

DC Inverter heat pumps Gorenje

Product information

Model: **Aerogor ECO Inverter 13 AS**

Type: **air-water (split system)**



Touchscreen Control unit

English language

TECHNICAL SPECIFICATION: Heat pump air-water Aerogor ECO Inverter 13 AS

MODEL	Unit	Aerogor ECO Inverter 13 AS
ErP Energy efficiency class (floor/radiators heating)		A++ / A+
SCOP 35°C (floor heating) EN 14825	kW/kW	4,08
P _{design} for SCOP EN 14825	kW	7,46
Heating capacity* at A2/W35 (EN 14511):	kW	10,25
COP* (Coefficient of performance) at A2/W35 (EN 14511):	kW/kW	3,6
Heating capacity* at A7/W35 (EN 14511):	kW	11,62
COP* (Coefficient of performance) at A7/W35 (EN 14511):	kW/kW	4,1
*At 96% or 82 Hz of max. compressor frequency. Maximum compressor frequency at A2-A7/W35 is 85 Hz.		
Heating mode (A7/W35)**; According to EN 14511.		
Heating capacity**	kW	4,1 - 12,2
Rated input power**	kW	0,85 - 2,99
COP - Coefficient of Performance**	kW/kW	3,99 - 5,14
Cooling mode (A35/W7)***; According to EN 14511.		
Cooling capacity***	kW	2,34 – 7,91
Rated input power***	kW	0,97 – 2,98
EER - Energy Efficiency Ratio***	kW/kW	2,40 – 3,03
Voltage	V/Hz/Ph	220-240/50/1
Type of compressor	/	DC inverter (twin rotary)
Max. temperature of heating water	°C	55
Operating range - source temp. in: heating/cooling mode	°C	-25°C to +45°C / 0°C to +65°C
Refrigerant specification		
Type of refrigerant/Refrigerant - mass (factory pre-charged)	type/kg	R410A/3,0
Type of connection/max. distance between outdoor-indoor unit (see details on page 7)	/	Refrigerant connection/ 20 m
Dimensions of refrigerant pipes connectors	Liquid - Gas	3/8" - 5/8"
Fan		
Fan type	/	Axial
Air flow	m ³ /h	4100
Rated power	W	2 x 60
Water side heat exchanger		
Type	/	Plate heat exchanger
Pressure drop	kPa	40
Dimensions of water piping connection	Inch	G1"
Allowable flow - secondary (water) side		
Min. / Nonimal / Max. water flow	m ³ /h	1,32/2,2/2,63
Net dimensions		
Indoor unit (WxHxD) (see details on page 6)	mm	512 x 932 x 303,5
Outdoor unit (WxHxD) (see details on page 6)	mm	1154 x 1195 x 460
Net weight		
Indoor unit / Outdoor unit	kg	47/113
SERIAL INTEGRATED COMPONENTS		
Electrical int. flow heater	kW/ph	6 kW (3ph / 2 stages)
Circulation water pump - A energy class	type	Grundfos UPM GEO 25-85 180
3-way diverting valve for DHW tank		Optional external
Fuse for heat pump	A/type	1 X 1p/20A/C
Fuse for electrical flow heater	A/type	3 X 1p/10A/C
Sound power level according to EN12102 (indoor/outdoor)****	dB(A)	46/59 (+/- 1,5 dB)
****See details on page 5		

Outdoor unit :
Aerogor ECO Inverter 13 AS



Indoor unit - Hydrobox :
Aerogor ECO Inverter 13 AS



7" Touchscreen control unit

Outdoor unit—description of components:

- Type of compressor: **Panasonic DC Inverter**
- Voltage supply—heat pump: **220-240/50/1 [V/Hz/Ph]**
- Operating range of compressor: **30 - 85 Hz**
- Type of expansion valve: **Carel EEV**
- Type of fan: **2 x DC fan with speed control**
- Active cooling with **4-way reversible valve**

Indoor unit—description of components:

- Type of plate heat exchanger: **SWEP B26HX34/IP-NSC-M**
- Type of circulating pump: **Grundfos UPM GEO 25-85 180**
- Energy class of circulating pump: **A**
- Safety kit: **pressure gauge, air-vent valve, safety valve**
- Dimension of water connectors: **DN 25 (bright diameter)**
- Control unit and HMI: **TLCD 4827 Touch screen**
- Electrical int. flow heater: **6 kW (2 kW + 4 kW)**
- 1st stage: 2 kW**
- 2nd stage: 6 kW**

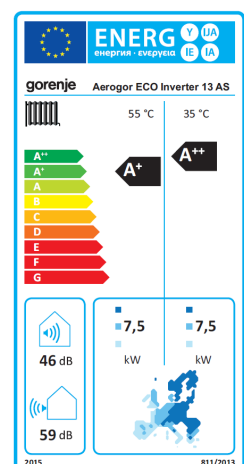
Voltage supply –el. flow heater: **380-415/50/3 [V/Hz/Ph]**

Serial integrated flow switch

Serial attached components:

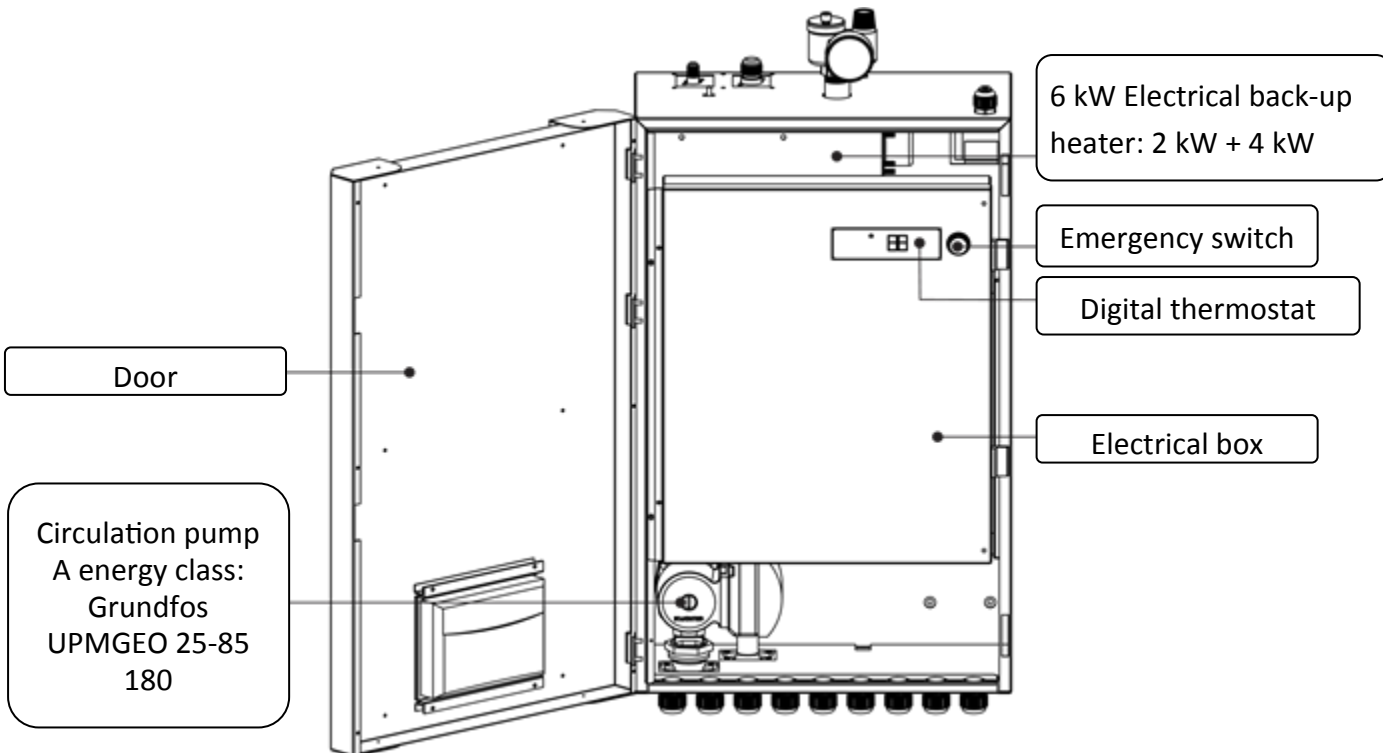
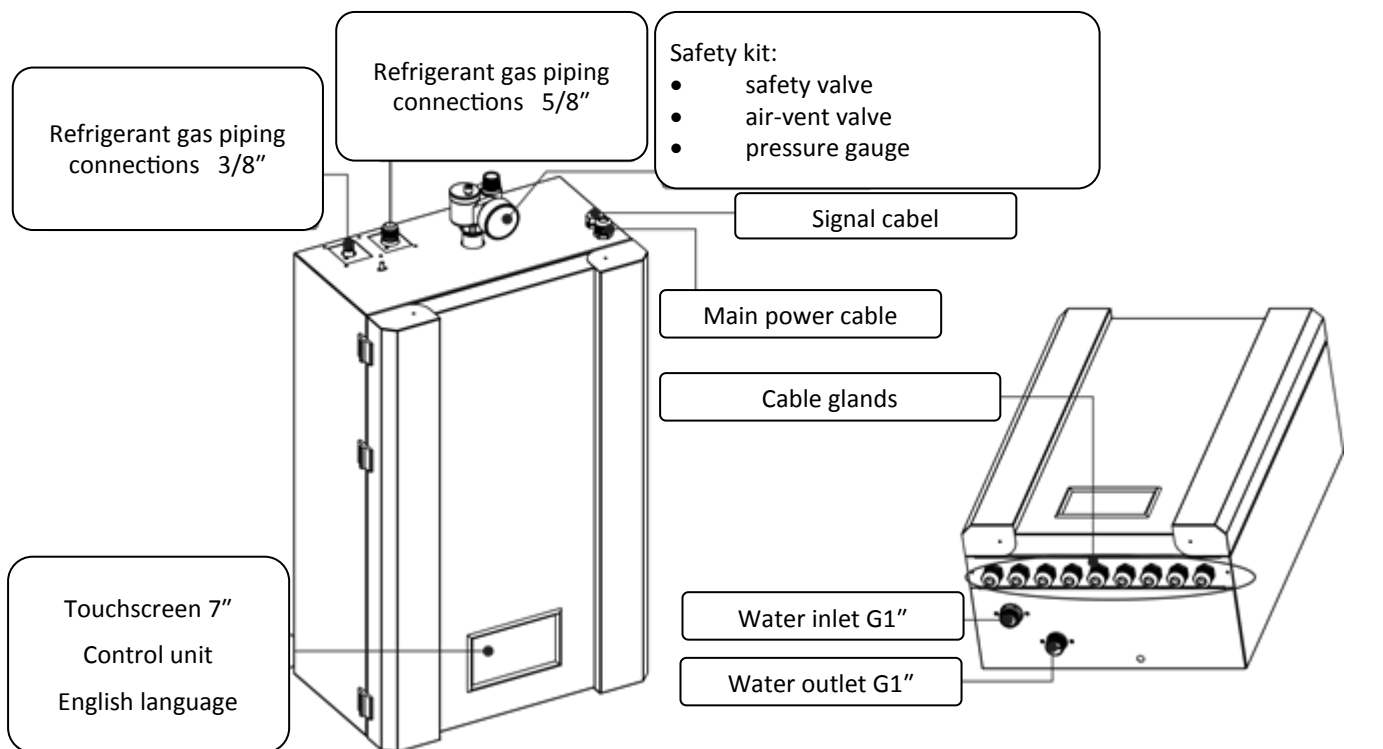
- 1x Three-way diverting valve for system with DHW tank
- 1 x Communication cable 20 m (indoor/outdoor unit)
- 1 x Set for Wi-fi module**
- 6 x temperature sensors:

