KRONOTERM 1976

HEAT PUMPS

DATA SHEET

ADAPT

Heat pump

Data sheet - ADAPT - ENG/98-19-24-5421-04

INDEX

ADAPT HEAT PUMP

Description

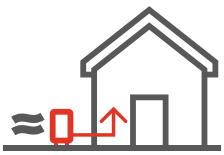
Together with the HYDRO indoor unit the Kronoterm ADAPT heat pumps form a comprehensive variable system, Adaptable in terms of both refrigerant and hydraulics, depending on the building's heating needs. The outdoor unit, a compact air/water heat pump, is distinguished by extremely silent operation and 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™ – the 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.
- LowGWP™ – 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 C unit, which features a 200 l DHW tank for domestic hot water, utilizes a special heat exchanger to easily heat larger quantities than comparable systems.
- HBS™ – Hydronically Balanced System – the Hydro C's indoor unit has a 40 l integrated DHW tank, ensuring that the heating system is always hydronically balanced, and that enough energy is always available for defrosting.
- 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.



CONFIGURATION

ADAPT heat pumps are combined with the HYDRO C and HYDRO S indoor units.

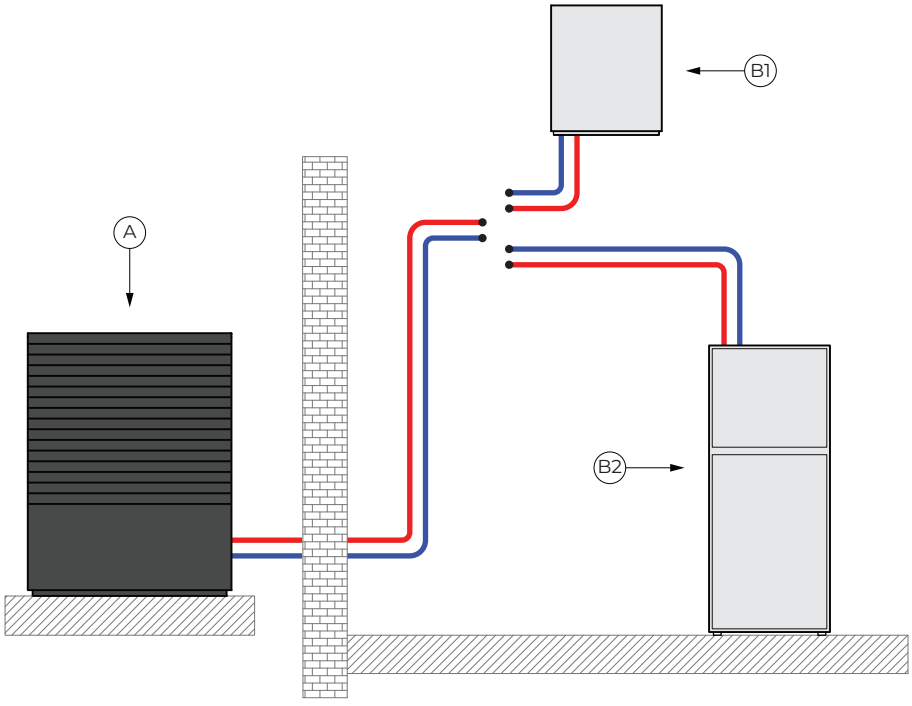
Outdoor unit ADAPT

Indoor compact HYDRO C unit

Indoor HYDRO S wall unit

Legend

A Outdoor unit
B1 Indoor HYDRO S wall unit
B2 Indoor compact HYDRO C unit



NOMENCLATURE

ADAPT 0312 K3 HT / HK 3F	
Adapt	The name for a line of heat pumps
0312	Range of heat output in kW, 03 - 12
K	Water connection
3	Device generation

ADAPT 0312 K3 HT / HK 3F	
HT	Temperature of flow outlet up to 67 °C
HK	Healing and cooling
3F / 1F	three-phase electrical connection 3 x 400 Vac / one-phase connection 1 x 230 Vac

HYDRO C	
HYDRO	The name for a line of indoor units
C	A hydro module with an integrated DHW and buffer tank
S	A basic, wall-mounted hydro module

OUTDOOR UNIT ADAPT

Version
Compact outdoor air/water unit.

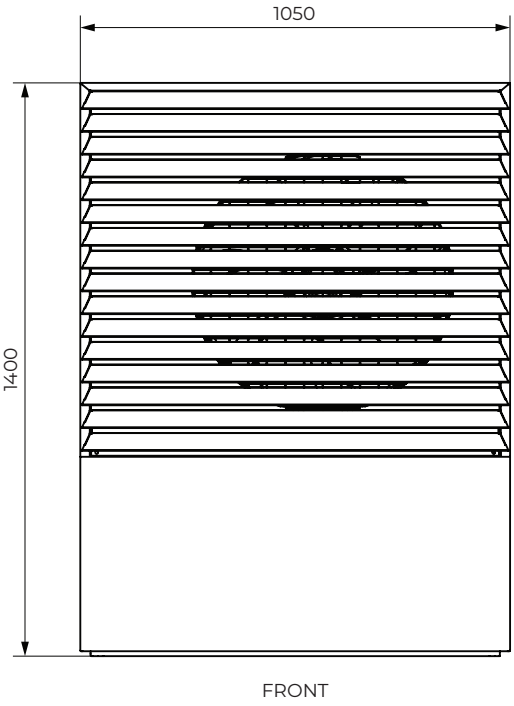
Model marks
ADAPT 0312 K3 HT / HK 3F
ADAPT 0312 K3 HT / HK 1F
ADAPT 0416 K3 HT / HK 3F
ADAPT 0416 K3 HT / HK 1F

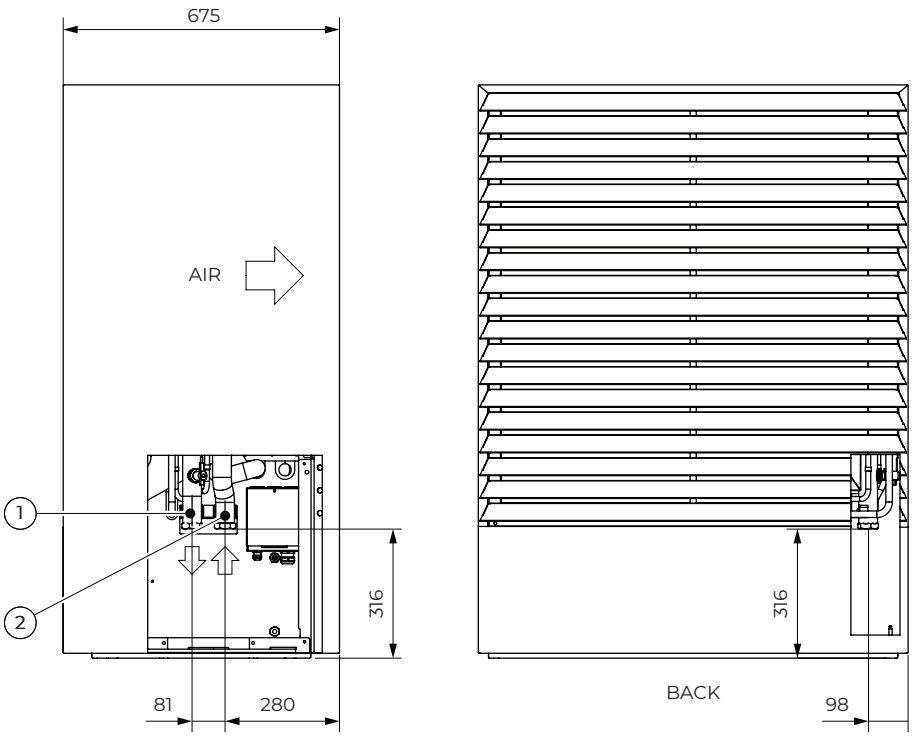
Description and dimensions
- Powder coated, zinced, steel plate housing
- Optionally made out of stainless steel or Corten sheet metal
- Evaporator and fan protected against the weather
- Bionically designed fan to minimize noise
- Adjustable heat output
- Adaptive heating
- Integrated circulation pump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

