

ACS 35

DESCRIPTION

The **ACS 35** is an instant domestic hot water mixer. It uses a brazed, stainless steel plate heat exchanger and is ideal for use in combination with DHW storage cylinders.

Temperature of the hot water delivered to the taps is regulated by the thermostatic mixing of water in the primary circuit. The primary circuit pump is controlled by a flow switch in the DHW circuit, connected in series to the pump. The product is equipped with two filling/drain cocks. When the shut-off valves are closed, these can also be used to flush out the heat exchanger.

A domestic hot water recirculation kit is available for further convenience.

The **ACS 35** instant hot water mixer comes complete with an insulated frame.

CONTENTS OF THE KIT

<u>Description</u>	<u>Qty.</u>
1 DHW mixer in packing	1
2 Instruction manual	1



At the end of its life, the product should be not be disposed of as solid urban waste, but rather it should be handed over to a differentiated waste collection centre.

GENERAL SAFETY INFORMATION AND PRECAUTIONS

READ THIS MANUAL THOROUGHLY BEFORE PERFORMING ANY WORK ON THE PRODUCT.

The manufacturer reserves the right to modify the product without notice for the purpose of introducing technical improvements or to facilitate production, installation and positioning. The illustrations in this manual may therefore differ slightly from the actual product. The safety of the product and the accuracy of the instructions provided are nevertheless guaranteed.

This manual forms an integral part of the product itself and must be kept in a safe place in order to avoid damage and to permit rapid consultation throughout the working life of the product.

Ideally, this manual should be kept with the product where it can be consulted whenever needed. The manual should always accompany the product if sold or transferred to a new owner, or stay with it if the owner moves house and leaves it behind, so that the next user can consult it.

GENERAL SAFETY INFORMATION

INSTALLATION

Disconnect the product from the mains power supply before performing any work on it.

The product must be installed in conformity to the laws and standards applicable in the country of installation.

The manufacturer's responsibility is limited to the supply of the product. The product must be installed in conformity to applicable standards by suitably qualified persons employed by a company that assumes full responsibility for the completed installation.

The manufacturer cannot be held responsible for consequences deriving from the unauthorised modification of the product or from the use of non-original spare parts.



Do not expose the product to the elements. It is not designed for use outdoors

ELECTRICAL CONNECTIONS

The product must be installed and all electrical connections made by suitably qualified personnel in conformity to applicable standards.

The product's mains power cable must be connected to a fused, two-pole switch (power supply 230 VAC, 50 Hz). The product must be correctly connected to ground.



The product must be connected to the mains power supply via an earth leakage breaker in accordance with applicable standards. Correct functioning is only guaranteed provided the product is used with the pump for which it is designed. The manufacturer cannot be held responsible for the consequences of improper uses.

WATER CONNECTIONS

On completion of all transport or handling operations, always check the tightness of the water fitting ring nuts.

Take particular care when connecting the product to the water supply. When tightening a fitting, always hold the opposite fitting steady with a second tool to avoid twisting the copper pipes.

