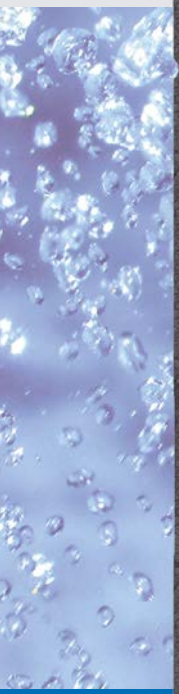
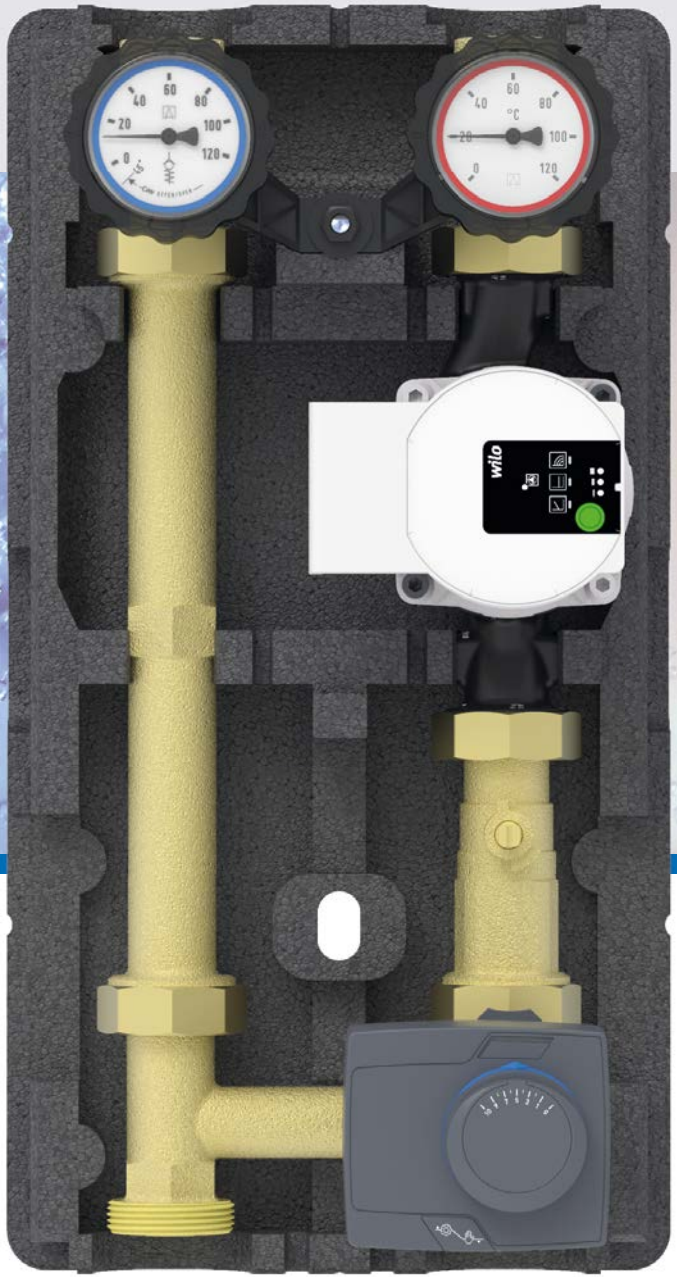
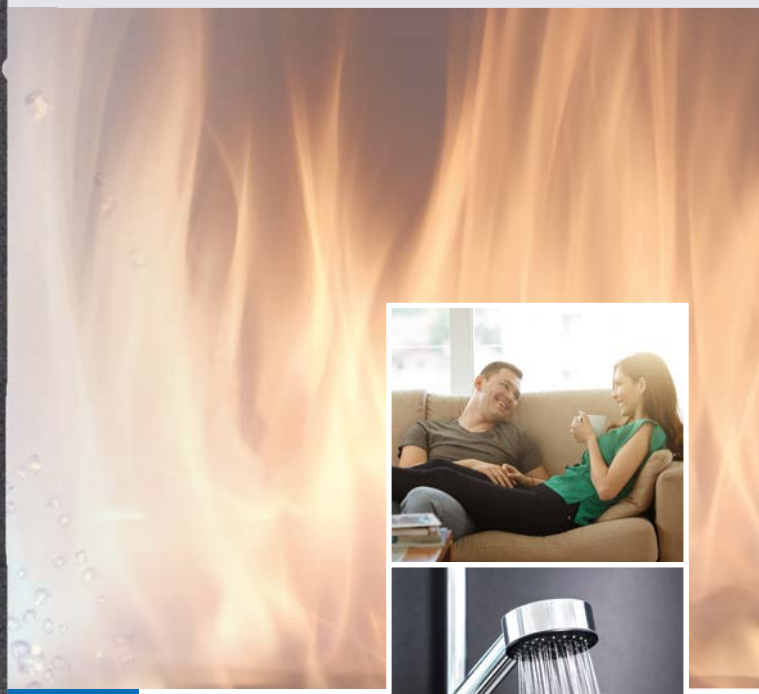
System Assemblies for Domestic Technology







AFRISO

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The brochure has been presented by:

EQUIPMENT FOR HEATING AND DRINKING WATER

System assemblies for heating and drinking water systems

HEATING

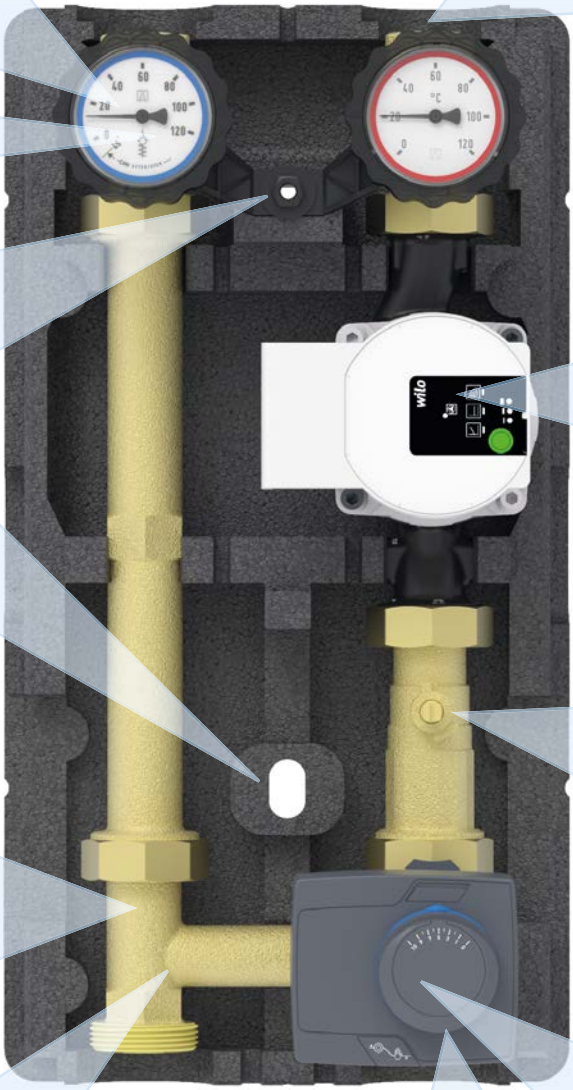
DRINKING WATER

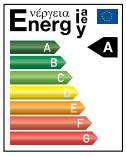
Heating pump assembly PrimoTherm® 180 DN 25 KVS Vario

Combination valves with thermometer in the hand wheel, range 0/120 °C. Red/blue mark facilitates the assignment of "supply/return" and function test through the owner/operator of the system. Additional temperature probes (for example, PT 100) can be integrated behind the ball valve.

System connection G1 female for rapid mounting in the heating circuit.

Integrated adjustable gravity brake.

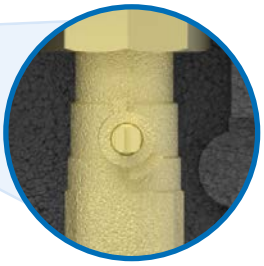




Sophisticated wall mounting kit for easy, fast installation.

Virtually any standard pump can be installed without refitting of the insulation.

Modular system with pump and return line left or right.



Ball valve below the pump for easy shutting off and increased safety.

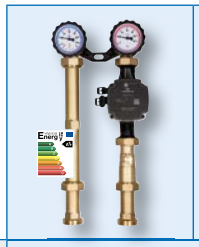
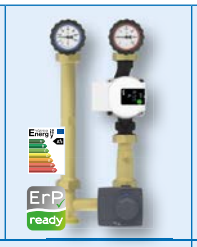
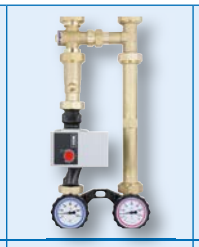
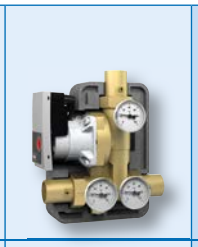
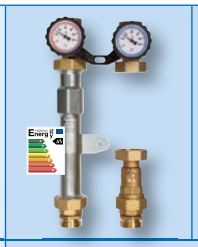
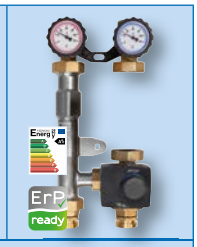
System connection G1½ male for fast mounting to the boiler supply/return by means of flange and union nut. Suitable for KSV.

Cable routing in the insulation for professional installation of pump and actuator cables.

Snap on – done. New actuator with ProClick adapter system for lightning-fast mounting to the mixer without tools.

High-grade, robust mixer with adjustable flow coefficient Kvs (2.5 to 12) for maximum flexibility all the way to the construction site.

Overview of versions
Heating pump assemblies PrimoTherm® 180

						
Nominal size	**DN 25**				**DN 32**	
Version	**180-1**	**180-2 KVS Vario**	**180-3**	**RTA 60**	**180-1**	**180-2 KVS Vario**
Without circulation pump	•	•	•		•	•
3-way mixer		Flow coefficient Kvs adjustable	Fixed value			Flow coefficient Kvs adjustable
WITH GRUNDFOS UPM3 HYBRID 25–70/180	•	•				
With Wilo Yonos Para 25/6 RKC			•	•		
WILO Para 25-180/6	•	•				
With Wilo stratos Para 30 1-7 r. K.					•	•
Return temperature increase (RTA)		•	•	•		

Description

The heating pump assembly PrimoTherm® excels with its versatility and great number of possible combinations. The system assembly for the heating circuit is pre-assembled, tightness-tested, heat-insulated and available in three versions and two sizes, each with or without high energy efficiency pump. All circulation pumps offered by AFRISO meet the requirements of the European Ecodesign Directive (stage 2 as of 2015). The universal insulation allows for the installation of virtually any standard pump without reworking of the insulation. In addition, the system is modular so that the flow line can be mounted at the left or the right side; due to the slim design, it is also possible to mount several pump assemblies next to each other on AFRISO boiler manifolds. In addition, each pump assembly comprises a fastening kit for wall mounting in any position. All PrimoTherm® heating pump assemblies feature a gravity brake to avoid incorrect circulation. The DN -25 versions have the brake in the combination valve; it can be deactivated for servicing. It is also possible to mount temperature probes in the combination valve.

The versions **PrimoTherm® 180-1 DN 25 and 32** are used in non-mixed heating circuits, specially for storage tank charging.

The versions **PrimoTherm® 180-2 DN 25 and 32** are used in mixed heating circuits. With the 3-way mixer and the actuator, the flow temperature can be adjusted to a desired temperature by adding water from the return. PrimoTherm® 180-2 can also be used to increase the return temperature with solid fuel boilers which have a controller for increasing the return temperature. The opening temperature must be set at this controller.

i

We provide a great variety of customer-specific pump assemblies for OEMs. Please enquire.

The version **PrimoTherm® 180-3 DN 25** automatically controls the return temperature of the system water to the heat generator to the value adjusted in the valve. The integrated condensation protection valve is the connection between the solid fuel heating system and the heating circuit or the hot water storage tank.

i

See the operating instructions of the pump assemblies for additional details, www.afriso.com/betriebsanleitungen

Product highlight: 3-way mixing valve ARV 325 KVS Vario with AFRISO ProClick adapter system

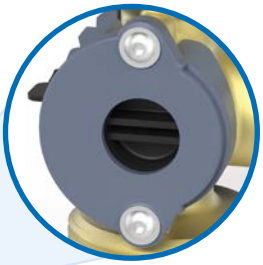
NEW

The flow coefficient is key in rating hot water heating systems and providing the right amount of heat at the radiators. Mixing valves in installations must be correctly rated before they are mounted and adjusted to the required flow coefficient Kvs of the system. If a selection error is made or the system is modified at a later point in time (for example, extended), the existing valve is usually no longer usable. If the flow coefficient Kvs is only estimated, the system will not operate in an efficient way.

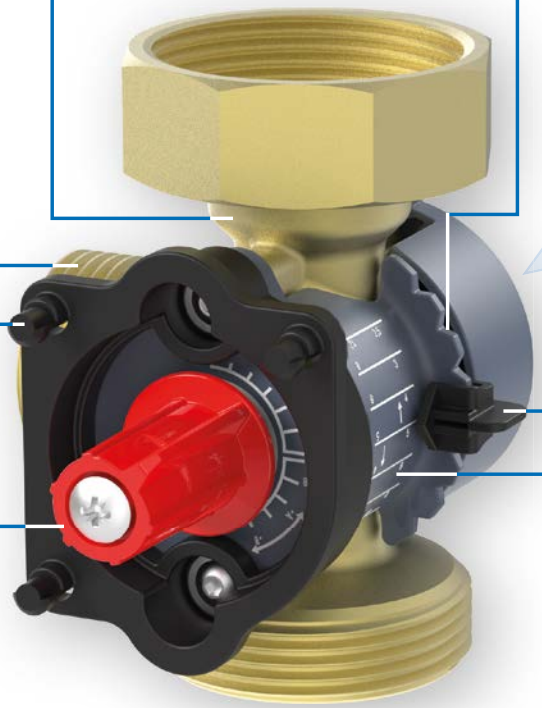
Mixer housing made of brass, with robust, glass-fibre reinforced orifice for adjustment of flow coefficient Kvs.

Locking: Integrated locking unit against unintended readjustments.

Easy adjustment of flow coefficient Kvs with standard slotted screwdriver at the rear of the mixer.



Fast and easy conversion bypass to connection at the right.



Adapter to attach the AFRISO ARM ProClick actuator at the correct position without tools.

Readjustment of flow coefficient Kvs by turning the adjustment handle (no draining of system, unit mounted).

Handy, non-slip rotary knob made of high-strength plastic – the scale can be adjusted according to the direction of flow (flow right or left).

Easy-to-read scale with adjustment values 2.5 – 4 – 5 – 6 – 8 – 12.

