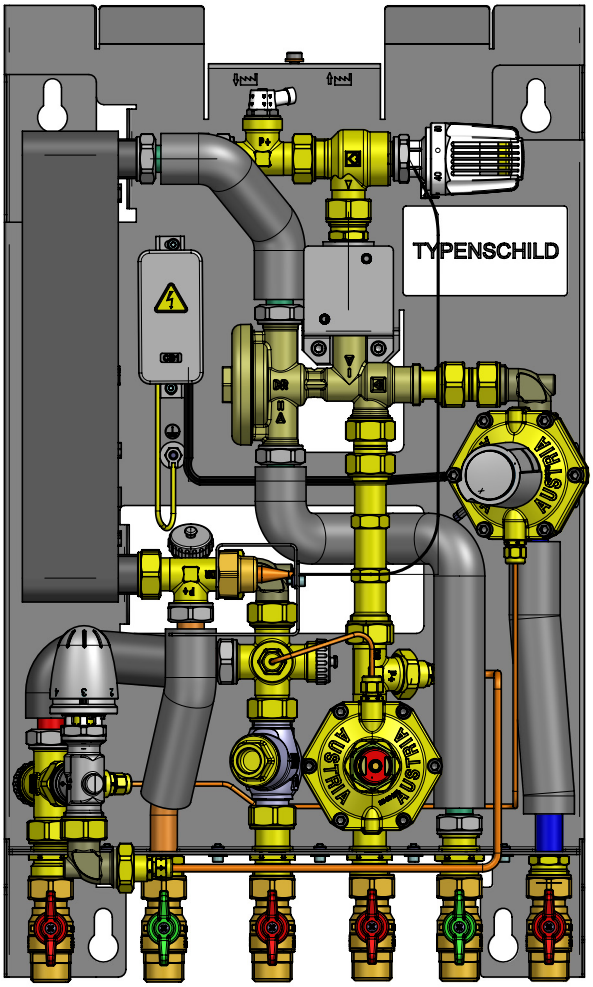
HIU Renova

INSTRUCTION FOR OPERATORS AND PLUMBERS



HIU Renova (11l/min)	1 4021 91
HIU Renova (15l/min)	1 4021 92
HIU Renova (18l/min)	1 4021 93

INSTRUCTION

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1 4021 91-062_V01

Description

The HERZ Renova Heat 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 exchange for instant on demand DHW production. The HIU is direct so the primary heating circuit is directly transferred to the property space heating.

The pipe connection to the HIU is made via ball valves. The pipes can be connected to the station from the floor and from above using the Top Connection

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.
- HERZ Differential pressure controller for secure operation and automatic hydraulic balancing between multiple HIU's
- Lowest primary return temperature maximises system efficiency
- Also suitable for radiator heating
- 18mm stainless steel pipe work
- 110 mm Spool piece for heat 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.

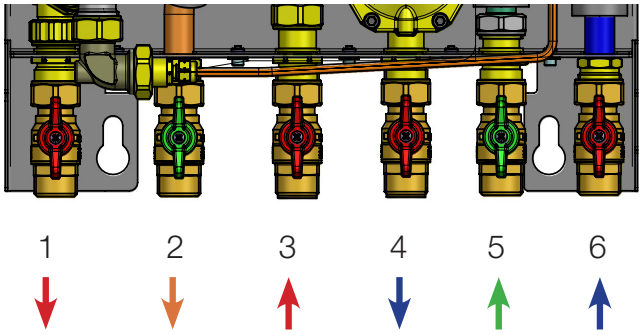
3. Operating data

Max. Flow temperature	85 °C
Max. operating pressure HIU	16 bar
Max. primary differential pressure	2 bar
Min. drinking water flow pressure	2,5 bar
Max. heating power	15 kW
Tapping capacity	11/15/18 [l/min]
Cold water temperature	10 [°C]
Tap temperature	50 [°C]

4. Construction

Due to its small dimensions and compact design, the HIU can be installed on the surface in the apartment itself instead of the former gas boiler. The pipes are made of stainless steel 1.4401, Ø18mm. All components of the station are equipped with detachable connections to enable interchangeability and maintenance.

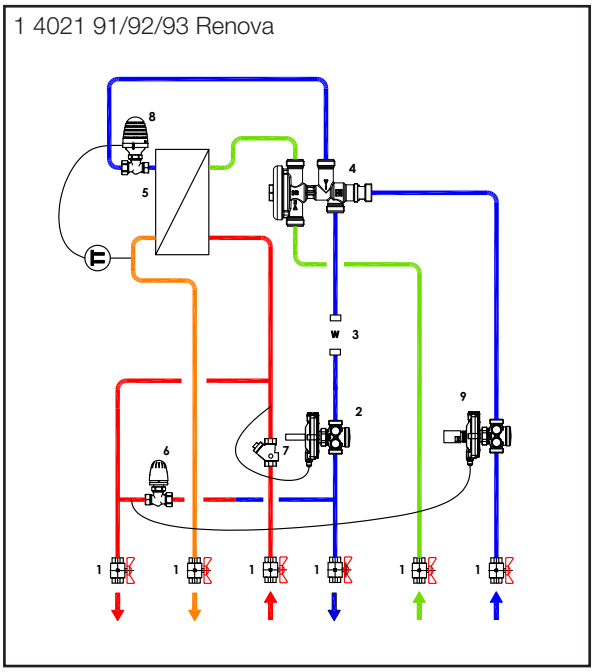
5. Connections



Connections, Input/output		
1	Apartment supply	3/4" flat-sealing
2	Hot water outlet	3/4" flat-sealing
3	Primary supply	3/4" flat-sealing
4	Primary return	3/4" flat-sealing
5	Drinking water inlet	3/4" flat-sealing
6	Apartment return	3/4" flat-sealing

