Dimplex®

Experience Better Living.

R290

System E
renovation and retrofit handbook

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www.dimplex.eu

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Table of contents

1 Foreword

More efficiency, more climate protection, more independence, more comfort: the heat pump is the heating system of the future.

Our experience and expertise are based on the aspiration to constantly develop new ideas and drive innovation in technology and design. We want to develop products that are energy-efficient, always in t u n e with the times and make buildings a cosy home or pleasant place to work.

Dimplex has been a driver of innovation for over 50 years. Durable products and reliable service are our speciality. We offer a broad portfolio in the areas of electric heating, cooling, domestic hot water and ventilation. Our focus is not on new products, but above all on intelligent system solutions.

Sustainability is one of the defining pillars of our corporate philosophy. With our teams and the outstanding technological expertise of our parent company, the Glen Dimplex Group - the global leader in intelligent electric heating - we will drive forward climate protection through sustainable system solutions. We are firmly convinced that the future belongs to electric heating and cooling, thanks to a constantly increasing proportion of green electricity from renewable sources, true to our motto "Experience better Living".

System E:

The highly efficient System E air/water heat pump system is not only optimised for the rapid replacement of existing systems, but also for operation with radiators. At the same time, it operates with the climate-friendly refrigerant R290 and is particularly quiet. System E is compatible with existing components of a heating system, such as fossil or renewable heat generators, domestic hot water cylinders and photovoltaic systems, and is therefore ideally suited to the challenges of refurbishment.

System E can be installed extremely quickly with ready-to-connect and practical system components and sets new standards in heating replacement with simplified commissioning and online support.

2 Dimplex System E heat pump

2.1 **Game changer for refurbishment**

Refurbishment with a heat pump is now your new favourite project: with our perfectly matched refurbishment heat pump.

(1) **System E Hydrotower: Plug & Play.** Ready-to-use system hydraulics (integrated buffer and domestic hot water cylinder, hydraulic decoupling of the generator and consumer circuits).

(2) **Optimised for radiators.**
Optimised inverter control generates the energy required by the building with high control accuracy.

(3) **System E outdoor unit.**
Sustainable production in Germany, with high-quality, durable metal housing, without unnecessary plastic panelling.

(4) **Quiet**.
Compressor and fan perfectly matched.

(5) **Simple operation.**
Integrated colour touch display & app.

(6) **Flexibly expandable.**
Can be extended for bivalent operation with an existing heat generator.

(7) **Natural refrigerant R290.**
Energy efficiency A+++ also with radiators.

2.2 Your advantages with System E

1. **Perfect for heating replacement.**
   High flow temperatures when needed: The LA 1118CP (System E) still provides a maximum flow temperature of 65 °C even at -10 °C and is therefore suitable for renovation projects with radiators. Special heat pump radiators make it possible to reduce the required maximum flow temperatures.
2. **Flexible system solutions.**
   The Hydrotower can be expanded for multiple heating circuits or for bivalent operation with an existing heat generator. Online tutorials show the work steps for the self-explanatory installation of the extension modules.
3. **Top service & optimum operation.**
   System check by the authorised Dimplex system partner or the Dimplex factory customer service with optional warranty extension of up to 12 years. A network connection enables online maintenance, remote diagnosis and inclusion in the heat pump community for system optimisation.
4. **Sustainable, environmentally friendly & future-proof.**
   Durable powder-coated sheet metal panelling, natural refrigerant, Smart Grid Ready with communication interfaces for integration into modern smart home systems and PV systems. Made in Germany.

2.3 Variable equipment options

When replacing a heating system, the initial situation is always different for each individual. That's why System E offers maximum flexibility and can be elegantly and easily adapted to the circumstances.

Two variants form the basis for this:

2.3.1 System E Pure

Air-to-water heat pump for heating and cooling for a max. building heat load of up to 18 kW with **heat pump manager WPM Touch** for maximum flexibility in installation and design

Buffer and domestic hot water cylinders can be customised to suit local conditions.

Combination with other renewable heat generators or hybrid heating possible

Application recommendation: for high comfort requirements and more complex systems

2.3.2 System E Comfort

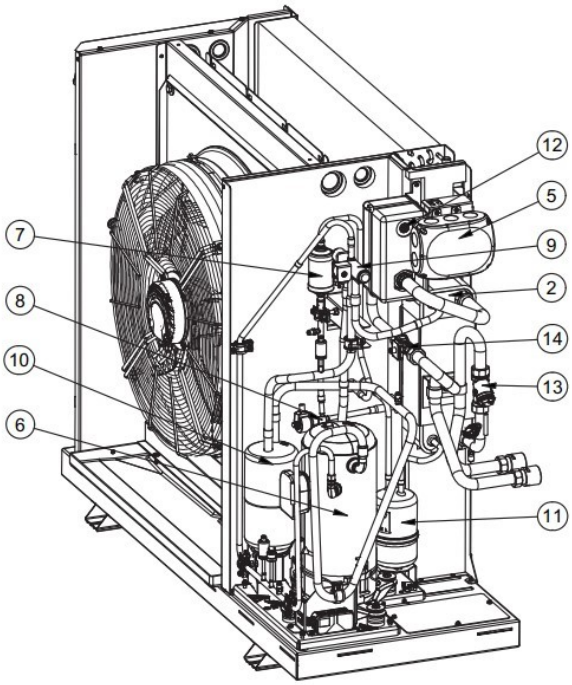
Air-to-water heat pump for heating and cooling for a max. building heat load of up to 18 kW with Hydrotower incl. 100 litre buffer tank, 300 litre domestic hot water cylinder and integrated **WPM Touch controller**.

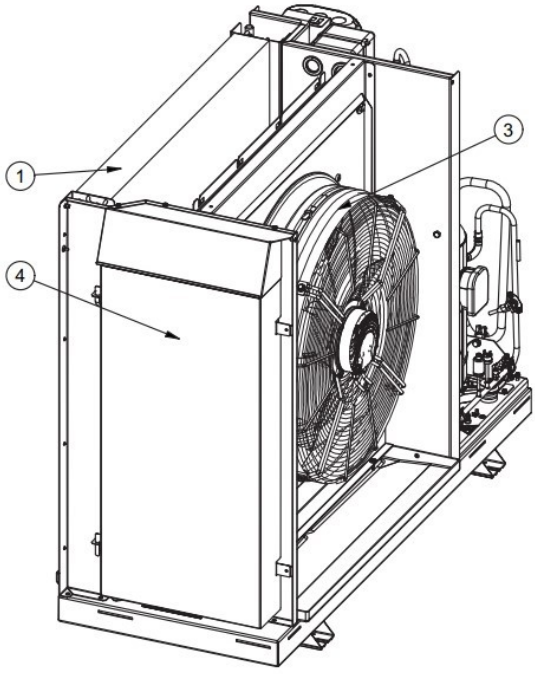
Plug'n'Play: Largely pre-configured system for simple, safe and quick installation

Can be combined quickly and easily with renewable or fossil fuelled heat generators

Application recommendation: For one/two-family houses, with radiators or underfloor heating or mixed installation of radiators and underfloor heating (1-2 heating circuits)

2.4 basic device





1. Evaporator air
2. Condenser
3. Fan
4. Switch box
5. Connection box
6. Compressor
7. Filter dryer
8. Expansion valve
9. 4-way diverter valve
10. Separator
11. Collector
12. Purge valve
13. Dirt trap
14. Flow sensor

2.5 Technical product information

2.5.1 Technical product information LA 1118CP

Device information

Type and order code		LA 1118CP
1. design		
heat source		air
Seasonal space heating energy efficiency ηs average climate 35 °C / 55 °C		196 % / 152 %
Energy efficiency class (35°C / 55°C)		A+++ / A+++
Controller		WPM
installation location		Exterior
Thermal energy metering		integrated
performance level		Inverter
2. operating limits		
Heating water flow/return	°C	up to 65 / from 20
Air (heating)	°C	-22 to +35
Cooling water flow	°C	+12 to +20
Air (cooling)	°C	+15 to +45
3. flow/sound		
Heating water flow / internal pressure differential Nominal flow according to EN 14511 (A7 / W35...30)	m³/h / Pa	0,95 / 18000
Minimum heating water flow rate	m³/h	0,95
Maximum heating / cooling water flow rate	m³/h	1,8
Minimum cooling water flow rate	m³/h	1,05

Type and order code		LA 1118CP
Sound power level according to EN 12102 for A7 / W55 outside normal operation / lowered operation	dB(A)	49 / 48
Sound pressure level at a distance of 10 m with A7 / W55 outside normal operation / lowered operation	dB(A)	21 / 20
Maximum sound power level in daytime operation with A7 / W55 outside	dB(A)	59
Air flow rate Normal operation / lowered operation	m³/h	1700-5000 / 1600-4500
4. dimensions, weight and filling quantity		
Device dimensions without connections	H x W x L mm	1107 x 1418 x 598
Device connections for heating	inch	G 1 1/4" EXTERNAL THREAD
Weight of the device excl. packaging	kg	213
Refrigerant / total charge weight	Type / kg	R290 / 1,3
GWP value / CO2 equivalent	- / t	3 / 0,004
Hermetically closed refrigeration circuit		Yes
Lubricant	Type	PZ46M
5. electrical connection		
Supply voltage / fusing / RCD type		3~/N/PE 400 V (50 Hz) / C13 / B
Control voltage / fusing via WPM		1~/N/PE 230V (50 Hz) / 6.3AT
Degree of protection according to EN 60 529		IP 24
Starting current limitation		Inverter
Rotary field monitoring		Yes
max. intake	kW	max. ~5.6
Power consumption crank case heater (regulated)	W	70
Fan power consumption	W	max. 280
6. safety regulations		
Complies with European safety regulations		see CE declaration of conformity
7 Other model features		
Defrost type		Cycle reversal
Frost protection Condensate tray / water in the appliance protected against freezing		Yes
Max. operating overpressure (heat sink)	bar	6,0
8. heat output / coefficient of performance (COP)		

Type and order code		LA 1118CP
Heat output / coefficient of performance (COP)		EN 14511
performance level		modulating
A-10 / W35	kW / —	10,6 / 2,7
A-7 / W35	kW / —	11,2 / 2,9
A2 / W35 opt.	kW / —	4,9 / 4,6
A2 / W35 nominal	kW / —	5,6 / 4,3
A7 / W35	kW / —	5,4 / 5,6
A7 / W45	kW / —	5,1 / 4,2
A7 / W55	kW / —	4,0 / 3,2
A7 / W65	kW / —	3,7 / 2,4
Cooling capacity / coefficient of performance (COP)		EN 14511
A35 / W18 opt.	kW / —	4,6 / 4,0
A35 / W18 nominal	kW / —	5,9 / 3,6
A35 / W18 max.	kW / —	8,0 / 2,9

Dimensional drawing (option hydraulic connection from below)

Legend

(1.1) Flow G 1 1/4" external thread, flat sealing

(1.2) Return G 1 1/4" external thread, flat sealing

(2.1) Condensate line

(2.2) Electric wire feed-through

(3.1) Direction of air flow

(3.2) Main wind direction for free-standing installation

(4.1) Installation shaft for connection from below (optional accessory)

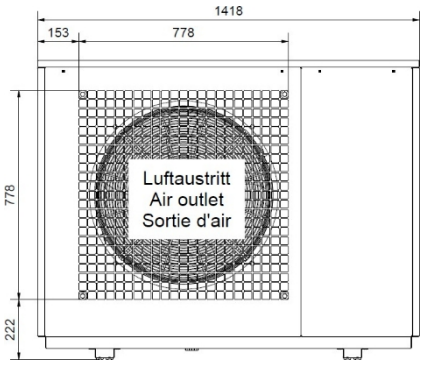
(4.2) Cover for connection from below (optional accessory)

(5.1) Foundation

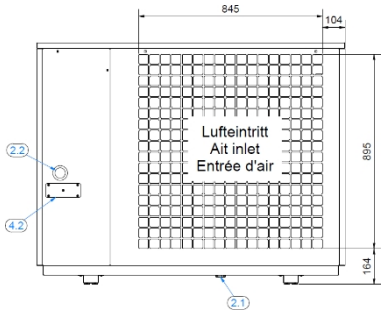
(5.2) Support surface of floor consoles

(6.1) Safety and maintenance area for R290 see chapter Installation

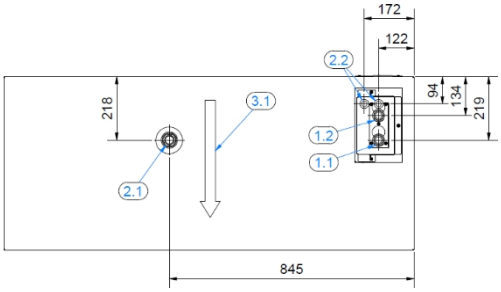
Front view



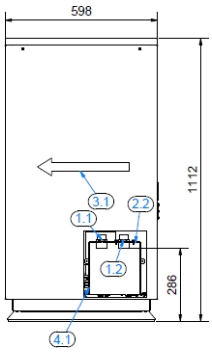
Rear view



Top view



Side view



Dimensional drawing (option hydraulic connection from the rear)

Legend

(1.1) Flow G 1 1/4" external thread, flat sealing

(1.2) Return G 1 1/4" external thread, flat sealing

(2.1) Condensate line

(2.2) Electric wire feed-through

(3.1) Direction of air flow

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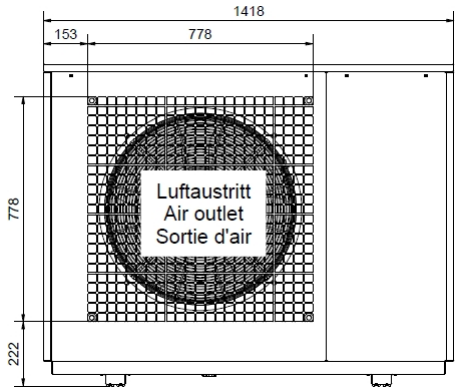
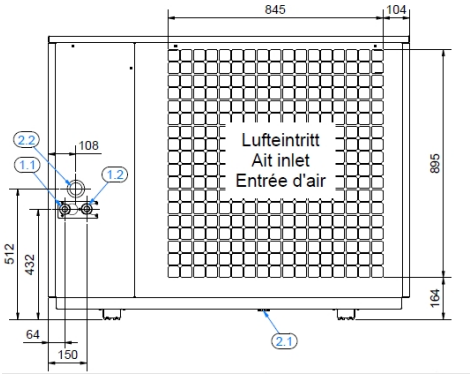
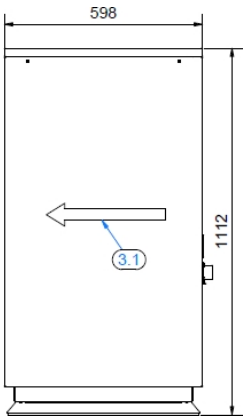
Front view



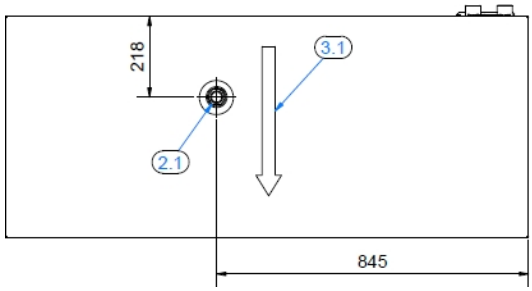
Rear view



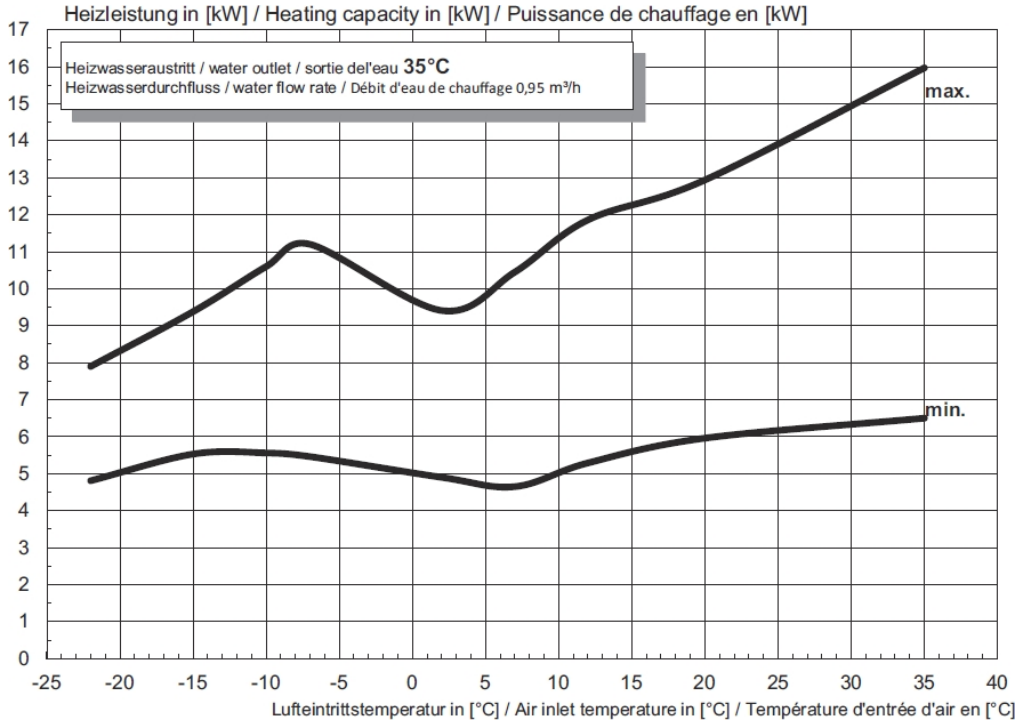
Side view

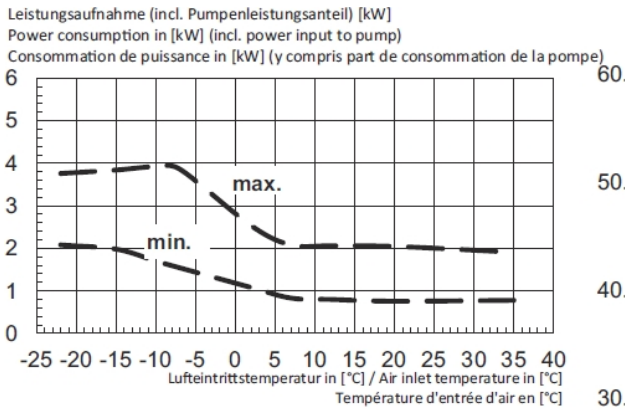


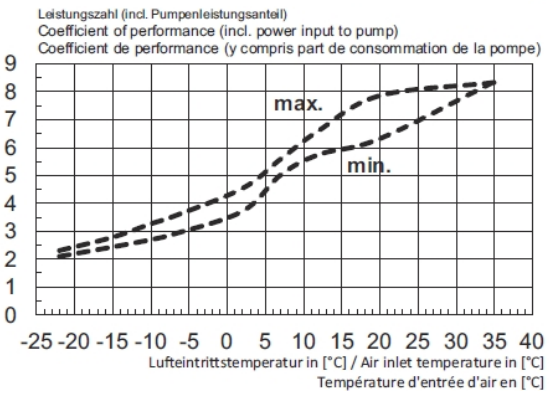
Top view

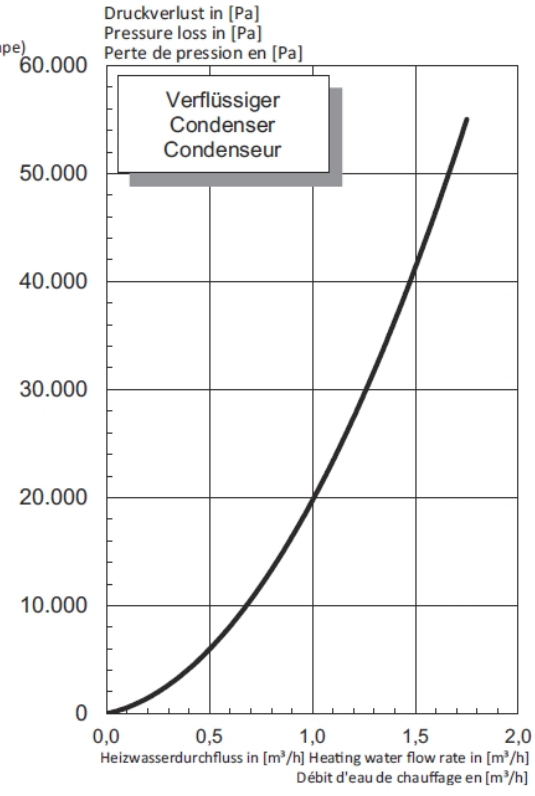


Heating characteristic curve (heating water outlet 35°C)

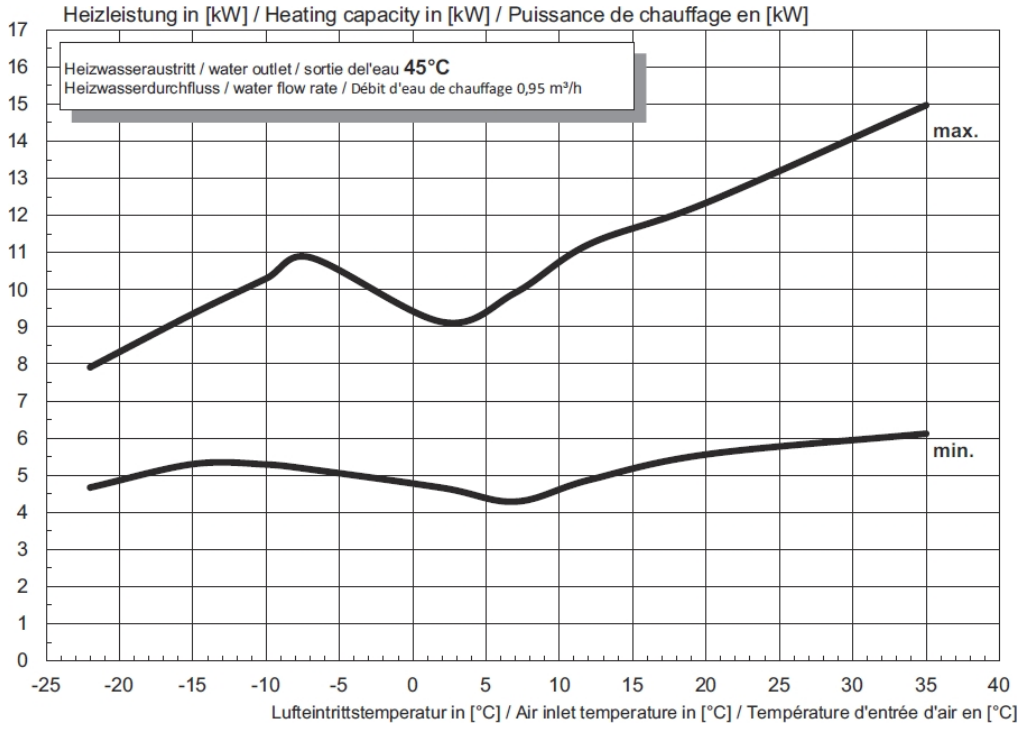


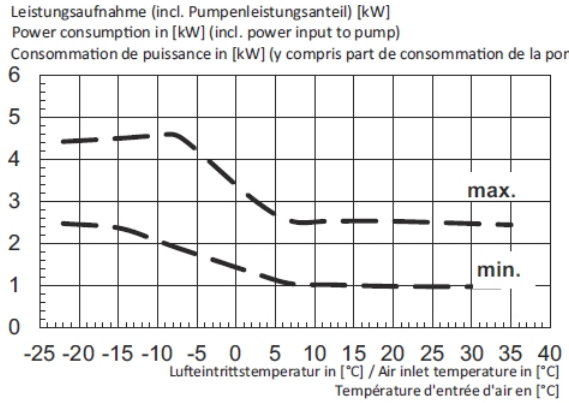


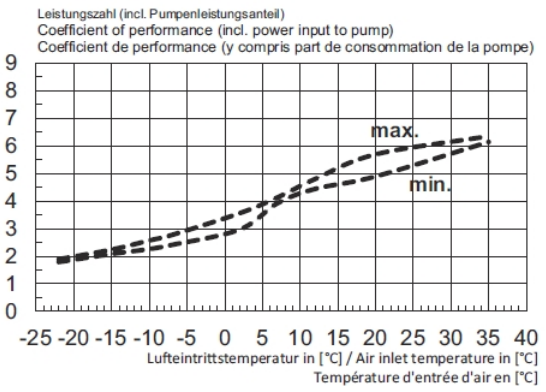


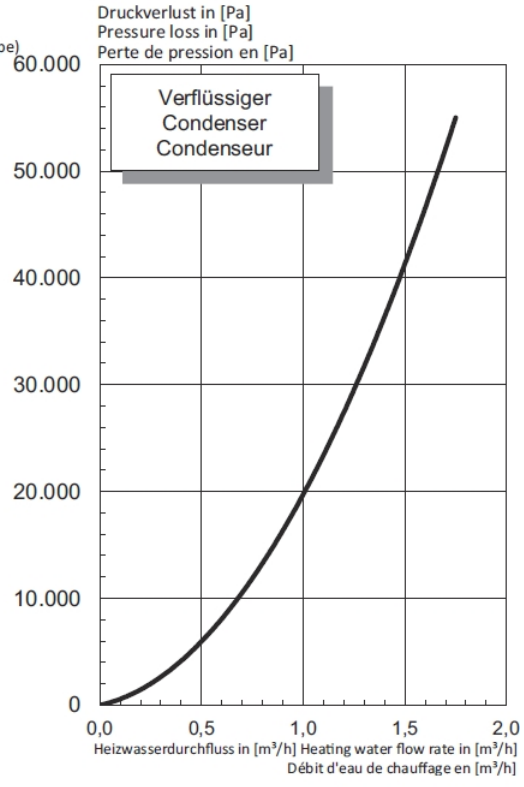


Heating characteristic curve (heating water outlet 45°C)

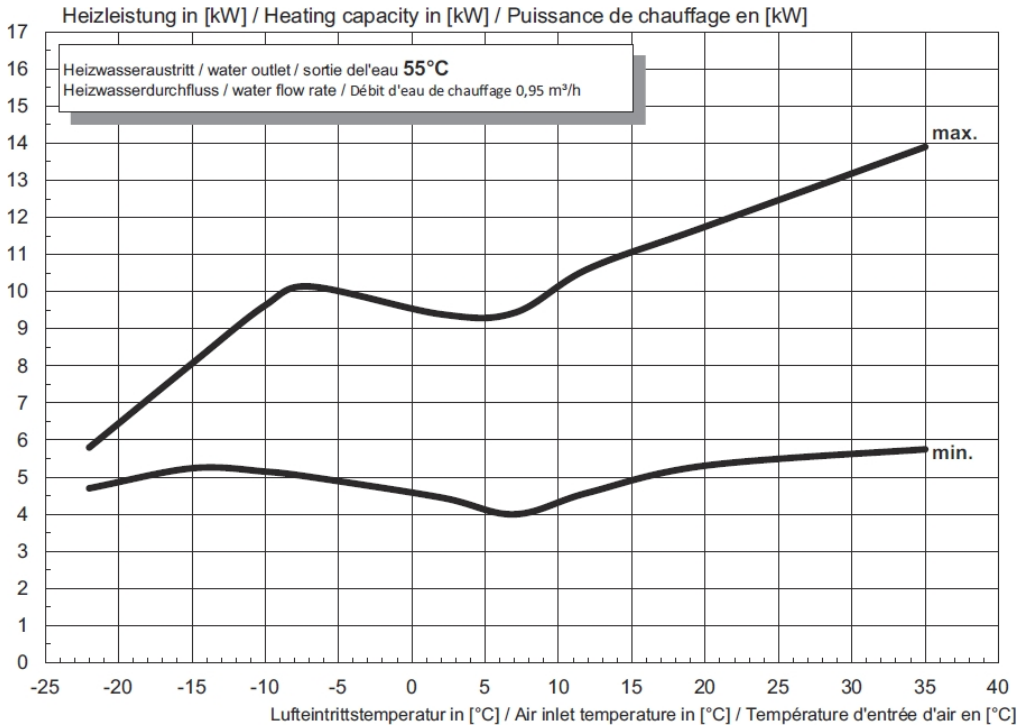


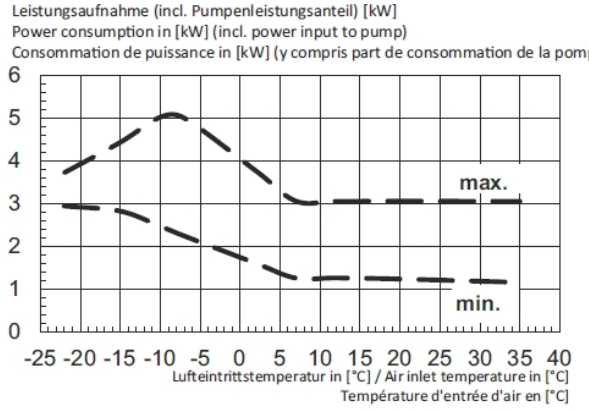


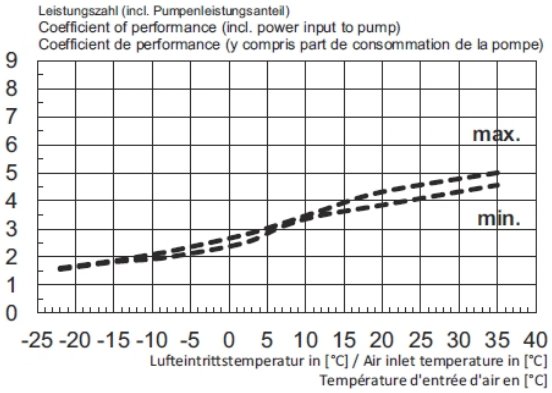


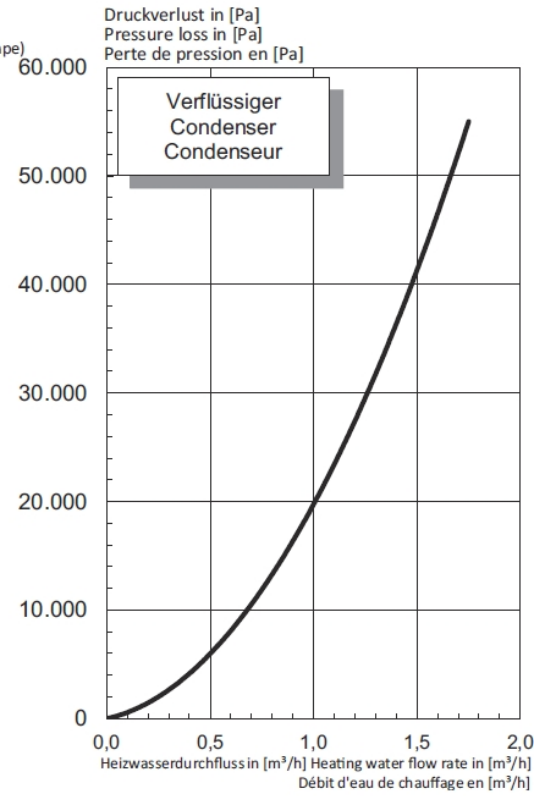


Heating characteristic curve (heating water outlet 55°C)

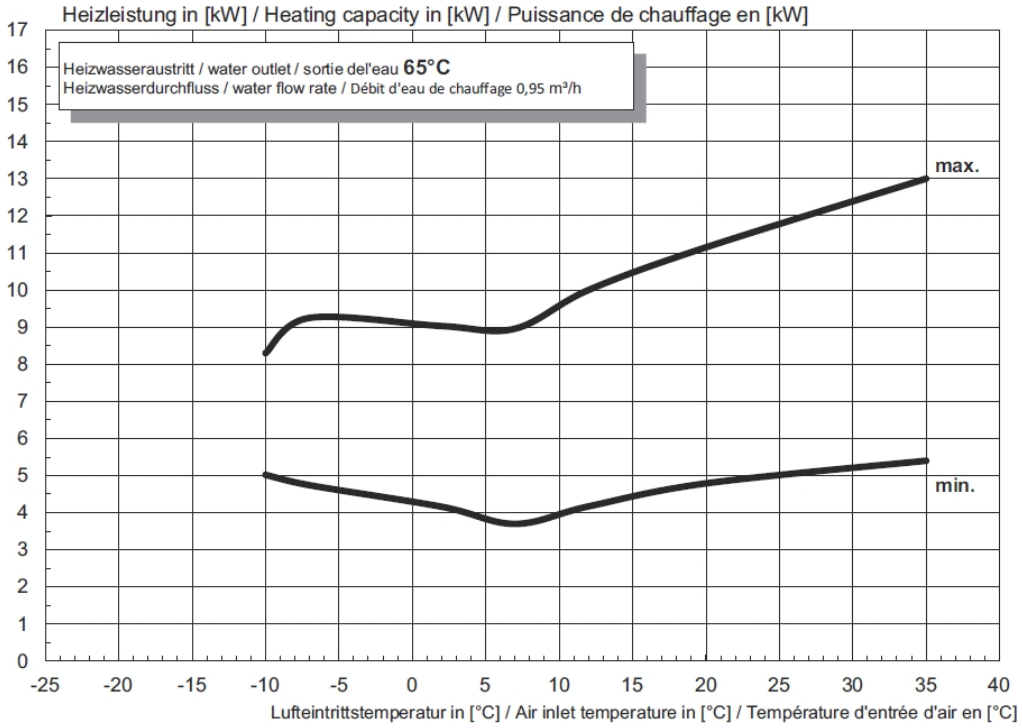


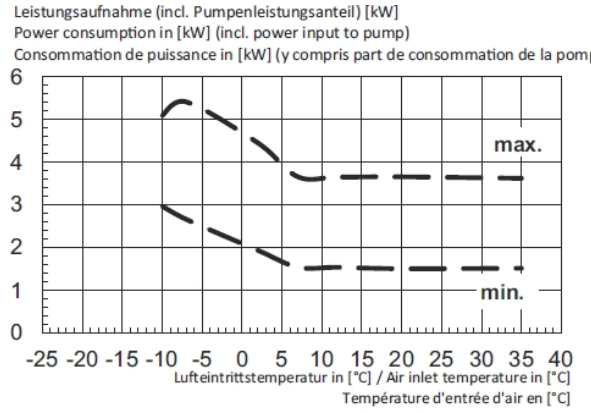


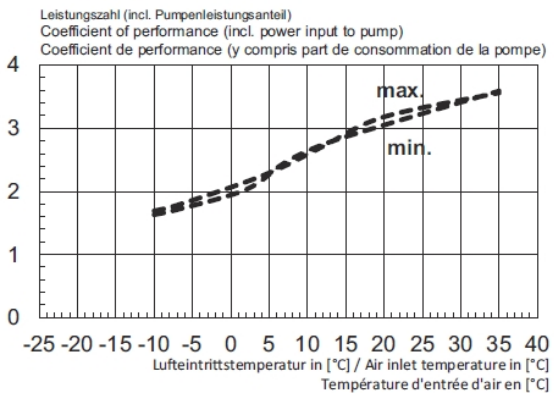


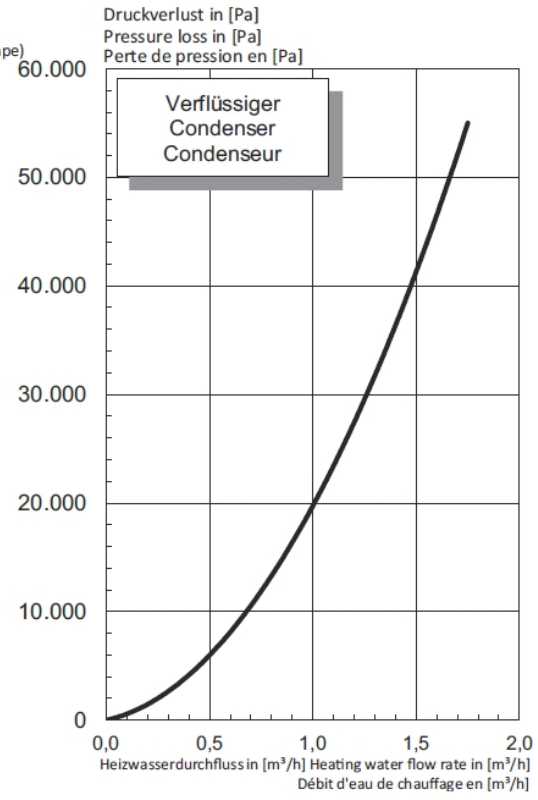


Heating characteristic curve (heating water outlet 65°C)

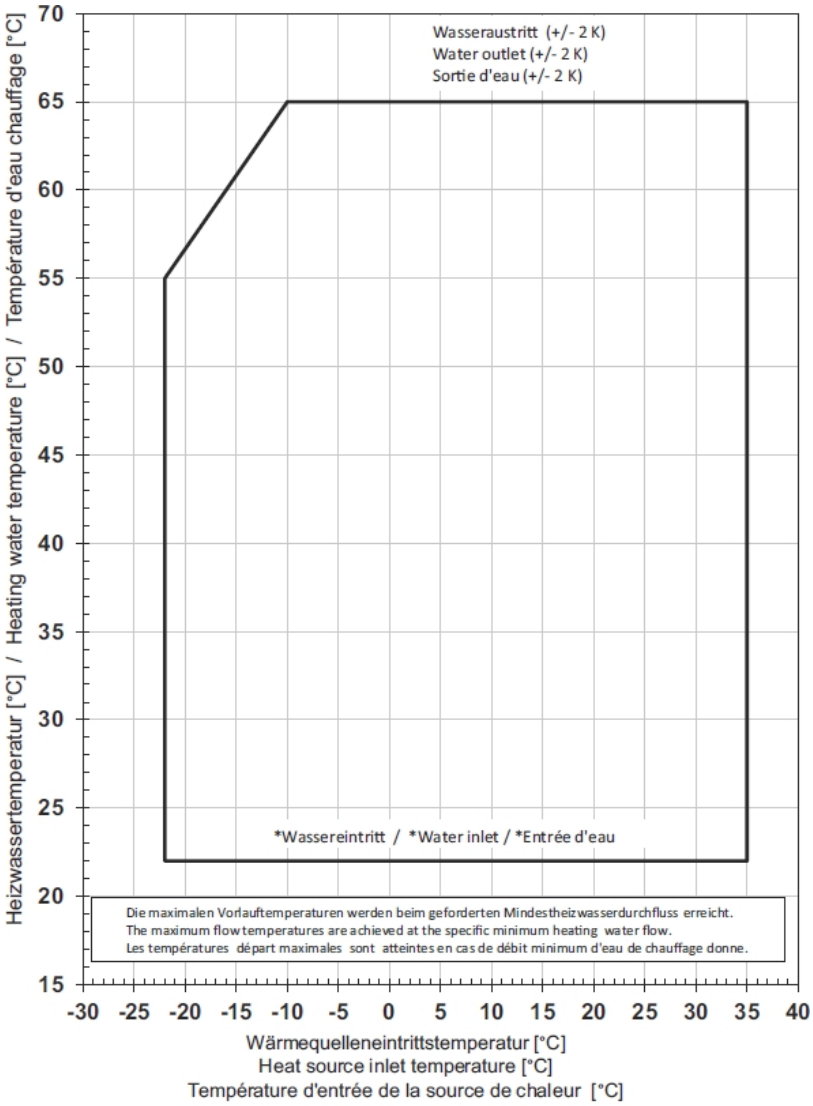






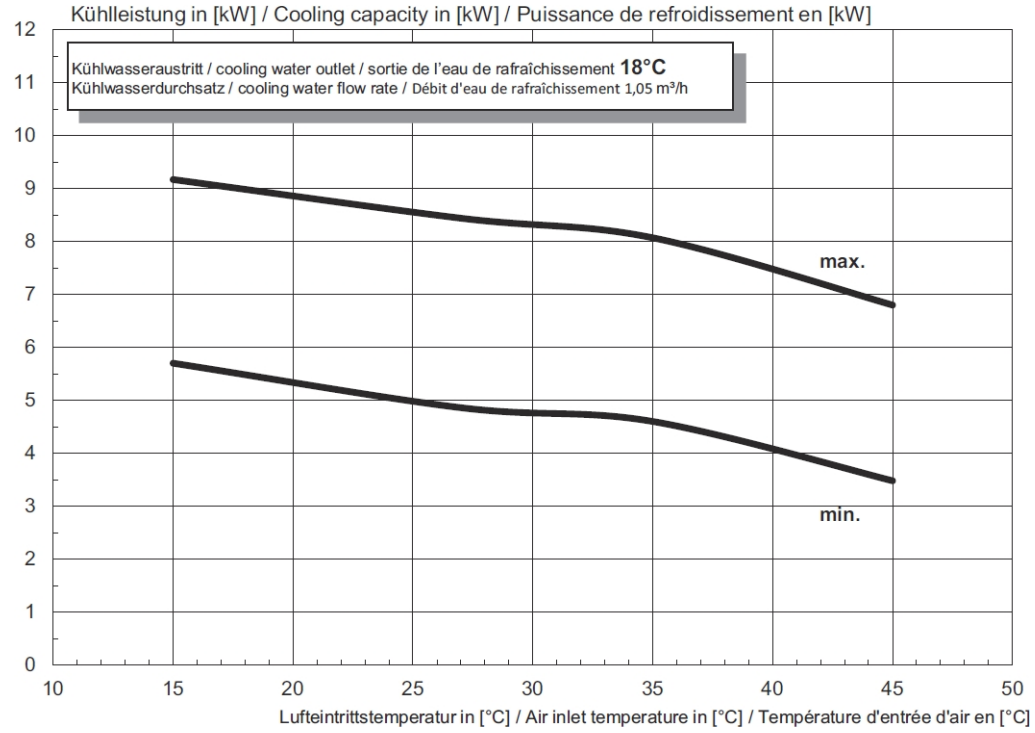


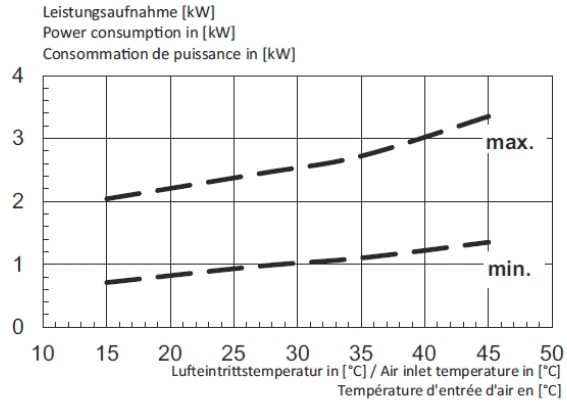
Heating operating limit diagram

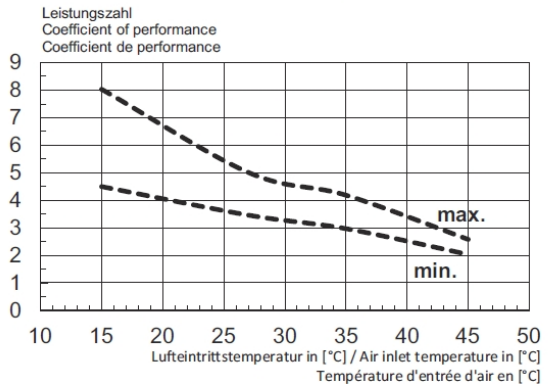


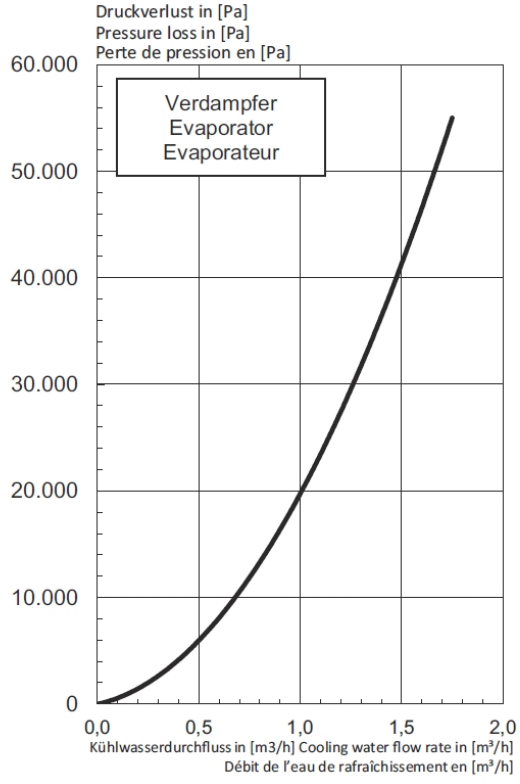
*Bei Luft/Wasser-Wärmepumpen stellt die minimale Heizwassertemperatur die Mindest-Rücklauftemperatur dar
*For air-to-water heat pumps the minimum heating water temperature is the minimum return temperature
*Sur les pompes à chaleur air / eau, la température minimale d'eau de chauffage correspond à la température retour minimale

Cooling Curve (cooling water outlet 18°C)

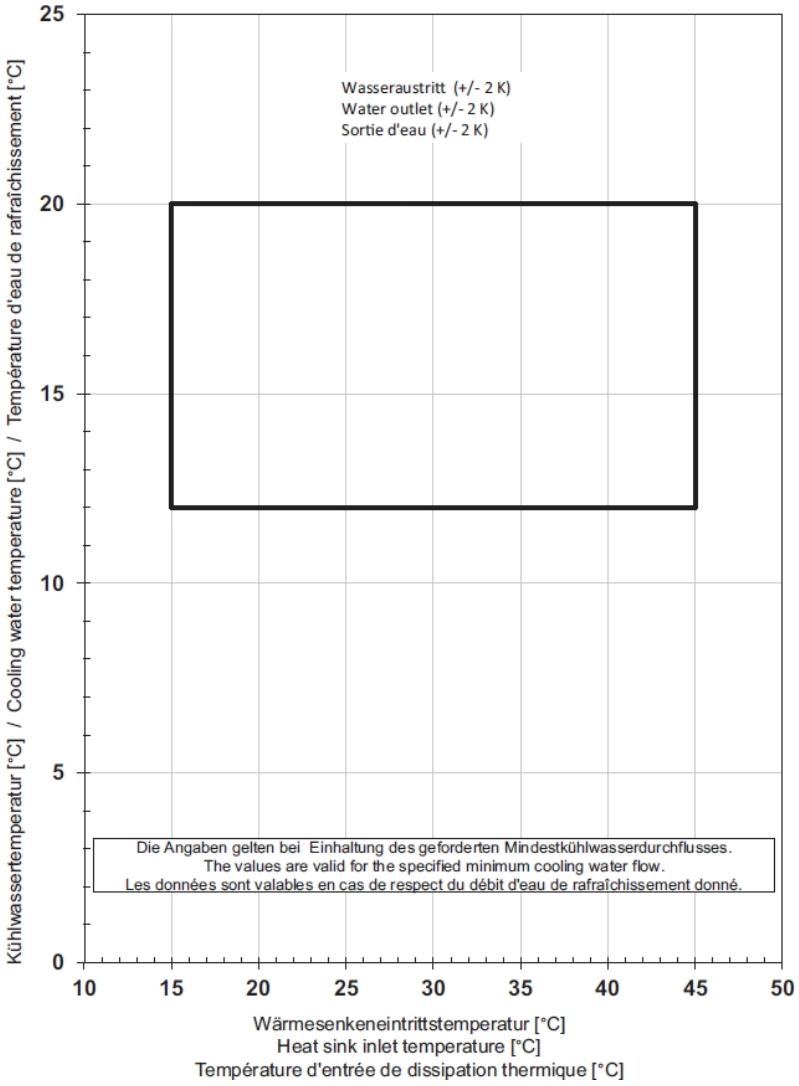








Cooling operating limit diagram



2.5.2 Technical product information LA 1118BWCP

System E Comfort (LA 1118BWCP) consists of the following components:

- LA 1118CP air-to-water heat pump (outdoor unit)
- Hydro-Tower HWK 332HC

Technical product information for the LA 1118CP heat pump (externally installed monoblock)

https://dimplex.atlassian.net/wiki/spaces/PRO/pages/edit-v2/3215392928

Technical product information HWK 332HC

Device information

Dimensional drawing

Characteristic curves

Device information

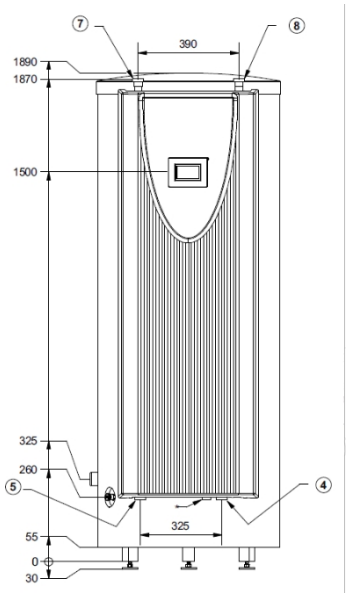
Type and order code		HWK 332HC
1. design		
Execution		Hydro-Tower with WPM and double differential pressureless manifold [DDV]
Degree of protection according to EN 60529		IP 20
installation location		Inside
2. technical data		
Heat generator		external
buffer tank		
Nominal content	Litres	100
Permissible operating temperature	°C	85
Maximum operating overpressure	bar	3,0
Electric pipe heating	kW	2, 4 or 6[1]
Immersion heater (optional)	kW	to 3
domestic hot water cylinder		
Useful capacity	Litres	277
Heat exchanger surface	m²	3,15
Permissible operating temperature	°C	95
Permissible operating pressure	bar	10,0
immersion heater	kW	1,5
Set pressure safety valve	bar	3,0
Sound power level	dB(A)	42
Sound pressure level at a distance of 1 m	dB(A)	35