- **Room temperature sensor (TR)**
- **Temp. sensor for outlet water temp. or buffer tank (TC)**
- **Temp. sensor for DHW tank (TW)**
- **2 x temp. sensors for mixing heating circuits (TV1, TV2)**
- **Additional outdoor ambient sensor (Ta) (enable installation of the Ta sensor on the north part of the house where is minimum influence of the sun)**

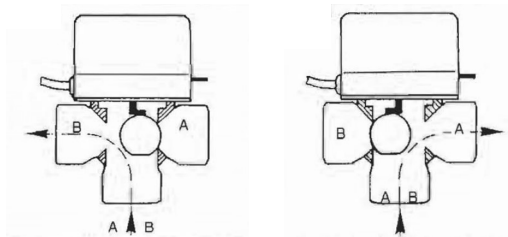


Position of components

Indoor unit: Aerogor ECO Inverter 13 AS



3-Way diverting valve
(In delivery)



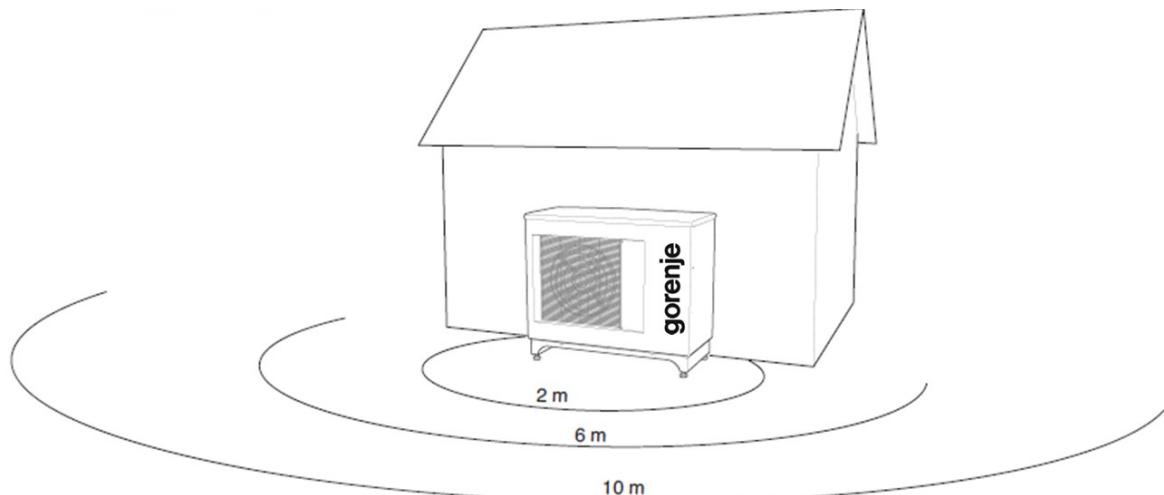
Attached components for Aerogor ECO Inverter 13 AS

Name	Quantity	Picture
Installation manuals, warranty statement/card	1	
Overflow water pipe	1	
Safety kit	1	
TR – room temperature sensor + extension cable 20 m	1	
TC – sensor for outlet water temperature/buffer tank + extension cable 10 m	1	
TW - temp. sensor for DHW tank + extension cable 10 m	1	
TV1 - temp. sensor for Mixing valve 1 + extension cable 10 m TV2 - temp. sensor for Mixing valve 2 + extension cable 10 m	2	
Communication cable between indoor and outdoor unit 20 m	1	
Indoor unit bracket	1	
Expansion bolts	2	
Ta - additional Outdoor ambient sensor	1	
Set for WI-FI module (adapter, antenna, connection cable)	1	

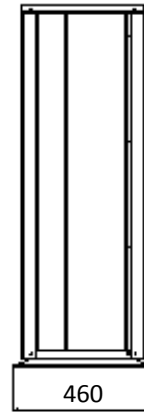
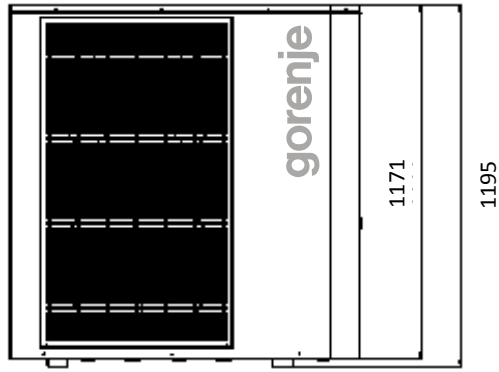
Sound power/pressure levels of heat pump air-water Aerogor ECO Inverter 13 AS

Outdoor unit	Sound power level Lw(A)	Sound pressure level [dB(A)] on distance*						
		*1 m	*2 m	*4 m	*5 m	*8 m	*10 m	*15 m
Model name								
Aerogor ECO Inverter 13 AS	59	51,02	45,00	38,98	37,04	32,95	31,02	27,49

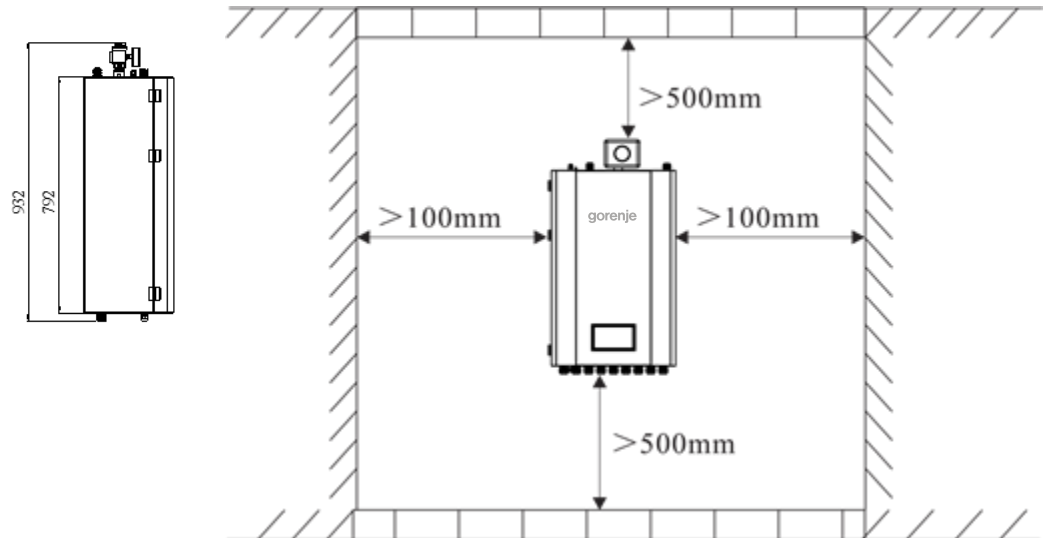
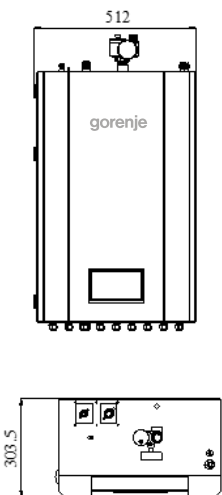
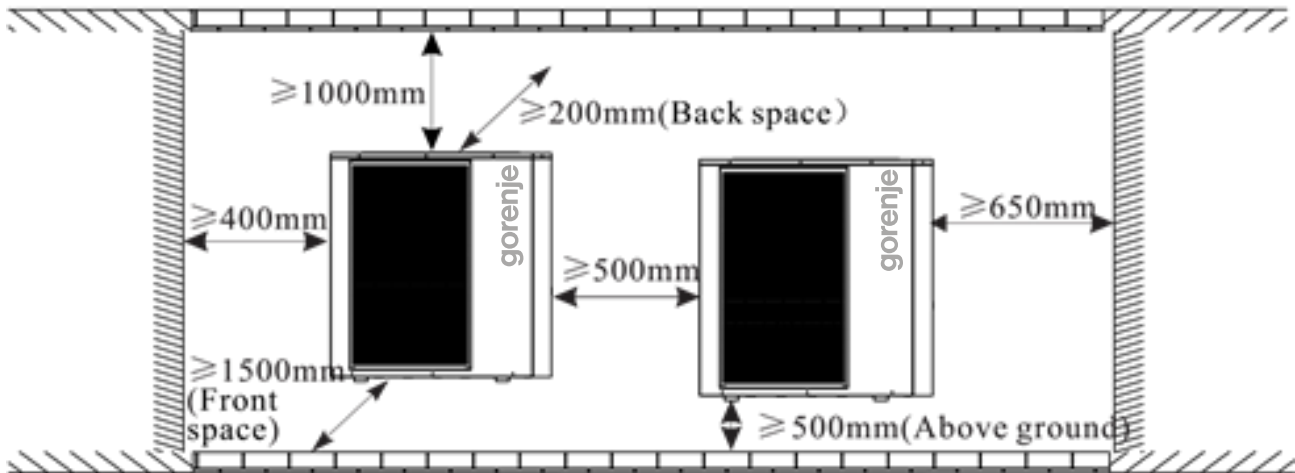
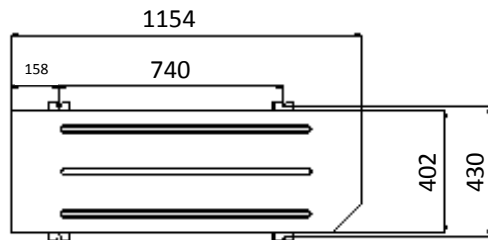
According to standard EN 12102. Sound measurement according to EN ISO 3744. Measurement precision (standard deviation in dB): +/- 1,5 dB