Legend

1 Outlet from the outdoor unit – flow outlet*
2 Inlet to the outdoor unit – flow inlet*

*flat seal screw





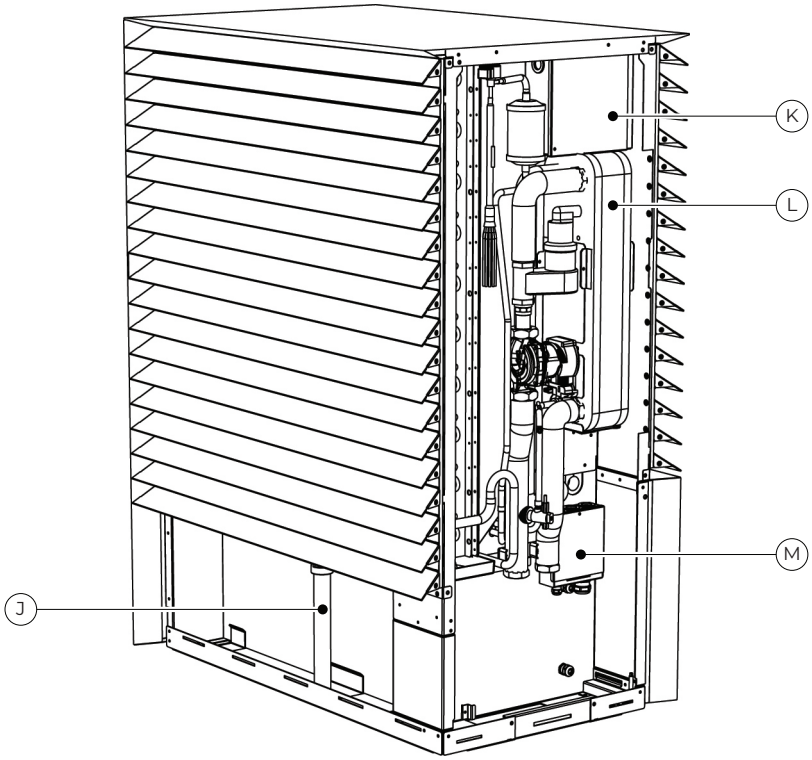
OUTDOOR UNIT ADAPT

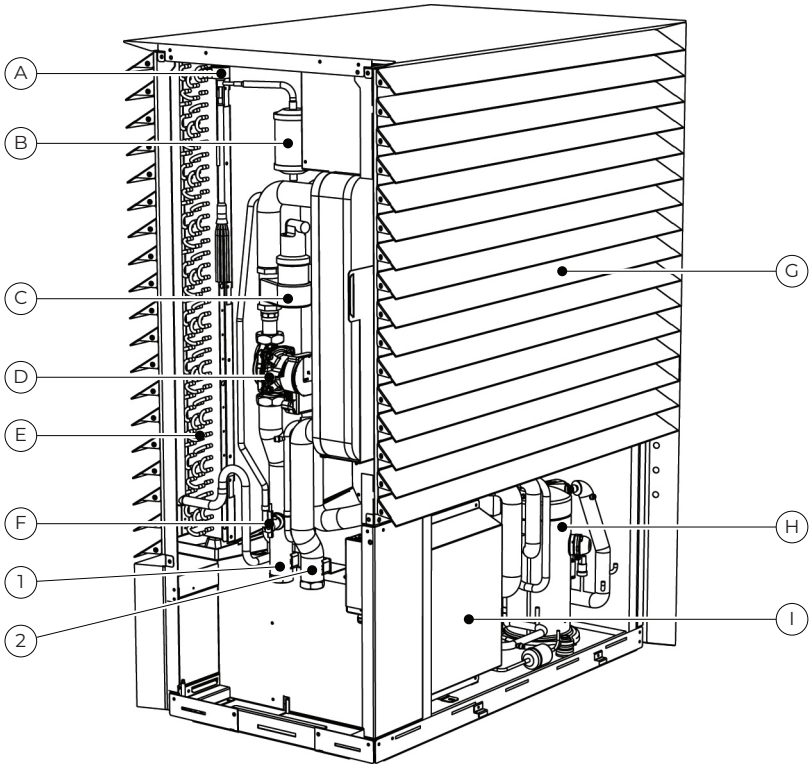
Primary components

Legend

1 Outlet from the outdoor unit – G1 1/4" FSC*
2 Inlet to the outdoor unit – G1 1/4" FSC*
A Electronic expansion valve
B Dehydrator
C Ventilator
D EC Flow pump
E Evaporator
F Flow switch
G Fan
H Compressor
I Inverter drive
J Condensation discharge
K Outdoor unit's controller's electrical cabinet
L Plate heat exchanger/Condenser
M Connection for electricity and communication with outdoor unit

*flat seal screw



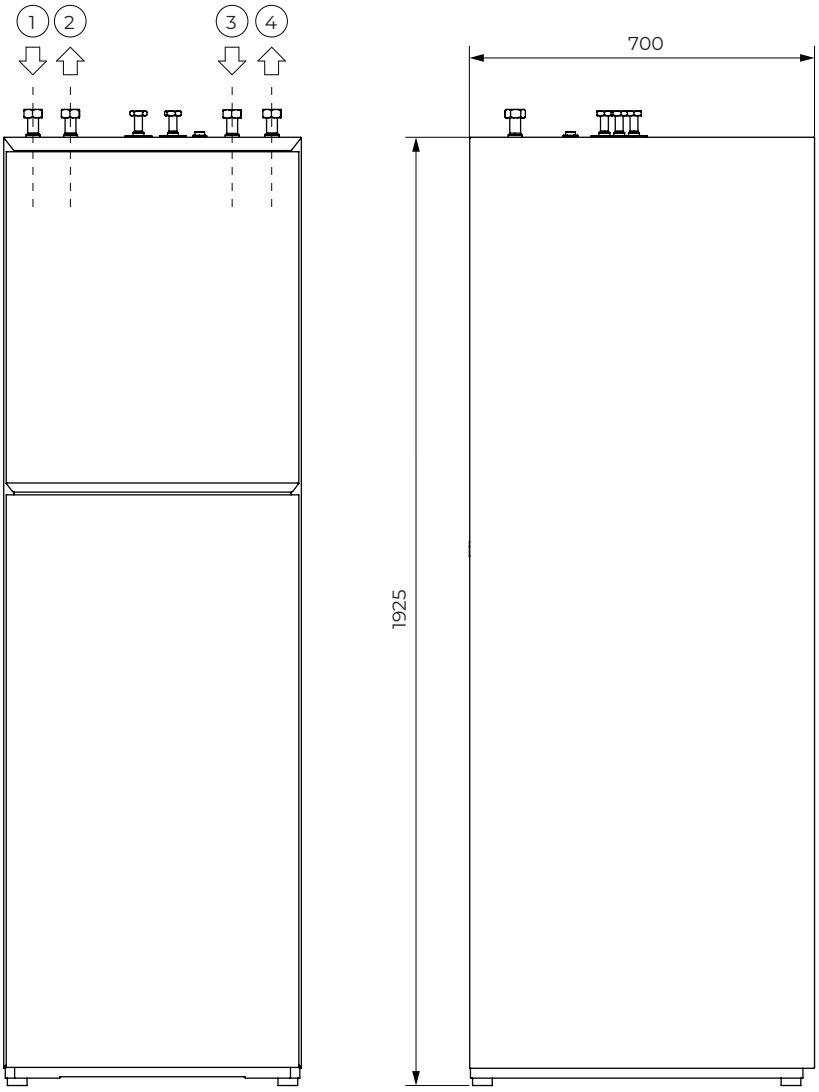


INDOOR UNIT HYDRO C

Version
Indoor unit with DHW tank and buffer tank.

