

HIU compactRAD	1 4021 47; 1 4021 48; 1 4024 41; 1 4021 49
HIU compactRAD TSR	1 4021 44; 1 4021 45; 1 4024 46; 1 4021 46
HIU compactRAD TSR, insulated	1 4021 50; 1 4021 51; 1 4024 91; 1 4021 52
HIU compactRAD WP	1 4024 81
HIU compactRAD 55 WW TSR	1 4025 75; 1 4025 76; 1 4025 77
HIU compactRAD 55 WW TSR, insulated	1 4025 78; 1 4025 79; 1 4025 80

INSTRUCTION

Description

The HERZ compactRAD Hydraulic Interface Unit (HIU) provides domestic hot water and space heating to properties that are serviced from district heating or central boiler plants. The HIU utilizes a heat exchanger hot water production on demand. The HIU is direct so the primary heating circuit is directly transferred from the primary heat generation circuit. Pipe connection to the HIU is realized by means of ball valves. Connection of the pipe work with the HIU is possible from the floor.

Main Features:

- Instantaneous hot water and space heating to properties
- Highly efficient heat exchanger for DHW supply
- HERZ Pressure temperature control valve allows DHW heat exchanger to operate on demand only.
- HERZ Hot water priority valve maximises primary flow to DHW heat exchanger by stopping the supply to the space heating when a hot tap is opened
- HERZ "Summer bypass" valve maintains a minimum primary temperature when space heating is not in use.
- 2 HERZ Differential pressure controllers for secure operation and automatic hydraulic balancing between multiple HIU's
- Lowest primary return temperature maximises system efficiency
- 18mm stainless steel pipe work
- 110 mm Spool piece for heat meter
- 80 mm Spool piece for water meter

1. Function

In the stand-by mode the heating water flows from the primary circuit (district heating main) via a summer bypass which is kept at operating temperature with a return temperature limiter. Thus heating water from the primary circuit is always and immediately available at the heat exchanger, even when the space heating is not in use. If a hot water tap is opened the pressure temperature control valve reacts to the difference in pressure and opens allowing the cold and primary heating water to flow through the heat exchanger. At the same time, a hot water priority valve closes the primary feed to the space heating, thus ensuring maximum temperature is available at the domestic heat exchanger. The cold water is heated up instantly and flows through to the domestic hot water tap.

2. Safety Warnings

1. The unit must be installed and connected by professional plumbing and heating engineers only.
2. Only use original HERZ spare parts when maintaining the HIU.
3. Check all connections for leakages prior to starting up the heating system.
4. The user must not make any technical changes to the HIU. Otherwise HERZ will not assume liability for any resulting damage.
5. The unit must be filled with water that meets the requirements for heating water according to ÖNORM H5195, otherwise the guarantee will be void.
6. If the property is to be left unoccupied for a prolonged period, it is recommended that the HIU domestic pipe work is isolated and drained.
7. The hot water tap temperature can vary depending on the current tap volume, the current system differential pressure and the current flow temperature and can also be in the temperature range where there is a risk of scalding. To avoid scalding, a drinking water mixing valve should be installed as a safety device centrally or in front of every tap.

Surfaces of individual components, connections and leaking water can be very hot and cause severe burns and scalds. Before the start of any dismantling work the isolation valves must be closed and water drained out. Out flowing water is likely to be hot and under high pressure. Take appropriate precautions. If a fault occurs, please contact the installer. Do not attempt to carry out repairs yourself.

3. Operating data

Max. flow temperature	55-70 °C
with thermostatic control valve (TSR)	
and for 55 WW variant	60-85 °C
Max. operating pressure HIU	16 bar
Min. flow pressure mains cold water:	2,5 bar
Max. heating power	10 kW
Tapping capacity	11/15/18/22 l/min
for WP variant	18 l/min
for 55 WW variant	11/15/18 l/min
Cold water temperature	10 °C
Tap temperature	50 °C
for 55 WW variant	55 °C

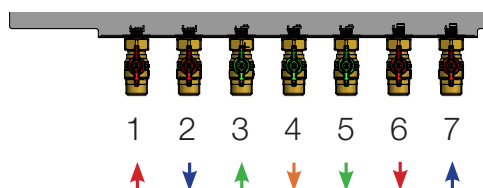
4. Construction

Due to its small dimensions and compact design, the HIU can be flush-mounted and thus either installed in the stairwell or in the apartment itself (e.g. instead of a classic hot water tank). The tubes are made of stainless steel 1.4401, Ø18mm. All elements of the HIU are designed with detachable connections to enable interchangeability and maintenance.

Weight information of the transfer station with pre-assembly strip:

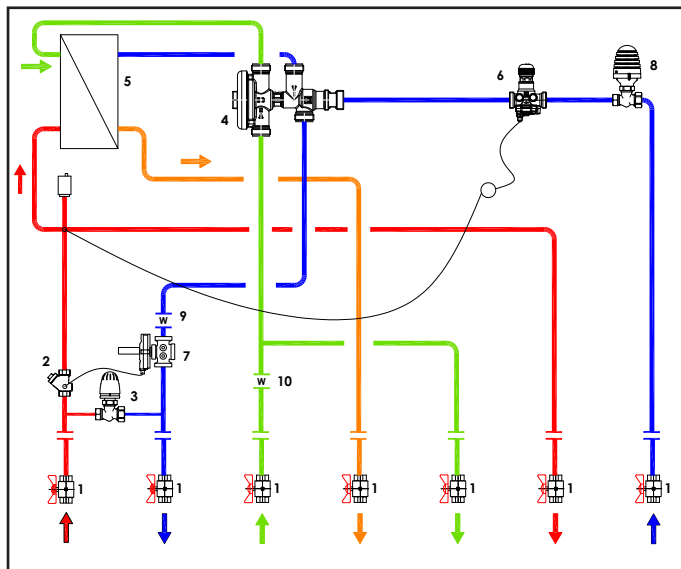
Empty weight	Hood	Water content	Total weight
~15 kg	~8 kg	~10 kg	~33 kg

5. Connections

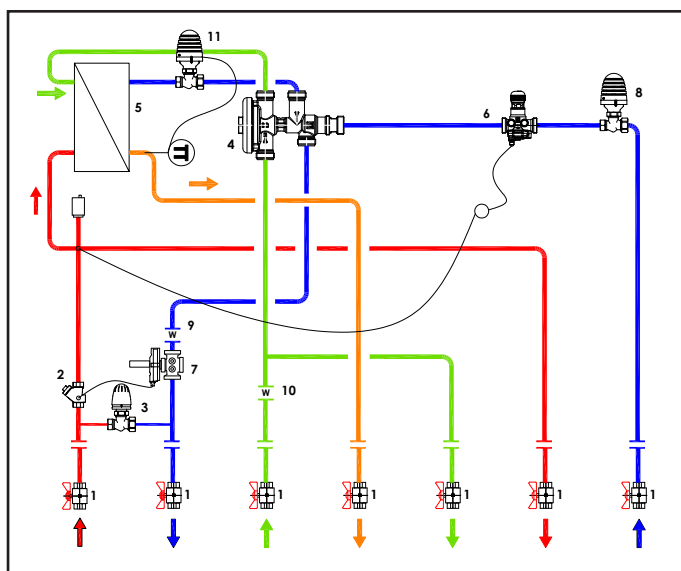


Type of connections, input / output		
1	Primary heating supply	3/4" flat sealing
2	Primary heating return	3/4" flat sealing
3	Cold water mains	3/4" flat sealing
4	Domestic hot water outlet	3/4" flat sealing
5	Domestic cold water outlet	3/4" flat sealing
6	Space heating supply	3/4" flat sealing
7	Space heating return	3/4" flat sealing

6. Functional scheme



HIU compactRAD, HIU compactRAD WP

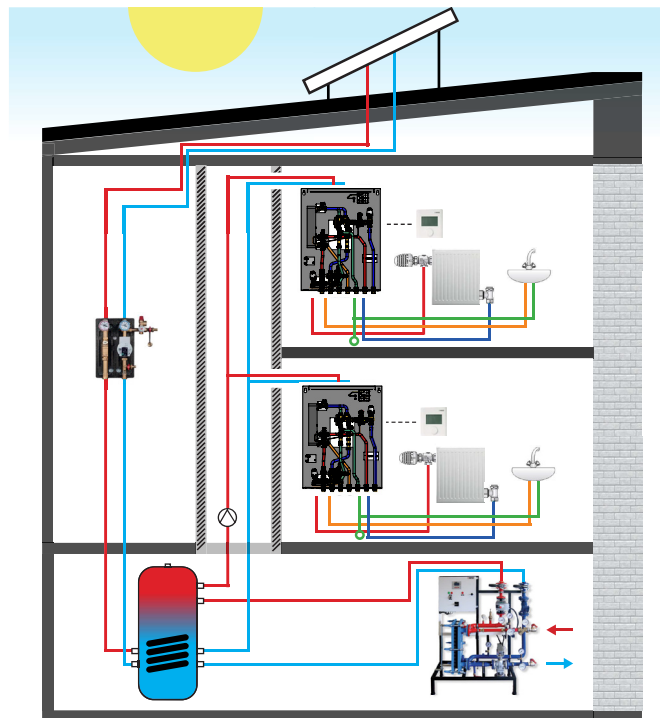


HIU compactRAD TSR,
HIU compactRAD TSR insulated,
HIU compactRAD 55 WW TSR,
HIU compactRAD 55 WW TSR insulated

