

## INSTALLATION AND INSTRUCTION MANUAL

## ☑ Introduction

The COMPACTFLOOR WE 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.

The system is separated through a heat exchanger. 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 the drainage and venting of the system. A water temperature indicator for monitoring the system is available in the supply and return. All electrical parts are installed in a junction box (IP20).

### Advantages of COMPACTFLOOR WE

- Enables the individual heating of rooms
- Individually adjustable depending on user behaviour and temperature requirements
- Minimal space required and fast assembling
- Low return temperature
- Minimal loss in the system
- Simple operation of the system
- Optimum thermal comfort

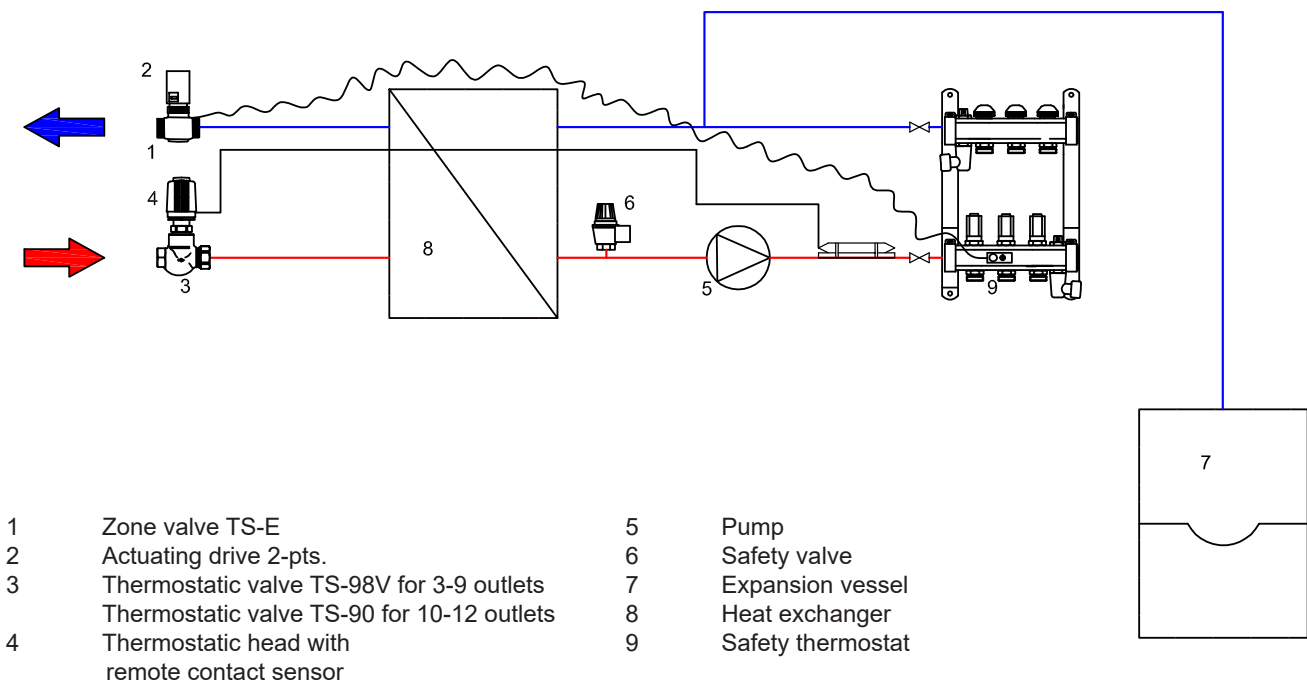
## ☑ Safety information

- Assembly and installation must be performed exclusively by licensed and specially trained fitters.
- Damaged parts and COMPACTFLOOR WE 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 modify the system technically. The user must not implement technical changes to the device because no liability will be accepted for any resultant damage to the system.

## ☑ 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 by using the hand wheel. Depending on the version, it is possible to connect 3 to 12 underfloor heating circuits. The supply distribution manifold is equipped with flowmeters for presetting 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. The system is separated through a heat exchanger. All electronic parts are installed in a junction box (IP20).

## ☑ Function schematic



### ☑ **Thermostatic valves TS-98V and TS 90**

The pre-settable control valve TS-98V (see function schematic) controls the preselected temperature and the pre-set flow rate.

In the case of COMPACTFLOOR WE versions with 3 - 5 outlets, the control valve TS-98V DN15 is set to a pre-set value of 2. In the case of versions with 6 - 9 outlets, the control valve TS-98V DN15 is set in the factory to the presetting stage "fully open". The installation company is responsible for setting the actual flow rate required (depending on the output and spread) and this must be documented.

Due to the high output requirement, control station versions with 10 - 12 outlets are equipped with a non-pre-settable control valve TS-90 DN20 for higher flow rates.

