

## WATER-COOLED AND CONDENSERLESS LIQUID CHILLERS WATER-SOURCED HEAT PUMPS

30WG optimized for cooling

61WG optimized for heating

Compact design

Plug and play approach

High efficiency



## 61WG/30WG/30WGA-A

Nominal cooling capacity 25-190 kW  
Nominal heating capacity 29-230 kW

The 30WG/30WGA and 61WG units are new Carrier chillers and heat pumps designed for commercial (offices, small hotels, leisure facilities), residential and industrial applications. All units offer a unique combination of high performance and functionality in an exceptionally compact chassis.

61WG units are designed for high-temperature heating applications with hot water production possible up to 65 °C.

The 30WG, also available as a condenserless version (30WGA), is designed for air-conditioning applications with a high SEER value. As they can produce chilled water down to -12 °C they are also suitable for process applications.

A large number of options is available for the whole range:

- hydraulic modules with or without variable water flow rate,
- reinforced sound insulation,
- stacking and connection of two units
- low-temperature applications down to -12 °C (30WG only).

**61WG 110-190 availability: Q2.2018**

**30WG 110-190 with option 49 availability: Q2.2018**

**AQUASNAP®**

**AQUASNAP®**  
Heating



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## CUSTOMER BENEFITS

### Features

- Reduced footprint
- Scroll compressors and R-410A refrigerant
- Variable-flow pump
- Low-noise option (-3 dB(A))
- Stacking of two units for increased capacity (up to size 090)
- Several communication protocols available: JBus, BacNet, MS/TP, LON
- Water connection at the top or rear (30WG/61WG only)

### Available versions

#### 61WG - optimised for heating

- High temperature up to +65 °C
- Evaporator temperature down to -5 °C
- Control of the three-way diverter valve for domestic hot water and space heating requirements
- System approach - the Heating System Manager maximises the global efficiency of complex systems where the 61WG units are combined with an auxiliary heating source to serve multi-zone space heating and domestic hot water production.

#### 30WG - optimised for air conditioning and process Heating & Cooling

- Evaporator temperature down to -12 °C
- Condenser temperature up to +60 °C
- Condensing pressure control devices available

#### 30WGA - optimised for air conditioning

- Continuous operation up to 62 °C saturated condensing temperature
- Compatible remote condensers available
- Optimised remote condenser fan control

### The right unit for any application

- The high temperature of the 61WG units makes them compatible with most heating systems, both in new and refurbished buildings and permits domestic hot water production (with a dedicated temperature setpoint).
- Option 153 "Built-in DHW and space heating control" allows control of both domestic hot water and space heating requirements:
  - Domestic hot water production: a built-in three-way valve is directed to divert the heat flow from the space heating loop to the domestic hot water loop and vice versa.
  - Space heating control: the setpoint is adjustable, based on the daily schedule or the outside air temperature (weather compensation function).
  - Control of auxiliary systems: if an alarm is detected at the 61WG/30WG or if there is insufficient heating capacity, a digital signal starts an auxiliary electric heater (1 to 4 stages) or boiler.
  - Pump control: allows control of the built-in pump as well as the pump in the secondary loop (to terminals).
- In 30WG units the pressure control signal ensures safe unit operation and maximised performance at low source-side water temperatures.

- The condenserless 30WGA units are ideal for refurbishment projects where a remote condenser exists on site, and for all projects without geothermal/natural sinks for heat rejection.
- In 61WG/30WG units the Heating System Manager (HSM) accessory allows control of systems with several heat sources and different additional systems: electric heat, boiler or for the most complex systems district heating (see pages 9 to 11).

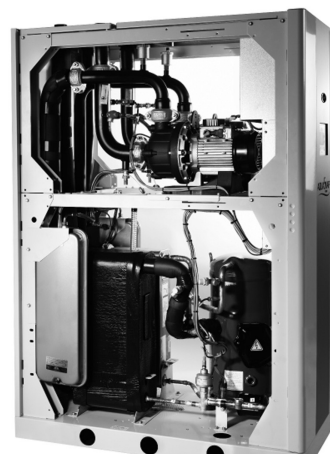
### Adaptability and simple installation

- The 30WG and 61WG units can be provided with several hydraulic module options, both on the evaporator and/or condenser side, with different levels of available pressure and variable or fixed-speed pumps (see page 7).
- If option 153 is selected domestic hot water production is controlled via a built-in three-way diverter valve (not supplied).
- 61WG and 30WG units offer water-side cooling/heating reversibility.
- Remote condenser fan control possible for 30WGA units.

#### Water connections at the rear of the unit



#### Internal view of 61WG unit with hydraulic module



## CUSTOMER BENEFITS

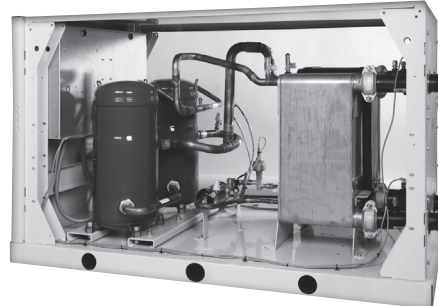
**Internal view of 30WG 170**



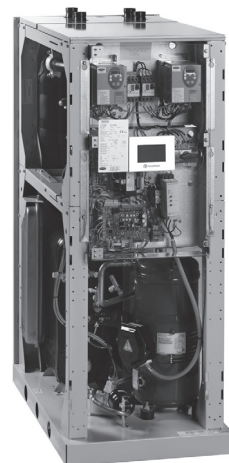
**Component accessibility**

See photos below.

**Access to scroll compressors**



**Access to control panel**



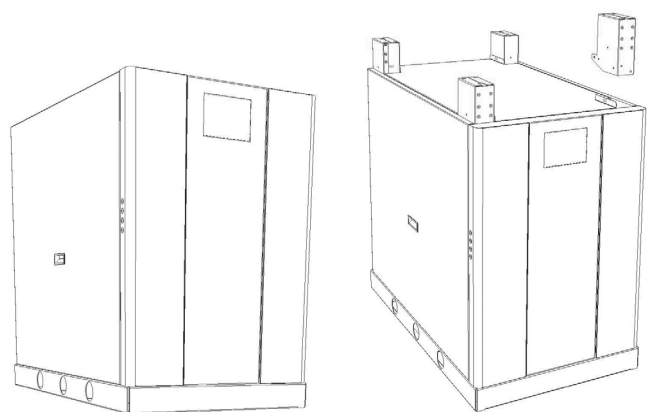
**Water connections at the top of the unit**



### A compact high-performance product range

- Small footprint, ideal for refurbished buildings, allows access in very tight plant rooms.
- 61WG: High SCOP satisfies even the most stringent standards, with a leaving water temperature of up to 65 °C without supplementary system.
- 30WG: High SEER and SEPR  
Units optimized for process and comfort applications.
- The 30WGA is based on the 30WG design to ensure efficient operation for applications with remote air-cooled condensers.
- Variable-flow pumps reduce system energy consumption.
- The entire range offers low sound levels, allowing installation in any building type. The low-noise option ensures enhanced acoustic comfort (-3 dB(A)).
- 61WG/30WG/30WGA units are equipped with the latest generation R410A scroll compressor, optimised for typical operating conditions for water-sourced units.

### Two-unit stacking option for reduced footprint size 020-090



## CUSTOMER BENEFITS

### Advance control

The control 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 optimizes 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)- Controller 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).
- Master/slave control of two heat pumps operating in parallel with operating time equalisation and automatic changeover in case of a unit fault. 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)

#### ■ 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).
- The controller 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.

#### ■ Remote control

A connection terminal allows remote control of the Aquasnap by wired cable:

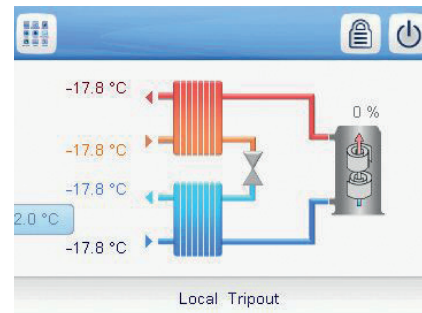
- Start/stop: Opening of this contact will shut down the unit
- Dual set-point: Closing of this contact activates a second set-point (example: unoccupied mode).
- Demand limit: Closing of this contact limits the maximum heat pump capacity to a predefined value.
- Operation indication: This volt-free contact indicates that the heat pump is operating (cooling load).
- Alarm indication: This volt-free contact indicates the presence of a major fault that has led to the shut-down of one or several refrigerant circuits.

#### ■ Remote management

The Aquasnap is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information.

The Aquasnap also communicates with other building management systems via optional communication gateways.

### Touch Pilot Junior control



The Touch Pilot Junior features a control with advanced communication technology over Ethernet (IP), user-friendly and intuitive user interface with 4.3" colour touch screen.

#### ■ Integrated advanced communication features

- With hydraulic module: Water pressure display and water flow rate calculation
- Easy and high-speed communication technology over Ethernet (IP) to a building management system

#### ■ 4.3" Touch Pilot user interface

- Access to multiple unit parameters
- Concise and clear information is available in local languages
- Complete menu, customised for different users (end user, service personnel or Carrier engineers)

#### ■ Remote management (standard)

Units with Touch Pilot Junior control can be easily accessed from the internet, using a PC with an Ethernet connection.

This makes remote control quick and easy and offers significant advantages for service operations.

#### ■ Maintenance function (standard)

The Touch Pilot Junior include functionality of maintenance

- Compulsory Maintenance Reminder– FGAS sealing check
- Periodic Maintenance Reminder. Configurable alarm of maintenance in days, month or hours of operation



## CUSTOMER BENEFITS

### 30WG/30WGA units compatible the Carrier 09 series drycoolers/remote condensers

The Carrier 09 series drycoolers and remote condensers are compatible with the 30WG and 30WGA units.

The chiller 30WG/30WGA can control the fans of the dry cooler / remote condenser via digital or analogue outputs (according to AC or EC motors) with following options :

- For chiller 30WG/30WGA : option 154
- For dry cooler / remote condenser : dedicated control cabinet with an auxiliary board.

A simple communication bus is required between the chiller and the dry cooler/ remote condenser.

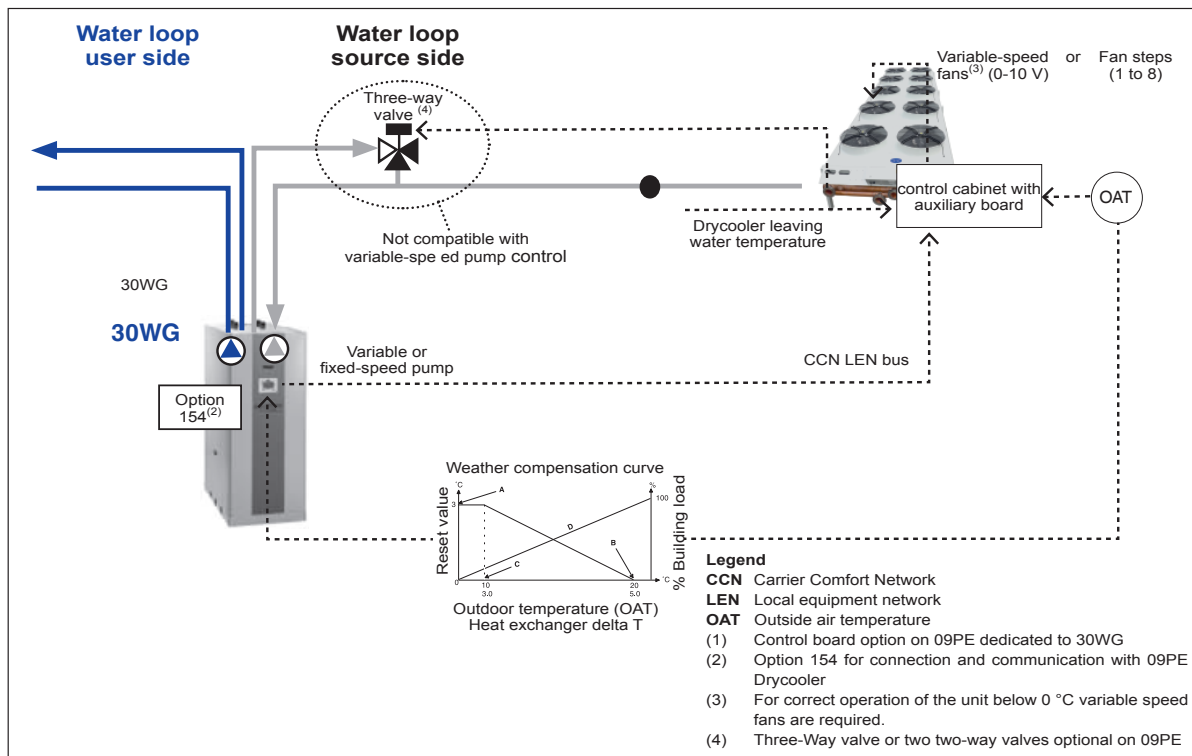
As all control components are installed and tested in the factory, installation and start-up of the unit and its associated drycooler/ remote condenser are simplified.

Control board algorithms optimise energy consumption based on:

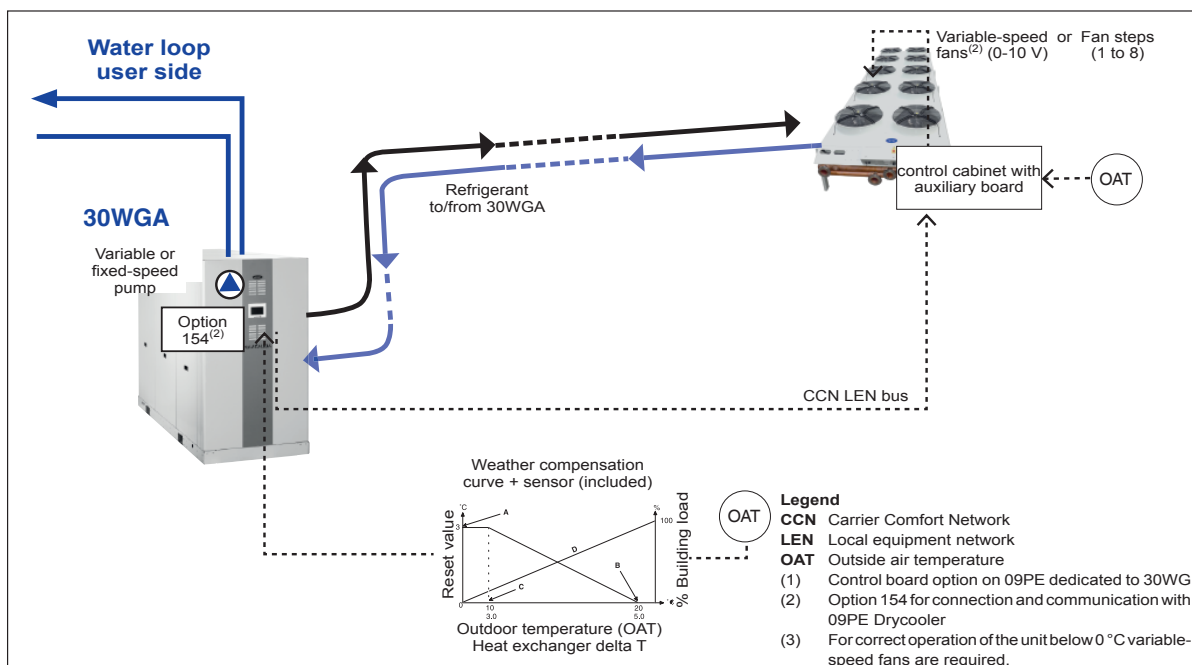
- the outside temperature and chilled-water temperature read for drycoolers
- the outside temperature and saturated refrigerant discharge temperature read for remote condensers.

A simple communication bus is required downstream to connect the control board to the unit control.

#### 30WG system concept



#### 30WGA system concept



## OPTIONS

Options	No.	Description	Advantages	Use
Medium-temperature brine solution	5B	Low temperature chilled water production down to 0°C with ethylene glycol and propylene glycol.	Covers specific applications such as ice storage and industrial processes	30WGA 020-190
Low-temperature brine solution	6B	Low temperature glycol solution production down to -12 °C with ethylene glycol	Covers specific applications such as ice storage and industrial processes	30WG 020-190
Soft Starter	25	Electronic starter on each compressor	Reduced start-up current	30WG 020-190 61WG 020-190 30WGA 020-190
Partial heat recovery	49	Unit equipped with one desuperheater on each refrigerant circuit	Production of free high-temperature hot-water simultaneously with chilled water production (or hot water for Heat pump)	30WG 110-190
Master/slave operation	58	Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel	Optimised operation of two units connected in parrallele operation with operating time equalisation	30WG 020-190 61WG 020-190 30WGA 020-190
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 020-190 61WG 020-190 30WGA 020-190
Evap. single pump power/control circuit	84	Unit equipped with an electrical power and control circuit for one pump evaporator side	Quick and easy installation: the control of fixed speed pumps is embedded in the unit control	30WG 110-190 61WG 110-190
Cond. single pump power/control circuit	84R	Unit equipped with an electrical power and control circuit for one pump condenser side	Quick and easy installation: the control of fixed speed pumps is embedded in the unit control	30WG 110-190 61WG 110-190
Condenser insulation	86	Thermal condenser insulation	Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) and allows compliancy with special installation criteria (hot parts insulated)	30WG 020-190 61WG 020-190
HP single-pump hydraulic module	116R	Single high-pressure water pump, water filter, electronic water flow control, pressure transducers. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)	Easy and fast installation (plug & play)	30WG 110-190 61WG 110-190 30WGA 110-190
LP evap. single-pump	116T	Evaporator hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)	Easy and fast installation (plug & play)	30WG 020-190 61WG 020-190 30WGA 020-190
HP evap. variable-speed single-pump	116V	Evaporator hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)	Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability	30WG 020-190 61WG 020-190 30WGA 020-190
HP VSD dual-pump hydraulic mod.	116W	Dual high-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control. For more details, refer to the dedicated chapter (expansion tank not included Option with built-in safety hydraulic components available)	Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability	30WG 110-190 61WG 110-190 30WGA 110-190
LP VSD single-pump	116Y	Evaporator hydraulic module equipped with low -pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)	Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability	30WG 110-190 61WG 110-190 30WGA 110-190
J-Bus gateway	148B	Two-directional communication board complying with JBus protocol	Connects the unit by communication bus to a building management system	30WG 020-190 61WG 020-190 30WGA 020-190
Lon gateway	148D	Two-directional communication board complying with Lon Talk protocol	Connects the unit by communication bus to a building management system	30WG 020-190 61WG 020-190 30WGA 020-190
Bacnet over IP	149	Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)	Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters	30WG 20-190 61WG 020-190 30WGA 020-190

## OPTIONS

Options	No.	Description	Advantages	Use
Built-in DHW & space 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	30WG 020-190 61WG 020-090
Specific dry cooler control	154	Dedicated connection and software for 09PE drycooler management. For 09PE drycooler need to select the option control cabinet manage by the chiller	Permits the use of an energy-efficient plug-and-play system	30WG 020-190
Condenser control	154	Control box for communication with the condenser via a bus. For OPERA condenser need to select the cabinet with option control cabinet manage by the chiller Connect' Touch control	Permits the use of an energy-efficient plug-and-play system	30WGA 020-190
Compliance with Russian regulations	199	EAC certification	Conformance with Russian regulations	30WG 020-190 61WG 020-190 30WGA 020-190
Insulation of the evap. in/ out ref.lines	256	Thermal insulation of the evaporator entering/ leaving refrigerant lines with flexible, anti-UV insulant	Prevents condensation on the evaporator entering/leaving refrigerant lines	30WG 020-190 61WG 020-190 30WGA 020-190
Low noise level	257	Compressor sound enclosure	Reduced sound emissions	30WG 020-190 61WG 020-190 30WGA 020-190
Very low sound level	258	Enhanced sound insulation of main noise sources (Material classified CD0S2 fire class according to Euroclass 13-501).	6 dB(A) quieter than standard . Refer to the physical data table for detailed values	30WG 020-090 61WG 020-090 30WGA 020-090
Evaporator screw connection sleeves kit	264	Evaporator inlet/outlet screw connection sleeves	Allows unit connection to a screw connector	30WG 020-140 61WG 020-140 30WGA 020-140
Condenser screw connection sleeves kit	265	Condenser inlet/outlet screw connection sleeves	Allows unit connection to a screw connector	30WG 020-140 61WG 020-140
Welded evaporator connection kit	266	Victaulic piping connections with welded joints	Easy installation	30WG 020-190 61WG 020-190 30WGA 020-190
Welded condenser water connection kit	267	Victaulic piping connections with welded joints	Easy installation	30WG 020-190 61WG 020-190
HP single-pump, cond. side	270R	Condenser hydraulic module equipped with high pressure fixed-speed pump, drain valve, air vent and pressure sensors. Built-in safety hydraulic components available in option.	Easy and fast installation (plug & play)	30WG 110-190 61WG 110-190
LP single-pump, cond. side	270T	Condenser hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. Built-in safety hydraulic components available in option.	Easy and fast installation (plug & play)	30WG 020-190 61WG 020-190
HP cond. variable-speed single-pump	270V	Condenser hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Built-in safety hydraulic components available in option.	Easy and fast installation (plug & play), reduced power consumption of the water circulation pump	30WG 020-190 61WG 020-190
HP cond. variable-speed dual-pump	270W	Condenser hydraulic module equipped with dual high-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Built-in safety hydraulic components available in option.	Easy and fast installation (plug & play), reduced power consumption of the water circulation pump	30WG 110-190 61WG 110-190
LP cond. variable-speed single-pump	270Y	Condenser hydraulic module equipped with low-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Built-in safety hydraulic components available in option.	Easy and fast installation (plug & play), reduced power consumption of the water circulation pump	30WG 110-190 61WG 110-190
High-temp. water prod. with glycol solution on the evap.	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 020-190
Unit stackable for operation	273	Unit stackable for operation	Reduced footprint size	30WG 020-090 61WG 020-090 30WGA 020-090
water connection at the top	274	Customer water connection at the top of the unit	Reduced footprint size	30WG 020-190 61WG 020-190 30WGA 020-190

## OPTIONS

Options	No.	Description	Advantages	Use
Replaceable filter drier	277	Filter drier with cartridge to replace hermetic filter	Easy filter replacement without emptying the refrigerant circuit	30WGA 020-190
Safety hydraulic components, evap. side	293	Screen filter, expansion tank and relief valve integrated in the evaporator hydraulic module	Easy and fast installation (plug & play), operating safety	30WG 020-190 61WG 020-190 30WGA 020-190
Safety hydraulic components, cond. side	293A	Screen filter, expansion tank and relief valve integrated in the condenser hydraulic module	Easy and fast installation (plug & play), operating safety	30WG 020-190 61WG 020-190
Set point adjustment by 4-20mA signal	311	Connections to allow a 4-20mA signal input	Easy energy management, allow to adjust set point by a 4-20mA external signal	30WG 020-190 61WG 020-190 30WGA 020-190
External temperature sensor	312	External temperature sensor control for using weather compensation	Allow to adjust set point using weather compensation and define autorisation operation mode to external temperature	30WG 020-190 61WG 020-190 30WGA 020-190
Free Cooling dry cooler management	313	Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box	Easy system management, Extended control capabilities to a drycooler used in Free Cooling mode	30WG 020-190 30WGA 020-190

## ACCESSORIES

Accessories	Description	Advantages	Use
00PPG000488000- Heating System Manager type A: It controls one heat emitter type with an auxiliary electric heater or boiler.	Additional control box not supplied with the unit, to be installed remotely	Heating system control facilitated	30WG 020-190 61WG 020-190
00PPG000488100- Heating System Manager type B: It controls two heat emitter types (or independent zones) and domestic hot water production with an auxiliary electric heater or boiler.	Additional control box not supplied with the unit, to be installed remotely	Heating system control facilitated	30WG 020-190 61WG 020-190
00PPG000488200- Heating System Manager type C: It controls two heat emitter types (or independent zones) and domestic hot water production with a district heating network as auxiliary source.	Additional control box not supplied with the unit, to be installed remotely	Heating system control facilitated	30WG 020-190 61WG 020-190

## PARTIAL HEAT RECOVERY USING DESUPERHEATERS (OPTION 49)

This option permits the production of free hot water using heat reclaim by desuperheating the compressor discharge gases. The option is available for 30WG range sizes 110 to 190. On each circuit a plate heat exchanger is installed as standard, on the compressor discharge line of each circuit.

Please refer to the certified dimensional drawings, supplied with the unit.

Please note that water connections are to be screwed with a 1"1/4 connection sleeve. The water connection is on the left side of the unit when you are in front of the electrical box.

### Physical data, 30WG units with partial heat reclaim

61WG/30WG + Opt 49		110	120	140	150	170	190
<b>Operating weight<sup>(1)</sup></b>	kg	785	810	837	937	972	1003
<b>Sound levels<sup>(2)</sup></b>							
Sound power level, standard unit	dB(A)	76	77	78	76	77	78
<b>Compressors</b>							
Quantity		3	3	3	4	4	4
Number of capacity steps		3	3	3	4	4	4
Minimum capacity	%	33	33	33	25	25	25
<b>Refrigerant*</b>		R-410A					
Charge	kg	13,8	15	16,1	21,6	23,6	24,8
	teqCO <sub>2</sub>	28,8	31,3	33,6	45,1	49,3	51,8
<b>Oil</b>		160SZ					
Charge per compressor	l	3,3	3,3	3,6	3,3	3,3	3,6
Control	kg	TouchPilot Junior					
<b>Desuperheater</b>		Plate heat exchanger					
Water volume	l	2	2	2	2,6	2,6	2,6
Water connections		Screw					
Inlet/outlet	in	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Max. water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000

(1) Weight shown is a guideline only. Please refer to the unit nameplate

(2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1

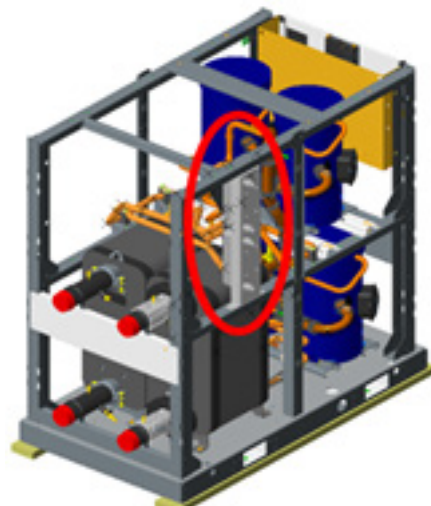
Operating limits		Minimum	Maximum
<b>Evaporator</b>			
Entering water temperature at start-up	°C	7.5 <sup>(1)</sup>	27
Leaving water temperature during operation	°C	5 <sup>(2)</sup>	20
Entering/leaving water temperature difference	K	2.5	7
<b>Condenser</b>			
Entering water temperature at start-up	°C	15 <sup>(3)</sup>	55 <sup>(4)</sup>
Leaving water temperature during operation	°C	20	60
Entering/leaving water temperature difference	K	2.5	18
<b>Desuperheater</b>			
Entering water temperature at start-up	°C	15 <sup>(3)</sup>	55 <sup>(4)</sup>
Leaving water temperature during operation	°C	30	80
Entering/leaving water temperature difference	K	2	20

(1) For entering water temperatures below 7.5 °C at start-up, contact Carrier.

(2) 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).

(3) For applications with a condenser entering 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 TouchPilot Junior control.