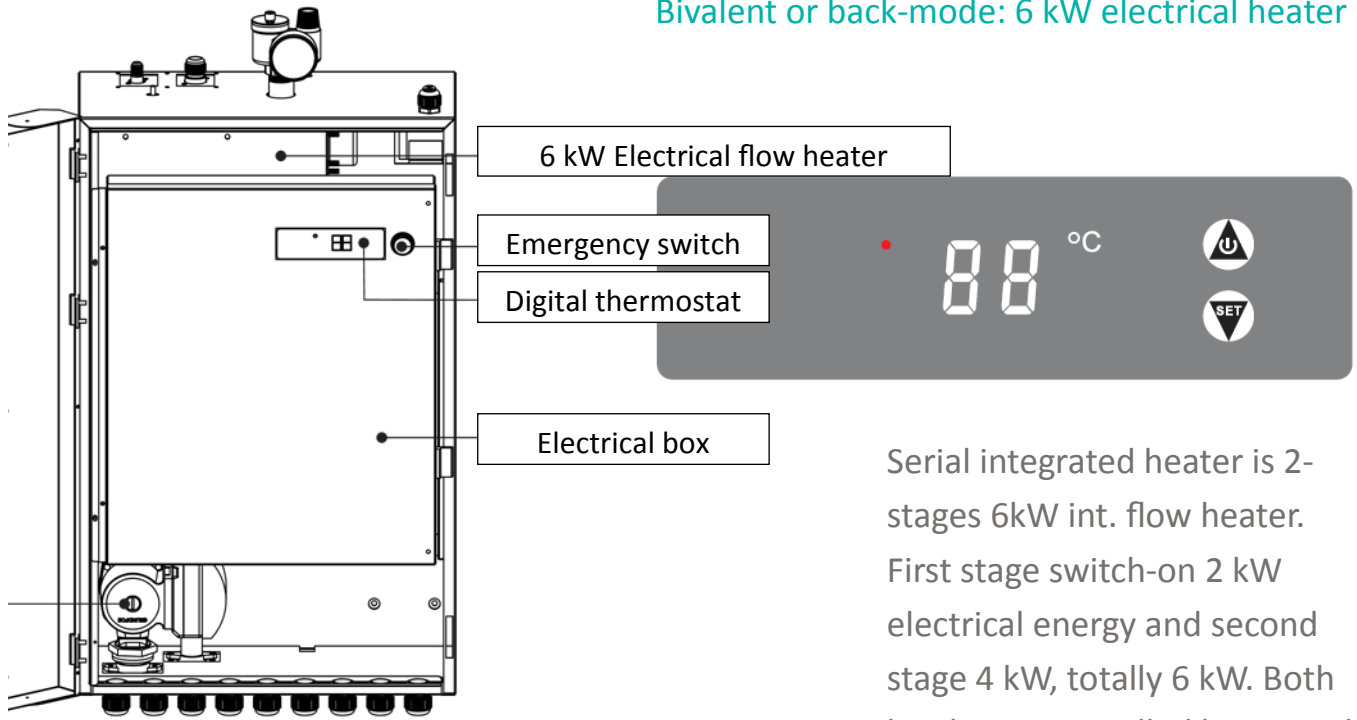
DIMENSIONS OF INDOOR AND OUTDOOR UNIT



Dimensionen: [mm]



Bivalent or back-mode: 6 kW electrical heater



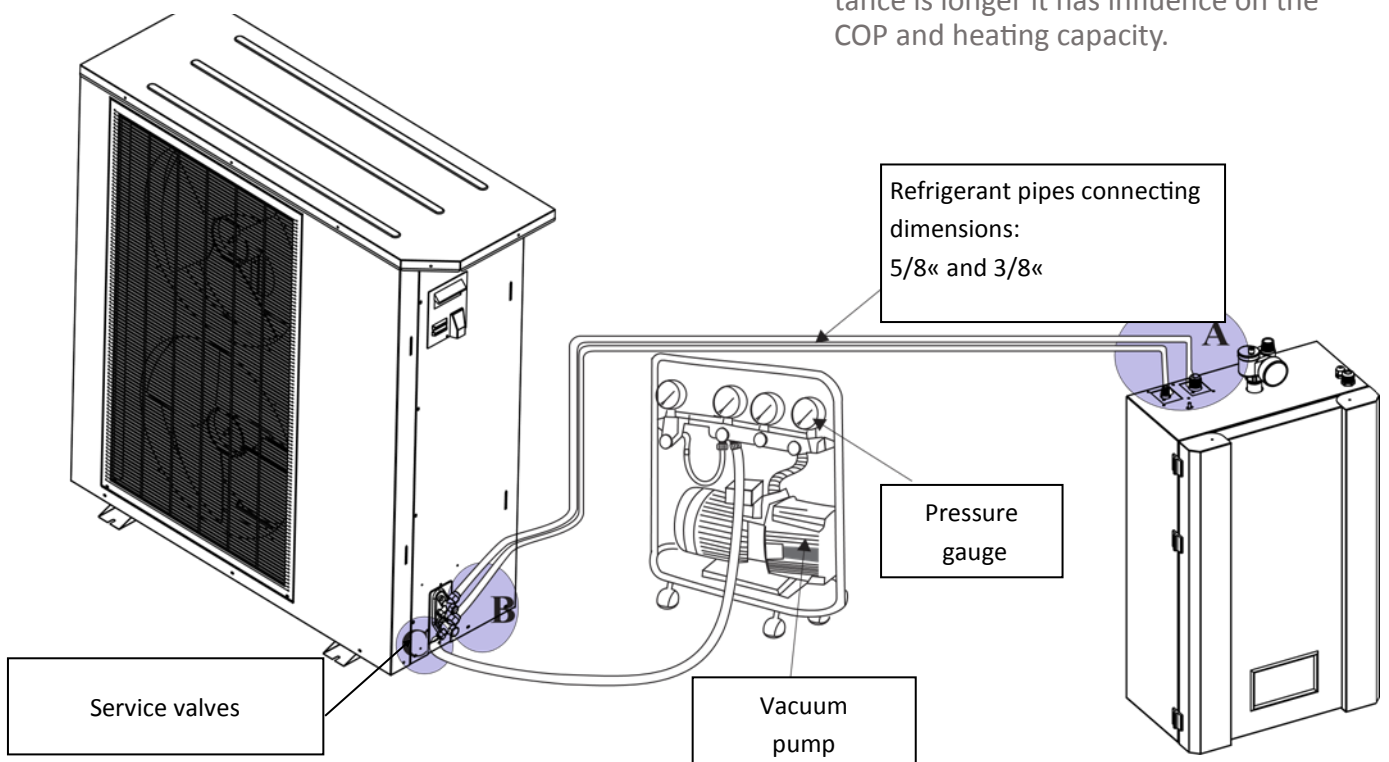
Serial integrated heater is 2-stages 6kW int. flow heater. First stage switch-on 2 kW electrical energy and second stage 4 kW, totally 6 kW. Both levels are controlled by control unit of heat pump and additional digital thermostat.

