provide a local earth and consult competent local organisations to complete the electrical installation.
- 7. Derived currents: If protection by monitoring of derived currents is necessary to ensure the safety of the installation, the control of the cut-out value must take the presence of leak currents into consideration that result from the use of frequency converters in the unit. A value of at least 150 mA is recommended to control differential protection devices.

NOTE: If particular aspects of an actual installation do not conform to the conditions described above, or if there are other conditions which should be considered, always contact your local Carrier representative.

* The protection level of the control boxes required to conform to this class is IPX1B (according to reference document IEC 60529). All 61WG and 30WG units fulfil this protection condition. Units equipped with front casing panel meet class IP23. If the casing panel has been removed, access to energised components is protected to level IPXXB.

Operating limits, 61WG

61WG		Minimum	Maximum
Evaporator			
Entering water temperature at start-up	°C	7.5*	27
Leaving water temperature during operation	°C	5**	20
Entering/leaving water temperature difference	K	2.5	7
Condenser			
Entering water temperature at start-up	°C	15***	60****
Leaving water temperature during operation	°C	20	65
Entering/leaving water temperature difference	K	2.5	18

- * For entering water temperatures below 7.5°C at start-up, contact Carrier.
- ** If the leaving water temperature is below 5°C, a frost protection solution must be used. Please refer to option 6 for evaporator leaving water low-temperature applications (< 5°C).
- *** For applications with a condenser entering air temperature below 15°C the use of a three-way valve is recommended. This three-way valve can be controlled by the 0-10 V analogue output of the Pro-Dialog+ control.
- **** For a water flow rate that corresponds to a maximum water-side temperature difference of 5 K.

61WG + option 272 (geothermal application)		Minimum	Maximum
Evaporator			
Entering water temperature at start-up	°C	-2.5*	25
Leaving water temperature during operation	°C	-5*	20
Entering/leaving water temperature difference	K	2.5	5
Condenser			
Entering water temperature at start-up	°C	15**	60***
Leaving water temperature during operation	°C	20	65
Entering/leaving water temperature difference	K	2.5	18

- * A frost protection solution must be used.
- ** For applications with a condenser entering air temperature below 15°C the use of a three-way valve is recommended. This three-way valve can be controlled by the 0-10 V analogue output of the Pro-Dialog+ control.
- *** For a water flow rate that corresponds to a maximum water-side temperature difference of 5 K.

Operating limits, 30WG

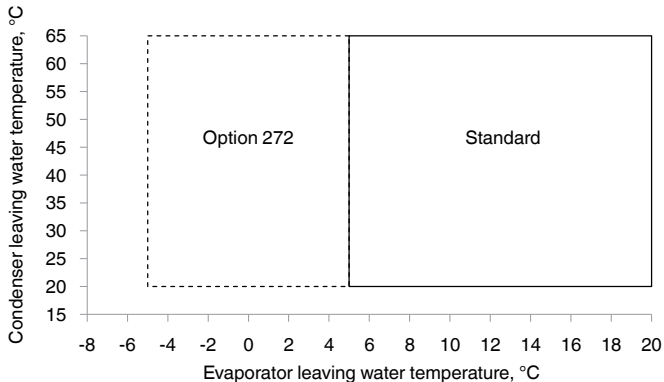
30WG		Minimum	Maximum
Evaporator			
Entering water temperature at start-up	°C	7.5*	27
Leaving water temperature during operation	°C	5**	20
Entering/leaving water temperature difference	K	2.5	7
Condenser			
Entering water temperature at start-up	°C	15***	55****
Leaving water temperature during operation	°C	20	60
Entering/leaving water temperature difference	K	2.5	18

- * For entering water temperatures below 7.5°C at start-up, contact Carrier.
- ** If the leaving water temperature is below 5°C, a frost protection solution must be used. Please refer to option 6 for evaporator leaving water low-temperature applications (< 5°C).
- *** For applications with a condenser entering air temperature below 15°C the use of a three-way valve is recommended. This three-way valve can be controlled by the 0-10 V analogue output of the Pro-Dialog+ control.
- **** For a water flow rate that corresponds to a maximum water-side temperature difference of 5 K.

30WG + option 6		Minimum	Maximum
Evaporator			
Entering water temperature at start-up	°C	-9.5*	27
Leaving water temperature during operation	°C	-12*	20
Entering/leaving water temperature difference	K	2.5	3
Condenser			
Entering water temperature at start-up	°C	15**	55***
Leaving water temperature during operation	°C	20	60
Entering/leaving water temperature difference	K	2.5	18

- Note:** Do not exceed the maximum operating temperature.
- * A frost protection solution must be used.
- ** For applications with a condenser entering air temperature below 15°C the use of a three-way valve is recommended. This three-way valve can be controlled by the 0-10 V analogue output of the Pro-Dialog+ control.
- *** For a water flow rate that corresponds to a maximum water-side temperature difference of 5 K.

Operating range, 61WG

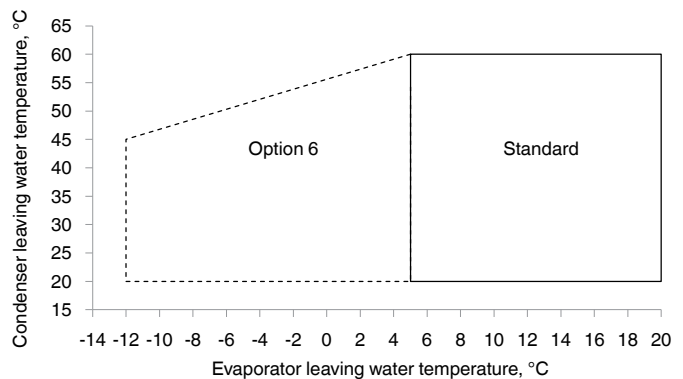


- 61WG standard unit
- - - 61WG unit with option 272 (brine to water)
- Option 272: Condenser-side high-temperature water production, with glycol solution on the evaporator side

30WG + drycooler		Minimum	Maximum
Evaporator			
Entering water temperature at start-up	°C	7.5*	27
Leaving water temperature during operation	°C	5**	20
Entering/leaving water temperature difference	K	2.5	7
Condenser without hydronic kit			
Entering air temperature at start-up + during operation	°C	10-15****	40-45****
Condenser with option 270J (kit with variable-speed pump)			
Entering air temperature at start-up+ during operation	°C	-10†	40-45****

- * For entering water temperatures below 7.5°C at start-up, contact Carrier.
- ** If the leaving water temperature is below 5°C, a frost protection solution must be used. Please refer to option 6 for evaporator leaving water low-temperature applications (< 5°C).
- *** The minimum entering air temperature is based on the drycooler selection.
- **** The maximum entering air temperature is based on the drycooler selection.
- † For applications with a low condenser entering air temperature the use of a three-way valve is recommended. This three-way valve can be controlled by the 0-10 V analogue output of the Pro-Dialog+ control.

Operating range, 30WG



- 30WG standard unit
- - - 30WG unit with option 6 (brine)
- Option 6: Very low-temperature glycol solution

Water loop volume

Evaporator and condenser

■ Minimum volume

A minimum water volume is required for correct unit operation. The minimum water loop volume can be calculated in accordance with the following formula:

Volume = CAP(kW) x N* = litres, where CAP is the cooling capacity at nominal operating conditions.

Air conditioning application	N*
61WG/30WG 020-090	3.5

The water volume in the condenser loop has no impact on the operation of the unit.

Note: In the heat pump mode (unit control based on the hot-water temperature) the minimum volume of the condenser loop must be calculated the same way as for the evaporator loop, replacing the cooling capacity with the heating capacity.

■ Industrial process cooling

Certain industrial process applications may require high stability of the leaving water temperature levels. In this case the values above must be increased.

■ Maximum volume

Units with hydronic module incorporate an expansion tank sized for the maximum water loop volume.

The table below gives the maximum water loop volume (in litres) for pure water or ethylene glycol with various concentrations.

61WG/30WG		020-045			060-090		
		100	200	300	100	200	300
Static pressure	kPa	1	2	3	1	2	3
	bar						
Pure water	l	220	450	75	340	225	115
10% ethylene glycol	l	165	110	53	255	170	85
20% ethylene glycol	l	100	70	35	150	100	50
35% ethylene glycol	l	85	55	30	130	85	45

Water flow rates

Standard 61WG

61WG	Evaporator water flow rate, l/s					
	Minimum*		Minimum**	Maximum**		Maximum***
	Low pressure	High pressure		Low pressure	High pressure	
020	1.1	0.9	0.5	3.1	3.6	3.8
025	1.0	1.0	0.5	3.3	3.8	4.1
030	1.0	1.0	0.5	3.3	3.8	4.1
035	1.1	1.1	0.6	3.6	4.2	4.7
040	1.1	1.1	0.6	3.8	4.4	5.0
045	1.2	1.1	0.8	4.0	4.6	5.4
050	1.6	1.4	0.8	5.4	7.8	9.2
060	1.5	1.5	1.0	6.1	8.0	9.9
070	1.6	1.5	1.1	6.2	8.1	10.3
080	1.6	1.5	1.3	6.3	8.3	10.9
090	2.0	1.6	1.5	7.8	8.7	12.5

* Minimum flow rate for a maximum permitted temperature difference at the minimum leaving water temperature (unit with hydronic module)

** Minimum flow rate for a water temperature difference of 7 K (unit without hydronic module)

*** Maximum flow rate for an available pressure of 20 kPa (unit with low-pressure hydronic module) or 50 kPa (unit with high-pressure hydronic module)

**** Maximum flow rate for a pressure drop of 100 kPa in the plate heat exchanger (unit without hydronic module)

61WG	Condenser water flow rate, l/s			
	Minimum*	Maximum**		Maximum***
	Low pressure	Low pressure	High pressure	
020	0.3	3.1	3.5	3.8
025	0.3	3.3	3.8	4.1
030	0.3	3.3	3.8	4.1
035	0.4	3.5	4.1	4.7
040	0.4	3.7	4.3	5.0
045	0.4	3.9	4.5	5.4
050	0.4	4.8	6.8	7.0
060	0.5	5.5	7.0	7.5
070	0.5	5.6	7.2	7.8
080	0.6	5.8	7.4	8.2
090	0.6	7.2	7.9	9.3

