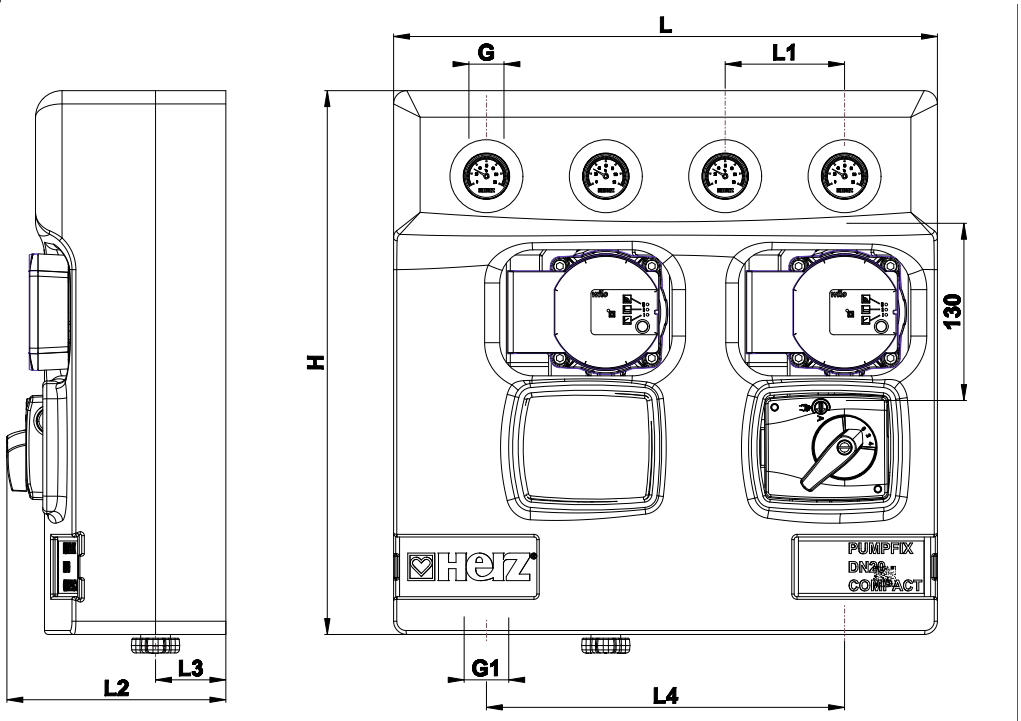
HERZ PUMPFIX

DN20 COMPACT

Data sheet for 1 **4523** 0X, Issue 0326

Dimensions



Order Nr.	DN	Pump	Version	G [in]	G1 [in]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	H [mm]
1 **4523** 01	20	2x WILO PARA 15130/6	DIRECT / MIX	3/4	1	410	90	166	53	270	410
1 **4523** 02	20	Without Pump	DIRECT / MIX	3/4	1	410	90	166	53	270	410
1 **4523** 03	20	2x WILO PARA 15130/6	MIX / MIX	3/4	1	410	90	166	53	270	410
1 **4523** 04	20	Without Pump	MIX / MIX	3/4	1	410	90	166	53	270	410
1 **4523** 05	20	2x WILO PARA 15130/6	DIRECT / DIRECT	3/4	1	410	90	166	53	270	410
1 **4523** 06	20	Without Pump	DIRECT / DIRECT	3/4	1	410	90	166	53	270	410

***1 4523 01 is shown in the dimensional drawing above**

Material and construction

Ball valve with thermometer:	forged brass in compliance with UBA/4MS lists, CW617N
Ball:	forged brass in compliance with UBA/4MS lists, CW617N, chrome plated
Handle of ball valve with thermometer:	plastic, PA66 GF30
Upper threaded connectors (closing valve):	internal thread acc. to ISO 228-1
Bottom threaded connector (combined module):	external thread acc. to ISO 228-1
Combined manifold–separator module:	powder coated steel (black)
Spindles:	machined brass in compliance with UBA/4MS lists,CW617N
Spindle seals:	PTFE
Ball seals:	PTFE
Gaskets:	Klingerit
Heat insulation material of pump group:	EPP

Operating data

Nominal pressure:	max. 4 bar
Max. operating temperature:	110 °C
Short-term load:	120 °C < 15 s
Min. operating temperature:	0 °C (water 0,5 °C)
Opening pressure for check valve :	200 mmWc
Propylene glycol mixing ratio:	25-50 %

Medium

Heating water purity in accordance to ÖNORM H 5195 and VDI- Standard 2035. The use of ethylene, or propylene glycol in a mixing ratio of 25- 50% is allowed. EPDM gaskets will be affected by Mineral oils lubricants and thus lead to failure of the EPDM seals. Please refer to the manufacturer's documentation when using ethylene glycol products for frost and corrosion protection.

