PAW GmbH & Co. KG
Böcklerstraße 11, 31789 Hameln, Germany
Phone: +49-5151-9856-0, Fax: +49-5151-9856-98
E-mail: info@paw.eu, Web: www.paw.eu

English

Installation and Operation Instructions
HeatBloC® K33R
DN 25 / DN 32

DN 25

DN 32

Table of Contents

1 General Information....3
1.1 Scope of these instructions....3
1.2 Designated use....3
2 Safety instructions....4
3 Product description....5
3.1 Equipment....5
3.2 Function....6
3.2.1 Check valve and non-return valve....7
3.2.2 Pump [specialist]....8
3.2.3 3-way mixing valve [specialist]....8
3.2.4 Change of the flow line [specialist]....10
3.3 Constant temperature controller PKR6....12
3.4 Setting of the constant temperature controller PKR6 as a return flow temperature maintenance....12
4 Mounting and installation [specialist]....14
4.1 Installation and commissioning of the HeatBloC®....14
4.2 Accessories: Cutting-ring compression fitting (not included in the scope of delivery)....17
5 Scope of delivery [specialist]....18
5.1 Spare parts DN 25....18
5.2 Spare parts DN 32....20
6 Technical data....22
6.1 Pressure drop and pump characteristic curves DN 25....23
6.2 Pressure drop and pump characteristic curves DN 32....23
7 Disposal....24
8 Notes....25

1 General Information

Carefully read these instructions before installation and commissioning.

Save these instructions in the vicinity of the installation for future reference.

1.1 Scope of these instructions

These instructions describe the installation, commissioning, functioning and the operation of a mixed HeatBloC®.

For other components of the installation, such as the pump, the controller or the modular distribution manifold, please observe the instructions of the corresponding manufacturer. The chapters called [specialist] are intended for specialists only.

1.2 Designated use

The product may only be used in heating circuits taking into consideration the technical limit values indicated in these instructions.

It must **not** be used in drinking water applications.

Improper usage excludes any liability claims.

This product complies with the relevant directives and is therefore labelled with the CE mark.
The Declaration of Conformity is available upon request, please contact the manufacturer.

Only use PAW accessories with the product.

2 Safety instructions

The installation and commissioning as well as the connection of electrical components require technical knowledge commensurate with a recognised vocational qualification as a fitter for plumbing, heating and air conditioning technology, or a profession requiring a comparable level of knowledge [specialist].

The following must be observed during installation and commissioning:

- relevant local and national regulations
- accident prevention regulations of the professional association
- instructions and safety instructions mentioned in these instructions

⚠ CAUTION

Personal injury and damage to property!

The product must only be used in heating circuits filled with heating water according to VDI 2035 / Ö-Norm H 5195-1.

► The product must **not** be used in drinking water applications.

NOTICE

Material damage due to mineral oils!

Mineral oil products cause lasting damage to seals made of EPDM, whereby the sealant properties are lost. We do not assume liability nor provide warranty for damage to property resulting from sealants damaged in this way.

► It is imperative to prevent the EPDM sealing elements from making contact with substances containing mineral oils.

► Use a silicone- or polyalkylene-based lubricant free of mineral oil such as Unisilikon L250L and Syntheso Glep 1 from Klüber or a silicone spray.

3 Product description

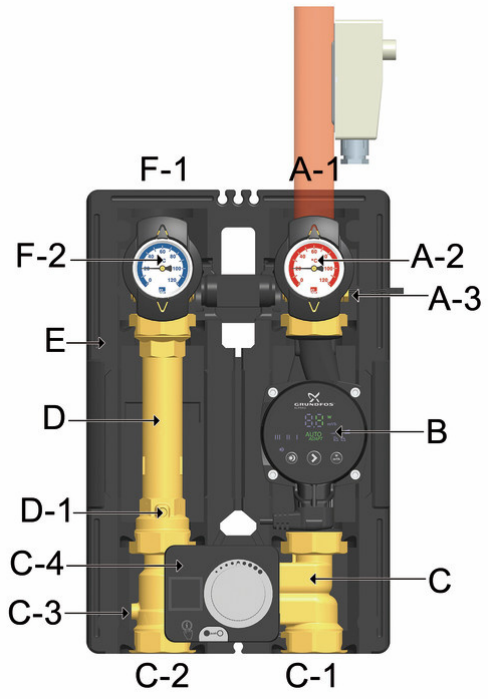
The HeatBloC® is a preassembled group of fittings for heating circuits. The pump can be isolated by means of the ball valves and the mixing valve. The pump can thus be maintained easily without draining the heating circuit system.

The HeatBloC® is designed such that it can be directly mounted onto a PAW distribution manifold or a mounting plate. With transition connections, HeatBloC®s can also be mounted on modular distribution manifolds of other dimensions.

This product is prepared for the operation as a supply group, such as for radiant panel heating systems (e.g. radiant floor heating systems) - with constant flow temperature. The mixing valve bypass is completely open so that the control range of the mixing valve can be completely used even if the flow temperatures are low. In order to protect the connected radiant panel heating system from overheating, a safety temperature limitation is included in the scope of delivery.

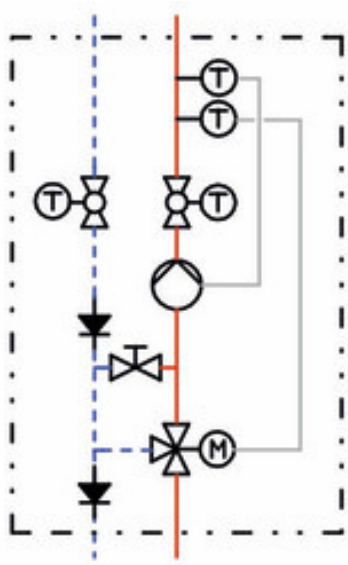
The product can be easily converted into a group for return flow temperature maintenance. It can then be used with solid fuel boilers.

3.1 Equipment



A-1 Flow to the consumer circuit
A-2 All-metal thermometer with immersion sleeve, integrated in the ball valve (flow)
A-3 Temperature sensor (Pt1000)
B Heating pump
C 3-way mixing valve with adjustable bypass 0-50 %
C-1 Flow from the heat generator
C-2 Return to the heat generator
C-3 Non-return valve, can be opened
C-4 Constant temperature controller PKR6
D Return pipe
D-1 Check valve, can be opened
E Design insulation with optimised function
F-1 Return from the consumer circuit
F-2 All-metal thermometer with immersion sleeve, integrated in the ball valve (return)

3.2 Function



3-way mixing valve with bypass 0-50%

The flow temperature of the heating circuit is controlled by the integrated mixing valve. Hot water from the boiler and cold return water are mixed to obtain the desired flow temperature of the heating circuit. The mixing valve is adjusted by means of the constant temperature controller PKR6.