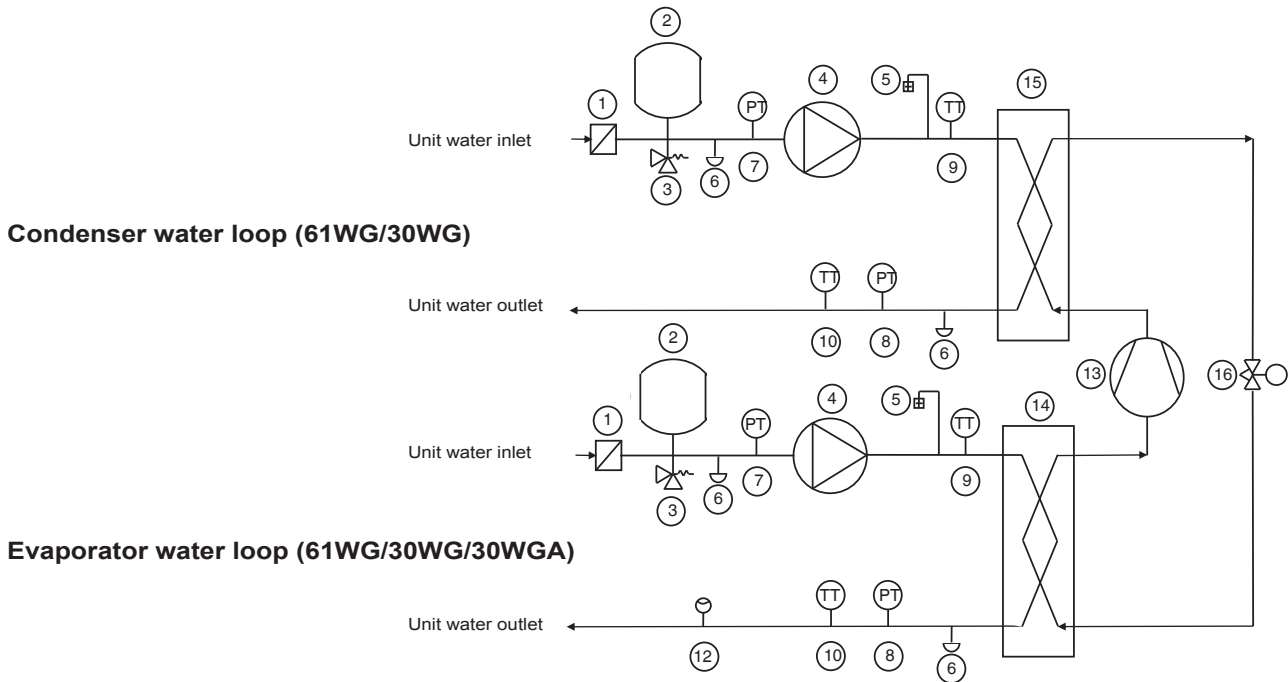
(4) For a water flow rate that corresponds to a maximum water-side temperature difference of 5 K.





## HYDRAULIC MODULE (OPTIONS 116T, 270T)

### Typical water piping diagram



#### Components of unit and hydraulic module

- |     |   |      |  |
|-----|---|------|--|
| 1   | Victaulic screen filter (option 293 or 293A only) | 9/10 | Entering/leaving temperature probe               |
| 2   | Expansion tank (option 293 or 293A only)          | 12   | Flow switch 61WG option 272 (sizes 020-045 only) |
| 3   | Relief valve (option 293 or 293A only)            | 13   | Compressor                                       |
| 4   | Water pump  | 14   | Evaporator                                       |
| 5   | Air vent  | 15   | Condenser  |
| 6   | Water drain valve                                 | 16   | Expansion device                                 |
| 7/8 | Entering/leaving pressure sensor                  |      |  |

**NOTE:** Units without hydraulic module include a flow switch.

### Physical data, units with hydraulic module

61WG/30WG/30WGA		020	025	030	035	040	045	050	060	070
Operating weight, 30WG/61WG (options 116V and 270V) <sup>(1)</sup>	kg	305	313	313	321	327	334	513	521	533
Operating weight, 30WGA (option 116V) <sup>(1)</sup>	kg	250	258	258	263	266	271	431	435	442
Height <sup>(2)</sup>	mm	1463	1463	1463	1463	1463	1463	1463	1463	1463
<b>Hydraulic module with option 293 or 293A</b>										
Maximum operating pressure	kPa	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
Expansion tank capacity <sup>(3)</sup>	l	8	8	8	8	8	8	12	12	12
Water connections	in	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2

61WG/30WG/30WGA		080	090	110	120	140	150	170	190
Operating weight, 30WG/61WG (options 116V and 270V) <sup>(1)</sup>	kg	544	574	1056	1082	1108	1218	1270	1301
Operating weight, 30WGA (option 116V) <sup>(1)</sup>	kg	449	465	804	820	839	926	964	986
Height <sup>(2)</sup>	mm	1463	1463	1574	1574	1574	1574	1574	1574
<b>Hydraulic module with option 293 or 293A</b>									
Maximum operating pressure	kPa	300	300	400	400	400	400	400	400
Water filter (max. removed particle diameter)	mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Expansion tank capacity <sup>(3)</sup>	l	12	12	25	25	25	35	35	35
Water connections	in	2	2	2,5	2,5	2,5	3	3	3

(1) Weight shown is a guideline only.

(2) The length and width dimensions are the same as for the standard unit.

(3) 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 116T, 270T

The pumps that are factory-installed in these units comply with the European Ecodesign directive ErP. 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 2009/125/EC on the eco-design requirements for electric motors.

## HEATING SYSTEM MANAGER - 61WG/30WG UNITS

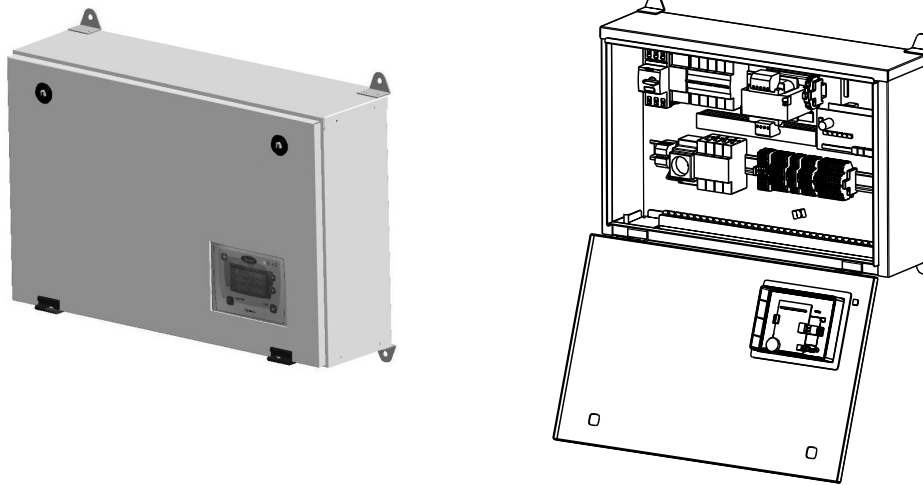
This accessory allows improved integration of the 61WG/30WG heat pump to maximise the energy efficiency performance. With three system levels for nine typical configurations, most heating only applications are covered - from the simplest to the most complex, such as interfacing with a district heating system.

Each of these accessory configurations is described in detail the installation manual for this accessory:

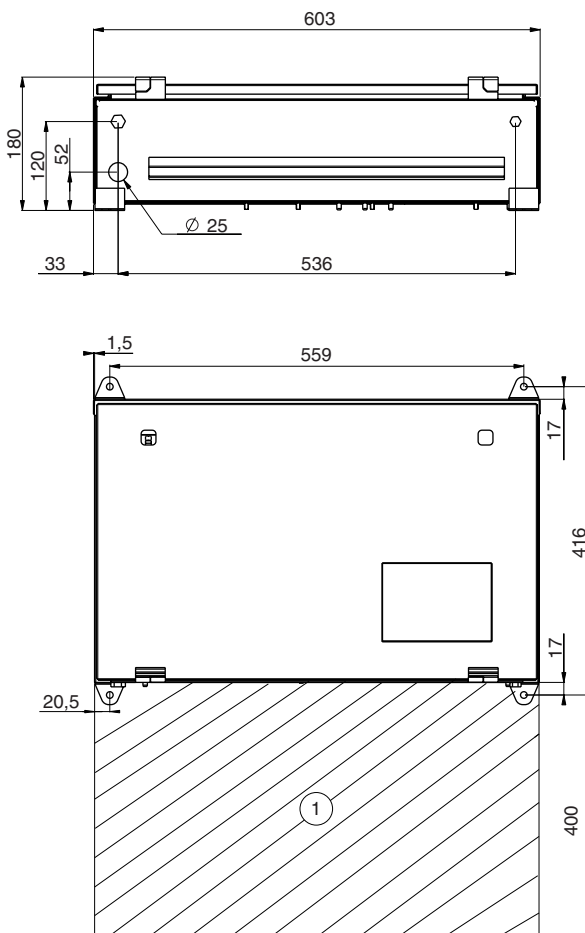
- choice of additional control options (on/off volt-free contact or 0-10 V signal for increased performance),
- domestic hot water production temperature control and distribution.
- The control box can supply all auxiliary devices such as the circulating pumps or the mixing or switching valves.

The heat pump is controlled by a CCN bus and the control box includes an NRCP2-BASE board, a ProDialog interface as well as all required sensors.

### HSM control box

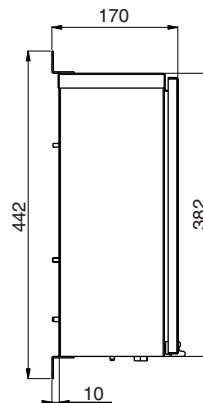


### HSM control box dimensions



### Installation safety notes

- The hydraulic installation must be carried out by qualified personnel in accordance with applicable laws and following standard accepted practices.
- The hydraulic installation must be regularly serviced.
- An incorrect hydraulic installation that does not comply with the safety, electrical and thermal standards, as well as lacking/poor maintenance can lead to excessive pressures and cause piping breaks.



#### Legend:

All dimensions are in mm.

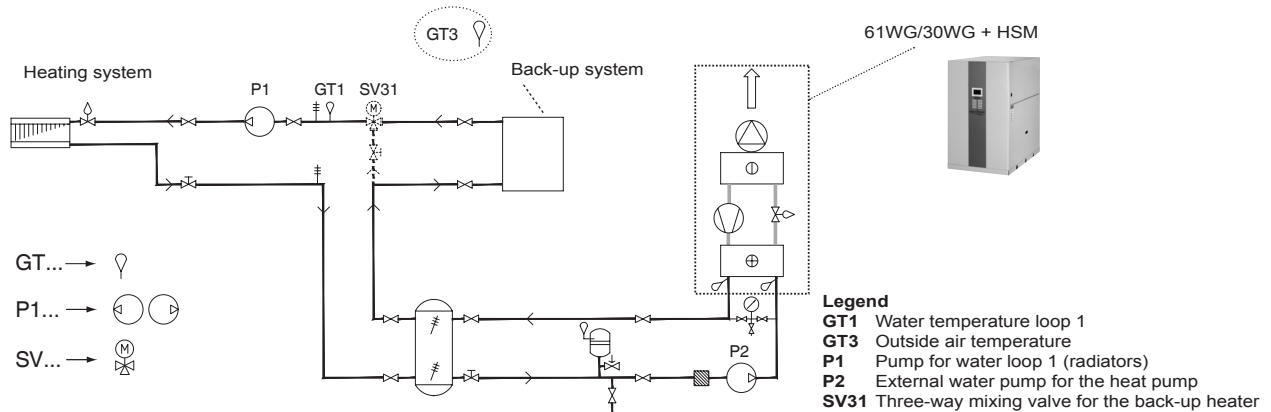
- 1 Clearance required to open the door and for customer connection

## HEATING SYSTEM MANAGER - 61WG/30WG UNITS (CONT.)

### Accessory 00PPG000488000- Heating System Manager type A

- Heating System Manager: one heat emitter type with supplementary electric heater or boiler:  
Allows control of a non-reversible heating system that includes a 61WG/30WG heat pump and a single heat emitter type or a single comfort zone. For optimised energy efficiency the heat pump is controlled by a configurable weather compensation system. The control box controls a supplementary electric heater or a stand-by boiler. The control box supplies power to the circulating pumps.

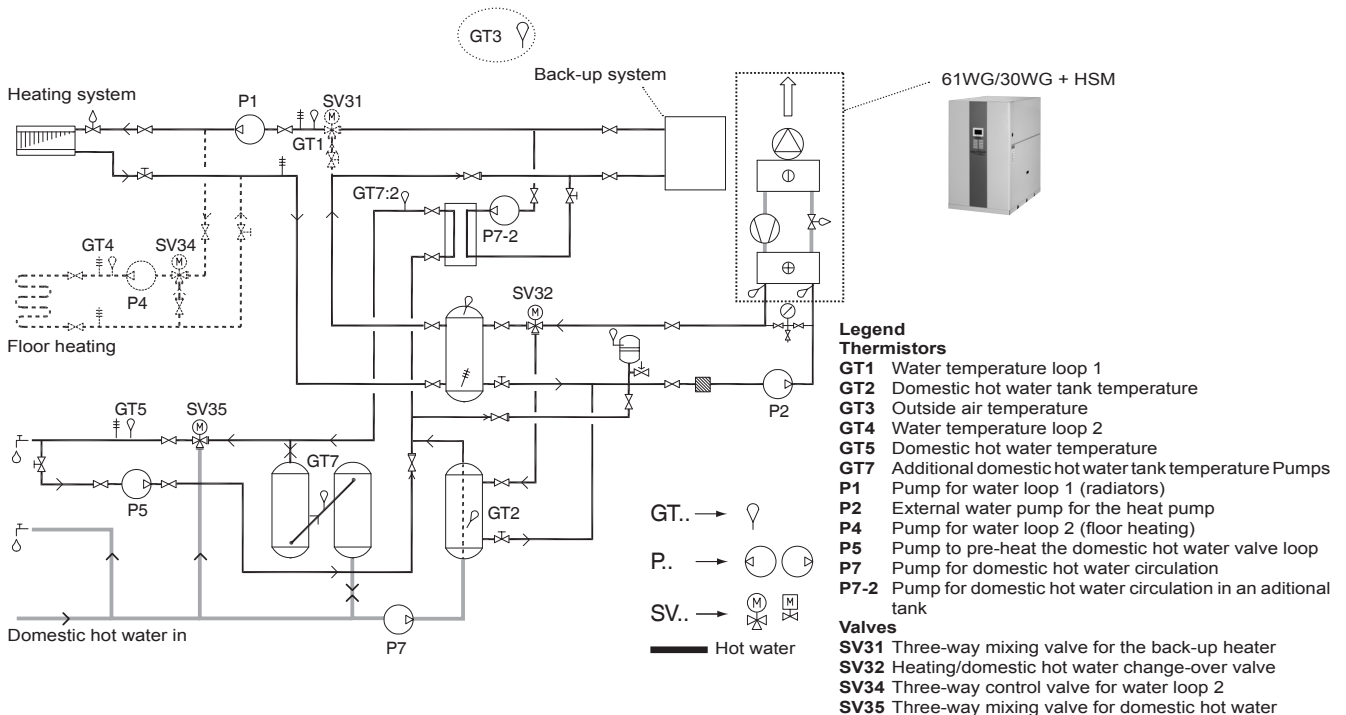
#### Heating system example: one heat emitter type with supplementary electric heating or stand-by boiler



### Accessory 00PPG000488100- Heating System Manager type B

- Heating System Manager (as accessory 00PPG000488000-) two heat emitter types or independent zones and domestic hot water production:  
Allows control of a non-reversible heating system that includes a 61WG/30WG heat pump and two different heat emitter types and/or two independent comfort zones. For optimised energy efficiency the heat pump is controlled by a configurable weather compensation system. The control box controls a supplementary electric heater or a stand-by boiler. The control box supplies power to the circulating pumps. Hot-water production can be permanent or programmable with a second setpoint at the heat pump and control of a switching valve.

#### Heating system example: two heat emitter types or independent zones and domestic hot water production



#### NOTES:

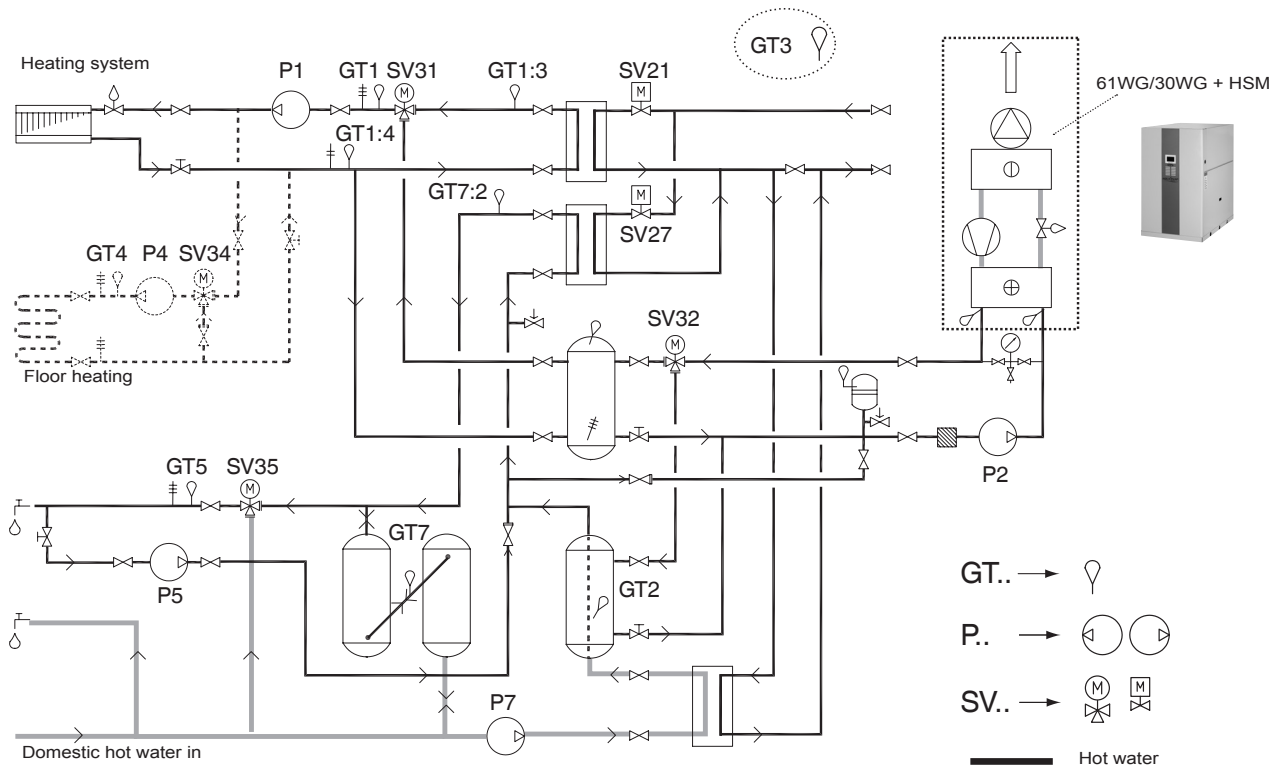
- This application example includes two zones and a supplementary boiler and domestic hot-water production.
- The installation includes a switching valve (SV32) that allows switching from the heat pump capacity of the heating system to domestic hot-water production.
- The primary heating circuit is the domestic hot-water production circuit. It includes a tank with an equivalent pressure drop to simplify system balancing.

## HEATING SYSTEM MANAGER - 61WG/30WG UNITS (CONT.)

### Accessory 00PPG000488200- Heating System Manager type C

- Heating System Manager (as accessory 00PPG000488100-) with the possibility to obtain additional heating and domestic hot-water production capacity from a district heating system:

Allows control of a non-reversible heating system that includes a 61WG/30WG heat pump and two different heat emitter types and/or two independent comfort zones. For optimised energy efficiency the heat pump is controlled by a configurable weather compensation system. The control box controls the heating and/or domestic hot-water production support from a district heating system. The control box supplies power to the circulating pumps. Hot-water production can be permanent or programmable with a second setpoint at the heat pump and control of a switching valve. Heating system example: with the possibility to obtain additional heating and domestic hot-water production capacity from a district heating system



#### Legend

##### Thermistors

- GT1** Water temperature loop 1
- GT1:3** Heat exchanger leaving water temperature, district heating
- GT1:4** Heat exchanger entering water temperature, district heating
- GT2** Domestic hot water tank temperature
- GT3** Outside air temperature
- GT4** Water temperature loop 2
- GT5** Domestic hot water temperature
- GT7** Additional domestic hot water tank temperature
- GT7:2** Back-up heat exchanger temperature for domestic hot water

##### Pumps

- P1** Pump for water loop 1 (radiators)
- P2** External water pump for the heat pump
- P4** Pump for water loop 2 (floor heating)
- P5** Pump to pre-heat the domestic hot water valve loop
- P7** Pump for domestic hot water circulation

##### Valves

- SV21** Valve for district heating heat exchanger for heating
- SV27** Valve for district heating heat exchanger for domestic hot water
- SV31** Three-way mixing valve for the back-up heater
- SV32** Heating/domestic hot water change-over valve
- SV34** Three-way control valve for water loop 2
- SV35** Three-way mixing valve for domestic hot water

## PHYSICAL DATA, 61WG UNITS

61WG				020	025	030	035	040	045	050	060	070	080	090			
Heating																	
Standard unit Full load performances*	HW1	Nominal capacity	kW	29	34	38	44	50	57	69	78	88	100	117			
		COP	kW/kW	5,42	5,29	5,21	5,29	5,34	5,32	5,49	5,36	5,46	5,28	5,33			
	HW2	Nominal capacity	kW	28	33	37	43	49	55	66	76	84	95	109			
		COP	kW/kW	4,35	4,34	4,20	4,27	4,32	4,36	4,51	4,32	4,35	4,27	4,31			
	HW3	Nominal capacity	kW	27	32	35	41	47	52	64	74	80	90	103			
		COP	kW/kW	3,65	3,68	3,52	3,59	3,56	3,66	3,75	3,64	3,63	3,56	3,60			
	HW4	Nominal capacity	kW	26	31	34	40	43	49	61	71	76	85	97			
		COP	kW/kW	2,96	2,96	2,86	2,93	2,88	2,96	2,98	3,04	2,99	2,94	2,97			
	HB1	Nominal capacity	kW	22	26	29	34	38	42	50	57	67	75	87			
		COP	kW/kW	4,24	4,26	4,29	4,27	4,27	4,25	4,25	4,27	4,26	4,28	4,29			
Seasonal efficiency**				HW1	SCOP <sub>30/35°C</sub>	kW/kW	5,36	5,20	5,11	5,19	5,23	5,19	5,84	5,93	5,93	5,83	5,82
					η <sub>s heat</sub> <sub>30/35°C</sub>	%	206	200	197	200	201	200	226	229	229	225	225
				HW3	SCOP <sub>47/55°C</sub>	kW/kW	4,37	4,32	4,20	4,28	4,32	4,35	4,86	4,88	4,80	4,89	4,80
					η <sub>s heat</sub> <sub>47/55°C</sub>	%	167	165	160	163	165	166	186	187	184	188	184
					P <sub>rated</sub>	kW	32	38	42	49	56	63	76	88	97	109	124
					Energy labelling		A++	A++	A++	A++	A++	A++	-	-	-	-	-
Operating weight <sup>(1)</sup>				kg	191	200	200	207	212	220	386	392	403	413	441		
Operating weight with option 258 <sup>(1)</sup>				kg	198	207	207	214	219	227	399	405	416	426	454		
Sound levels <sup>(2)</sup>																	
Sound power level, standard unit				dB(A)	67	68	69	69	70	70	72	72	72	73	73		
Sound power level, option 257				dB(A)	65	66	66	67	68	68	68	69	69	69	70		
Sound power level, option 258				dB(A)	61	62	63	63	64	64	66	66	66	67	67		
Sound power level, option 257+258				dB(A)	60	62	62	62	64	63	65	65	65	66	66		
Dimensions, standard unit <sup>(3)</sup>																	
Width				mm	600	600	600	600	600	600	880	880	880	880	880		
Length				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		
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		

\* In accordance with standard EN14511-3:2013

\*\* In accordance with standard EN14825:2013, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW4 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 55°C/65°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HB1 Heating mode conditions: Evaporator entering/leaving water temperature 0°C/-3°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>.K/W, evaporator fluid: 30% ethylene glycol.

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>.K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>.K/W

η<sub>s heat</sub><sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Applicable Ecodesign regulation: (EU) No 813/2013

η<sub>s heat</sub><sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Applicable Ecodesign regulation: (EU) No 813/2013

(1) Weight shown is a guideline only. Please refer to the unit nameplate

(2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

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



Eurovent certified values



## PHYSICAL DATA, 61WG UNITS

61WG		020	025	030	035	040	045	050	060	070	080	090
<b>Refrigerant<sup>(1)</sup></b>		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
	teqCO <sub>2</sub>	7,2	7,3	7,4	7,6	8,2	9,5	15,9	16,3	16,5	18,2	24
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
	teqCO <sub>2</sub>	5,6	6,0	6,1	6,3	6,7	8,1	14,9	15,2	15,5	15,9	21,9
<b>Capacity control</b>		Touch Pilot Junior										
<b>Evaporator</b>		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		Raccordements 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 hydraulic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Condenser</b>		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 hydraulic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Chassis paint color</b>		Color code: RAL7035										

(1) Weight shown is a guideline only. Please refer to the unit nameplate

## PHYSICAL DATA, 61WG UNITS

61WG		110	120	140	150	170	190
<b>Operating weight</b> <sup>(1)</sup>	kg	707	733	758	841	877	908
<b>Sound levels</b> <sup>(2)</sup>							
Sound power level, standard unit	dB(A)	76	77	78	76	77	78
Sound power level, option 257	dB(A)	73	74	75	73	74	75
<b>Dimensions, standard unit</b> <sup>(3)</sup>							
Width	mm	880	880	880	880	880	880
Length	mm	1583	1583	1583	1583	1583	1583
Height	mm	1574	1574	1574	1574	1574	1574
<b>Compressors</b>		Hermetic scroll 48.3 r/s					
Quantity		3	3	3	4	4	4
Number of capacity stages		3	3	3	4	4	4
Minimum capacity	%	33	33	33	25	25	25
<b>Refrigerant</b> <sup>(1)</sup>		R410A					
Charge, standard unit	kg	13,3	14,5	15,6	21,0	23,0	24,2
	teqCO <sub>2</sub>	27,8	30,3	32,6	43,8	48,0	50,5
<b>Capacity control</b>		Touch Pilot Junior					
<b>Evaporator</b>		Direct-expansion plate heat exchanger					
Water volume	l	15,18	17,35	19,04	23,16	26,52	29,05
Water connections		Vitaualic					
Inlet/outlet	in	2 1/2	2 1/2	2 1/2	3	3	3
Max. water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000
<b>Condenser</b>		Plate heat exchanger					
Net water volume	l	15,18	17,35	19,04	23,16	26,52	29,05
Water connections		Vitaualic					
Inlet/outlet	in	2 1/2	2 1/2	2 1/2	3	3	3
Max. water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000
<b>Chassis paint color</b>		Color code: RAL7035					

(1) Weight shown is a guideline only. Please refer to the unit nameplate

(2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

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



Eurovent certified values

## PHYSICAL DATA, 30WG UNITS , SIZES 020 TO 090

30WG				020	025	030	035	040	045	050	060	070	080	090
Heating														
Full load performances*	HW1	Nominal capacity	kW	28	33	35	41	47	52	65	73	81	93	103
		COP	kW/kW	3,59	3,63	3,61	3,60	3,67	3,61	3,58	3,62	3,54	3,70	3,56
	HW2	Nominal capacity	kW	29	33	36	43	49	54	68	74	85	97	108
		COP	kW/kW	4,34	4,37	4,35	4,36	4,40	4,35	4,39	4,35	4,32	4,40	4,32
	HW3	Nominal capacity	kW	30	35	38	44	50	56	70	77	89	101	114
		COP	kW/kW	5,53	5,53	5,49	5,52	5,49	5,51	5,58	5,48	5,53	5,46	5,50
Seasonal energy efficiency**	HW1	SCOP <sub>30/35°C</sub>	kW/kW	5,46	5,45	5,36	5,40	5,35	5,38	6,12	6,08	6,09	6,11	6,09
		η <sub>s</sub> heat <sub>30/35°C</sub>	%	211	210	206	208	206	207	237	235	235	236	235
	HW3	SCOP <sub>47/55°C</sub>	kW/kW	4,36	4,37	4,34	4,37	4,40	4,34	4,91	4,96	4,85	5,08	4,91
		η <sub>s</sub> heat <sub>47/55°C</sub>	%	167	167	166	167	168	166	188	190	186	195	188
		P <sub>rated</sub>	kW	32	37	40	47	54	59	75	83	93	106	118
		Energy labelling		A++	A++	A++	A++	A++	A++	-	-	-	-	-
Cooling														
Standard unit		Nominal capacity	kW	25	29	32	37	42	47	58	63	74	84	95
Full load performances*	CW1	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		B	B	B	B	B	B	B	B	B	B	B
		Nominal capacity	kW	34	39	43	50	57	66	79	86	102	113	129
	CW2	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		A	A	A	A	A	A	A	A	A	A	A
Seasonal energy efficiency	SEER <sub>12/7°C</sub> Comfort low temp.		kW/kW	4,94	4,97	4,88	4,84	4,81	4,72	5,60	5,62	5,49	5,57	5,62
	SEPR <sub>12/7°C</sub> Process high temp.		kW/kW	6,42	6,44	6,26	6,22	6,26	6,31	6,63	6,50	6,48	6,59	6,62
	SEER <sub>23/18°C</sub> Comfort medium temp.		kWh/kWh	5,96	5,76	5,62	5,60	5,52	5,57	6,56	6,33	6,19	6,22	6,14
	SEPR <sub>23/18°C</sub> Process medium temp.		kWh/kWh	3,86	4,23	4,41	4,32	4,44	3,98	4,24	4,83	4,65	4,89	4,87
Integrated part load value	IPLV.SI	kW/kW	5,84	5,85	5,76	5,78	5,77	5,82	6,58	6,68	6,56	6,81	6,72	
Operating weight <sup>(1)</sup>			kg	191	200	200	207	212	220	386	392	403	413	441
Operating weight with option 258 <sup>(1)</sup>			kg	198	207	207	214	219	227	399	405	416	426	454
Sound levels <sup>(2)</sup>														
Sound power level, standard unit			dB(A)	67	68	69	69	70	70	72	72	72	73	73
Sound power level, option 257			dB(A)	65	66	66	67	68	68	68	69	69	69	70
Sound power level, option 258			dB(A)	61	62	63	63	64	64	66	66	66	67	67
Sound power level, option 257 + 258			dB(A)	60	62	62	62	64	63	65	65	65	66	66
Dimensions, standard unit <sup>(3)</sup>														
Width			mm	600	600	600	600	600	600	880	880	880	880	880
Length			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

\* In accordance with standard EN14511-3:2013

\*\* In accordance with standard EN14825:2013, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

η<sub>s</sub> heat<sub>30/35°C</sub> Applicable Ecodesign regulation: (EU) No 813/2013

& SCOP<sub>30/35°C</sub>

η<sub>s</sub> heat<sub>47/55°C</sub> Applicable Ecodesign regulation: (EU) No 813/2013

& SCOP<sub>47/55°C</sub>

SEER<sub>12/7°C</sub> Applicable Ecodesign regulation: (EU) No 2016/2281

& SEPR<sub>12/7°C</sub>

SEER<sub>23/18°C</sub> Applicable Ecodesign regulation: (EU) No 2016/2281

SEPR<sub>23/18°C</sub> Applicable Ecodesign regulation: (EU) No 2015/1095

IPLV.SI Calculations according to standard performances AHRI 551-591.