### ☑ **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 WE, including the weight of the water in the system.
- During assembly ensure that the mounting wall is straight, to ensure that the COMPACTFLOOR WE is secured correctly.
- It is necessary to select wall plugs and screws appropriate for the mounting surface.

### ☑ **Technical data**

- max. operational temperature 95 °C in supply line
- design temperature in supply line 60 °C
- min. operational temperature 5 °C
- max. operational pressure 10 bar in supply line
- max. operational pressure on the secondary side 3 bar (safety valve)
- max. heat load ca. 8 kW
- power supply: AC 230 V ~, 50 Hz.

### ☑ **COMPACTFLOOR WE models**

COMPACTFLOOR WE models		Weight [kg]
3-outlet	3 F532 83	34.5
4-outlet	3 F532 84	34.8
5-outlet	3 F532 85	35.2
6-outlet	3 F532 86	35.5
7-outlet	3 F532 87	39.0
8-outlet	3 F532 88	39.6
9-outlet	3 F532 89	40.1
10-outlet	3 F532 90	40.6
11-outlet	3 F532 91	41.2
12-outlet	3 F532 92	41.7

### ☑ **Design**

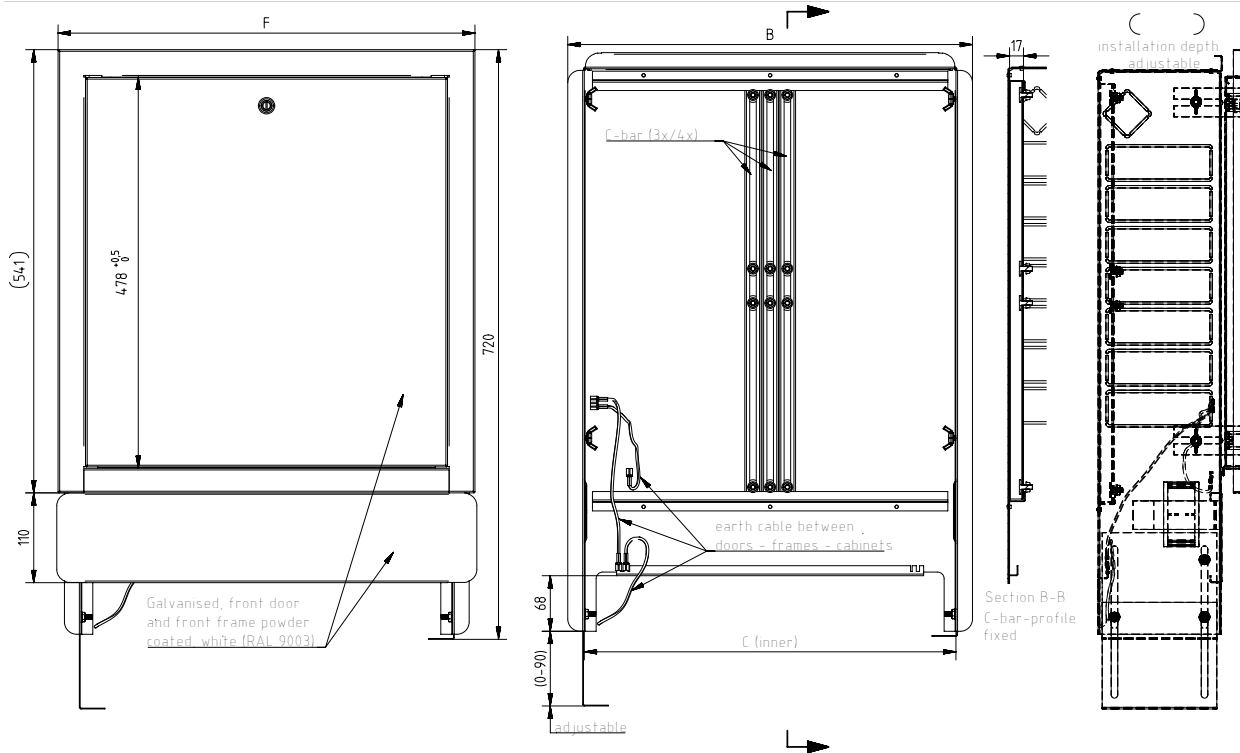
Due to the small dimensions and compact design it is possible to flush-mount the COMPACTFLOOR and therefore install it either in the stairwell or in the apartment.

Pre-assembled in distributor cabinet made of galvanized steel sheet, front frame and door powder coated, white (RAL 9003).