Model marks
HYDRO C

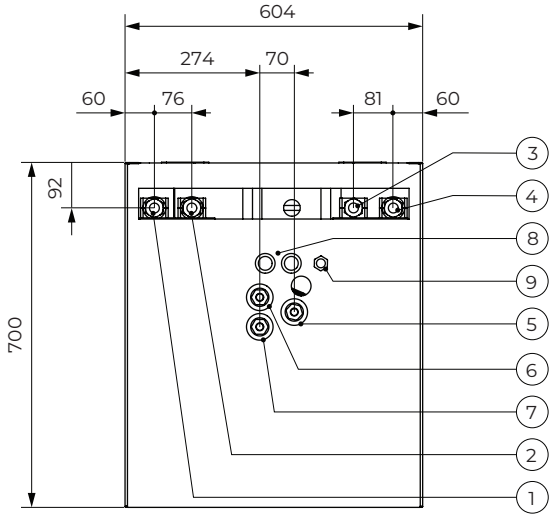
Description and dimensions
- Powder coated, zinced, steel plate housing
- Healing and cooling
- Integrated 200 l DHW tank
- Integrated buffer tank, 40 l
- Integrated expansion vessel for the heating system (18 l) and hot water (12 l)
- Integrated safety valve for the heating system and domestic hot water
- Integrated 6 kW electrical heater (3 x 2 kW)
- Integrated magnetic valve
- Integrated pressure sensor and system refiller
- KSM, KSM+, and WEB module controllers
- Drawer for documentation



Legend

1 Inlet (from outdoor unit) – G1" FSC*
2 Outlet (to outdoor unit) – G1" FSC*
3 Heating/cooling the return pipe – G1" FSC*
4 Heating/cooling the supply pipe – G1" FSC*
5 Circulation – G3/4" FSC*
6 Domestic hot water – outlet – G3/4" FSC*
7 Domestic cold water – inlet – G3/4" FSC*
8 Cable glands for electricity
9 Internet cable

*flat seal screw

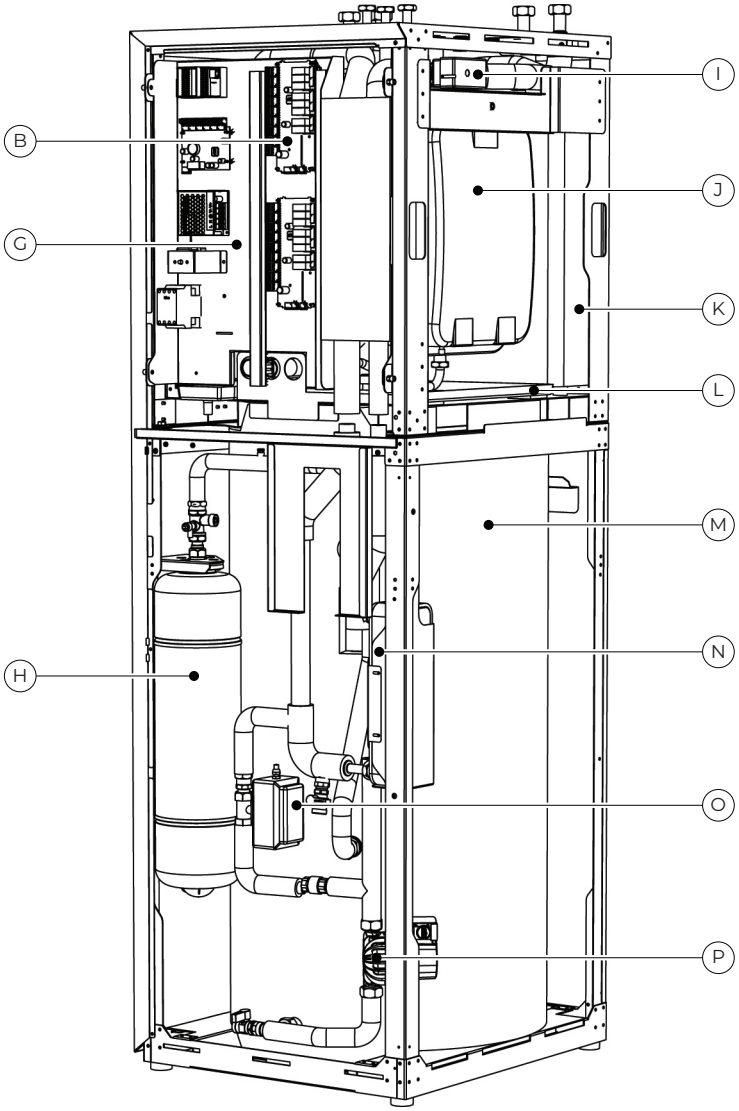


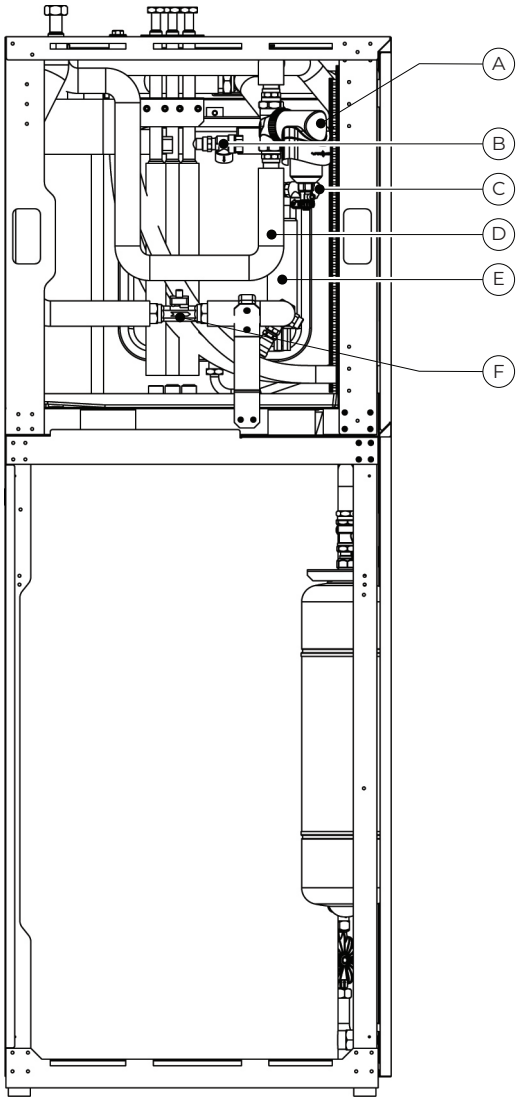
INDOOR UNIT HYDRO C

Primary components

Legend

A Magnetic filter
B Safety valve for DHW
C Safety valve for heating
D Pressure sensor
E 6 kW electrical heater (3 x 2 kW)
F Flow sensor (optional)
G Electric cabinet
H DHW expansion vessel – 12 l
I 3-way zone valve
J Expansion vessel for heating – 18 l
K Heating/cooling buffer tank 40 l
L Condensate vessel
M DHW tank – 200 l
N Sheet for heat transfer for domestic hot water
O Motorized valve for filling the heating system
P Flow pump for DHW water





