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KRONOTERM 1976
HEAT PUMPS



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DATA SHEET

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ADAPT
Heat pump

Data sheet - ADAPT - EN/98-19-24-5421-14

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



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DESCRIPTION

Description

Together with the HYDRO indoor unit the Kronoterm ADAPT heat pumps form a comprehensive variable system, adaptable in terms of both refrigerant and hydraulics, depending on the building's heating needs. The outdoor unit, a compact air/water heat pump, is distinguished by extremely silent operation and premium design. ADAPT heat pumps are hermetically sealed and factory tested outdoor units that use a simple water source to transfer energy to the indoor unit.

ADAPT heat pumps are distinguished by cutting-edge technology, specifications, and energy efficiency.

Usage

Heating, cooling, and making domestic hot water.

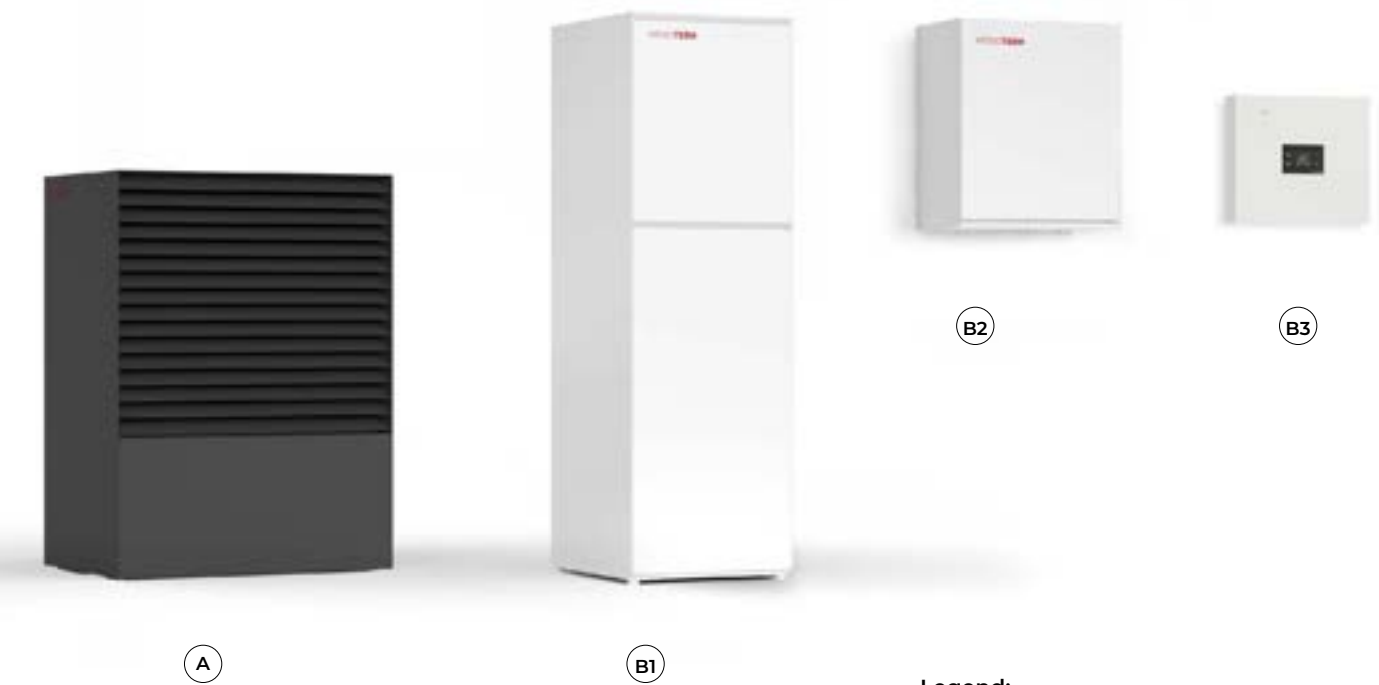
Technology

- MyDesign, the tailorable appearance of the outdoor ADAPT unit, gives customers plenty of choices for their favorite color and material.
- NMS™ – Noise Management System – combines a large evaporator with minimal air resistance, a large variable-speed fan, special materials to dampen noise and vibration, premium construction, and a specially developed control logic to reduce noise to incredibly low levels.
- CWP™ – Complete Weather Protection – protects the evaporator's surface and protective guards against climatic conditions while ensuring a constant and appropriate flow of air, first-level protection against indirect precipitation or flash freezes, small amounts of defrosting, higher efficiency, and more reliable operation. Their exceptional construction and advantageous height give ADAPT heat pumps the right amount of airflow through the evaporator even during snowstorms.
- IAH™ – Intelligent Adaptive Heating – completely adjusts your 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, the current ambient temperature indoor, and the current weather outdoor. The building's response dictates at what capacity the ADAPT heat pump needs to work. This unrivaled flexibility means that your heat pump works constantly, silently, and – most importantly – comfortable.
- Low GWP – Kronoterm is one of the first manufacturers in the world to use the advanced refrigerant R452B in our systems, drastically reducing the use of fluorinated gases (F-gases). This refrigerant has a whopping 67% less GWP than the traditional refrigerants used in heat pumps.
- CDHRS™ – the Compressor Drive Heat Recovery System – is the compressor's electronic motor, designed for twice the lifespan of traditional compressor motors. The specially designed system to recover waste heat helps achieve more than 96% efficiency.
- NZF™ – Near Zero Frost – the evaporator's extremely large surface area means that it has very low specific load. This results in reduced extraction of humidity from the air and slower buildup of frost. Less frost means less defrosting, and therefore greater effective heating capacity for the heat pump, and ultimately increased efficiency for the whole system.
- ECL™ – Enhanced Compressor Lifetime – an approach that is usually used in large, industrial systems. The advanced oil recovery system ensures that the heat pump retains lubricant in its compressor, where it is most important. At the same time, the compressor range monitoring and protection system constantly keeps the system within safe parameters.
- MHW™ – Max Hot Water – heats the entire volume of water available in the integrated DHW tank. The indoor HYDRO C2 unit, which features a 200 l DHW tank, utilizes a special plate heat exchanger to easily heat large quantities of DHW.
- RCS™ – Remote System Charge – refills the hydronic system with water to the right pressure and is integrated in the HYDRO unit. Refilling is either automatic with a command through the room unit, or from the web/mobile app.
- CMS™ – Cascade Management System gives you control and management of all heat pumps connected in the cascade solution via a single interface.



CONFIGURATION

ADAPT heat pumps are combined with the HYDRO C2, HYDRO S2 and WR KSM 2 indoor units.



Legend:

- A Outdoor unit
- B1 HYDRO C2 compact hydraulic indoor unit
- B2 HYDRO S2 hydraulic indoor wall unit
- B3 WR KSM 2 wall control unit

NOMENCLATURE

ADAPT 0312 K3 HT / HK 3F

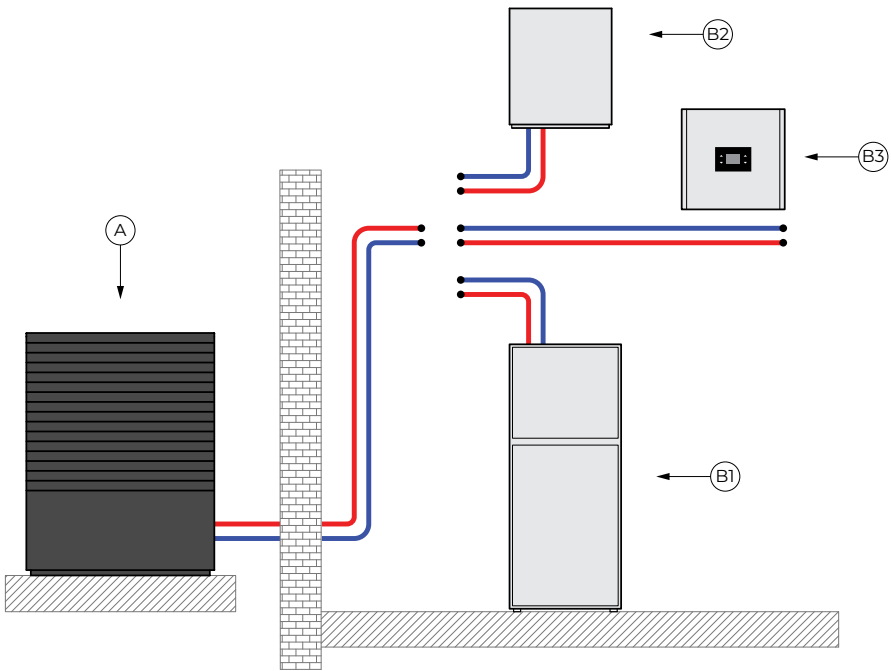
ADAPT	The name for a line of heat pumps
0312	Range of heat output in kW, 3,5 - 09
0416	Range of heat output in kW, 05 - 12
0724*	Range of heat output in kW, 07 - 18
K	Water connection
3	Device generation
HT	Temperature of flow outlet up to 67 °C
HK	Heating and cooling
3F/1F	Three-phase electrical connection 3 x 400 V/ one-phase connection 1 x 230 V

HYDRO C2

HYDRO	The name for a line of indoor hydraulic units
C2	Hydraulic unit with integrated DHW tank
S2	Basic, wall-mounted HYDRO module

WR KSM 2

WR	The name for a line of indoor wall regulator units
KSM	Basic wall-mounted control unit
KSM+	Expansion wall-mounted control unit
KSM C	Wall-mounted control unit for additional heat pump in cascade
2	Device generation



*The ADAPT 0724 outdoor unit cannot be used with the HYDRO C2 indoor unit

ADAPT OUTDOOR UNIT

Version

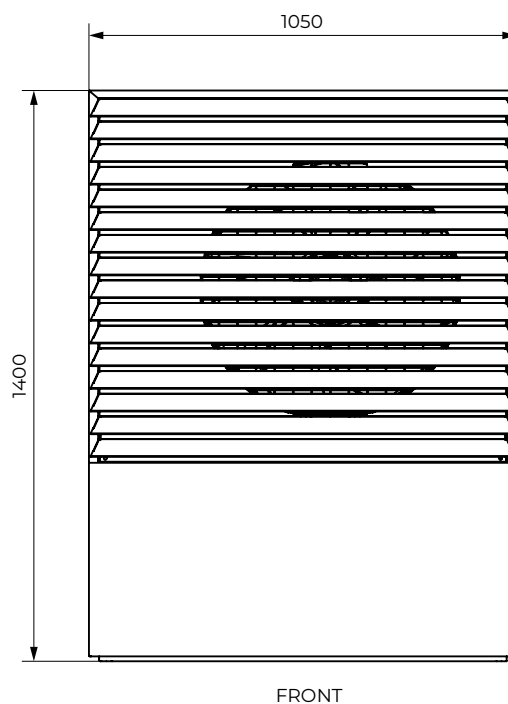
Compact outdoor air/water unit.

Model marks

ADAPT 0312 K3 HT / HK 3F
ADAPT 0312 K3 HT / HK 1F
ADAPT 0416 K3 HT / HK 3F
ADAPT 0416 K3 HT / HK 1F
ADAPT 0724 K3 HT / HK 3F

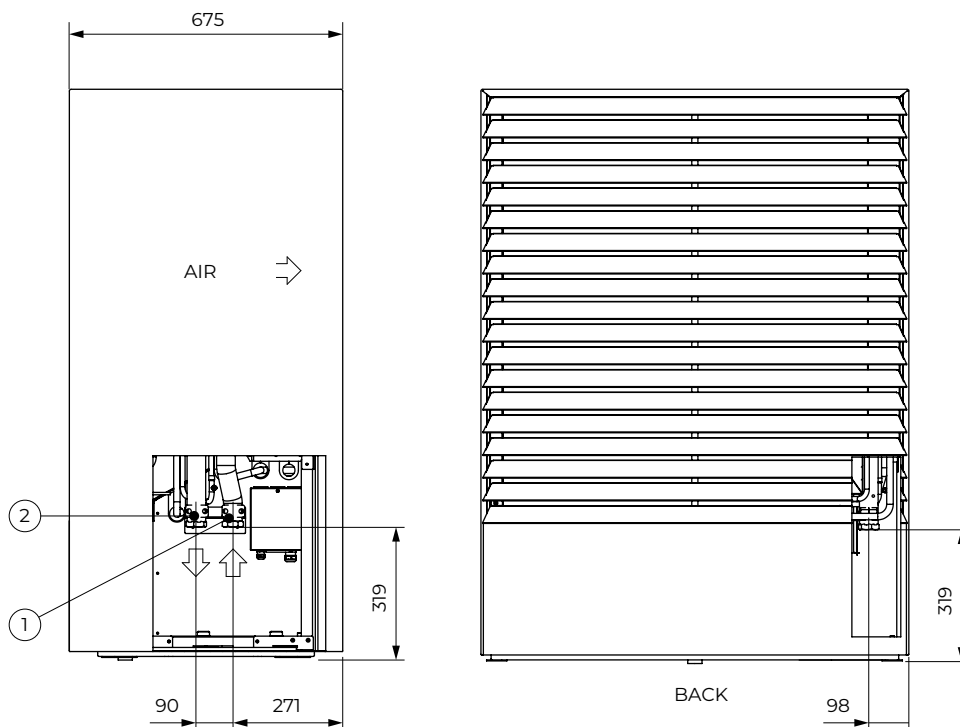
Description and dimensions

- Powder coated, zinc, steel plate housing
- Optionally made out of stainless steel or Corten sheet metal
- Evaporator and fan protected against the weather
- Bionically designed wings of fan for minimum noise pollution
- Adjustable heat output
- Adaptive heating
- Integrated circulation pump
- A large surface evaporator with a large gap between the fins
- Special acoustically insulated housing



Legend

- 1 Inlet – G 5/4" IT
2 Outlet – G 5/4" IT

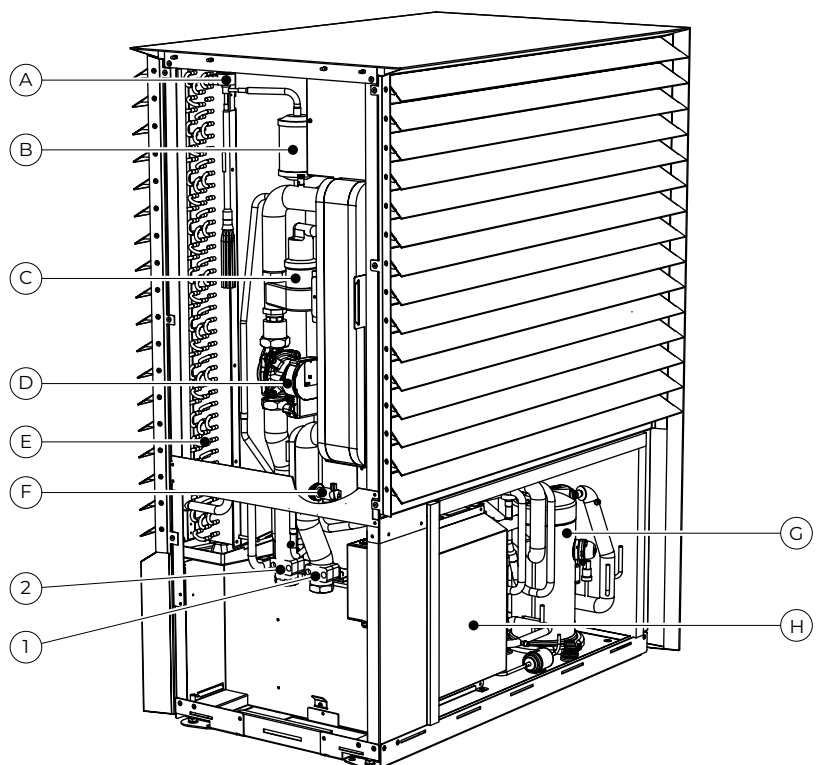
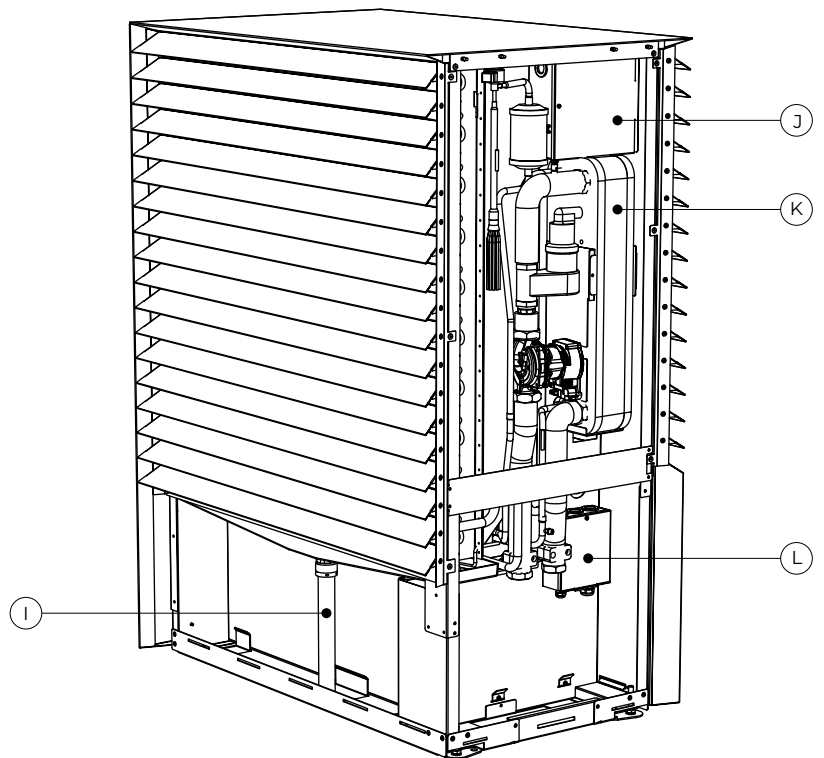