6. Functional scheme

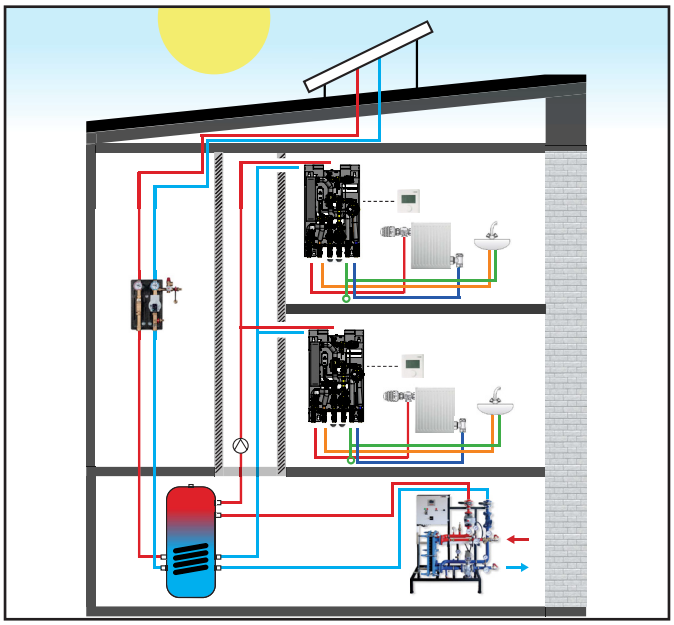
1 4021 91/92/93 Renova



Legende

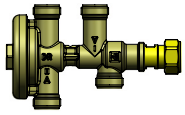
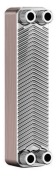
1	HERZ - Ball valve
2	HERZ - Differential pressure controller 25-60 kPa
3	HERZ - Heat meter adapter 110 mm
4	HERZ - PT-Controller
5	Heat exchanger DHW
6	HERZ - Summer bypass
7	HERZ - Strainer
8	HERZ Thermostatic control (TSR)
9	HERZ - Differential pressure controller 23 kPa with zone valve

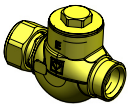
7. Connection Example



The HIU Renova is connected in parallel to the primary network and via a 2-pipe system (primary flow and return). The innovative design facilitates the replacement with a traditional individual gas boiler. Thus, the station can also be connected to the primary network from above, for example, via the former exhaust pipe of the gas boiler or the former chimney. The drinking water connection is usually made in the apartment, as a drinking water connection in the apartment is already available during renovation. A central hot water boiler and a central circulation line can be dispensed with, as hot water is produced on-site and as needed in the station. The primary flow temperature is transmitted directly to the radiator heating in this station.
The HIU operates independently of heat sources in the NT version from a flow temperature of 55°C. With the 18l/min version, the required flow temperature is 65°C to ensure a tap temperature of 50°C.

8. Accessories and spare parts

1 **4019** 99 Pressure-temperature controller with priority circuit	
1 **4022** 30 Top Connection insulated connection piping for the primary connection of the station from above.	
1 **4018** 47 Heat exchanger Asymmetrical stainless steel plate heat exchanger brazed with copper (E8LASHx42)	
1 **6319** 02 HERZ differential pressure controller 23 kPa with adjustable flow limitation	
1 **7708** 53 HERZ-actuating drive for 2-point control for floor heating circuit distributors and valves M 28 x 1.5, 2-point, also suitable for pulsepause 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.	
1 **7748** 91 HERZ-TS-90 thermostatic valve Reverse angle model (Summerbypass)	
1 **6390** 91 Thermostatic insert (Summerbypass)	
1 **9201** 06 Return temperature limiter (summer bypass) is used to control the return temperature of the space heating between 25-60 °C. Limited to 45 °C.	
1 **6319** 01 Differential pressure regulator Regulation range 25-60 kPa, compact design, housing made of dezincification-resistant brass.	

1 **6357** 21 Thermostatic insert (TSR)	
1 **7421** 02 HERZ thermostat with contact sensor Fixed at 53°C (TSR)	
1 **4019** 78 Strainer with fine-mesh sieve made of stainless steel. Mesh size: 0.5 mm	
1 **6386** 32 Strainer insert Dirt trap	