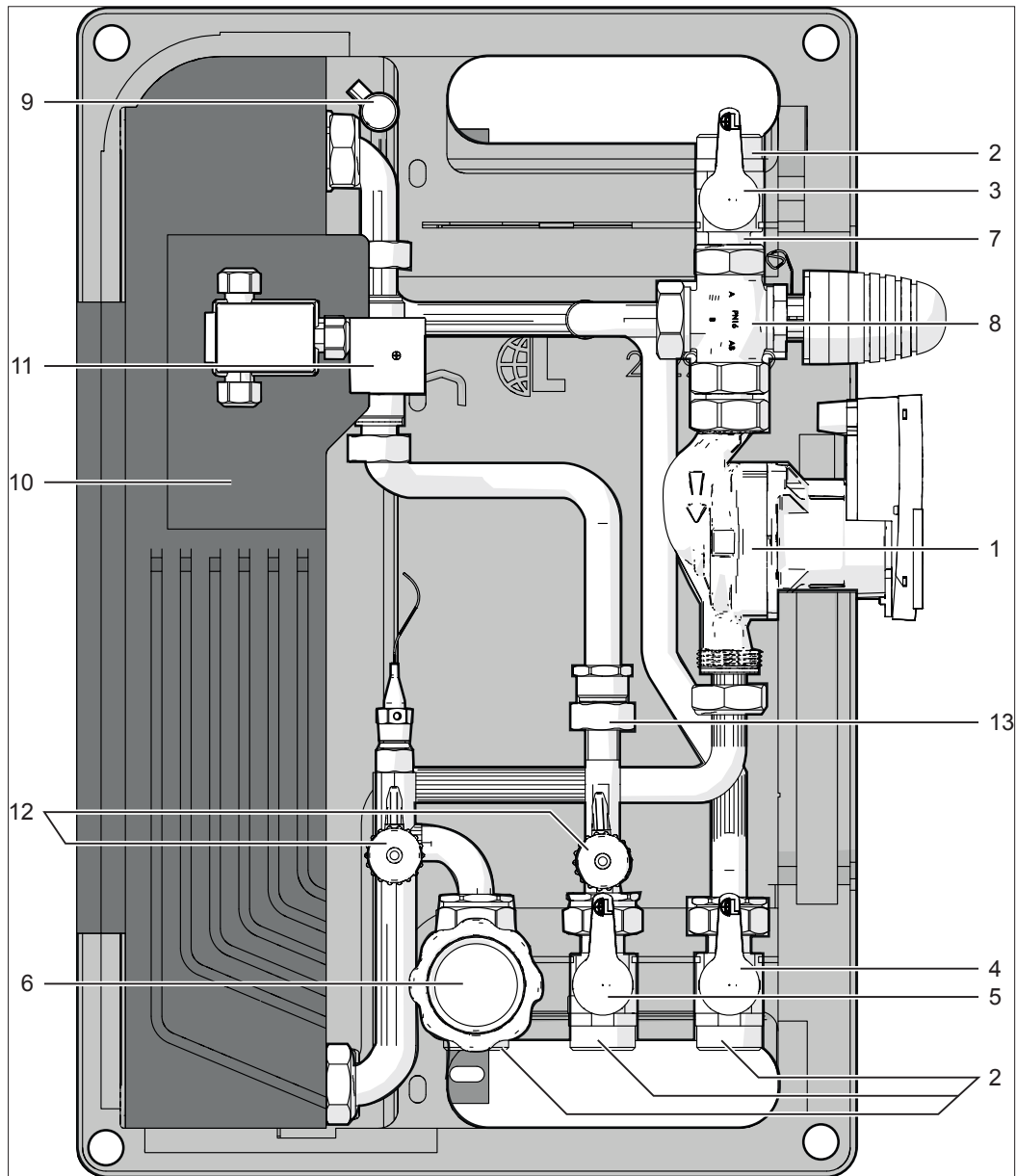


The product must be installed, connected and tested by suitably qualified persons, in conformity to applicable standards and in accordance with the instructions provided in the documentation supplied with it. N.B.: All pipes must be insulated in conformity to applicable standards.

It is essential to respect the following precautions when using the product:

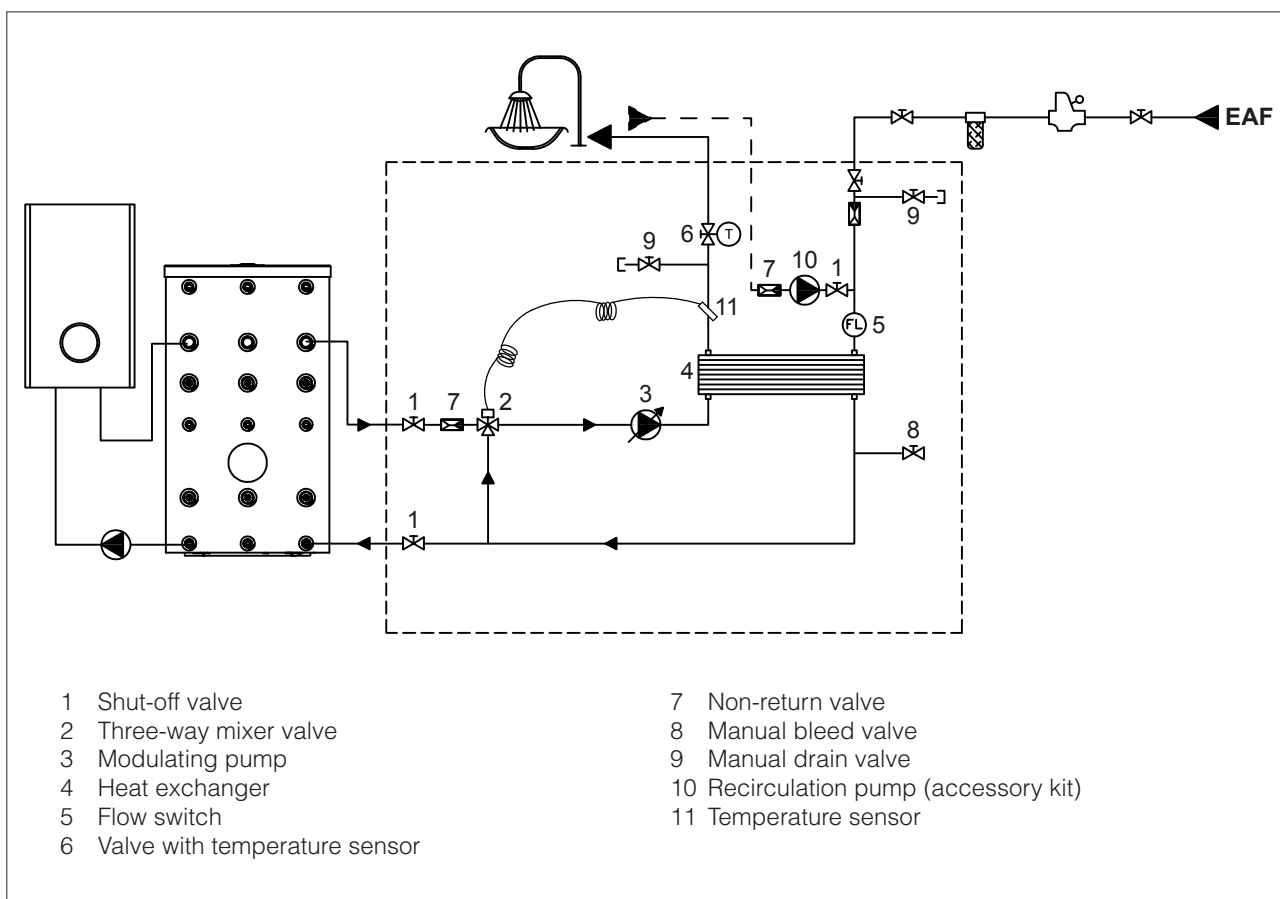
- Do not touch hot parts of the product such as the water inlet and outlet pipes. Contact with hot parts can cause painful burns.
- Do not splash water or any other liquid over the product.
- Do not rest any objects on top of the product.
- Do not expose the product to steam from a cooking hob.
- Do not allow children or inexperienced persons to operate the product.
- Do not touch the product when barefoot or wet.
- Do not pull on the electrical cables.