Advantages – your benefits

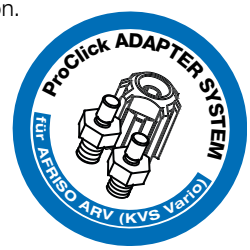
- **A mixer for all cases: Simply set the required flow coefficient Kvs without draining the system**
- **No incorrect rating thanks to optimum adaptation to the control requirements of the system. This allows for:**
  - **Volume jump V_{min} / smaller minimum controllable power Q_{min}**
  - **Higher valve authority PV (pressure ratio between mixer and pipe system with all consumers connected)**
  - **Complete use of mixer control range (0–100 %)**
  - **Improved controllability: No cycles, no flow noise**
  - **Positive effects on hydraulic balancing: Power required to heat the heating surfaces is available and can be used**
- **Long-lasting service life: Low torque for increased service life of actuator**
- **Reduces number of versions and warehousing efforts for mixers and pump assemblies**

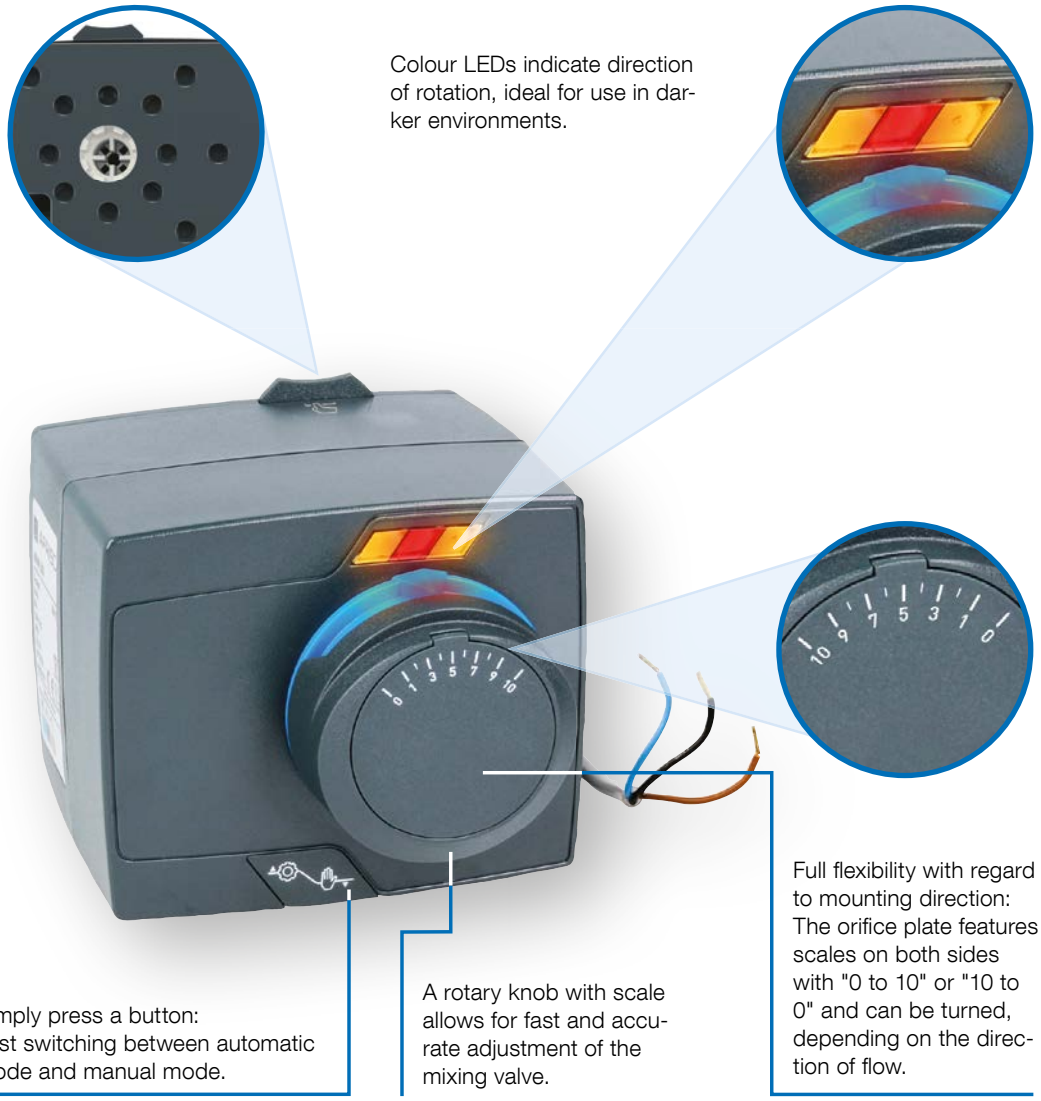
Product highlights: Actuator ARM ProClick

NEW

The new silent actuator ARM ProClick is the optimal solution for the automatic control of the return admixture. Thanks to the AFRISO ProClick adapter system, it can be easily mounted to the mixing valve in a matter of seconds: Snap on – done. This simplicity is also available for switching between automatic and manual mode – it is sufficient to press a button. The new actuator excels with smart features such as integrated protection against blocking of the mixing valve or maintenance-free operation for a long service life.

Mounting in a matter of seconds without tools: Simply snap the actuator onto the mixer.Snap on, done. Dismounting at the push of a button.





Colour LEDs indicate direction of rotation, ideal for use in darker environments.

Simply press a button: Fast switching between automatic mode and manual mode.

A rotary knob with scale allows for fast and accurate adjustment of the mixing valve.

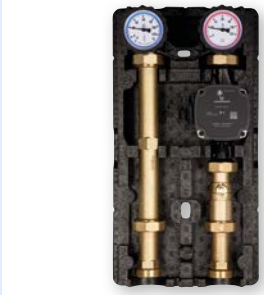
Full flexibility with regard to mounting direction: The orifice plate features scales on both sides with "0 to 10" or "10 to 0" and can be turned, depending on the direction of flow.

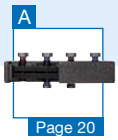
Advantages – your benefits

- **Compact, silent actuator with an angle of rotation of 90°**
- **With ProClick adapter system suitable for AFRISO mixing valves DN 25 and DN 32**
- **High reliability: An integrated protection unit keeps the actuator and mixing valve from blocking for a long service life**

Heating pump assembly PrimoTherm® 180-1 DN 25

- **Pre-assembled, tightness-tested and heat-insulated assembly**
- **Modular system with flow at left or right**
- **Easy and fast installation**
- **With high-efficiency pump class A**





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Application

Heating pump assembly for use in non-mixed heating circuits, specially for storage tank charging. It connects the heating boiler and the pipe system.

Description

Complete, pre-assembled and tightness-tested heating pump assembly with all required functional components, form-fit insulation and wall mounting unit.

The pump line (flow/hot) consists of:
- Combination valve with thermometer in the hand wheel (red mark, range 0/120 °C)
- Ball valve below the pump
- Pipe for length compensation with screw connection
- System connection G1½ male (boiler), G1 female (heating circuit)

Suitable for pumps DN 25 with G1½ x 180 mm.

The return line consists of:
- Combination valve with gravity brake, thermometer in the handle (blue mark, range 0/120 °C)
- Pipe for length compensation (pump/mixer) with screw connection
- System connection G1½ male (boiler), G1 female (heating circuit)

Technical data

Axis distance
125 mm

System connections
Boiler G1½ males, heating circuit G1 female

Operating temperature range
Medium: T_{max} = 110 °C

System pressure
Max. 10 bar

Flow coefficient Kvs
4.8 m³/h

Insulation
Polypropylene EPP

Dimensions
W x H x D: 250 x 475 x 152 mm

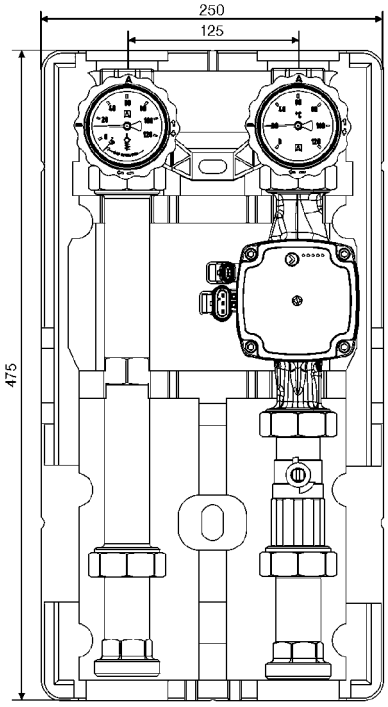
Options

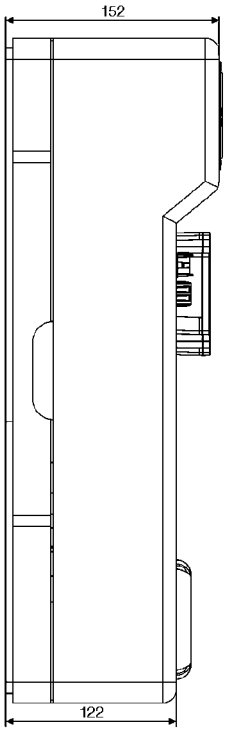
- Mixer and actuator, can be retrofitted
- Other circulation pumps

Heating pump assembly PrimoTherm® 180-1 DN 25

Dimensions (mm)

PrimoTherm® 180-1 with Grundfos pump





Technical specifications circulation pumps

Length
180 mm

Degree of protection
IP 44

Supply voltage
AC 230 V, 50 Hz

Energy efficiency class
A

	Grundfos	Wilo
Type	UPM3 HYBRID 25-70/180	Para RS 25-180/6
Max. pumping volume	3.6 m²	3.2 m²
Max. pump head	7 M	6.7 m
Power input	2–52 W	3–43 W
Operating modes / power levels (Technical specifications pump without guarantee)		
PWM-A	x/4	-/-
PWM-C	x/4	-/-
PP (constant volume flow)	x/3	x/3
CP (constant pressure)	x/3	x/3
CC (constant speed of rotation)	x/3	x/3

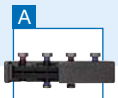
DG: G, PG: 2	Pump	Part no.
PrimoTherm® 180-1 DN 25	Without pump	**77643**
PrimoTherm® 180-1 DN 25 WP	Wilo Para RS 25–180/6	**77507**
PrimoTherm® 180-1 DN 25 GP	With Grundfos UPM3 HYBRID 25-70/180	**77645**

Accessories and spare parts	Specification	Part no.
Connection kit G1½ female x 1 female	2 x connection piece G1 female thread, 2 x union nut G1½ female thread, 2 x flat gasket	77612
Connection kit G1½ female x 1 female	2 x O ring Ø 28 x 2.5 mm, 2 x reducer G1½, male x 1 male	77613
3-way mixer KVS Vario with T piece	Axis distance 125 mm	77589

Heating pump assembly PrimoTherm® 180-2 DN 25 KVS Vario

NEW

- **Pre-assembled, tightness-tested and heat-insulated assembly**
- **Robust mixer with adjustable flow coefficient Kvs from 2.5 to 12 m3/h**
- **Adaptation of flow coefficient Kvs also possible during operation (under system pressure)**



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Application

Heating pump assembly for use in mixed heating circuits. With the 3-way mixer and the actuator, the flow temperature can be adjusted to a desired temperature by adding water from the return. The new mixer with adjustable flow coefficient Kvs offers the HVAC professional maximum flexibility in adapting the system to individual control requirements. The flow coefficient Kvs can be modified at any later point in time, even if the system is under pressure. This way, a great variety of mixer/pump assemblies can be covered with a single version. PrimoTherm® 180-2 is also available as version RTA. It can be used to increase the return temperature with solid fuel boilers which have a controller for increasing the return temperature.

Description

Complete, pre-assembled and tightness-tested heating pump assembly with all required functional components, form-fit insulation.

The supply line consists of:
- Combination valve with thermometer in the hand wheel (red mark, range 0/120 °C)
- Ball valve below the pump
- 3-way mixing valve ARV 325 KVS Vario with adjustable flow coefficient Kvs and ProClick adapter system
- Maintenance-free, silent actuator ARM 343 (6 Nm, 120 s, AC 230 V) with 0/90° angle of rotation, indication for direction of rotation, selector key "Manual/Automatic Mode" and ProClick adapter system
- System connection G1½ male (boiler), G1 female (heating circuit)

Suitable for pumps DN 25 with G1½ x 180 mm.

The return line consists of:
- Combination valve with gravity brake, thermometer in the handle (blue mark, range 0/120 °C)
- Pipe for length compensation with screw connection
- T piece for mixer connection
- System connection G1½ male (boiler), G1 female (heating circuit)

Difference version RTA
- Interchanged colour codes of thermometers
- 3-way mixer wit flow coefficient Kvs 12 m^3/h (not adjustable)
- System connection (storage) with additional connection flanges G1 female
- Additional mounting bracket for upside down or lateral mounting
- Scope of delivery does not include pump

Technical data

Axis distance
125 mm

System connections
Boiler G1½ male, heating circuit G1 female

Operating temperature range
Medium: T_{max} = 95 °C, short-term 120 °C

System pressure
Max. 10 bar

Flow coefficient Kvs
Adjustable: 2.5 – 4 – 5 – 6 – 8 – 12 m^3/h

Leak rate mixing valve ARV 325 KVS Vario
< 0.05 % flow coefficient Kvs

Insulation
Polypropylene EPP

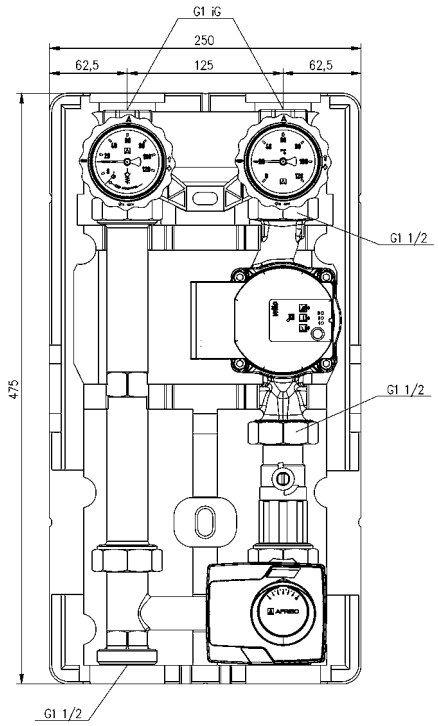
Dimensions
W x H x D 250 x 475 x 152 mm

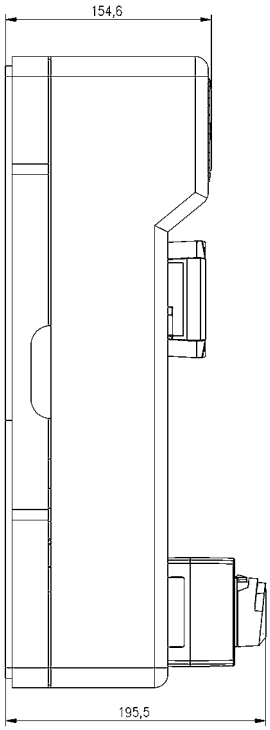
Heating pump assembly PrimoTherm® 180-2 DN 25 KVS Vario

NEW

Dimensions (mm)

PrimoTherm® 180-2 with Wilo pump





Technical specifications circulation pumps

Length
180 mm

Degree of protection
IP 44

Supply voltage
AC 230 V, 50 Hz

Energy efficiency class
A

	Grundfos	Wilo
Type	UPM3 HYBRID 25-70/180	Para RS 25-180/6
Max. pumping volume	3.6 m²	3.2 m²
Max. pump head	7 M	6.7 m
Power input	2–52 W	3–43 W
Operating modes / power levels (Technical specifications pump without guarantee)		
PWM-A	x/4	-/-
PWM-C	x/4	-/-
PP (constant volume flow)	x/3	x/3
CP (constant pressure)	x/3	x/3
CC (constant speed of rotation)	x/3	x/3

DG: G, PG: 2	Pump	Part no.
PrimoTherm® 180-2 DN 25 3WM-SM Vario	Without pump	**77300**
PrimoTherm® 180-2 DN 25 WP 3WM-SM Vario	With Wilo Para RS 25-180/6	**77302**
PrimoTherm® 180-2 DN 25 GP 3WM-SM Vario	With Grundfos UPM3 HYBRID 25–70/180	**77301**
Version RTA:		
PrimoTherm® 180-2 RTA DN 25 3WM-SM	Without pump	**77304**

Accessories	Specification	Part no.
Connection kit G1½ female x 1 female	2 x connection piece G1 female thread, 2 x union nut G1½ female thread, 2 x flat gasket	77612

Heating pump assembly PrimoTherm® 180-3 DN 25 RTA

ErP ready

- **For increased return temperature with solid fuel boilers**
- **With temperature-controlled condensation protection valve**
- **For reduced amounts of condensate in the combustion process**
- **Avoids deposits in the boiler and in the smoke vent**

Application

Heating pump assembly for automatically controlling the return temperature of the system water to the heat generator to the value adjusted in the valve. An integrated, temperature-controlled condensation protection valve is the connection between the solid fuel heating system and the heating circuit or the hot water storage tank. Using PrimoTherm® 180-3 RTA keeps the temperature in the heating boiler above the condensation point in all operating states. This avoids deposits in the boiler and in the smoke vent and increases the service life of the system; corrosion damage of the heating boiler and chimney fires caused by soot deposits are avoided.

Description

Complete, pre-assembled and tightness-tested heating pump assembly with all required functional components, form-fit insulation and wall mounting unit. With an additional mounting bracket, the unit can be mounted in any position (vertically/horizontally).

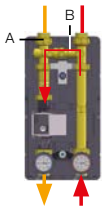
The pump line (return) consists of:
- Combination valve with thermometer in the hand wheel (blue mark, range 0/120 °C)
- Ball valve above the pump
- 3-way mixing valve with fixed mixing temperature 60 °C
- System connection G1 female (boiler), G1 female (storage)

Suitable for pumps DN 25 with G1½ x 180 mm.

