KRONOTERM 1976

TOPLOTNE ČRPALKE


# DATA SHEET

# WPG

*Commercial heat pump*

Data sheet - Commercial WPG- SLO/98-22-19-13825-00



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The original documentation is written in Slovenian. All other languages are translations.

Write to **info@kronoterm.com** for any additional questions.

## INDEX

## DESCRIPTION

WPG heat pumps are intended for central **heating** and **cooling** of buildings, preparation of **hot domestic water** and preparation of heat/cooling for technological needs. They are particularly suitable for larger facilities, such as residential buildings, business and industrial facilities, and educational institutions. WPG heat pumps are high-temperature heat pumps that use **geothermal energy** for their operation, either from groundwater, ground collectors or geoprobe. All models are compact designs for indoor installation with the control unit installed inside. The control unit of the heat pump controls the appliance and the system, and control is carried out through a screen and a keyboard on the front of the device. A web module is built in as standard, which also enables remote management and control. Two-compressor versions allow step-by-step regulation of the appliance power, and the heat pumps can also be connected in cascade. All models are available in a version that enables cooling, for which a suitable hydromodule is required. The family of commercial geothermal heat pumps includes the most efficient scroll compressors, which together with the boost-cop system ensure extremely efficient operation. The coolant injection into the evaporator is regulated by an electronic expansion valve. The closed housing of the compressor part of the device, insulated with multi-layer sound insulation of high density and double anti-vibration mounting of the compressors ensures extremely quiet operation of the appliance. The control algorithm enables weather-dependent adjustment of the outlet water temperature to the needs of the facility. The appliances are TÜV certified.

## USAGE

Heating, cooling and preparation of domestic hot water.

## TECHNOLOGY

**CLOUD.KRONOTERM** - by connecting to CLOUD.KRONOTERM, the heat pump becomes a smart appliance that allows you to easily regulate your living comfort and save energy anywhere and any time using your mobile phone. You can remotely set different schedules for room heating and cooling as well as domestic water heating, check operating statistics and optimise consumption. In addition to the above, the connection also enables remote service diagnostics.

**IAH™ – Intelligent Adaptive Heating – *completely adjusts the heat pump's output based on the building's requirements.*** Special control algorithms modify the temperature of the water in the heating system per the desired room temperature indoor and the current weather outdoor.

**Scroll compressor** - the most efficient scroll compressors, which together with the boost-cop system ensure extremely efficient operation and a long service life.

**Asymmetric heat exchangers** - two asymmetric stainless steel heat exchangers ensure extremely efficient heat transfer.

**Electronic expansion valve** - acts as a damping element and regulates the injection of refrigerant into the evaporator, thus protecting the compressor.

**Soft start** - reduces the starting current and torque of the compressor and thus protects the compressor from long-term wear.

**Continuous control of recirculation pumps** - the control adjusts the operation of the recirculation pumps according to the current needs of the facility.

**BMS connectivity** - the system can be connected to the BMS of the whole system.

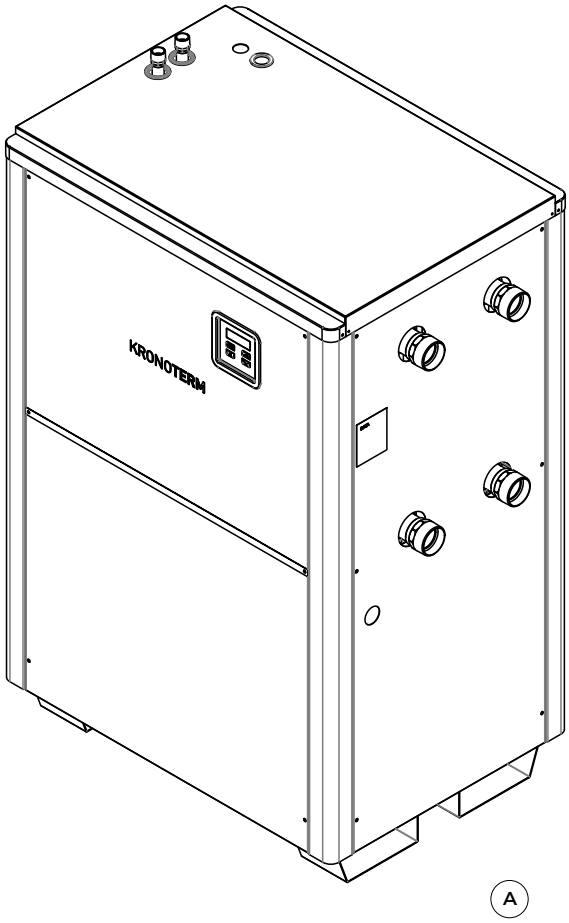
**Adaptive power** - option to adjust power in the case of a tandem. 1 compressor (50% power) or 2 compressors (100% power) can be used. The regulation algorithm automatically regulates the compressor so that the number of operating hours of both compressors is the same.

**Desupearheater** - optional for tandem versions of the WPG heat pump. The heat of superheated compressed gases is utilised with an additional heat exchanger. Due to

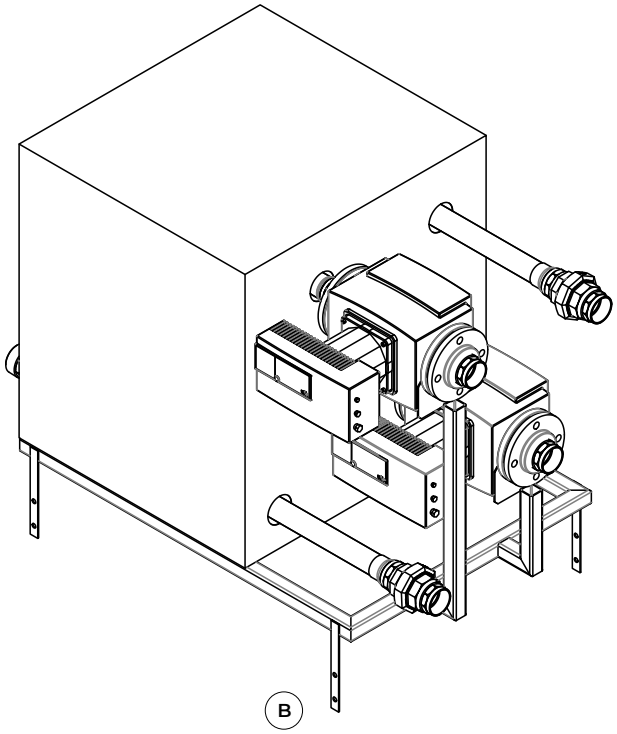
## NOMENCLATURE

| WPG-110-1 HTT/H 3F D S | |
|---|---|
| WPG | Heat pump family name |
| 110 | Rated heating power 110 kW |
| 1 | Appliance generation |
| HTT / HT | High-temperature version, double-compressor / single-compressor |
| H | Heating |
| 3F | three-phase connection 3 x 400 V |
| D | Desuperheater - additional heat exchanger for using the heat of compressed gases |
| S | Soft start |

| HM-WPG 80110 OHP-VV | |
|---|---|
| HM-WPG | Hydraulic unit for WPG commercial heat pump |
| 80110 | Suitable for WPG-80 and WPG-110 heat pumps |
| OHP | Heating/cooling/passive cooling |
| VV / SV | Design for water - water / ground - water systems |




A

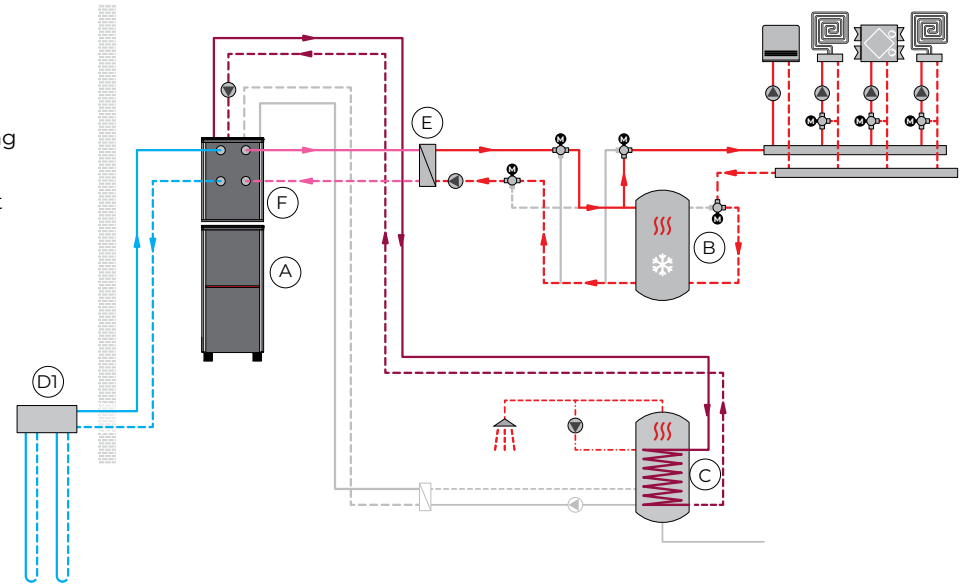


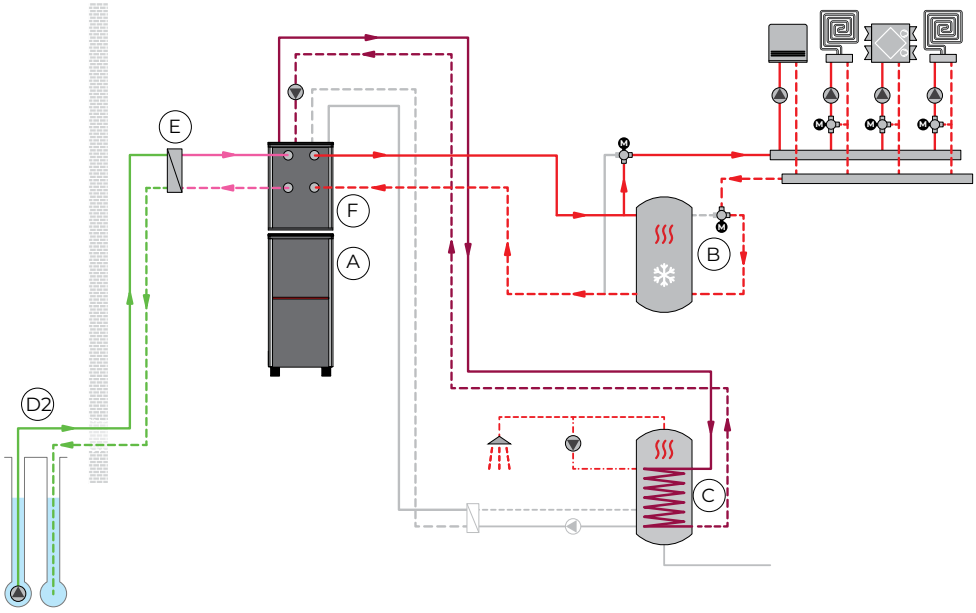
B

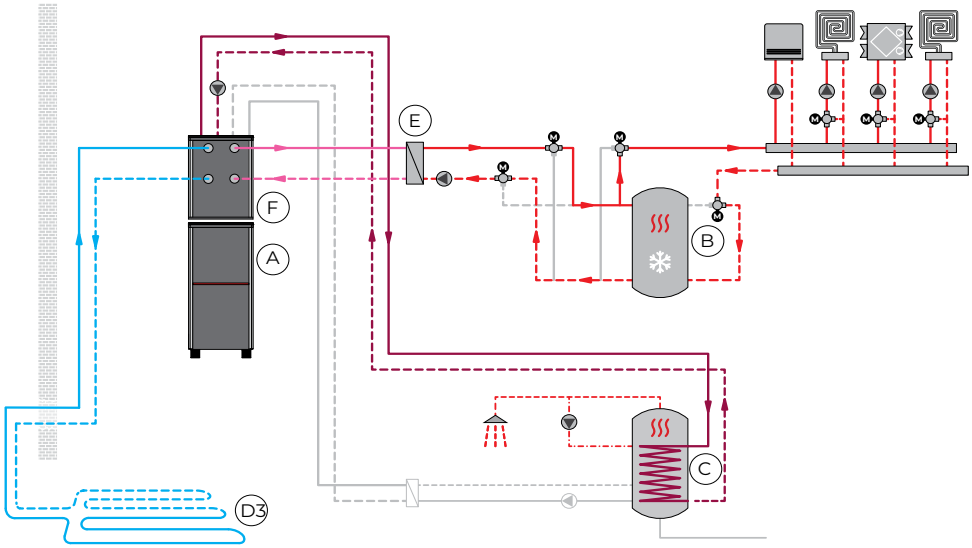
**A** WPG heat pump
**B** HM-WPG hydraulic unit

## CONFIGURATION

The WPG geothermal heat pump is combined with a hydraulic unit that enables heating, active or passive cooling of the system, the preparation of hot domestic water or the use of waste heat from industrial processes.