INDOOR UNIT HYDRO S

Version
Basic indoor wall unit

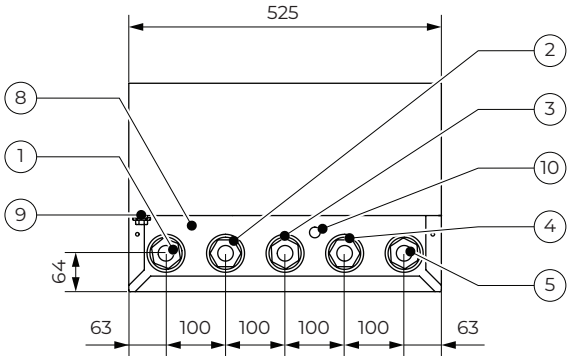
Model marks
HYDRO S

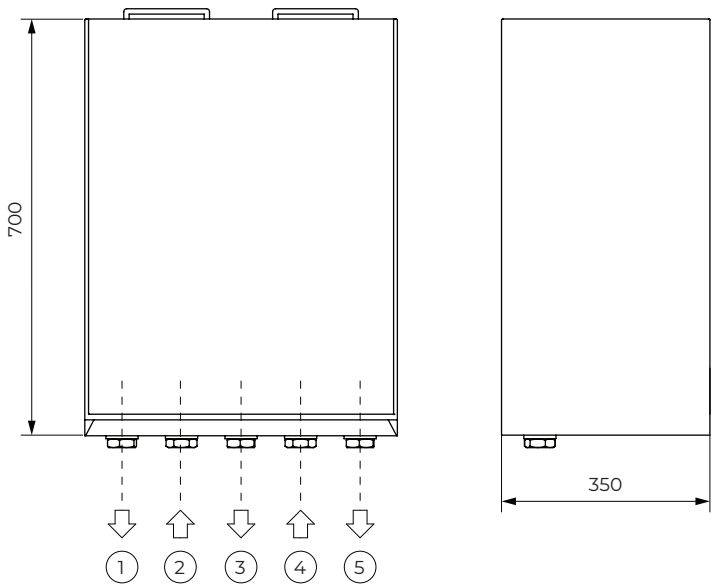
Description and dimensions
- Wall-mounted indoor unit
- Integrated 6 kW electrical heater (3 x 2 kW)
- Integrated 3–way valve for switching between heating and DHW
- Integrated magnetic filter and pressure sensor
- KSM and KSM+ controller
- Integrated WEB module
- Drawer for documentation

Legend

1 Outlet (to outdoor unit) – G1 1/4" FSC*
2 Inlet (from outdoor unit) – G1 1/4" FSC*
3 Heating/cooling, DHW - supply pipe – G1 1/4" FSC*
4 Heating/cooling return pipe – G1 1/4" FSC*
5 Heating/cooling supply pipe – G1 1/4" FSC*
8 Glands for electric cables
9 Internet cable
10 Condensation discharge – ø 16

*flat seal screw



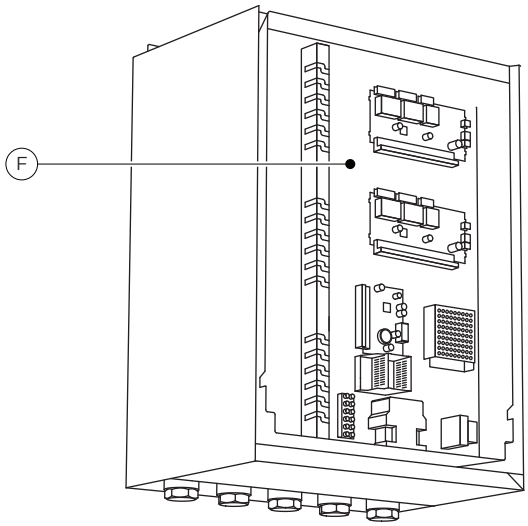


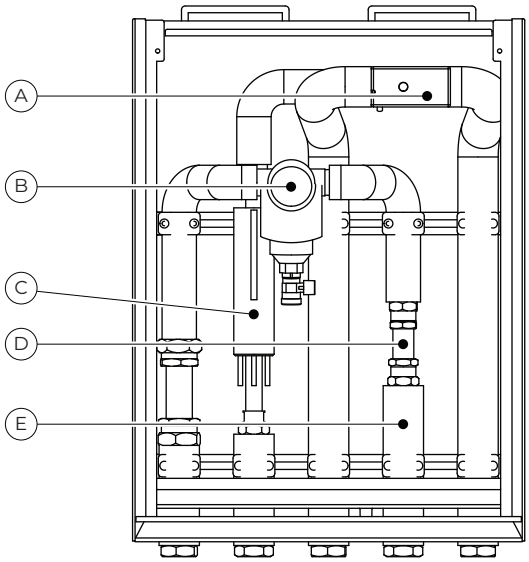
INDOOR UNIT HYDRO S

Primary components

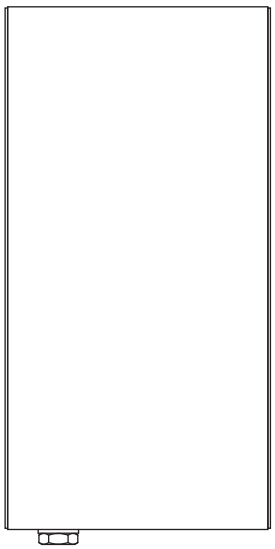
Legend

- **A** 3-way zone valve
- **B** Magnetic filter
- **C** 6 kW electrical heater (3 x 2 kW)
- **D** Flow sensor (optional)
- **E** Heating system's pressure sensor
- **F** Electrical cabinet for regulation KSM, KSM+

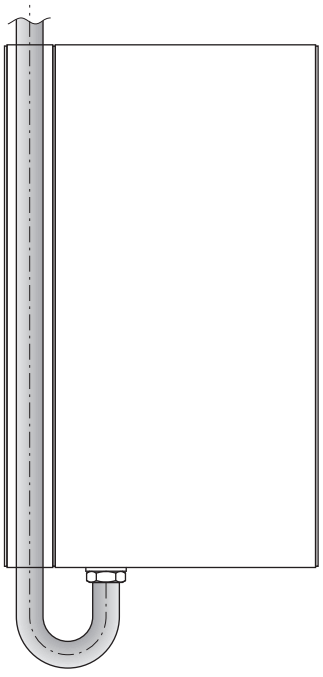




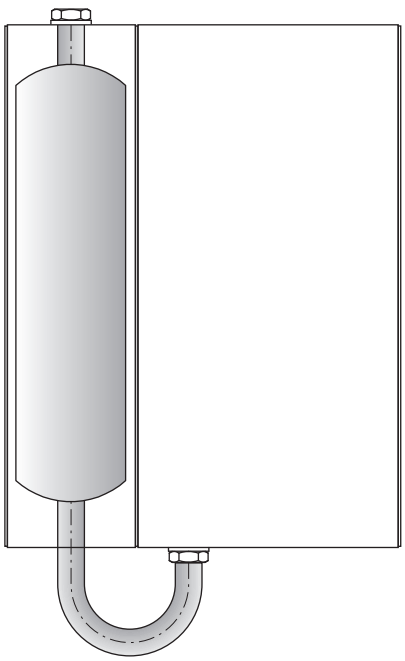
Configuration of the HYDRO S indoor unit



