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English

Installation and Operation Instructions
CoolBloC C34
DN 25 / DN 32

DN 25

DN 32

Table of Contents

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, function and the operation of the mixed CoolBloC C34 DN 25 and DN 32.

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.

WARNING

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.

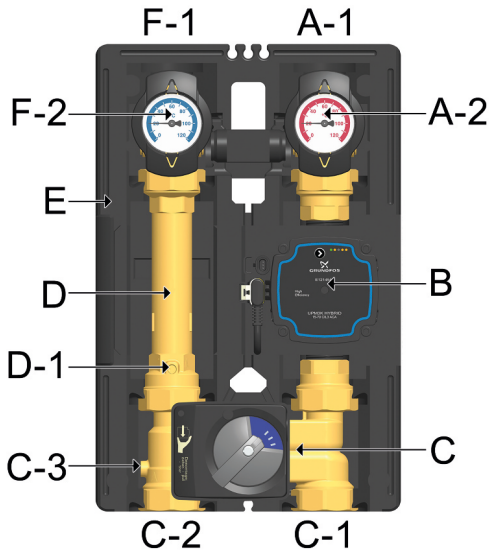
► Use a silicone- or polyalkylene-based lubricant free of mineral oil such as Unisilikon L250L and Syntheso Glep 1 from Klüber or a silicone spray.

3 Product description

The CoolBloC C34 is a pre-assembled group of fittings for heating and cooling circuits. The integrated 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 CoolBloC can be mounted with a thermally decoupled wall bracket or alternatively on a modular PAW distribution manifold. With transition connections, PAW CoolBloCs can also be mounted on PAW modular distribution manifolds of other dimensions.

3.1 Equipment



A-1 Flow to the consumer circuit

A-2 Plastic thermometer with immersion sleeve, integrated in the ball valve (flow)

B Circulation pump, approved for cooling operation

C 3-way mixing valve with adjustable bypass 0-50 %

C-1 Flow from the heat / cold generator

C-2 Return to the heat / cold generator

D Return pipe

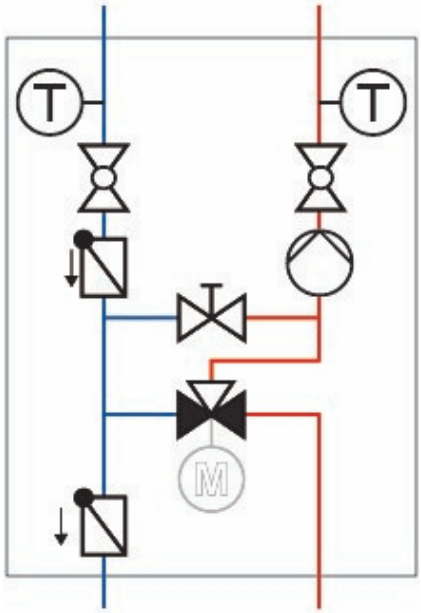
D-1 Check valve, can be opened

E Design insulation with optimised function

F-1 Return from the consumer circuit

F-2 Plastic 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.

Heated or cooled water from the boiler and cooled or heated return water are mixed to obtain the desired flow temperature of the heating circuit. The mixing valve is adjusted via an external controller in combination with an electric actuator.

Due to the premixing rate that must be adjusted at the bypass of the mixing valve, a certain amount of 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.

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.

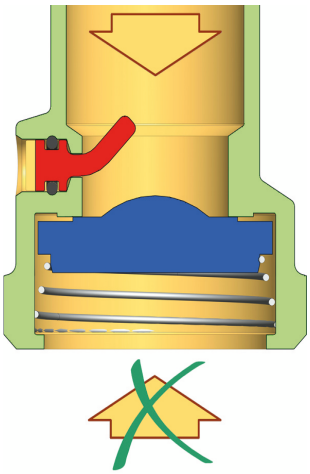
Application range

- Consumer circuits with a significantly different flow temperature than the one provided by the boiler
- Consumer circuits with high flow rates, e.g. radiant floor heating and radiant panel heating systems

3.2.1 Check valve and non-return valve

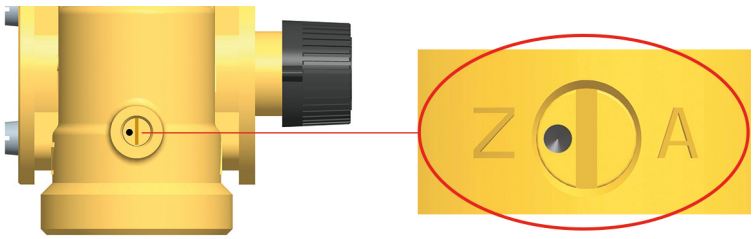
The product is equipped with a check valve and with a non-return valve. The valves can be opened.

operation

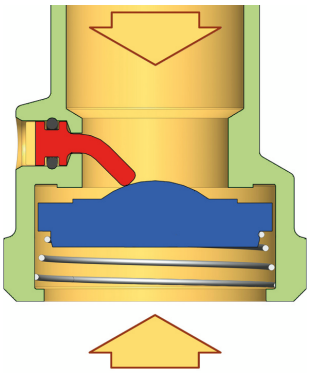


During operation, the markings must point to "Z".

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

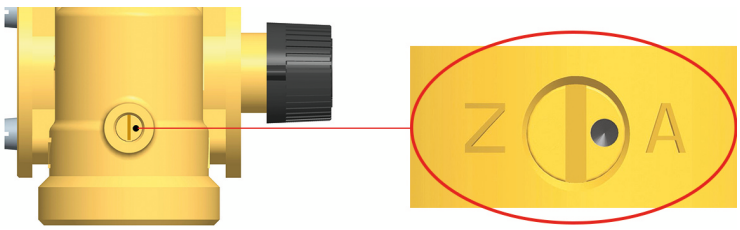


filling, draining, venting



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 installation.