* Minimum flow rate for a water temperature difference of 18 K (unit with or without hydronic module)

** Maximum flow rate for an available pressure of 20 kPa (unit with low-pressure hydronic module) or 50 kPa (unit with high-pressure hydronic module)

*** Maximum flow rate for a pressure drop of 100 kPa in the plate heat exchanger (unit without hydronic module)

61WG with option 272

61WG	Minimum evaporator water flow rate - option 272*, l/s		
	Minimum**		Minimum***
	Low pressure	High pressure	
020	0.3	0.3	0.3
025	0.3	0.3	0.3
030	0.3	0.3	0.3
035	0.4	0.4	0.4
040	0.4	0.4	0.4
045	0.5	0.5	0.5
050	0.8	0.9	0.5
060	1.0	1.0	0.5
070	1.0	1.1	0.6
080	1.1	1.2	0.7
090	1.1	1.4	0.7

* Option 272: Condenser side high-temperature water production, with glycol solution, evaporator side

** Minimum flow rate for a maximum permitted temperature difference at the minimum leaving water temperature (unit with hydronic module)

*** Minimum flow rate for a maximum permitted temperature difference at the minimum leaving water temperature (unit without hydronic module)

Standard 30WG

30WG	Evaporator water flow rate, l/s					
	Minimum*		Minimum**	Maximum***		Maximum****
	Low pressure	High pressure		Low pressure	High pressure	
020	1.0	0.9	0.5	3.1	3.6	3.8
025	1.0	1.0	0.5	3.3	3.8	4.1
030	1.0	1.0	0.5	3.3	3.8	4.1
035	1.1	1.1	0.6	3.6	4.2	4.7
040	1.2	1.1	0.6	3.8	4.4	5
045	1.2	1.1	0.8	4.0	4.6	5.4
050	1.6	1.4	0.8	5.4	7.8	9.2
060	1.5	1.5	1.0	6.1	8.0	9.9
070	1.6	1.5	1.1	6.2	8.1	10.3
080	1.6	1.5	1.3	6.3	8.3	10.9
090	2.0	1.6	1.5	7.8	8.7	12.5

* Minimum flow rate for a maximum permitted temperature difference at the minimum leaving water temperature (unit with hydronic module)

** Minimum flow rate for a water temperature difference of 7 K (unit without hydronic module)

*** Maximum flow rate for an available pressure of 20 kPa (unit with low-pressure hydronic module) or 50 kPa (unit with high-pressure hydronic module)

**** Maximum flow rate for a pressure drop of 100 kPa in the plate heat exchanger (unit without hydronic module)

30WG	Condenser water flow rate, l/s			
	Minimum*	Maximum**		Maximum***
	Low pressure	Low pressure	High pressure	
020	0.3	3.1	3.5	3.8
025	0.3	3.3	3.8	4.1
030	0.3	3.3	3.8	4.1
035	0.4	3.5	4.1	4.7
040	0.4	3.7	4.3	5.0
045	0.4	3.9	4.5	5.4
050	0.4	4.8	6.8	7.0
060	0.5	5.5	7.0	7.5
070	0.5	5.6	7.2	7.8
080	0.6	5.8	7.4	8.2
090	0.6	7.2	7.9	9.3

* Minimum flow rate for a water temperature difference of 18 K (unit with or without hydronic module)

** Maximum flow rate for an available pressure of 20 kPa (unit with low-pressure hydronic module) or 50 kPa (unit with high-pressure hydronic module)

*** Maximum flow rate for a pressure drop of 100 kPa in the plate heat exchanger (unit without hydronic module)

30WG with option 6

30WG	Minimum evaporator water flow rate - option 6*, l/s		
	Minimum**		Minimum***
	Low pressure	High pressure	
020	0.7	0.6	0.5
025	0.8	0.7	0.5
030	0.8	0.7	0.5
035	0.9	0.7	0.6
040	1.0	0.7	0.6
045	1.0	0.8	0.8
050	1.4	1.1	0.8
060	1.0	1.1	1.0
070	1.0	1.2	1.1
080	1.1	1.2	1.3
090	1.2	1.2	1.5

* Option 6: glycol solution, very low temperature

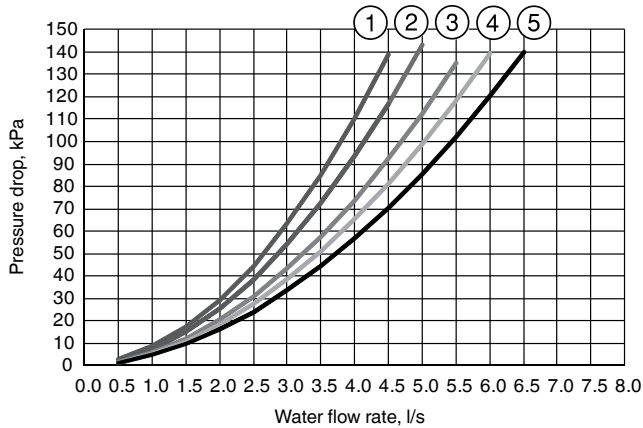
** Minimum flow rate for a maximum permitted temperature difference at the minimum leaving water temperature (unit with hydronic module)

*** Minimum flow rate for a maximum permitted temperature difference at the minimum leaving water temperature (unit without hydronic module)

Plate heat exchanger pressure drop (includes internal piping)

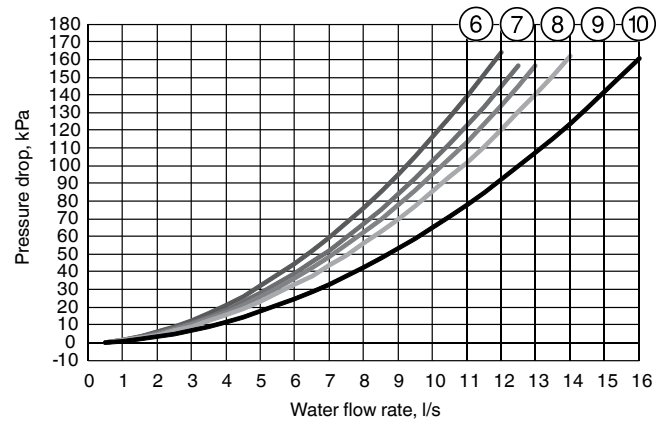
Evaporator - standard unit without hydronic module

61WG/30WG 020-045



- 1 61WG-30WG 020
- 2 61WG-30WG 025 to 61WG-30WG 030
- 3 61WG-30WG 035
- 4 61WG-30WG 040
- 5 61WG-30WG 045

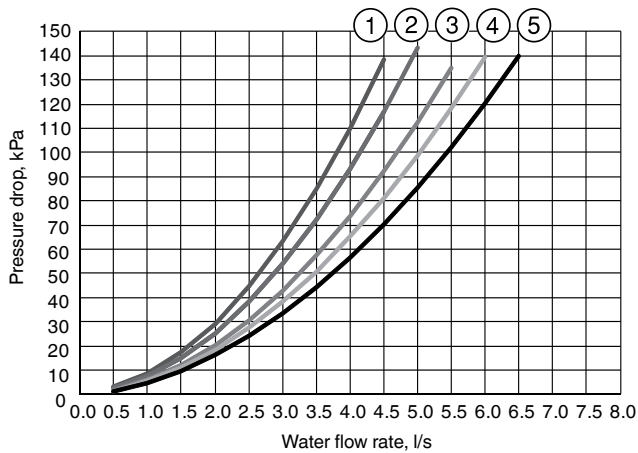
61WG/30WG 050-090



- 6 61WG-30WG 050
- 7 61WG-30WG 060
- 8 61WG-30WG 070
- 9 61WG-30WG 080
- 10 61WG-30WG 090

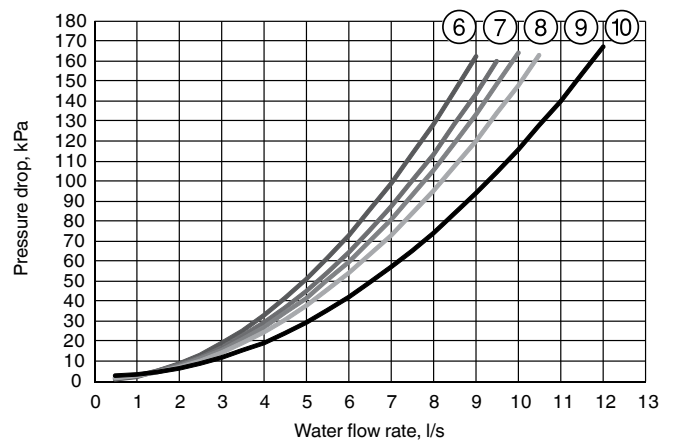
Condenser - standard unit without hydronic module

61WG/30WG 020-045



- 1 61WG-30WG 020
- 2 61WG-30WG 025 to 61WG-30WG 030
- 3 61WG-30WG 035
- 4 61WG-30WG 040
- 5 61WG-30WG 045

61WG/30WG 050-090

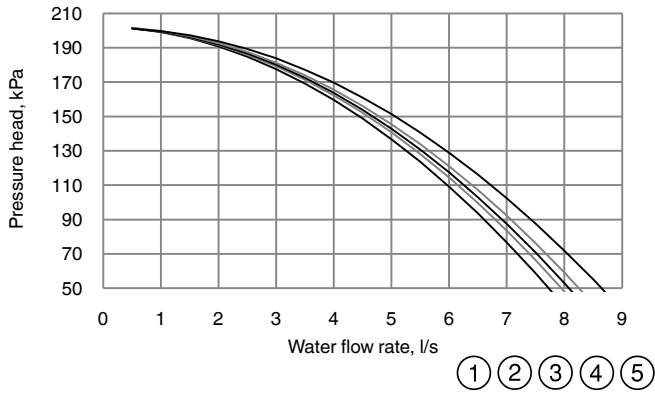


- 6 61WG-30WG 050
- 7 61WG-30WG 060
- 8 61WG-30WG 070
- 9 61WG-30WG 080
- 10 61WG-30WG 090

Available static system pressure (fixed or variable-speed high-pressure pumps, units with hydronic module)