Basic configuration



Basic version with console spacer for pipe connection



Version with 40 l buffer tank

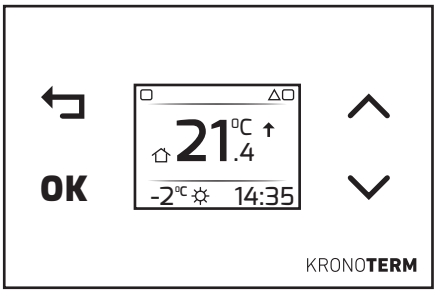
BASIC KSM CONTROLLER

Model marks
KSM*

Description
- Modular controller for regulating the 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
- Managing and protecting heat pumps
- Operational status display
- Service access and error correction
- Preparing domestic hot water
- Thermal disinfection of domestic hot water
- Weather controlled via outdoor temperature sensor
- Active cooling
- Control functions for:
  - 1 x direct circuit
  - 1 x direct or mixing circuit
  - Heating DHW water
  - Circulating DHW water
  - Daily and weekly schedules
  - Adaptive curve after individual circuits
  - Room temperature regulation with the Kronoterm KT-1 and KT-2A thermostats.
- Controlling additional sources of heat
- (gas, oil, and pellets)
- Photovoltaic (PV) program
- Screed-drying program
- WEB module for internet connection (UTP 5e cable – RJ45 connection – Ethernet)
- BMS connection via MODBUS protocol
- RS 485
- SG ready

*Kronoterm System Manager



User interface KT-2A

EXPANSION KSM+ CONTROLLER

Model marks
KSM+*

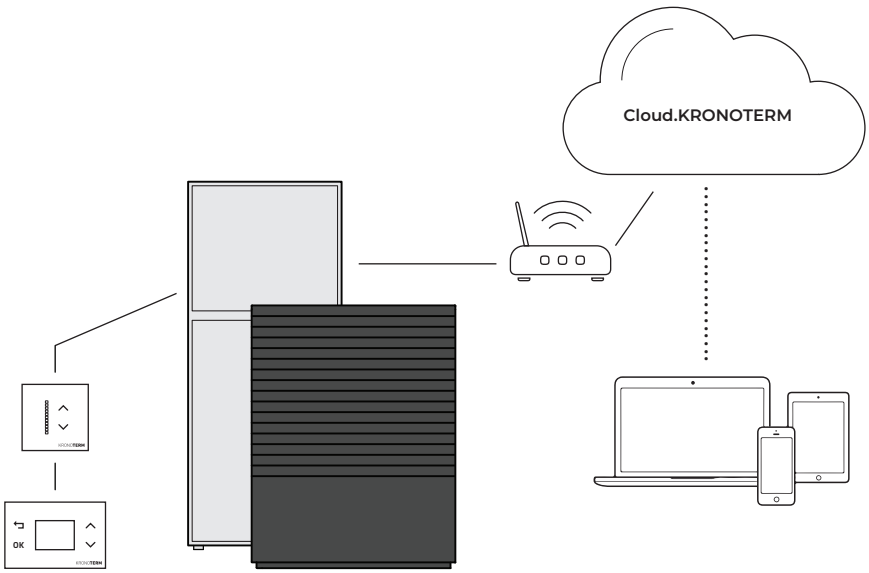
Description
- Expansion module as an upgrade to the basic controller
- Possible installation of one expansion module (1x)
- Integration in the HYDRO C or HYDRO S indoor unit

Functional characteristics
- Managing 2 additional circuits (direct or mixed)
- Regulating SSE sunlight collectors
- Managing biomass boilers
- Preparing DHW with sunlight collectors or biomass boilers
- Heating pools
- Heating pools with sunlight collectors

*Kronoterm System Manager +

Cloud.KRONOTERM

Remotely controlling and monitoring the ADAPT system with the pertinent HYDRO indoor unit, along with heating, cooling, and preparing DHW via cloud technology.



TECHNICAL DATA - OUTDOOR UNIT

DEVICE	Unit	ADAPT 0312	ADAPT 0416
INDOOR UNIT			
Model		Hydro S, Hydro C	Hydro S, Hydro C
VERSION			
Heat source primary side		Air	Air
Heat sink secondary side		Water	Water
Controller		KSM	KSM
Placement of the heat pump		Outdoor	Outdoor
Placement of the controller unit		Indoor	Indoor
Compressor		1 x scroll, variable speed	1 x scroll, variable speed
Compressor drive		Inverter	Inverter
Fan		Axial	Axial
Defrost		Active (change of direction of the cooling circuit)	Aktivno (sprememba smeri hladilnega kroga)
Circulation pump, sink		Integrated	Integrated
CAPACITY ACCORDING TO EN 14511 (1F version)			
HEATING		**Heating capacity / electrical power / COP**	**Heating capacity / electrical power / COP**
A7/W30-35	**kW / kW / -**	6,08 / 1,11 / 5,48	8,48 / 1,51 / 5,60
A2/W30-35	**kW / kW / -**	6,55 / 1,48 / 4,42	8,57 / 1,92 / 4,46
A-7/W30-35	**kW / kW / -**	8,44 / 2,66 / 3,17	11,12 / 3,67 / 3,03
A-10/W30-35	**kW / kW / -**	8,00 / 2,63 / 3,04	11,12 / 3,72 / 2,99
A7/W47-55	**kW / kW / -**	5,87 / 1,90 / 3,08	7,78 / 2,43 / 3,20
A2/W47-55	**kW / kW / -**	5,90 / 2,12 / 2,78	7,78 / 2,83 / 2,75
A-10/W47-55	**kW / kW / -**	7,41 / 3,69 / 2,01	10,61 / 5,32 / 1,99
COOLING		**Cooling capacity / electrical power / EER**	**Cooling capacity / electrical power / EER**
A35/W12-7	**kW / kW / -**	7,21 / 2,75 / 2,62	10,31 / 3,99 / 2,58
A35/W23-18	**kW / kW / -**	7,27 / 1,83 / 3,97	10,43 / 2,64 / 3,95
CAPACITY ACCORDING TO EN 14511 (3F version)			
HEATING		**Heating capacity / electrical power / COP**	**Heating capacity / electrical power / COP**
A7/W30-35	**kW / kW / -**	6,02 / 1,11 / 5,41	8,50 / 1,53 / 5,55
A2/W30-35	**kW / kW / -**	6,02 / 1,11 / 5,41	8,41 / 1,89 / 4,49
A-7/W30-35	**kW / kW / -**	8,52 / 2,62 / 3,25	10,96 / 3,49 / 3,14
A-10/W30-35	**kW / kW / -**	8,05 / 2,59 / 3,11	10,99 / 3,53 / 3,11
A7/W47-55	**kW / kW / -**	5,87 / 1,92 / 3,06	7,81 / 2,39 / 3,26
A2/W47-55	**kW / kW / -**	6,18 / 2,26 / 2,73	7,70 / 2,76 / 2,78
A-10/W47-55	**kW / kW / -**	7,48 / 3,66 / 2,04	10,29 / 5,03 / 2,04
COOLING		**Cooling capacity / electrical power / EER**	**Cooling capacity / electrical power / EER**
A35/W12-7	**kW / kW / -**	7,21 / 2,75 / 2,62	10,31 / 3,99 / 2,58
A35/W23-18	**kW / kW / -**	7,27 / 1,83 / 3,97	10,43 / 2,64 / 3,95
SEASONAL CAPACITY IN THE HEATING MODE FOR EUROPEAN AVERAGE CLIMATE AREA ACCORDING TO EN 14825 (1F version)			
SCOP, 35 °C / 55 °C		5,08 / 3,65	5,12 / 3,75
SEASONAL CAPACITY IN THE HEATING MODE FOR EUROPEAN AVERAGE CLIMATE AREA ACCORDING TO EN 14825 (3F version)			
SCOP, 35 °C / 55 °C		4,93 / 3,57	5,21 / 3,67
SEASONAL ENERGY EFFICIENCY IN THE SPACE HEATING MODE FOR EUROPEAN AVERAGE CLIMATE AREA ACCORDING TO (EU) 811/2013 (1F version)			
Rated heating capacity $_{(Pdesignh)}$, 35 °C / 55 °C	**kW**	8 / 7	11 / 10
ηs, 35 °C / 55 °C	**%**	194 / 139	197 / 144
SEASONAL ENERGY EFFICIENCY IN THE SPACE HEATING MODE FOR EUROPEAN AVERAGE CLIMATE AREA ACCORDING TO (EU) 811/2013 (3F version)			
Rated heating capacity $_{(Pdesignh)}$, 35 °C / 55 °C	**kW**	8 / 8	11 / 10
ηs, 35 °C / 55 °C	**%**	188 / 137	201 / 141