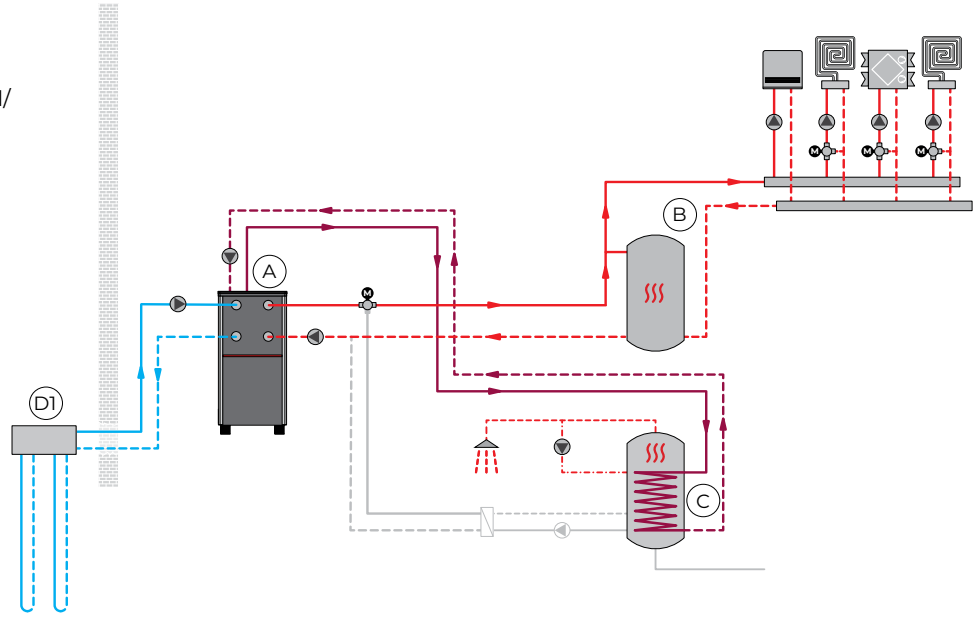



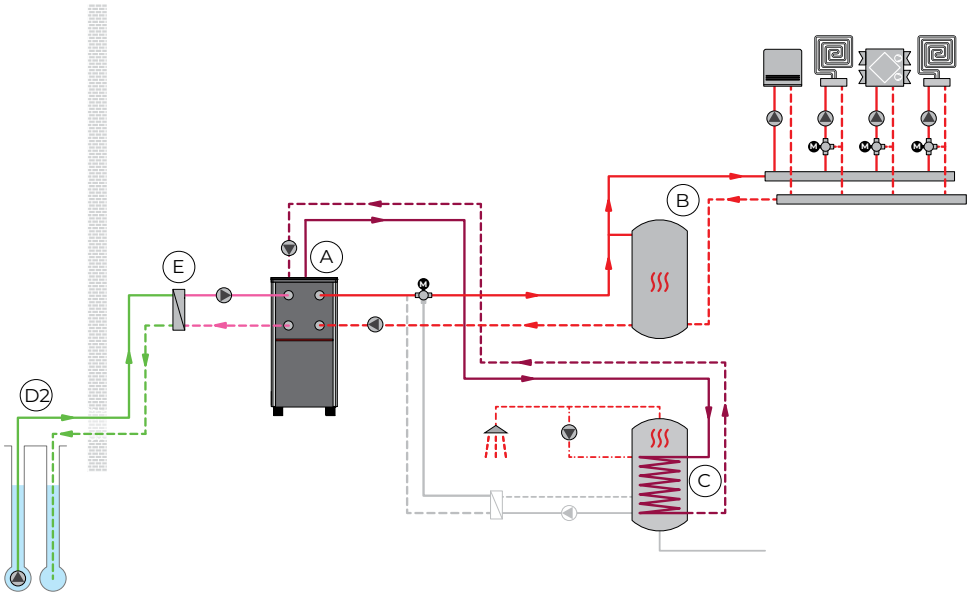



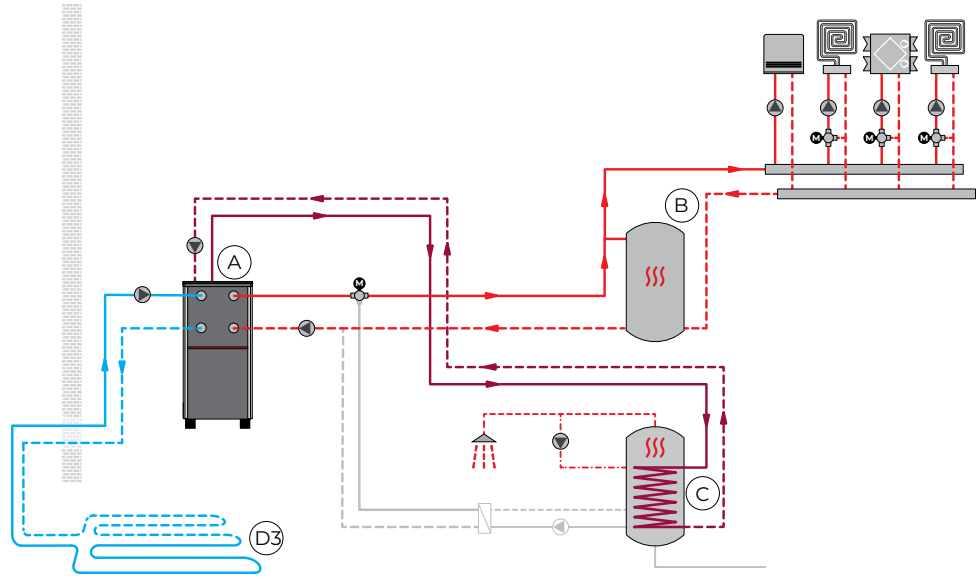

**A** WPG heat pump
**B** Heat/cold buffer tank
**C** DHW tank
**D1** Vertical geothermal collector
**D2** Groundwater
**D3** Horizontal geothermal collector
**E** Pre-exchanger
**F** Compact hydraulic unit

## CONFIGURATION

The WPG geothermal heat pump is combined with a heat storage tank and/ or hot domestic water storage tank.




**A** WPG heat pump
**B** Heat/cold buffer tank
**C** DHW tank
**D1** Vertical geothermal collector
**D2** Groundwater
**D3** Horizontal geothermal collector
**E** Pre-exchanger

## WPG HEAT PUMP WITH HM-WPG HYDRAULIC UNIT

***Version***

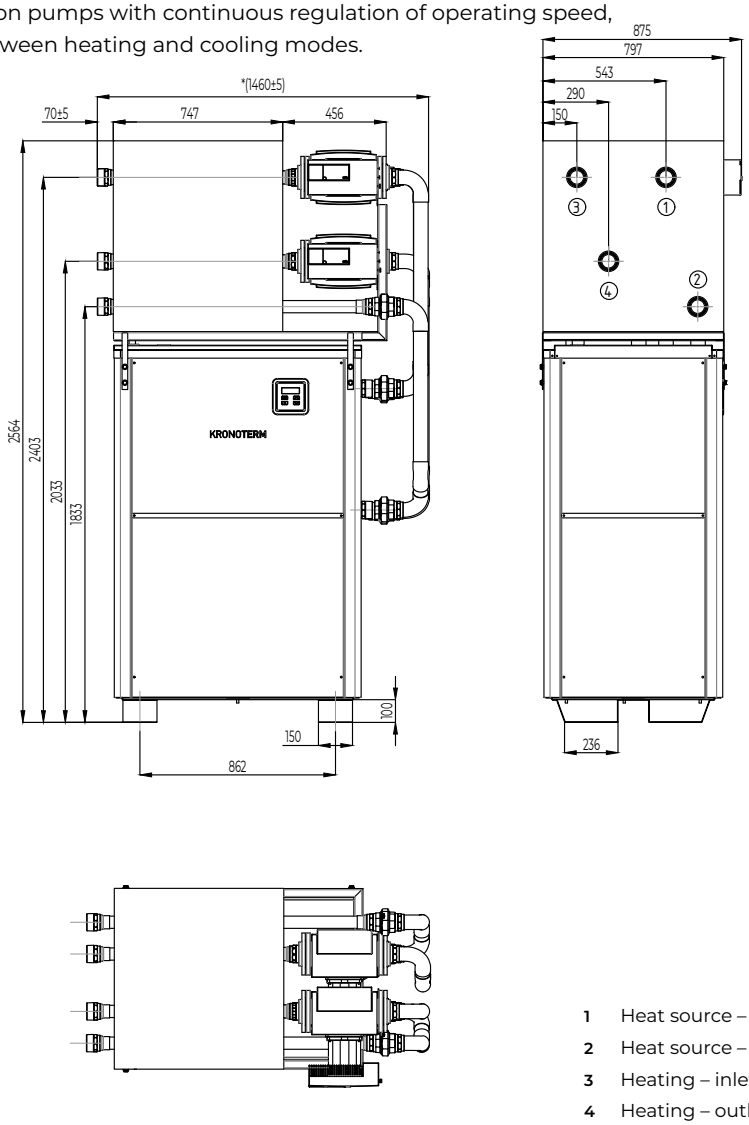
Commercial brine-water or water-water heat pump for indoor installation with hydraulic unit.

***Model mark***

WPG-30-1 HT/H 3F S + HM-WPG-3040 OHP-SV/VV
WPG-40-1 HT/H 3F S + HM-WPG-3040 OHP-SV/VV
WPG-55-1 HT/H 3F S + HM-WPG-5560 OHP-SV/VV
WPG-60-1 HTT/H 3F (D) S + HM-WPG-5560 OHP-SV/VV
WPG-80-1 HTT/H 3F (D) S + HM-WPG-80110 OHP-SV/VV
WPG-110-1 HTT/H 3F (D) S + HM-WPG-80110 OHP-SV/VV

***Description and dimensions***

- Powder coated, steel plate housing.
- Adjustable heat output (for two-compressor models).
- Integrated flow switch at the primary and secondary side.
- Special soundproof housing.
- Special damping and vibration control.
- Integrated compressor soft start.
- Additionally in the hydraulic unit:
  - high-efficiency EC recirculation pumps with continuous regulation of operating speed,
  - set of valves for switching between heating and cooling modes.




1 Heat source – inlet
2 Heat source – outlet
3 Heating – inlet
4 Heating – outlet
5 Electrical connection

## WPG HEAT PUMP

***Version***

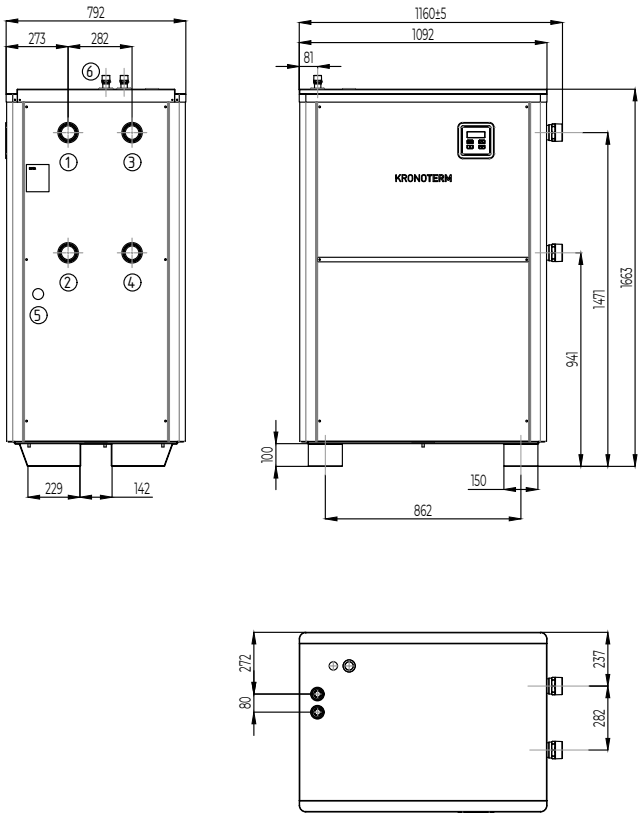
Commercial brine-water or water-water heat pump for indoor installation.

***Model mark***

WPG-30-1 HT/H 3F S
WPG-40-1 HT/H 3F S
WPG-55-1 HT/H 3F S
WPG-60-1 HTT/H 3F (D) S
WPG-80-1 HTT/H 3 F (D) S
WPG-110-1 HTT/H 3 F (D) S

***Description and dimensions***

- Powder coated, steel plate housing.
- Adjustable heat output (for two-compressor models).
- Integrated flow switch at the primary and secondary side.
- Special soundproof housing.
- Special damping and vibration reduction.
- Integrated compressor soft start.




1 Heat source – inlet
2 Heat source – outlet
3 Heating – inlet
4 Heating – outlet
5 Electrical connection

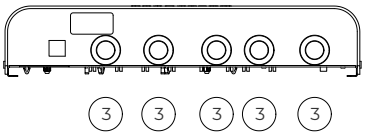
## TT3003 INDOOR WALL EXTENSION UNIT

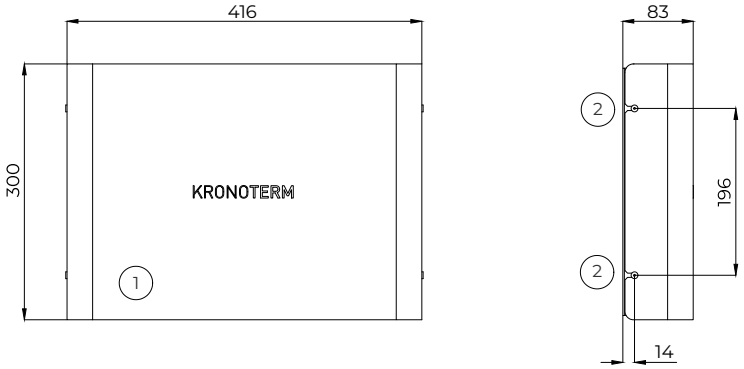
***Version***
Extension indoor wall unit.

***Model mark***
TT3003

***Description and dimensions***
- Wall-mounted version of the indoor unit.
- TT3003 regulator.

***Functional characteristics***
See section TT3003.




1 Cover
2 Cover fastening screw
3 Cable connection glands

## TT3000 BASIC REGULATOR

***Model mark***
TT3000

***Description***
- Basic regulator for heat pump control, integrated into the heat pump housing.

***Functional characteristics***
- Heat pump control.
- Control of additional heat sources (gas, oil or pellet boiler).
- Domestic water heating.
- Domestic water thermal disinfection.
- Control functions for:
    - 1x direct loop (radiator heating, convector heating/cooling);
    - 1x direct or mixing loop (radiator heating, convector heating/cooling, underfloor heating/cooling);
    - domestic water heating;
    - daily and weekly schedules.
- Weather control of the heating supply temperature based on the outside temperature.
- Switching between operation modes heating/cooling/domestic hot water.
- Active cooling.
- Usage of excess energy from solar power plant (PV programme).
- Screed-drying program.
- WEB module for internet connection (RJ45 connection – Ethernet).
- BMS connection via MODBUS RS485 protocol.
- SG (Smart Grid) ready.

2 temperature sensors are supplied with the heat pump.

## TT3003 EXPANSION MODULE

***Model mark***
TT3003

***Description and dimensions***
- Expansion module for upgrading the basic regulator.
- Possible installation of one expansion module (1x).

***Functional characteristics***
- Managing 2 additional heating loops (direct or mixed).
- Control of sunlight collectors.
- Operating biomass boilers (wood, shavings).
- Heating domestic water with solar heat receivers or with a biomass boiler.
- Pool heating.
- Pool heating with sunlight collectors.
- Control of the recirculation pump of the circulation line.

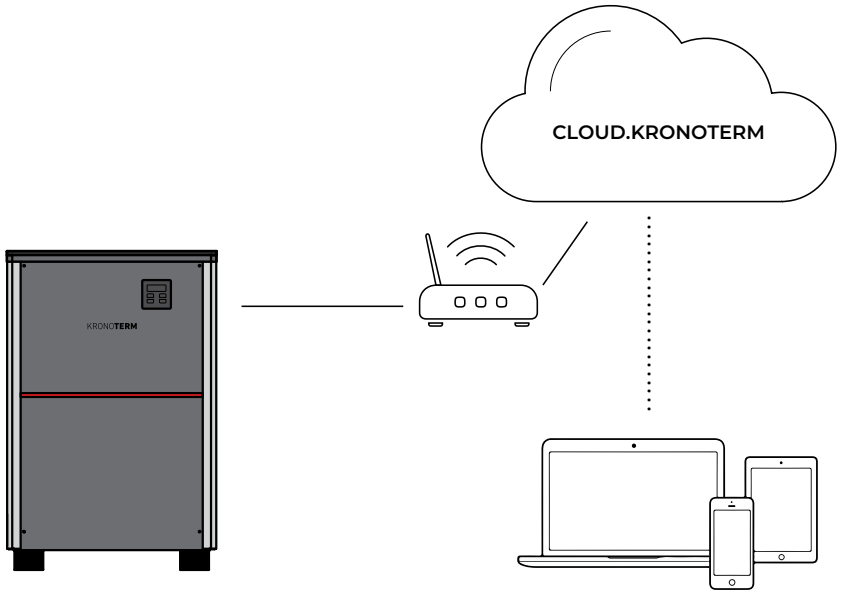
2 temperature sensors are supplied with the heat pump.

## CLOUD.KRONOTERM

CLOUD.KRONOTERM gives you oversight and control over your heat pump, its heating loops, and its consumption and operational costs. The only condition for inspection and management is that the appliance is connected to the Internet.

Recording all events and over 30 operational parameters gives the support team a comprehensive overview and instantaneous diagnostics in the event of a malfunction. All of the data collected are used for permanent improvements which automatically get fed into the appliance, increasing your comfort and decreasing operational costs.

CLOUD.KRONOTERM makes your already installed appliance smarter and better.



## ACCESSORIES FOR THE WPG COMMERCIAL HEAT PUMP SYSTEM

***Hardware***

- Hydraulic unit for heating and cooling.
- Heat/cold buffer tanks.
- DHW tanks.
- Recirculation pumps for heating water and domestic hot water.
- Switching valves for switching from heating mode to cooling mode.
- Magnetic dirt separator for removing impurities from the heating/cooling system.
- Pump sets for direct/mixed heating circuit.
- Anti-vibration lining for less transmission of vibrations and noise to the surroundings.
- Desuperheater recirculation pump.