The flow line (hot) consists of:
- Combination valve with gravity brake, thermometer in the handle (red mark, range 0/120 °C)
- Pipe for length compensation with screw connection
- System connection G1 female (boiler), G1 female (storage)

Function principle

Start mode (heating up of boiler):
When the boiler heats up, the condensation protection valve is fully closed in the direction of the consumer. The liquid coming from the boiler is recirculated in the small circuit via the bypass, which causes the boiler temperature to increase more rapidly.



Transition phase:
When the opening temperature is reached (60 °C), the circuit to the consumer is opened proportionally and the bypass is reduced accordingly. However, the boiler temperature will not drop below the set temperature.

Regular operation:
During further operation, the temperature increases until the condensation protection valve is fully open (return storage A). The bypass (B) is closed correspondingly. If the inlet temperature (return storage A) drops to approx 10 °C above the set opening temperature, the admixture via the bypass (B) is increased proportionally and outlet A is closed proportionally.

Heating pump assembly PrimoTherm® 180-3 DN 25 RTA

Technical data

Axis distance
125 mm

System connections
G1 female thread at both ends

Operating temperature range
Medium: T_{max} 100 °C

System pressure
Max. 10 bar

Opening temperatures
60 °C (fixed values)

Nominal size
DN 25

System capacity
Max. 32 kW at a flow rate of 1,400 l/h and a temperature spread of Δt 20 K

Leak rate
Water-tight between connections A->AB, 3 % leak rate of flow coefficient Kvs between B->AB PN 10. A-AB = Flow coefficient Kvs: 2.94; B-AB = 2.12

Insulation
Polypropylene EPP

Technical specifications circulation pump

Wilo Para 25/6 RKC

Length
180 mm

Supply voltage
AC 230 V, 50 Hz

Energy efficiency class
A

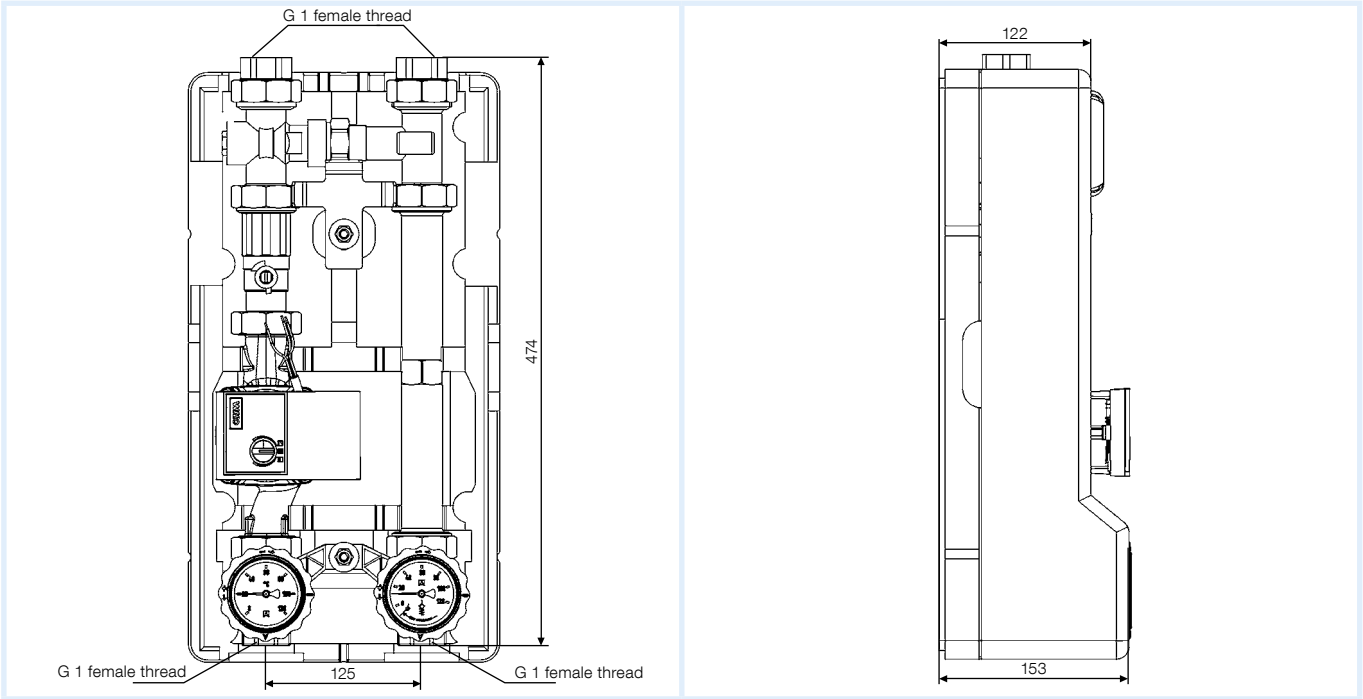
Power input
3–45 W

Pump head/rate
Max. 6.2 m / max. volume flow 3.3 m³/h

Options

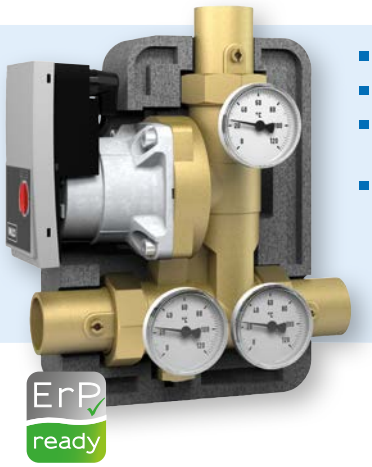
- Other opening temperatures
- Other circulation pumps

Dimensions (mm)



DG: G, PG: 2	Opening temperature	Pump	Part no.
PrimoTherm® 180-3 DN 25 RTA 60	60 °C	Without pump	**77576**
PrimoTherm® 180-3 DN 25 RTA 60 WP	60 °C	Wilo Para RS 25-180-6	77570

Charging unit RTA 60 DN 25



- For storage tank charging with solid fuel boilers
- Compact unit for limited space conditions
- With temperature-controlled condensation protection valve
- Avoids deposits in the boiler and in the smoke vent

Application

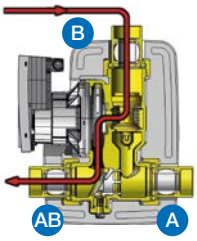
Charging unit for direct connection between a solid fuel boiler and a heating system or a hot water storage tank. The compact design allows for mounting to the pipes between the solid fuel boiler and the storage even if space is limited. Using the charging unit RTA 60 DN 25 WP RTA keeps the temperature in the heating boiler above the condensation point in all operating states. This avoids deposits in the boiler and in the smoke vent and increases the efficiency and the service life of the system. The risk of corrosion damage to the boiler and chimney fires resulting from soot deposits is reduced.

Description

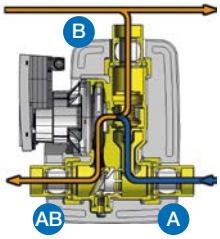
Complete, pre-assembled and tightness-tested charging unit with all required functional components. The compact insulation contains a central carrier with a high energy efficiency pump. The probe systems of the three thermometers held by the insulation are in the corresponding receptacles of the carrier after mounting. The thermal condensation protection valve and a check valve that can be shut off are contained inside the carrier. Ball valves with connection threads G1 female are screwed to the three system connections.

Function principle

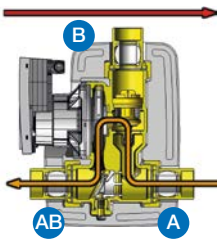
Start mode (heating up of boiler)
When the boiler heats up, the condensation protection valve is fully closed in the direction of the consumer. The liquid coming from the boiler is recirculated in the small circuit via the bypass, which causes the boiler temperature to increase more rapidly.



Transition phase
When the opening temperature is reached (60 °C), the circuit to the consumer is opened proportionally and the bypass is reduced accordingly.
The boiler temperature increases and heat is provided to the consumer; however, the return temperature will not fall below the set temperature.



Regular operation
During further operation, the temperature increases until the condensation protection valve is fully open (return storage A).
The bypass (B) is closed correspondingly. If the inlet temperature (return storage A) drops to approx 10 °C above the set opening temperature (e.g. 65 °C), the admixture via the bypass (B) is increased proportionally and outlet A is closed proportionally.



Charging unit RTA 60 DN 25

Technical data

System connections
G1 female thread

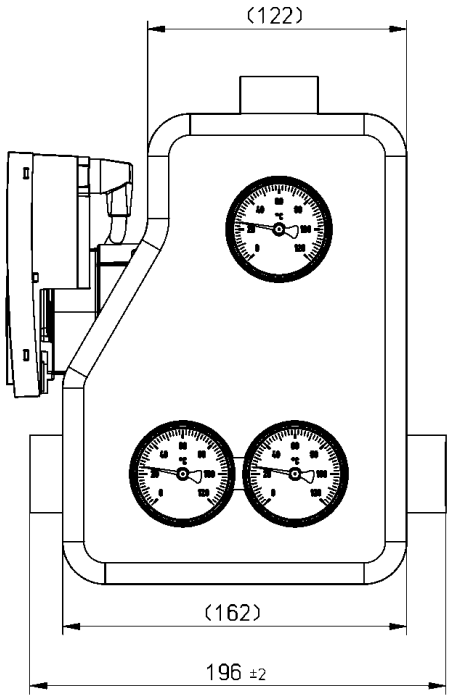
Operating temperature range
Medium: T_{max} 100 °C

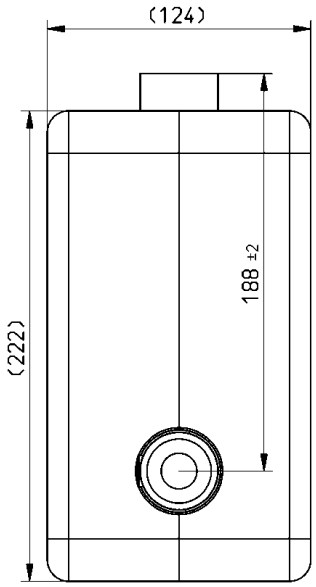
System pressure
Max. 6 bar

System capacity
Max. 60 kW at a flow rate of 2,600 l/h and a temperature spread of Δt 20 K

Insulation
Polypropylene EPP

Dimensions (mm)





DG: G, PG: 2	Opening temperature	Pump	Part no.
Charging unit RTA 60 DN 25 WP	60 °C	Wilo Yonos Para RS/7.5-RKC	77548

Heating pump assembly PrimoTherm® K 180-1 DN 32

- **Pre-assembled, tightness-tested and heat-insulated assembly**
- **Compact design**
- **Available with high energy efficiency pump class A**
- **Easy and fast installation**

Application

Heating pump assembly for use in non-mixed heating circuits, specially for storage tank charging. It connects the heating boiler and the pipe system.

Description

Complete, pre-assembled and tightness-tested heating pump assembly with all required functional components, form-fit insulation and wall mounting unit.
System connection: Primary end (consumer) G1¼ female

The pump line (flow/hot) consists of:
- Combination valve with thermometer in the hand wheel (red mark, range 0/120 °C)
- Ball valve below the pump, suitable for use of pumps with 2" x 180 mm
- System connection G1¼ female (heating circuit)

The return line consists of:
- Combination valve with thermometer in the hand wheel (blue mark, range 0/120 °C)
- Pipe for length compensation with gravity brake
- System connection (boiler) G2 with screw connection G1¼ female (easy mounting and adapter G1½ AB for use with boiler manifold)

Technical specifications

Axis distance
125 mm

System connections
Boiler G1¼ female
Heating circuit G1¼ female

Operating temperature range
Medium: T_{max} 110 °C

System pressure
Max. 10 bar (observe maximum pressure of circulation pumps used)

Supply voltage
AC 230 V, 50 Hz

Nominal size
DN 32

Flow coefficient Kvs
21.0 m³/h

Insulation
Polypropylene EPP

Options

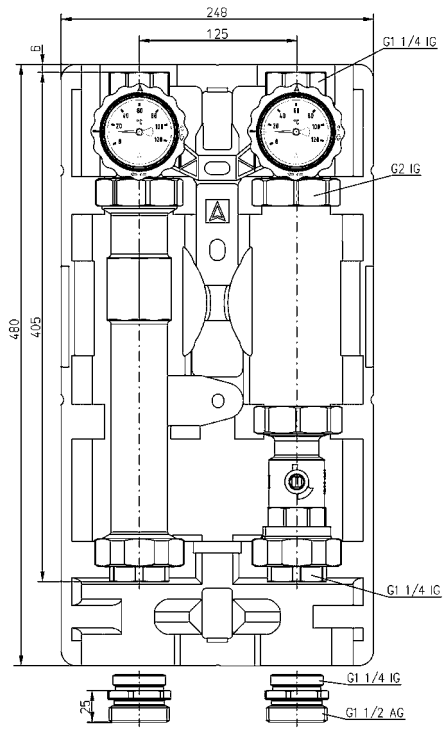
- With high-efficiency pump EEI 0,2

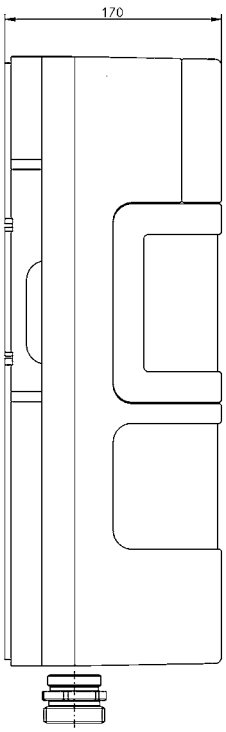
DG: G, PG: 2	Pump	Part no.
PrimoTherm® K 180-1 DN 32	Without pump	79501

Heating pump assembly PrimoTherm® K 180-1 DN 32

NEW

Dimensions (mm)





Heating pump assembly PrimoTherm® K 180-2 DN 32 KVS Vario

NEW

- **Pre-assembled, tightness-tested and heat-insulated assembly**
- **Compact design**
- **Robust mixer with adjustable flow coefficient Kvs from 12 to 22 m3/h**
- **Available with high energy efficiency pumps class A and high-grade, robust mixer as well as actuator**
- **Easy and fast installation**

Application

Heating pump assembly for use in non-mixed heating circuits. It connects the heating boiler and the pipe system. With the 3-way mixer KVS Vario and the actuator, the flow temperature can be adjusted to a desired temperature by adding water from the return. PrimoTherm® 180-2 can also be used to increase the return temperature with solid fuel boilers which have a controller for increasing the return temperature. The opening temperature must be set at this controller.

Description

Complete, pre-assembled and tightness-tested heating pump assembly with all required functional components, form-fit insulation and wall mounting unit.

The flow line consists of:
- Combination valve with thermometer in the hand wheel (red mark, range 0/120 °C)
- 3-way mixing valve ARV 325 KVS Vario with adjustable flow coefficient Kvs and ProClick adapter system
- Maintenance-free, silent actuator ARM 343 (6 Nm, 120 s, AC 230 V) with 0/90° angle of rotation, indication for direction of rotation, selector key "Manual/Automatic Mode" and ProClick adapter system
- System connection G1¼ female (heating circuit)

Suitable for pumps with 2" x 180 mm.