3. dimensions, connections and weight		
device dimensions[2]	H x W x L mm	1920 x 740 x 950
tilt dimension	mm	2000
Device connections		
for heat generators	inch	1 1/4" EXTERNAL THREAD/FL
unmixed heating circuit	inch	1 1/4" EXTERNAL THREAD/FL
for domestic hot water	inch	1" EXTERNAL THREAD
for circulation pipe	inch	3/4" FEMALE THREAD
for diaphragm expansion vessel	inch	1" EXTERNAL THREAD/FL
Anode diameter	mm	33
Anode length	mm	690
Anode connection thread	inch	1 1/4" FEMALE THREAD
Weight of the transport unit(s) incl. packaging	kg	215
4. electrical connection		
Control voltage Fusing		1~/N/PE 230 V (50 Hz) / C13 A
Supply voltage / fusing	(SPmax= 7.5 kW)	1~/N/PE 230 V (50 Hz) / B35 A 3~/N/PE 400 V (50 Hz) / B20 A
5. safety regulations		
Complies with European safety regulations		see CE declaration of conformity
6 Other model features		
Water in the appliance protected against freezing[4]		Yes

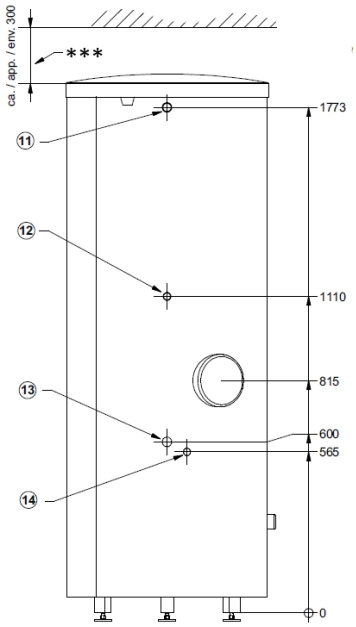
1. Delivery state 6 kW
2. Please note that more space is required for pipe connection, operation and maintenance
3. see CE declaration of conformity
4. the heat circulating pump and the heat pump controller must always be ready for operation

Dimensioned drawing

Front view

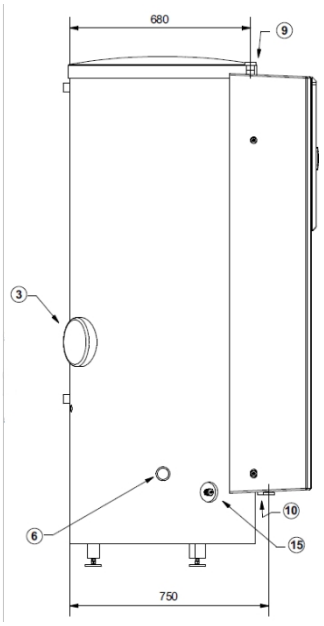


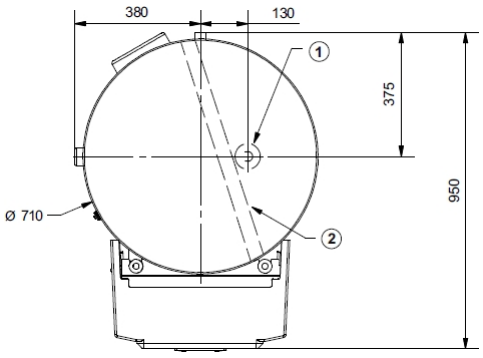
Rear view



***Space requirement for anode change top view

Side view





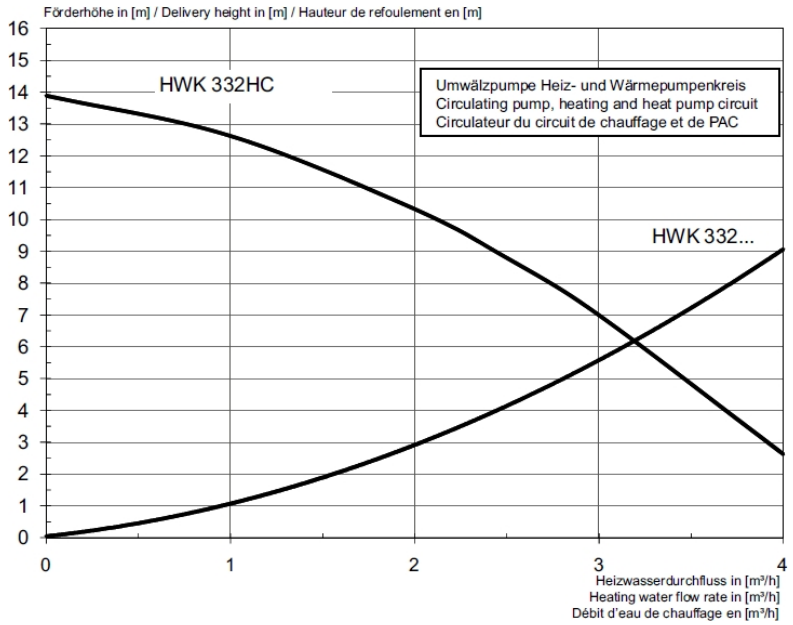
Legend

(1) Protective anode
(2) Cable duct under the top of the storage cover cap
(3) Electric heating element 1.5 kW
(4) Return to the heat pump G 1 1/4" external thread, flat-sealing

(5) Flow to heat pump G 1 1/4" external thread, flat-sealing
(6) G 1 1/2" (female thread) for optional immersion heater connection
(7) Heating water return G 1 1/4" external thread, flat-sealing
(8) Heating water flow G 1 1/4" external thread, flat-sealing
(9) Cable entry from the top
(10) Cable entry from below
(11) Domestic hot water outlet R 1" (external thread)
(12) Circulation pipe G 3/4" (female thread)
(13) Cold water inlet R1" (external thread)
(14) Empty conduit Ø22 (cable bushing)
(15) Fill and drain tap 1/2" (incl. hose nozzle)

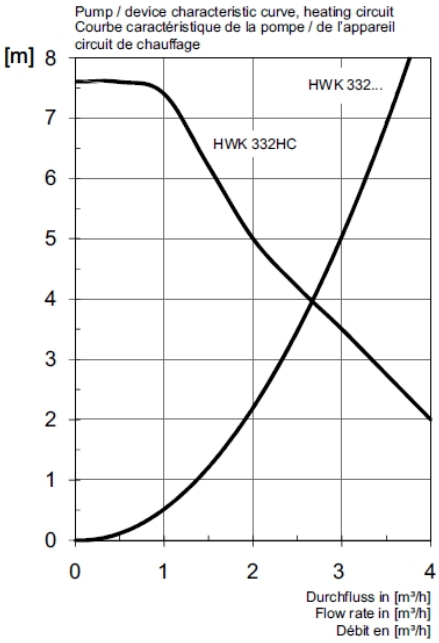
Characteristic curves

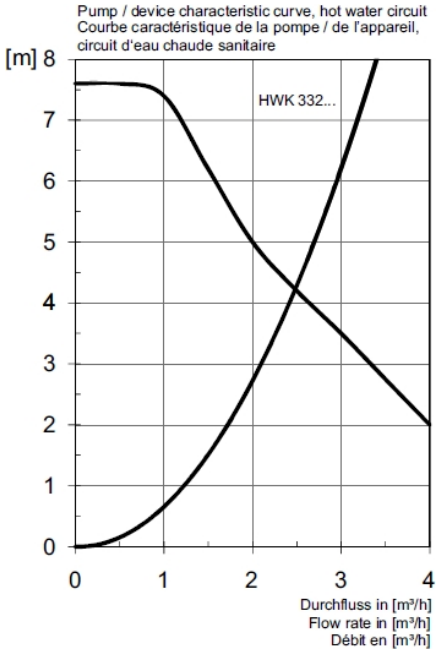
Pump/device characteristic curve (heating and heat pump circuit in operation)



Pump/device characteristic curve heating circuit

Pump/device characteristic curve hot water circuit





2.6 Accessories for System E

2.6.1 Installation box IBB 1118CP

Order code: IBB 1118CP | **Item no.:** 382120

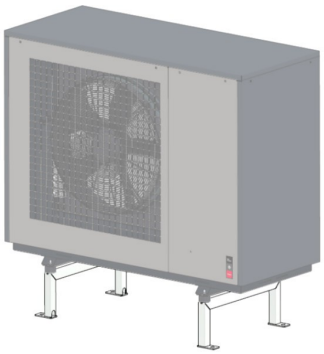
description:
The installation box makes it easy to connect the LA 1118CP air-to-water heat pump from below. With the conversion kit, the factory-fitted side connection of the heat pump can simply be moved downwards. Pre-assembled connection box, incl. installation shaft, locking plate to protect against dirt and small animals. Feed-throughs for flow and return (G 1 1/4 inch). Two grommets for electric cables and installation material included in the scope of supply. Ideally suited for direct connection to rigid underground heating water connection cables

2.6.2 Wall connection set SWA 1115

Order code: SWA 1115 | **Item no.:** 382860

description:
Wall connection set for the externally installed System E air-to-water heat pump. Design wall panel can be individually extended from 295 - 460 mm to conceal the above-ground supply lines (electrical and hydraulic connections) and protect them from environmental influences.
Wall panel can be foamed out.
Can be mounted on the inside and outside wall. Colour wall cover anthracite.

2.6.3 Floor console BKS 1115



Order code: BKS 1115 | **Art. no.:** 382450

description:
Floor bracket for raising and ventilating the System E air-to-water heat pump installed outside. The installation height of 200 mm makes it easy to connect the heat pump to the heating system.

2.6.4 Floor console BK SE

Order code: BK SE | **Art. no.:** 382480

description:
Floor bracket for raising and ventilating the System E air-to-water heat pump installed outside. The installation height of 200 mm enables simple connection of the heat pump on the heating side. Delivery includes covering panels. Colour anthracite grey - smooth (RAL 7016).

3 Heat pumps in renovation projects

3.1 Determine the heat demand of the house to be heated

For existing heating systems, the heat demand of the building to be heated must be redetermined, as the heat output of the existing boiler is not a measure of the heat demand. Boilers are usually oversized and would therefore lead to oversized heat pumps.

3.1.1 Heat load calculation according to DIN EN 12831

For detailed planning, the heating load must be calculated in accordance with DINEN 12 831-1. The heating load must be available both for the individual rooms and for the building as a whole. It serves

- as a calculation basis for the selection or recalculation of heating surfaces,
- the determination of the system temperatures of the heat transfer,
- the determination of the operating mode,
- the dimensioning of the heat generator,
- the dimensioning of all other system components, as well as
- as a calculation basis for hydraulic balancing.

3.1.2 Determination of heat demand using consumption data

A rough calculation can be made from the previous energy consumption, the living space to be heated and the specific heat demand. The heat demand can be roughly determined as follows:

Calculation for oil:

$$Q_N = \frac{B_a \times \eta \times H_U}{B_{vh}}$$

Calculation for gas:

$$Q_N = \frac{B_a \times \eta}{B_{vh}}$$

with:

QN: Building heat demand (in kW)
Ba: Annual consumption of gas or oil in kWh
η: Degree of efficiency of gas or oil heating
Bvh: Annual full utilisation hours (in h)
HU: Heating value of heating oil (in kWh/l)

Type of building	Full utilisation hours Bvh in h/a
Detached house	2100
Apartment block	2000
Office building	1700
Hospital	2400
School (single-shift operation)	1100
School (multi-shift operation)	1300

The annual hours of full utilisation depend on the type of building and the climate region. The table above shows the annual full utilisation hours for various building types in accordance with VDI 2067.

NOTE
The heat demand of the building for the selection of a heat pump must be calculated according to the country-specific standard (e.g. EN 12831). The selection of a heat pump based on previous energy consumption or guide values for the building heat requirement is not permitted. In this case, the heat pump may be significantly oversized or undersized.

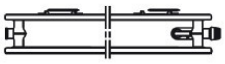
3.2 Determination of the required flow temperature

In most oil and gas boiler systems, the boiler thermostat is set to a temperature of 70 °C to 75 °C. This high temperature is usually only required for hot water preparation. This high temperature is usually only required for domestic hot water preparation.
Downstream control systems of the heating system, such as mixer and thermostatic valves, prevent the building from overheating. If a heat pump is retrofitted, it is essential to determine the actual required flow and return temperature. This can be done using the heating output tables for the radiators, the BWP radiator calculator or the diagram for experimentally determining the actual system temperatures required.

3.2.1 Heat demand of each room known

In the heating output tables for the radiators, the output is specified as a function of the flow and return temperature. The room for which the highest temperature is required is then decisive for the maximum flow temperature in the heating centre.

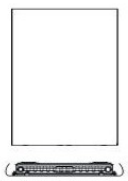
Panel radiator height 600 mm, overall length 1000 mm

Typ 10		Typ 11		Typ 12		Typ 20
						
***n* = 1,29**		***n* = 1,27**		***n* = 1,29**		***n* = 1,28**
(40/33/20) °C: 160 W		(40/33/20) °C: 260 W		(40/33/20) °C: 330 W		(40/33/20) °C: 250 W
(45/38/20) °C: 210 W		(45/38/20) °C: 340 W		(45/38/20) °C: 430 W		(45/38/20) °C: 330 W
(50/40/20) °C: 240 W		(50/40/20) °C: 400 W		(50/40/20) °C: 490 W		(50/40/20) °C: 380 W

Panel radiator height 600 mm, overall length 1000 mm

Typ 21		Typ 22		Typ 30		Typ 33
						
***n* = 1,29**		***n* = 1,29**		***n* = 1,29**		***n* = 1,30**
(40/33/20) °C: 330 W		(40/33/20) °C: 440 W		(40/33/20) °C: 350 W		(40/33/20) °C: 590 W
(45/38/20) °C: 470 W		(45/38/20) °C: 580 W		(45/38/20) °C: 460 W		(45/38/20) °C: 770 W
(50/40/20) °C: 560 W		(50/40/20) °C: 670 W		(50/40/20) °C: 540 W		(50/40/20) °C: 900 W

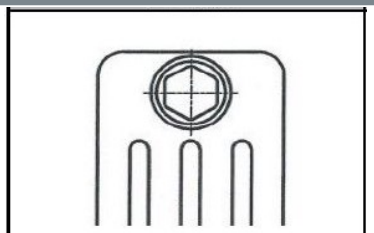
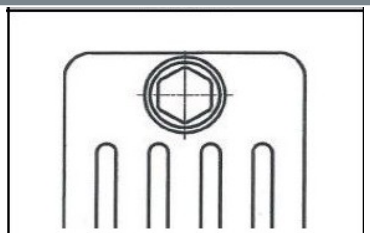
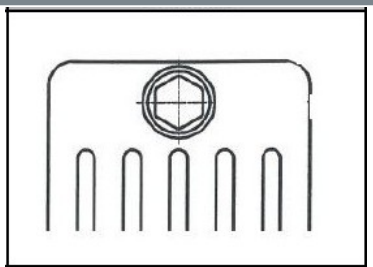
Double-row bathroom radiator height 1500 mm, length 600 mm

Pipe bundle, 2-row	Heating panels, 2 layers
	
***n* = 1,24**	***n* = 1,33**
(40/33/20) °C: ca. 330 W	(40/33/20) °C: ca. 300 W
(45/38/20) °C: ca. 460 W	(45/38/20) °C: ca. 420 W
(50/40/20) °C: ca. 550 W	(50/40/20) °C: ca. 510 W

Tube radiator height 600 mm; overall length 22 sections - 990 mm

2-pillars	3-pillars
	
***n* = 1,31**	***n* = 1,36**
(40/33/20) °C: 270 W	(40/33/20) °C: 350 W
(45/38/20) °C: 350 W	(45/38/20) °C: 460 W
(50/40/20) °C: 400 W	(50/40/20) °C: 530 W

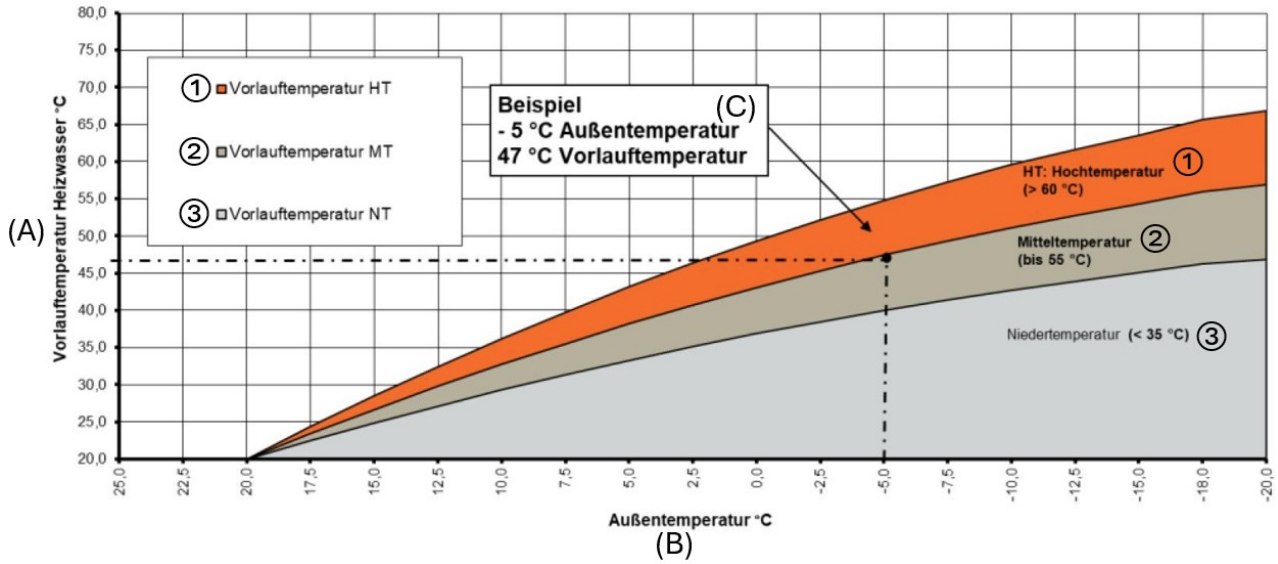
Tube radiator height 600 mm; overall length 22 sections - 990 mm

4-pillars	5-pillars	6-pillars
		
***n* = 1,35**	***n* = 1,39**	***n* = 1,41**
(40/33/20) °C: 460 W	(40/33/20) °C: 550 W	(40/33/20) °C: 630 W
(45/38/20) °C: 590 W	(45/38/20) °C: 710 W	(45/38/20) °C: 820 W
(50/40/20) °C: 690 W	(50/40/20) °C: 830 W	(50/40/20) °C: 960 W

3.2.2 Radiator calculator of the BWP for the approximate determination of Radiator outputs

https://www.waermepumpe.de/normen-technik/heizkoerperrechner/
You can use the radiator calculator to determine with sufficient accuracy whether and how the hydraulic system needs to be adjusted in order to lower the flow temperature if necessary. The calculation is carried out using the arithmetic excess temperature.

3.2.3 Experimental determination of the system temperature actually required



(A) Flow temperature heating water °C

(B) Outside temperature °C

(C) Example:
-5 °C outside temperature
47 °C Flow temperature

1. Flow temperature High temperature (> 60 °C)
2. Flow temperature Medium temperature (up to 55 °C)
3. Low temperature flow temperature (< 35 °C)

We recommend carrying out the following steps during the heating season at different outside temperatures:

1. Set the room thermostats in rooms with high heat demand (e.g. bathroom and living room) to the highest setting (valves fully open!)
2. Reduce the flow temperature at the boiler or mixer valve until the desired room temperature of approx. 20-22°C is reached. (Note the inertia of the heating system!)
3. Note the flow and return temperature as well as the outside temperature in the table.
4. Transfer the measured values to the diagram.

Measured values	Example	1	2	3	4	5	6	7	8	9
outside temperature	-5 °C									
flow temperature	47 °C									
return temperature	40 °C									
Temp. difference	7 °C									

Flow temperature for all rooms max. 55 °C

If the required flow temperature is below 55 °C, no additional measures are required. Any Dimplex heat pump can be used.

NOTE
Carrying out hydronic balancing often reduces the maximum required flow temperature!

Flow temperature in some rooms above 55 °C

If the required flow temperature is only above 55 °C in some rooms, measures should be taken to reduce the required flow temperature. To do this, only the radiators in the affected rooms are replaced to enable operation at a maximum of 55 °C.

A reduction in heat demand through:

- Replacement of windows,
- Reduction of ventilation losses,
- Insulation of storey ceilings, roof trusses or facades.

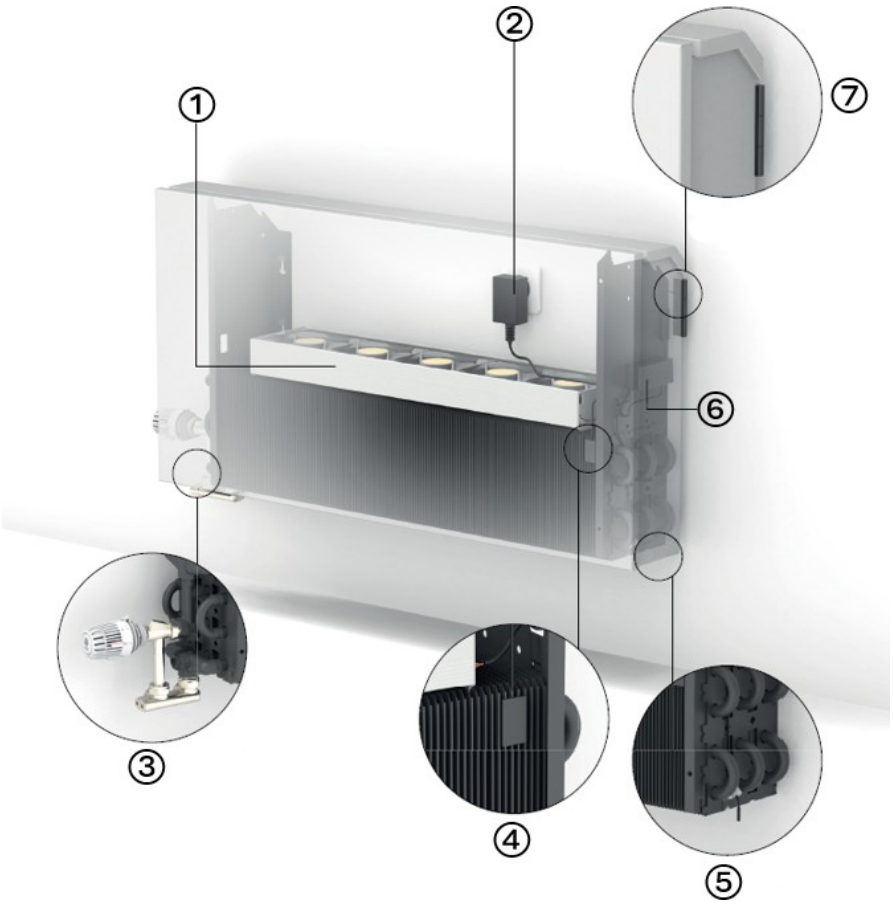
NOTE
For reasonable operation of the heat pump, the lowest possible flow temperatures should be aimed for. By dispensing with night setbacks, the system temperature can often be lowered by 5 to 10 K and comfort increased at the same time.
Every Kelvin lower flow temperature results in savings of 2-2.5%!

3.3 Refurbishment measures for energy-saving heat pump operation

3.3.1 Replacing existing radiators with heat pump radiators WPHK/ WPHKV

Product description/technical data WPHK

The heat pump radiator reduces the required system temperatures with the same size and can be used for heating and silent cooling in new and existing buildings. The ultra-fast copper-aluminium high-performance heat exchanger enables maximum heat output despite low flow temperatures. Twin Power fans connected in series increase the air outlet temperature and prevent cold radiation at the windows. The casing is made of galvanised sheet steel with a high-quality perforated grille on the top of the casing. The radiator is operated and set using 3 buttons that can be variably mounted on the outside of the casing. Heating, cooling and fan operating modes can be set individually with three speed levels.



(1) Activator unit

(2) Power supply 240 V AC (IN) / 12 V DC (OUT)

(3) Option: Valve set + thermostatic head for cooling and heating

(4) Flow temperature sensor (Tw)

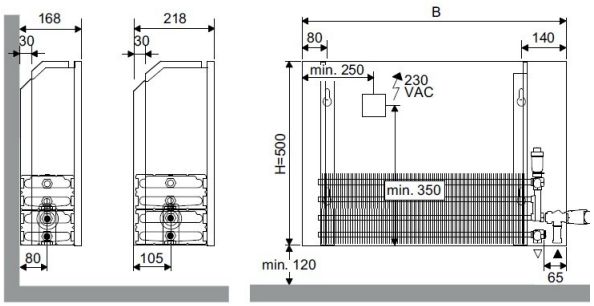
(5) Room temperature sensor (Tk)

(6) Controller

(7) Control unit with spiral cable

Minimum distances

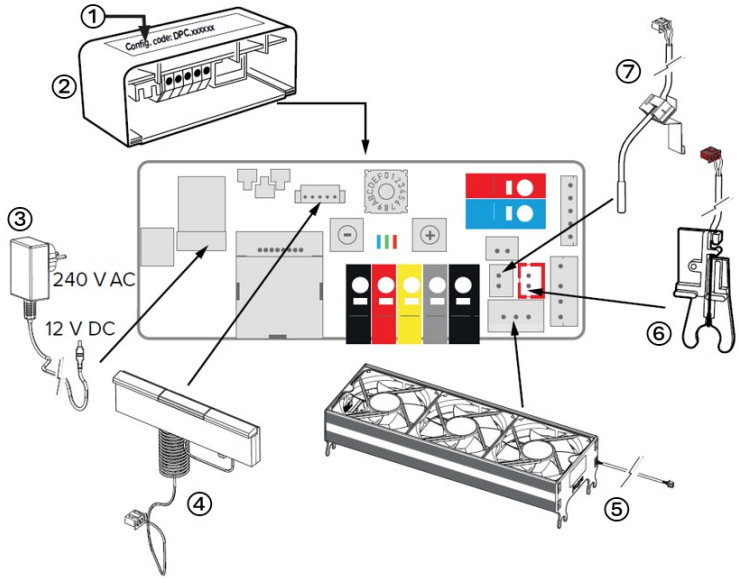
The minimum distances must be observed. In addition, a clearance of 500 mm must be provided at the front of the appliance. The heat pump radiator must be installed horizontally aligned on a vertical wall as shown in the picture. All dimensions in mm.



Models	Depth	Width
WPHK 16 50 80	168 mm	800 mm
WPHK 16 50 100	168 mm	1000 mm
WPHK 16 50 140	168 mm	1400 mm
WPHK 16 50 180	168 mm	1800 mm
WPHK 21 50 100	218 mm	1000 mm
WPHK 21 50 140	218 mm	1400 mm
WPHK 21 50 180	218 mm	1800 mm

The socket or mains connection socket must be accessible when removing the panelling. Ensure that the air can enter and exit the appliance unhindered at the bottom and top.

Overview of the controller connections



(1) Configuration code

(2) Controller

(3) Power supply unit

(4) Control unit

(5) Activator unit

(6) Flow temperature sensor (Tw)

(7) Room temperature sensor (Tk)

Performance data

Heat pump radiator WPHK 16 50 80

	Unit	Design level 0*	Design level 1.	Design level 2	Design level 3
Fan voltage	V	0,0	11,8	13,7	21,9
Heating at flow/return/room temperature 35/30/20 °C					
heat output	W	131	439	471	632
Heating medium flow	kg/h	23	76	81	109
approved. water. Pressure drop	kPa	0,01	0,09	0,10	0,18
Cooling at flow/return/room temperature 16/18/27 °C					
cooling capacity**	W	-	312	335	450
Heating medium flow	kg/h	-	134	144	194
approved. water. Pressure drop	kPa	-	0,27	0,31	0,56
sound pressure level****	dB(A)	0,0	26,0	30,0	42,4
sound power level****	dB(A)	0,0	34,0	38,0	50,4
Electrical power	W	0,0	6,0	6,7	9,0
Water volume	l	1,6			
Dimensions (W x H x D)	mm	800 x 500 x 168			
Weight	kg	14			

Heat pump radiator WPHK 16 50 100

	Unit	Design level 0*	Design level 1.	Design level 2	Design level 3
Fan voltage	V	0,0	10,9	12,8	21,9
Heating at flow/return/room temperature 35/30/20 °C					
heat output	W	163	566	606	836
Heating medium flow	kg/h	28	97	104	144
approved. water. Pressure drop	kPa	0,01	0,15	0,17	0,32
Cooling at flow/return/room temperature 16/18/27 °C					
cooling capacity**	W	-	403	431	595
Heating medium flow	kg/h	-	173	185	256
approved. water. Pressure drop	kPa	-	0,46	0,52	0,99
sound pressure level****	dB(A)	0,0	26,0	30,0	44,1
sound power level****	dB(A)	0,0	34,0	38,0	52,1
Electrical power	W	0,0	7,0	7,7	10,7
Water volume	l	2,0			
Dimensions (W x H x D)	mm	1000 x 500 x 168			
Weight	kg	18,5			

Heat pump radiator WPHK 16 50 140

	Unit	Design level 0*	Design level 1.	Design level 2	Design level 3
Fan voltage	V	0,0	10,4	12,2	21,9
Heating at flow/return/room temperature 35/30/20 °C					
heat output	W	229	827	886	1243
Heating medium flow	kg/h	39	142	152	214
approved. water. Pressure drop	kPa	0,03	0,33	0,37	0,73
Cooling at flow/return/room temperature 16/18/27 °C					
cooling capacity**	W	-	589	630	885
Heating medium flow	kg/h	-	253	271	381
approved. water. Pressure drop	kPa	-	1,02	1,16	2,27
sound pressure level****	dB(A)	0,0	26,0	30,0	45,4
sound power level****	dB(A)	0,0	34,0	38,0	53,4
Electrical power	W	0,0	9,6	10,5	16,1
Water volume	l	2,8			
Dimensions (W x H x D)	mm	1400 x 500 x 168			
Weight	kg	24			

Heat pump radiator WPHK 16 50 180

	Unit	Design level 0*	Design level 1.	Design level 2	Design level 3
Fan voltage	V	0,0	10,0	11,8	21,9
Heating at flow/return/room temperature 35/30/20 °C					
heat output	W	294	1030	1095	1527
Heating medium flow	kg/h	51	177	188	263
approved. water. Pressure drop	kPa	0,05	0,53	0,60	1,15
Cooling at flow/return/room temperature 16/18/27 °C					
cooling capacity**	W	-	676	722	1030
Heating medium flow	kg/h	-	291	310	443
approved. water. Pressure drop	kPa	-	1,40	1,58	3,17
sound pressure level****	dB(A)	0,0	26,0	30,0	46,4
sound power level****	dB(A)	0,0	34,0	38,0	54,4
Electrical power	W	0,0	11,5	12,8	19,6
Water volume	l	3,6			
Dimensions (W x H x D)	mm	1400 x 500 x 168			
Weight	kg	28			

Heat pump radiator WPHK 21 50 100

	Unit	Design level 0*	Design level 1.	Design level 2	Design level 3
Fan voltage	V	0,0	10,9	12,8	21,9
Heating at flow/return/room temperature 35/30/20 °C					
heat output	W	252	782	837	1154
Heating medium flow	kg/h	43	135	144	198
approved. water. Pressure drop	kPa	0,01	0,11	0,13	0,24
Cooling at flow/return/room temperature 16/18/27 °C					
cooling capacity**	W	-	439	471	64,9
Heating medium flow	kg/h	-	189	203	279
approved. water. Pressure drop	kPa	-	0,22	0,25	0,46
sound pressure level****	dB(A)	0,0	26,0	30,0	44,1
sound power level****	dB(A)	0,0	34,0	38,0	52,1
Electrical power	W	0,0	7,0	7,7	10,7
Water volume	l	2,7			
Dimensions (W x H x D)	mm	1000 x 500 x 218			
Weight	kg	21			

Heat pump radiator WPHK 21 50 140

	Unit	Design level 0*	Design level 1.	Design level 2	Design level 3
Fan voltage	V	0,0	10,4	12,2	21,9
Heating at flow/return/room temperature 35/30/20 °C					
heat output	W	354	1143	1224	1717
Heating medium flow	kg/h	61	197	211	295
approved. water. Pressure drop	kPa	0,03	0,25	0,29	0,55
Cooling at flow/return/room temperature 16/18/27 °C					
cooling capacity**	W	-	642	688	965
Heating medium flow	kg/h	-	276	296	415
approved. water. Pressure drop	kPa	-	0,48	0,55	1,07
sound pressure level****	dB(A)	0,0	26,0	30,0	45,4
sound power level****	dB(A)	0,0	34,0	38,0	53,4
Electrical power	W	0,0	9,6	10,5	16,1
Water volume	l	3,7			
Dimensions (W x H x D)	mm	1400 x 500 x 218			
Weight	kg	27			

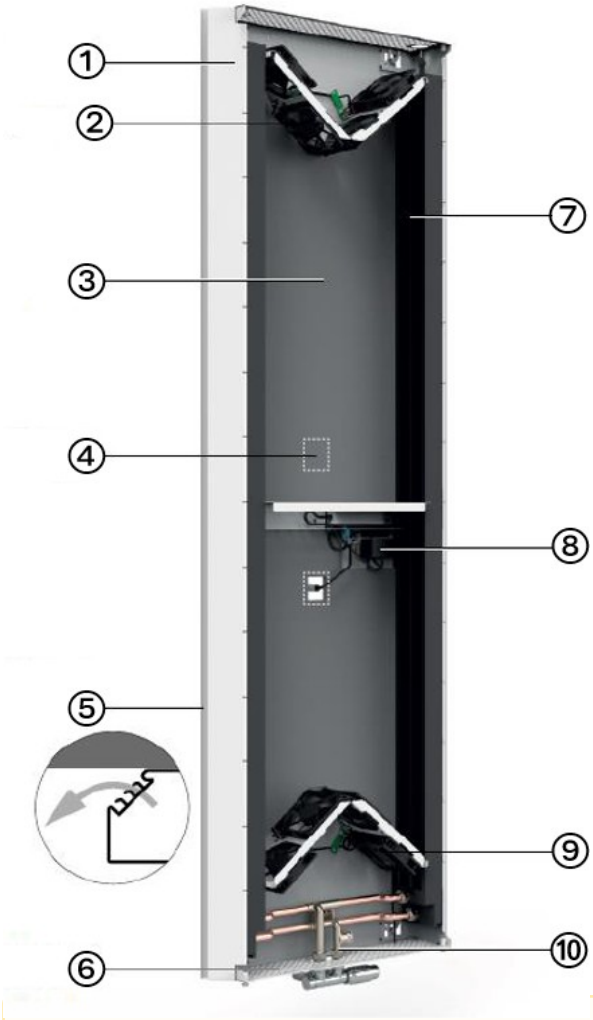
Heat pump radiator WPHK 21 50 180

	Unit	Design level 0*	Design level 1.	Design level 2	Design level 3
Fan voltage	V	0,0	10,0	11,8	21,9
Heating at flow/return/room temperature 35/30/20 °C					
heat output	W	454	1374	1463	2060
Heating medium flow	kg/h	78	236	252	354
approved. water. Pressure drop	kPa	0,05	0,38	0,43	0,83
Cooling at flow/return/room temperature 16/18/27 °C					
cooling capacity**	W	-	738	788	1123
Heating medium flow	kg/h	-	317	339	483
approved. water. Pressure drop	kPa	-	0,67	0,77	1,52
sound pressure level****	dB(A)	0,0	26,0	30,0	46,4
sound power level****	dB(A)	0,0	34,0	38,0	54,4
Electrical power	W	0,0	11,5	12,8	19,6
Water volume	l	4,8			
Dimensions (W x H x D)	mm	1800 x 500 x 218			
Weight	kg	32			

Heating values at a room temperature of 20°C, relative humidity 50%. Cooling values
at a room temperature of 27°C, relative humidity 50 %.
* If the fans are switched off, the output is a guide value.
** The cooling capacity is calculated according to EN 16430, with the fans going up for all heights.
**** Sound power according to ISO 3741: 2010, sound pressure level assuming room attenuation of 8 dB(A).

Product description / Technical data WPHKV

This appliance is only approved for heating and cooling rooms in conjunction with heat pumps and a maximum flow temperature of 60 °C. Any other use or use in excess of this is considered improper use. This also includes compliance with the associated project planning documents.



(1) Completely pre-assembled cassette

(2) Activator unit

(3) Insulation for whisper-quiet function

(4) Pre-punched holes for the electric wires to pass through

(5) Concealed vertical design grilles direct the air into the room over its entire height

(6) Air inlet with top and bottom grille

(7) Stainless low-H2O heat exchanger made of copper/aluminium

(8) 12 V power supply and controller

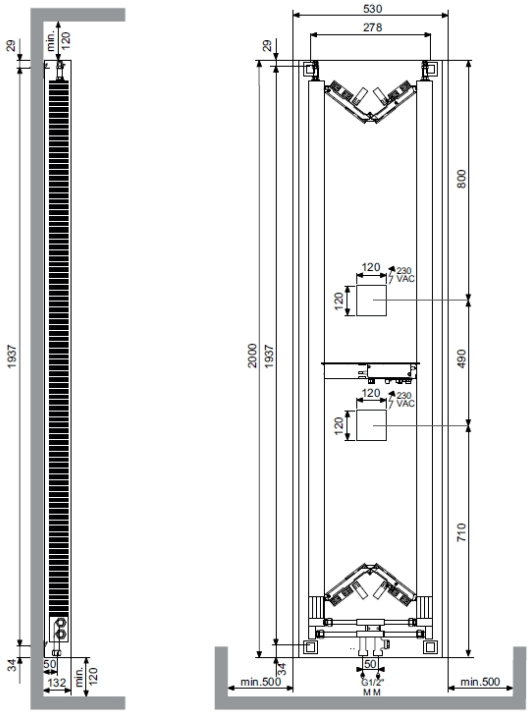
(9) Low-noise booster

(10) Hydraulic connection with ISO thread

CAUTION
The appliance must not be placed under a wall socket in order to avoid overheating and any resulting fire damage to electric cables or electrical appliances connected to it.

Minimum distances

The minimum distances must be observed. Furthermore, a distance of
500 mm must be provided. The heater must be installed vertically aligned on a vertical wall as shown in the picture. All dimensions in mm.



The socket or mains connection socket must be accessible when removing the panelling. Ensure that the air can enter and exit the appliance unhindered at the bottom and top.

Performance data

Heat pump radiator WPHKV 12 200 53

	Unit	Design level 1.	Design level 2	Design level 3
Fan voltage	V	-	-	-
Heating at flow/return/room temperature 35/30/20 °C				
heat output	W	508	587	724
Heating medium flow	kg/h	87	101	125
Cooling at flow/return/room temperature 16/18/27 °C				
cooling capacity**	W	230	281	410
Heating medium flow	kg/h	99	121	176
sound pressure level****	dB(A)	26	30	38,7
sound power level****	dB(A)	34,0	38,0	46,7
Electrical power	W	-	-	-
Water volume	l	2,4		
Dimensions (W x H x D)	mm	530 x 2000 x 132		
Weight	kg	51		

Heating values at a room temperature of 20°C, relative humidity 50%. Cooling values at a room temperature of 27°C, relative humidity 50 %.

*When the fans are switched off, the output is a guide value.
**The cooling capacity is calculated according to EN 16430, with the fans going up for all heights.
****Sound power according to ISO 3741: 2010, sound pressure level assuming room attenuation of 8 dB(A).

4 Domestic hot water preparation with System E

4.1 Standards and regulations

4.1.1 DVGW sheet W 551

DVGW worksheet W 551 defines construction and operating requirements for systems for the provision of hygienically safe hot drinking water with special consideration and measures to reduce legionella growth in drinking water systems. A distinction is made between small systems (detached and semi-detached houses) and large systems (all other systems with a storage tank capacity of more than 400 litres and a pipe capacity of more than 3 litres between the storage tank and tapping points).

Requirements for small systems

Delimitation/General:

- Volume of the drinking water storage tank < 400 litres (does not apply to detached and semi-detached houses)
- Line volume1 < 3 litres

Building requirement:

- It must be possible to reach an outlet temperature of > 60 °C at the drinking water storage tank

Operating requirement:

no specifications for the operating temperature, but:

- Recommendation > 60 °C at the outlet of the drinking water storage tank
- Temperatures < 50 °C should be avoided

Thermal disinfection is recommended if required, e.g. after a long period of standstill without tapping

Summary:

For small systems where a water exchange within three days is ensured, a hot water temperature above 50°C is recommended for systems without circulation. For systems with circulation, operating temperatures below 50°C in the return should be avoided at all costs.

When operating a domestic hot water preparation system with low temperatures and low tap volumes, the user must be informed of any health risks.

NOTE
System E in conjunction with the Hydrotower achieves a maximum hot water temperature of 60 °C in pure heat pump operation.

Requirements for large systems

Delimitation/General:

- Volume of the drinking water storage tank > 400 litres (does not apply to detached and semi-detached houses) or
- Line volume[1]) > 3 litres

Building requirements:

- It must be possible to heat up the drinking water storage tank completely to over 60°C. (scalding protection may be required)
- A circulation pipe is required for pipe volumes[1]) > 3 litres

Operating requirement:

- Outlet temperature at the drinking water storage tank > 60 °C; short-term, operationally-related undershoots are permissible (e.g. during withdrawal)
- Operating temperature of the entire system including circulation permanently > 55 °C. The return of the circulation pipe may not be reduced by more than 5 K compared to the cylinder outlet temperature.

[1] "Pipe volume" refers to the content of a pipe from the domestic hot water preparation system to the tapping point, excluding the content of the return to the domestic hot water preparation system via a circulation pipe. The individual pipe sections are considered, not the total volume of the pipe system.

[2] At least 70 °C is required for thermal disinfection. This temperature does not necessarily have to be provided by the domestic hot water preparation system. External auxiliary heating is also possible.

NOTE
The installation of a flange heater is necessary to enable heat up to temperatures above 60 °C. Depending on the application or customer requirements, the electrical reheating can be timed by the controller.

Pipe lengths with 3 litre capacity	
Copper pipe Ø x mm	**Pipe length / m**
10 x 1,0	60,0
12 x 1,0	38,0
15 x 1,0	22,5
18 x 1,0	14,9
22 x 1,0	9,5
28 x 1,0	5,7
28 x 1,5	6,1

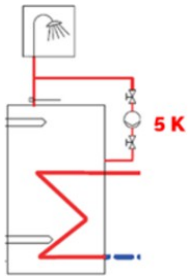
4.1.2 DIN 1988-200

Centralised domestic hot water preparation with high water exchange in combination with the DFM 1988-1 flow meter

> *"Central domestic hot water heaters - storage tanks or flow-through systems with downstream pipe volumes > 3 litres must be planned and constructed in such a way that a domestic hot water temperature greater than or equal to 60 °C is possible at the outlet of the domestic hot water heater and 55 °C at the inlet of the circulation pipe into the domestic hot water heater."*

"If a water exchange is carried out in the drinking water installation for hot drinking water within 3 days operating temperatures can be set to greater than or equal to 50 °C. Operating temperatures < 50 °C must be avoided. The operator must be informed during commissioning and instruction about the possible health risk (legionella proliferation)."

The DFM 1988-1 flow meter, which is available in combination with a 400, 500 and 700 litre domestic hot water cylinder, monitors the tapped quantities in order to increase the set temperature at the water outlet to 60°C via a srew-in heating element in the upper section of the cylinder if the required water exchange rate is not reached.



Domestic hot water preparation with heat pump and DFM 1988-1

4.2 Small domestic hot water preparation system - Simplified procedure

In detached and semi-detached houses with standard sanitary equipment, the required storage tank size and the required heat output can be determined using a simplified procedure.

4.2.1 Determination of heat demand (small system)

On average, an additional heat output of the heat pump of 0.2 kW per person for domestic hot water must be taken into account.

Formula	Legend
$Q_{H,WW} = 0{,}2 \text{ x } \frac{\text{kW}}{\text{Person}} \text{ x } n_{Personen}$	$Q_{H,WW}$ = Heat demand DHW heating (in kW)
	$n_{Personen}$ = Number of people for DHW preparation

e.g. domestic hot water preparation for 8 people:	
$Q_{H,WW} = 0{,}2 \text{ x } \frac{\text{kW}}{\text{Person}} \text{ x } 8 \text{ } Personen$	
$Q_{H,WW}$	= 1.6 kW

4.2.2 Determination of the storage volume (small system)

A daily hot water requirement of 25 litres per person, based on a hot water temperature of 60 °C, is assumed. To select a storage tank for up to 10 people, the minimum storage tank volume is first determined. To do this, the daily hot water requirement is doubled. This minimum volume is converted to the actual storage temperature.

Formula	Legend	
$V_{Sp} = V_{tsoll} = 2 \times V_{DP60} = \frac{(60°C - t_{cw})}{(t_{soll} - t_{cw})}$	V_{Sp}	= Storage volume (total) in litres
	V_{tsoll}	= DHW volume at t_{soll} in litres
	V_{DP60}	= Hot water volume at 60 °C in litres
	t_{soll}	= Storage tank set temperature
	t_{cw}	= Cold water temperature

e.g. domestic hot water preparation for 4 people (á 25 litres per person) and cold water temperature 10°C:

Formula	Legend	
$V_{Sp} = V_{tsoll} = 2 \times V_{DP60} = \frac{(60°C - t_{cw})}{(t_{soll} - t_{cw})}$	V_{Sp}	= Storage volume (total) in litres
	V_{tsoll}	= DHW volume at t_{soll} in litres
	V_{DP60}	= Hot water volume at 60 °C in litres
	t_{soll}	= Storage tank set temperature
	t_{cw}	= Cold water temperature

Formula
$V_{Sp} = V_{tsoll} = 2 \times 4$ Personen x 25l/Person x $= \frac{(60°C - 10°C)}{(50°C - 10°C)}$

V_{Sp} = 250 l

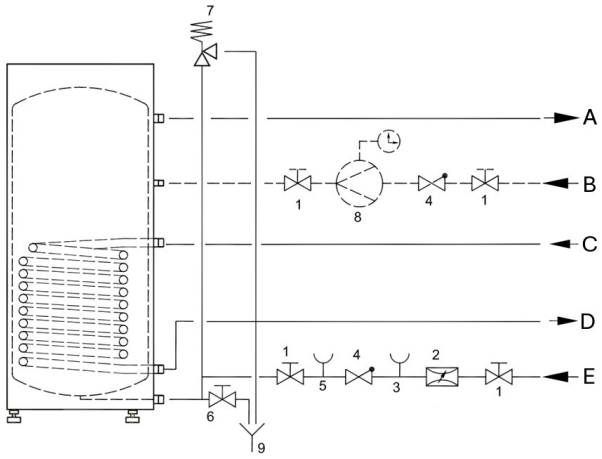
4.2.3 Options for domestic hot water preparation with System E

Domestic hot water cylinder with foil jacket and temperature sensor WWSP

Storage tank made of steel (enamelled inside) with protective anode and 3 adjustable feet, PU insulation with low standby losses; temperature sensor for connection to the heat pump manager included in the scope of supply, colour white.

Domestic hot water cylinder WWSP 335Domestic hot water cylinder WWSP 442Domestic hot water cylinder WWSP 556

WWSP domestic hot water cylinder connection diagram



A Domestic hot water

B Circulation (if required)

C Heating water flow

D Heating water return

E Cold water connection according to DIN 1988

1 isolating valve

2 Pressure reducing valve

3 Test valve

4 Backflow preventer

5 Pressure gauge connection piece

6 Drain valve

7 Safety valve

8 circulation pump

9 Drain

System E with Hydro-Tower (LA 1118BWCP)

The Hydro-Tower enables quick and easy connection of the heat pump to a heating system with an unmixed heating circuit. The components are electrically controlled by the heat pump manager included in the scope of supply of the heat pump (external wiring required). The following components are installed to save space and wired ready for operation:

- Switchable pipe heating (2/4/6 kW) for central heating backup

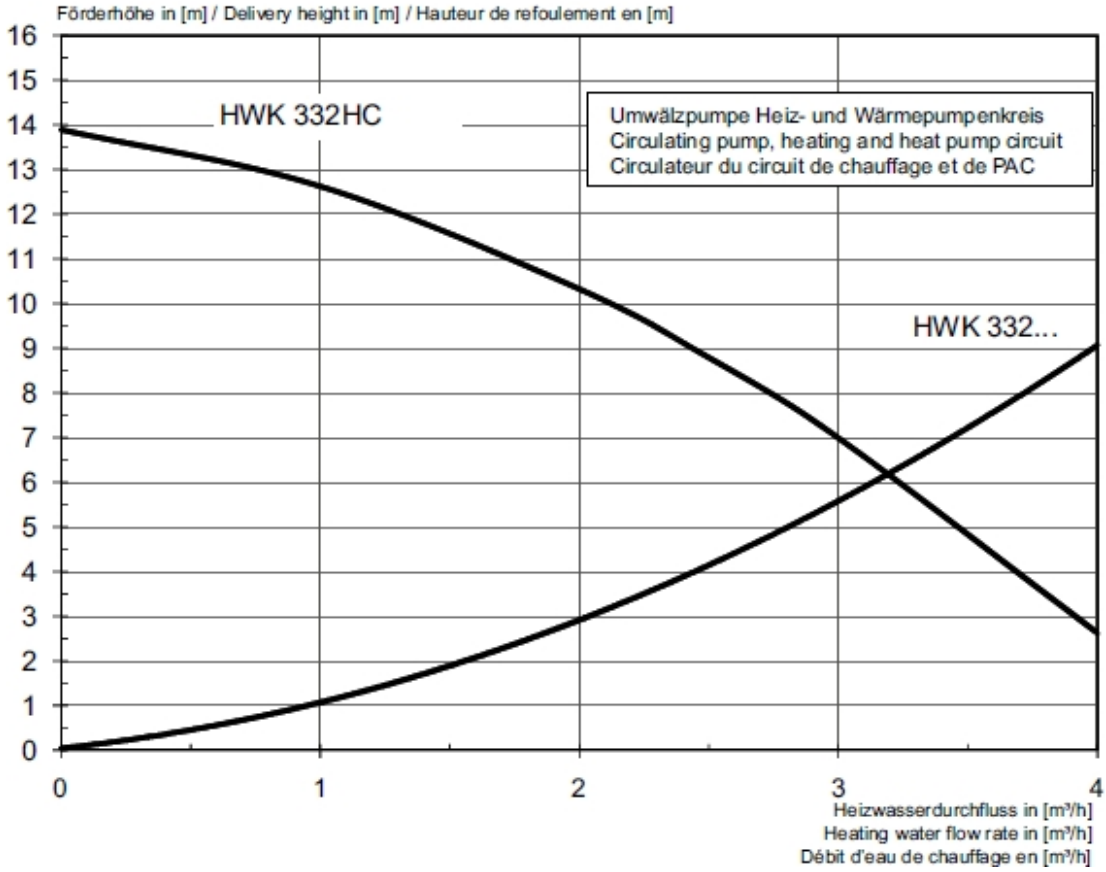
- Switchable pipe heating (2/4/6 kW) for central heating backup
- Buffer tank 100 l with installation option for an additional immersion heater (up to CTHK 634)
- Domestic hot water cylinder 300 l with 3.2 m² tubular heat exchanger and 1.5 kW flange heater for thermal disinfection
- Electronically controlled circulation pump pre-wired for an unmixed heating circuit (consumer circuit)
- Auxiliary circulating pump for the heat generation circuit and domestic hot water circulating pump
- The hydraulic decoupling of the generator and consumer circuits is achieved via two differential pressureless manifolds (bypass lines), each equipped with a check valve.
- Can be extended to include a mixed heating circuit or to integrate a fossil or renewable heat generator (special accessories)

Tutorials Installation WP

Tutorials System Accessories

To reduce runtimes, the uncontrolled auxiliary circulating pump in the heat generation circuit is only operated when the compressor is running and when there is a risk of frost. The uniform flow through the serien buffer tank extends the runtimes of the compressor and ensures the required heating water flow rate in all operating situations.
NTC-10M temperature sensor pre-assembled! Standby losses 2.3 kWh/24h.