***Other equipment***

- TT3003 expanded control.
- Freely programmable cascade control.

# TECHNICAL DATA

| APPLIANCE | Unit | WPG-30-1 HT | WPG-40-1 HT | WPG-55-1 HT |
|---|---|---|---|---|
| **CORRESPONDING HYDRAULIC UNIT** | | | | |
| Label | | HM-WPG 3040 OHP | HM-WPG 3040 OHP | HM-WPG 5560 OHP |
| **VERSION** | | | | |
| Heat source | | Geothermal energy | Geothermal energy | Geothermal energy |
| Heat sink | | Water* | Water* | Water* |
| Controller | | TT3000 | TT3000 | TT3000 |
| Heat pump location | | Indoor | Indoor | Indoor |
| Controller position | | Part of the heat pump | Part of the heat pump | Part of the heat pump |
| Compressor | | 1x scroll with constant speed | 1x scroll with constant speed | 1x scroll with constant speed |
| Electrical heater | | / | / | / |
| Soft start | | Serial | Serial | Serial |
| Water flow switch | | Integrated | Integrated | Integrated |
| Recirculation pump, primary | | In the hydraulic module | In the hydraulic module | In the hydraulic module |
| Recirculation pump, secondary | | In the hydraulic module | In the hydraulic module | In the hydraulic module |
| **CAPACITY ACCORDING TO STANDARD EN 14511** | | | | |
| **HEATING** | | Heating power / electric power / COP | Heating power / electric power / COP | Heating power / electric power / COP |
| W10/W30-35 | kW/kW/- | 33.5 / 5.4 / 6.25 | 45.7 / 7.6 / 5.98 | 57.2 / 9.6 / 5.94 |
| W10/W40-45 | kW/kW/- | 31.2 / 6.4 / 4.84 | 43.3 / 9.1 / 4.77 | 54.2 / 11.4 / 4.75 |
| W10/W47-55 | kW/kW/- | 29.5 / 8.0 / 3.70 | 41.0 / 11.1 / 3.71 | 51.1 / 13.8 / 3.70 |
| B0/W30-35 | kW/kW/- | 24.5 / 5.4 / 4.56 | 33.2 / 5.7 / 4.47 | 42.5 / 9.4 / 4.50 |
| B0/W40-45 | kW/kW/- | 23.4 / 6.5 / 3.58 | 31.4 / 9.0 / 3.50 | 40.7 / 11.3 / 3.59 |
| B0/W47-55 | kW/kW/- | 21.6 / 8.0 / 2.70 | 28.8 / 10.9 / 2.64 | 37.6 / 13.5 / 2.79 |
| **COOLING** | | Heating power / electric power / COP | Heating power / electric power / COP | Heating power / electric power / COP |
| W20/W12-7 | kW/kW/- | 26.7 / 4.5 / 5.93 | 34.9 / 6.0 / 5.82 | 46.4 / 8.2 / 5.68 |
| W20/W23-18 | kW/kW/- | 30.9 / 4.6 / 6.67 | 40.4 / 6.2 / 6.55 | 53.7 / 8.4 / 6.39 |
| B20/W12-7 | kW/kW/- | 26.2 / 4.5 / 5.82 | 34.2 / 6.0 / 5.70 | 45.5 / 8.2 / 5.55 |
| B20/W23-18 | kW/kW/- | 30.3 / 4.6 / 6.55 | 39.6 / 6.2 / 6.41 | 52.7 / 8.4 / 6.24 |
| **SEASONAL HEATING CAPACITIES FOR THE AVERAGE CLIMATE ZONE ACCORDING TO STANDARD EN 14825** | | | | |
| SCOP, 35 °C/55 °C – source water | | 6.74 / 4.87 | 6.39 / 4.89 | 6.34 / 4.89 |
| SCOP, 35 °C/55 °C – source brine | | 5.02 / 3.60 | 4.84 / 3.48 | 4.86 / 3.49 |
| **SEASONAL ENERGY EFFICIENCY FOR SPACE HEATING IN AN AVERAGE CLIMATE ZONE ACCORDING TO REGULATION (EU) 811/2013** | | | | |
| Rated heating power Pdesignh, 35 °C/55 °C – source water | kW | 36 / 32 | 49 / 45 | 62 / 55 |
| ηs, 35 °C/55 °C – source water | % | 260 / 188 | 248 / 190 | 247 / 190 |
| Rated heating power Pdesignh, 35 °C/55 °C – source brine | kW | 26 / 23 | 36 / 31 | 46 / 40 |
| ηs, 35 °C/55 °C – source brine | % | 193 / 138 | 187 / 134 | 189 / 135 |
| **ENERGY EFFICIENCY LABEL FOR THE AVERAGE CLIMATE ZONE ACCORDING TO REGULATION (EU) 811/2013** | | | | |
| Space heating energy class, 35 °C/55 °C – source water | D to A+++ | A+++ / A+++ | A+++ / A+++ | A+++ / A+++ |
| Space heating energy class, 35 °C/55 °C – water brine | D to A+++ | A++ / A+++ | A++ / A+++ | A++ / A+++ |
| **ELECTRICAL DATA** | | | | |
| Rated voltage | | 3N ~ 400V, 50 Hz | 3N ~ 400V, 50 Hz | 3N ~ 400V, 50 Hz |
| Max. operating current | A | 19,1 | 24,2 | 32,7 |
| Max. electric power | kW | 10,7 | 13,6 | 17,5 |
| $Z_{max}$ | Ω | 0,010 | 0,010 | 0,010 |
| Locked rotor current (LRA) | A | 111 | 118 | 174 |
| Fuses | A | 3 x C20 | 3 x C25 | 3 x C32 |
| Power supply cable | mm² | 5 x 2.5 | 5 x 4 | 5 x 6 |
| Type of power supply cable | | H05VV-F | H05VV-F | H05VV-F |
| Indoor unit protection class | | IP20 | IP20 | IP20 |

***a glycol/water mixture is possible, up to 30% glycol***

## TECHNICAL DATA

| APPLIANCE | Unit | WPG-30-1 HT | WPG-40-1 HT | WPG-55-1 HT |
|---|---|---|---|---|
| **COMMUNICATION** | | | | |
| Connection to CNS | | MODBUS protocol (UTP cable – connection RJ45) – RS 485 | MODBUS protocol (UTP cable – connection RJ45) – RS 485 | MODBUS protocol (UTP cable – connection RJ45) – RS 485 |
| Connection to the internet | | UTP 5e cable – RJ45 connection – Ethernet | UTP 5e cable – RJ45 connection – Ethernet | UTP 5e cable – RJ45 connection – Ethernet |
| **COOLING SYSTEM** | | | | |
| Oil - type | | POE (Emkarte RL 32 3MAF) | POE (Emkarte RL 32 3MAF) | POE (Emkarte RL 32 3MAF) |
| Oil - volume | **l** | 3,25 | 3,25 | 3,38 |
| Refrigerant - type | | R410A | R410A | R410A |
| Refrigerant - quantity | **kg** | 4,2 | 4,5 | 7,0 |
| Coolant GWP - AR5 | | 2088 | 2088 | 2088 |
| Max. operating pressure | **MPa** | 4,3 | 4,3 | 4,3 |
| **PRIMARY SIDE (HEAT SOURCE) – WATER** | | | | |
| Minimum system pressure | **MPa (bar)** | 0.1 (1.0) | 0.1 (1.0) | 0.1 (1.0) |
| Maximum system pressure | **MPa (bar)** | 0.3 (3.0) | 0.3 (3.0) | 0.3 (3.0) |
| Pipe connections | | R 1 1/2 '' external thread | R 1 1/2 '' external thread | R 2 '' external thread |
| Recommended dimensions of pipes to the | **DN** | 40 | 40 | 50 |
| Recommended primary recirculation pump | | OC_Wilo Stratos MAXO 30/0,5-12 | OC_Stratos MAXO 30/0,5-12 | OC_Stratos MAXO 30/0,5-12 |
| **WATER INLET TEMPERATURE TO THE APPLIANCE 10 °C - OPERATION AS "WATER-WATER"** | | | | |
| Rated flow | **m³/h** | 7,7 | 10,2 | 13,4 |
| Pressure drop at rated flow | **kPa** | 18 | 20 | 13 |
| **HEATING** | | | | |
| Operating range - min./max. water temp. | **°C** | 7 / 25 | 7 / 25 | 7 / 25 |
| **COOLING** | | | | |
| Operating range - min./max. water temp. | **°C** | 10 / 40 | 10 / 40 | 10 / 40 |
| **THE INLET TEMPERATURE OF THE 30% ETHYLENE-GLYCOL SOLUTION TO THE APPLIANCE IS 0 °C - OPERATION AS "GROUND-WATER"** | | | | |
| Rated flow | **m3/h** | 5,4 | 7,2 | 9,6 |
| Pressure drop at rated flow | **kPa** | 15 | 18 | 10 |
| **HEATING** | | | | |
| Operating range - min./max. medium temp. | **°C** | -7 / 25 | -7 / 25 | -7 / 25 |
| **COOLING** | | | | |
| Operating range - min./max. medium temp. | **°C** | 10 / 40 | 10 / 40 | 10 / 40 |
| **SECONDARY SIDE (HEAT SINK) – WATER** | | | | |
| Minimum system pressure | **MPa (bar)** | 0.1 (1.0) | 0.1 (1.0) | 0.1 (1.0) |
| Maximum system pressure | **MPa (bar)** | 0.6 (6.0) | 0.6 (6.0) | 0.6 (6.0) |
| Pipe connections | | R 1 1/2 '' external thread | R 1 1/2 '' external thread | R 2 '' external thread |
| Recommended dimensions of pipes to the | **DN** | 40 | 50 | 50 |
| Recommended secondary recirculation | | OC_Wilo Stratos MAXO 30/0,5-8 | OC_Wilo Stratos MAXO 30/0,5-12 | OC_Wilo Stratos MAXO 40/0,5-8 |
| **HEATING** | | | | |
| Operating range - min./max. water temp. | **°C** | 25 / 65 | 25 / 65 | 25 / 65 |
| **COOLING** | | | | |
| Operating range - min./max. medium temp. | **°C** | 5 / 25 | 5 / 25 | 5 / 25 |
| **WATER INLET TEMPERATURE TO THE APPLIANCE 10 °C - OPERATION AS "WATER-WATER"** | | | | |
| Rated flow | **m³/h** | 5,5 | 7,2 | 9,5 |
| Pressure drop at rated flow | **kPa** | 9 | 9 | 6 |
| **THE INLET TEMPERATURE OF THE 30% ETHYLENE-GLYCOL SOLUTION TO THE APPLIANCE IS 0 °C - OPERATION AS "GROUND-WATER"** | | | | |
| Rated flow | **m³/h** | 4,1 | 5,4 | 7,2 |
| Pressure drop at rated flow | **kPa** | 5 | 6 | 3 |

## TECHNICAL DATA

| APPLIANCE | Unit | WPG-30-1 HT | WPG-40-1 HT | WPG-55-1 HT |
|---|---|---|---|---|
| **DIMENSIONS AND MASS - TRANSPORT** | | | | |
| Dimensions (W x H x D) | **mm** | 1270 x 1763 x 892 | 1270 x 1763 x 892 | 1270 x 1763 x 892 |
| Mass | **kg** | 327 | 349 | 389 |
| **DIMENSIONS AND MASS - NET** | | | | |
| Dimensions (W x H x D) | **mm** | 1170 x 1663 x 792 | 1170 x 1663 x 792 | 1170 x 1663 x 792 |
| Mass | **kg** | 324 | 346 | 386 |
| **NOISE** | | | | |
| Level of sound power | **dB(A)** | 58 | 56 | 60 |
| Sound pressure level at the distance of 1 m | **dB(A)** | 50 | 48 | 52 |
| Sound pressure level at the distance of 5 m | **dB(A)** | 36 | 34 | 38 |
| Sound pressure level at the distance of 10 m | **dB(A)** | 30 | 28 | 32 |

# TECHNICAL DATA

| APPLIANCE | Unit | WPG-60-1 HTT | WPG-80-1 HTT | WPG-110-1 HTT |
|---|---|---|---|---|
| **CORRESPONDING HYDRAULIC UNIT** | | | | |
| Label | | HM-WPG 5560 OHP | HM-WPG 80110 OHP | HM-WPG 80110 OHP |
| **VERSION** | | | | |
| Heat source | | Geothermal energy | Geothermal energy | Geothermal energy |
| Heat sink | | Water* | Water* | Water* |
| Controller | | TT3000 | TT3000 | TT3000 |
| Heat pump location | | Indoor | Indoor | Indoor |
| Controller position | | Part of the heat pump | Part of the heat pump | Part of the heat pump |
| Compressor | | 2x scroll with constant speed | 2x scroll with constant speed | 2x scroll with constant speed |
| Electrical heater | | / | / | / |
| Soft start | | Serial | Serial | Serial |
| Water flow switch | | Integrated | Integrated | Integrated |
| Recirculation pump, primary | | In the hydraulic module | In the hydraulic module | In the hydraulic module |
| Recirculation pump, secondary | | In the hydraulic module | In the hydraulic module | In the hydraulic module |
| **CAPACITY ACCORDING TO STANDARD EN 14511** | | | | |
| **HEATING** | | Heating power / electric power / COP | Heating power / electric power / COP | Heating power / electric power / COP |
| W10/W30-35 (1 compressor) | kW/kW/- | 35.1 / 5.5 / 6.37 | 45.8 / 7.3 / 6.28 | 60.6 / 10.1 / 5.98 |
| W10/W30-35 (2 compressors) | kW/kW/- | 65.2 / 10.7 / 6.08 | 85.3 / 14.1 / 6.07 | 112.9 / 19.5 / 5.78 |
| W10/W40-45 (1 compressor) | kW/kW/- | 33.0 / 6.4 / 5.14 | 42.6 / 8.3 / 5.16 | 56.4 / 11.3 / 5.00 |
| W10/W40-45 (2 compressors) | kW/kW/- | 62.1 / 12.9 / 4.83 | 80.7 / 16.6 / 4.85 | 106.9 / 22.8 / 4.70 |
| W10/W47-55 (1 compressor) | kW/kW/- | 30.6 / 7.8 / 3.93 | 38.8 / 10.1 / 3.82 | 51.4 / 13.5 / 3.81 |
| W10/W47-55 (2 compressors) | kW/kW/- | 59.0 / 15.8 / 3.72 | 76.0 / 21.0 / 3.62 | 100.8 / 27.9 / 3.61 |
| B0/W30-35 (1 compressor) | kW/kW/- | 25.4 / 5.3 / 4.83 | 33.4 / 7.0 / 4.77 | 44.6 / 9.5 / 4.72 |
| B0/W30-35 (2 compressors) | kW/kW/- | 48.2 / 10.7 / 4.53 | 63.3 / 14.2 / 4.47 | 84,7 / 19,2 / 4.42 |
| B0/W40-45 (1 compressor) | kW/kW/- | 24.2 / 6.3 / 3.85 | 31.8 / 8.5 / 3.75 | 42.8 / 11.2 / 3.83 |
| B0/W40-45 (2 compressors) | kW/kW/- | 44.8 / 12.7 / 3.53 | 59.1 / 16.8 / 3.51 | 79.5 / 22.6 / 3.52 |
| B0/W47-55 (1 compressor) | kW/kW/- | 21.9 / 7.7 / 2.85 | 28.9 / 10.1 / 2.85 | 39.2 / 13.4 / 2.93 |
| B0/W47-55 (2 compressors) | kW/kW/- | 41.5 / 15.6 / 2.65 | 54.8 / 20.7 / 2.65 | 74.2 / 27.3 / 2.72 |
| **COOLING** | | Heating power / electric power / EER | Heating power / electric power / EER | Heating power / electric power / EER |
| W20/W12-7 (1 compressor) | kW/kW/- | 26.5 / 4.1 / 6.50 | 34.5 / 5.4 / 6.35 | 45.9 / 7.3 / 6.33 |
| W20/W12-7 (2 compressors) | kW/kW/- | 52.0 / 9.0 / 5.78 | 67.7 / 12.1 / 5.64 | 90.0 / 16.2 / 5.60 |
| W20/W23-18 (1 compressor) | kW/kW/- | 30.7 / 4.2 / 7.31 | 40.0 / 5.6 / 7.14 | 53.1 / 7.5 / 7.12 |
| W20/W23-18 (2 compressors) | kW/kW/- | 60.2 / 9.3 / 6.50 | 78.4 / 12.3 / 6.35 | 104.2 / 16.5 / 6.30 |
| B20/W12-7 (1 compressor) | kW/kW/- | 26.0 / 4.1 / 6.38 | 33.9 / 5.5 / 6.18 | 45.0 / 7.3 / 6.15 |
| B20/W12-7 (2 compressors) | kW/kW/- | 51.0 / 9.0 / 5.67 | 66.4 / 12.1 / 5.48 | 88.2 / 16.2 / 5.44 |
| B20/W23-18 (1 compressor) | kW/kW/- | 30.1 / 4.2 / 7.18 | 39.2 / 5.6 / 6.97 | 52.1 / 7.5 / 6.92 |
| B20/W23-18 (2 compressors) | kW/kW/- | 59.1 / 9.3 / 6.38 | 76.9 / 12.5 / 6.17 | 102.1 / 16.7 / 6.12 |
| **SEASONAL HEATING CAPACITIES FOR THE AVERAGE CLIMATE ZONE ACCORDING TO STANDARD EN 14825** | | | | |
| SCOP, 35 °C/55 °C – source water | | 7.20 / 5.35 | 7.44 / 5.50 | 7.21 / 5.36 |
| SCOP, 35 °C/55 °C – source brine | | 5.17 / 3.90 | 5.20 / 3.89 | 5.08 / 3.92 |
| **SEASONAL ENERGY EFFICIENCY FOR SPACE HEATING IN AN AVERAGE CLIMATE ZONE ACCORDING TO REGULATION (EU) 8811/2013** | | | | |
| Rated heating power $P_{designh}$ 35 °C/55 °C – source water | kW | 68 / 61 | 88 / 80 | 118 / 106 |
| ηs, 35 °C/55 °C – source water | % | 278 / 207 | 289 / 213 | 281 / 209 |
| Rated heating power $P_{designh}$ 35 °C/55 °C – source brine | kW | 50 / 46 | 65 / 59 | 88 / 78 |
| ηs, 35 °C/55 °C – source brine | % | 199 / 150 | 201 / 150 | 197 / 152 |