Due to the premixing rate that must be adjusted at the bypass of the mixing valve, a certain amount of cold return water is added to the flow water. The 3-way actuator can thus work over the whole adjustment range (0-100 %), although only a small amount of water from the boiler is necessary.

Application range:

- Consumer circuits with a considerably lower flow temperature than the boiler flow temperature
- Consumer circuits with high flow rates, e.g. radiant floor heating and radiant panel heating systems
- In connection with the constant temperature controller PKR6 for return flow temperature maintenance (then, the bypass is closed)

Example:

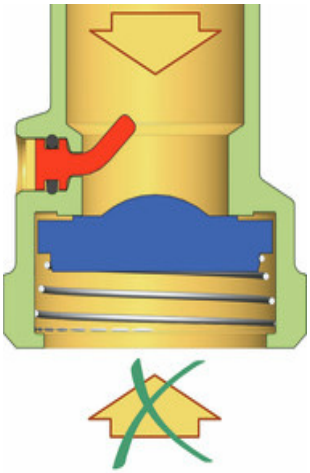
Panel heating systems operate on a low temperature level with small temperature differences, but with high flow rates. It is therefore sufficient to add a small amount of hot water to the "warm" return water.

For the use as a **return flow temperature maintenance,** the bypass in the mixing valve must be completely closed so that the entire boiler output is available for the consumer circuits.

3.2.1 Check valve and non-return valve

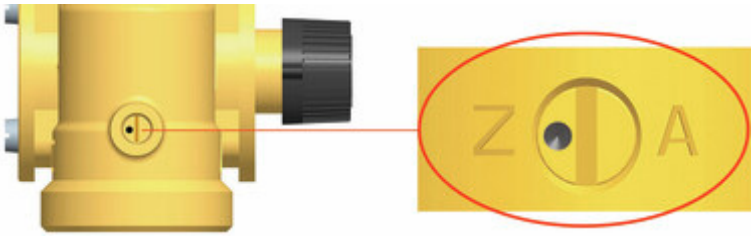
The product is equipped with a check valve and with a non-return valve. The valves can be opened.

operation

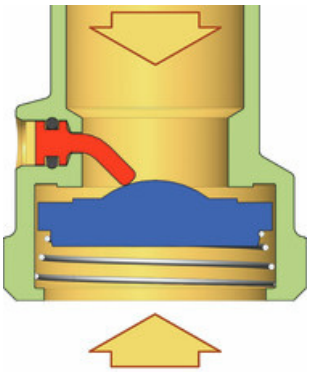


During operation, the markings must point to "Z".

- The check valve and the non-return valve are closed.
- Flow only in the direction of the arrow.

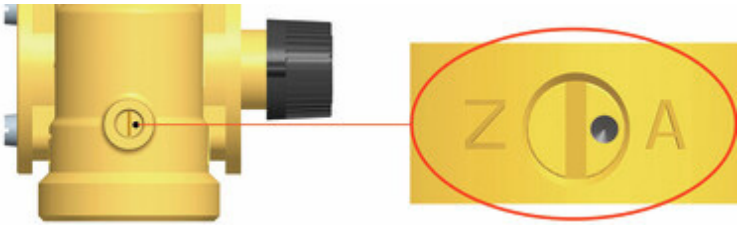


filling, draining, venting



For filling, draining and venting, the markings must be directed to "A".

- The check valve and the non-return valve are closed.
- Flow in both directions.



3.2.2 Pump [specialist]

The pump can be completely isolated. It can be replaced and maintained without draining the heating circuit system.

Isolation of the pump

1. Disconnect the expansion tank from the installation.
2. Close the ball valves in the flow and the return (A-2, F-2).
3. Remove the constant temperature controller PKR6 from the mixing valve.
4. Turn the bypass screw of the mixing valve such that the slot is in a vertical position.
5. Turn the nose of the valve cock such that the flow to the pump is closed (for flow on the right: nose points downward, for flow on the left: nose points to the right; see below).

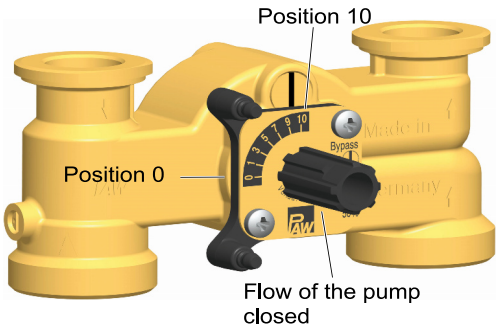
The mixing valve is now closed and drop tight.

3.2.3 3-way mixing valve [specialist]

The 3-way mixing valve (C), driven by an electric actuator, adjusts the flow temperature of the consumer circuit to the required value by means of the flow sensor and the controller.

The mixing valve is equipped with a bypass which must be operated separately. Via this bypass, cold return water is added to the flow of the HeatBloC®. This can result in an increase of the flow rate of the HeatBloC®.

Mixing valve with flow on the right:



Position 10 / Bypass closed:

passage, no mixing

flow temperature consumer = flow temperature heat generator

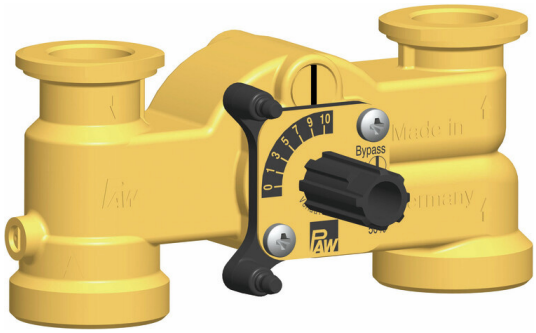
Position 0:

100% mixing

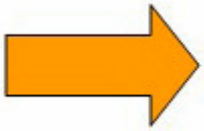
flow temperature consumer = return temperature consumer

1. During commissioning, determine the optimum bypass position for the operation of the installation. Find out and check the correct adjustment through a trial-and-error process.

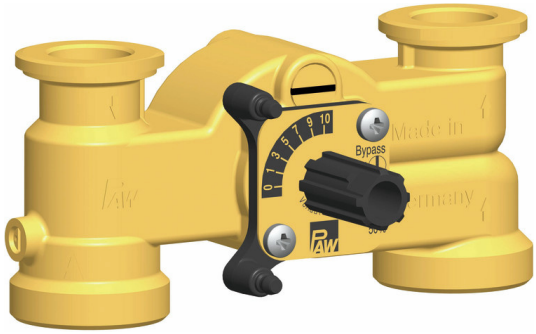
If the slot of the bypass screw is in a vertical position, the bypass is closed.