**☑ Dimensions of COMPACTFLOOR WE flush box**

The COMPACTFLOOR WE 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).

flush box	width B [mm]	height [mm]	depth [mm]	inner width C [mm]
3-6 outlets	1174	720 - 805	150 - 190	1134
7-12 outlets	1474	720 - 805	150 - 190	1434



**☑ 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.

**☑ First commissioning**

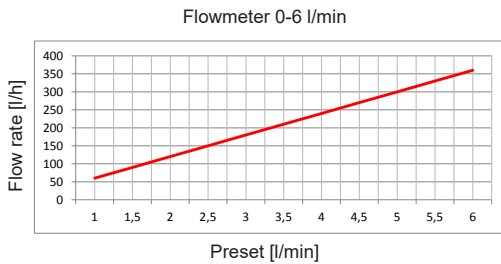
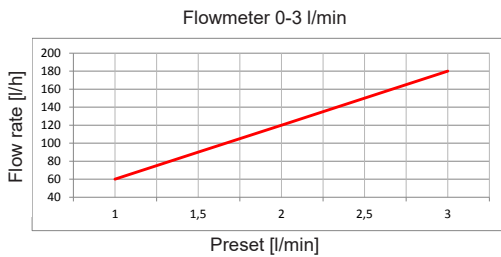
Prior to first commissioning of the COMPACTFLOOR WE, according to ÖNORM H5195-1 it is necessary to note that on the secondary side clean and standard-compliant pipe materials (without scale, rust and inner burrs, as well as contamination), fittings and devices (boiler, radiators, convactor heaters, expansion 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 (on the secondary side) with clear, filtered water (pore size < 25 µm) 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.

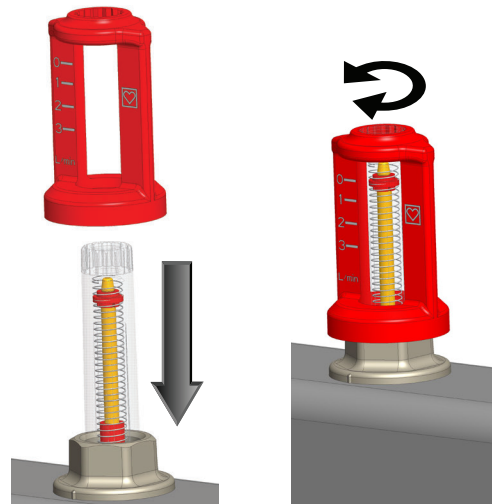
**☑ Function principle of the flowmeter**

The factory setting is fully open and be adjusted by using the supplied adjusting key. The set amount of the flow volume can be read directly at the inspection glass. To adjust the flow volume or close the valve, use the plastic adjustment key on top of the knurl and rotate clockwise or counter-clockwise.

Conversion table [l/min] --> [l/h]



Einstellungsverfahren



**☑ Replacing the thermostatic valve upper part**

If necessary, it is possible to replace the HERZ thermostatic valve upper part TS-90 under pressure using the HERZ-Changefix

( 1 7780 00).

Cleaning the seat gasket at the spindle or replacing the thermostatic upper part. In this way it is simple to eliminate malfunctions, e.g. due to foreign bodies such as dirt, welding and soldering residues. During use observe the operating instructions provided with the replacement device.



HERZ-Changefix

**☑ Temperature setting**

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

**☑ Safety thermostat**

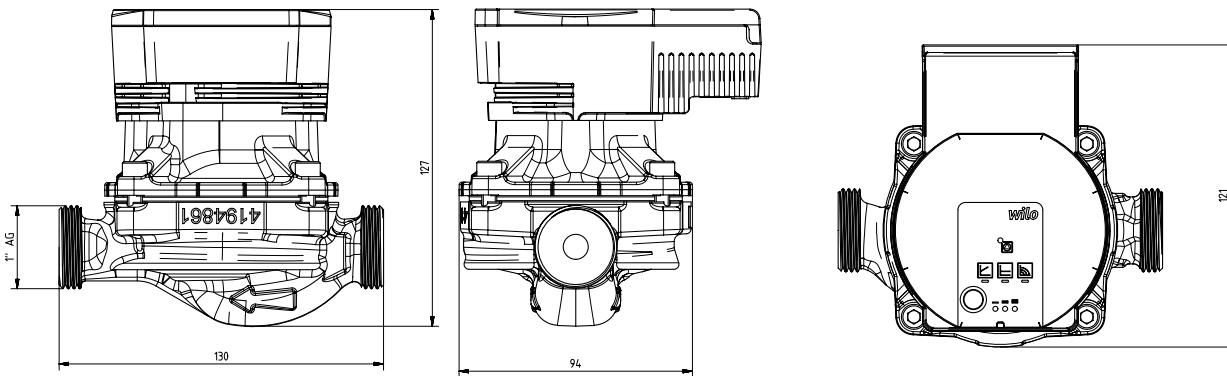
The HERZ safety thermostat 1 8100 00 is set 5 K higher than the target temperature according to the configuration. Maximum temperature setting is 50 °C.

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 zone valve.