***a glycol/water mixture is possible, up to 30% glycol***

# TECHNICAL DATA

| APPLIANCE | Unit | WPG-60-1 HTT | WPG-80-1 HTT | WPG-110-1 HTT |
|---|---|---|---|---|
| **ENERGY EFFICIENCY LABEL FOR THE AVERAGE CLIMATE ZONE ACCORDING TO REGULATION (EU) 811/2013** | | | | |
| Space heating energy class, 35 °C/55 °C – source water | **D to A+++** | A+++ / A+++ | A+++ / A+++ | A+++ / A+++ |
| Space heating energy class, 35 °C/55 °C – water brine | **D to A+++** | A+++ / A+++ | A+++ / A+++ | A+++ / A+++ |
| **ELECTRICAL DATA** | | | | |
| Rated voltage | | 3N ~ 400V, 50 Hz | 3N ~ 400V, 50 Hz | 3N ~ 400V, 50 Hz |
| Max. operating current | **A** | 36,0 | 45,7 | 62,7 |
| Max. electric power | **kW** | 20,8 | 26,6 | 34,4 |
| $Z_{max}$ | **Ω** | 0,010 | 0,010 | 0,010 |
| Locked rotor current (LRA) | **A** | 128 | 127 | 204 |
| Fuses | **A** | 3 x C40 | 3 x C50 | 3 x C63 |
| Power supply cable | **mm²** | 5 x 10 | 5 x 10 | 5 x 16 |
| Type of power supply cable | | H05VV-F | H05VV-F | H05VV-F |
| Indoor unit protection class | | IP20 | IP20 | IP20 |
| **COMMUNICATION** | | | | |
| Connection to CNS | | MODBUS protocol (UTP cable – connection RJ45) – RS 485 | MODBUS protocol (UTP cable – connection RJ45) – RS 485 | MODBUS protocol (UTP cable – connection RJ45) – RS 485 |
| Connection to the internet | | UTP 5e cable – RJ45 connection – Ethernet | UTP 5e cable – RJ45 connection – Ethernet | UTP 5e cable – RJ45 connection – Ethernet |
| **COOLING SYSTEM** | | | | |
| Oil - type | | POE (Emkarte RL 32 3MAF) | POE (Emkarte RL 32 3MAF) | POE (Emkarte RL 32 3MAF) |
| Oil - volume | **l** | 5,0 | 6,50 | 6,76 |
| Refrigerant - type | | R410A | R410A | R410A |
| Refrigerant - quantity | **kg** | 7,8 | 9,5 | 9,5 |
| Coolant GWP - AR5 | | 2088 | 2088 | 2088 |
| Max. operating pressure | **MPa** | 4,3 | 4,3 | 4,3 |
| **PRIMARY SIDE (HEAT SOURCE) – WATER** | | | | |
| Minimum system pressure | **MPa (bar)** | 0.1 (1.0) | 0.1 (1.0) | 0.1 (1.0) |
| Maximum system pressure | **MPa (bar)** | 0.6 (6.0) | 0.6 (6.0) | 0.6 (6.0) |
| Pipe connections | | R 2 '' external thread | R 2 1/2 '' external thread | R 2 1/2 '' external thread |
| Recommended dimensions of pipes to the appliance | **DN** | 50 | 65 | 65 |
| **WATER INLET TEMPERATURE TO THE APPLIANCE 10 °C - OPERATION AS "WATER-WATER"** | | | | |
| Rated flow | **m3/h** | 15,3 | 20,0 | 26,4 |
| Pressure drop at rated flow | **kPa** | 23 | 16 | 22 |
| **HEATING** | | | | |
| Operating range - min. / max. water temp. | **°C** | 7 / 25 | 7 / 25 | 7 / 25 |
| **COOLING** | | | | |
| Operating range - min. / max. water temp. | **°C** | 10 / 40 | 10 / 40 | 10 / 40 |
| **THE INLET TEMPERATURE OF THE 30% ETHYLENE-GLYCOL SOLUTION TO THE APPLIANCE IS 0 °C - OPERATION AS "GROUND-WATER"** | | | | |
| Rated flow | **m³/h** | 10,6 | 14,0 | 18,5 |
| Pressure drop at rated flow | **kPa** | 19 | 13 | 17 |
| **HEATING** | | | | |
| Operating range - min. / max. medium temp. | **°C** | -7 / 25 | -7 / 25 | -7 / 25 |
| **COOLING** | | | | |
| Operating range - min. / max. medium temp. | **°C** | 10 / 40 | 10 / 40 | 10 / 40 |
| Recommended primary recirculation pump | | OC_Stratos MAXO 40/0,5-12 | OC_Stratos MAXO 50/0,5-12 | OC_Stratos MAXO 50/0,5-12 |

## TECHNICAL DATA

| APPLIANCE | Unit | WPG-60-1 HTT | WPG-80-1 HTT | WPG-110-1 HTT |
|---|---|---|---|---|
| **SECONDARY SIDE (HEAT SINK) – WATER** | | | | |
| Minimum system pressure | **MPa (bar)** | 0.1 (1.0) | 0.1 (1.0) | 0.1 (1.0) |
| Maximum system pressure | **MPa (bar)** | 0.3 (3.0) | 0.3 (3.0) | 0.3 (3.0) |
| Pipe connections | | R 2 '' external thread | R 2 1/2 '' external thread | R 2 1/2 '' external thread |
| Recommended dimensions of pipes to the appliance | **DN** | 50 | 50 | 65 |
| Recommended primary recirculation pump | | OC_Stratos MAXO 30/0,5-12 | OC_Stratos MAXO 40/0,5-12 | OC_Stratos MAXO 50/0,5-12 |
| **HEATING** | | | | |
| Operating range - min. / max. water temp. | **°C** | 25 / 63 | 25 / 63 | 25 / 63 |
| **COOLING** | | | | |
| Operating range - min. / max. medium temp. | **°C** | 7 / 25 | 7 / 25 | 7 / 25 |
| **WATER INLET TEMPERATURE TO THE APPLIANCE 10 °C - OPERATION AS "WATER-WATER"** | | | | |
| Rated flow | **m³/h** | 10,8 | 14,2 | 18,9 |
| Pressure drop at rated flow | **kPa** | 14 | 8 | 11 |
| **THE INLET TEMPERATURE OF THE 30% ETHYLENE-GLYCOL SOLUTION TO THE APPLIANCE IS 0 °C - OPERATION AS "GROUND-WATER"** | | | | |
| Rated flow | **m³/h** | 17,9 | 10,6 | 14,1 |
| Pressure drop at rated flow | **kPa** | 9 | 5 | 7 |
| **DIMENSIONS AND MASS - TRANSPORT** | | | | |
| Dimensions (W x H x D) | **mm** | 1270 x 1763 x 892 | 1270 x 1763 x 892 | 1270 x 1763 x 892 |
| Mass | **kg** | 493 | 526 | 552 |
| **DIMENSIONS AND MASS - NET** | | | | |
| Dimensions (W x H x D) | **mm** | 1170 x 1663 x 792 | 1170 x 1663 x 792 | 1170 x 1663 x 792 |
| Mass | **kg** | 490 | 523 | 549 |
| **NOISE** | | | | |
| Level of sound power | **dB(A)** | 60 | 64 | 66 |
| Sound pressure level at the distance of 1 m | **dB(A)** | 52 | 56 | 58 |
| Sound pressure level at the distance of 5 m | **dB(A)** | 38 | 42 | 44 |
| Sound pressure level at the distance of 10 m | **dB(A)** | 32 | 36 | 38 |

## TECHNICAL DATA - HYDRO MODULES

| APPLIANCE | Unit | HM-WPG 3040 OHP-SV/VV | HM-WPG 5560 OHP-SV/VV | HM-WPG 80110 OHP-SV/VV |
|---|---|---|---|---|
| **INDOOR UNIT** | | | | |
| Connection dimensions | | R 6/4 '' external thread | R 2 '' external thread | R 2 1/2 '' external thread |
| Dimensions (W x H x D) | **mm** | 1328 x 1093 x 801 | 1328 x 1093 x 801 | 1328 x 1093 x 801 |
| Built-in elements | | 2x recirculation pump<br>8x motorised shut-off valve | 2x recirculation pump<br>8x motorised shut-off valve | 2x recirculation pump<br>8x motorised shut-off valve |
| Electrical connection | | 1~ 230V ± 10% ;50/60 Hz | 1~ 230V ± 10% ;50/60 Hz | 1~ 230V ± 10% ;50/60 Hz |
| Max. electric power | **W** | 590 | 980 | 1100 |
| Max. electric current | **A** | 2,6 | 4,2 | 4,8 |
| Energy efficiency index (EEI) | | 0,19 | 0,17 | 0,17 |

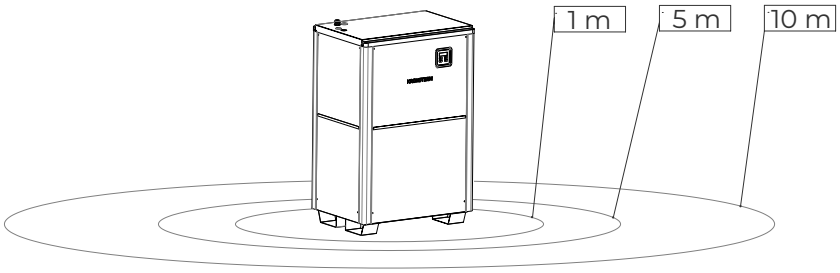
## SOUND

***Description***

Sound power is a characteristic of a sound source and is not related to distance; describes the total sound energy of an appropriate source that is emitted in all directions.

Sound pressure depends on the measurement site in the sound field and describes the sound pressure at that location.

Structural sound is transmitted through the structure, so all connections must be equipped with compensators or vibration absorbers.



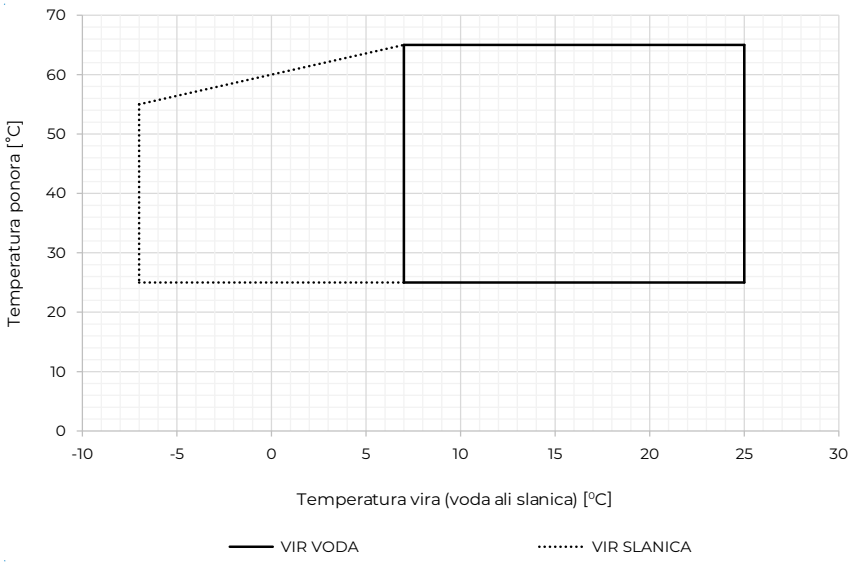

| APPLIANCE | Unit | WPG-30 | WPG-40 | WPG-55 |
|---|---|---|---|---|
| **SOUND ACCORDING TO EN 12102 AT THE CONDITION OF W10W35** | | | | |
| **THE DECLARED SOUND POWER ON THE ECOLABEL ENERGY LABEL** | | | | |
| Level of sound power | **dB (A)** | 58 | 56 | 60 |
| Sound pressure level at the distance of 1 m | **dB (A)** | 50 | 48 | 52 |

| APPLIANCE | Unit | WPG-60 | WPG-80 | WPG-110 |
|---|---|---|---|---|
| **SOUND ACCORDING TO EN 12102 AT THE CONDITION OF B0W35** | | | | |
| **THE DECLARED SOUND POWER ON THE ECOLABEL ENERGY LABEL** | | | | |
| Level of sound power | **dB (A)** | 60 | 64 | 66 |
| Sound pressure level at the distance of 1 m | **dB (A)** | 52 | 56 | 58 |

*The appliance's sound power depends on the building's actual heating needs. The lower the heating needs, the lower the noise levels, and vice versa.*
*Sound pressure is calculated from the sound power at the hemispherical layout (Q = 2).*