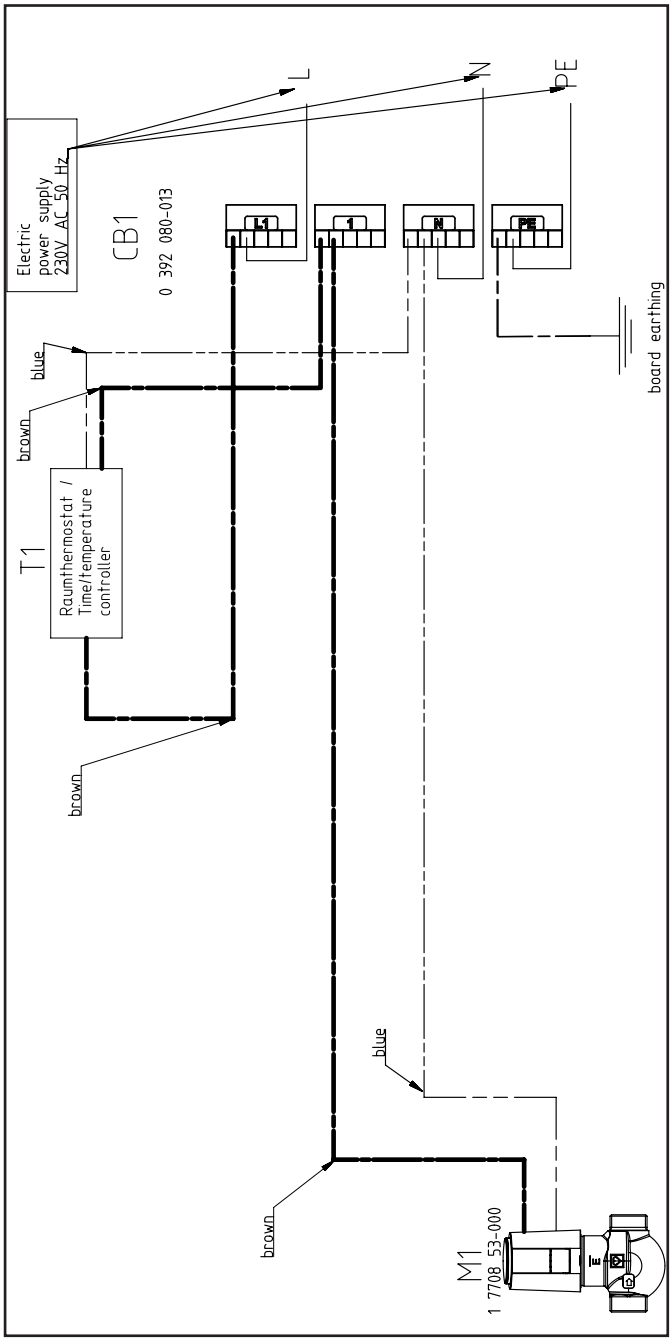
9. Performance data for heating and hot water production

Type	Renova 11 l/min	Renova 15 l/min	Renova 18 l/min
Heating performance data			
Max. heating power (ΔT = 20K)	10 kW	10 kW	10 kW
Max. heating mass flow	430 kg/h	430 kg/h	430 kg/h
Performance data hot water preparation			
Drinking water heating	10/50 °C	10/50 °C	10/50 °C
Max. hot water Capacity	31 kW	42 kW	50 kW
at supply/return temp.	55/20 °C	55/20 °C	65/20 °C
at min. differential pressure	46 kPa	52 kPa	51 kPa
for heating mass flow	810 kg/h	1080 kg/h	880 kg/h

10. Electrical connections

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

Electrical connection diagram



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.

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 intially 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.

Table key	Important Note: The following paratmeters can also influence the corrosion resistence
+ 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.

			Plate Material		Brazing Material		
WATER CONTENT	CONCENTRATION (mg/l or ppm)	TIME LIMITS Analyze before	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_2S)	< 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 70 - 200 mg/l CaCO3	No limit	+	+	+	+	+
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	+	+

Heat exchanger

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

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

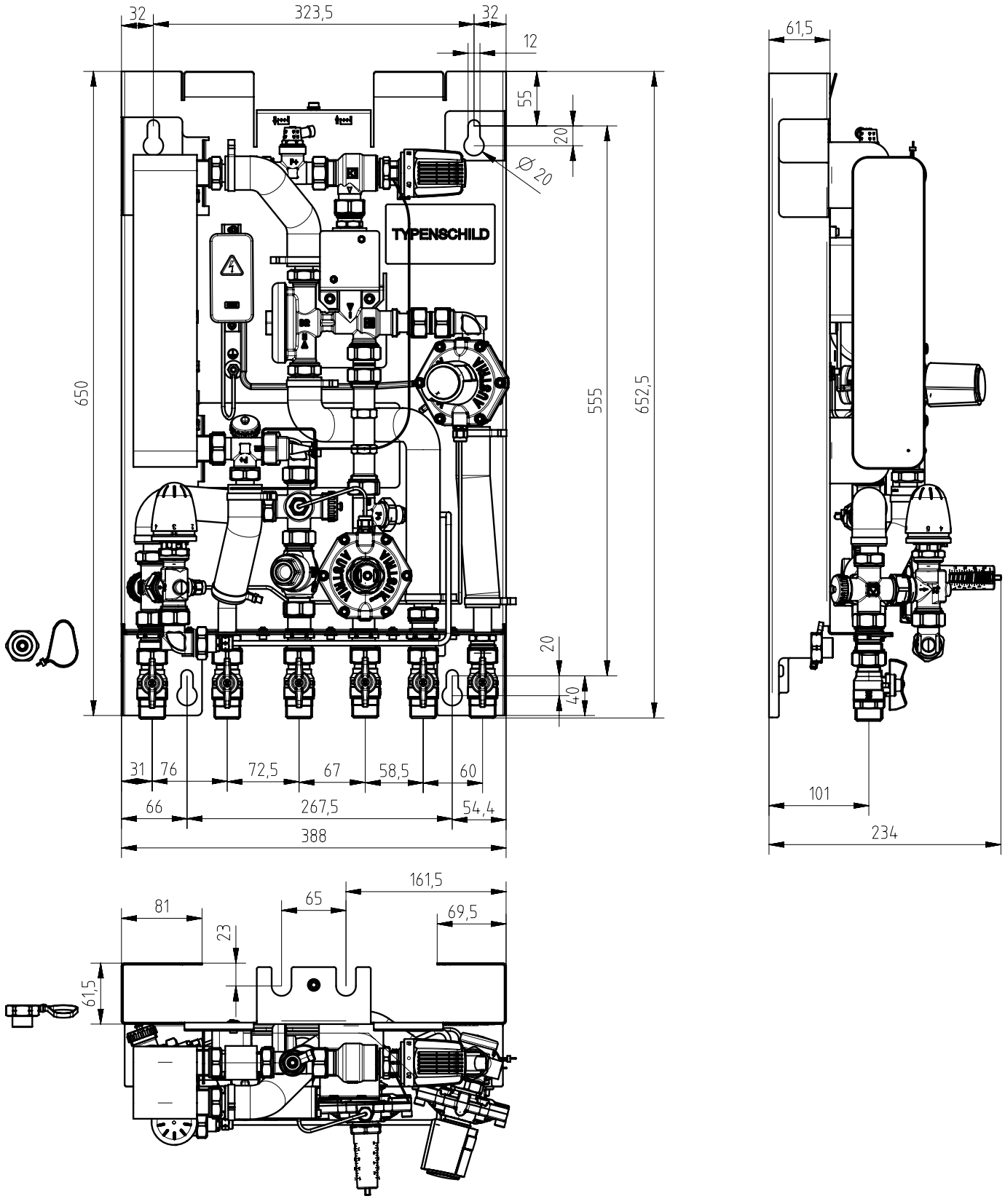
- Leave the disposal of the transport packaging to the approved specialist company that installed the device.