Gas charging for Aerogor ECO Inverter 13 AS

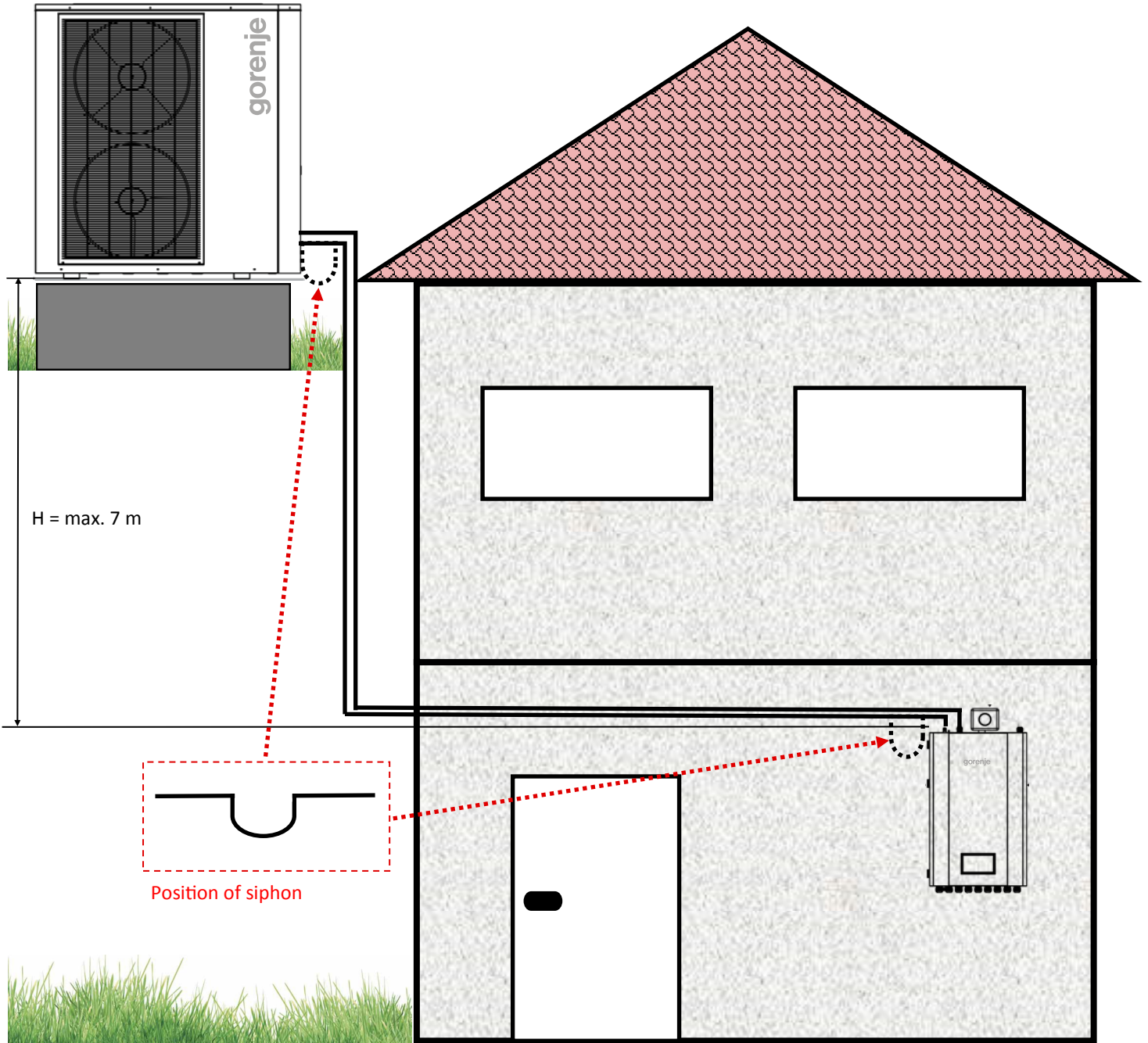
Outdoor unit is pre-charged with **3,0 kg** of refrigerant gas R410A. This volume of refrigerant is enough for a **12 m** long refrigerant pipe connection. **For every additional meter is obligatory to supplement 40 g refrigerant gas in the system.**

For example: If refrigerant pipe system is 13 m long, installer need to add 120 g refrigerant gas in the system:
 $(15 - 12) [m] \times 40 [g/m] = 3 [m] \times 40 [g/m] = 120 [g]$

Min. refrigerant pipe length: 3 m
Maximum pipe length between outdoor and indoor unit is 20 meters. If distance is longer it has influence on the COP and heating capacity.



Height difference between outdoor and indoor unit



Outdoor unit is above Indoor unit

Maximum height difference is 7 m.

Totally pipe length distance can be maximum 20 m. In case of 7 m height distance between indoor and outdoor unit, horizontal pipe distance can be maximum 11 m. In that case is obligatory to integrated 2 siphons. Each siphons takes 1 m pipe distance.

Outdoor unit is below Indoor unit

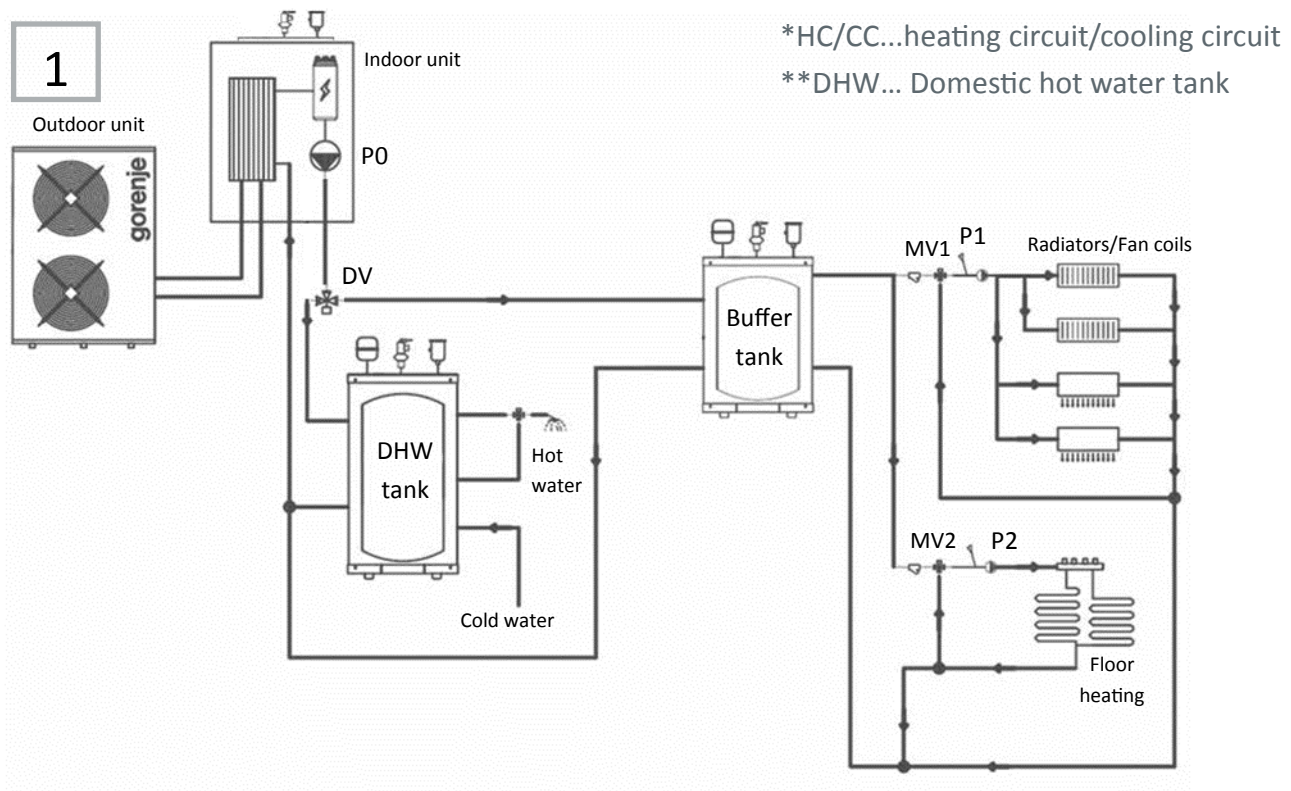
Maximum height difference is 5 m.

Totally pipe length distance can be maximum 20 m. In case of 5 m height distance between indoor and outdoor unit, horizontal pipe distance can be maximum 15 m.

Model name	Outdoor unit is above Indoor unit max. height diffrence [m]/ Number of siphons	Outdoor unit is below Indoor unit max. height diffrence [m]/ Number of siphons
Aerogor ECO Inverter 13 AS	7 m / 2 siphons	5 m / 0 siphon