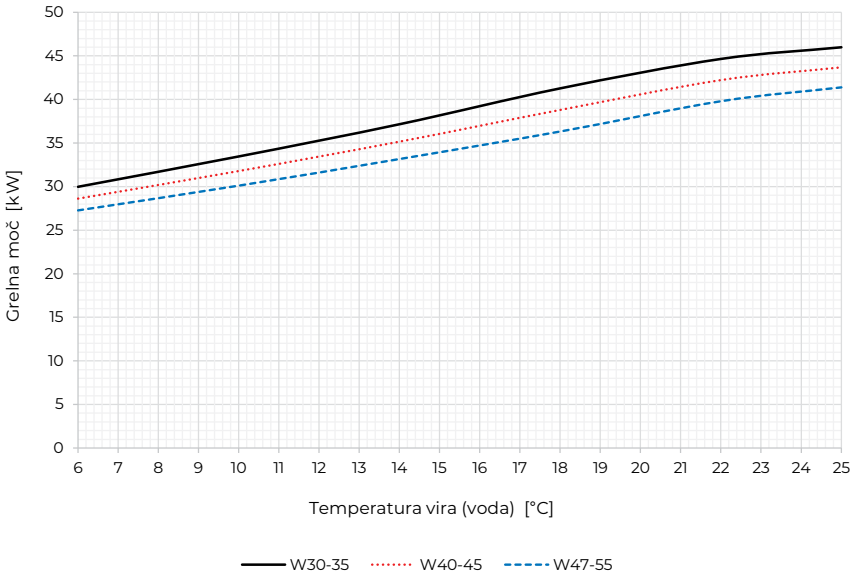
## OPERATING RANGE

### *Heating*

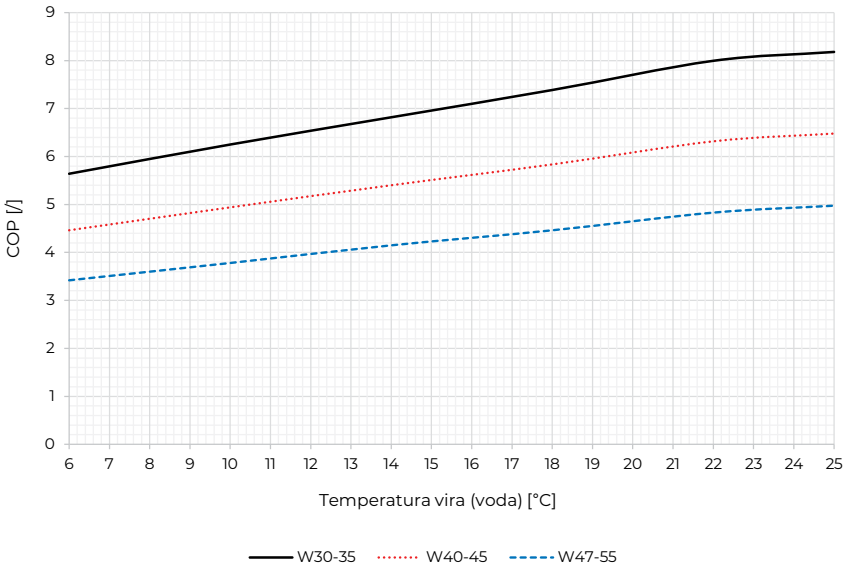


## CAPACITY CURVES

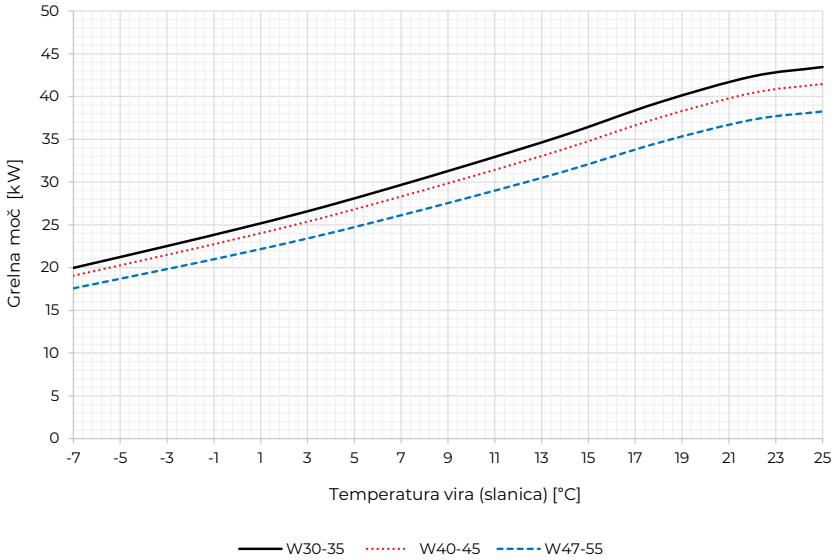
***WPG-30-1 HT water-water system***
Heating capacity




***WPG-30-1 HT water-water system***
COP

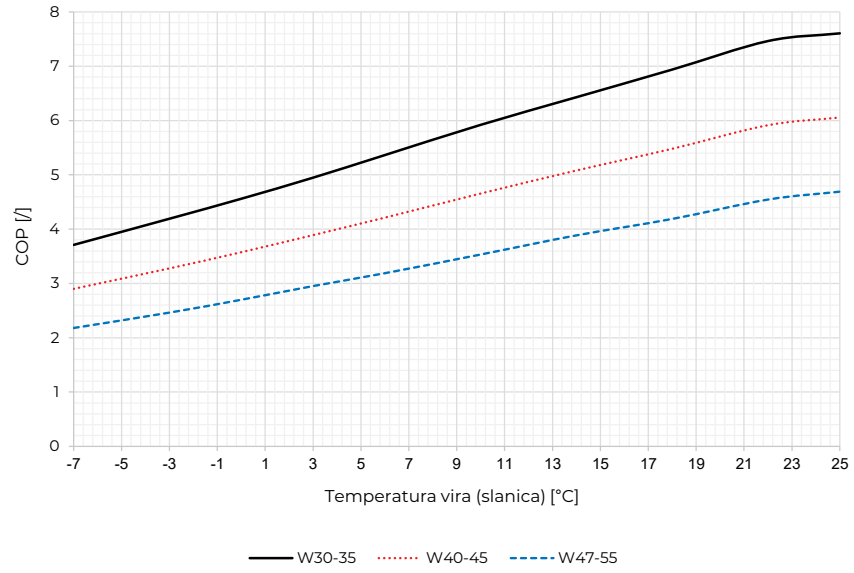



***WPG-30-1 HT ground-water system***
Heating capacity

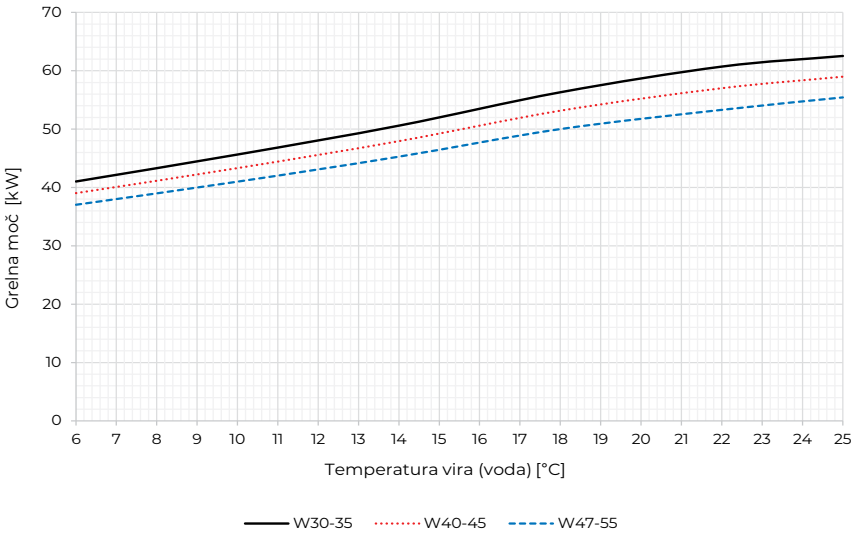


## CAPACITY CURVES

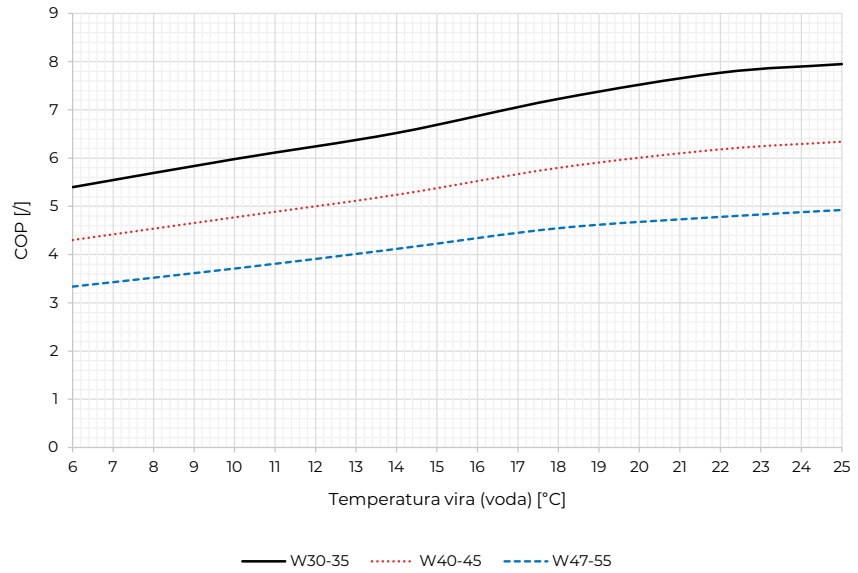
***WPG-30-1 HT ground-water system***
COP




***WPG-40-1 HT water-water system***
Heating capacity

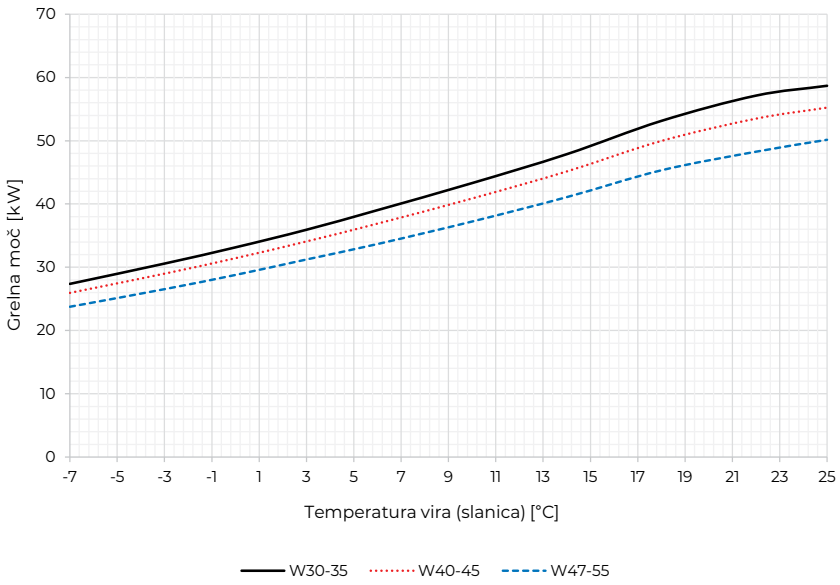



***WPG-40-1 HT water-water system***
COP



## CAPACITY CURVES

***WPG-40-1 HT ground-water system***
Heating capacity




***WPG-40-1 HT ground-water system***
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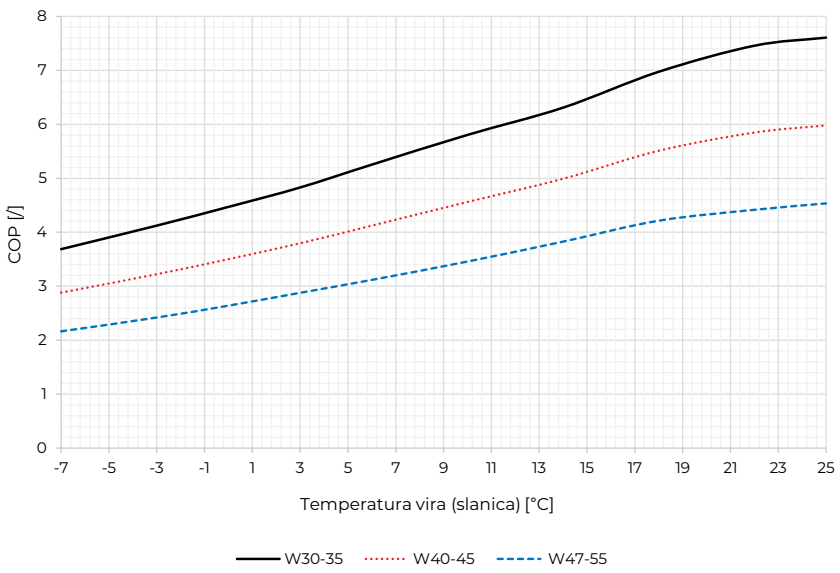
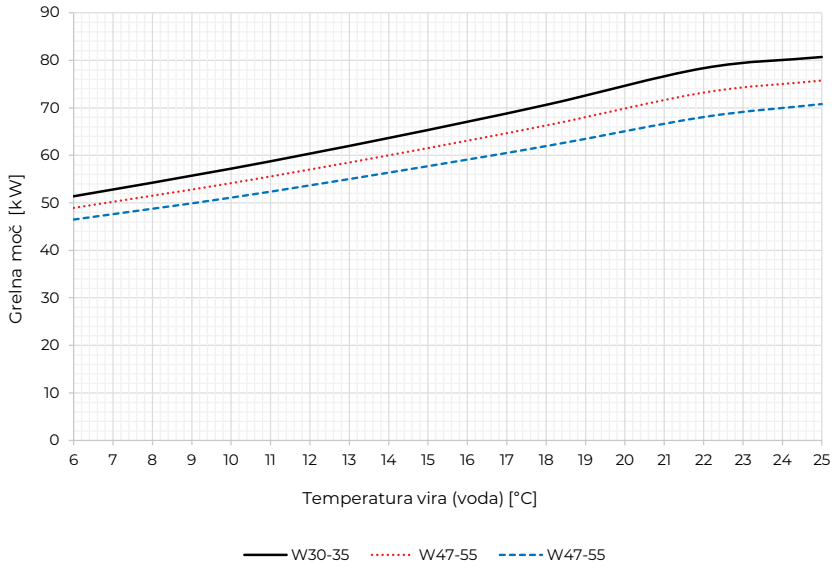
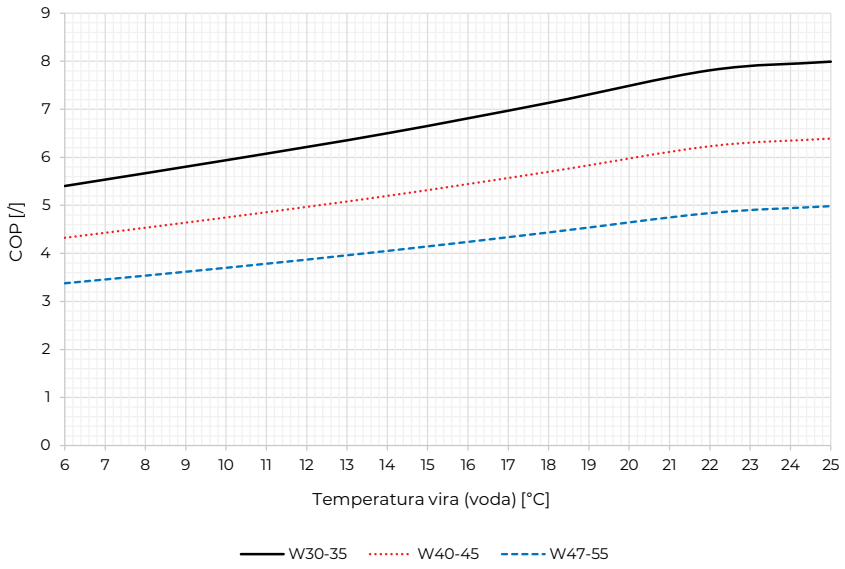