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 actuator 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).

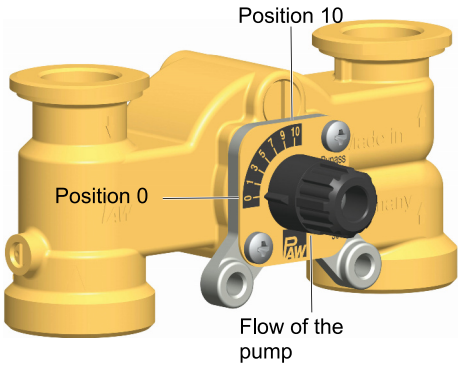
The mixing valve is now closed and drop tight.

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 can be added to the flow. This can result in an increase of the flow rate of the heating circuit. An open bypass leads to a decrease of the flow temperature!

Mixing valve with flow on the right:



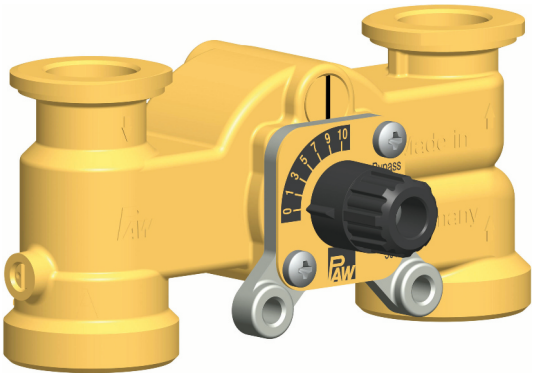
Position 10: passage, no mixing

flow temperature consumer = flow temperature heat generator (only if bypass is closed!)

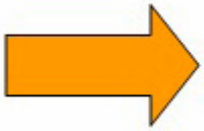
Position 0: 100% mixing

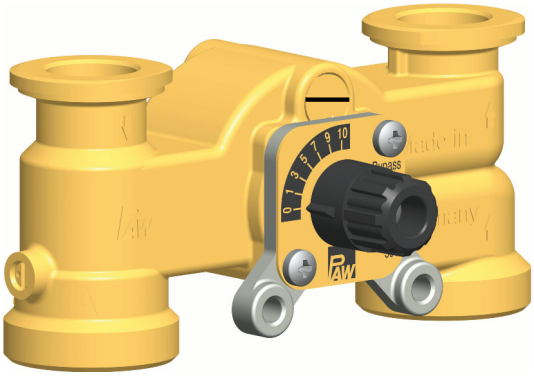
flow temperature consumer = return temperature consumer

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 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.

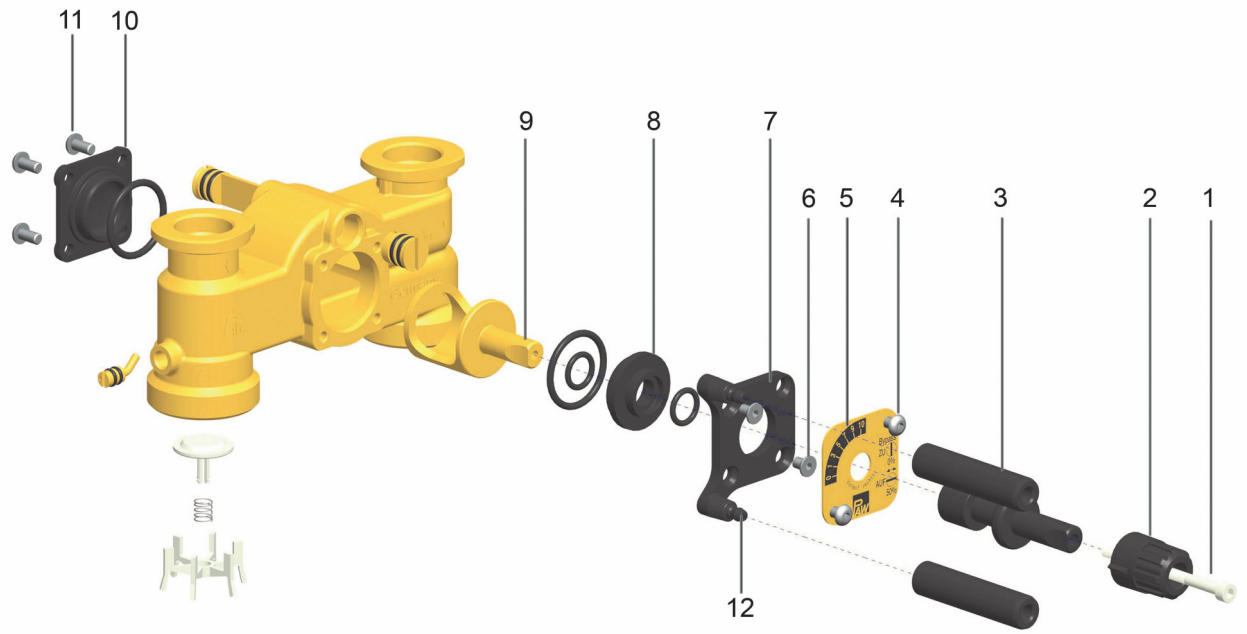
2. Check the position of the bypass during operation. Make sure that the flow rate is sufficient and that the desired temperature is reached.

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).