OUTDOOR UNIT ADAPT

Primary components

Legend

- 1 Inlet – G 5/4" IT
- 2 Outlet – G 5/4" IT
- A Electronic expansion valve
- B Dehydrator
- C Air separator
- D EC circulation pump
- E Evaporator
- F Flow switch
- G Compressor
- H Inverter drive
- I Condensation hose
- J Outdoor unit's controller's electrical cabinet
- K Plate heat exchanger/condenser
- L Electrical cabinet for power and communication connection



HYDRO C2 COMPACT HYDRAULIC INDOOR UNIT

Version

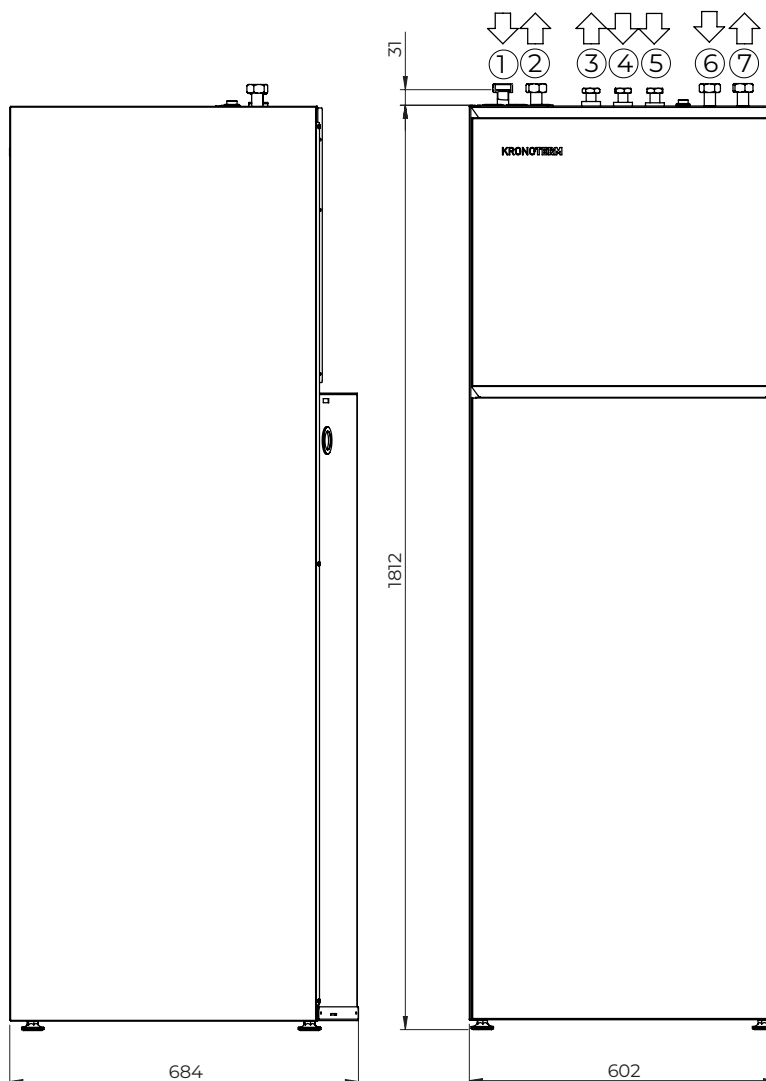
Indoor unit with DHW tank

Model

HYDRO C2

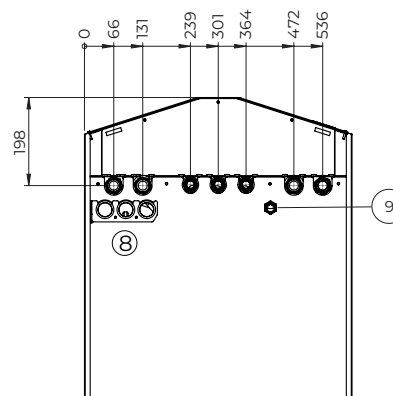
Description and dimensions

- Powder coated, zinc, steel plate housing
- Both heating and cooling functions
- Integrated 3-way valve for switching between heating and heating DHW
- Integrated 6 kW electrical heater (3 x 2 kW)
- Integrated KSM regulator and WEB module
- Option of installing expansion module KSM+ 2
- Integrated magnetic dirt separator
- Integrated heating system pressure sensor
- Integrated flow sensor
- Integrated safety valve for DHW
- Integrated safety valve for heating system
- Integrated DHW expansion vessel (8 l)
- Integrated heating system expansion vessel (12 l)
- Integrated 200 l DHW tank
- Optional additional 40 l buffer tank
- Optional additional kit for remote filling of heating system



Legend

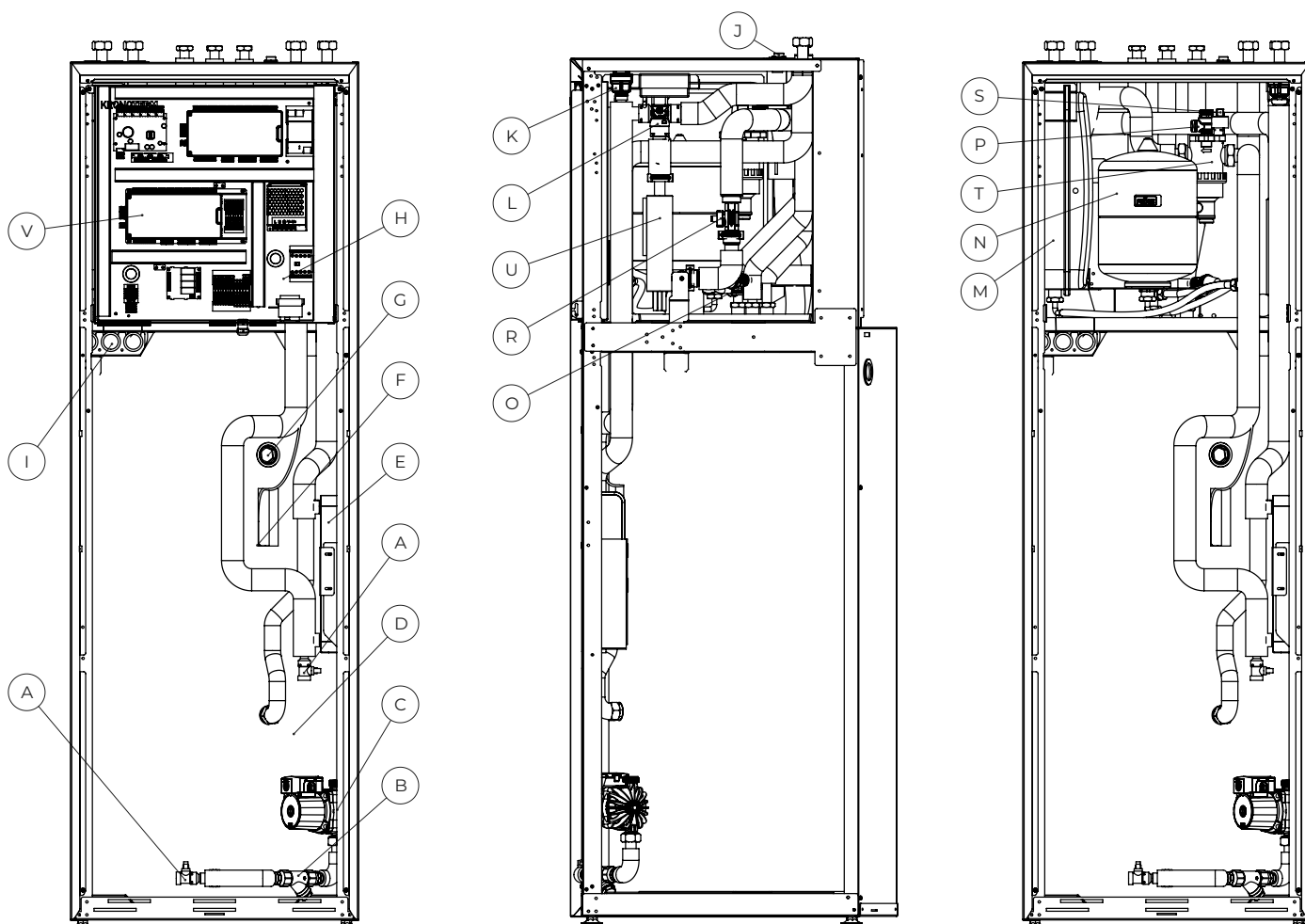
- 1 Inlet G 1" IT
- 2 Outlet G 1" IT
- 3 DHW G 3/4" IT
- 4 Cold tap water G 3/4" IT
- 5 Circulating DHW G 3/4" IT
- 6 Heating/cooling – inlet pipe – G 1" IT
- 7 Heating/cooling – outlet pipe – G 1" IT
- 8 Electrical connection
- 9 Internet cable jack

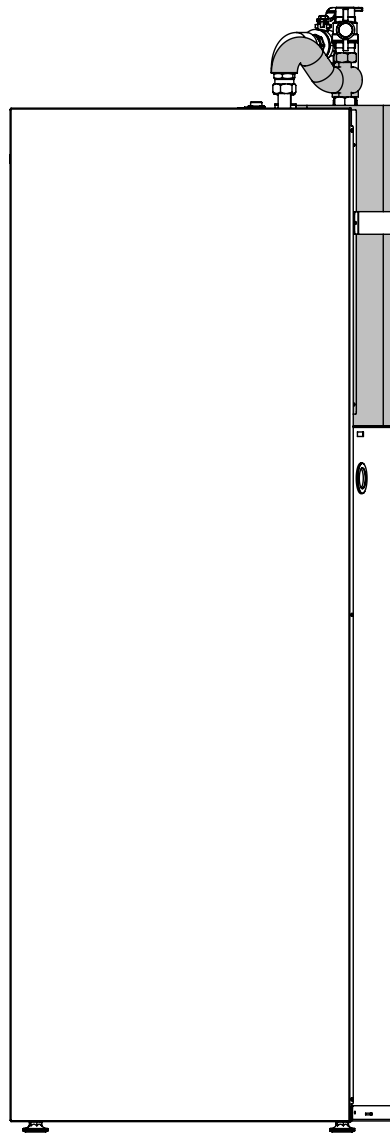


INDOOR UNIT HYDRO C2

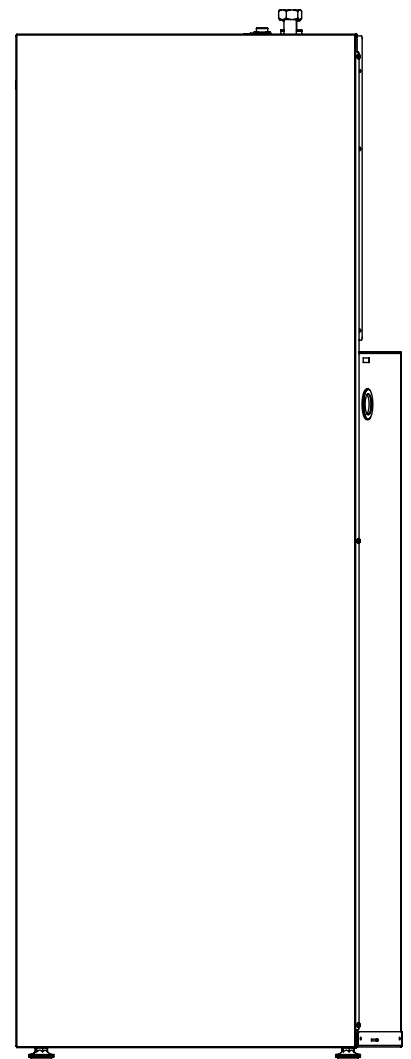
Primary components

- A Exhaust valve
- B DHW filter
- C Circulation pump for DHW
- D DHW tank 200l
- E Plate heat exchanger for DHW
- F DHW temperature sensor
- G Magnesium anode
- H Electrical box with KSM regulator, WEB module, and KSM+ 2 expansion module
- I Conduits for electric cables
- J Internet cable jack
- K Automatic air vent
- L 3-way zone valve
- M Expansion vessel – heating system – 12 l
- N Expansion vessel – DHW – 8 l
- O Safety valve – DHW – 10 bar
- P Safety valve – heating system – 3 bar
- R Flow sensor
- S Heating system pressure sensor
- T Magnetic dirt separator
- U 6 kW electric heater (3x2 kW)
- V Expansion module KSM+ 2



Configurations of the HYDRO C2 indoor unit

HYDRO C2



HYDRO C2 + ZA_P40

HYDRO S2 HYDRAULIC INDOOR WALL UNIT

Version

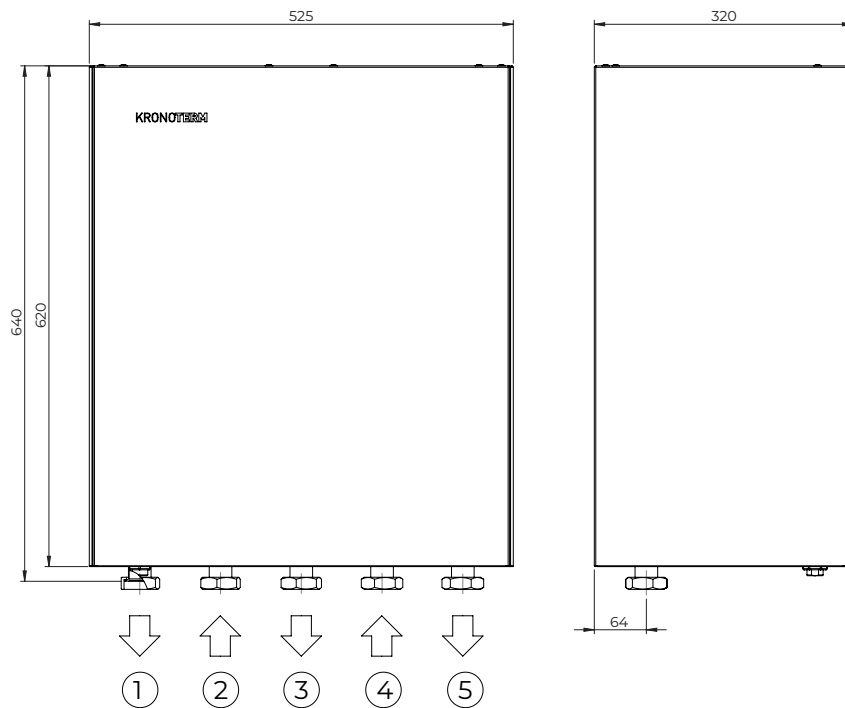
Indoor wall-mounted hydraulic unit.