(1) Weight shown is a guideline only. Please refer to the unit nameplate

(2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/- 3dB(A)). Measured in accordance with ISO 9614-1.

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



Eurovent certified values

## PHYSICAL DATA, 30WG UNITS , SIZES 020 TO 090

30WG		020	025	030	035	040	045	050	060	070	080	090
<b>Compressors</b>		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
<b>Refrigerant<sup>(1)</sup></b>		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
	teqCO <sub>2</sub>	7,2	7,3	7,4	7,6	8,2	9,5	15,9	16,3	16,5	18,2	24
<b>Capacity control</b>		Touch Pilot Junior										
<b>Evaporator</b>		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		Vitacluc										
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 hydraulic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Condenser</b>		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		Vitacluc										
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 hydraulic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Chassis paint color</b>		Color code: RAL7035										

(1) Weight shown is a guideline only. Please refer to the unit nameplate

## PHYSICAL DATA, 30WG UNITS, SIZES 110 TO 190

30WG				110	120	140	150	170	190	
Heating										
Full load performances*	HW1	Nominal capacity	kW	137	156	172	183	206	230	
		COP	kW/kW	5,63	5,61	5,53	5,67	5,62	5,59	
	HW2	Nominal capacity	kW	131	148	163	174	197	218	
		COP	kW/kW	4,44	4,45	4,38	4,41	4,50	4,38	
	HW3	Nominal capacity	kW	125	140	155	167	189	209	
		COP	kW/kW	3,59	3,63	3,57	3,60	3,76	3,60	
Seasonal energy efficiency**	HW1	SCOP <sub>30/35°C</sub>	kW/kW	6,31	6,37	6,29	6,31	6,32	6,18	
		η <sub>s heat</sub> <sub>30/35°C</sub>	%	244	247	244	244	245	239	
	HW3	SCOP <sub>47/55°C</sub>	kW/kW	5,05	5,09	5,05	5,02	5,17	4,96	
		η <sub>s heat</sub> <sub>47/55°C</sub>	%	194	196	194	193	199	190	
		P <sub>rated</sub>	kW	143	161	178	191	216	239	
Cooling										
Standard unit	Full load performances*	Nominal capacity	kW	115	130	144	153	172	192	
		CW1	EER	kW/kW	4,79	4,77	4,70	4,83	4,78	4,79
			Eurovent class		B	B	B	B	B	B
			Nominal capacity	kW	155	176	196	207	231	262
		CW2	EER	kW/kW	6,20	6,10	6,01	6,23	5,97	6,14
			Eurovent class		A	A	A	A	A	A
Seasonal energy efficiency		SEER <sub>12/7°C</sub> Comfort low temp.	kW/kW	6,12	6,24	6,17	5,97	6,06	5,96	
		SEER <sub>23/18°C</sub> Comfort medium temp.	kW/kW	6,95	7,10	6,95	6,72	6,72	6,74	
SEPR <sub>12/7°C</sub> Process high temp.		kWh/kWh	6,98	7,13	6,90	6,54	6,62	6,41		
SEPR <sub>-2/-8°C</sub> Process medium temp.		kWh/kWh	4,01	4,40	4,35	4,52	4,65	4,45		
Integrated part load value		IPLV.SI	kW/kW	6,86	6,98	6,90	6,82	6,89	6,82	
Operating weight <sup>(1)</sup>		kg	707	733	758	841	877	908		
Sound levels <sup>(2)</sup>										
Sound power level, standard unit			dB(A)	76	77	78	76	77	78	
Sound power level, option 257			dB(A)	73	74	75	73	74	75	
Dimensions, standard unit <sup>(3)</sup>										
Width			mm	880	880	880	880	880	880	
Length			mm	1583	1583	1583	1583	1583	1583	
Height			mm	1574	1574	1574	1574	1574	1574	
Compressors			Hermetic scroll 48.3 r/s							
Quantity				3	3	3	4	4	4	
Number of capacity stages				3	3	3	4	4	4	
Minimum capacity			%	33	33	33	25	25	25	
Refrigerant <sup>(1)</sup>			R410A							
Charge, standard unit			kg	13,3	14,5	15,6	21,0	23,0	24,2	
			teqCO <sub>2</sub>	27,8	30,3	32,6	43,8	48,0	50,5	

\* In accordance with standard EN14511-3:2013

\*\* In accordance with standard EN14825:2013, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

$\eta_{s\ heat\ 30/35^\circ C}$  Applicable Ecodesign regulation: (EU) No 813/2013

& SCOP<sub>30/35°C</sub>

$\eta_{s\ heat\ 47/55^\circ C}$  Applicable Ecodesign regulation: (EU) No 813/2013

& SCOP<sub>47/55°C</sub>

SEER<sub>12/7°C</sub> Applicable Ecodesign regulation: (EU) No 2016/2281

& SEPR<sub>12/7°C</sub>

SEER<sub>23/18°C</sub> Applicable Ecodesign regulation: (EU) No 2016/2281

SEPR<sub>-2/-8°C</sub> Applicable Ecodesign regulation: (EU) No 2015/1095

IPLV.SI Calculations according to standard performances AHRI 551-591.

(1) Weight shown is a guideline only. Please refer to the unit nameplate

(2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/- 3dB(A)). Measured in accordance with ISO 9614-1.

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



Eurovent certified values



## PHYSICAL DATA, 30WG UNITS, SIZES 110 TO 190

30WG		110	120	140	150	170	190
<b>Capacity control</b>		TouchPilot Junior					
<b>Evaporator</b>		Direct-expansion plate heat exchanger					
Water volume	l	15,18	17,35	19,04	23,16	26,52	29,05
Water connections	-	Vitaulic					
Inlet/outlet	in	2 1/2	2 1/2	2 1/2	3	3	3
Max. water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000
<b>Condenser</b>		Plate heat exchanger					
Net water volume	l	15,18	17,35	19,04	23,16	26,52	29,05
Water connections	-	Vitaulic					
Inlet/outlet	in	2 1/2	2 1/2	2 1/2	3	3	3
Max. water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000
<b>Chassis paint color</b>		Color code: RAL7035					

## PHYSICAL DATA, 30WGA UNITS

30WGA				020	025	030	035	040	045	050	060	070	080	090
<b>Standard unit</b> Full load performances*	CS1	Nominal capacity	kW	23	27	30	35	39	44	54	60	69	78	88
		EER	kW/kW	3,75	3,84	3,87	3,93	3,94	3,90	3,82	3,85	3,86	3,91	3,88
	CS2	Nominal capacity	kW	32	38	42	49	55	63	76	84	98	111	125
		EER	kW/kW	5,51	5,36	5,44	5,51	5,44	5,53	5,36	5,37	5,45	5,42	5,42
<b>Operating weight<sup>(1)</sup></b>			kg	164	171	171	177	180	185	321	324	332	339	354
<b>Operating weight with option 258<sup>(1)</sup></b>			kg	171	178	178	184	187	192	334	337	345	352	367
<b>Sound levels<sup>(2)</sup></b>														
Sound power level, standard unit			dB(A)	67	68	69	69	70	70	72	72	72	73	73
Sound power level, option 257			dB(A)	65	66	66	67	68	68	68	69	69	69	70
Sound power level, option 258			dB(A)	61	62	63	63	64	64	66	66	66	67	67
Sound power level, option 257 + 258			dB(A)	60	62	62	62	64	63	65	65	65	66	66
<b>Dimensions, standard unit<sup>(3)</sup></b>														
Width			mm	600	600	600	600	600	600	880	880	880	880	880
Length			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
<b>Compressors</b>				Hermetic scroll 48.3 r/s										
Circuit A				1	1	1	1	1	1	2	2	2	2	2
Circuit B				-	-	-	-	-	-	-	-	-	-	-
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
<b>Refrigerant</b>				R410A										
<b>Capacity control</b>				Touch Pilot Junior										
<b>Evaporator</b>				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 hydraulic module			kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Refrigerant connections</b>														
Discharge line diameter			in	7/8	7/8	7/8	7/8	7/8	7/8	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8
Liquid line diameter			in	5/8	5/8	5/8	5/8	5/8	5/8	7/8	7/8	7/8	7/8	7/8
<b>Chassis paint color</b>				Color code: RAL7035										

\* In accordance with standard EN14511-3:2013. Refrigerant piping equivalent length (without drier and valves) = 3 m.

CS1 Cooling mode conditions: evaporator entering/leaving water temperature 12 °C/7 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m<sup>2</sup>K/W.

CS2 Cooling mode conditions: evaporator entering/leaving water temperature 23 °C/18 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m<sup>2</sup>K/W.

(1) Weight shown is a guideline only. Please refer to the unit nameplate

(2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

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

## PHYSICAL DATA, 30WGA UNITS

30WGA				110	120	140	150	170	190
Standard unit Full load performances*	CS1	Nominal capacity	kW	106	119	132	140	159	175
		EER	kW/kW	3,78	3,78	3,72	3,75	3,81	3,72
	CS2	Nominal capacity	kW	146	166	185	195	218	247
		EER	kW/kW	5,24	5,17	5,12	5,32	5,17	5,26
Operating weight <sup>(1)</sup>			kg	762	787	814	909	944	975
Sound levels <sup>(2)</sup>									
Sound power level			dB(A)	76	77	78	76	77	78
Sound power level, option 257			dB(A)	73	74	75	73	74	75
Dimensions, standard unit <sup>(3)</sup>									
Width			mm	880	880	880	880	880	880
Length			mm	1583	1583	1583	1583	1583	1583
Height			mm	1574	1574	1574	1574	1574	1574
Compressors				Hermetic scroll 48.3 r/s					
Circuit A				3	3	3	4	4	4
Number of capacity stages				3	3	3	4	4	4
Minimum capacity			%	33	33	33	25	25	25
Refrigerant				R410A					
Capacity control				PRO-DIALOG Plus					
Evaporator				Direct-expansion plate heat exchanger					
Water volume			l	15,18	17,35	19,04	23,16	26,52	29,05
Water connections				Victaulic					
Inlet/outlet			in	2 1/2	2 1/2	2 1/2	3	3	3
Max. water-side operating pressure without hydraulic module				1000	1000	1000	1000	1000	1000
Refrigerant connections									
Discharge line diameter			in	1"3/8	1"3/8	1"3/8	1"1/8	1"1/8	1"1/8
Liquid line diameter			in	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"
Chassis paint color				Color code: RAL7035					

\* In accordance with standard EN14511-3:2013. Refrigerant piping equivalent length (without drier and valves) = 3 m.

CS1 Cooling mode conditions: evaporator entering/leaving water temperature 12 °C/7 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m<sup>2</sup>K/W.

CS2 Cooling mode conditions: evaporator entering/leaving water temperature 23 °C/18 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m<sup>2</sup>K/W.

(1) Weight shown is a guideline only. Please refer to the unit nameplate

(2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

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

## ELECTRICAL DATA

61WG without hydraulic module		020	025	030	035	040	045	050	060	070	080	090
<b>Power circuit</b>												
Nominal voltage	V-ph-Hz	400-3-50										
Voltage range	V	360-440										
<b>Control circuit supply</b>		24 V, via internal transformer										
<b>Maximum start-up current draw (Un)<sup>(1)</sup></b>												
Standard unit	A	98	142	142	147	158	197	161,6	163	171,4	184,7	227,9
Unit with electronic starter option	A	53,9	78,1	78,1	80,9	86,9	108,4	97,7	99,2	105,2	113,6	139,2
<b>Unit power factor at maximum capacity<sup>(2)</sup></b>		0,9	0,8	0,9	0,9	0,9	0,9	0,8	0,9	0,9	0,9	0,9
<b>Maximum operating power input<sup>(2)</sup></b>		kW	9,5	11,3	12,4	14,4	15,9	18,2	22,5	24,9	28,7	31,8
<b>Nominal unit operating current draw<sup>(3)</sup></b>		A	10,6	12,9	13,3	15,2	16,5	19,7	25,8	26,6	30,4	33,0
<b>Maximum operating current draw (Un)<sup>(4)</sup></b>		A	16,1	19,6	21,1	24,4	26,7	30,9	39,2	42,2	48,8	53,4
<b>Maximum operating current draw (Un-10%)<sup>†</sup></b>		A	17,9	21,8	23,4	27,1	29,7	34,3	43,6	46,9	54,2	68,7
<b>Customer-side unit power reserve</b>		Customer reserve at the 24 V control power circuit										
<b>Short-circuit stability and protection</b>		See table below "Short-circuit stability current"										

61WG without hydraulic module		110	120	140	150	170	190
<b>Power circuit</b>							
Nominal voltage	V-ph-Hz	400-3-50					
Voltage range	V	360-440					
<b>Control circuit supply</b>		24 V, via internal transformer					
<b>Maximum start-up current draw (Un)<sup>(1)</sup></b>							
Standard unit	A	195,8	211,4	258,8	220,2	238,1	289,7
Unit with electronic starter option	A	129,7	140,3	170,2	154,1	167	201,1
<b>Unit power factor at maximum capacity<sup>(2)</sup></b>		0,87	0,85	0,85	0,87	0,85	0,85
<b>Maximum operating power input<sup>(2)</sup></b>		kW	44	47	55	59	73
<b>Nominal unit operating current draw<sup>(3)</sup></b>		A	45,6	49,5	59,1	60,8	78,8
<b>Maximum operating current draw (Un)<sup>(4)</sup></b>		A	73,2	80,1	92,7	97,6	123,6
<b>Maximum operating current draw (Un-10%)<sup>†</sup></b>		A	81,3	89	103	108,4	137,3
<b>Customer-side unit power reserve</b>		Customer reserve at the 24 V control power circuit					
<b>Short-circuit stability and protection</b>		See table below "Short-circuit stability current"					

- (1) Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + locked rotor current or limited start-up current of the largest compressor).
- (2) Maximum power input at the unit operating limits.
- (3) Values obtained at standardised Eurovent conditions: evaporator entering/leaving water temperature 10 °C/7 °C, condenser entering/leaving water temperature 30 °C/35 °C.
- (4) Maximum unit operating current at maximum unit power input and 400 V.
- † Maximum unit operating current at maximum unit power input and 360 V.

30WG without hydraulic module		020	025	030	035	040	045	050	060	070	080	090
<b>Power circuit</b>												
Nominal voltage	V-ph-Hz	400-3-50										
Voltage range	V	360-440										
<b>Control circuit supply</b>		24 V, via internal transformer										
<b>Maximum start-up current draw (Un)<sup>(1)</sup></b>												
Standard unit	A	98	142	142	147	158	197	161	162	170	183	226
Unit with electronic starter option	A	53,9	78,1	78,1	80,9	86,9	108,4	96,8	97,9	104,1	112,3	137,4
<b>Unit power factor at maximum capacity<sup>(2)</sup></b>		0,9	0,8	0,9	0,9	0,9	0,9	0,8	0,9	0,9	0,9	0,9
<b>Maximum operating power input<sup>(2)</sup></b>		kW	9,2	10,8	11,7	13,7	15,1	17,1	21,5	23,3	27,3	34,2
<b>Nominal unit operating current draw<sup>(3)</sup></b>		A	10,5	13,2	13,8	15,6	16,2	20,2	26,4	27,6	31,2	40,4
<b>Maximum operating current draw (Un)<sup>(4)</sup></b>		A	15,6	18,7	19,8	23,2	25,4	29	37,4	39,6	46,4	58
<b>Maximum operating current draw (Un-10%)<sup>†</sup></b>		A	17,3	20,8	22	25,8	28,2	32,2	41,6	44	51,6	64,4
<b>Customer-side unit power reserve</b>		Customer reserve at the 24 V control power circuit										
<b>Short-circuit stability and protection</b>		See table below "Short-circuit stability current"										

- (1) Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + locked rotor current or limited start-up current of the largest compressor).
- (2) Maximum power input at the unit operating limits.
- (3) Values obtained at standardised Eurovent conditions: evaporator entering/leaving water temperature 12 °C/7 °C, condenser entering/leaving water temperature 30 °C/35 °C.
- (4) Maximum unit operating current at maximum unit power input and 400 V.
- † Maximum unit operating current at maximum unit power input and 360 V.

## ELECTRICAL DATA

30WG without hydraulic module		110	120	140	150	170	190
<b>Power circuit</b>							
Nominal voltage	V-ph-Hz	400-3-50					
Voltage range	V	360-440					
<b>Control circuit supply</b>		24 V, via internal transformer					
<b>Maximum start-up current draw (Un)<sup>(1)</sup></b>							
Standard unit	A	193,4	208,8	255	216,6	234,2	284
Unit with electronic starter option	A	127,3	137,7	166,4	150,5	163,1	195,4
<b>Unit power factor at maximum capacity<sup>(2)</sup></b>		0,87	0,85	0,85	0,87	0,85	0,85
<b>Maximum operating power input<sup>(2)</sup></b>		kW	41	45	51	55	60
<b>Nominal unit operating current draw<sup>(3)</sup></b>		A	46,8	48,6	60,6	62,4	80,8
<b>Maximum operating current draw (Un)<sup>(4)</sup></b>		A	69,6	76,2	87	92,8	101,6
<b>Maximum operating current draw (Un-10%)<sup>†</sup></b>		A	77,3	84,7	96,7	103,1	112,9
<b>Customer-side unit power reserve</b>		Customer reserve at the 24 V control power circuit					
<b>Short-circuit stability and protection</b>		See table below "Short-circuit stability current"					

- (1) Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + locked rotor current or limited start-up current of the largest compressor).  
(2) Maximum power input at the unit operating limits.  
(3) Values obtained at standardised Eurovent conditions: evaporator entering/leaving water temperature 12 °C/7 °C, condenser entering/leaving water temperature 30 °C/ 35 °C.  
(4) Maximum unit operating current at maximum unit power input and 400 V.  
† Maximum unit operating current at maximum unit power input and 360 V.

30WGA without hydraulic module		020	025	030	035	040	045	050	060	070	080	090
<b>Power circuit</b>												
Nominal voltage	V-ph-Hz	400-3-50										
Voltage range	V	360-440										
<b>Control circuit supply</b>		24 V, via internal transformer										
<b>Maximum start-up current draw (Un)<sup>(1)</sup></b>												
Standard unit	A	98	142	142	147	158	197	161	162	170	183	226
Unit with electronic starter option	A	53,9	78,1	78,1	80,9	86,9	108,4	96,8	97,9	104,1	112,3	137,4
<b>Unit power factor at maximum capacity<sup>(2)</sup></b>		0,9	0,8	0,9	0,9	0,9	0,9	0,8	0,9	0,9	0,9	0,9
<b>Maximum operating power input<sup>(2)</sup></b>		kW	9,2	10,8	11,7	13,7	15,1	17,1	21,5	23,3	27,3	34,2
<b>Nominal unit operating current draw<sup>(3)</sup></b>		A	11,4	13,8	14,7	16,5	18,1	21,2	27,6	29,4	33,1	42,5
<b>Maximum operating current draw (Un)<sup>(4)</sup></b>		A	15,6	18,7	19,8	23,2	25,4	29	37,4	39,6	46,4	58
<b>Maximum operating current draw (Un-10%)<sup>†</sup></b>		A	17,3	20,8	22	25,8	28,2	32,2	41,6	44	51,6	64,4
<b>Customer-side unit power reserve</b>		Customer reserve at the 24 V control power circuit										
<b>Short-circuit stability and protection</b>		See table below "Short-circuit stability current"										

30WGA without hydraulic module		110	120	140	150	170	190
<b>Power circuit</b>							
Nominal voltage	V-ph-Hz	400-3-50					
Voltage range	V	360-440					
<b>Control circuit supply</b>		24 V, via internal transformer					
<b>Maximum start-up current draw (Un)<sup>(1)</sup></b>							
Standard unit	A	193,4	208,8	255	216,6	234,2	284
Unit with electronic starter option	A	127,3	137,7	166,4	150,5	163,1	195,4
<b>Unit power factor at maximum capacity<sup>(2)</sup></b>		0,87	0,85	0,85	0,87	0,85	0,85
<b>Maximum operating power input<sup>(2)</sup></b>		kW	41	45	51	55	60
<b>Nominal unit operating current draw<sup>(3)</sup></b>		A	49,5	54,3	63,6	66	84,8
<b>Maximum operating current draw (Un)<sup>(4)</sup></b>		A	69,6	76,2	87	92,8	101,6
<b>Maximum operating current draw (Un-10%)<sup>†</sup></b>		A	77,3	84,7	96,7	103,1	112,9
<b>Customer-side unit power reserve</b>		Customer reserve at the 24 V control power circuit					
<b>Short-circuit stability and protection</b>		See table below "Short-circuit stability current"					

- (1) Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + locked rotor current or limited start-up current of the largest compressor).  
(2) Maximum power input at the unit operating limits.  
(3) Values obtained at the following conditions: evaporator entering/leaving water temperature 12 °C/7 °C, condenser entering/leaving water temperature 45 °C.  
(4) Maximum unit operating current at maximum unit power input and 400 V.  
† Maximum unit operating current at maximum unit power input and 360 V.



## ELECTRICAL DATA

### Short-circuit stability current (TN system<sup>(1)</sup>) - standard unit (with main disconnect switch)

61WG/30WG/30WGA	020	025	030	035	040	045	050	060	070	080	090
<b>Value with non-specified upstream protection</b>											
Short-term current at 1 s - I <sub>cw</sub>	kA rms	3	3	3	3	3	3	3	3	3	3
Admissible peak current - I <sub>pk</sub>	kA pk	6	6	6	6	6	6	6	6	6	6
<b>Maximum value with upstream protection (by circuit breaker)</b>											
Conditional short-circuit current I <sub>cc</sub>	kA rms	40	40	40	40	40	40	40	40	40	40
Schneider circuit breaker - Compact series		NSX 100N									
Reference number <sup>(2)</sup>		LV429795									

(1) Earthing system type

(2) If another current limitation protection system is used, its time-current and thermal constraint (I<sup>2</sup>t) trip characteristics must be at least equivalent to those of the recommended Schneider circuit breaker.  
The short-circuit stability current values above are suitable with the TN system.

61WG/30WG/30WGA	110	120	140	150	170	190
<b>Value with non-specified upstream protection</b>						
Short-term current at 1 s - I <sub>cw</sub>	kA rms	5,5	5,5	5,5	5,5	5,5
Admissible peak current - I <sub>pk</sub>	kA pk	20	20	20	20	20
<b>Maximum value with upstream protection (by circuit breaker)</b>						
Conditional short-circuit current I <sub>cc</sub>	kA rms	154	154	154	154	154
Schneider circuit breaker - Compact series		NSX 100N				
Reference number <sup>(2)</sup>		LV429795				

(1) Earthing system type

(2) If another current limitation protection system is used, its time-current and thermal constraint (I<sup>2</sup>t) trip characteristics must be at least equivalent to those of the recommended Schneider circuit breaker.  
The short-circuit stability current values above are suitable with the TN system.

#### Electrical data notes and operating conditions:

- 61WG/30WG/30WGA 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/30WG/30WGA 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.
- The operating conditions for the units are specified below:  
Environment<sup>(1)</sup> - Environment as classified in EN 60721 (equivalent to CEI60721):
  - Indoor installation,
  - ambient temperature range: +5 °C for the temperature minimum to +40 °C, class 4K4H,
  - humidity range (non-condensing)<sup>(1)</sup>:
    - 50% relative humidity at 40 °C
    - 90% relative humidity at 20 °C

- altitude: ≤ 2000 m (see note for table 4.7 in the IOM) indoor installation<sup>(1)</sup>
- 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<sup>(1)</sup> (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. Units delivered with speed drive are not compatible with IT network.
- 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.**

- (1) The protection level of the control boxes required to conform to this class is IPX1B (according to reference document IEC 60529). All 61WG/30WG/30WGA 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.

## SEASONAL PERFORMANCES

With the rapid increase in energy costs and the care about environmental impacts of electricity production, 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.

### IPLV.SI (in accordance with AHRI 551-591)

The IPLV (integrated part load value) allows evaluation of the average energy efficiency based on four operating conditions defined by the AHRI (Air Conditioning, Heating and Refrigeration Institute). The IPLV.SI is the average weighted value of the cooling coefficient of performance ( $COP_R$ ) at different operating conditions, weighted by the operating time.

### IPLV (integrated part load value)

Load %	Condenser entering water temperature, °C	Energy efficiency	Operating time, %
100	30	A= $COP_R$ at 100%	1
75	24.5	B= $COP_R$ at 75%	42
50	19	C= $COP_R$ at 50%	45
25	19	D= $COP_R$ at 25%	12

$$IPLV.SI = A^{(1)}1\% + B^{(1)}42\% + C^{(1)}45\% + D^{(1)}12\%$$

**Note:** Constant leaving water temperature: 7 °C

### SEER for comfort chillers (in accordance with EU ECODESIGN)

The **SEER** (Seasonal Energy Efficiency Ratio) measures the seasonal energy efficiency of comfort **chillers** by calculating the ratio between annual cooling demand of the building and annual energy demand of the chiller. It takes into account the energy efficiency achieved for each outdoor temperature weighted by the number of hours observed for each of these temperatures, using actual climate data.

**SEER** is a new way of measuring the true energy efficiency of chillers for **comfort cooling** over an entire year.

This new indicator gives a more realistic indication of the real energy efficiency and environmental impact of a cooling system (Ecodesign Regulation 2016/2281).