DEVICE	Unit	ADAPT 0312	ADAPT 0416
ENERGY CONSUMPTION DESIGNATION FOR EUROPEAN AVERAGE CLIMATE AREA			
Room heating energy class 35 °C / 55 °C		A++ / A++	A++ / A++
Room heating system energy 35 °C / 55 °C		A+++ / A++	A+++ / A++
ELECTRICAL DATA 1F			
OUTDOOR AND INDOOR UNIT			
Max. electrical power of 1F connection*	**kW**	9,1	10,8
OUTDOOR UNIT			
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 C 25
Electrical power cable***	**mm²**	3 x 2,5 (H05VV-F)	3 x 4,0 (H05VV-F)
ELECTRICAL DATA 3F			
OUTDOOR AND INDOOR UNIT			
Max. electrical power 3F connection**	**kW**	11,1	12,8
OUTDOOR UNIT			
Nominal voltage		3N~ 400 V; 50 Hz	3N~ 400 V; 50 Hz
Max. operation current	**A**	7,6	10,4
Max. electrical power*	**kW**	4,5	6,2
Fuses	**A**	3 x C 10	3 x C 10
Electrical power cable***	**mm²**	5 x 1,5 (H05VV-F)	5 x 1,5 (H05VV-F)
COMMUNICATION			
Connection between outdoor and indoor unit		FTP 5e cable / 2x2x0,6 mm2 (LiYCY)	FTP 5e cable / 2x2x0,6 mm2 (LiYCY)
COOLING SYSTEM			
Refrigerant - type		452 B	452 B
GWP (global warming potential)		676	676
Refrigerant - quantity	**kg**	2,9	4,2
Max. Operating pressure	**MPa**	4,5	4,5
PRIMARY SIDE (HEAT SOURCE) – AIR			
Air flow	**m³/h**	variable	variable
SECONDARY SIDE (HEAT SINK) – WATER			
INTEGRATED CIRCULATION PUMP			
Max. pressure capacity	**kPa**	80	80
Max. flow	**m³/h**	variable	variable
Max. electrical power	**W**	75	75
HEATING			
Operating envelope - min. / max. water temperature	**°C**	-25 / 40	-25 / 40
COOLING			
Operating envelope - min. / max. water temperature	**°C**	0 / 40	0 / 40
DIMENSIONS AND MASS - TRANSPORT			
Dimensions (W x H x D)	**mm**	1200 x 1600 x 800	1200 x 1600 x 800
Mass	**kg**	242	246
DIMENSIONS AND MASS - NET			
Dimensions (W x H x D)	**mm**	1050 x 1400 x 675	1050 x 1400 x 675
Mass	**kg**	227	231

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

**This information is for use with an activated 6 kW electric heater.

***Tu = 0°C / Tk = 60°C / f = 120 Hz

T-A-ENG/1

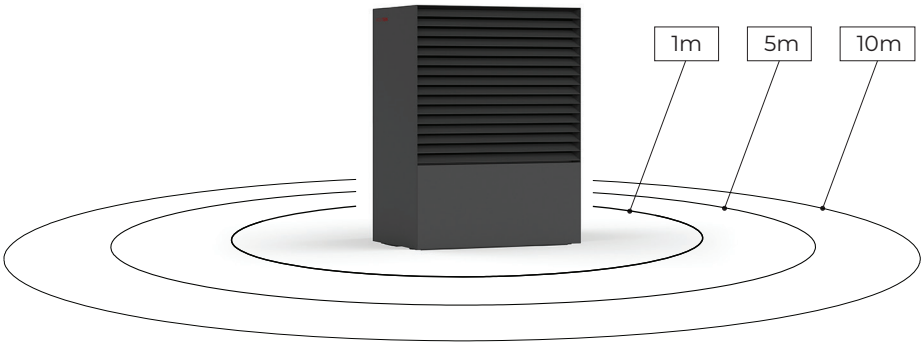
TECHNICAL DATA - INDOOR UNIT

INDOOR UNIT (HM)	Unit	Hydro S		Hydro C	
ELECTRICAL DATA 1F					
1F CONNECTION OF INTERNAL UNIT					
Frequency	**Hz**	50		50	
Rated voltage	**V**	~ 230 V		~ 230 V	
Electrical boiler		**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. operational 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
Electrical power cable, *Tu = 0°C / Tk = 60°C / f = 120 Hz	**mm²**	3 x 2,5	3 x 4	3 x 2,5	3 x 4
3F CONNECTION OF INTERNAL UNIT					
Frequency	**Hz**	50		50	
Rated voltage	**V**	3N ~ 400		3N ~ 400	
Max. operational current	**A**	11,8		11,8	
Max. electrical power	**kW**	6,6		6,6	
Fuses	**A**	3 x C16		3 x C16	
Electrical power cable, *Tu = 0°C / Tk = 60°C / f = 120 Hz	**mm²**	5 x 2,5		5 x 2,5	
Electrical boiler	**mm²**	3 x 2 kW ~ 230 V		3 x 2 kW ~ 230 V	
SECONDARY SIDE (HEAT SINK) - WATER					
Recommended dimensions of pipes of the device	**DN**	25		25	
VOLUME					
DHW Tank	**l**	—		200	
Buffer tank	**l**	40		40	
DIMENSIONS AND MASS - NET					
Dimensions (W x H x D)	**mm**	525 x 700 x 350		605 x 1925 x 700	
Mass	**kg**	33		205	
COMMUNICATION					
Connection between ext. and inter. unit		FTP 5e cable / 2x2x0,6 mm² (LiYCY)		FTP 5e cable / 2x2x0,6 mm² (LiYCY)	
Connection to BMS		MODBUS protocol (UTP cable – connection RJ45) – RS 485		MODBUS protocol (UTP cable – connection RJ45) – RS 485	
Connection to the internet		UTP cable – connection RJ45 - Ethernet		UTP cable – connection RJ45 - Ethernet	

SOUND

Description

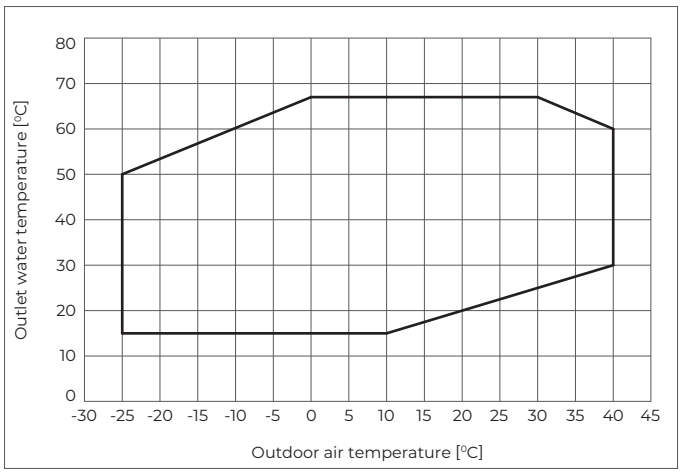
- Sound power is a characteristic of a sound source and is not related to distance; describes the total sound energy of an appropriate source that is emitted in all directions.
- Sound pressure depends on the measurement site in the sound field and describes the sound pressure at that location.
- Structural 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.