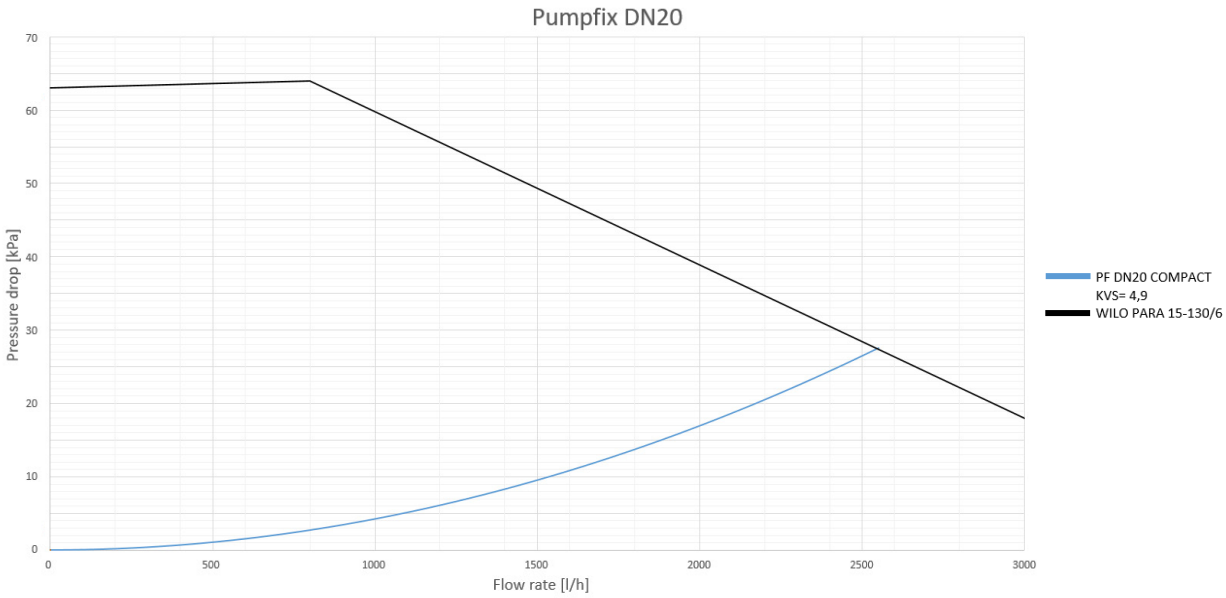
Version

	DIRECT - MIX	MIX - MIX	DIRECT - DIRECT
With pump	1 **4523** 01 	1 **4523** 03 	1 **4523** 05 
Without pump	1 **4523** 02 	1 **4523** 04 	1 **4523** 06 

Technical data

			ΔT (K)					
Model	**kvs**	**Q (l/h)**	**20**	**15**	**10**	**7,5**	**5**	**kW**
DIRECT	4,9	1000	23	17	12	9	6	
MIX	4,9	1500	35	26	17	13	9	

Pressure loss graph

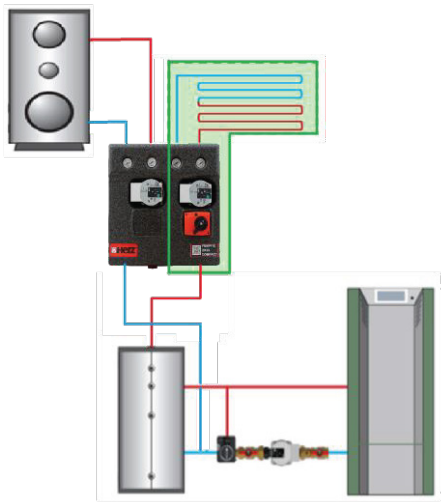


System characteristic

Table 1

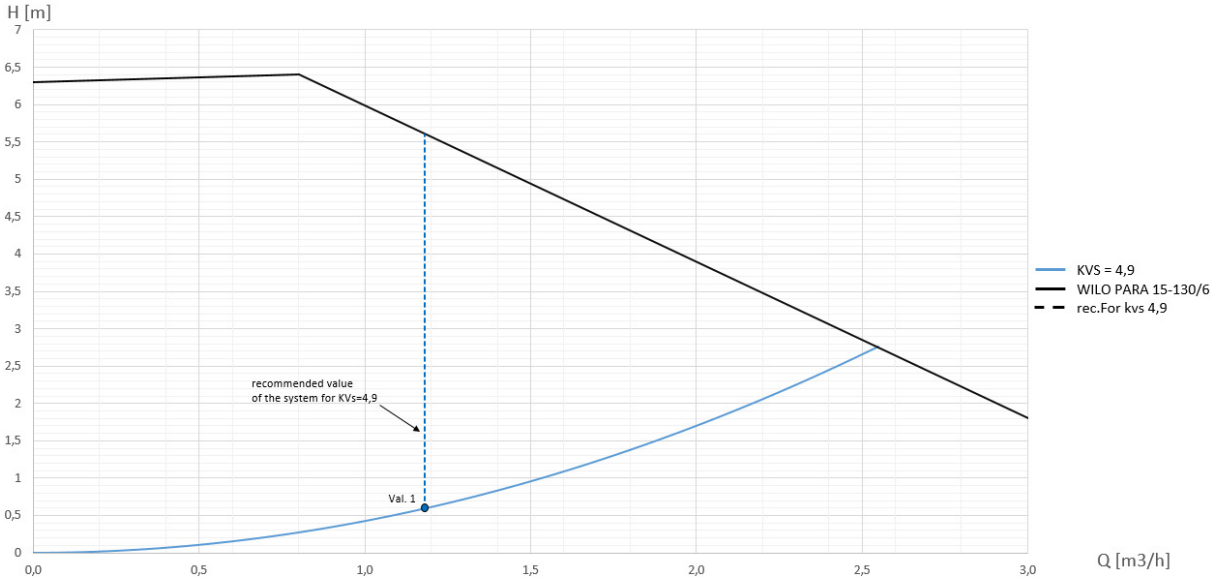
Name	Approximate power and flow	ΔT	Residual lifting power	Approximate surface of the installation
Pump group COMPACT MIX	11 kW 19,7 l/min	8K	5m	Up to 157 m2

Explanation of upper table is described in documentation below, supported with characteristic graphs, calculations and examples, intended for underfloor heating applications.



Explanation and calculations

Graph 2:



In the Graph 2 there are shown Pump characteristic and characteristics of HERZ floor heating pump group. System pressure drop must be taken into account, therefore $H_{pump} – H_{KVS}$ = 5 m is taken in the calculation. Based on Kvs values of HERZ floor heating pump groups, different values of maximum recommended flow can be calculated:

Value 1 is calculated based on pump's manufacturer instructions of 0,5 bar reserve with a limitation of used valves with Kvs of 4,9. In that case volumetric flow is 1,18 m³/h=19,7 lit./min.

When max. volumetric flow is known, it is possible to calculate the system capability based on temperature difference between inlet and outlet (setting on the thermostatic valve and water returning to the mixing valve). For purpose of calculation, it is assumed, that the temperature difference will be 8 K (in reality it's dynamic where the length of a loop, system characteristic factor, and room temperature have got great affect on the valve). To calculate system capacity, the equation shown below is used:

$$q = V \quad c \quad \rho \quad \Delta T$$

q – system heating capacity [W]
V – volumetric flow (m³/s) = Q [m³/h]
c – specific heat of water (J/kgK)
ρ – water density (kg/m³)
ΔT – temperature difference (K)

Example 1: Calculating system capability (Kvs = 4,9)
Data taken from Graph 2 (Value 1):
V = 1,18 m³/h = 19,7 l/min = 0,000328 m³/s

Constants:
c = 4200 J/kgK
ρ = 1000 kg/m³.