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 average energy efficiency, calculated at several operating points that are representative for the unit utilisation.

### SCOP (In accordance with EU ECODESIGN)

The **SCOP** (Seasonal Coefficient of Performance) permit evaluation of the average energy efficiency at part load, based on multipoint conditions (16°C to -10°C for average climate) and number of hours occurring at each air temperature (Bin hours).

To be able to compare the energy efficiency of boilers using a primary energy source (gas or fuel) with heat pumps using a final energy source (electricity), the seasonal efficiency criteria used by the Ecodesign regulations is known as  $\eta_s$  it is based on the use of primary energy sources and expressed in % (Ecodesign Regulation 813/2013)

### SEPR for process chillers (in accordance with EU ECODESIGN)

The **SEPR** (Seasonal Energy Performance Ratio) measures the seasonal energy efficiency of **process chillers** by calculating the ratio between annual cooling demand of the process and annual energy demand of the chiller. It takes into account the energy efficiency achieved at each outdoor temperature of an average climate weighted by the number of hours observed for each of these temperatures.

**SEPR** is a new way of measuring the true energy efficiency of chillers for **process cooling** over an entire year. This new indicator gives a more realistic indication of the real energy efficiency and environmental impact of the cooling system (Ecodesign Regulation 2015/1095 or 2016/2281).

## SOUND SPECTRUM

### 61WG/30WG/30WGA standard unit

61WG/30WG/30WGA - standard unit

		Octave bands, Hz						Sound	
		125	250	500	1k	2k	4k	power level	
020	dB	60	53	52	63	61	57	dB(A)	67
025	dB	64	56	56	63	60	58	dB(A)	68
030	dB	61	59	58	64	63	60	dB(A)	69
035	dB	64	59	59	64	61	58	dB(A)	69
040	dB	59	60	58	67	64	59	dB(A)	70
045	dB	57	56	57	66	65	62	dB(A)	70
050	dB	47	60	65	68	66	56	dB(A)	71
060	dB	43	61	65	68	67	57	dB(A)	72
070	dB	46	61	67	67	66	55	dB(A)	72
080	dB	40	61	65	70	68	55	dB(A)	73
090	dB	51	64	64	69	69	58	dB(A)	73
110	dB	83	73	71	70	68	65	dB(A)	76
120	dB	84	74	72	71	69	66	dB(A)	77
140	dB	80	75	71	74	72	65	dB(A)	78
150	dB	78	74	71	70	71	65	dB(A)	76
170	dB	79	75	72	71	72	66	dB(A)	77
190	dB	82	76	75	74	71	66	dB(A)	78

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

		Octave bands, Hz						Sound	
		125	250	500	1k	2k	4k	power level	
020	dB	59	58	50	60	57	51	dB(A)	65
025	dB	58	57	55	62	58	54	dB(A)	66
030	dB	58	57	56	61	59	54	dB(A)	66
035	dB	58	57	59	62	59	54	dB(A)	67
040	dB	64	58	56	64	60	53	dB(A)	68
045	dB	58	57	56	65	63	58	dB(A)	68
050	dB	48	57	61	65	62	51	dB(A)	68
060	dB	43	59	61	65	63	51	dB(A)	69
070	dB	47	59	63	65	62	49	dB(A)	69
080	dB	39	58	61	66	63	48	dB(A)	69
090	dB	50	62	60	66	65	52	dB(A)	70
110	dB	80	70	68	67	65	62	dB(A)	73
120	dB	81	71	69	68	66	63	dB(A)	74
140	dB	77	72	68	71	69	62	dB(A)	75
150	dB	75	71	68	67	68	62	dB(A)	73
170	dB	76	72	69	68	69	63	dB(A)	74
190	dB	79	73	72	71	68	63	dB(A)	75

### 61WG/30WG/30WGA units very low noise option (option 258<sup>(1)</sup>)

61WG/30WG/30WGA - standard unit with Option 258<sup>(1)</sup>

		Octave bands, Hz						Sound	
		125	250	500	1k	2k	4k	power level	
020	dB	54	56	49	57	47	44	dB(A)	61
025	dB	57	59	53	55	46	46	dB(A)	62
030	dB	56	60	55	55	49	48	dB(A)	63
035	dB	57	59	56	55	47	46	dB(A)	63
040	dB	55	60	55	60	50	47	dB(A)	64
045	dB	53	59	54	60	51	50	dB(A)	64
050	dB	43	59	62	62	52	44	dB(A)	66
060	dB	39	60	62	61	53	45	dB(A)	66
070	dB	42	60	62	61	52	43	dB(A)	66
080	dB	36	60	62	64	54	43	dB(A)	67
090	dB	47	62	61	63	55	46	dB(A)	67

61WG/30WG/30WGA - Unit with very low-noise option (option 257 + 258<sup>(1)</sup>)

		Octave bands, Hz						Sound	
		125	250	500	1k	2k	4k	power level	
020	dB	54	55	47	56	46	45	dB(A)	60
025	dB	56	57	51	56	45	47	dB(A)	62
030	dB	55	59	53	54	48	49	dB(A)	62
035	dB	56	58	55	55	46	47	dB(A)	62
040	dB	53	59	53	60	49	48	dB(A)	64
045	dB	51	58	52	59	50	51	dB(A)	63
050	dB	41	58	60	61	51	45	dB(A)	65
060	dB	37	59	60	60	52	46	dB(A)	65
070	dB	40	59	61	60	51	44	dB(A)	65
080	dB	34	59	60	63	53	44	dB(A)	66
090	dB	45	61	59	62	54	47	dB(A)	66

(1) Option numbers

257 Low sound level (up to 3 dB(A) lower than standard unit)

258 Very low noise (up to 6 dB(A) lower than standard unit) (C-s2,d0 compliant to Fire certification EN 13-501)

## OPERATING LIMITS, 61WG

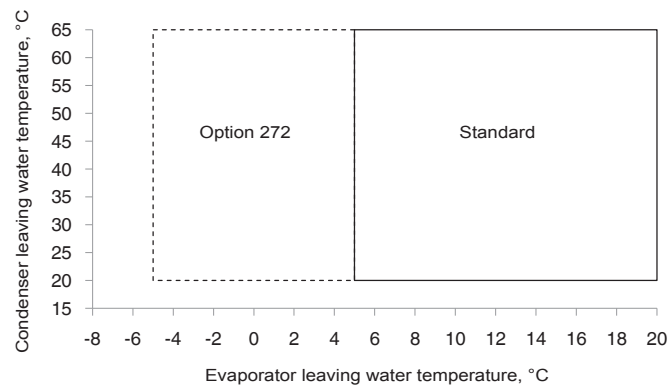
61WG		Minimum	Maximum
<b>Evaporator</b>			
Entering water temperature at start-up	°C	7.5 <sup>(1)</sup>	27
Leaving water temperature during operation	°C	5 <sup>(2)</sup>	20
Entering/leaving water temperature difference	K	2.5	7
<b>Condenser</b>			
Entering water temperature at start-up	°C	15 <sup>(3)</sup>	60 <sup>(4)</sup>
Leaving water temperature during operation	°C	20	65
Entering/leaving water temperature difference	K	2.5	18

- (1) For entering water temperatures below 7.5 °C at start-up, contact Carrier.
- (2) 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).
- (3) For applications with a condenser entering 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 TouchPilot Junior control.
- (4) For a water flow rate that corresponds to a maximum water-side temperature difference of 5 K.

61WG + option 272 (geothermal application)		Minimum	Maximum
<b>Evaporator</b>			
Entering water temperature at start-up	°C	-2.5 <sup>(1)</sup>	25
Leaving water temperature during operation	°C	-5 <sup>(1)</sup>	20
Entering/leaving water temperature difference	K	2.5	5
<b>Condenser</b>			
Entering water temperature at start-up	°C	15 <sup>(2)</sup>	60 <sup>(3)</sup>
Leaving water temperature during operation	°C	20	65
Entering/leaving water temperature difference	K	2.5	18

- (1) A frost protection solution must be used.
- (2) For applications with a condenser entering 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 TouchPilot Junior.
- (3) 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

## OPERATING LIMITS, 30WG

30WG		Minimum	Maximum
<b>Evaporator</b>			
Entering water temperature at start-up	°C	7.5 <sup>(1)</sup>	27
Leaving water temperature during operation	°C	5 <sup>(2)</sup>	20
Entering/leaving water temperature difference	K	2.5	7
<b>Condenser</b>			
Entering water temperature at start-up	°C	15 <sup>(3)</sup>	55 <sup>(4)</sup>
Leaving water temperature during operation	°C	20	60
Entering/leaving water temperature difference	K	2.5	18

- (1) For entering water temperatures below 7.5 °C at start-up, contact Carrier.
- (2) 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).
- (3) For applications with a condenser entering 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 TouchPilot Junior control.
- (4) For a water flow rate that corresponds to a maximum water-side temperature difference of 5 K.

30WG + option 6		Minimum	Maximum
<b>Evaporator</b>			
Entering water temperature at start-up	°C	-9.5 <sup>(1)</sup>	27
Leaving water temperature during operation	°C	-12 <sup>(1)</sup>	20
Entering/leaving water temperature difference	K	2.5	5
<b>Condenser</b>			
Entering water temperature at start-up	°C	15 <sup>(2)</sup>	55 <sup>(3)</sup>
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.

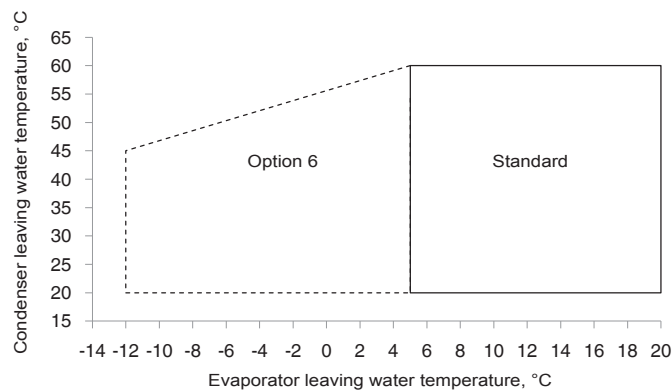
- (1) A frost protection solution must be used.
- (2) For applications with a condenser entering temperature below 15 °C the use of a three-way valve is recommended. This three-way valve can be controlled by the 0-10 V analogue output of the TouchPilot Junior control.
- (3) For a water flow rate that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

## OPERATING LIMITS, 30WG

30WG + drycooler		Minimum	Maximum
<b>Evaporator</b>			
Entering water temperature at start-up	°C	7.5 <sup>(1)</sup>	27
Leaving water temperature during operation	°C	5 <sup>(2)</sup>	20
Entering/leaving water temperature difference	K	2.5	7
<b>Condenser without hydraulic module</b>			
Entering air temperature at start-up + during operation	°C	10-15 <sup>(3)</sup>	40-45 <sup>(4)</sup>
<b>Condenser with option 270V (kit with variable-speed pump)</b>			
Entering air temperature at start-up+ during operation	°C	-10 <sup>(5)</sup>	40-45 <sup>(4)</sup>

- (1) For entering water temperatures below 7.5 °C at start-up, contact Carrier.  
 (2) 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).  
 (3) The minimum entering air temperature is based on the drycooler selection.  
 (4) The maximum entering air temperature is based on the drycooler selection.  
 (5) 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 TouchPilot Junior control.

## OPERATING RANGE, 30WG



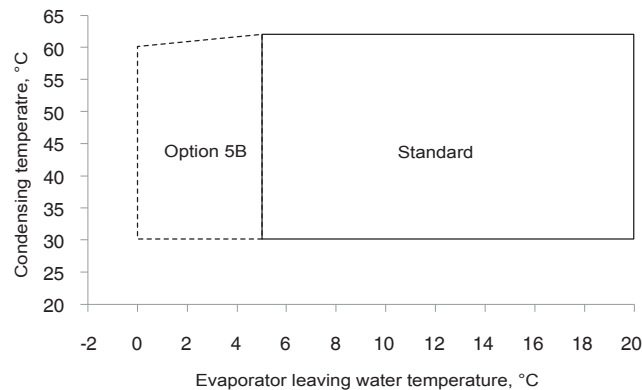
- 30WG standard unit  
 - - - 30WGA unit with option 6 (brine)  
 Option 6: Very low-temperature glycol solution

## OPERATING LIMITS, 30WGA

30WGA		Minimum	Maximum
<b>Evaporator</b>			
Entering water temperature at start-up	°C	7.5 <sup>(1)</sup>	27
Leaving water temperature during operation	°C	5 <sup>(2)</sup>	20
Entering/leaving water temperature difference	K	2,5	7
<b>Air entering temperature (at start-up and during operation)<sup>(3)</sup></b>			
Air entering temperature (fixed-speed fan)	°C	0 <sup>(3)</sup>	35 to 48 <sup>(5)</sup>
Air entering temperature (variable-speed fan)	°C	-10 to -20 <sup>(4)</sup>	35 to 48 <sup>(5)</sup>

- (1) For entering water temperatures below 7.5 °C at start-up, contact Carrier.  
 (2) 30WGA unit can operate down to 0 °C if the configuration of the fluid type used is modified. If the leaving water temperature is below 5 °C, a frost protection solution must be used.  
 (3) The minimum temperature range is based on the condenser selected. If the condenser only has a few fan stages, the use of variable-speed fans is recommended from 10 °C.  
 (4) The minimum temperature range is based on the condenser selected.  
 (5) The maximum temperature range is based on the condenser selected.

## OPERATING RANGE, 30WGA



— 30WGA standard unit  
 - - - 30WGA unit with option 5B (% glycol < 25%)

## 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) × N<sup>(1)</sup> = litres, where CAP is the cooling capacity at nominal operating conditions.

Air conditioning application	N <sup>(1)</sup>
61WG/30WG/30WGA 020-090	2.5

Minimum water loop volume (evaporator and condenser side)

61WG/30WG/30WGA	size	110	120	140	150	170	190
Pure water	l	269	323	366	192	231	261

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 hydraulic 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/30WGA		020-045			060-090		
Static pressure	kPa	100	200	300	100	200	300
	bar	1	2	3	1	2	3
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

Maximum water loop volume (evaporator and condenser side)

61WG/30WG/30WGA		110-140			150-190		
Static pressure	kPa	150	200	150	200	200	300
	bar	1,5	2	1,5	2	2	3
Pure water	l	894	655	1376	918	225	115
10% ethylene glycol	l	678	498	1045	697	170	85
20% ethylene glycol	l	561	412	864	576	100	50
35% ethylene glycol	l	483	354	744	496	85	45



## WATER FLOW RATES

### Standard Unit

61WG/ 30WG/ 30WGA	Condenser water flow rate, l/s			
	Minimum <sup>(1)</sup>	Maximum <sup>(2)</sup>		Maximum <sup>(3)</sup>
		Low pressure	High pressure	
20	0.3	3.5	3.6	3.8
25	0.3	3.7	3.9	4.1
30	0.3	3.7	3.9	4.1
35	0.4	4	4.2	4.7
40	0.4	4.2	4.4	5.0
45	0.4	4.4	4.6	5.4
50	0.4	5.4	6.9	7.0
60	0.5	5.6	7.1	7.5
70	0.5	5.7	7.3	7.8
80	0.6	5.8	7.5	8.2
90	0.6	7.4	8	9.3
110	0.5	11.4	11.7	13.1
120	0.5	12.5	12.4	15.0
140	0.6	13.2	12.9	16.7
150	0.5	12.6	13.8	16.4
170	0.5	13.6	14.4	18.9
190	0.6	14.0	14.7	20.6

- (1) Units with or without hydraulic module  
Minimum flow rate for a water temperature difference of 18 K-  
**Note:** Operation permitted up to a value of 20 K.
- (2) Units without hydraulic module  
Maximum flow rate for an available pressure of 20 kPa (unit with low-pressure hydraulic module) or 50 kPa (unit with high-pressure hydraulic module)
- (3) Units without hydraulic module  
Maximum flow rate for a pressure drop of 100 kPa in the plate heat exchanger

### 30WG with option 272

30WG	Minimum evaporator glycol solution flow rate, l/s		
	Minimum <sup>(2)</sup>		Minimum <sup>T</sup>
	Low pressure	High pressure	
20	1.4	1.3	0.5
25	1.5	1.3	0.5
30	1.5	1.3	0.5
35	1.6	1.5	0.6
40	1.7	1.5	0.6
45	1.8	1.5	0.8
50	2.5	2.2	0.8
60	2.2	2.3	1.0
70	2.2	2.4	1.1
80	2.3	2.4	1.3
90	2.5	2.5	1.5
110	2	1.4	1.5
120	2	1.4	1.5
140	2	1.4	1.5
150	2	1.4	1.5
170	2	1.4	1.5
190	2	1.4	1.5

- (1) Option 6: Glycol solution production, very low temperature  
(2) Option 5B: Glycol solution down to 0°C  
(3) Option 272: Glycol solution down to -5°C  
(4) Units with hydraulic module  
Minimum flow rate for a maximum permitted temperature difference at the minimum leaving water temperature  
T Units without hydraulic module Minimum flow rate for a maximum permitted temperature difference at the minimum leaving water temperature

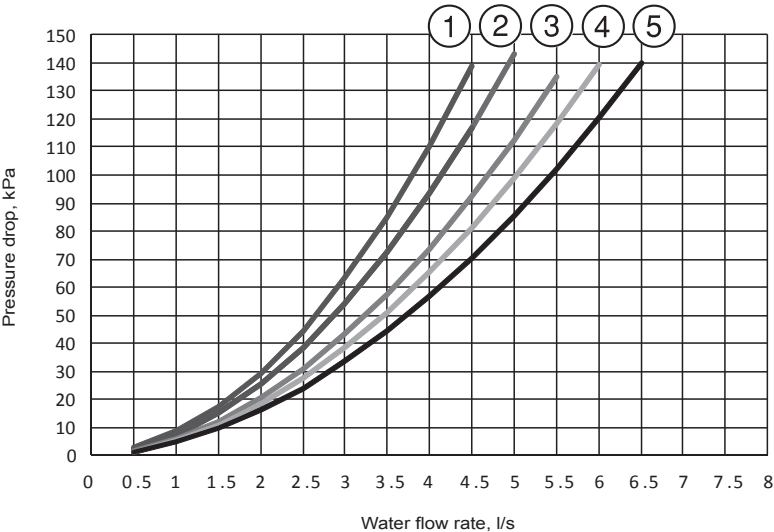
61WG/ 30WG/ 30WGA	Evaporator water flow rate, l/s					
	Minimum <sup>(1)</sup>		Minimum <sup>(2)</sup>	Maximum <sup>(3)</sup>		Maximum <sup>(4)</sup>
	Low pressure	High pressure		Low pressure	High pressure	
20	1.0	0.9	0.5	3.5	3.7	3.8
25	1.0	1.0	0.5	3.8	3.9	4.1
30	1.0	1.0	0.5	3.8	3.9	4.1
35	1.1	1.1	0.6	4.1	4.3	4.7
40	1.2	1.1	0.6	4.3	4.5	5.0
45	1.2	1.1	0.8	4.5	4.8	5.4
50	1.6	1.4	0.8	6.1	7.9	9.2
60	1.5	1.6	1.0	6.2	8.1	9.9
70	1.6	1.5	1.1	6.3	8.3	10.3
80	1.6	1.5	1.3	6.4	8.4	10.9
90	2.0	1.6	1.5	8.1	8.8	12.5
110	2.0	1.3	0.8	7.5	11.8	14.4
120	2.0	1.3	0.9	7.6	12.5	16.7
140	2.0	1.3	1	8.6	12.8	18.3
150	2.0	1.3	0.8	8.6	12.5	16.1
170	2.0	1.3	0.9	13.6	13.1	18.3
190	2.0	1.3	1	14.0	13.3	20.3

- (1) Units with hydraulic module  
Flow rate for a maximum permitted temperature difference at the minimum leaving water temperature
- (2) Units without hydraulic module  
Flow rate for a maximum permitted temperature difference at the minimum leaving water temperature
- (3) Units with hydraulic module  
Maximum flow rate for an available pressure of 20 kPa (unit with low-pressure hydraulic module) or 50 kPa (unit with high-pressure hydraulic module)
- (4) Units without hydraulic module  
Maximum flow rate for a pressure drop of 100 kPa in the plate heat exchanger.

# 

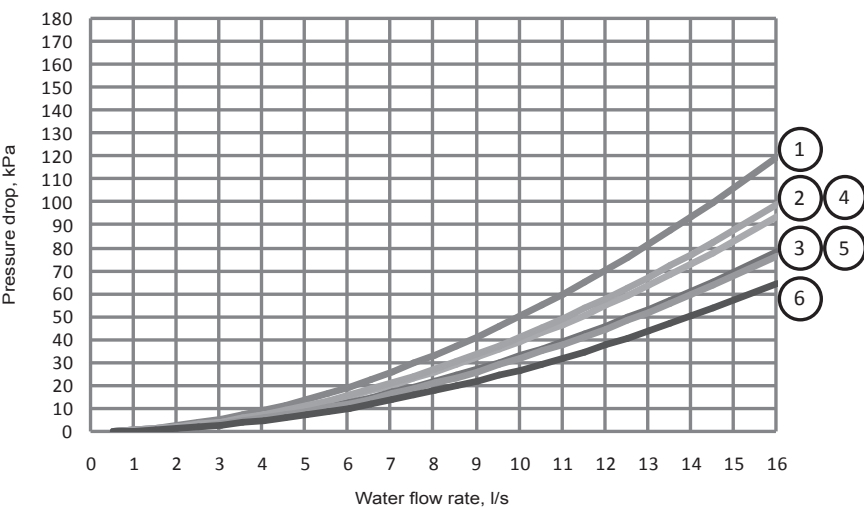
Evaporator - standard unit without hydraulic module - Water only

### 



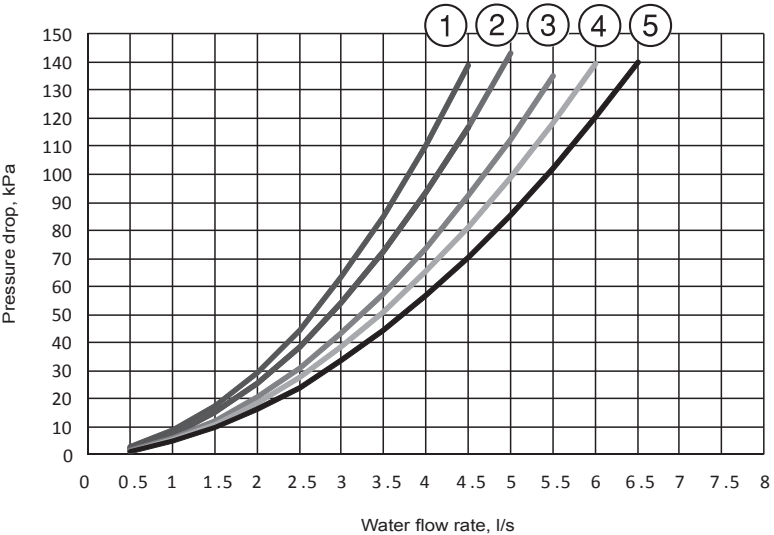
- 1 61WG/30WG/30WGA 020
- 2 61WG/30WG/30WGA025to 030
- 3 61WG/30WG/30WGA 035
- 4 61WG/30WG/30WGA 040
- 5 61WG/30WG/30WGA 045

### 



- 1 61WG/30WG/30WGA 110
- 2 61WG/30WG/30WGA 120
- 3 61WG/30WG/30WGA 140
- 4 61WG/30WG/30WGA 150
- 5 61WG/30WG/30WGA 170
- 6 61WG/30WG/30WGA 190

### 

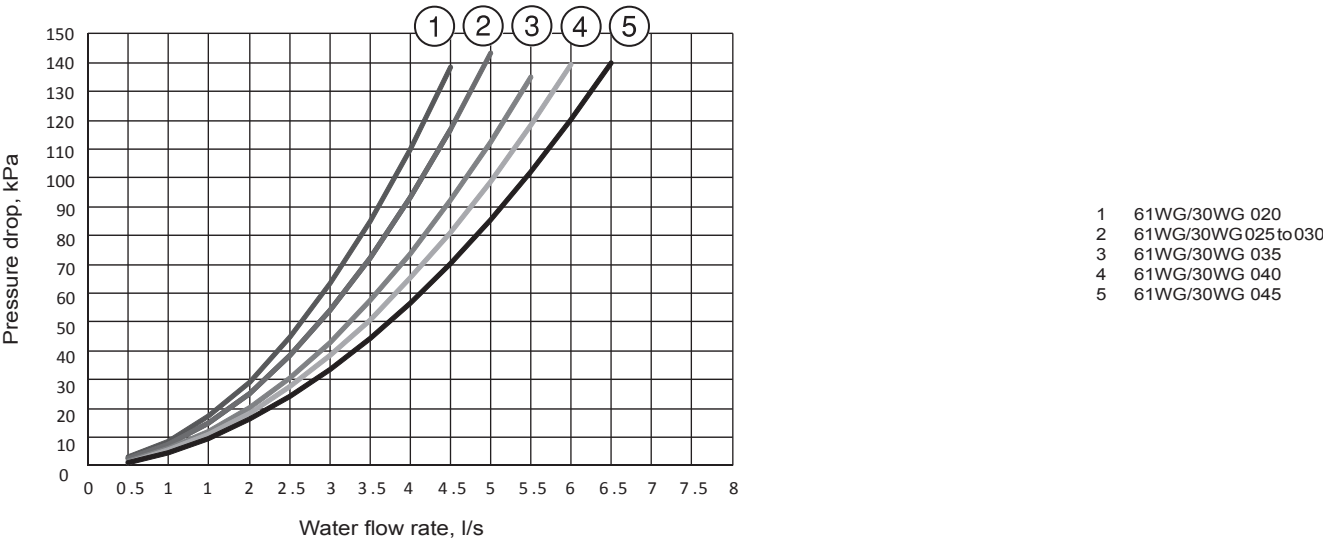


- 6 61WG/30WG/30WGA050
- 7 61WG/30WG/30WGA060
- 8 61WG/30WG/30WGA070
- 9 61WG/30WG/30WGA080
- 10 61WG/30WG/30WGA090

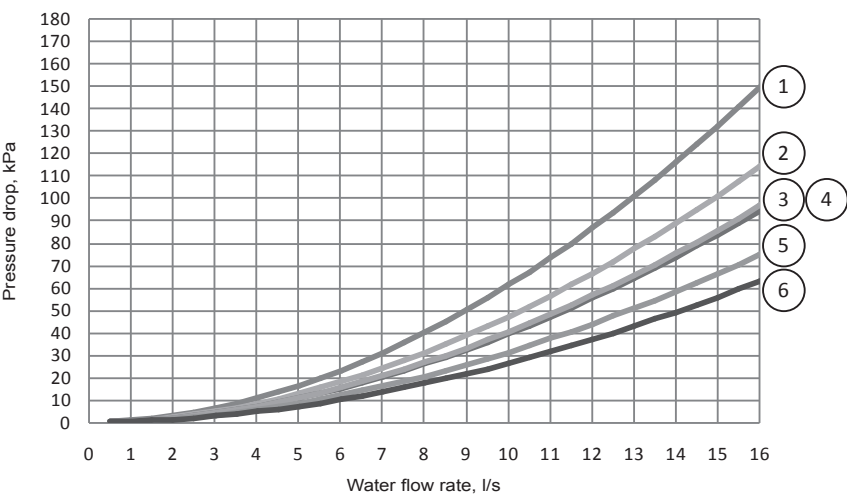
**PLATE HEAT EXCHANGER PRESSURE DROP (INCLUDES INTERNAL PIPING)**

**Condenser - standard unit without hydraulic module - Water only**

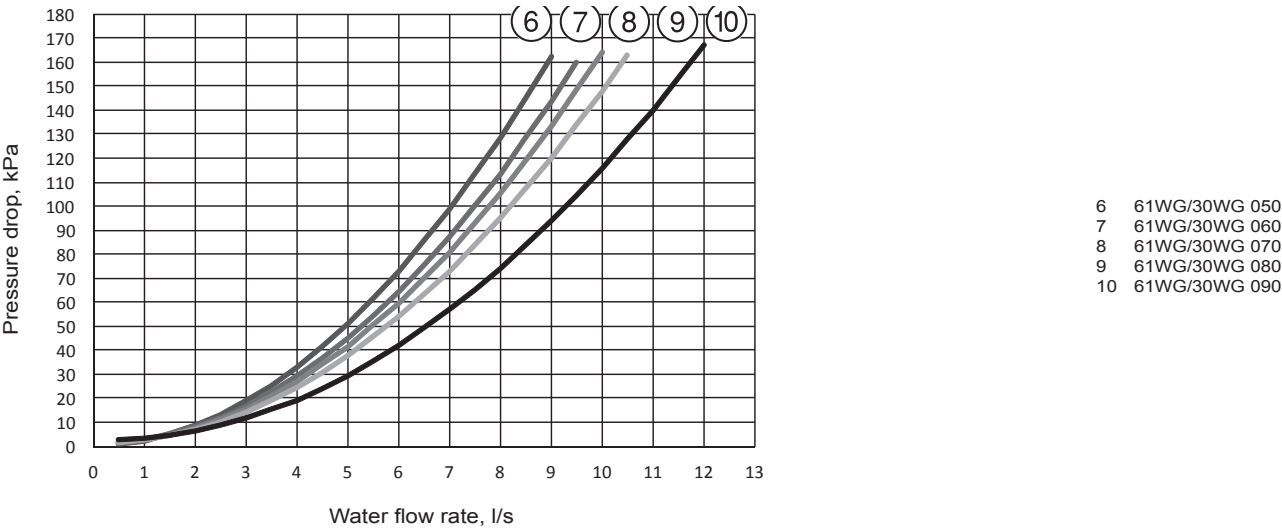
**61WG/30WG 020-045**



**61WG/30WG 110-190**



**61WG/30WG 050-090**



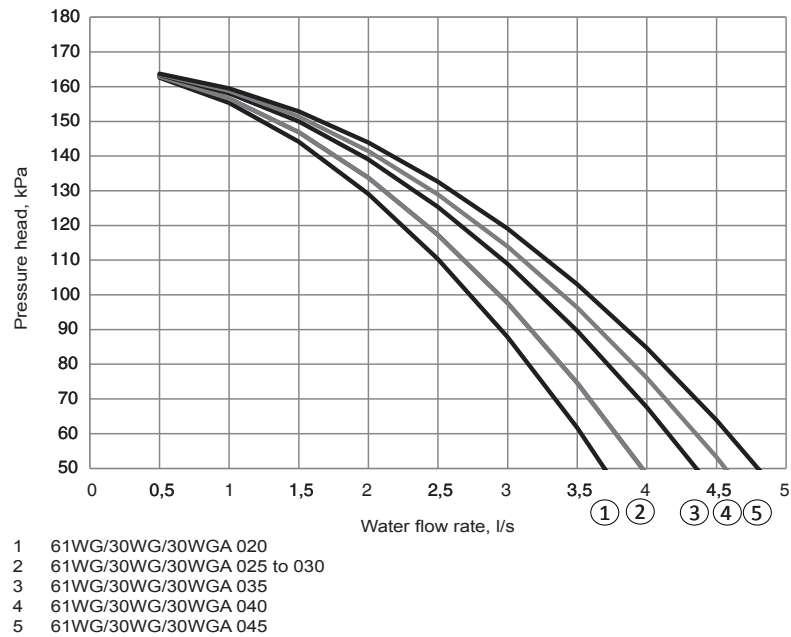
## AVAILABLE EXTERNAL STATIC PRESSURE, UNITS WITH HYDRAULIC MODULE (VARIABLE-SPEED HIGH-PRESSURE PUMPS)