1	HERZ - Ball valve
2	HERZ - Strainer
3	HERZ - Summer bypass
4	HERZ - PT-Controller
5	Heat exchanger DHW
6	HERZ - Differential pressure controller 20 kPa (Space heating)
7	HERZ - Differential pressure controller 25-60 kPa (Primary)
8	HERZ - Return temperature limiter
9	HERZ - Spool piece for heat meter 110 mm
10	HERZ - Spool piece for water meter 80 mm
11	HERZ Thermostatic control (TSR)

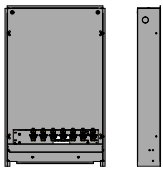

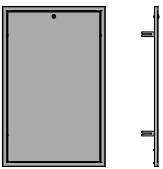

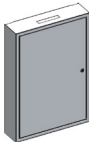










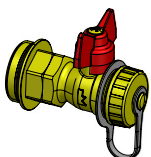




7. Connection Example

The HIU is connected in parallel to the district heating network and via 3 pipe system (MCW, primary flow and return). There is no need of a central DHW boiler and a central DHW circulation pipeline, as the DHW is produced on demand and on spot in the HIU. The primary supply temperature is directly transferred to the space heating. The return temperature of the space heating can be controlled via the return temperature limiter. The HIU can serve a radiator heating system.



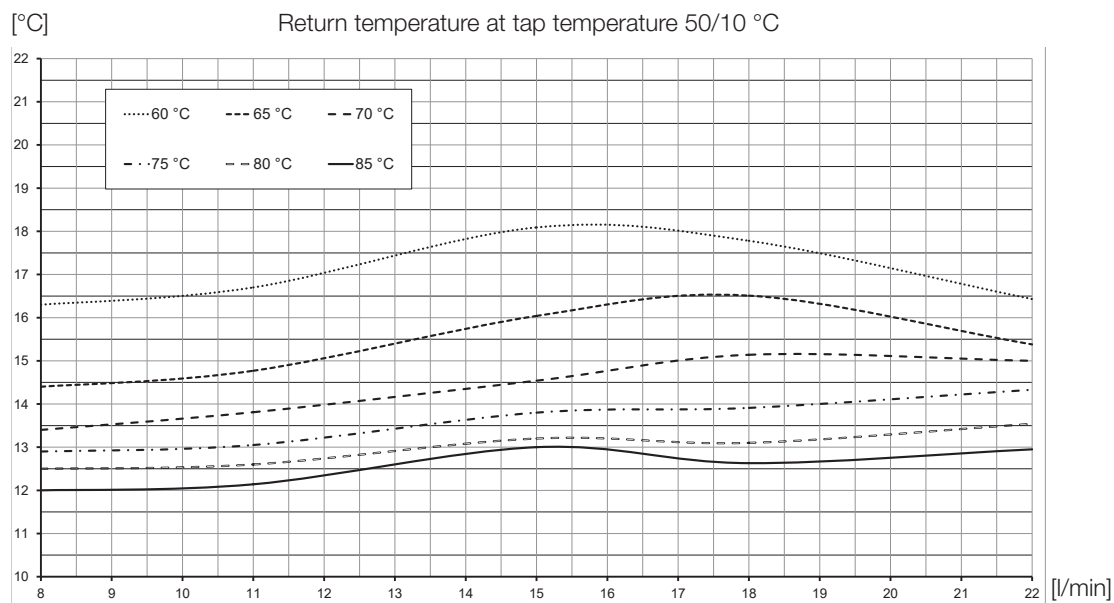
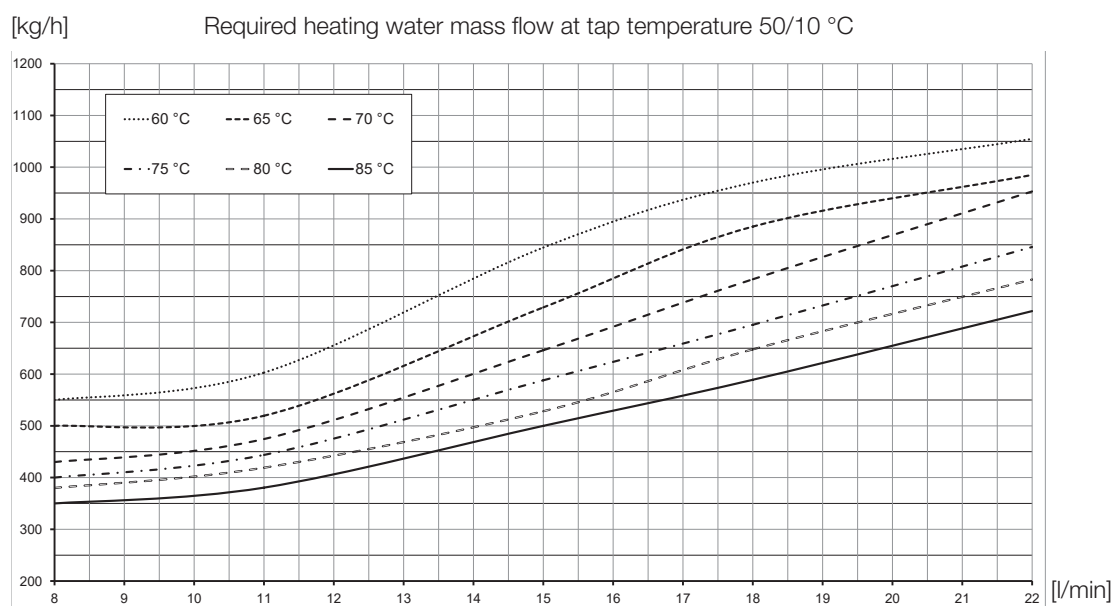
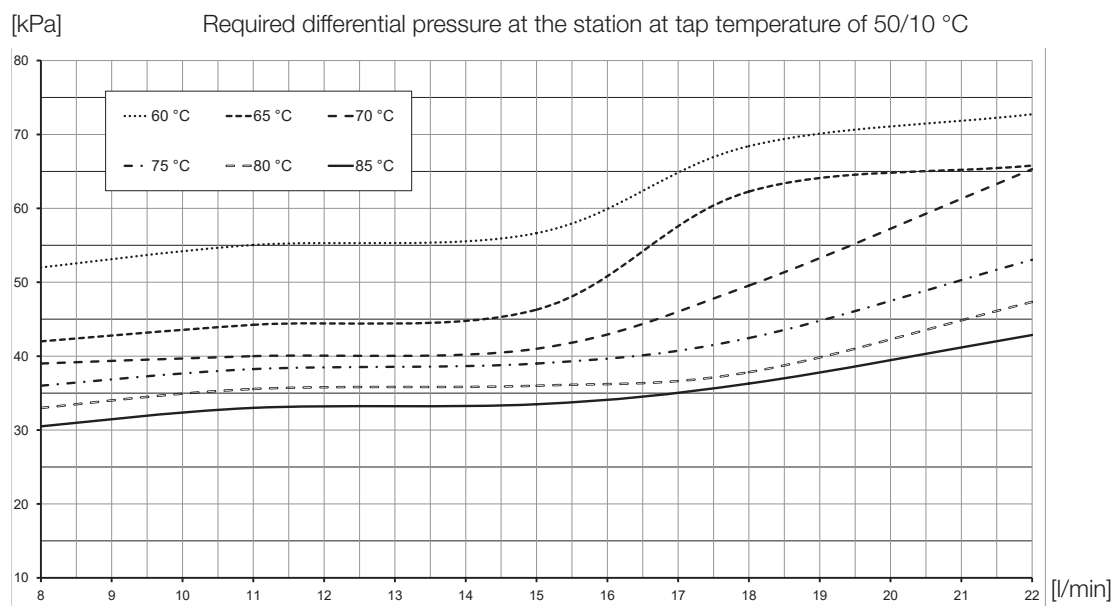
8. Accessories and spare parts

1 4008 66 PT controller for HIU compact	
1 4008 67 PT controller for HIU compact WP version	
1 9201 06 Return temperature limiter (summer bypass). Set to 45°C.	
1 4019 78 Strainer with fine-mesh sieve made of chrome-nickel steel. Mesh size: 0.5 mm. Sieve insert 1 6386 32.	
1 4024 47 HIU compact flush box short LxBxT 1035 x 624 x 90 mm with pre-assembly strip installed	

