

# **HERZ**<sup>®</sup> COMPACT FLOOR

## Instruction manual

FOR INSTALLER

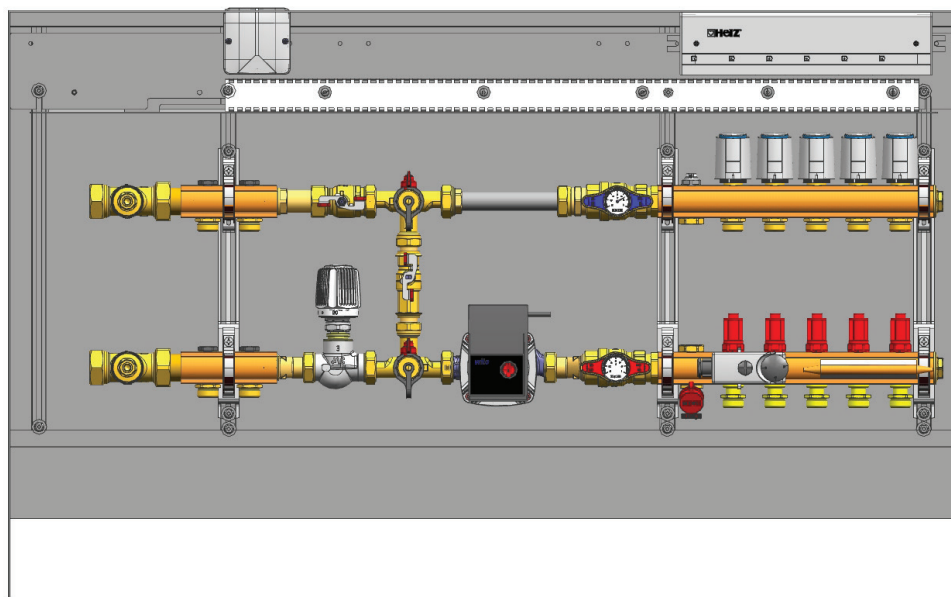
COMPACTFLOOR

3 **E531** 03-42

3 **E532** 03-22

3 **E533** 03-22

3 **E532** 30



## INSTALLATION AND INSTRUCTION MANUAL

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## 1. Introduction

COMPACTFLOOR is a control station ready for connection, including a high efficiency circulation pump for connecting 3 to 12 heating circuits of a panel heating system. Optionally it is also available with 2 high temperature circles.

The supply temperature for the panel heating is controlled mechanically via a temperature limiter. Distribution manifolds for the supply and return guarantee flushing of the panel heating circuits, as well as drainage and venting of the system. The supply distributor is equipped with control inserts and flow indicators and the return distributor is equipped with upper thermostatic inserts. A water temperature indicator for monitoring the system is available in the supply and return. The thermostatic valve HERZ-TS-E installed in the supply with thermostatic head and remote sensor facilitates fixed value control. Depending on the version, the COMPACTFLOOR is additionally available with 2 radiator circuits and all electronic parts required. All electrical parts are installed in a junction box (IP20).

### Advantages of COMPACTFLOOR:

- Enables the individual heating of rooms
- Individually adjustable depending on user behaviour and temperature requirements
- Minimal space required
- Simple operation of the system
- Optimum thermal comfort
- Optionally with connection for 2 radiator circuits

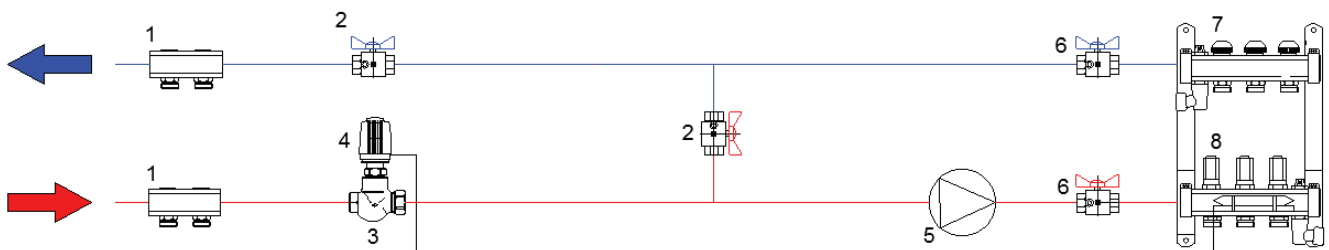
## 2. Safety information

- Assembly and installation must be performed exclusively by licensed and specially trained fitters.
- Damaged parts and components must be replaced with original or alternative suitable and technically equivalent spare parts.
- Prior to starting the system up, check all connection points for leak-tightness.
- Following installation, check that all screws are mechanically secure.
- It is prohibited to technically modify the system. The user must not implement technical changes to the device because no liability will be accepted for any resultant damage to the system.

## 3. Function

The hot water entering the supply is regulated to the target temperature by the thermostat with contact sensor. The target temperature can be adjusted between 20 °C and 50 °C using the hand wheel. Upon reaching the target temperature setting, the thermostatic valve closes and return water is added via the bypass line until the target temperature setting is undercut at the thermostatic head with contact sensor. Once the water temperature drops below set point the thermostatic valve opens again. Depending on the version, it is possible to connect 3 to 12 underfloor heating circuits and 2 radiator circuits. The supply distribution manifold is equipped with flowmeters for pre-setting the desired quantity of water per heating circuit. Thermostatic inserts, equipped with thermal actuators, are installed in the return distribution manifold for individual room temperature control. A high efficiency circulation pump is installed for hot water circulation on the secondary side. All electronic parts are installed in a junction box (IP20).

## 4. Function schematic



- |   |  |   |  |
|---|--|---|--|
| 1 | Radiator outlets (only in 3 <b>E531/F531</b> 23-42 and 3 <b>E533/F533</b> 03-22) | 5 | High efficiency pump (3 <b>E5xx</b> xx)<br>3-speed-pump (3 <b>F5xx</b> xx) |
| 2 | Ball valve   | 6 | Ball valve with thermometer  |
| 3 | Thermostatic valve TS-E  | 7 | Return distributor manifold with thermostatic inserts                      |
| 4 | Thermostatic head with contact sensor  | 8 | Supply distributor with flowmeter  |

## 5. Thermostatic valve TS-E

The control valve TS-E controls the preselected temperature and the pre-set flow rate (see also HERZ PIPEFIX leaflet) .