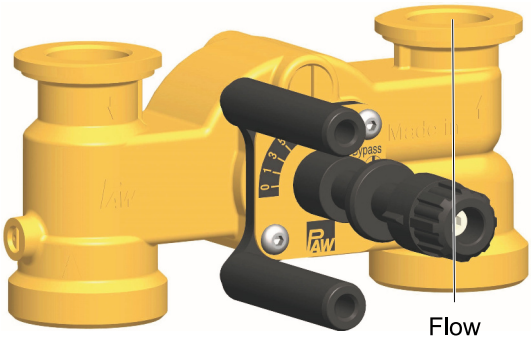
Retrofitting of the mixing valve



1. Loosen the screw (1).
2. Take off the rotary knob (2) and the extension (3) from the cock rod.
3. Loosen the screws (4).
4. Remove the cover plate (5).
5. Loosen the two screws (6).
6. Remove the front plate (7).
7. Extract the sealing bush (8) with the cock plug (9) from the housing of the mixing valve.
8. Loosen the screws (11) on the rear side of the mixing valve.
9. Take off the cover (10) on the rear side of the mixing valve and fix it on the other side of the mixing valve by using the screws (11).

10. Insert the sealing bush (8) with the cock plug (9) into the channel of the mixing valve. Make sure that the o-ring is positioned correctly on the cover.
11. Screw down the front plate (7) using the screws (6). The stud bolts (12) for the anti-rotation device must be positioned on the left (9 o'clock position) in order to mount the perforated foam insulation.

The countersunk head screws must be inserted at the top left and at the bottom right (see the marking).



Mixing valve with flow on the right

Mixing valve with flow on the left

12. Turn the cover plate (5) 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 (5) by using the screws (4).
14. Put the extension (3) and the rotary knob (2) onto the cock rod such that the nose of the rotary knob points in the direction of the flattening.
15. Fix the extension and the rotary knob with the valve cock (9) with max. 1 Nm 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. Mount the heating circuit and connect it to the installation.
3. Check all union nuts before commissioning and firmly tighten them if necessary.
4. Mount the insulation only after having carried out a pressure test. Mount the thermometer handles (A-2, F-2) in a final step.
5. In a final step, mount the actuator (see chapter "Actuator").

4 Mounting and installation [specialist]]

The product can be mounted on a thermally decoupled wall bracket or on stair bolts. The wall bracket and the stair bolts with wall plugs are optional accessories and are thus not included in the scope of delivery.

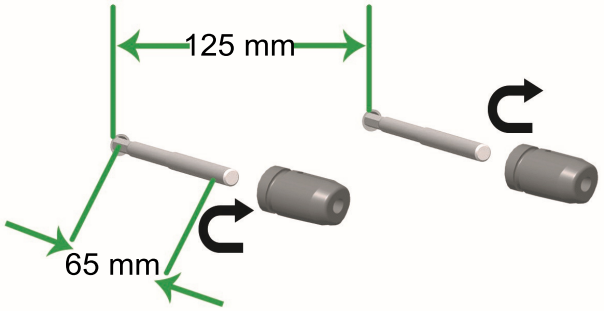
WARNING
Damage to property! The installation site must be dry, stable, frost-proof and protected against ultraviolet radiation in order to prevent material damage of the installation.

4.1 Installation and commissioning of the CoolBloC

The CoolBloC can be installed

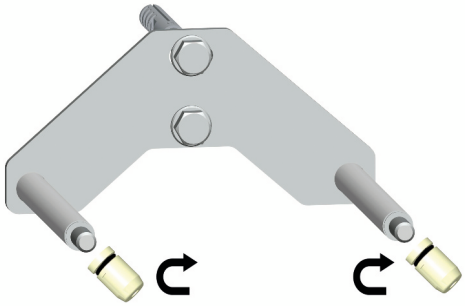
Option 1:

with stair bolts M8 and wall plugs (not included in the scope of delivery).

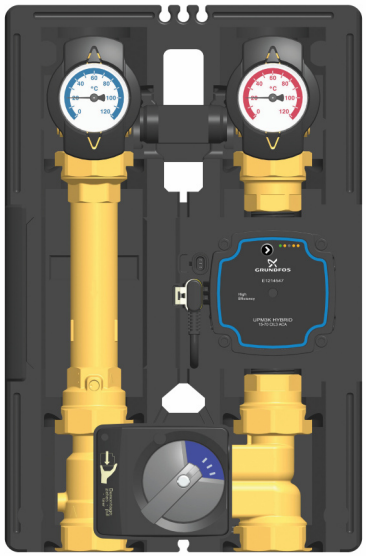


Option 2:

directly on a wall bracket (not included in the scope of delivery).

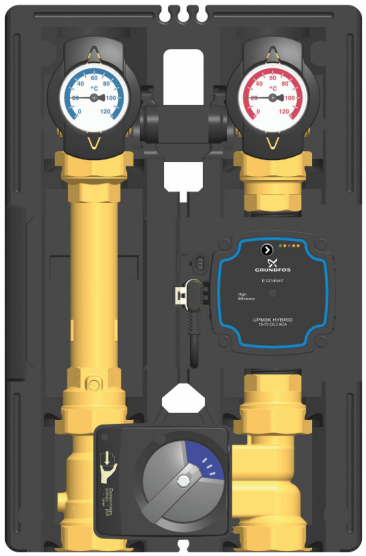


Consumer circuit
Return Flow



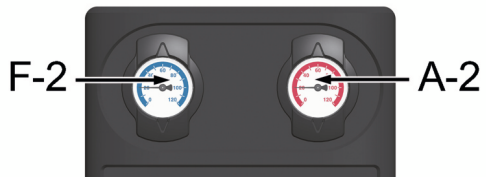
Return Flow
Heat / cold generator

Consumer circuit
Return Flow



Return Flow
Heat / cold generator

Fig. 1



1. Remove the thermometer handles (A-2, F-2) (see figure 1).
2. Remove the insulating front shell of the CoolBloC in the following order:
   - Remove the upper insulating element of the thermometers.
   - Remove the insulating element from the return pipe.
   - Remove the lower insulating element.
3. Put the clips in the groove of the ball valves (see figure 2).