The return line consists of:
- Combination valve with thermometer in the handle (blue mark, range 0/120 °C), pipe for length compensation with gravity brake
- System connection (boiler) G2 with screw connection G1¼ female (easy mounting and adapter G1½ AB for use with boiler manifold)

Technical specifications

Axis distance
125 mm

System connections
Boiler G1¼ female
Heating circuit G1¼ female

Operating temperature range
Medium: T_{max} 110 °C

System pressure
Max. 10 bar (observe maximum pressure of circulation pumps used)

Flow coefficient Kvs
Adjustable: 12 – 16 – 22 m³/h

Leak rate mixing valve ARV 325 KVS Vario
< 0.05 % flow coefficient Kvs

Insulation
Polypropylene EPP

Dimensions
W x H x D: 248 x 480 x 170 mm

Options

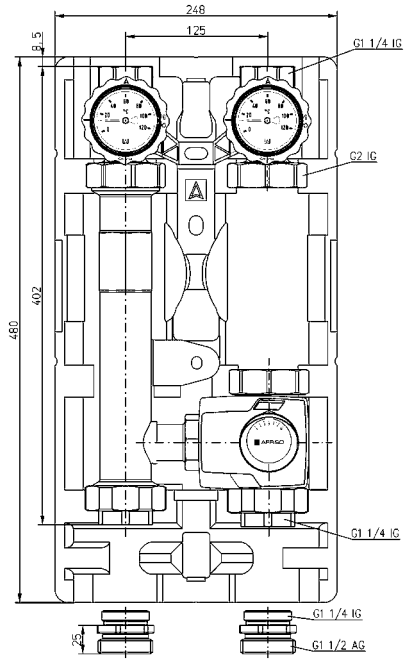
- High-efficiency pump Wilo Stratos Para 30 1-7 r. K.
- Other circulation pumps

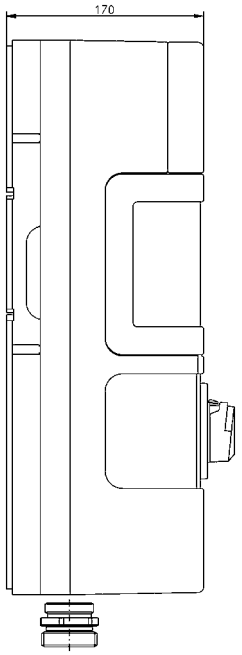
DG: G, PG: 2	Pump	Part no.
PrimoTherm® K 180-2 DN 32 3WM-SM Vario	Without pump	79502

Heating pump assembly PrimoTherm® K 180-2 DN 32 KVS Vario

NEW

Dimensions (mm)

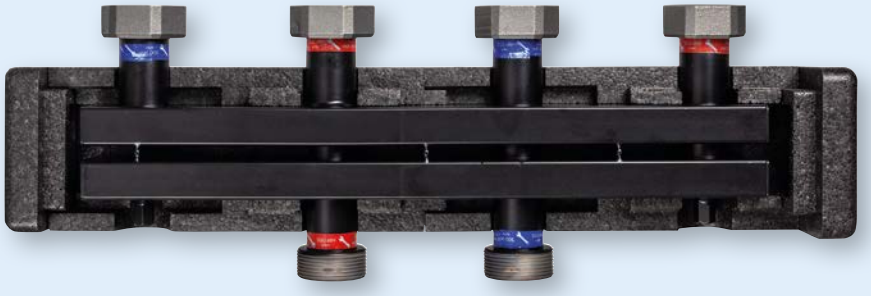




Boiler manifolds for heating pump assemblies PrimoTherm®

NEW

KSV 125-2



Wall mounting bracket

Application

For distribution of the heating circuit water in sealed heating systems as per EN 12828 from the boiler to the heating pump assemblies PrimoTherm®.

KSV 125

Description

Boiler manifold as combination flow and return manifold for two, three, four or five heating pump assemblies. Connection to boiler via G1½ threaded sockets, bottom. Connection to heating pump assembly via flat-sealing union nut G1½.
AFRISO boiler manifolds are tightness-tested in the factory; they are maintenance-free.

Technical specifications

System connections
Boiler end: Threaded socket G1½ AG
Pump assembly: Union nut G1½, flat-sealing

Axis distance
125 mm

Operating temperature range
Medium: Max. 110 °C

Flow
3.0 m³/h

System pressure
Max. 6 bar

Insulation
Polypropylene EPP

Scope of delivery
Boiler manifold with 2 x wall mounting bracket and insulation

KSV 125 HW

Boiler manifold as combination flow and return manifold for two, three, four or five heating pump assemblies. With integrated hydraulic separator for separation of circuits. Connection to boiler via G1½ threaded sockets, bottom, two connections G½ for drain/temperature probe. Connection to heating pump assembly via flat-sealing union nut G1½.
AFRISO boiler manifolds are tightness-tested in the factory; they are maintenance-free.

System connections
Boiler end: Threaded socket G1½ AG
Pump assembly: Union nut G1½, flat-sealing

Axis distance
125 mm

Operating temperature range
Medium: Max. 110 °C

Flow
3.0 m³/h

System pressure
Max. 6 bar

Insulation
Polypropylene EPP

Scope of delivery
Boiler manifold with 2 x wall mounting bracket and insulation

DG: G, PG: 3	Heating circuits	Hydraulic separator	Part no.
Boiler manifold KSV 125-2	2	No	**77310**
Boiler manifold KSV 125-3	3	No	**77311**
Boiler manifold KSV 125-4	4	No	77312
Boiler manifold KSV 125-5	5	No	77313
Boiler manifold KSV 125-2 HW	2	Yes	**77314**
Boiler manifold KSV 125-3 HW	3	Yes	**77315**
Hydraulic separator for KSV 125	-	Yes	**77317**

Actuator ARM ProClick

NEW

- **Compact, silent actuator with an angle of rotation of 90°**
- **Mounting without tools: Simply snap the actuator onto the mixer**
- **Colour LEDs indicate direction of rotation**
- **Fast switching between automatic mode and manual adjustment**

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ProClick ADAPTER SYSTEM für AFRISO ARV (KVS Vario)

Application

Can be used for controlling AFRISO series ARV ProClick mixing valves DN 20 to DN 50. Perfect solution for automated operation of water-based heating and cooling systems. Suitable for the AFRISO mixing valve series AVR with ProClick adapter system and for automating the AFRISO pump assemblies 180-2 with nominal diameters DN 25 and DN 32. The new AFRISO ProClick adapter system allows for hassle-free mounting of the motor to the mixing valve without tools – snap on and done.

Description

Compact, silent actuator with an angle of rotation of 90° and keys for switching from automatic mode to manual mode. The rotary knob with scale allows for a precise indication of the position in both modes. Three LEDs indicate the direction of rotation of the actuator. The pre-assembled connection cable with colour-coded wires as well as a wiring diagram on the nameplate simplify installation. For full flexibility during mounting, the orifice plate features scales on both sides with "0 to 10" or "10 to 0" and can be turned, depending on the direction of flow. The integrated protection unit keeps the actuator and mixing valve from blocking for a long service life. ARM is maintenance-free.

Technical specifications

Angle of rotation
0/90°

Operating temperature range
Ambient: 0/50 °C

Cable length
2 m

Power input
AC 2.5/4 VA

Housing

Material:	Plastic (PC)
W x H x D:	102 x 84 x 89 mm
Protection class:	II
Degree of protection:	IP 42 (EN 60529)

Input signal
ARM 323, 343, 443: 3-point, digital
ARM 992: 0–10 V, 2–10 V, 0–20 mA, 4–20 mA, PWM

Supply voltage
AC 230 V
ARM 992: AC/DC 24 V

Torque
6 Nm

Term

ARM 323:	60 s
ARM 343, 443:	120 s
ARM 992:	60/120 s

Scope of delivery
Actuator with AFRISO ProClick adapter system

DG: G, PG: 4	Input	Term	Torque	AC/DC	Part no.
ARM 323 ProClick	3-point	60 s	6 Nm	AC 230 V	77820
ARM 343 ProClick	3-point	120 s	6 Nm	AC 230 V	**77812**
ARM 443 ProClick	3-point	120 s	6 Nm	AC 230 V	77821
ARM 992 ProClick	0–10 V, 2–10 V, 0–20 mA, 4–20 mA, PWM	60/120 s	6 Nm	AC/DC 24 V	78256

3-/4-way mixing valves ARV ProClick

NEW

- For distribution and mixing
- Compact design
- Non-slip rotary knob
- Low torque for increased service life of actuator
- ProClick adapter system for motor mounting without tools

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Application

Universal mixing application in water-based heating and cooling systems (radiators, panel heating systems). The 3-way mixer can also be used as a distribution or zone mixer. Suitable for water and water/glycol mixtures with up to 50 % glycol. Not suitable for drinking water.

Description

Compact, low-loss 3-way or 4-way mixing valves with brass base and easy-to-handle rotary knob made of high-strength plastic. The rotary knob with scale allows for easy and accurate manual adjustment of the mixing valve. The elevated mark allows for fast position determination. Two scales with "0 to 10" for horizontal installation and "10 to 0" for vertical installation are included for maximum flexibility.

3-way mixing valve for distribution and mixing: The desired flow temperature is obtained via the precise mixing ratio of hot boiler water and cold water from the return line.

4-way mixing valve for dual mixing. The return temperature to the boiler can be high in order to avoid corrosion damage, for example.

The mixing valves are easy to automate with the AFRISO actuators. The new AFRISO ProClick adapter system allows for hassle-free mounting of the motor to the mixing valve without tools – snap on and done. The low torque ensures a low load and a long service life.

Technical data

Angle of rotation
90°

Operating temperature range
Medium: 5 / 110 °C

Nominal pressure
Max. 10 bar

Flow rate
See ordering table

Leak rate (Δp = 100 kPa)
DN 25 – DN 32 = Max. 0.2 % Kvs
DN 40 – DN 50 = Max. 0.5 % Kvs

Required torque
DN 20 / DN 25: Max. 0.5 Nm
DN 32: Max. 2 Nm
DN 40 / DN 50: Max. 3 Nm

Material
Housing: Brass (CW617N)
O rings: EPDM

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Only AFRISO ARM ProClick actuators can be mounted to ARV ProClick valves.

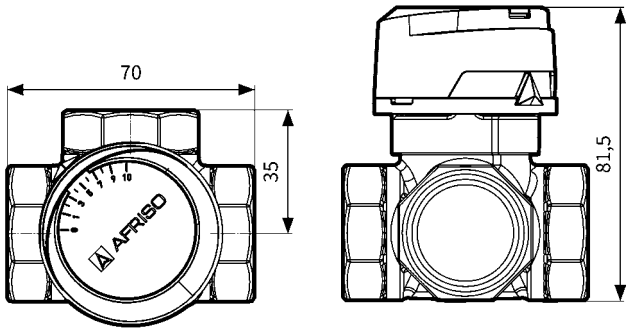
DG: G, PG: 2	DN	Connection	Flow coefficient Kvs	Part no.	Price €
3-way mixing valve ARV 382	20	Rp ¾	6.3 m³/h	78234	**63.59**
3-way mixing valve ARV 384	25	Rp 1	10 m³/h	78235	**73.04**
3-way mixing valve ARV 385	32	Rp 1¼	16 m³/h	78236	**77.56**
3-way mixing valve ARV 386	40	Rp 1½	25 m³/h	78237	**152.73**
3-way mixing valve ARV 387	50	Rp 2	40 m³/h	78238	**186.50**
4-way mixing valve ARV 484	25	Rp 1	10 m³/h	78239	**77.56**
4-way mixing valve ARV 485	32	Rp 1¼	16 m³/h	78241	**83.12**
4-way mixing valve ARV 486	40	Rp 1½	25 m³/h	78242	**167.28**
4-way mixing valve ARV 487	50	Rp 2	40 m³/h	78243	**204.68**

3-way mixing valves ARV ProClick

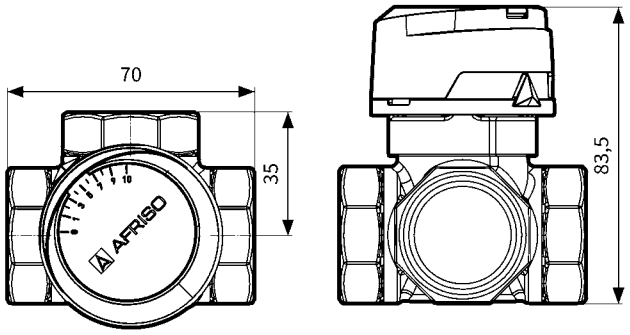
NEW

Housing types and dimensions (mm)

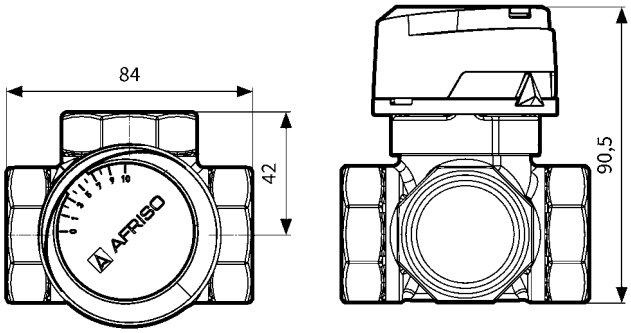
3-way mixing valve DN 20



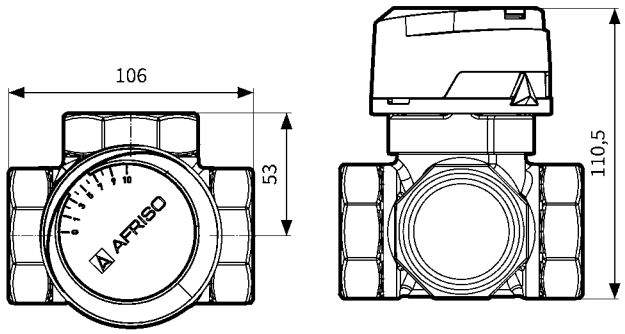
3-way mixing valve DN 25



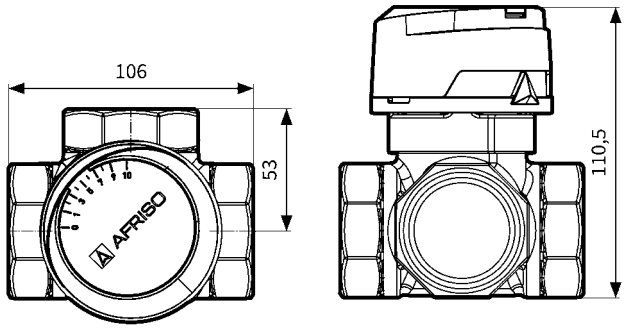
3-way mixing valve DN 32



3-way mixing valve DN 40



3-way mixing valve DN 50

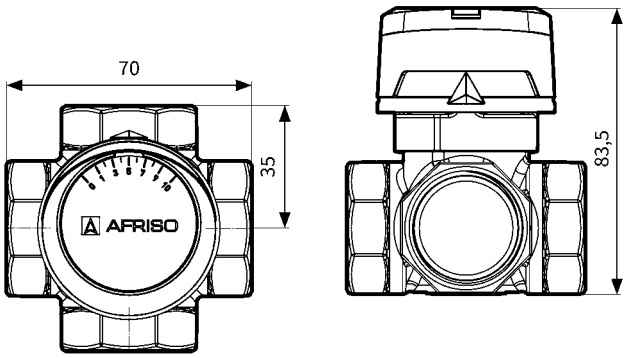


4-way mixing valves ARV ProClick

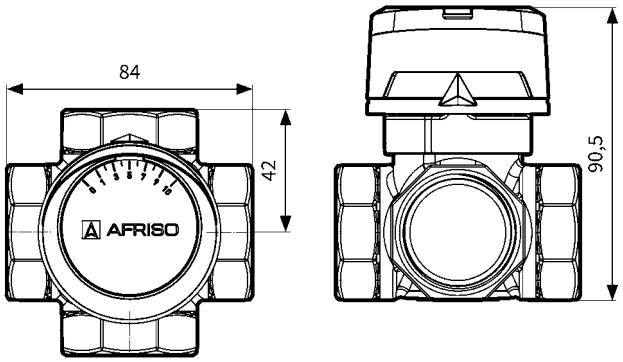
NEW

Housing types and dimensions (mm)

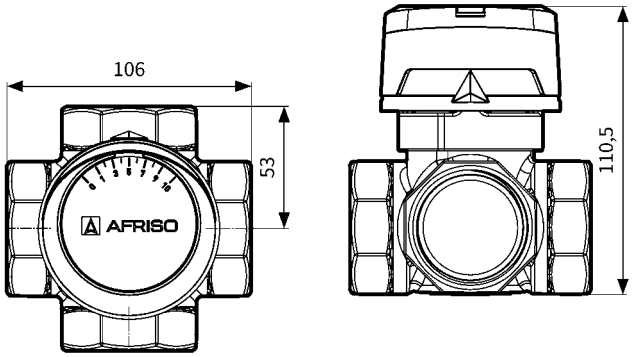
4-way mixing valve DN 25



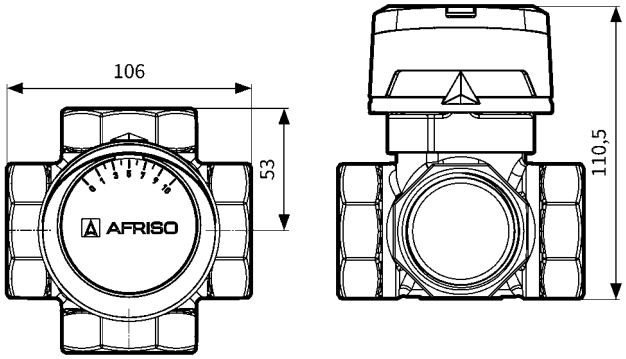
4-way mixing valve DN 32



4-way mixing valve DN 40



4-way mixing valve DN 50



Solar pump assemblies PrimoSol®

Efficient solar thermal systems are taking centre stage in heating system design as a result of rising energy costs, new legislation and, most important, increasing environmental awareness. Advanced solar thermal systems can be easily integrated into the heating system concepts for new buildings and for the conversion of existing systems.