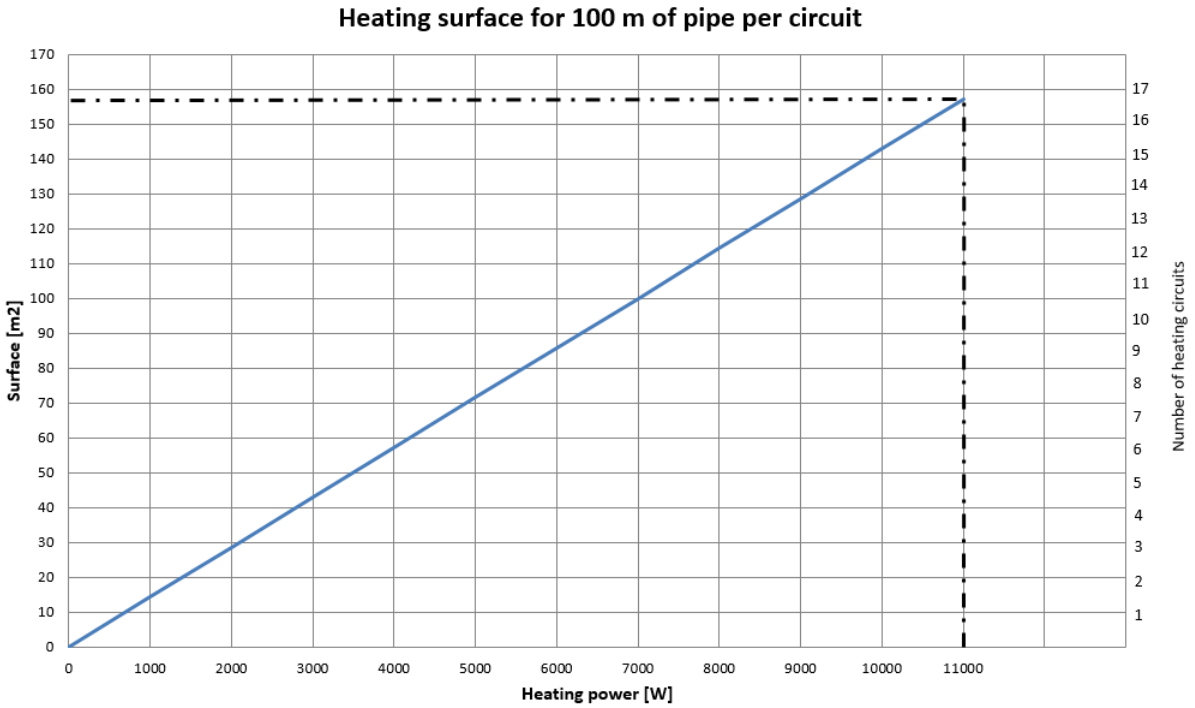
Δ T = 8 K

$$q = \dot{V} \cdot c \cdot \rho \cdot \Delta T = 0{,}000328\ m^3/s \cdot 4200\ J/(kg \cdot K) \cdot 1000\ kg/m^3 \cdot 8\ K = 11020{,}8\ J/s = 11\ kW$$

Average-heating load for most rooms is 70 W/m². From this, Graph 3 can be calculated, where linear line comes from equation: Surface [m²] = Heating power [W]/average heating power [W/m²]. In graph 3 it is shown max. heating surface based on our calculation of system heating capability q.

Graph 3

Pump group COMPACT MIX:



Max. heating surface = 157 m²

Reverse calculation

In this example, it is calculated how much heating power and what kind of volumetric flow should be used (based on our demanding heating surface). If the room with surface of 100 m² needs to be heated, it can be seen in Graph 2 that heating capacity should be around 7000 W. Same result can be seen if surface 100m² is multiplied by heating load 70W/m². When the system capacity is q = 7000W, the equation can be turned around. The two constants are also known: c = 4200 J/kgK and ρ = 1000 kg/m³ and ΔT = 8 K.

$$\dot{V} = \frac{q}{c \cdot \rho \cdot \Delta T}$$

$$\dot{V} = \frac{11\,000\ \mathrm{W}}{4200 \frac{J}{kg} \cdot 1000 \frac{kg}{m^3} \cdot 8\ K} = 0{,}000328 \frac{m^3}{s}$$

$$0{,}000328\ \frac{m^3}{s} = 1{,}18\ \frac{m^3}{h} = 19{,}7 \frac{l}{min}$$

If approximated power 11000 W the the flow rate should be 19,7 lit./min = 1,18 m³/h. With calculated values and depending on Kvs of the pump group, it can be seen from Graph 1 how this pump group will work under this type of load.

☑ Advantages of HERZ PUMPFIX DN20 COMPACT

- Compact design with minimal installation dimensions, ideal for confined installation spaces.
- Multiple configuration options: DIRECT / MIX, DIRECT / DIRECT, and MIX / MIX.
- Available with or without circulation pumps, allowing flexible system design.
- Four functional components included in one package: manifold, hydraulic separator, and two pump groups.
- Compatible with circulation pumps from various manufacturers (G1″, 130mm).
- Integrated 3-way valve option for mixing applications (MIX versions), operable with an actuator.
- Simplifies installation and reduces assembly time thanks to its preassembled and optimized layout.

☑ Brass

HERZ Pumpfix components is made from brass due to its good strength and excellent corrosion resistance. Under 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.

☑ Field of application

The HERZ PUMPFIX DN20 COMPACT is designed for use in residential heating and cooling circuits, where a compact solution with minimal installation space is required. The unit incorporates two independent pump groups, which can be configured either as two mixing circuits or as a combination of one mixing and one direct circuit. All components—manifold, shut-off valves with thermometers on both supply and return, check valves, and high-efficiency pumps—are integrated into a single assembly enclosed in thermal insulation.