Pumpen- / Gerätekennlinie (Heiz- und Wärmepumpenkreis in Betrieb)
Pump / device characteristic curve (heating circuit and heat pump circuit in operation)
Courbe caractéristique de la pompe / de l'appareil (circuit de chauffage et de PAC en service)



NOTE
The Hydro-Tower HWK 332 can be used for domestic hot water preparation for up to 5 people with standard sanitary equipment.

4.2.4 Domestic hot water cylinder WWSP 335

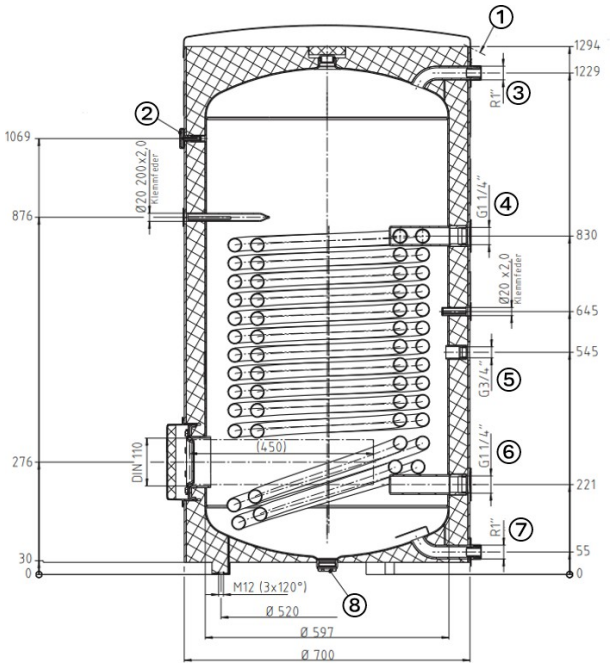
Technical data

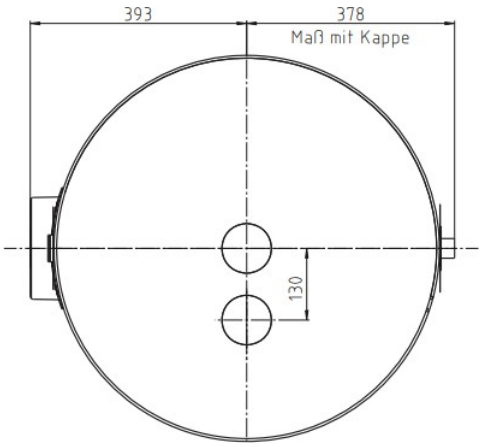
Technical data	Unit	WWSP 335
Nominal content	Litres	300
Useful capacity	Litres	273
Heat exchanger surface	m²	3,5
Heat exchanger content	Litres	24
Height	mm	1350

Technical data	Unit	WWSP 335
Width	mm	710
Depth	mm	700
Diameter	mm	700
Height without insulation	mm	-
Width without insulation	mm	-
Depth without insulation	mm	-
Diameter without insulation	mm	-
tilt dimension	mm	1438
Permissible operating temperature of heating water	°C	110
Permissible operating pressure heating water	bar	10
Permissible operating temperature domestic hot water	°C	95
Permissible operating pressure domestic hot water	bar	10
Heat loss (room temperature 20 °C; storage tank temperature 65 °C)	kWh/24h	1,66
Energy efficiency class	-/W	B (69 W)
Storage weight (net)	kg	125
Connections		
cold water	inch	R 1"
domestic hot water	inch	R 1"
circulation	inch	G 3/4" FEMALE THREAD
Heating water flow	inch	G 1 1/4" FEMALE THREAD
Heating water return	inch	G 1 1/4" FEMALE THREAD
Flange	-	DN 110 (TK 150) 8 hole
Anode diameter	mm	33
Anode length	mm	750
Anode connection thread	inch	G 1 1/4" FEMALE THREAD
Immersion sleeve 1.	-	Ø 20 x 200 mm
Connection heights		
cold water	mm	55
domestic hot water	mm	1229

Technical data	Unit	WWSP 335
Circulation 1.	mm	545
Circulation 2	mm	-
Sleeve for electric heating element (CEHK)	mm	-
Heating water flow	mm	830
Heating water return	mm	221
Flange	mm	276
Anode	mm	1229 (top)
Immersion sleeve 1.	mm	645
Immersion sleeve 2	mm	876

Dimensioned drawing





(1) Tilt dimension without tank cover R: 1438mm

(2) Thermometer

(3) domestic hot water

(4) Heating flow

(5) circulation

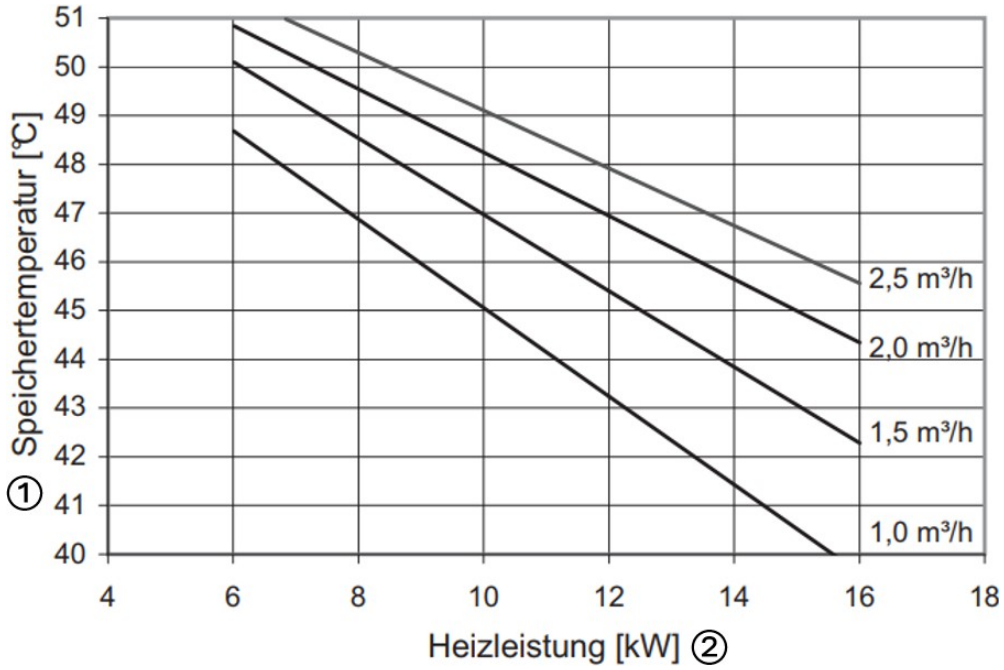
(6) Heating return

(7) cold water

(8) Plug 11/4"

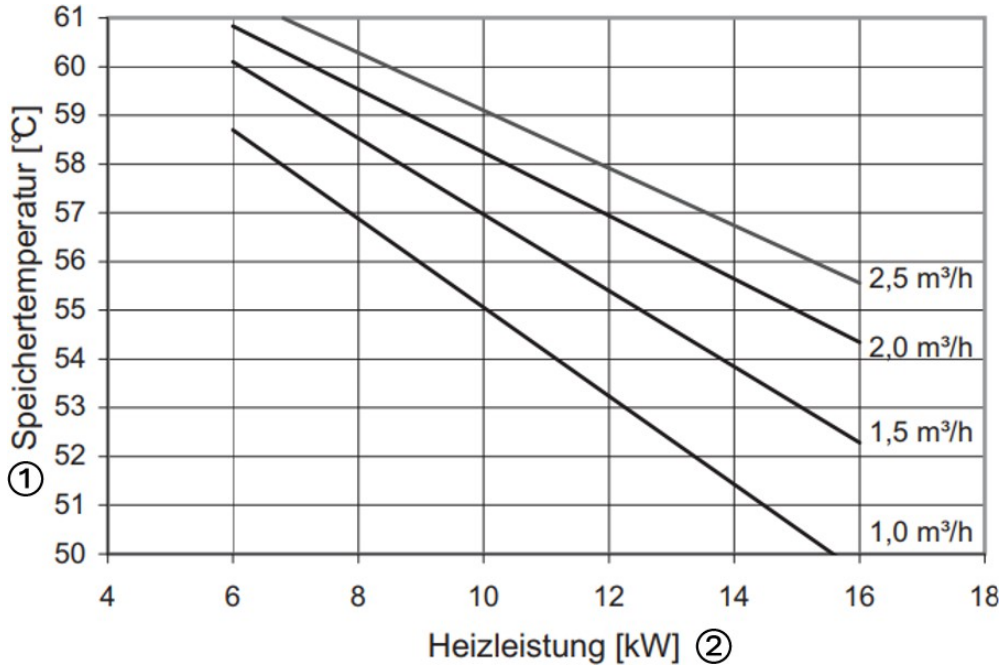
Storage tank temperature diagram

Achievable storage tank temperatures at 55 °C flow temperature



1. Storage tank temperature [°C]
2. Heat output [kW]

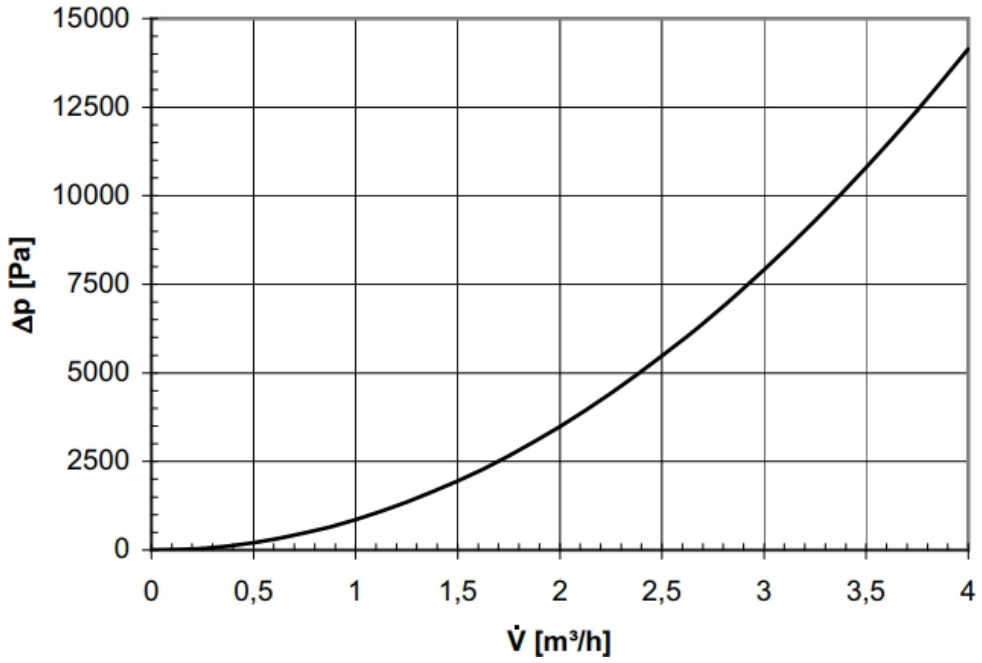
Achievable storage tank temperatures at 65 °C flow temperature



1. Storage tank temperature [°C]
2. Heat output [kW]

Pressure loss diagram for domestic hot water cylinders:

(twater = 20 °C, pwater = 2 bar)



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4.2.5 Domestic hot water cylinder WWSP 442

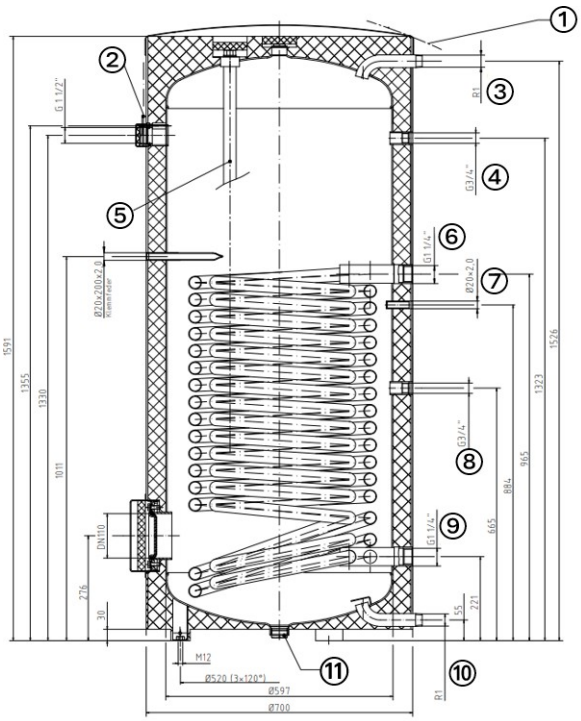
Technical data

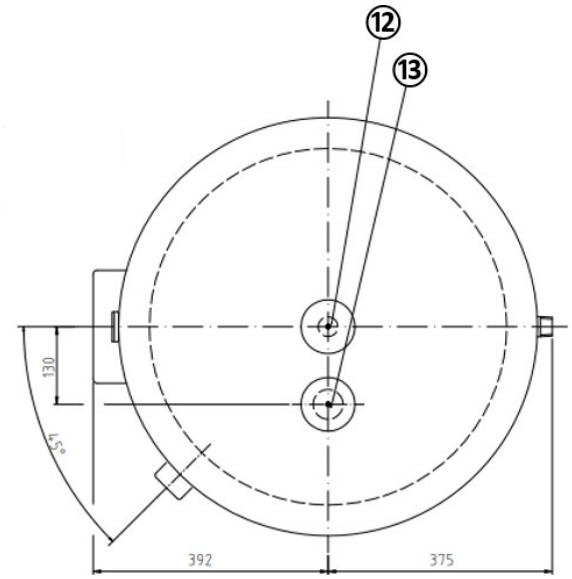
Technical data	Unit	WWSP 442
Nominal content	Litres	400
Useful capacity	Litres	353
Heat exchanger surface	m²	4,2
Heat exchanger content	Litres	29
Height	mm	1598
Width	mm	710
Depth	mm	700
Diameter	mm	700
Height without insulation	mm	-
Width without insulation	mm	-
Depth without insulation	mm	-

Technical data	Unit	WWSP 442
Diameter without insulation	mm	-
tilt dimension	mm	1715
Permissible operating temperature of heating water	°C	110
Permissible operating pressure heating water	bar	10
Permissible operating temperature domestic hot water	°C	95
Permissible operating pressure domestic hot water	bar	10
Heat loss (room temperature 20 °C; storage tank temperature 65 °C)	kWh/24h	1,99
Energy efficiency class	-/W	C (83 W)
Storage weight (net)	kg	159
Connections		
cold water	inch	R 1"
domestic hot water	inch	R 1"
circulation	inch	G 3/4" female thread (2x)
Heating water flow	inch	G 1 1/4" FEMALE THREAD
Heating water return	inch	G 1 1/4" FEMALE THREAD
Flange	-	DN 110 (TK 150) 8 hole
Anode diameter	mm	33
Anode length	mm	850
Anode connection thread	inch	G 1 1/4" FEMALE THREAD
Immersion sleeve 1.	-	Ø 20 x 200 mm
Connection heights		
cold water	mm	55
domestic hot water	mm	1526
Circulation 1.	mm	665
Circulation 2	mm	1323
Sleeve for electric heating element (CEHK)	mm	1330
Heating water flow	mm	965
Heating water return	mm	221
Flange	mm	276

Technical data	Unit	WWSP 442
Anode	mm	1526 (top)
Immersion sleeve 1.	mm	884
Immersion sleeve 2	mm	1011

Dimensioned drawing





(1) Tilt dimension without tank cover R: 1711mm

(2) Thermometer

(3) domestic hot water

(4) circulation

(5) Anode 11/4"

(6) Heating flow

(7) sensor

(8) circulation

(9) Heating return

(10) cold water

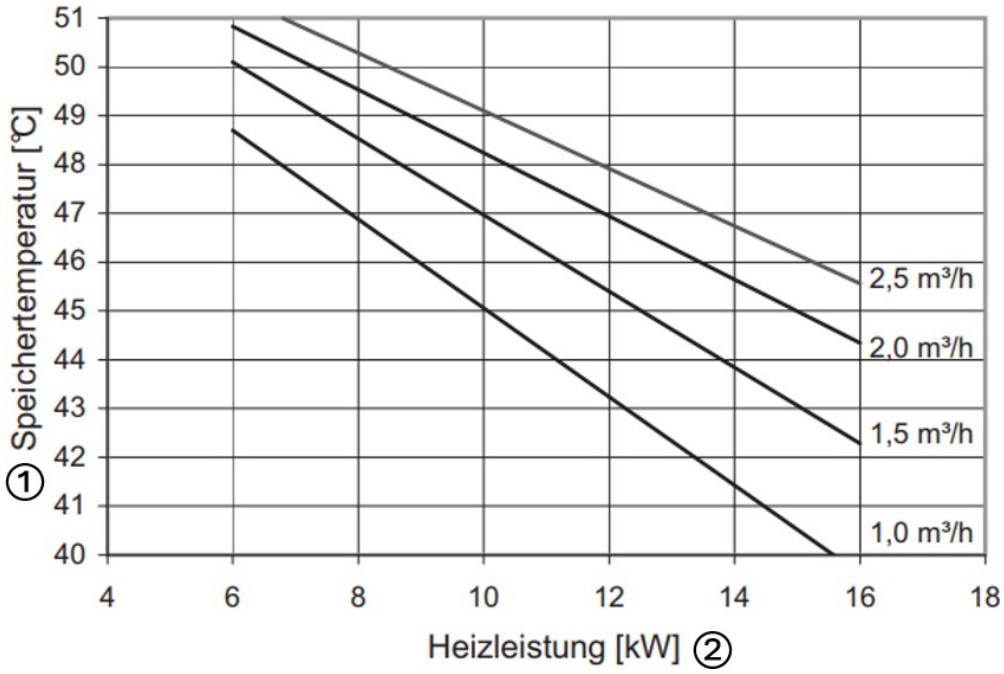
(11) Plug 11/4"

(12) Plug 1"

(13) Anode Ø33 insulated

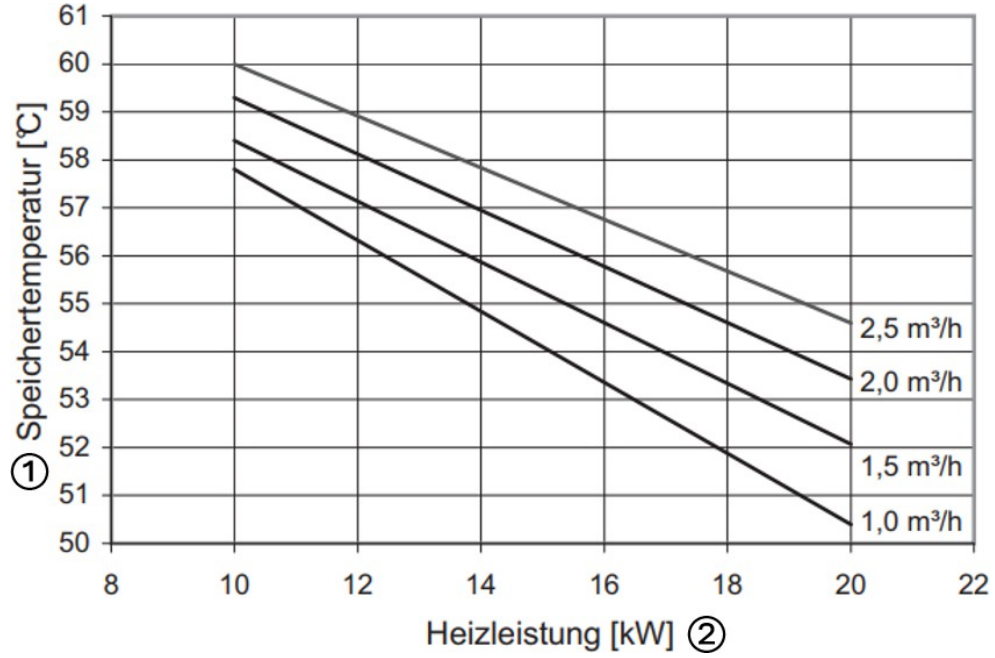
Storage tank temperature diagram

Achievable storage tank temperatures at 55 °C flow temperature



1. Storage tank temperature [°C]
2. Heat output [kW]

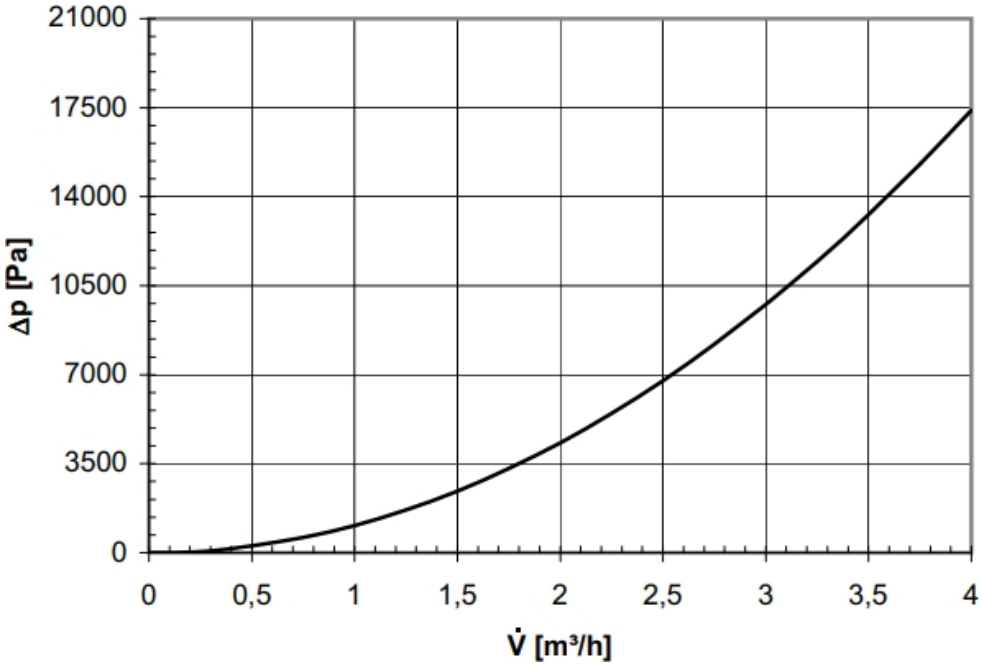
Achievable storage tank temperatures at 65 °C flow temperature



1. Storage tank temperature [°C]
2. Heat output [kW]

Pressure loss diagram for domestic hot water cylinders:

(twater = 20 °C, pwater = 2 bar)



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4.2.6 Domestic hot water cylinder WWSP 556

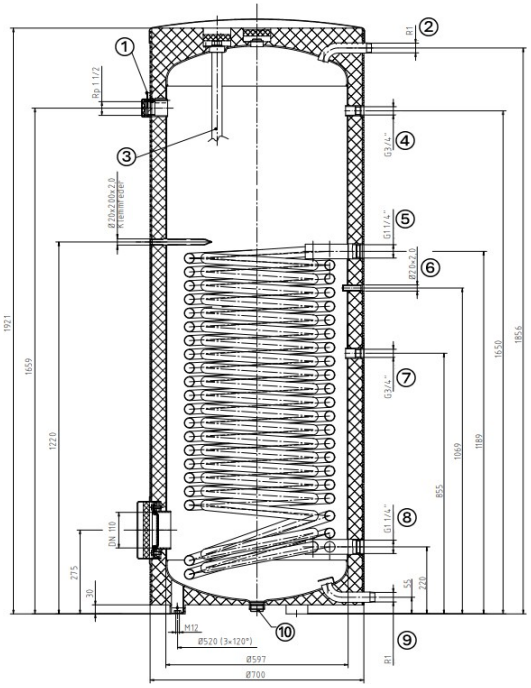
Technical data

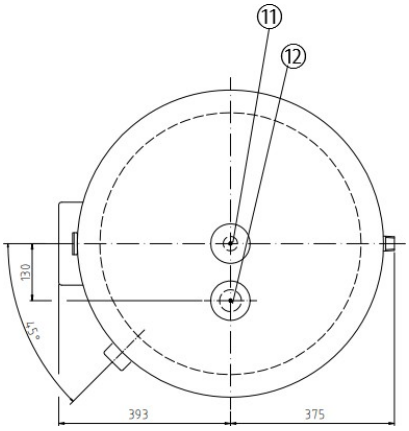
Technical data	Unit	WWSP 556
Nominal content	Litres	500
Useful capacity	Litres	433
Heat exchanger surface	m²	5,65
Heat exchanger content	Litres	42
Height	mm	1925
Width	mm	710
Depth	mm	700
Diameter	mm	700
Height without insulation	mm	-
Width without insulation	mm	-

Technical data	Unit	WWSP 556
Depth without insulation	mm	-
Diameter without insulation	mm	-
tilt dimension	mm	2050
Permissible operating temperature of heating water	°C	110
Permissible operating pressure heating water	bar	10
Permissible operating temperature domestic hot water	°C	95
Permissible operating pressure domestic hot water	bar	10
Heat loss (room temperature 20 °C; storage tank temperature 65 °C)	kWh/24h	2,26
Energy efficiency class	-/W	C (94 W)
Storage weight (net)	kg	180
Connections		
cold water	inch	R 1"
domestic hot water	inch	R 1"
circulation	inch	G 3/4" female thread (2x)
Heating water flow	inch	G 1 1/4" FEMALE THREAD
Heating water return	inch	G 1 1/4" FEMALE THREAD
Flange	-	DN 110 (TK 150) 8 hole
Anode diameter	mm	33
Anode length	mm	1100
Anode connection thread	inch	G 1 1/4" FEMALE THREAD
Immersion sleeve 1.	-	Ø 20 x 200 mm
Connection heights		
cold water	mm	55
domestic hot water	mm	1856
Circulation 1.	mm	855
Circulation 2	mm	1650
Sleeve for electric heating element (CEHK)	mm	1659
Heating water flow	mm	1189
Heating water return	mm	220

Technical data	Unit	WWSP 556
Flange	mm	275
Anode	mm	1856 (top)
Immersion sleeve 1.	mm	1069
Immersion sleeve 2	mm	1220

Dimensioned drawing





(1) Thermometer

(2) domestic hot water

(3) Anode 11/4"

(4) circulation

(5) Heating flow

(6) sensor

(7) circulation

(8) Heating return

(9) cold water

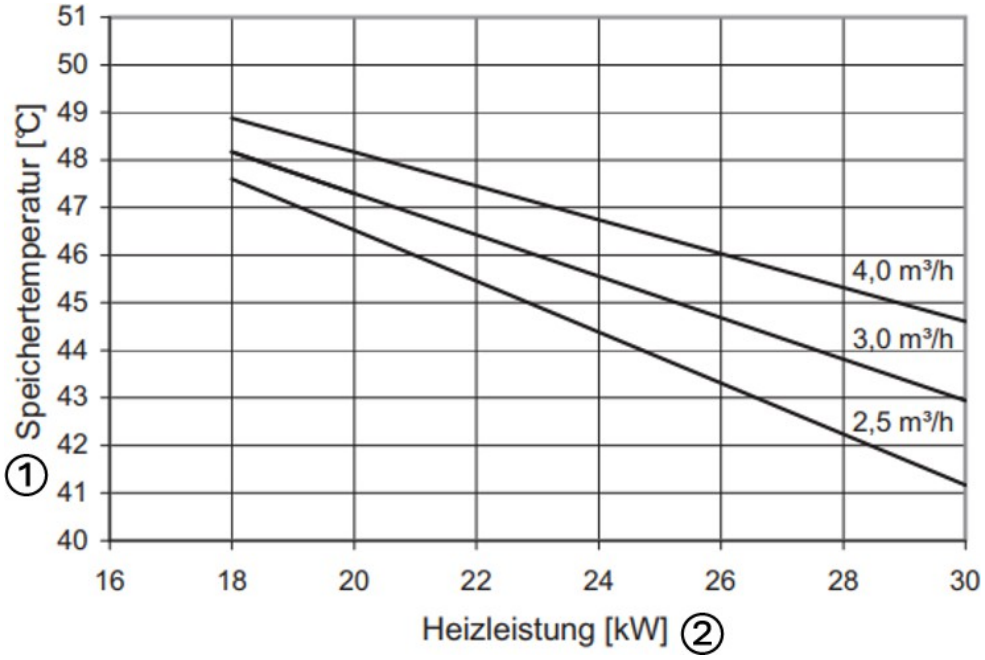
(10) Plug 11/4"

(11) Plug 1"

(12) Anode Ø33 insulated

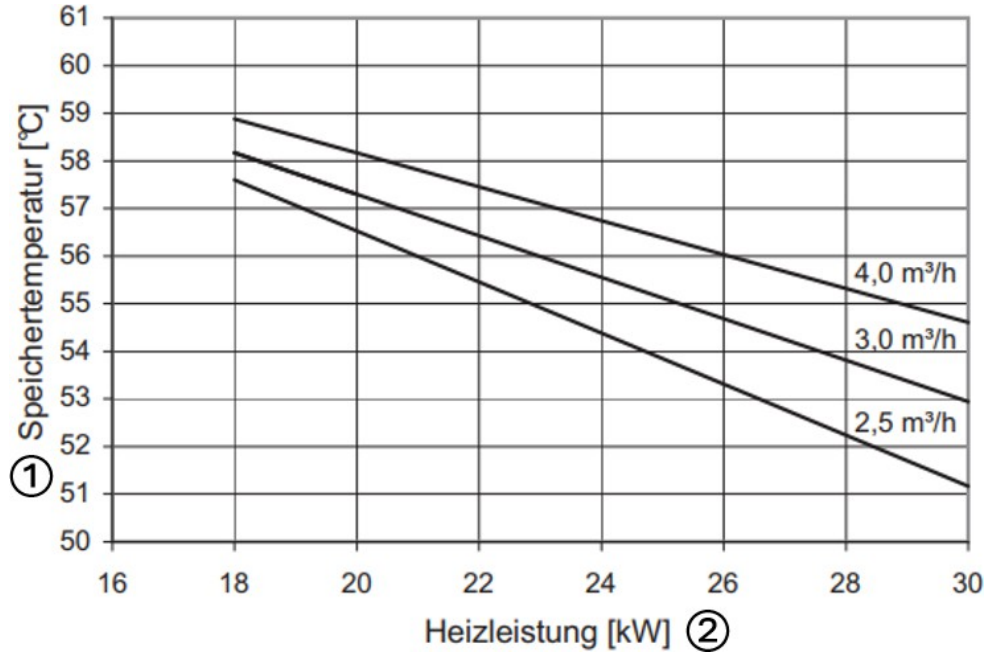
Storage tank temperature diagram

Achievable storage tank temperatures at 55 °C flow temperature



1. Storage tank temperature [°C]
2. Heat output [kW]

Achievable storage tank temperatures at 65 °C flow temperature

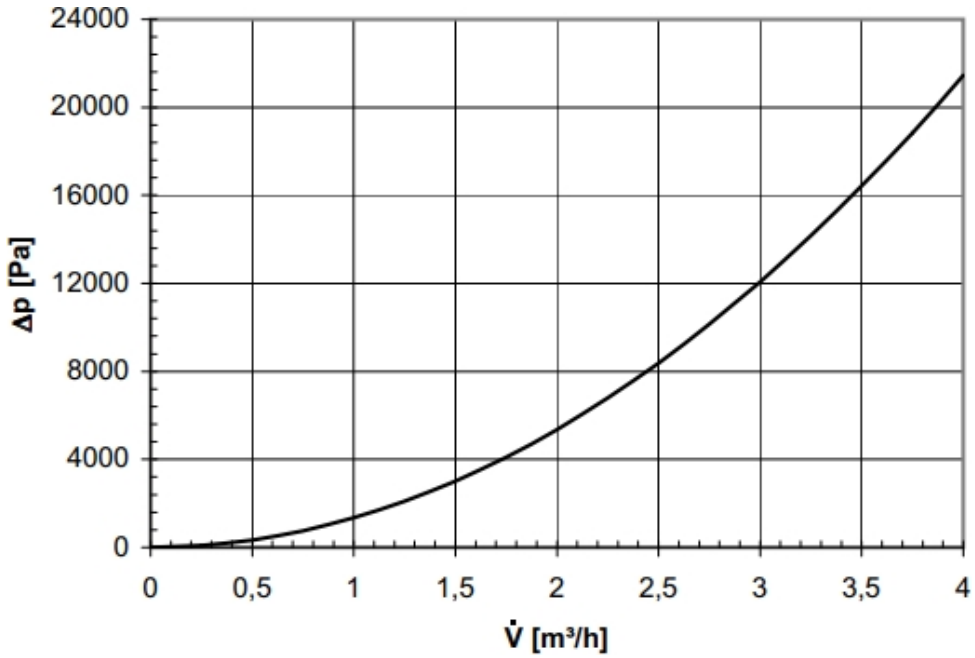


1. Storage tank temperature [°C]

2. Heat output [kW]

Pressure loss diagram for domestic hot water cylinders:

(twater = 20 °C, pwater = 2 bar)



https://dimplex.atlassian.net/wiki/spaces/PRO/pages/3286499332/connection+domestic hot water cylinder#connection-scheme-hot-water-cylinder-WWSP

4.3 Domestic hot water preparation Large system (e.g. apartment block)

Further information on domestic hot water preparation for large systems can be found in our online project planning manual:

Domestic hot water preparation with heat pumps

5 Cooling with System E

5.1 Method for determining the building cooling requirement

Cooling systems are used to prevent rooms from overheating due to the effects of unwanted heat loads. The cooling capacity requirement is primarily determined by the outdoor climate, the requirements for the indoor climate, the internal and external heat loads, as well as the orientation and construction of the building.

Internal loads are, for example, waste heat from appliances, lighting and people. External loads are the heat input from solar radiation, transmission heat gains from room enclosure surfaces and ventilation gains from warmer air entering the building.

The cooling load of air-conditioned rooms is calculated in accordance with country-specific standards. In Germany, this is VDI 2078, which contains the calculation of thermal loads and room temperatures (cooling load design and annual simulation).

NOTE
Due to the strong influence of solar radiation and internal heat loads, it is not possible to estimate the cooling requirement via the area to be cooled.

5.2 Active cooling with System E heat pumps

Reversible air-to-water heat pumps utilise the inexhaustible outside air for heating and cooling. Within the operating limits, it is therefore only necessary to calculate the maximum cooling load, but not the total cooling requirement for a cooling season. The heat pump's refrigeration circuit can generate flow temperatures between +12°C and +20°C at outside temperatures above +15°C (up to +45°C) and distribute them throughout the building via a water-based system.

Temperature outside air	Minimal	Maximum
Heating	-22 °C	+35 °C
Cooling	+15 °C	+45 °C

Flow temperature	Minimal	Maximum
Heating	+20 °C	+65 °C
Cooling	+12 °C	+20 °C

5.3 Silent cooling for underfloor heating systems in existing buildings

Silent cooling is based on the absorption of heat via cooled floor, wall or ceiling surfaces. The coolant temperatures are above the dew point in order to avoid condensation on the surface. The cooling capacities that can be transferred are highly dependent on external factors (e.g. humidity).

In silent cooling, water-flow pipes integrated into room enclosing surfaces (e.g. walls) are used.

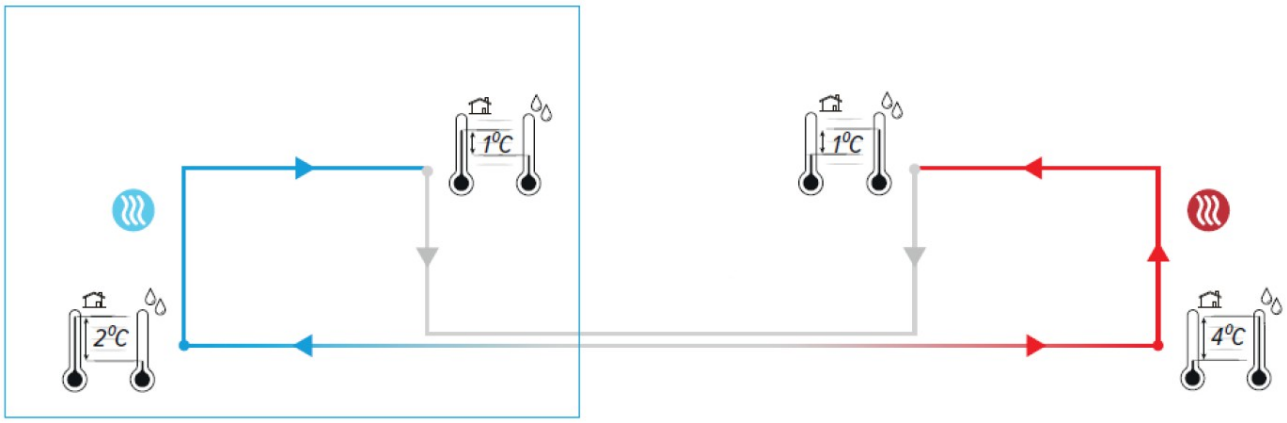
NOTE
Using existing panel heating systems (e.g. underfloor heating) for cooling requires little additional investment. Flow temperatures above the dew point prevent draughts and excessive temperature differences to the outside temperature (sick building syndrome)

NOTE
A mixed heating circuit is required for cooling with System E.

5.4 Silent cooling with heat pump radiator WPHK(V)

The WPHK(V) heat pump radiators can also be used for silent cooling.

Depending on the water inlet temperature, the heat pump radiator selects whether it switches to cooling or heating mode. The fan mode and fan speed can be selected manually. The device switches off in standby mode.

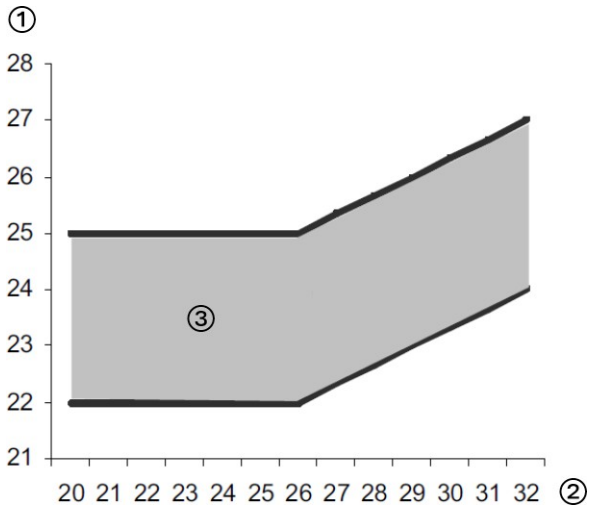


Only in combination with a suitable heat pump and a thermostatic head for heating and cooling

The appliance automatically switches to cooling mode as soon as the flow temperature is 2 °C below the room temperature. If the flow temperature is less than 1 °C below the room temperature, the appliance automatically returns to standby mode. The appliance starts at the last set fan speed (1, 2 or 3) when the flow temperature is reached (< 24 °C).

NOTE
If the heat pump radiator is also used for silent cooling, special radiator thermostats for heating / cooling (TKHK WPHK) must be used.

5.5 Comfortable room temperature



(1) room temperature

(2) outside temperature

(3) Comfortable temperature range

There is no fixed room temperature, e.g. 20 °C, at which a person feels most comfortable. Comfort depends on a large number of other factors, in particular the average temperature of the room-enclosing surface, including heating surfaces, as well as clothing and activity. Such temperature data must always be related to specific average conditions.

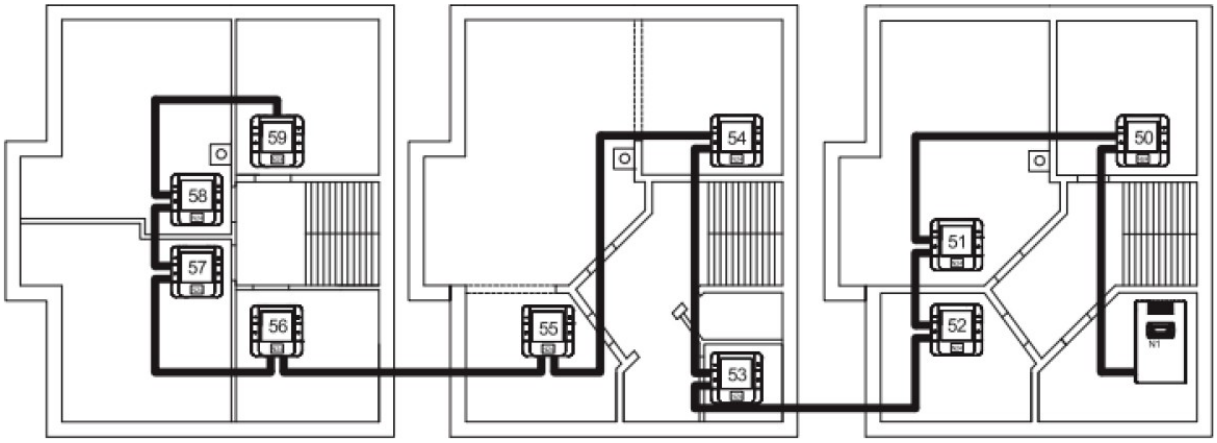
The comfortable room temperature is highly dependent on the outside temperature. The figure shows the range of comfortable room temperatures. As a rule, the indoor temperature should only be approx. 3 °C to 6 °C below the outside temperature when cooling, as otherwise there will be a
"cold shock" can occur when moving from the warm outside to the colder inside (sick building). The increase in the maximum permissible room temperature depending on the outside temperature leads to significantly lower peak outputs.

5.6 Room temperature controller for cooling requirements

When cooling via surface heating/cooling systems, control is based on the room temperature and humidity measured on the intelligent room controllers (Smart RTC). The minimum possible cooling water temperature is calculated from the measured room temperature and humidity of the reference room. The cooling control behaviour is influenced by the currently recorded room temperature and the set room set temperature.

NOTE
A room temperature controller with humidity sensor (RTM Econ) is required for cooling with System E

The Smart-RTC+ room temperature control system uses up to 10 reference rooms, each with an intelligent RTM Econ A/U room temperature controller, to achieve the optimum room temperature in the building while maximising the efficiency of the heat pump and thus minimising costs for the user. All RTM Econ A/U are connected to the heat pump manager of the heat pump via a bus line. The heat pump manager permanently queries all connected RTM Econ A/U for the current actual room temperature and room set temperature. The room with the highest deviation between the desired and actual room temperature becomes the reference room. Based on this deviation, the heat pump manager calculates whether a higher or lower system temperature is required to achieve the desired room temperature.



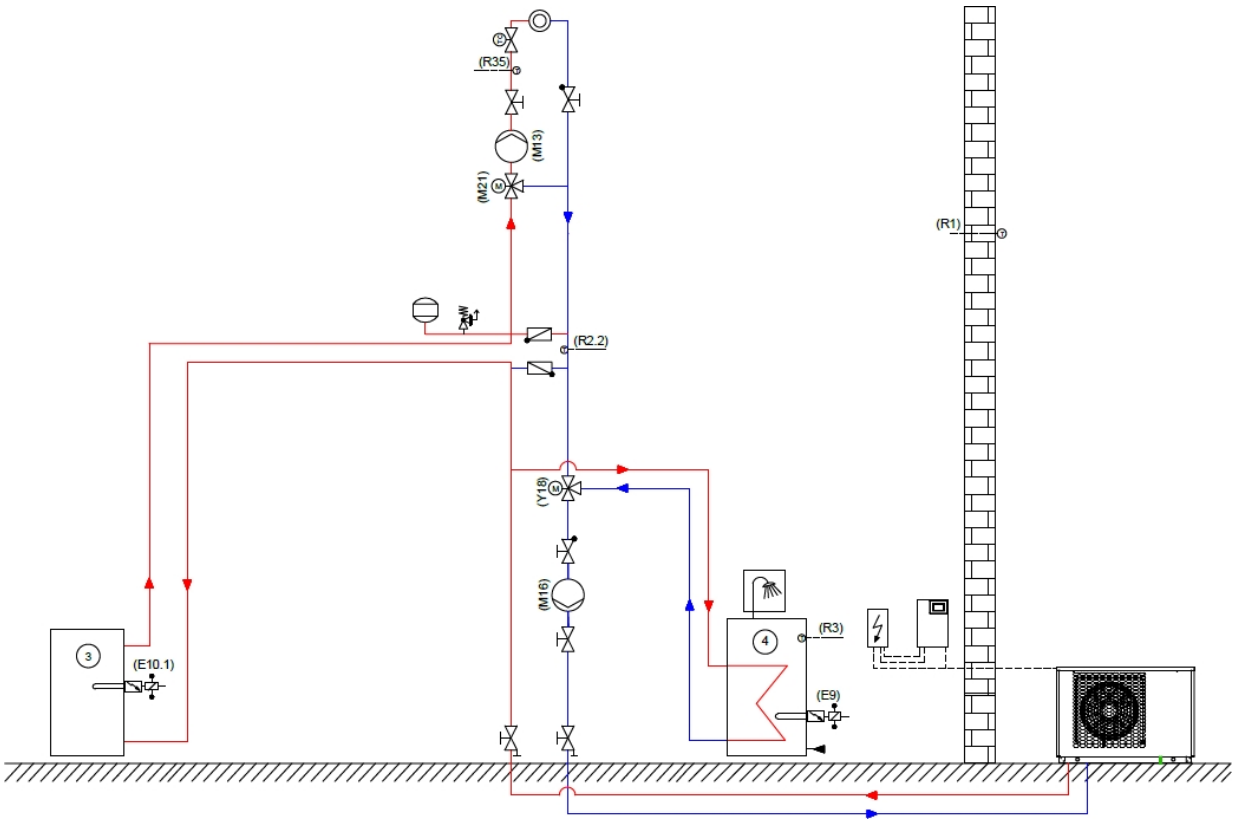
5.7 Hydraulic integration for dynamic cooling operation

The generated refrigeration capacity is distributed via the heat distribution system, which also has to be configured for colder water. Due to the low flow temperatures - especially with dynamic cooling - condensation may occur. All pipes and exposed distributions must be fitted with steam-resistant insulation. Sensitive points in the distribution system can be equipped with a dew point monitor, which is available as a special accessory. This stops the cooling operation in the event of moisture failure.

NOTE
For efficient cooling operation, significantly higher volume flows are required in the heat generation circuit of the heat pump than in heating operation. This must be taken into account when planning the components and pipe cross-sections.

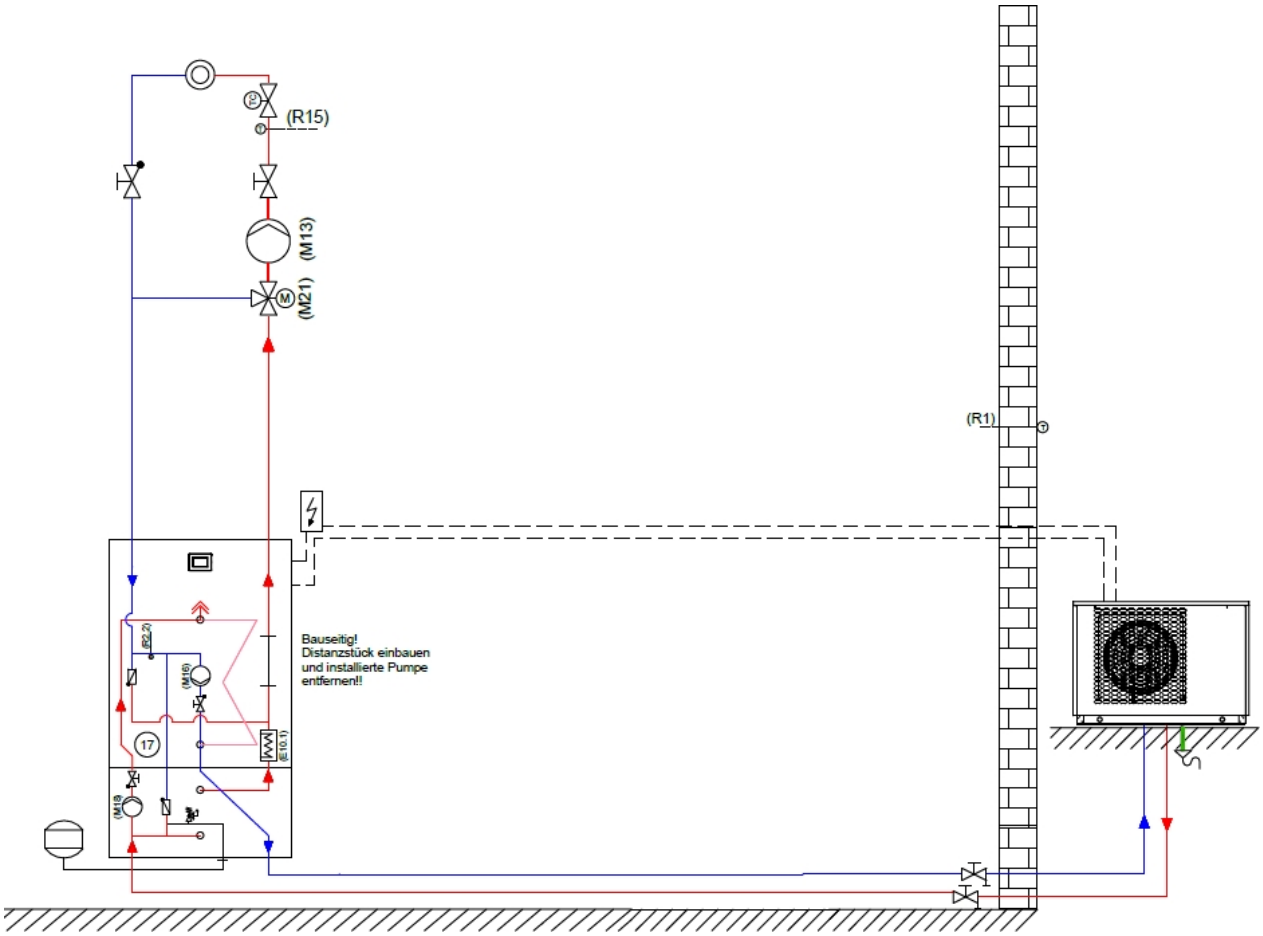
NOTE
The volume flow through the heat pump must be selected so that the return set temperature required in cooling operation does not fall below the minimum possible flow temperature of the heat pump.