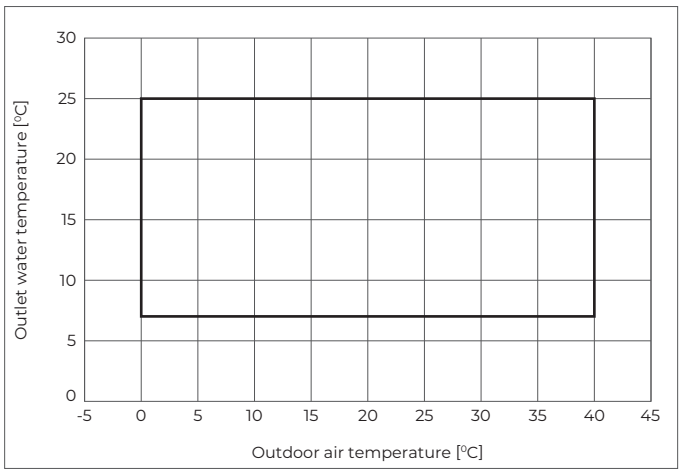
DEVICE	Unit	ADAPT 0312	ADAPT 0416
SOUND ACCORDING TO EN 12102 AT THE CONDITION OF A7W35			
NOMINAL			
Sound power	**dB (A)**	50	56
The sound pressure at the distance of 1 m	**dB (A)**	42	48
The sound pressure at the distance of 5 m	**dB (A)**	28	34
The sound pressure at the distance of 10 m	**dB (A)**	22	28
REDUCED			
Sound power	**dB (A)**	44	46
The sound pressure at the distance of 1 m	**dB (A)**	36	38
The sound pressure at the distance of 5 m	**dB (A)**	22	24
The sound pressure at the distance of 10 m	**dB (A)**	16	18
MAXIMAL			
Sound power	**dB (A)**	55	61
The sound pressure at the distance of 1 m	**dB (A)**	47	53
The sound pressure at the distance of 5 m	**dB (A)**	33	39
The sound pressure at the distance of 10 m	**dB (A)**	27	33