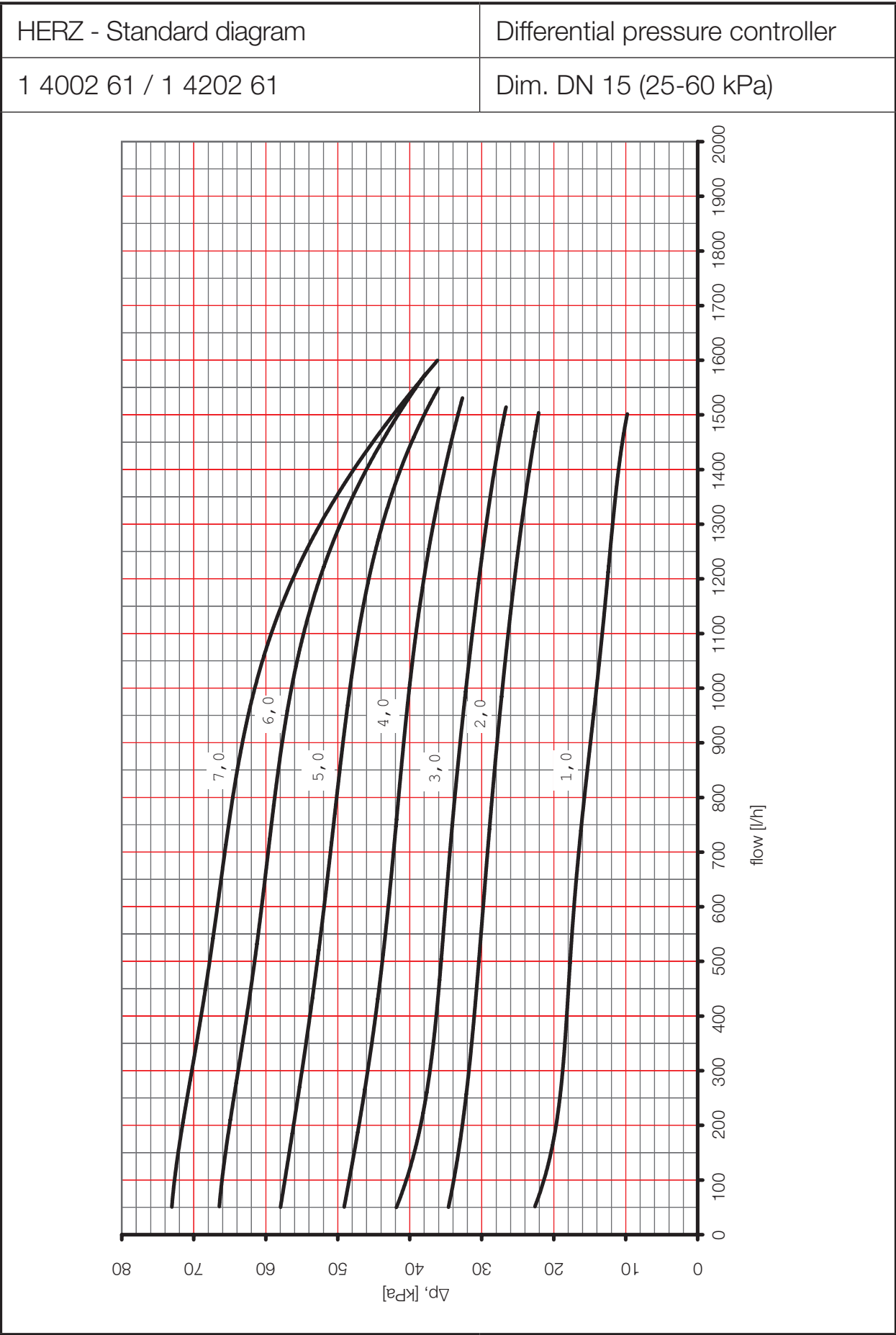
<p>1 4021 63</p> <p>HIU compact flush box short</p> <p>LxBxT 1035 x 624 x 150 mm</p> <p>with pre-assembly strip installed.</p> <p>(required in combination with insulated pipework and with the circulation set 1 4024 73)</p>		<p>1 6390 91</p> <p>Thermostatic insert (summer bypass)</p>	
<p>1 4024 48</p> <p>Front frame and front door short</p> <p>LxBxT 1058 x 678 x 23 mm</p> <p>powder-coated (RAL 9003), front door with latch</p>		<p>1 4019 92</p> <p>Thermostatic valve incl. insert (summer bypass)</p>	
<p>1 4024 09</p> <p>Surface mount cover</p>		<p>1 6379 01</p> <p>Thermostatic insert (return temperature limiter)</p>	
<p>1 4024 49</p> <p>Pre-installation bracket suited for HIU Compact RAD and UFH.</p>		<p>1 4019 93</p> <p>Thermostatic valve incl. insert (return temperature limiter)</p>	
<p>1 4024 19</p> <p>HERZ Differential pressure controller can be set between 25-60 kPa.</p>		<p>1 4012 31 (space heating)</p> <p>HERZ differential pressure controller 20 kPa with adjustable flow limitation, can be used in connection with actuating drive 1 7708 53 as a zone valve for zone control of space heating.</p>	
<p>1 7708 53</p> <p>HERZ-actuating drive for 2-point control for floor heating circuit distributors and valves M 28 x 1.5, 2-point, also suitable for pulse-pause operation, 5 mm stroke, adapter M 28 x 1.5 colour red integrated, cable fixed, without limit switch. Closing force 100 N. Power consumption 1 watt.</p>		<p>1 4022 46</p> <p>Sensor mount M 10 x 1 mm for temperature sensor for the heat meter</p>	
<p>1 4018 47 Heat exchanger</p> <p>Asymmetrical stainless steel plate heat exchanger brazed with copper. (E8LASHx42)</p>		<p>1 7421 02</p> <p>HEART thermostat with contact sensor Fixed at 53°C (TSR)</p> <p>1 9421 41</p> <p>HEART thermostat with contact sensor Fixed at 56°C for 55°C hot water variant (TSR)</p>	
<p>1 4021 47</p> <p>Asymmetrical stainless steel plate heat exchanger brazed with copper. (E8LASHx42)</p>		<p>1 4021 40</p> <p>HEART filling connector with ball valve</p>	
<p>1 4024 73</p> <p>Circulation line retrofit set WÜS compact (without DH safety valve).</p> <p>Suitable for types without TSR:</p> <p>1 4021 47; 1 4021 48; 1 4024 41; 1 4021 49</p>			
<p>1 4019 94</p> <p>Ball valve DN15 AG3/4" flat sealing with red T-handle</p>			
<p>1 4019 95</p> <p>Ball valve DN15 AG3/4" flat sealing with green T-handle</p>			
<p>1 7795 01</p> <p>Digital thermostat with 7 day program. Operation with batteries (batteries included)</p>			

9. Performance data for domestic hot water production

At supply temperatures of 60-85 °C

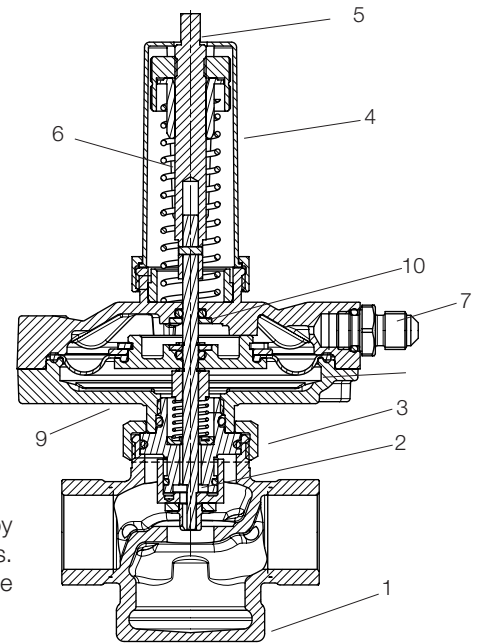


NOTE: In case of high tapping capacities (from 21 l/min), the tapping temperature can deviate slightly from the information in the diagram.



HERZ Differential pressure controller

#	Description	Material
1	Body	DZR brass CC770S
2	Valve stem	stainless steel 14301
3	Connection nut	brass CW614N
4	Indicator sleeve	plastic (red)
5	Adjusting spindle	brass CW614N
6	Compression spring	spring steel 14310 NS
7	Connection point	brass CW602N
8	Membrane	EPDM
9	Membrane body	brass CW602N
10	O-Ring	EPDM



Ammonia contained in hemp damages brass valve housings, EPDM seals are swollen by mineral oils or lubricants containing mineral oils and thus lead to failure of the EPDM seals. For antifreeze and corrosion protection agents based on ethylene glycol and propylene glycol, the relevant information can be found in the manufacturer's documents.

Pursuant to Article 33 of the REACH Regulation (EC No. 1907/2006), we are obliged to point out that the material lead is listed on the SVHC list and that all brass components manufactured in our products exceed 0.1% (w/w) lead (CAS: 7439-92-1 / EINECS: 231-100-4). Since lead is a component part of an alloy, actual exposure is not expected and therefore no additional information on safe use is necessary.