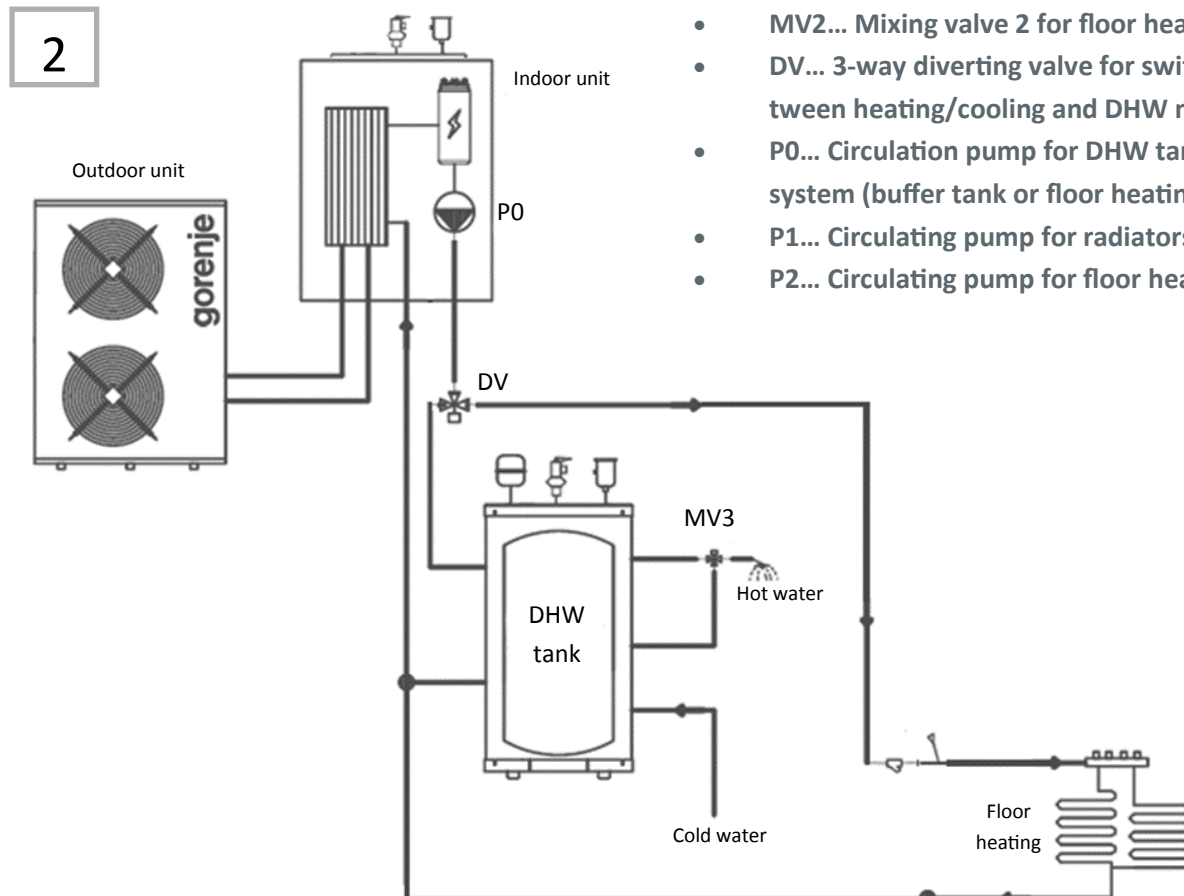
SYSTEM SCHEME 1: buffer tank + DHW tank + 1 mixing HC/CC* + 1 direct HC/CC*

SYSTEM SCHEME 2: DHW** tank + 1 direct HC/CC*

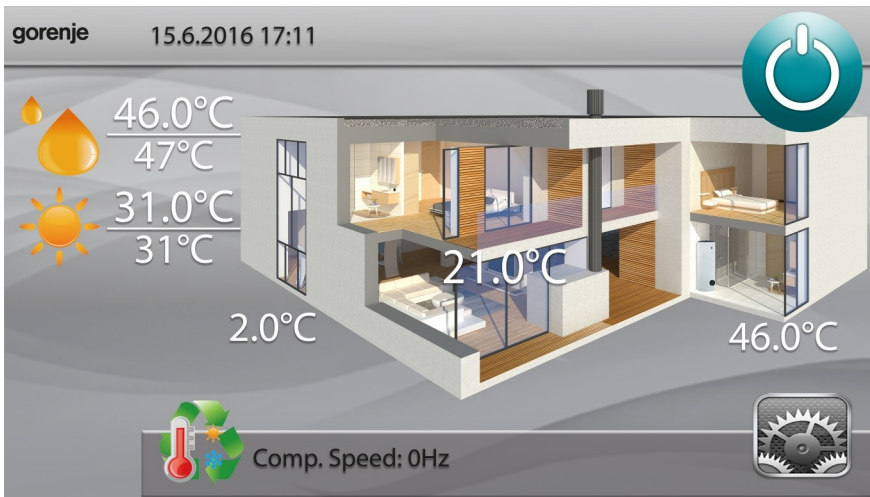


KEY:

- DHW... Domestic hot water tank
- MV1... Mixing valve 1 for radiators and fan coils
- MV2... Mixing valve 2 for floor heating system
- DV... 3-way diverting valve for switching between heating/cooling and DHW mode
- P0... Circulation pump for DHW tank and heating system (buffer tank or floor heating)
- P1... Circulating pump for radiators and fan coils
- P2... Circulating pump for floor heating system



INTELLIGENT ELECTRONIC CONTROL UNIT + VARIABLE SPEED COMPRESSOR



WI-FI Control (Service application)



Basic configuration enable regulation of:

- **2 mixing (proportional 24VDC/0-10V, for example ESBE ARA 639)**

or **2 direct heating circuits**

- **3-way diverting valve (for DHW water tank)**
- **Switching ON/OFF 6 kW electrical flow heater (2 stages working mode)**
- **Switching ON/OFF bivalent heating source**
- **Anti - legionella function**
- **Drying (curing) screeds mode**
- **Sleep function mode—silent mode**

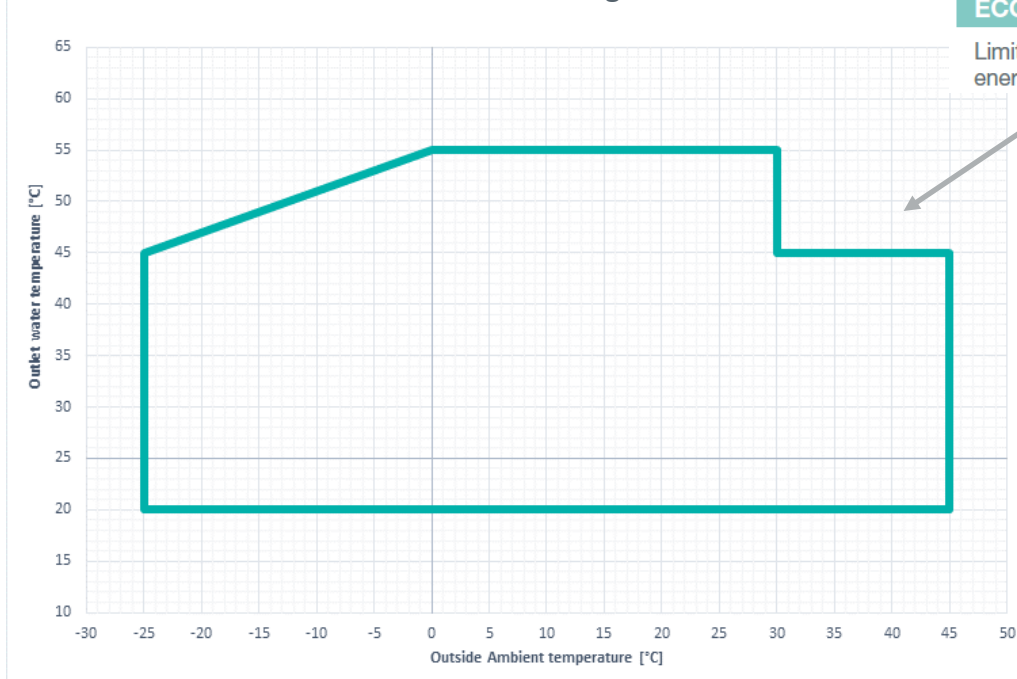
REGULATION OF 2 HEATING/COOLING CIRCUITS

- **2 X DIRECT HEATING/COOLING CIRCUITS**
- **or**
- **2 X MIXING HEATING/COOLING CIRCUITS**



DC Inverter compressor is optimal solution for low and medium temperature applications. ECO mode limitation enable energy saving during the summer time - it also protect a working envelope of the most important component in heat pump - compressor.

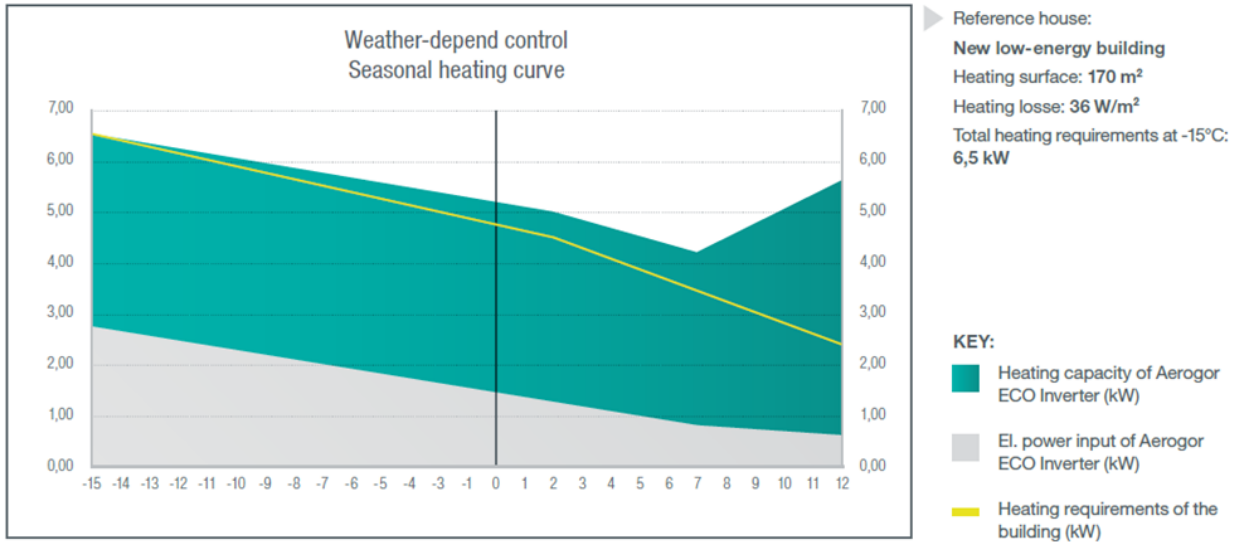
OPERATING RANGE—HEATING MODE: Aerogor ECO Inverter 10 AS



ECO mode:

Limited water temperature for energy saving in summer time.