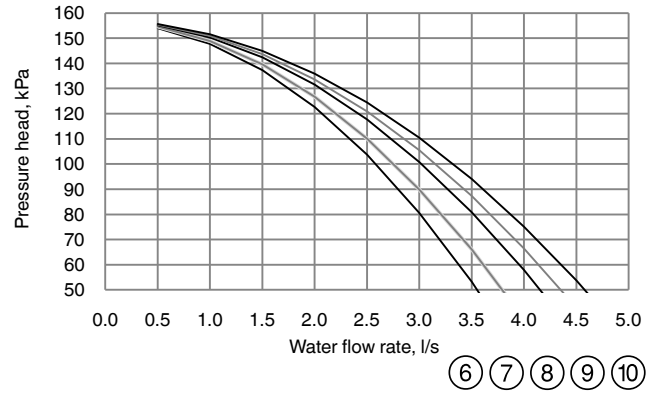
Evaporator

61WG/30WG 020-045



- 1 61WG-30WG 020
- 2 61WG-30WG 025 to 61WG-30WG 030
- 3 61WG-30WG 035
- 4 61WG-30WG 040
- 5 61WG-30WG 045

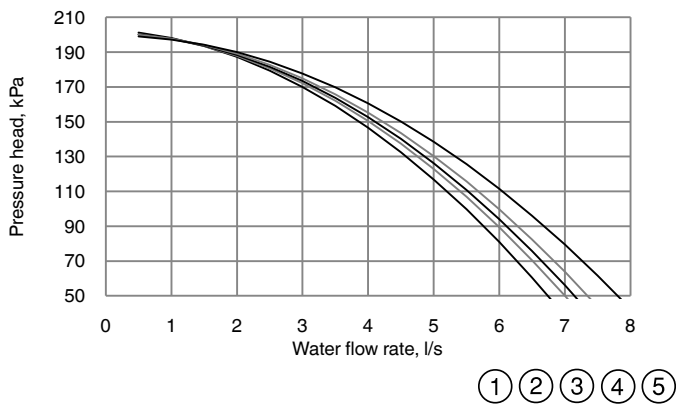
61WG/30WG 050-090



- 6 61WG-30WG 050
- 7 61WG-30WG 060
- 8 61WG-30WG 070
- 9 61WG-30WG 080
- 10 61WG-30WG 090

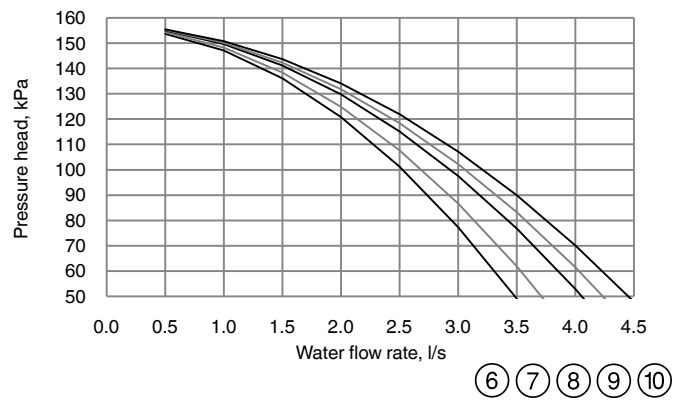
Condenser

61WG/30WG 020-045



- 1 61WG-30WG 020
- 2 61WG-30WG 025 to 61WG-30WG 030
- 3 61WG-30WG 035
- 4 61WG-30WG 040
- 5 61WG-30WG 045

61WG/30WG 050-090

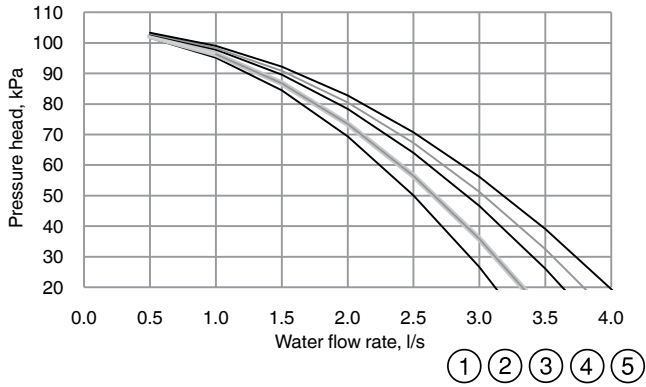


- 6 61WG-30WG 050
- 7 61WG-30WG 060
- 8 61WG-30WG 070
- 9 61WG-30WG 080
- 10 61WG-30WG 090

Available static system pressure (fixed or variable-speed low-pressure pumps, units with hydronic module)