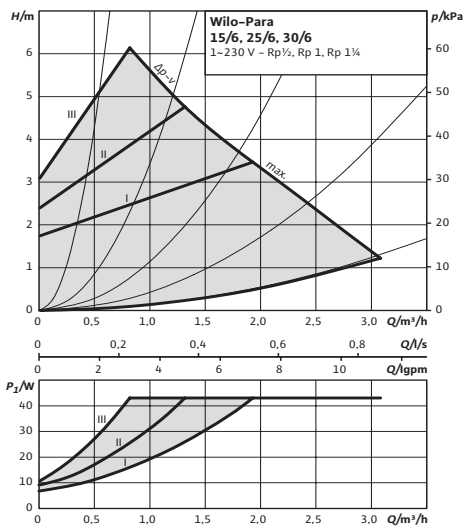


Contact thermostat  
1 8100 00

 **High efficiency circulating pump**

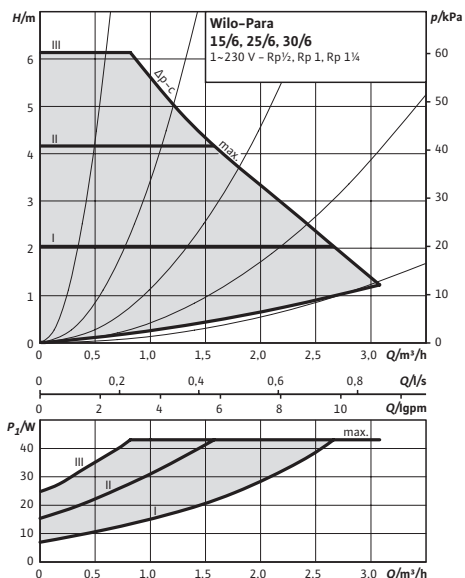


Type: Wilo PARA 15-130/6-43/SCU-3/N1,0  
 Energy Efficiency Index (EEI):  $\leq 0.20$   
 Max. delivery head: 6.7 m  
 Max. delivery flow: 3.2 m<sup>3</sup>/h  
 Max. operating temperatur: 100 °C  
 Max. static pressure: 10 bar  
 Mains connection: 1~230 V +10 %/-15 %, 50/60 Hz (IEC 60038 standard voltage)  
 Protection class: IPx4D  
 Insulation class: F  
 Connection: 1" male thread  
 Minimum suction head at the suction connection for avoiding cavitation with water pumping temperature:  
 Minimum suction head at bei 50°C/95°C/110°C - 0.5 m / 4.5 m / 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 ½ 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.

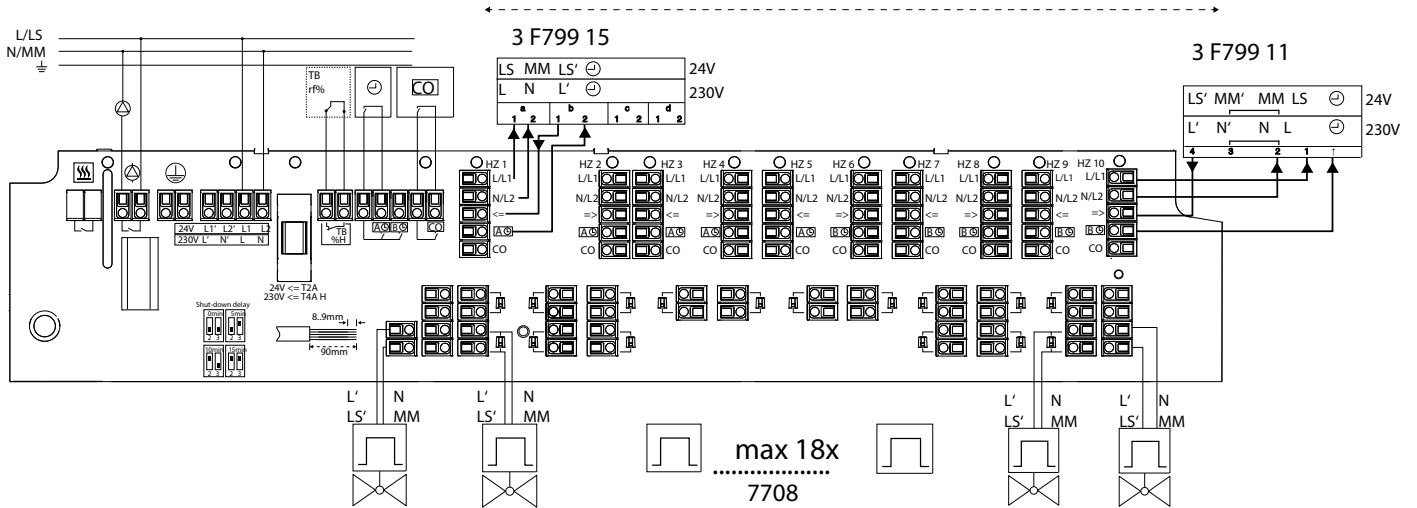
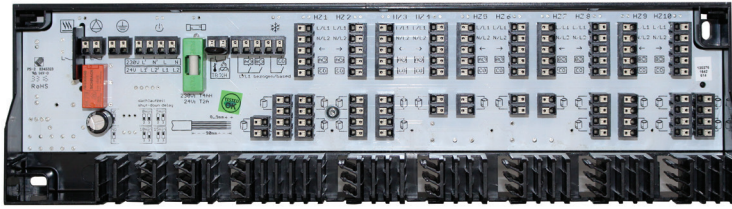