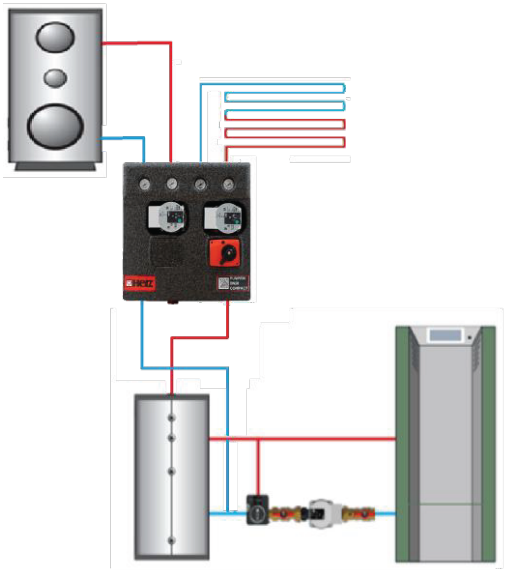
The direct circuit is intended for applications where heating water from the heat source is supplied directly to a heating circuit or for a direct connection between the boiler and a water heater, without temperature mixing. The mixing circuit blends hot supply water with cooler return water to achieve a controlled flow temperature, regulated by an external controller and an actuator on the 3-way valve, making it suitable for systems like underfloor or radiator heating.

This modular concept provides exceptional flexibility: the system can be arranged as two direct circuits, two mixing circuits, or any combination in between. Components can be added or removed even after installation, allowing the system to be adapted or upgraded with minimal effort.

☑ Application hydraulic scheme

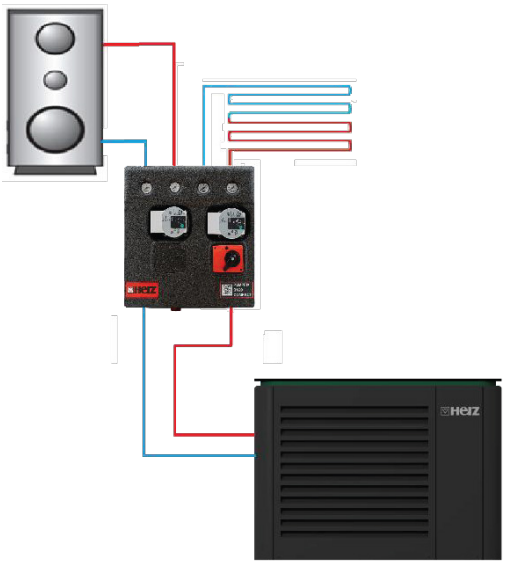
Herz solid fuel boiler with buffer

Pumpfix DN20 Compact is used for underfloor heating and boiler. Hydraulic separator is closed.



Heating pump

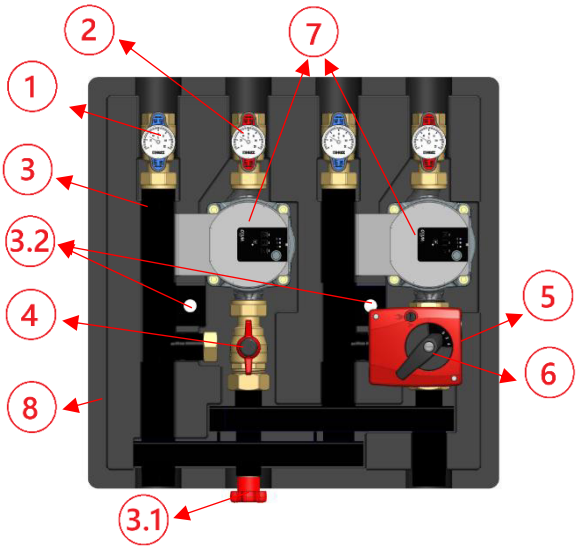
Pumpfix DN20 Compact is used for underfloor heating and boiler.
Hydraulic separator is opened.



☑ **Components of HERZ PUMPFIX DN20 COMPACT**

1. Valve with thermometer with integrated check valve (blue)
2. Valve with thermometer (red)
3. Combined Manifold–Separator Module
   - 3.1 Hydraulic separator knob
   - 3.2 Wall-mounting brackets
4. Ball valve
5. Mixing valve
6. Motor actuator
7. Circulation pump
8. Insulation box

*1 **4523** 01 **is shown in on the drawing**

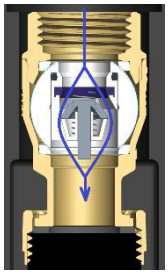


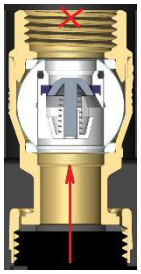
1. Valve with thermometer with integrated check valve (blue)

The ball valve integrated into the HERZ PUMPFIX DN20 COMPACT performs three essential functions. It ensures reliable closure of the return line through a 90° rotation of the brass ball. The valve also provides return-flow temperature indication via the blue temperature sensor. In addition, the design enables the non-return insert to be placed in a shut-off position during system maintenance.

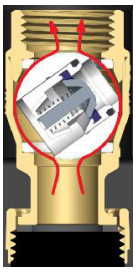
Shut off position of non-return insert:

A) The non-return insert integrated in the ball can be temporarily deactivated. This feature is particularly useful during system maintenance, such as filling or draining the installation.



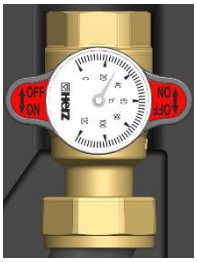


B) By rotating the ball valve handle by 45°, reverse flow is enabled, allowing water to return through the system. According to EN 806-5 (point 6. Operation), valves must always be in their fully opened or closed position and actuated at regular intervals to ensure they remain operational.



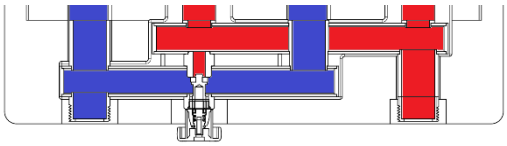
2. Valve with thermometer (red)

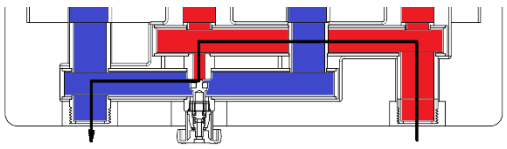
Inspect the position of the handle to see whether the ball valve is opened or closed. It is opened if the handle is aligned with the pipe and it is closed if the handle is positioned perpendicularly to the pipe. Open or close the ball valve by rotating the handle for 90°.



