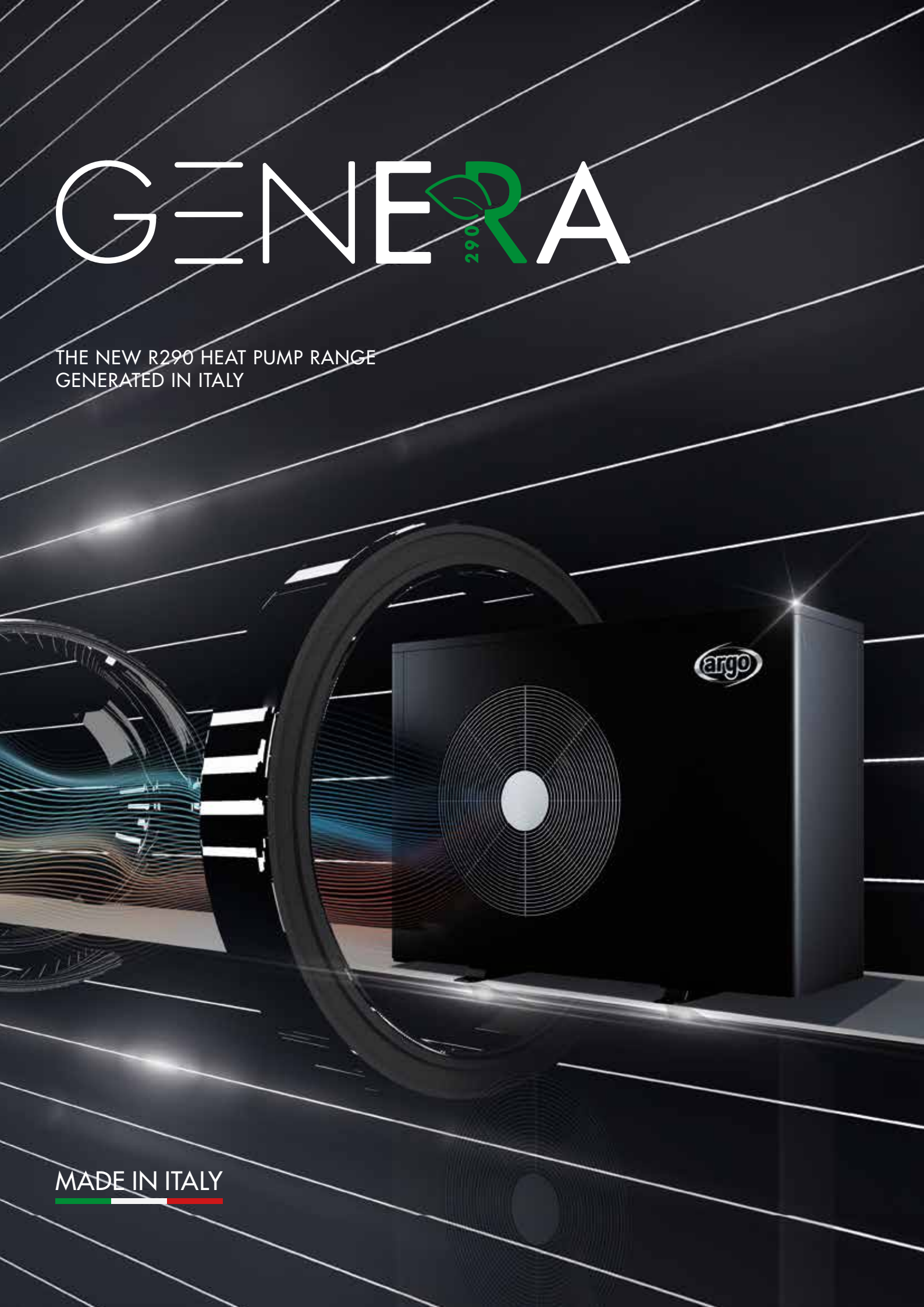
# GENERA 290

THE NEW R290 HEAT PUMP RANGE
GENERATED IN ITALY




MADE IN ITALY



The new range of R290 air to water monobloc heat pumps is entirely designed and developed in Italy and it is produced in the Gallarate factory.

QUALITY, RELIABILITY, EFFICIENCY

***Argo – improve your life***

# GENERA

The range of R290 air to water monobloc heat pumps, full DC Inverter, offers a complete comfort system capable of heating, cooling and domestic hot water production. The system uses the natural refrigerant R290, which guarantees almost zero impact on global warming and excellent performance in terms of energy efficiency. All products in the GENERA range are classified A+++ (35 °C). The technical characteristics of these systems ensure maximum versatility of application, both within new constructions and as replacements in traditional heating systems.