If the HeatBloC® K33R / K34R is used as a return flow temperature maintenance, the bypass must be closed!



If the slot of the bypass screw is in a horizontal position, the bypass is completely open.
A maximum flow rate from the return to the flow line is thus enabled. This adjustment may be necessary for radiant floor heating systems which require a very high water flow volume. Because of the bypass, the flow temperature decreases and the control is affected.



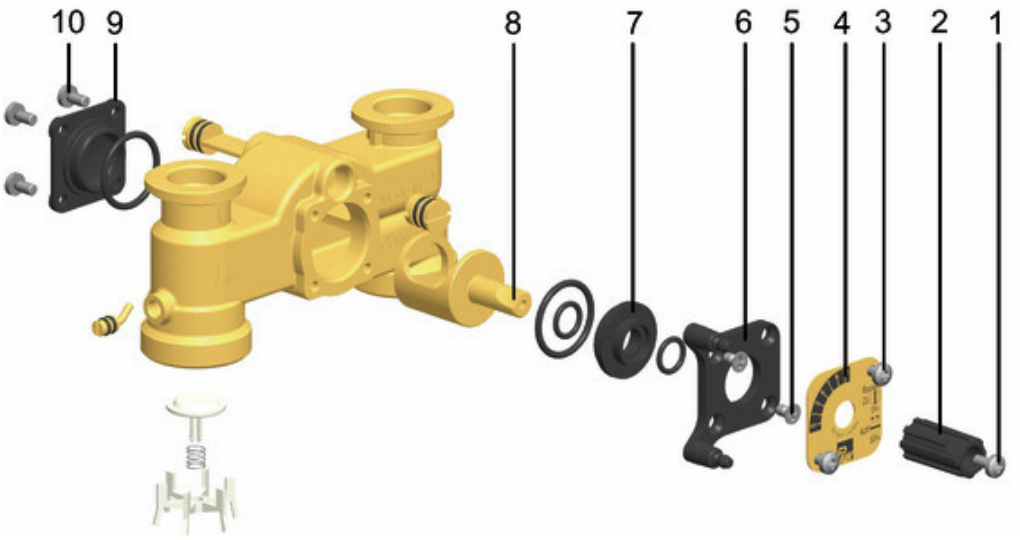
2. Check the position of the bypass during operation. Make sure that the flow rate is sufficient and that the desired temperature is reached.

3.2.4 Change of the flow line [specialist]

Dismounting of the mixing valve

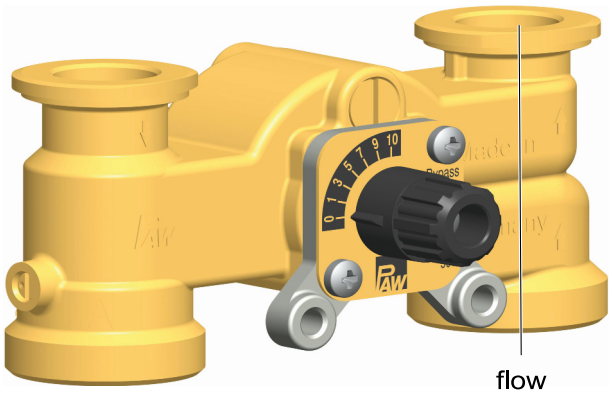
1. Take off the thermometer handles (A-2, F-2) and remove the insulating front shell.
2. Take the group of fittings out of the insulating back shell.
3. Dismount the mixing valve (C).

Retrofitting of the mixing valve

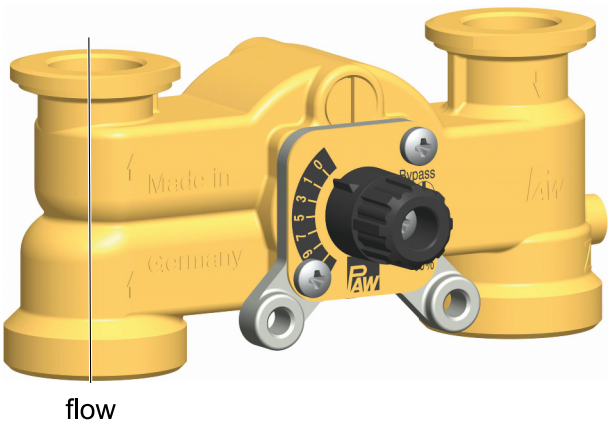


1. Loosen the screw (1).
2. Take off the rotary knob (2) from the cock rod.
3. Loosen the screws (3).
4. Remove the cover plate (4).
5. Loosen the two screws (5).
6. Remove the front plate (6).
7. Extract the sealing bush (7) with the cock plug (8) from the housing of the mixing valve.
8. Loosen the screws (10) on the rear side of the mixing valve.
9. Take off the cover (9) on the rear side of the mixing valve and fix it on the other side of the mixing valve by using the screws (10).
10. Insert the sealing bush (7) with the cock plug (8) into the channel of the mixing valve.

11. Screw down the front plate (6) using the screws (5).



Mixing valve with flow on the right



Mixing valve with flow on the left

12. Turn the cover plate (4) in such a way that the marking PAW is at the bottom and that the scale is positioned as shown in the figure above.
13. Fix the cover plate (4) by using the screws (3).
14. Put the rotary knob (2) onto the cock rod.

    Only for K34R: Turn the cock plug to the mixing valve position "5". Then, the controller PWR6 can directly be mounted.
15. Fix the rotary knob (2) on the cock plug (8) by using the screw (1).

Retrofitting and commissioning of the heating circuit

1. Interchange the return pipe (D) and the flow pipe with the pump (B).

   Consider the flow direction of the pump!

   Turn the pump head such that the terminal box is directed to the top or to the centre of the group of fittings.
2. Dismount and interchange the ball valves. The temperature sensor must be mounted in the flow ball valve!
3. Mount the HeatBloC® and connect it to the installation.
4. Check all union nuts before commissioning and firmly tighten them if necessary.
5. Mount the insulation only after having carried out a pressure test. Mount the thermometer handles (A-2, F-2) in a final step.

3.3 Constant temperature controller PKR6

The PAW constant temperature controller PKR6 is prepared for the direct mounting onto the 3-way bypass mixing valve of the product.

When the constant temperature controller PKR6 is delivered, it is preset for the constant temperature control of a radiant panel heating system (nominal flow temperature = 30 °C) with the flow line on the right.