***WPG-55-1 HT water-water system***
Heating capacity

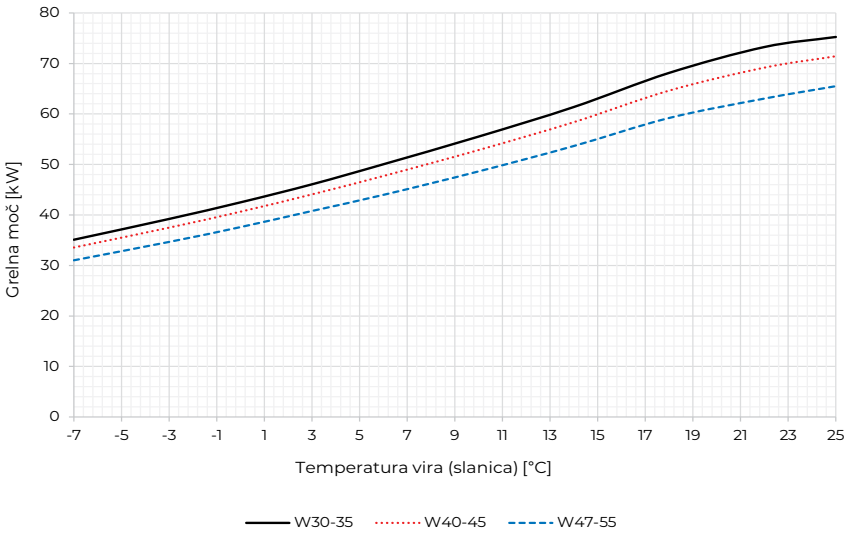


## CAPACITY CURVES

***WPG-55-1 HT water-water system***
COP




***WPG-55-1 HT ground-water system***
Heating capacity




***WPG-55-1 HT ground-water system***
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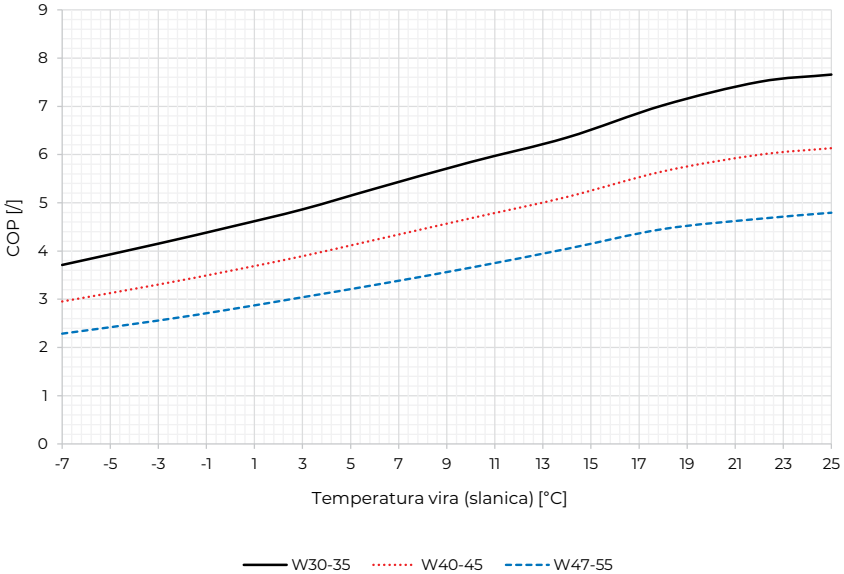
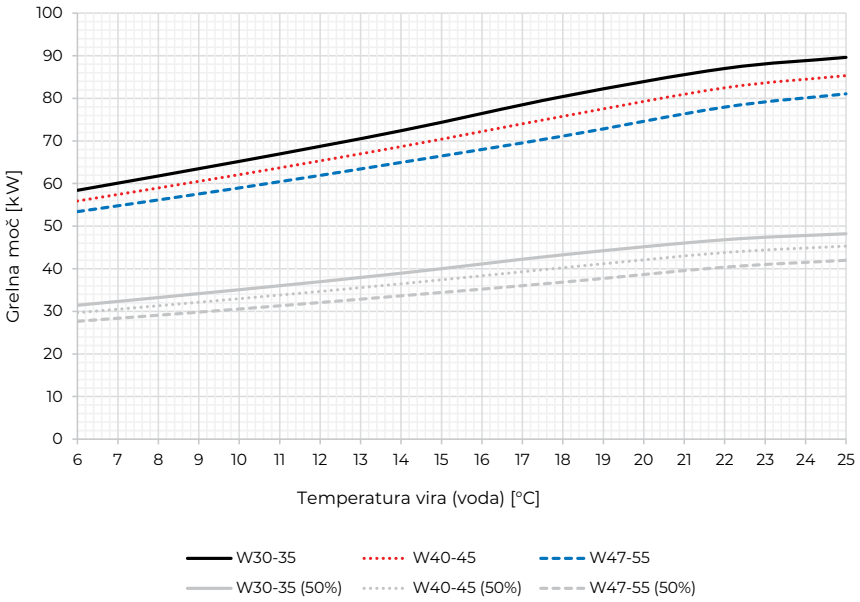


## CAPACITY CURVES

***WPG-60-1 HTT water-water system***
Heating capacity




***WPG-60-1 HTT water-water system***
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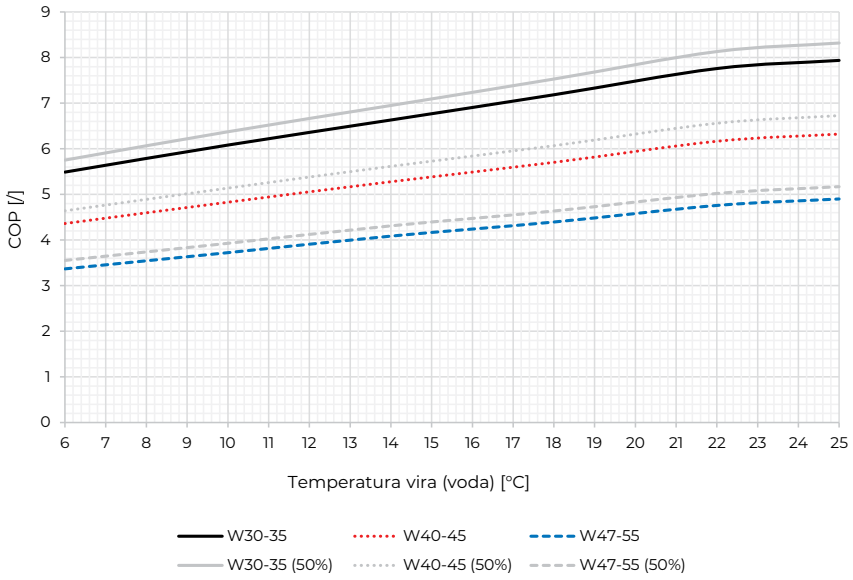
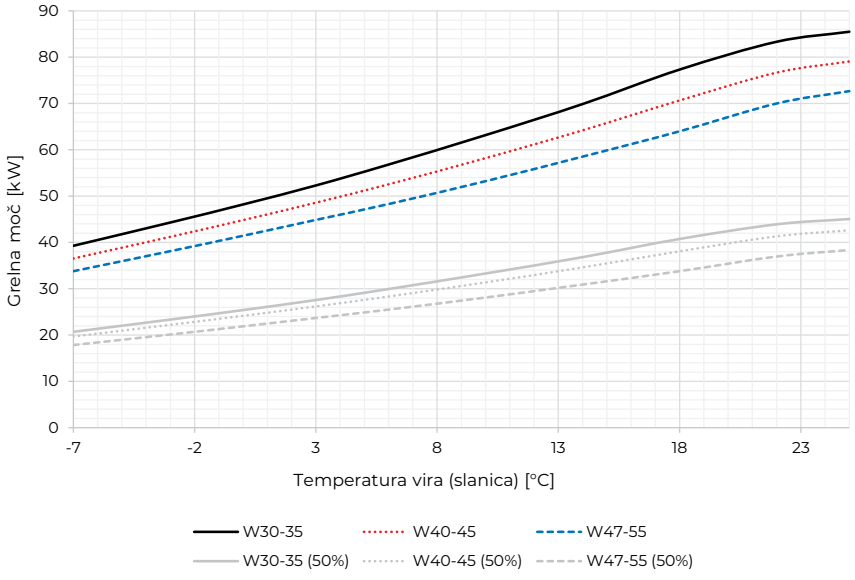
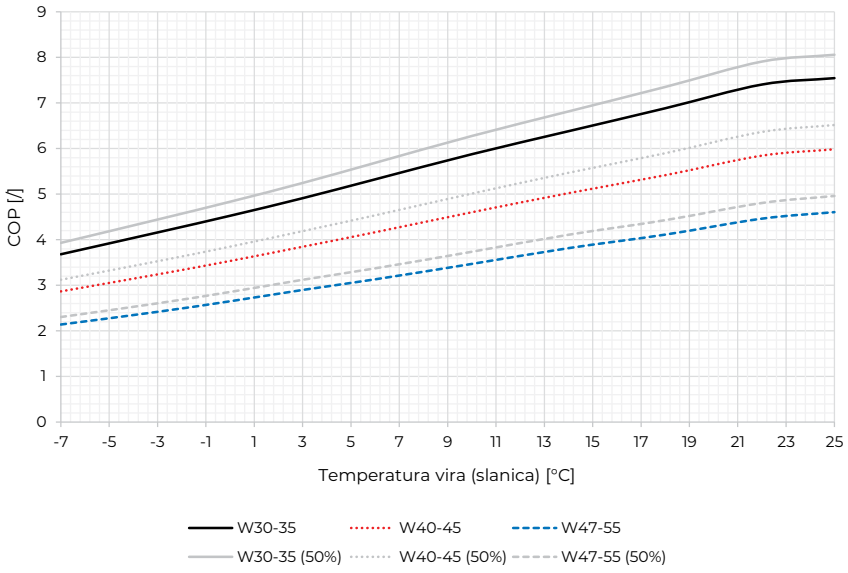



***WPG-60-1 HTT ground-water system***
Heating capacity

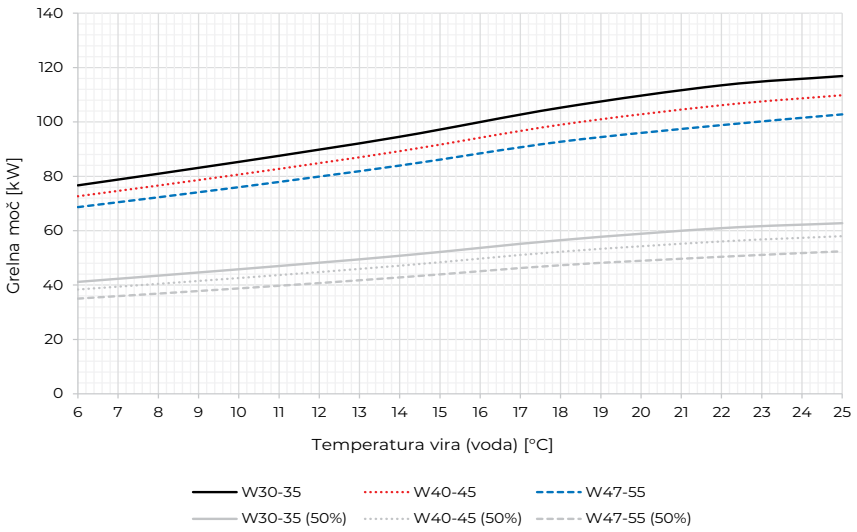


## CAPACITY CURVES

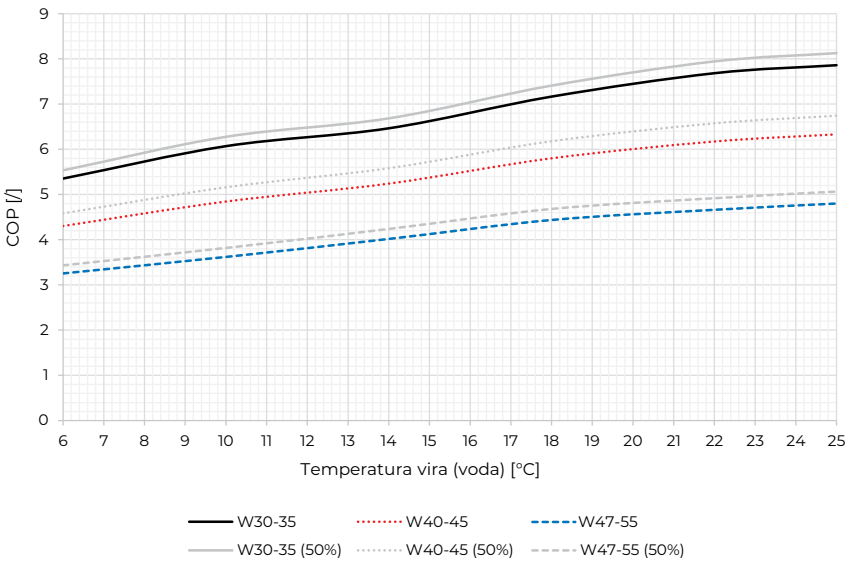
***WPG-60-1 HTT ground-water system***
COP