ANGHP06S

ANGHP08S/08T

ANGHP12S/12T

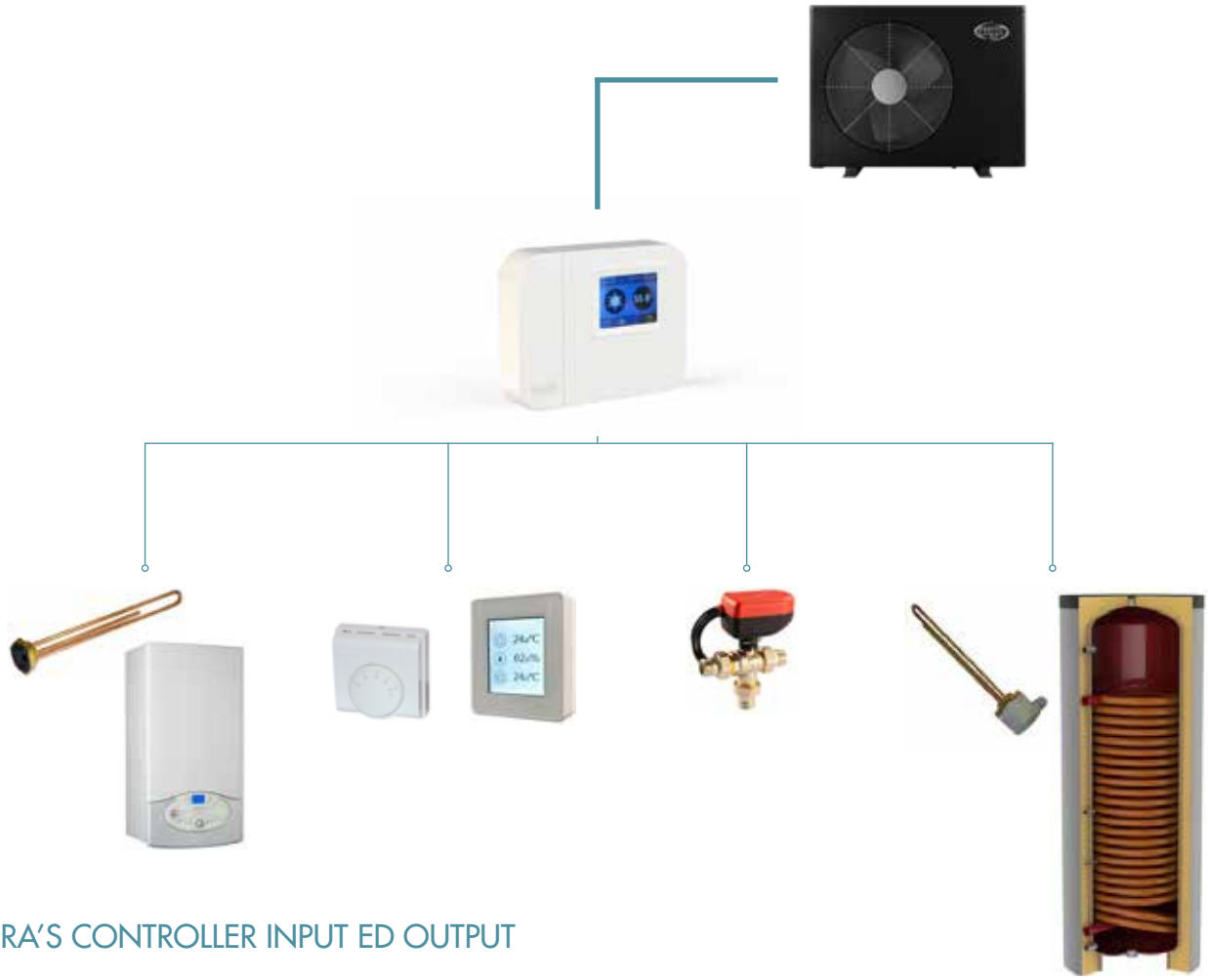

| Code | Model | ⚡ | | **Nominal capacity EN14511 (kW) | |
|---|---|---|---|---|---|
| | | 1PH | 3PH | Heating (1) | Cooling (2) |
| 387032090 | ANGHP06S | ● | | 6.2 | 5.9 |
| 387032091 | ANGHP08S | ● | | 8.2 | 9.0 |
| 387032092 | ANGHP08T | | ● | 8.2 | 9.0 |
| 387032093 | ANGHP12S | ● | | 12.5 | 12.3 |
| 387032094 | ANGHP12T | | ● | 12.5 | 12.3 |
| 387032095 | ANGHP16S | ● | | 16 | 15 |
| 387032096 | ANGHP16T | | ● | 16 | 15 |

(1) Water temperature 30 °C/35 °C, outdoor air temperature 7 °C D.B./6 °C W.B.
(2) Water temperature 23 °C/18 °C, outdoor air temperature 35 °C

| Code | Description |
|---|---|
| 387030740* | Controller ANGHP (two probes included) |

*Not included, mandatory accessory, one for each system

# CONNECTIVITY



## GENERA'S CONTROLLER INPUT ED OUTPUT

### RS485 PORTS

1) Dedicated port for ODU comunication;
2) Secondary port for optional expansion-boards/Modbus for third-party BMS.