AFRISO offers a comprehensive range of components for solar thermal systems for maximum reliability – all from a single supplier. The innovative solar pump assemblies PrimoSol® are made to meet the requirements of the solar systems available on the market.

The pre-assembled, tightness-tested and heat-insulated assemblies are extremely easy and fast to install. The offer is complemented by a comprehensive range of accessories.

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We provide a great variety of customer-specific solar pump assemblies for OEMs.

Please enquire.

Solar pump assembly PrimoSol® 130

- **Pre-assembled, tightness-tested and heat-insulated assembly**
- **Available with flow meter with ball valve, integrated filling and flushing unit and vent pot for degassing the heat transfer fluid in the flow line**


PrimoSol® 130-1

Application

Solar pump assembly/line for connection of collector and storage tank in intrinsically safe, sealed solar thermal systems. PrimoSol® 130 circulates heat transfer fluids such as water/glycol mixtures in the system.

Description

Complete, pre-assembled and tightness-tested solar pump assembly/line with all required safety and functional components, including form-fit insulation.

Depending on the version, the pump line (return/cold) consists of:
- Circulation pump
- Flow meter with ball valve for shut-off, pump end with flange and union nut G1½. Measuring range: 2–12 l/min. With integrated filling and flushing unit, system connection: G¾ male thread.
- Combination valve with system connection G¾ male thread, pump end with flange and union nut G1½. With adjustable gravity brake and thermometer in the hand wheel (blue mark, range 0/120 °C).
- Safety group assembly with connection for expansion vessel. With solar safety valve 6 bar, outlet Rp¾ female thread, pressure gauge Ø 63 mm, 0/10 bar, mounting valve.

The flow line consists of (130-4 only):
- Combination valve with adjustable gravity brake and thermometer in the handle (red mark, range 0/120 °C) with system connection G¾
- Vent pot to remove the gas from the heat transfer fluid with system connection G¾. Transparent hose 200 mm as venting aid.

The insulation is also used to package the product for protected transport.
The safety valve of the safety group assembly complies with Pressure Equipment Directive 2014/68/EC.

Technical specifications

Axis distance
100 mm

System connection
G¾ male thread

Operating temperature range
Ambient: T_{max} = 40 °C
Medium: T_{max} = 120 °C,
short-term T_{max} = 160 °C

System pressure
Max. 6 bar

Flow meter
2–12 l/min

Insulation
Polypropylene EPP

Circulation pump
Grundfos UPM 3 Solar 25–75
Length: 130 mm
Degree of protection: IP 42

Supply voltage
AC 230 V, 50 Hz

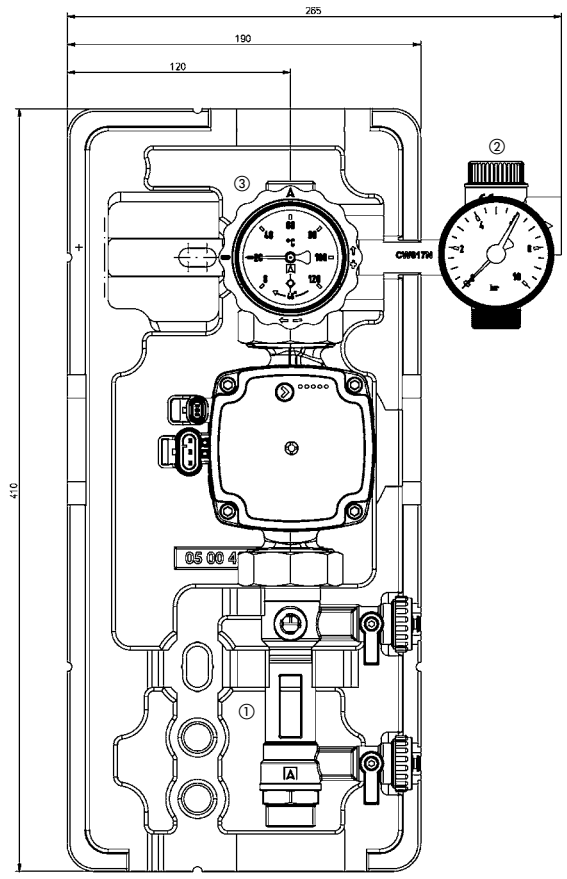
Power input/pumping head
19 W/4.5 m
28 W/5.5 m
35 W/6.5 m
45 W/7.5 m

DG: G, PG: 2	Part no.
PrimoSol® 130-1, 2-12 l/min	**77886**
PrimoSol® 130-4, 2-12 l/min	**77889**
PrimoSol® 130-4, 8-38 l/min	77018
PWM cable, length 1 m suitable for PrimoSol GP	**77015**

Solar pump assembly PrimoSol® 130

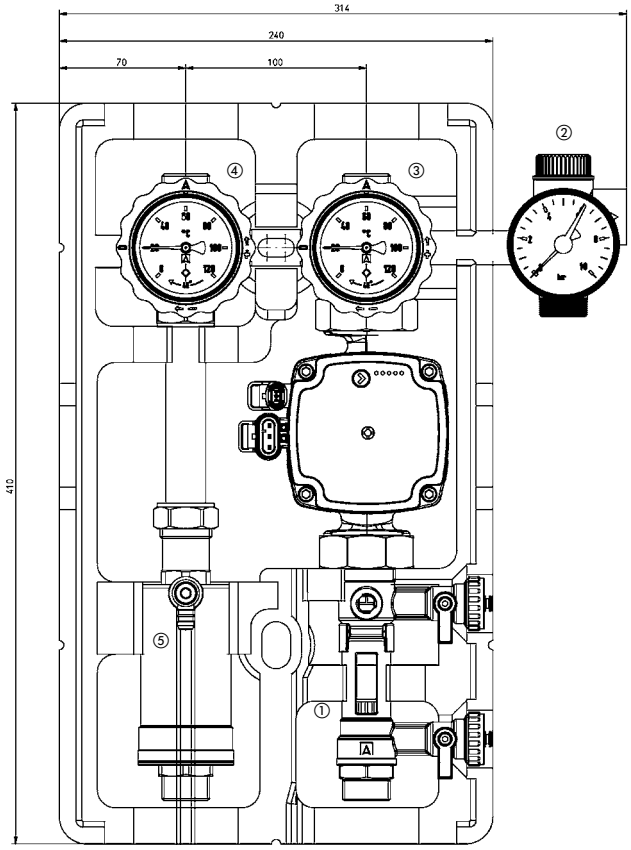
Dimensions (mm)

Solar pump line PrimoSol® 130-1



① Flow meter with ball valve as well as filling and flushing unit
② Safety group assembly
③ Combination valve with thermometer (return/cold)

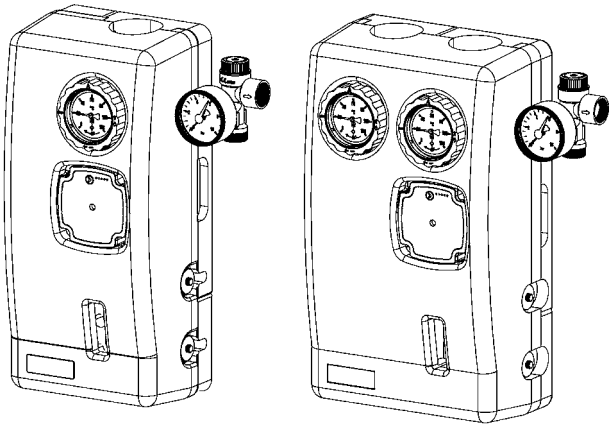
Solar pump assembly PrimoSol® 130-4



① Flow meter with ball valve as well as filling and flushing unit
② Safety group assembly
③ Combination valve with thermometer (return/cold)
④ Combination valve with thermometer (flow)
⑤ Vent pot for fast and easy venting, especially during filling of the system

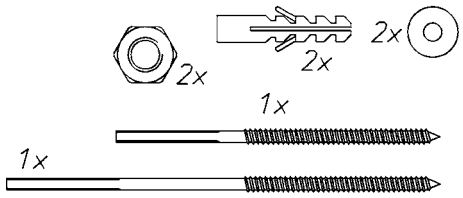
Insulation 130-1 and 130-4

The insulation is also used to package the product for transportation.

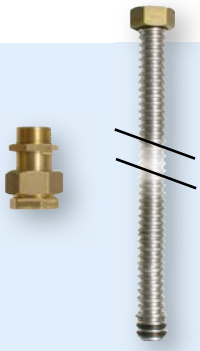


Scope of delivery

PrimoSol® completely pre-assembled with circulation pump and mounting accessories.



Accessories for solar thermal systems



Filling and flushing unit

Description

For solar systems as filling and flushing unit.
With ball valve, two boiler filling and drain valves KFE G¾, process connection G1 with union nut and compression fittings at both ends.

Technical specifications

Connections
G1, compression fitting at both ends Ø 22 mm

Dimensions
L: 108 mm

Housing
Brass

Diaphragm safety valve MSS

Description

For solar thermal systems to protect against overpressure. Suitable for water, water/Antifrogen mixtures, water/Tyfocor mixtures and liquids of fluid groups 1 and 2 (Pressure Equipment Directive, Art. 9).

Technical specifications

Connections
Inlet: G½ female
Outlet: G¾ male

Cap
PA6, black

Opening pressure
6 bar

Dimensions
W x H x D: 35 x 60 x 45 mm

Housing
Brass CW617 N

Operating temperature range
Medium: -20/+160 °C

Heating capacity
Max. 50 kW

Connection kit

Description

For diaphragm expansion vessels (MAG) suitable for safety group assembly for PrimoSol®.

Consisting of:
- Bracket for wall mounting
- Flex pipe (500 mm, 1 union nut and seals)
- MAG mounting valve
- Mounting accessories

Technical specifications

Connections
Flex pipe: Union nut G¾
Mounting valve: G¾

Dimensions
Flex pipe (L): 500 mm
Bracket (W x L): 220 x 110 mm

i Please enquire for diaphragm safety valves with other pressure ratings.

DG: G, PG: 2			Part no.
Filling and flushing unit	1	1	**77781**
Diaphragm safety valve MSS, G½ female x G¾ female	1	84	**42330**
Connection kit G¾	1	1	77904

Vents for solar thermal systems

Quick air vents for solar systems

Description

Quick air vent for use in solar thermal systems with operating temperatures of up to 150 °C and operating pressures of up to 6 bar. Housing made of high-precision turned brass, functional parts made of highly temperature-resistant plastic. Connection G$^{3}/_{8}$ with O ring seal.

Quick air vents for solar systems with ball valve

Quick air vent for use in solar thermal systems with operating temperatures of up to 150 °C and operating pressures of up to 6 bar. Housing made of high-precision turned brass, functional parts made of highly temperature-resistant plastic. Completely assembled with ball valve as shut-off unit. Connection G$^{3}/_{8}$.

Air separator

Air separator for use in solar thermal systems or in sealed heating systems as per EN 12828 with operating temperatures of up to 150 °C and operating pressures of up to 6 bar. The air separator removes the air from the heat transfer fluid. The air collects in the housing and can be released via a quick air vent or a manual vent valve connected at the G$^{3}/_{8}$ threaded connection.
Compression fitting for Cu pipe Ø 22 mm at both ends.

DG: G, PG: 2	Connection			Part no.	Price €
Quick air vents for solar systems	G$^{3}/_{8}$	1	25	**77900**	**40.60**
Quick air vents for solar systems with ball valve	G$^{3}/_{8}$	1	25	**77996**	**49.20**
Air separator	Compression fitting Ø 22	1	-	**77851**	**68.40**

Air separator combination Solar LKS, collector tank for solar liquid

Air separator combination Solar LKS

Application

For use in thermal solar systems to remove air bubbles from the solar liquid.

Description

Air separator, completely pre-assembled with quick air vent for solar systems. The air separator removes the air contained in the heat transfer medium. The air collects in the housing and can be released via the quick air vent for solar systems connected at the $G^3/_8$ connection by actuating the ball valve.

Technical specifications

Operating temperature range
Medium: Max. 150 °C

System pressure
Max. 6 bar

System connections
Compression fitting for Cu pipe
Ø 22 mm at both ends

Collector tank for solar liquid

Collects groundwater polluting solar liquid in the case of system overpressure.

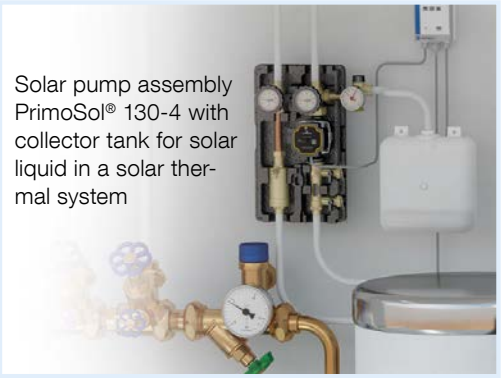
Collector tank for solar liquid with integrated drain valve. Volume 10 l. The collector tank for solar liquid is connected to the diaphragm safety valve MSS or to the safety group assembly PrimoSol® of the solar pump assembly via a pipe. In the case of system overpressure, it collects escaping solar liquid. A basic volume of 1 to 1.5 l of liquid is always contained in the collector tank to avoid overheating of the collector tank if solar liquid escapes suddenly from the solar thermal system.