***WPG-80-1 HTT water-water system***
Heating capacity

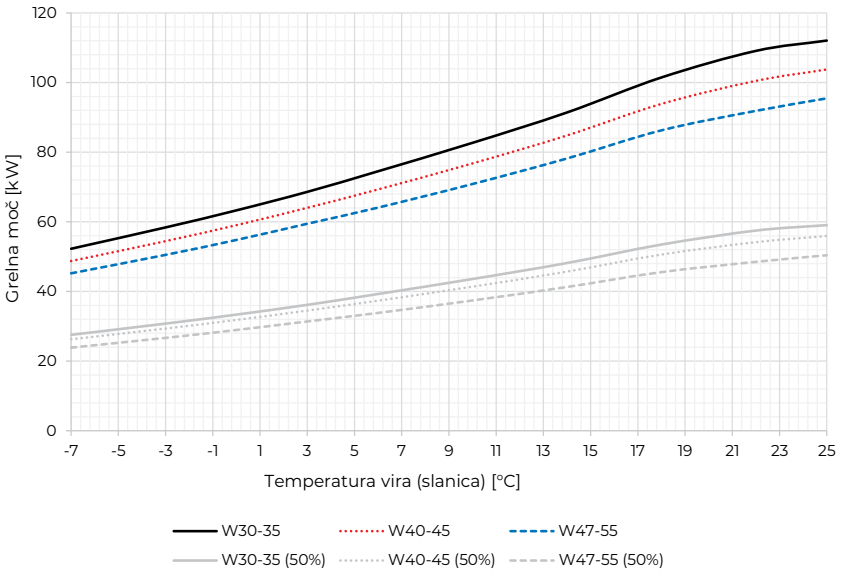



***WPG-80-1 HTT water-water system***
COP

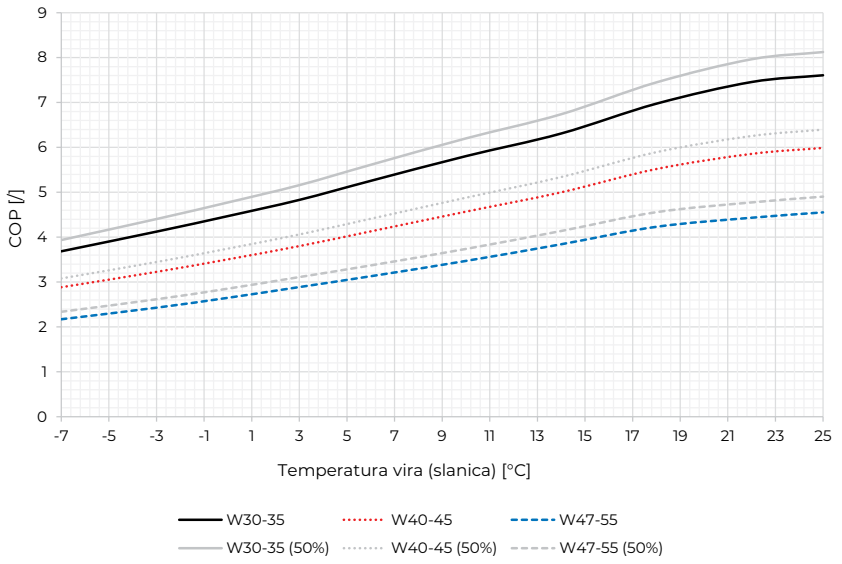


## CAPACITY CURVES

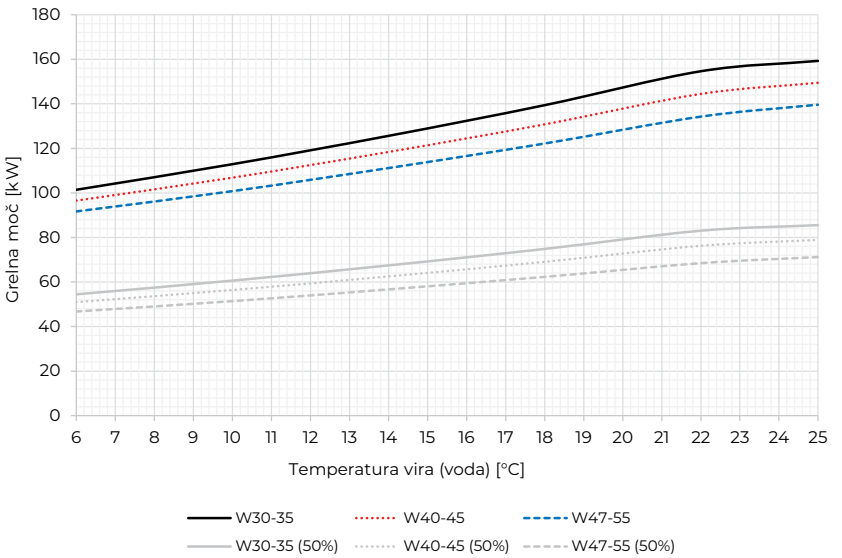
***WPG-80-1 HTT ground-water system***
Heating capacity




***WPG-80-1 HTT ground-water system***
COP

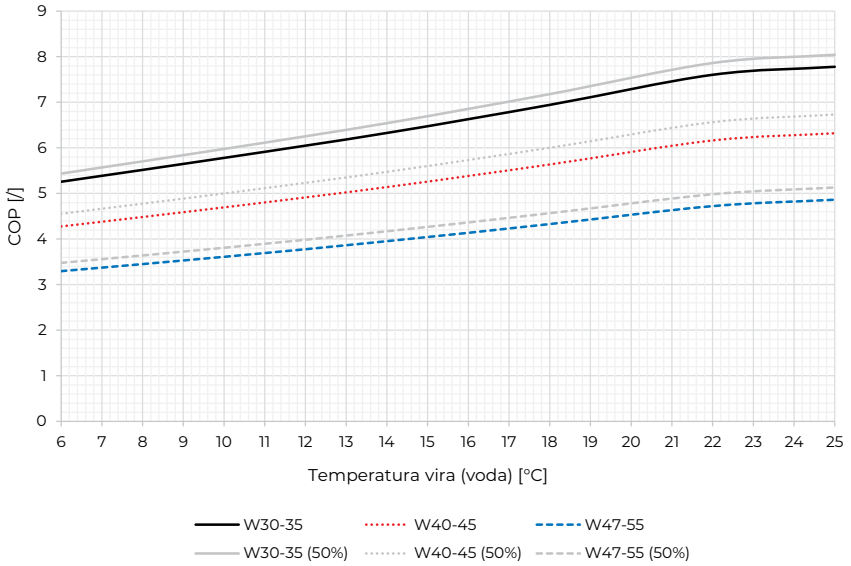



***WPG-110-1 HTT water-water system***
Heating capacity

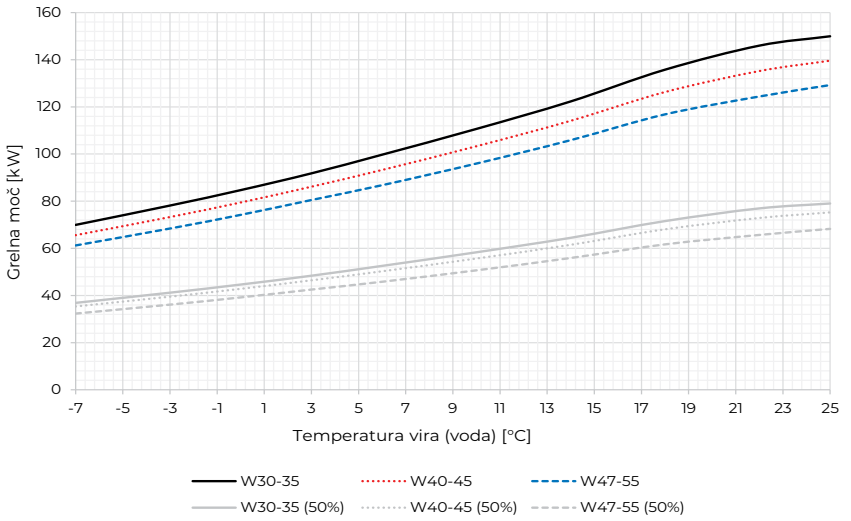


## CAPACITY CURVES

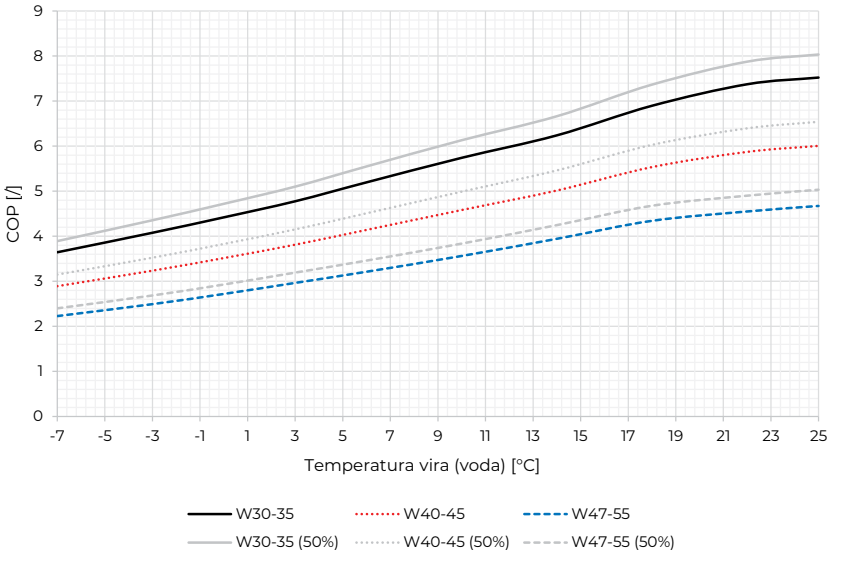
***WPG-110-1 HTT water-water system***
COP