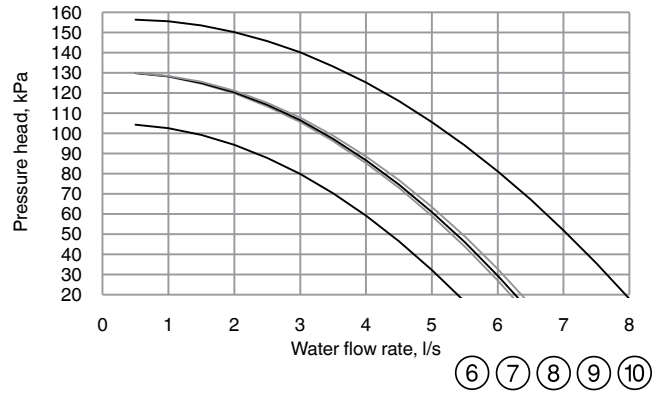
Evaporator

61WG/30WG 020-045



- 1 61WG-30WG 020
- 2 61WG-30WG 025 to 61WG-30WG 030
- 3 61WG-30WG 035
- 4 61WG-30WG 040
- 5 61WG-30WG 045

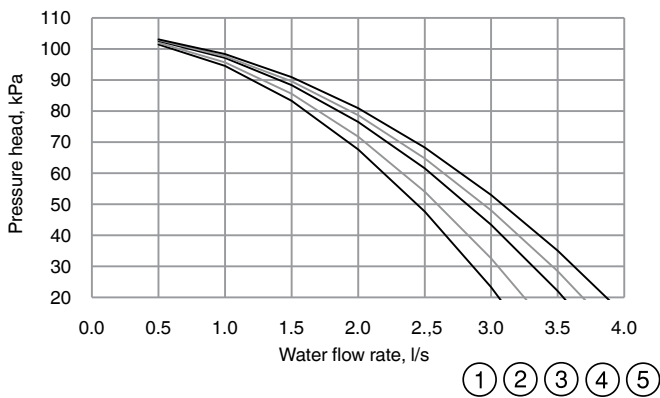
61WG/30WG 050-090



- 6 61WG-30WG 050
- 7 61WG-30WG 060
- 8 61WG-30WG 070
- 9 61WG-30WG 080
- 10 61WG-30WG 090

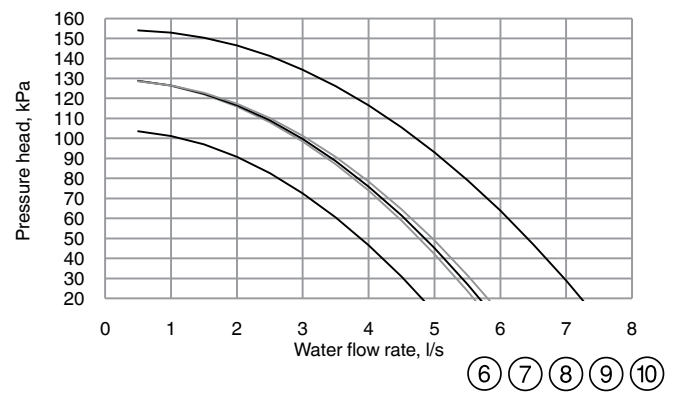
Condenser

61WG/30WG 020-045



- 1 61WG-30WG 020
- 2 61WG-30WG 025 to 61WG-30WG 030
- 3 61WG-30WG 035
- 4 61WG-30WG 040
- 5 61WG-30WG 045

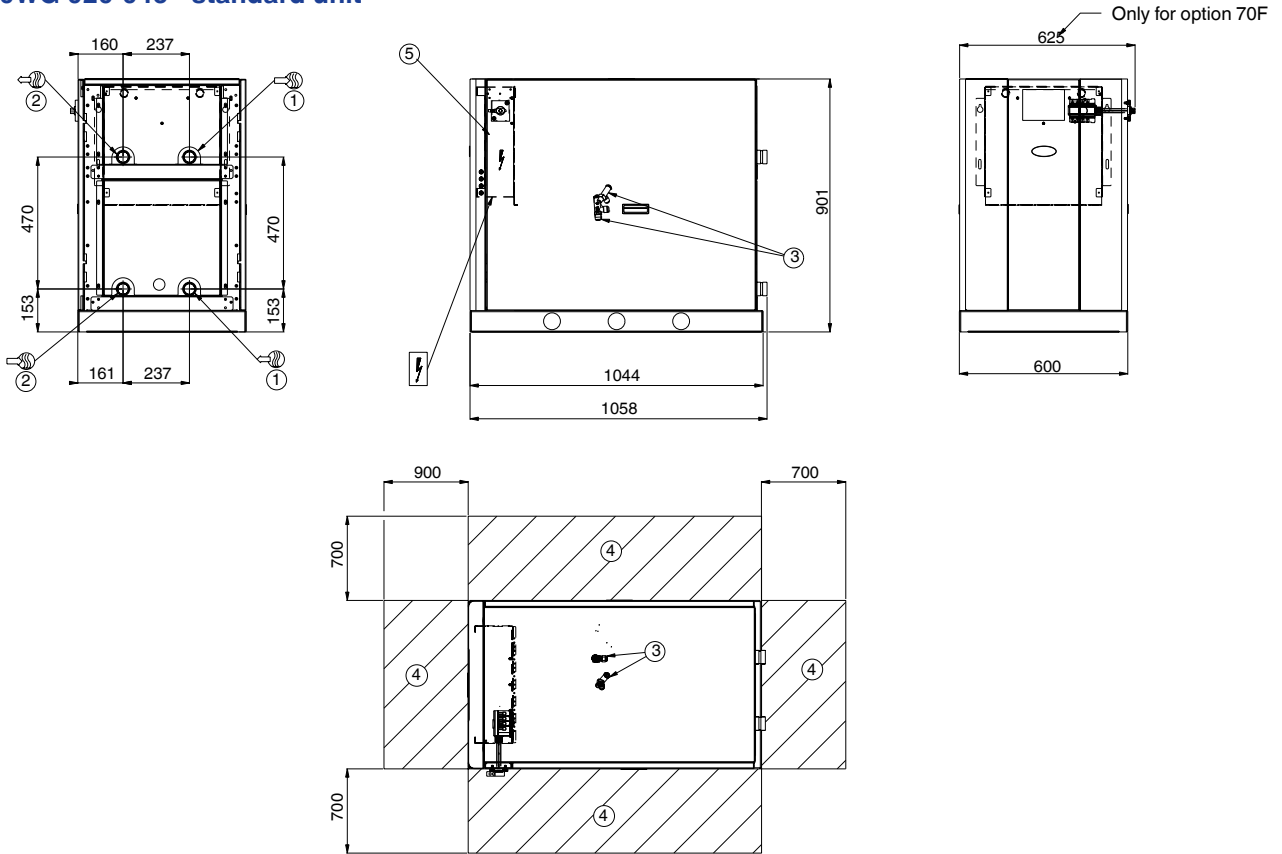
61WG/30WG 050-090



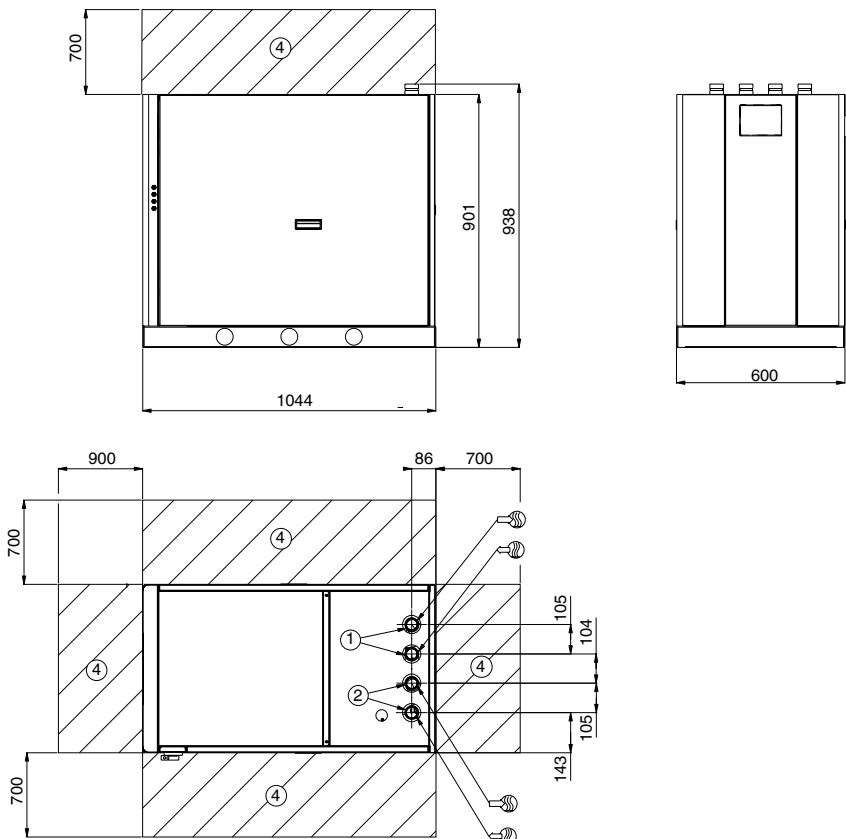
- 6 61WG-30WG 050
- 7 61WG-30WG 060
- 8 61WG-30WG 070
- 9 61WG-30WG 080
- 10 61WG-30WG 090

Dimensions/clearances

61WG/30WG 020-045 - standard unit



61WG/30WG 020-045 - unit with top connections (option 274)



Legend:

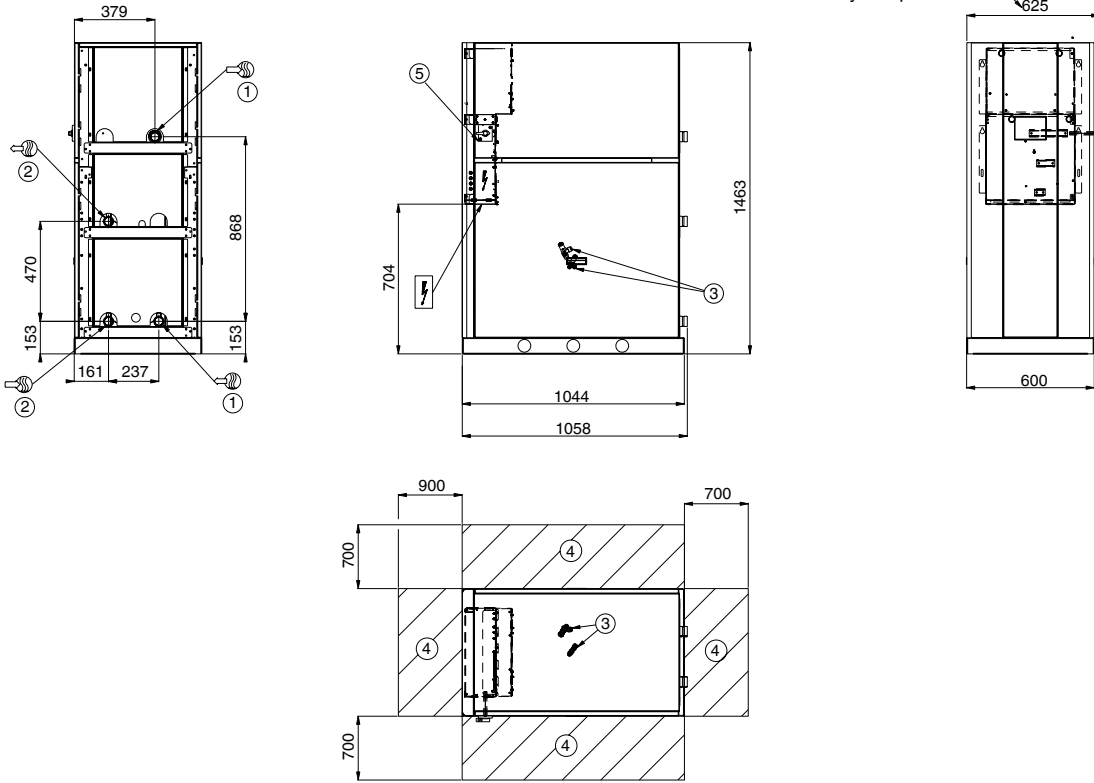
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet
- Water outlet
- Power wiring connection

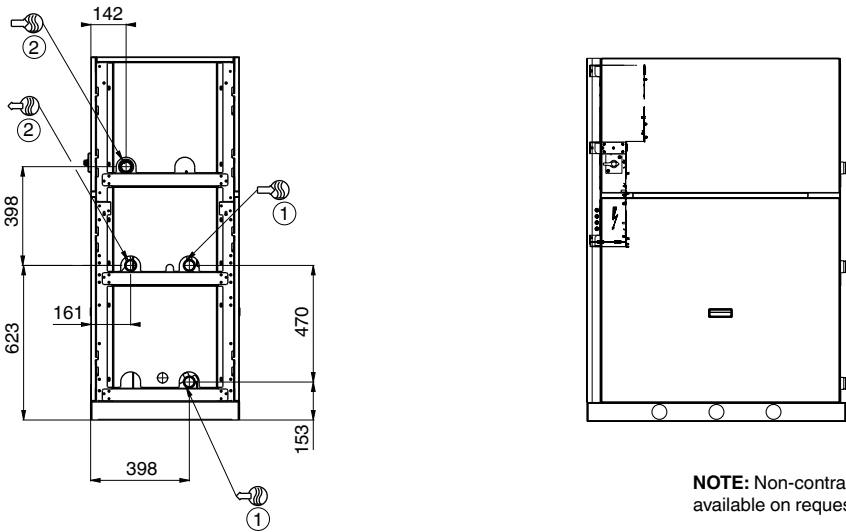
NOTE: Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

61WG/30WG 020-045 - unit with evaporator hydronic module (option 116)

Only for option 70F



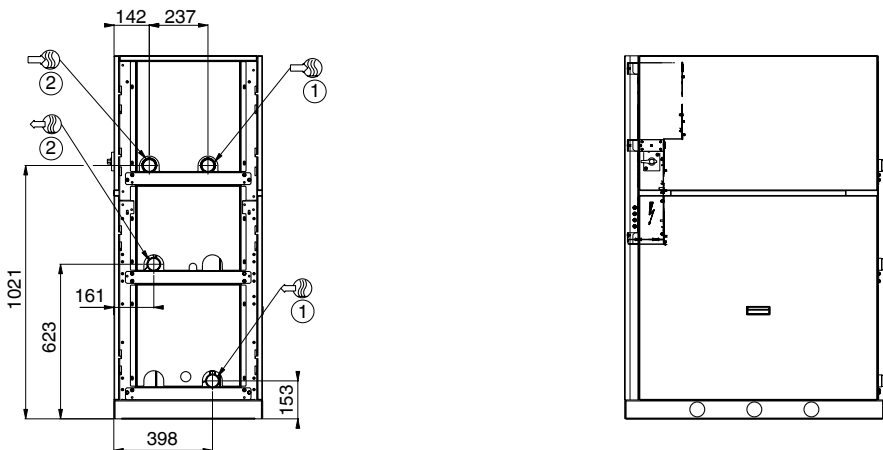
61WG/30WG 020-045 - unit with condenser hydronic module (option 270)