5.7.1 One heating circuit mixed with DDV (e.g. LA 1118CP)



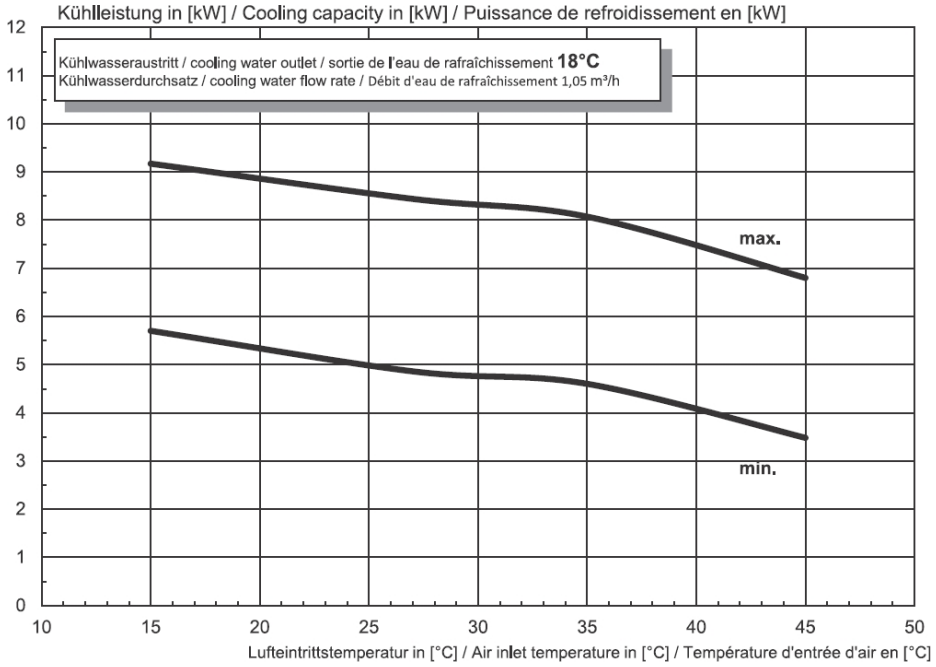
Function	Setting	description
Mode of operation	monoenergetic	Ensuring the heating water flow rate via a differential pressureless manifold [DDV]. The use of the DDV is recommended for connecting all heat pumps. The circulation pump (M16) in the heat generation circuit is only in operation when the compressor is running in order to avoid unnecessary runtimes. Domestic hot water preparation is carried out with the auxiliary circulating pump (M16) and tight-closing reversing valve (YM18). **Due to the cooling requirement, a mixed heating circuit with mixer (M21) is required**
Heating circuit 1.	Heating/cooling	
2nd heating circuit	-	
domestic hot water	Yes, with sensor and flange heater	
Cooling	Yes	

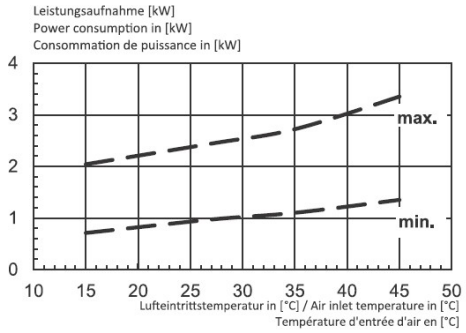
5.7.2 One heating circuit mixed with Hydro-Tower (e.g. LA 1118BWCP)

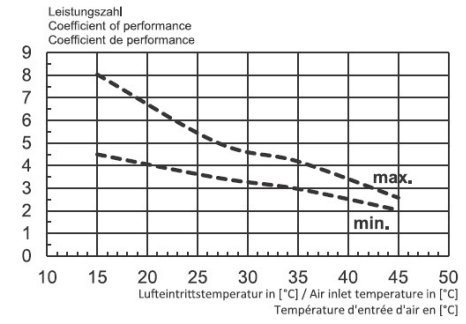


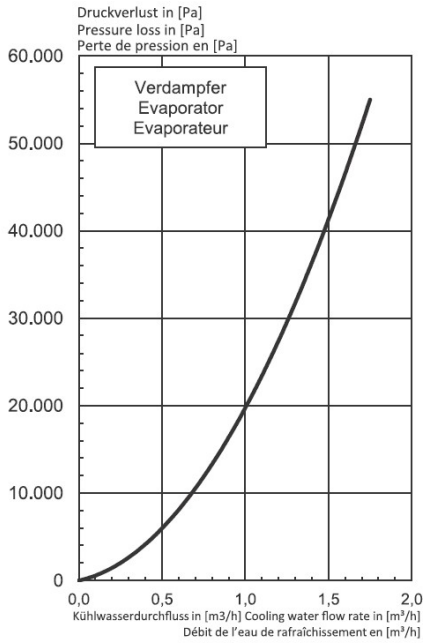
Function	Setting	description
Mode of operation	monoenergetic	The Hydro-Tower with integrated WPM Touch heat pump manager enables quick and easy connection of an externally installed air-to-water heat pump to a heating system with a (mixed) heating circuit.
Heating circuit 1.	Heating/cooling	
2nd heating circuit	-	A 100 litre buffer tank, a 300 litre domestic hot water cylinder, a circulation pump for the heat generation circuit (M16), an electronically controlled pump for the consumer circuit (M13), a domestic hot water circulating pump (M18) and a switchable auxiliary heater (2, 4, 6 kW) are installed. **Due to the cooling requirement, a mixed heating circuit with mixer (M21) is required.** **In the case of a mixed heating circuit, the installed pump must be removed from the Hydro-Tower and inserted outside. A spacer must be inserted into the Hydro-Tower.**
domestic hot water	Yes, with sensor and flange heater	
Cooling	Yes	

5.8 Cooling Curve LA 1118CP

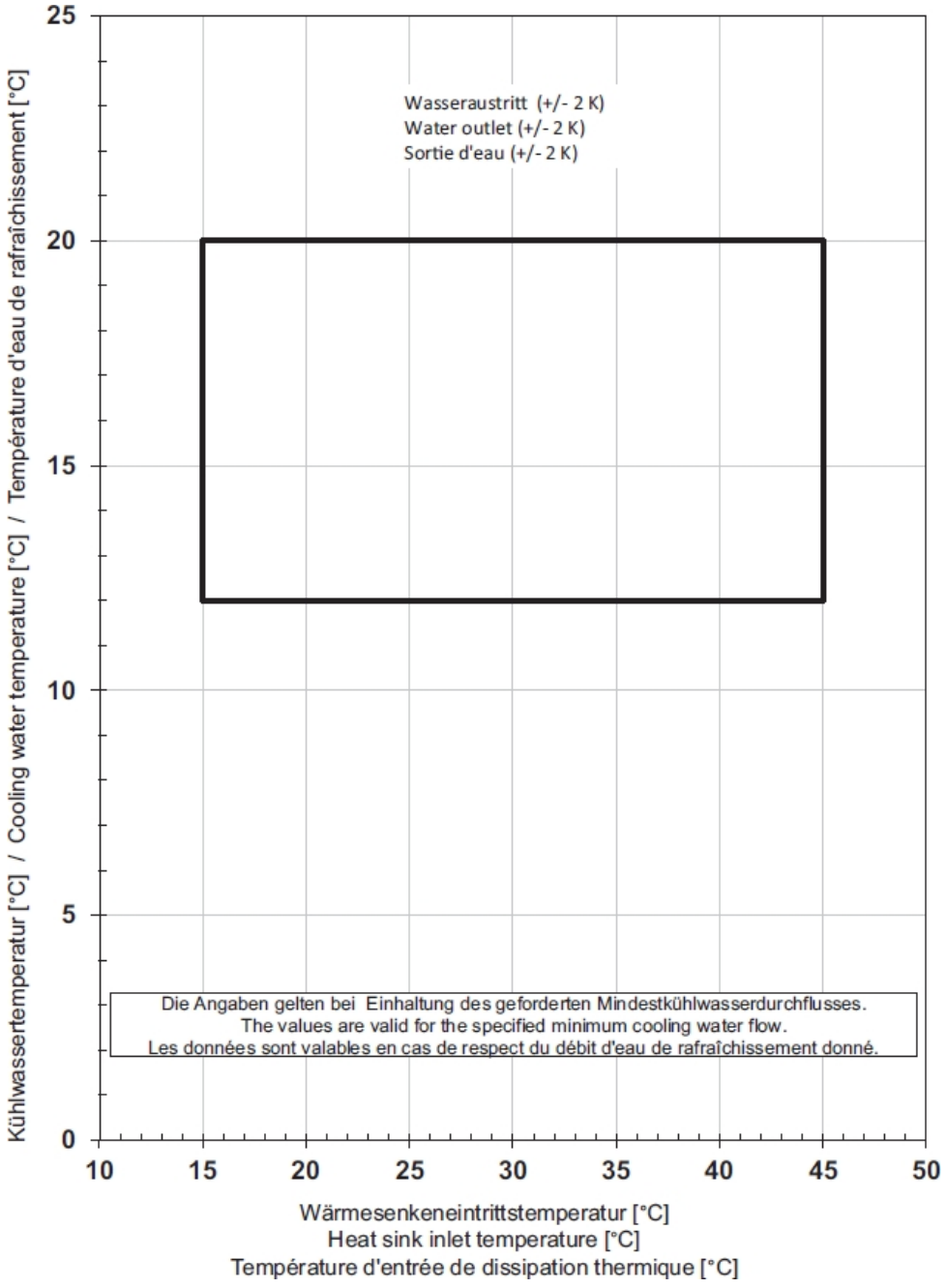








5.9 Operating limit diagram for cooling LA 1118CP



6 Determining the heat pump output

6.1 Additional power requirement

6.1.1 Utility company shut-off times

Controllable consumption devices within the meaning of § 14a:

Following the entry into force of Section 14a of the Energy Industry Act (EnWG), there are new regulations for switch off or reduction of the power consumption of heat pumps for controllable consumption devices.

A heat pump counts as a controllable consumption device if the entire heat pump heating system, including auxiliary or emergency heating devices (immersion heaters,
flange heater, pipe heater) with a mains connection power of more than 4.2 kW. A separate heating current meter is not required, but is still possible at the operator's request.

Most utility companies (EVU) offer a special agreement with a more favourable electricity price for heat pumps. According to the Federal Tariff Ordinance, the utility company must be able to switch off and block heat pumps during peak loads in the supply grid. During shut-off times, the heat pump system is not available to generate heat for the house.
Therefore, energy must be added during the heat pump release times, which means that the heat pump or the second heat generator must be dimensioned accordingly larger.

Dimensioning:

The calculated heat requirement values for heating and domestic hot water preparation must be added together. If switching on an additional 2nd heat generator during the shut-off time is not required, the sum of the heat requirement values must be multiplied by the dimensioning factor f and the heat pump sized accordingly. In the case of monoenergetic or bivalent systems, the second heat generator can also provide the additional output required.

Calculation basis:

Formula	Legend for translation
$f = \frac{24h}{\text{Freigabedauer}} = \frac{24h}{24h - \text{Sperrdauer}}$	Freigabedauer = Release time Sperrdauer = Shut-off period

Shut-off period (total)	Factor
2 h	1,1
4 h	1,2

Shut-off period (total)	Factor
6 h	1,3

NOTE
As soon as a signal for blocking the heat pump is set, the signal for
be active for at least 10 minutes. After the signal drops, it must not be reactivated for at least 10 minutes.

In general, in solidly built houses, especially with underfloor heating, the existing heat storage capacity is sufficient to bridge the maximum shut-off time of two hours with only a slight loss of comfort, so that switching on the second heat generator (e.g. boiler) during the shut-off time can be dispensed with. However, increasing the output of the heat pump or the second heat generator is necessary due to the required reheating of the storage masses.

6.1.2 domestic hot water preparation

See: Domestic hot water preparation small system - Simplified procedure

On average, an additional heat output of the heat pump of 0.2 kW per person for domestic hot water must be taken into account.

Formula	Legend	
$Q_{H,WW} = 0{,}2 \times \frac{\text{kW}}{\text{Person}} \times n_{Personen}$	$Q_{H,WW}$	= Heat demand DHW heating (in kW)
	$n_{Personen}$	= Number of people for DHW preparation

6.1.3 Swimming pool water heating

Outdoor pool

The heat demand for heating swimming pool water depends heavily on the usage habits. In terms of size, it can correspond to the heat demand of a residential building and must be calculated separately in such cases. However, if there is only occasional heat up in summer (non-heating period), the heat demand may not need to be taken into account. The approximate determination of the heat demand depends on the wind position of the pool, the pool temperature, the climatic conditions, the period of use and whether the pool surface is covered.

Reference values for the heat demand of outdoor pools for use from May to September

	Water temperature		
	20 °C	**24 °C**	**28 °C**
with cover*	100 W/m²	150 W/m²	200 W/m²
without cover Position protected	200 W/m²	400 W/m²	600 W/m²
without cover Position partially protected	300 W/m²	500 W/m²	700 W/m²

	Water temperature		
unprotected without cover (strong wind)	450 W/m²	800 W/m²	1000 W/m²

*Reduced values for pools with covers only apply to private swimming pools used for up to 2 hours per day

NOTE
For the initial heating of the pool to a temperature of over 20 °C, a quantity of thermal energy of approx. 12 kWh/m³ pool content is required. Depending on the size of the pool and the heat output installed, heating times of several days are often required.

Indoor swimming pool

Space heating

Room heating is generally provided by radiator or underfloor heating and/or a heating register in the dehumidification/ventilation system. In both cases, a heat requirement calculation - depending on the technical solution - is necessary.

Swimming pool water heating

The heat demand depends on the pool water temperature, the temperature difference between the pool water and room temperature and the use of the swimming pool.

Reference values for the heat demand of indoor swimming pools

room temperature	Water temperature		
	20 °C	24 °C	28 °C
23 °C	90 W/m²	165 W/m²	265 W/m²
25 °C	65 W/m²	140 W/m²	240 W/m²
28 °C	20 W/m²	100 W/m²	195 W/m²

NOTE
If a swimming pool is heated all year round, a separate swimming pool heat pump is recommended for high heat demand.

6.2 Design example for an LA 1118CP / bivalence point determination

Building data:	
Building type:	Refurbishment of 2-family house (built 1995)
Location:	Munich (standard outside temperature: -11 °C)
Heated living space:	220 m²

Building data:	
Building heating load Q_N :	11.30 kW
Existing heating system: Shut-off	Underfloor heating (flow: 35 °C) + radiator (flow: 45 °C)
times:	2 hours
domestic hot water preparation:	5 persons (standard sanitary facilities)

Calculation - Formula	Legend	
$Q_{WP} = (Q_N + Q_{H,WW}) \times f_{Sperrzeit}$	Q_{WP}	= Required heat output of the heat pump
with:		
	Q_N	= Building heating load
$Q_{H,WW} = 0{,}2 \times \frac{kW}{Person} \times n_{Personen}$	$Q_{H,WW}$	= Heat demand DHW heating
$Q_{H,WW} = 0{,}2 \times \frac{kW}{Person} \times 5\ Personen$	$f_{Sperrzeit}$	= Locking time factor
$Q_{H,WW} = \underline{1.0\ kW}$	$n_{Personen}$	= Number of people for DHW preparation
with:		

Legend for translation

Sperrdauer = Shut-off period

$$f = \frac{24h}{24h - Sperrdauer}$$

Stunden = hours

$$f = \frac{24h}{24h - 2\ Stunden}$$

f = 1,1

Calculation - Formula	Legend

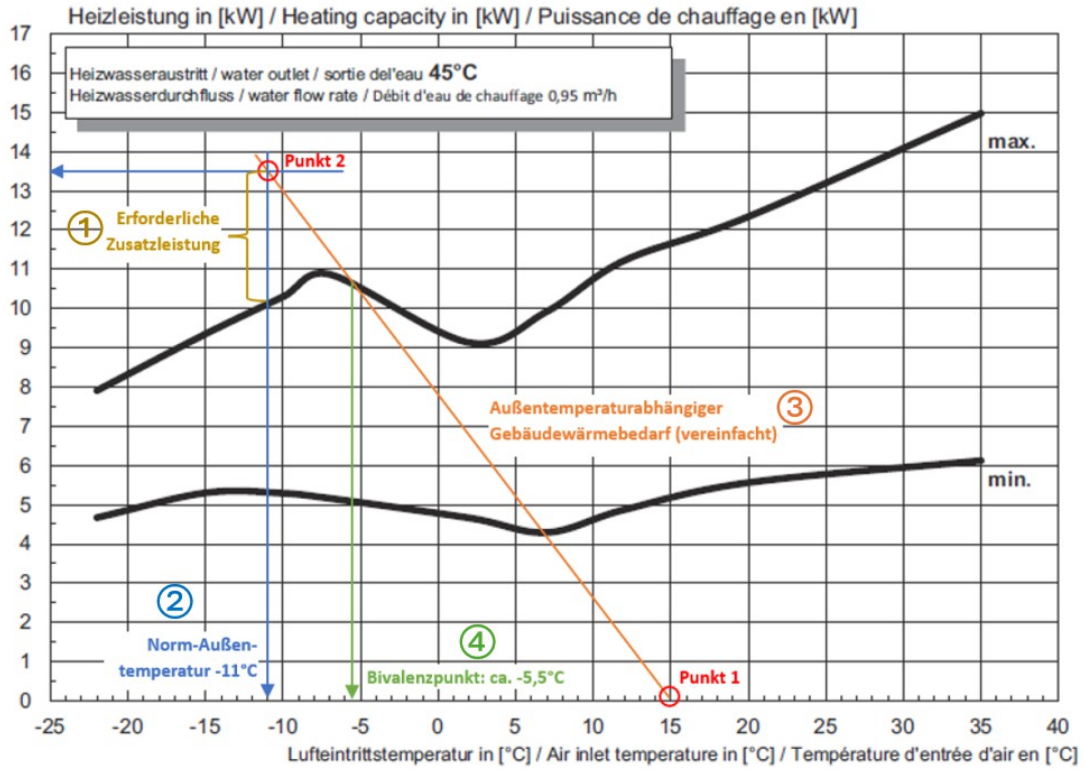
$$Q_{WP} = (Q_N + Q_{H,WW}) \times f_{Sperrzeit}$$

$$Q_{WP} = (11{,}3\,kW + 1{,}0\,kW) \times 1{,}1$$

Q_{WP} = 13.53 *kW*

The heat pump is dimensioned using the outdoor temperature-dependent building heat requirement (simplified as a straight line) in the heat output diagram and the heat output curve of the heat pump.

Here, the outside temperature-dependent building heat requirement is entered from the heating limit temperature (point 1) on the x-axis to the calculated heat output (point 2) at the minimum outside temperature.



(1) Required backup heater capacity

(2) Minimum outside temperature (here: -11 °C)

(3) Outdoor temperature-dependent building heat demand (simplified)

(4) Bivalence point: approx. -5.5 °C

6.3 Design of the electric auxiliary heating

To ensure year-round heating, the difference between the building's heat demand depending on the outside temperature and the heat output of the heat pump at the corresponding air intake temperature must be compensated for by an electric auxiliary heating system:

Design of the electric auxiliary heating:

13.5 kW	**-**	**10.0 kW**	**=**	**3.5 kW**
Heat demand of the house at -11 °C		Heat output of the heat pump at -11 °C		Power of the heating elements

For the example selected, the heat pump must be dimensioned with an electric heating element of at least 3.5 kW.

6.3.1 Heat pump design with the Dimplex configurator:

https://konfigurator.dimplex.de/

7 Noise emissions

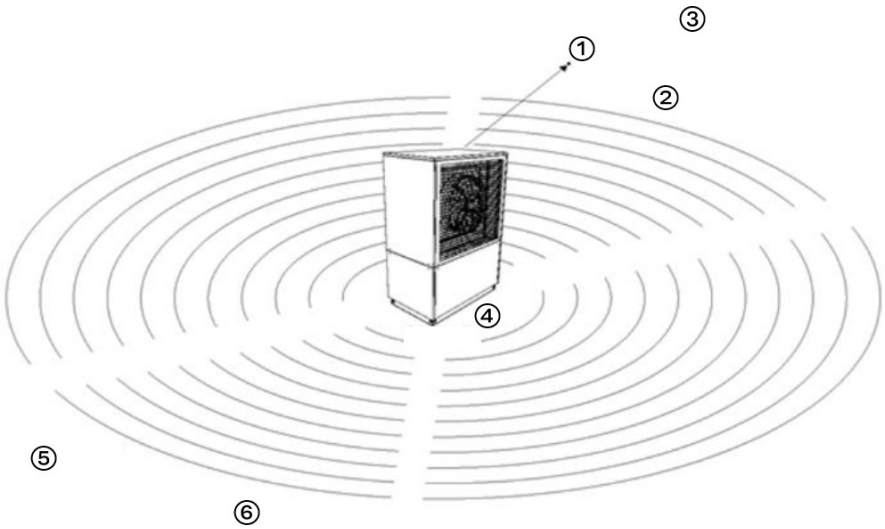
7.1 Sound pressure level and sound pressure power

The terms sound pressure level and sound power level are often confused and incorrectly compared with each other.

In acoustics, **sound pressure** is the measurable level caused by a sound source at a certain distance. The closer you are to the sound source, the greater the sound pressure level measured and vice versa. The sound pressure level is therefore a measurable, distance- and direction-dependent quantity that is decisive, for example, for compliance with the immission requirements according to TA-Lärm.

The total change in air pressure emitted by a sound source in all directions is referred to as **sound power** or sound power level. As the distance from the sound source increases, the sound power is distributed over an ever-increasing area. If the total sound power emitted is considered and related to the enveloping surface at a certain distance, the value always remains the same. As the sound power emitted in all directions cannot be measured exactly, the sound power must be calculated from the sound pressure measured at a certain distance. The sound power level is therefore a sound source-specific, distance- and direction-independent variable that can only b e determined by calculation. The emitted sound power level can be used to compare sound sources with each other.

7.2 Emission and immission



(1) Place of immission

(2) Sound pressure level L

(3) Immission

(4) Sound source

(5) Emission

(6) Sound power level Lw

The total sound emitted by a sound source (sound event) is referred to as **sound emission**. Emissions from sound sources are usually **specified** as **sound power levels**. The effect of sound on a specific location is called **sound immission**. Sound immissions can be measured as sound pressure levels. The figure below graphically illustrates the relationship between emissions and immissions.

Noise immissions are measured in dB(A), which are sound level values related to the sensitivity of human hearing. Noise is defined as sound that can disturb, endanger, significantly disadvantage or annoy neighbours or third parties. Guideline values for noise at immission points outside buildings are set out in DIN 18005 "Noise protection in urban development" or in the "Technical guidelines for noise protection in urban development".

for contactor noise" (TA-Lärm). The requirements according to TA-Lärm are listed in the table below.

7.2.1 Immission guide values for immission locations outside buildings

The immission guide values for the rating level for immission locations outside buildings are as follows

No.	Area category	Time of day	Reference value
a)	in industrial areas		70 dB(A)
b)	in industrial estates	tags:	65 dB(A)
		at night:	50 dB(A)
c)	in urban areas	tags:	63 dB(A)
		at night:	45 dB(A)
d)	in core areas, village areas and mixed areas	tags:	60 dB(A)
		at night:	45 dB(A)
e)	in general residential areas and small housing estates	tags:	55 dB(A)
		at night:	40 dB(A)
f)	in purely residential areas	tags:	50 dB(A)
		at night:	35 dB(A)
g)	in spa areas, for hospitals and nursing homes	tags:	45 dB(A)
		at night:	35 dB(A)

Individual short-term noise peaks may not exceed the immission guide values by more than 30 dB(A) during the day and by more than 20 dB(A) at night.

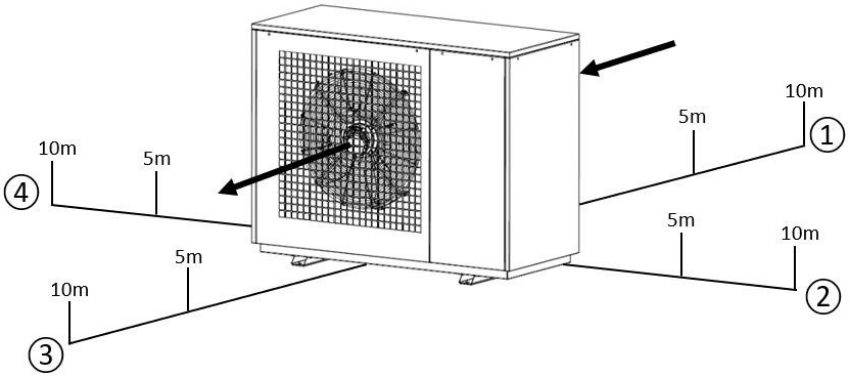
7.3 Sound propagation from heat pumps installed outside

Structure-borne sound decoupling is only necessary if the foundation of the heat pump is in direct contact with the building. Flexible hoses make it easier to connect the heat pump to the heating system and at the same time prevent possible vibration transmission.

System E also has a vibration-decoupled compressor base plate. When installing heat pumps outdoors, special consideration must be given to sound propagation. It should be avoided that the sound emissions are reflected by walls.

Blowing directly at house walls etc. should also be avoided, as this can increase the sound pressure level. Structural obstacles can reduce sound propagation. If possible, the outlet side should be orientated towards the street.

7.4 Sound pressure level System E



Type	LA 1118CP
Direction	(3)
1 m	41 dB(A)
5 m	27 dB(A)
10 m	21 dB(A)

8 Installation of heat pumps with R290

8.1 legal regulations and directives

The relevant regulations must be observed when connecting the heating system.

The System E heat pump is filled with flammable refrigerant R290 (propane) and is intended for outdoor installation only. Appropriate precautions must be taken during installation, assembly, operation and disposal.

Work on the heat pump may only be carried out by persons with the following knowledge. Use by untrained persons is not permitted.

Activity	Inducted person	competent specialist	Authorised and expert after-sales service
Transport, storage		X	X
Installation		X	X
Assembly		X	X
commissioning			X
Operation	X	X	X
Cleaning work		X	X
Care	X	X	X
Fault/troubleshooting/repair		X	X
Decommissioning / disposal			X

8.2 General requirements for heat pumps installed outdoors

General requirements for heat pumps installed outdoors

Danger
If the refrigerant propane leaks in the event of a fault, an ignitable atmosphere may form.

- Avoid ignition sources and fire loads in the safety area
- Keep the casing closed
- Installation in depressions, shafts or areas that do not allow free air flow or air exchange is not permitted.
- The minimum volume of the room in which the hydraulic safety group, quick air vent and buffer are installed must not be less than 12 m^3.
- Set up the heat pump so that no refrigerant can enter the building in the event of a leak
- Empty conduits, openings etc. that lead into buildings, shafts etc. must be sealed airtight

The heat pump must always be installed on a suitable load-bearing foundation or on a permanently level, smooth and horizontal surface. The heat pump can be installed with an elevation of 200 mm or flush with the floor.

Furthermore, the heat pump should be installed close to walls. In the case of free-standing installation, it should be set up so that the air discharge direction of the fan is at right angles to the main wind direction in order to enable fault-free defrosting of the evaporator under high wind loads.

NOTE
Further general requirements for heat pumps installed outdoors can be found in the respective installation instructions for the heat pump.

8.3 Safety area with 200 mm increased installation height

If the appliance is raised 200 mm above the installation surface by means of a strip foundation or other suitable means**, a safety zone (2) of 1 metre must be maintained around the appliance**. No ignition sources such as sockets, light switches, lamps, electrical switches or other permanent ignition sources as well as windows, doors, ventilation openings, light wells, openings to the sewage system and the like may be located in this area. Fire loads must also be avoided in these areas. Open drains to a lower area are permitted if there are no drains to the sewer system within a radius of one metre. Building openings within the safety area must be made airtight. The safety area must not extend onto neighbouring properties or public traffic areas. The appliance must be positioned in such a way that in the event of a leak, no refrigerant enters neighbouring buildings. If the appliance is to be installed on a full-surface foundation, it is recommended that this is recessed in the area of the condensate outlet so that connection work on the condensate drain can be carried out without any problems. No structural changes may be made in the safety area that would violate the safety area.

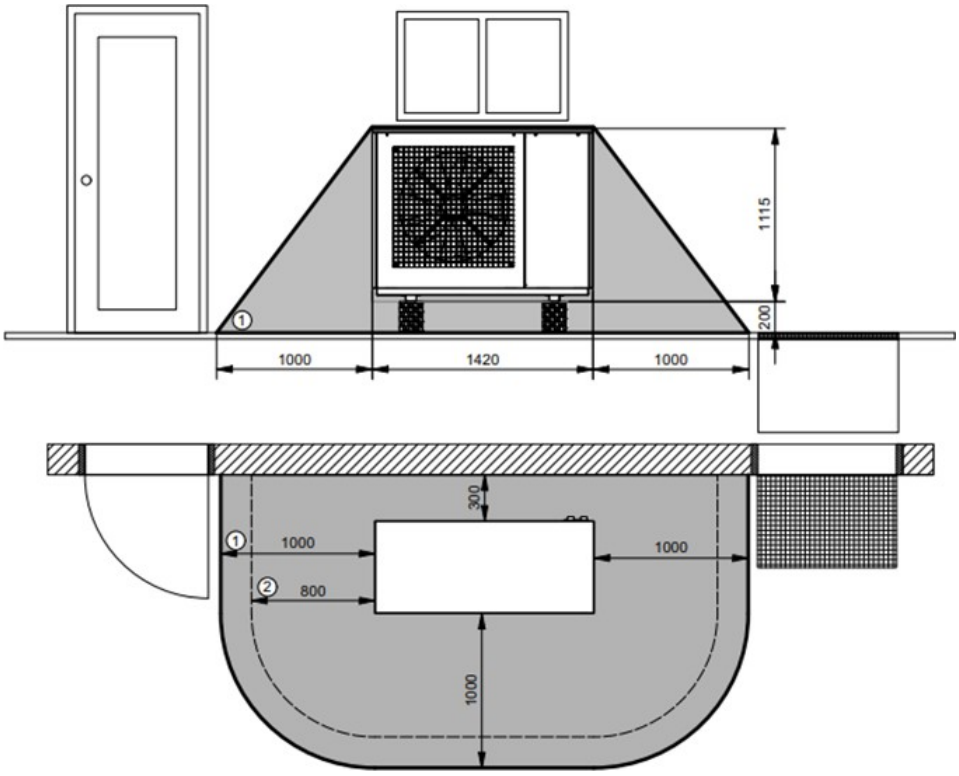
(1) Minimum lateral distance: 1.0 m

(2) Lateral service distance: 0.8 m

Additional specifications:

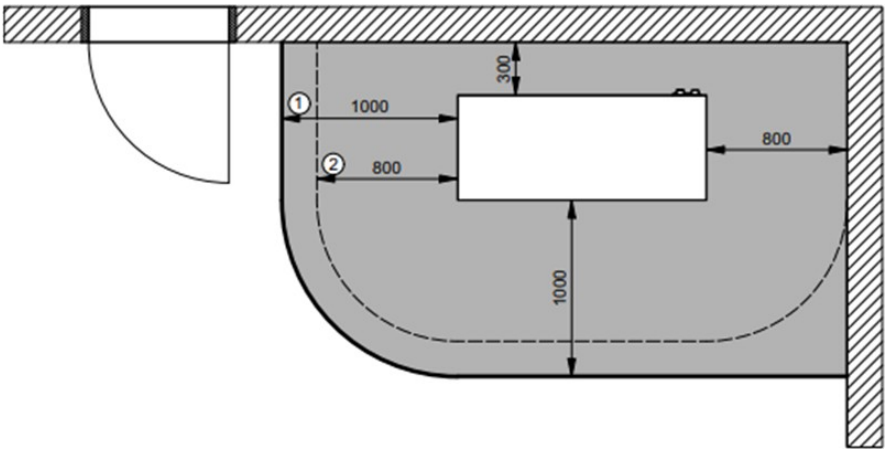
- Minimum distance on intake side: 0.3 m
- Installation in depressions not permitted

8.3.1 Safety area (elevated installation) of the heat pump

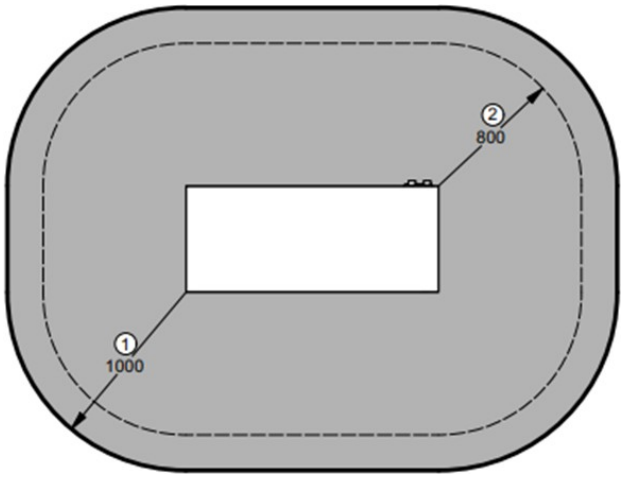


8.3.2 Safety area (raised installation) for installation in a corner

- Example of installation close to walls
- Maximum 2 walls permitted



8.3.3 Safety area (raised installation) for free field installation



8.4 Safety area for floor-level installation

If the appliance is installed flush with the floor, a **safety zone (2) of 2 metres** must **be maintained around the appliance**. No ignition sources such as sockets, light switches, lamps, electrical switches or other permanent ignition sources as well as windows, doors, ventilation openings, light wells, openings to the sewage system and the like may be located in this area. Fire loads must also be avoided in these areas. Open drains to a lower surface are permitted if there are no drains to the sewer system within a radius of 2 metres.
Building openings within the safety area must be made airtight. The safety area must not extend onto neighbouring properties or public traffic areas. The appliance must be positioned in such a way that, in the event of a leak, no refrigerant enters neighbouring buildings. No structural changes may be made in the safety area that would violate the safety area.

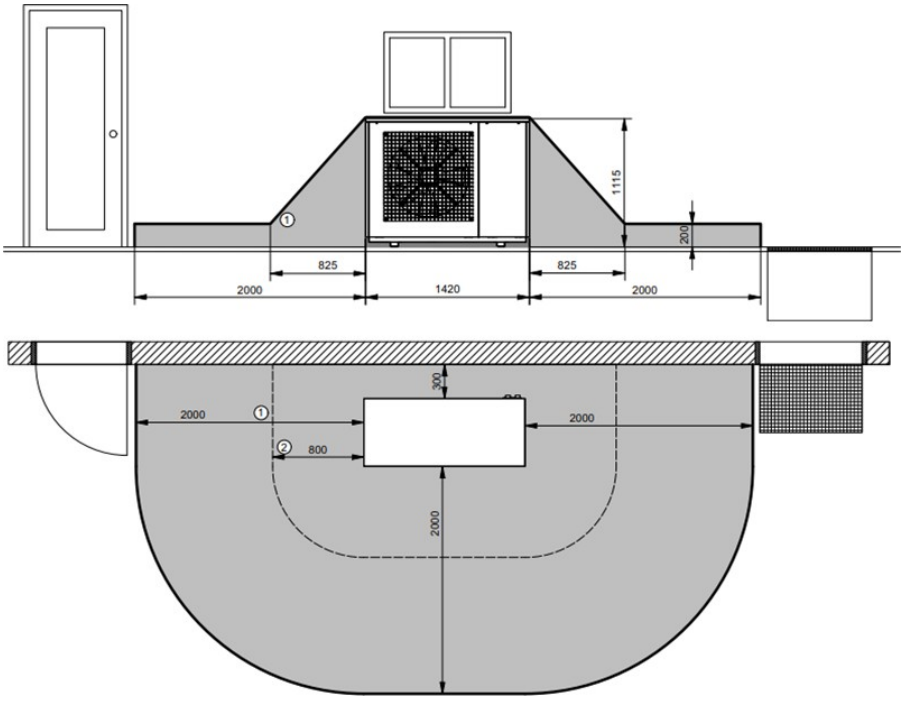
(1) Minimum lateral distance: 2.0 m

(2) Lateral service distance: 0.8 m

Additional specifications:

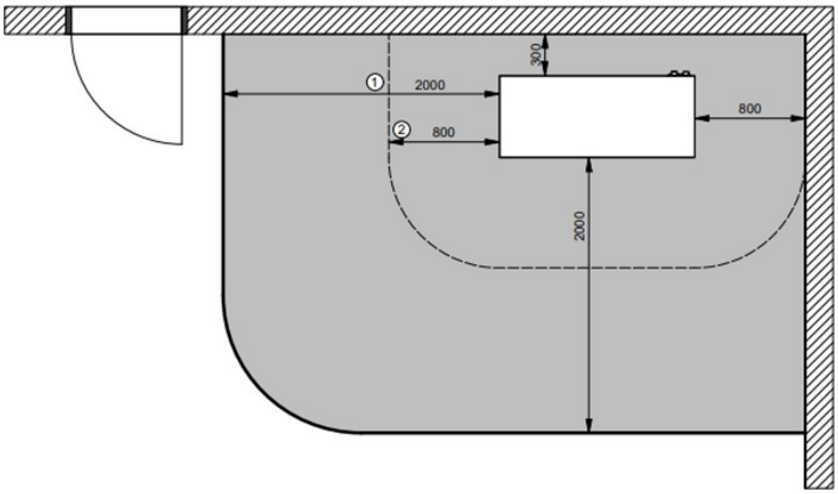
- Minimum distance on intake side: 0.3 m
- Installation in depressions not permitted

8.4.1 Safety area (floor-level installation) of the heat pump

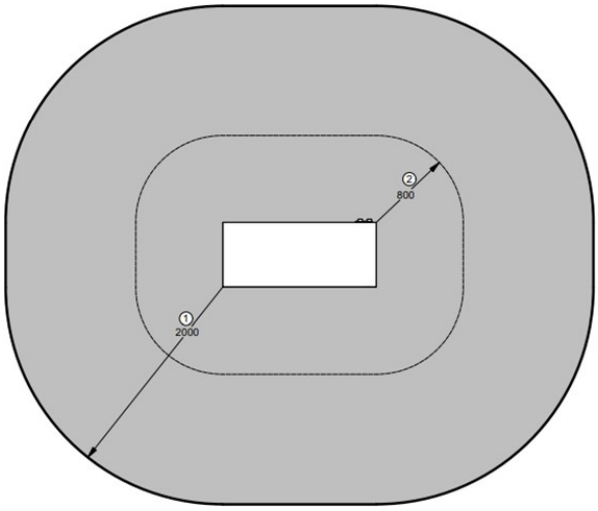


8.4.2 Safety area (floor-level installation) for installation in a corner

- Example of installation close to walls
- Maximum 2 walls permitted

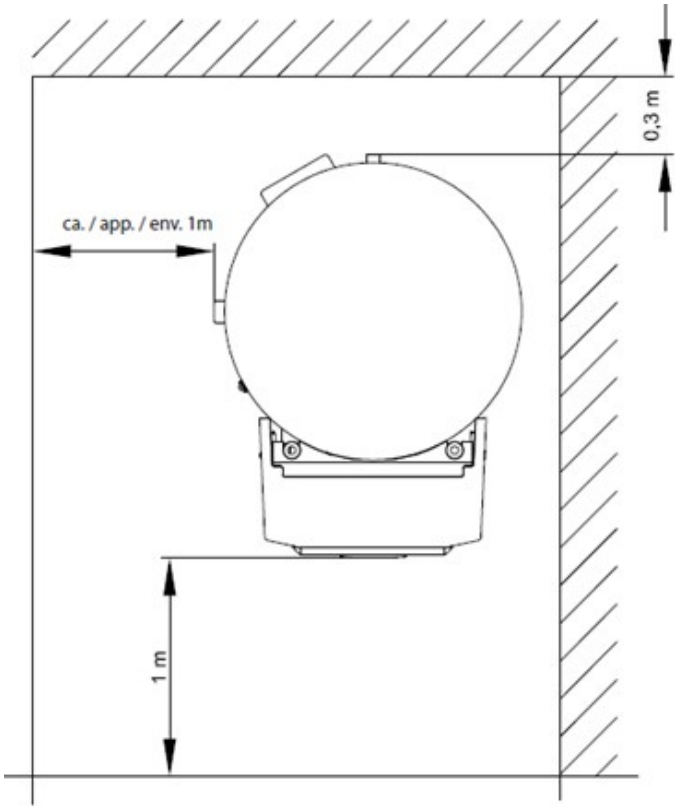


8.4.3 Safety area (floor-level installation) for free-standing installation



8.5 Installation Hydrotower HWK 332 HC (System E Comfort)

The appliance must be installed in a frost-free and dry room on a level, smooth and horizontal surface. The Hydro-Tower must be set up in such a way that maintenance work can be carried out from the operator side without any problems. This is guaranteed if a distance of 1 m is maintained at the front. The required height of the installation room must take into account the space required (approx. 30 cm see dimensional drawing) for changing the protective anode. The installation must be carried out in a frost-protected room and via short pipework.



Assembly and installation must be carried out by an authorised specialist company.

If the Hydro Tower is installed on an upper floor, the load-bearing capacity of the ceiling must be checked and vibration decoupling must be planned very carefully for acoustic reasons. Installation on a wooden ceiling is not recommended.

The following connections must be made to the Hydro-Tower:

- Flow/return heat pump
- Flow/return heating system
- Safety valve drain
- power supply
- Hot water pipe
- Circulation pipe
- Cold water pipe

Heating-side connection

The connections on the heating side of the Hydro-Tower are fitted with a 1 1/4" flat-sealing external thread. When connecting, a spanner must be used to hold the transitions.

Before the connections on the heating water side are made, the heating system must be flushed to remove any impurities, residues of sealing material or similar. An accumulation of residues in the condenser can lead to total failure of the heat pump.

It is possible to connect a second or third heating circuit (VTB manifold bar accessory). For this extension, the heat circulating pump (M13) in the HWK must be removed and replaced with a suitable fitting (centre distance 180 mm).

The following pre-wired heating circuit modules (heating or heating/cooling (C)) can be connected to the HWK 332HC:

- Unmixed heating circuits: MHU(C) 25 with pump
- Mixed heating circuits: MHM(C) 25 with pump
- MHMC 25Flex without pump with fitting 180 mm

The heating circuits are installed on site outside the Hydro-Tower.

https://www.youtube.com/watch?v=ohnvBfrWYaE&list=PLvbfKjOwCCG01mUbeWgfYsxhs3i_SAo3y&index=2

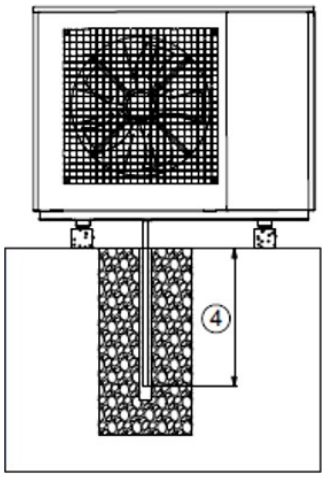
8.6 System E condensate drainage

Frost-free condensate drainage must be ensured. To ensure proper drainage, the heat pump must be levelled.

NOTE
The frost limit (4) may vary depending on the climatic region. The regulations of the respective countries must be taken into account.

8.6.1 Variant 1.

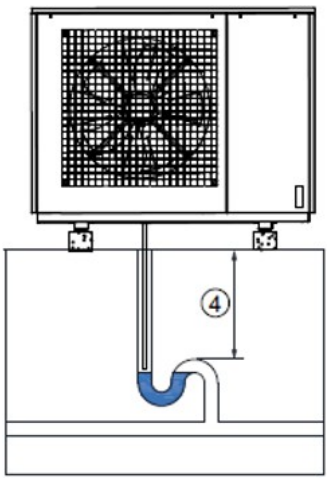
The condensate produced during operation must be drained vertically into a foundation with gravel fill. A daily infiltration capacity of at least 1.5 litres per kW heat output of the heat pump must be provided, whereby the diameter of the condensate water pipe should be at least 50 mm.



NOTE
The condensate pipe must be installed vertically to prevent icing in winter. If the condensate pipe is at risk of freezing, trace heating (special accessories) must be provided.

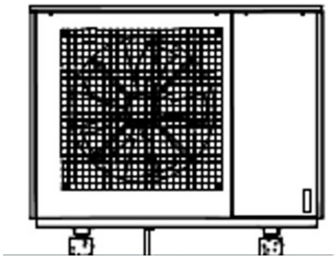
8.6.2 Variant 2

The condensate is discharged into a dirt, rain or drainage channel via a condensate pipe laid in the ground. A siphon is located in the condensate pipe below the frost line (4). The water level in the siphon prevents refrigerant from entering the sewer in the event of a leak. Lifting systems are not permitted! The siphon must be designed with a minimum sealing liquid height of 300 mm.



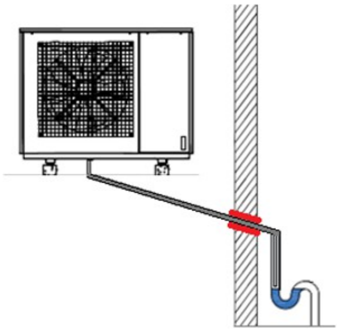
8.6.3 Variant 3

Free drainage is only recommended in climatic zones with short periods of frost. In colder climates, the condensate pipe in areas at risk of frost must be equipped with an appropriately dimensioned and controlled **electrical trace heating system** on the insulated condensate pipe.



8.6.4 Variant 4

The condensate pipe may be routed into the building. The wall duct must be made airtight here. The connection of the pipe in the building to the waste water pipe must be fitted with a siphon. The siphon must be protected from drying out. If this is not safely possible, a siphon must be provided that closes when the pipe runs dry. Lifting systems are not permitted.



8.6.5 Accessories (condensate drain heater):

Condensate drain heater KAH 1115 / KAH 2040

8.7 Connection of the heat pump on the heating side

Empty pipes must be sealed airtight after installation on the heat pump.

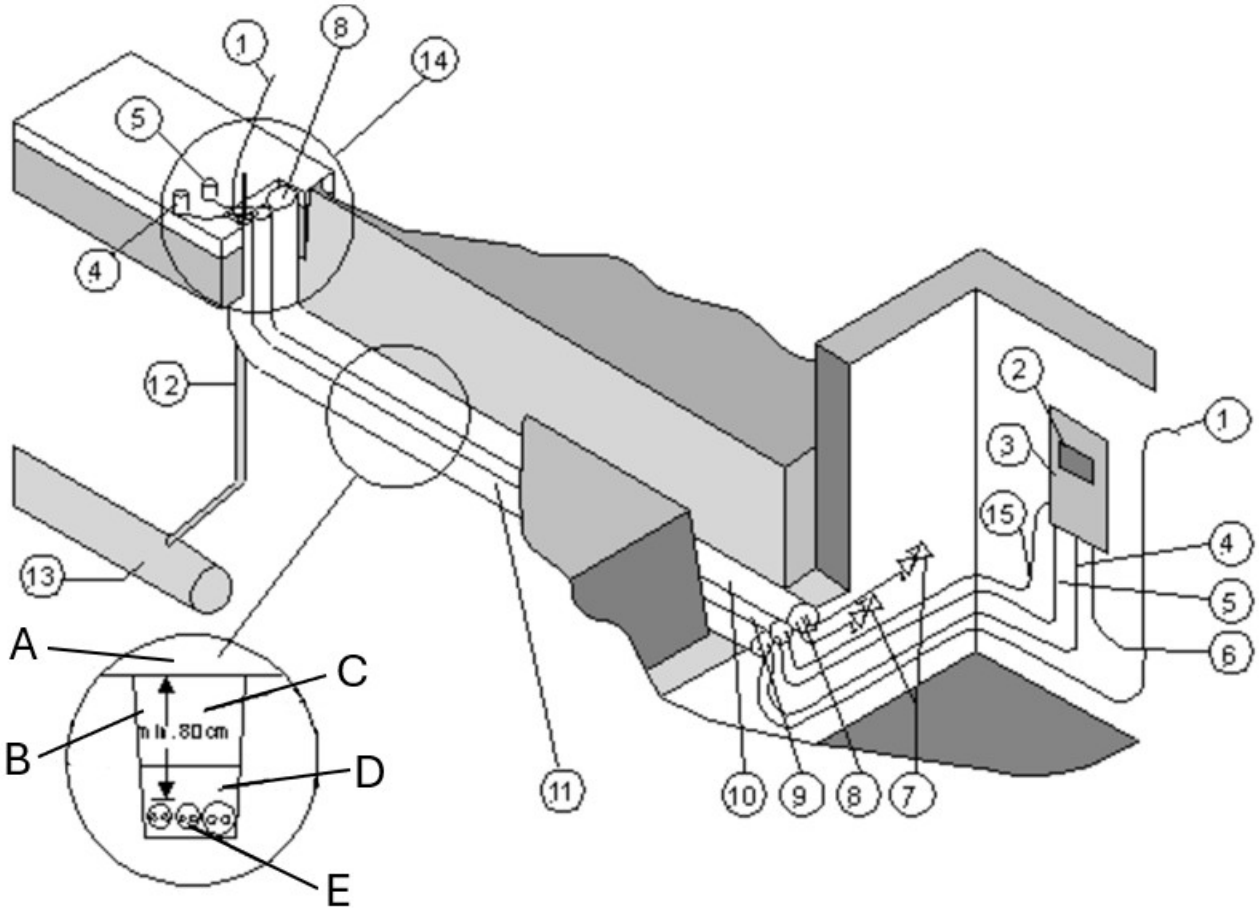
> **CAUTION**
> If the heating system is not flushed, impurities, residues of sealing material or similar can damage the condenser and lead to a total failure.