RANGE OF OPERATION

Heating

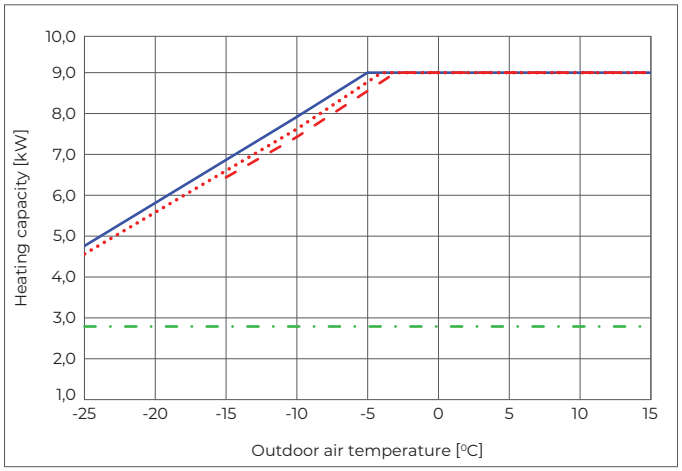


Cooling

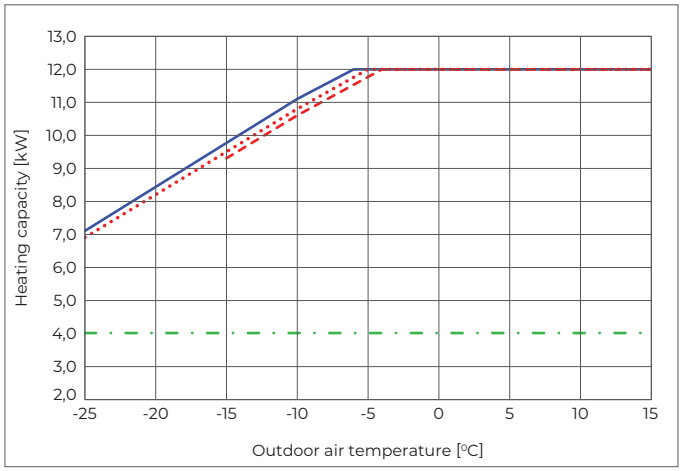


CAPACITY CURVES

ADAPT O312
Heating capacity

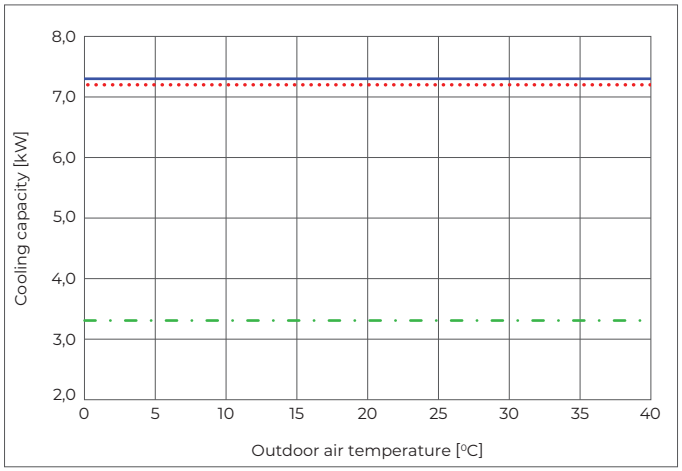


ADAPT O416
Heating capacity

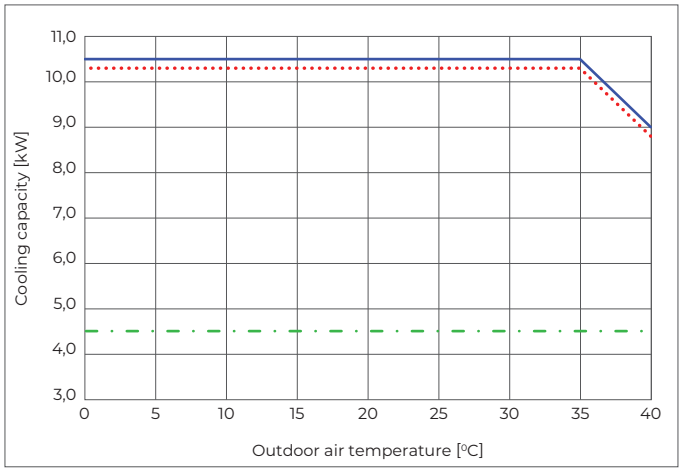


min °C — W 55 °C — W 45 °C — W 35 °C - max

ADAPT O312
Cooling capacity

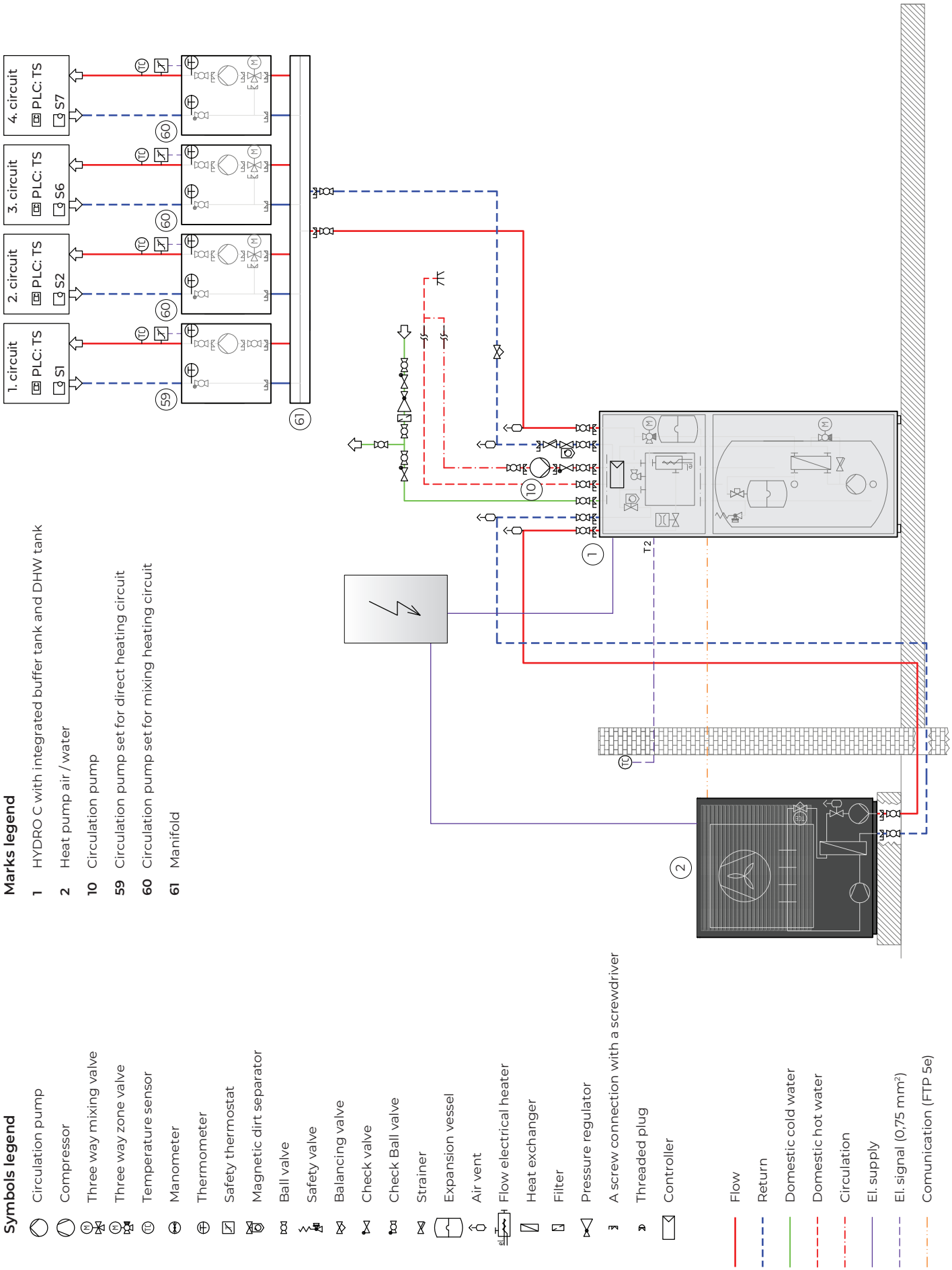


ADAPT O416
Cooling capacity

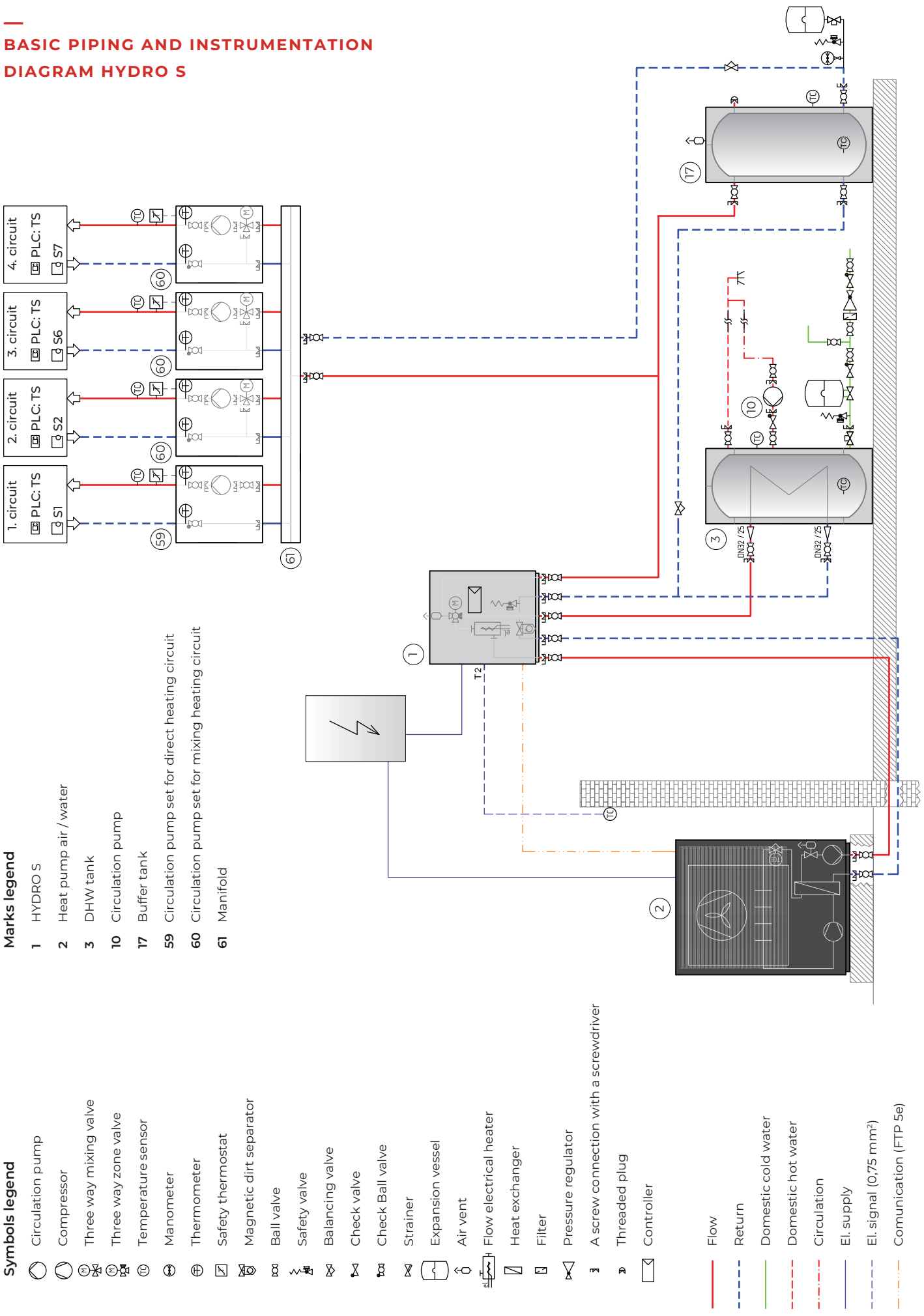


min °C — W 7 °C - max — W 18 °C

BASIC PIPING AND INSTRUMENTATION DIAGRAM HYDRO C



BASIC PIPING AND INSTRUMENTATION DIAGRAM HYDRO S



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