Fig. 2

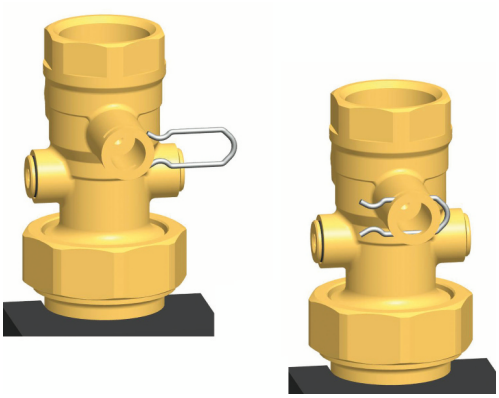
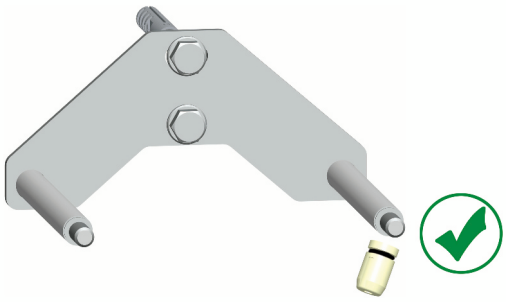


Fig. 3

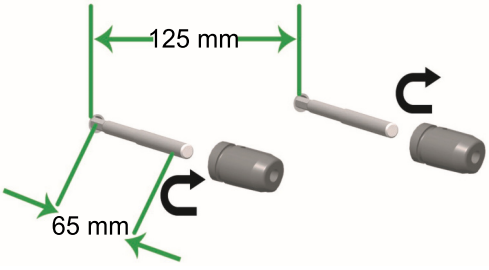
For assembly on a wall bracket:



4. Mount the wall bracket to the wall.
5. To fix the plastic stop bolts, the notch must point in the direction of the wall bracket (see figure 3). Screw the stop bolt on the thread of the wall bracket.
6. Continue with point 9.

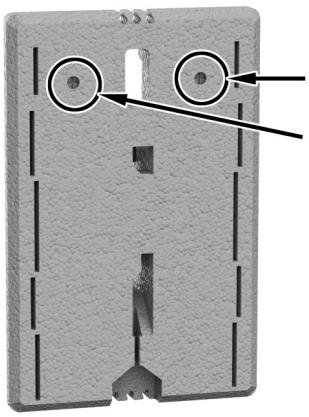
Fig. 4

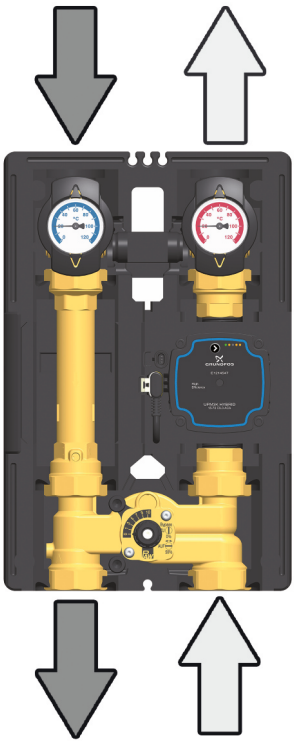
For assembly with stair bolts:



7. Mount two stair bolts M8 with a distance of 125 mm (see figure 4). The stair bolts must stick out of the wall by at least 65 mm.
8. Screw the plastic stop bolt with the groove pointing in the direction of the wall on the stair bolts.

Fig. 5





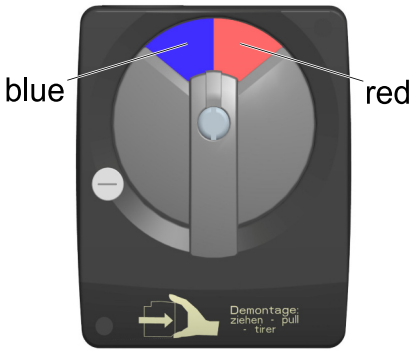
9. Punch out the holes at the marked areas in the insulation (see figure 5).
10. Push the insulation on the wall bracket or on the stair bolts.
11. Now push the fittings on the wall bracket or on the stair bolts until the clips snap in.
12. Connect the CoolBloC to the installation by using the pipes. The installation to the piping must be carried out without any tension.
13. Connect the pump.
14. Carry out a pressure test and check all thread connections.
15. Pull the insulating back shell forward to the fittings such that they snap in.
16. Connect the cable with the pump and insert the cable in the cable channel.
17. Mount the insulation in the following order:
    - Insulating element above the return pipe
    - Upper insulating element for the thermometers
    - Lower insulating element
18. Push the insulating foam in the opening of the mixing valve segment until it forms a flat surface.
19. Mount the anti-rotation devices with the retaining plate (fig. 6).
20. Mount the thermometer handles.

4.2 Assembly of the actuator

The PAW actuator for weather-compensated control is included in the scope of delivery.