Data applicable for:

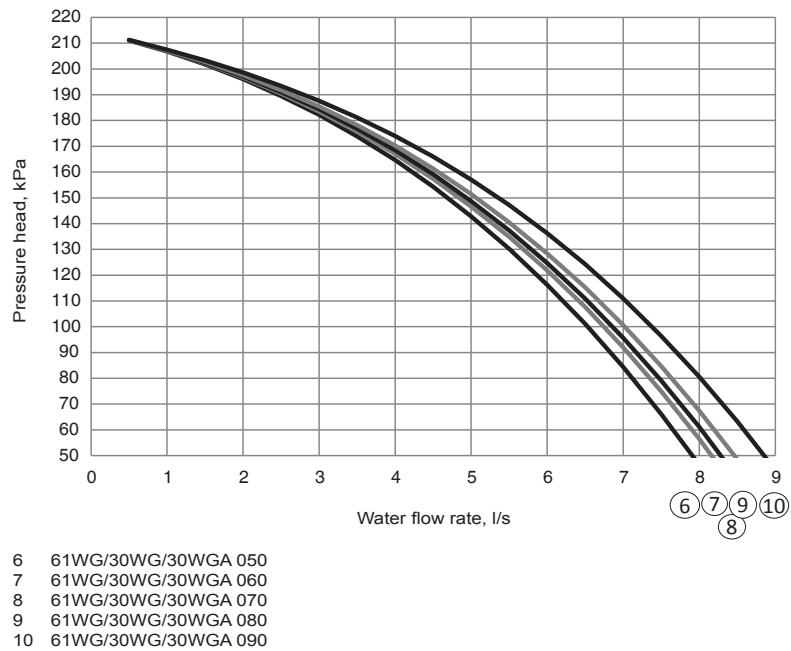
- Fresh water (without antifreeze) 20 °C
- In case of use of the glycol, the maximum water flow is reduced
- The curves represented below are in normal conditions: leaving water on the back side of the unit (without option 274).

### Evaporator

#### 61WG/30WG/30WGA 020-045



#### 61WG/30WG/30WGA 050-090



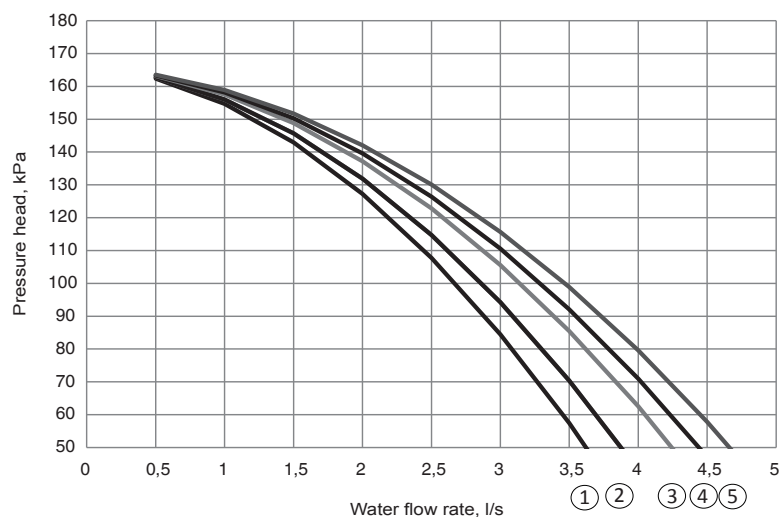
## AVAILABLE EXTERNAL STATIC PRESSURE, UNITS WITH HYDRAULIC MODULE (VARIABLE-SPEED HIGH-PRESSURE PUMPS)

Data applicable for:

- Fresh water (without antifreeze) 20 °C
- In case of use of the glycol, the maximum water flow is reduced
- The curves represented below are in normal conditions: leaving water on the back side of the unit (without option 274).

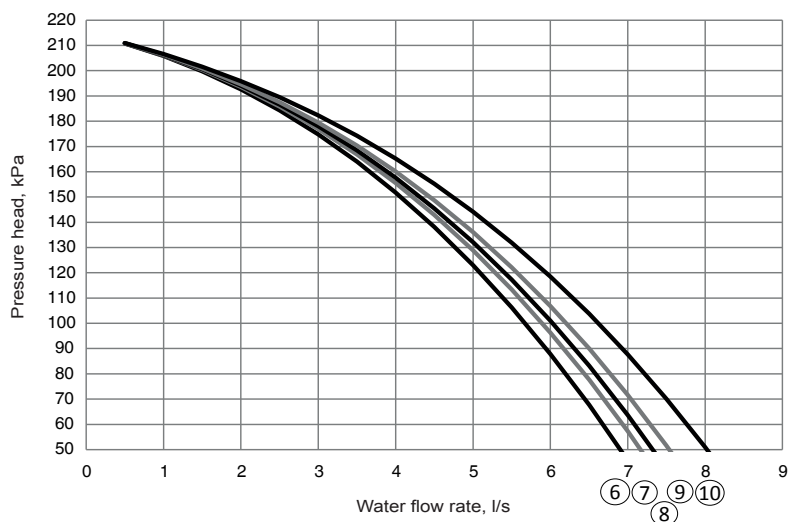
### Condenser

#### 61WG/30WG 020-045



- 1 61WG/30WG 020
- 2 61WG/30WG 025 to 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

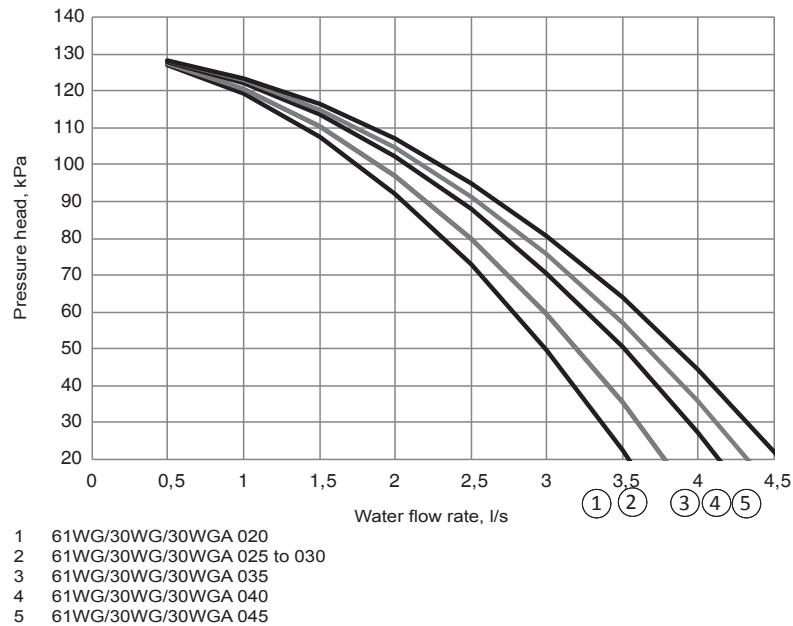
## AVAILABLE EXTERNAL STATIC PRESSURE, UNITS WITH HYDRAULIC MODULE (FIXED-SPEED LOW-PRESSURE PUMPS)

Data applicable for:

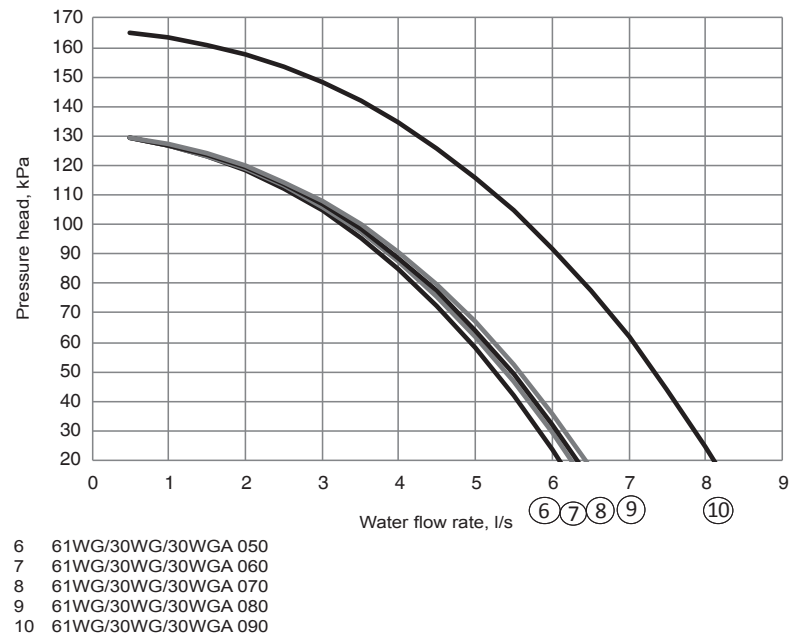
- Fresh water 20 °C
- In case of use of the glycol, the maximum water flow is reduced
- The curves represented below are in normal conditions: leaving water on the back side of the unit (without option 274).

### Evaporator

#### 61WG/30WG/30WGA 020-045



#### 61WG/30WG/30WGA 050-090



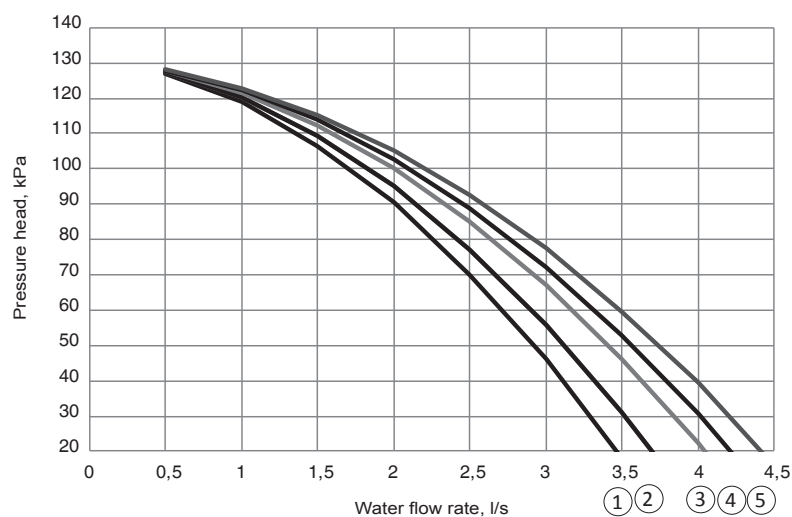
## AVAILABLE EXTERNAL STATIC PRESSURE, UNITS WITH HYDRAULIC MODULE (FIXED-SPEED LOW-PRESSURE PUMPS)

Data applicable for:

- Fresh water 20 °C
- In case of use of the glycol, the maximum water flow is reduced
- The curves represented below are in normal conditions: leaving water on the back side of the unit (without option 274).

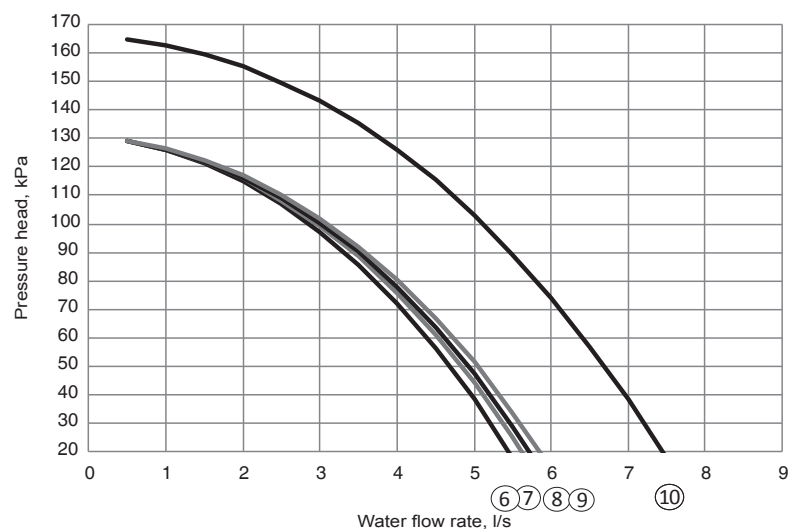
### Condenser

#### 61WG/30WG 020-045



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

#### 61WG/30WG 050-090



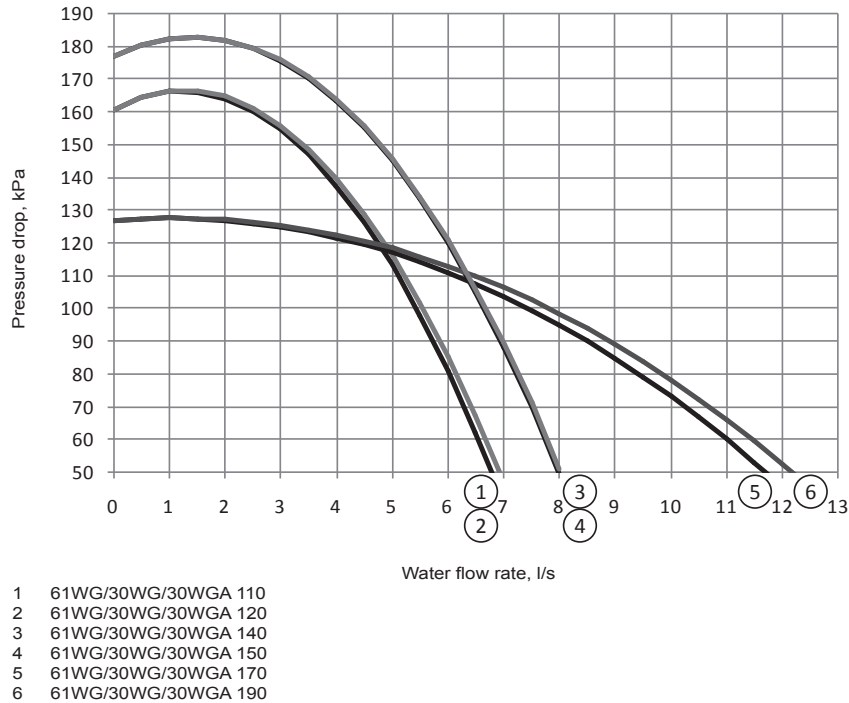
- 6 61WG/30WG 050
- 7 61WG/30WG 060
- 8 61WG/30WG 070
- 9 61WG/30WG 080
- 10 61WG/30WG 090