## 6. Installation information

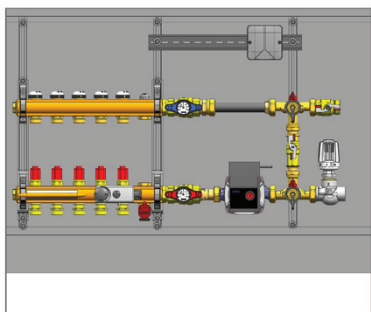
- During assembly, observe the dimensioned sketches and information signs provided with the device. Observe the assembly instructions.
- When selecting the assembly site take into consideration the weight of the COMPACTFLOOR, including the weight of the water in the system.
- During assembly ensure that the mounting wall is straight, to ensure that the COMPACTFLOOR is secured correctly.
- If parts are retrofitted to the COMPACTFLOOR or it is installed in small rooms, it is essential to ensure that the front of the device remains freely accessible for repairs. Ensure sufficiently large ventilation openings, in order that the maximum permissible temperature for electrical parts is not exceeded.
- It is necessary to select wall plugs and screws appropriate for the mounting surface.

## 7. Technical data

- max. operational temperature 110 °C in supply line
- min. operational temperature -25 °C with frost protection agent glycol to a maximum of 50%
- max. operational pressure 10 bar
- max. heat load ca. 8 kW
- power supply: AC 230 V ~, 50 Hz.
- Pre-assembled in distributor cabinet made of galvanized steel sheet, front frame and door powder coated, white (RAL 9003).

## 8. COMPACTFLOOR models

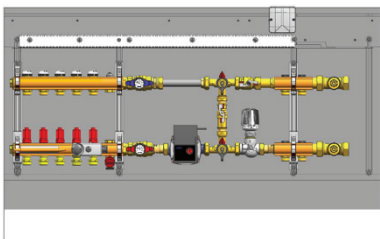
### 8.1. COMPACTFLOOR without radiator connection and without electrical components (incl. high efficiency circulation pump)



COMPACTFLOOR models 3 E531 03-22			
Connection on the right	Order number	Connection on the left	Order number
3-outlet	3 E531 03	3-outlet	3 E531 13
4-outlet	3 E531 04	4-outlet	3 E531 14
5-outlet	3 E531 05	5-outlet	3 E531 15
6-outlet	3 E531 06	6-outlet	3 E531 16
7-outlet	3 E531 07	7-outlet	3 E531 17
8-outlet	3 E531 08	8-outlet	3 E531 18
9-outlet	3 E531 09	9-outlet	3 E531 19
10-outlet	3 E531 10	10-outlet	3 E531 20
11-outlet	3 E531 11	11-outlet	3 E531 21
12-outlet	3 E531 12	12-outlet	3 E531 22

For countries outside the EU the models with conventional 3-speed-pump are also available. Models with 3-speed-pump has to be ordered with the letter "F" instead of "E".

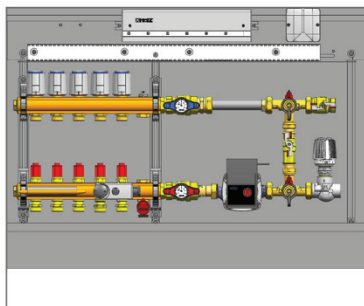
### 8.2. COMPACTFLOOR with 2 radiator connections and without electrical components (incl. high efficiency circulation pump)



COMPACTFLOOR models 3 E531 23-42			
Connection on the right	Order number	Connection on the left	Order number
3-outlet	3 E531 23	3-outlet	3 E531 33
4-outlet	3 E531 24	4-outlet	3 E531 34
5-outlet	3 E531 25	5-outlet	3 E531 35
6-outlet	3 E531 26	6-outlet	3 E531 36
7-outlet	3 E531 27	7-outlet	3 E531 37
8-outlet	3 E531 28	8-outlet	3 E531 38
9-outlet	3 E531 29	9-outlet	3 E531 39
10-outlet	3 E531 30	10-outlet	3 E531 40
11-outlet	3 E531 31	11-outlet	3 E531 41
12-outlet	3 E531 32	12-outlet	3 E531 42

For countries outside the EU the models with conventional 3-speed-pump are also available. Models with 3-speed-pump has to be ordered with the letter "F" instead of "E".

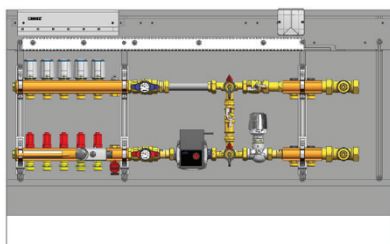
**8.3. COMPACTFLOOR without radiator connection and with electronic components (actuators, elektric distributor, high efficiency circulation pump)**



COMPACTFLOOR models 3 E531 23-42			
Connection on the right	Order number	Connection left	Order number
3-outlet	3 E532 03	3-outlet	3 E532 13
4-outlet	3 E532 04	4-outlet	3 E532 14
5-outlet	3 E532 05	5-outlet	3 E532 15
6-outlet	3 E532 06	6-outlet	3 E532 16
7-outlet	3 E532 07	7-outlet	3 E532 17
8-outlet	3 E532 08	8-outlet	3 E532 18
9-outlet	3 E532 09	9-outlet	3 E532 19
10-outlet	3 E532 10	10-outlet	3 E532 20
11-outlet	3 E532 11	11-outlet	3 E532 21
12-outlet	3 E532 12	12-outlet	3 E532 22

For countries outside the EU the models with conventional 3-speed-pump are also available. Models with 3-speed-pump has to be ordered with the letter "F" instead of "E".