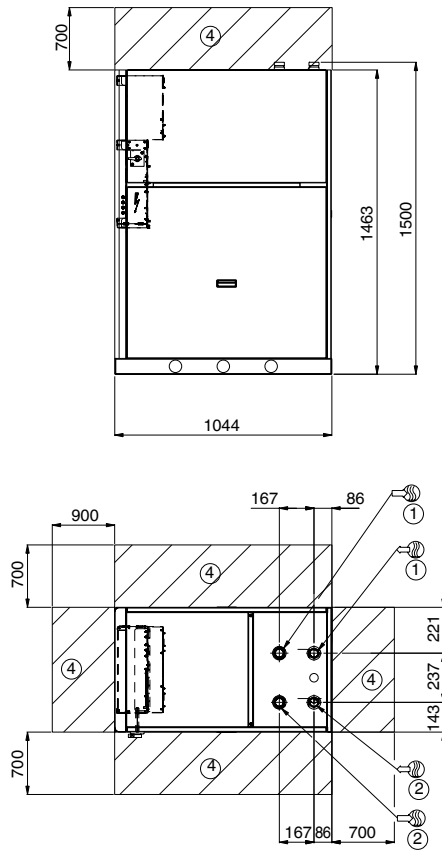
- Legend:**
All dimensions are in mm.
- ① Evaporator
 - ② Condenser
 - ③ Safety valve
 - ④ Clearances required for maintenance (see note)
 - ⑤ Control box
 - Water inlet
 - Water outlet
 - Power wiring connection

NOTE: Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

61WG/30WG 020-045 - unit with evaporator/condenser hydronic modules (options 116 + 270)

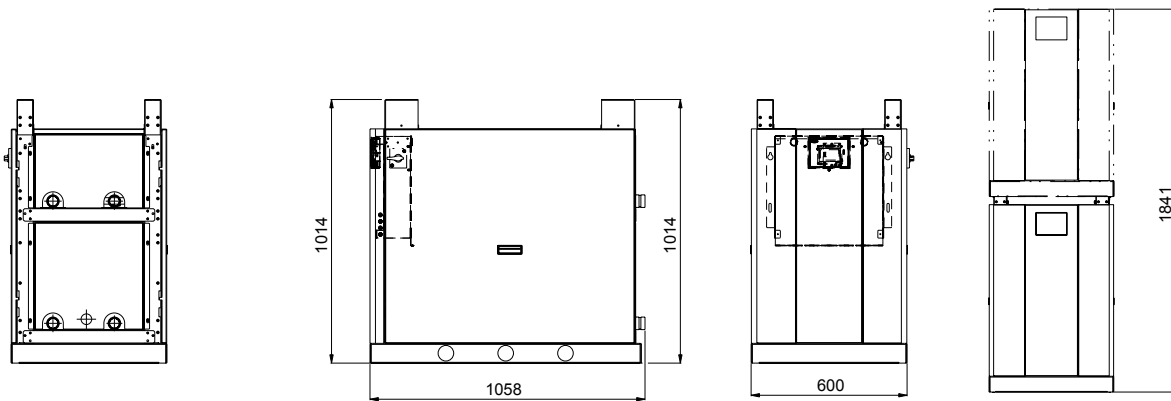


61WG/30WG 020-045 - unit with hydronic module and top connections (options 116 + 274 - 270 + 274 - 116 + 270 + 274)



61WG/30WG 020-045 - stackable unit (option 273)

NOTE: The water and electrical connections are identical to those of the standard unit.



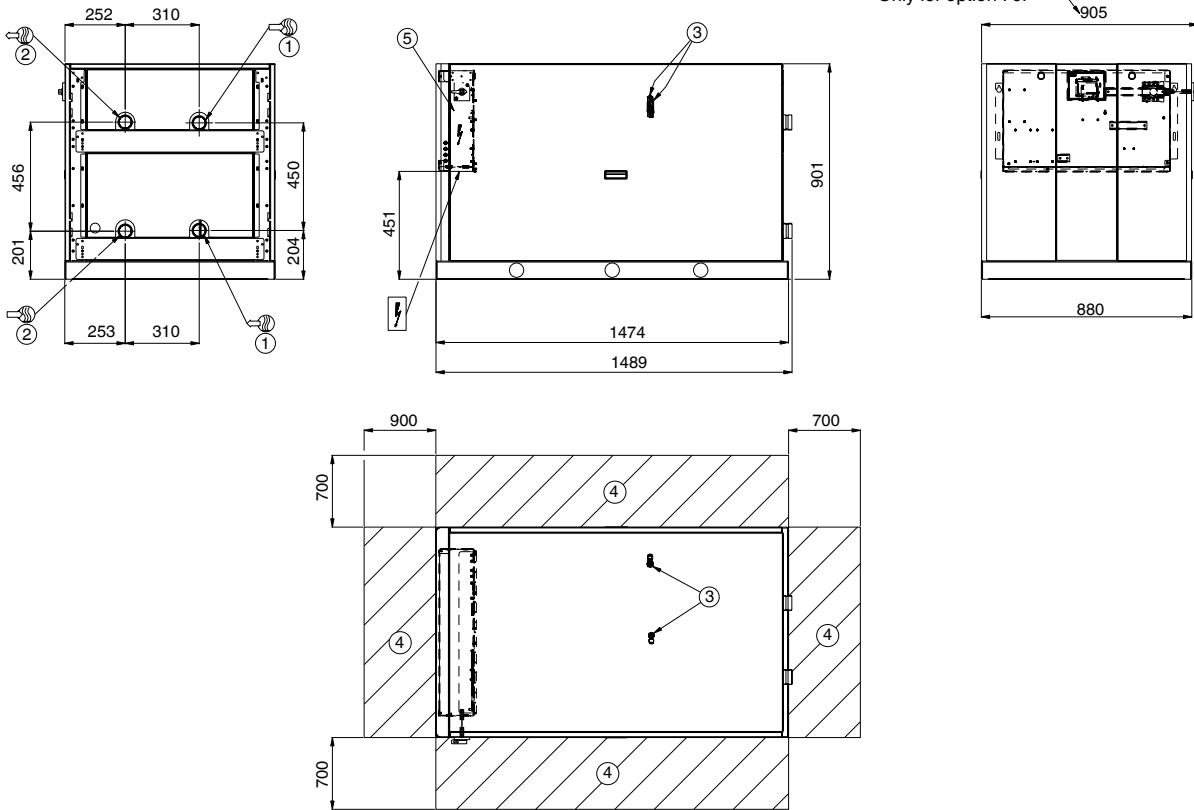
Legend:

All dimensions are in mm.

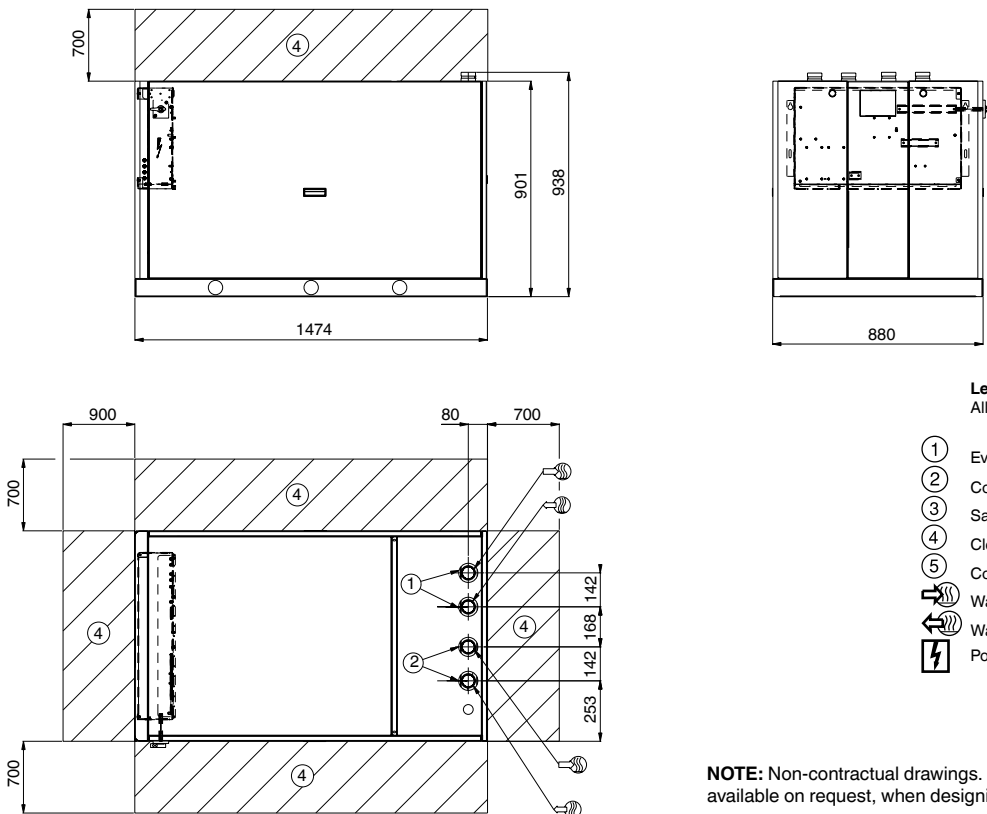
- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet
- Water outlet
- Power wiring connection

NOTE: Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

61WG/30WG 050-090 - standard unit



61WG/30WG 050-090 - unit with top connections (option 274)



Legend:

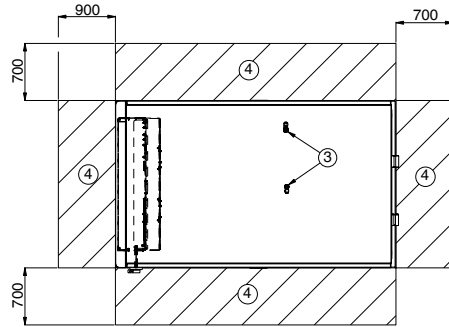
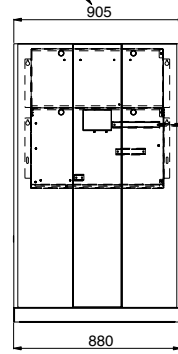
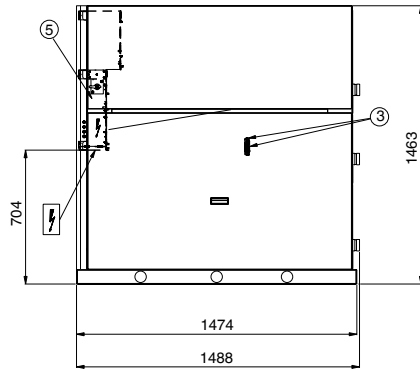
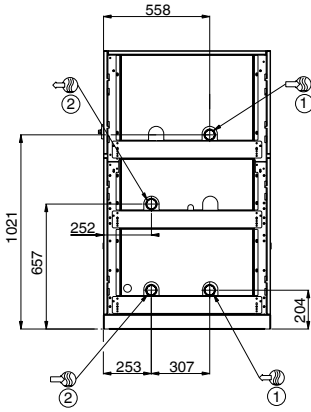
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet
- Water outlet
- Power wiring connection