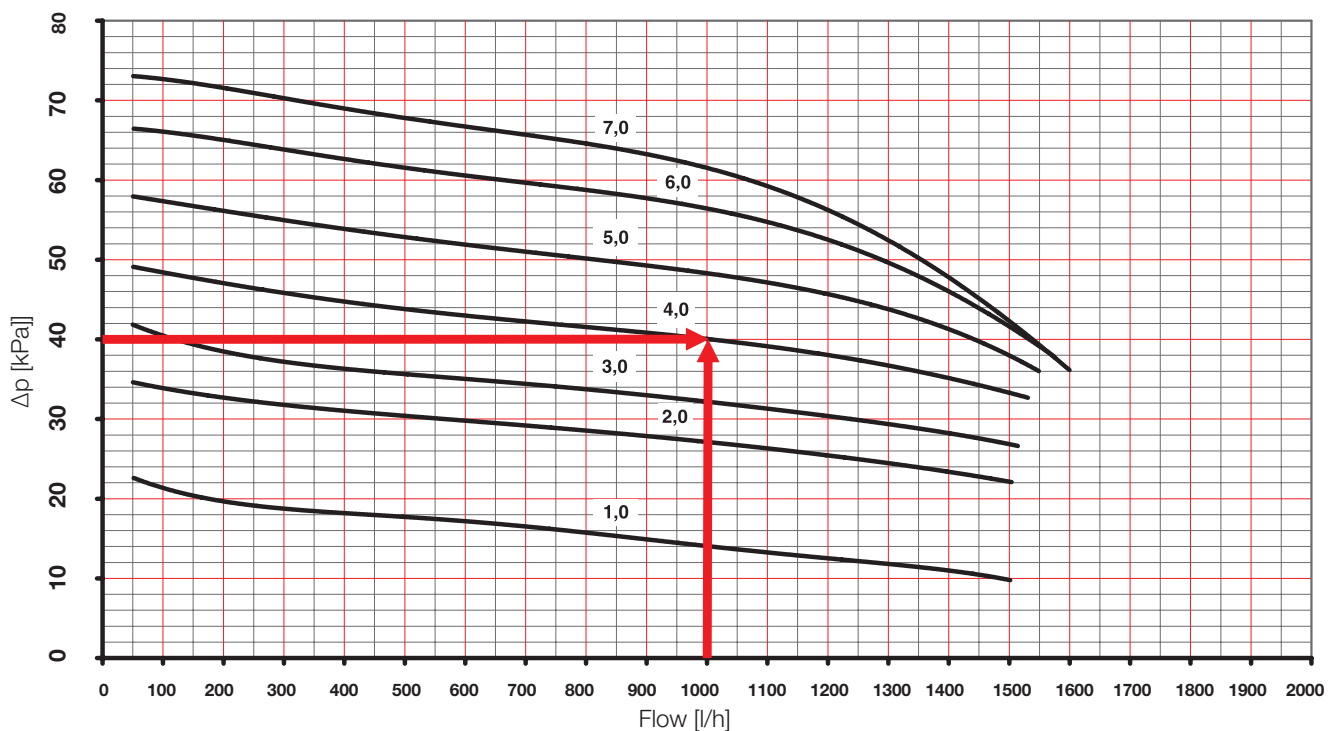
Field of application

The differential pressure controller is a straight-version linear controller and works without auxiliary power. The desired differential pressure setpoint can be continuously adjusted between 25 and 60 kPa. The set value can be read using the setting diagram. The setpoint is set to minimum at the factory. The set value can be read off using the setting diagram. The setpoint is set to minimum at the factory. The required setpoint is set with the pre-setting key (1 4006 02). A capillary (1000 mm) is included and should be connected to the regulating valve in the flow.

Setting

The controller is set to minimum at the factory. The setting is made by turning the knurled nut. The differential pressure controller can be set in any position. The respective setting of the controller is clearly displayed.

Example: Desired differential pressure $\Delta p_{\text{riser}} = 40 \text{ kPa}$ (400 mbar)
Flow rate 1000 l/h.
Setting value on scale 4



10. Electric connection

The electrical components (e.g. drive for zone valve) must be wired according to the electrical connection diagram. The 230 V / AC voltage supply in the terminal box and the respective room thermostats have to be electrically connected in accordance with the manufacturer's specifications. The terminal box is located in the upper right area of the HIU.

11. Operating requirements

In addition to the national regulations and standards, the connection conditions of the local water supply company must also be observed.

The room in which the system is operated should be frost-free and the installation should take place in a location that is freely accessible for necessary maintenance and repairs. On the primary side, 16 bar static and 2 bar differential pressure are permissible. It should also be noted that the connection pipes must withstand temperatures up to a maximum of 90 °C in the event of a breakdown.

12. Commissioning

The operation of the transfer station is simple and user-friendly. All you have to do is open the ball valves in the following order to avoid water hammer:

1. Slowly open the heating flow (red ball valve)
2. Slowly open the cold water supply (green ball valve)
3. Slowly open returns for heating (red ball valve)
4. Slowly open the hot and cold water outlet (green ball valve)

13. Temperature setting

The HIU is operated at a preset tap temperature of a maximum of 50°C. The temperature settings cannot be changed in order to ensure the optimum tap temperature.

14. First commissioning

Prior to first commissioning of the HIU, according to ÖNORM H5195-1 it is necessary to note that clean and standard-compliant pipe materials (without scale, rust and internal burrs, as well as without contamination), fittings and devices (boilers, radiators, convectors, expansion vessels, etc.) must be used. Furthermore, ÖNORM H5195 also requires clean and professional production (without welding beads, sealing material residues or soldering aids, burrs, metal shavings, etc.), as well as the cleaning of all heating system parts before installation.

Otherwise damage to the controller may arise due to the deposits in the pipes. There would also be a risk of contaminants getting into the drinking water. The installation of strainers is recommended.

Before using the station for the first time, tighten all connections to a torque of 15 Nm.

In order to prevent corrosion damage in the system, ÖNORM H5195-1 stipulates the following:

The installation and operation of a heating system must be carried out in such a way that the air entering the closed heating system is prevented as far as possible.

When commissioning the heating for the first time, flush the secondary time side with a water quantity at least two times the volume of the system. Afterwards, fill the heating system with clear,

filtered water quality. The heating system must remain in operation for 24 hours under operating conditions in order to achieve even mixing of the heating water with the inhibitors. Old systems must be chemically cleaned before filling and then rinsed with water. Partial or complete emptying of the heating system for a longer period of time without preservation should be avoided, as this would lead to increased corrosion processes in the system. In order to ensure adequate frost protection in the system at low temperatures, ÖNORM H5195-2 stipulates:

Although the antifreeze is miscible with water at any ratio, systems with pumps should initially be filled with roughly two thirds of the required quantity of water. The antifreeze should then be added to the system with water. Thorough mixing is achieved by starting up the circuit. If it is necessary to add to heating systems that have not previously protected against frost then observe the following:

1. It is necessary to ensure that the sealing materials are suitable for this.
2. The systems should be carefully flushed through.
3. After adding antifreeze it is necessary to watch for any leaks even more carefully.

15. Decommissioning, emptying

Shutting down the hydraulic interface unit for a prolonged period of time or dismantling it for whatever reason is done by shutting all ball valves.

In rooms exposed to temperatures below freezing the hydraulic interface unit have to be drained down prior to the start of the cold season if the unit is to be shut down for several days. To drain the substation, place a vessel with a capacity of 4 to 8 liters underneath the unit and drain the hot water from the ball valves till the hydraulic interface unit is completely empty.

If temperatures are liable to drop below freezing point, be aware that not only the water is in the substation and the hot water pipes may freeze but also the water in the cold water inlet pipes leading to the fittings and to the unit itself. Therefore it is best to drain all water pipes and pipe fittings up to the frost-proof part of the domestic heating system.

16. Servicing and maintenance

Owing to its outstanding design, the HERZ Salzburg NT requires comparably little maintenance work. However, in hard water areas lime-scale can build up in the system. Depending on the hardness of the water, your system should be de-scaled by a professional every one to two years. In case scale in the system has damaged the valves, these should be replaced immediately to ensure smooth operation of your heating system.

Do not clean the unit with scouring or harsh cleaning products. Wipe it down with a damp cloth which has been rinsed in water with a few drops of mild detergent.

Heat exchanger

Note:

The specified guide values from the heat exchanger manufacturer must be observed with regard to the required water quality.

Table 1, corrosion resistance of stainless steels and brazing material in water at room temperature

The guide below is an attempt to give a picture of the corrosion resistance of stainless steels and brazing material in water at room temperature. In the table, a number of important chemical components are listed, however the actual corrosion is a very complex process influenced by many different components in combination. **This document is therefore a considerable simplification and should not be overvalued!**