**8.4. COMPACTFLOOR with radiator connections and with electronic components (actuators, elektric distributor, high efficiency circulation pump)**



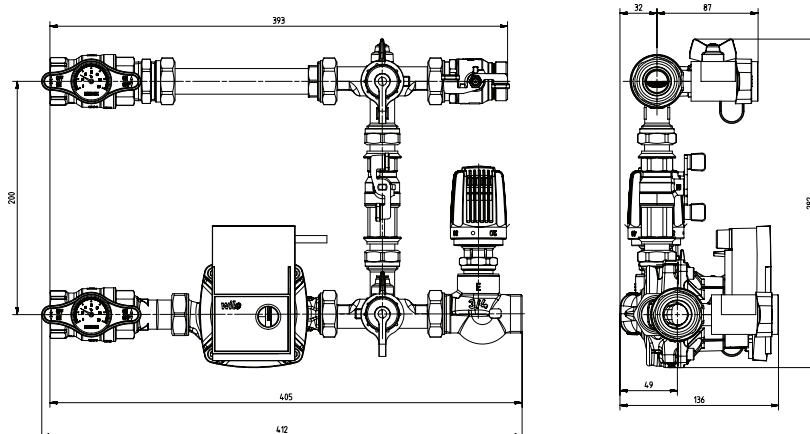
COMPACTFLOOR models 3 E531 23-42			
Connection on the right	Order number	Connection left	Order number
3-outlet	3 E533 03	3-outlet	3 E533 13
4-outlet	3 E533 04	4-outlet	3 E533 14
5-outlet	3 E533 05	5-outlet	3 E533 15
6-outlet	3 E533 06	6-outlet	3 E533 16
7-outlet	3 E533 07	7-outlet	3 E533 17
8-outlet	3 E533 08	8-outlet	3 E533 18
9-outlet	3 E533 09	9-outlet	3 E533 19
10-outlet	3 E533 10	10-outlet	3 E533 20
11-outlet	3 E533 11	11-outlet	3 E533 21
12-outlet	3 E533 12	12-outlet	3 E533 22

For countries outside the EU the models with conventional 3-speed-pump are also available. Models with 3-speed-pump has to be ordered with the letter "F" instead of "E".

**8.5. HERZ pump group 3 E532 30 for underfloor heating manifolds including safety temperature switch and high efficiency circulation pump.**

The HERZ pump group for the fixed value control is also available without distribution bars, electrical components (incl. high efficiency recirculation pump) and flush boxes. The hydraulic function for the fixed value control (see point 3 "Function" and point 4 "Functional schematic") is identical to that of the finished COMPACTFLOOR control stations.

Note: For correct functionality it is necessary to fit the contact sensor and safety temperature switch to the supply distribution bar.



**9. Design**

Due to the small dimensions and compact design it is possible to flush-mount the COMPACTFLOOR and therefore install it either in the stairwell or in the apartment. COMPACTFLOOR is supplied as a control station ready for connection.

## 10. Dimensions of COMPACTFLOOR flush box

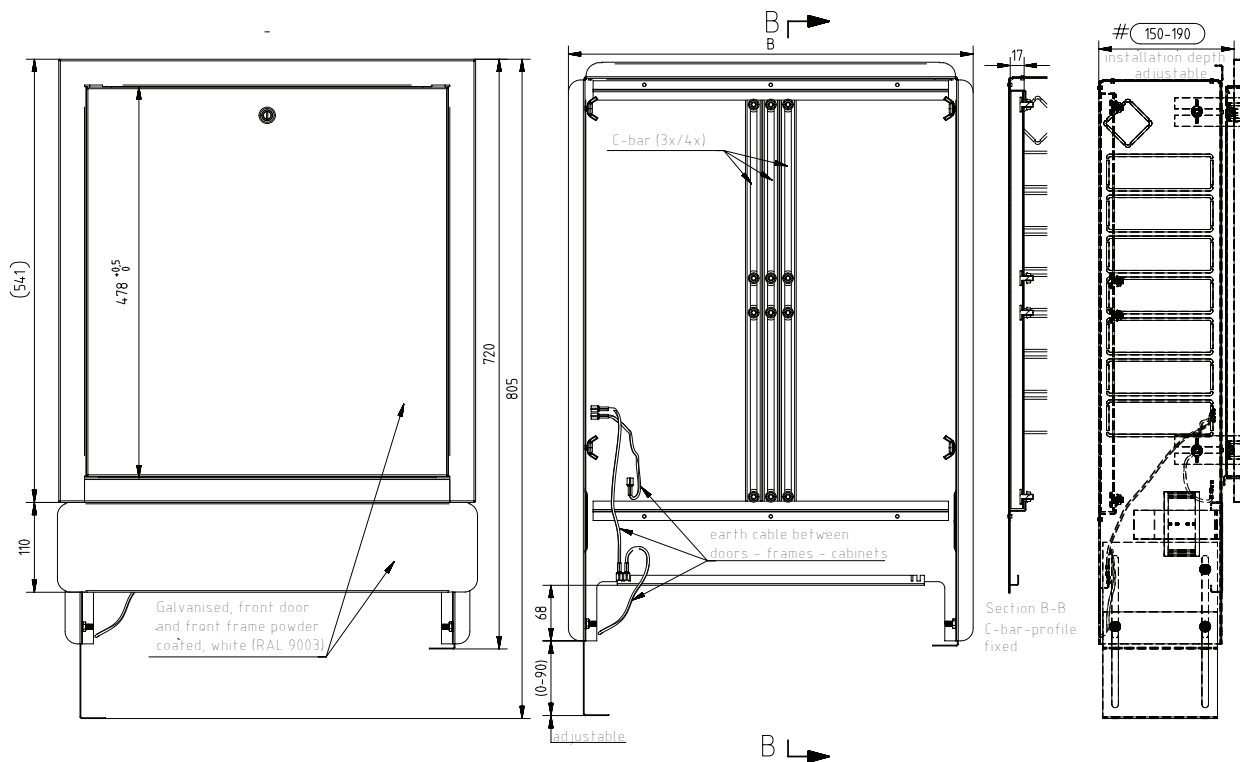
COMPACTFLOOR is supplied ready for connection in a galvanised sheet steel distribution cabinet (white powder-coated). The dimensions vary depending on the number of heating circuits (see table below).