NOTE: Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

61WG/30WG 050-090 - unit with evaporator hydronic module (option 116)

Only for option 70F

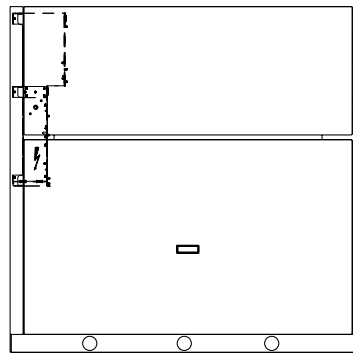
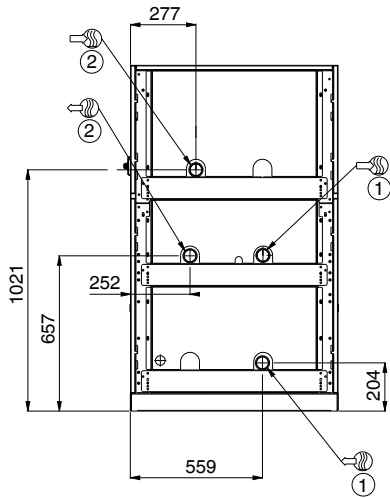


Legend:

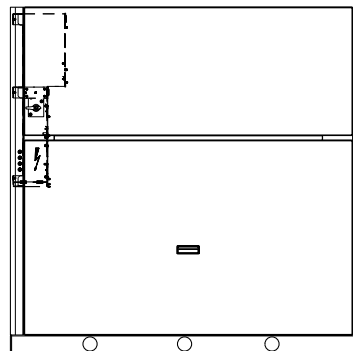
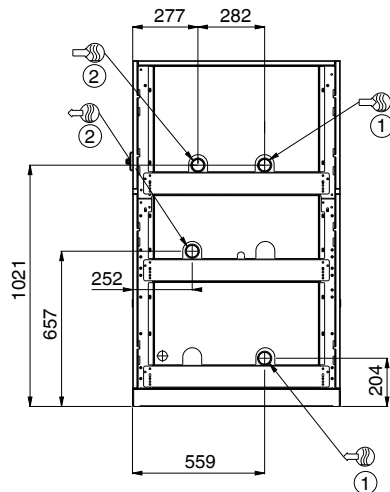
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet
- Water outlet
- Power wiring connection

61WG/30WG 050-090 - unit with condenser hydronic module (option 270)

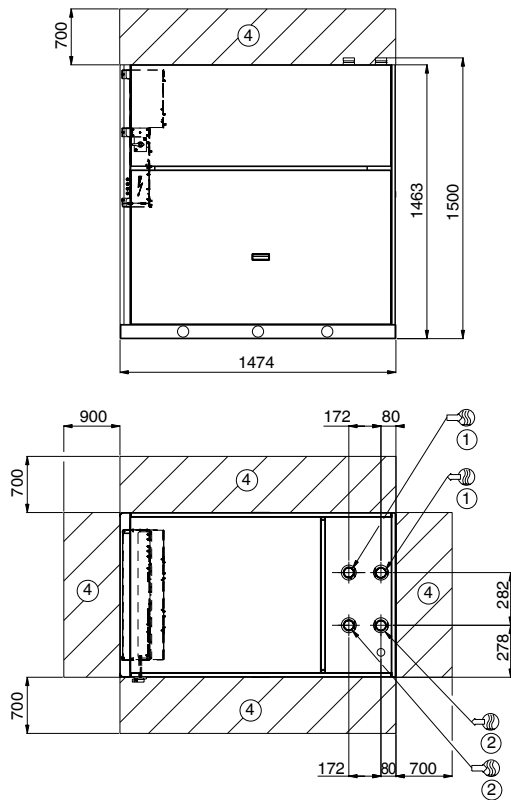


61WG/30WG 050-090 - unit with evaporator/condenser hydronic modules (options 116 + 270)



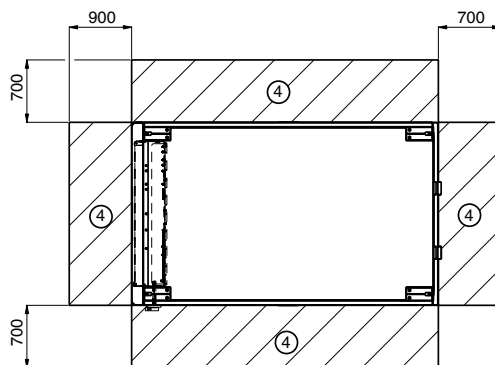
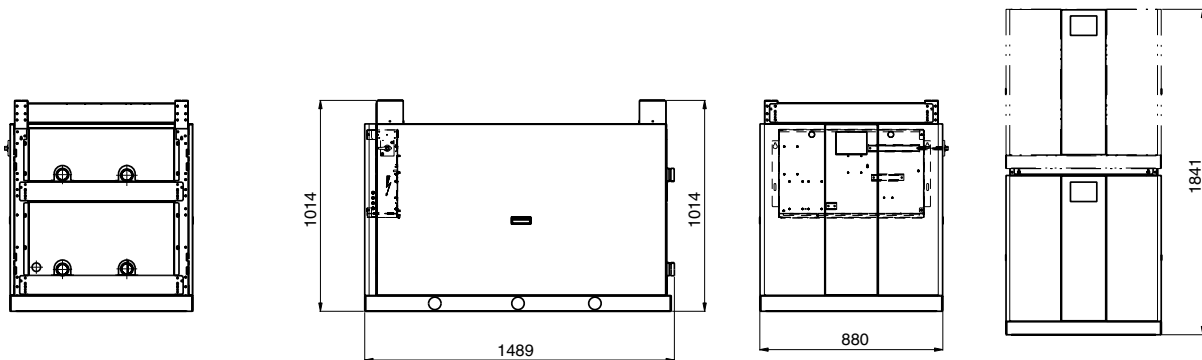
NOTE: Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

61WG/30WG 050-090 - unit with hydronic module and top connections (options 116 + 274 - 270 + 274 - 116 + 270 + 274)



61WG/30WG 050-090 - stackable unit (option 273)

NOTE: The water and electrical connections are identical to those of the standard unit.



Legend:
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet
- Water outlet
- Power wiring connection