### DIGITAL INPUTS (dry-contacts)

1) ON/OFF: stand by or operation;
2) Summer/Winter: Summer/Winter commutation;
3) ECO MODE: if the contact is open the maximum usable electrical power is 100%, if closed it can be set with a parameter to a percentage value of the maximum.
4) 2 dry contacts for Smart Grid or dynamic set point management (for example with advanced photovoltaic systems)

### ANALOG INPUTS

1) Additional external air probe input: wiring of a second external probe to measure the temperature in a more suitable position (if necessary). Automatically identified by the unit.
2) DHW temperature probe input
3) System water temperature probe input (downstream of the integration element)

### DIGITAL OUTPUTS

1) 230 Vac output for DHW diverting valve servomotor (diversion to DHW);
2) 230 Vac output for DHW diverting valve servomotor (repositioning towards the system - optional);
3) 230 Vac output for ALARM;
4) 230 Vac output for integrative heating element (electrical resistance, boiler, etc.) via specific external relay if necessary;
5) 230 Vac output for DHW tank supplementary heating element via specific external relay if necessary

# GENERA
## ADVANTAGES

### R290 refrigerant

R290 refrigerant has a GWP (global warming potential) of 3 and an ODP (ozone depletion potential) of 0, which reduces the impact on the greenhouse effect and the ozone layer to almost zero. R290 meets today's maximum performance requirements both in terms of maximum deliverable water temperature and external temperature operating range. It also effectively reduces energy consumption, thanks to the high efficiency achievable and for this reason it is currently considered the best refrigerant to be used in air-to-water heat pumps.

### High temperature constant delivery even with low outdoor temperature

The system is suitable for both new structures and renovations: it can replace traditional boilers combined with radiators. From -10 °C to +38 °C the outlet water temperature can reach 75 °C. Even at the lower operating limit of -25 °C the water temperature can still reach 65 °C. In addition to the high capacities always available throughout the external temperature range, these products are excellent for ensuring complete heating, often without the need for installing additional electrical resistances and/or oversizing the unit. This will ensure optimal operation performances of the unit, using the minimum space during installation and keeping low the cost of the system.

### Maximum silence

Achieving a low sound level is a goal for any modern heat pump. Argo's research and development department has dedicated great efforts to optimize this characteristic, selecting and isolating with great care the compressor. Furthermore, an in-depth aerodynamic analysis was carried out to minimize the sound of the fan's airflow. A very large fan allows noise to be minimized by reducing the rotation speed. The overall structure has also been developed and insulated to optimize silence, making the product ideal even in residential areas.
The machine is also equipped with SILENT and SUPER-SILENT modes which further reduces the sound level when necessary.

### Reliability

Genera is equipped with refrigerant pressure and water flow control systems, in order to protect the system in all working conditions. The safety gas-liquid separator is incorporated into the unit, for ensuring no-worries when using the R290 refrigerant.

### Compact dimensions

Thanks to the reduced size and low weight obtained by optimizing the components and their arrangement, the units can be easily installed even in narrow spaces or on surfaces with low load capacity. Even the more powerful 16 kW version is characterized by a reduced footprint.

### Single or group management

The control panel can control a single unit or, if the installation includes a group of units, it can control up to 4 at the same time.

## Innovative interface

The control panel is equipped with a color LCD touch emergency display, while the main interface can be managed from a dedicated App, available on smartphone, tablet or PC. The controller is separate from the monobloc unit and requires internal installation. It incorporates all the electrical connections of the system accessories, so the connection to the unit is made with a simple communication cable which, in addition to the power supply, is the only electrical wiring needed for the external unit.

## Consumption accounting

The consumption and efficiency of the system are always available via the App. The actual performance data can be viewed at any time and it is possible to recall the archived data for constant improvement in use and performance optimization.

## Integrated Wi-fi, Bluetooth e Modbus

For easy remote management, the controller is equipped with a built-in WiFi module which also includes the possibility of Bluetooth connection. For more advanced management, Modbus connectivity is available as standard, which allows to monitor all the necessary parameters.

## Dynamic set-points

Two input dry-contacts allow to interface with smart electrical grids or other systems for optimizing consumption. Depending on the system complexity, two or four cases are available, providing for differentiated operations and/or set-points for DHW and system, depending on the cost and availability of electrical energy.