MAIN COMPONENTS



- 1 Pump
- 2 Ball valve, DN 20 1" M - 3/4" F
- 3 Red knob for primary circuit inlet valve
- 4 Blue knob for primary circuit return valve
- 5 Blue knob for cold water inlet valve
- 6 Black knob for non-return valve with DHW outlet temperature sensor
- 7 Non-return valve
- 8 Three-way mixer valve with thermostatic actuator, 35 - 65°C
- 9 Manual bleed valve, 3/8"
- 10 Brazed, stainless steel, plate heat exchanger with insulation
- 11 Flow switch
- 12 Filling/drain cock, 1/2"
- 13 Union for recirculation kit, 3/4" F

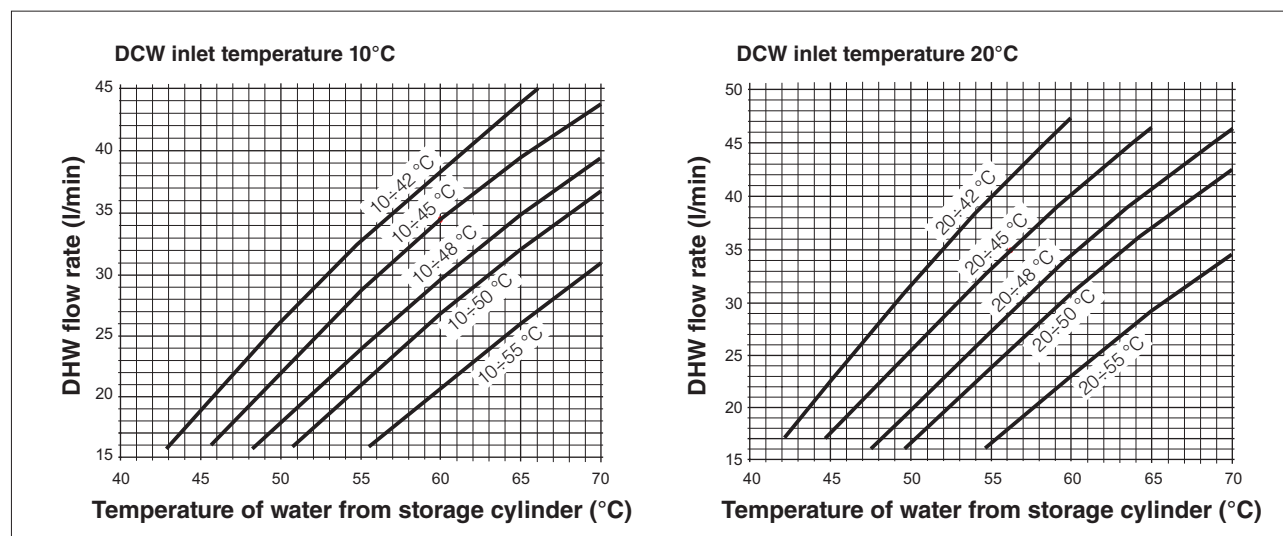
WATER CIRCUIT



TECHNICAL SPECIFICATIONS

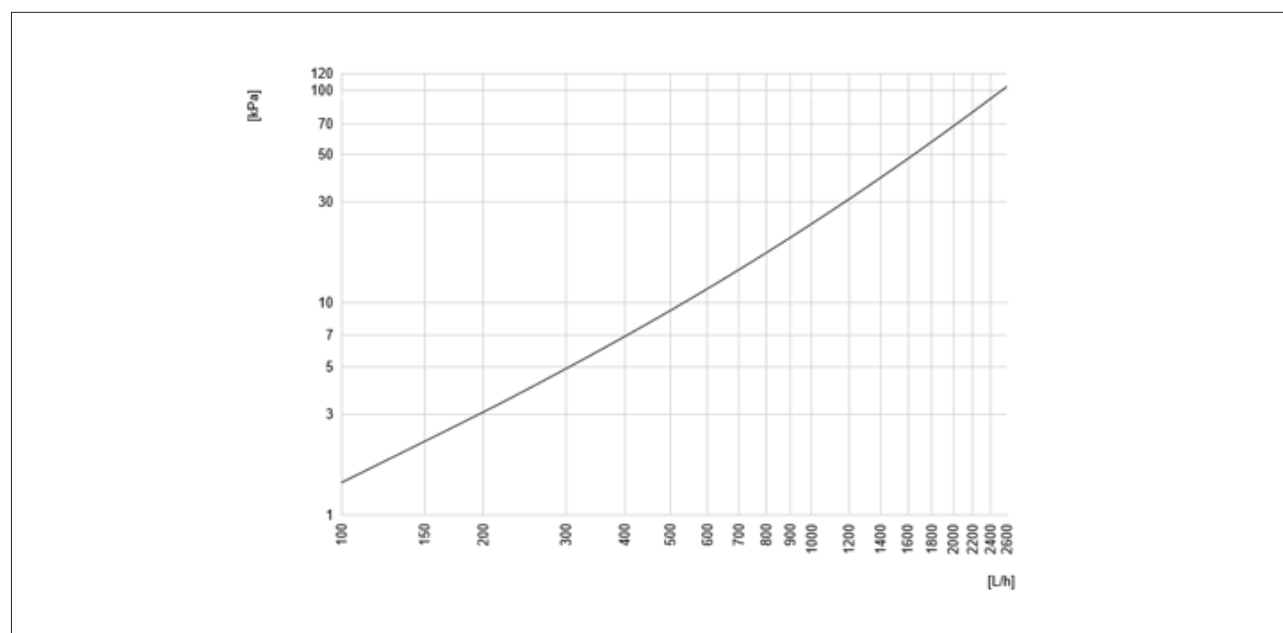
DESCRIPTION	ACS 35	
Thermal power absorbed with storage cylinder at 50°C and DHW water delivery at 10-45°C	54	kW
Water draw at 10-45°C with storage cylinder at 50°C	22	l/min
Thermal power absorbed with storage cylinder at 55°C and DHW water delivery at 10-45°C	68	kW
Water draw at 10-45°C with storage cylinder at 55°C	28	l/min
Thermal power absorbed with storage cylinder at 60°C and DHW water delivery at 10-40°C	80	kW
Water draw at 10-40°C with storage cylinder at 60°C	38	l/min
Maximum flow-rate primary	1700	l/h
Minimum permissible temperature, DHW circuit	2	°C
Maximum operating temperature	90	°C
Maximum operating pressure, primary circuit	10	bar
Opening pressure, primary circuit non-return valves	28	mbar
Opening pressure, DHW circuit non-return valves	28	mbar
Electrical power consumption	45	W
Power supply voltage	230	V
Power supply frequency	50-60	Hz
Index of protection	54	IP
Net weight	19,1	kg
Water capacity	6,1	l