**AVAILABLE EXTERNAL STATIC PRESSURE, UNITS WITH HYDRAULIC  
MODULE (FIXED-SPEED LOW-PRESSURE SINGLE PUMPS)**

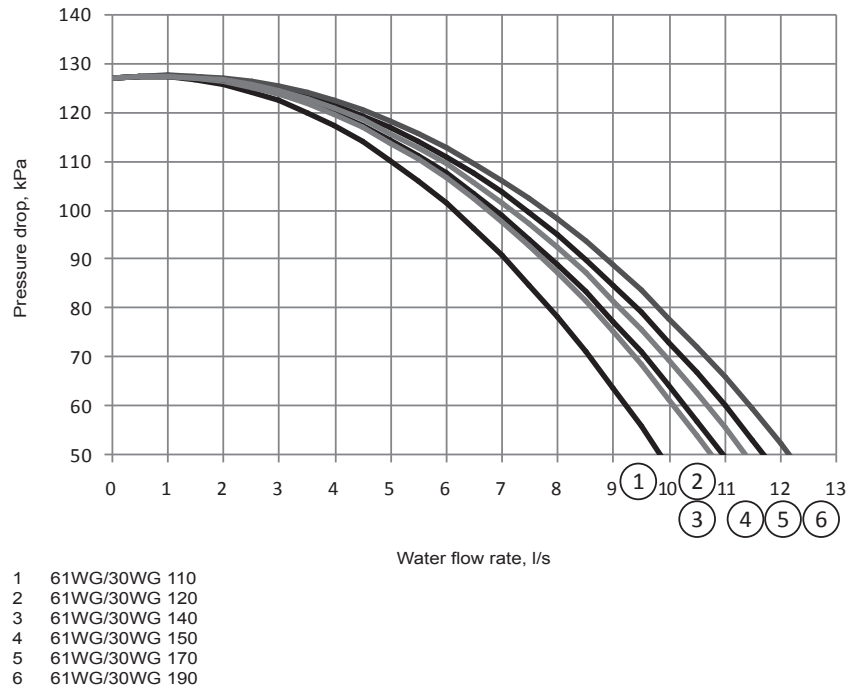
**Evaporator 61WG/30WG/30WGA**

Sizes 110-190



**Condenser 61WG/30WG**

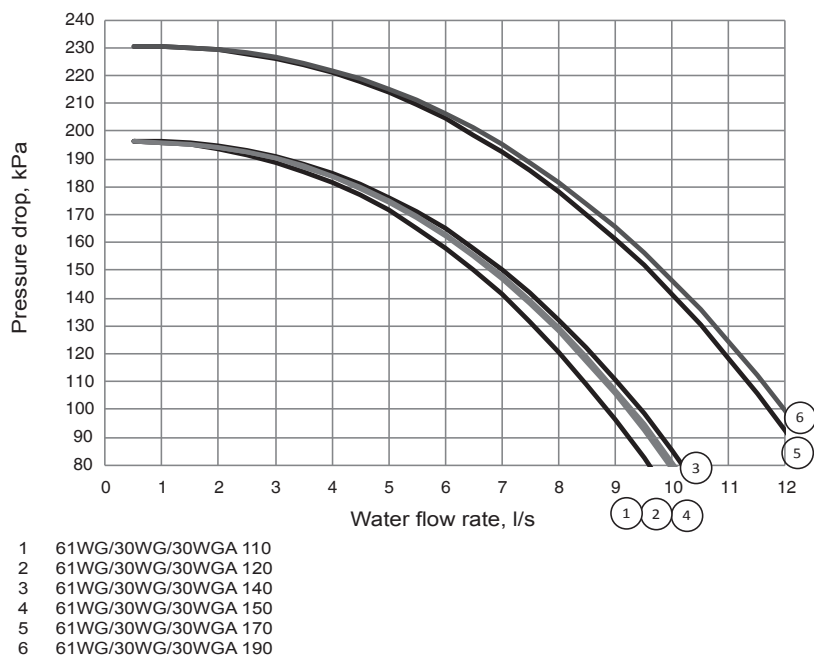
Sizes 110-190



## AVAILABLE EXTERNAL STATIC PRESSURE, UNITS WITH HYDRAULIC MODULE (VARIABLE-SPEED HIGH-PRESSURE DOUBLE PUMPS)

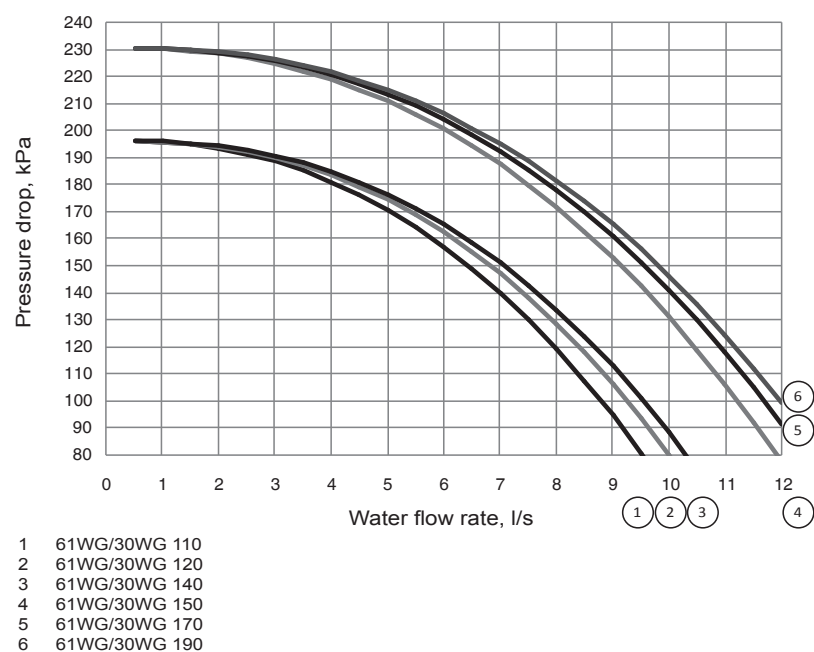
### Evaporator 61WG/30WG/30WGA

Sizes 110-190



### Condenser 61WG/30WG

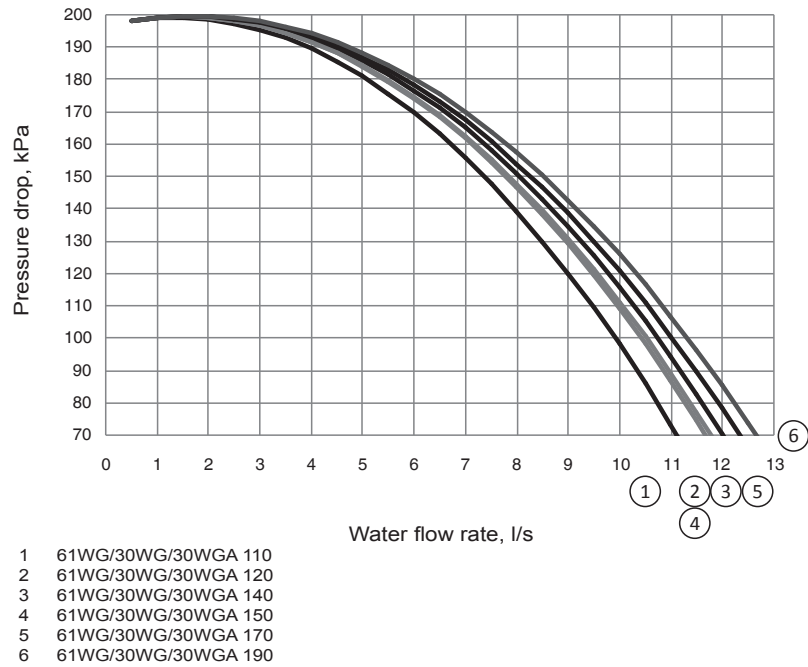
Sizes 110-190



**AVAILABLE EXTERNAL STATIC PRESSURE, UNITS WITH HYDRAULIC MODULE (VARIABLE-SPEED HIGH-PRESSURE SINGLE PUMPS)**

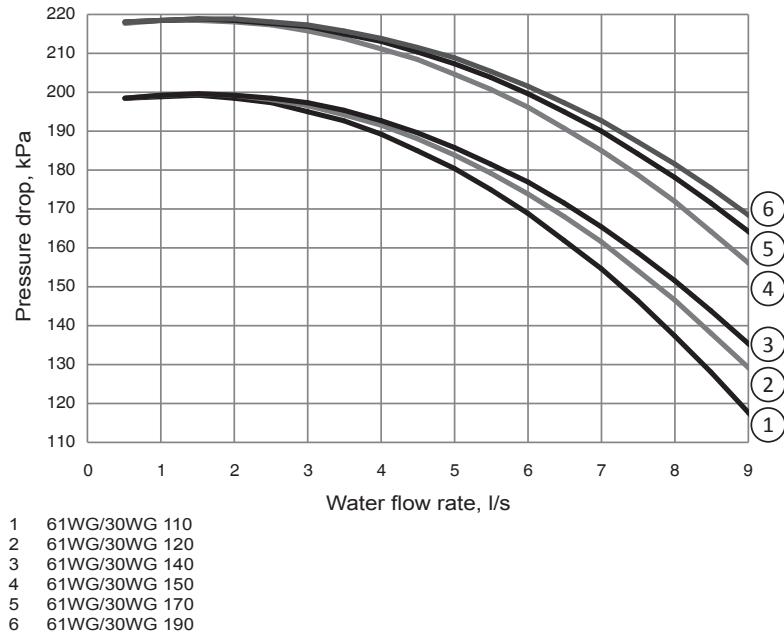
**Evaporator 61WG/30WG/30WGA**

Sizes 110-190



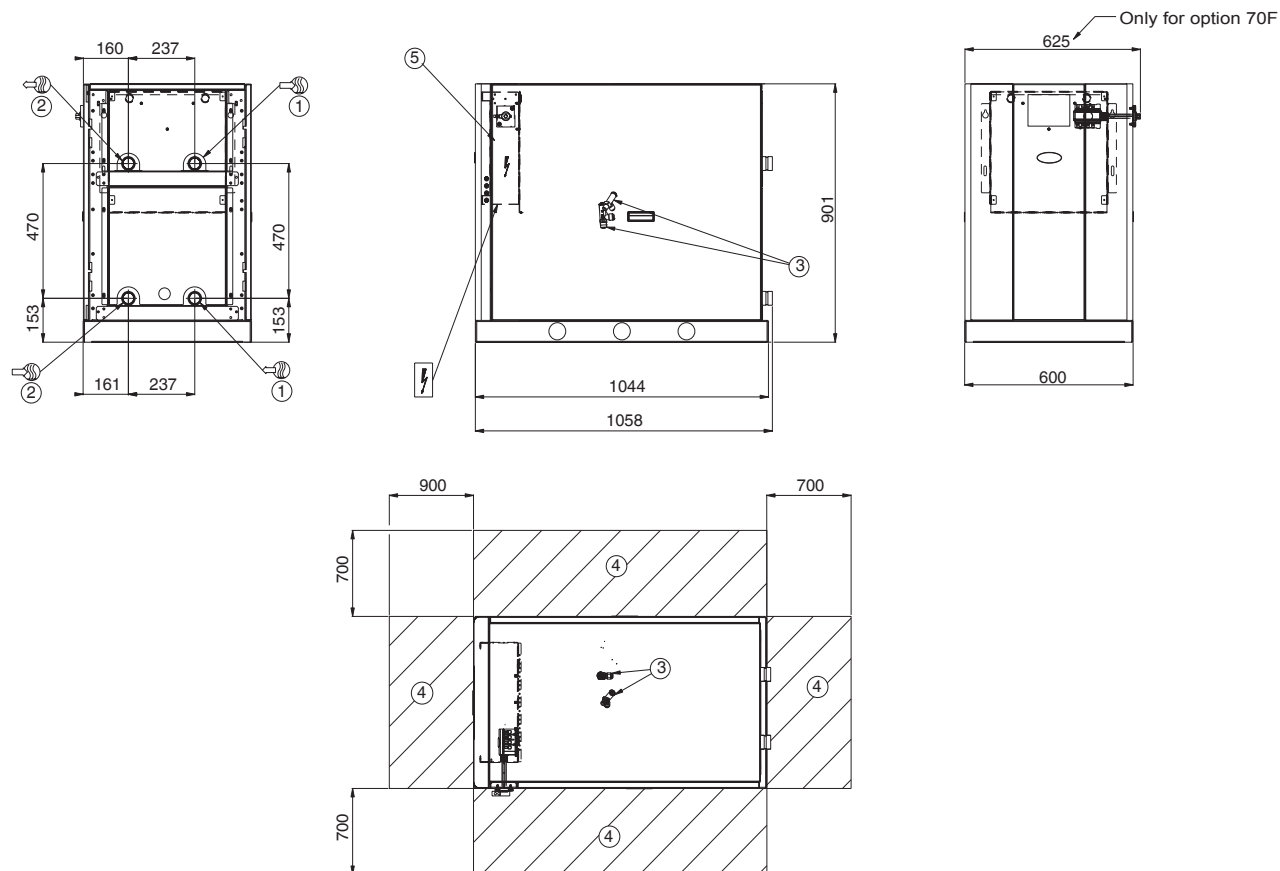
**Condenser 61WG/30WG**

Sizes 110-190

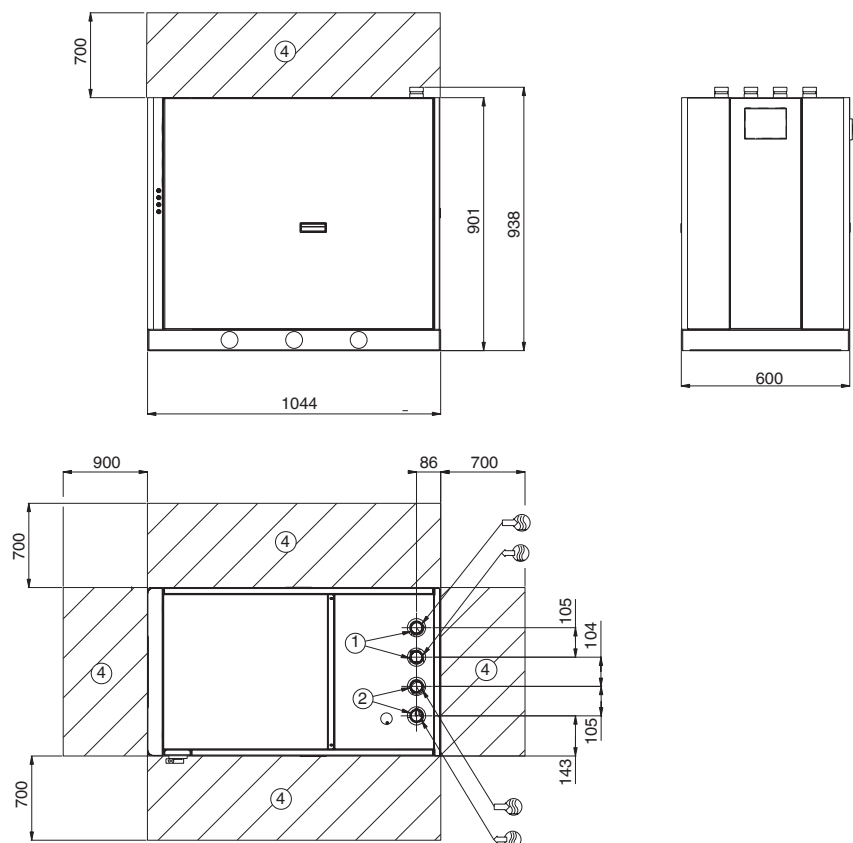


## DIMENSIONS/CLEARANCES

### 61WG/30WG 020-045 - standard unit



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



#### Legend

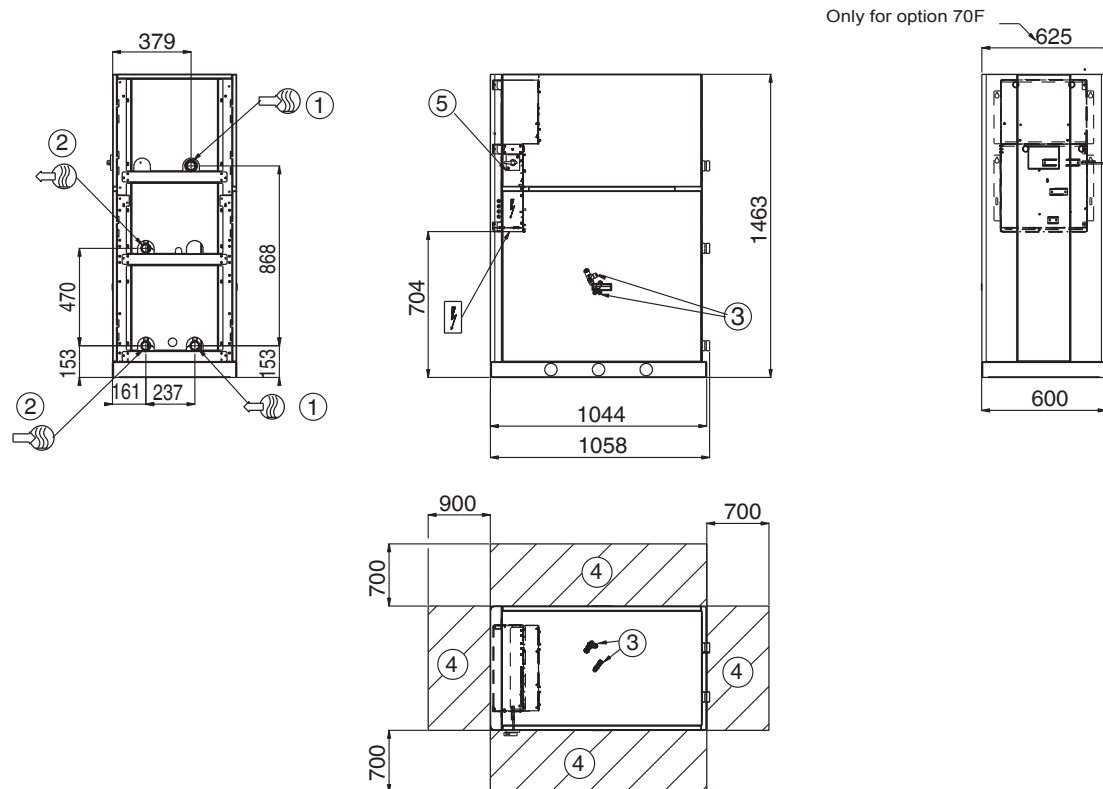
All dimensions are in mm.

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

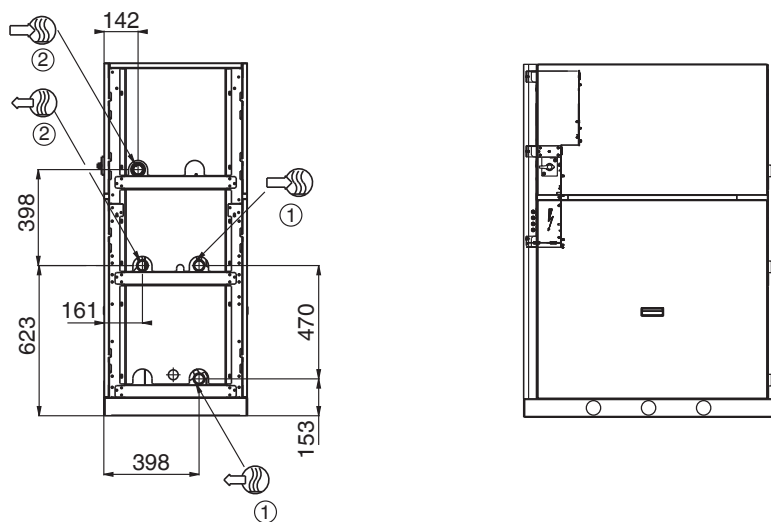
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

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



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



#### Legend

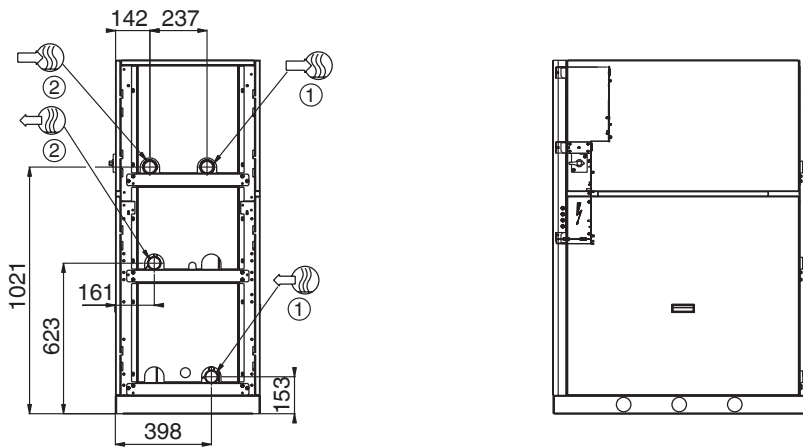
All dimensions are in mm.

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

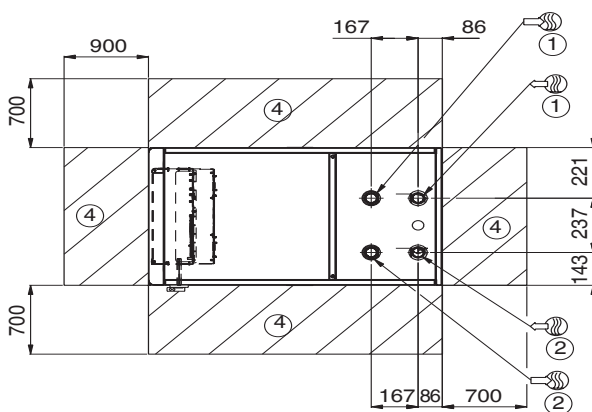
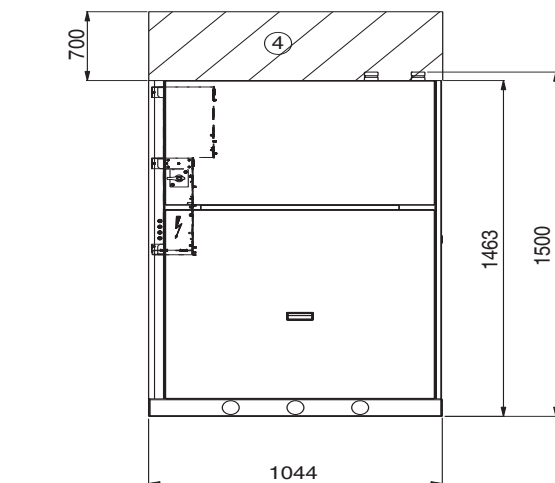
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

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



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



#### Legend

All dimensions are in mm.

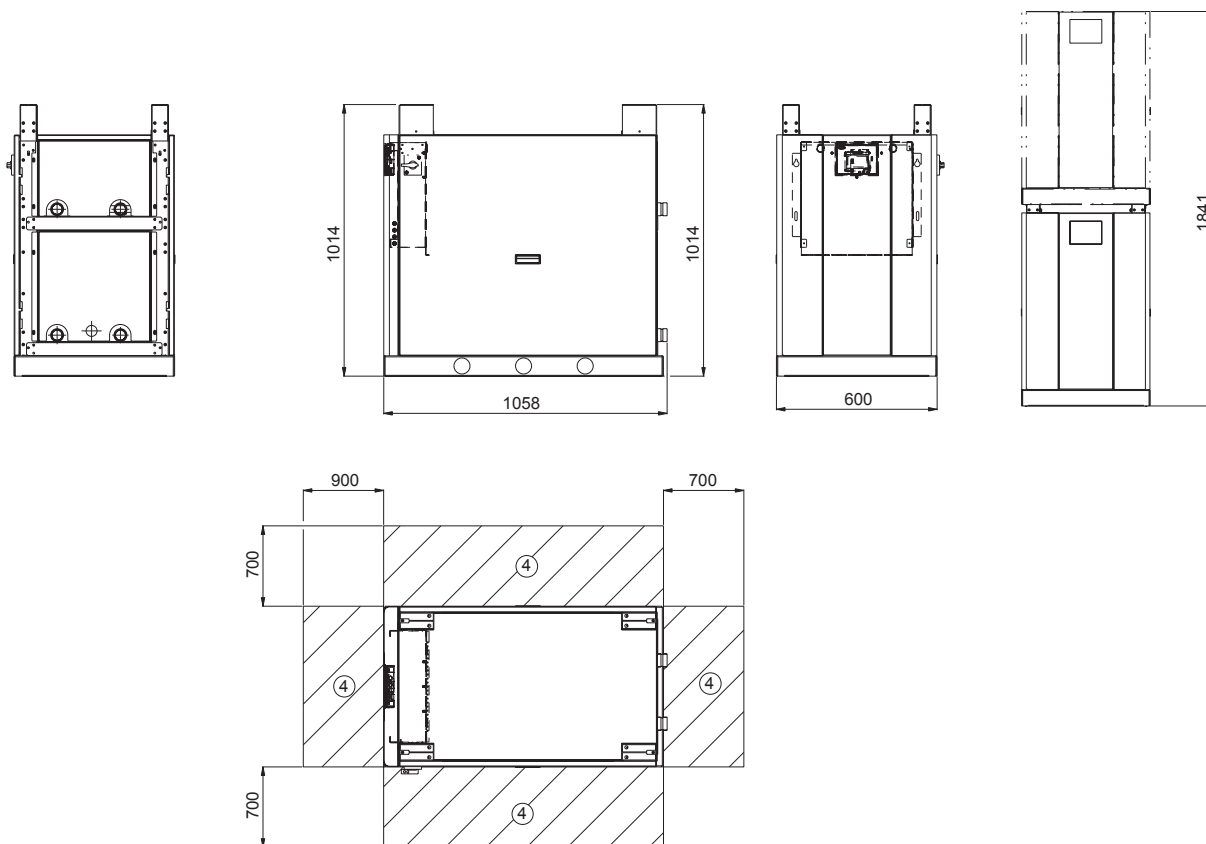
- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- ➡ Water inlet.
- ➡ Water outlet
- ⚡ Power wiring connection

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

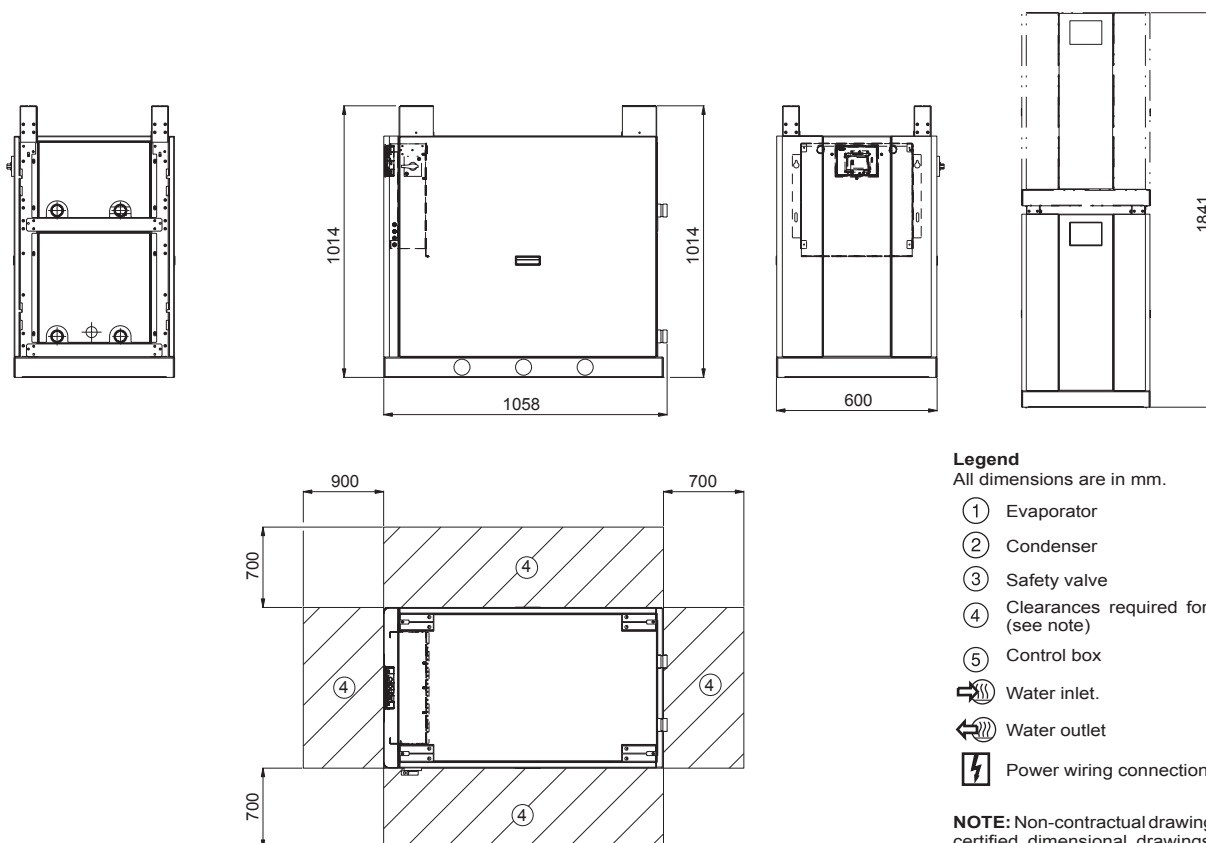
## DIMENSIONS/CLEARANCES

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

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



### 61WG/30WG 050-090 - standard unit



#### Legend

All dimensions are in mm.

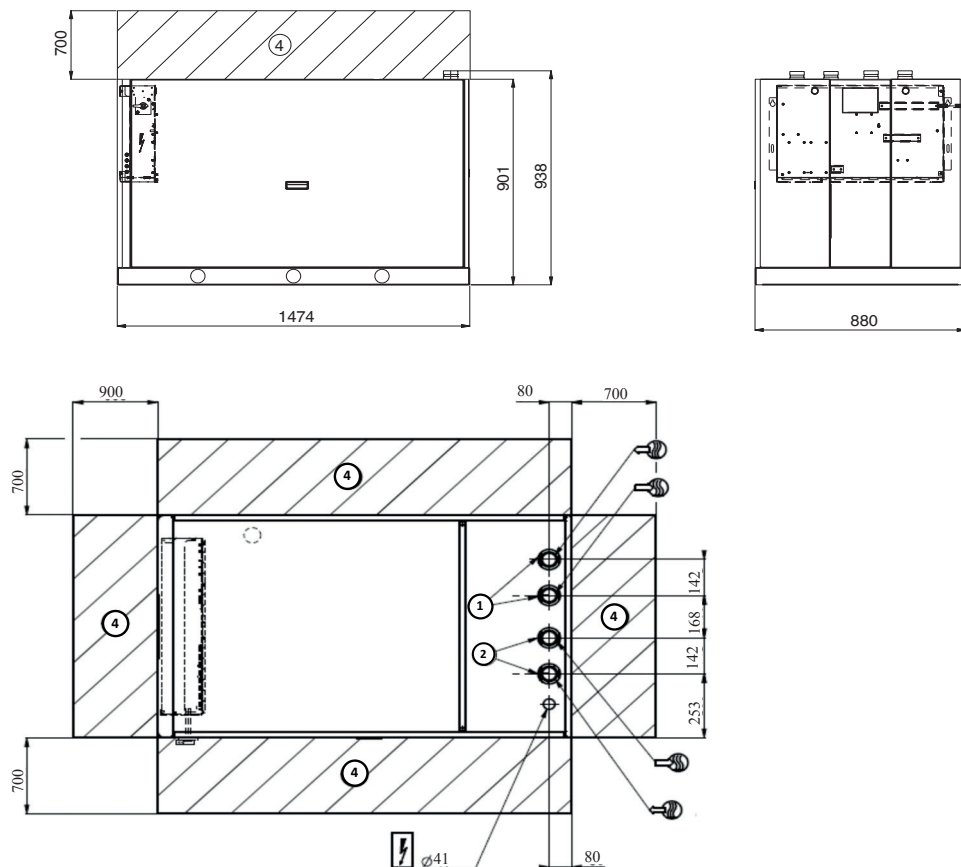
- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- ➡ Water inlet.
- ➡ Water outlet
- ⚡ Power wiring connection

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

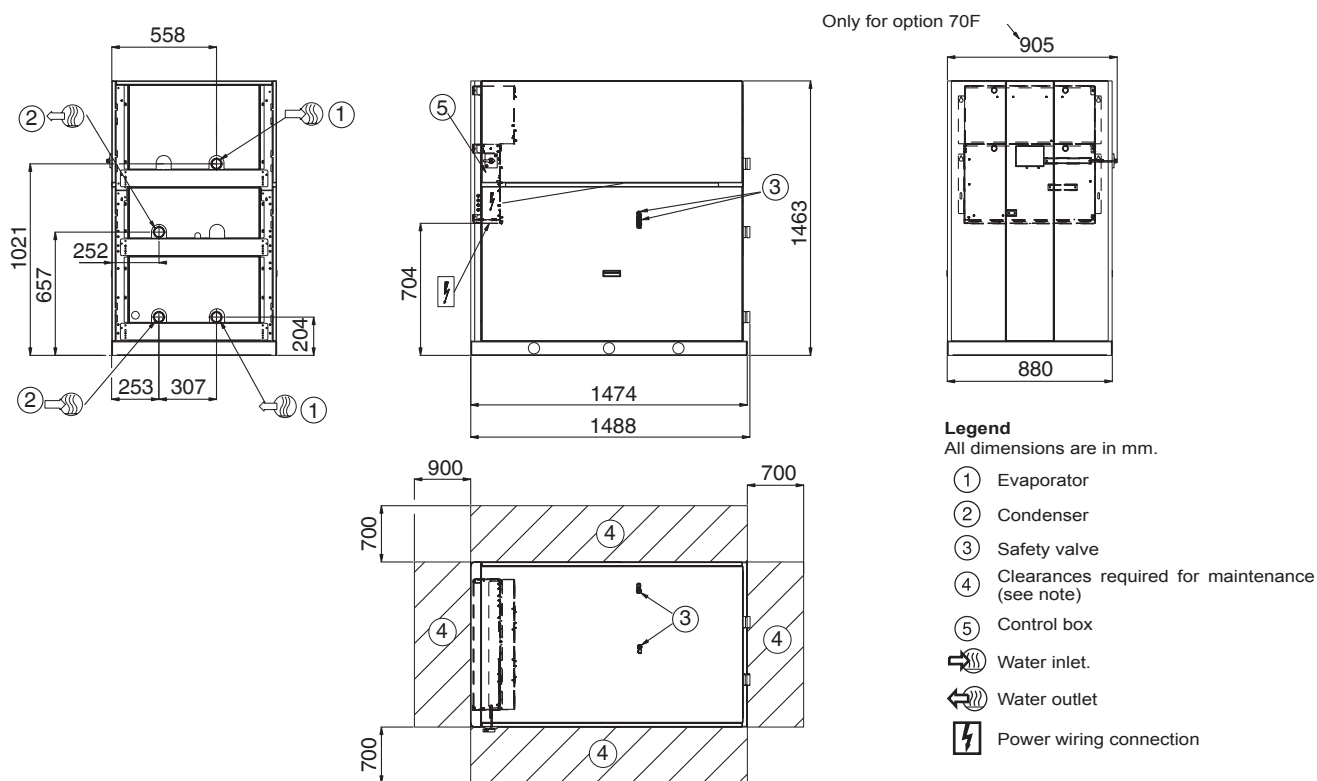


## DIMENSIONS/CLEARANCES

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

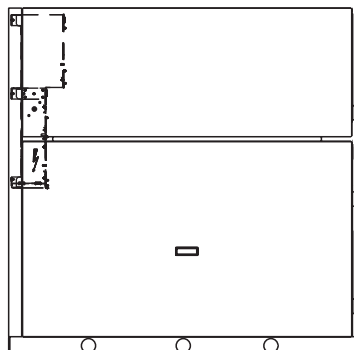
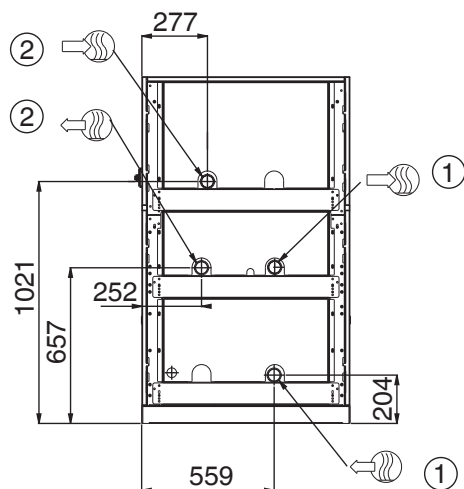


### 61WG/30WG 050-090 - unit with evaporator hydraulic module (option 116)

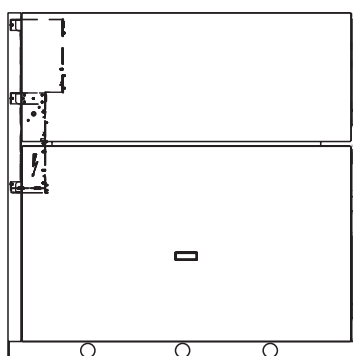
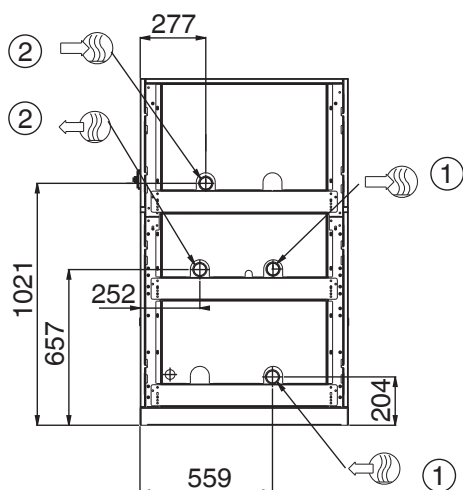


## DIMENSIONS/CLEARANCES

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



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



#### Legend

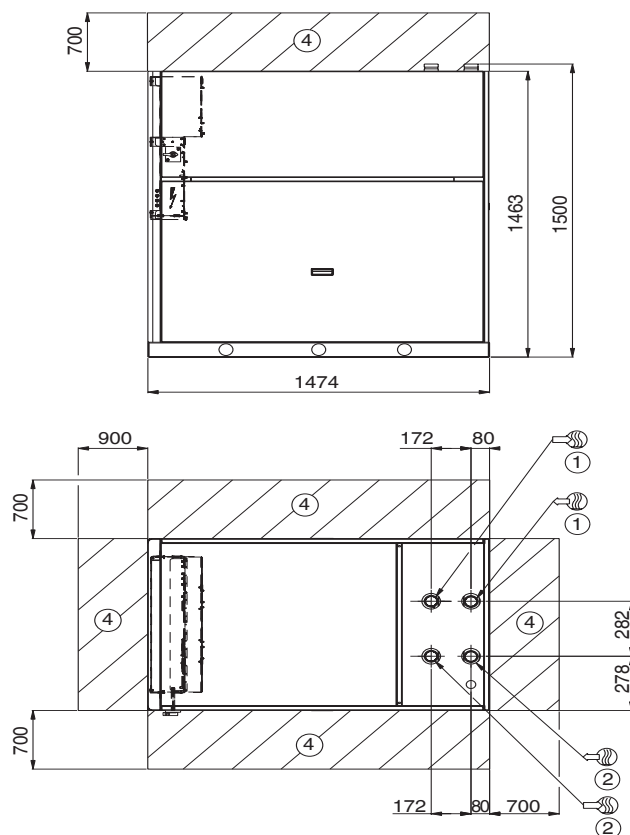
All dimensions are in mm.