## Main components

The main components have been selected from the most reliable and cutting-edge suppliers:

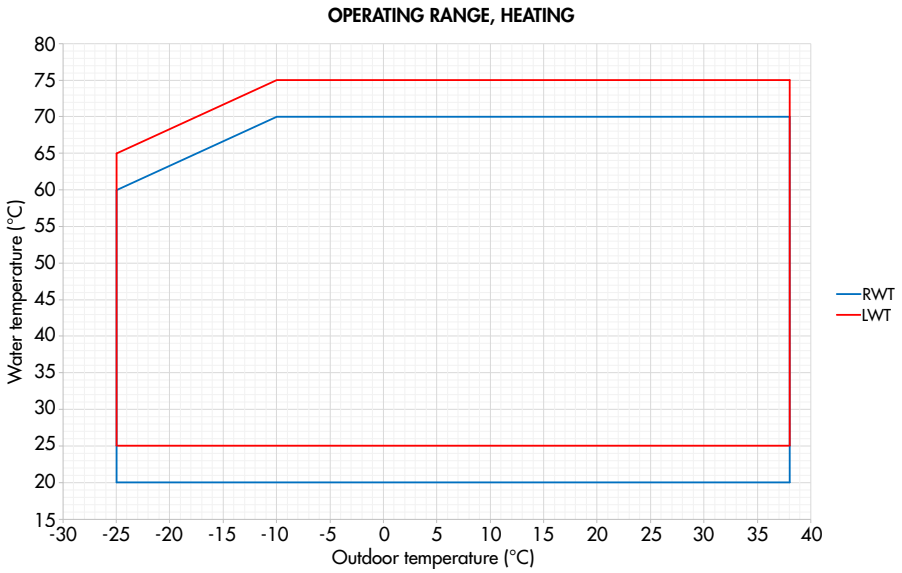
- The latest generation Twin-rotary compressor, optimized for the use of R290, can guarantee excellent performance in a wide range of action.
- DC-brushless axial fans are designed for aerodynamic optimization: they guarantee a low noise level, but high efficiency and powerful airflow.
- Finned heat exchangers have a special superficial treatment: the fins are coated to ensure corrosion resistance and hydrophilic reaction.

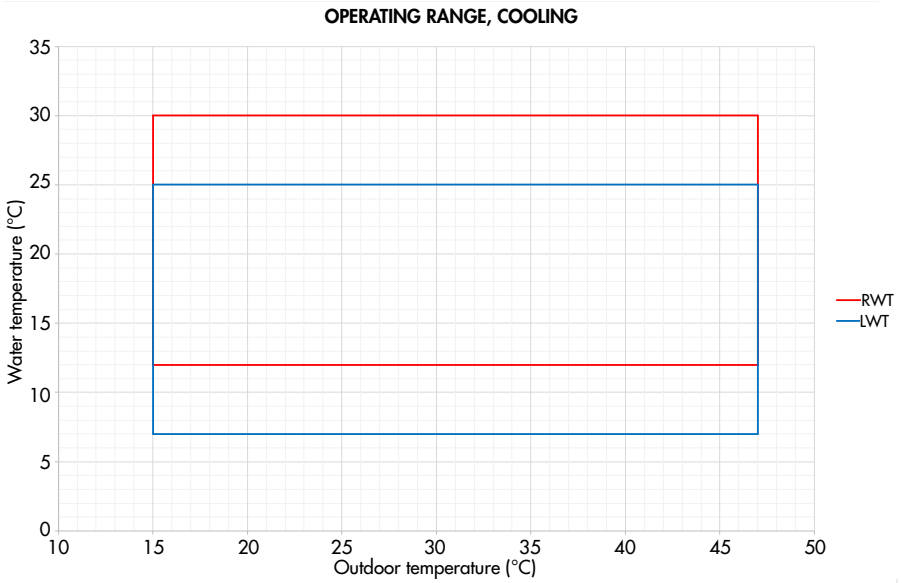
## Hydraulic components

Installation is simplified as the unit is already internally equipped with most of the necessary hydraulic components:

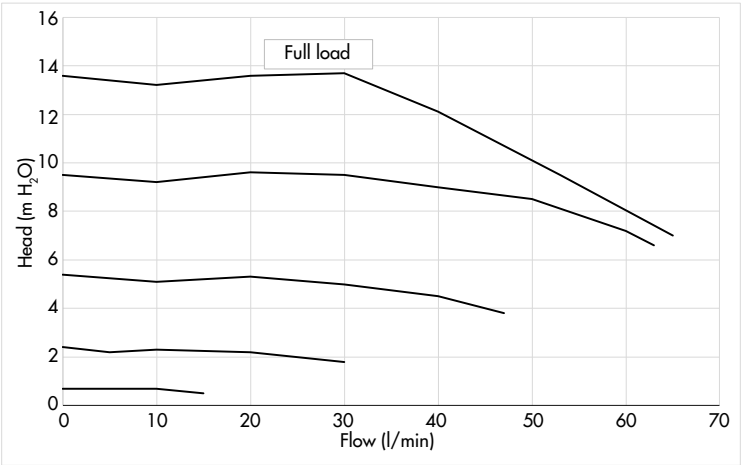
- Inverter circulator
- Plate heat exchanger
- Flowmeter
- Safety valve
- Safety Gas-liquid separator