***WPG-110-1 HTT ground-water system***
Heating capacity

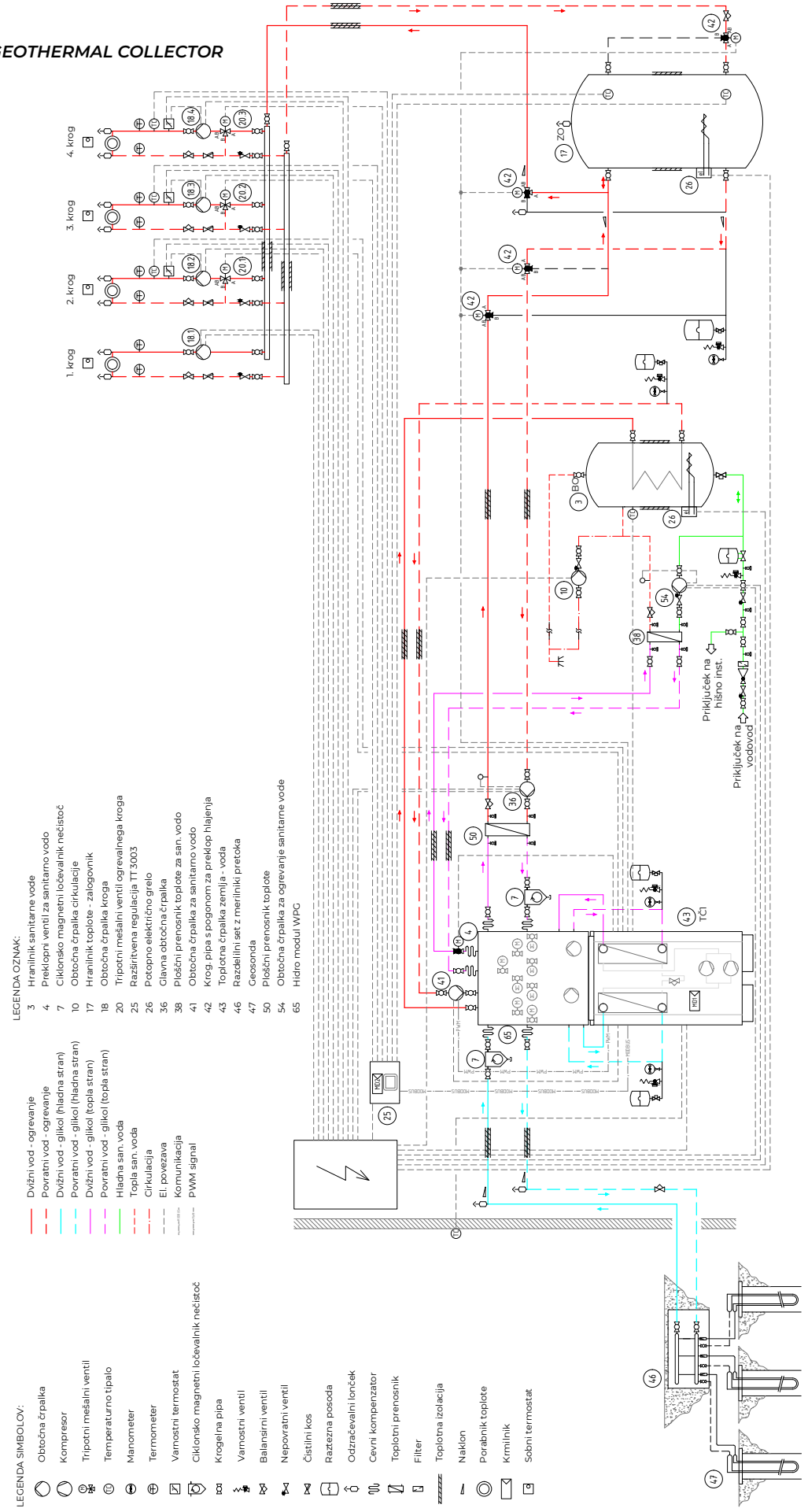



***WPG-110-1 HTT ground-water system***
COP



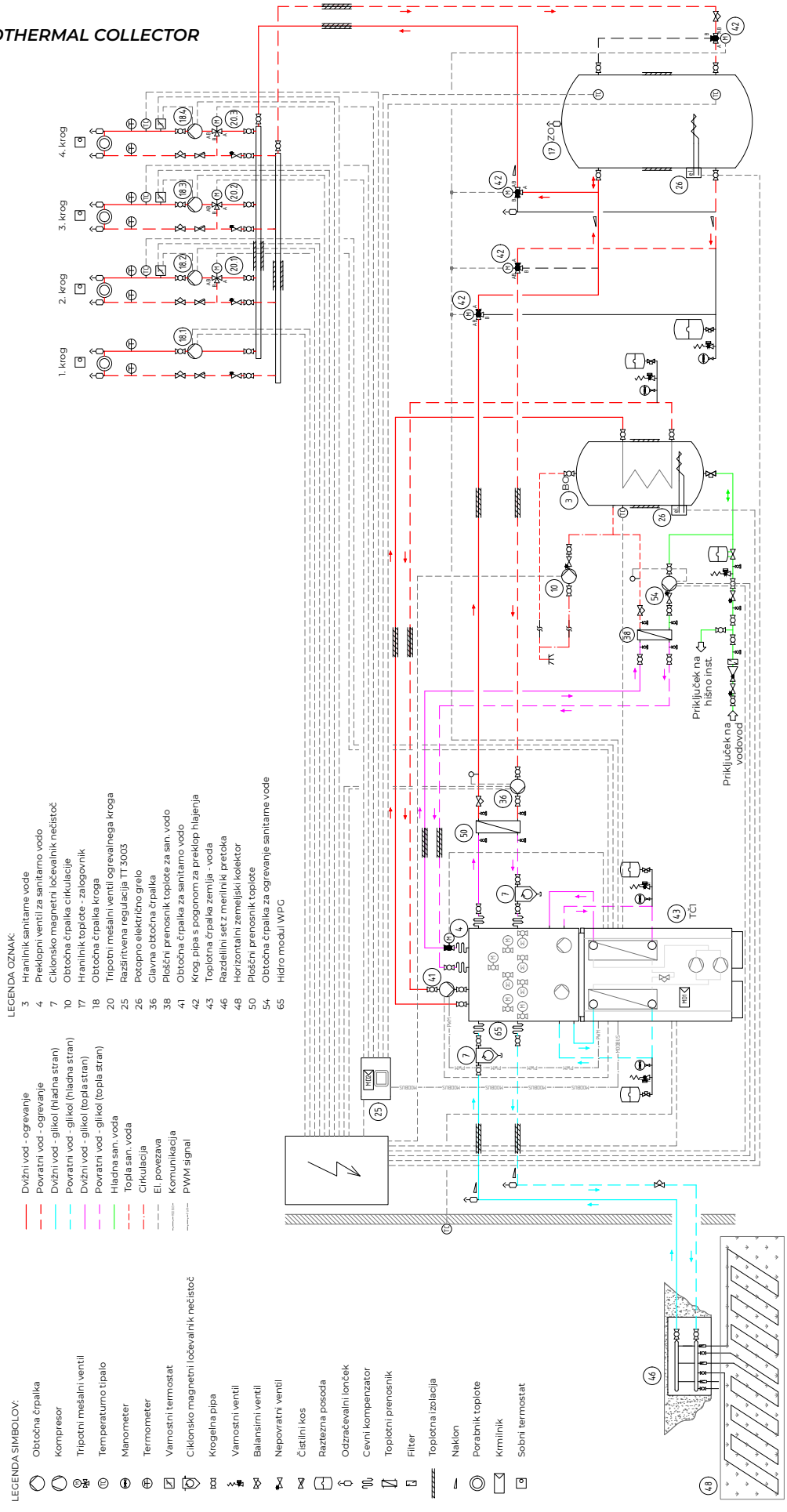
## BASIC CONNECTION DIAGRAM

### *WPG+HM, VERTICAL GEOTHERMAL COLLECTOR*



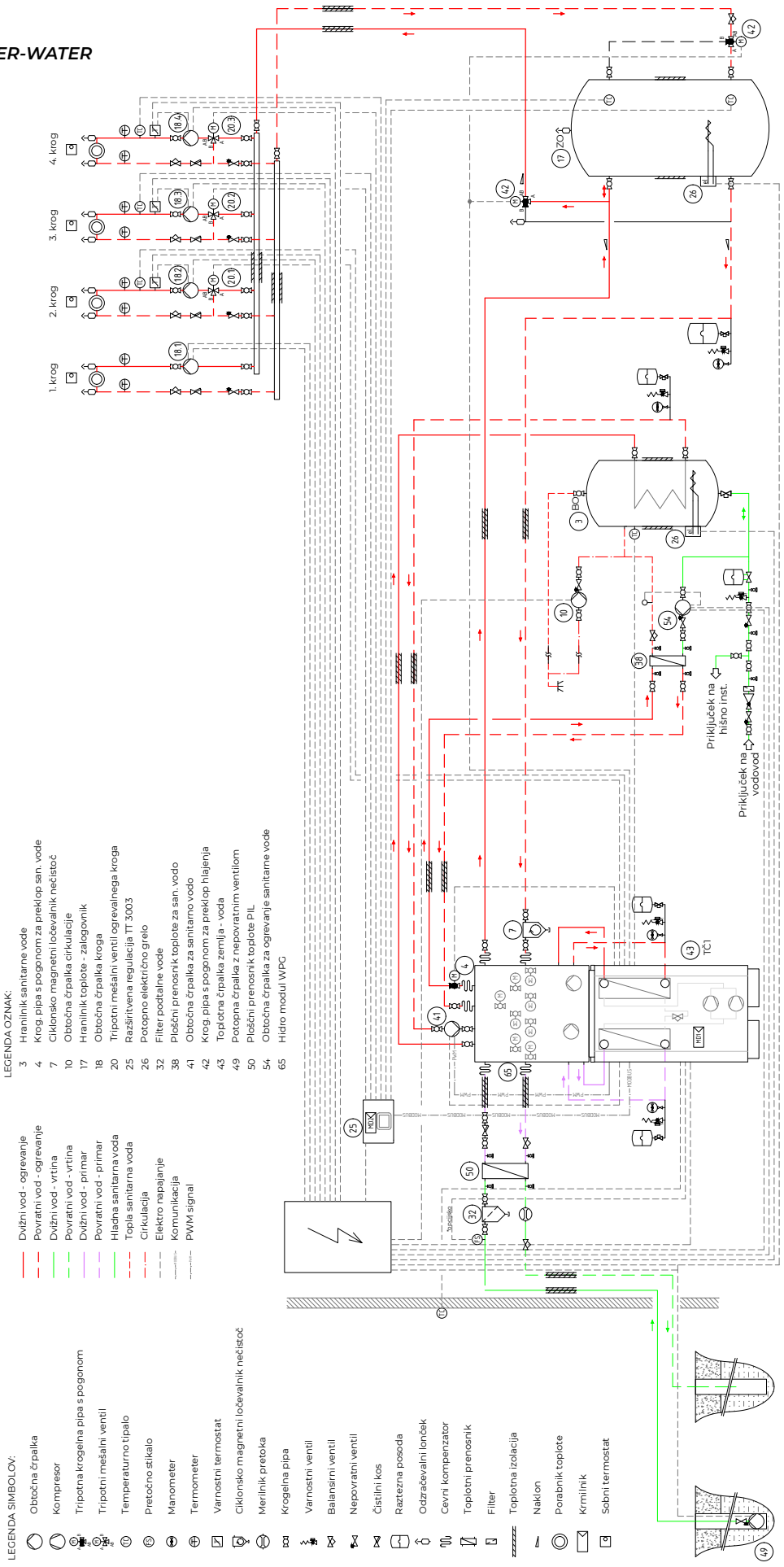
## BASIC CONNECTION DIAGRAM

### *WPG+HM, HORIZONTAL GEOTHERMAL COLLECTOR*



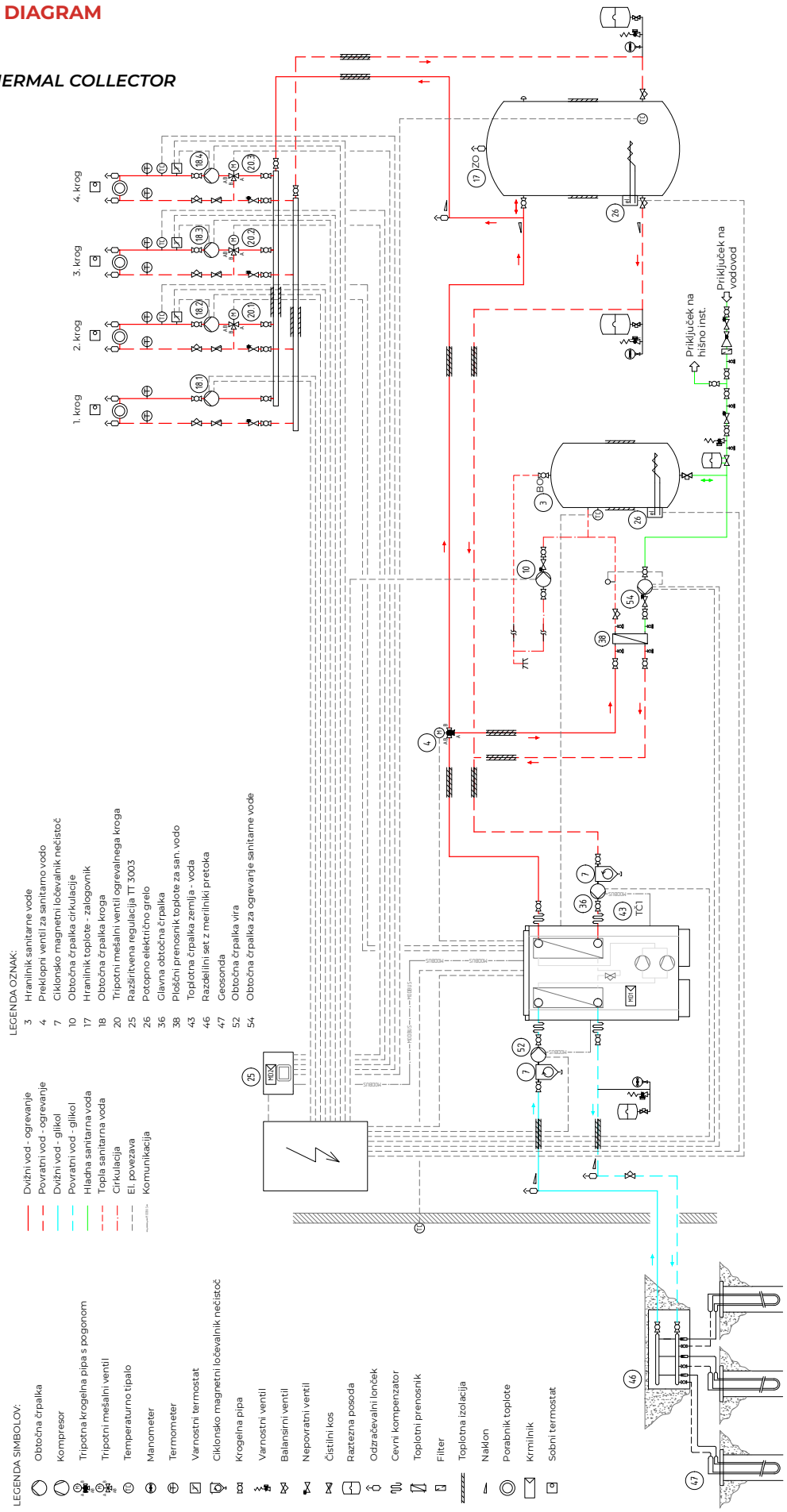
## BASIC CONNECTION DIAGRAM

***WPG+HM, GROUNDWATER-WATER***



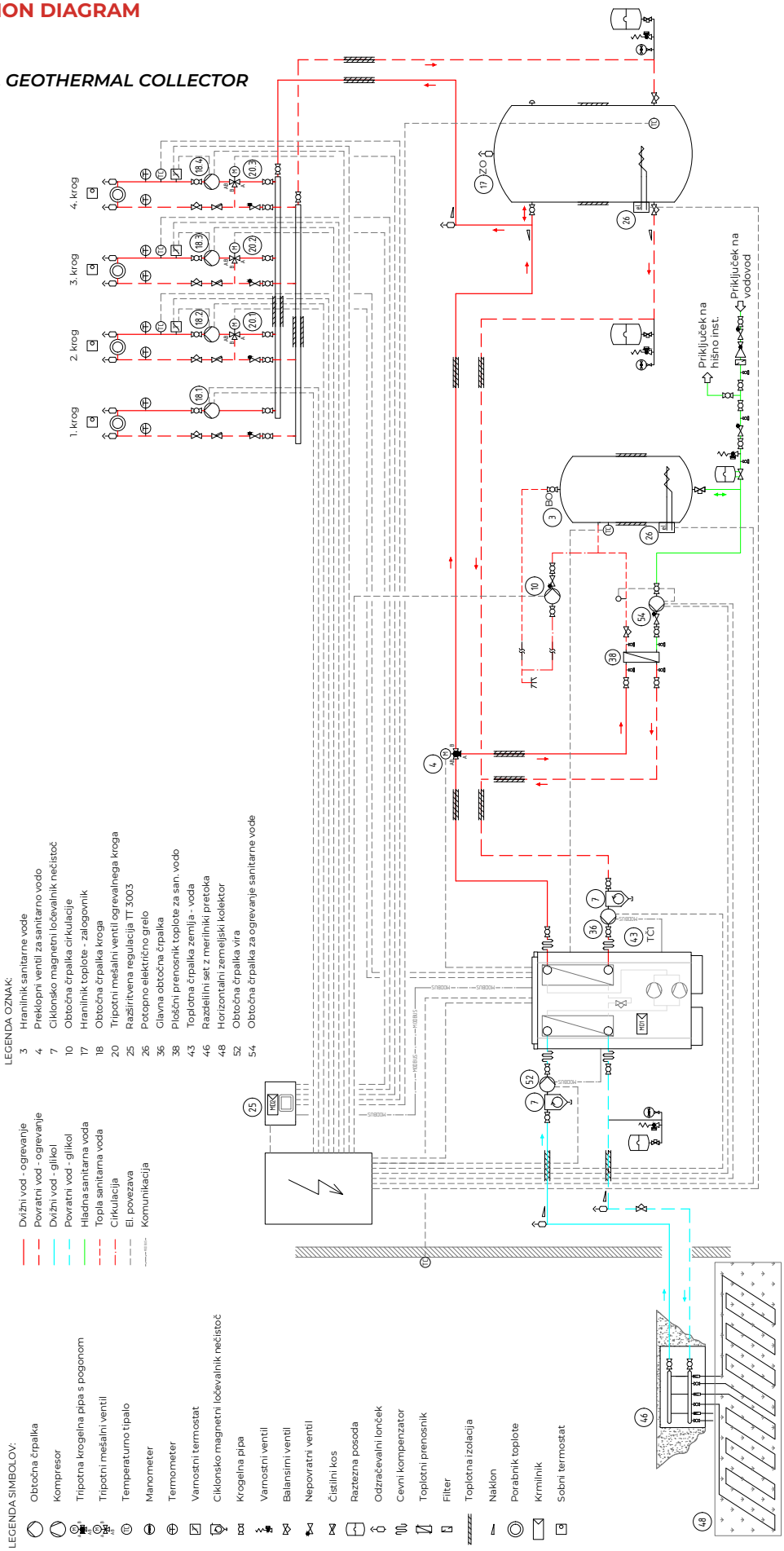
## BASIC CONNECTION DIAGRAM

### *WPG, VERTICAL GEOTHERMAL COLLECTOR*



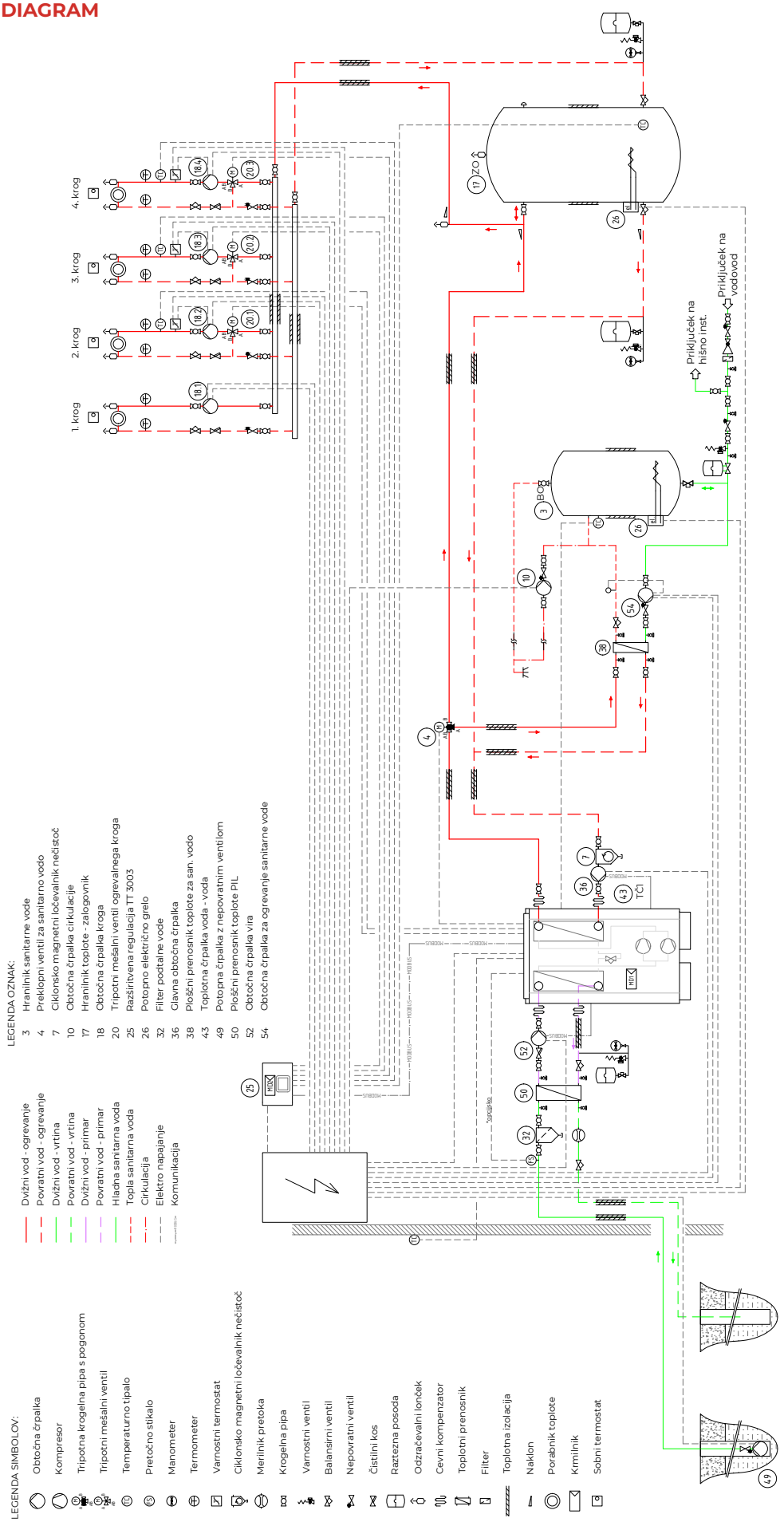
## BASIC CONNECTION DIAGRAM

### *WPG, HORIZONTAL GEOTHERMAL COLLECTOR*



## BASIC CONNECTION DIAGRAM

### *WPG, GROUNDWATER*



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