3.4 Setting of the constant temperature controller PKR6 as a return flow temperature maintenance

Application	Flow line	required modifications at the HeatBloC®	required adjustments at the controller PKR6 - see separate instructions
Radiant panel heating	pump on the right, transports upwards	—	nominal flow temperature is 30 °C - adjust, if necessary
	pump on the left, transports upwards	retrofitting of the mixing valve and of the HeatBloC® for flow on the left (see 3.2.2 and 3.2.3)	change the direction of rotation to "left" nominal flow temperature is 30 °C - adjust, if necessary
Return flow temperature maintenance	pump on the right, transports upwards	close mixing valve bypass interchange thermometers	set the scheme "return temperature" nominal return temperature is 60 °C - adjust, if necessary
	pump on the left, transports upwards	retrofitting of the mixing valve and of the HeatBloC® for flow on the left (see 3.2.2 and 3.2.3) close mixing valve bypass	set the scheme "return temperature" change the direction of rotation to "left" nominal return temperature is 60 °C - adjust, if necessary

Mounting of the constant temperature controller PKR6 for mixing valve with flow on the right:

Fig. 1

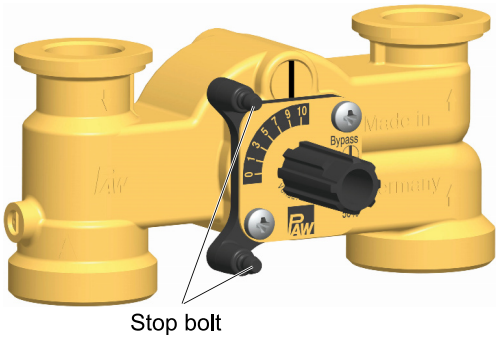


Fig. 2

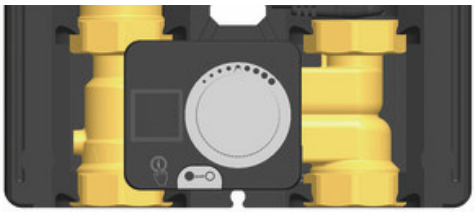
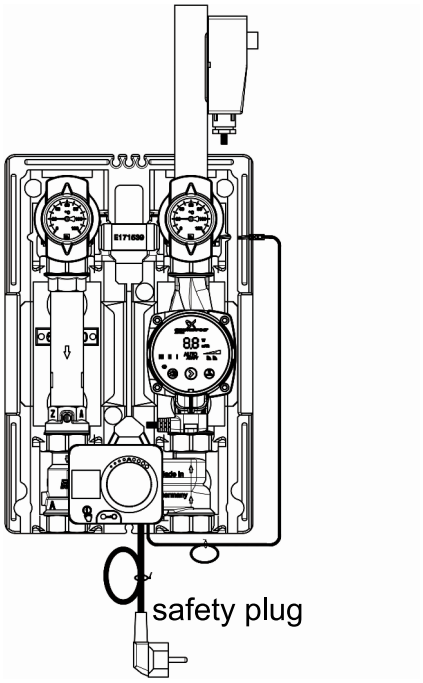


Fig. 3



1. Turn the rotary knob of the mixing valve into position "**5**".
2. When the constant temperature controller is delivered, it is in centre position.

   By disengaging the gear (●push○), you can adjust the controller at the rotary knob. In this way, you can test if the actuator / rotary knob is mounted correctly.
3. Mount the stop bolts, if necessary.
4. Push the constant temperature controller PKR6 on the rotary knob of the mixing valve and mount it onto the two stop bolts (fig. 1).

   The constant temperature controller must be mounted according to figure 2.
5. Re-engage the gear (●push○).
6. Set the constant temperature controller to automatic operation mode.
7. Connect the flow temperature sensor (mounted in the flow ball valve) with the constant temperature controller.
8. After the mounting is completed, the safety plug can be plugged into a corresponding socket (fig. 3).
9. For the commissioning, please observe the instructions of the controller.

4 Mounting and installation [specialist]

The HeatBloC® can either be mounted on a distribution manifold or on a wall bracket. The distribution manifold and the wall bracket are optional accessories and are thus not included in the scope of delivery.

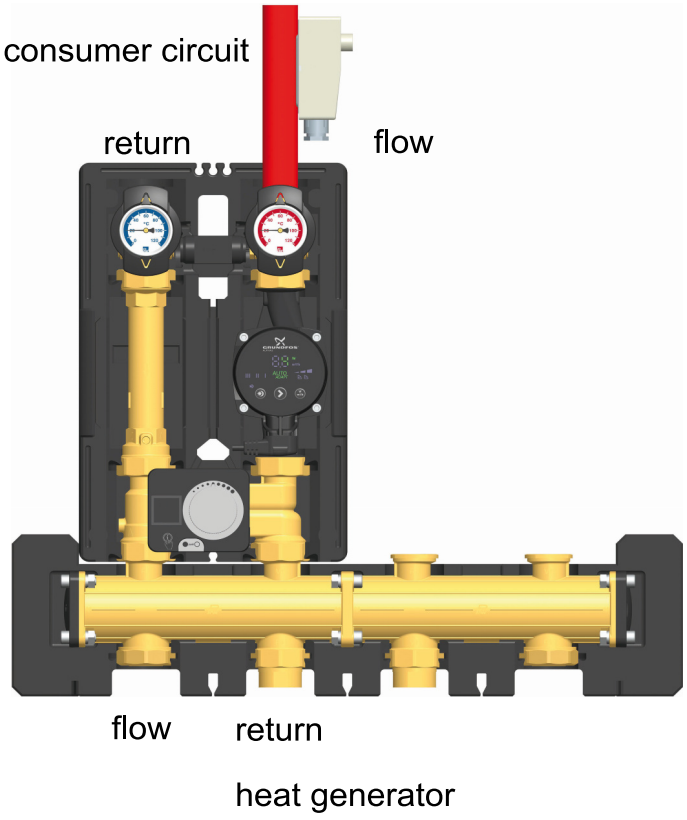
NOTICE

Damage to property!
The installation site must be dry, stable, frost-proof and protected against ultraviolet radiation in order to prevent material damage of the installation.