NOTE: Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

Cooling capacities, 61WG - standard units

61WG EWT °C		Evaporator leaving water temperature, °C																			
		5					7					10					18				
		CAP	UNIT	EER	Flow	DP	CAP	UNIT	EER	Flow	DP	CAP	UNIT	EER	Flow	DP	CAP	UNIT	EER	Flow	DP
kW	kW	kW/kW	l/s	kPa	kW	kW	kW/kW	l/s	kPa	kW	kW	kW/kW	l/s	kPa	kW	kW	kW/kW	l/s	kPa		
020	30	22.3	5.2	4.33	1.1	11	23.9	5.2	4.57	1.1	12	26.3	5.3	4.94	1.3	14	33.0	5.6	5.90	1.6	20
025		26.4	6.3	4.22	1.3	12	28.2	6.4	4.43	1.4	14	31.1	6.5	4.76	1.5	16	39.1	7.0	5.61	1.9	23
030		28.5	7.0	4.05	1.4	14	31.2	7.2	4.35	1.5	16	34.5	7.4	4.69	1.7	19	43.3	7.8	5.56	2.1	28
035		34.1	8.1	4.23	1.6	16	36.2	8.2	4.44	1.7	17	39.6	8.3	4.76	1.9	20	49.5	8.7	5.66	2.4	29
040		38.8	9.0	4.30	1.9	17	41.2	9.1	4.50	2.0	19	45.0	9.3	4.81	2.2	22	56.3	9.9	5.66	2.7	32
045		43.6	10.3	4.25	2.1	18	46.8	10.5	4.47	2.2	20	51.9	10.8	4.80	2.5	24	65.2	11.6	5.62	3.1	35
050		53.2	12.1	4.39	2.5	10	56.6	12.3	4.60	2.7	11	62.0	12.5	4.94	3.0	13	78.5	13.4	5.88	3.8	19
060		60.4	14.2	4.26	2.9	11	64.1	14.3	4.47	3.1	12	70.1	14.6	4.80	3.4	14	88.2	15.5	5.70	4.2	21
070		68.3	15.7	4.34	3.3	13	72.8	15.9	4.57	3.5	14	79.6	16.1	4.95	3.8	16	100.5	16.7	6.02	4.8	24
080		76.9	18.2	4.23	3.7	11	81.9	18.5	4.42	3.9	13	89.3	18.8	4.74	4.3	16	111.5	19.8	5.64	5.4	27
090		89.6	21.0	4.27	4.3	13	95.5	21.3	4.48	4.6	15	104.4	21.7	4.81	5.0	18	131.6	22.8	5.79	6.3	31
020	35	21.4	5.8	3.70	1.0	10	22.7	5.7	3.96	1.1	11	25.0	5.8	4.30	1.2	13	31.2	6.1	5.14	1.5	18
025		25.5	6.9	3.72	1.2	11	26.9	6.9	3.88	1.3	13	29.6	7.1	4.17	1.4	15	37.0	7.5	4.93	1.8	21
030		28.8	7.8	3.70	1.4	14	29.7	7.9	3.78	1.4	15	32.9	8.0	4.10	1.6	18	41.0	8.4	4.86	2.0	26
035		32.9	9.0	3.66	1.6	15	34.7	9.0	3.87	1.7	16	37.9	9.1	4.16	1.8	18	47.0	9.5	4.95	2.3	26
040		36.7	10.0	3.66	1.8	16	39.5	10.1	3.93	1.9	18	43.1	10.2	4.21	2.1	21	53.5	10.8	4.96	2.6	29
045		40.7	11.3	3.61	1.9	16	44.7	11.3	3.94	2.1	19	49.4	11.6	4.24	2.4	22	61.8	12.4	4.97	3.0	32
050		50.5	13.6	3.72	2.4	9	54.4	13.5	4.05	2.6	10	59.5	13.7	4.35	2.8	12	74.1	14.4	5.16	3.6	17
060		56.4	15.5	3.64	2.7	10	61.4	15.8	3.90	2.9	11	67.2	15.9	4.21	3.2	13	84.0	16.5	5.09	4.0	19
070		65.0	18.0	3.61	3.1	12	69.2	17.5	3.96	3.3	13	76.1	17.7	4.30	3.6	15	95.9	18.0	5.32	4.6	22
080		72.6	20.2	3.59	3.5	10	77.8	20.2	3.86	3.7	11	85.5	20.6	4.15	4.1	14	106.8	21.3	5.01	5.1	24
090		84.3	23.2	3.63	4.0	11	90.1	23.0	3.91	4.3	13	99.3	23.5	4.22	4.8	16	125.2	24.3	5.15	6.0	28
020	40	20.2	6.2	3.25	1.0	9	21.6	6.3	3.43	1.0	10	23.7	6.4	3.72	1.1	11	29.4	6.6	4.46	1.4	16
025		24.2	7.4	3.28	1.2	10	25.7	7.5	3.43	1.2	12	28.1	7.7	3.67	1.3	13	34.8	8.1	4.30	1.7	19
030		25.8	8.5	3.04	1.2	12	28.2	8.6	3.27	1.3	14	31.2	8.8	3.56	1.5	16	38.7	9.1	4.24	1.9	23
035		31.1	9.7	3.19	1.5	13	33.0	9.8	3.36	1.6	15	36.1	10.0	3.62	1.7	17	44.6	10.3	4.31	2.1	24
040		35.7	11.0	3.25	1.7	15	37.8	11.1	3.41	1.8	16	41.1	11.3	3.65	2.0	19	50.7	11.8	4.31	2.4	27
045		39.7	12.1	3.27	1.9	15	42.5	12.3	3.45	2.0	17	46.9	12.6	3.72	2.3	20	58.3	13.3	4.38	2.8	29
050		48.9	14.4	3.41	2.3	8	52.1	14.6	3.58	2.5	9	56.9	14.8	3.84	2.7	11	70.0	15.5	4.52	3.4	15
060		55.2	17.3	3.20	2.6	9	58.7	17.3	3.38	2.8	10	64.3	17.4	3.69	3.1	12	80.0	17.7	4.52	3.8	17
070		61.1	19.0	3.22	2.9	10	65.4	19.1	3.42	3.1	12	72.2	19.3	3.74	3.5	14	91.5	19.6	4.67	4.4	21
080		68.9	21.7	3.17	3.3	8	73.6	22.0	3.35	3.5	10	81.1	22.4	3.63	3.9	12	102.5	23.2	4.41	4.9	22
090		78.9	24.7	3.20	3.8	9	84.5	24.9	3.39	4.0	11	93.4	25.4	3.68	4.5	14	119.1	26.2	4.54	5.7	24
020	50	18.2	7.6	2.40	0.9	7	19.3	7.6	2.54	0.9	8	21.2	7.7	2.76	1.0	9	25.7	7.8	3.30	1.2	13
025		21.8	8.9	2.46	1.0	9	23.1	8.9	2.58	1.1	9	25.1	9.0	2.77	1.2	11	30.2	9.3	3.26	1.5	15
030		22.7	10.3	2.21	1.1	9	25.0	10.4	2.40	1.2	11	27.8	10.5	2.64	1.3	13	34.1	10.8	3.16	1.6	18
035		27.7	11.8	2.35	1.3	11	29.5	11.9	2.48	1.4	12	32.2	12.0	2.68	1.5	14	39.5	12.3	3.21	1.9	19
040		30.5	13.3	2.28	1.5	11	32.7	13.5	2.43	1.6	13	36.3	13.7	2.65	1.7	15	44.5	14.0	3.17	2.1	21
045		34.3	14.5	2.37	1.6	12	37.2	14.7	2.54	1.8	13	41.8	15.0	2.79	2.0	16	51.5	15.6	3.30	2.5	23
050		43.6	17.3	2.52	2.1	7	46.3	17.4	2.66	2.2	7	50.7	17.5	2.89	2.4	9	62.2	17.9	3.48	3.0	12
060		49.3	20.8	2.38	2.4	8	53.0	20.9	2.53	2.5	9	58.3	20.9	2.80	2.8	10	72.6	20.5	3.54	3.5	15
070		53.3	22.8	2.34	2.5	8	57.4	22.8	2.52	2.7	9	63.9	22.8	2.80	3.1	11	82.2	22.8	3.60	3.9	17
080		59.5	26.0	2.29	2.8	6	64.0	26.1	2.45	3.1	7	71.1	26.3	2.71	3.4	9	91.4	26.9	3.40	4.4	16
090		68.1	29.2	2.33	3.3	6	73.3	29.4	2.50	3.5	8	81.7	29.5	2.76	3.9	10	105.5	30.2	3.50	5.1	18

Legend:

EWT °C	Condenser entering water temperature
CAP kW	Cooling capacity
EER kW/kW	Energy efficiency ratio
UNIT kW	Unit power input (compressors and control circuit)
Flow l/s	Evaporator water flow rate
DP kPa	Evaporator pressure drop

Application data:

Standard units, refrigerant: R410A
 Evaporator water temperature rise: 5 K
 Condenser water temperature rise: 5 K
 Evaporator fluid: chilled water
 Fouling factor: 0.18 x 10⁻⁴ (m² K)/W
 Performances in accordance with EN 14511

Cooling capacities, 30WG - standard units

30WG EWT °C		Evaporator leaving water temperature, °C																			
		5					7					10					18				
		CAP	UNIT	EER	Flow	DP	CAP	UNIT	EER	Flow	DP	CAP	UNIT	EER	Flow	DP	CAP	UNIT	EER	Flow	DP
kW	kW	kW/kW	l/s	kPa	kW	kW	kW/kW	l/s	kPa	kW	kW	kW/kW	l/s	kPa	kW	kW	kW/kW	l/s	kPa		
020	30	22.9	5.2	4.42	1.1	11	24.5	5.2	4.69	1.2	12	27.0	5.3	5.12	1.3	15	33.8	5.3	6.38	1.6	21
025		26.8	6.0	4.44	1.3	13	28.5	6.1	4.69	1.4	14	31.3	6.2	5.07	1.5	16	39.2	6.5	6.07	1.9	24
030		28.8	6.6	4.34	1.4	14	31.3	6.7	4.65	1.5	17	34.4	6.8	5.03	1.7	19	42.9	7.2	5.99	2.1	28
035		34.4	7.7	4.46	1.6	16	36.5	7.8	4.69	1.7	17	39.9	7.9	5.05	1.9	20	50.0	8.3	6.01	2.4	29
040		39.3	8.8	4.45	1.9	18	41.6	8.9	4.66	2.0	20	45.4	9.1	4.98	2.2	23	56.5	9.6	5.86	2.7	32
045		43.0	9.8	4.40	2.1	18	46.3	9.9	4.67	2.2	21	51.5	10.1	5.08	2.5	25	65.3	10.9	6.01	3.1	37
050		54.5	12.3	4.45	2.6	10	57.9	12.3	4.69	2.8	11	63.2	12.5	5.07	3.0	13	78.5	12.9	6.09	3.8	19
060		59.6	13.6	4.39	2.8	11	63.1	13.7	4.62	3.0	12	68.8	13.8	4.98	3.3	14	85.9	14.5	5.93	4.1	20
070		68.9	15.6	4.40	3.3	13	73.4	15.8	4.65	3.5	14	80.3	15.9	5.05	3.8	17	101.5	16.5	6.16	4.9	25
080		78.5	17.8	4.41	3.7	12	83.5	18.1	4.62	4.0	14	90.9	18.4	4.95	4.4	17	112.9	19.1	5.90	5.4	28
090		88.2	20.0	4.41	4.2	12	94.1	20.2	4.65	4.5	14	102.7	20.4	5.04	4.9	17	129.2	21.2	6.11	6.2	30
020	35	21.9	5.8	3.78	1.0	10	23.4	5.8	4.01	1.1	11	25.7	5.9	4.39	1.2	13	32.1	5.8	5.52	1.5	19
025		25.5	6.7	3.81	1.2	12	27.1	6.7	4.02	1.3	13	29.8	6.8	4.36	1.4	15	37.1	7.1	5.24	1.8	21
030		27.4	7.3	3.73	1.3	13	29.8	7.4	4.02	1.4	15	32.8	7.5	4.36	1.6	18	40.7	7.8	5.20	2.0	25
035		32.8	8.6	3.83	1.6	15	34.9	8.6	4.04	1.7	16	38.1	8.7	4.37	1.8	19	47.4	9.1	5.23	2.3	27
040		37.8	9.8	3.86	1.8	17	40.0	9.9	4.04	1.9	18	43.5	10.0	4.33	2.1	21	53.7	10.5	5.12	2.6	29
045		40.8	10.8	3.77	1.9	17	44.0	10.9	4.02	2.1	19	48.9	11.1	4.39	2.3	22	61.8	11.8	5.26	3.0	33
050		52.4	13.7	3.82	2.5	9	55.6	13.8	4.04	2.7	10	60.7	13.9	4.37	2.9	12	75.1	14.2	5.27	3.6	17
060		57.0	15.1	3.77	2.7	10	60.5	15.2	3.98	2.9	11	65.9	15.3	4.32	3.2	13	81.8	15.6	5.25	3.9	18
070		65.2	17.4	3.74	3.1	12	69.6	17.5	3.98	3.3	13	76.6	17.6	4.35	3.7	15	96.6	17.8	5.43	4.6	23
080		74.6	19.5	3.82	3.6	10	79.5	19.8	4.02	3.8	12	87.1	20.2	4.32	4.2	15	108.2	20.6	5.24	5.2	25
090		83.4	22.2	3.76	4.0	11	89.0	22.3	3.98	4.3	12	98.1	22.6	4.33	4.7	16	123.0	22.8	5.39	5.9	26
020	40	20.8	6.5	3.22	1.0	9	22.2	6.5	3.42	1.1	10	24.5	6.5	3.75	1.2	12	30.4	6.4	4.75	1.5	17
025		24.4	7.5	3.27	1.2	11	25.9	7.5	3.45	1.2	12	28.3	7.6	3.74	1.4	13	35.1	7.8	4.50	1.7	19
030		26.0	8.1	3.19	1.2	12	28.3	8.2	3.44	1.4	14	31.2	8.3	3.75	1.5	16	38.4	8.5	4.50	1.9	23
035		31.2	9.6	3.27	1.5	13	33.1	9.6	3.45	1.6	15	36.2	9.7	3.74	1.7	17	44.8	9.9	4.52	2.2	24
040		36.3	10.9	3.33	1.7	15	38.3	11.0	3.50	1.8	17	41.6	11.1	3.76	2.0	19	50.9	11.4	4.46	2.5	27
045		38.5	12.0	3.21	1.8	15	41.5	12.1	3.43	2.0	17	46.2	12.3	3.76	2.2	20	58.1	12.8	4.55	2.8	30
050		49.6	15.2	3.26	2.4	9	53.0	15.3	3.46	2.5	10	58.2	15.5	3.76	2.8	11	71.7	15.7	4.56	3.4	16
060		54.4	16.9	3.23	2.6	9	57.7	16.9	3.42	2.8	10	63.0	16.8	3.74	3.0	12	77.9	16.8	4.63	3.7	16
070		61.3	19.4	3.16	2.9	10	65.6	19.4	3.38	3.1	12	72.5	19.4	3.73	3.5	14	92.0	19.4	4.73	4.4	21
080		70.6	21.4	3.29	3.4	9	75.3	21.6	3.48	3.6	10	82.8	21.9	3.78	4.0	13	103.9	22.5	4.62	5.0	23
090		78.3	24.6	3.19	3.7	9	83.9	24.7	3.40	4.0	11	92.7	24.8	3.73	4.4	13	117.7	25.1	4.69	5.7	24
020	50	18.6	8.1	2.31	0.9	8	19.9	8.1	2.46	1.0	9	21.9	8.1	2.71	1.1	10	27.0	7.8	3.46	1.3	14
025		22.1	9.2	2.39	1.1	9	23.4	9.2	2.53	1.1	10	25.4	9.3	2.74	1.2	11	30.9	9.4	3.28	1.5	15
030		22.8	10.0	2.28	1.1	9	25.0	10.1	2.49	1.2	11	27.7	10.1	2.74	1.3	13	33.8	10.2	3.30	1.6	18
035		27.7	11.9	2.33	1.3	11	29.4	11.9	2.48	1.4	12	32.1	11.9	2.70	1.5	14	39.3	12.0	3.29	1.9	19
040		31.6	13.2	2.40	1.5	12	33.9	13.3	2.55	1.6	13	37.5	13.4	2.79	1.8	16	45.6	13.6	3.34	2.2	22
045		35.0	14.9	2.35	1.7	13	37.3	14.9	2.50	1.8	14	40.4	14.9	2.71	1.9	16	50.5	15.2	3.33	2.4	23
050		43.4	18.6	2.33	2.1	7	46.6	18.7	2.49	2.2	7	51.6	18.8	2.74	2.5	9	64.9	19.2	3.39	3.1	13
060		48.6	20.7	2.35	2.3	7	52.0	20.7	2.51	2.5	8	57.1	20.5	2.79	2.7	10	70.5	19.8	3.55	3.4	14
070		53.3	23.8	2.23	2.5	8	57.3	23.7	2.42	2.7	9	63.7	23.5	2.72	3.1	11	82.0	23.0	3.57	3.9	17
080		62.3	25.6	2.44	3.0	6	66.8	25.6	2.61	3.2	8	73.9	25.7	2.87	3.5	10	93.9	26.0	3.61	4.5	18
090		67.9	29.9	2.27	3.2	6	73.1	29.8	2.45	3.5	8	81.5	29.7	2.74	3.9	10	105.2	29.6	3.55	5.1	18