**Constant differential pressure ( $\Delta p-c$ )**

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.

**☑ Electrical distributor**

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



The connection-ready COMPACTFLOOR WE control station in the versions with 3 - 12 outlets is equipped with one electrical distributor.

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.

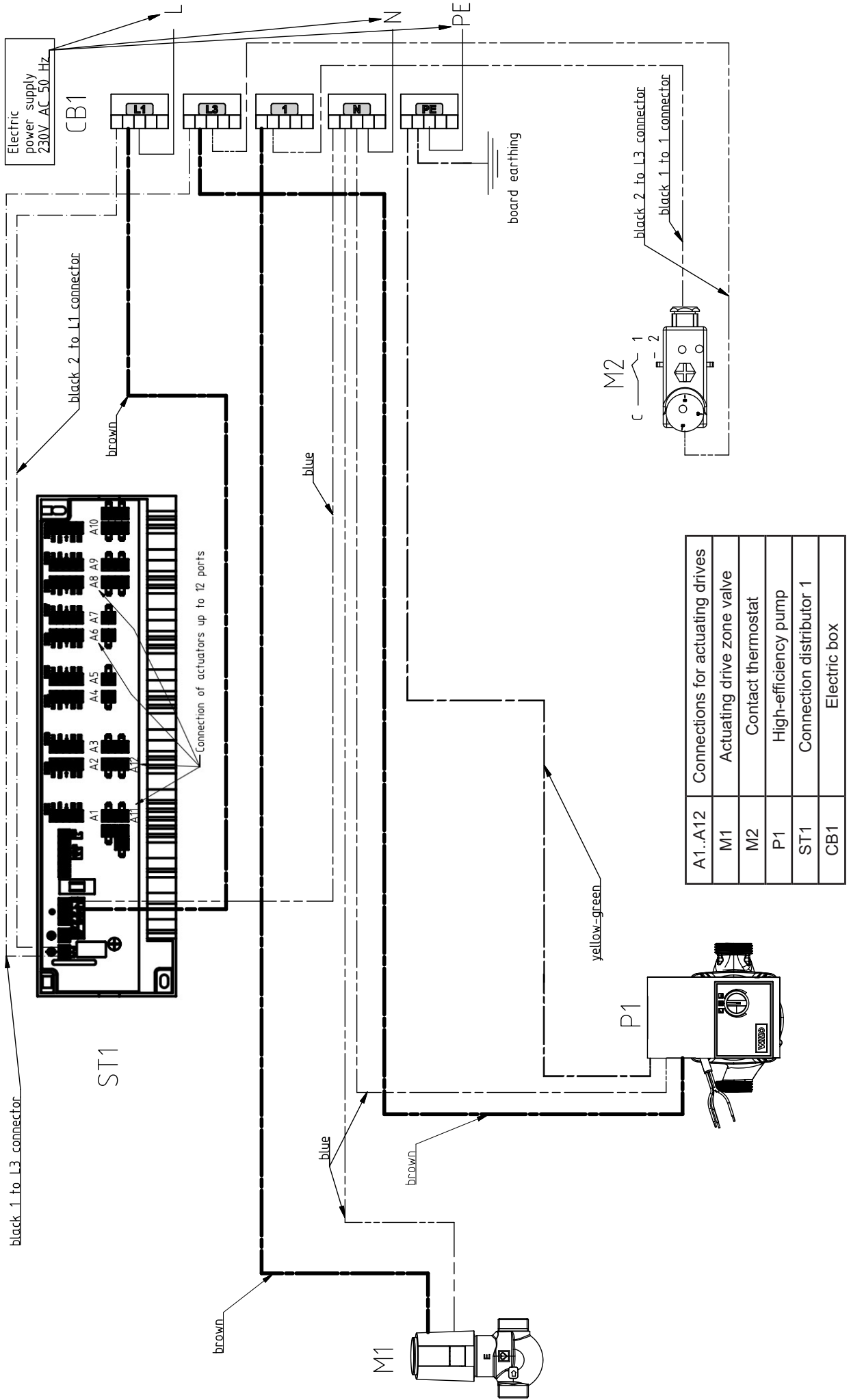
**☑ Electrical work**

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.