# OPERATING CURVE

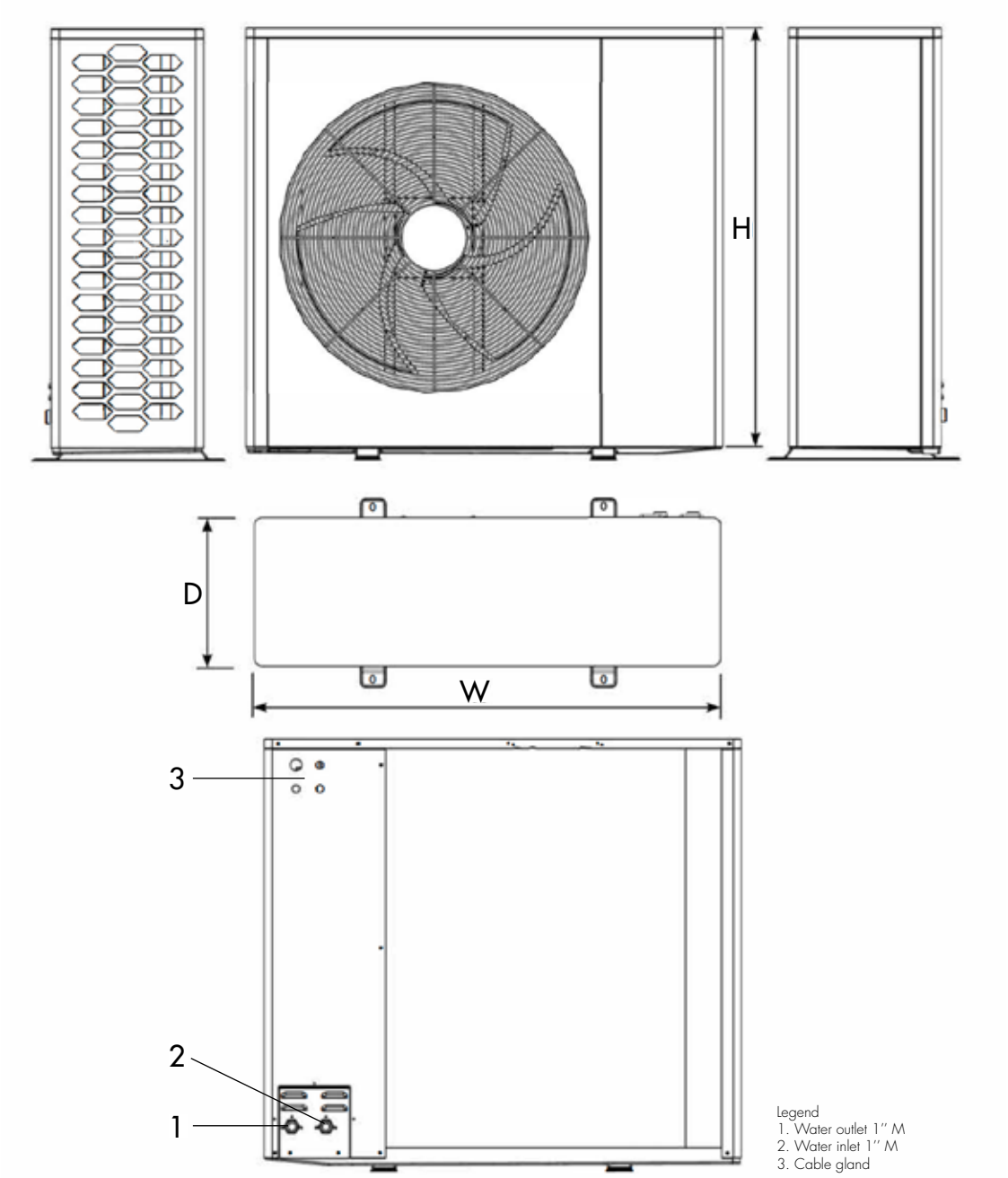



# CHARACTERISTIC CIRCULATOR CURVES



# DATI DIMENSIONALI




| Model | W (mm) | D (mm) | H (mm) | Weight (kg) |
|---|---|---|---|---|
| ANGHP06S | 914 | 355 | 708 | 68 |
| ANGHP08S | 1204 | 385 | 880 | 92 |
| ANGHP08T | 1204 | 385 | 880 | 100 |
| ANGHP12S | 1204 | 385 | 1090 | 108 |
| ANGHP12T | 1204 | 385 | 1090 | 116 |