3. Combined Manifold–Separator Module

The Combined manifold-separator module features thermal separation between the flow and return lines, as well as an integrated hydraulic separator. The bypass function can be easily adjusted using the dedicated Hydraulic separator knob.





3.1. Hydraulic separator knob

The Kv value of the bypass is set via the dedicated red knob. Factory setting of the valve sealing position is fully opened. Turn the knob clockwise to its needed position to achieve the desired Kv setting.

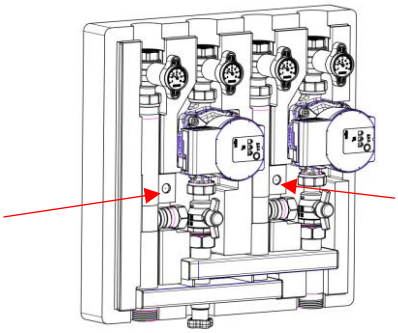
Setting range:

Knob turns	Kvs [m3/h]
0	0
0,5	0,18
1	1,14
1,5	1,56
2	2,16
2,5	2,46

3.2. Wall-mounting brackets

Wall-mount brackets are part of Combined manifold-separator module and are incorporated into the insulation box. Each HERZ PUMPFIX unit is fitted with two durable mounting brackets that ensure secure and effortless wall installation. The brackets provide excellent mechanical stability and maintain their rigidity even under higher load conditions.

A powder coated finish protects the brackets from corrosion and wear, making them suitable for humid or demanding environments. Pre-drilled mounting holes enable quick positioning and accurate alignment, reducing installation time and ensuring a reliable connection to the supporting structure.



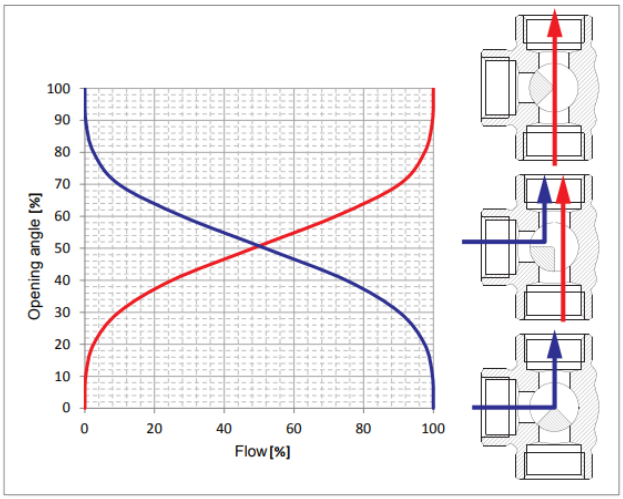
4. Ball valve

The Pumpfix DN20 COMPACT is also available in DIRECT version. In this option the pump group is equipped with high-quality ball valve below the circulation pump, engineered for precise flow control and system isolation. The valve bodies are constructed from brass, ensuring durability and reliable sealing under varying temperature and pressure conditions.

5. Mixing valve with motor actuator

The Pumpfix DN20 COMPACT is also available in MIX version. In this option the pump group is equipped with high-quality three way mixing valve with motor actuator.

Characteristic curves of three-way valve DN20:



6. Motor actuator 1 7712 63

3-Point actuator (1 7712 63)

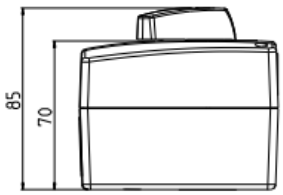
The actuator can be operated by 3-point and open-close control (see diagram). The mounting position in relation to the valve can be selected in 90° steps. The actuator is automatically disconnected when the end stops are reached. The actuator can be mounted in any position except with its head down. Two-piece body made of self extinguishing plastic, the lower part is black and upper part is red. Straightforward direct mounting on the mixing valve with a screw. The screw is supplied with actuator.

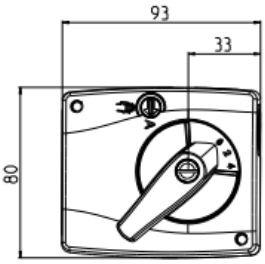
Manual operation possible by lever:

Press for temporary disengagement, permanent gearing disengagement by rotary switch on the housing to the manual position.

Safety note:

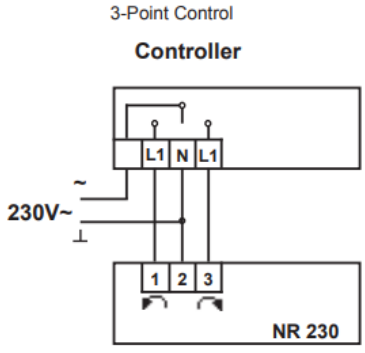
The actuator may only be opened at the factory. It contains no components which can be replaced or repaired by the user.