Domestic hot water production graph

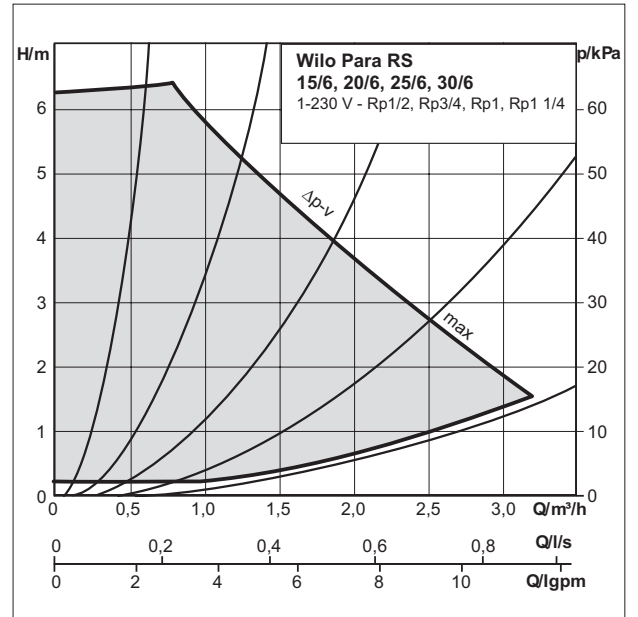
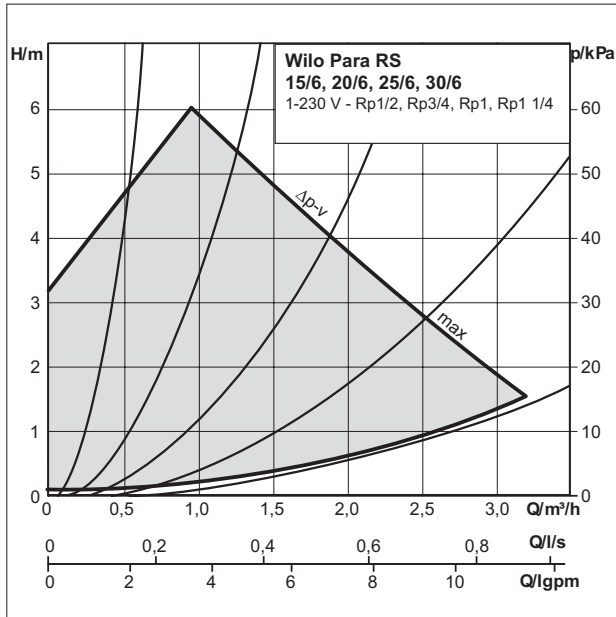


NB: Correct functioning of the product is only guaranteed if the primary circuit inlet temperature is at least 5°C higher than the DHW setpoint.

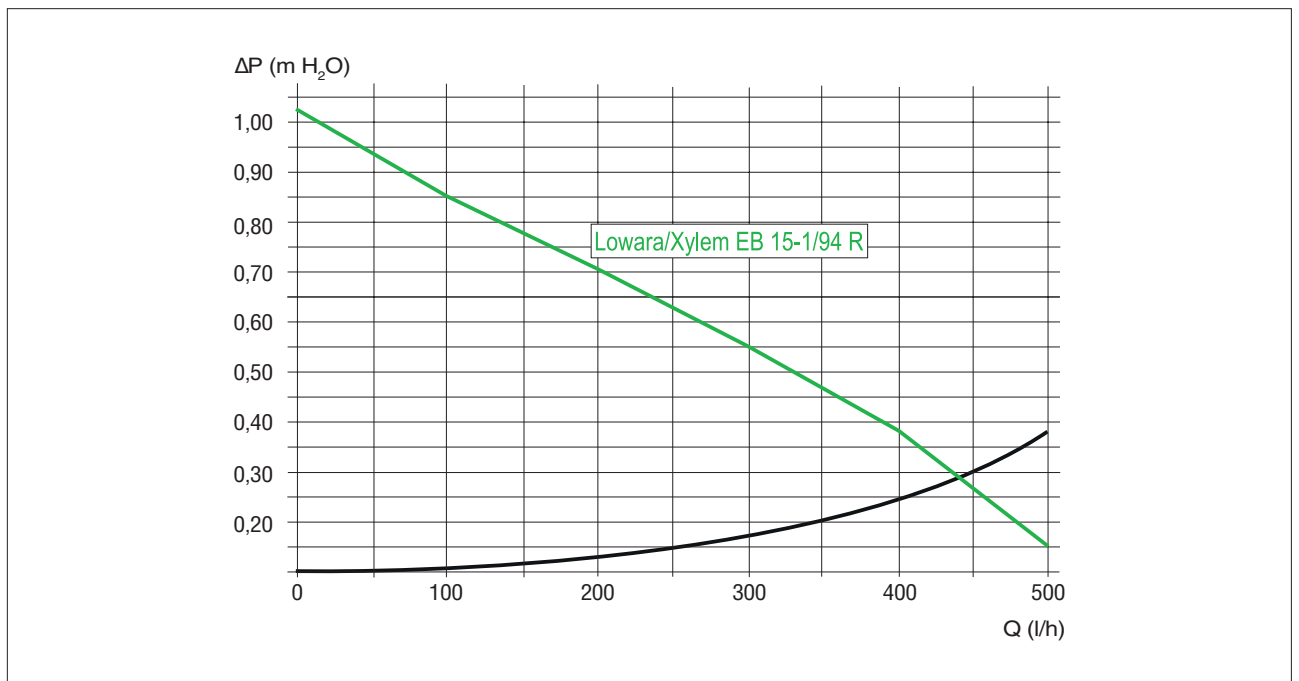
PRESSURE DROP OF THE DHW SECONDARY CIRCUIT