The connection to the heating system in the house must be made with two thermally insulated pipes in accordance with laws (e.g. GEG). We recommend prefabricated heating water connection cables, consisting of two flexible pipes for flow and return in a jacket pipe with integrated thermal insulation made of PE foam, including a prefabricated 90° bend for quick and easy connection to the heat pump. The jacket pipe is laid frost-free in the ground and routed through a wall opening into the boiler room or technical room at ground level. Cost-intensive damage to the pipework can be avoided in advance if there are no deep-rooted plants in the area of the connecting pipes.

> **NOTE**
> The distance between the building and the heat pump has an influence on the pressure drop and the heat losses of the connecting pipes and must be taken into account when designing the circulation pump and the insulation thicknesses.

Dimplex recommendation
Maximum heating/cooling water flow rate LA 1118CP: 1.8 m³/h
→ **PE district heating pipe 32 x 2.9**

The maximum length (connecting lines, both electrical and hydraulic, from the heat pump installed outside to the heating distribution in the building) should not exceed 40 metres and must comply with the applicable technical guidelines.



Legend:

1. Load current cable heat pump
2. Heat pump control panel
3. Heat pump manager WPM
4. Control cable control/heat pump 24 V
5. Control cable control/heat pump 230 V
6. Electrical supply cable (230 V) for the heat pump manager
7. Shut-off and draining device
8. heating water connection cable
9. Wall ducts for electrical connection cables
10. Wall ducts for heating connection lines
11. KG pipes (at least DN 70) for electrical connections control/heat pump
12. condensate drain
13. Rainwater drainage/drainage
14. Foundation of the heat pump (note the different foundation plans of the heat pumps)

15. Communication line

A. Terrain top edge
B. Recommended overlap 80 cm
C. Route warning tape 30 cm above jacket pipe
D. Sand with grain size 0-4
E. Sand jacket pipe 10 cm all round

8.7.1 Accessory components for System E heat pumps (for connection on the heating side)

Installation box IBB 1118CP

Order code: IBB 1118CP | **Item no.:** 382120

description:
The installation box makes it easy to connect the LA 1118CP air-to-water heat pump from below. With the conversion kit, the factory-fitted side connection of the heat pump can simply be moved downwards. Pre-assembled connection box, incl. installation shaft, locking plate to protect against dirt and small animals. Feed-throughs for flow and return (G 1 1/4 inch). Two grommets for electric cables and installation material included in the scope of supply. Ideally suited for direct connection to rigid underground heating water connection cables

Wall connection set SWA 1115

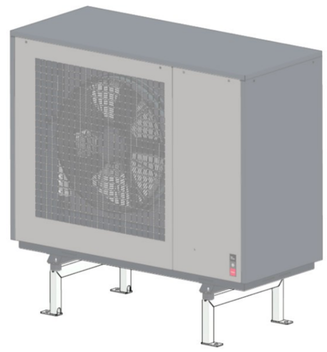
Order code: SWA 1115 | **Item no.:** 382860

description:
Wall connection set for the externally installed System E air-to-water heat pump. Design wall panel can be individually extended from 295 - 460 mm to conceal the above-ground supply lines (electrical and hydraulic connections) and protect them from environmental influences.
Wall panel can be foamed out.
Delivery includes house entry sleeves with foam seals for flow, return and electric cable. Can be mounted on the inside and outside wall. Colour wall cover anthracite, house entry sleeves dark grey.

Floor console BKS 1115

Order code: BKS 1115| **Item no.:** 382450

description:
Floor bracket for raising and ventilating the system installed outside



E air-to-water heat pump. The installation height of 200 mm makes it easy to connect the heat pump to the heating system.

Floor console BK SE

Order code: BK SE | **Art. no.:** 382480

description:
Floor bracket for raising and ventilating the System E air-to-water heat pump installed outside. The installation height of 200 mm enables simple connection of the heat pump on the heating side. Delivery includes covering panels. Colour anthracite grey - smooth (RAL 7016).

https://www.youtube.com/watch?v=bUMIga7q18I&list=PLvbfKjOwCCG01mUbeWgfYsxhs3i_SAo3y&index=2https://www.youtube.com/watch?v=ohnvBfrWYaE&list=PLvbfKjOwCCG01mUbeWgfYsxhs3i_SAo3y&index=2

8.8 Water quality in heating systems

Stone formation in heating systems cannot be avoided, but is negligible in systems with flow temperatures below 60 °C. With high temperature heat pumps and especially with bivalent systems in the high output range (combination heat pump + boiler), flow temperatures of 60 °C and more can also be achieved. Softening is a favoured method for preventing scale formation, as it permanently removes alkaline earths (calcium and magnesium ions) from the heating system.

The following values for the water quality of heating and cooling water must be observed and checked during an on-site check:

- Degree of hardness
- Conductivity
- pH value
- filterable substances

The following (limit) values must be observed:

- Maximum hardness of the filling and supplementary water 11°dH
- For fully demineralised water (demineralised water) (low-salt), the conductance must not exceed 100 µS/cm
- For partially demineralised water (saline), the conductance must not exceed 500 µS/cm
- The pH value must be between 7.5 - 9
- The limit value for filterable substances in heating water is < 30 mg/l

If necessary, for example in the case of bivalent systems, the specifications listed in the following table must also be taken into account, or the exact guide values for filling and supplementary water and the total hardness can be taken from the table in accordance with VDI 2035 - Sheet 1.

NOTE
The specific volume of a heating system must be determined before filling the system.

The so-called saturation index SI is used to assess whether a water has a tendency to dissolve or separate lime. It indicates whether the pH value corresponds to the pH neutral point or by how much this is undercut by an excess of acid or exceeded by a deficit of carbonic acid. If the saturation index is below 0, the water is aggressive and tends to corrode. If the saturation index is above 0, the water is limescale-removing.

NOTE
The saturation index SI should be between - 0.2 < 0 < 0.2

Total heating capacity in kW	**Total alkaline earths in mol/m³ (total hardness in °dH)**		
	≤20	>20 to ≤50	>50
	Specific system volume in litres/kW heat output(1)		
≤50 specific water content 2nd heat generator > 0.3 k per kW(2)	none	≤3,0 (16,8)	<0,05 (0,3)

≤50 specific water content 2nd heat generators > 0.3 k per kW(2) (e.g. circulating water heaters) and Systems with electric heating elements	≤3,0 (16,8)	≤1,5 (8,4)	
>50 kW to ≤200 kW	≤2,0 (11,2)	≤1,0 (5,6)	
>200 kW to ≤600 kW	≤1,5 (8,4)	<0,05 (0,3)	
>600 kW	<0,05 (0,3)		
Heating water, dependent on heating capacity			
Mode of operation:	Electrical conductivity in µS/cm		
Low salt(3):	>10 to ≤100		
Salty:	>100 to ≤1500		
	Appearance		
	clear, free from sedimenting substances		

(1) To calculate the specific system volume, the smallest individual heating output must be used for systems with several heat generators.

(2) For systems with several heat generators with different specific water contents, the smallest specific water content is decisive.

(3) Full softening is recommended for systems with aluminium alloys.

CAUTION

Failure to comply with the specified limit values for the heating water may result in material damage.

- The minimum permissible pH value of 8.2 must be observed
- The specified limit values for water quality must be ensured.

9 Integration of the heat pump into the heating system

9.1 Hydraulic requirements

With the hydraulic integration of a heat pump, it is important to ensure that the heat pump only ever has to generate the actual temperature level required in order to increase efficiency. The aim is to feed the temperature level generated by the heat pump into the heating system without mixing it.

NOTE
With pure heat pump operation, a mixed heating circuit is only necessary if two different temperature levels, e.g. for underfloor and radiator heating, need to be supplied.

To prevent the mixing of different temperature levels, heating operation is interrupted during a hot water demand and the heat pump is operated at the higher flow temperatures required for domestic hot water preparation.

The following basic requirements must be met:

- Ensuring frost protection
- Fusing the minimum heating water flow rate
- Ensuring the minimum runtime

Furthermore, when setting the setpoint or heating curve, care must be taken to ensure that living comfort is maintained, but that the setpoint or heating curve is not set higher than absolutely necessary.

NOTE
The efficiency of the heat pump heating system decreases by up to 2.5 % for every Kelvin higher flow temperature.

In order to heat the building with the lowest possible flow temperature, the heat distribution system must be designed for this flow temperature. The following examples are suitable for operation with a low flow temperature:

- underfloor heating
- Concrete core activation
- Fan convectors
- Low-temperature radiators
- Ventilation coil with enlarged heat exchanger area

NOTE
In rooms with a bathtub or shower (sanitary areas), additional heating must be installed in conjunction with underfloor heating. This can be realised, for example, with an electric radiator (e.g. towel dryer).

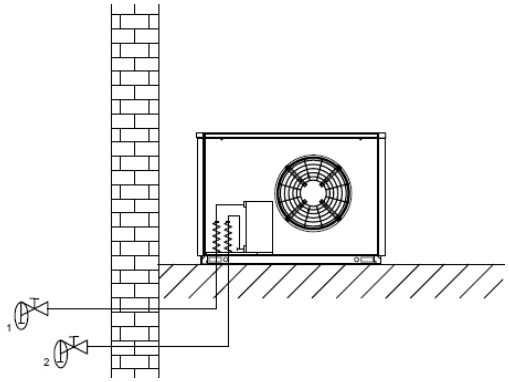
9.2 Ensuring frost protection

For heat pumps that are located outdoors or have outside air flowing through them, measures must be taken to prevent the heating water in the heat pump from freezing during downtimes or faults.

If the temperature falls below a minimum level at the frost protection sensor (flow sensor) of the heat pump, the heating and auxiliary circulating pumps are automatically activated to ensure frost protection.

In monoenergetic or bivalent systems, the second heat generator is released in the event of a fault in the heat pump to ensure frost protection.

CAUTION
In heating systems with utility company shut-off times, the supply line for the heat pump manager must be connected to continuous voltage (L/N/PE~230 V, 50 Hz) and must therefore be tapped before the utility company shut-off contactor or connected to the household current.



For heat pump systems where frost-free conditions cannot be guaranteed, a drainage option (see illustration) must be provided. If the heat pump manager and heat circulating pump are ready for operation, the frost protection function of the heat pump manager will work.

CAUTION
Due to the flow sensor, operation with antifreeze (glycol) is not possible!

9.3 Fusing the heating water flow rate

The minimum heating water flow rate of the heat pump must be ensured in every operating status of the heating system. This can be achieved, for example, by installing a double differential pressureless manifold [DDV].
can be achieved.

The **maximum volume flow must not be exceeded** in order to ensure the function of the built-in microbubble separator.

The specified nominal flow rate of the LA 1118CP of **0.95 m³/h must be guaranteed in every operating status**. A built-in flow sensor monitors the required minimum flow rate.

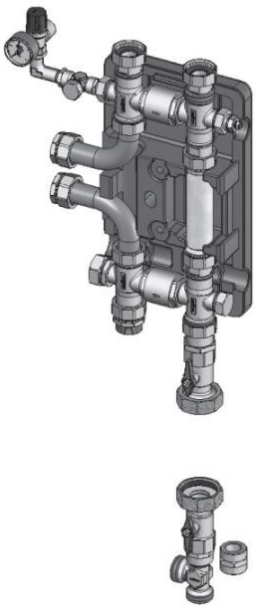
CAUTION
For heating system design temperatures below 30 °C in the flow (e.g. concrete core activation), the maximum volume flow with 5 K spread at A7/ W35 must be used for air-to-water heat pumps.

A higher volume flow must be provided for lower flow temperatures. The following spreads are recommended at the design point:

- 35°C: approx. 5 K spread, but under no circumstances below the minimum heating water flow rate
- 45°C: approx. 7 K spread, but never below the minimum heating water flow rate
- 55°C: max. 10 K spread, but under no circumstances below the minimum heating water flow rate
- 65°C: max. 10 K spread, but under no circumstances below the minimum heating water flow rate

For systems with extremely low system temperatures (return temperatures < 25°C), a maximum spread of 5 K must be specified at the design point. Systems for heating and cooling must be designed for the highest required water flow (heating water or cooling water flow).

9.4 Double differential pressureless manifold [DDV]



The **double differential pressureless manifold [DDV]** ensures the minimum heating water flow rate of the heat pump in combination with a serien buffer tank without having to compromise on efficiency. With a differential pressureless manifold [DDV] before and after the serien buffer tank, the generator and consumer circuits are decoupled. In addition, each differential pressureless manifold is equipped with a check valve.

Advantages of the double differential pressureless manifold [DDV]:

- Hydraulic decoupling of the generator and consumer circuit
- More efficient pump control
- Reduction of mixing losses compared to other bindings
- Operation of the circulation pump (M16) in the heat generation circuit only when the heat pump is running to avoid unnecessary runtimes
- Ensuring the minimum runtimes of the compressor and during defrost end in all operating situations through complete flow through the serien buffer tank
- Compact and space-saving dimensions possible due to smaller buffer volumes

NOTE
Hydraulic integration with a double differential pressureless manifold [DDV] offers maximum flexibility, operational reliability and efficiency.

9.5 Buffer tank design

For heat pump heating systems, a serien buffer tank is recommended in order to ensure that the heat pump is always available in all operating statuses.
Ensure **a minimum runtime of the heat pump of 6 minutes.**

Air-to-water heat pumps with defrost end via circuit reversal extract the defrost energy from the heating system. To ensure defrosting, a serien buffer tank must be installed in the flow of air-to-water heat pumps, into which the srew-in heating element is installed in monoenergetic systems.

NOTE
When commissioning air-to-water heat pumps, the heating water must be preheated to the lower operating limit of at least 18 °C to ensure defrosting.

CAUTION
If a **srew-in heating element** is **installed** in a buffer tank, it must be protected as a heat generator in accordance with DIN EN 12828 and equipped with a non-shut-off expansion vessel and a type-tested safety valve.

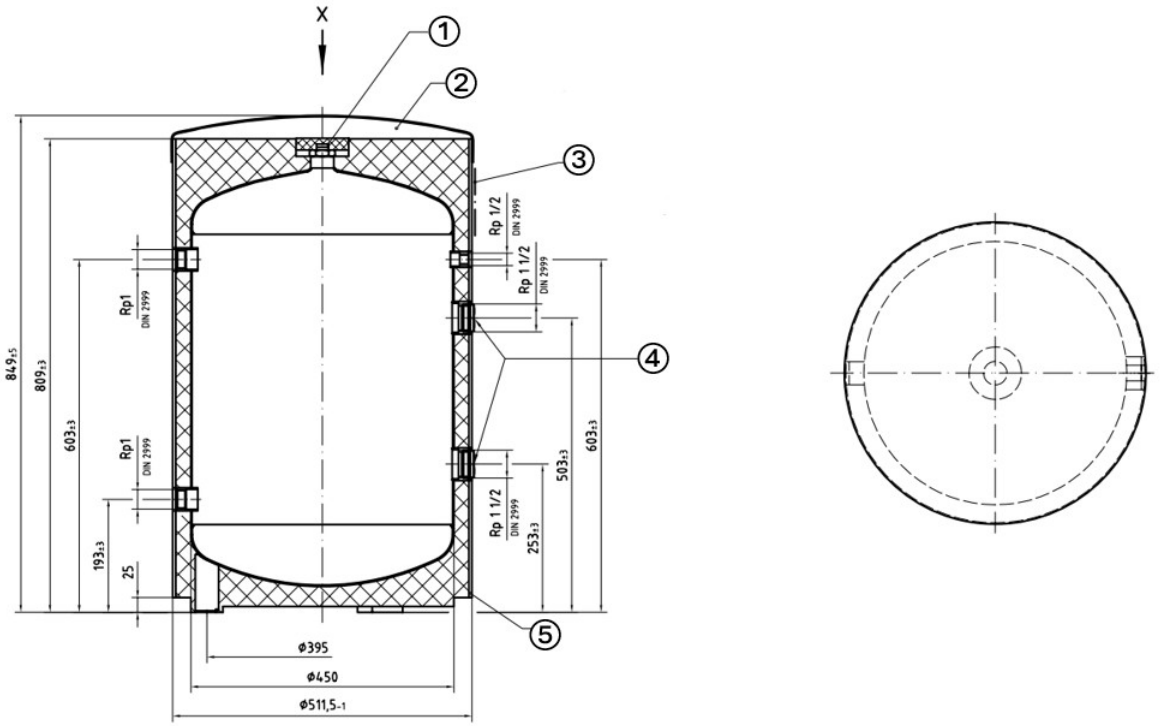
9.5.1 Buffer tank recommendation LA 1118CP

A buffer tank with a minimum size of 100 litres and hydraulic decoupling to safeguard the water flow is recommended for fusing the defrost end. Increasing the buffer volume avoids short runtimes, especially in the transitional period or when heat demand is low.

PSW 100

Dimensions and weights	**Unit**	**PSW 100**
Nominal content	l	100
Diameter	mm	512
Height	mm	850
Width	mm	-
Depth	mm	-
Heating water return	inch	1" FEMALE THREAD
Heating water flow	inch	1" FEMALE THREAD
Permissible operating overpressure	bar	3
Maximum storage tank temperature	°C	95
Levelling feet (adjustable)	Piece	
Heating element inserts 1 ½" female thread	Quantity	2
Max. heat output per heating element	kW	4,5
Flange DN 180	Quantity	
Heat loss*	kWh/24h	1,8
Weight	kg	55

*Room temperature 20°C; storage tank temperature 65°C



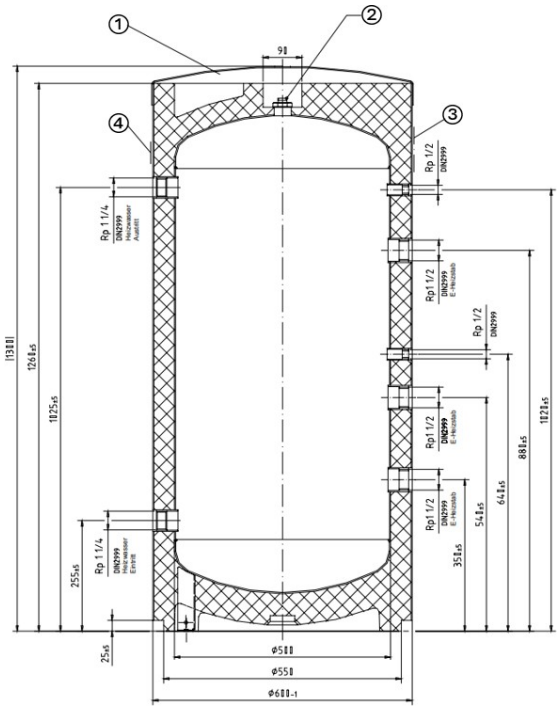
(1) Red. piece 1" / 1/2" bleeder valve
(2) tank cover
(3) Type plate Installation note (position according to customer's choice Version in 3 languages)
(4) Plug 1 1/2" w. O-ring
(5) Foil jacket

PSW 200

Dimensions and weights	Unit	PSW 200
Nominal content	l	200
Diameter	mm	600
Height	mm	1300
Width	mm	-
Depth	mm	-
Heating water return	inch	1 1/4" FEMALE THREAD
Heating water flow	inch	1 1/4" FEMALE THREAD
Permissible operating overpressure	bar	3
Maximum storage tank temperature	°C	95
Levelling feet (adjustable)	Piece	3
Heating element inserts 1 ½" female thread	Quantity	3

Dimensions and weights	Unit	PSW 200
Max. heat output per heating element	kW	6,0
Flange DN 180	Quantity	-
Heat loss*	kWh/24h	2,1
Weight	kg	60

*Room temperature 20°C; storage tank temperature 65°C

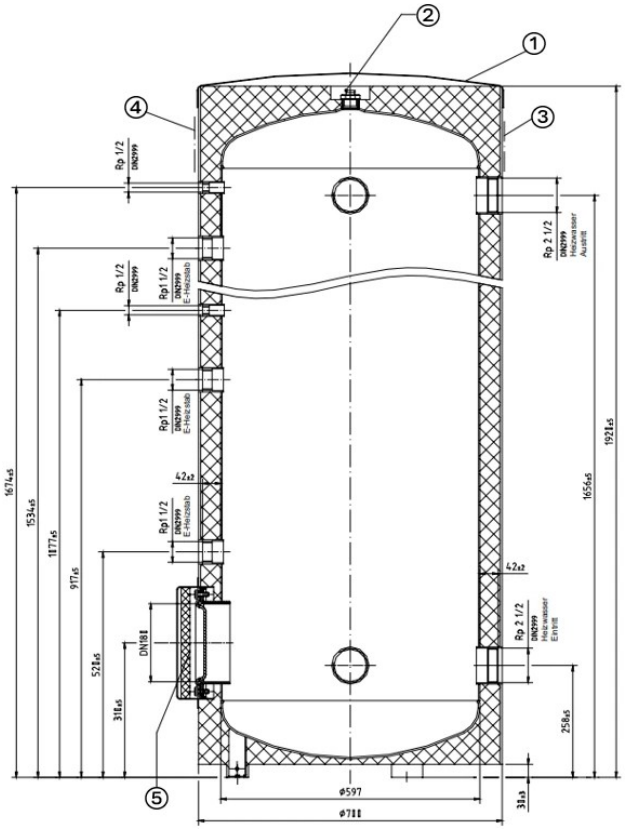


(1) tank cover
(2) Red. piece 1" / 1/2" bleeder valve
(3) Installation note
(4) Type plate

PSW 500

Dimensions and weights	Unit	PSW 500
Nominal content	l	500
Diameter	mm	700
Height	mm	1950
Width	mm	-
Depth	mm	-
Heating water return	inch	2 x 2 1/2"
Heating water flow	inch	2 x 2 1/2"
Permissible operating overpressure	bar	3
Maximum storage tank temperature	°C	95
Levelling feet (adjustable)	Piece	3
Heating element inserts 1 ½" female thread	Quantity	3
Max. heat output per heating element	kW	7,5
Flange DN 180	Quantity	1**
Heat loss*	kWh/24h	3,2
Weight	kg	115

*Room temperature 20°C; storage tank temperature 65°C
for the use of an **RWT 500 finned tube heat exchanger



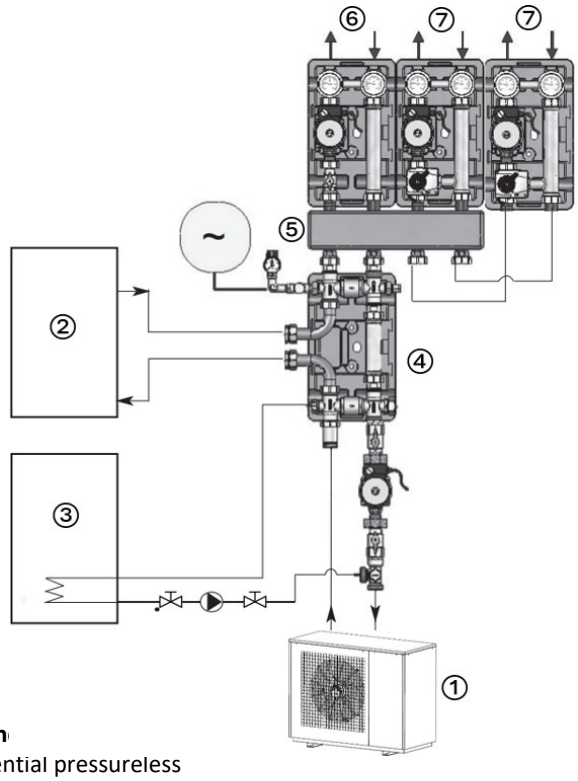
(1) tank cover
(2) Red. piece 1" / 1/2" bleeder valve
(3) Installation note
(4) Type plate

⑤ Blind flange / sealing / insulation / flange cover

9.6 Overview of assemblies/modules Domestic hot water distribution system

The domestic hot water distribution system consists of coordinated individual components that can be combined in different ways depending on the requirements. The maximum permissible heating water flow rate of each individual component must be taken into account during project planning.

9.6.1 Assembly example:



(1) heat pump

(2) serien buffer tank

(3) domestic hot water cylinder

(4) Double differential pressureless manifold [DDV]

(5) Manifold bar (VTB)

(6) Unmixed heating circuit module (WWM)

(7) Mixed heating circuit module (MMH)

Connecting th **te**
Double differential pressureless manifold [DDV] 25
DDV 32

Modules for heating distribution system
VTB 25-2 / VTB 25-3
manifold bars
VTB 32-2 / VTB 32-3

Module unmixed heating circuit
WWM 25
WWM 32

Mixed heating circuit module
MMH 25
MMH 32

Domestic hot water pump assembly
WPG 32

9.6.2 Double differential pressureless manifold [DDV]

The double differential pressureless manifold [DDV] acts as an interface between the heat pump, the heating distribution system, the buffer tank and possibly also the domestic hot water cylinder. Instead of many individual components, a compact system is used to simplify installation.

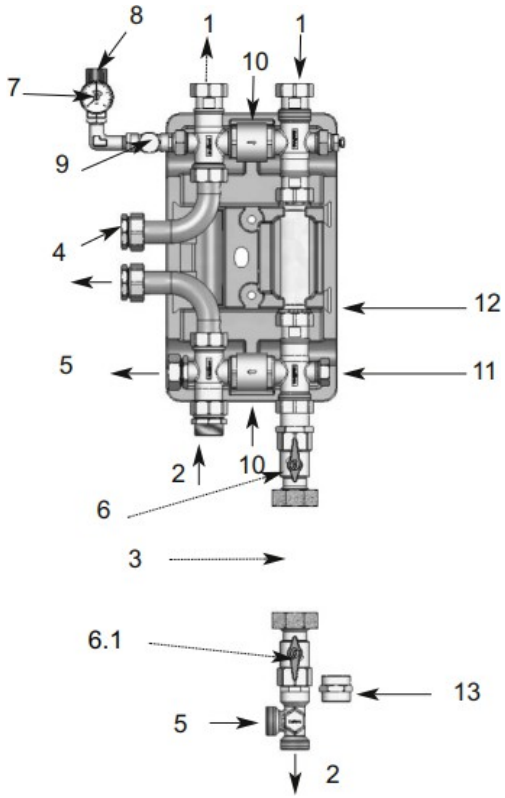
Consisting of 2 isolation valves, 2 bypass lines with backflow preventer (response pressure 2000 Pa), safety assembly with pressure gauge and connection option for expansion vessel. Installation option for circulation pump (pump not included in the scope of supply).

To reduce the pump running times, the heat circulating pump is only operated with the compressor. In this case, the return sensor included in the scope of supply must be installed in the existing immersion sleeve and connected. Due to the hydraulic decoupling, the consumer circuit requires a separate circulation pump.

9.6.3 DDV 25

Order code		Item no.	For device type	Recommended volume flow	Maximum volume flow
	DDV 25	358390	Air outside Air inside max. 15 kW up to SI 18TU up to SIH 20TU up to WI 22TU	2.0 m³/h	3.0 m³/h

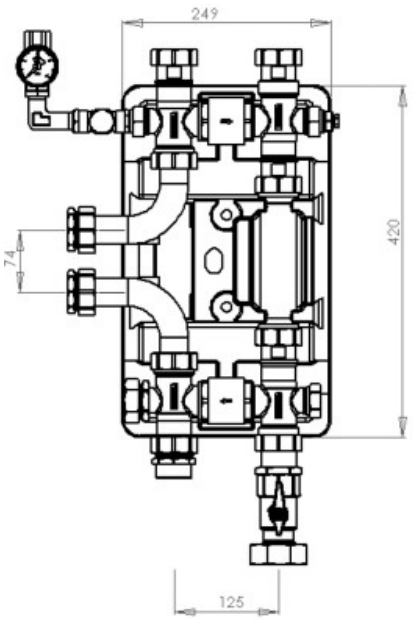
Scope of supply DDV 25



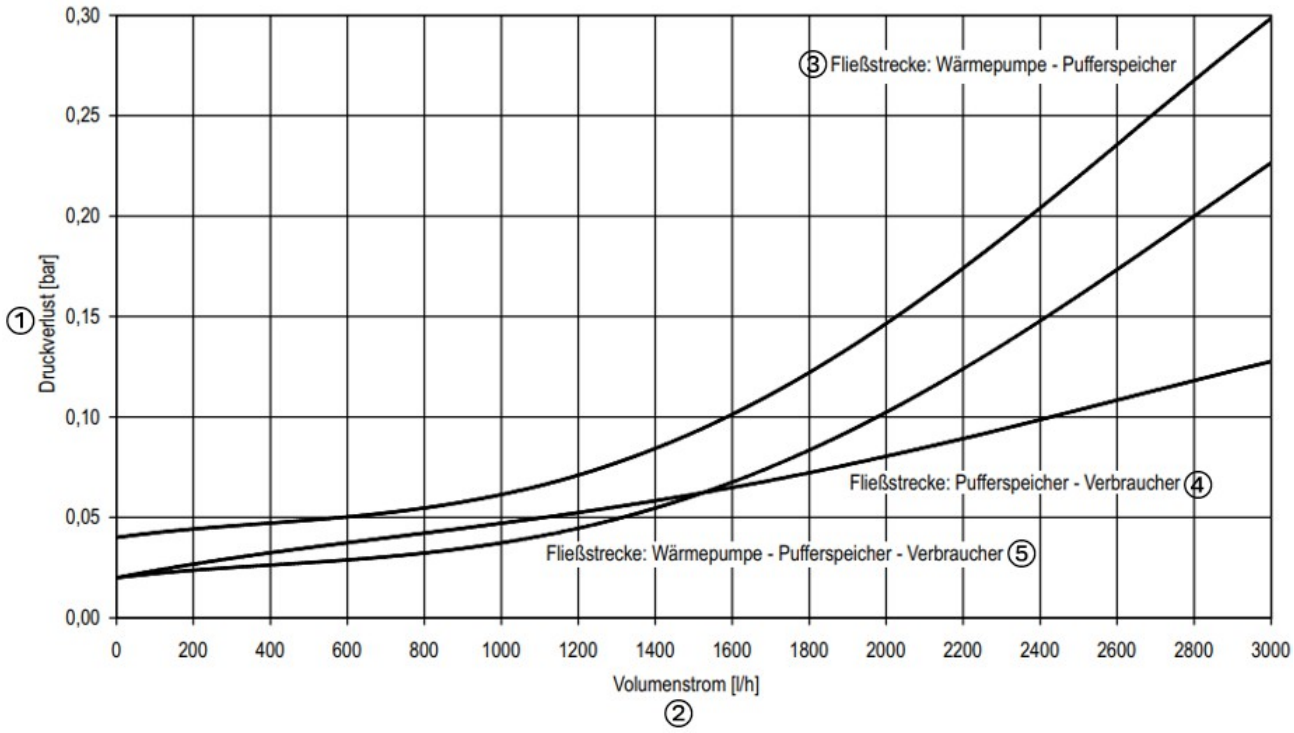
1. Connections heating circuits 1 1/2" female
2. thread Connections heat pump 1 1/4"
3. external thread
   Positioning of main circuit circulation pump
4. DN 25 (not included in the scope of supply)
5. Buffer tank connections 1 1/4" female thread
6. Domestic hot water cylinder connections 1
   1/4" external thread Isolation valve 1" 6.1)
7. Isolation valve 1" with non-return valve
8. Pressure gauge Safety valve
9. 3/4" female thread
   T-piece for mounting the expansion vessel 3/4"
   external thread
10. check valve
11. Immersion sleeve for return sensor (observe sensor
    characteristic)
12. Insulation
13. double nipple 1"

Return sensor NTC 10 is enclosed with the DDV!!!

Dimensions DDV 25



Volume flow pressure drop diagram DDV 25

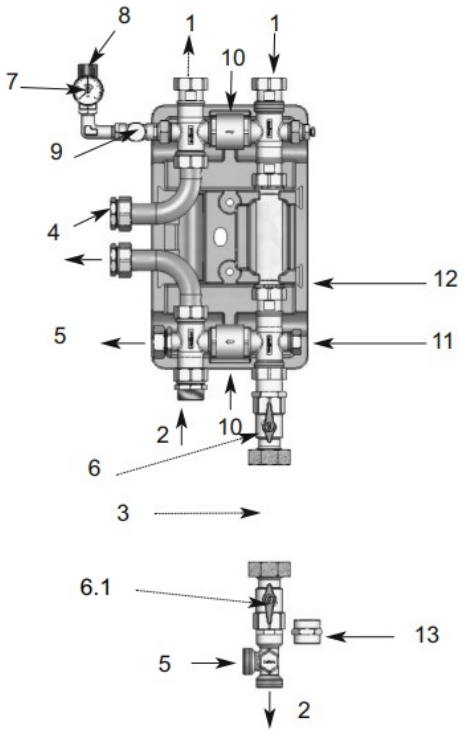


1. Pressure drop [bar]
2. Volume flow [l/h]
3. Flow section: heat pump - buffer tank
4. Flow section: Buffer tank - consumer
5. Flow path: heat pump - buffer tank - consumer

9.6.4 DDV 32

Order code		Item no.	For device type	Recommended volume flow	Maximum volume flow
	DDV 32	348450	Air outside Air inside max. 30 kW to SI 22TU to WI 22TU	2.5 m³/h	3.5 m³/h

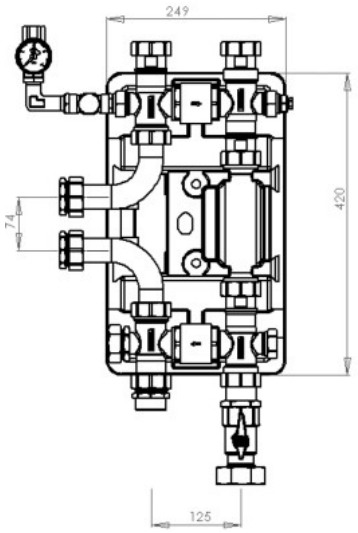
Scope of supply DDV 32



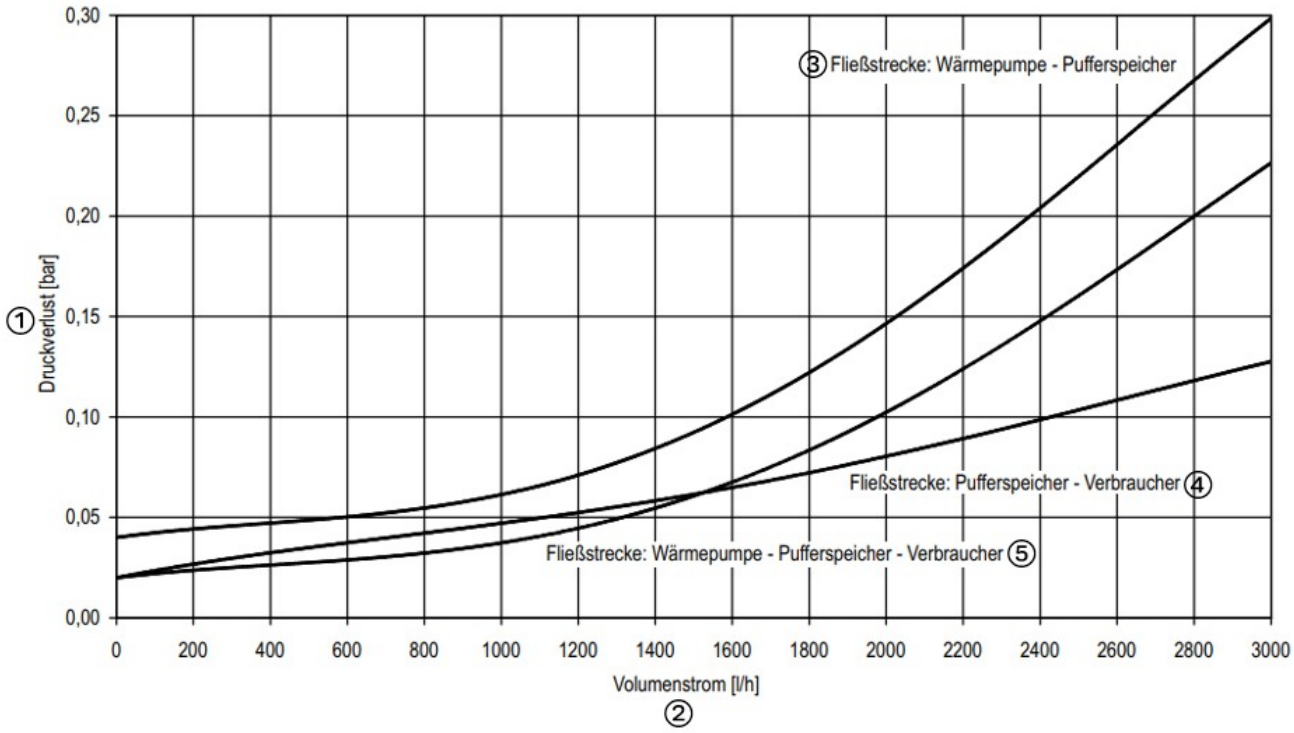
1. Connections heating circuits 1 1/2" female
2. thread Connections heat pump 1 1/4"
3. external thread
   Location of main circuit circulation pump DN
4. 32 (not included in the scope of supply) Buffer
5. tank connections 1 1/4" female thread
6. Domestic hot water cylinder connections 1 1/4" external thread
7. Isolation valve 1 1/4" 6.1) Isolation valve 1 1/4" with non-return valve
8. Pressure gauge Safety valve
9. 3/4" female thread
   T-piece for mounting the expansion vessel 3/4"
10. external thread
11. check valve
    Immersion sleeve for return sensor (observe sensor
12. characteristic)
13. Insulation double nipple
    1 1/4"

Return sensor NTC 10 is enclosed with the DDV!!!

Dimensions DDV 32



Volume flow pressure drop diagram DDV 32



1. Pressure drop [bar]
2. Volume flow [l/h]
3. Flow section: heat pump - buffer tank
4. Flow section: Buffer tank - consumer
5. Flow path: heat pump - buffer tank - consumer

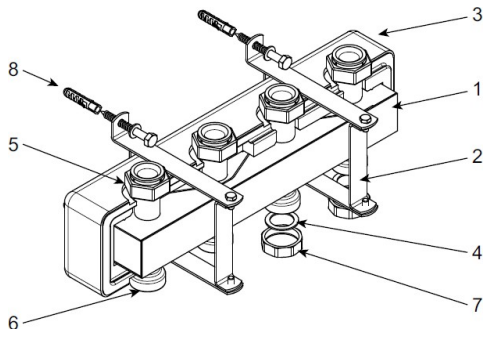
9.6.5 VTB 25-2

Order code		Item no.	Dimensions	Recommended volume flow	Maximum volume flow
	VTB 25-2	376360	545 x 178 x 192	2.0 m³/h	3.0 m³/h

Technical data VTB 25-2

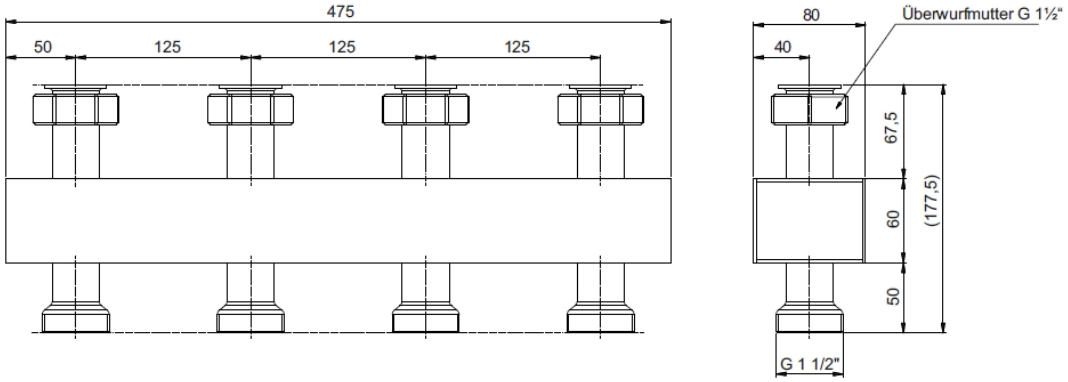
	VTB 25-2
Max. Volume flow	3.0 m³/h
Connection of heating circuits	G 1 ½" coupling nut
Heat pump circuit connection	G 1 ½" external thread
Spigot spacing	125 mm
Max. Operating pressure	4 bar
Max. Operating temperature	110 °C
Water content distributor	1,9 l

Scope of supply VTB 25-2

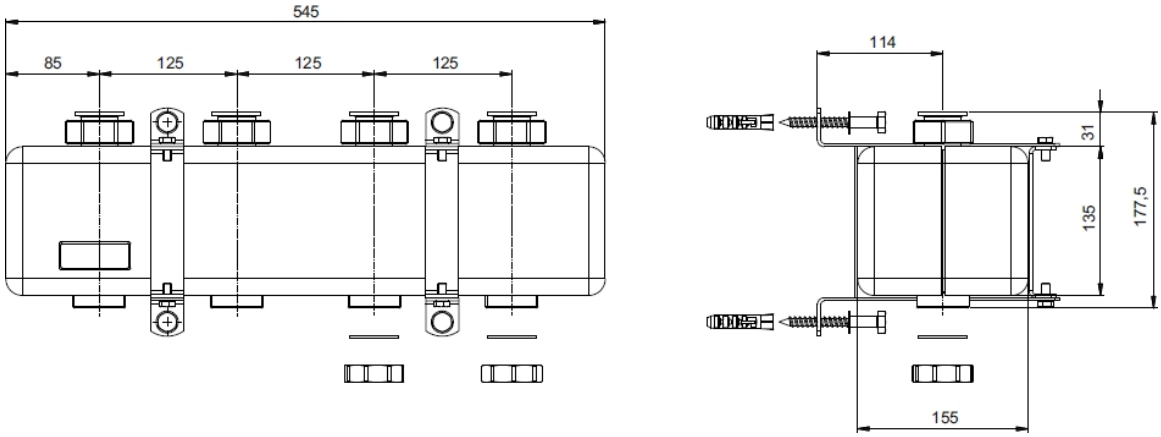


1. Manifold bar 125 mm nozzle spacing
2. Finished insulation in accordance with EnEV, 35 mm EPP foam
3. Wall bracket
4. Sealing rings
5. 1 ½" coupling nut for heating circuit connection
6. G 1 ½" threaded connection for heat pump circuit
7. Sealing cap 1 ½"
8. Fastening and mounting material

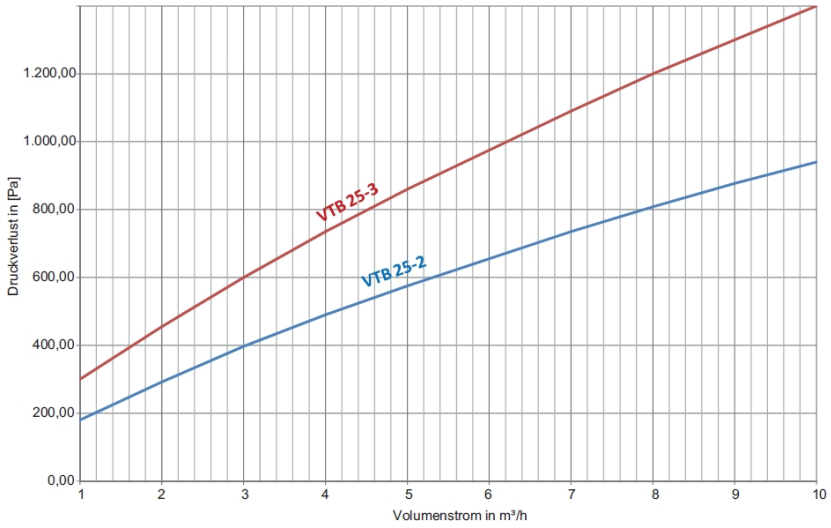
Dimensioned drawing VTB 25-2



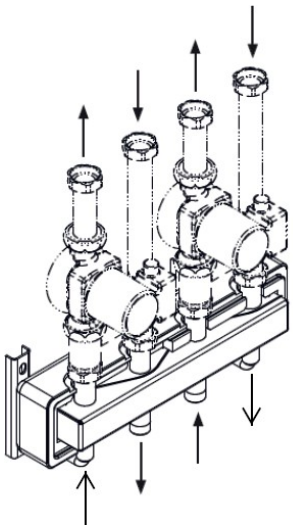
With insulation:

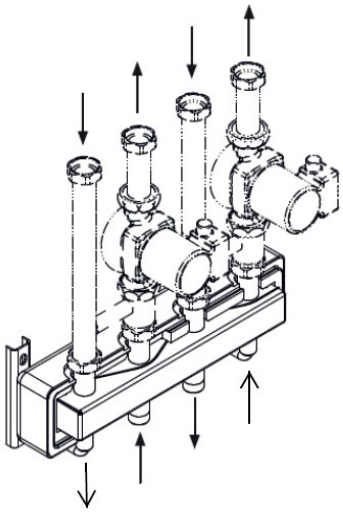


Pressure drop VTB 25-2



Connection change display





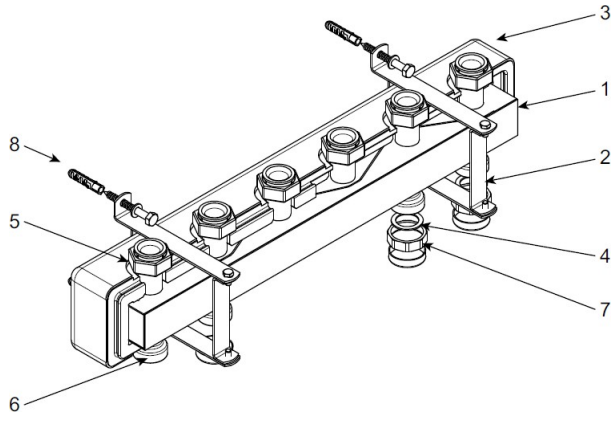
9.6.6 VTB 25-3

Order code		Item no.	Dimensions	Recommended volume flow	Maximum volume flow
	VTB 25-3	376370	795 x 178 x 192	2.0 m³/h	3.0 m³/h

Technical data VTB 25-3

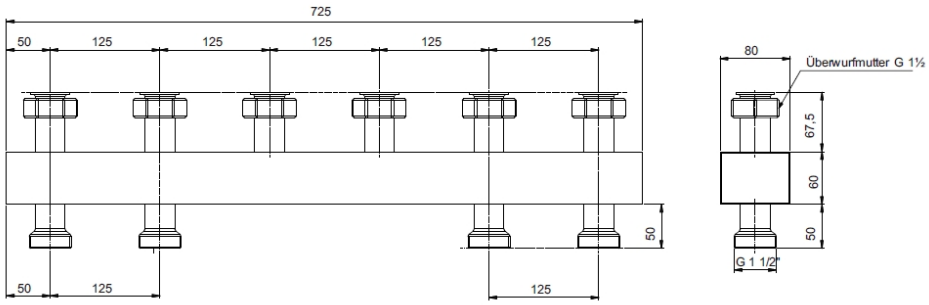
	VTB 25-3
Max. Volume flow	3.0 m³/h
Connection of heating circuits	G 1 ½" coupling nut
Heat pump circuit connection	G 1 ½" external thread
Spigot spacing	125 mm
Max. Operating pressure	4 bar
Max. Operating temperature	110 °C
Water content distributor	3,0 l

Scope of supply VTB 25-3

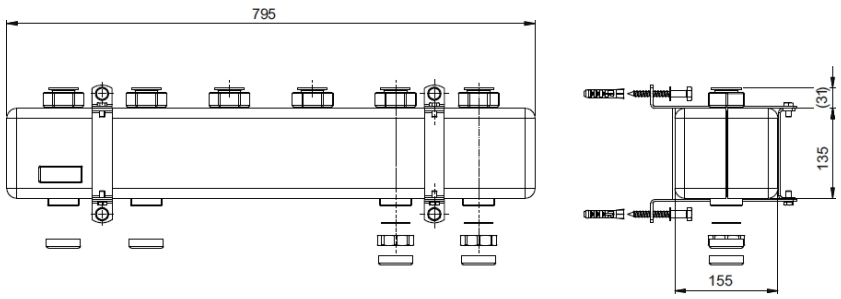


1. Manifold bar 125 mm nozzle spacing
2. Finished insulation in accordance with EnEV, 35 mm EPP foam
3. Wall bracket
4. Sealing rings
5. 1 ½" coupling nut for heating circuit connection
6. G 1 ½" threaded connection for heat pump circuit
7. Sealing cap 1 ½"
8. Fastening and mounting material

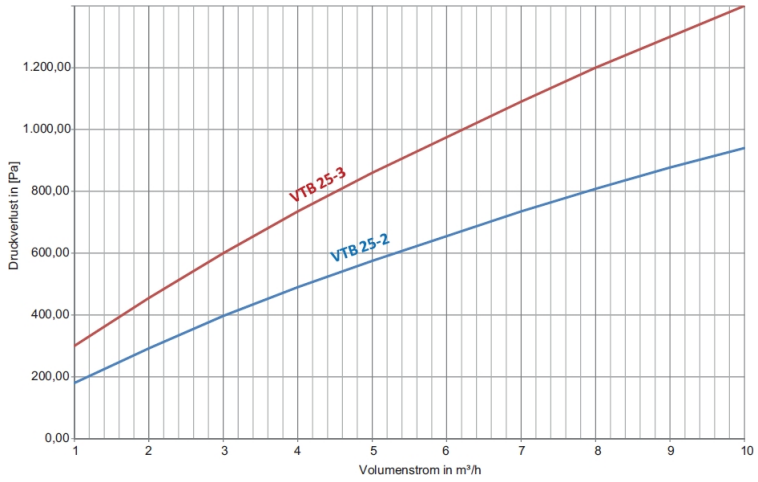
Dimensioned drawing VTB 25-3



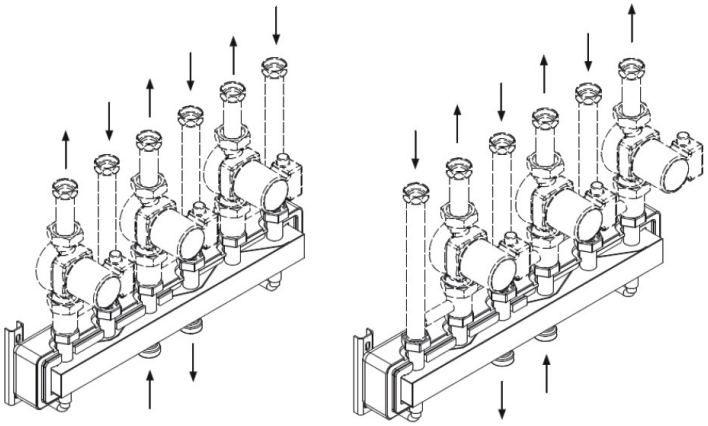
With insulation:



Pressure drop VTB 25-3



Connection change display



9.6.7 VTB 32-2

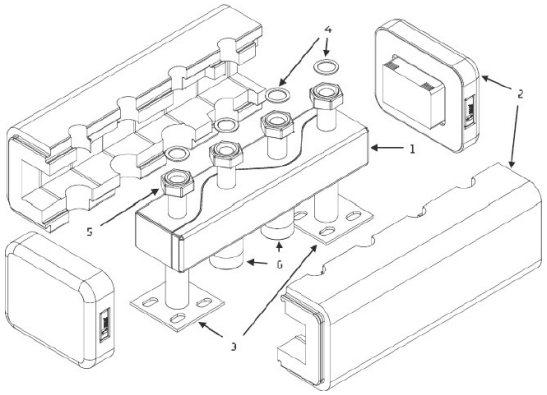
Order code		Item no.	Dimensions	Recommended volume flow	Maximum volume flow
	VTB 32-2	374920	650 x 237 x 225	- m³/h	6.5 m³/h

Technical data VTB 32-2

	VTB 32-2
Max. Volume flow	6.5 m³/h
Connection of heating circuits	G 1 ½" coupling nut

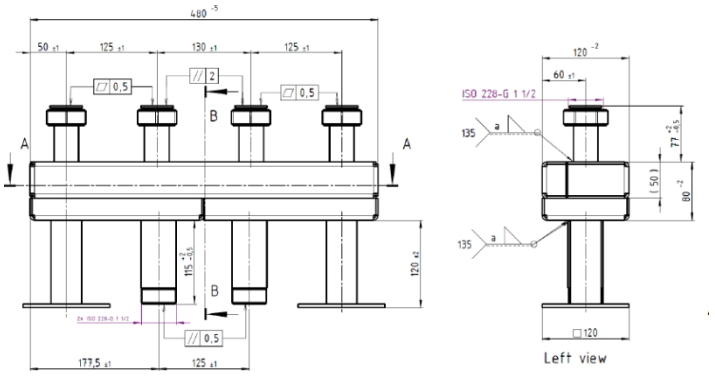
	VTB 32-2
Heat pump circuit connection	G 1 ½" external thread
Spigot spacing	125 mm
Max. Operating pressure	4 bar
Max. Operating temperature	110 °C

Scope of supply VTB 32-2

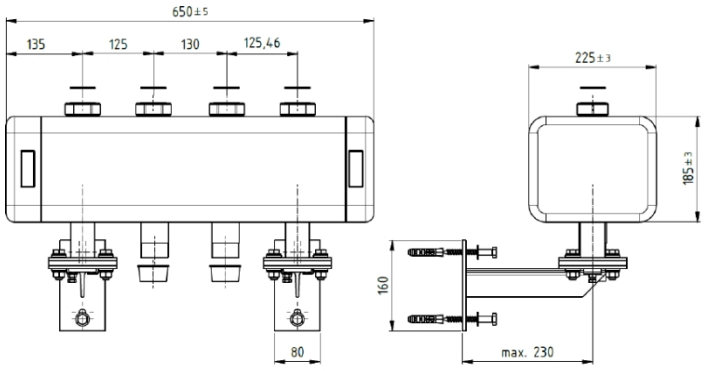


1. Manifold bar 125 mm nozzle spacing
2. Finished insulation in accordance with EnEV, 35 mm EPP foam
3. Console holder for wall or floor console
4. Sealing rings
5. 1 ½" coupling nut for heating circuit connection
6. G 1 ½" threaded connection for heat pump circuit
7. Wall bracket
8. Fastening and mounting material

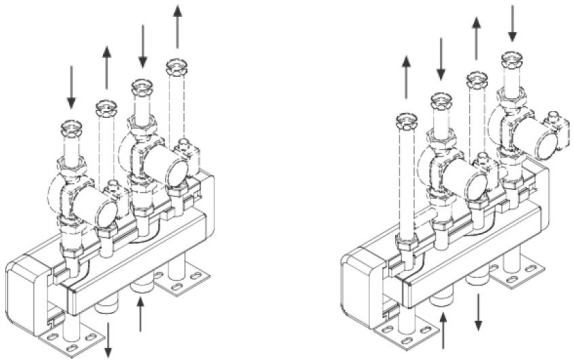
Dimensioned drawing VTB 32-2



With insulation:



Connection change display



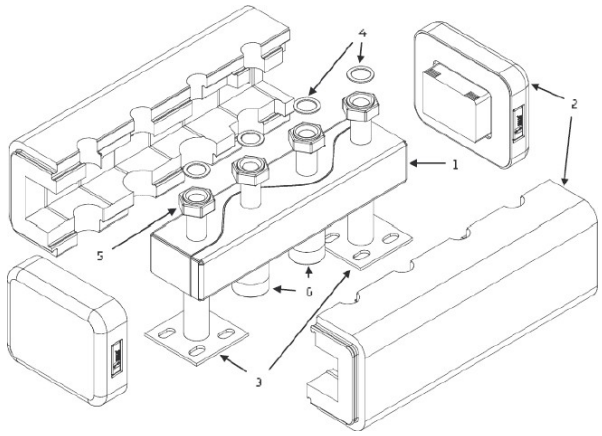
9.6.8 VTB 32-3

Order code		Item no.	Dimensions	Recommended volume flow	Maximum volume flow
	VTB 32-3	374930	905 x 237 x 225	- m³/h	6.5 m³/h

Technical data VTB 32-2

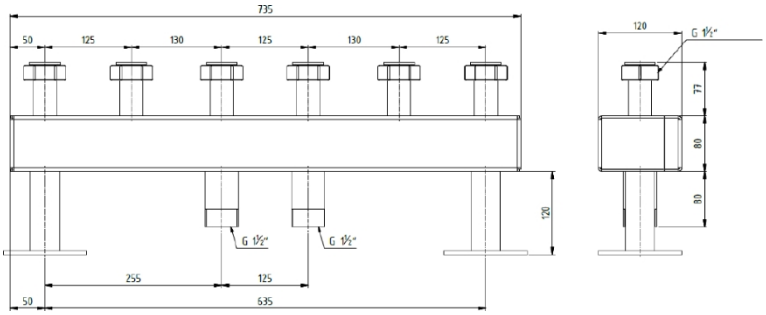
	VTB 32-3
Max. Volume flow	6.5 m³/h
Connection of heating circuits	G 1 ½" coupling nut
Heat pump circuit connection	G 1 ½" external thread
Spigot spacing	125 mm
Max. Operating pressure	4 bar
Max. Operating temperature	110 °C

Scope of supply VTB 32-2

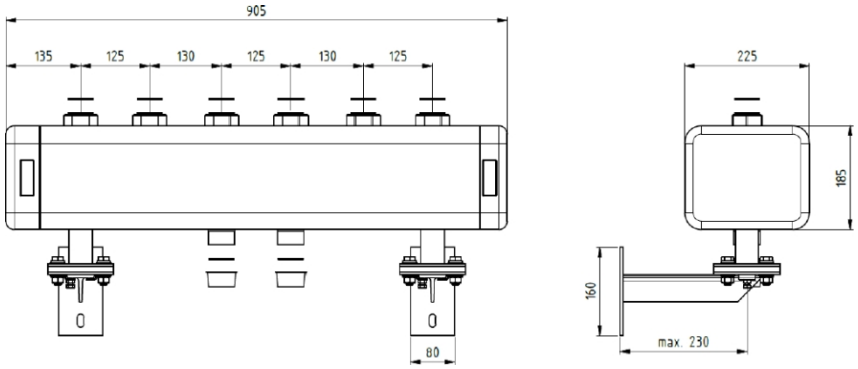


1. Manifold bar 125 mm nozzle spacing
2. Finished insulation in accordance with EnEV, 35 mm EPP foam
3. Console holder for wall or floor console
4. Sealing rings
5. 1 ½" coupling nut for heating circuit connection
6. G 1 ½" threaded connection for heat pump circuit
7. Wall bracket
8. Fastening and mounting material

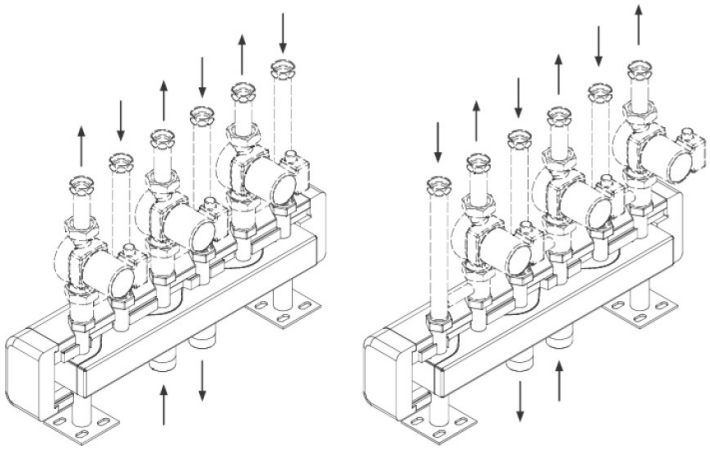
Dimensioned drawing VTB 32-2



With insulation:

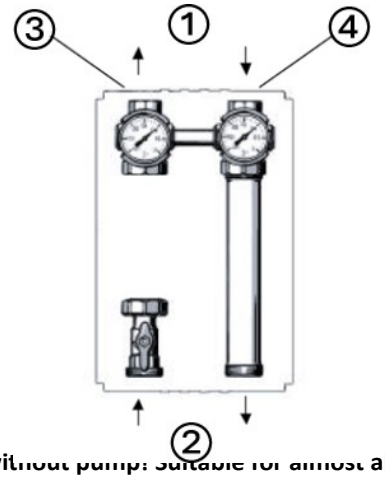


Connection change display



9.6.9 WWM 25

Order code		Item no.	Dimensions	Recommended volume flow	Maximum volume flow
	WWM 25	346600	250 x 420 x 250	1.8 m³/h	2.5 m³/h



(1) 1" FEMALE THREAD

(2) 1 ½" external thread, flat-sealing

(3) 3-way ball valve flow with red thermometer and integrated gravity brake

Turn the handle to the right:

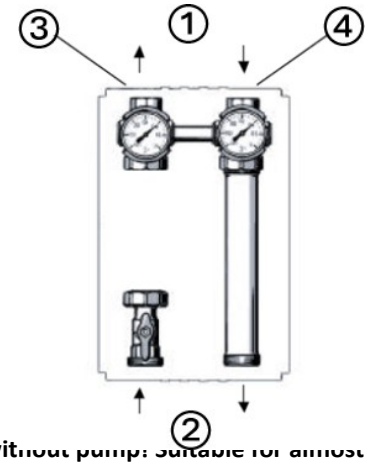
- 0° - Ball valve open, gravity brake in function
- 45° - Ball valve and gravity brake open
- 90° - Ball valve closed

(4) 3-way ball valve return with blue thermometer

Supplied without pump: suitable for almost all pump makes DN 25, centre distance = 180 mm.

9.6.10 WWM 32

Order code		Item no.	Dimensions	Recommended volume flow	Maximum volume flow
	WWM 32	367800	250 x 420 x 250	2.5 m³/h	3.5 m³/h



(1) 1 1/4" FEMALE THREAD

(2) 1 ½" external thread, flat-sealing

(3) 3-way ball valve flow with red thermometer and integrated gravity brake

Turn the handle to the right:

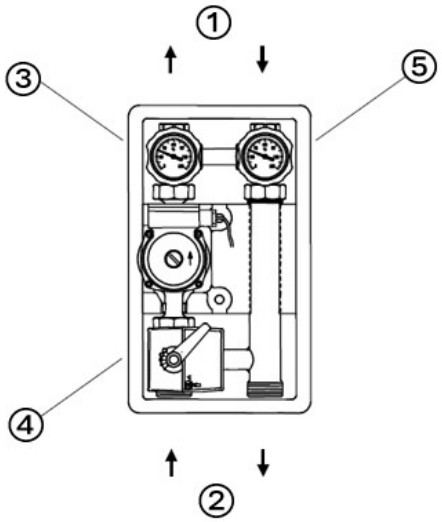
- 0° - Ball valve open, gravity brake in function
- 45° - Ball valve and gravity brake open
- 90° - Ball valve closed

(4) 3-way ball valve return with blue thermometer

Supplied without pump! Suitable for almost all pump makes DN 32, centre distance 180 mm.

9.6.11 MMH 25

Order code		Item no.	Dimensions	Recommended volume flow	Maximum volume flow
	MMH 25	348640	250 x 420 x 250	1.8 m³/h	2.5 m³/h



Temperature sensor enclosed. Can be fastened with cable ties.

(1) 1" FEMALE THREAD

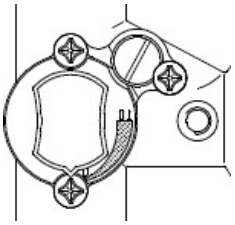
(2) 1 ½" external thread, flat-sealing

(3) Ball valve flow with red thermometer

(4) Mixer with bypass:

⊘ open

⊘ NO contact



(5) Ball valve return with blue thermometer and integrated gravity brake:

Actuator already pre-assembled. Please refer to the separate documents for the electrical wiring!

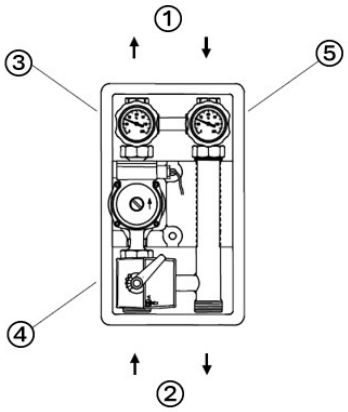
Supplied without pump ! Suitable for almost all pump makes DN 25, AA = 180 mm.

Turn the handle to the right:

- 0° - Ball valve open, gravity brake in function
- 45° - Ball valve and gravity brake open
- 90° - Ball valve closed

9.6.12 MMH 32

Order code		Item no.	Dimensions	Recommended volume flow	Maximum volume flow
	MMH 32	367790	250 x 420 x 250	1.8 m³/h	2.5 m³/h



Temperature sensor enclosed. Can be fastened with cable ties.

Actuator already pre-assembled. Please refer to the separate documents for the electrical wiring!

Supplied without pump ! Suitable for almost all pump makes DN 32, AA = 180 mm.

(1) 1 1/4" FEMALE THREAD

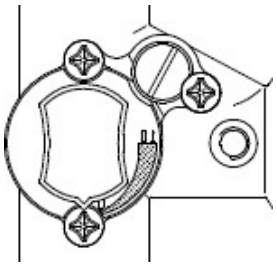
(2) 1 ½" external thread, flat-sealing

(3) Ball valve flow with red thermometer

(4) Mixer with bypass:

open

NO contact



(5) Ball valve return with blue thermometer and integrated gravity brake:

Turn the handle to the right:

- 0° - Ball valve open, gravity brake in function
- 45° - Ball valve and gravity brake open
- 90° - Ball valve closed

10 Heat pump manager WPM Touch

10.1 Function overview

The heat pump manager is essential for the operation of the heat pump system and is included in the scope of supply. It controls a bivalent, monovalent or monoenergetic heating system and monitors the safety devices of the refrigeration circuit. Depending on the heat pump type, the heat pump manager is installed in the casing of the heat pump or the Hydro-Tower or is supplied with the heat pump as a wall-mounted controller and takes over the control of the generator and distribution circuits.

Function overview:

- Fulfilment of the requirements of the utility company (EVU) e.g. utility block, switch cycle block, see TAB (Technical Connection Conditions)
- Switch-on delay on mains voltage recovery or cancellation of a utility company shut-off time (10 s to 200 s)
- The compressors of the heat pump are switched on a maximum of three times per hour
- Switching off the heat pump due to utility company blocking signals with the option of switching on the 2nd heat generator (e.g. peak load boiler)
- Energy-efficient defrost management for air-to-water heat pumps with self-adapting defrost cycle time
- Monitoring and securing the refrigeration circuit in accordance with DIN 8901 and DIN EN 378
- Recognising the optimum operating mode in each case, with the largest possible proportion of heat pumps
- Frost protection function
- Automatic, outdoor temperature-dependent operating mode switchover winter - summer - cooling
- Return temperature-controlled regulation of heating and cooling operation via outside temperature, adjustable fixed-setpoint or room temperature
- Smart RTC+ individual room control with up to 10 room temperature controllers per heating circuit possible
- Control of up to 3 consumer circuits (heating and cooling circuits)
- Dew point-dependent flow temperature control depending on the room temperature and humidity in cooling operation
- Optional dew point monitoring in cooling operation
- Requirement priorities
    - domestic hot water preparation
    - Heating/cooling operation
    - Swimming pool preparation
- Control of a 2nd heat generator (oil or gas boiler or electric auxiliary heating)
- Release of a 2nd heat generator for bivalent operation (oil and gas boiler) incl. control of the associated mixer or 0-10 V setpoint specification
- Control of a mixer for the bivalent utilisation of a renewable heat source (solid fuel boiler, solar thermal energy)
- Special program for 2nd heat generators to ensure minimum running times (oil boiler) or minimum charging times (central storage tank)
- Control of a flange heater for targeted reheating of the domestic hot water with adjustable time programs and for thermal disinfection
- Control of a domestic hot water circulation pump via pulse or time programs
- Control of circulation pumps in the generator and consumer circuit via an optional 0-10V or PWM signal
- Recording the quantity of thermal energy and operating hours (not suitable for heating cost billing)
- User group-dependent operating concept
- 10x alarm memory with date and time and error description
- Interface for connecting further communication options for LAN, KNX, Modbus RTU, Modbus TCP, BACnet/IP, MQTT optional accessories required

- Heating function program (DIN EN 1264-4), standardised or customisable program for targeted dry heating of the screed with storage of the start and completion time
- Remote control for the heat pump manager via Dimplex Home app for iOS, Android and Windows (special accessories NWPM Touch card)
- SG-Ready function, e.g. for using load-variable electricity tariffs in the smart grid

10.2 Colour display with touch operation

10.2.1 Home view

Access to the display and control unit is gained by selecting the desired user group and then confirming the red login symbol.

- Operator
- Specialist
- Service

Depending on the selected user group, a password may need to be entered to gain access.

NOTE
If no language and user selection is possible, the touch display is still in start mode.

10.2.2 Display and control unit

The display and control unit can be used to make the settings and view the displays required for operation. The settings and displays are divided into different user groups.

- Operator
- Specialist
- Service

Access to the user groups is selected via the start screen. Depending on the user group and setting value, there are different options for changing the value.

10.3 Electrical connection System E

10.3.1 General

https://www.youtube.com/watch?v=Vj8k9RxN3cA&list=PLvbfKjOwCCG0p9LtD2OtdPzVbslbcRB_p
All electrical connection work may only be carried out by an electrician or a specialist for defined activities in compliance with the

- Assembly and operating instructions
- Country-specific installation regulations e.g. VDE 0100
- technical connection conditions of the energy supplier and supply network operators (e.g. TAB) and
- local conditions

be carried out.

To ensure the frost protection function, the heat pump manager may only be de-energised for a short time and the heat pump must be flowing.

On the heat pump, all supply lines must be fed into the junction box through the free membranes provided for this purpose.

10.3.2 Electrical connection work

A total of 3 pipes/cables must be laid to the heat pump:

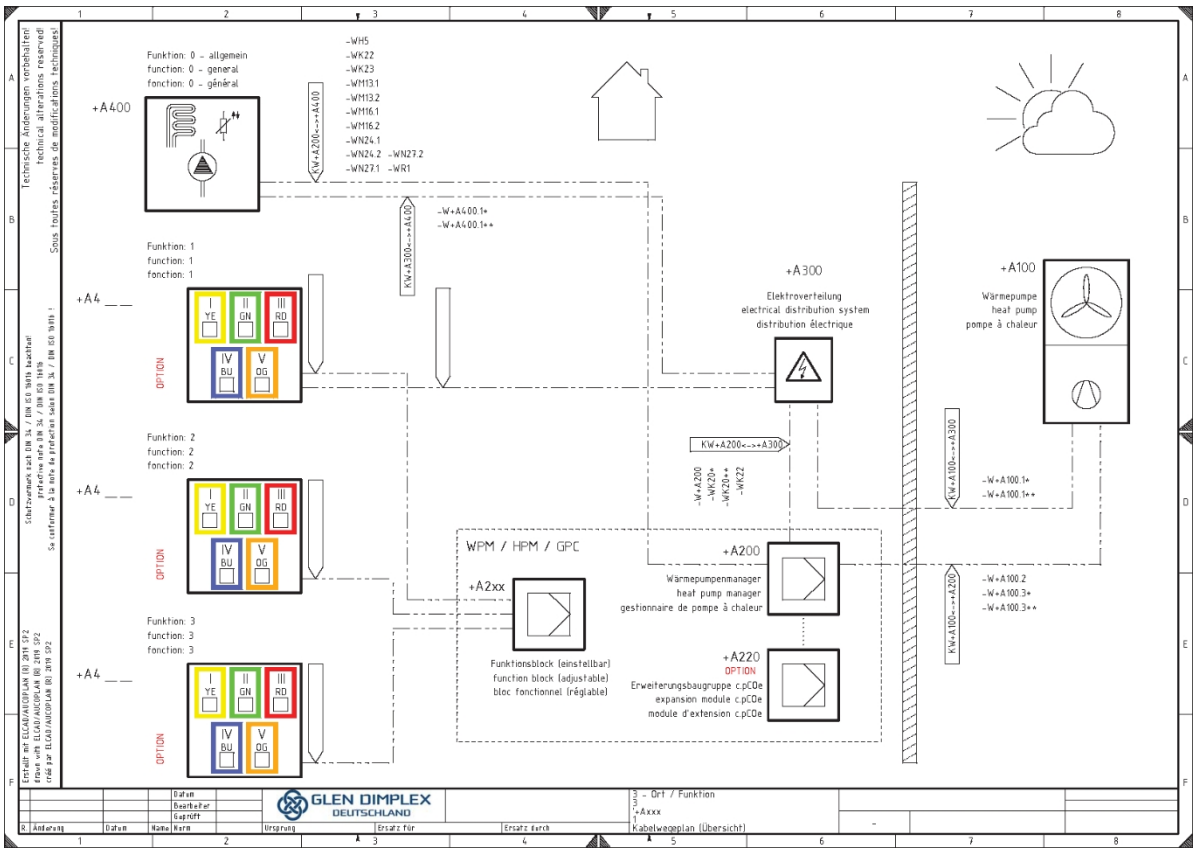
- The heat pump is connected to the power supply using a standard 5-core cable. The cable must be provided by the customer and the cable cross-section must be selected in accordance with the power consumption of the heat pump (see attachment device information) and the relevant VDE (EN) and VNB regulations. An all-pole switch off with at least 3 mm contact opening distance (e.g. utility company blocking contactor, power contactor) must be provided in the power supply for the heat pump. A 3-pole automatic circuit breaker with common tripping of all phase conductors (tripping current according to device information) ensures short-circuit protection, taking into account the design of the internal wiring. The relevant components in the heat pump contain internal overload protection. When connecting, the clockwise rotating field of the load supply must be ensured. Phase sequence: L1, L2, L3.
- The control voltage is supplied via the heat pump manager (controller -N1). For this purpose, a 3-pole cable must be laid in accordance with the electrical documentation. Further information on wiring the heat pump manager can be found in its operating instructions
- A shielded communication cable (J-Y(ST)Y ..LG) (not included in the scope of supply) connects the heat pump manager (controller -N1) with the refrigeration circuit controller -N0 installed in the heat pump. For more detailed instructions, please refer to the operating instructions for the heat pump manager and the electrical documentation.

NOTE
The communication cable is essential for the function of air-to-water heat pumps installed outdoors. It must be shielded and laid separately from the mains cable.

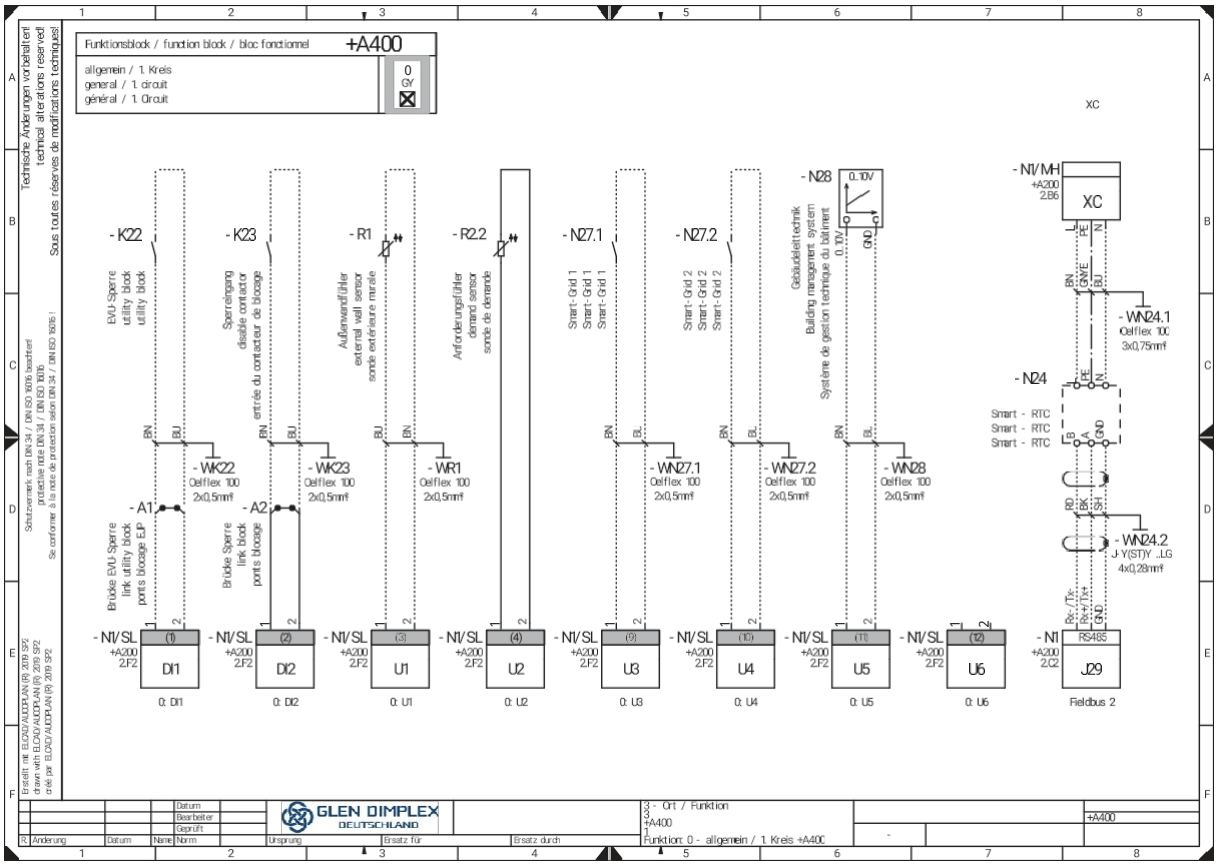
10.3.3 Cable pulling plan (overview)

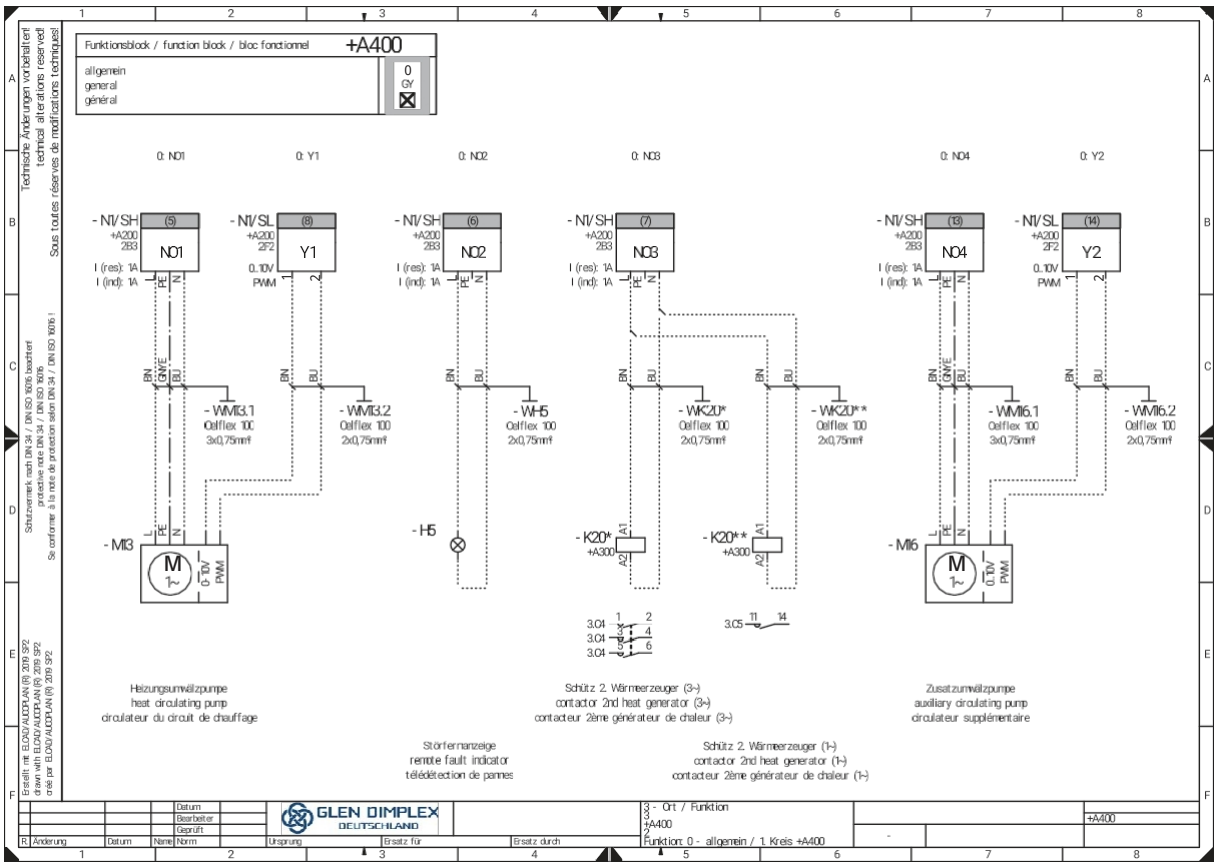
- Function +A400 / general / 1. circuit unmixed
- Function +A411 / 1. circuit mixed
- Function +A412 / 2nd circuit mixed
- Function +A413 / 3rd circuit mixed
- Function +A420 / domestic hot water
- Function +A430 / swimming pool
- Function +A441 / Bivalent
- Function +A442 / renewable
- Function +A443 / Solar
- Function +A451 / Cooling active
- Function +A452 / Cooling passive

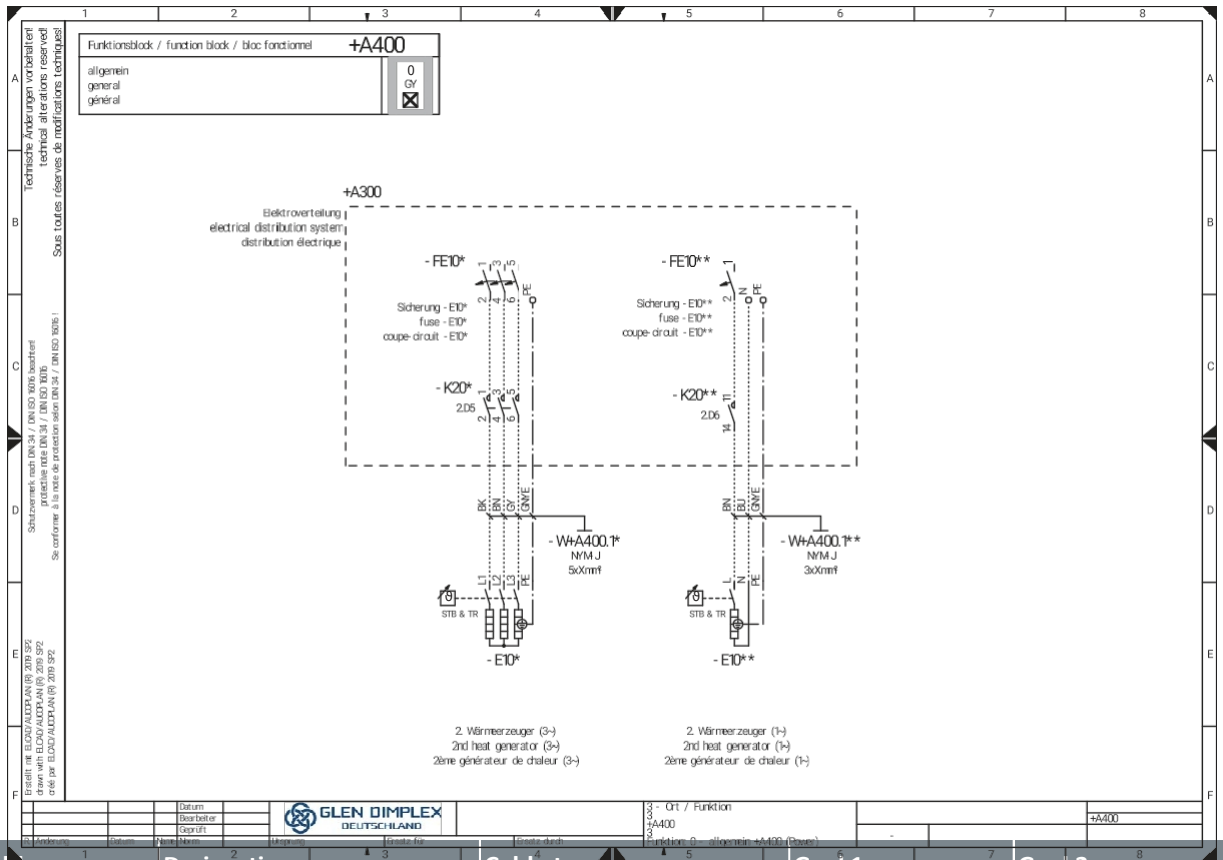
10.3.4 Cable routing plan



10.3.5 Function +A400 / general / 1. circuit unmixed




Funktionsblock / function block / bloc fonctionnel
+A400
allgemein
general
général
0
GY
0: NO1
0: Y1
0: NO2
0: NO3
0: NO4
0: Y2
- N1/SH
- N1/SL
NO1
Y1
NO2
NO3
NO4
Y2
- WM13.1
- WM13.2
- WH5
- WK20*
- WK20**
- WM16.1
- WM16.2
- M13
- H5
- K20*
- K20**
- M16
Heizungsumwälzpumpe
heat circulating pump
circulateur du circuit de chauffage
Schütz 2. Wärmeerzeuger (3~)
contactor 2nd heat generator (3~)
contacteur 2ème générateur de chaleur (3~)
Zusatzumwälzpumpe
auxiliary circulating pump
circulateur supplémentaire
Störfernanzeige
remote fault indicator
télédétection de pannes
Schütz 2. Wärmeerzeuger (1~)
contactor 2nd heat generator (1~)
contacteur 2ème générateur de chaleur (1~)
GLEN DIMPLEX
DEUTSCHLAND

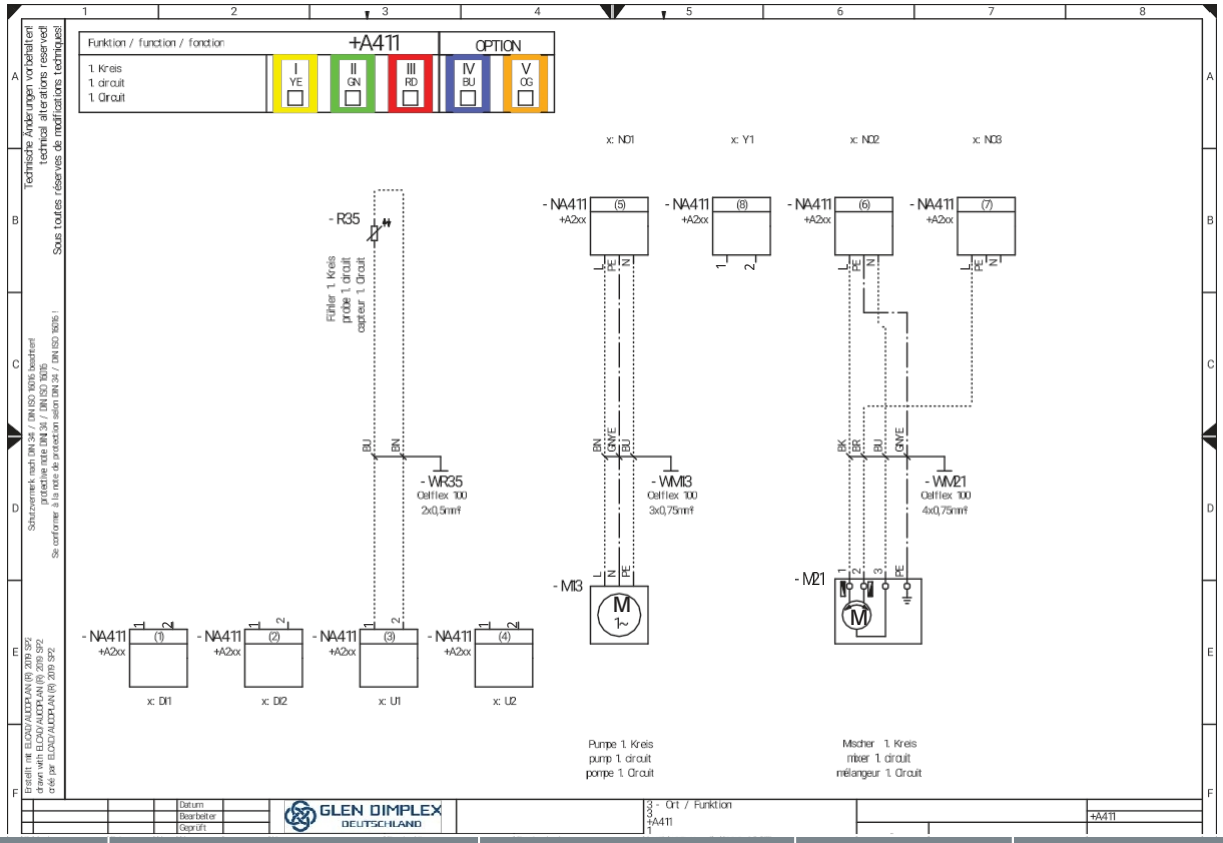


Cables	Designation	Cable type	Goal 1.	Goal 2
-W+A200	Control voltage cable	Installation cable: NYM-J 3 x 1.5mm²	+A200-N1/SH Heat pump manager S-HV	+A300-F+A200 Heat pump manager fuse
-W+A400.1*.	Cable supply voltage (3~)	Installation cable: NYM-J 5 x Xmm²	+A300-K20* 2nd heat generator contactor	+A400-E10* 2nd heat generator (3~)
-W+A400.1**	Cable supply voltage (1~)	Installation cable: NYM-J 3 x Xmm²	+A300-K20** 2nd heat generator contactor	+A400-E10** 2nd heat generator (1~)
-WH5	Cable -H5	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A200-H5 remote fault indicator	+A400-N1/SH Heat pump manager S-HV
-WK20*	Cable -K20 (3~)	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A200-N1/SH Heat pump manager S-HV	+A300-K20* 2nd heat generator contactor

Cables	Designation	Cable type	Goal 1.	Goal 2
-WK20**	Cable -K20 (1~)	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A200-N1/SH Heat pump manager S-HV	+A300-K20** Contactor 2. heat generator (1~)
-WK22	Cable -K22	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A200-N1/SL Heat pump manager S-LV	+A300-K22 utility block
-WK23	Cable -K23	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A200-K23 disable contactor	+A400-N1/SL Heat pump manager S-LV
-WM13.1.	Cable supply voltage -M13	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A200-M13 Heating circulation pump	+A400-N1/SH Heat pump manager S-HV
-WM13.2	Control voltage cable -M13	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A200-M13 Heating circulation pump	+A400-N1/SL Heat pump manager S-LV
-WM16.1.	Cable supply voltage -M13	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A200-M16 Additional circulation pump	+A400-N1/SH Heat pump manager S-HV
-WM16.2	Control voltage cable -M13	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A200-M16 Additional circulation pump	+A400-N1/SL Heat pump manager S-LV
-WN24.1.	Cable supply voltage -N24	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A200-N24 Smart - RTC	+A400-N1/MH Heat pump manager M-HV
-WN24.2	Cable communication -N24	Data cable; shielded: J-Y(ST)Y ..LG 4 x 0.28mm²	+A200-N24 Smart - RTC	+A400-N1 Heat pump manager
-WN27.1.	Cable -N27.1	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A200-N27.1 Smart Grid 1.	+A400-N1/SL Heat pump manager S-LV
-WN27.2	Cable -N27.2	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A200-N27.2 Smart Grid 2	+A400-N1/SL Heat pump manager S-LV
-WN28	Cable -N28	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A200-N28 Building control technology	+A400-N1/SL Heat pump manager S-LV

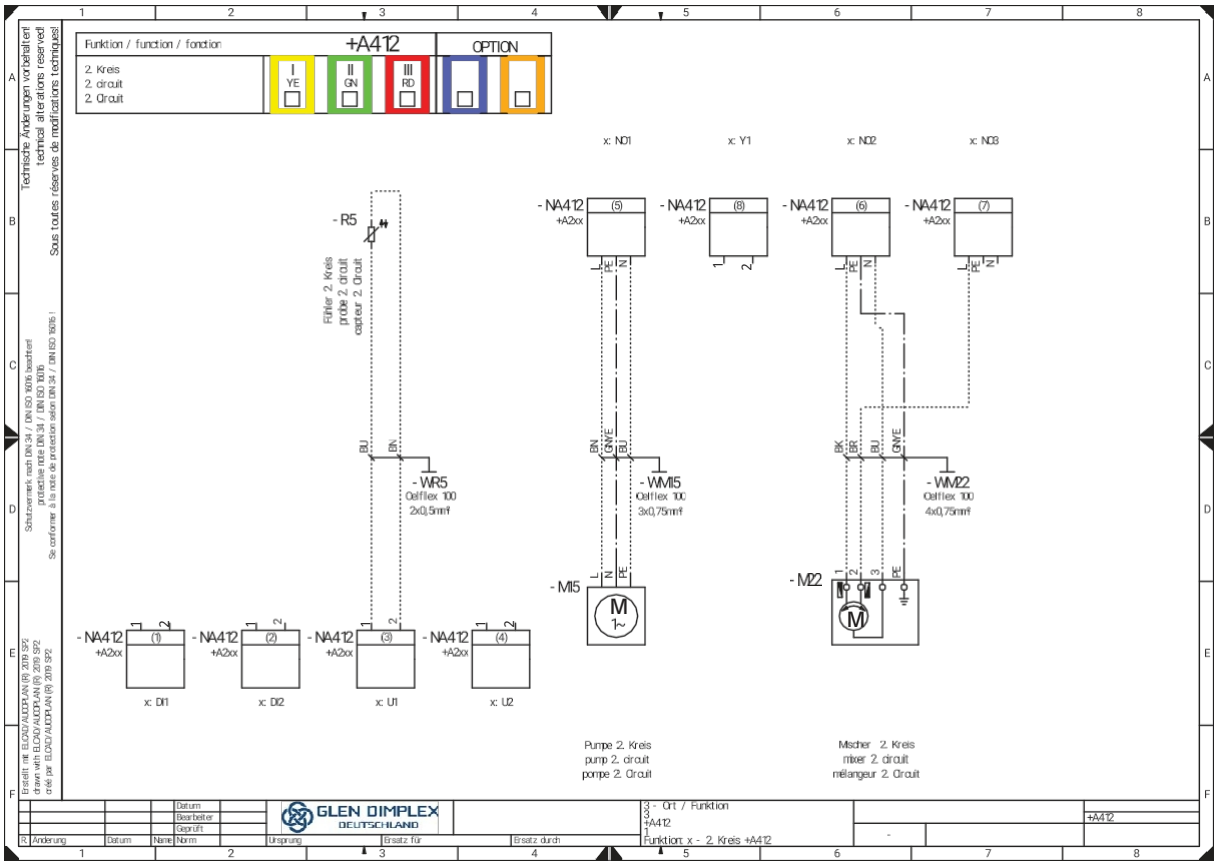
Cables	Designation	Cable type	Goal 1.	Goal 2
-WR1	Cable -R1	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A200-R1 External wall sensor	+A400-N1/SL Heat pump manager S-LV

10.3.6 Function +A411 / 1. circuit mixed



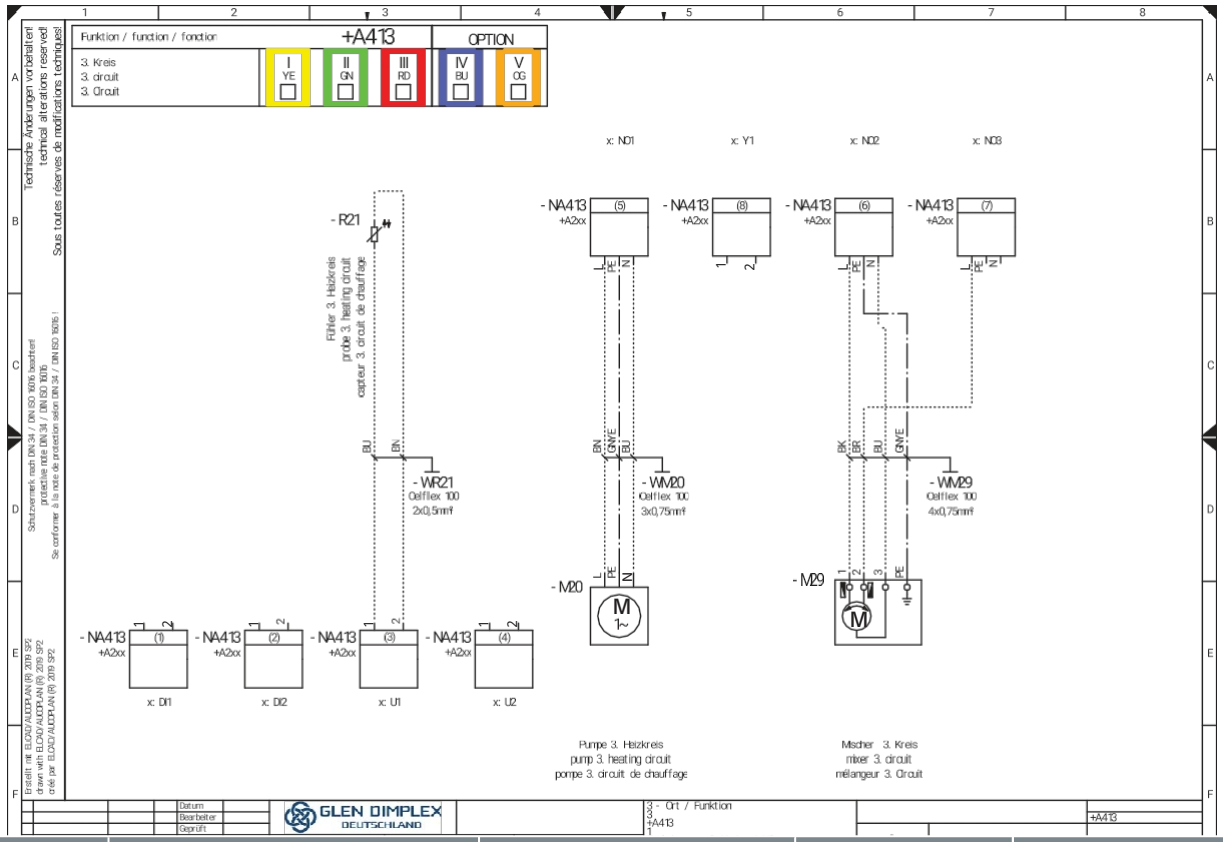
Cables	Designation	Cable type	Goal 1.	Goal 2
-WM13	Cable supply voltage -M13	PVC control cable; coloured: Oelflex 100	+A2xx-NA411 Function block 1. circle	+A411-M13 Pump 1. circle
-WM21	Cable -M21	PVC control cable; coloured: Oelflex 100	+A2xx-NA411 Function block 1. circle	+A411-M21 mixer 1. circle
-WR35	Cable -R35	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA411 Function block 1. circle	+A411-R35 sensor 1. circle

10.3.7 Function +A412 / 2nd circuit mixed



Cables	Designation	Cable type	Goal 1.	Goal 2
-WM15	Cable supply voltage -M15	PVC control cable; coloured: Oelflex 100	+A2xx-NA412 Function block 2nd circle	+A411-M15 Pump 2nd circle
-WM22	Cable -M22	PVC control cable; coloured: Oelflex 100	+A2xx-NA412 Function block 2nd circle	+A411-M22 mixer 2nd circle
-WR5	Cable -R5	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA412 Function block 2nd circle	+A411-R5 sensor 2nd circle