Operating temperature range
Medium: Max. 95 °C
short-term 120 °C
(without basic liquid volume)

Dimensions
W x H x D: 300 x 390 x 145 mm

Weight
0.97 kg

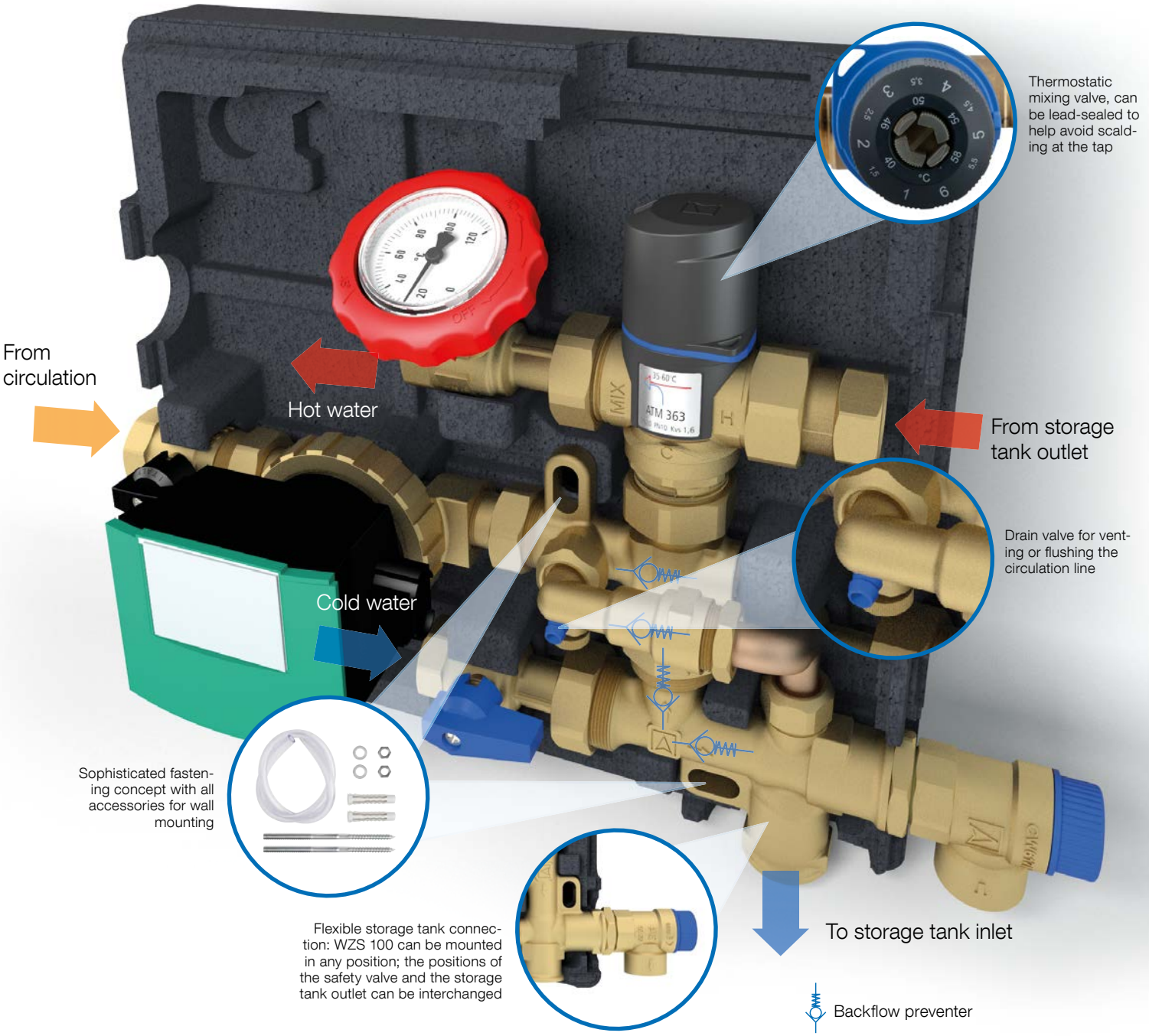
Filling volume
Max. 10 l



Solar pump assembly PrimoSol® 130-4 with collector tank for solar liquid in a solar thermal system

DG: G	PG			Part no.	Price €
Air separator combination Solar LKS, Connection: Compression fitting Ø 22	1	1	1	**77850**	**116.50**
Collector tank for solar liquid	1	1	1	**77796**	**90.80**

Hot water circulation system WZS 100



Assembly for easy connection to solar, hot water, hygienic or combination storage tanks (with or without circulation connection at the storage tank)

- Pre-assembled, tightness-tested and heat-insulated assembly speeds up installation/commissioning and facilitates logistics
- Intelligent circulation distribution by means of integrated bypass: No back circulation, no "mixing" of thermal layers in the stratified storage tank
- Fully secured: diaphragm safety valve, backflow preventer and all shut-off valves integrated
- Integrated pump for plug & play operation
- Thermometer for easy on-site checks (range 0/120 °C)

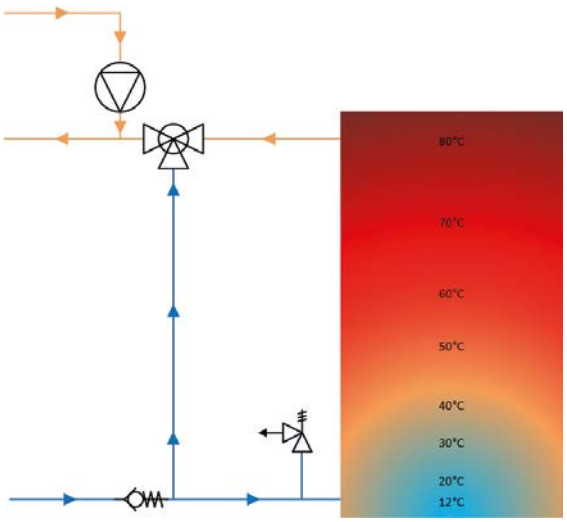
Unwanted, inefficient incorrect installations of stratified storage tanks

As a result of the increasing use of renewable energy in domestic technology applications, the number of hygienic stratified storage tanks with a temporary operating temperature of more than 60 °C is also on the rise. In order to connect such tanks in a more efficient way, to keep the thermal layers and to limit the outlet temperature of the hot water, the installation of the service water line involves several fittings and connection parts.
Optimum design of the circulation can often be a major challenge in terms of hydraulics and logistics. For example, the service water connections to the water heater have been made according to the old, inefficient logic or important parts have been "forgotten".

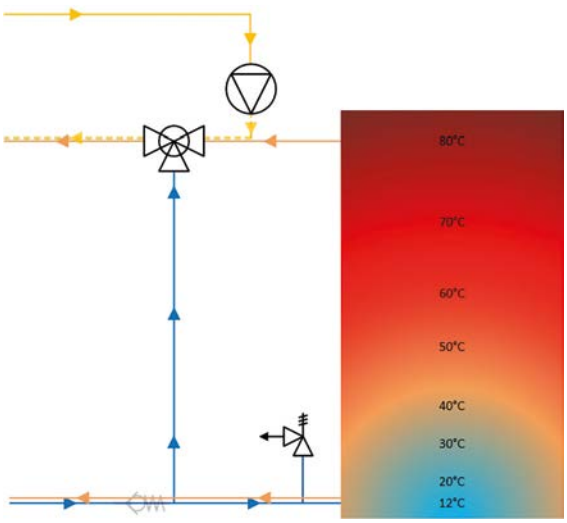
In most cases, the circulation line of stratified storage tanks is connected to the cold water inlet of the hot water tank. This way, the hot circulation water of the return flows through the lower area of the stratified storage tank which is usually cooler. In the lower area, the returning circulation water is cooled - only to be heated up again in the upper thermal layers.
The consequence: The storage medium is evenly heated – which destroys the important thermal layering. The high energy density in the upper thermal layers is lost. In the most adverse case, the function of a solar system is prevented or extremely limited in the transition period.

Typical implementation issues:

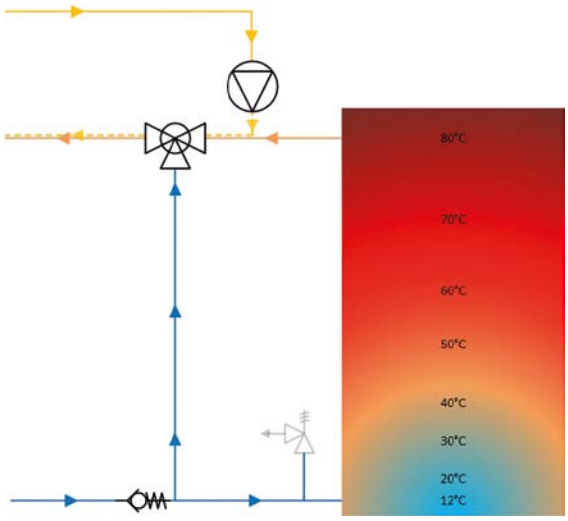
Incorrectly installed circulation pump



Incorrectly installed circulation pump and "forgotten" backflow preventer



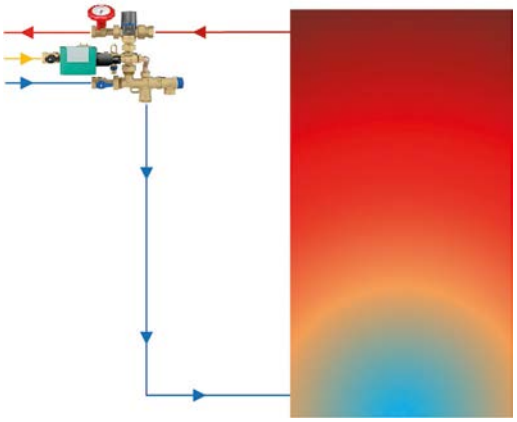
Incorrectly installed circulation pump and "forgotten" safety-related equipment

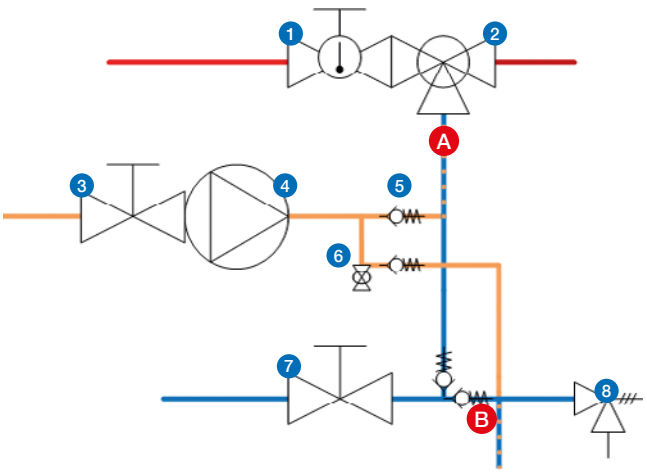


WZS 100 ensures reliable function and efficient operation

With the use of WZS 100, the return part of the circulation line has a direct connection to the cold water inlet of the thermostatic mixing valve. Depending on the water temperatures at the inlets of the mixing valve, they will open or close the hot water inlet and the cold water inlet to a higher or less high degree. A partial volume of the returning circulation water flows directly to the cold water connection of the mixing valve. Depending on the mounting situation (internal/external circulation), the other partial volume can be resupplied upstream of the tank. This allows for considerable energy savings.

WZS 100 thus allows for intelligent circulation distribution without back-circulation and without "mixing" of the temperatures in the stratified storage tank. With minimum installation effort, all possibilities of advanced stratified storage systems for efficient heating of water can used to their full potential.

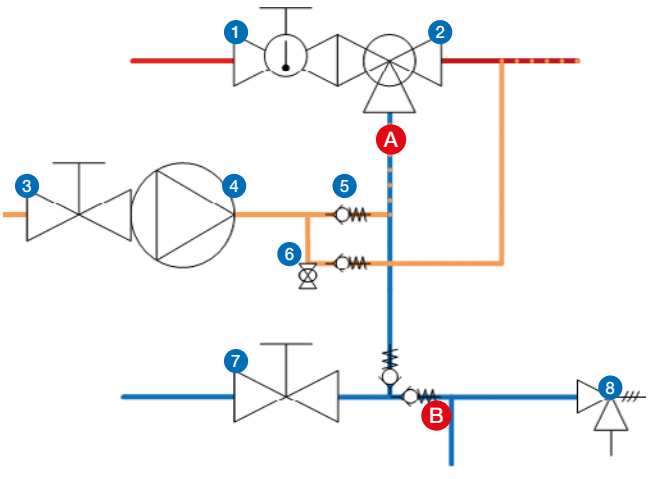




1 Shut-off valve with thermometer
2 Thermostatic mixing valve
3 Shut-off valve
4 Circulation pump
5 Check valve
6 Drain
7 Shut-off valve
8 Diaphragm safety valve

Function example 1 (internal circulation via bypass)

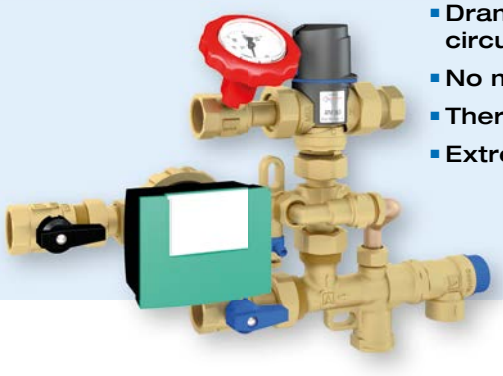
Cold water flows via the safety fitting of WZS 100 to the cold water end via line A to the mixing valve and line B to the water heater. In the example, the temperature adjustment knob of the thermostatic mixing valve ATM 363 is set to a hot water temperature of 60 °C. The unmixed hot water temperature at the storage outlet is 80 °C due to the high buffer temperature as a result or solar or regenerative energy. The mixing valve now opens or closes the path to the hot and cold water end depending on the temperature. Due to the fast control characteristics of ATM 363, the adjusted temperature is reached at the valve outlet (mix). Only the amount of heating energy really required to ensure the desired water temperature is actually used. If the hot water has reached the last consumer or the point or re-entry (service water to circulation), it is pumped back to the circulation unit via the newly developed flow distributor. Depending on the temperature, it distributes the water via line A to the mixing valve or via line B to the water tank. What's best: Even though there are two flow lines, the pump has to overcome only one check valve. The circulation pump has to overcome less counterforce which results in enormous energy savings and a prolonged service life of the pump.



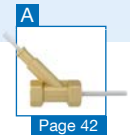
Function example 2 (operation with circulation lance)

Same system requirements as in function example 1, but with use of circulation lance ZL 2. In this configuration, the water can only flow the direct path via the circulation lance (as opposed to the bypass version). This results in doubled benefits: Increased comfort as well as energy and heating cost savings.
This is achieved by supplying the returning hot water of the circulation directly to the upper thermal layer of the water heater so that it does not have to flow through the complete tank. At the same time, there is always enough hot water available to supply the fittings without inconvenient delays.

Hot water circulation system WZS 100



- **Dramatic energy savings in circulation mode compared to conventional circulation systems**
- **No mixing of the temperatures in the stratified storage tank**
- **Thermally controlled hot water temperature (with scald protection)**
- **Extremely low mounting effort and fast commissioning**


A Page 42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Application

Circulation system for professional implementation of a service water circulation connection to an energy storage tank (hot water tank/stratified storage tank) which is operated at temperatures higher than 60 °C either permanently or temporarily. Also suitable for stratified hygienic storage and bivalent service water tanks. If used with older existing systems (for example, hot water tanks with wood, solar, gas, heat pump or oil-fired boiler), controlled circulation to meet actual demands results in high energy savings. The hot water circulation system is optimally suited for use with renewable energies in domestic technology applications, primarily in single and two family homes.

Description

Compact, pre-assembled and tightness-tested hot water circulation system in form-fit heat insulation part, consisting of thermostatic mixing valve with integrated scald protection, circulation pump with all necessary functional components such as shut-off valves, variable safety group assembly, backflow preventer and connection parts as per DIN 1988.

The hydraulic separation of the flow paths ensures correct operation of the circulation pump since it has to overcome only one backflow preventer in any operating condition and thus avoids mixing of the cold water inlet in the circulation path.

Technical data

System connections
G¾ female

Connection lance / bypass
G½ female

Operating temperature range
Medium: Max. 95 °C

Mixing temperature
35/60 °C

System pressure
Max. 10 bar

Flow coefficient Kvs
1.6 m³/h

Safety valve
Opening pressure: 6 bar

Insulation
Polypropylene EPP

Dimensions
W x H x D 320 x 300 x 146 mm

Technical specification circulation pump Wilo-Star-Z NOVA

Degree of protection
IP 42

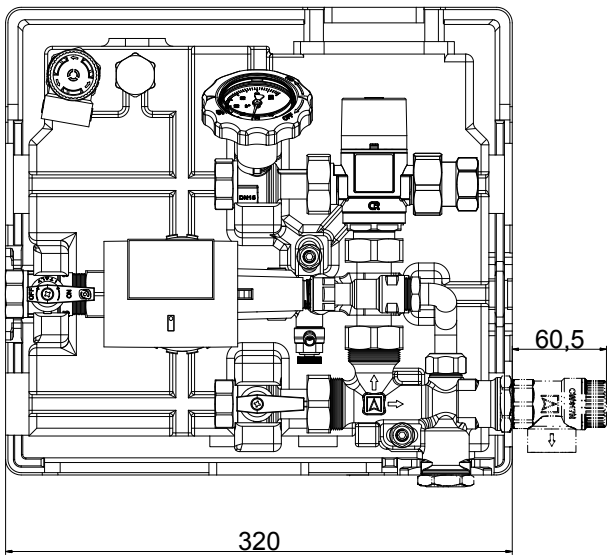
Supply voltage
AC 230 V, 50 Hz

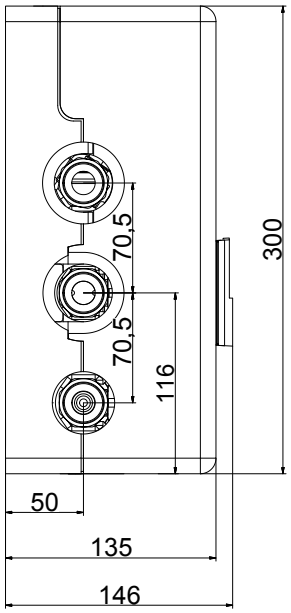
Power input
2–4.5 W

DG: G, PG: 2	Part no.
Hot water circulation system WZS 100	**68405**

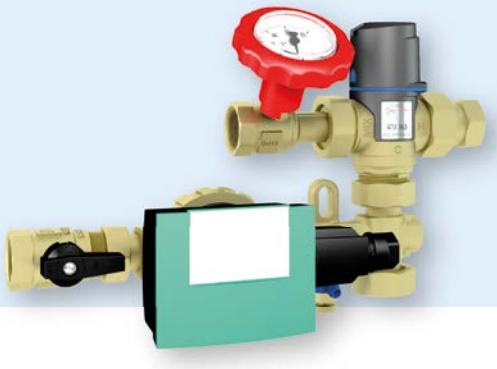
Hot water circulation system WZS 100

Dimensions (mm)





Hot water circulation system WZS 75



- **Compact hydraulic assembly for storage tanks with existing safety-related equipment**
- **Easy connection of a circulation line with existing safety-related equipment**
- **Thermally controlled hot water temperature (with scald protection)**
- **Considerable time savings during mounting**

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A  Page 42

Application

Circulation system for professional implementation of a service water circulation connection to an energy storage tank with existing safety-related equipment (hot water tank/stratified storage tank) which is operated at temperatures higher than 60 °C either permanently or temporarily. WZS 75 is ideal for retrofitting existing systems, primarily in single-family and two-family homes.