INTELLIGENT ELECTRONIC CONTROL UNIT + VARIABLE SPEED COMPRESSOR

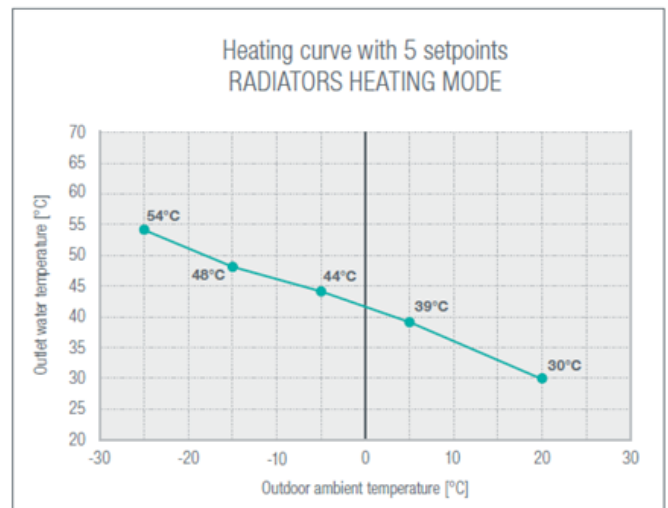
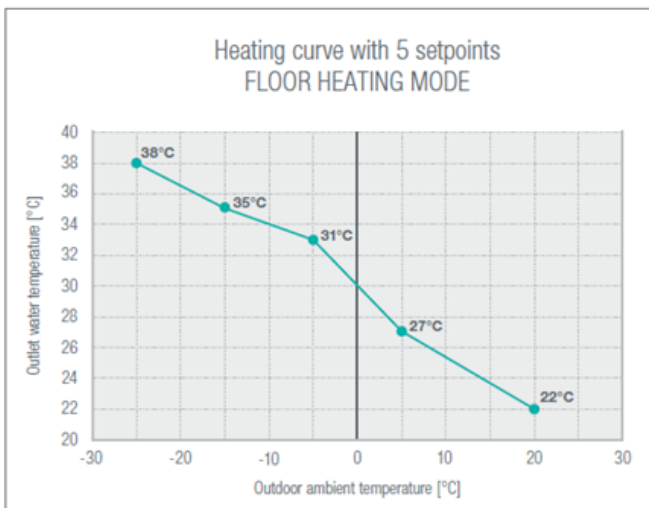


Description of heating curve function: The heating curve generates the flow temperature setpoint, which is used to maintain a certain flow temperature depending on the prevailing weather conditions. The heating curve can be adjusted via a number of settings, thus matching heat output and room temperature to individual needs.

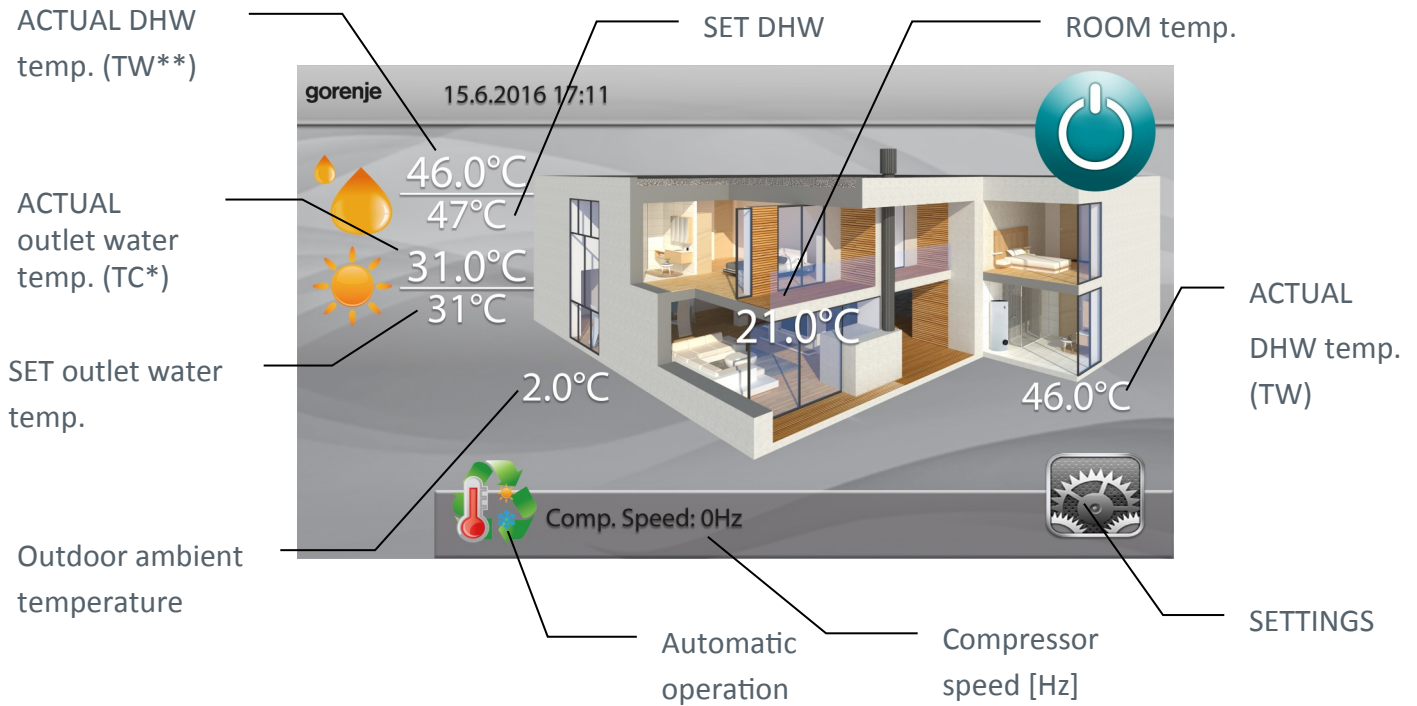
ADJUSTABLE HEATING CURVE

The heating curve depends on the characteristics of the building being heated, which is the only warranty that the heat pump, regardless of the outdoor temperature, will always heat up the water to the lowest acceptable temperature. End user can very easily change or adopt 5 different setpoints of heating curve. The most important are C and D points (outdoor ambient temperature -5°C to 5°C).

RADIATORS HEATING SYSTEMS			FLOOR HEATING SYSTEMS		
	Outdoor temperature	Outlet water temperature of heat pump	Outdoor temperature	Outlet water temperature of heat pump	
A	-25°C	54	-25	38	
B	-15°C	48	-15	35	
C	-5°C	44	-5	31	
D	5°C	39	5	27	
E	20°C	30	20	22	



INTELLIGENT ELECTRONIC CONTROL UNIT + VARIABLE SPEED COMPRESSOR

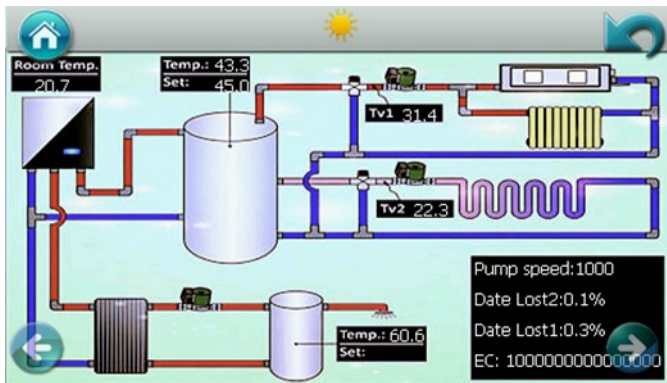


*TC temp. sensor.for buffer tank or outlet water

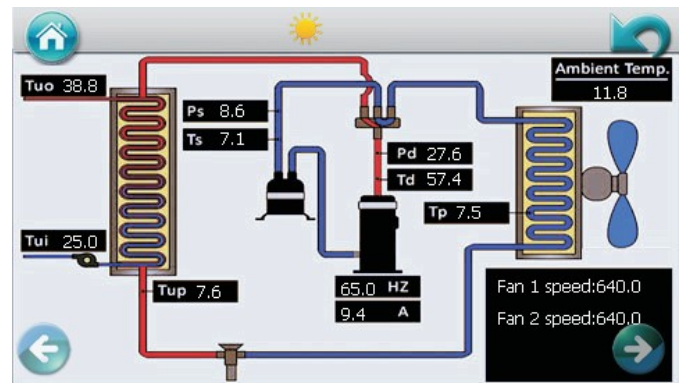
**TW temp. sensor for DHW tank (sanitary water)