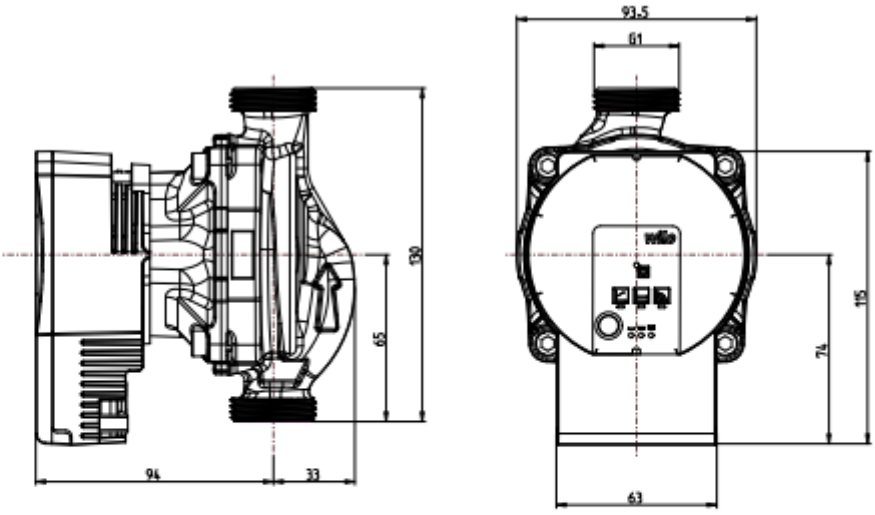
Technical data	
Nominal voltage	AC 230 V 50 / 60 Hz
Power supply range	AC 198 ... 264 V
Dimensioning	3,5 VA
Power consumption	3,5 W
Auxiliary switch	1 x EPU 5 (1) A, AC 250 V
Switching point adjustable	0 … 100%
Manual operation	Temporary and permanent disengagement of the gearing latch
Torque min.	10 Nm (at nominal voltage)
Angle of rotation	90°
Running time	140 s
Sound power level	max. 35 dB(A)
Position indication	Scale 0 ... 10
Protection class	II (totally insulated)
Degree of protection	IP40
Ambient temperature range	0 … + 50 °C (duty cycle 140/35 s)
Media temperature	+ 5 ... + 120 °C (mixing valve)
Non-operating temperature	- 30 … + 80 °C
Humidity test	according to EN 60730-1
EMC CE	according to 2014/30/EU
LV directive	CE according to 2014/35/EU
Mode of operation	Typ 1.B (EN 60730-1)
Maintenance	maintenance-free

Wiring diagram



7. Circulation pump

☑ Pump dimensions

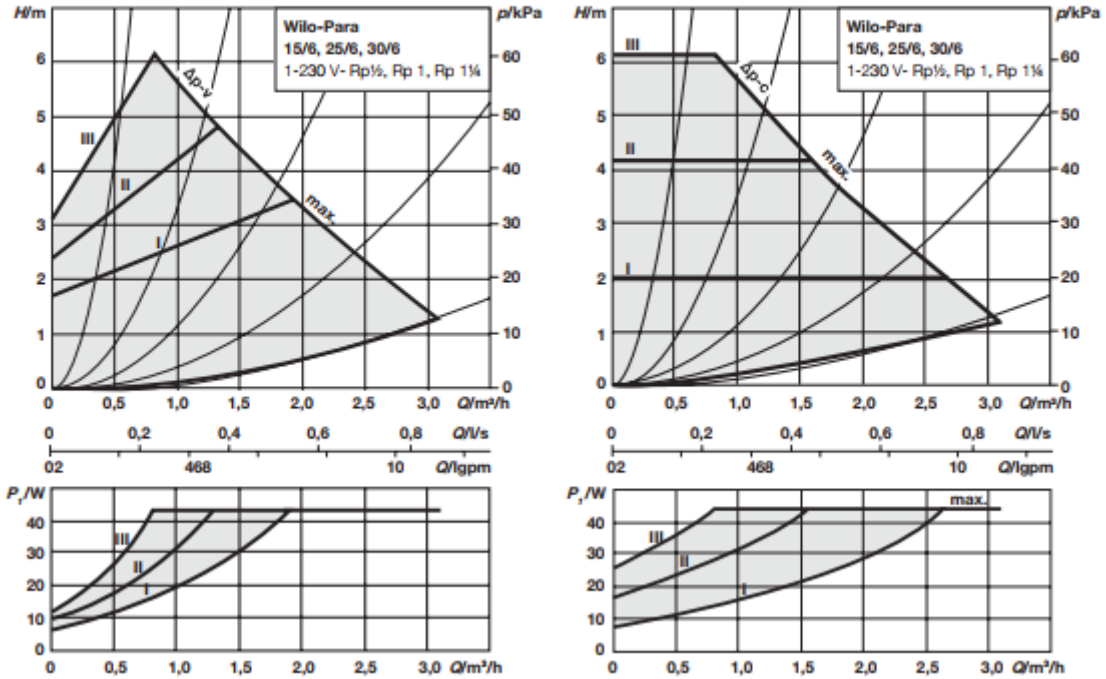


☑ Pump data

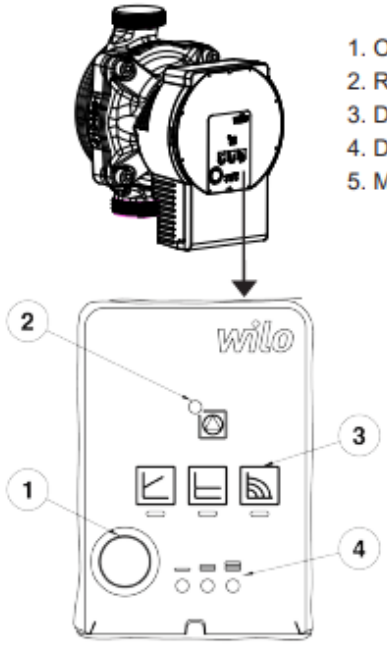
Type:	WILO PARA 15-130/6-43/SC
Thread:	G 1"
Overall length:	130 mm
Energy Efficiency Index (EEI):	≤ 0,20
Max. delivery head:	6.7 m
Max. volume flow:	3.2 m³/h
Max. operating temperature:	100 °C
Maxi. operating pressure:	10 bar
Mains connection:	1~230 V +10%/-15%, 50/60 Hz (IEC 8 standard voltage)
Protection class:	IPx4D
Insulation class:	F

Minimum suction head at suction port to avoid cavitation at water pumping temperature
Minimum suction head at 50/95 °C: 0.5 / 4.5 m

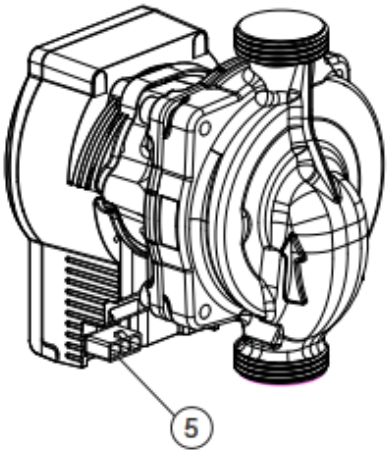
☑ Pump hydraulic operation area



Production description



1. Operating button for pump adjustment
2. Run signal/fault signal LED
3. Display of selected control mode
4. Display of selected characteristic curve (I, II, III)
5. Mains connection: 3-pin plug connection



Indicator lights - LEDs

- Signal display
• LED is lit up in green in normal opertaion
• LED lights up/flashes in case of a fault

- Display of selected control mode Δp-v, Δp-c and constant speed

- Display of selected pump curve (I, II, III) within the control mode

- LED indicator combinations during the pump venting function, manual restart and key lock

Commissioning

Commissioning only by qualified technicians.