### COMPACTFLOOR with radiator connections

order number		connection	heating circuit		dimension of flush box [mm]			
with electr. distributor	without electr. distributor		panel	radiator	width	height	depth	
3 E533 03	3 E531 23	right	3	2	1200	720-805	150-190	
3 E533 04	3 E531 24		4	2	1200	720-805	150-190	
3 E533 05	3 E531 25		5	2	1200	720-805	150-190	
3 E533 06	3 E531 26		6	2	1200	720-805	150-190	
3 E533 07	3 E531 27		7	2	1500	720-805	150-190	
3 E533 08	3 E531 28		8	2	1500	720-805	150-190	
3 E533 09	3 E531 29		9	2	1500	720-805	150-190	
3 E533 10	3 E531 30		10	2	1500	720-805	150-190	
3 E533 11	3 E531 31		11	2	1500	720-805	150-190	
3 E533 12	3 E531 32		12	2	1500	720-805	150-190	
3 E533 13	3 E531 33		left	3	2	1200	720-805	150-190
3 E533 14	3 E531 34			4	2	1200	720-805	150-190
3 E533 15	3 E531 35	5		2	1200	720-805	150-190	
3 E533 16	3 E531 36	6		2	1200	720-805	150-190	
3 E533 17	3 E531 37	7		2	1500	720-805	150-190	
3 E533 18	3 E531 38	8		2	1500	720-805	150-190	
3 E533 19	3 E531 39	9		2	1500	720-805	150-190	
3 E533 20	3 E531 40	10		2	1500	720-805	150-190	
3 E533 21	3 E531 41	11		2	1500	720-805	150-190	
3 E533 22	3 E531 42	12		2	1500	720-805	150-190	

### COMPACTFLOOR without radiator connection

order number		connection	heating circuit		dimension of flush box [mm]			
with electr. distributor	without electr. distributor		panel	radiator	width	height	depth	
3 E532 03	3 E531 03	right	3	-	900	720-805	150-190	
3 E532 04	3 E531 04		4	-	900	720-805	150-190	
3 E532 05	3 E531 05		5	-	900	720-805	150-190	
3 E532 06	3 E531 06		6	-	1050	720-805	150-190	
3 E532 07	3 E531 07		7	-	1050	720-805	150-190	
3 E532 08	3 E531 08		8	-	1050	720-805	150-190	
3 E532 09	3 E531 09		9	-	1200	720-805	150-190	
3 E532 10	3 E531 10		10	-	1200	720-805	150-190	
3 E532 11	3 E531 11		11	-	1200	720-805	150-190	
3 E532 12	3 E531 12		12	-	1500	720-805	150-190	
3 E532 13	3 E531 13		left	3	-	900	720-805	150-190
3 E532 14	3 E531 14			4	-	900	720-805	150-190
3 E532 15	3 E531 15	5		-	900	720-805	150-190	
3 E532 16	3 E531 16	6		-	1050	720-805	150-190	
3 E532 17	3 E531 17	7		-	1050	720-805	150-190	
3 E532 18	3 E531 18	8		-	1050	720-805	150-190	
3 E532 19	3 E531 19	9		-	1200	720-805	150-190	
3 E532 20	3 E531 20	10		-	1200	720-805	150-190	
3 E532 21	3 E531 21	11		-	1200	720-805	150-190	
3 E532 22	3 E531 22	12		-	1500	720-805	150-190	



## 11. Operating conditions

The room in which the system is operated should be frost-free and assembly should take place at a location that is freely accessible for the required maintenance and repairs. 10 bar static and 0.5 bar differential pressure are permitted on the primary side. Furthermore, it is necessary to note that the connection pipes must be capable of withstanding constant operation at a maximum temperature of 95 °C in the event of a defect.

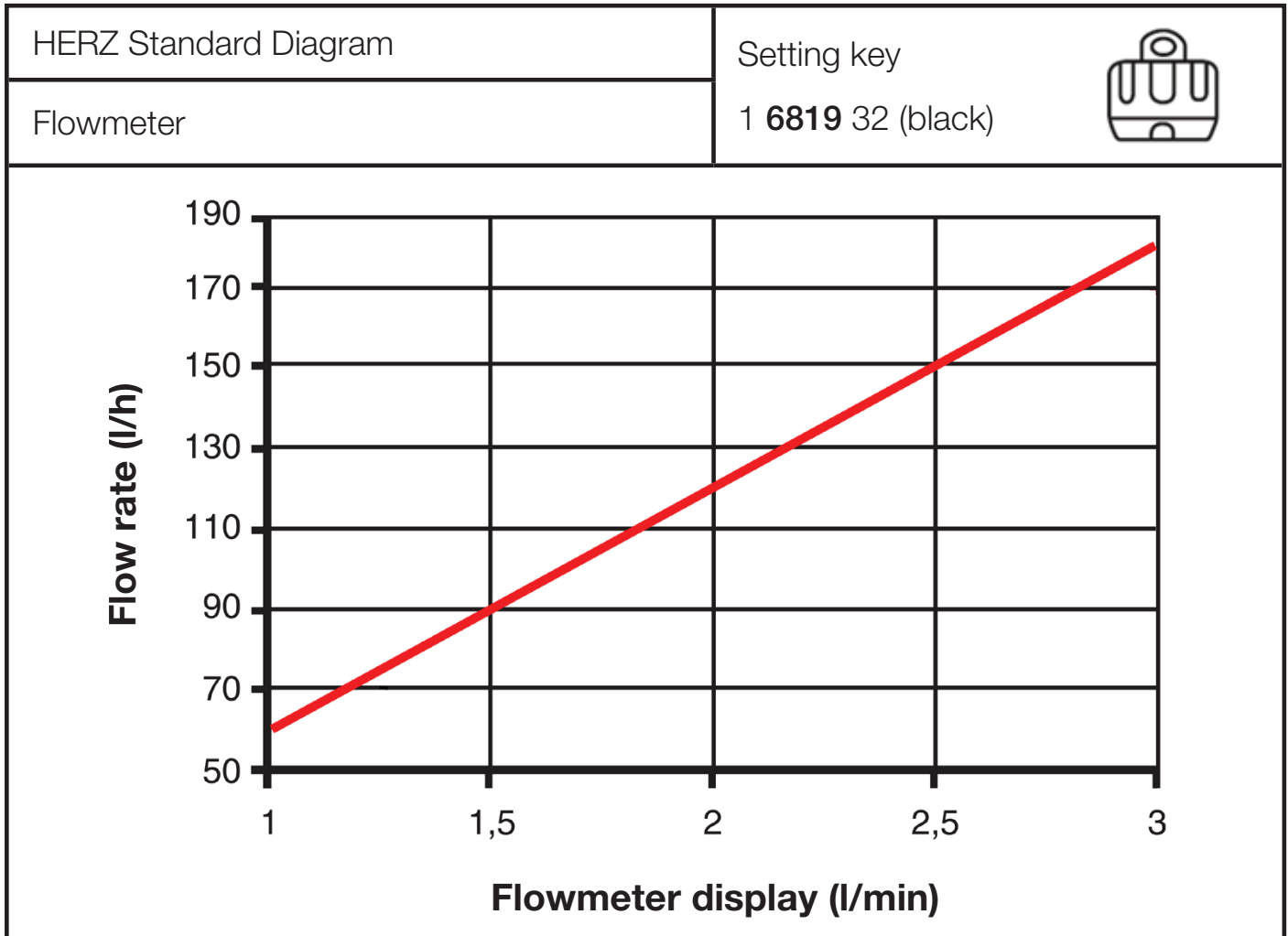
## 12. First commissioning

Prior to first commissioning of the COMPACTFLOOR Standard, according to ÖNORM H5195-1 it is necessary to note that clean and standard-compliant pipe materials (without scale, rust and inner burrs, as well as contamination), fittings and devices (boiler, radiators, convector heaters, 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 and similar), as well as the cleaning of all heating system parts prior to their installation. Otherwise damage to the controller may arise due to the deposits in the pipes.