Model

HYDRO S2

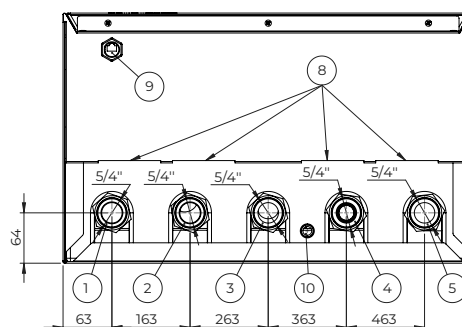
Description and dimensions

- Powder coated, zinc, steel plate housing
- Both heating and cooling
- Integrated 3-way valve for switching between heating/cooling and heating DHW
- Integrated 6 kW electrical heater (3 x 2 kW)
- Integrated KSM regulator and WEB module
- Option of installing expansion module KSM+ 2
- Integrated magnetic dirt separator
- Integrated heating system pressure sensor
- Integrated flow sensor
- Integrated safety valve for heating system 3 bar
- Optional additional kit for remote filling of heating system



Legend

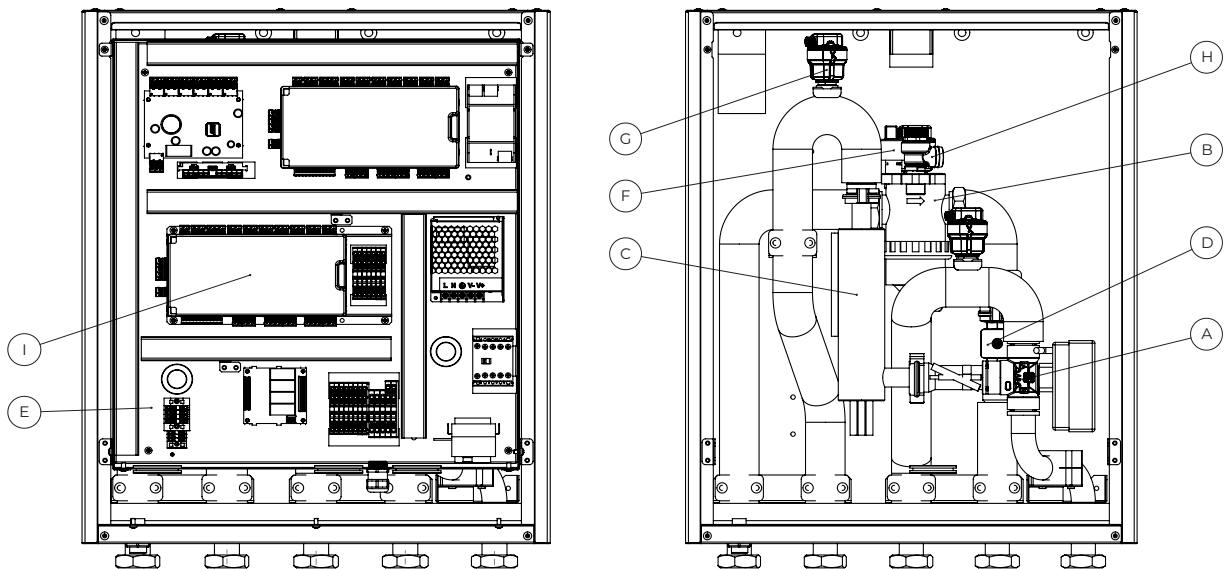
- 1 Outlet – G 5/4" IT
- 2 Inlet – G 5/4" IT
- 3 Heating DHW G 5/4" IT
- 4 Heating/cooling/heating DHW – inlet pipe – G 5/4" IT
- 5 Heating/cooling – outlet pipe – G 5/4" IT
- 8 Cable conduit
- 9 Internet cable jack
- 10 Connection for condensate drain



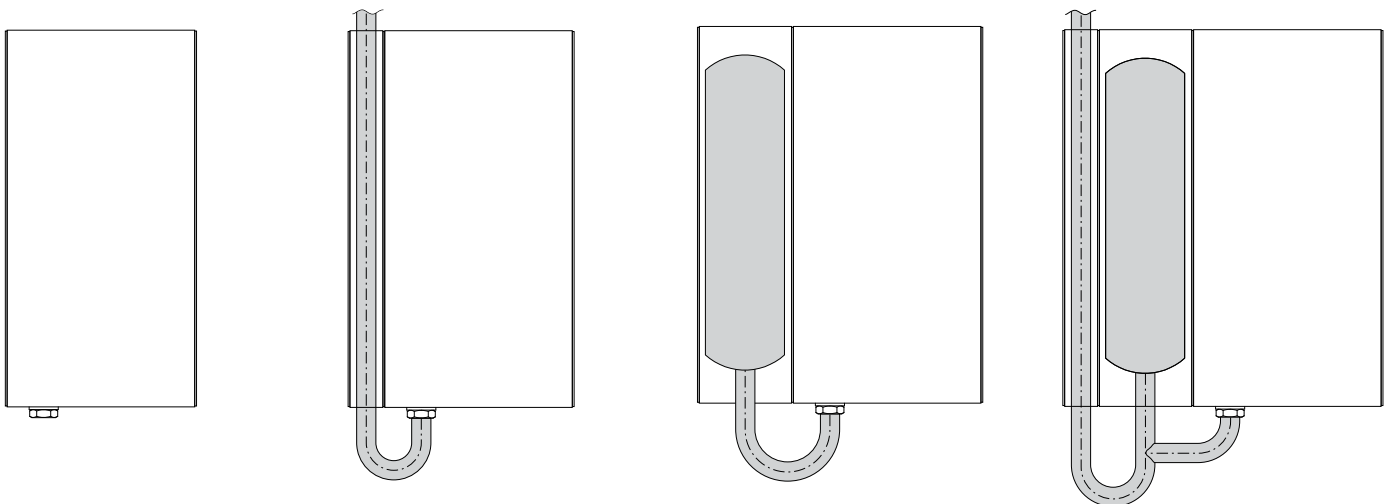
HYDRO S2 HYDRAULIC INDOOR WALL UNIT

Primary components

- A 3-way zone valve
- B Magnetic dirt separator
- C Reserve 6 kW electrical heater (3 x 2 kW)
- D Flow sensor
- E Electrical box with KSM regulator and KSM+ 2 expansion module
- F Heating system pressure sensor
- G Automatic air vent
- H Safety valve – heating system
- I Expansion module KSM+ 2



Configurations of the HYDRO S2 indoor unit



HYDRO S2
Basic model

HYDRO S2 + HYDRO A2
Basic connection with the console
spacer for pipe connection

HYDRO S2 + HYDRO P2
Model with 40 l buffer tank

HYDRO S2 + HYDRO A2 + HYDRO P2
Model with 40 l buffer tank and spacer
for pipe connection

WR KSM 2 WALL-MOUNTED CONTROL UNIT

Version

Basic wall-mounted unit

Model

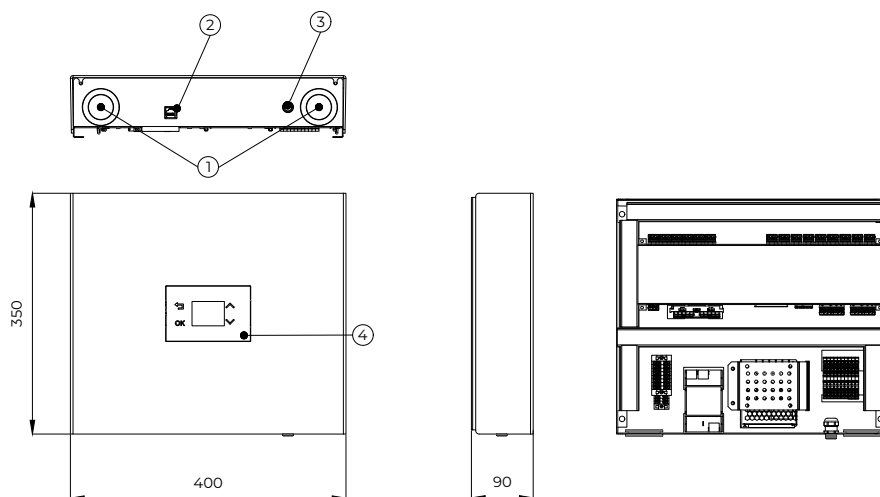
WR KSM 2

Description and dimensions

- Wall-mounted indoor unit
- KSM regulator
- Integrated WEB module

Legend

- 1 Conduits for control cable
- 2 Internet cable jack
- 3 Threaded power cable conduit
- 4 KT-2A controller



WR KSM+ WALL-MOUNTED EXPANSION UNIT

Version

Expansion wall-mounted unit

Model

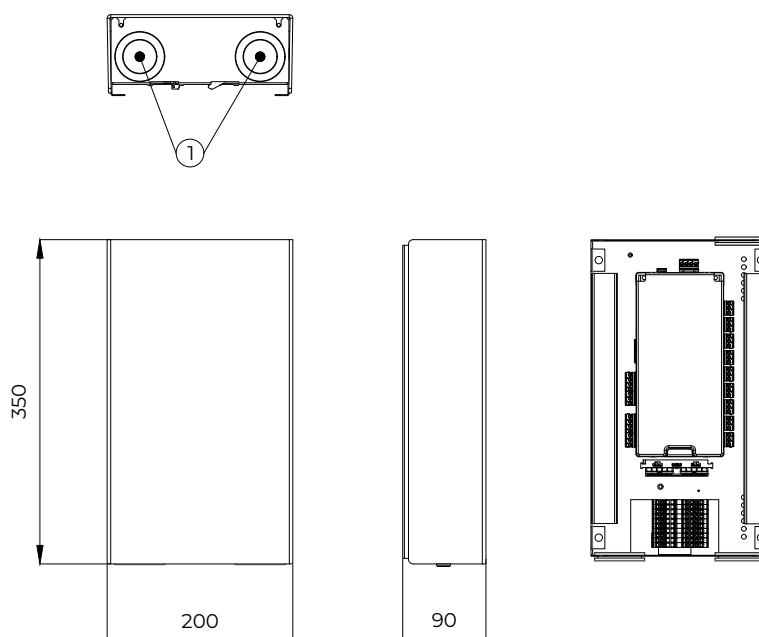
WR KSM+

Description and dimensions

- Wall-mounted indoor unit
- Regulator KSM+

Legend

- 1 Conduits for control cable



WR KSM C WALL-MOUNTED CONTROL UNIT

Version

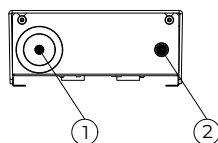
Indoor unit for activating an additional heat pump in cascade.

Model

WR KSM C

Description and dimensions

- Wall-mounted indoor unit
- Integrated WEB module

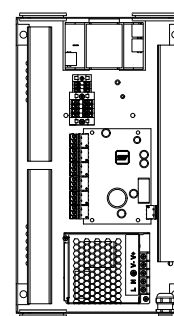
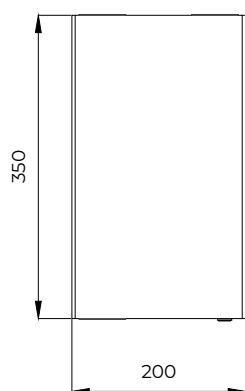


Functional characteristics

- Activate an additional heat pump in cascade
- Register a heat pump with CLOUD. KRONOTERM
- Manage a heat pump in cascade via the cloud-based CMS™ management system

Legend

- 1 Conduits for control cable
- 2 Threaded power cable conduit



BASIC KSM REGULATOR

Model

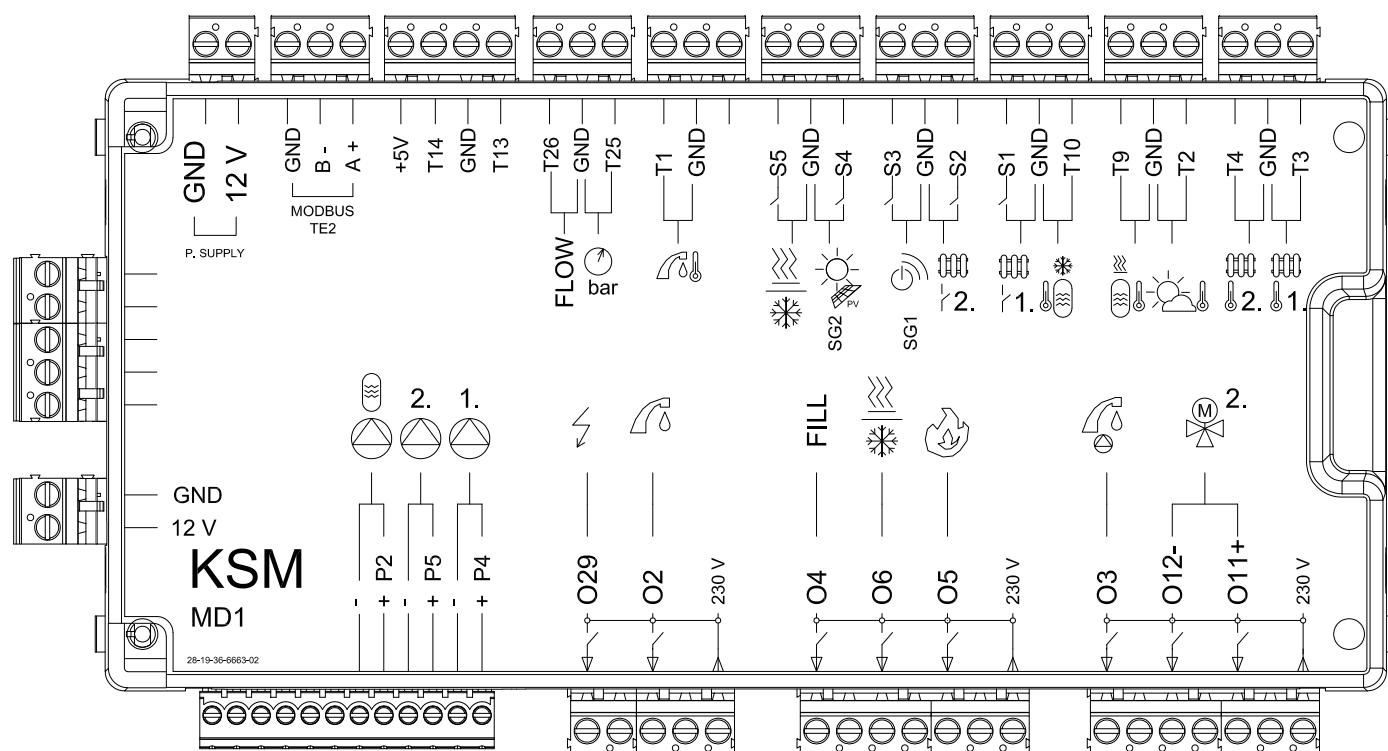
KSM (Kronoterm System Manager)

Description

- Basic regulator for heat pump and heating system
- Managing your system is either automatic with a command through the KT-2A room unit, or from the web/mobile Home.Cloud app.