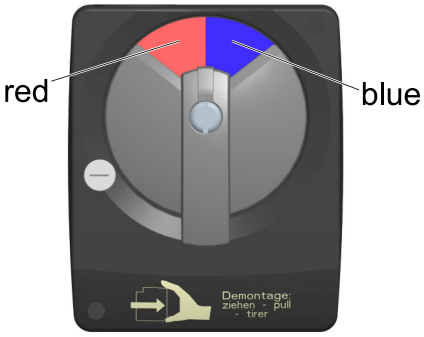
For mixing valves with flow on the left, the scale must be turned by 180°.

Fig. 1



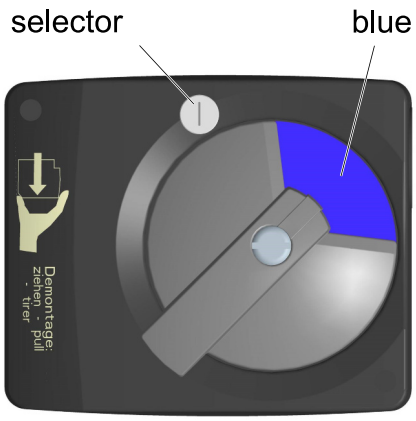
for mixing valve with flow on the right

Fig. 2



for mixing valve with flow on the left

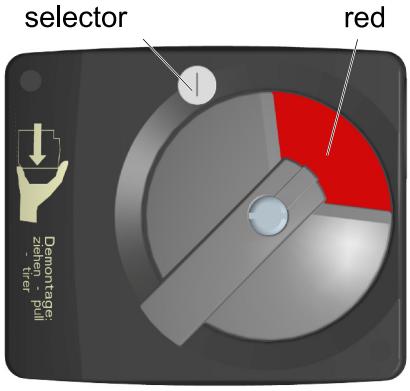
Fig. 3



Assembly of the actuator for CoolBloC with flow on the right:

1. Turn the rotary knob of the mixing valve into **Position 0**. The nose at the rotary knob of the mixing valve is thus in 9 o'clock position.
2. Set the actuator to manual mode by turning the selector switch (fig. 3).
3. Turn the rotary knob of the actuator to the left to the position shown on the adjacent figure.
4. Put the actuator onto the rotary knob as shown in figure 3 and push it on the anti-rotation devices until the actuator snaps in.
5. Set the selector switch at the actuator back to the position "automatic mode".

Fig. 4



Assembly of the actuator for CoolBloC with flow on the left:

1. Turn the rotary knob of the mixing valve into position 10. The nose at the rotary knob of the mixing valve is thus in 7:30 o'clock position.
2. Set the actuator to manual mode by turning the selector switch.
3. Turn the rotary knob of the actuator to the left to the position shown on the adjacent figure (fig. 4).
4. Put the actuator onto the rotary knob as shown in figure 4 and push it on the anti-rotation devices until the actuator snaps in.
5. Set the selector switch at the actuator back to the position "automatic mode".

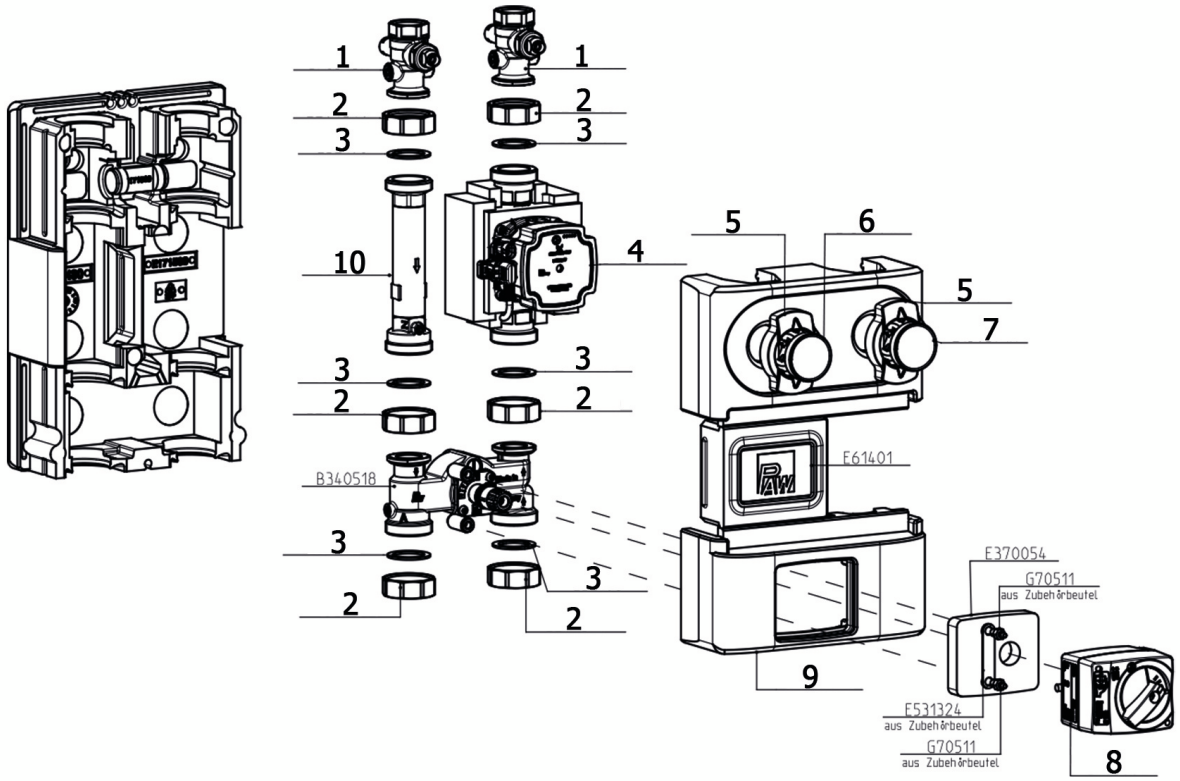
5 Scope of delivery [specialist]