The set-up and operation of a heating system must take place such that air entering the closed heating system is prevented insofar as possible. When commissioning the heating system for the first time, flush the secondary side through with a quantity at least 2 times the volume of the system. Afterwards, fill the heating system with clear, filtered water (pore size < 25µm) with water quality in accordance with ÖNORM H 5195. Avoid partially or completely emptying the heating system for extended periods of time without treating it, because this may result in intensified corrosion processes in the system. In order that sufficient frost protection of the system is guaranteed with low temperatures, the hot water quality must comply with ÖNORM H5195 and the requisite antifreeze (e.g. max. 50% glycol) must be added.

Although 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. However, gravity systems should be filled with prepared, frost-protected heat mediums. If it is necessary to add antifreeze to heating systems that have not previously been protected against frost then observe the following points:

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



The quantity of water is set for each heating circuit via the flowmeter on the supply distributor. The flow rate is directly adjustable (scale l/min).

Setting: One flowmeter adjustment key 1 **6819** 32 is provided per control station. Insert this key at the top of the flowmeter, at the knurling, and pre-set as required by turning the key.

### 13 Temperature setting

The target temperature can be pre-set at the thermostatic head with contact sensor (see also HERZ PIPEFIX leaflet) between 20 °C and 50 °C using the hand wheel, according to the configuration.

### 14. Contact thermostat

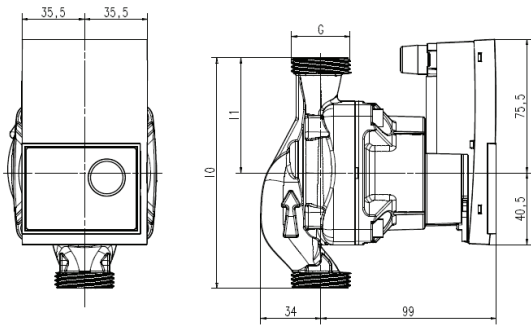
The HERZ safety thermostat 1 **8100** 00 is set 5 K higher than the target temperature according to the configuration. Maximum temperature setting is 50 °C.

Function: In the event of the thermostatic head with contact sensor failing, the contact thermostat serves as a protective element and prevents a temperature rise in the system through electrical isolation of the pump and the zone valve.



**Contact thermostat**  
1 **8100** 00

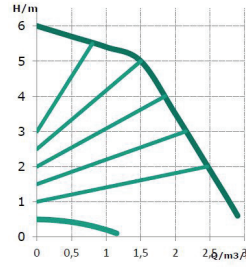
### 15. High efficiency circulating pump ("E"-models)



Type: Wilo Yonos PARA RS 15/6 - 130  
 Hmax. [m] : 6,2  
 Qmax. [m³/h]: 3,3  
 Temperature range: -10°C – 110 °C  
 Standard model for operational pressure pmax [bar]: 10  
 Power supply 1~ [V] : 230 V, +10% / -15%  
 Frequency [Hz]: 50Hz/60Hz  
 Protection class: IP X4D  
 Cable length: 1,5 m  
 Insulation class: F  
 Installation length: 130 mm  
 Connection: 1" male thread  
 Power consumption: 3-45 W  
 Minimum suction head at the suction connection for avoiding cavitation with water pumping temperature:  
 Minimum suction head at 50/95/110°C - 0,5 / 4,5 / 11 m

#### Variable differential pressure ( $\Delta p-v$ ):

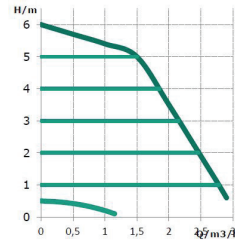
The target differential pressure value H is increased on a linear basis above the permissible pumped flow range between  $\frac{1}{2}H$  and H. The differential pressure generated by the pump is regulated to the corresponding target differential pressure value. This form of regulation is particularly expedient in the case of heating systems with radiators because the flow noise at the thermostatic valves is reduced.



$\Delta p-v$

#### Constant differential pressure ( $\Delta p-c$ ):

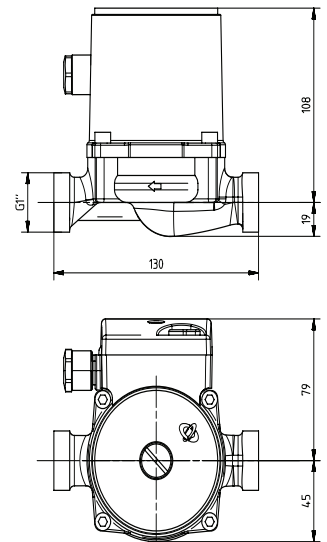
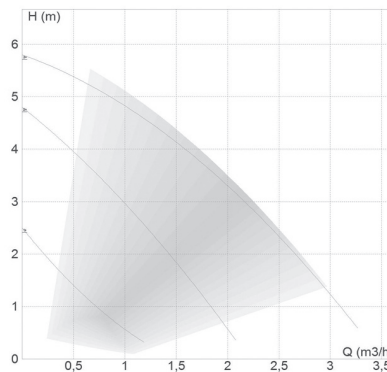
The target value H for the differential pressure is held constant at the set target differential pressure value above the permissible pumped flow range up to the maximum characteristic curve. Wilo recommends this form of regulation with underfloor heating circuits or older heating systems with pipes with large dimensions, and with all applications that do not have variable pipe network characteristic curves.