Functional characteristics

- Controlling the heat pump
- Controlling additional sources of heat (gas, oil, and pellets)
- Heating DHW tank
- Thermally disinfect of domestic hot water
- Control functions for:
 - 1X direct loop (radiators/convectors/in-floor heating)
 - 1X direct or mixing loop (radiators/convectors/in-floor heating)
 - heating DHW tank
 - daily and weekly schedules
 - adaptive control of specific loops
 - room temperature regulation with the Kronoterm KT-1 and KT-2 thermostats
- Adaptive weather control based on outdoor and ambient room temperature
- Active cooling
- Usage of excess energy from the PV module (PV program)
- Screed-drying program
- WEB module for internet connection (RJ45 connection – Ethernet)
- BMS connection via MODBUS RS485 protocol
- Smart-grid ready (SG ready)



EXPANSION KSM+ 2 REGULATOR

Model

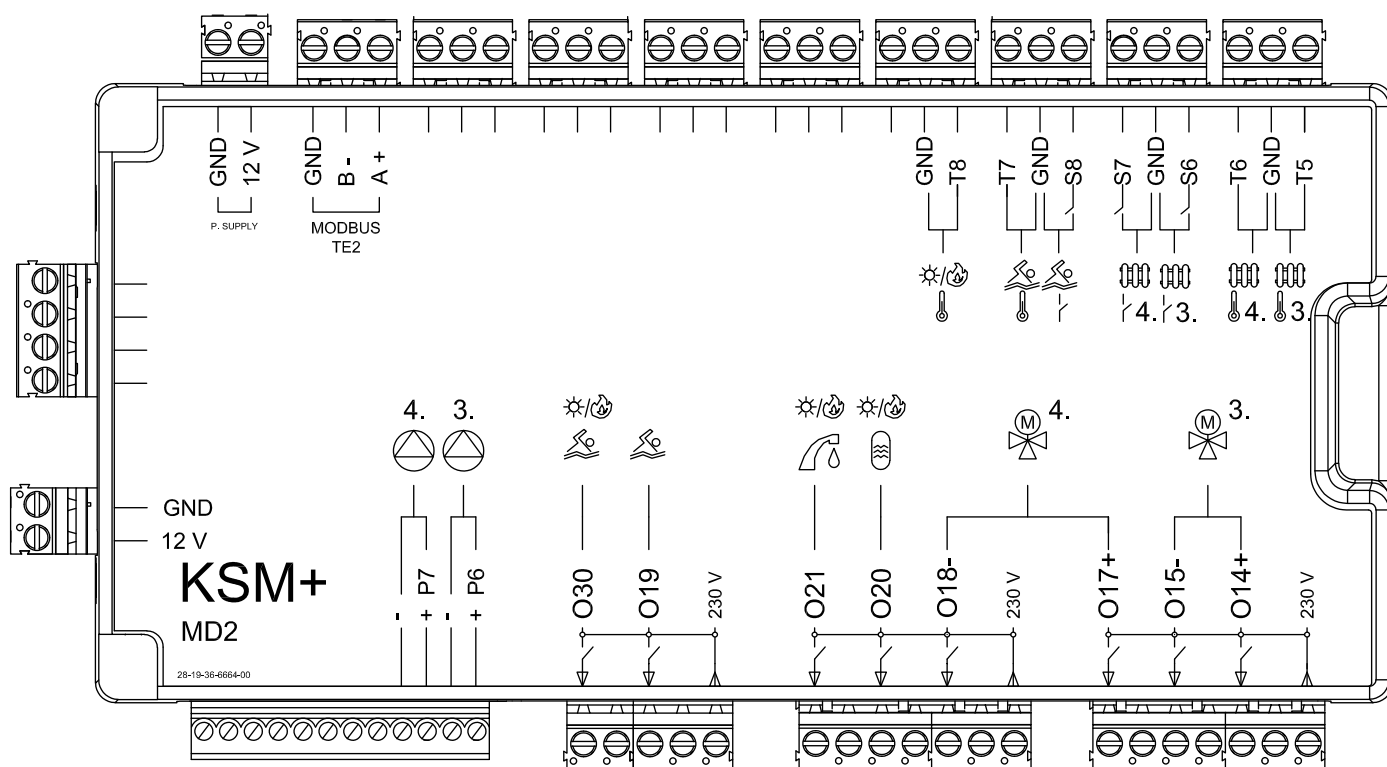
- KSM+ 2 (Kronoterm System Manager + 2)

Description

- Expansion module as an upgrade to the basic regulator
- Possible installation of one expansion module (1x)
- Integration in the HYDRO C2 or HYDRO S2 indoor unit

Functional characteristics

- Managing 2 additional loops (direct or mixed)
- Regulating SSE sunlight collectors
- Managing biomass boilers
- Heating DHW tank with sunlight collectors or biomass boilers
- Heating pool
- Heating pool with sunlight collectors



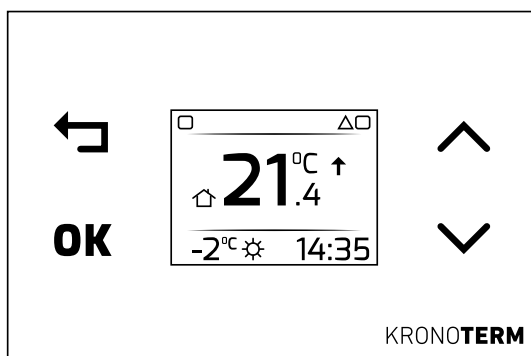
KT-2A CONTROLLER

Model type

KT-2A

Description

- Controller to control the ADAPT heat pump and the heating system
- Controller for HYDRO C2 or HYDRO S2 hydraulic module
- Control and protection of the heat pump
- Controller for secondary system and DHW preparation
- Control and setting of room temperature
- Control and setting of the system operating mode heating/cooling
- Selection of the interface and/or thermostat operating mode
- Operating status indicators
- Service access and troubleshooting
- Ambient temperature measurement and display
- Mode of operation of individual circuit
- Depending on the settings, the KT-2A controller can be used in three operating modes:
 - thermostat,
 - controller of the heat pump and the heating system,
 - thermostat and controller of the heat pump and the heating system
- Forecast
- 'Night' mode
- Accuracy: 0.1 °C
- Modbus RS485 connection
- Color LCD display



KT-2A controller

KT-1 THERMOSTAT

Model

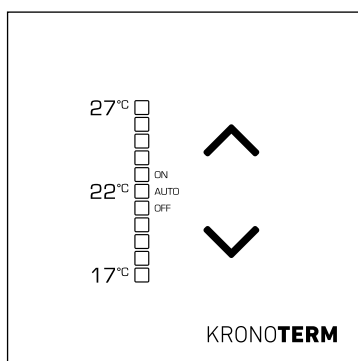
KT-1

Description

- Control and setting of the room temperature.
- Control and setting of the operating mode of the respective heating / cooling circuit.

Functional properties

- Ambient temperature measurement and display.
- Room temperature setting.
- Operating mode of the heating circuit (OFF / ON / AUTO).
- 'Night' mode.
- Accuracy: 0.1 °C.
- Setting range: 17 - 27 °C.
- Modbus RS485 connection.
- LED illumination.



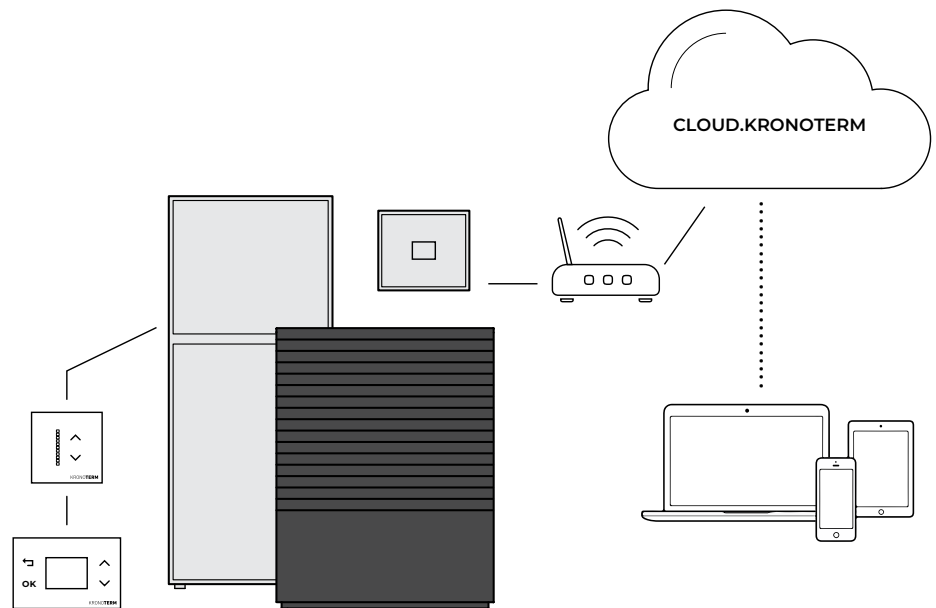
KT-1 thermostat

CLOUD.KRONOTERM

CLOUD.KRONOTERM gives you oversight and control over your heat pump, its heating loops, and its consumption. The only condition is that your appliance be 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 lowering operational costs.

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



ADDITIONAL EQUIPMENT FOR ADAPT SYSTEM

Auxiliary installation equipment

- Metal base for ADAPT
- Metal base for ADAPT - ground
- Concrete base for ADAPT
- Cover for ADAPT connecting pipes - straight (350 - 700 mm)
- Cover for ADAPT connecting pipes - angular

Electrical equipment

- ADAPT outdoor unit power cable (7m, 15m, 25m)
- HYDRO indoor unit power cable (7m, 15m, 25m)
- Communication cable between ADAPT outdoor and HYDRO or WR KSM 2 indoor unit (7m, 15m, 25m)
- Power supply cabinet with built-in circuit breakers - fuses (1PH and 3PH)
- Electricity meter for installation in an electrical cabinet (1PH and 3PH)
- Kit for upgrading a 2-core communication cable for connecting the KT-1 or KT-2A and KSM controller

- Relay module for HYDRO C2, HYDRO S2 and WR KSM 2 for controlling circulating pumps without PWM signal
- Pressure sensor kit for WR KSM 2 for measuring the heating water pressure in the heating system

Protective equipment

- Anti-freeze valve for discharging the heating water from the outdoor unit (1" and 5/4")
- ADAPT fan diffuser heating cable set for extreme operating conditions

Design equipment

- Additional set of ADAPT panels in basic colors OLIO, NERO, NEBBIA, ANTHRACITE and INDIVIDUAL
- Additional set of ADAPT panels made of INOX, CORTEN material

Marketing equipment

- ADAPT demo casing in versions NERO, OLIO, CORTEN
- Exhibition stand with wall for ADAPT demo casing

Training equipment

- ADAPT heat pump operation simulator

TECHNICAL DATA - OUTDOOR UNIT

APPLIANCE	Unit	ADAPT 0312	ADAPT 0416	ADAPT 0724
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DEDICATED INDOOR UNIT

Label	HYDRO S2, HYDRO C2, WR KSM 2	HYDRO S2, HYDRO C2, WR KSM 2	HYDRO S2, WR KSM 2
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VERSION

Heat source	Air	Air	Air
Heat sink	Water	Water	Water
Controller	KSM	KSM	KSM
Heat pump location	Outdoor	Outdoor	Outdoor
Controller position	In the indoor unit	In the indoor unit	In the indoor unit
Compressor	1 X scroll with variable speed	1 X scroll with variable speed	1 X scroll with variable speed
Compressor drive	DC Inverter	DC Inverter	DC Inverter
Fan	Centrifugal with variable rotation	Centrifugal with variable rotation	Centrifugal with variable rotation
Defrosting	Active (refrigerant changes direction)	Active (refrigerant changes direction)	Active (refrigerant changes direction)
Electrical heater	In the indoor unit	In the indoor unit	In the indoor unit
Zone valve	In the indoor unit	In the indoor unit	In the indoor unit
Flow sensor	In the indoor unit	In the indoor unit	In the indoor unit
Flow switch	Integrated	Integrated	Integrated
Pressure sensor in the heating system	In the indoor unit	In the indoor unit	In the indoor unit
Circulation pump, secondary	Integrated	Integrated	Integrated
Safety valve for heating system	In the indoor unit	In the indoor unit	In the indoor unit

CAPACITY ACCORDING TO STANDARD EN 14511

HEATING		Heating capacity / electrical power / COP	Heating capacity / electrical power / COP	Heating capacity / electrical power / COP
A7/W30-35	kW/kW/-	9,0 / 1,80 / 5,00	12,0 / 2,35 / 5,10	18,0 / 3,67 / 4,90
A2/W30-35	kW/kW/-	9,0 / 2,22 / 4,05	12,0 / 2,93 / 4,10	18,0 / 4,86 / 3,70
A-7/W30-35	kW/kW/-	8,5 / 2,62 / 3,25	11,0 / 3,49 / 3,15	15,7 / 5,15 / 3,05
A-10/W30-35	kW/kW/-	8,1 / 2,61 / 3,10	10,8 / 3,55 / 3,10	15,6 / 5,20 / 3,00
A7/W47-55	kW/kW/-	9,0 / 3,00 / 3,00	12,0 / 3,87 / 3,10	18,0 / 5,54 / 3,25
A-10/W47-55	kW/kW/-	7,5 / 3,66 / 2,05	10,3 / 5,02 / 2,05	15,4 / 7,00 / 2,20
COOLING		Cooling capacity / electrical power / EER	Cooling capacity / electrical power / EER	Cooling capacity / electrical power / EER
A35/W12-7	kW/kW/-	8,0 / 3,14 / 2,55	11,0 / 4,23 / 2,60	18,0 / 7,83 / 2,30
A35/W23-18	kW/kW/-	8,0 / 2,00 / 4,00	11,0 / 2,75 / 4,00	18,0 / 4,93 / 3,65

*The information applies for the OPTIMAL operation mode of HP.

APPLIANCE

Unit

ADAPT 0312-K3 HT / HK 1F

ADAPT 0416-K3 HT / HK 1F

SEASONAL ENERGY EFFICIENCY FOR HEATING ACCORDING TO DIRECTIVE (EU) 811/2013 – DATA SHEET

Temperature mode	°C	35 / 55	35 / 55
Rate of seasonal energy efficiency		A+++ / A++	A+++ / A++
Rated heating capacity P_{designh} , average climate zone	kW	8,1 / 7,4	11,1 / 10,4
Seasonal space heating energy efficiency η_s , average climate zone	%	194 / 139	197 / 144
Annual energy consumption average climate zone	kWh	3295 / 4192	4475 / 5734
Declared load profile for water heating usage*		XL	XL
Class for seasonal water heating energy efficiency determined in average climate zone*		A	A+
Seasonal water heating energy efficiency determined in average climate zone*	%	116	127
Annual energy consumption for water heating in average climate zone*	kWh	1446	1320
Level of acoustic power L_{WA} , indoor	dB	-	-
Rated heating capacity P_{designh} , cold climate zone	kW	9,5 / 8,5	12,5 / 11,5
Rated heating capacity P_{designh} , warm climate zone	kW	8,2 / 7,7	11,2 / 10,6
Seasonal space heating energy efficiency η_s , cold climate zone	%	173 / 127	175 / 132
Seasonal space heating energy efficiency η_s , warm climate zone	%	234 / 170	237 / 171
Annual energy consumption cold climate zone	kWh	5337 / 6444	6923 / 8394
Annual energy consumption warm climate zone	kWh	1853 / 2379	2496 / 3254
Level of acoustic power L_{WA} , outdoor	dB	42	46

*Only with indoor unit Hydro C2

SEASONAL ENERGY EFFICIENCY FOR HEATING ACCORDING TO DIRECTIVE (EU) 811/2013 – DATA SHEET FOR COMPLETE SPATIAL HEATERS

Controller model		KSM	KSM
Temperature mode	°C	35 / 55	35 / 55
Class of controller for adjusting temperature		VI	VI
Temperature controller's contribution to seasonal efficiency	%	4,0	4,0
Energy efficiency class for the whole set		A+++ / A++	A+++ / A++
Seasonal space heating energy efficiency η_s for the whole set, average climate zone	%	198 / 143	201 / 148
Seasonal space heating energy efficiency η_s , cold climate zone	%	177 / 131	179 / 136
Seasonal space heating energy efficiency η_s for the whole set, warm climate zone	%	238 / 174	241 / 175

SEASONAL HEATING CAPACITIES ACCORDING TO STANDARD EN 14825

Rated heating capacity P_{designh} 35°C / 55°C – average climate zone	kW / kW	8,1 / 7,4	11,1 / 10,4
SCOP, 35°C/55°C – average climate zone	- / -	5,08 / 3,65	5,12 / 3,75
Rated heating capacity P_{designh} 35°C / 55°C – warm climate zone	kW / kW	8,2 / 7,7	11,2 / 10,6
SCOP, 35°C/55°C – warm climate zone	- / -	5,98 / 4,36	6,05 / 4,38
Rated heating capacity P_{designh} 35°C / 55°C – cold climate zone	kW / kW	9,5 / 8,5	12,5 / 11,5
SCOP, 35°C/55°C – cold climate zone	- / -	4,39 / 3,25	4,45 / 3,38

APPLIANCE	Unit	ADAPT 0312-K3 HT / HK 3F	ADAPT 0416-K3 HT / HK 3F	ADAPT 0724-K3 HT / HK 3F
SEASONAL ENERGY EFFICIENCY FOR HEATING ACCORDING TO DIRECTIVE (EU) 811/2013 – DATA SHEET				
Temperature mode	°C	35 / 55	35 / 55	35 / 55
Rate of seasonal energy efficiency		A+++ / A++	A+++ / A++	A+++ / A+++
Rated heating capacity $P_{designh}$, average climate zone	kW	8,4 / 7,8	11,0 / 10,3	15,6 / 15,5
Seasonal space heating energy efficiency η_s , average climate zone	%	188 / 137	201 / 141	195 / 150
Annual energy consumption average climate zone	kWh	3520 / 4510	4365 / 5801	6420 / 8262
Declared load profile for water heating usage*		XL	XL	-
Class for seasonal water heating energy efficiency determined in average climate zone*		A	A+	-
Seasonal water heating energy efficiency determined in average climate zone*	%	115	131	-
Annual energy consumption for water heating in average climate zone*	kWh	1453	1280	-
Level of acoustic power L_{WA} , indoor	dB	-	-	-
Rated heating capacity $P_{designh}$, cold climate zone	kW	9,5 / 8,5	12,5 / 11,5	17,3 / 17,0
Rated heating capacity $P_{designh}$, warm climate zone	kW	8,2 / 7,7	11,2 / 10,6	16,8 / 16,5
Seasonal space heating energy efficiency η_s , cold climate zone	%	173 / 127	175 / 132	174 / 134
Seasonal space heating energy efficiency η_s , warm climate zone	%	234 / 170	237 / 171	233 / 178
Annual energy consumption cold climate zone	kWh	5337 / 6444	6923 / 8394	9651 / 12229
Annual energy consumption warm climate zone	kWh	1853 / 2379	2496 / 3254	3813 / 4863
Level of acoustic power L_{WA} , outdoor	dB	42	46	53