SIMPLE AND EASY DIAGNOSTIC OF THE HEATING SYSTEM AND HEAT PUMP

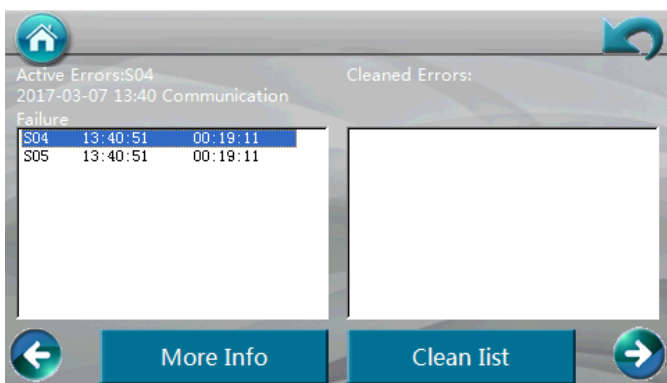
Hydraulic scheme of the heating system



Scheme of heat pump refrigerant system



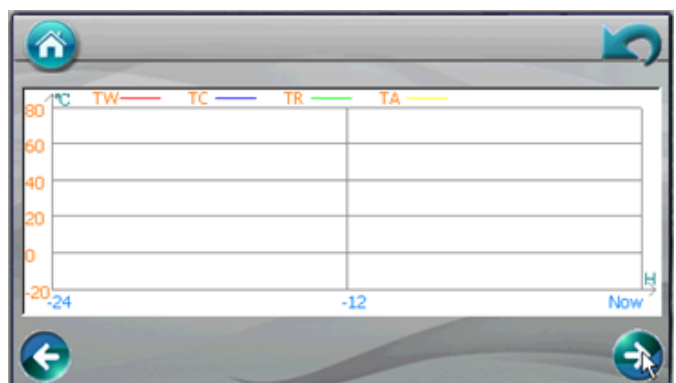
Notes/Errors



Active errors

Error history

24 hours diagnostic graphs



Modern control unit enable not only regulation of heat pump's operation but also some other special functions:

AUTOMATIC OPERATION - HEATING/COOLING/DHW

Heat pump can operate in 3 different modes: Heating/Cooling/DHW. Intelligent control unit enable automatic switching between:

- heating and cooling mode
- heating and DHW mode
- cooling and DHW mode



SLEEP FUNCTION - SILENT OPERATION MODE

In this mode HEAT PUMP adjusts outlet water temperature or room temperature to **save energy** and lowers the **operation noise by reducing the working speed** of the compressor and fan motor for optimum sleeping comfort.



REDUCED SETPOINT - HOLIDAYS MODE

Serial integrated Vacation Mode allows the users to set the system to operate under minimized vacation settings between the programmed starting and ending time of their vacation periods. System will switch back to normal mode at the ending time of vacation mode properly, so that the occupants will be welcome with proper heating temperature and sanitary hot water, upon returning from their vacations.



ROOM TEMPERATURE COMPENSATION FUNCTION

When the water temperature control function is utilized, users can still connect the room temperature sensor (serial integrated) to allow the intelligent control unit to adjust the outlet water temperature automatically based on the difference between the desired room temperature and the actual room temperature measured.

- +30 °C
- +20 °C
- +10 °C
- 0 °C
- 10 °C
- 20 °C
- 25 °C



DHW STORAGE FUNCTION

This function enables time setting of DHW mode for 7 days per week and 365 days per year. For example: heat pump heat up the sanitary hot water on the morning time between 5.00 - 7.00 and on the afternoon/evening time between 15.00 - 23.00. It enable energy saving and lower costs on an anual level.



Concrete foundation for heat pump **Aerogor ECO Inverter 13**

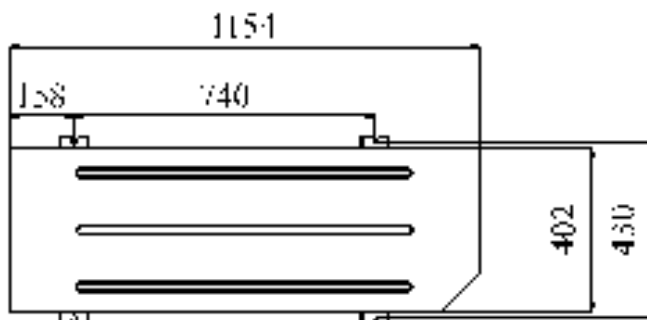
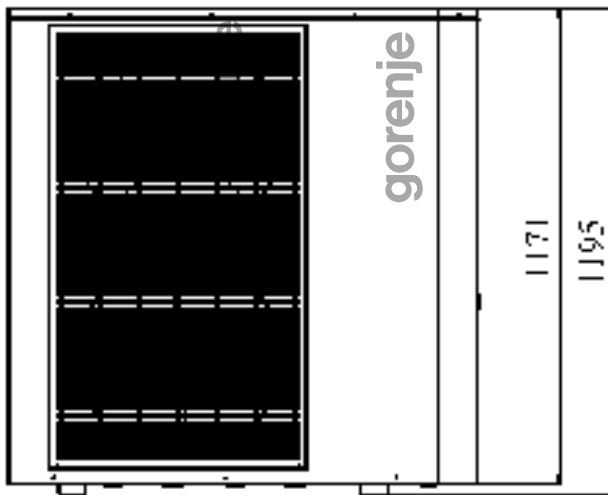
Correct



Incorrect

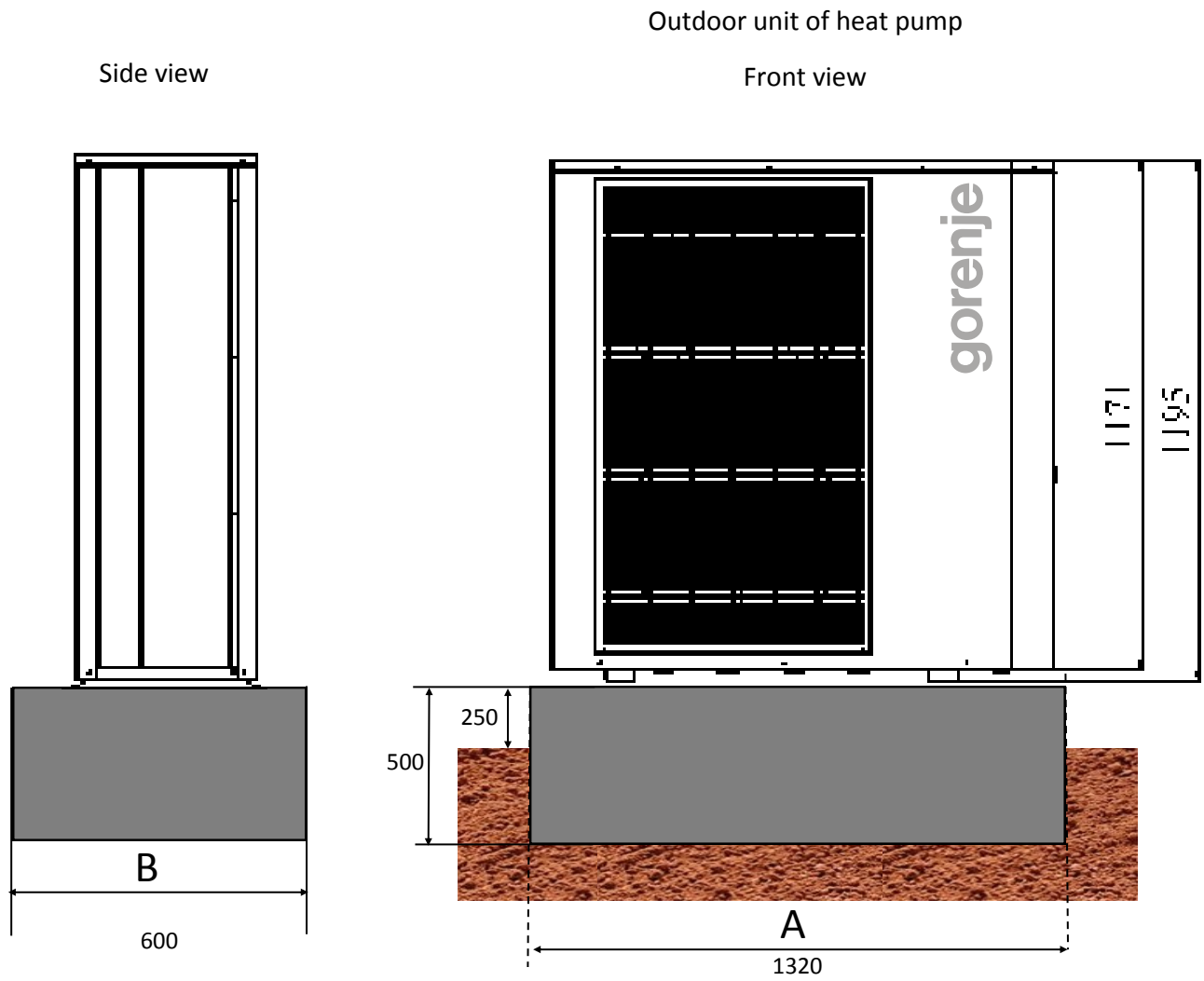


Dimensions of outdoor unit **Aerogor ECO Inverter 13 AS**



Dimensionen: [mm]