Description

Compact, pre-assembled and tightness-tested hot water circulation system, consisting of thermostatic mixing valve with integrated scald protection, thermometer, shut-off valve, drain valve for venting or flushing the circulation line as well as connection parts as per DIN 1988. The hydraulic assembly is suitable for storage systems which are already fitted with safety-related equipment such a diaphragm safety vales or backflow preventers or where such equipment is to be installed in the form of conventional individual components. Storage systems without safety-related equipment can be retrofitted with the safety group assembly WSG 150.

WZS 75 optimises temperature control in the hot water circulation and ensures that the temperature in the storage system is not unnecessarily reduced. A partial volume of the returning circulation water flows directly to the cold water inlet of the thermostatic mixing valve via an internal connection and is added there.

Technical data

System connections
G¾ female thread, G1 female thread

Operating temperature range
Medium: Max. 95 °C

Mixing temperature
35/60 °C

System pressure
Max. 10 bar

Flow coefficient Kvs
1.6 m³/h

Technical specification circulation pump Wilo-Star-Z NOVA

Degree of protection
IP 42

Supply voltage
AC 230 V, 50 Hz

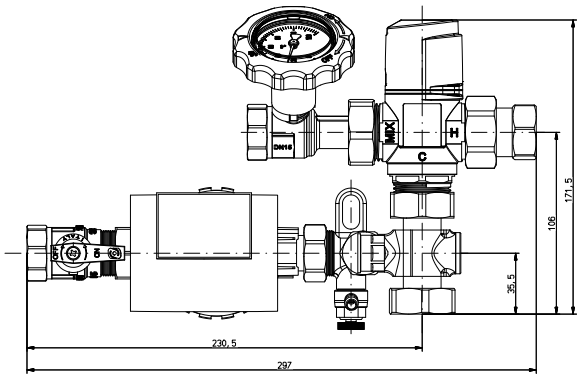
Power input
2–4.5 W

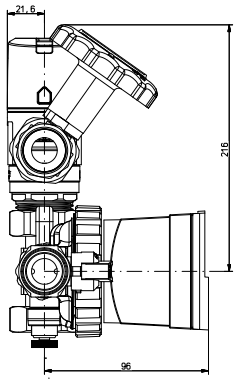
Scope of delivery
assembly without insulation

DG: G, PG: 2	Part no.
Hot water circulation system WZS 75	**68416**

Hot water circulation system WZS 75

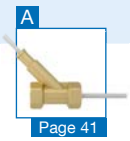
Dimensions (mm)

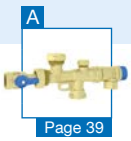




Thermostatic mixing valve ATM 363 WMG

- **Compact assembly for storage tanks with existing safety group assembly and pump**
- **Thermally controlled hot water temperature (with scald protection)**
- **Easy mounting without time-consuming, extensive insulation work**
- **Circulation lance can be connected**





Application

mixing valve for control of hot water in drinking water systems, boilers or drinking water heaters as per EN 806. Suitable for implementing or retrofitting a service water circulation connection to an energy storage tank (hot water tank/stratified storage tank) with existing safety-related equipment and pump.

Description

Compact, pre-assembled and tightness-tested assembly in form-fit insulation. ATM 363 WMG consists of an adjustable thermostat mixing valve, connection pieces as per DIN 1988 and a flow distribution unit with backflow preventer, lance connection and drain valve for venting or flushing the circulation line. Mixing valve with control knob with temperature scale (35/60 °C) for easy adjustment of the temperature of the water to be mixed. A cap protects the control knob against improper operation; it can be lead-sealed to help prevent unwanted adjustments. The selected adjustment is visible through the window in the cap. If the cold water line is interrupted, the mixing valve automatically closes the hot water supply to help protect against scalding.

Technical data

System connections
G¾ female thread, G1 female thread

Connection lance / bypass
G½ female

Operating temperature range
Medium: Max. 95 °C

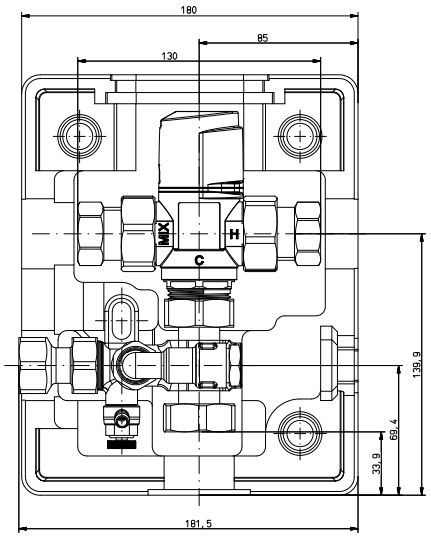
Mixing temperature
35/60 °C

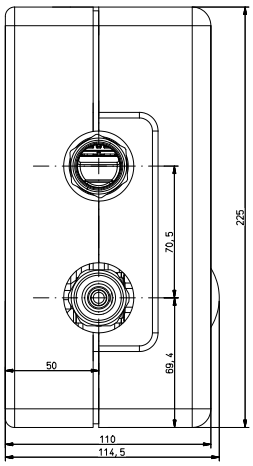
System pressure
Max. 10 bar

Flow coefficient Kvs
1.6 m³/h

Insulation
Polypropylene EPP

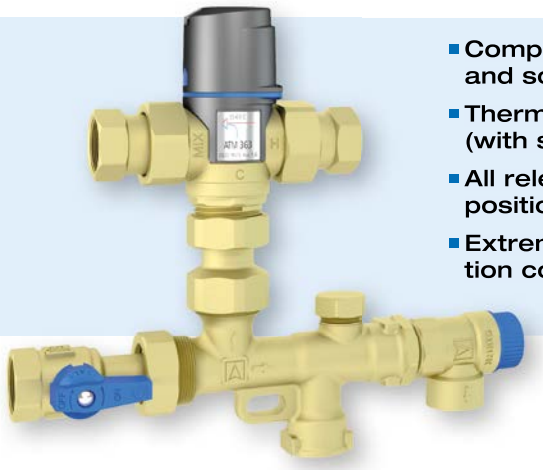
Dimensions (mm)





DG: G, PG: 2	Part no.
Thermostatic mixing valve ATM 363 WMG	**68417**

Thermostatic mixing valve ATM 363 WSG



- **Compact assembly for tankless water heaters and solar-heated drinking water heaters**
- **Thermally controlled hot water temperature (with scald protection)**
- **All relevant backflow preventers at the correct positions**
- **Extremely time-saving as compared to installation consisting of many individual parts**

Application

Mixing valve with boiler safety group assembly for controlling hot water at solar-heated drinking water heaters and hot water storage tanks with hot water heating according to flow principle, as well as drinking water storage units. Ideal for applications in which circulation is not necessary or if the water heater already has a circulation connection.

Description

Compact, pre-assembled and tightness-tested assembly consisting of adjustable thermostatic mixing valve, safety group assembly with integrated backflow preventers, shut-off valve and safety valve. Mixing valve with control knob with temperature scale (35/60 °C) for easy adjustment of the temperature of the water to be mixed. A cap protects the control knob against improper operation; it can be lead-sealed to help prevent unwanted adjustments. The selected adjustment is visible through the window in the cap. If the cold water line is interrupted, the mixing valve automatically closes the hot water supply to help protect against scalding.

Technical data

System connections
G¾ female

Operating temperature range
Medium: Max. 95 °C

Mixing temperature
35/60 °C

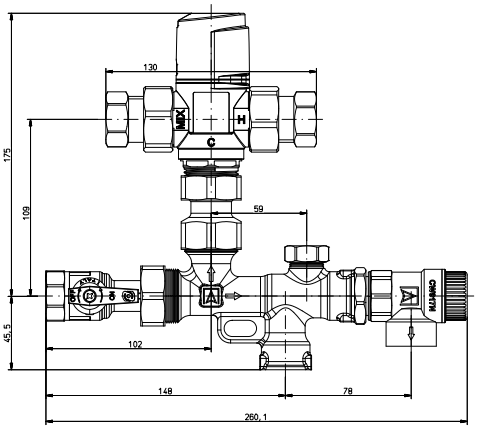
System pressure
Max. 10 bar

Flow coefficient Kvs
1.6 m³/h

Safety valve
Opening pressure: 6 bar

Scope of delivery
assembly without insulation

Dimensions (mm)



DG: G, PG: 2	Part no.
Thermostatic mixing valve ATM 363 WSG	**68419**

Thermostatic mixing valves ATM

- **High accuracy, fast response**
- **With integrated scald protection**
- **Maintenance-free**
- **Ideal for showers and smaller underfloor heating circuits**
- **Cap with window and scale, can be lead-sealed (ideal for public facilities)**

Control knob with temperature scale

Application

Universal units for controlling hot water in sanitary applications, solar-heated, tankless water heaters or for smaller underfloor heating circuits which are directly connected to the flow (max. 60 °C). Also for panel heating systems such as wall or underfloor heating systems which require a constant mixed water temperature to avoid damage to floors and pipes. Suitable for drinking water or water with up to 50 % glycol.

Description

Thermostatic mixing valve as per EN 1111 with base made of brass and cap and control knob made of high-strength plastic. With temperature scale (20/43 °C or 35/60 °C) for easy adjustment of the temperature of the water to be mixed. A cap protects the control knob against improper operation; it can be lead-sealed to help prevent unwanted adjustments. The selected adjustment is visible through the window in the cap. If the cold water line is interrupted, the mixing valve automatically closes the hot water supply to help protect against scalding. The new chamber geometry also helps to avoid damage caused by overpressure during closing (backflow preventer at cold water end). The internal geometry as well as the materials used at the control surfaces help to ensure that control errors (for example, caused by lime deposits on the sealing surfaces) are practically excluded. ATM is maintenance-free.

Technical specifications

Operating temperature range
Medium: Max. 90 °C
(short-term 110 °C)

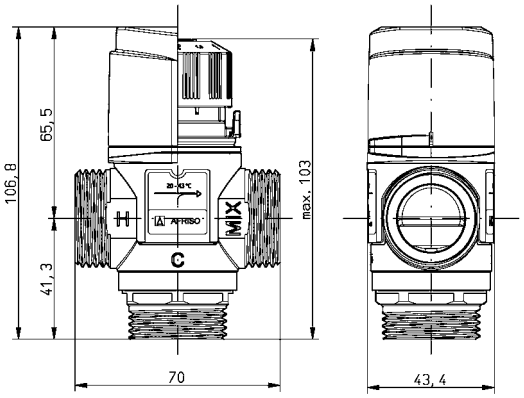
Nominal pressure
Max. 10 bar
Dynamic operating pressure: Max. 5 bar

Flow rate
Flow coefficient 1.6 m³/h or 2.5 m³/h

Accuracy
±2 °C (EN 1111)

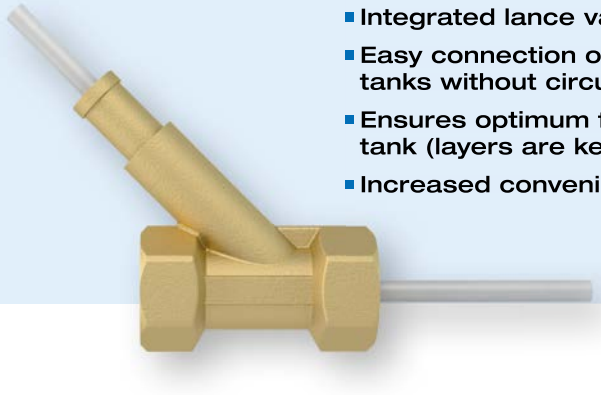
Material
Housing: Brass (CW626N), dezincification-resistant
Upper part: Plastic (ABS)
Control knob: Plastic (ABS)
Seals: EPDM

Dimensions (mm)



DG: G, PG: 2	DN	Kvs	Connection	Temperature	Part no.
ATM 341	15	1.6 m³/h	G¾ male thread	20 / 43 °C	78247
ATM 343	15	1.6 m³/h	G¾ male thread	35 / 60 °C	78246
ATM 331	20	1.6 m³/h	Rp¾ female thread	20 / 43 °C	78249
ATM 333	20	1.6 m³/h	Rp¾ female thread	35 / 60 °C	78248
ATM 361	20	1.6 m³/h	G1 male thread	20 / 43 °C	78245
ATM 363	20	1.6 m³/h	G1 male thread	35 / 60 °C	78244
ATM 561	20	2.5 m³/h	G1 male thread	20 / 43 °C	78283
ATM 563	20	2.5 m³/h	G1 male thread	35 / 60 °C	78284
Screw connection kit			G¾ female x G¾ male	-	12 201 10
Screw connection kit			G1 female x G1 male	-	12 202 10

Circulation lance ZL 2



- Integrated lance valve, design with no dead space
- Easy connection of stratified combination storage tanks without circulation connection
- Ensures optimum function of the stratified storage tank (layers are kept)
- Increased convenience due to shorter lead time

Application

Hydraulic connection assembly for tanks with drinking water flow heating to allow circulation mode for the domestic drinking water supply. Can be used in conjunction with the hot water circulation system WZS 100.
A stratified combination storage tank (corrugated pipe tank) which heats up drinking water according to the flow principle usually does not have a circulation connection. This frequently results in a connection problem. With the circulation lance, the circulation connection is made via the hot water outlet end. Thus, correct function of the stratified storage tank is ensured; the thermal layers are kept. The results in heating cost savings and electrical energy savings.

Description

Circulation lance for mounting in hygienic tank, consisting of part SPP with sleeve ø 8 mm and PE-Xc pipe ø 8 mm. A part of the circulation return volume is resupplied to the tank via the lateral circulation connection of ZL 2, heated up by means of the counter flow method and removed via the hot water connection of ZL 2. This is done via the circulation hose located in the heat exchanger pipe of the tank. Returning the circulating hot water in an optimum way ensures that the layers in the stratified storage tank remain intact.

Technical data

System connections
Rp1 female

Connection circulation return
G¾ male

Operating temperature range
Medium: Max. 110 °C

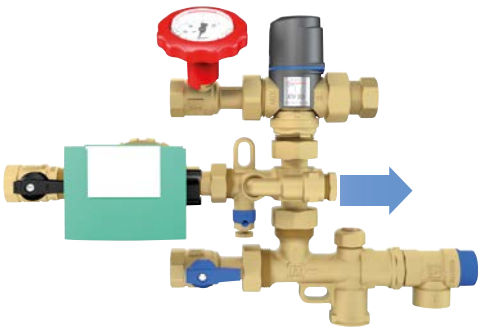
System pressure
Max. 6 bar

Material
Brass

Circulation hose
Ø 8 mm meshed polyethylene, 1.5 m long

Approval
Lance valve: SVGW certificate no. 0809-5419

Function principle external circulation



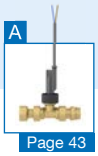
WZS 100 with circulation lance

In the case of external circulation, a partial volume is supplied to the stratified storage tank via the circulation connection and reheated in the upper area of the tank via the circulation lance. In the thermostatic mixing valve, the two partial flows are mixed together again to the adjusted reference temperature. Since only a part of the circulating water is heated directly in the top thermal layer of the tank, a mixing of the thermal layers is excluded.