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.

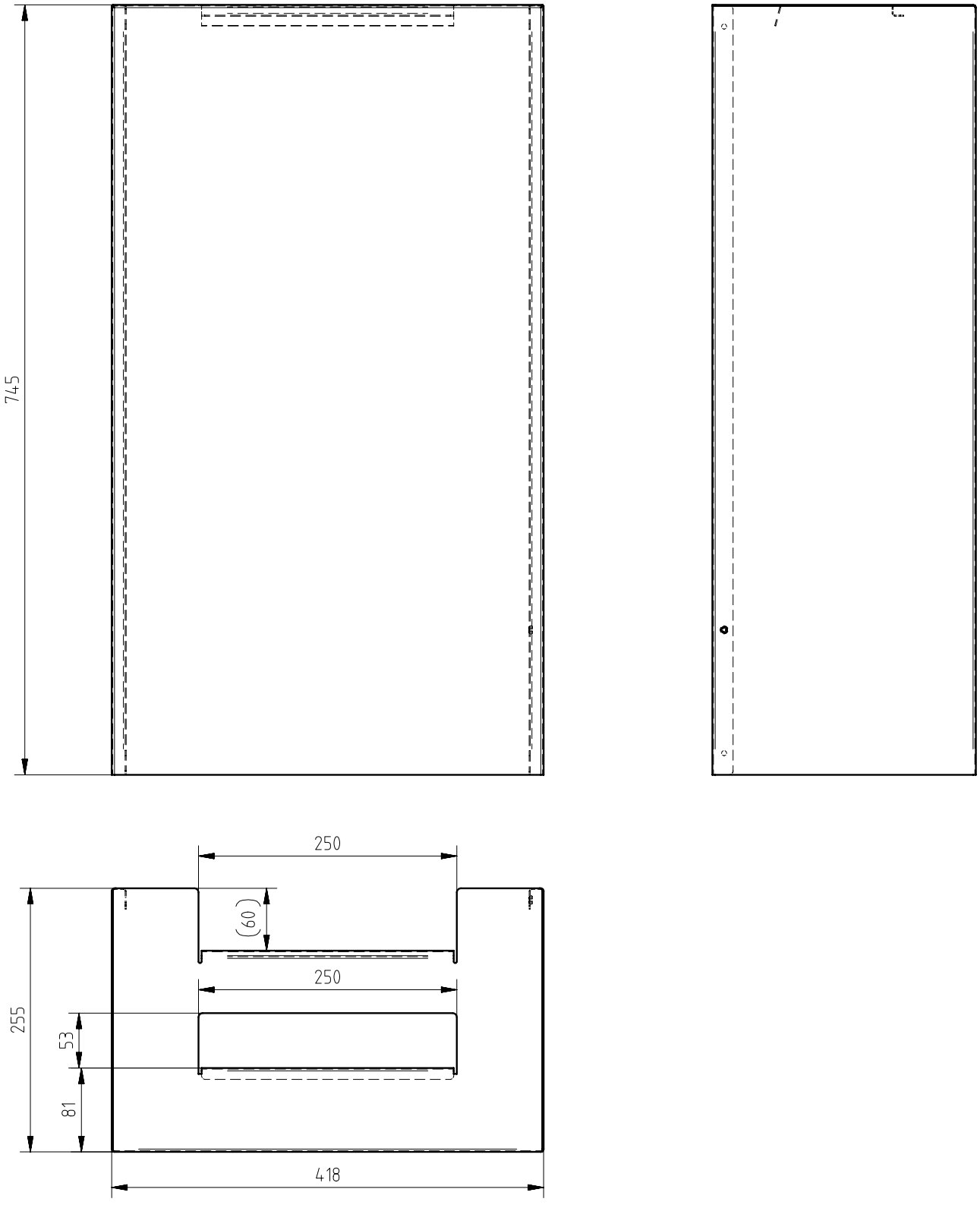
20. Dimensions

HIU Renova



20. Dimensions

HIU Renova Covering hood



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Commissioning of the HERZ Hydraulic Interface Units

Requirements for commissioning

The primary circuit, which is supplied by district heating, should be flushed and treated in accordance with the relevant standards and regulations.