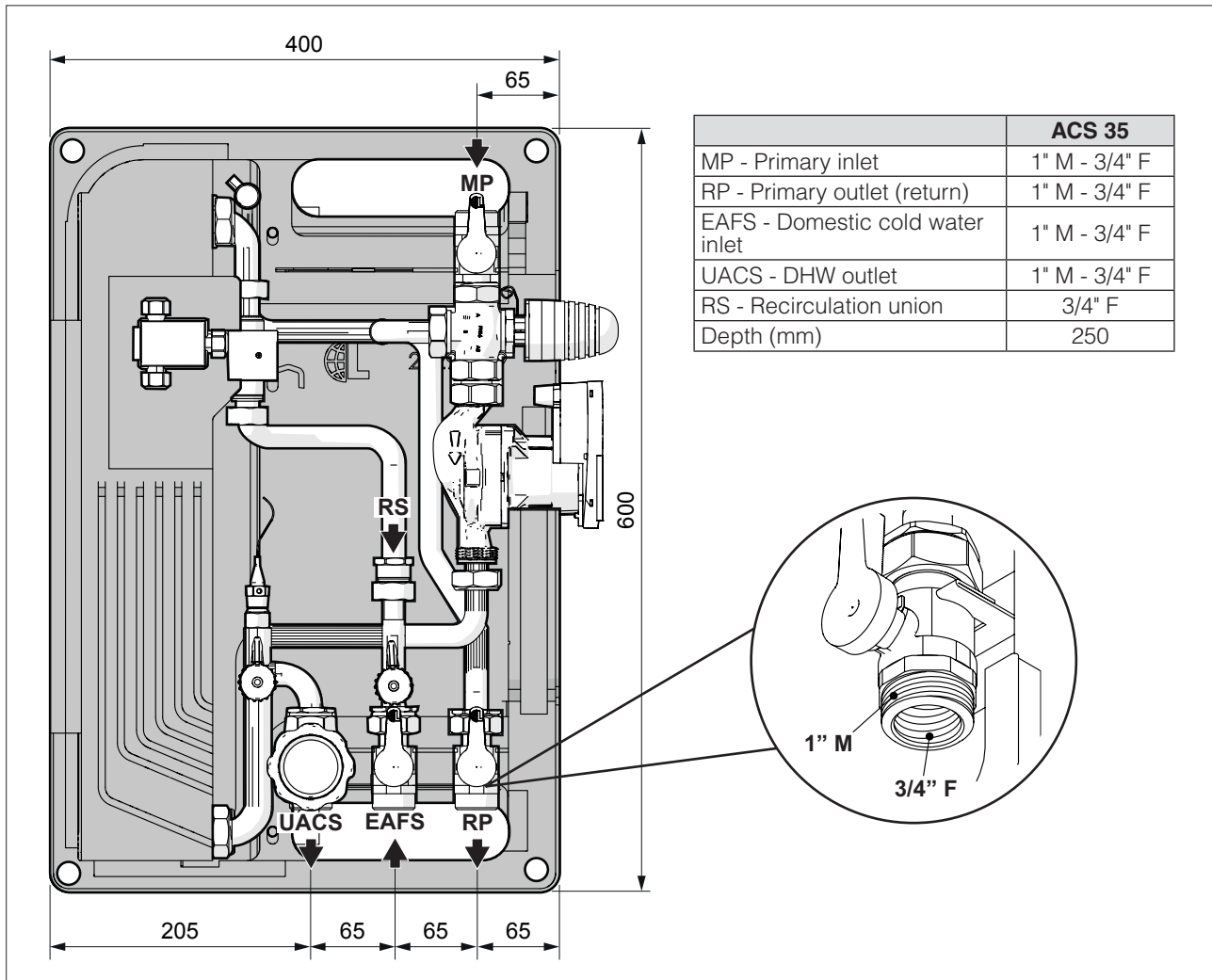
PUMP CURVES



DHW RECIRCULATION PERFORMANCE CURVES

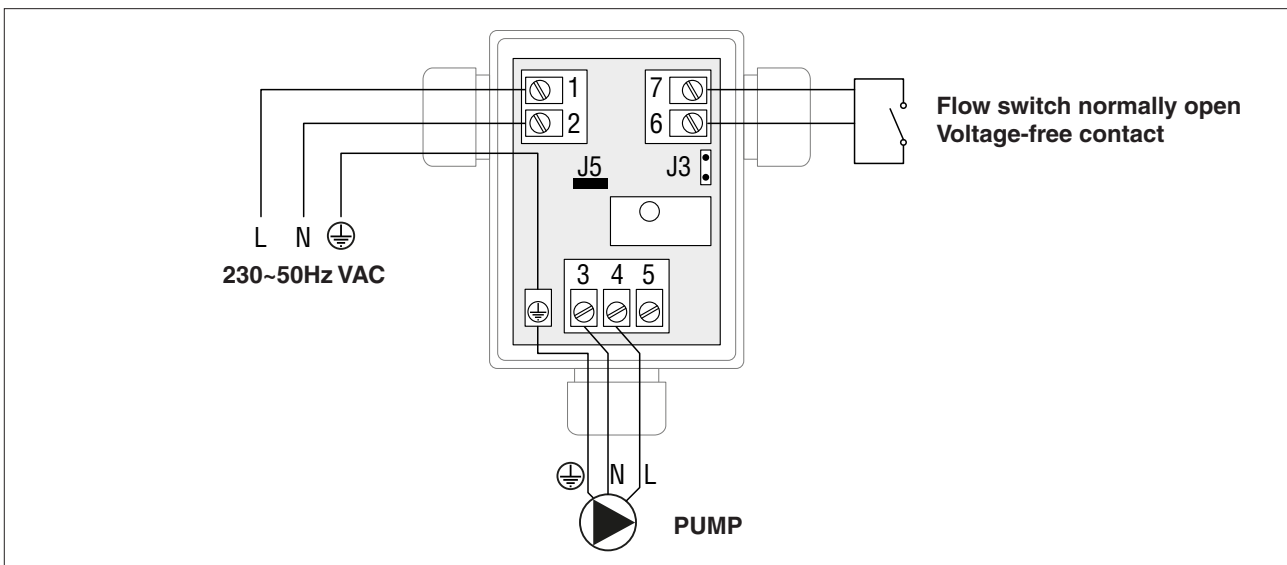


OVERALL DIMENSIONS AND FITTING POSITIONS



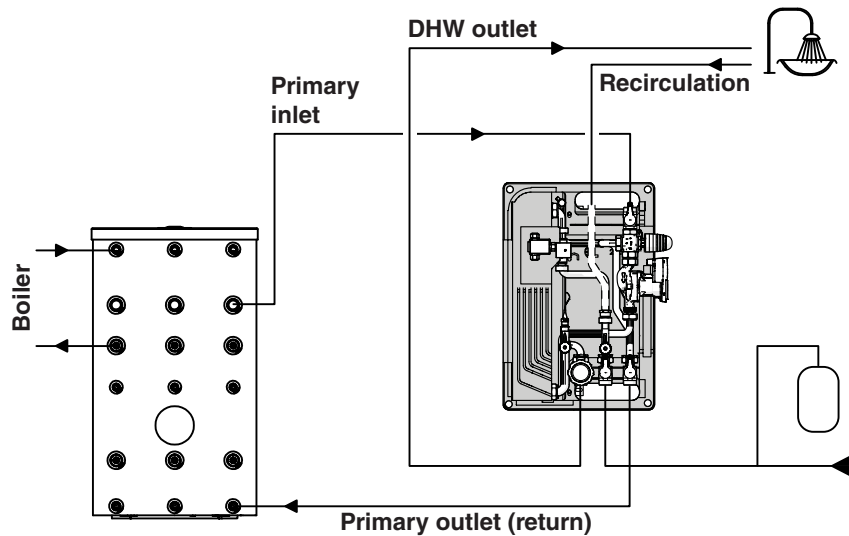
ENGLISH

WIRING DIAGRAM



SYSTEM SCHEMATIC

Example of wall mounted installation



INSTALLATION

PRELIMINARY CHECKS

Carefully remove the packing and check that the product is complete and undamaged. If any defect or damage is detected, do not install or attempt to repair the product but return it to the retailer. Dispose of packaging in compliance with applicable law.

- ⚠ Make sure that the installation position provides easy visibility of and access to the safety valves.
- ⚠ Connect the safety valves to a drain in conformity to applicable standards.
- ⚠ Install the product as near as practical to the storage cylinder. The product is designed to work with a pipe length of 4 metres (inlet and return) between itself and the storage cylinder.
- ⚠ Disconnect the product from the mains power supply before performing any work on it.
- ⚠ The product must be installed in conformity to the laws and standards applicable in the country of installation.
- ⚠ The manufacturer's responsibility ends with the supply of the product. The product must be installed in conformity to applicable standards by suitably qualified persons employed by a company that assumes full responsibility for the completed installation.

INSTALLATION AND PUTTING INTO SERVICE