DG: G, PG: 2	Part no.
Circulation lance ZL 2	68406

Circulation controller EC 1

- **Demand-controlled pump control for hot water circulation**
- **Legionellae protection function**
- **High energy savings due to intelligent pump control**
- **Intuitive use, reliable operation**



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Application

For demand-controlled optimum control of the hot water circulation in conjunction with the hot water circulation system WZS 100. Unnecessary periods of operation (time control or thermal control) and energy costs can be reduced.

Description

Circulation controller in wall mounting housing with controller adjustment via menus. A flow switch connected to EC 1 (for example, circulation switch ZS 2) monitors water withdrawal at the hot water end. After short opening of a tap in the hot water line, the circulation pump is switched on and stopped after an additional running time adjusted by the user has elapsed. This turns any standard fitting in the hot water system into a kind of "remote control".

This is energy savings in two ways: due to the demand-controlled pump, the storage tank is not cooled down unnecessarily by circulating the hot water, and the shorter running time of the circulation pump saves energy.

Technical data

Functions
- Circulation control
- Time control
- Additional pump running time

Operating temperature range
Ambient: 0/40 °C

Display
LC display, multifunctional combination display
Menu control with 3 pushbuttons

Supply voltage
AC 220 - 240 V

Inputs
1 x sensor input for circulation switch

Switching output
1 semiconductor relay

Housing
Wall mounting housing made of plastic (PC, ABS, PMMA)
Panel mounting possible
W x H x D: 172 x 110 x 49 mm
Degree of protection IP 20 (EN 60529)
Protection class II

Scope of delivery
- Circulation controller
- Mounting material

i

For full functionality of the circulation controller, the circulation switch ZS 2 is required.

DG: G, PG: 2	Part no.
Circulation controller EC 1	68407

Accessories WZS series

Circulation switch ZS 2

Application

Can be used in conjunction with the circulation controller EC 1 for demand-controlled circulation control via opening and closing of a tap.

Description

Circulation switch in pipe piece for direct mounting in the insulation of the hot water circulation system WZS 100.
Mandatory for optimum operation of the circulation controller EC 1.

Technical specifications

Brass pipe piece
G¾ female, DN 20, PN 10

Operating temperature range
Medium: Max. 100 °C

Switching point
1.5 ± 0.7 l/min in horizontal mounting position
1.8 ± 0.75 l/min in other mounting position

Switching contact
Closes if value is exceeded

Output
Voltage-free contact

Sheathed cable
Length: 1.5 m PVC

Water safety group assembly WSG 150

Safety group assembly for sealed hot drinking water systems, boilers or drinking water heaters as per EN 806 to secure the inlet of the energy storage tank (hot water tank/stratified storage tank) and for protection against overpressure and back-circulation.

Compact, tightness-tested storage tank connection kit with integrated backflow preventers, shut-off valve and safety valve. Easy adaptation to on-site requirements by rotating the safety valve. WSG 150 is very easy to mount, even directly to a water heater. WSG 150 can be extended at the 1" connection (remove cap).

System connections
G¾ female

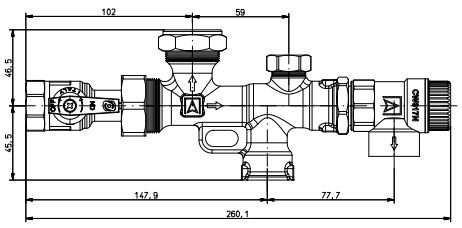
Operating temperature range
Medium: Max. 95 °C

System pressure
Max. 10 bar

Safety valve
Opening pressure: 6 bar
G¾ x G¾

Flow coefficient Kvs
4.97 m^3/h

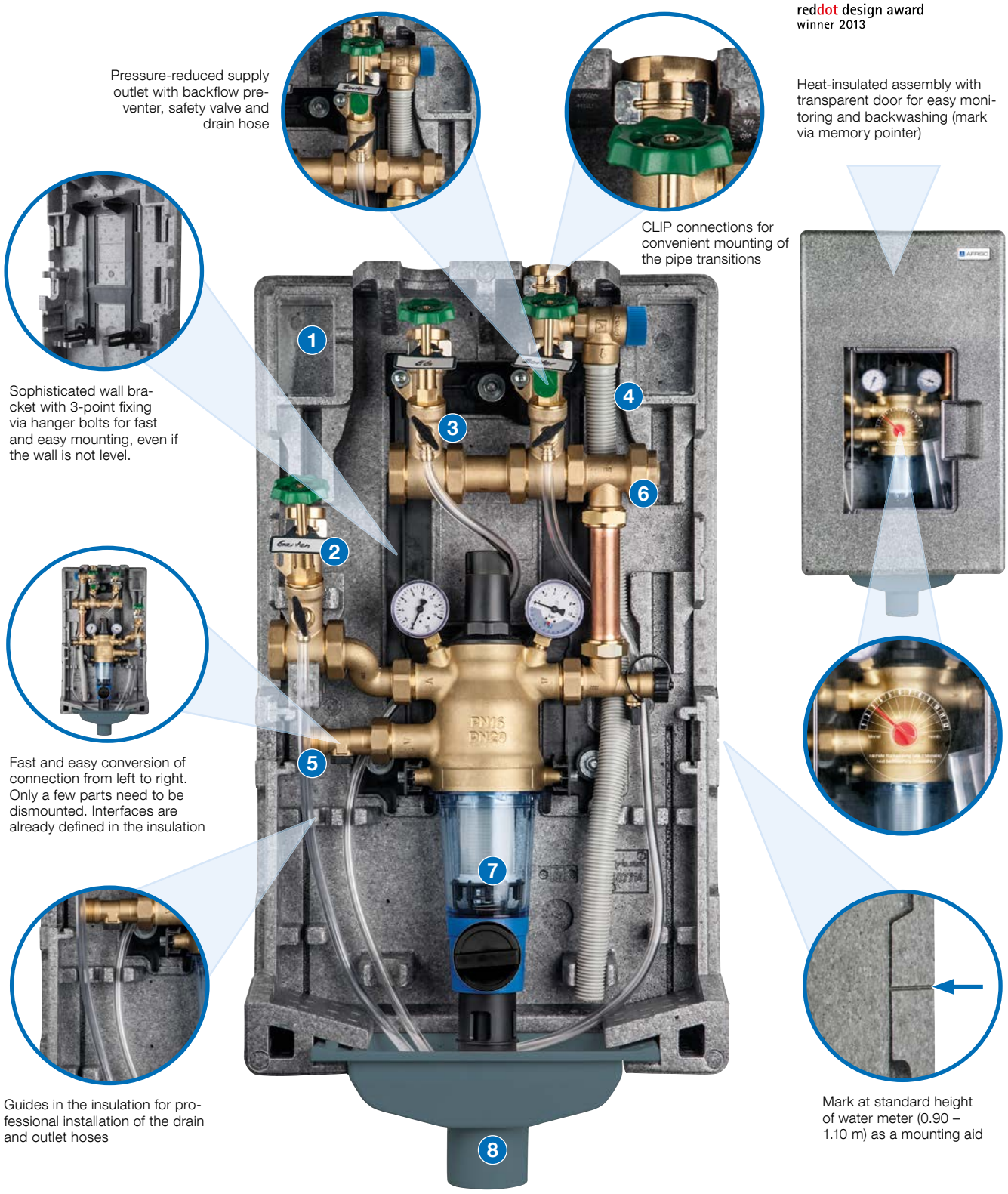
Dimensions (mm)



DG: G, PG: 2	Part no.
Circulation switch ZS 2	68408
Water safety group assembly WSG 150	**68412**

Domestic water system centre HWSC

reddot design award
winner 2013



1. Storage compartment for spare seals/silicone grease
2. Filtered high pressure outlet (as per DIN 1988), e.g. for garden line
3. Pressure-reduced supply outlets with drain hoses (1 outlet with backflow preventer)
4. Safety valve (6 bar) outlet hose
5. Backflow preventer, DVGW approval
6. Connection G¼ for sampling valve
7. Filter combination with fine filter and pressure reducer, DVGW approval
8. Drain unit consisting of funnel (DN 75) and reducing adaptor (DN 75/DN 50)

Domestic water system centre HWSC

- **Extremely compact system centre 395 x 760 mm (W x H)**
- **Lightning-fast, easy installation**
- **Innovative backwashing system – fast and thorough cleaning of the filter element, low water consumption**
- **Modular design: Can be extended by additional pressure-reduced outlets, automatic backwashing unit, refill combinations, etc.**

Automatic backwashing unit RA 01 (accessory) for setting the time intervals

reddot design award
winner 2013

Application

For drinking water installations as per EN 806, DIN 1988 and DIN 4753-1. The system centre combines all functions of conventional water distribution installations in a small-footprint unit: the pressure reducer reduces the inlet pressure to an even, system-specific pressure in order to protect the installation and to ensure economical water consumption. The water filter keeps pollutants such as rust particles or sand grains from reaching the domestic water installation, thus protecting valves, machines, boilers, etc. from malfunctions caused by dirt. With its straightforward design and unobtrusive colour, the domestic water system centre fits in perfectly with modern equipment rooms, basements and utility rooms.

Description

Compact, tightness-tested domestic water system centre as a complete solution for the distribution of drinking water in buildings. The base version of HWSC consists of a backflow preventer, filter combination with fine filter and pressure reducer, drain unit with connection possibility to the wastewater system, three supply outlets, safety valve and all function components. The individual components are DVGW-certified or comply with the DVGW regulations. The assembly is contained in a form-fit insulation for easy access and operation. The integrated transparent front door allows for checking the system pressure and the safety valves and provides easy access to start backwashing; it is not necessary to remove the upper part of the insulation. The memory pointer on the door lets you set the date for the next backwashing procedure.

HWSC excels with a dramatic reduction of the installation time: a drilling template is shipped with the unit for precise positioning of the three holes. Hanger bolts allow for precise adjustment of the domestic water system centre to the wall and enable easy horizontal and vertical alignment. HWSC features a variable height adjustment from 65 to 115 mm to allow for precise adaptation to the individual distance of the water meter from the wall. The default connection setting is intended for left-side connection, but HWSC can be converted to right-side connection in a matter of minutes.

The integrated filter combination features an innovative backwashing system with rotating impeller which ensures fast and thorough cleaning of the fine filter and low water consumption. The entire sieve surface of the filter insert is cleaned at high pressure. The pressure reducer reduces the inlet pressure to an even, system-specific pressure; part of the water flows directly and without pressure reduction to the high-pressure outlet for the garden line. If this is not required, it can be converted into an additional pressure-reduced supply outlet. The insulation can accommodate up to four supply outlets; any additional outlets must be mounted outside the insulation. Due to the modular design and the defined connections, it is easy to fit extensions with an automatic backwashing unit, a refill combination for filling heating systems and the connection of a sampling valve or a water softening system.

Door for fast checking the system pressure, the safety valve of for starting backwashing.

Domestic water system centre HWSC

Technical specifications

Medium
Drinking water

Inlet pressure
Max. 16 bar

Flow coefficient Kvs
4.2 m³/h

Operating temperature range
Medium: 5/30 °C

Mounting position
Vertical
Supply outlets to the top

Dimensions (housing)
W x H x D: 395 x 665 x 210 mm

Weight
Approx. 12 kg

Connection drinking water
Inlet: R1
Supply system: G¾ female thread

Connection waste water
DN 50, DN 75

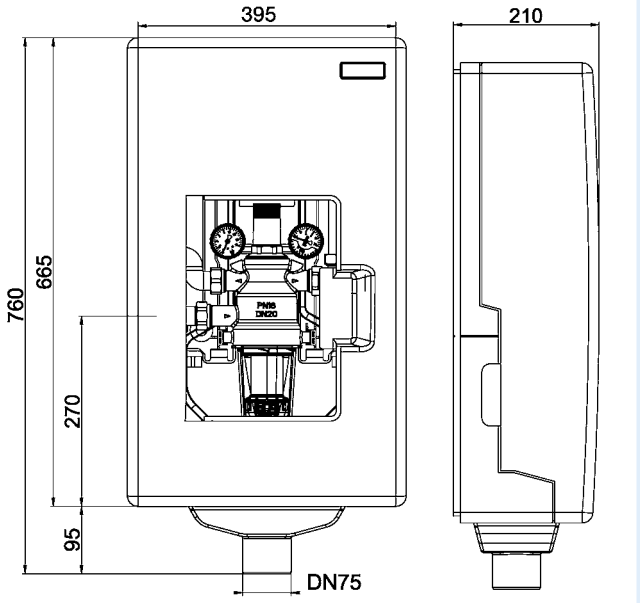
Material

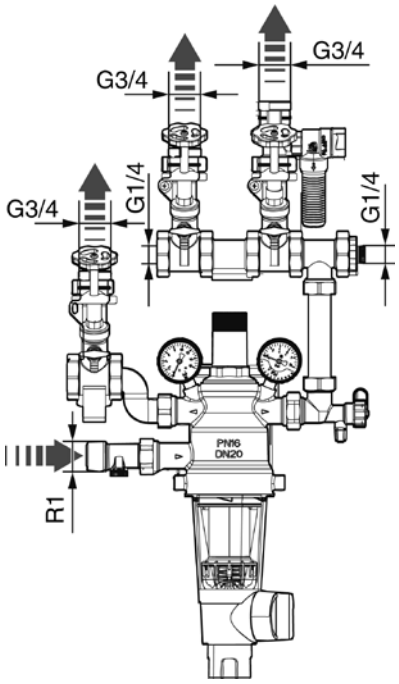
Fittings:	Brass (CW617N)
Insulation:	Polypropylene EPP
Filter housing:	Brass (dezincification-resistant)
Fine filter:	Non-corroding steel
Seals:	EPDM

DVGW approval
All components are DVGW-conform.
Components with DVGW approval: filter combination, backflow preventer, seals

SVGW approval
Components with SVGW approval:
Filter combination
Certificate no. 1310-6204

Dimensions (mm)





DG: M	PG	Part no.
Domestic water system centre HWSC	2	**42755**
Connection kit for refilling of heating system	2	42757
Connection kit for water softening	2	42756
Extension supply outlet G¾ female thread	2	42758
Automatic backwashing unit RA 01	4	42739

AFRISO – more than 150 years of expert knowledge

The company

AFRISO, founded by Adelbert Fritz in Schmiedefeld, Germany in 1869, is an innovative, medium-sized company with a total staff of more than 1,100 worldwide, over 550 of which are employed at the four German sites.

Headquarters in Güglingen (Germany)

AFRISO training centre

AFRISO Logistics and service centre

Traditionally, we manufacture measuring and control devices for temperature and pressure. For more than 50 years now, we have also been manufacturing measuring, control and monitoring devices and systems for environmental protection:

- Level indicators
- Overfill prevention systems
- Leak detectors
- Valves and control technology for heating systems
- Flue gas analysers

Our leading-edge, market-oriented products and innovations result from our comprehensive know-how, a highly motivated and qualified staff and the fact that we understand what the market needs.

Our portfolio covers everything from a comprehensive range of standardised, proven off-the-shelf products all the way to high-grade customised solutions.

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- Highest quality levels
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AFRISO stands for leading-edge brand products to meet your requirements.

Environmental management as per ISO 14001 is a matter of course for AFRISO.

Your benefits – our strengths

Large range of products on stock

- More than 3,000 different product types with more than 1,500,000 instruments are available for ex-stock delivery.

Global sales network

- Competent sales partners offer you optimal technical and economic solutions.
- Our External Sales Engineers will advise you personally and individually.
- Our Sales and Distribution Companies ensure worldwide service.

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- Quick and reliable local service.

Powerful research and development

- Innovative product development.
- Customised solutions according to your requirements.

The complete range:

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- Overfill prevention systems/overfill alarm systems
- Leak detectors/leak monitoring systems
- Inner tank linings
- Gas alarm units
- Equipment for fuel oil storage tanks, oil carrying pipes, boiler rooms, boilers and heating systems
- Smart Home systems
- Heating controllers
- Valves and control technology for hydraulic balancing
- Equipment for drinking water supply
- Pressure gauges and pressure controllers
- Temperature measuring instruments and temperature controllers
- Portable measuring instruments, analysers and testers
- Portable and stationary gas analysers
- Signalling devices/display units
- Event reporting and communication systems











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Technology for Environmental Protection
Measuring. Controlling. Monitoring.

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