Before the first commissioning of the HIU it should be ensured that clean pipe materials (without scale, rust and burr inside), fittings and devices (boiler, radiators, convectors, expansion vessels inter alia) are used according to ÖNORM H5195-1. All components in the heating system must be cleaned beforehand. Otherwise, damage to the regulators can occur due to the deposits in the pipes. Besides, there would be a risk of impurities getting into the drinking water. The installation of strainers is recommended.

A 30mm and a 32mm torque wrench (15 Nm) is required to loosen the rubber sealing screw connections.

Corrosion

To prevent corrosion damage in the system, ÖNORM H5195-1 prescribes the following: The mounting and operation of a heating system must be carried out in such a manner that the admission of air is avoided as best as possible. During the first commissioning, the heating system must be flushed with at least two times the amount of the systems volume. Afterwards, the heating system must be filled with clear and filtrated filling water.

If inhibitors are already filled in the heating system:

The heating system must remain in operation under operating conditions for 24 hours in order to ensure a uniform mixing of the heating water with the inhibitors. Old systems must be cleaned chemically and then flushed with water before filling. The partial or complete draining of the heating system for a longer period without preservation is to be avoided as otherwise there will be increased corrosion in the system.

Frost protection

To ensure adequate frost protection according to ÖNORM H5195-2 in the system at low temperatures, the system must be filled with an antifreeze mixture. It is recommended to fill a completely drained system with a premixed antifreeze mixture. If this is not possible, then proceed as follows:

Although the antifreeze is miscible with water in all proportions, approximately two thirds of the required water should be filled into the system when a circulating pump is integrated. Then add the antifreeze and fill the system with water. By commissioning the circulation pump, a complete mixing of the liquids in the system should be achieved.

If antifreeze agents must be filled in non-frost-protected heating systems, the following points must be checked:

1. It must be ensured that the appropriate sealing materials are used.
2. The system should be flushed carefully.
3. After filling the system with antifreeze, extra attention must be paid to the occurrence of leakages.

Note: The use of ethylene and propylene glycol in a mixing ratio of 25 - 50% by volume [%] is permitted. Information on frost and corrosion protection agents based on ethylene and propylene glycol can be found in the manufacturer's documentation. Antifreeze mixtures have differing thermal properties when temperature changes. These properties depend on water : antifreeze mixture ratio. Due to the changing specific heat capacity of the mixture, a higher flow rate is required for the same heat output at low temperatures than if only water is used as heat transfer medium. In addition, a higher differential pressure is required in the system due to the changed kinematic viscosity.
Ammonia contained in hemp damages brass valve housings. EPDM seals are swollen by mineral oils or lubricants containing mineral oil and thus lead to failure of the EPDM seals.

Leak testing

After installation, the system must be checked for leaks. The leak testing of the system is to be carried out only with the connected impulse pipe and open impulse pipe ball valve (if any). The pressure must increase evenly on all connections. Max. testing pressure = 1.5 x operating pressure. For any other type of heat transfer medium, the leak testing must be carried out with corrected values. Ignoring these instructions can damage the system and will automatically void the warranty!

Electrical connections and grounding
Before commissioning, the station must be electrically connected in accordance with the relevant standards and regulations. The station must be connected by trained specialist personnel. The flush box and the station must be grounded before commissioning.

Commissioning

Filling and venting

- Open the ball valves slowly taking care not to induce any water hammer
- Slowly open the ball valve on the primary side supply
- Slowly open the ball valve on the primary side return and release any air using the manual air vent
- Slowly open the ball valve on the cold water inlet
- Slowly open the ball valve on the hot water outlet and leave it open for a few minutes. Close the ball valve again and release air using the manual air vent
- Slowly open the secondary side supply ball valve
- Slowly open the secondary side return ball valve
- Ensure that the PT-controller receives heat so that domestic hot water can be drawn off.
- Vent the system and check for leaks.
- Vent the space heating and the radiators by using the manual air vents again
- Repeat this process until there is no more air in the system

Inspection

NOTE: Not all of the components described need to be present in your station!

- Check whether the supply and return of the heating system are correctly connected to the station.
- Check whether the correct pipe dimensions are used in the heating system. Pipe diameters that are too small can limit the functionality of the station.
- Check the dimensioning of the valves in the heating system and check the pressure applied to them.
- Check whether the safety contact thermostat for the underfloor heating is set correctly. (between 50 - 60 ° C)
- Check whether the tamper-proof screw connections of the heat meter are intact.
- Check whether the electronics are connected to a thermostat. Set the thermostat that heat is required.
- Check whether the actuator opens the zone valve by observing the top and the movement of the head of the actuator.
- After filling the system, check whether the pump is working and whether it is connected correctly.
- Check the primary-side differential pressure and, if necessary, adjust the setting of the primary-side differential pressure controller according to its data sheet by turning the brass ring. This compresses or stretches the spring in the controller. The optimal differential pressure is between 50 - 60 kPa, but must be at least 40 kPa.
- Open all the taps and measure the temperature on one of the taps, which is not affected by a drinking water mixing valve (if any). Let the water continue to flow for a few minutes and check the temperature again.
  If the temperature is too low or too high, adjust the setting of the primary differential pressure controller (if any). Increasing the differential pressure at maximum flow rate increases the water temperature and decreasing the differential pressure decreases the water temperature.
- Check the static cold water pressure. The cold water pressure at the station must be >3 bar. If there is a height difference between the cold water manometer and the cold water entrance to the station, then 0.1 bar must be deducted from the manometer display for every 1 meter of height difference (station is above the manometer) or added (station is below the manometer).