The pump attempts an automatic restart upon detecting a blockage. If the pump does not restart automatically:

- Activate manual restart via the operating button: press and hold for 5 seconds, then release.
• The restart function is initiated, and lasts max. 10 minutes.
• The LEDs flash in succession clockwise.

- To cancel, press and hold the operating button for 5 seconds.

NOTICE
After the restart, the LED displays shows the previously set values of the pump.

Venting

Fill and vent the system correctly. If the pump does not vent automatically:

- Activate the pump venting function via the operating button: press and hold for 3 seconds, then release.
• The pump venting function is initiated and lasts 10 minutes.
• The top and bottom LED rows flash in turn at 1 second intervals.

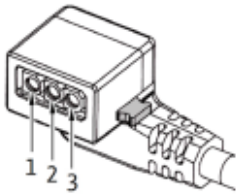
- To cancel, press and hold the operating button for 3 seconds.

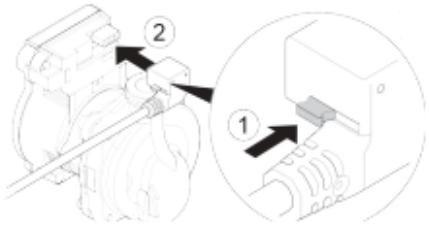
NOTICE
After the restart, the LED displays shows the previously set values of the pump.

Electrical connection

May only be installed by qualified technicians.
- The current type and voltage must correspond to the specifications on the rating plate.
- Maximum back-up fuse: 10 A, slow-blow.
- Only operate the pump with sinusoidal AC voltage.
- Note the switching frequency:
• On/off switching operations via mains voltage ≤ 100/24 h.
• ≤ 20/h for a switching frequency of 1 min. between switching on/off via mains voltage.
- The electrical connection must be made via a fixed connecting cable equipped with a connector device or an all-pole switch with a contact opening width of at least 3 mm.
- Use a connecting cable with sufficient outer diameter (e.g. H05VV-F3G1.5) to protect against leaking water and to ensure strain relief on the threaded cable connection.
- Use a heat-resistant connecting cable where fluid temperatures exceed 90 °C.
- Ensure that the connecting cable does not make contact with either the pipes or the pump.

Connecting the mains cable





- Cable assignment:
  • 1 yellow/green: PE
  • 2 blue: N
  • 3 brown: L

- Press down the locking button of the 3-pin pump plug and connect the plug to the plug connection of the control module until it snaps into place.

Intended use

High-efficiency circulators in the Wilo-Para series are exclusively intended for circulating fluids in hot-water heating systems and similar systems with constantly changing volume flows.
Permitted fluids:
- Heating water according to VDI 2035 (CH: SWKI BT 102-01) or ÖNORM H 5195.
- Water-glycol mixtures* with a maximum of 50% glycol.
*Glycol has a higher viscosity than water. If admixtures of glycol are used, the pumping data of the pump must be corrected to match the mixing ratio. Intended use includes observing these instructions and the specifications and markings on the pump.

8. Insulation box

Components of the HERZ PUMPFIX are stored in insulation shell, which serves as a thermal insulator which prevents thermal losses in the heating system. Insulation is also used as a protection during the transport.
Material: EPP

Installation

HERZ PumpFix DN20 COMPACT can be mounted in any position. However, when the motor actuator and circulation pump are attached to the product, the assembly in a hanging position is not recommended due to the possibility of water breaking into a these components.
A system where the PumpFix DN20 COMPACT is installed must be flushed to remove any dirt or debris that may have accumulated during installation. Failure to remove dirt or debris may affect performance and the manufacturer's guarantee. The installation of filters of appropriate capacity at the inlet of the water from the main supply is always advisable. In areas that are subject to highly aggressive water, arrangements must be made to treat the water before it enters the valve.
Access to the HERZ PumpFix DN20 COMPACT must be unobstructed for any maintenance that may be required to the PumpFix DN20 COMPACT or products connections. The pipework from/to the HERZ PumpFix DN20 COMPACT must not be used to support the weight of the PumpFix DN20 COMPACT itself.
When connecting the HERZ PumpFix DN20 COMPACT to the system components use suitable sealing material (spinning material, Teflon ribbon, sealing paste) to coat the pipes. There should not be an excess of sealing material on the pipe because it can damage the thread. All the connecting pipes have to be correctly aligned, so the pump group is not loaded with a bending moment. When using copper or plastic pipes take into account the pressure and temperature limits of used material.
When assembling, use a suitable assembly tool that adapts to pump group end connections. Following assembly, all connections must be checked for water-tightness by the installer. All engineering standards and recognized regulations must be adhered to by these specialist staff.

Important warnings

WARNING

HOT WATER / LIQUID

Pay attention while installing / commissioning / servicing the PumpFix DN20 COMPACT because the temperature of medium can exceed 100°C. Exposure to this high temperature medium can cause death, serious injury or damage of the other components in the system. Make sure that when works are being carried out on the HERZ PumpFix DN20 COMPACT the system is cooled down and it is unpressurised. Before any disassembly make sure that the system is drained.

ELECTRIC SHOCK
Usage all of electrical standards and recognized regulations must be adhered to by specialist electricians who are installing Herz PumpFix DN20 COMPACT. Usage of correct safety equipment against electric shock is obligatory.
Live parts can cause electric shock that will result in serious injury or death.
When working on the actuator and circulation pump, disconnect the mains voltage supply and ensure that it cannot be switched on.
See detailed instructions for the actuator for the correct connection to the main electrical supply.