*Only with indoor unit HYDRO C2

SEASONAL ENERGY EFFICIENCY FOR HEATING ACCORDING TO DIRECTIVE (EU) 811/2013 – DATA SHEET FOR COMPLETE SPATIAL HEATERS

Controller model		KSM	KSM	KSM
Temperature mode	°C	35 / 55	35 / 55	35 / 55
Class of controller for adjusting temperature		VI	VI	VI
Temperature controller's contribution to seasonal efficiency	%	4,0	4,0	4,0
Energy efficiency class for the whole set		A+++ / A++	A+++ / A++	A+++ / A+++
Seasonal space heating energy efficiency η_s for the whole set, average climate zone	%	192 / 141	205 / 145	199 / 154
Seasonal space heating energy efficiency η_s , cold climate zone	%	177 / 131	179 / 136	178 / 138
Seasonal space heating energy efficiency η_s for the whole set, warm climate zone	%	238 / 174	241 / 175	237 / 182

SEASONAL HEATING CAPACITIES ACCORDING TO STANDARD EN 14825

Rated heating capacity $P_{designh}$ 35°C / 55°C – average climate zone	kW / kW	8,4 / 7,8	11,0 / 10,3	15,6 / 15,5
SCOP, 35°C/55°C – average climate zone	- / -	4,92 / 3,57	5,20 / 3,66	5,02 / 3,88
Rated heating capacity $P_{designh}$ 35°C / 55°C – warm climate zone	kW / kW	8,2 / 7,7	11,2 / 10,6	16,8 / 16,5
SCOP, 35°C/55°C – warm climate zone	- / -	5,98 / 4,36	6,05 / 4,38	5,92 / 4,55
Rated heating capacity $P_{designh}$ 35°C / 55°C – cold climate zone	kW / kW	9,5 / 8,5	12,5 / 11,5	17,3 / 17,0
SCOP, 35°C/55°C – cold climate zone	- / -	4,39 / 3,25	4,45 / 3,38	4,42 / 3,43

APPLIANCE	Unit	ADAPT 0312	ADAPT 0416	ADAPT 0724
ELECTRICAL DATA*				
ELECTRICAL DATA 1F				
Nominal voltage		~ 230 V; 50 Hz	~ 230 V; 50 Hz	/
Max. operation current	A	18,6	23,1	/
Max. electrical power	kW	4,1	5,2	/
Fuses	A	1 x C20	1 x C25	/
Electrical power cable***	mm ²	3 x 2,5 (H05VV-F)	3 x 4,0 (H05VV-F)	/
ELECTRICAL DATA 1F				
Nominal voltage		3N~ 400 V; 50 Hz	3N~ 400 V; 50 Hz	3N~ 400 V; 50 Hz
Max. operation current	A	7,6	10,4	17
Max. electrical power	kW	4,5	6,2	9
Fuses	A	3 x C10	3 x C10	3 x C20
Electrical power cable***	mm ²	5 x 2,5 (H05VV-F)	5 x 2,5 (H05VV-F)	5 x 4,0 (H05VV-F)
COMMUNICATION				
Connection between outdoor and indoor unit		FTP 5e kabel/2x2x0,6 mm ² (LiVCY)	FTP 5e kabel/2x2x0,6 mm ² (LiVCY)	FTP 5e kabel/2x2x0,6 mm ² (LiVCY)
COOLING SYSTEM				
Refrigerant - type		R 452 B	R 452 B	R 452 B
Refrigerant - industrial designation		HFC- 452B (HFC-32, HFO-1234yf, HFC-125; 67%/7%/26%)	HFC- 452B (HFC-32, HFO-1234yf, HFC-125; 67%/7%/26%)	HFC- 452B (HFC-32, HFO-1234yf, HFC-125; 67%/7%/26%)
GWP (global warming potential)		676	676	676
Refrigerant - quantity	kg	2,9	4,2	5,0
Max. Operating pressure	MPa	4,5	4,5	4,5
PRIMARY SIDE (HEAT SOURCE) – AIR				
Air flow	m ³ /h	1700-3000	2000-3500	2400-4900
SECONDARY SIDE (HEAT SINK) – WATER				
INTEGRATED CIRCULATION PUMP				
Rated flow at maximum heating capacity and ΔT 5K according to standard EN 14511	m ³ /h	1,56	2,08	3,12
Maximum available external pressure drop at rated flow	kPa	56	42	45
Max. electrical power	W	75	75	140
HEATING				
Operating envelope - min. / max. water temperature	°C	-25 / 40	-25 / 40	-25 / 40
COOLING				
Operating envelope - min. / max. water temperature	°C	0 / 40	0/40	0 / 40
DIMENSIONS AND MASS - TRANSPORT				
Dimensions (W x H x D)	mm	1150 x 1550 x 770	1150 x 1550 x 770	1150 x 1550 x 770
Mass 3F	kg	245	254	266
Mass 1F	kg	235	244	/
DIMENSIONS AND MASS - NET				
Dimensions (W x H x D)	mm	1050 x 1400 x 675	1050 x 1400 x 675	1050 x 1400 x 675
Mass 3F	kg	233	232	243
Mass 1F	kg	213	222	/

*This information is for use with an activated 4 kW electric heater.

***Tu = 0°C/Tk = 60°C/f = 120 Hz

TECHNICAL DATA - INDOOR UNIT

APPLIANCE	Unit	HYDRO S2		HYDRO C2	
ELECTRICAL DATA*					
ELECTRICAL DATA 1F					
Frequency	Hz	50	50	50	50
Nominal voltage	V	~ 230 V	~ 230 V	~ 230 V	~ 230 V
Electrical heater		1 x 2 kW ~ 230 V	2 x 2 kW ~ 230 V	1 x 2 kW ~ 230 V	2 x 2 kW ~ 230 V
Max. operating current	A	11,8	20,6	11,8	20,6
Max. electrical power	kW	2,6	4,6	2,6	4,6
Fuses	A	1 x C16	1 x C20	1 x C16	1 x C20
Power cable	mm²	3 x 2,5	3 x 4	3 x 2,5	3 x 4
Type of power cable		H05VV-F	H05VV-F	H05VV-F	H05VV-F
ELECTRICAL DATA 3F					
Frequency	Hz	50		50	
Nominal voltage	V	3N ~ 400		3N ~ 400	
Electrical heater		3 x 2 kW ~230 V		3 x 2 kW ~230 V	
Max. operating current	A	11,8		11,8	
Max. electrical power	kW	6,6		6,6	
Fuses	A	3 x C16		3 x C16	
Power cable	mm²	5 x 2,5		5 x 2,5	
Type of power cable		H05VV-F		H05VV-F	
*For system Max. power, power cables and fuse dimensions, see Installation guidelines					
SECONDARY SIDE (HEAT SINK) – WATER					
Minimum rated diameter of the pipe to ADAPT 0312 and 0416	DN	25		25	
Minimum rated diameter of the pipe to ADAPT 0724	DN	32		/	
Maximum available pressure drop at rated flow ADAPT 0312*	kPa	11,5		20	
Maximum available pressure drop at rated flow ADAPT 0416*	kPa	20		26	
Maximum available pressure drop at rated flow ADAPT 0724*	kPa	45		/	
* Calculated at condition A2/W30-35;					
VOLUME					
BOILER	l	/		200	
Heat losses Q _{st} according to EN 12897	kWh / 24 h	/		1,27	
BUFFER TANK	l	40		40	
Heat losses Q _{st} at 55 °C	kWh / 24 h	1,2		1,2	
Heat losses Q _{st} at 35 °C	kWh / 24 h	0,335		0,335	
DIMENSIONS AND WEIGHT – TRANSPORT					
Dimensions (W x H x D)	mm	600 x 750 x 450		640 x 2035 x 790	
Weight	kg	36		148	
DIMENSIONS AND WEIGHT – NET					
Dimensions (W x H x D)	mm	525 x 620 x 320		602 x 1812 x 684	
Weight	kg	27		135	
COMMUNICATION					
Connection between the outdoor and indoor units		FTP 5e kabel/2x2x0,6 mm2 (LiYCY)		FTP 5e kabel/2x2x0,6 mm2 (LiYCY)	
Connection to BMS		MODBUS protokol (UTP kabel – prikljucek RJ45) – RS 485		MODBUS protokol (UTP kabel – prikljucek RJ45) – RS 485	
Connection to the internet		UTP kabel – prikljucek RJ45 - Ethernet		UTP kabel – prikljucek RJ45 - Ethernet	

TECHNICAL DATA - INDOOR UNIT

APPLIANCE*

		WR KSM 2	WR KSM+	WR KSM C
ELECTRICAL DATA 1F				
Frequency	Hz	50	50	50
Nominal voltage	V	~ 230	~ 230	~ 230
Max. operation current	A	2,2	2,2	2,2
Max. electrical power	kW	0,5	0,5	0,5
Fuses	A	1 x C10	1 x C10	1 x C10
Power cable	mm ²	3 x 1,5	3 x 1,5	3 x 1,5
Type of power cable		H05VV-F	H05VV-F	H05VV-F

*For system Max. power, power cables and fuse dimensions, see Installation guidelines

DIMENSIONS AND WEIGHT – TRANSPORT

Dimensions (W x H x D)	mm ²	420 X 370 X 120	220 X 370 X 120	220 X 370 X 120
Weight	kg	5	2,5	2,8

DIMENSIONS AND WEIGHT – NET

Dimensions (W x H x D)	mm ²	400 X 350 X 90	200 X 350 X 90	200 X 350 X 90
Weight	kg	4,3	2,3	2,6

COMMUNICATION

Connection between heat pump and wall controller	FTP 5e cable / 2x2x0.6 mm2 (LiYCY)	FTP 5e cable / 2x2x0.6 mm2 (LiYCY)	FTP 5e cable / 2x2x0.6 mm2 (LiYCY)
Connection to BMS	MODBUS protocol (UTO cable connection RJ45) – RS485	MODBUS protocol (UTO cable connection RJ45) – RS485	MODBUS protocol (UTO cable connection RJ45) – RS485
Connection to the internet	UTP cable – connection RJ45 – Ethernet	UTP cable – connection RJ45 – Ethernet	UTP cable – connection RJ45 – Ethernet

TECHNICAL SPECIFICATIONS – FLOW ELECTRICAL HEATER PG_6 AND PG_12

APPLIANCE

PG_6

PG_12

HEATING MEDIUM - WATER

Minimum water temperature	°C	5	5
Maximum water temperature	°C	80	80
Rated flow at dT 5K according to standard EN 14511	m ³ /h	1,035	2,07
Maximum available pressure drop	kPa	0,43	0,63

ELECTRICAL DATA*

ELECTRICAL DATA 1F

Frequency	Hz	50	50	50
Rated voltage	V	~230	~230	~230
Electrical heater		1 x 2 kW ~230 V	2 x 2 kW ~230 V	2 x 2 kW ~230 V
Max. operating current	A	8,7	17,4	17,4
Max. electrical power	kW	2	4	4,0
Fuses	A	1 x C10	1 x C20	1 x C20
Power cable	mm ²	3 x 1,5	3 x 2,5	3 x 2,5
Type of power cable		H05VV-F	H05VV-F	H05VV-F

ELECTRICAL DATA 3F

Frequency	Hz	50	50	50
Nominal voltage	V	3N ~400	3N ~400	3N ~400
Electrical heater		3 x 2 kW ~230 V	4 x 2 kW 2f ~230 V	6 x 2 kW 3f ~230 V
Max. operating current	A	8,7	17,4	17,4
Max. electrical power	kW	6	8	12
Fuses	A	3 x C10	2 x C20	3 x C20
Power cable	mm ²	5 x 1,5	4 x 2,5	5 x 2,5
Type of power cable		H05VV-F	H05VV-F	H05VV-F

*For the system's connection power, power cables, and fuse dimensions, see the instructions on preparing for installation

DIMENSIONS AND WEIGHT – TRANSPORT

Dimensions (W x H x D)	mm	140 x 160 x 350	220 x 230 x 460
Weight	kg	4,3	10,5

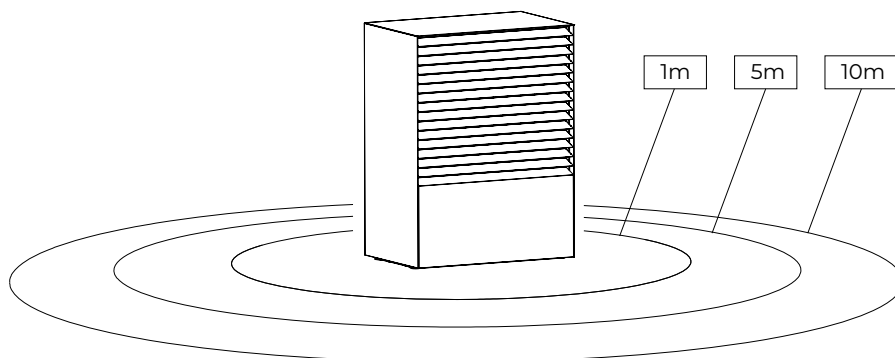
DIMENSIONS AND WEIGHT – NET

Dimensions (W x H x D)	mm	124 x 145 x 330	200 x 213 x 440
Weight	kg	4,1	10,1

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 by structure, so all connectors must be equipped with vibration compensators or absorbers.
- It is very important for the outdoor unit to choose the right location. Adjacent walls and other obstructions around the device significantly affect the sound pressure.

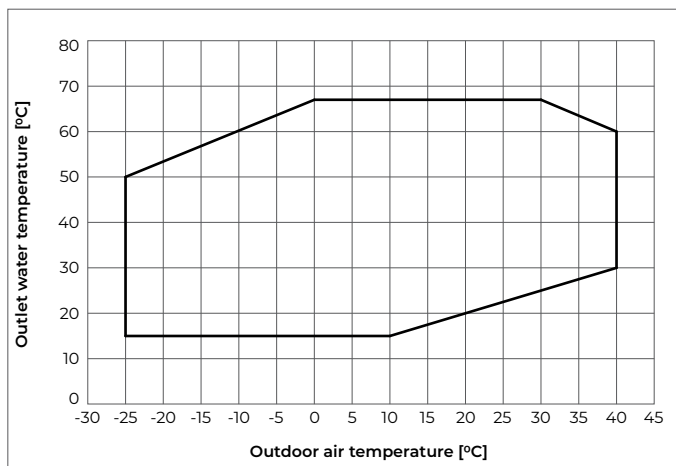


DEVICE	Unit	ADAPT 0312	ADAPT 0416	ADAPT 0724
SOUND ACCORDING TO EN 12102 AT THE CONDITION OF A7W35				
THE DECLARED SOUND POWER ON THE ECOLABEL ENERGY LABEL				
Sound power	dB (A)	42	46	53
The sound pressure at the distance of 1 m	dB (A)	34	38	45
The sound pressure at the distance of 5 m	dB (A)	20	24	31
The sound pressure at the distance of 10 m	dB (A)	14	18	25
MINIMUM SOUND POWER				
Sound power	dB (A)	40	44	51
The sound pressure at the distance of 1 m	dB (A)	32	36	43
The sound pressure at the distance of 5 m	dB (A)	18	22	29
The sound pressure at the distance of 10 m	dB (A)	12	16	23
MAXIMUM SOUND POWER IN OPTIMAL MODE				
Sound power	dB (A)	55	61	67
The sound pressure at the distance of 1 m	dB (A)	47	53	59
The sound pressure at the distance of 5 m	dB (A)	33	39	45
The sound pressure at the distance of 10 m	dB (A)	27	33	39
MAXIMUM SOUND POWER IN SILENT MODE				
Sound power	dB (A)	44	50	57
The sound pressure at the distance of 1 m	dB (A)	36	42	49
The sound pressure at the distance of 5 m	dB (A)	22	28	35
The sound pressure at the distance of 10 m	dB (A)	16	22	29

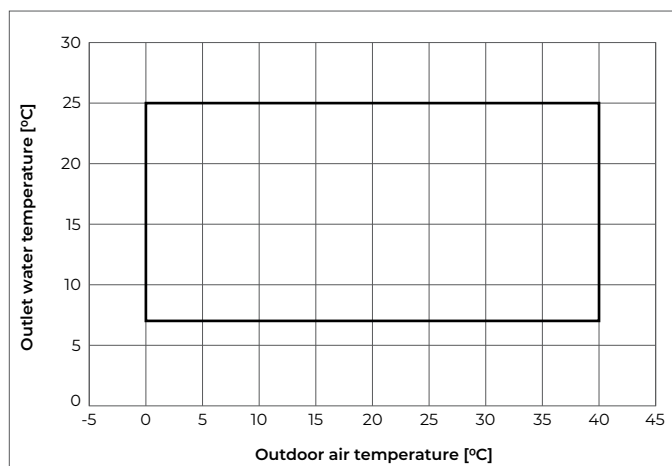
The appliance's sound power depends on the building's actual heating needs. The lower the heating needs, the lower the noise levels, and vice versa. Sound pressure is calculated from the sound power at the hemispherical layout ($Q = 2$).