Concrete foundation for heat pump **Aerogor ECO Inverter 13 AS**



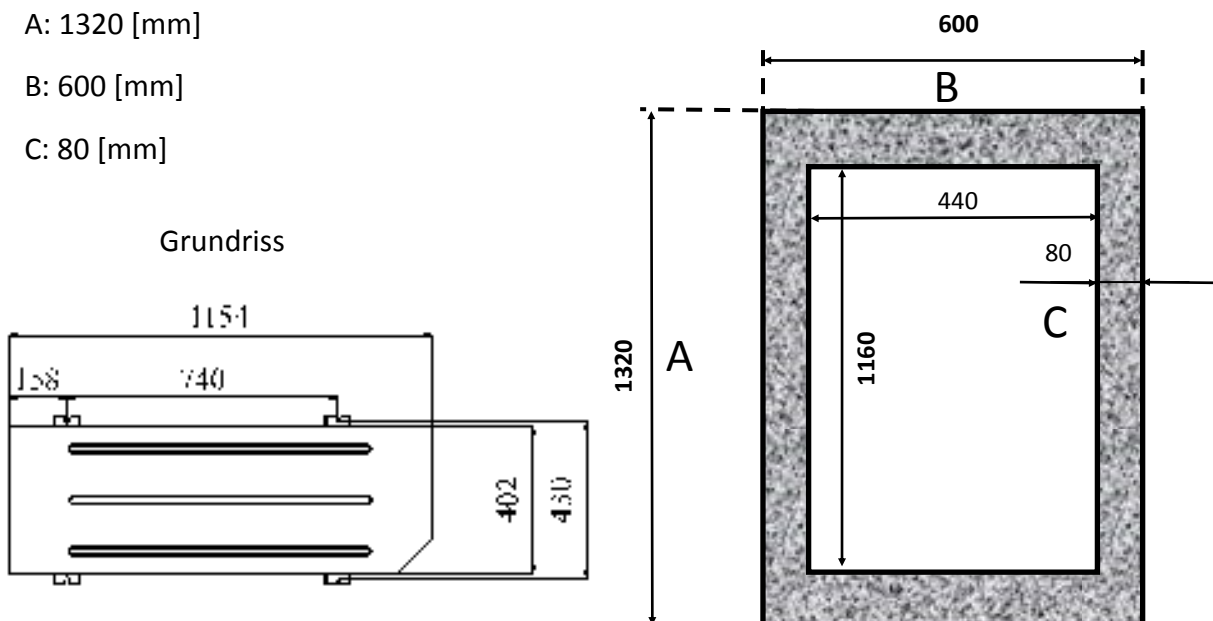
Dimensions of concrete foundation:

A: 1320 [mm]

B: 600 [mm]

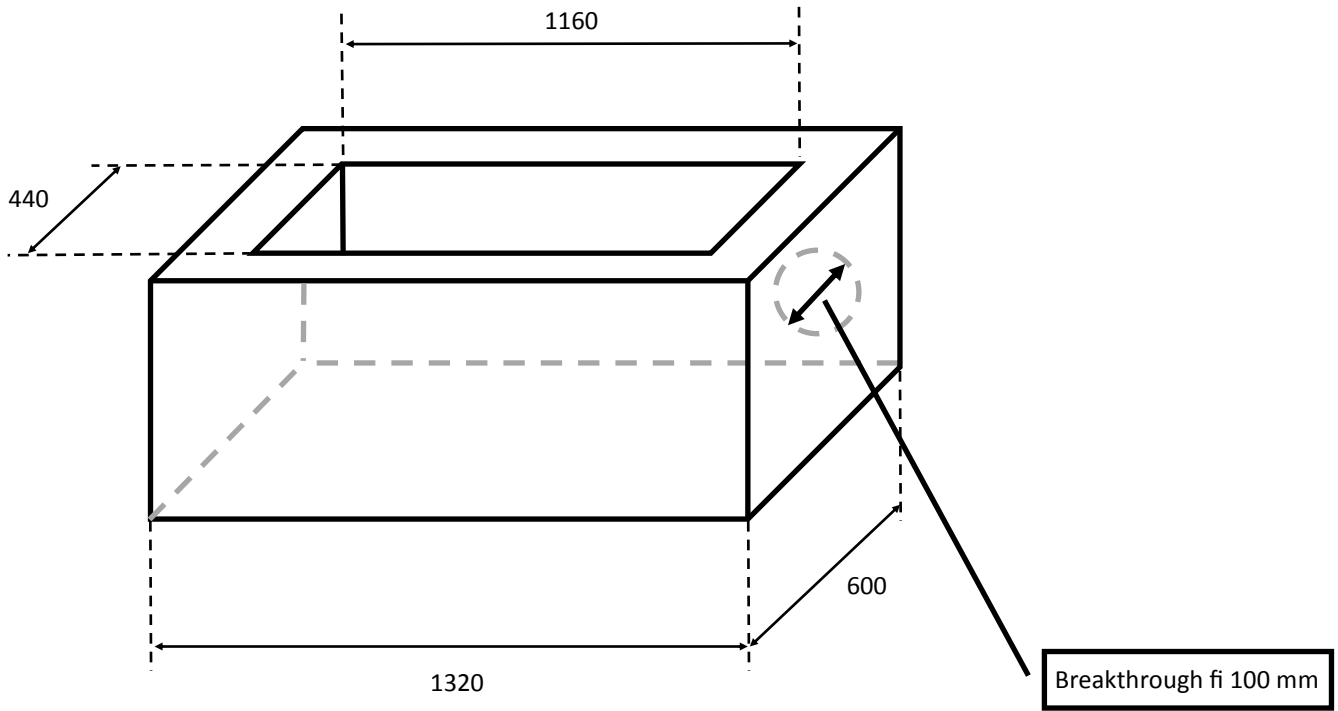
C: 80 [mm]

Bird's eye view of concrete foundation

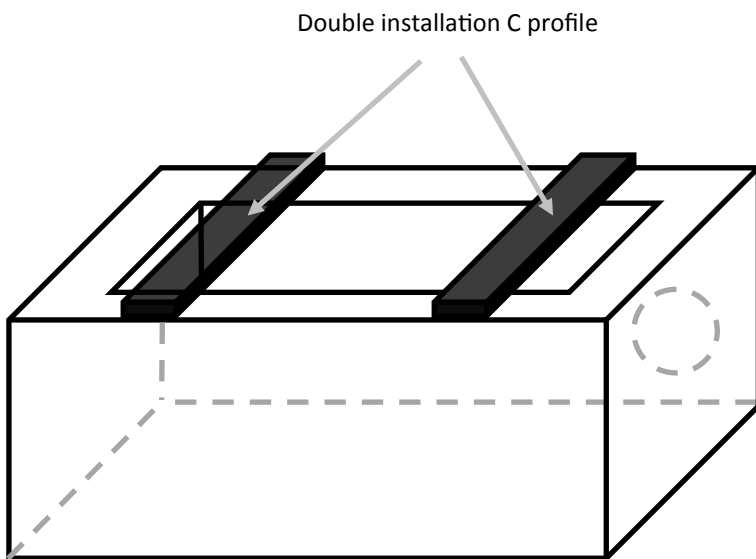


Dimensions in: [mm]

Concrete foundation for heat pump **Aerogor ECO Inverter 13 AS**

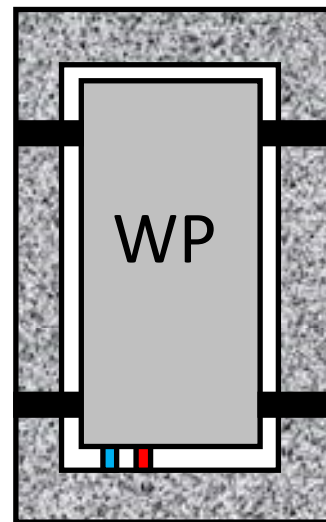


Installation of C profile and legs of heat pump on the concrete foundation

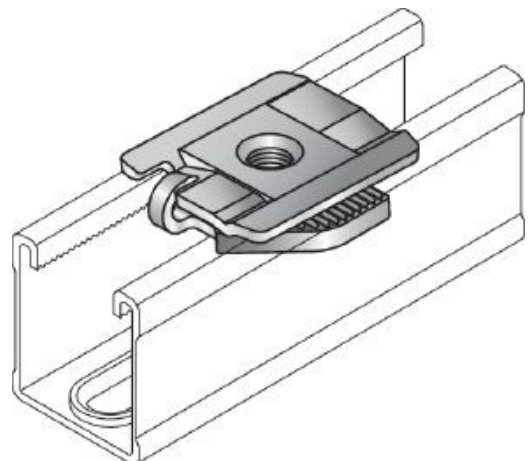
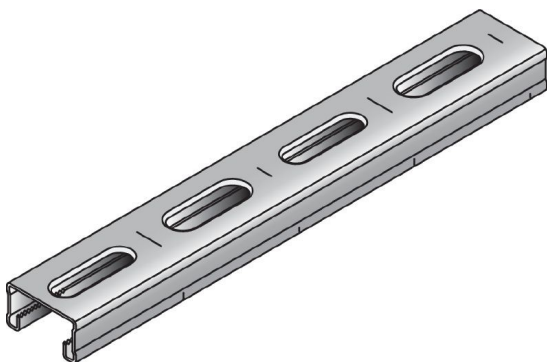


MM-C-16 Double installation profile

Bird's eye view



MM-S Connector for hose clamp



Components for long life time and better efficiency

Magnetic dirt separator

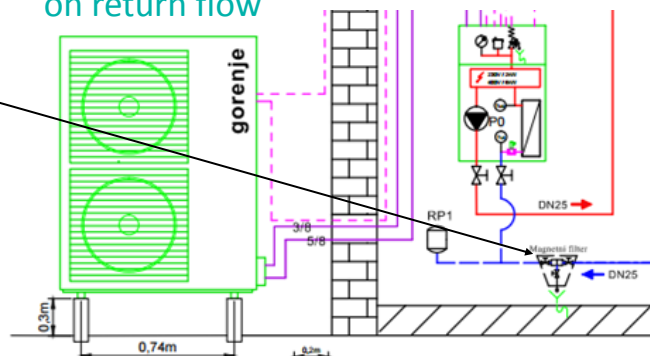
Multifunction device with dirt separator and strainer. Specific for the complete cleaning of the hydraulic circuit, to protect continuously generator and components. Main features of dirt separator:

- ⇒ enable desired water flow in the system
- ⇒ Optimum water flow enable declared heating capacity and COP of heat pump
- ⇒ Enable long life time of heat pump



Position in the installation system:

on return flow



GORENJE D.D.

HVAC (heating , ventilation and air-conditioning)

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