Name and address:

Telephone number and e-mail-address:

Location of commissioning:

Order number of the station:

Serial number of the station:

Commissioning checklist	Done
1. The supply and return flow of the heating system match with the supply and return flow of the HIU	☐
2. Visual inspection / leak testing	☐
3. Screw connections are tight	☐
4. System is flushed	☐
5. Strainers are clean and functional	☐
6. System is filled and vented (heating circuit and domestic hot water circuit)	☐
7. All ball valves of the station are smoothly moving	☐
8. Setting of the safety contact thermostat for underfloor heating is between 50 - 60 ° C	☐
9. The functionality and setting values of the differential pressure controller have been checked	☐
10. The heat meter seals (if any) are intact	☐
11. Functionality of the PT-controller has been checked	☐
12. Functionality of the zone valve has been checked	☐
13. The flush box and the station are electrically connected and grounded in accordance with current regulations	☐
14. Electronic parts are checked and connected to a thermostat	☐
15. Actuators are checked for functionality and drive pins are freely moving	☐
16. Pump is correctly connected and working	☐
17. Flush box frame with cover is firmly mounted and without damage	☐
18. Check for audible noises	☐
19. Check of the cold water pressure: _____ bar	☐
20. During hot water tapping: _____ °C primary supply temperature _____ °C primary return temperature _____ kPa primary differential pressure _____ °C hot water tap temperature _____ l/h hot water flow rate	☐
21. Display on heat meter, if any _____ kWh heat meter reading _____ °C supply temperature _____ °C return temperature _____ kW power display _____ l/h current flow rate	☐

22. Display on hot water meter, if any _____ m^3 hot water meter reading _____ l/h current flow rate of hot water _____ °C medium temperature	☐
23. Display on cold water meter, if any _____ m^3 cold water meter reading _____ l/h current flow rate of cold water _____ °C medium temperature	☐

Commissioning was carried out in accordance with the relevant standards and regulations.

Date, place **Signature of the operator** **Signature of customer**

Servicing of the HERZ Hydraulic Interface Units

NOTE: Servicing should only be carried out by professionally trained servicing personnel.

CAUTION: The primary side / district heating side of the HIU can be operated with high pressure and high temperature systems! Since the station is fed directly by the primary supply, it is exposed to the same pressures and the same temperatures. Please be extremely careful and wear the appropriate safety equipment when working on suspected leaks.

CAUTION: Risk of electric shock!
Disconnect the power supply before starting any work and observe all relevant safety precautions.

Draining down the primary circuit
- Close the ball valves on the primary-side supply and return and open the manual air vent to release the pressure
- Carefully open the impulse pipe of the differential pressure controller and drain the contents into a container.

Draining down the domestic hot water circuit
- Close the ball valve on the cold water inlet and open the ball valve on the hot water outlet.
- Carefully open the strainer cap on the cold water inlet and drain the contents into a suitable container.

Draining down the secondary circuit
- Close the ball valves on the supply and return of the secondary circuit
- Release the pressure on the safety valve by carefully opening it and leave it open until the differential pressure has dropped to zero. The emptying volume is 2.5 - 3 liters.
- Open the manual air vent
- Carefully open the strainer cap of the secondary-side strainer and drain the contents into a suitable container.

Do not leave the system without corrosion protection treatment for a longer period of time!

Ball valves
Close and open all ball valves of the station at least once to loosen any deposits and dirt.

Component maintenance
Disassemble all actuators, and check all components of the station for leaks (limestone spots). Also check the movement of the drive pins.
In areas with hard water, lime can accumulate in the system. Depending on the water hardness, the station should be cleaned by a specialist every one to two years. If too much lime accumulates in the system, components can be damaged. Damaged components should be replaced immediately to ensure reliable operation of the heating system.
Do not clean the device with abrasives or harsh detergents. Wipe it with a damp cloth that has been drizzled with a few drops of mild detergent.

Cleaning of the heat exchanger

The turbulence that occurs naturally inside the heat exchanger has a self-cleaning effect on it. If the heat exchanger is exposed to hard water and / or high temperatures, a coating of lime can still form on the plates. Contamination can affect the performance of the heat exchanger. If there is suspicion of calcification of the heat exchanger, the first thing to do is to inspect the immersion sensor. A calcified immersion sensor indicates a calcified heat exchanger. Calcification of the heat exchanger cannot be ruled out despite a clean immersion sensor. If mineral deposits form (lime deposits), a suitable decalcifying agent is required to decalcify the plates. In this case, please replace the heat exchanger.

Electronics and electrical connections
The electronics and electrical connections of the station must be checked in accordance with the relevant standards and regulations. The examination must be performed by trained specialist personnel. The grounding of the flush box and the station must be checked regularly.

PT-controller with priority circuit

Routine servicing- Check all connection seals and the central leakage hole (if any), which indicates the integrity of the

O-rings. If the valve is damaged or does not function properly, it is recommended to replace the valve in order to maintain the optimal operation of the station.

Replacement of the PT-controller - Drain both the primary and the domestic hot water circuit of the station and disconnect all 6 connections of the controller. Then replace the controller and insert it again using connecting nuts and seals.

Thermostatic bypass valve

Routine servicing - Check all connection seals, remove the thermostatic head, check the valve bonnet for leaks and move the drive pin.

Zone valve

Routine servicing - Check all connection seals, remove the actuator, check the valve insert for leaks and move the drive pin of the insert and replace the actuator if necessary.

Actuator

Routine servicing - Check the action via an electrical signal (heating required). If the actuator is damaged or does not function properly, it is recommended to replace the actuator in order to maintain the optimal operation of the station.