Table key			Important Note: The following parameters can also influence the corrosion resistance				
+ Good resistance under normal conditions			Temperature: The data in the table are based water temperature of 20°C unless otherwise is stated.				
0 Corrosion problems may occur especially when more factors are valued 0			Presence of oxidants in the environment: guidelines regarding the oxygen content are shown in Table 3.				
- Use is not recommended			Product form , heat treatment and presence of intermetallic phases: The data in the table is based on untreated raw material.				
WATER CONTENT	CONCENTRATION (mg/l or ppm)	TIME LIMITS Analyze before	Plate Material		Brazing Material		
			AISI 304	AISI 316	COPPER	NICKEL	STAINLESS STEEL
Alkalinity (HCO ₃ ⁻)	< 70	Within 24 h	+	+	0	+	+
	70-300		+	+	+	+	+
	> 300		+	+	0/+	+	+
Sulphate ^[1] (SO ₄ ²⁻)	< 70	No limit	+	+	+	+	+
	70-300		+	+	0/-	+	+
	> 300		+	+	-	+	+
HCO ₃ ⁻ / SO ₄ ²⁻	> 1.0	No limit	+	+	+	+	+
	< 1.0		+	+	0/-	+	+
Electrical conductivity ^[2] (Refer to Table 3 for oxygen content guidelines)	< 10 µS/cm	No limit	+	+	0	+	+
	10-500 µS/cm		+	+	+	+	+
	> 500 µS/cm		+	+	0	+	+
pH ^[3]	< 6.0	Within 24 h	0	0	0	+	0
	6.0-7.5		+	+	0	+	+
	7.5-9.0		+	+	+	+	+
	9.0-10		+	+	0/+ ^[4]	+	+
	>10.0		+	+	0	+	+
Ammonium (NH ₄ ⁺)	< 2	Within 24 h	+	+	+	+	+
	2-20		+	+	0	+	+
	>20		+	+	-	+	+
Chlorides (Cl ⁻) (Refer to Table2 for temperature- dependent values)	<100	No limit	+	+	+	+	+
	100-200		0	+	+	+	+
	200-300		-	+	+	+	+
	300-700		-	0/+	0/+	+	-
	>700		-	-	0	+	-
Free chlorine (Cl ₂)	< 1	Within 5 h	+	+	+	+	+
	1-5		-	-	0	+	-
	> 5		-	-	0/-	+	-
Hydrogen sulfide (H ₂ S)	< 0.05	No limit	+	+	+	+	+
	>0.05		+	+	0/-	+	+
Free (aggressive) carbon dioxide (CO ₂)	< 5	No limit	+	+	+	+	+
	5-20		+	+	0	+	+
	> 20		+	+	-	+	+
Total hardness ^[5] (Refer to "Scaling Document" for scaling aspect of hardness effect)	4.0 - 11 °dH	No limit	+	+	+	+	+
	70 - 200 mg/l CaCO ₃		+	+	+	+	+
Nitrate ^[1] (NO ₃ ⁻)	< 100	No limit	+	+	+	+	+
	> 100		+	+	0	+	+
Iron ^[6] (Fe)	< 0.2	No limit	+	+	+	+	+
	> 0.2		+	+	0	+	+
Aluminium (Al)	< 0.2	No limit	+	+	+	+	+
	> 0.2		+	+	0	+	+
Manganese ^[6] (Mn)	< 0.1	No limit	+	+	+	+	+
	> 0.1		+	+	0	+	+

17. Troubleshooting, malfunction

Problem: Hot water temperature too high.

Solution: The built-in DT controller must be checked by a competent and authorized craftsman and replaced if necessary.

Problem: Hot water temperature too low.

Solution: The built-in heat exchanger must be checked by a qualified and authorized craftsman and replaced if necessary. Find out whether your district heating operator is experiencing a failure. Check that the red ball valves are turned on. The built-in thermostatic controller must be checked by a competent and authorized craftsman and replaced if necessary. The system should be checked for limescale deposits by a competent and authorized craftsman.

Further information on service and troubleshooting can be found in the corresponding data sheets from HERZ Armaturen.

18. Recycling and disposal

Both the HIU and the associated transport packaging consist for the most part of recyclable raw materials.

Your HIU and all accessories do not belong in the household waste.

- Make sure that your device and any accessories that may be present are disposed properly.

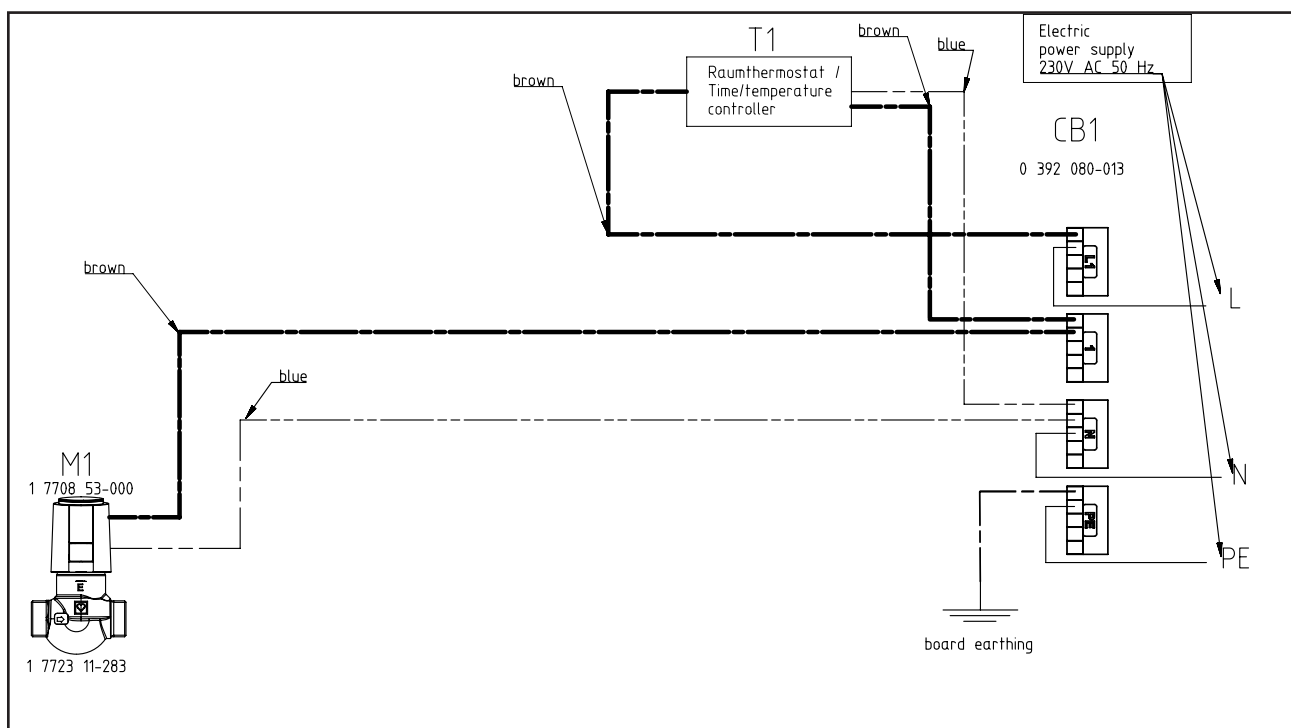
Packaging

- Leave the disposal of the transport packaging to the approved specialist company that installed the device.

19. Materials

According to Article 33 of the REACH regulation (EC No. 1907/2006), we are obliged to point out that the substance lead is on the SVHC list and that all brass components used in our products are more than Contains 0.1% (w / w) lead (CAS: 7439-92-1 / EINECS: 231-100-4). Since lead is firmly bound as an alloy component, no exposure is to be expected and therefore no additional information on safe use is required.

Electrical connection diagram



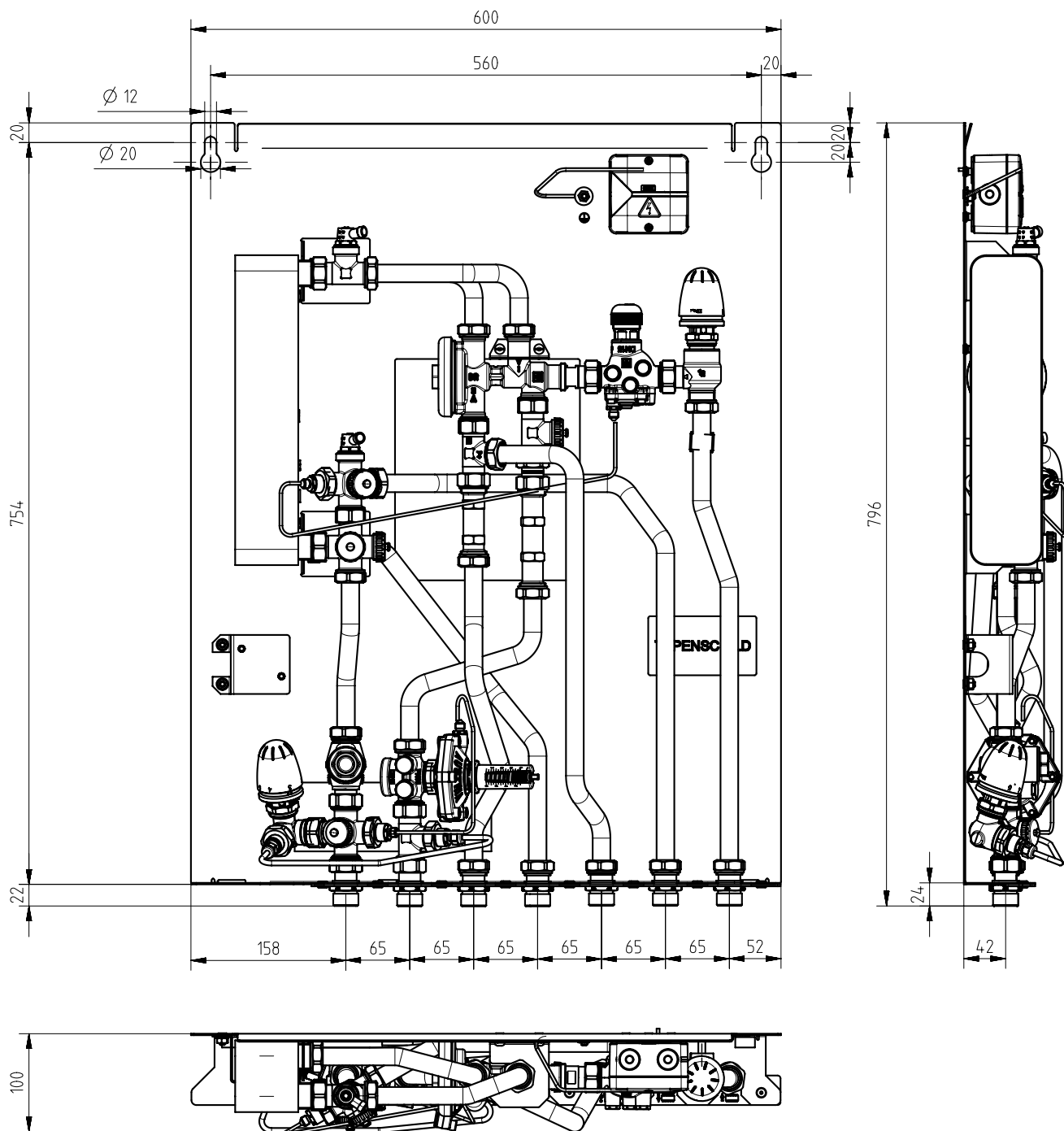
19. Dimensions

HIU compactRAD

HIU compactRAD WP

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1 4021 48 15 l/Min
1 4024 41 18 l/Min
1 4021 49 22 l/Min