RANGE OF OPERATION

Heating



Cooling



CAPACITY CURVES

The maximum heat power of the heat pump depends on selected operation mode:

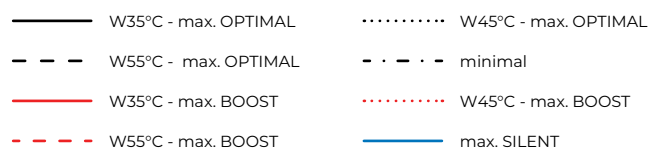
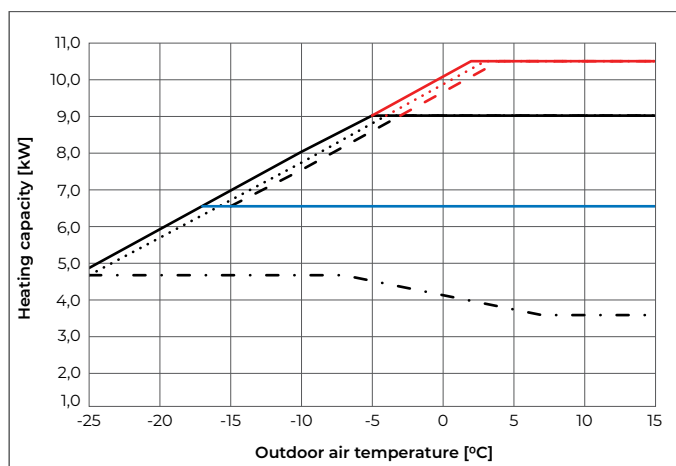
BOOST: in this mode the heat pump has a higher maximum power, high levels of noise, and low efficiency.

OPTIMAL: in this mode the heat pump has the highest level of efficiency and the best ratio between heating capacity and noise levels.

SILENT: in this mode the heat pump has low noise level, a lower maximum heating capacity, and low efficiency.

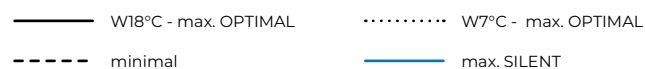
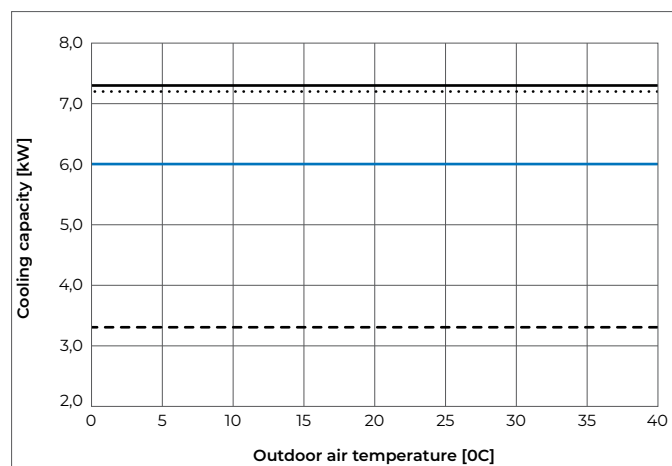
ADAPT 0312

Heating capacity



ADAPT 0312

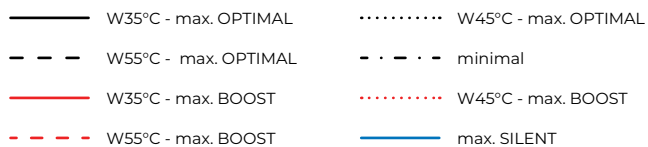
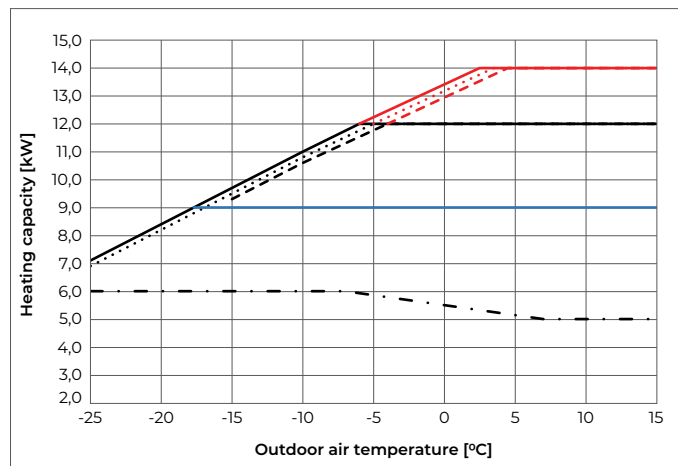
Cooling capacity



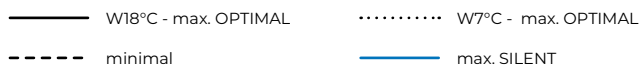
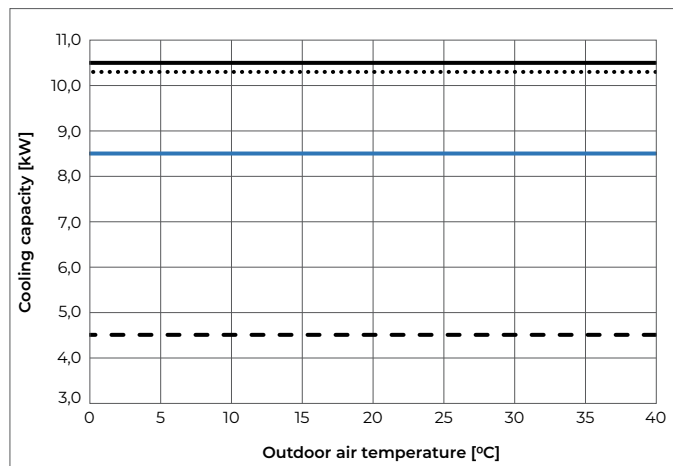
CAPACITY CURVES

ADAPT 0416

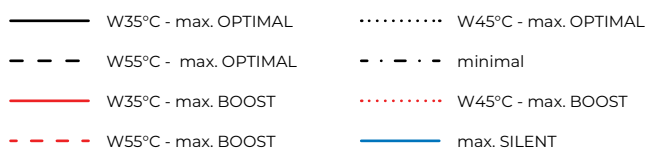
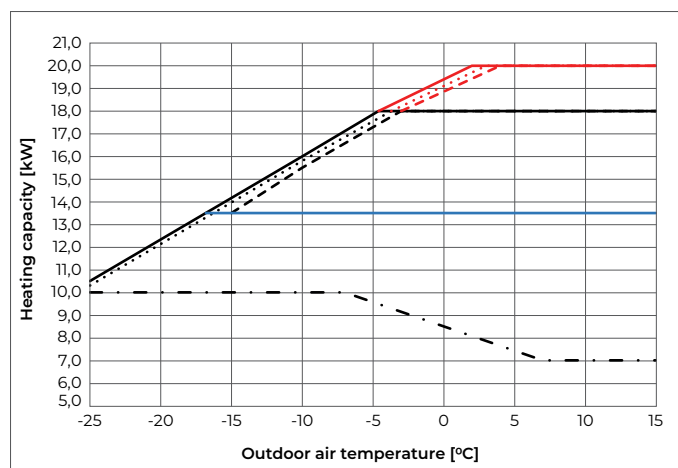
Heating capacity