$\Delta p-c$

### 16. 3-speed-pump ("F"-models) - only available outside EU

Type: IMP GHN 15/60-130  
 Hmax. [m] : 6  
 Qmax. [m³/h]: 3,5  
 Temperature range: -10°C – 110 °C  
 Standard model for operational pressure pmax: 10  
 Power supply 1~ [V] : 230  
 Frequency [Hz]: 50  
 Protection class: IP44 (IEC 144)  
 Insulation class: H  
 Installation length: 130 mm  
 Connection: 1" male thread  
 Power consumption: 90 W



### 17. Wiring centre

The wiring centre has the same number of zones as installed heating circuits in the COMPACTFLOOR Standard and all relevant electrical connections for panel heating systems. It is mounted on a DIN rail, at the top right in the cabinet. The wiring centre connects the room thermostats with the corresponding actuator in each zone.





The connection-ready COMPACTFLOOR control station in the versions with 3-9 outlets is equipped with one wiring centre. Versions with 10-12 outlets are supplied from the factory with two wiring centres. In the case of versions with 7-9 outlets, the first three zones (positions 1, 2 and 3) are each installed with two actuators.

Per zone, one NC actuator is pre-installed at position 1 for the heating circuit. The installation of an additional NC actuator is available with position 2. If one zone consists of multiple heating circuits then it is possible to reconnect the actuators or operate multiple zones with one room thermostat.

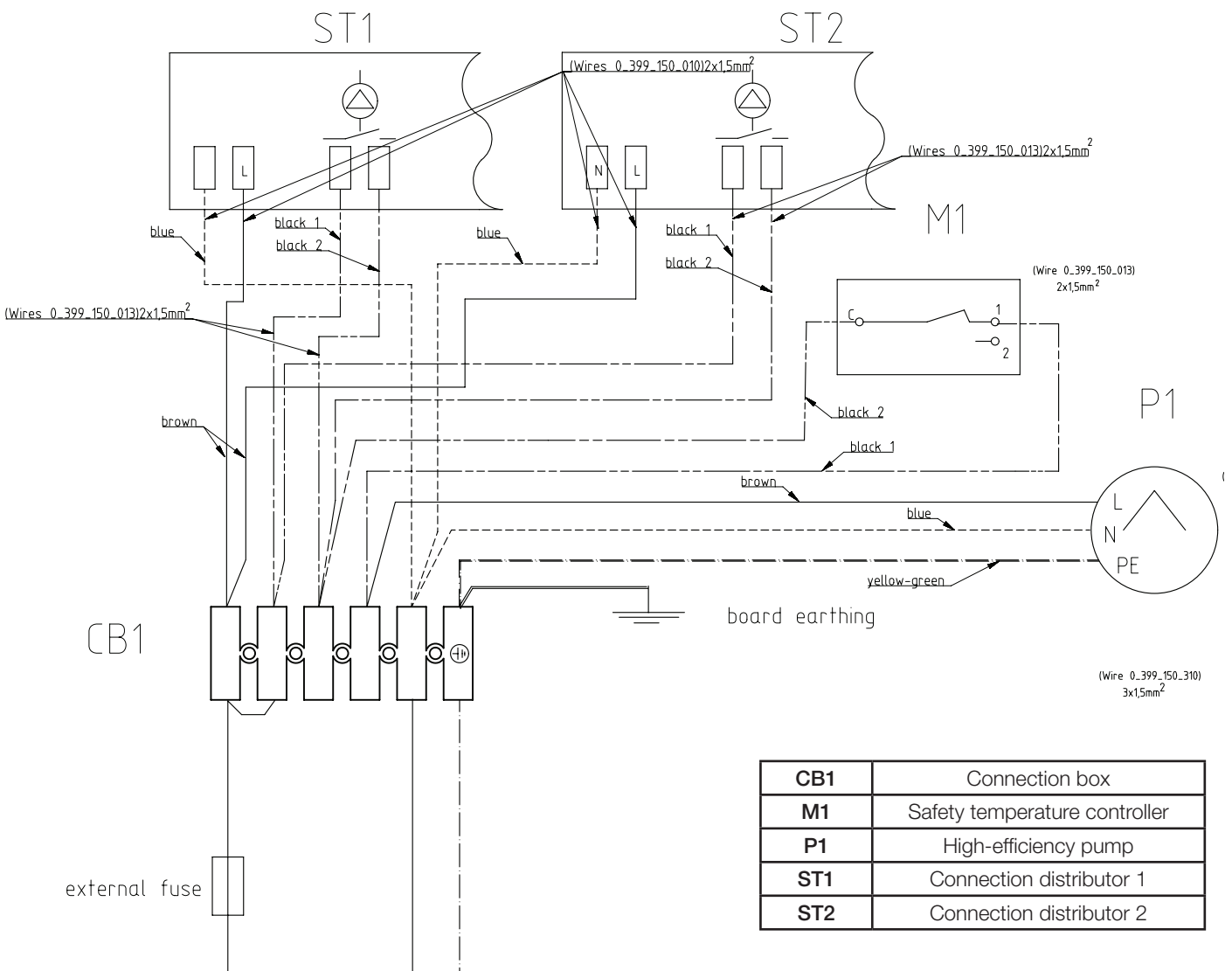
### 18. Electrical wiring diagram

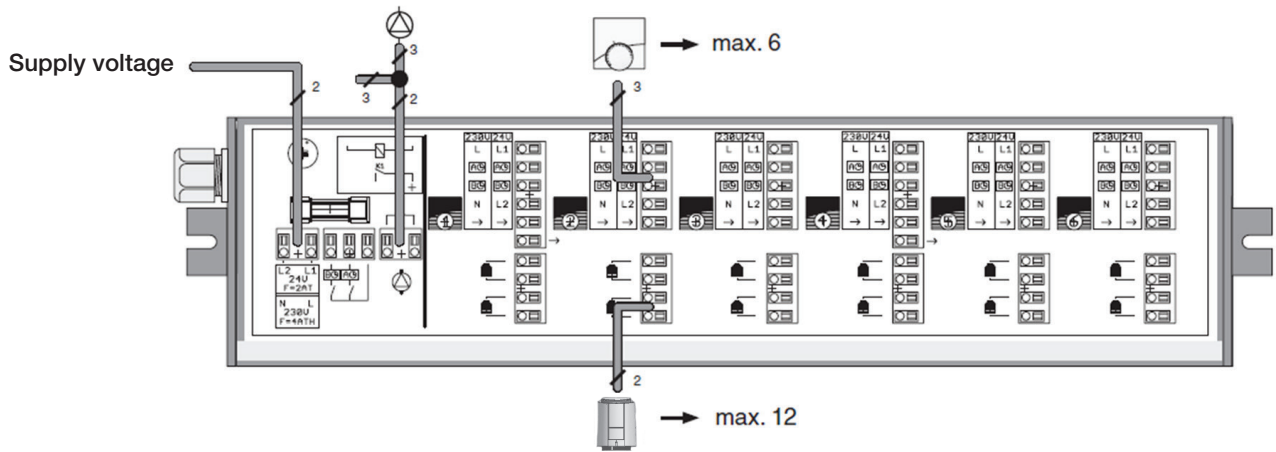
Electrical connection work or maintenance work must be carried out by licensed and trained tradesmen exclusively. It is necessary to observe the following laws and standards in particular during the installation:

- ☑ IEC 364-4-41/VDE 0100 part 410 Protection against electric shock
- ☑ IEC 364-3/VDE 0100 part 310 Protective measures against indirect contact with switch-off or signal
- ☑ IEC 364-4-1/VDE 0100 part 410 Protective devices and shut-off conditions
- ☑ ÖVE / ÖNORM E 8001 in the latest valid version.

Note: It is also necessary to observe national standards, guidelines and regulations.

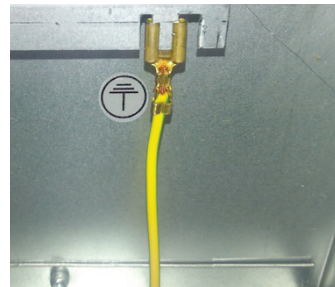
## ELECTRICAL WIRING DIAGRAM COMPACTFLOOR





HERZ COMPACTFLOOR is internally fully pre-wired. It is only necessary to connect the 230 V/AC power supply in the terminal box and the respective room thermostats. The terminal box is located in the top section of the COMPACTFLOOR. The electrical connection of the circulation pump is configured, although it is not connected as dry running protection. Electrically connect the pump prior to starting up the system.

The protective earth connections (secondary side CF), marked with PE symbols, for the front frame and front door must be established by licensed and specially trained tradesmen prior to first commissioning (see illustrations below).



During servicing work the protective earth connection for the front door can be released by unscrewing the wing nut. It is essential to re-establish this connection after servicing work.

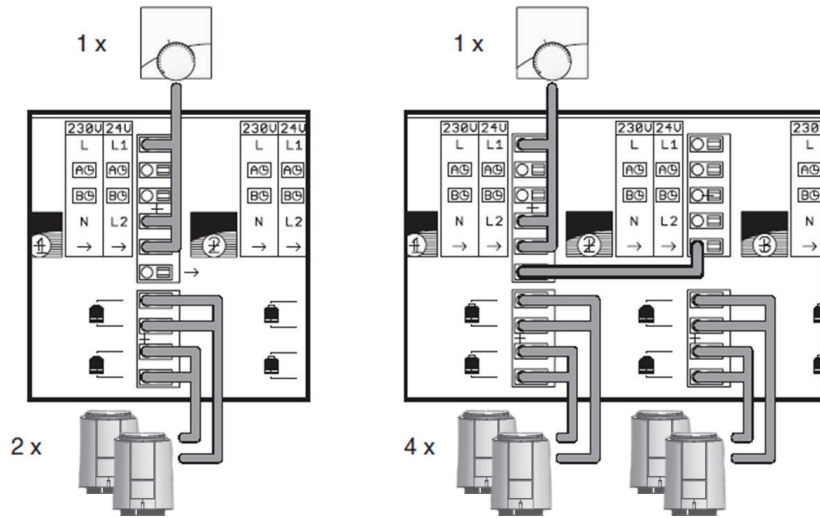
**Note:** The protective earth connection (secondary side) established in the factory does not replace the potential equalization for the heat-pipe earthing on the primary side. I.e. it is always necessary to establish the potential equalization for the primary side pipe routing.

### 19. Technical data for the electrical system:

Operating temperature / ambient temperature: 0 °C - 40 °C  
 Protection type: Protection class I, IP 20 C  
 Supply voltage: 230 V/AC  
 Output: Pump terminal strip: Potential-free switch contact 5 A, 230 V AC  
 Installation site: Indoors  
 EMC environment: B  
 Degree of pollution: 2  
 Elevation (above sea level) of the installation site: to max. 2000 m  
 Overvoltage category: II  
 External mechanical influence (IK code): IK 05  
 Distributor fuse: T 4.0 A, varistor as overvoltage protection for the thermal actuators  
 Electrical connection with screw terminals for lines up to 1,5mm<sup>2</sup>  
 CF Standard pre-fuse: LSS 13 A  
 Suitable for operation with TT and TN networks  
 Highest rated operating voltage against ground:  $U_i = 300 \text{ Vac}$   
 Rated impulse strength: 2,5 kV

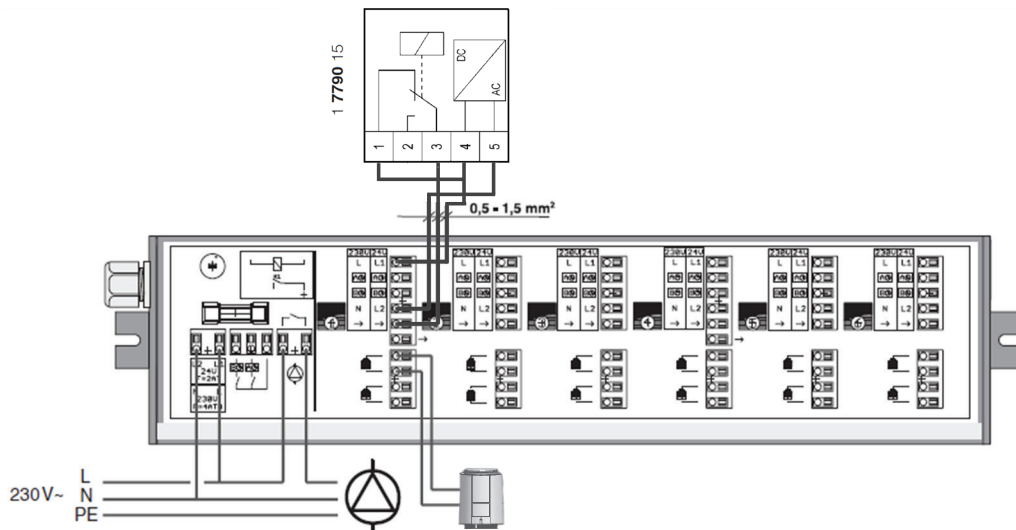
Max. electrical power input of CF 3 E532 03-22 and 3 E533 03-22			
Model	Nominal voltage [V]	Electrical output [W]	Frequency [Hz]
3-outlet	230V/AC	99 W	50 Hz
4-outlet	230V/AC	100 W	50 Hz
5-outlet	230V/AC	101 W	50 Hz
6-outlet	230V/AC	102 W	50 Hz
7-outlet	230V/AC	103 W	50 Hz
8-outlet	230V/AC	104 W	50 Hz
9-outlet	230V/AC	105 W	50 Hz
10-outlet	230V/AC	106 W	50 Hz
11-outlet	230V/AC	107 W	50 Hz
12-outlet	230V/AC	108 W	50 Hz