Replacement of the actuator - Disconnect the actuator from the power supply and remove it from the valve body by pressing the release button on the side of the actuator and then lifting it up. Replace the actuator and reconnect the wiring.

Stainer

Routine servicing - Check all connection seals, empty the pipes, remove the strainer cap and check the strainer basket. Before reinserting the strainer basket into the valve body, attach it to the strainer cap to prevent it from tilting to ensure tightness of the strainer cap. Only screw the strainer cap by hand. Grease the O-ring on the strainer cap with a suitable valve grease.

Tempering valve (if any)

Routine servicing - Check all connection seals and drain the hot water circuit. Loosen the connection nuts and remove the valve. Check the check valves and strainer seals. If the tempering valve is damaged or does not function properly, it is recommended to replace the valve in order to maintain the optimal operation of the station.

Replacement of the tempering valve - Drain the hot water and replace the valve or the strainer seals.

Differential pressure control valve

Routine servicing - Check all connection seals. If the DPCV is damaged or does not function properly, it is recommended to replace the valve in order to maintain the optimal operation of the station.

Replacement of the differential pressure control valve - Drain the primary circuit, loosen the impulse pipe and replace the valve. Reconnect the impulse pipe afterwards. It is also possible to replace only the upper part of the differential pressure controller due to leaks in the connection thread or due to damage / disfunctionality.

Pressure gauge

Routine servicing - Check all connection seals. Check operation of the needle down to zero and back up when the secondary circuit is being drained and refilled. If the manometer is damaged or does not function properly, it is recommended to replace it in order to maintain the optimal operation of the station.

Replacement of the pressure gauge - Empty the secondary circuit of the station. Unscrew the gauge and replace it.

Thermostatic head with contact sensor

Routine servicing- Not required. If the thermostatic head with contact sensor is damaged or does not function properly, it is recommended to replace it in order to maintain the optimal operation of the station.

Replacement of the thermostatic head with contact sensor - Drain the hot water circuit. Remove and lift the screws from the bracket that holds the contact sensor. Loosen the connecting nut and remove the contact sensor. Also remove the thermostatic head from the valve. Mount the thermostatic head again and lubricate the contact sensor with thermal paste before reinserting it. Position the holder over the contact sensor and screw it back on.

Domestic water heat exchanger

Routine servicing - Check all connection seals. The heat exchanger should be cleaned every 2 years. If the functionality of the heat exchanger is limited or if the heat exchanger is damaged, replacement is recommended in order to maintain

the optimal operation of the station.

Replacement of the domestic water heat exchanger - Drain the primary circuit and the domestic hot water circuit of the station. Loosen all four connections and remove the heat exchanger. Replace the heat exchanger and screw it back on using the connecting nuts and seals.

Heat exchanger on heating side

Routine servicing - Check all connection seals. If the functionality of the heat exchanger is limited or if the heat exchanger is damaged, replacement is recommended in order to maintain the optimal operation of the station.

Replacement of the heat exchanger - Drain both the primary and secondary circuits of the station. Loosen all four connections and remove the heat exchanger and replace the connecting nuts. Screw the screw connections with the seals back on and refill the secondary circuit to bring the pressure up to operating pressure.

Heat meter and water meter (if any)

Routine servicing - Check the intactness of the connections.

Expansion vessel (if any)

Routine servicing - Check all connection seals. Expansion vessels must be checked at regular intervals to ensure that the system functions properly in the long term. The heating system must be switched off before the check. The expansion vessel has to be shut off from the system by using a service valve. The water reservoir of the expansion vessel has to be drained. Consequently the vessel pre-pressure has to be checked with an air manometer and corrected if necessary (refill nitrogen). The vessel inlet pressure should be 0.2 - 0.4 bar below the system set pressure. Afterwards, the service valve can be opened again and the water reservoir can be refilled. Switch the heating system back on and heat it up to the maximum supply temperature. Now check the final pressure. The final pressure should be 0.5 bar below the response pressure of the safety valve. If the functionality of the expansion vessel is limited or if it is damaged, replacement is recommended in order to maintain the optimal operation of the station.

Replacement of the expansion vessel - Empty the secondary circuit of the station and loosen the freely-rotating union nut with two wrenches. Loosen the connector nut and remove the expansion vessel by lifting it up to release it from the bracket. Slide the container down and out to remove. Replace the container in the same way in reverse order. Screw the connecting nut and the freely-rotating union nut back on. Refill the secondary circuit to bring the pressure up to operating pressure.

Safety valve

Routine servicing - Check all connection seals and operate the valve by turning the handle counterclockwise and then releasing it. If the functionality of the safety valve is limited or if the safety valve is damaged, replacement is inevitable!

Replacement of the safety valve- Empty the secondary circuit of the station. Loosen the connecting nut of the ventilation pipe and remove the intact connection. Loosen the safety valve and replace the connecting nut of the copper pipe. Refill the secondary circuit to bring the pressure up to operating pressure.

Space Heating Circulating Pump

Routine servicing - Check all connection seals. If the functionality of the pump is limited or if it is damaged, replacement is recommended in order to maintain the optimal operation of the station.

Replacement of the space heating circulating pump - Disconnect the pump from the power supply, drain the secondary circuit of the station, disconnect the cable from the pump and loosen the two connection nuts. Remove the pump and replace it. Then screw the connection nuts back on and reinsert the seals. Reconnect the electrical cable and test the pump. Refill the secondary circuit to bring the pressure back up to operating pressure. Perform pump venting according to the pump manual.