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

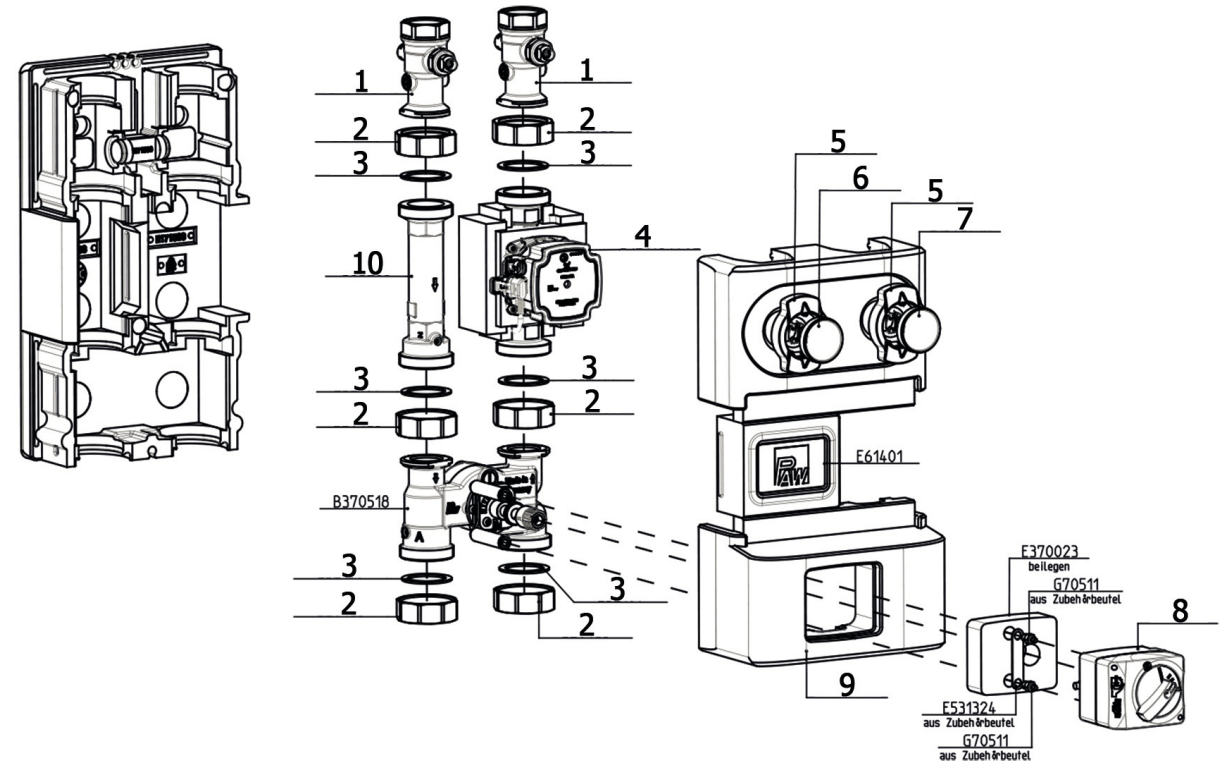


Position	Spare part	Item number
1	Thermometer ball valve DN 25, flange 1" x 1" int. thread	N00244
2	Union nut G 1½", passage 42 mm, wrench size 52	N00269
3	Sealing kit, 10 pieces, 1", for thread connection 1½"	N00131
4	Pump see following table	
5	Thermometer handle for ball valve 1" and 1¼"	N00248
6	Dial thermometer plastic blue, d=50 mm, 0-120 °C	N00181

Position	Spare part	Item number
7	Dial thermometer plastic red, d=50 mm, 0-120 °C	N00180
8	Actuator 5 Nm, 230 V, 50 Hz	705001
9	Insulation DN 25	N00016
10	Brass pipe DN 25, 2 x 1½" ext. thread, 180 mm, with check valve	N00018
no pos.	Sealing set, 10 pieces, ½", for thread connection 1", for Grundfos UPM3K	N00129
no pos.	Screw-in fitting 1½" ext. thread x 1" int. thread, for Grundfos UPM3K	N00149
no pos.	Sealing set for mixing valve	37013

Item no. Heating circuit	Pump	Item no. Pump	EEI
4236063MGK7	Grundfos UPM3K Hybrid 15-70 CIL	N00046	< 0.20
4236063MWP8	Wilo PARA SC 25/8-60/O	N00271	< 0.20