**ADAPT 0416**

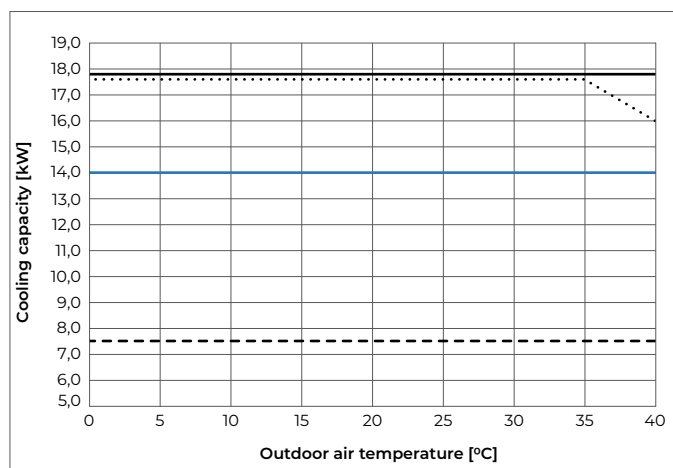
Cooling capacity

**ADAPT 0724**

Heating capacity

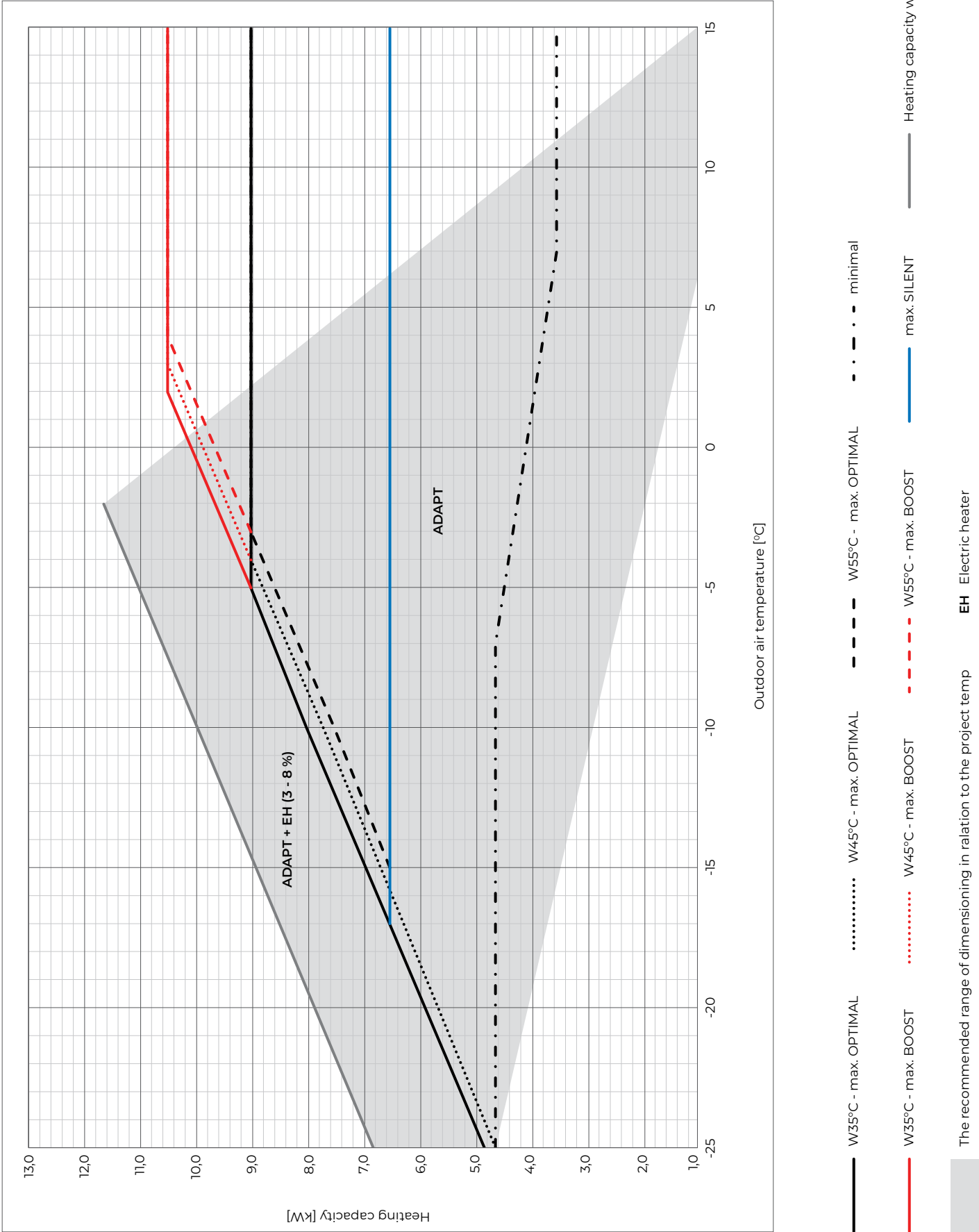
**ADAPT 0724**

Cooling capacity



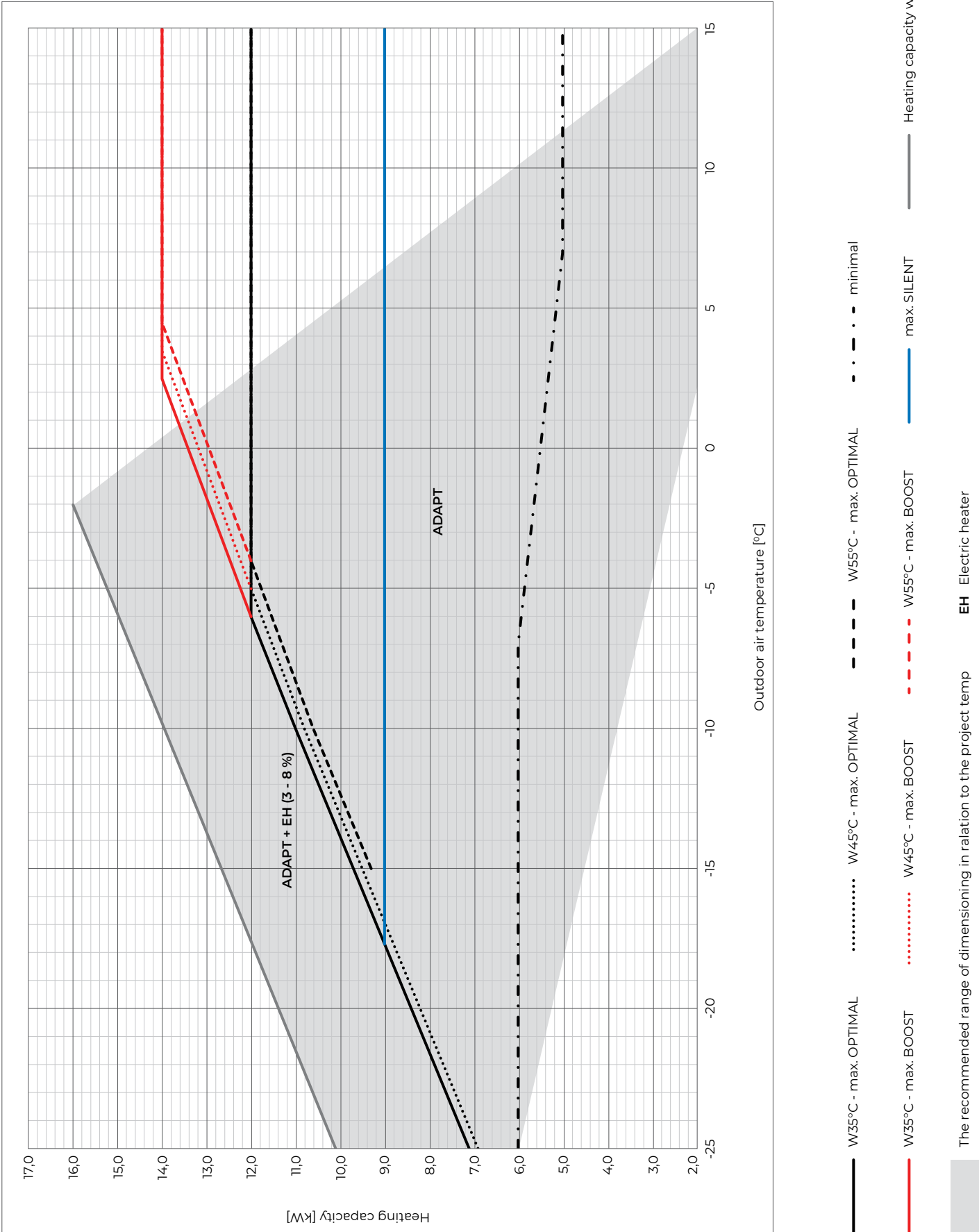
CAPACITY CURVES

ADAPT 0312
Heating capacity



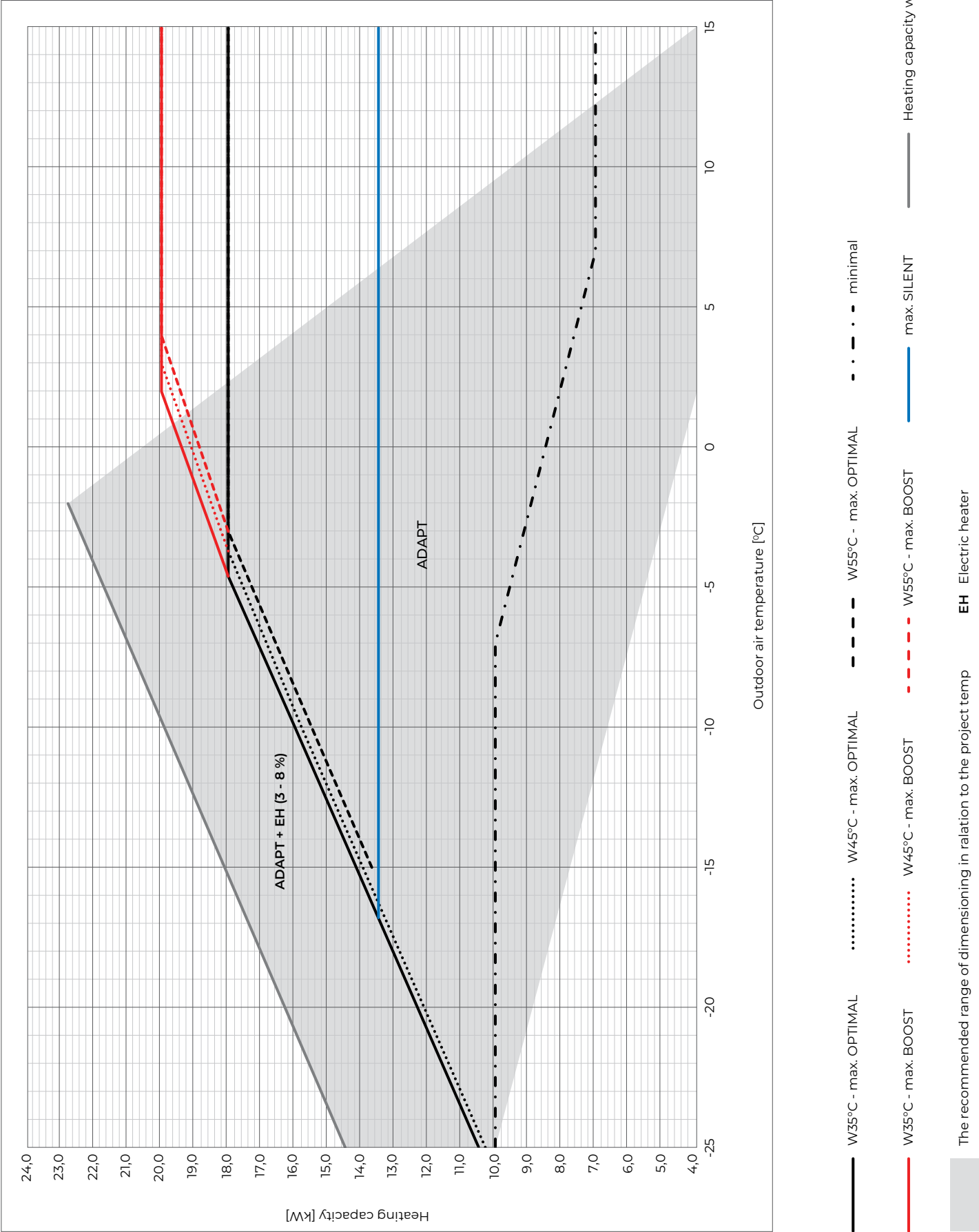
CAPACITY CURVES

ADAPT 0416
Heating capacity



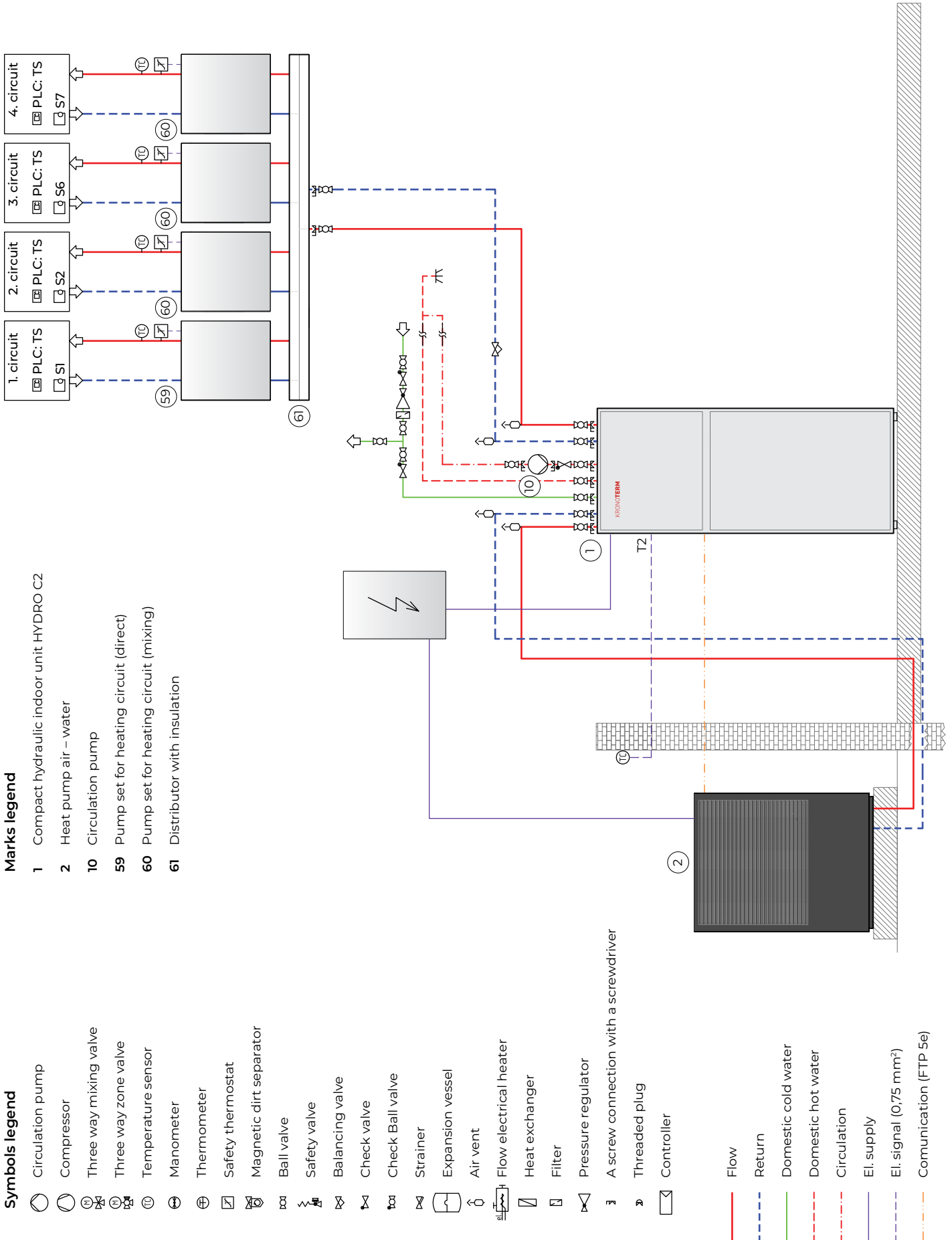
CAPACITY CURVES

ADAPT 0724
Heating capacity



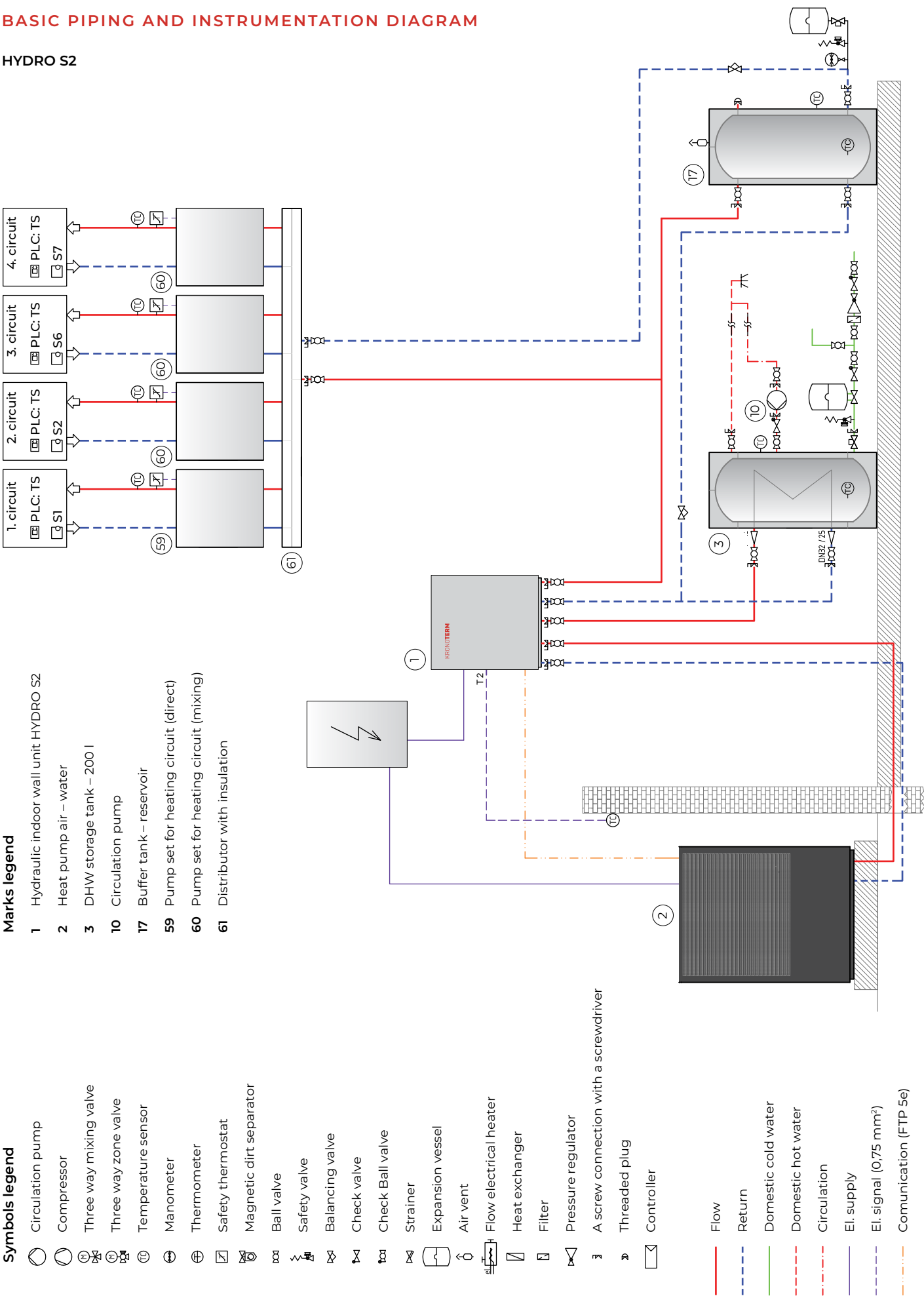
BASIC PIPING AND INSTRUMENTATION DIAGRAM

HYDRO C2



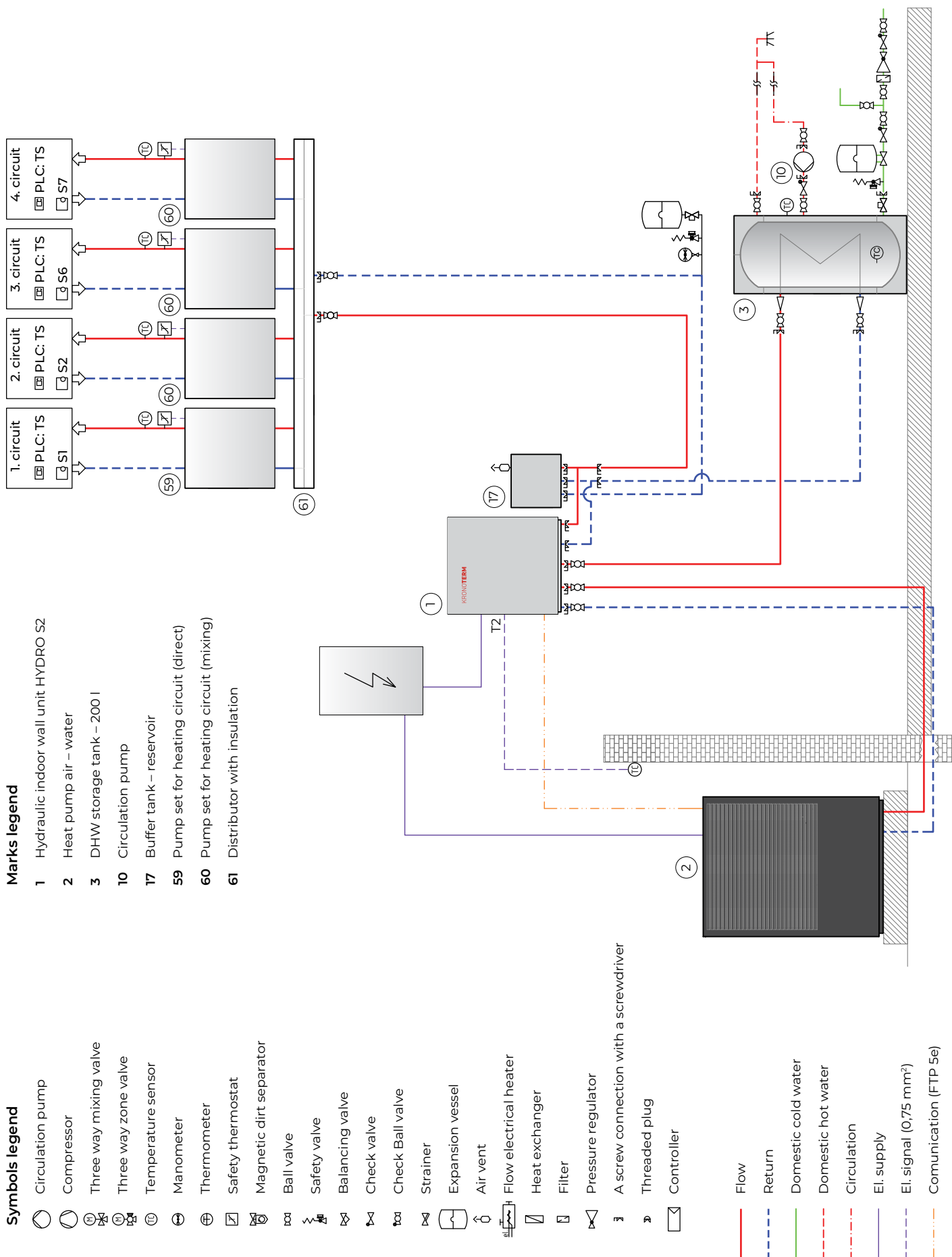
BASIC PIPING AND INSTRUMENTATION DIAGRAM