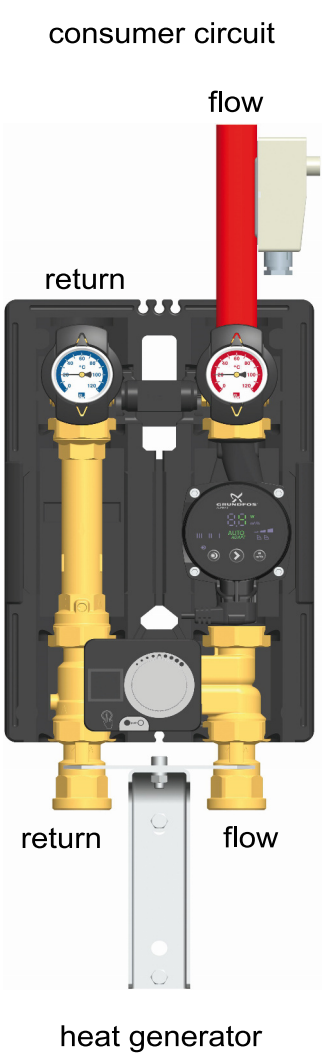
4.1 Installation and commissioning of the HeatBloC®

The HeatBloC® can be mounted

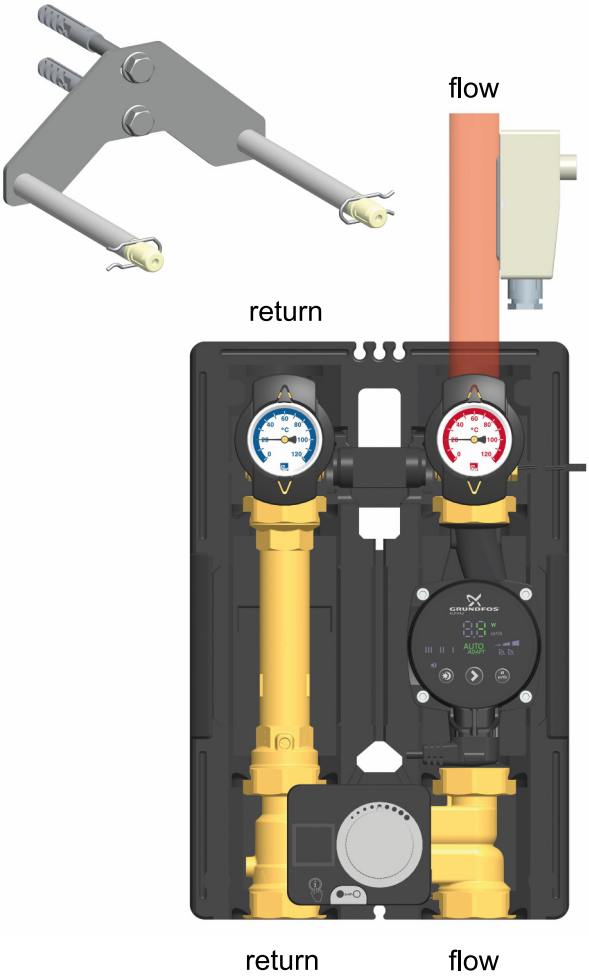
Option 1: on a PAW modular distribution manifold.



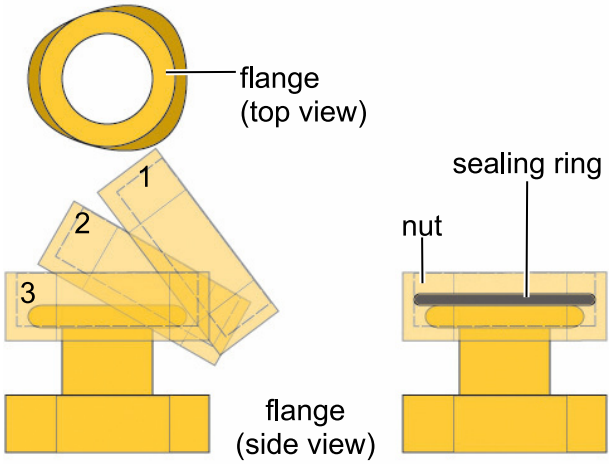
Option 2: on a mounting plate with transition thread connections.

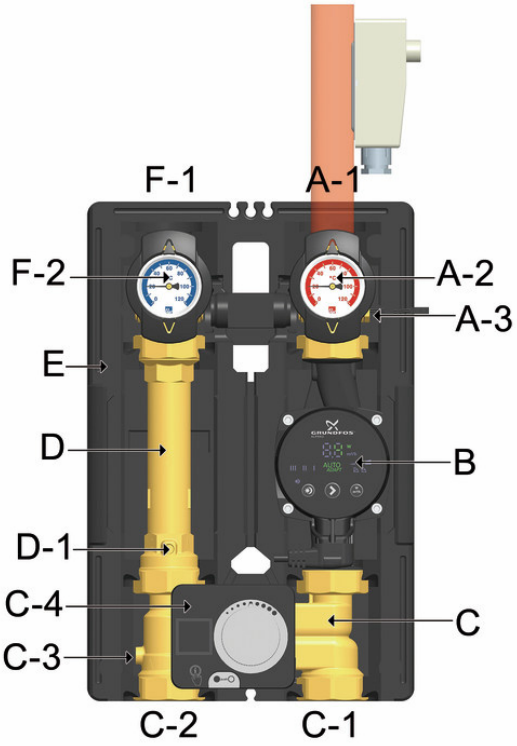


Option 3: directly on a wall bracket



Please observe the separate and respectively corresponding instructions regarding the installation of the distribution manifold, of the mounting plate and of the wall bracket.





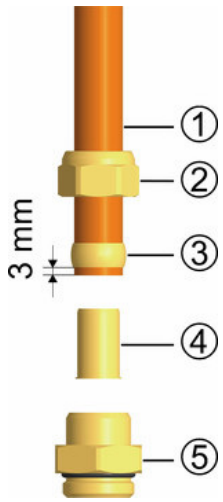
1. Take off the thermometer handles (A-2, F-2) and remove the insulating front shell of the HeatBloC®.
2. Unscrew the nuts on the lower connections of the HeatBloC® and take out the sealing rings.

If a PAW modular distribution manifold or transition connection is used:

3. Put the two nuts over the flanges.
4. Insert the sealing rings into the nuts.
5. Put the HeatBloC® onto the two nuts.
6. Tighten the nuts. Make sure that the nuts do not get jammed and that the sealing rings do not slip.
7. Connect the HeatBloC® to the installation by using the pipes. The installation to the piping must be carried out without any tension.
8. Connect the pump.
9. Carry out a pressure test and check all thread connections.
10. Mount the insulating front shell and the thermometer handles (A-2, F-2).

4.2 Accessories: Cutting-ring compression fitting (not included in the scope of delivery)

The connection to the heating installation can be carried out fast, pressure-proof and without soldering if you use the optionally available compression fittings.



Not included in the scope of delivery!

1. Push the union nut ② and the cutting ring ③ onto the copper pipe ①. The pipe must protrude at least 3 mm from the cutting ring in order to ensure the force transmission and the sealing.
2. Insert the support sleeve ④ into the copper pipe.
3. Insert the copper pipe with the plugged-on individual parts ②, ③ and ④ as far as possible into the body of the compression fitting ⑤.
4. First, screw the union nut ② manually.
5. Tighten the union nut ② by rotating one full turn. Secure the body of the compression fitting ⑤ against distort in order to avoid damaging the sealing ring.