10.3.8 Function +A413 / 3rd circuit mixed

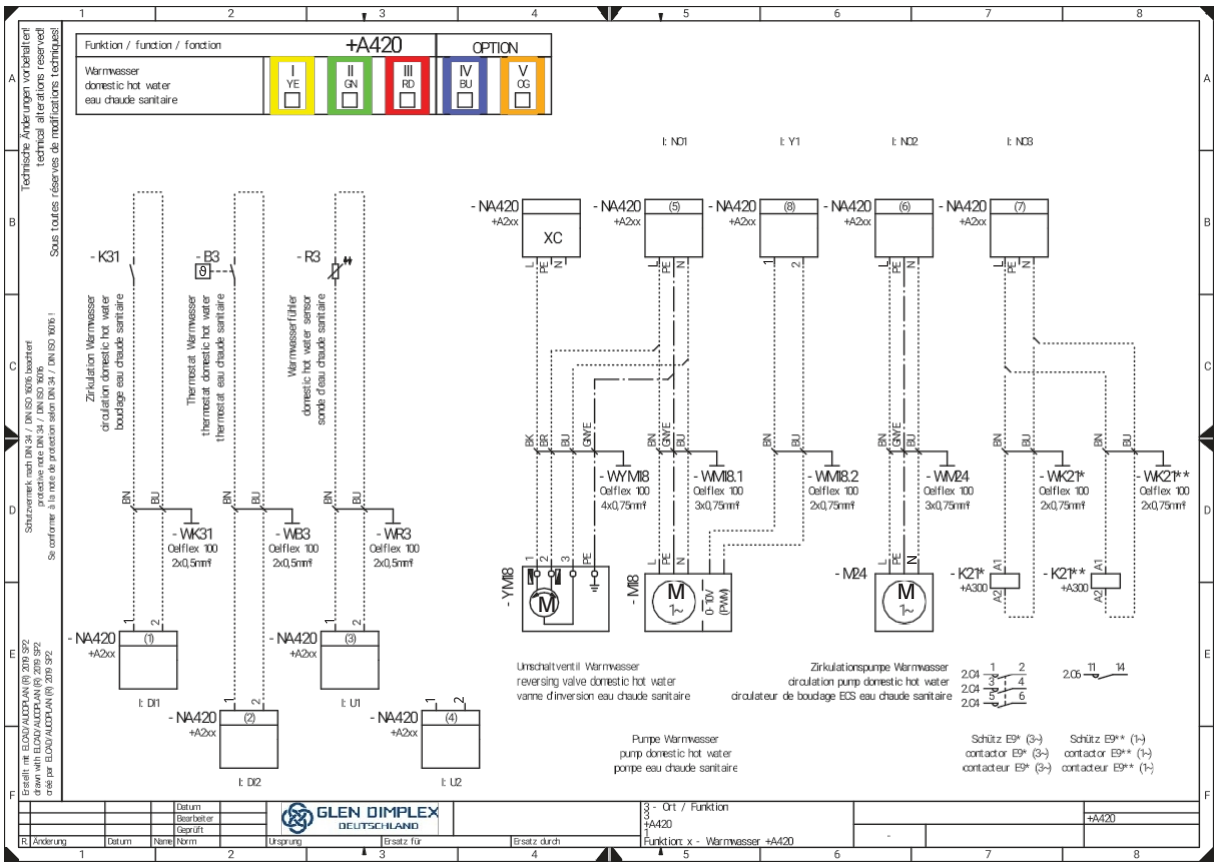


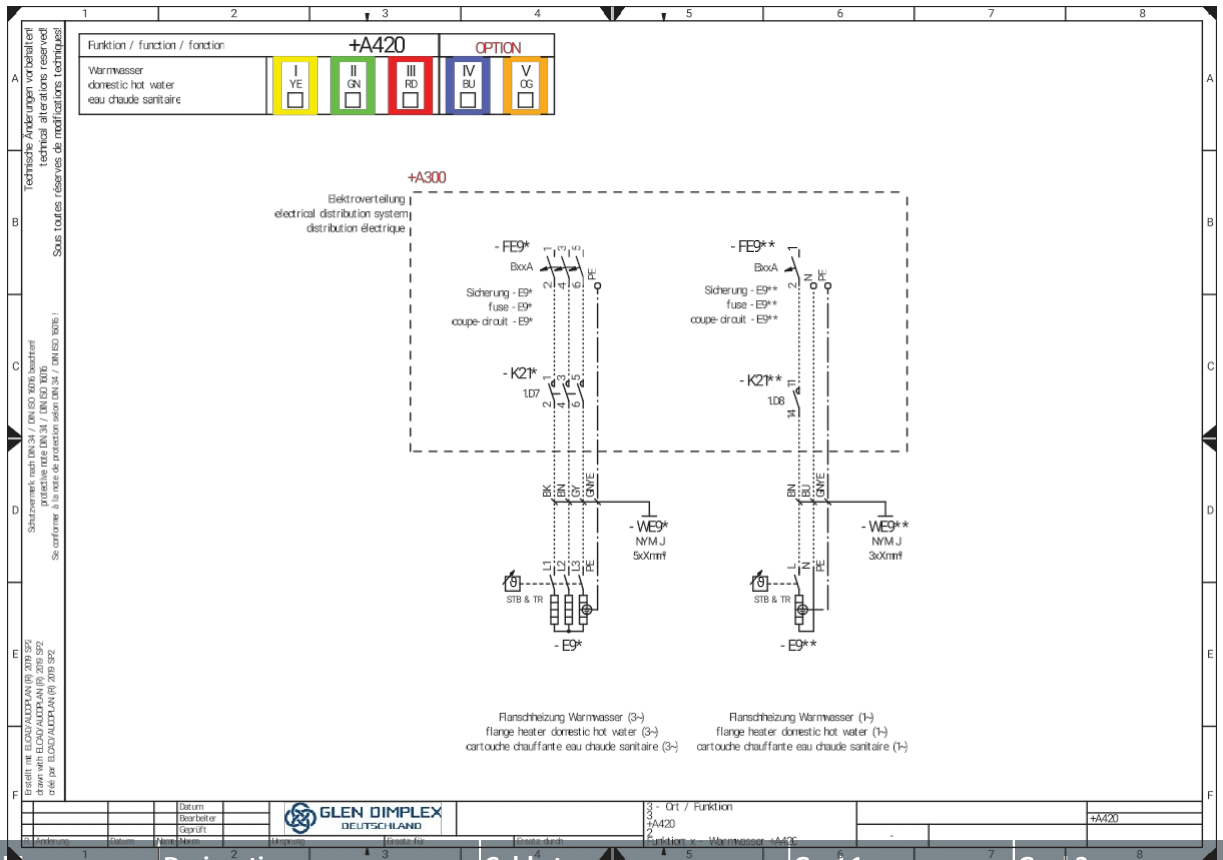
Cables	Designation	Cable type	Goal 1.	Goal 2
-WM20	Cable supply voltage -M20	PVC control cable; coloured: Oelflex 100	+A2xx-NA413 Function block 3rd circle	+A411-M20 Pump 3rd circle
-WM29	Cable -M29	PVC control cable; coloured: Oelflex 100	+A2xx-NA413 Function block 3rd circle	+A411-M29 mixer 3rd circle
-WR21	Cable -R21	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA413 Function block 3rd circle	+A411-R21 sensor 3rd circle

10.3.9 Function +A420 / domestic hot water

Functional description domestic hot water WPM Touch:

domestic hot water

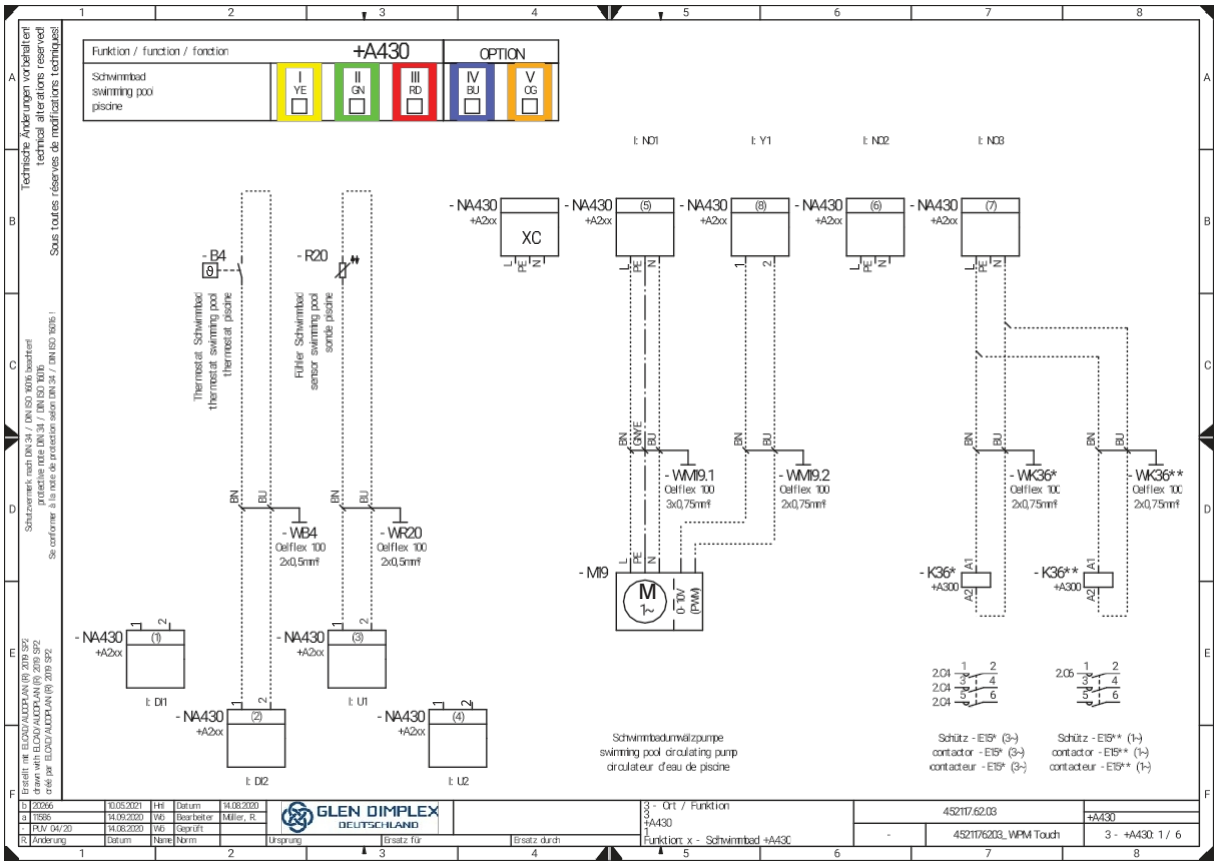

Funktion / function / fonction
+A420
OPTION
Warmwasser
domestic hot water
eau chaude sanitaire
I YE
II GN
III RD
IV BU
V OG
Technische Änderungen vorbehalten
technical alterations reserved
Sous toutes réserves de modifications techniques
Schutzvermerk nach DIN 34 / DIN ISO 16016 beachten
protective note DIN 34 / DIN ISO 16016
Se conformer à la note de protection selon DIN 34 / DIN ISO 16016 !
Erstellt mit ELDAS/AUCOPLAN (R) 2019 SP2
Erstellt mit ELDAS/AUCOPLAN (R) 2019 SP2
créé par ELDAS/AUCOPLAN (R) 2019 SP2
- K31
- B3
- R3
Zirkulation Warmwasser
circulation domestic hot water
bouclage eau chaude sanitaire
Thermostat Warmwasser
thermostat domestic hot water
thermostat eau chaude sanitaire
Warmwasserfühler
domestic hot water sensor
sonde d'eau chaude sanitaire
- WK31
Oelflex 100
2x0,5mm²
- WB3
Oelflex 100
2x0,5mm²
- WR3
Oelflex 100
2x0,5mm²
- NA420
+A2xx
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
XC
t: DI1
t: DI2
t: UI1
t: UI2
t: NO1
t: Y1
t: NO2
t: NO3
- WYM18
Oelflex 100
4x0,75mm²
- WM18.1
Oelflex 100
3x0,75mm²
- WM18.2
Oelflex 100
2x0,75mm²
- WM24
Oelflex 100
3x0,75mm²
- WK21*
Oelflex 100
2x0,75mm²
- WK21**
Oelflex 100
2x0,75mm²
- YM18
- M18
- M24
- K21*
+A300
- K21**
+A300
0-10V (PWM)
Umschaltventil Warmwasser
reversing valve domestic hot water
vanne d'inversion eau chaude sanitaire
Zirkulationspumpe Warmwasser
circulation pump domestic hot water
circulateur de bouclage ECS eau chaude sanitaire
Pumpe Warmwasser
pump domestic hot water
pompe eau chaude sanitaire
Schütz E9* (3~)
contactor E9* (3~)
contacteur E9* (3~)
Schütz E9** (1~)
contactor E9** (1~)
contacteur E9** (1~)
GLEN DIMPLEX
DEUTSCHLAND
3 - Ort / Funktion
+A420
1
Funktion: x - Warmwasser +A420
+A420

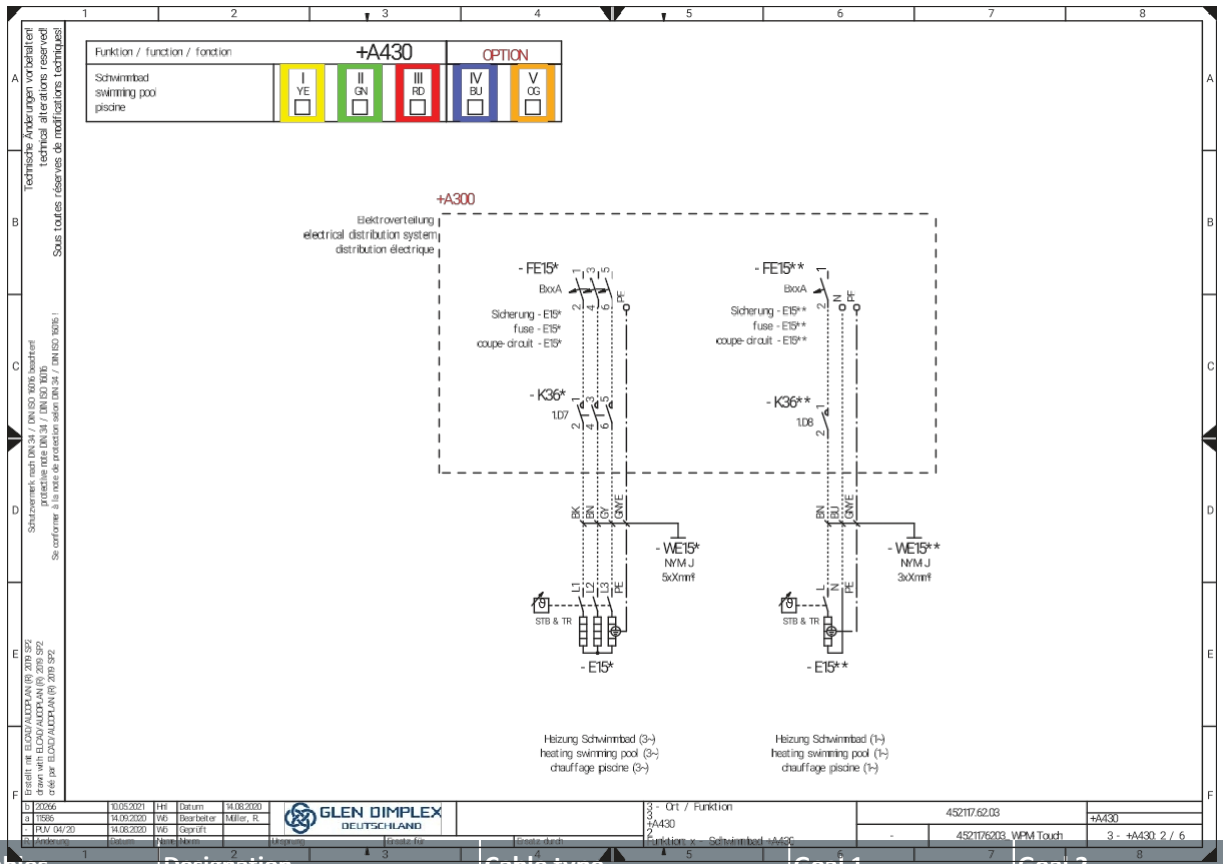


Cables	Designation	Cable type	Goal 1.	Goal 2
-WB3	Cable -B3	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA420 Domestic hot water function block	+A420-B3 Domestic hot water thermostat
-WE9*	Cable supply voltage (3~)	Installation cable: NYM-J 5 x Xmm²	+A300-K21* Contactor E9* (3~)	+A420-E9* Flange heater domestic hot water (3~)
-WE9**	Cable supply voltage (1~)	Installation cable: NYM-J 3 x Xmm²	+A300-K21** Contactor E9** (1~)	+A420-E9** Flange heater domestic hot water (1~)
-WK21*	Cable -K21*	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-NA420 Domestic hot water function block	+A300-K21* Contactor E9* (3~)
-WK21**	Cable -K21**	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-NA420 Domestic hot water function block	+A300-K21** Contactor E9** (1~)

Cables	Designation	Cable type	Goal 1.	Goal 2
-WK31	Cable -K31	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA420 Domestic hot water function block	+A420-K31 Domestic hot water circulation
-WK36	Cable -K36	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-NA430 Swimming pool function block	+A300-K36 Contactor flange heater -E8.1
-WM18.1.	Cable supply voltage -M18	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A2xx-NA420 Domestic hot water function block	+A420-M18 Domestic hot water pump
-WM18.2	Control voltage cable -M18	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-NA420 Domestic hot water function block	+A420-M18 Domestic hot water pump
-WM24	Cable -M24	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A2xx-NA420 Domestic hot water function block	+A420-M24 Domestic hot water circulation pump
-WR3	Cable -B3	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA420 Domestic hot water function block	+A420-R3 domestic hot water sensor
-WYM18	Cable supply voltage -YM18	PVC control cable; coloured: Oelflex 100 4 x 0.75mm²	+A2xx-NA420 Domestic hot water function block	+A420-YM18 Domestic hot water reversing valve

10.3.10 Function +A430 / swimming pool





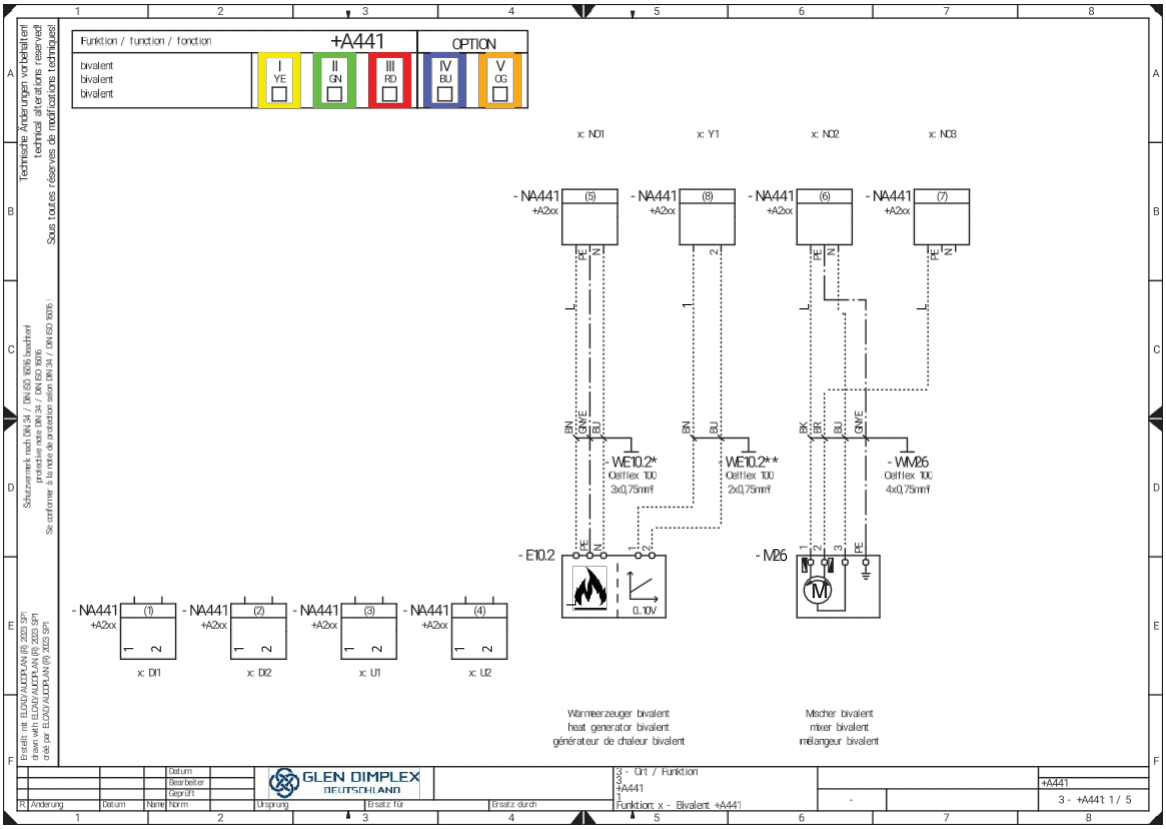
Cables	Designation	Cable type	Goal 1.	Goal 2
-WB4	Cable -B4	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA430 Swimming pool function block	+A430-B4 Swimming pool thermostat
-WE15*	Cable E15* (3~)	Installation cable: NYM-J 5 x Xmm²	+A300-K36* Contactor -E15* (3~)	+A430-E15* Swimming pool heating (3~)
-WE15**	Cable E15** (1~)	Installation cable: NYM-J 3 x Xmm²	+A300-K36** Contactor -E15**	+A430-E15** Heating swimming pool (1~)
-WK21*	Cable -K21*	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-NA420 Domestic hot water function block	+A300-K21* Contactor E9* (3~)
-WK21**	Cable -K21**	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-NA420 Domestic hot water function block	+A300-K21** Contactor E9** (1~)

Cables	Designation	Cable type	Goal 1.	Goal 2
-WK36*	Cable -K36*	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-NA430 Swimming pool function block	+A300-K36** Contactor -E15**
-WK36**	Cable -K36**	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-NA430 Swimming pool function block	+A300-K36** Contactor -E15**
-WM19.1.	Mains cable -M19.1	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A2xx-NA430 Swimming pool function block	+A430-M19 Swimming pool circulation pump
-WM19.2	Control cable -M19	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-NA430 Swimming pool function block	+A430-M19 Swimming pool circulation pump
-WR20	Cable -R20	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA430 Swimming pool function block	+A430-R20 Swimming pool sensor

10.3.11 Function +A441 / Bivalent

Functional description 2nd heat generator WPM Touch:

2nd heat generator

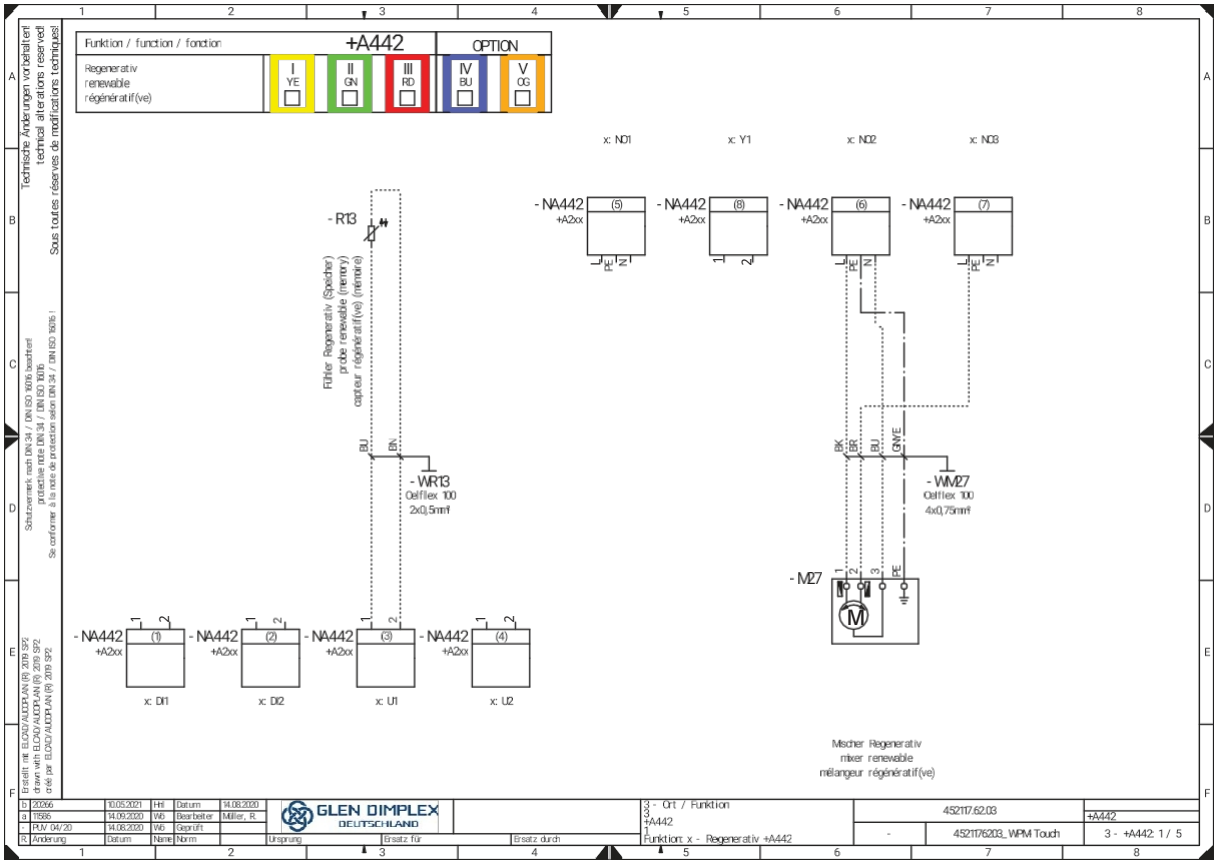


Cables	Designation	Cable type	Goal 1.	Goal 2
-WE10.2*	Cable -E10.2	PVC control cable; coloured: Oelflex 100	+A2xx-NA441 Function block bivalent	+A441-E10.2 heat generator bivalent
-WE10.2**	Tax output -E10.2	PVC control cable; coloured: Oelflex 100	+A2xx-NA441 Function block bivalent	+A441-E10.2 heat generator bivalent
-WM26	Cable -M26	PVC control cable; coloured: Oelflex 100 4 x 0.75mm²	+A2xx-NA441 Function block bivalent	+A441-M26 Mixer bivalent

10.3.12 Function +A442 / renewable

Functional description of renewable WPM Touch:

renewable

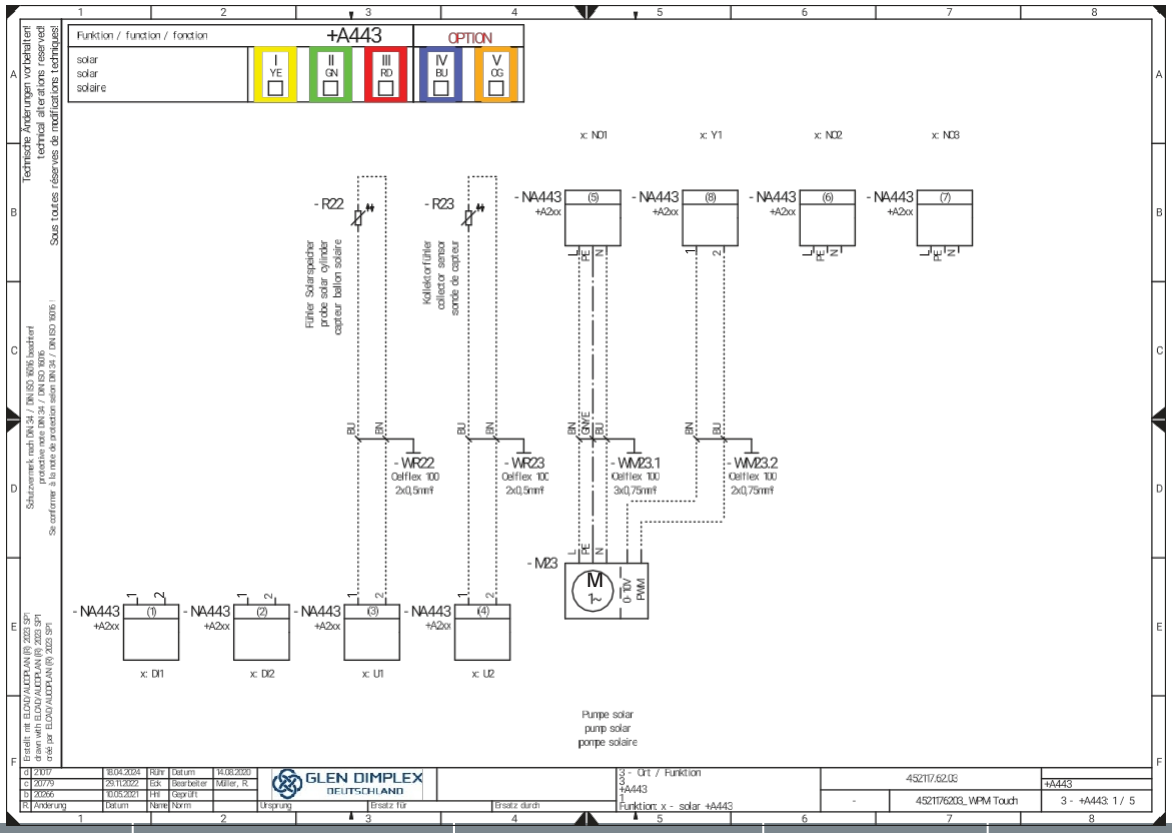


Cables	Designation	Cable type	Goal 1.	Goal 2
-WM27	Cable -M27	PVC control cable; coloured: Oelflex 100 4 x 0.75mm²	+A2xx-NA442 Renewable function block	+A441-E10.2 Mixer renewable
-WR13	Cable -R13	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA442 Renewable function block	+A441-M26 Renewable sensor (thermal reservoir)

10.3.13 Function +A443 / Solar

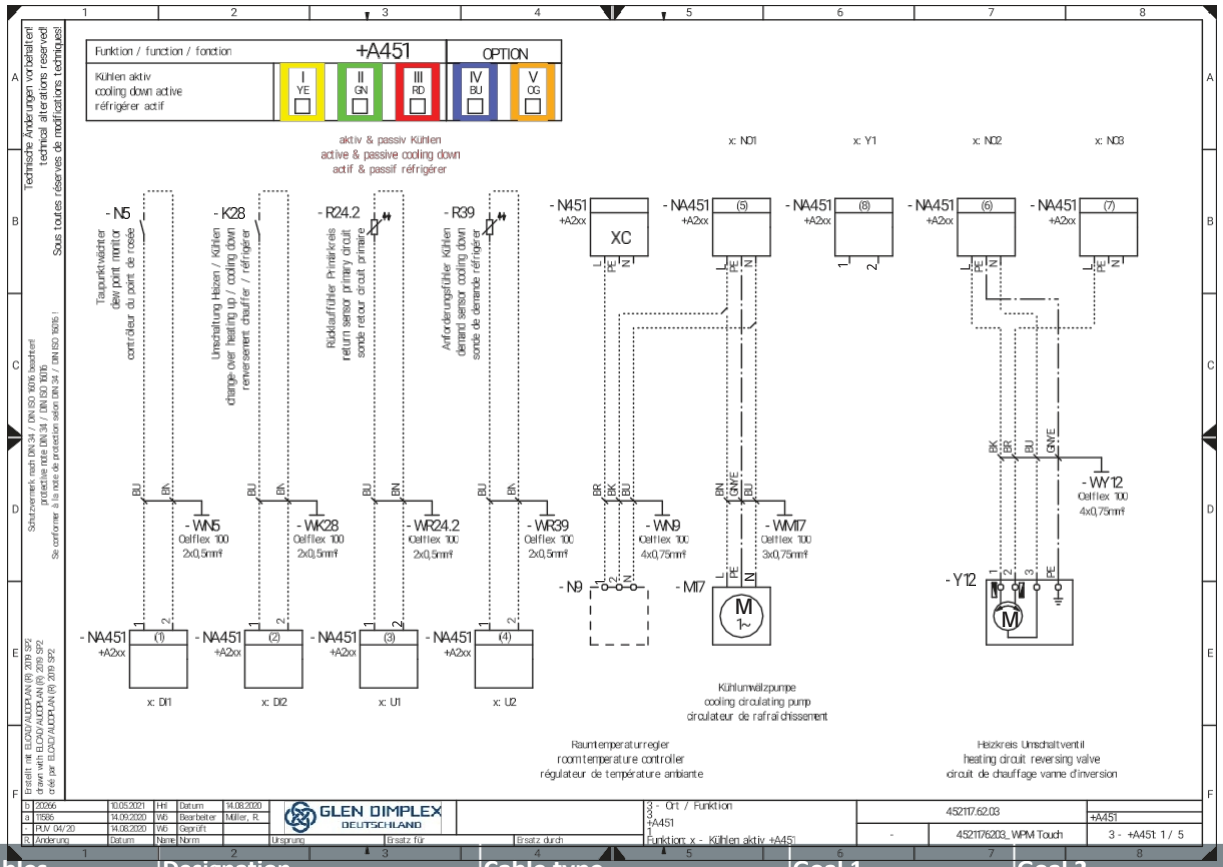
Functional description Solar WPM Touch

https://dimplex.atlassian.net/wiki/x/CQBNw



Cables	Designation	Cable type	Goal 1.	Goal 2
-WM23.1.	M23 mains cable	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A2xx-M23 Solar pump	+A443-NA443 Function block solar
-WM23.2	Control cable -M23	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-M23 Solar pump	+A443-NA443 Function block solar
-WR22	Cable -R22	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA443 Function block solar	+A443-R22 Solar cylinder sensor
-WR23	Cable -R23	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA443 Function block solar	+A443-R23 collector sensor

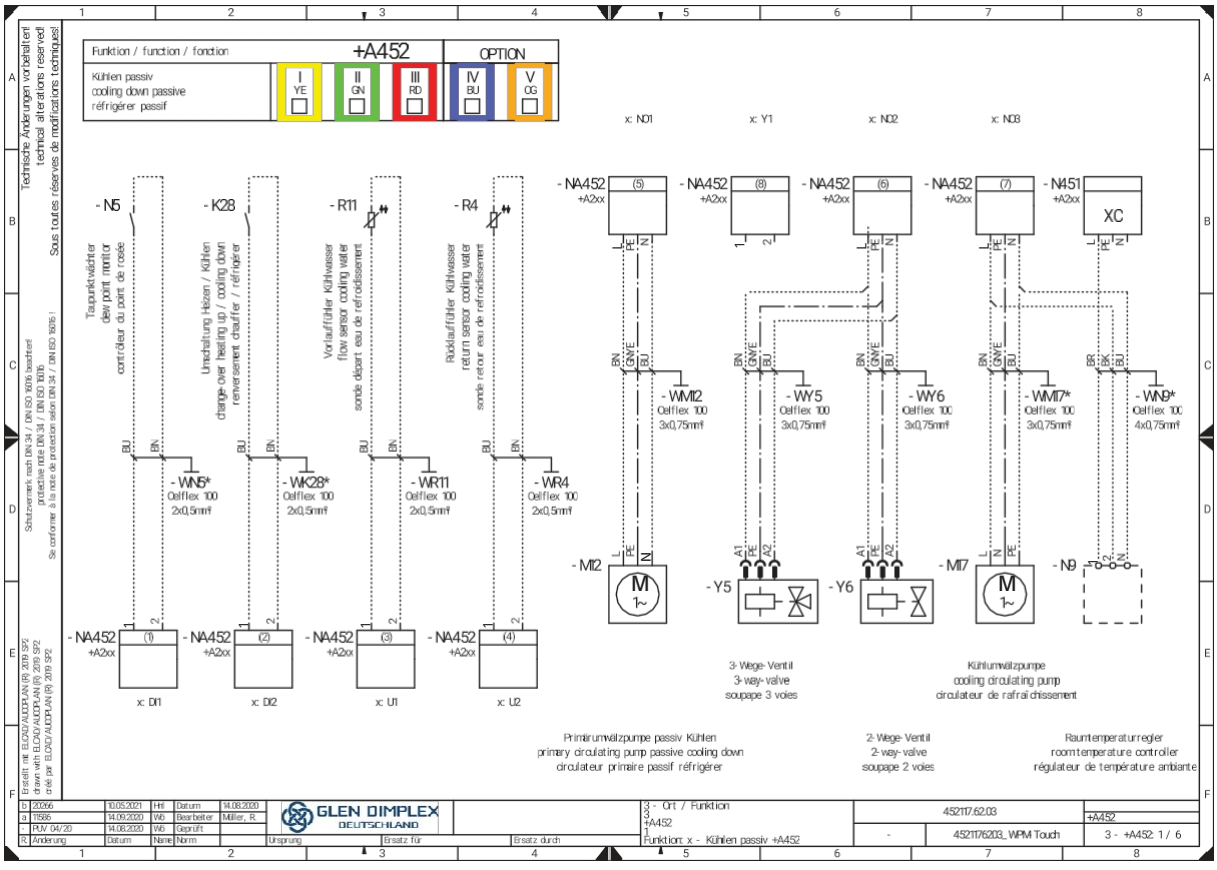
10.3.14 Function +A451 / Cooling active



Cables	Designation	Cable type	Goal 1.	Goal 2
-WK28	Cable -K28	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA451 Connection terminals Cooling function cooling active	+A451-K28 Switching Heating /
-WM17	Cable -M17	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A2xx-NA451 Cooling function block active	+A451-M17 cooling circulating pump
-WN5	Cable -N5	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA451 Connection terminals Dew point monitor Cooling function active	+A451-N5
-WN9	Cable -N9	PVC control cable; coloured: Oelflex 100 4 x 0.75mm²	+A2xx-NA451 Connection terminals Room temperature control Cooling function active	+A451-N9 ler

Cables	Designation	Cable type	Goal 1.	Goal 2
-WR24.2	Cable -R24.2	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA451 Cooling function block active	+A451-R24.2 Primary circuit return sensor
-WR39	Cable -R39	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA451 Cooling function block active	+A451-R39 Cooling demand sensor
-WY12	Cable -Y12	PVC control cable; coloured: Oelflex 100 4 x 0.75mm²	+A2xx-NA451 Cooling function block active	+A451-Y12 Heating circuit reversing valve

10.3.15 Function +A452 / Cooling passive



Cables	Designation	Cable type	Goal 1.	Goal 2
-WK28*	Cable -K28	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA452 Passive cooling function block	+A452-K28 Heating / cooling switching
-WM12	Cable -M12	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A2xx-NA452 Passive cooling function block	+A452-M12 Primary circulating pump passive cooling
-WM17*	Cable -M17	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A2xx-NA452 Passive cooling function block	+A452-M17 cooling circulating pump
-WM17.2	Control voltage cable -M17	PVC control cable; coloured: Oelflex 100 2 x 0.75mm²	+A2xx-NA452 Passive cooling function block	+A452-M17 cooling circulating pump
-WN5*	Cable -N5	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA452 Passive cooling function block	+A452-N5 dew point monitor
-WN9*	Cable -N9	PVC control cable; coloured: Oelflex 100 4 x 0.75mm²	+A2xx-N451 Cooling function block active	+A452-N9 Room temperature controller
-WR4	Cable -R4	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA452 Passive cooling function block	+A452-R4 Cooling water return sensor
-WR11	Cable -R11	PVC control cable; coloured: Oelflex 100 2 x 0.5mm²	+A2xx-NA452 Passive cooling function block	+A452-R11 Cooling water flow sensor
-WY5	Cable -Y5	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A2xx-NA452 Passive cooling function block	+A452-Y5 3-way valve
-WY6	Cable -Y6	PVC control cable; coloured: Oelflex 100 3 x 0.75mm²	+A2xx-NA452 Passive cooling function block	+A452-Y6 2-way valve

10.4 Function blocks

The basic version of the WPM Touch heat pump manager has a non-changeable pin assignment for the Function "General/1.unmixed circuit" on the function block "grey".

Other functions can be individually assigned to three function blocks (yellow, green, red).

If these three function blocks are not sufficient, there is the option of using the **extension to add two more function blocks** (orange, blue). A maximum of five function blocks are possible (yellow, green, red, orange, blue).

> **NOTE**
> The "Active cooling" function can only be selected for a reversible heat pump.

10.4.1 Overview of functions

Pin assignment	Function
General/1.unmixed circuit +A400	
A1/K22	Utility company disable contactor
A2/K23	External disable contactor
R1	Outdoor temperature sensor
R2.2	Request sensor
M13	heat circulating pump
H5	remote fault indicator
E10.1/K20	Tubular heating/immersion heater
N27.1	Smart grid green
N27.2	Smart Grid red
M16	auxiliary circulating pump
AO M16	Control signal auxiliary circulating pump
Domestic hot water +A420	
K31	Circulation requirement
B8	thermostat
R3	domestic hot water sensor
(Y)M18	Circulation pump/reversing valve
E9/K21	flange heater
AO M18	Circulation pump control signal
1. mixed circuit +A411	
R35	sensor
M13	Circulation pump

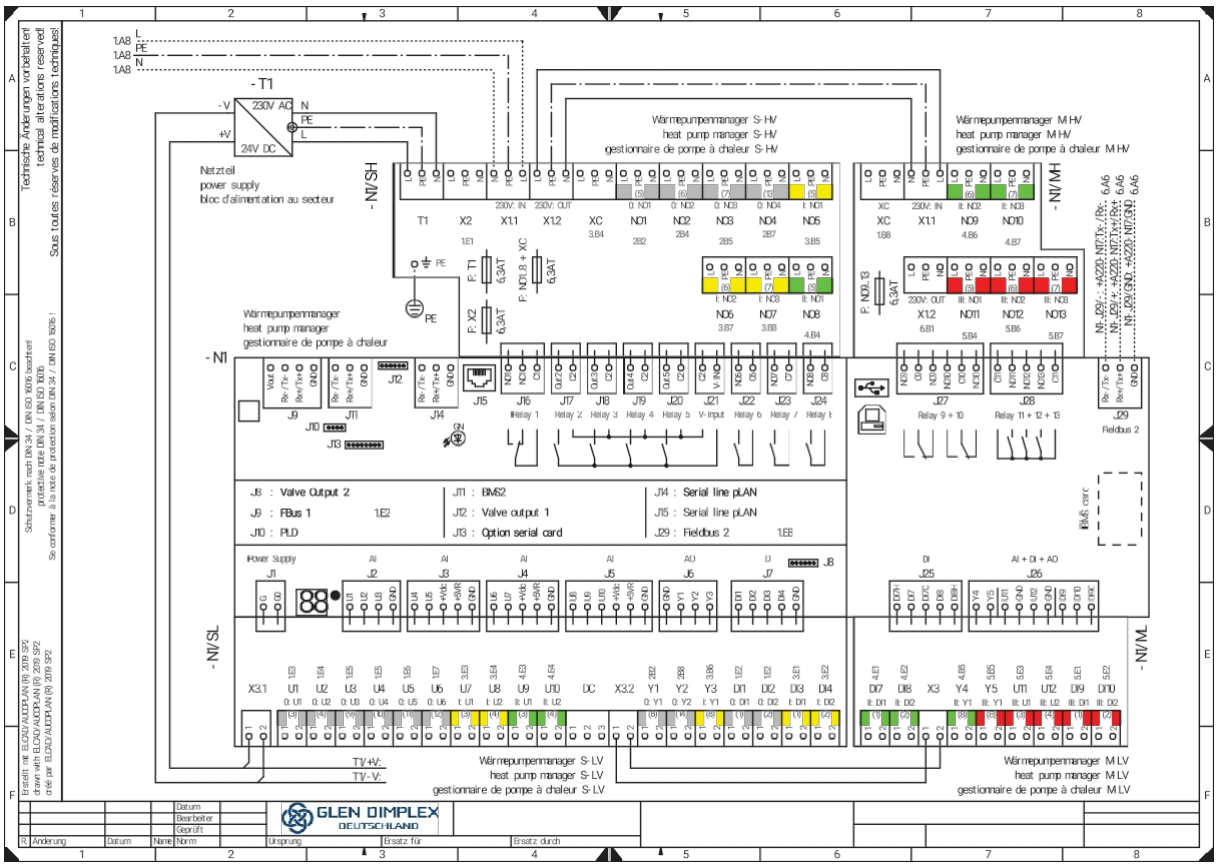
Pin assignment	Function
Bivalent +A441	
E10.2/3	Oil/gas boiler
M26 ↑	Mixer Open
M26 ↓	Mixer Closed
AO E10.2/3	Oil/gas boiler control signal
Renewable +A442	
R13	sensor
M27 ↑	Mixer Open
M27 ↓	Mixer Closed
M28	Circulation pump renewable
Swimming pool+A430	
B4	thermostat
R20	domestic hot water sensor
(Y)M19	Circulation pump/reversing valve
K36	flange heater
AO M19	Circulation pump control signal
Cooling active +A451	
N5	dew point monitor
K28	Heating / cooling switching
R24.2	Primary circuit cooling return sensor
R39	Cooling demand sensor
N9/M17	Switching room thermostat / cooling circulating pump

M21 ↑	Mixer Open
M21 ↓	Mixer Closed
2.mixed circuit +A412	
R5	sensor
M15	Circulation pump
M22 ↑	Mixer Open
M22 ↓	Mixer Closed
3.mixed circuit +A413	
R21	sensor
M20	Circulation pump
M29 ↑	Mixer Open
M29 ↓	Mixer Closed

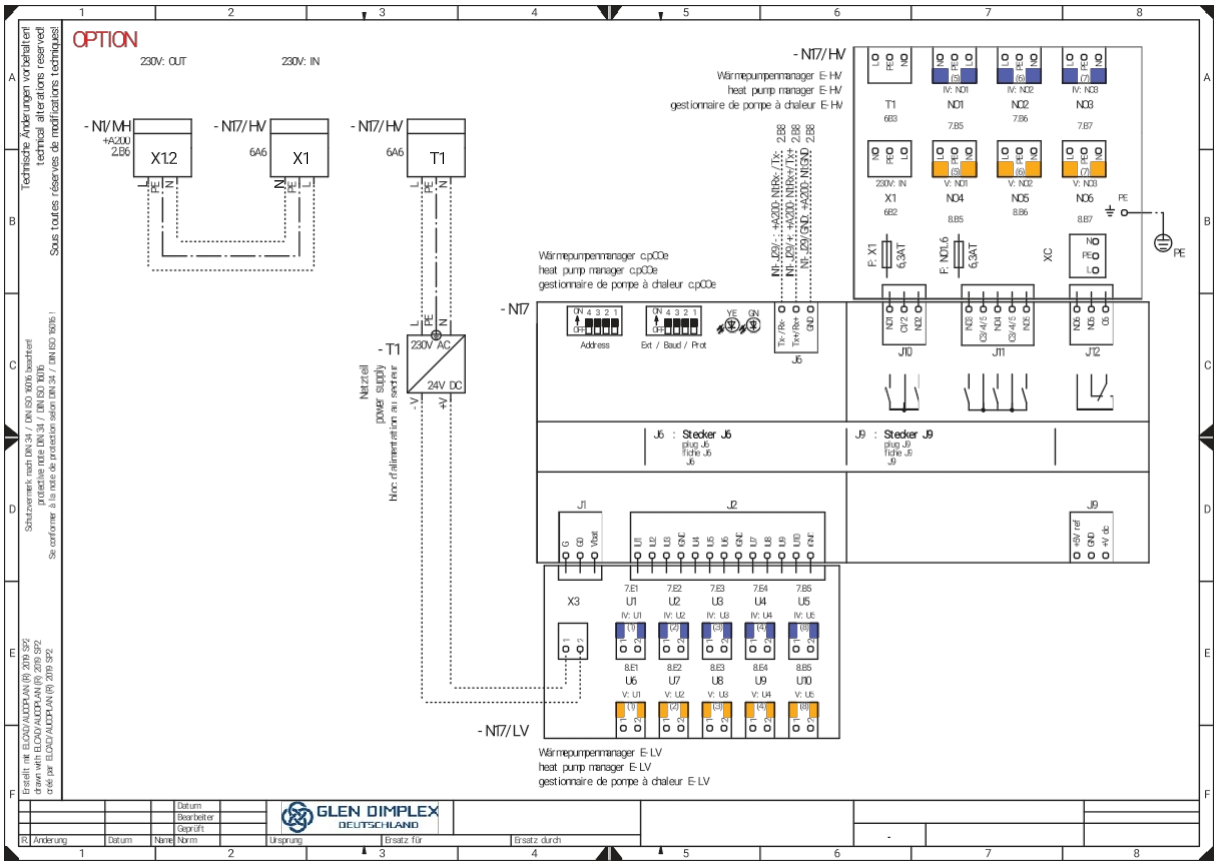
Y12 ↑	External 4-WUV On
Y12 ↓	external 4-WUV Too
Cooling passive+A452	
N5	dew point monitor
K28	Heating / cooling switching
R11	Cooling water flow
R4	Cooling water return
M12	Primary circulating pump passive cool.
Y5/Y6	3-way or 2-way valve
M17	cooling circulating pump
Solar +A443	
R22	solar cylinder
R23	collector sensor
M23	Solar pump
AO M23	Solar pump control signal

NOTE
An overview of the pin assignments can be found in the installation instructions for the heat pump manager WPM Touch

10.4.2 Plug overview Basic function:



10.4.3 Plug function extension (WPM Touch +2)



10.4.4 Associated cable assignments:

Function +A400 / general / 1st circuit unmixed

Function +A411 / 1st circuit mixed

Function +A412 / 2nd circuit mixed

function +A413 / 3rd circuit mixed

function +A420 / Domestic hot

water function +A430 / Swimming

pool function +A441 / Bivalent

function +A442 / Renewable

function +A443 / Solar

Function +A451 / Cooling active

Function +A452 / Cooling passive

10.5 Building management system

The heat pump manager can be connected to a building management system network by adding the relevant extension interface. The supplementary installation instructions for the extension interface must be observed for the exact connection and parameterisation.

The following protocols are available for the heat pump manager:

- KNX
- Ethernet
- Modbus TCP
- Modbus RTU
- BACnet/IP
- MQTT

Help and problem solutions for the extensions available as accessories for the heat pump manager are provided at http://www.dimplex.de/wiki.

http://www.dimplex.de/wiki

10.6 Connection of electronically controlled circulation pumps

Electronically controlled circulation pumps can have high starting currents, which can reduce the service life of the heat pump manager under certain circumstances. If the starting current value is high or unknown, a coupling relay must be installed. The coupling relay must be provided by the customer. This is not necessary if the maximum permissible operating current of the heat pump manager (see electrical documentation) is not exceeded by the electronically controlled circulation pump or if the pump manufacturer has given its approval.