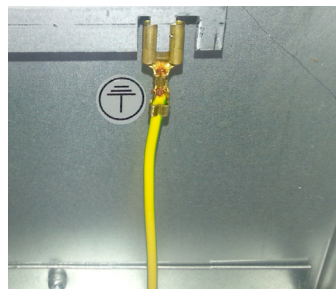
**ELECTRICAL WIRING DIAGRAM COMPACTFLOOR WE**





The HERZ COMPACTFLOOR WE 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 WE. 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 WE), 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. It is essential to re-establish this connection after servicing work.

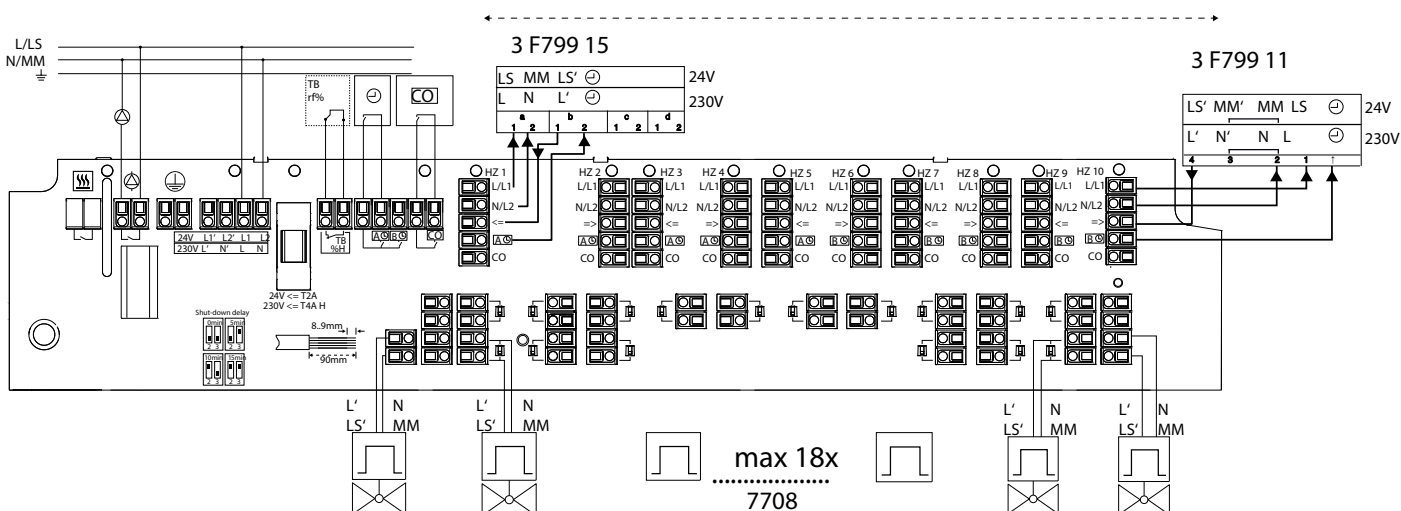
Note: The protective earth connection (secondary side) established in the factory does not replace the potential equalization for the heating pipe earthing on the primary side. I.e. it is always necessary to establish the potential equalization for the primary side pipe routing.

**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 1,5 mm<sup>2</sup>
- CF WE pre-fuse: LSS 13 A
- Suitable for operation with TT and TN networks
- Highest rated operating voltage against ground: U<sub>i</sub> = 300 V/AC
- Rated impulse strength: 2,5 kV

Max. electrical power input of CF WE				
Order Nr.	Model	Nominal voltage [V]	Electrical output [W]	Frequency [Hz]
3 F532 83	3-outlet	230V/AC	99 W	50 Hz
3 F532 84	4-outlet	230V/AC	100 W	50 Hz
3 F532 85	5-outlet	230V/AC	101 W	50 Hz
3 F532 86	6-outlet	230V/AC	102 W	50 Hz
3 F532 87	7-outlet	230V/AC	103 W	50 Hz
3 F532 88	8-outlet	230V/AC	104 W	50 Hz
3 F532 89	9-outlet	230V/AC	105 W	50 Hz
3 F532 90	10-outlet	230V/AC	106 W	50 Hz
3 F532 91	11-outlet	230V/AC	107 W	50 Hz
3 F532 92	12-outlet	230V/AC	108 W	50 Hz

**Room Temperature Control with 3 F799 15 or 3 F799 11**



Heat Exchanger

- Influence of water composition on corrosion resistance

The guide below is an attempt to give a picture of the corrosion resistance of stainless steels and brazing materials in tap 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 table is therefore a considerable simplification and should not be overvalued!