1 4024 81 18 l/Min

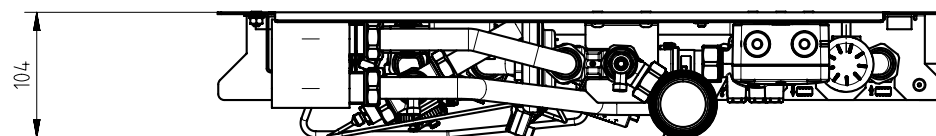
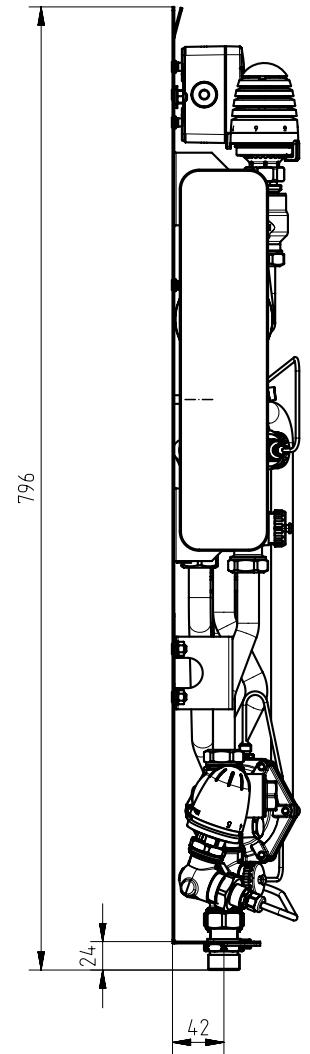
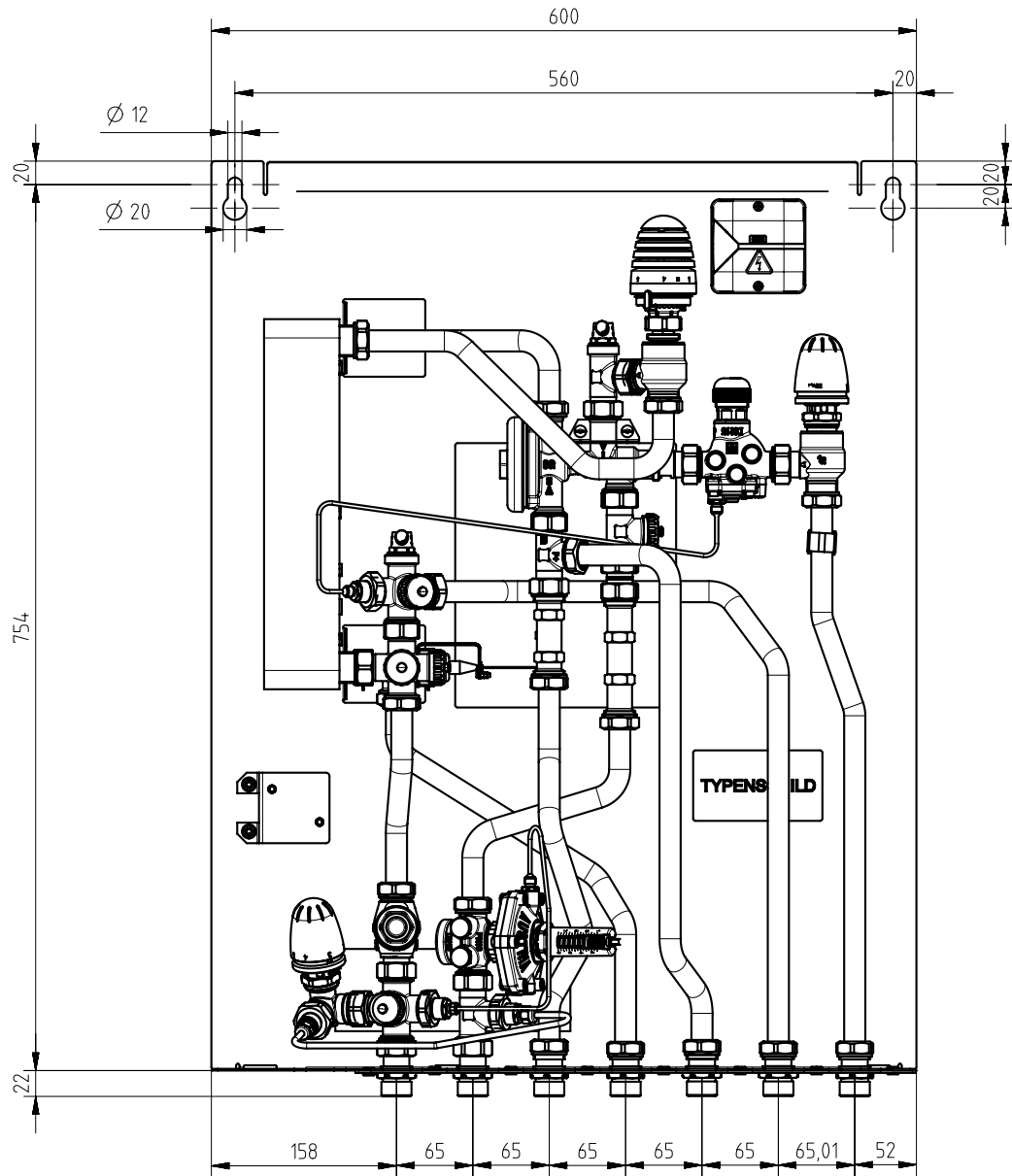