Terminal strip: max. connected Actuators 12 (each ca. 1 W)

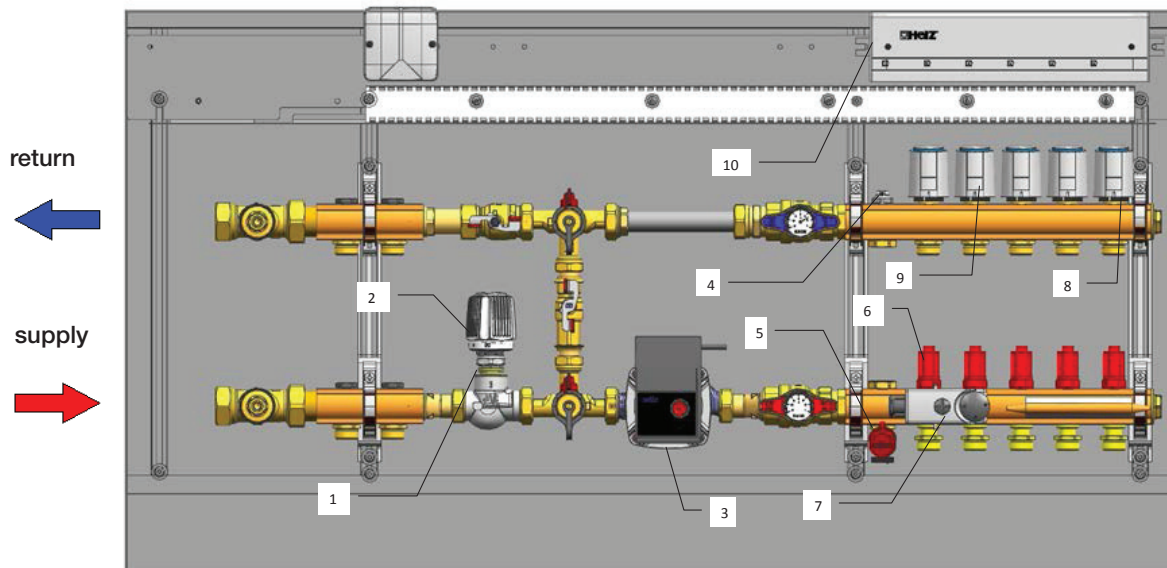


Due to a wiring bridge it is possible to connect more than 2 actuators to one controller.

Room Temperature Control with 1 7790 15





## 20. Spare parts list COMPACTFLOOR



Pos Nr.	Description	Order number
1	Thermostatic Upper Part TS-E	1 6379 03
2	Thermostat with contact sensor	1 7420 06
3	High efficiency pump	3 E531 00
4	Air vent	1 4020 59
5	Drain valve red	1 8535 54
6	Flowmeter 0-2,5 l/min	3 F900 01
7	Safety thermostat	1 8100 00
8	HERZ-TS-Spare Upper Part	1 6403 31
9	Actuating Drive 2 Pts. 230 V	1 7708 53
10	Regulating distributor 230 V, 6-outlet	3 F798 20

## 21. Accessories

<p><b>Electronic Room Temperature Controller</b>                      1 change-over contact                      Set value range 10–30°C.                      Switching difference ± 0.2 K fixed.</p>	
<p><b>Electromechanical Room Temperature Controller</b>                      1 change-over contact, set value range 5–30°C.                      Adjustment of set value by means of mechanical limitation of set value range.</p>	

## 22. Troubleshooting, malfunctions

### Problem: Supply temperature too high on the secondary side

Solution:

- Thermostatic head with contact sensor defective or set to an incorrect target temperature
- Safety thermostat defective or set to an incorrect target temperature
- Check function of safety thermostat
- Check electrical connections against the electrical wiring diagram

### Problem: Supply temperature too low on the secondary side

Solution:

- Check COMPACTFLOOR for trapped air and vent if necessary

- Thermostatic head is set to a target temperature that is too low

**Problem: Flow rate too low / no flow**

Solution:

- Check pump setting
- Check flowmeter presettings on the supply distribution manifold
- Check function of thermostatic inserts in the return distribution manifold
- Check function of thermal actuators on the return distribution manifold
- Check whether the ball valves are open
- Check COMPACTFLOOR for trapped air and vent if necessary

**Problem: Flow rate too high / noise problems**

Solution:

- Check pump setting
- Check flowmeter presettings on the supply distribution manifold
- Check COMPACTFLOOR for trapped air and vent if necessary

**23. Decommissioning, drainage**

If the COMPACTFLOOR is put out of operation for an extended time or disassembled for certain reasons then it must be decommissioned by closing all ball valves.

In rooms at risk of frost it is necessary to drain the COMPACTFLOOR before the onset of the colder seasons, if the COMPACTFLOOR Light is to be put out of operation for a number of days.

Note: by danger of frost the cold water lines connected to the loads and COMPACTFLOOR can also be frozen. Therefore it is recommended all the appliances and pipe lines up to the frost-proof parts to drain.

**24. Maintenance and repairs**

Thanks to its design, the COMPACTFLOOR is maintenance-free. However, the system may calcify with hard water. Depending on the hardness of the water, de-scaling should be performed by a specialist every one to two years. If calcification of the valves is excessive then these should be replaced immediately in order to ensure faultless functionality.

**25. Recycling and disposal**

Both the COMPACTFLOOR and the corresponding transport packaging largely consist of raw materials suitable for recycling.

Your COMPACTFLOOR and all accessories are not suitable for disposal with household waste.

Ensure that your device and any available accessories are submitted for appropriate disposal.