Bear in mind the following before installing the product:

- The product is designed to mix domestic hot water from a storage cylinder. Any other use, or any use incompatible with the product's technical specifications, is considered improper. Do not connect the product directly to a boiler.
- The product is not designed to be operated by children or persons with limited physical, psychological, sensorial or mental capacities.
- If the piping needed to connect the product to the water system is damaged, it must be replaced by a suitably qualified person.
- The installation must conform to all applicable laws and standards.

- ⚠ Installation and connection of the product must be performed by an authorised, specialist company. The company installing the product assumes all responsibility for ensuring that the installation and functioning of the product conform to applicable standards.

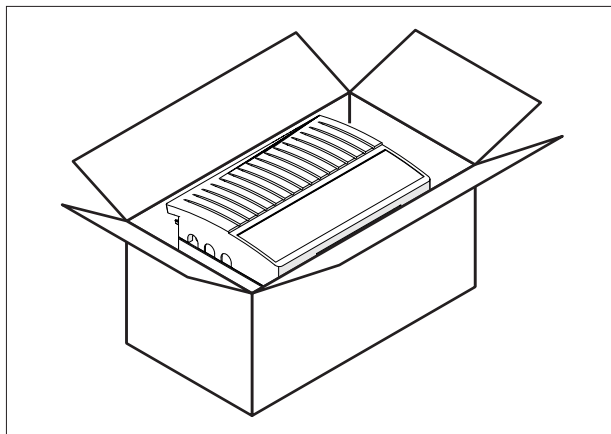
⚠ The product must be stored in a dry place where it is not subject to frost. The product must be installed where it is protected against splashes of water. Ambient temperature in the place of installation must not exceed 40°C during functioning of the product.

⚠ It is recommended to install the product as near as practical to the storage cylinder in order to avoid unnecessary heat loss from the connecting pipes.

WALL MOUNTING

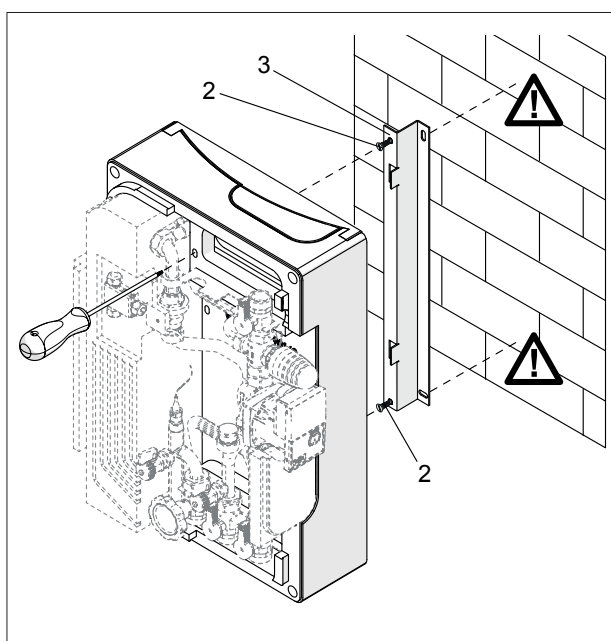
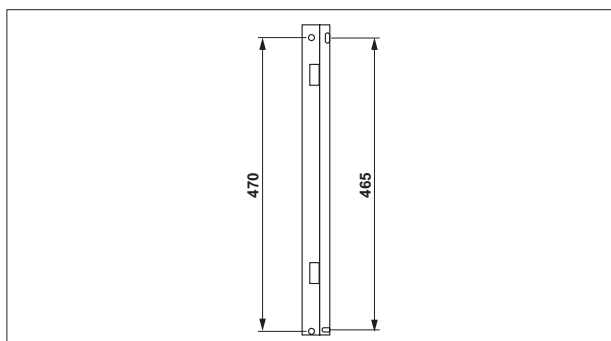
⚠ Handle with care!