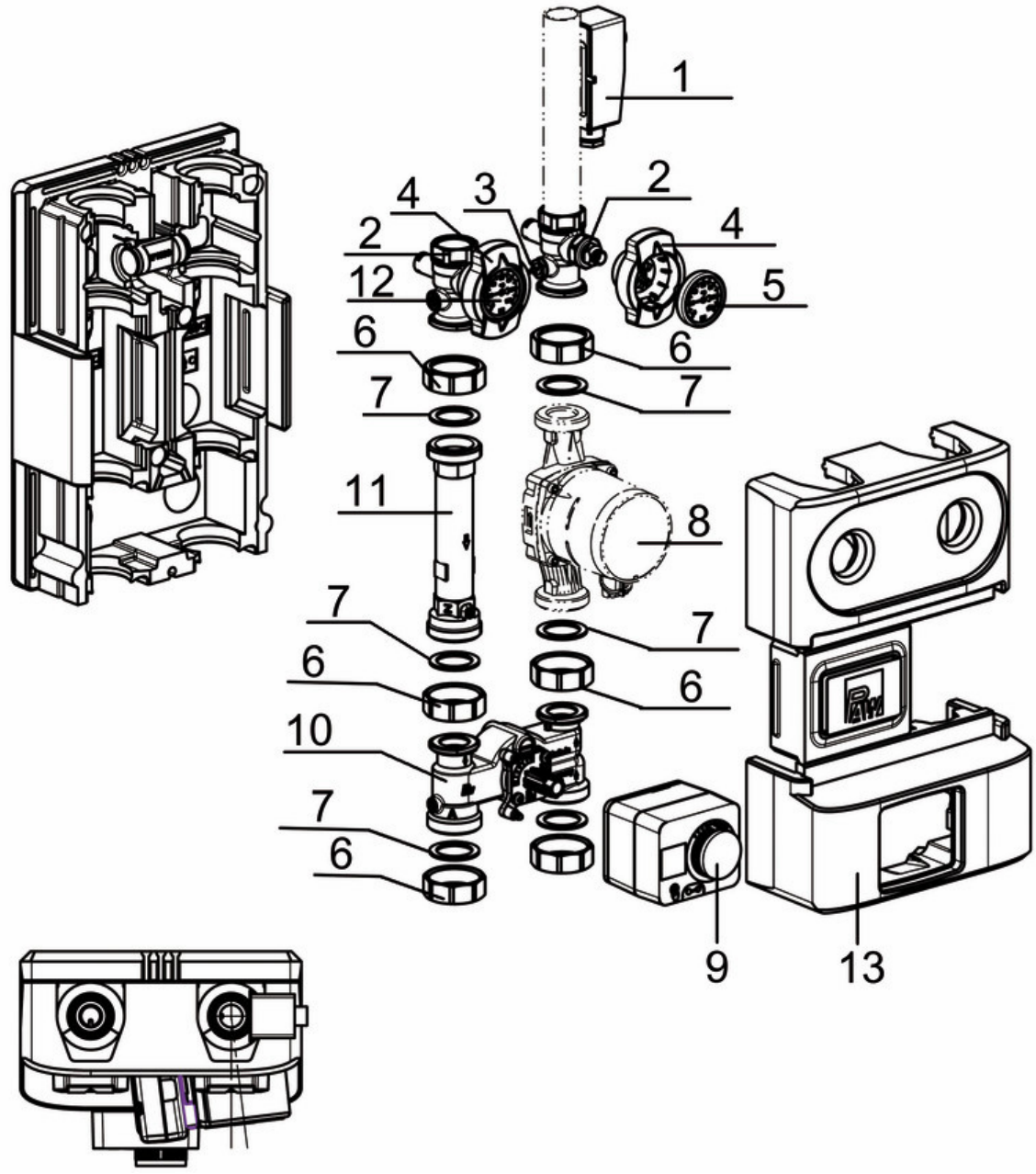
5 Scope of delivery [specialist]

NOTICE

Serial number

Complaints and requests/orders of spare parts will only be processed with information on the serial number! The serial number is placed on the return pipe of the product.