# TECHNICAL DATA

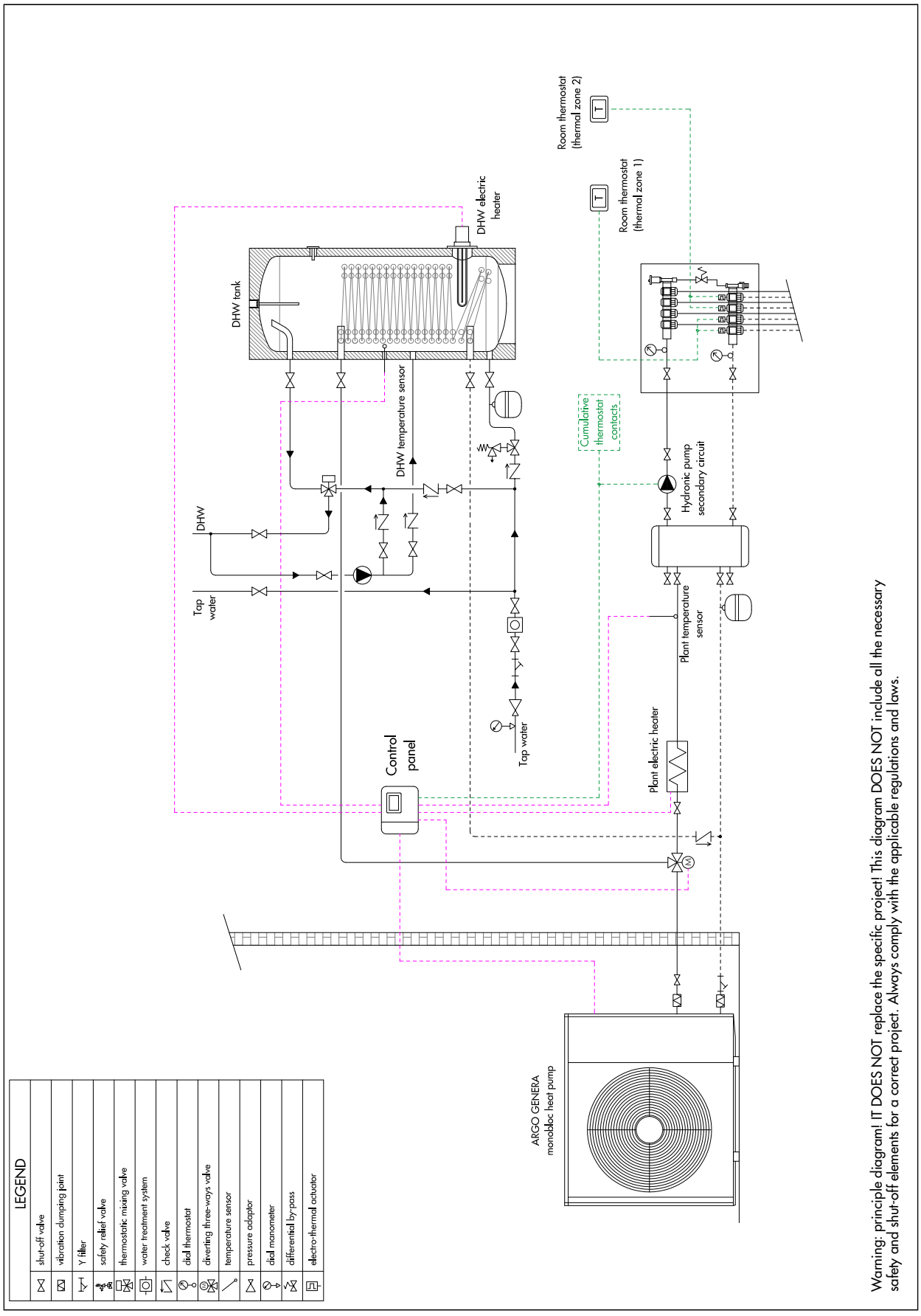
| MODEL | | | | 6 | | 8 | |
|---|---|---|---|---|---|---|---|
| **Matchable units for domestic hot water production (DHW)** | | | | **200/300 liters external tank with diverting valve** | | **200/300 liters external tank with diverting valve** | |
| | | | | **Cooling** | **Heating** | **Cooling** | **Heating** |
| Performance according to EN 14511 | Air +35 °C - Water 23/18 °C<br>Air +7 °C - Water 30/35 °C | Rated capacity | kW | 5.95 | 6.23 | 9.08 | 8.25 |
| | | Rated electrical power input | $kW_{el}$ | 1.34 | 1.37 | 2.31 | 1.73 |
| | | EER/COP | | 4.42 | 4.54 | 3.93 | 4.77 |
| | Air +35 °C - Water 12/7 °C<br>Air -7 °C - Water 30/35 °C | Rated capacity | kW | 4.44 | 4.38 | 7.07 | 7.27 |
| | | Rated electrical power input | $kW_{el}$ | 1.30 | 1.68 | 2.23 | 2.59 |
| | | EER/COP | | 3.41 | 2.61 | 3.16 | 2.8 |
| Performance according to Ecodesign (ERP) EN 14825 | LOW TEMPERATURE (35 °C) AVERAGE climate | Design thermal load ($Pdesign_h$) | kW | 5 | | 7.2 | |
| | | Energy efficiency class | | A+++ | | A+++ | |
| | | SCOP | | 4.8 | | 4.71 | |
| | MEDIUM TEMPERATURE (55 °C) AVERAGE climate | Design thermal load ($Pdesign_h$) | kW | 4.55 | | 6.2 | |
| | | Energy efficiency class | | A++ | | A++ | |
| | | SCOP | | 3.43 | | 3.55 | |
| DHW production | With 300 liters tank and diverting valve AVERAGE climate | Load profile | | XL | | XL | |
| | | Energy efficiency class | | A+ | | A+ | |
| Unit operation data | | Maximum delivery water temperature | °C | 75 | | 75 | |
| | | Outdoor temperature range (heating) | °C | -25/+38 | | -25/+38 | |
| | | Outdoor temperature range (cooling) | °C | +15/+47 | | +15/+47 | |
| | | Power supply (Voltage/Phases/Frequency) | V/Ph/Hz | 230/1/50 | | 230/1/50 or 400/3/50 | |
| | | Rated power input | kW | 2.3 | | 3 | |
| | | Sound power | dB(A) | 56 | | 58 | |
| | | Sound power (super silent) | dB(A) | 49 | | 51 | |
| Components and dimensions | | Circulator pump head | $mH_2O$ | 12 | | 12 | |
| | | Hydraulic connections | inches | G1" | | G1" | |
| | | Safety valve | bar | 2.5 | | 2.5 | |
| | | Weight | kg | 68 | | 92/100 | |
| | | Dimensions (W./D./H.) | mm | 914/355/708 | | 1204/385/880 | |
| | | Compressor type | | Twin-rotary | | Twin-rotary | |
| Refrigerant | | Refrigerant type e GWP | | R290/3 kg $CO_2$eq | | R290/3 kg $CO_2$eq | |
| | | Quantity | kg | 0.5 | | 0.8 | |