Remove the product from its packaging and remove the polypropylene cover.

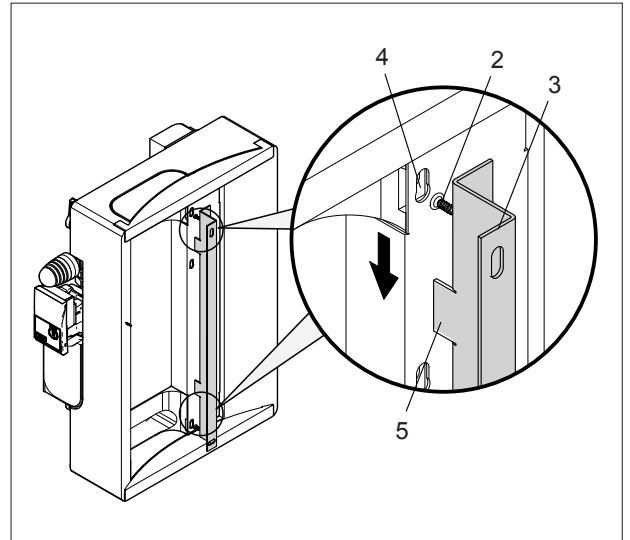


- Unscrew the screws (2) and remove the mounting bracket (3) from the rear of the product.
- Fix the mounting bracket (3) to the wall with 12 mm wall plugs (not supplied).

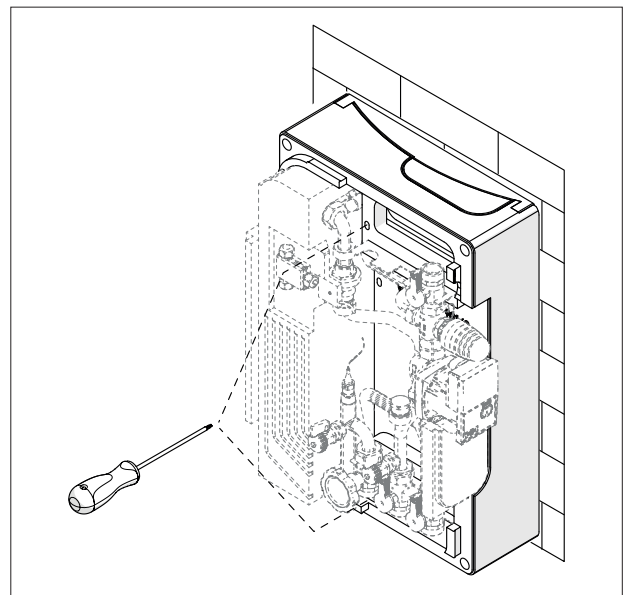
⚠ Make sure that the bracket (3) is perfectly vertical.



- Attach the product to the bracket (3) by inserting the screws (2) through the slots (4) in the back panel, using the side guides (5) to align it.
- Slide the product down until the screws lie at the top of the slots.

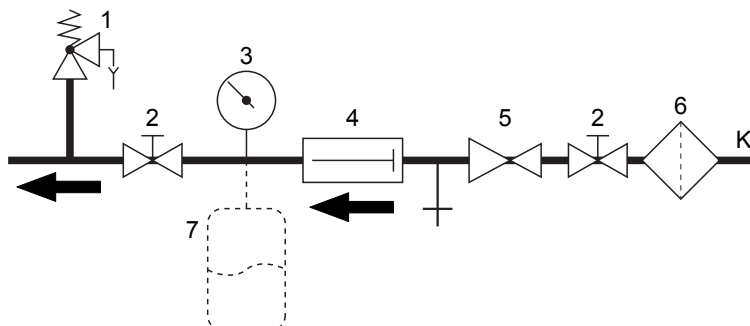


- Tighten the screws (3) from the front of the product until it is firmly secured to the bracket.



WATER CONNECTIONS

CONNECTION TO THE WATER CIRCUIT



- | | |
|---|--|
| 1 Safety valve | 7 Expansion vessel (accessory) |
| 2 Shut-off valve | K Fitting for domestic cold water supply |
| 3 Pressure gauge | |
| 4 Non-return valve | |
| 5 Pressure reducer valve (necessary for $K \geq 6$ bar) | |
| 6 Fine mesh filter | |

⚠ The pipes between the product and the storage cylinder should be kept as short as possible.

⚠ Connect the product to the domestic cold water supply as shown.

⚠ Install a filter in the domestic hot water circuit to capture impurities and protect the circuit. Also install a non-return valve and an expansion vessel along the domestic cold water supply.

If the water supply is harder than 25 to 30 °Fr, a suitable treatment system should be installed upstream from the water heating system to prevent corrosion and the formation of limescale.

Bear in mind that, because of the low thermal conductivity of limescale, even deposits of only a couple of millimetres in thickness can significantly reduce the efficiency of the water heating system.

The ACS 20 hot water mixer is made from materials that conform to the requirements of Ministerial Decree 174/2004 (Italy) implementing Council Directive 98/83/EC.

All fittings are assembled in the factory. It is nevertheless advisable to check their tightness after installing the product. It is also necessary to test the product for water tightness at operating pressure when putting it into service.