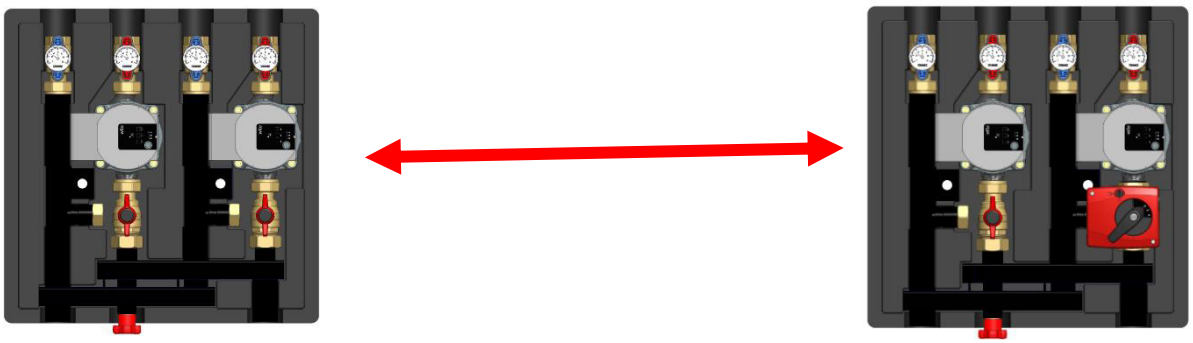
Installation and electrical connection should only be carried out by a person with suitable qualification. When installing, it is necessary to follow the rules of the profession, valid legislation and regulations. When installing, make sure that the actuator and circulation pump are mounted away from open sources of fire or water. If there is a possibility of flooding, the actuator and circulation must be installed above the possible level of the flood water level.
Any interference with the actuator and circulation pump not described in the manual is forbidden. Before installing these components, make sure that the parts in contact with the actuator and the installer are not under voltage.
The operator or the system user is responsible for the selection of a qualified person that will perform the installation of the actuator and circulation pump.
The user is also responsible for the proper operation and maintenance of the system.

Failure to follow the instructions and unprofessional work may result in the following:
- actuator malfunction
- circulation pump malfunction
- endangering the safe operation of the system
- damage to the system
- risk of electric or mechanical shock for persons in contact with the system

Change Direct/Mix

If you want to convert the pump group from **Direct** to **Mix**, it is necessary to order the following spare parts: **1 2137 82** and **1 7712 63.**

If you want to convert a **Mix** version into a **Direct** version, you need the spare part: **1 2202 49.**



☑ **Maintenance**

Regular maintenance of heating systems keeps them running smoothly, optimizing their energy consumption and reducing utility bills. Well-maintained components ensure the heating system doesn't have to work harder than necessary to achieve the desired temperature.

Make sure, that regular maintenance is done periodically at least twice a year, according to the procedures written below:

1. Check and clean the system filters.
2. Check that the non-return valves are operating normally, without problems caused by impurities.
3. Limescale can be removed from internal components by immersion in a suitable de-scaling liquid.
4. When the components which can be maintained have been checked, commissioning should be carried out again.

- **Ball valves:**

According to EN 806-5 (point 6. Operation), valves must always be in their fully opened or closed position and actuated at regular intervals to ensure they remain operational. Therefore HERZ Ball valves should be closed and opened periodically at least twice a year. This prevents the ball valve from blocking, reduces sediment deposition, and reduces the possibility of corrosion inside the valve.

• Mixing valve:

In-service tests should be carried out regularly to monitor the mixer performance, as deterioration of performance could indicate that the valve and/or the system require maintenance. If, during these tests, the temperature of the mixed water has changed significantly in comparison to the previous tests, the details given in the installation and commissioning sections should be checked and maintenance carried out. The following aspects should be checked regularly to ensure that the optimum performance levels of the valve are maintained, periodically at least twice a year.

• Circulation pump and motor actuator:

If the pump group has not been working for some time (in ˝off˝ season) the pumps shaft or propeller may get stuck. See options of your control unit to run the circulation pump for a few seconds so it does not get stuck.

In case the circulation pump or motor actuator are broken, then only the specialist electricians can exchange or service it. These specialist electricians need to respect all of electrical standards and recognized regulations. Usage of correct safety equipment against electric shock is obligatory. Live parts can cause electric shock that will result in serious injury or death. When working on these components, disconnect the mains voltage supply and ensure that it cannot be switched on. See detailed instructions for the circulation pump for the correct connection to the main electrical supply.

☑ **Disposal instructions**

The disposal of HERZ Zone valve accessories must not endanger the health or the environment. National legal regulations for the proper disposal of the HERZ Zone valve accessories have to be followed. 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.

Troubleshooting

Problem	Description	Solution
Circulation pump is causing noise	Air in the circulation pump	Set the circulation pump in the venting of the housing setting
	Cavitation due to insufficient suction pressure.	Increase the system pressure within the permissible range.
		Check the delivery head and set it to a lower head if necessary.
The surface heating system is too cold	The circulation pump is not working	See last row in this table*
	The pump setting is set too low – not enough flow capacity	Increase set point
		Change the control mode from Δpc to Δpv
	The ball valve is closed	Open the ball valve
	Mixing valve setting is too low	Check the setting of the mixing valve and adjust it (via controller)
	The primary inlet temperature is too low	Adjust the main supply temperature (via controller)
	Air is present in the system	Vent the system
The surface heating system is too hot	Mixing valve setting is too high	Check the setting of the mixing valve and adjust it (via controller)
Noisy system	Air is present in the system	Vent the system
	The circulation pump setting is not correct	Check and change the circulation pump setting
The circulation pump is not working*	Electrical fuse defective	Check fuses
	No voltage supply at the pump	Rectify the power interruption
	The circulation pump is defective	Replace the pump

Spare parts

Sketch	Description	Article Nr.
	Ball valve with thermometer and PPV	1 **2414** 05
	Ball valve with thermometer	1 **2415** 05
	Set of Insulation	1 **4523** 56
	Motor actuator (230V 3point)	1 **7712** 63
	Motor actuator (adjustable 010V)	1 **7712** 57
	Motor actuator (24V 3point)	1 **7712** 56
	Mixing valve DN20	1 **2137** 82
	Plug + Ball valve direct set DN20	1 **2202** 49