- 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.

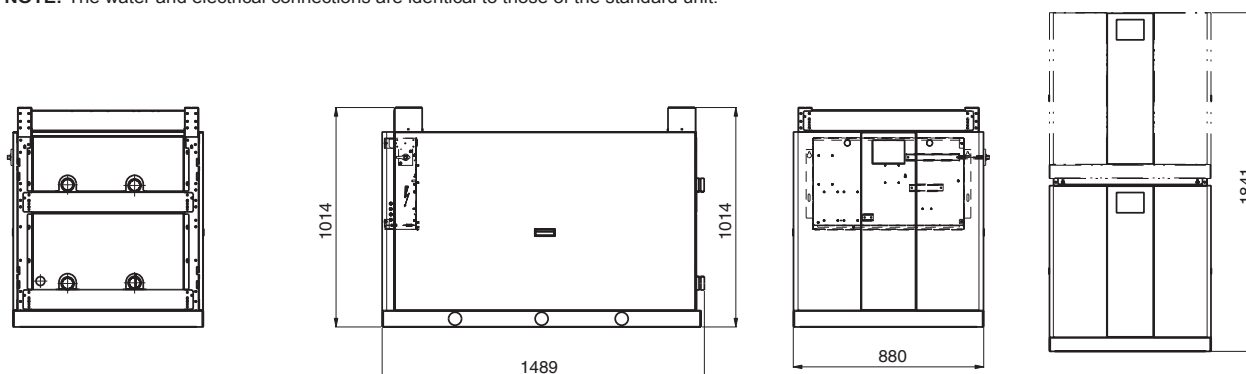
## DIMENSIONS/CLEARANCES

### 61WG/30WG 050-090 - unit with hydraulic module and top connections (options 116 + 274 or 270 + 274 or 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

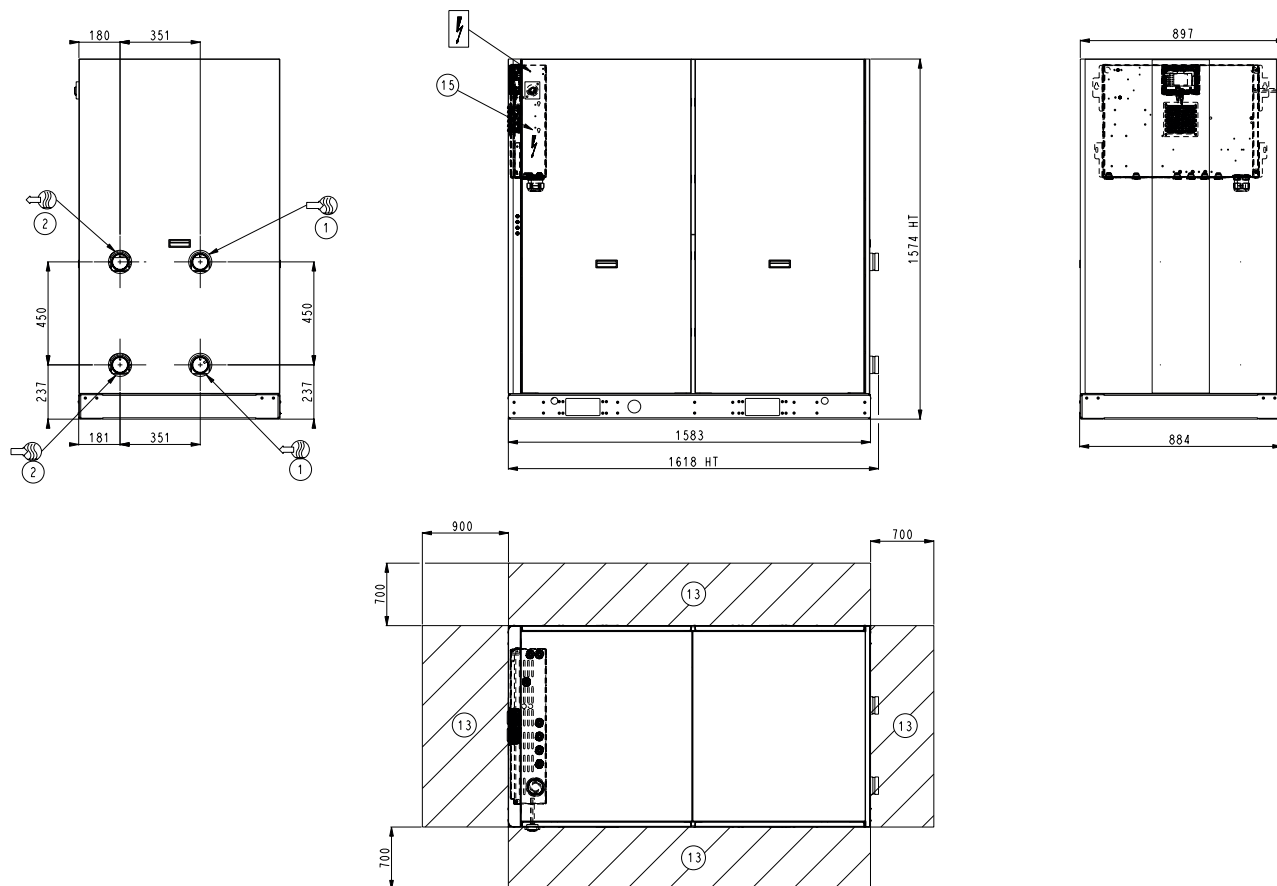
All dimensions are in mm.

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

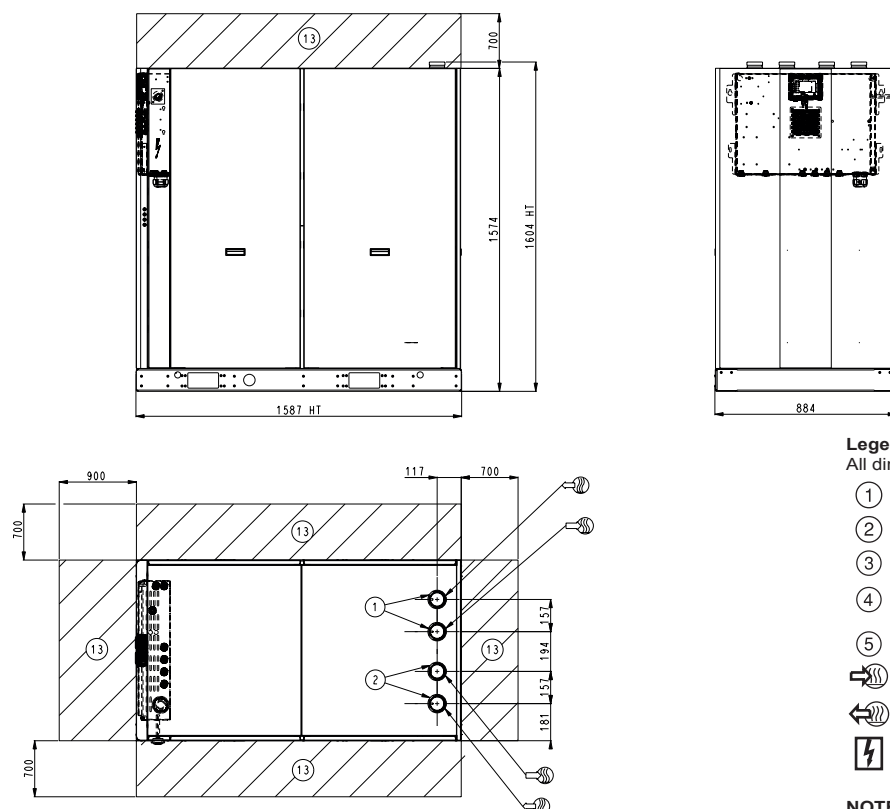
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 30WG 110-140 - standard unit



### 30WG 110-140 - unit with top connections (option 274)



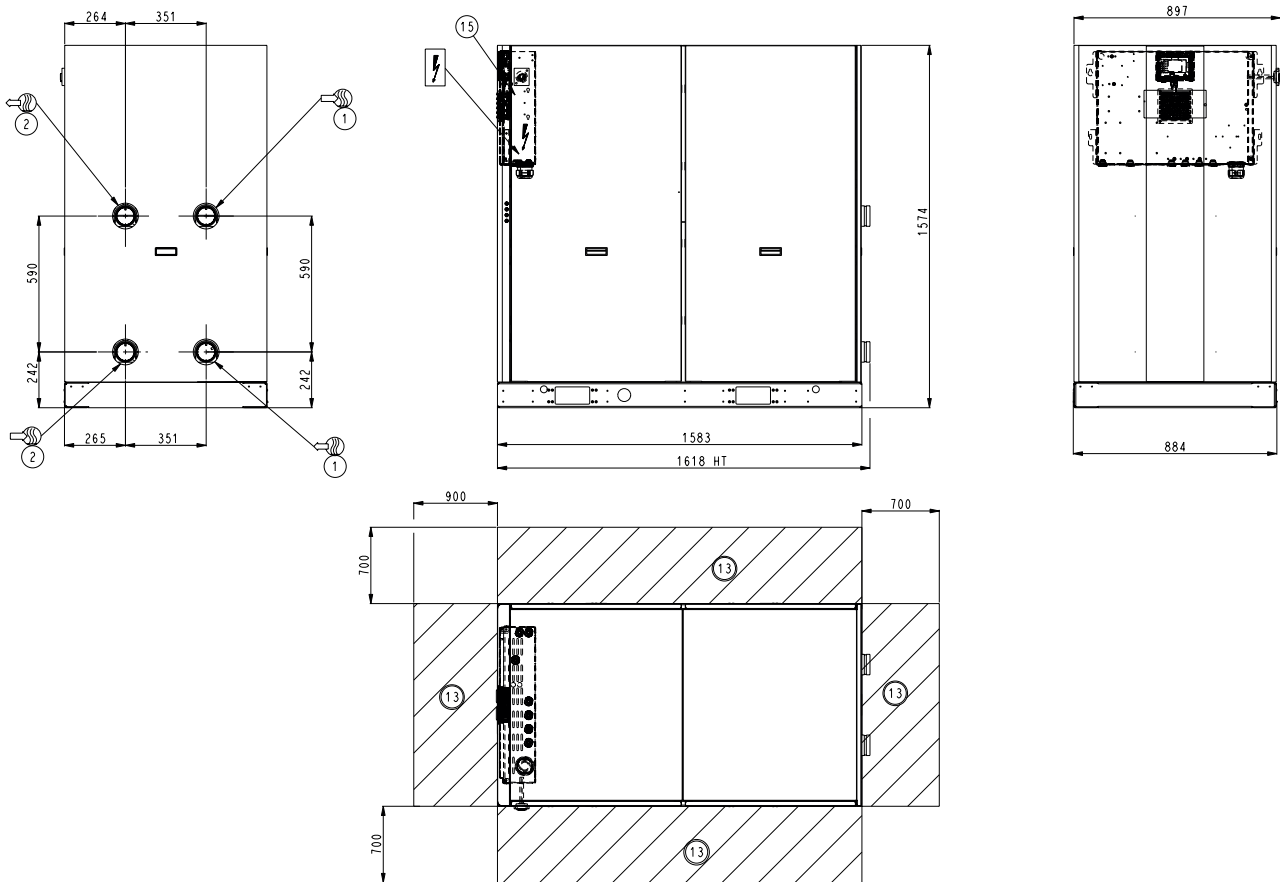
#### Legend

All dimensions are in mm.

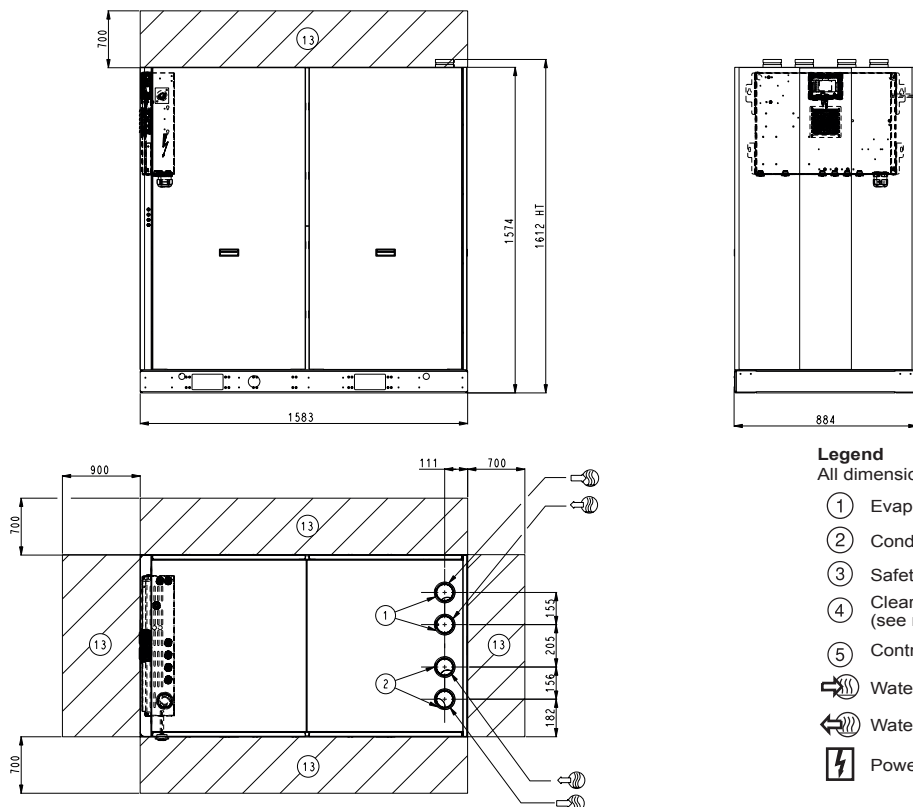
- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- 6 Water inlet.
- 7 Water outlet
- 8 Power wiring connection

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

### 30WG 150-190 - standard unit






### 30WG 150-190 - unit with top connections (option 274)



All dimensions are in mm.

① Evaporator




- 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.

### 30WG 110-140 - unit with hydraulic module (option 116-270)



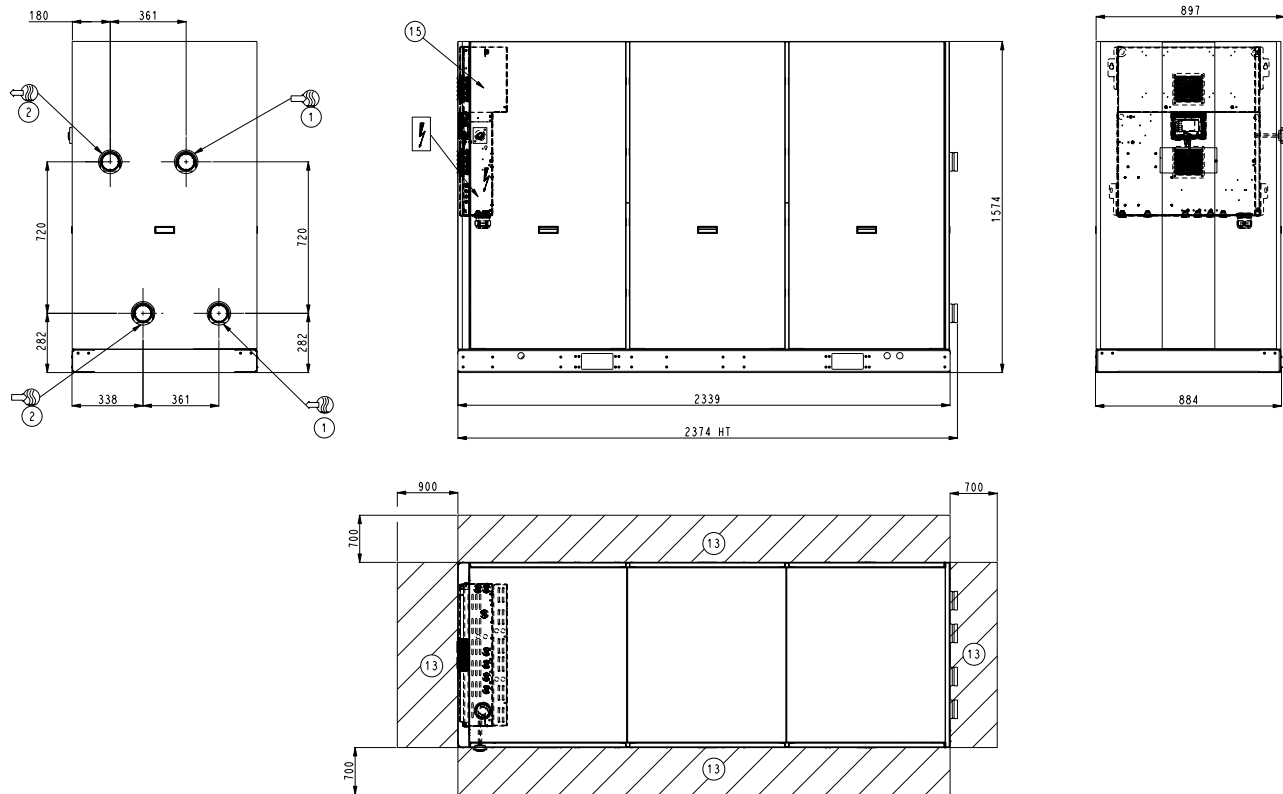
**Legend**  
All dimensions are in mm.

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

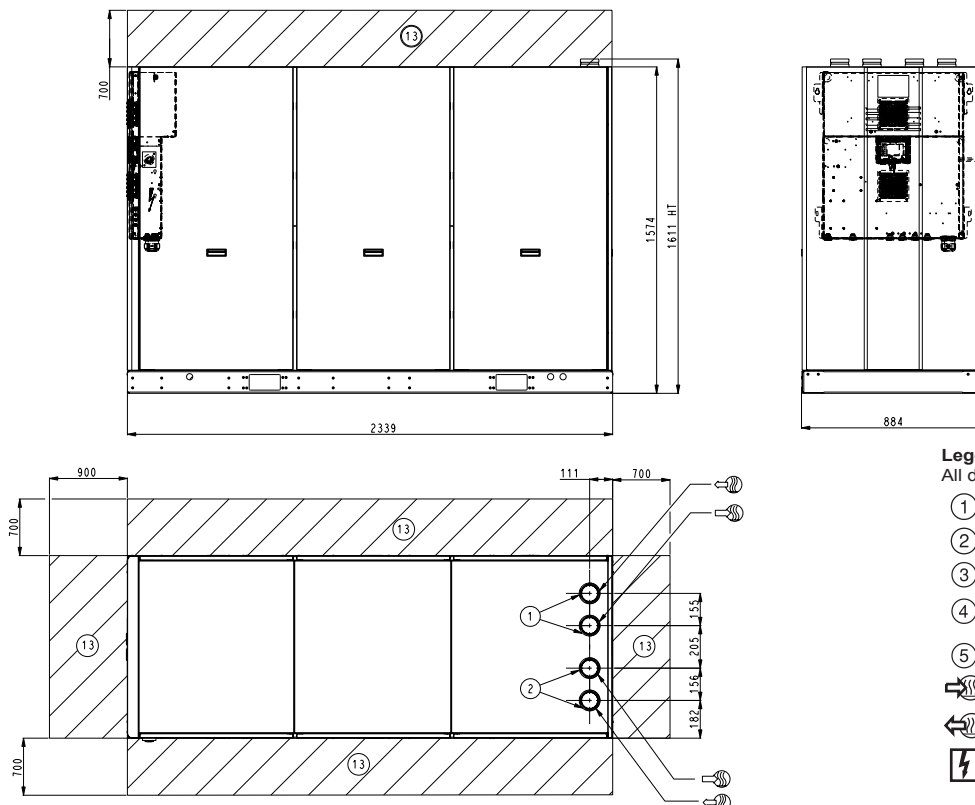
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 30WG 150-190 - unit with hydraulic module (option 116-270)



### 30WG 150-190 - unit with hydraulic module and top connections (option 116-270 and 274)



#### Legend

All dimensions are in mm.

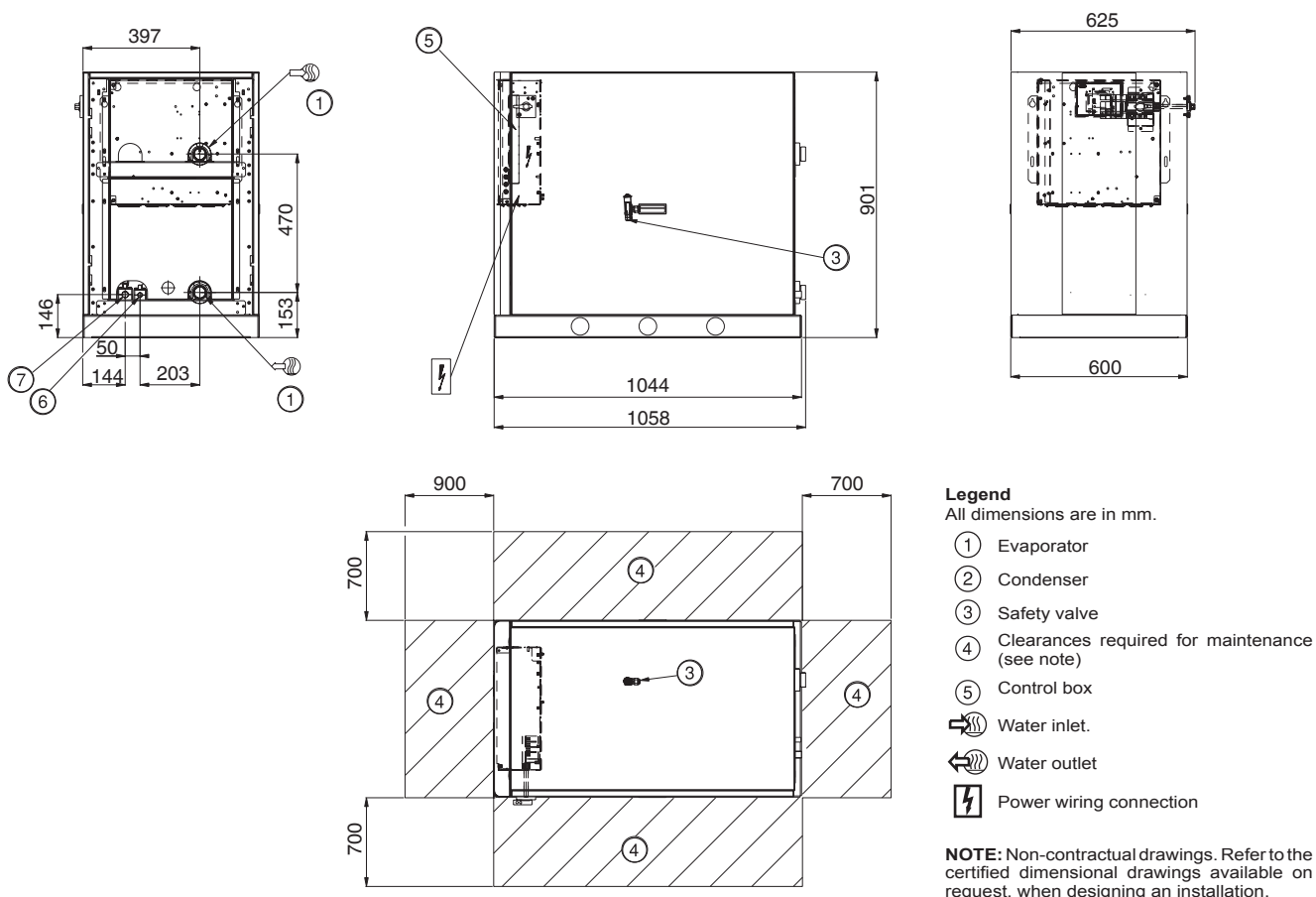
- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet.
- Water outlet
- Power wiring connection