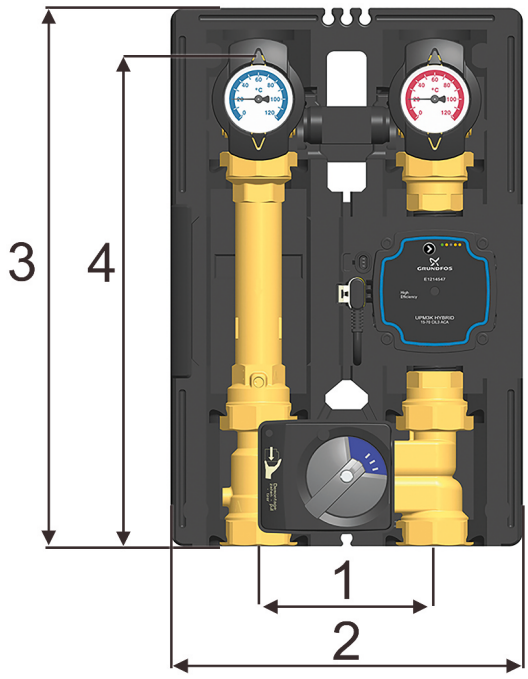
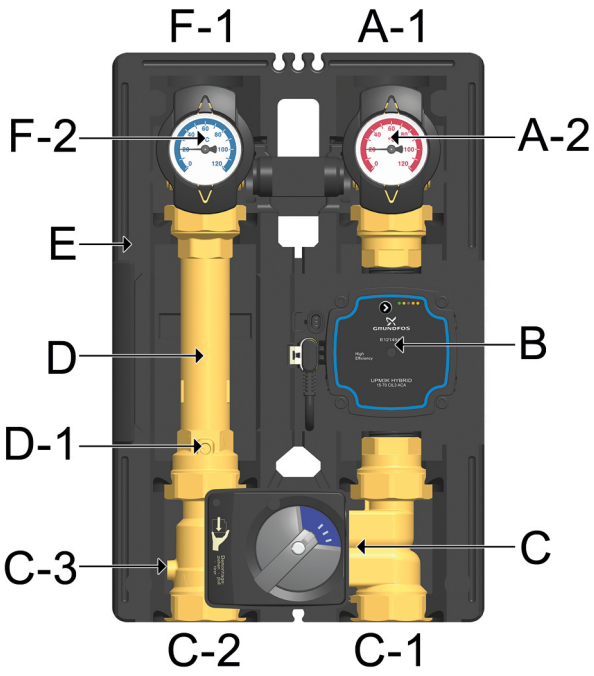
5.2 Spare parts DN 32



Position	Spare part	Item number
1	Thermometer ball valve DN 32, flange 1¼" x 1¼" int. thread	N00245
2	Union nut G 2"	2156
3	Gasket 1¼", for threaded connection 2"	N00133
4	Pump see following table	
5	Thermometer handle for ball valve 1" and 1¼"	N00248
6	Dial thermometer plastic blue, d=50 mm, 0-120 °C	N00181
7	Dial thermometer plastic red, d=50 mm, 0-120 °C	N00180
8	Actuator 5 Nm, 230 V, 50 Hz	705001
9	Insulation DN 32	N00027
10	Brass pipe DN 32, 2x 2" ext. thread, 180 mm, with check valve	N00139
no pos.	Sealing set, 10 pieces, ½", for thread connection 1", for Grundfos UPM3K	N00129
no pos.	Sealing set for mixing valve	41013

Item no. Heating circuit	Pump	Item no. Pump	EEI
4239063MGK7	Grundfos UPM3K Hybrid 15-70 CIL	N00046	< 0.20
4239063MGL9	Grundfos UPML 32-95 Auto	N00344	< 0.23
4239063MWM08	Wilo Para MAXO 30/1-8	E12343508	< 0.20

6 Technical data

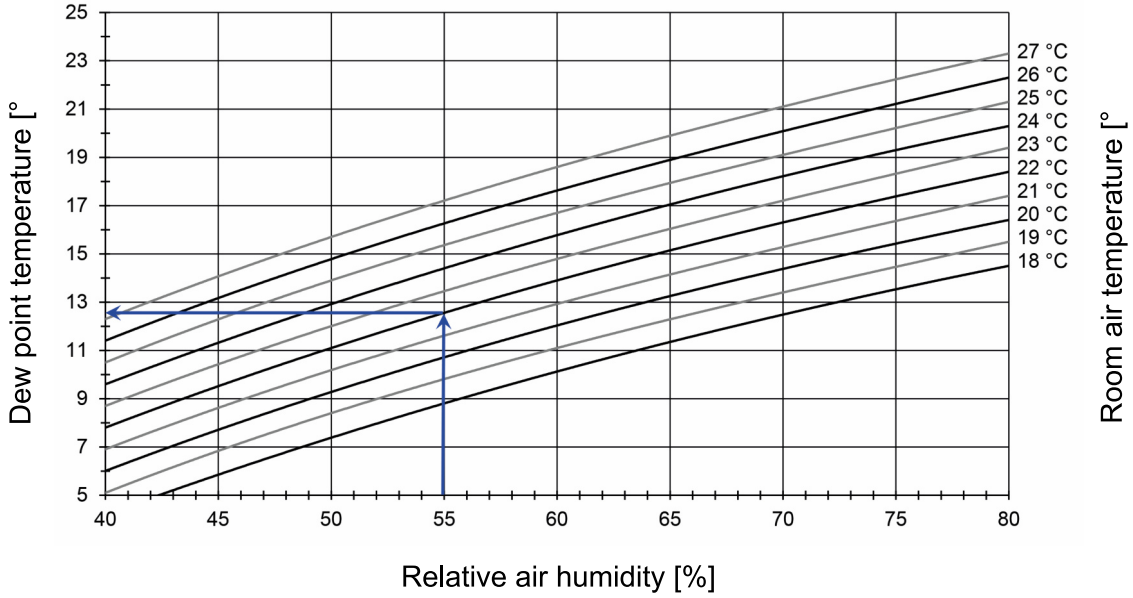
CoolBloC C34	DN 25 (1")	DN 32 (1¼")
		