HIU compactRAD TSR

1 4021 44	11 l/Min
1 4021 45	15 l/Min
1 4024 46	18 l/Min
1 4021 46	22 l/Min

HIU compactRAD 55 WW TSR

1 4025 75	11 l/Min
1 4025 76	15 l/Min
1 4025 77	18 l/Min

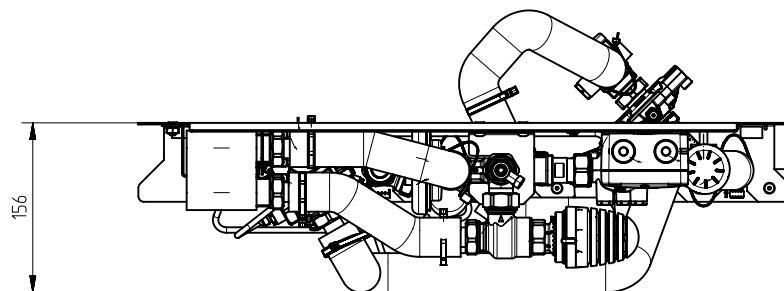
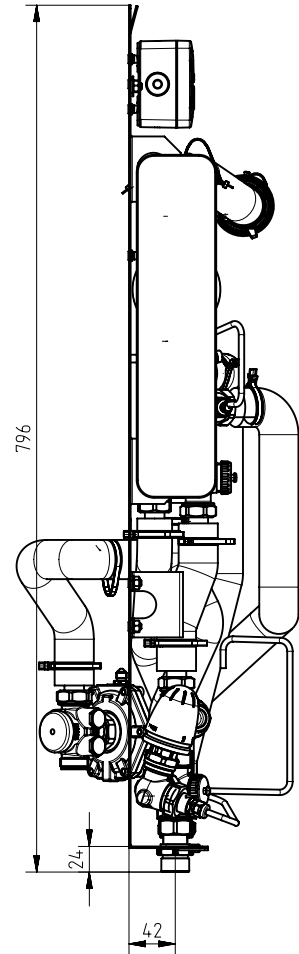
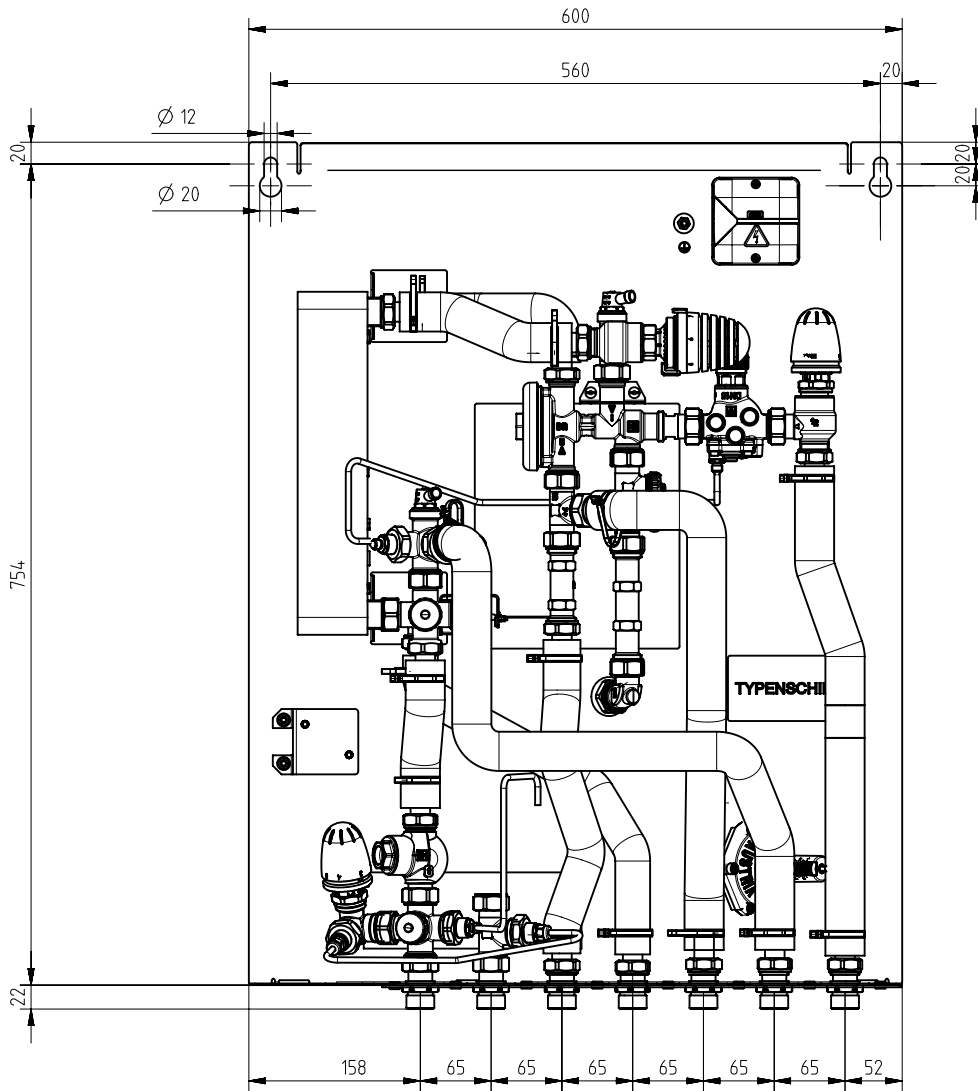


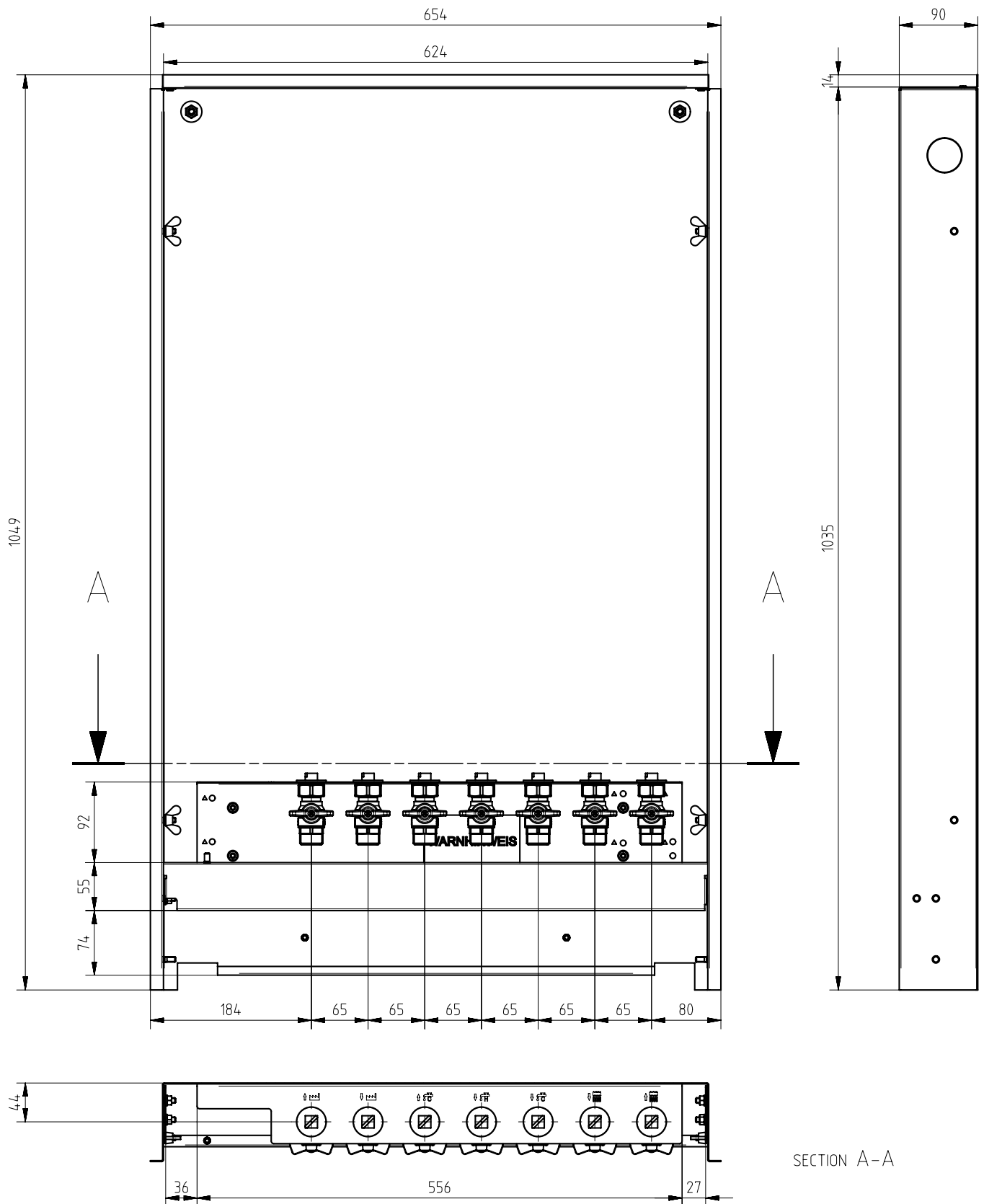
HIU compactRAD TSR, insulated

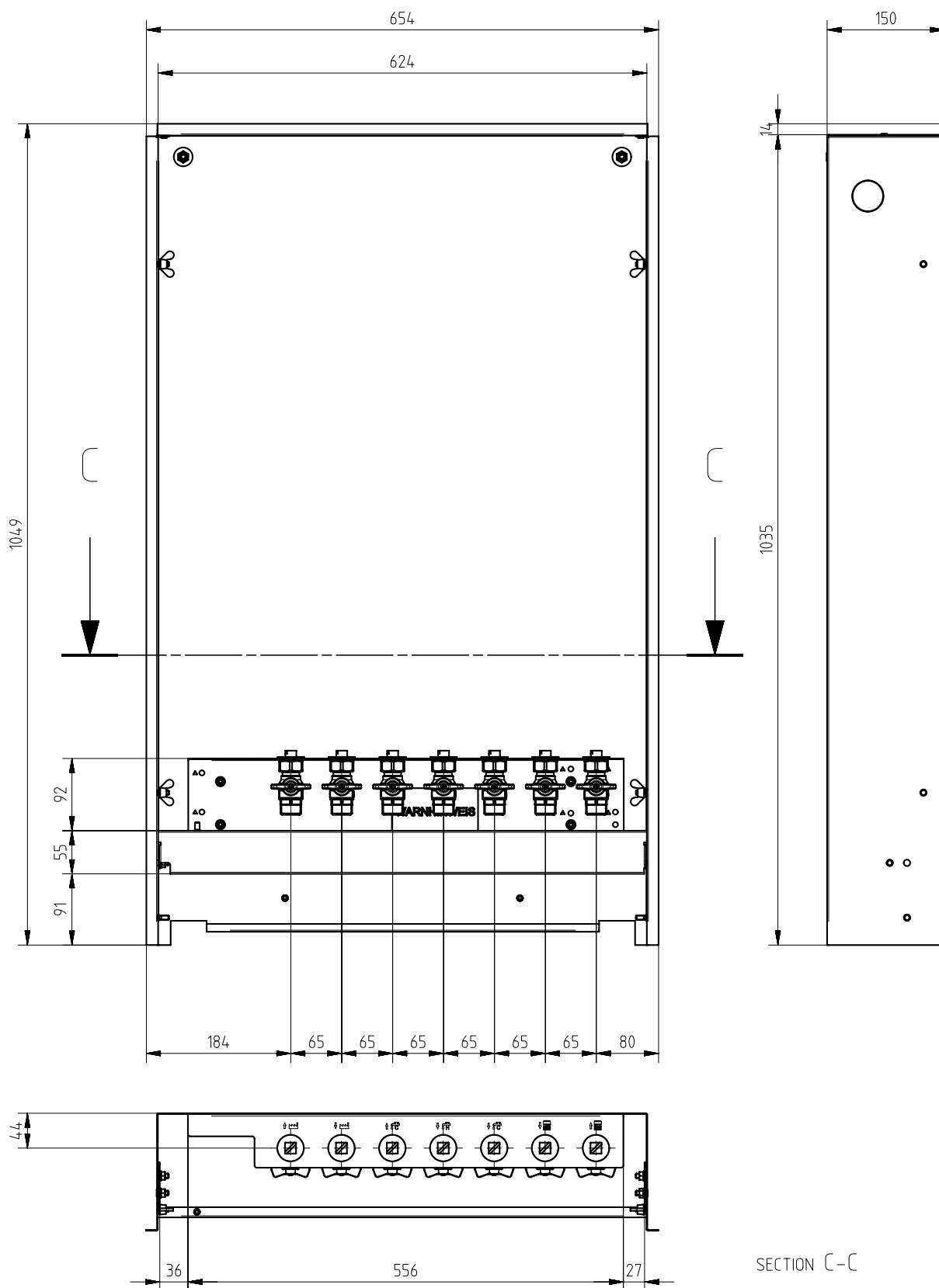
1 4021 50	11 l/Min
1 4021 51	15 l/Min
1 4024 91	18 l/Min
1 4021 52	22 l/Min