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

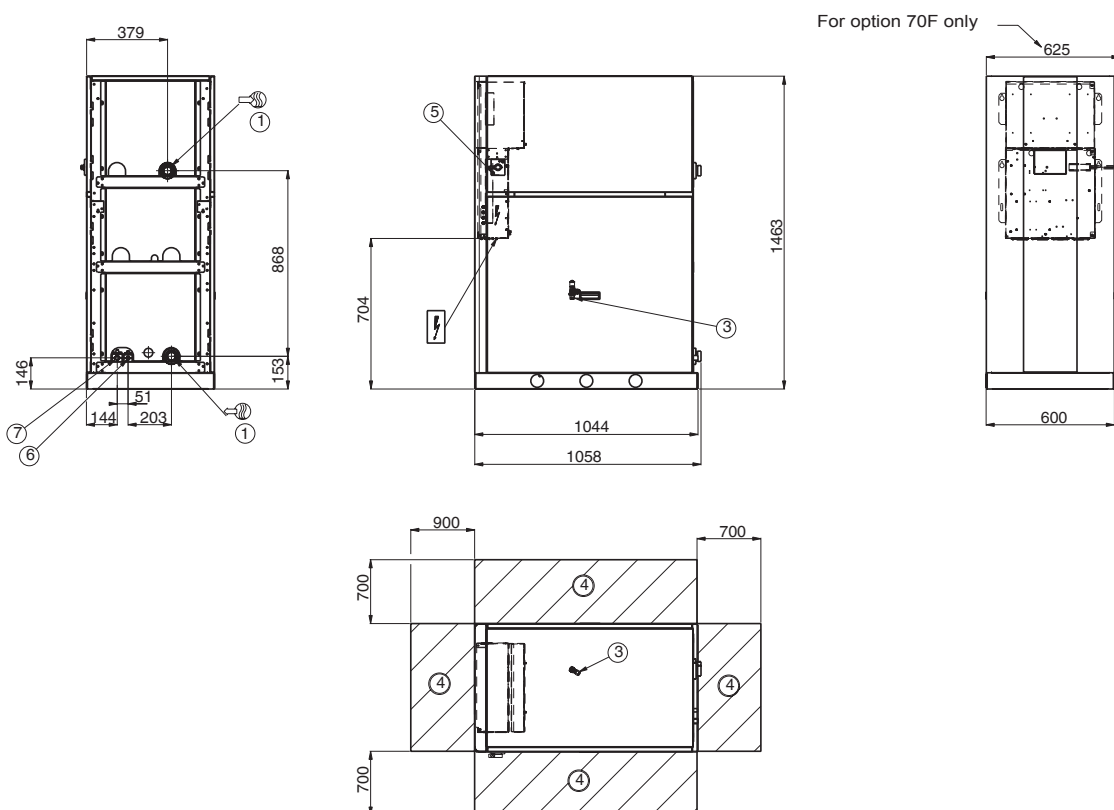


## DIMENSIONS/CLEARANCES

### 30WGA 020-045 - standard unit



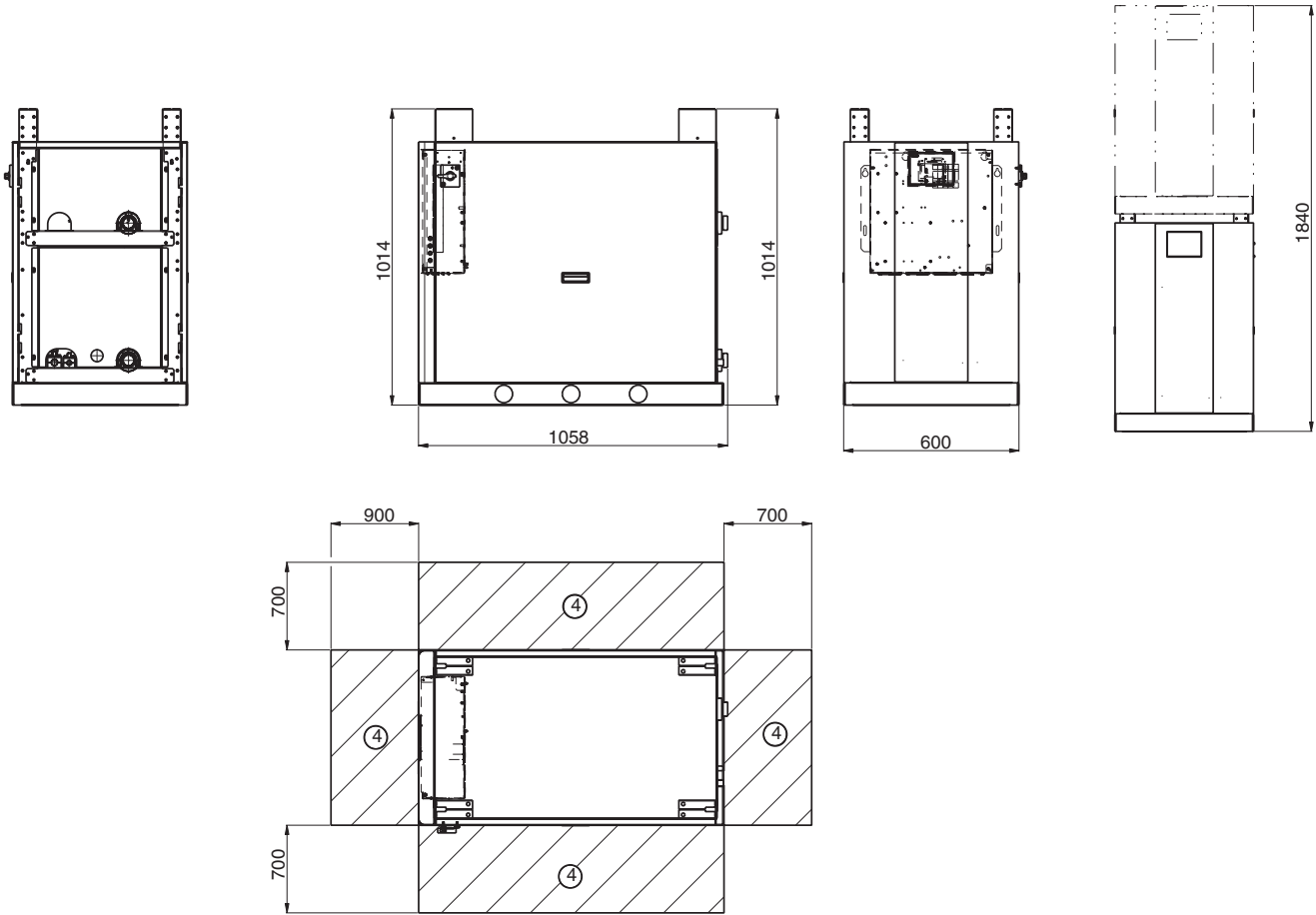
### 30WGA 020-045 - unit with evaporator hydraulic module (option 116)



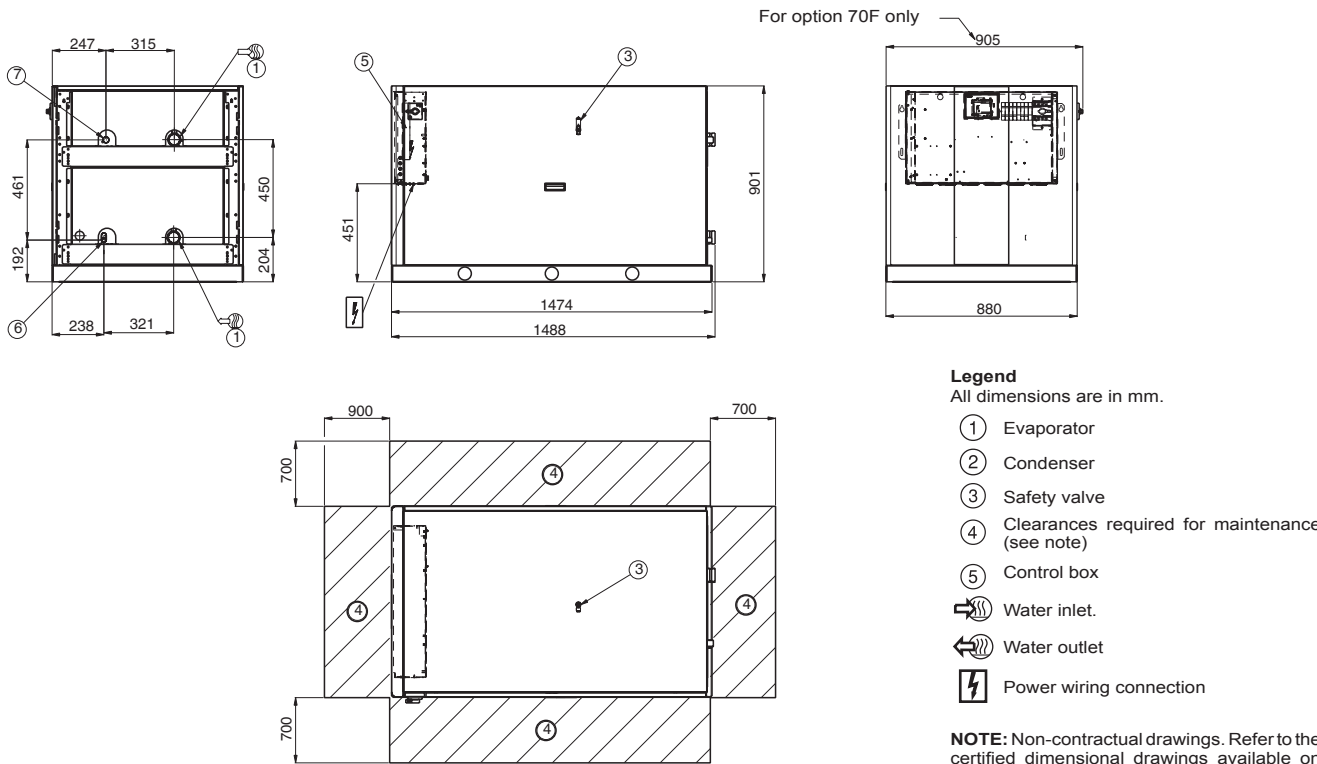
# DIMENSIONS/CLEARANCES

## 30WGA 020-045 - stackable unit (option 273)

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

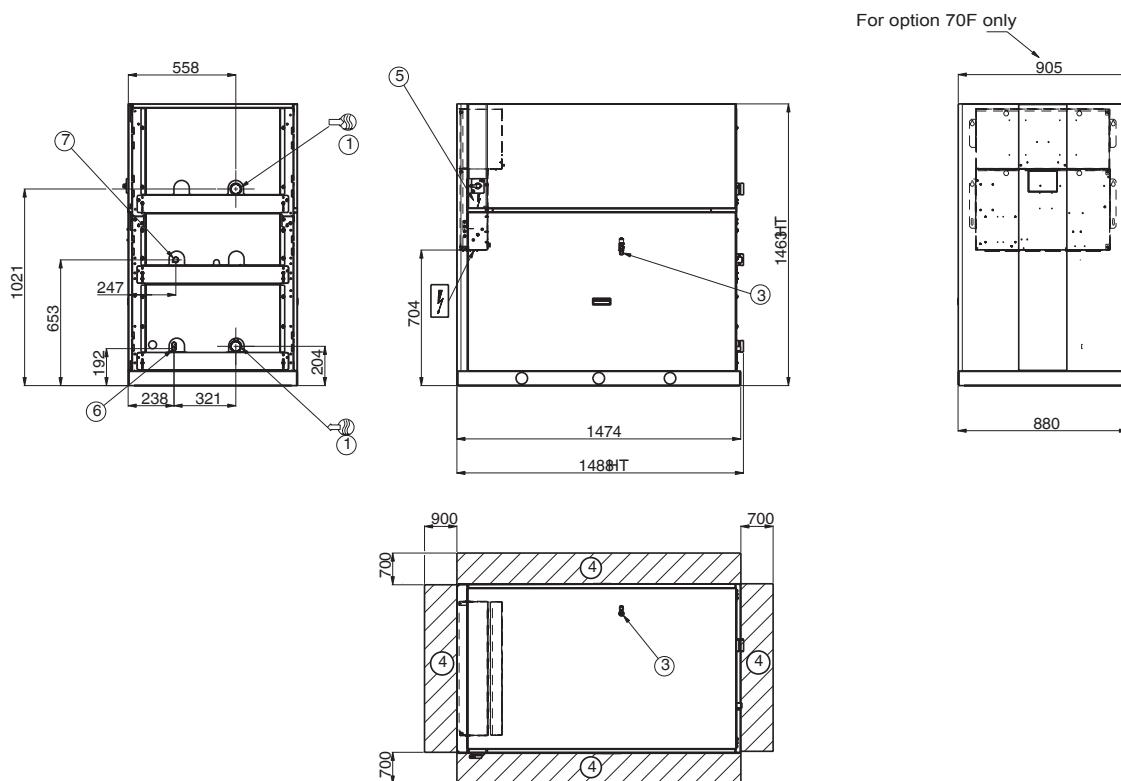


## 30WGA 050-090 - standard unit



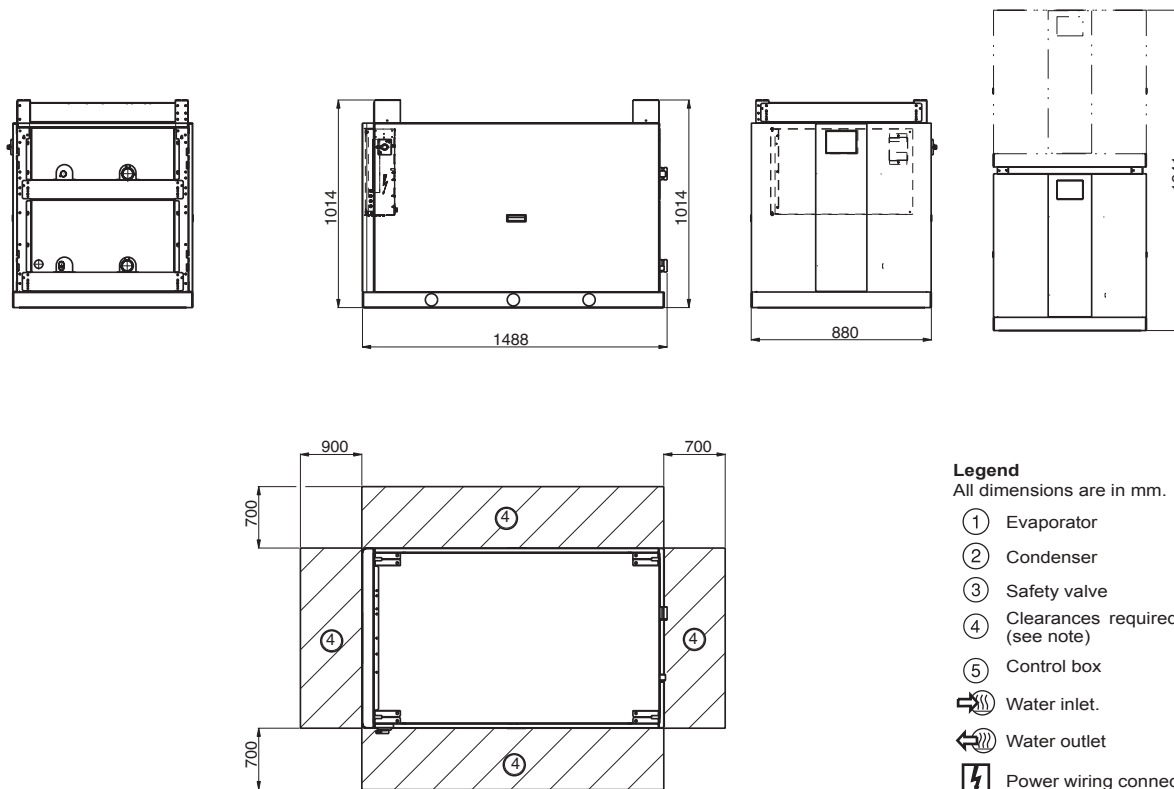
## DIMENSIONS/CLEARANCES

### 30WGA 050-090 - unit with evaporator hydraulic module (option 116)



### 30WGA 050-090 - stackable unit (option 273)

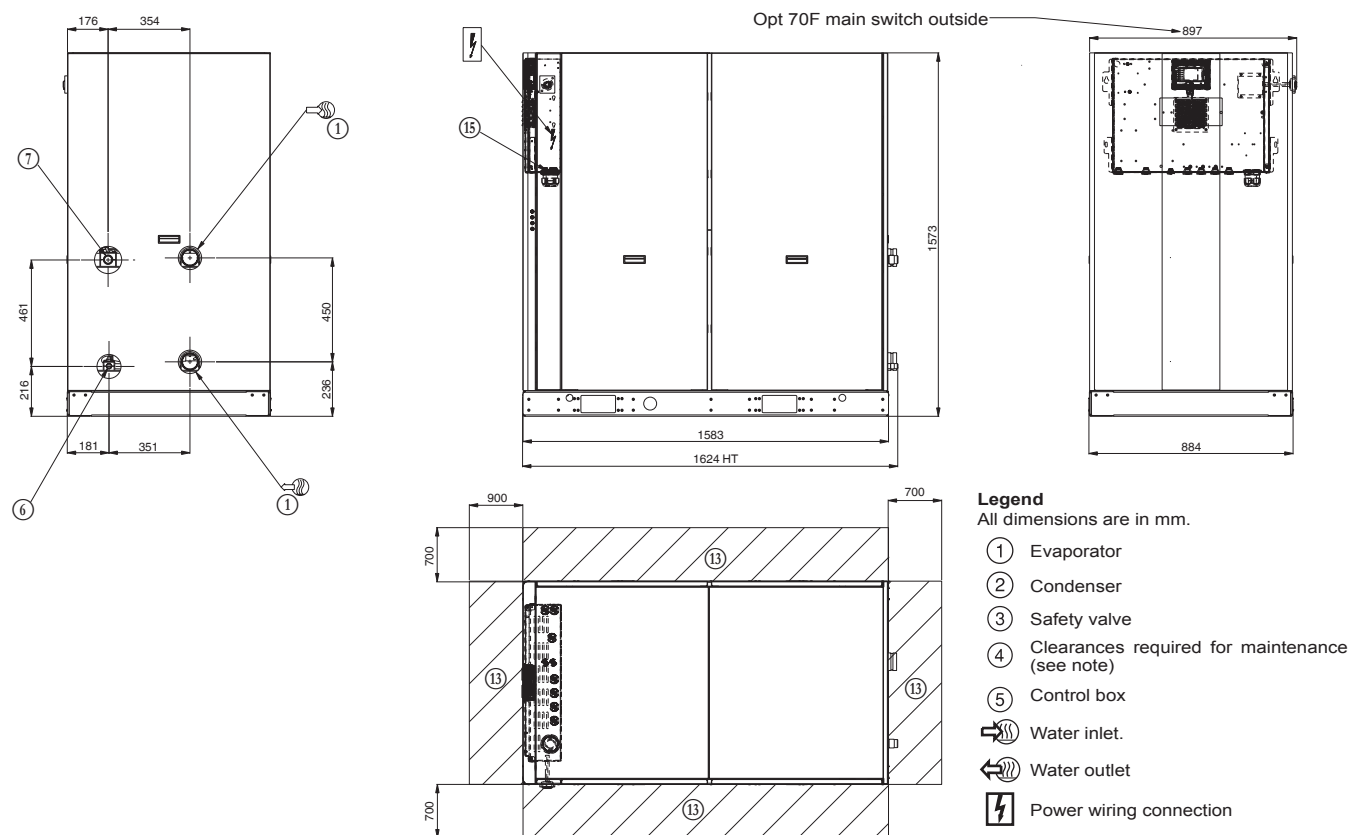
**NOTE:** The water and electrical connections are identical to those of the standard unit.



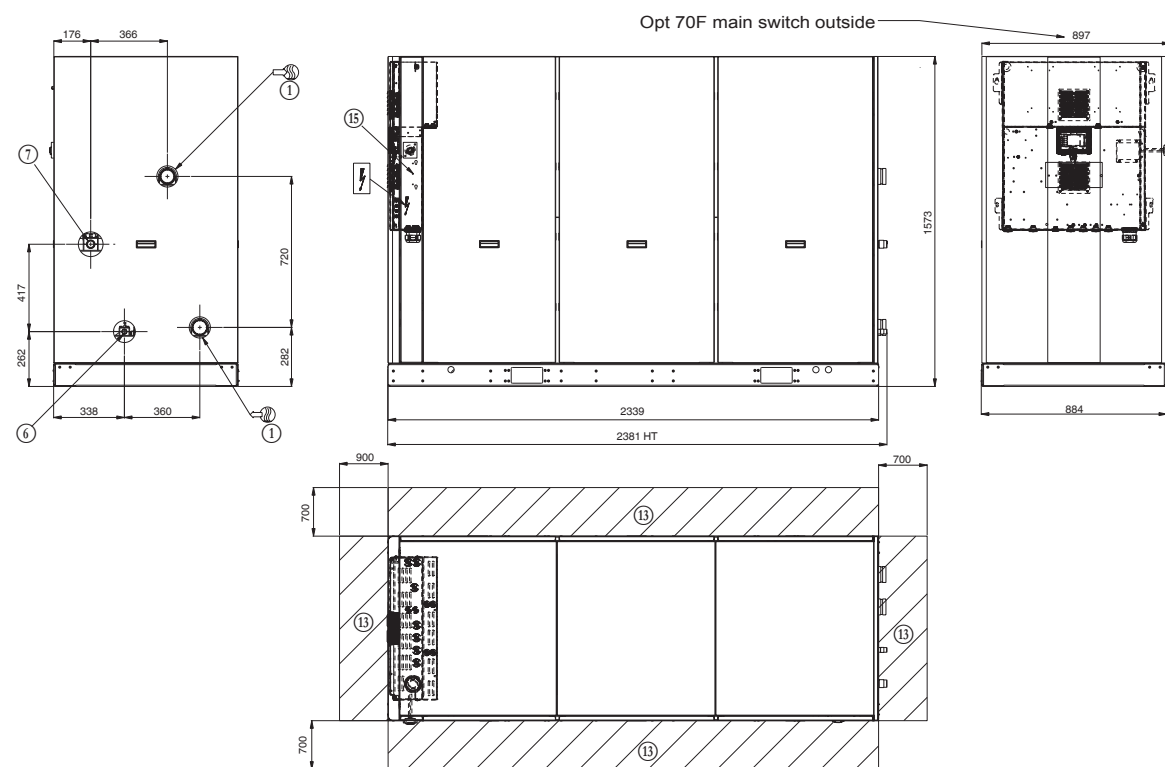
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 30WGA 110-140 - Standard unit

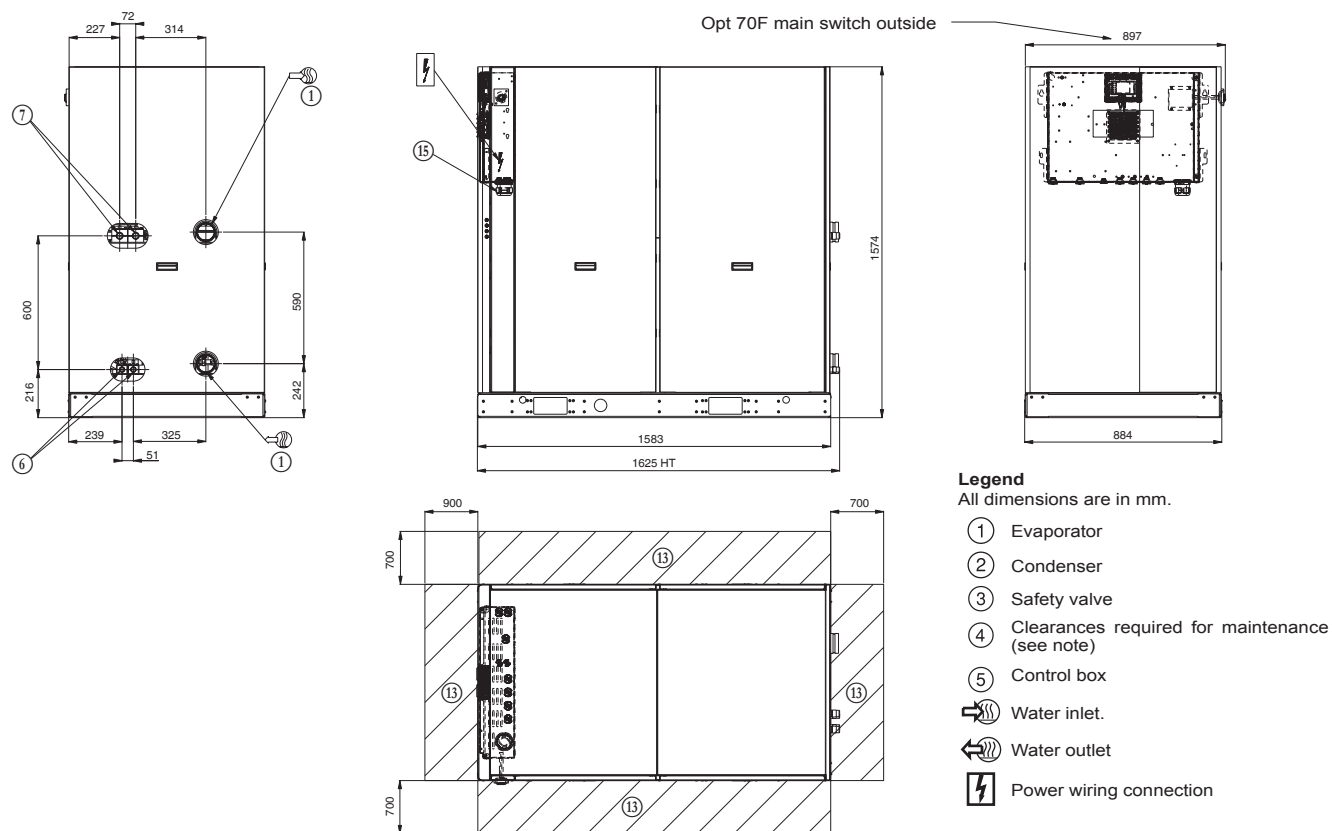


### 30WGA 110-140 - Unit with hydraulic module (option 116)

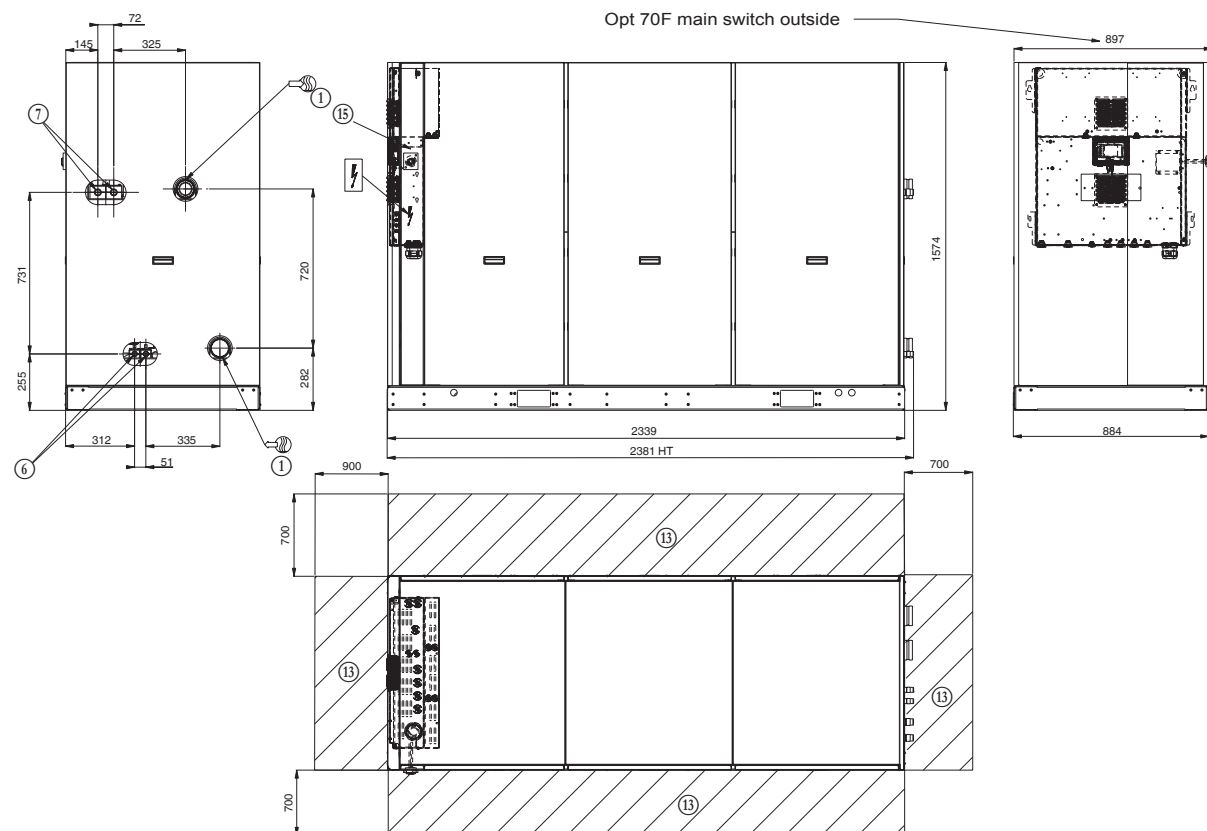


## DIMENSIONS/CLEARANCES

### 30WGA 150-190 - Standard unit



### 30WGA 150-190 - Unit with hydraulic module (option 116)



## VARIABLE WATER FLOW SYSTEM (VWF)

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Variable water flow is a hydraulic 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 hydraulic module includes pressure transducers that permit intelligent measurement of the water flow rate and real-time display on the TouchPilot Junior 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 TouchPilot Junior 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*

TouchPilot Junior 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/30WGA

### 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 manufacturing site is certified ISO 50001 (Energy management system).
- 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: 2014/35/UE, 2014/30/UE, 2014/68/UE, 2011/65/UE "RoHS 2", 2012/19/EU "WEEE", 2009/125/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 SCOP 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 SEER 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.

### 30WGA product features

- The refrigerant circuit of the condenserless unit shall include a check valve on the discharge line piping, a solenoid valve on the liquid line piping and a nitrogen holding charge.
- The unit shall be capable of delivering cooling capacity

with a saturated condensing temperature of up to 62 °C.

- The chiller shall be connected to a remote condenser via communication bus.
- Fan control on the remote condenser shall be possible via a digital output (up to 8 steps possible) or via an analogue 0-10 V output signal for variable-speed fans.
- Fan operation shall be controlled remotely based on the outside temperature and the saturated refrigerant discharge temperature

### Common 61WG/30WG/30WGA unit features

- The unit shall have water connections at the top/back and a footprint size of \_\_\_\_\_ m<sup>2</sup>.
- The hydraulic module, located in the upper unit section shall include all required hydraulic 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 hydraulic and refrigerant circuit components of the unit shall be compatible with a condenser leaving water temperature of 65°C (61WG) or 60°C (30WG).
- The unit shall be stackable in pairs, controlled in master/slave configuration for a total capacity of \_\_\_\_\_ kW (sizes 020 to 090).
- 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 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 a intuitive and userfriendly interface with 4.3" colour touch screen. 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, 01.2018. Supersedes order No.: 16121, 04.2017.  
Manufacturer reserves the right to change any product specifications without notice.



Quality and Environment  
Management Systems  
Approval

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