Dimensions		
Centre distance (1)	125 mm	125 mm
Width insulation (2)	250 mm	250 mm
Height insulation (3)	383 mm	441 mm
Installation length (4)	342 mm	400 mm
Connections		
Outlet (A-1, F-1)	1" int. thread	1¼" int. thread
Inlet (C-1, C-2)	1½" ext. thread	2" ext. thread
Operating data		
Max. pressure	6 bars	
Minimum temperature*	+ 5 °C	
Max. temperature	95 °C	
K_{VS}value [m^3/h]	6.0	10.1

CoolBloC C34	DN 25 (1")	DN 32 (1¼")
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	
*In general, the cooling water temperature must not fall below 15 - 16 °C in order to minimise the formation of condensation water (shortfall of the dew point temperature) at the system components. The diagram "Determination of the dew point" allows a rough estimation to know if the dew point temperature is undercut.		
Materials		
Valves and fittings	Brass	
Gaskets	EPDM	
Insulation	EPP	

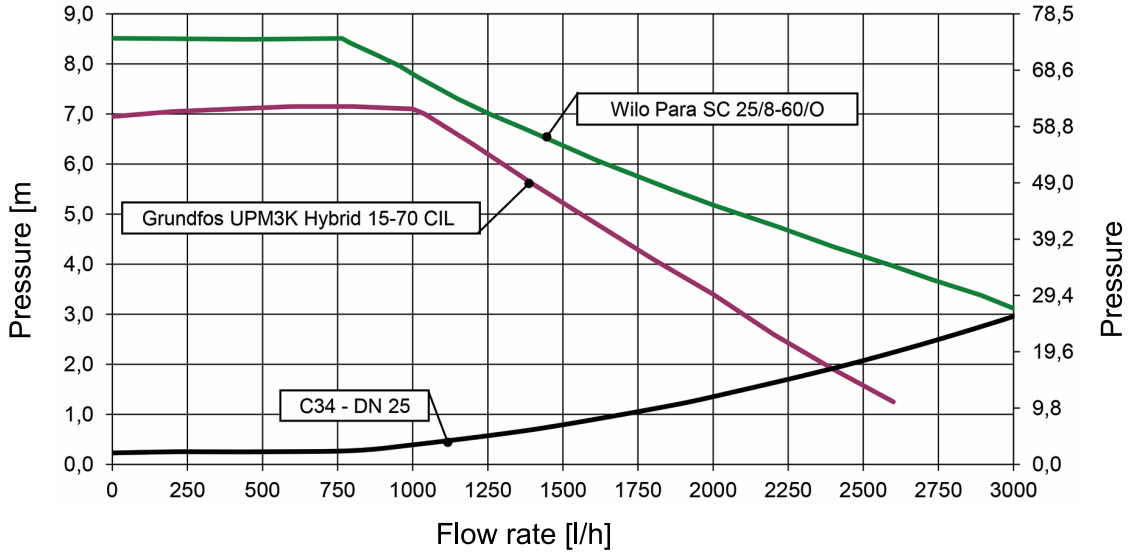
6.1 Determination of the dew point

Example: Room air temperature 22 °C, relative air humidity 55%, dew point temperature 12.5 °C

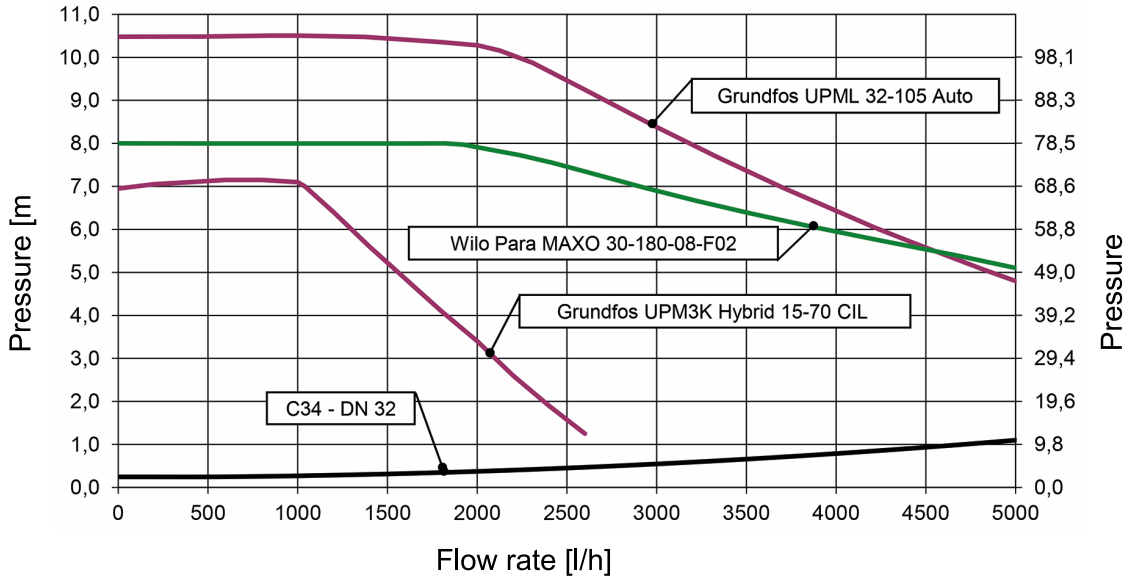
This means: If the medium temperature falls below 12.5 °C, condensate / perspiration water is generated at the pipes and valves and fittings, which flows for example into the insulation or the floor!



6.2 Pressure drop and pump characteristic curves DN 25



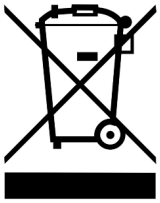
6.3 Pressure drop and pump characteristic curves DN 32



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.

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. 99423x063MGK7-mub-en
Translation of the original instructions

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