Data declared in accordance with REGULATION no. 811/2013/EU regarding the labeling indicating the energy consumption of space and combination heating appliances and the (EU) REGULATION No. 813/2013/EU containing methods of application of Directive 2009/125/EC regarding the specifications for the eco-design of space and combination heating appliances.

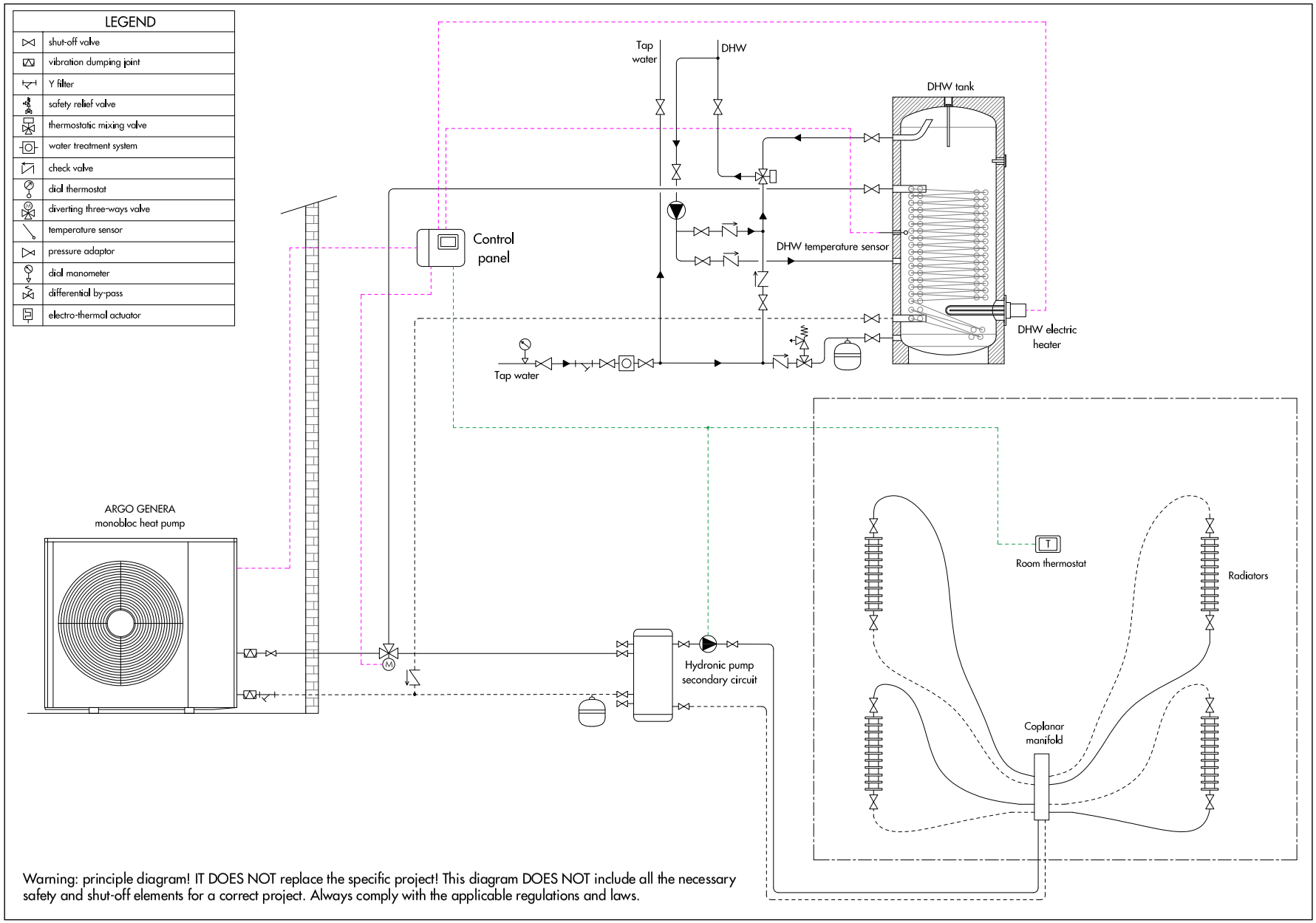
| MODEL | | | | 12 | |
|---|---|---|---|---|---|
| **Matchable units for domestic hot water production (DHW)** | | | | **200/300 liters external tank with diverting valve** | |
| | | | | **Cooling** | **Heating** |
| Performance according to EN 14511 | Air +35 °C - Water 23/18 °C<br>Air +7 °C - Water 30/35 °C | Rated capacity | kW | 12.32 | 12.52 |
| | | Rated electrical power input | $kW_{el}$ | 2.88 | 2.71 |
| | | EER/COP | | 4.28 | 4.62 |
| | Air +35 °C - Water 12/7 °C<br>Air -7 °C - Water 30/35 °C | Rated capacity | kW | 10.63 | 9.94 |
| | | Rated electrical power input | $kW_{el}$ | 3.37 | 3.52 |
| | | EER/COP | | 3.15 | 2.82 |
| Performance according to Ecodesign (ERP) EN 14825 | LOW TEMPERATURE (35 °C) AVERAGE climate | Design thermal load ($Pdesign_h$) | kW | 10.4 | |
| | | Energy efficiency class | | A+++ | |
| | | SCOP | | 4.83 | |
| | MEDIUM TEMPERATURE (55 °C) AVERAGE climate | Design thermal load ($Pdesign_h$) | kW | 8.51 | |
| | | Energy efficiency class | | A++ | |
| | | SCOP | | 3.67 | |
| DHW production | With 300 liters tank and diverting valve AVERAGE climate | Load profile | | XL | |
| | | Energy efficiency class | | A+ | |
| Unit operation data | | Maximum delivery water temperature | °C | 75 | |
| | | Outdoor temperature range (heating) | °C | -25/+38 | |
| | | Outdoor temperature range (cooling) | °C | +15/+47 | |
| | | Power supply (Voltage/Phases/Frequency) | V/Ph/Hz | 230/1/50 or 400/3/50 | |