HYDRO S2



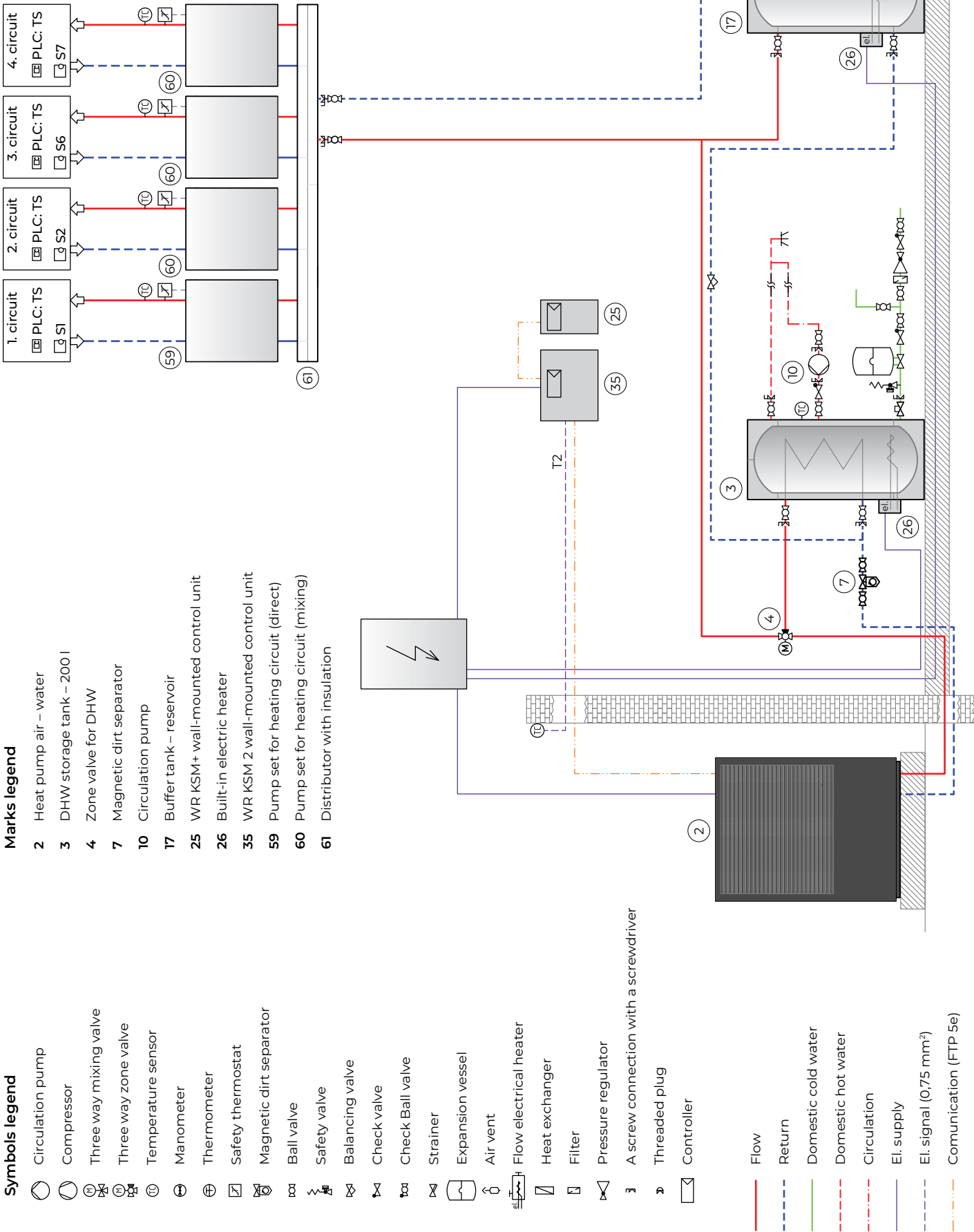
BASIC PIPING AND INSTRUMENTATION DIAGRAM

HYDRO S2 + HYDRO P2



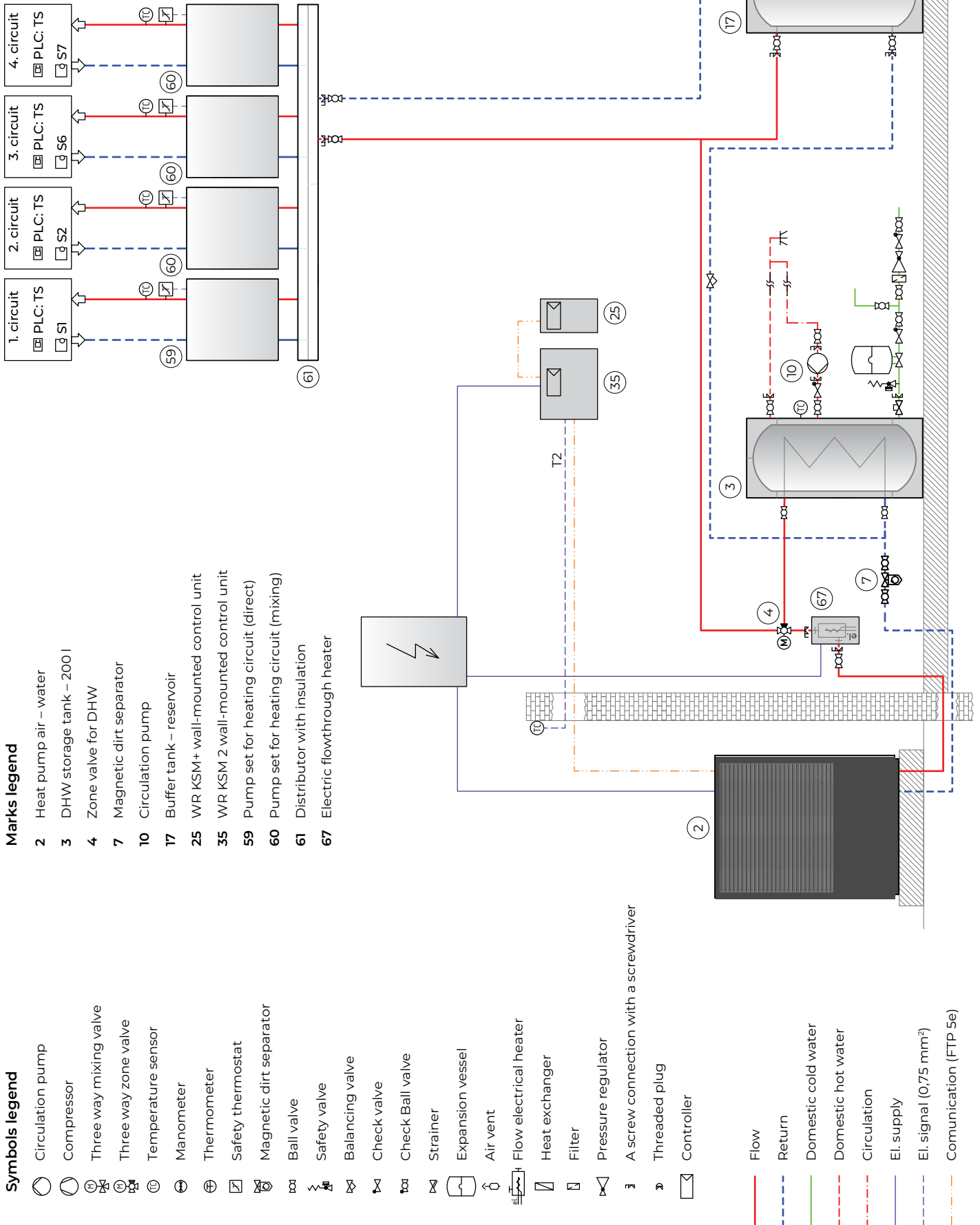
BASIC PIPING AND INSTRUMENTATION DIAGRAM

WR KSM 2 with built-in electric heater



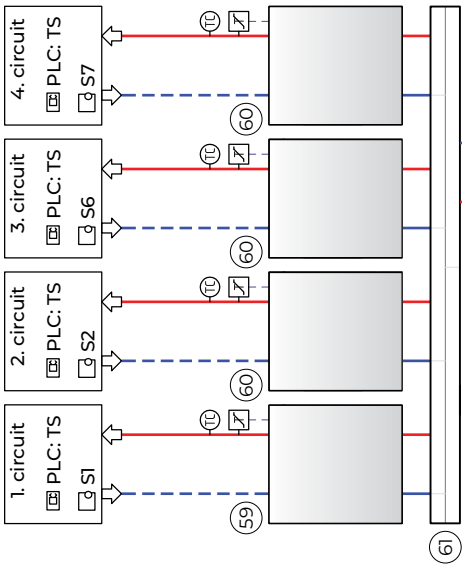
BASIC PIPING AND INSTRUMENTATION DIAGRAM

WR KSM 2 with electric flowthrough heater



BASIC PIPING AND INSTRUMENTATION DIAGRAM

WR KSM C



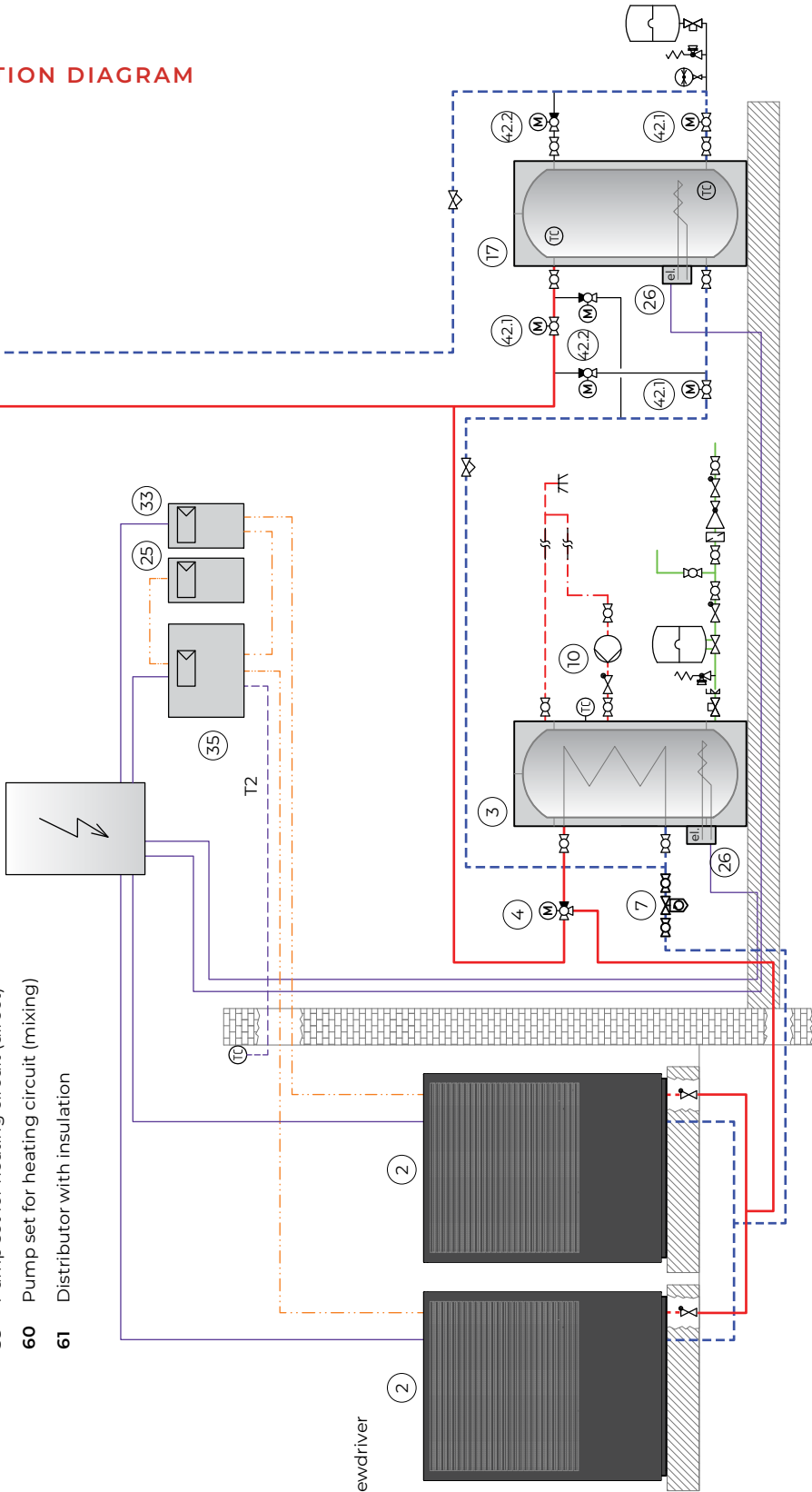
Marks legend

- 2 Heat pump air – water
- 3 DHW storage tank – 200 l
- 4 Zone valve for DHW
- 7 Magnetic dirt separator
- 10 Circulation pump
- 17 Buffer tank – reservoir
- 25 WR KSM+ wall-mounted control unit
- 26 Built-in electric heater
- 33 WR KSM C wall-mounted control unit
- 35 WR KSM 2 wall-mounted control unit
- 42.1 zone valve for cooling mode (normally open)
- 42.2 zone valve for cooling mode (normally closed)
- 59 Pump set for heating circuit (direct)
- 60 Pump set for heating circuit (mixing)
- 61 Distributor with insulation

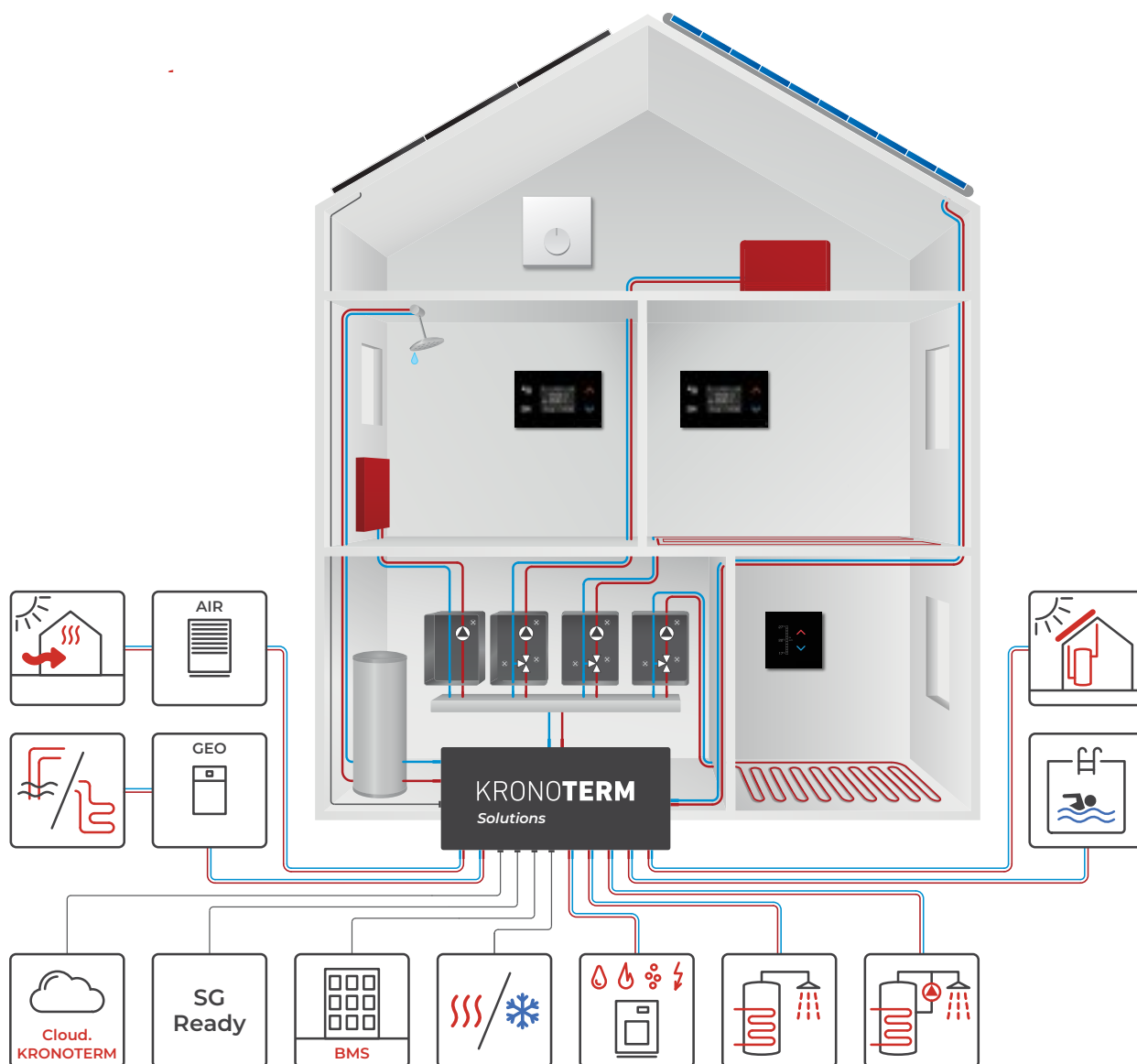
Symbols legend

- Circulation pump
- Compressor
- Three way mixing valve
- Three way zone valve
- Temperature sensor
- Manometer
- Thermometer
- Safety thermostat
- Magnetic dirt separator
- Ball valve
- Safety valve
- Balancing valve
- Check valve
- Check Ball valve
- Strainer
- Expansion vessel
- Air vent
- Flow electrical heater
- Heat exchanger
- Filter
- Pressure regulator
- A screw connection with a screwdriver
- Threaded plug
- Controller

- Flow
- Return
- Domestic cold water
- Domestic hot water
- Circulation
- El. supply
- El. signal (0,75 mm²)
- Communication (FTP 5e)



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