⚠ Values in excess of those specified in the table alongside can damage the product and automatically invalidate the warranty. It is therefore important to analyse the water to ensure that all values are within the limits given in the table.

WATER PARAMETER	UNIT OF MEASURE	MAXIMUM PERMISSIBLE VALUE FOR COPPER-BRAZED HEAT EXCHANGERS
PH		7-9 (indicative of saturation)
Saturation index (PH delta)		-0.2<0<+0.2
Total hardness	°Fr	15-30
Conductivity	µS/cm	10...500
Solid substances	mg/l	<30
Free chlorine	mg/l	<0.5
Hydrogen sulphide	mg/l	<0.05
Ammonia	mg/l	<2
Bicarbonate	mg/l	<300
Bicarbonate/Hydrogen sulphide	mg/l	>1.0
Sulphur	mg/l	<1
Nitrate	mg/l	<100
Nitrite	mg/l	<0.1
Sulphate	mg/l	<100
Manganese	mg/l	<0.1
Dissolved iron	mg/l	<0.2
Free, aggressive carbon dioxide	mg/l	<20

ELECTRICAL CONNECTIONS

The following instructions are mandatory.

- 1 Use a multi-pole, magnetic thermal, earth leakage breaker and disconnector that conforms to legislation in the country of installation.
- 2 Respect the L (Phase) - N (Neutral) polarity. Keep the ground wire about 2 cm longer than the power wires.
- 3 Make sure the product is correctly connected to ground.



It is strictly forbidden to use water pipes to ground the product.



Do not route the power cable near hot surfaces (like hot water pipes). Use a suitable class of cable if there is any possibility of contact with parts at temperatures above 50°C.



The manufacturer declines all responsibility for damage caused by failing to ground the product adequately or by failure to respect the wiring diagrams provided in this manual.

PUTTING INTO SERVICE



CAUTION! Completely fill the water circuit before putting the product into service.

- Check that the ring nuts of all the water fittings are tight.
- Fill the system and check it for water tightness.
- Open the cold water and hot water shut-off valves slowly in order to avoid pressure surges.
- Bleed the system as follows:
 - Open a hot water tap near the product and unscrew the thermostat knob as far as it will go.
 - Open the bleed screw on the pump upstream to bleed air from the storage cylinder side of the system. Continue until all the air has been bled from the system.
- Adjust the thermostat knob to the desired water temperature.



All fittings are assembled in the factory. It is nevertheless advisable to check their tightness after installing the product. It is also necessary to test the product for water tightness at operating pressure when putting it into service.

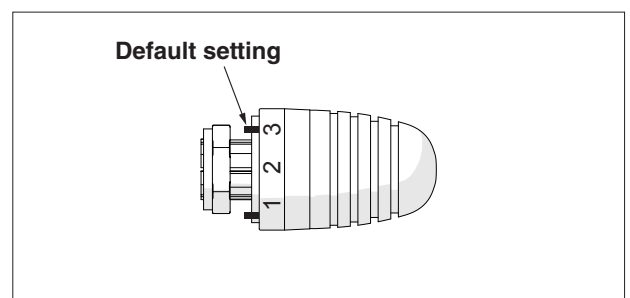


Check the expansion vessel regularly in accordance with applicable standards.

- Set the pump to function at a constant pressure differential. This ensures a constant head within the permitted flow rate range.
- Fit the insulation.
- On completion of installation, check the product to ensure that it functions correctly and does not leak.

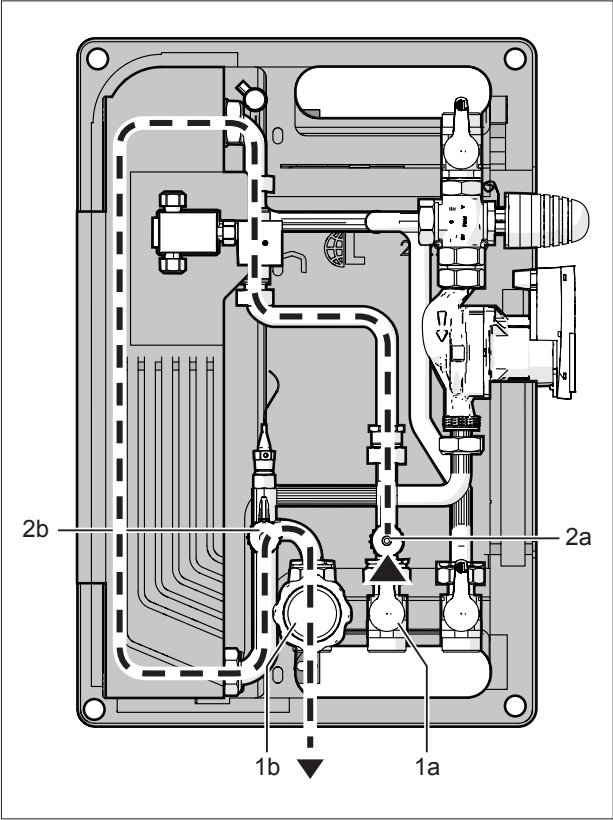
Pos.	t (°C)
1	35
2	40
3	45
4	50
5	55
6	60
7	65

DEFAULT SETTING



FLUSHING THE HEAT EXCHANGER

- Shut off the DHW flow by closing the ball valves (1a) and (1b) for the cold water inlet and hot water outlet respectively.
- Attach the flushing fluid supply to the cold water inlet valve (2a).
- Attach the flushing fluid drain to the DHW outlet valve (2b). Pump flushing fluid through the heat exchanger until it is clean.



CHECKS

On completion of the installation, perform the checks listed in the table below.

DESCRIPTION	OK
All automatic or manual filling pumps removed.	
Safety valve calibrated to 6 bar, and flow open.	
Drain pipe from safety valve routed suitably.	
Expansion vessel correctly located and pre-charged to 2.5 bar.	

RIELLO S.p.A.

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The manufacturer strives to continuously improve all products. Appearance, dimensions, technical specifications, standard equipment and accessories are therefore liable to modification without notice.