| | | Rated power input | kW | 4 | |
| | | Sound power | dB(A) | 59 | |
| | | Sound power (super silent) | dB(A) | 53 | |
| Components and dimensions | | Circulator pump head | $mH_2O$ | 12 | |
| | | Hydraulic connections | inches | G1" | |
| | | Safety valve | bar | 2.5 | |
| | | Weight | kg | 108/116 | |
| | | Dimensions (W./D./H.) | mm | 1204/385/1090 | |
| | | Compressor type | | Twin-rotary | |
| Refrigerant | | Refrigerant type e GWP | | R290/3 kg $CO_2$eq | |
| | | Quantity | kg | 1.1 | |

Data declared in accordance with REGULATION no. 811/2013/EU regarding the labeling indicating the energy consumption of space and combination heating appliances and the (EU) REGULATION No. 813/2013/EU containing methods of application of Directive 2009/125/EC regarding the specifications for the eco-design of space and combination heating appliances.

# INSTALLATION DIAGRAM EXAMPLES




Warning: principle diagram! IT DOES NOT replace the specific project! This diagram DOES NOT include all the necessary safety and shut-off elements for a correct project. Always comply with the applicable regulations and laws.


LEGEND
shut-off valve
vibration dumping joint
Y filter
safety relief valve
thermostatic mixing valve
water treatment system
check valve
dial thermostat
diverting three-ways valve
temperature sensor
pressure adaptor
dial manometer
differential by-pass
electro-thermal actuator
Tap water
DHW
DHW tank
Control panel
DHW temperature sensor
DHW electric heater
Tap water
ARGO GENERA monobloc heat pump
Hydronic pump secondary circuit
Room thermostat
Radiators
Coplanar manifold
Warning: principle diagram! IT DOES NOT replace the specific project! This diagram DOES NOT include all the necessary safety and shut-off elements for a correct project. Always comply with the applicable regulations and laws.