NOTE
When using high-efficiency pumps (UPH), we recommend using a coupling relay that is supplied with the electronically controlled circulation pump and protects the controller from high starting currents.

CAUTION
It is not permitted to switch more than one electronically controlled circulation pump via one relay output.

10.7 SG-Ready function / own power utilisation

It is possible to map the switching states of the SG Ready label via 2 digital inputs (see electrical documentation for the heat pump manager). These switching states can be used to utilise a photovoltaic system's own electricity.

NOTE
The electrical documentation and setting instructions for the inverter or energy manager used must be observed.

Condition	Functional description
Switching state 1. *Electricity bottleneck (little electricity in the grid, expensive electricity)* The energy supply company can block the heat pump or set it to a lowered operating status for hot water, heating and swimming pool water preparation.	domestic hot water: A domestic hot water block is executed. Domestic hot water preparation takes place up to the set minimum temperature. Heating: Heating water preparation is carried out in lowered mode. The lower value set in the respective time program applies. If control via room temperature is selected, this is lowered. swimming pool: A swimming pool barrier is installed. The swimming pool is heated up to the set minimum temperature.
Switching state 2 *No electricity shortages or surpluses (the grid is balanced)* The heat pump runs in normal mode. The energy supply company does not intervene and the heat pump does not run in an automatically lowered or raised operating status for hot water, heating and swimming pool water preparation.	domestic hot water: Domestic hot water preparation takes place up to the set temperature. Any blocks that have been set are taken into account. Heating: The heating water is heated according to the currently set heating curve or room temperature. Possible lowering or raising times are taken into account. swimming pool: The swimming pool is heated according to the set temperature. Any set block and priority times are taken into account.
Switching state 3 Surplus electricity (lots of electricity in the grid, cheap electricity) The energy supply company can set the heat pump to a raised operating status for hot, heating and swimming pool water preparation.	domestic hot water: Any programmed domestic hot water block is cancelled. Domestic hot water preparation is carried out up to the set maximum temperature or the WP Max. temperature. Heating: The heating water is heated in raised mode. If control via room temperature is selected, the control valves are opened (only for control with RTM Econ) to heat the building. as a thermal reservoir. swimming pool: Any programmed swimming pool block is cancelled. Swimming pool preparation is carried out up to the set maximum temperature or up to the WP Max. temperature. renewable: With a renewable hydraulic integration, the heat pump is given priority. The renewable storage tank is not discharged and is blocked for operation! Cooling: As PV yield and cooling are simultaneous in the summer months, there is no separate function for the cooling operating mode.

NOTE
Switching state 3 is used to utilise the electricity generated by a photovoltaic system.

10.8 Renewable integration for the use of renewable energies

When integrating a renewable heat source (e.g. solar, wood), this must be prioritised over the operation of the heat pump. To do this, the "Renewable" function is selected in EasyOn. As long as the renewable storage tank is colder, the system behaves like a monoenergetic system.
system. The sensor of the renewable storage tank is connected to the analogue input (3) of the "Renewable" function block. connected. The mixer outputs of the bivalent mixer are active.

10.8.1 Basic function:

The temperature in the renewable storage tank is recorded and compared with the flow temperature of the corresponding requirement (domestic hot water, heating or swimming pool). If the temperature is above the conditions listed below, the heat pump is blocked, the renewable storage tank is used as a 2nd heat generator and the bivalent mixer is activated accordingly.

10.8.2 Block due to heating request:

If the temperature in the storage tank is 2-20 K higher than the current flow temperature, the heat pump is blocked if there is a heating requirement. It is only enabled again when the difference between the renewable storage tank and the flow is less than half the switching value.

NOTE
For solar integration, the adjustable excess temperature should be set to the maximum value to prevent the heat pump from cycling.

10.8.3 Block due to hot water request:

If the temperature in the storage tank is 2-5 K higher than the current hot water temperature, the heat pump is blocked if there is a hot water demand. It is only enabled again when the difference between the renewable storage tank and domestic hot water is less than half the switching value.

10.8.4 Block due to swimming pool request:

If the temperature in the storage tank is higher than 35 °C (value can be set in the menu - Settings - 2nd heat generator excess temperature of 10-50 °C), the heat pump is blocked if there is a swimming pool requirement. It is only enabled when the temperature in the parallel buffer is 5K below the switching temperature again.

10.8.5 Mixer control:

If there is no renewable block, the mixer is controlled continuously CLOSED.

If there is a block due to domestic hot water or a swimming pool, the mixer is permanently OPEN.

If there is a renewable block due to heating, the mixer control becomes active.

10.9 Second heat generator - bivalent integration

10.9.1 Control of immersion heaters

Additional electric heaters are used in monoenergetic systems. These are switched on or off depending on the heat demand when the immersion heater is selected in EasyOn "*Heating*" and the temperature falls below the set limit temperature.

10.9.2 Control of pipe heating

Electric pipe heating can be used in monoenergetic systems. The electric pipe heater
the immersion heater is selected in EasyOn "*Heating*" and switched on or off as required.

10.9.3 limit temperature

The outside temperature at which the heat pump just covers the heat demand is called limit temperature 2.
Heat generator or also called bivalence point. This point is characterised
through the transition from pure heat pump operation to bivalent operation together with immersion heaters or boilers.

The theoretical bivalence point may deviate from the optimum. Particularly in the transitional periods (colder nights, warmer days), a lower bivalence point can reduce energy consumption in line with the operator's wishes and habits. For this reason, the heat pump manager can be set to
a limit temperature for enabling the 2nd heat generator can be set in the menu.

Normally, the limit temperature is only used for monoenergetic systems with air-to-water heat pumps or
used in bivalent systems in combination with boilers. With
monoenergetic operation, a limit temperature of -5 °C is aimed for. The limit temperature is determined from the outdoor temperature-dependent building heat requirement and the heat pump's heat output curve.

10.9.4 Constantly controlled boiler

With this type of boiler, the boiler water is always heated up to a fixed set temperature (e.g. 70 °C) when enabled by the heat pump manager. The set temperature must be set high enough so that domestic hot water preparation can also be carried out via the boiler if required. The mixer is controlled by the heat pump manager, which requests the boiler when required and heats as much hot water as necessary.
Boiler water is added so that the desired return setpoint or hot water temperature is reached. The boiler is requested via the 2nd heat generator output of the heat pump manager. The operating mode of the 2.
heat generator must be set to "constant".

10.9.5 Gliding controlled boiler

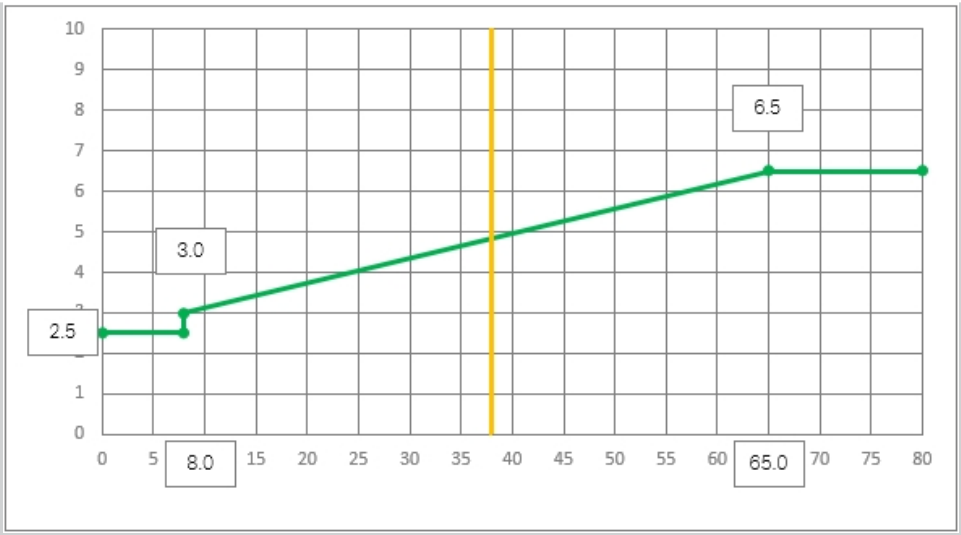
In contrast to a constantly controlled boiler, the gliding controlled boiler directly supplies the heating water temperature corresponding to the outside temperature. The 3-way reversing valve has no control function, but only the task of regulating the heating water flow past the boiler circuit, depending on the operating mode.
or through the boiler.

In pure heat pump operation, the heating water is routed past the boiler in order to avoid losses due to heat radiation from the boiler. If a weather-compensated burner control system is already installed, the voltage supply to the burner control system must be switched off for heat pump operation only.
be interrupted. For this purpose, the control of the boiler at the 2nd heat generator output of the
heat pump manager and set the operating mode of the 2nd heat generator to "gliding".

The characteristic curve of the burner control is set according to the heat pump manager.

10.9.6 Setpoint specification 0-10V 2nd heat generator

If the bivalent heat generator has a 0-10V interface for setpoint specification, the heat pump manager supplies the control signal via an output. To do this, 5 key points must be matched to the specifications of the bivalent heat generator. The voltage output of the set value corresponds to the determined set temperature of the heat pump. In the case of domestic hot water/swimming pool preparation and/or reheating, the maximum setpoint is used.

Parameters	Setting	Setting range
Setpoint specification 2nd heat generator		
Minimum system temperature	Setting value of the minimum system temperature at minimum voltage.	**8 °C** ... max
Voltage minimum	Setting value of the minimum voltage for the minimum system temperature.	Off ... **3.0 V** ... max
Maximum voltage	Setting value of the maximum voltage for the maximum system temperature.	min ... **10.0 V**
Maximum system temperature	Setting value of the maximum system temperature at maximum voltage.	min ... **80 °C**
Burner voltage Off	Setting value for burner off. The value between the minimum voltage and voltage Off corresponds to the boiler standby. 0 V can be recognised as a cable break and therefore an error.	0 V ... **2.5 V** ... 8.0 V

11 Dimplex Home App

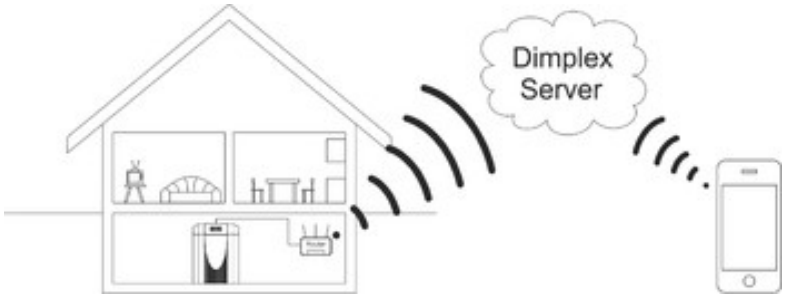
With the Dimplex Home app, you can control your Dimplex heat pump with touch display intuitively via your smart device.

With the intuitively designed app interface, the most important settings on the heat pump, such as summer/winter switching or setting the hot water temperature, can be made with ease. In combination with the intelligent room temperature control, the temperature for up to 20 rooms can also be set user-dependently via the app and even combined with weekly programmes.

11.1 Function overview:

- Fast and convenient monitoring of the heat pump status and operating data
- Display of runtimes and cycles as well as inputs and outputs
- Changing the mode and set temperatures of the heating circuits and domestic hot water preparation
- Demo mode to test or demonstrate the app even without a heat pump

11.2 Scheme of communication



11.3 Registration of the Dimplex Home App

The "Dimplex Home App" for iOS, Android and Windows is provided for remote access. After downloading and registering, the system can be paired in the "Settings - Registration Home App". If not already stored and checked, the serial number of the heat pump is first checked for validity. Once the check has been completed, the next step is to request a TAN for pairing with the "Dimplex Home App". Further information on pairing the heat pump with the "Dimplex Home App" is provided on the touch display and in the "Dimplex Home App".

NOTE
The NWPM Touch extension, available as special accessories, is required for remote access. If this hardware is not installed in the WPM Touch, registration is not possible and the text in the tile is greyed out.

11.4 Heat pump community

For all owners of a System E heat pump, the Premium version of the Dimplex Home app offers a new option for optimising your own heating system:

The performance values of all System E heat pumps with online access are compared in the heat pump community.

11.5 The advantages at a glance

1. You can record the most important data of your system and its values in comparison to other systems at a glance.
2. Help texts explain the main factors influencing system efficiency and show possible optimisation potential.

Dimplex Home App.
Available in the Apple App Store,
Google Play Store and in the Microsoft Store.

🕔 Various viewing periods can be selected

② All important performance data at a glance

③ Quick comparison possible: the values of your own system (point) are displayed, the values of approx. 80 % of heat pumps covered (brackets) and that of all connected heat pumps (colour range).

④ For each value, there is a short info that explains the value and its influencing factors and provides tips for optimisation

12 System E commissioning

12.1 General

Commissioning must be carried out by qualified personnel. Specialist tools must be used. To ensure proper commissioning, this should be carried out by an after-sales service authorised by the manufacturer. The various service packages enable a warranty extension o f up to 12 years.

12.2 Preparation

The following points must be checked before commissioning:

- The housing covers of the heat pump must be fitted on all sides.
- There must be no ignition sources or fire loads in the safety area.
- Personal protective equipment (e.g. safety goggles, safety shoes, gloves if necessary) must be used when working on the appliance.
- The heating circuit must be filled and tested.
- All valves in the heating circuit that could impede the correct flow must be open.
- The air intake/outlet path must be clear.
- The settings of the heat pump manager (controller-N1) must be adapted to the heating system in accordance with its operating instructions.
- The condensate drain must be ensured.
- Before installing the heat pump, the hydraulic network must be flushed professionally. This includes the supply line to the heat pump. The heat pump may only be hydraulically integrated once the flushing has been completed.
- The dirt traps fitted as standard in the appliance or supplied for installation must be inspected at the earliest 4 weeks and at the latest 8 weeks after commissioning of the heat pump or changes to the heating system and cleaned if necessary. Depending on the degree of soiling, further cleaning intervals must be scheduled, which must be determined and carried out by a competent and specialised person. If there is no excessive accumulation of dirt, an interval of 1 year is advisable.

12.2.1 Special notes for the integration of heat pumps in existing systems (refurbishment):

The existing heat distribution network (pipework materials, connection types, etc.) and the existing heating surfaces (e.g. radiators, underfloor heating, etc.) can have an influence on the quality of the water in the existing system. In particular, if welded steel pipes or pipes that are not oxygen diffusion-tight are used, deposits, scaling, sludge or similar may be present that can lead to damage in the heat pump system. This can lead to total failure of the heat pump. To avoid this, the following measures must be taken into account:

- Compliance with water properties and water quality
- Flushing the hydraulic system
- Maintenance interval of the dirt traps
- If sludge or ferromagnetic particles are to be expected in the hydraulic network, sludge separators or magnetite separators must be provided on site before the medium enters the heat pump. The cleaning intervals must be determined by a competent and specialised person.
- It must be ensured that no oxygen enters the heating circuit of the heat pump.

12.3 Procedure

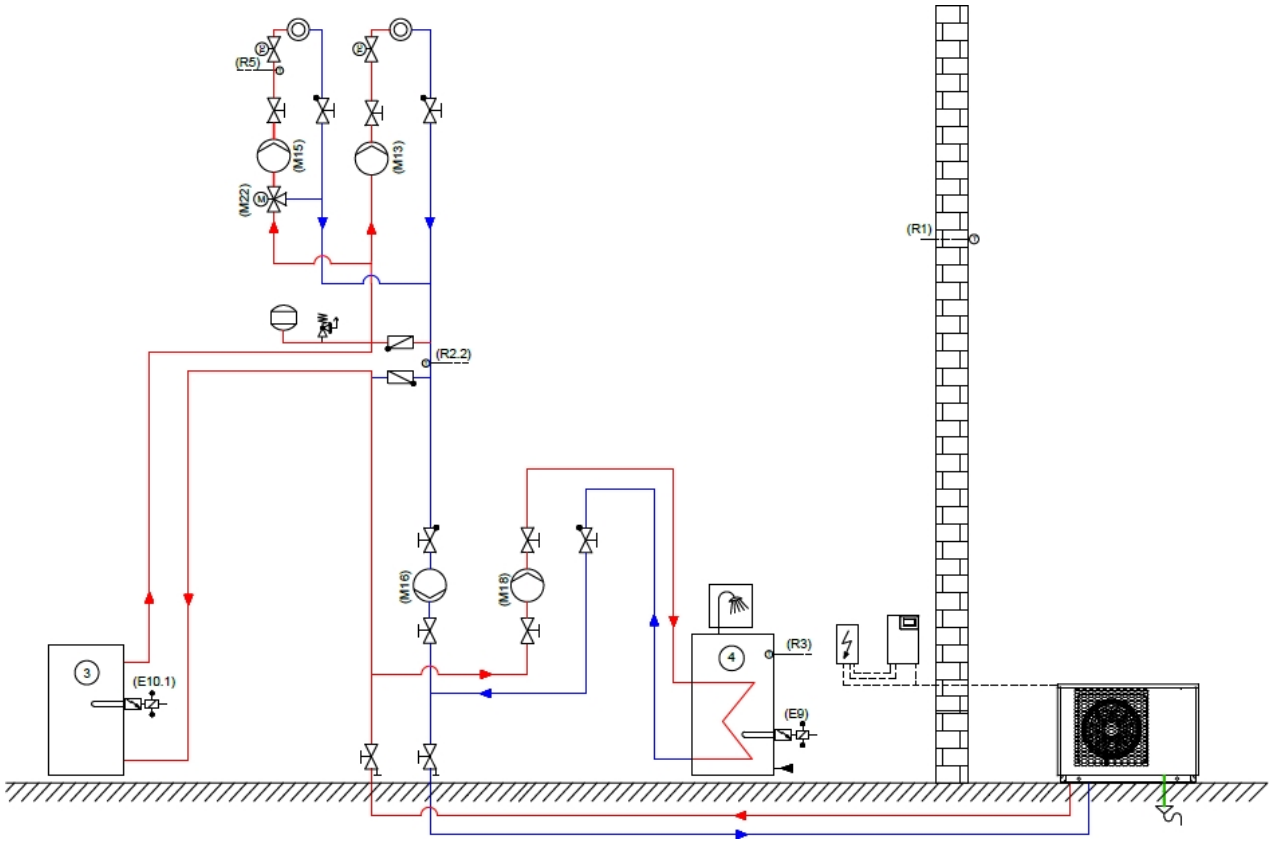
The heat pump is commissioned via the heat pump manager (controller N1). The settings must be made in accordance with its instructions. Commissioning is not possible at heating water temperatures below 7 °C. The water in the buffer tank must be heated up to at least 20 °C with the 2nd heat generator. The following procedure must then be followed to ensure trouble-free commissioning:

1. All consumer circuits must be closed
2. The water flow of the heat pump must be ensured.
3. Select "Winter" operating mode on the manager.
4. The "Commissioning" programme must be started in the Special functions menu.
5. Wait until a return temperature of at least 29 °C is reached.
6. The valves of the heating circuits are then slowly opened again one after the other, namely so that the heating water flow rate is constantly increased by slightly NC contacting the relevant heating circuit. The heating water temperature in the buffer tank must not fall below 24 °C in order to allow the heat pump to defrost at any time.
7. When all heating circuits are fully open and a return temperature of at least 20 °C is maintained, commissioning is complete.

13 Hydraulic integration

13.1 System E in monoenergetic operation

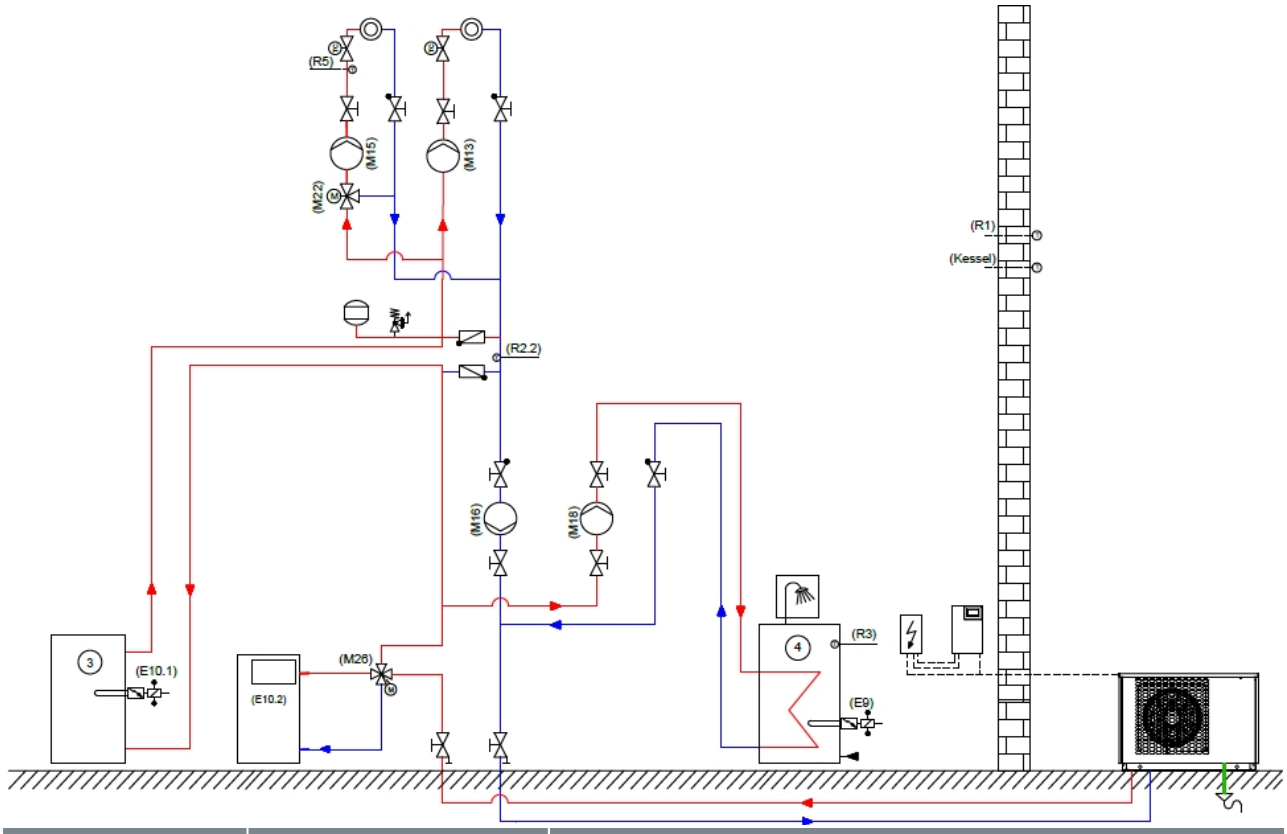
13.1.1 Two heating circuits mixed/unmixed with DDV (e.g. LA 1118CP)



Function	Setting	description
Mode of operation	monoenergetic	Ensuring the heating water flow rate via a differential pressureless manifold [DDV]
Heating circuit 1.	unmixed	The use of the DDV is recommended for connecting all heat pumps.
2nd heating circuit	Mixed	The circulation pump (M16) in the heat generation circuit is only in operation when the compressor is running in order to avoid unnecessary runtimes.
domestic hot water	Yes, with sensor and flange heater	Domestic hot water preparation is carried out with the circulation pump (M18)
Cooling	possible	

13.2 System E in bivalent operation (with MMB)

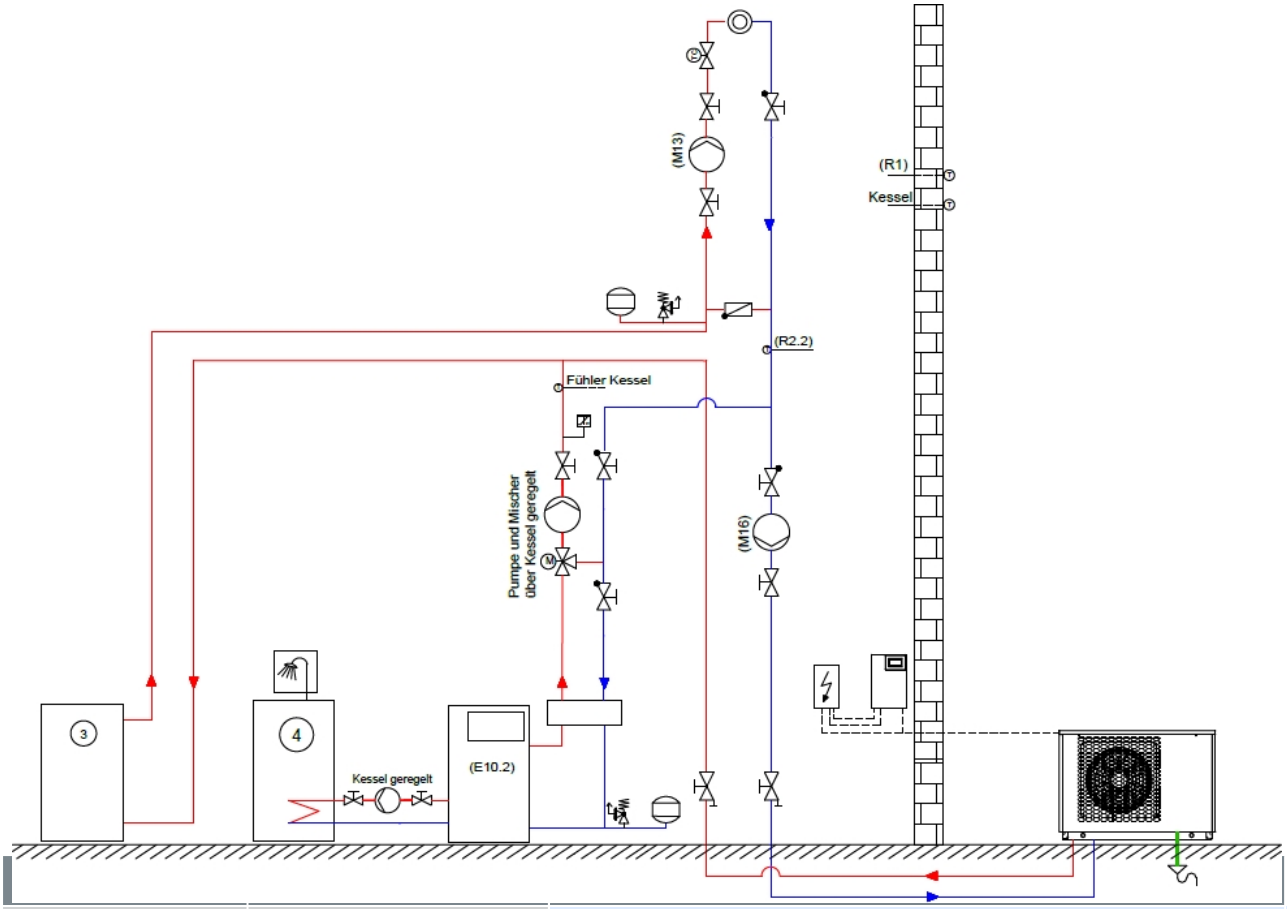
13.2.1 Bivalent integration (e.g. LA 1118CP) with the same volume flows



Function	Setting	description
Mode of operation	Bivalent boiler+WP	The mixer (M26) is controlled by the heat pump manager, which requests the boiler as required and adds enough hot boiler water to achieve the desired return set temperature. From a return temperature of 65°C, the mixer closes and protects the heat pump from excessively high return temperatures. The boiler is requested via the 2nd heat generator output of the heat pump manager **NOTE** This integration is only to be used if the volume flow of the 2nd heat generator is less than or equal to the volume flow of the heat pump.
Heating circuit 1.	unmixed	
2nd heating circuit	Mixed	
domestic hot water	Yes, with sensor and flange heater	
Cooling	possible	
Bivalent	with mixer (MMB)	

13.3 System E in bivalent operation (parallel connection)

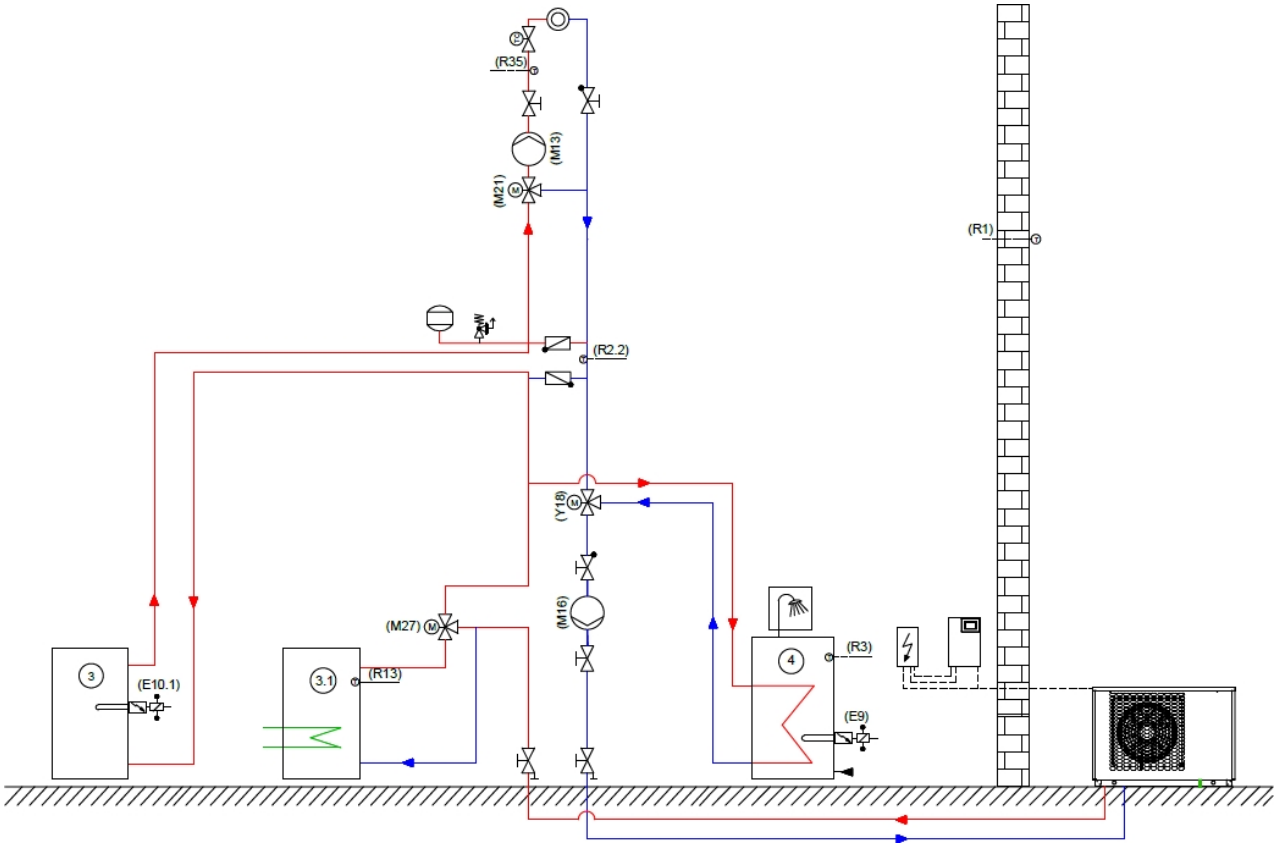
13.3.1 Bivalent integration (e.g. LA 1118CP) with different volume flows. volume flows



Mode of operation	Bivalent boiler+WP	The operating mode of the 2nd heat generator must be weather-compensated. The boiler is requested via the 2nd heat generator output of the heat pump manager
Heating circuit 1.	unmixed	
2nd heating circuit	-	
domestic hot water	not via the WP	**NOTE** This integration is only to be used if the volume flow of the 2nd heat generator is greater than the volume flow of the heat pump.
Cooling	-	
Bivalent	Parallel	

13.4 System E in bivalent-renewable operation

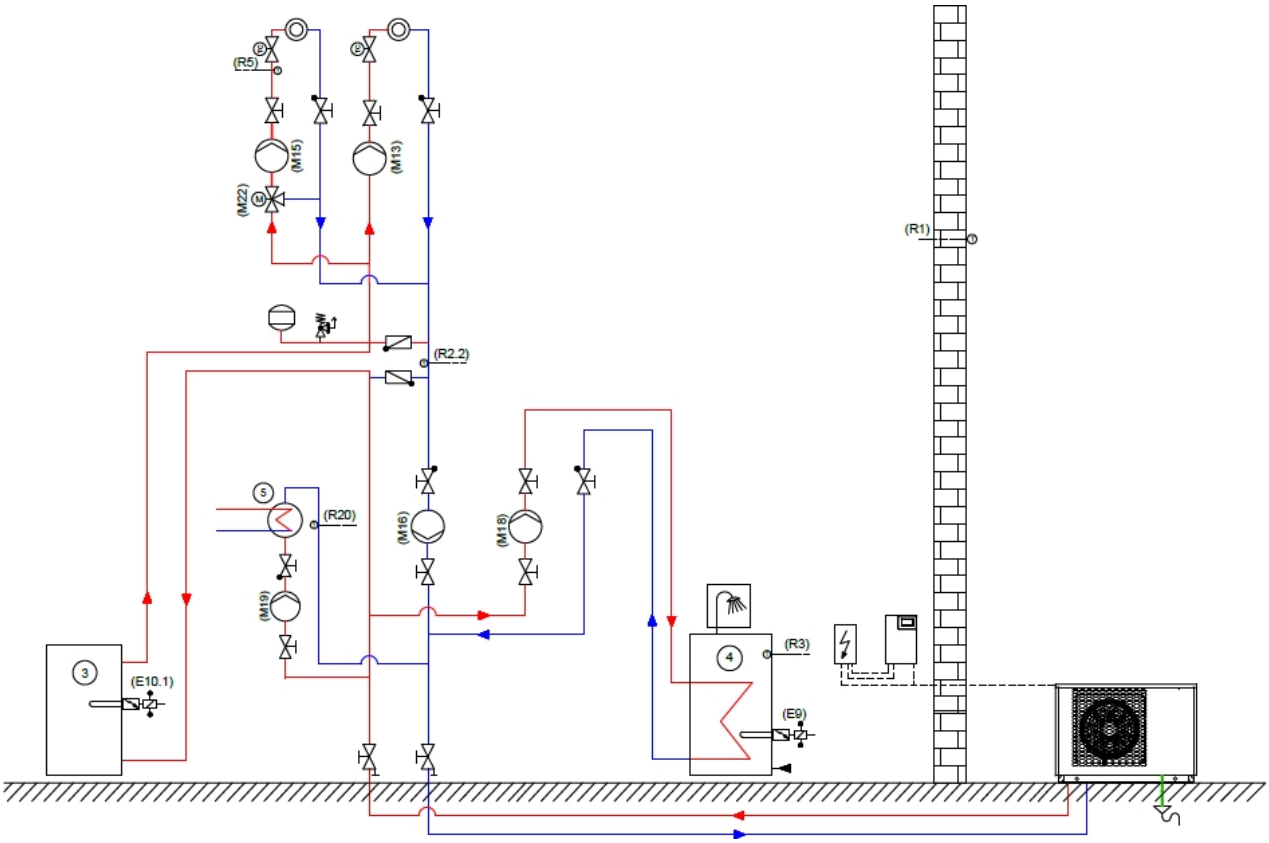
13.4.1 Renewable support for heating and DHW (e.g. LA 1118CP)



Function	Setting	description
Mode of operation	bivalent-renewable	The renewable storage tank (3.1) can be charged by different heat generators (solid fuel boiler, solar thermal, PV heating element, etc.). The buffer volume must be dimensioned according to the specifications of the solid fuel boiler manufacturer or solar thermal system. If the temperature level in the renewable storage tank is sufficiently high, the heat pump is blocked and the energy from the storage tank is used for the heating or hot water requirement.
Heating circuit 1.	Mixed	
2nd heating circuit	-	
domestic hot water	Yes, with sensor and flange heater	
Cooling	Yes	

13.5 LA 1118CP in monoenergetic operation with swimming pool heating

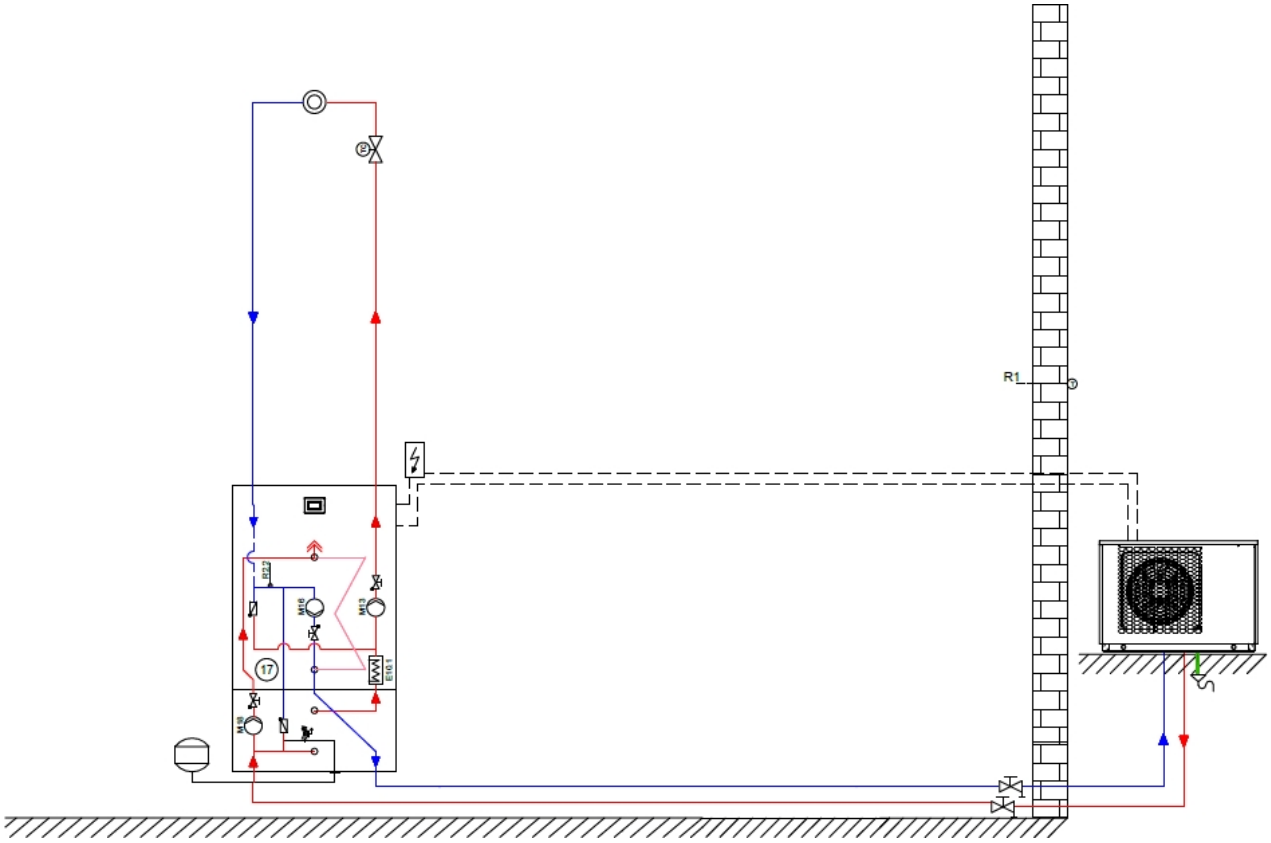
13.5.1 Heating, domestic hot water and swimming pool preparation (e.g. LA 1118CP)



Function	Setting	description
Mode of operation	monoenergetic	Ensuring the heating water flow rate via a differential pressureless manifold [DDV]
Heating circuit 1.	unmixed	The use of the DDV is recommended for connecting all heat pumps.
2nd heating circuit	Mixed	The circulation pump (M16) in the heat generation circuit is only in operation when the compressor is running in order to avoid unnecessary runtimes.
domestic hot water	Yes, with sensor and flange heater	Domestic hot water preparation is carried out with the circulation pump (M18)
Cooling	possible	
swimming pool	Yes, with sensor	The swimming pool is prepared with an auxiliary circulating pump (M19) and the swimming pool sensor (R20)

13.6 System E with Hydro-Tower

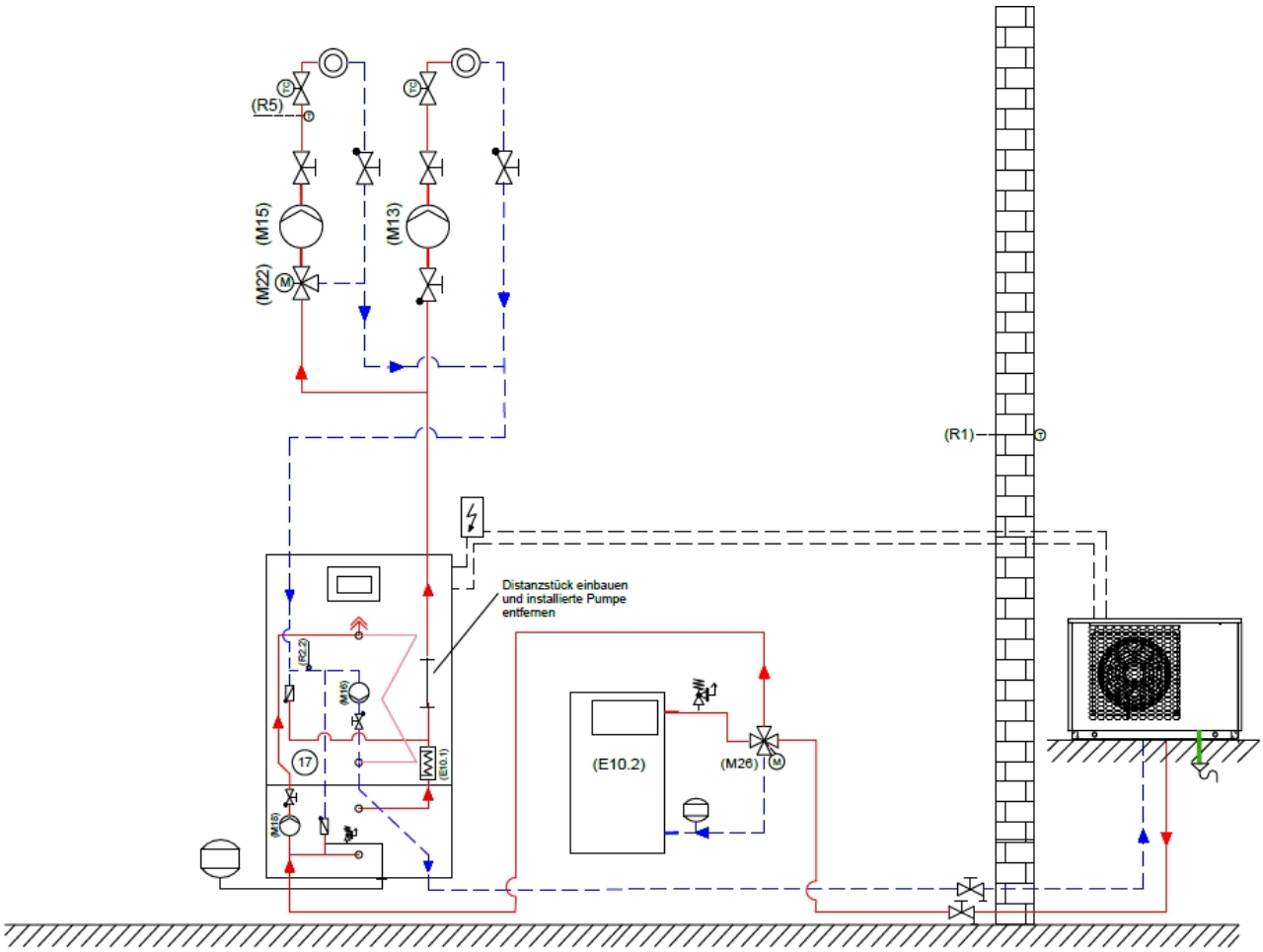
13.6.1 One heating circuit unmixed with Hydro-Tower (e.g. LA 1118BWCP)



Function	Setting	description
Mode of operation	monoenergetic	The Hydro-Tower with integrated WPM Touch heat pump manager enables quick and easy connection of an externally installed air-to-water heat pump to a heating system with an unmixed heating circuit. The following components are installed to save space and wired ready for operation: a 100 litre buffer tank, a 300 litre domestic hot water cylinder, a circulation pump for the heat generation circuit (M16), an electronically controlled circulation pump for the consumer circuit (M13), a hot water charging pump (M18) and a switching auxiliary heater (2, 4, 6 kW) are installed.
Heating circuit 1.	unmixed	
2nd heating circuit	-	
domestic hot water	Yes, with sensor and flange heater	
Cooling	no	

13.7 System E with Hydro-Tower in bivalent operation

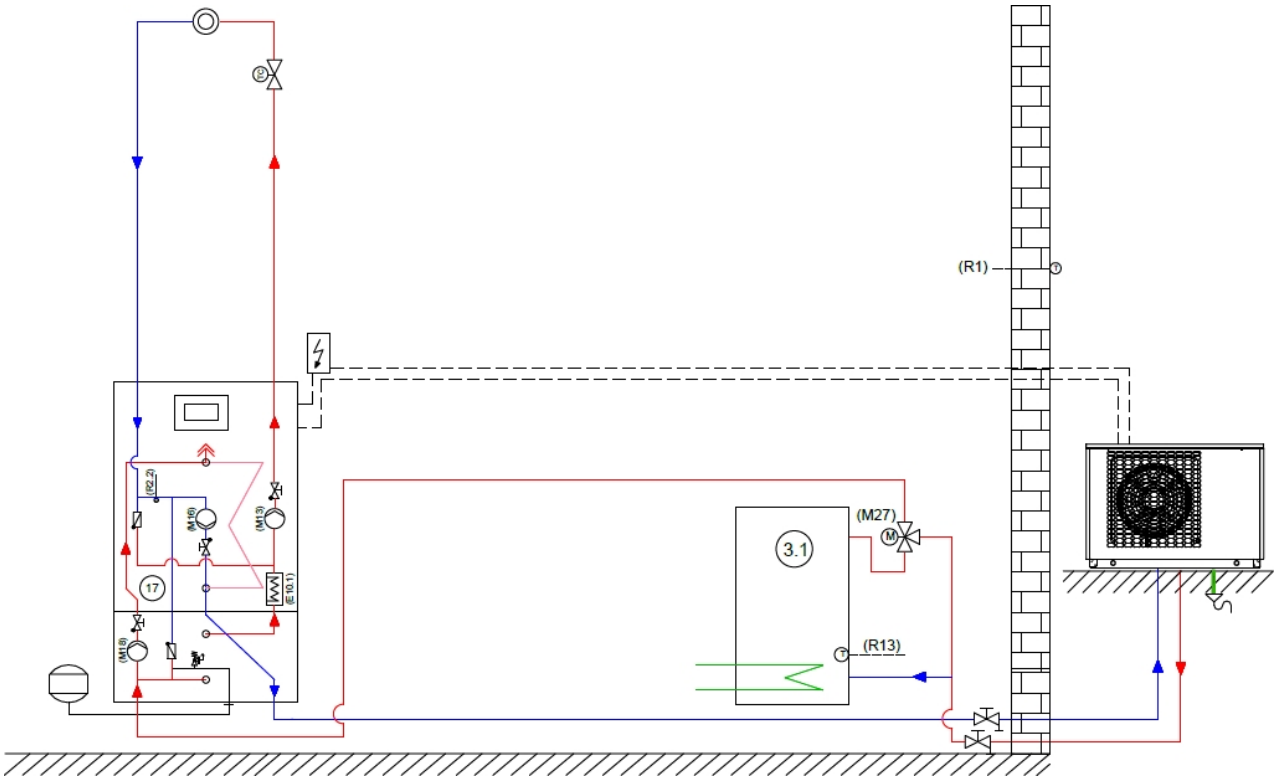
13.7.1 Two heating circuits mixed/unmixed with Hydro-Tower (e.g. LA 1118BWCP)



Function	Setting	description
Mode of operation	monoenergetic	The Hydro-Tower with integrated WPM Touch heat pump manager enables quick and easy connection of an externally installed air-to-water heat pump to a heating system with an unmixed heating circuit. The boiler is requested via the 2nd heat generator output of the heat pump manager **NOTE** This integration is only to be used if the volume flow of the 2nd heat generator is **less than or equal** to the volume flow of the heat pump.
Heating circuit 1.	unmixed	
2nd heating circuit	Mixed	
domestic hot water	Yes, with sensor and flange heater	
Cooling	possible	
Bivalent	with mixer (MMB)	

13.8 System E with Hydro-Tower in bivalent-renewable operation

13.8.1 Renewable support with Hydro-Tower (e.g. LA 1118BWCP)



Function	Setting	description
Mode of operation	Bivalent-renewable	The renewable storage tank (3.1) can be charged by different heat generators (solid fuel boiler, solar thermal, PV heating element, etc.). The buffer volume must be dimensioned according to the specifications of the solid fuel boiler manufacturer or solar thermal system. If the temperature level in the renewable storage tank is sufficiently high, the heat pump is blocked and the energy from the storage tank is used for the heating or hot water requirement.
Heating circuit 1.	unmixed	
2nd heating circuit	-	
domestic hot water	Yes, with sensor and flange heater	
Cooling	no	

14 Design with the Dimplex configurator online tool

Wärmepumpen Konfigurator

In 9 Schritten zur richtigen Wärmepumpe

- Individuelle Lösungen für die Warmwasserbereitung
- Jahresarbeitszahlberechnung
- Optionale Schallberechnung

Website: www.konfigurator.dimplex.de/

www.dimplex.eu/en-de/heatpump-configurator

15 Planning and installation aids

15.1 Checklist for installing the LA 1118CP propane heat pump

PDF Download

15.2 Questionnaire for designing a heat pump system

The questionnaire can be downloaded from the Dimplex homepage:

https://dimplex.de/technische-planungshilfen
Dimplex_questionnaire_heat_pump_140624

Please send your completed questionnaire to: projektierung@dimplex.de

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