**EXPLANATIONS:**    + Good resistance under normal conditions  
                              0 Corrosion problems may occur especially when more factors are valued 0  
                              - Use not recommended

WATER CONTENT	CONCENTRATION (mg/l or ppm)	TIME LIMITS Analyze before	Plate Material			Brazing Material		
			AISI 304	AISI 316	254 SMO	COP- PER	NI- CKEL	ST. STEEL
Alkalinity (HCO <sup>3-</sup> )	< 70	Within 24 h	+	+	+	0	+	+
	70-300		+	+	+	+	+	+
	> 300		+	+	+	0/+	+	+
Sulphate <sup>[1]</sup> (SO <sub>4</sub> <sup>2-</sup> )	< 70	No limit	+	+	+	+	+	+
	70-300		+	+	+	0/-	+	+
	> 300		+	+	+	-	+	+
HCO <sub>3</sub> <sup>-</sup> / SO <sub>4</sub> <sup>2-</sup>	> 1.0	No limit	+	+	+	+	+	+
	< 1.0		+	+	+	0/-	+	+
Electrical conductivity	<10 µS/cm	No limit	+	+	+	0	+	+
	10-500 µS/cm		+	+	+	+	+	+
	> 500 µS/cm		+	+	+	0	+	+
pH <sup>[2]</sup>	< 6.0	Innerhalb von 24 Std	0	0	0	0	+	+
	6.0-7.5		+	+	+	0	+	+
	7.5-9.0		+	+	+	+	+	+
	> 9.0		+	+	+	0	+	+
Ammonium (NH <sub>4</sub> <sup>+</sup> )	< 2	Innerhalb von 24 Std	+	+	+	+	+	+
	2-20		+	+	+	0	+	+
	> 20		+	+	+	-	+	+
Chlorides (Cl <sup>-</sup> ) <i>Please also see table below</i>	< 100	No limit	+	+	+	+	+	+
	100-200		0	+	+	+	+	+
	200-300		-	+	+	+	+	+
	> 300		-	-	+	0/+	+	+
Free chlorine (Cl <sub>2</sub> )	< 1	Within 5 h	+	+	+	+	+	+
	1-5		-	-	0	0	+	+
	> 5		-	-	-	0/-	+	+
Hydrogen sulfide (H <sub>2</sub> S)	< 0.05	No limit		+	+	+	+	+
	> 0.05			+	+	0/-	+	+
Free (aggressive) carbon dioxide (CO <sub>2</sub> )	< 5	No limit	+	+	+	+	+	+
	5-20		+	+	+	0	+	+
	> 20		+	+	+	-	+	+
Total hardness (°dH)	4.0-8.5	No limit	+	+	+	+	+	+
Nitrate <sup>[1]</sup> (NO <sub>3</sub> <sup>-</sup> )	< 100	No limit	+	+	+	+	+	+
	> 100		+	+	+	0	+	+
Iron <sup>[3]</sup> (Fe)	< 0.2	No limit	+	+	+	+	+	+
	> 0.2		+	+	+	0	+	+
Aluminium (Al)	< 0.2	No limit	+	+	+	+	+	+
	> 0.2		+	+	+	0	+	+
Manganese <sup>[3]</sup> (Mn)	< 0.1	No limit	+	+	+	+	+	+
	> 0.1		+	+	+	0	+	+

[1] Sulfates and nitrates works as inhibitors for pitting corrosion caused by chlorides in pH neutral environments

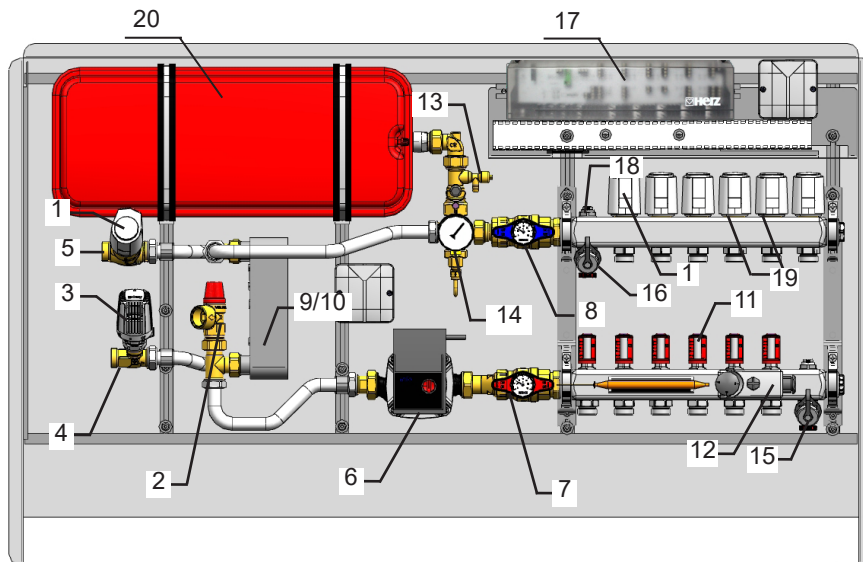
[2] In general low pH (below 6) increase corrosion risk and high pH (above 7.5) decrease the corrosion risk