Legend:

EWT °C Condenser entering water temperature
 CAP kW Cooling capacity
 EER kW/kW Energy efficiency ratio
 UNIT kW Unit power input (compressors and control circuit)
 Flow l/s Evaporator water flow rate
 DP kPa Evaporator pressure drop

Application data:

Standard units, refrigerant: R410A
 Evaporator water temperature rise: 5 K
 Condenser water temperature rise: 5 K
 Evaporator fluid: chilled water
 Fouling factor: 0.18 x 10⁻⁴ (m² K)/W
 Performances in accordance with EN 14511

Variable water flow system (VWF)

Variable water flow is a hydronic control function package that permits control of the water flow rate.

The VWF not only ensures control at full load, a specific Carrier algorithm linked to an electronic frequency converter also continuously modulates the flow rate to minimise pump consumption at full load as well as part load.

The hydronic module includes pressure transducers that permit intelligent measurement of the water flow rate and real-time display on the Pro-Dialog+ interface. All adjustments can be made directly on the interface, speeding up start-up and maintenance.

As VWF acts directly on the pump, the system no longer requires the control valve at the unit outlet. However, for applications with two-way valves a bypass system must be kept to guarantee the minimum flow rate.

Operating logic

■ Full-load setpoint

The flow rate control at full load uses the Pro-Dialog+ interface, reducing the pump speed. This first control saves energy that would normally be dissipated in the control valve. For example, if the pressure supplied by the pump is reduced by 20% the power consumption of the pump is reduced by the same ratio, compared to a traditional installation.

■ Operating mode at part load

Pro-Dialog+ includes two part-load operating modes:

- Constant outlet pressure control
- Constant delta T control.

1 – Constant unit outlet pressure control

The control continuously acts on the pump speed to ensure a constant outlet pressure.

This solution is suitable for installations with two-way valves. When these close, the water speed will accelerate in the system branches that are still open. For a fixed-speed pump this results in an unnecessary increase of the pressure at the pump outlet.

The outlet pressure control mode ensures that each circuit branch always has a uniform supply, without unnecessary energy waste.

In industrial processes such as plastic injection moulding, this solution ensures that each terminal unit has the correct pressure supply.

2 – Constant delta T control

The VWF algorithm maintains a constant delta T no matter what the unit load, reducing the flow rate to the minimum.

This solution can be used for systems with two-way or three-way valves and achieves higher energy savings than the “Constant unit outlet pressure control” mode. It is suitable for the majority of comfort applications.

Guide specification, 61WG/30WG

Quality assurance

- The water-sourced units shall be designed for indoor installation in a plant room.
- The water-sourced units shall use ozone-friendly refrigerant R410A and include scroll compressors.
- The design and manufacturing site of the units shall be certified in accordance with the quality management system ISO 9001.
- The development test site of the units shall be certified to the quality management system ISO 17025.
- The design and manufacturing site of the units shall be certified in accordance with the environmental management system ISO 14001.
- The published performances for the units shall be Eurovent-certified and all units are factory-tested before shipment.
- The units shall meet the following product quality standards: 2006/42/EC, 2006/95/EC, 2004/108/CE, 97/23/EEC, 2002/95/CE "RoHS", 2002/96/EC "WEEE", 2005/32/EC "Ecodesign", EN14511.

61WG product features

- The hot-water production unit shall have a heating capacity of _____ kW, a maximum power input of _____ kW and a COP of _____ kW/kW.
- The evaporator leaving water temperature shall be _____ °C with a temperature difference of _____ K and a condenser leaving water temperature of _____ °C with a temperature difference of _____ K.
- The hot-water production unit shall be able to produce hot water up to 65°C and cold water to class ___ in accordance with Eurovent.
- The hot-water production unit shall have weather compensation control, controlling a needle valve and permitting hot-water production at a second setpoint of _____ °C, controlled by a clock.
- It shall control a supplementary 4-stage electric heater and be able to manage a relief boiler (heat pump stopped).
- A second circulation pump shall be controlled by the hot-water production unit.

30WG product features

- The chilled-water production unit shall have a cooling capacity of _____ kW, a maximum power input of _____ kW and an ESEER of _____ kW/kW.
- The evaporator leaving water temperature shall be _____ °C with a temperature difference of _____ K and a condenser leaving water temperature of _____ °C with a temperature difference of _____ K.
- The chilled-water production unit shall be able to produce hot water up to 60 °C and class ___ heating in accordance with Eurovent.
- The chilled-water production unit shall be connected by communication bus to a drycooler.

Common 30WG and 61WG unit features

- The unit shall have water connections at the top/back and a footprint size of _____ m².
- The hydronic kit, located in the upper unit section shall include all required hydronic components including an expansion tank of _____ litres.
- The circulation pumps have fixed speed/variable water flow with a minimum frequency of 25 Hz. The evaporator water pressure drop shall be _____ kPa and the condenser water pressure drop shall be _____ kPa.
- All hydronic and refrigerant circuit components of the unit shall be compatible with a condenser leaving water temperature of 65°C.
- The unit shall be stackable in pairs, controlled in master/slave configuration for a total capacity of _____ kW.
- The unit shall operate with 400 V-3 ph-50 Hz (400 V ± 10%) without neutral and it shall only have one connection point.
- The main control panel shall be protected by a glass panel and shall only be opened with a special tool.
- The unit control circuit voltage shall be 24 V maximum, supplied by a factory-installed transformer. The compressor shall offer quick keyed electrical connection.
- The unit shall include numerical control, with the possibility of remote control. It shall ensure the control of the compressors, evaporator and condenser water pumps and the fans (drycooler).
- The numerical control shall include a patented auto-adaptive Carrier algorithm that controls the operation of the compressors and permanently adjusts to the application characteristics including the water loop inertia.
- Dangerous compressor cycles are reduced to six per hour.
- The control menus shall permit direct access do all unit data including the history of possible faults.



Order No.: 16121-20.02.2012. Supersedes order No.: New.
Manufacturer reserves the right to change any product specifications without notice.

Manufactured by: Carrier SCS, Montluel, France.
Printed in the European Union.