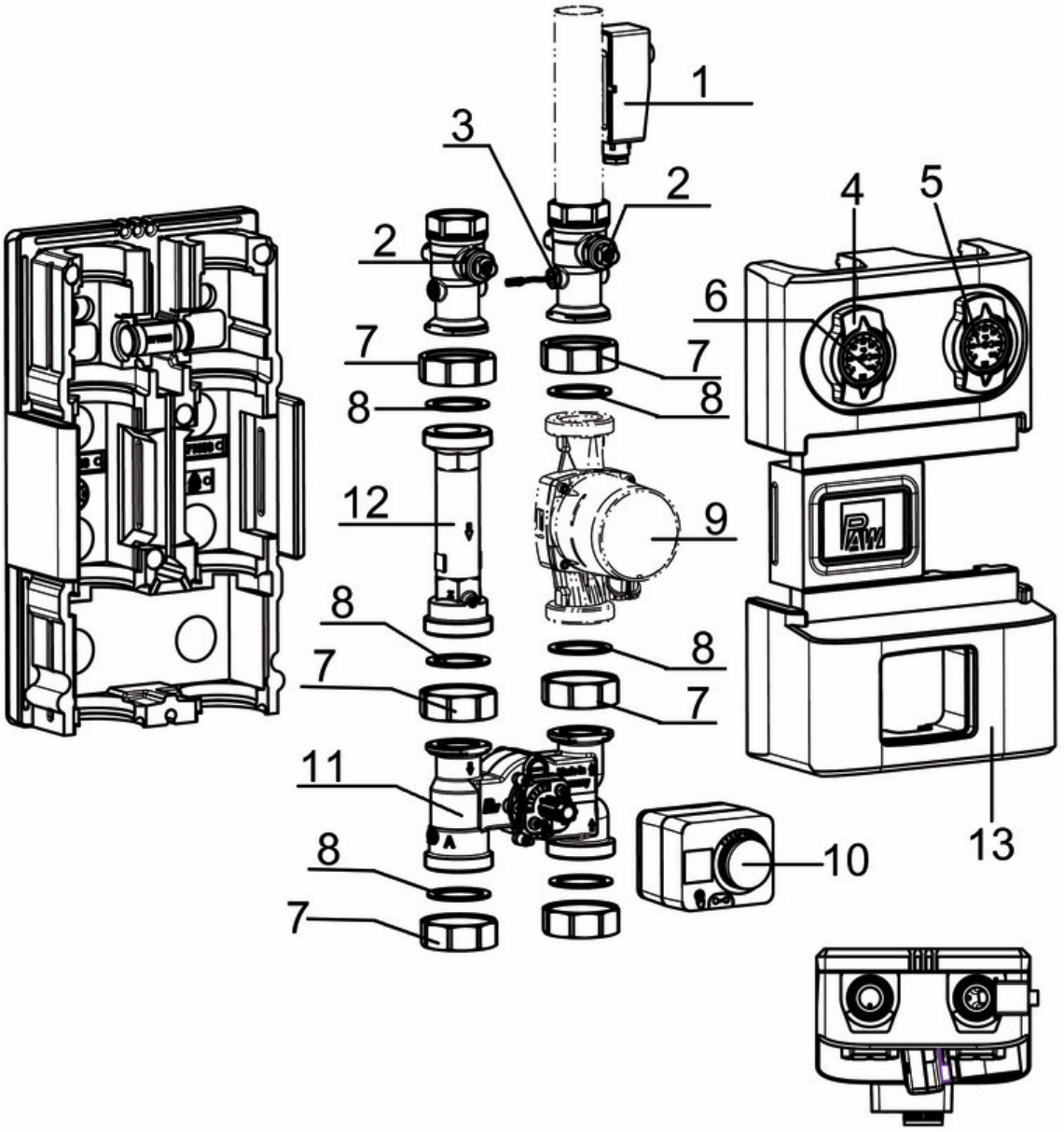
5.1 Spare parts DN 25



Position	Spare part	Item number
1	Contact thermostat	N00083
2	Thermo ball valve DN 25, F1" x 1" int. thread, snap-in assembly	N00244
3	Temperature sensor Pt1000-B, screw-in sensor 9 mm, G¼"	N00230
4	Thermometer handle for thermometer ball valve 1" x ¼"	N00248
5	Dial thermometer, red scale, d = 50 mm, 0-120 °C	N00242
6	Union nut G 1½"	N00269
7	Gasket 1", for threaded connection 1½"	N00131
8	Pump see following table	
9	Constant temperature controller PKR6, 6 Nm, 230 V, 3-level control	703601
10	3-way bypass mixing valve DN 25, F1" x 1½" ext. thread	N00020
11	Brass pipe DN 25, 2 x 1½" ext. thread, 180 mm, with check valve and seals	N00018
12	Dial thermometer, blue scale, d = 50 mm, 0-120 °C	N00243
13	Insulation for HeatBloC® DN 25	N00016
no pos.	Sealing set for mixing valve	37013

Item no. heating circuit	Pump	Item no. pump	EEI
360463WP6	Wilo Para SC 25/6-43	N00259	< 0.20
360463WP8	Wilo Para SC 25/8-60/O	N00271	< 0.20
360463WN06	Wilo Yonos PICO 25/1-6	N00214	< 0.20
360463GL9	Grundfos UPML 25-105 Auto	N00396	< 0.23
360463GM6	Grundfos UPM3 Auto L 25-70 PP3	N00237	< 0.20
360463GH6	Grundfos Alpha2.1 25-60	N00236	< 0.17
360463	without pump	/	/

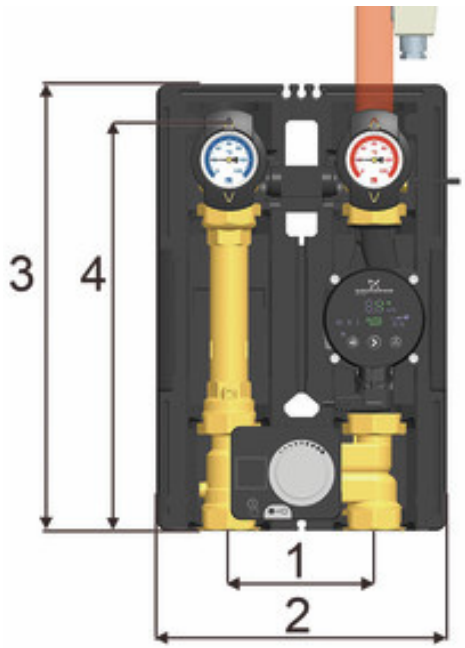
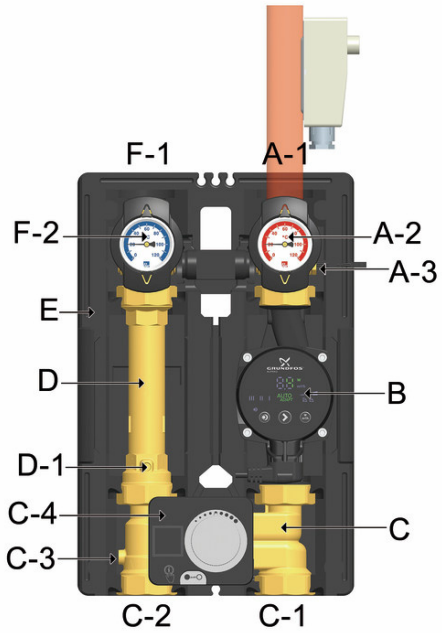
5.2 Spare parts DN 32



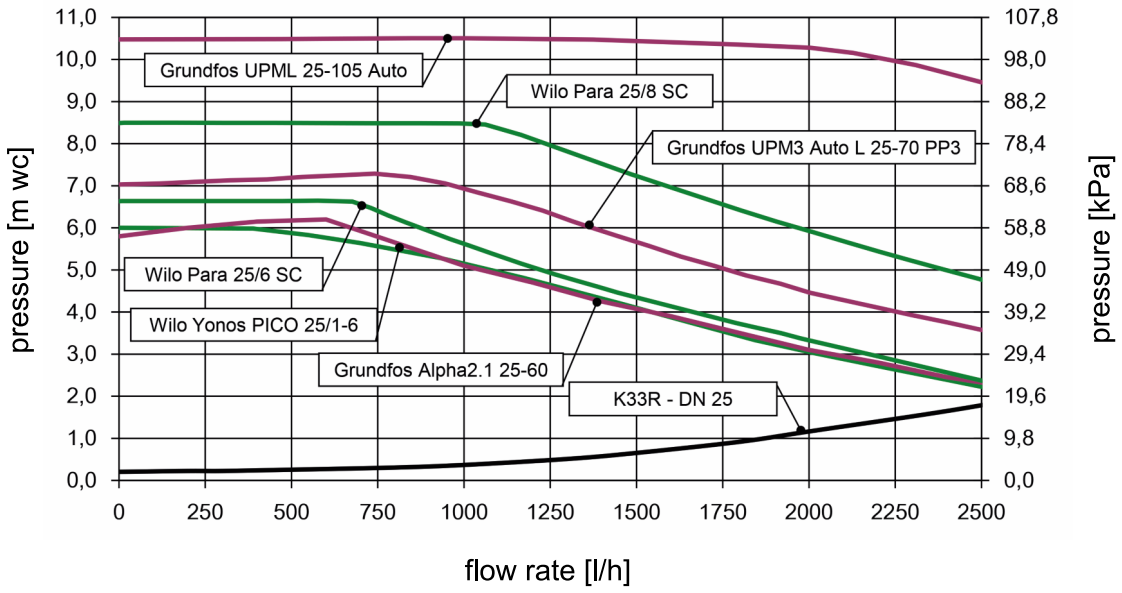
Position	Spare part	Item number
1	Contact thermostat	N00083
2	Thermo ball valve DN 32, F1¼“ x 1¼“ int. thread, snap-in assembly	N00245
3	Temperature sensor Pt1000-B, screw-in sensor 9 mm, G¼"	N00230
4	Thermometer handle for thermo ball valve 1" x ¼"	N00248
5	Dial thermometer, red scale, d = 50 mm, 0-120 °C	N00242
6	Dial thermometer, blue scale, d = 50 mm, 0-120 °C	N00243
7	Union nut G 2"	N00270
8	Gasket 1¼", for threaded connection 2"	N00133
9	Pump see following table	
10	Constant temperature controller PKR6, 6 Nm, 230 V, 3-level control	703601
11	3-way bypass mixing valve DN 32, F1¼“ x 2“ ext. thread	N00038
12	Brass pipe DN 32, 2 x 2" ext. thread, 180 mm, with check valve and seals	N00139
13	Insulation for HeatBloC® DN 32	N00027
no pos.	Sealing set for mixing valve	41013