HIU compactRAD 55 WW TSR, isoliert

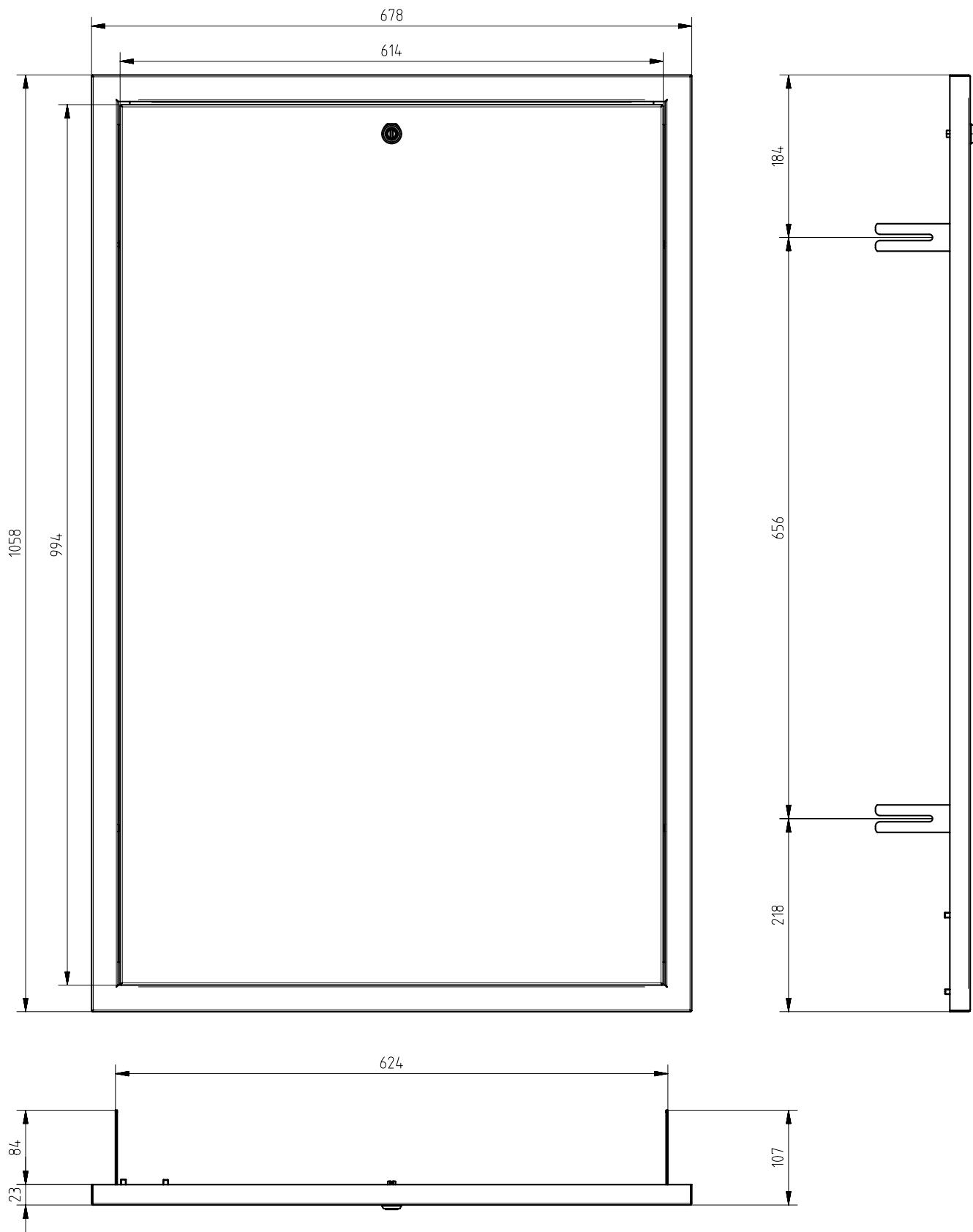
1 4025 75	11 l/Min
1 4025 76	15 l/Min
1 4025 77	18 l/Min

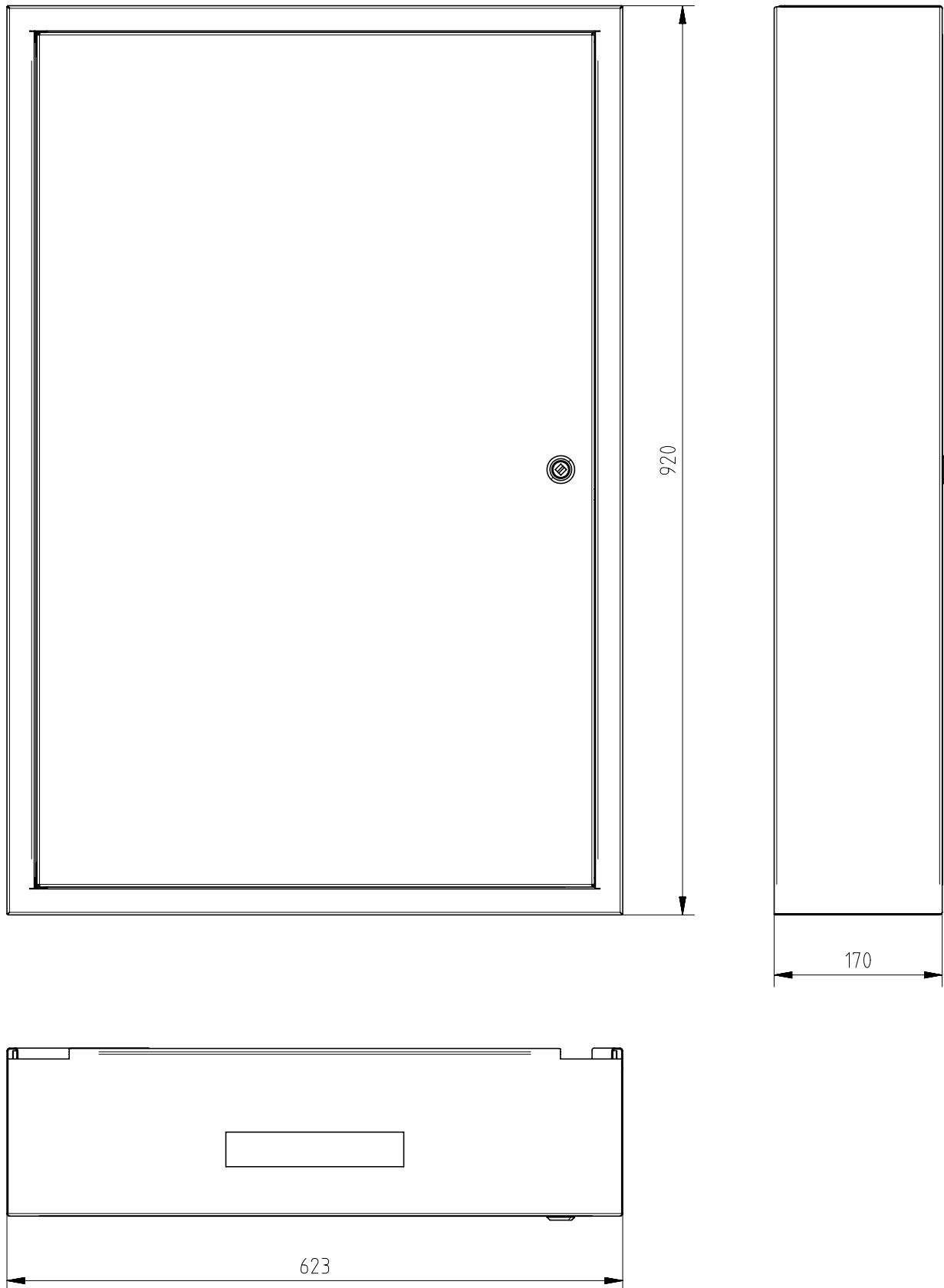






HIU compact front frame with door, short
1 4024 48





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