Before attempting to locate faults on the HERZ HIU please ensure the following:

- ☑ The primary supply temperature is correct
- ☑ The primary flow rate is correct
- ☑ There is sufficient primary pump pressure to allow circulation through the heat exchangers

Servicing protocol

NOTE: Servicing should only be carried out by professionally trained servicing personnel.

CAUTION: The primary side / district heating side of the HIU can be operated with high pressure and high temperature systems! Since the station is fed directly by the primary supply, it is exposed to the same pressures and the same temperatures. Please be extremely careful and wear the appropriate safety equipment when working on suspected leaks.

CAUTION: Risk of electric shock!
Disconnect the power supply before starting any work and observe all relevant safety precautions.

List of components to be serviced regularly and servicing intervals:

A-Service (jährlich)	B-Service (every two years)
Pressure temperature control valve	Domestic hot water heat exchanger
Thermostatischer Bypass	Pressure gauge
Zone valve	
Actuating drive	
Ball valves	
Tempering valve	
Strainers	
Expansion vessel	
Pressure relief safety valve	
Differential pressure controller	

The A service should be performed annually with the addition of the B service every two years. Failure to service the HIU as indicated above will invalidate the warranty.

Servicing steps	Interval	Done
1. Visual inspection / leak testing	annualy	☐
2. Visual inspection of the electrical connections, if any	annualy	☐
3. Checking the electronics and the grounding of the station/flush box	annualy	☐
4. Functionality check and checking of parameters and setting values	annualy	☐
5. Checking the accuracy of the pressure indicators	every two years	☐
6. Checking the tightness and functionality of the PT-controller	annualy	☐
7. Checking the DPCV for tightness and functionality	annualy	☐
8. Checking the functionality of the actuators	annualy	☐
9. Checking the strainer	annualy	☐
10. Checking the tightness and functionality of the drinking water valves, if available	annualy	☐
11. Checking the tightness of the heat exchanger	annualy	☐
12. Checking the functionality of the shut-off valves	annualy	☐
13. Checking the functionality of the bypass	annualy	☐
14. Checking the functionality of the pressure expansion vessel	annualy	☐
15. Checking the functionality of the safety valve	annualy	☐

16. During hot water tapping: _____ °C primary supply temperature _____ °C primary return temperature _____ kPa primary differential pressure _____ °C hot water tap temperature _____ l/h hot water flow rate	annualy	☐
17. Display on heat meter, if any _____ kWh heat meter reading _____ °C supply temperature _____ °C return temperature _____ kW power display _____ l/h current flow rate	annualy	☐
18. Display on hot water meter, if any _____ m^3 hot water meter reading _____ l/h current flow rate of hot water _____ °C medium temperature	annualy	☐
19. Display on cold water meter, if any _____ m^3 cold water meter reading _____ l/h current flow rate of cold water _____ °C medium temperature	annualy	☐

_____

Date, place

Service	Date	Operator	Company
A			
B			
A			
B			
A			
B			
A			
B			
A			
B			
A			
B			
A			
B			
A			
B			
A			
B			
A			
B			

Malfunctions of the HERZ Hydraulic Interface Units

1) Supply temperature is too low
- Increase the supply temperature on the heat source

2) No flow or flow too low at the HIU
- Check the valves settings
- Clean the strainers
- Check the primary differential pressure. The differential pressure should be between 50 - 60 kPa.
- Check the settings on the primary heat pump
- Check the actuator on the zone valve
- Check that the shut-off valves are open

3) Air in the system
- Use the manual air vent
- Remove the air from the respective sections of the apartment's heating circuit
- Remove the air from the riser
- Vent the radiators
- Check the secondary pump, ensure no warning lights are on, remove and clean out if necessary
- Check system water content, recharge if necessary
- Cold water pressure must be> 3 bar

4) Supply temperature too low on the secondary side
- Check the functionality of the secondary pump and replace it if necessary
- Check whether the actuator opens and closes correctly
- Check the thermostatic head setting
- Check the movement of the drive pins
- Check the pressure gauge displays of the heating circuit distributors

5) Long wait for hot water to tap
- Check the bypass circuit
- Check the primary heating circuit

6) Flow generated noises
- Check the differential pressures in the station. A differential pressure that is too high can cause flow generated noises.

7) DPCV is leaking
- Replace the DPCV or the upper part of the DPCV

8) PT-controller is not working correctly
- Replace the PT-controller

9) Warmwassertemperatur ist zu gering
- Cold water pressure must be> 3 bar
- Increase the supply temperature at the heat source
- Check the valve settings in the station
- Check / clean the primary-side strainer
- Check the settings on the primary pump
- Check the heat exchanger and the immersion sensor for calcification. If the immersion sensor becomes calcified, it can be cleaned. If the heat exchanger is calcified, it must be replaced.
- Check the PT-controller and the movement of the drive pin. If necessary, replace the PT-controller
- Check the check valves of the drinking water mixing valve. The drinking water mixing valve has temperature limits between 5 - 85 ° C.

Protocol for commissioning and maintenance

Project:

Notes on spare parts and tools

Before any spare parts are installed in the HIU, all ball valves must be closed!

To determine the type of HIU, please use the attached nameplate.

To loosen the screw connections of the copper pipes or to tighten them, a 13mm open-end wrench is needed.

If the upper part of the DPCV has to be replaced due to leaks or due to damage / disfunctionality, a 30mm and a 32mm torque wrench (15 Nm) is required to tighten the rubber-sealed screw connections. The same applies to the screw connections of the PT-controller installed in the station.

Only screw the strainer caps of the strainer by hand! Attach the strainer to the strainer cap when inserting it into the valve body to prevent it from tilting and to ensure the tightness of the strainer cap.