Item no. heating circuit	Pump	Item no. pump	EEI
390463WP6	Wilo Para SC 30/6-43	N00261	< 0.20
390463WN06	Wilo Yonos PICO 30/1-6	N00313	< 0.20
390463WY10	Wilo Yonos MAXO plus 30/0.5-10	N00398	< 0.20
390463GM6	Grundfos UPM3 Auto L 32-70 PP3	N00240	< 0.20
390463GH6	Grundfos Alpha2.1 32-60	N00239	< 0.17
390463GL9	Grundfos UPML 32-105 Auto	E121704	< 0.23
390463	without pump	/	/

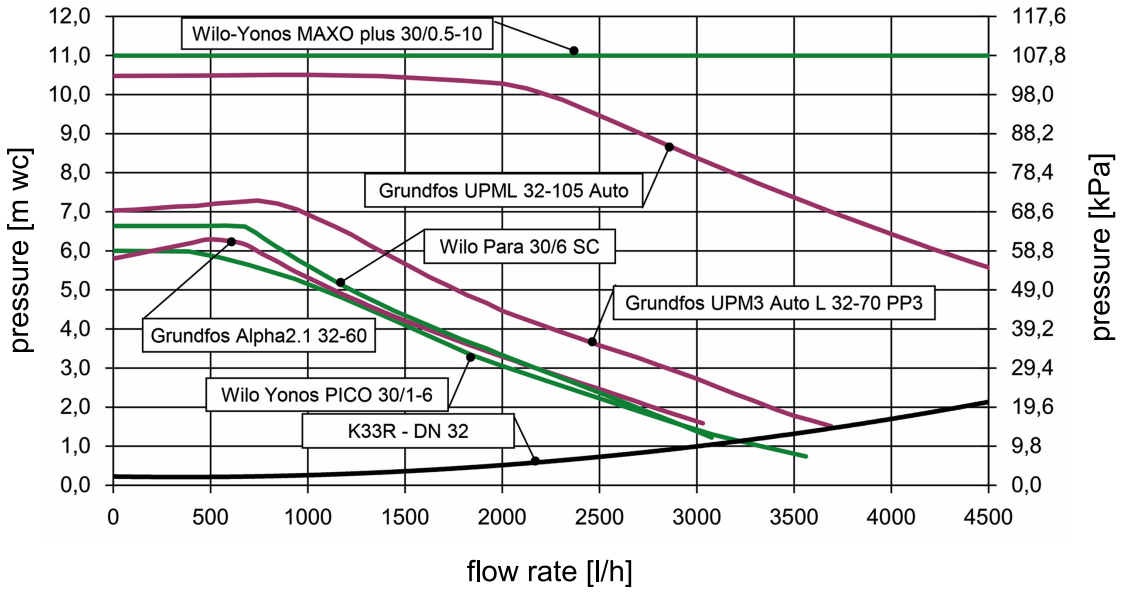
6 Technical data

HeatBloC® K33R	DN 25 (1")	DN 32 (1¼")
		
Dimensions		
Centre distance (1)	125 mm	125 mm
Width insulation (2)	250 mm	250 mm
Height insulation (3)	383 mm	441 mm
Installation length (4)	340 mm	400 mm
Connections		
Outlet (A-1, F-1)	1" internal thread	1¼" internal thread
Inlet (C-1, C-2)	1½" external thread	2" external thread
Operating data		
Max. pressure	6 bars	6 bars
Max. temperature	95 °C	95 °C
K_{VS}value [m^3/h]	6.0	10.1
Opening pressure check valve (D-1)	200 mm wc, can be opened	
Opening pressure non-return valve (C-3)	50 mm wc, can be opened	
Constant temperature controller PKR6	6 Nm, 230 V, 3-level control	
Materials		
Valves and fittings	Brass	
Gaskets	EPDM	
Insulation	EPP	

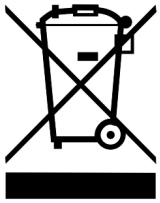
6.1 Pressure drop and pump characteristic curves DN 25



6.2 Pressure drop and pump characteristic curves DN 32



7 Disposal

NOTICE	
	Electrical and electronic devices must not be disposed of in the household waste. For your return, there are free collection points for electrical appliances and, if necessary, additional points of acceptance for the reuse of the devices in your area. The addresses can be obtained from your city or communal administration. If the old electrical or electronic device contains personal data, you are responsible for deleting it before returning the device. Batteries and rechargeable batteries must be removed prior to the disposal of the product. Depending on the product equipment (partly with optional accessories), single components can also contain batteries and rechargeable batteries. Please observe the disposal symbols on the components.

NOTICE	
	Disposal of transport and packaging materials The packaging materials are made of recyclable materials and can be disposed of with recyclable materials.

8 Notes

Item no. 993x0463x-mub-en
Translation of the original instructions
We reserve the right to make technical changes without notice!
Printed in Germany – Copyright by PAW GmbH & Co. KG

PAW GmbH & Co. KG
Böcklerstraße 11
31789 Hameln, Germany
www.paw.eu
Phone: +49-5151-9856-0
Fax: +49-5151-9856-98