[3] Fe<sup>3+</sup> and Mn<sup>4+</sup> are strong oxidants and may increase the risk for localised corrosion on stainless steels

SiO<sub>2</sub> over 150 ppm may increase the risk of calcification.

content of chloride	max. temperature			
	60 °C	80 °C	120 °C	130 °C
= 10 ppm	SS 304	SS 304	SS 304	SS 316
= 25 ppm	SS 304	SS 304	SS 316	SS 316
= 50 ppm	SS 304	SS 316	SS 316	Ti / 254 SMO
= 80 ppm	SS 316	SS 316	SS 316	Ti / 254 SMO
= 150 ppm	SS 316	SS 316	Ti / 254 SMO	Ti / 254 SMO
= 300 ppm	SS 316	Ti / 254 SMO	Ti / 254 SMO	Ti / 254 SMO
> 300 ppm	Ti / 254 SMO	Ti / 254 SMO	Ti / 254 SMO	Ti / 254 SMO

☑ Spare parts list COMPACTFLOOR WE



Pos Nr.	Description	Order number
1	Actuating Drive 2 Pts. 230 V	1 7708 53
2	Pressure Relief Safety Valve	1 2612 01
3	Thermostat with contact sensor	1 7420 06
4	Thermostatic upper part for the TS-98V valve DN15 (3 F532 83-89) flat sealing 3/4"/ TS-90 valve DN20 (3 F532 90-92) with hollender and nippel, flat sealing 3/4"	TS-98V = 1 6367 98 TS-90 = 1 6390 92
5	Thermostatic upper part for thermostatic valve TS-E 1 4008 79, flat sealing 3/4"	1 6379 03
6	High efficiency pump Wilo PARA 15-130/6-43/SCU-3/N1,0	3 E531 00
7	Ball Valve with thermometer DN25 red	1 2206 63
8	Ball Valve with thermometer DN25 blue	1 2206 73
9	Heat exchanger 10 plates	1 4018 48
10	Heat exchanger 20 plates	1 4022 61
11	Flowmeter 0-3 l/min	3 F900 23
12	Safety thermostat	1 8100 00
13	Valve for expansion tank connection	1 2205 02
14	Manometer 0-4 bar	1 4018 49
15	Drain valve red	1 8535 54
16	Drain valve blue	1 8535 55
17	Electrical distributor 230 V, 10-zones	3 F798 03
18	Air vent	1 4020 59
19	HERZ-TS-Spare Upper Part	1 6403 31
20	Compensating vessel	1 4020 50
21	Set of seals 15x 3/4", 2x1"	3 F532 93

## ☑ Accessories

### 3 F799 11

#### Electronic room thermostat

Heating, lowering, freeze protection function. Setting range 10 °C to 28 °C, switching differential 0.5 K

Lowering 2 K; measuring element: NTC

Ambient temperature: 0 °C to 50 °C;

ambient humidity: 5 to 80% relative humidity

Installation: wall or flush box

Protection class: 230 V – II (EN 60730)



### 3 F799 15

#### Electronic room thermostat with display

Heating, lowering, freeze protection function. Setting range 5 °C to 30 °C; switching differential 0.2 K

Lowering 2K or configurable; measuring element: NTC

Ambient temperature: 0 °C to 50 °C;

ambient humidity: 5 to 80% relative humidity

Installation: wall or flush box

Protection class: 230 V – II (EN 60730)



## ☑ 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 heat exchanger for contamination
- Check COMPACTFLOOR WE for trapped air and vent if necessary
- Thermostatic head with sensor is damaged or set to a target temperature on the secondary side that is too low

### Problem: Flow rate too low / no flow (on the secondary side)

#### Solution:

- Check pump setting
- Check flowmeter presettings on the supply distribution manifold
- Check heat exchanger for contamination
- 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 (red/blue) are open
- Check COMPACTFLOOR WE 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 WE for trapped air and vent if necessary

## ☑ Decommissioning, drainage

If the COMPACTFLOOR WE 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 WE before the onset of the colder seasons, if the COMPACTFLOOR WE is decommissioned for a several days.

### **Maintenance and repairs**

Thanks to its design, the COMPACTFLOOR WE is maintenance-free. The water quality on the primary side (district heating: secondary side) is in accordance with TR-HS of Wien Energie GmbH. The water quality on the secondary side has to be in accordance with ÖNORM H5195-1.

### **Recycling and disposal**

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

Your COMPACTFLOOR WE and all accessories are not suitable for disposal with household waste. Ensure that your device and any available accessories are submitted for appropriate disposal.

### **Material**

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 possible and therefore no additional information on safe use is necessary.