

Demineralised heating water

PUROTAP
by ELYSATOR™

PUROTAP® compenso refill appliance

Installation
Function
Operation
Service

Reliability due to
desalinated water
for heating systems
to VDI 2035 and
SWKI BT 102-01



Minerals and salts in sealed water circuits cause corrosion and deposits.

PUROTAP filters the aggressive substances out of the fill water to enable trouble-free operation.

ELYSATOR 
engineering water

www.elysator.com

Contents

Protection against limescale deposits	4
Protection against corrosion	4
Function	5
Use with a heating system fill hose	5
Permanent connection	6
Operating the combined meter	7
Compenso 2, replacing the resin, capacity	8
Compenso 12, replacing the resin, capacity	9
Compenso 25/50, replacing the resin, capacity	10
Technical specification	11
Service record	12

Function

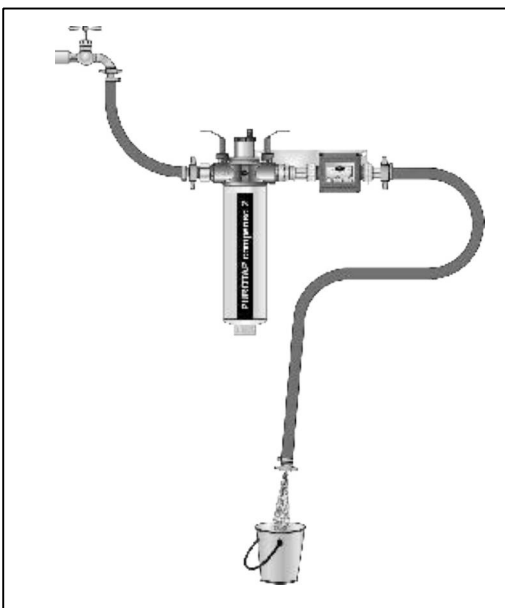
The PUROTAP compenso filters lime and aggressive substances such as sulphates, nitrates and chlorides out of the fill water. The appliance uses a mixed bed ion exchanger to provide demineralised, fully desalinated water for any system size. This method does not emit any chemical additives into the water. The appliance operates without an external power connection.

Use with a heating system fill hose

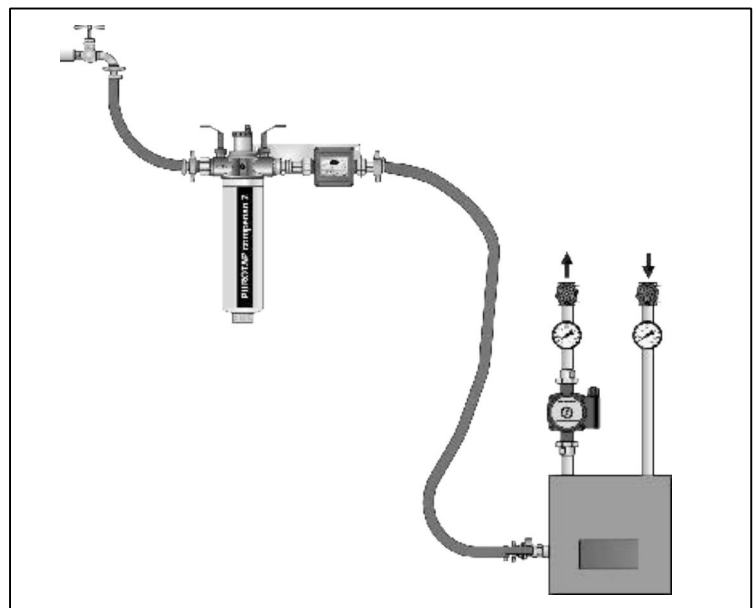
If the PUROTAP compenso is occasionally used to refill the heating system via a fill hose, the cartridge should be pre-flushed with fresh tap water in order to displace the initial flow water.

In doing so, it is important to check full desalination via the integral combined meter. When the system is then filled, the fill hose must be first bled, in other words filled with water to prevent air entering the system via the fill valve.

1. Flushing the cartridge



2. Refilling the heating system



Safety instructions

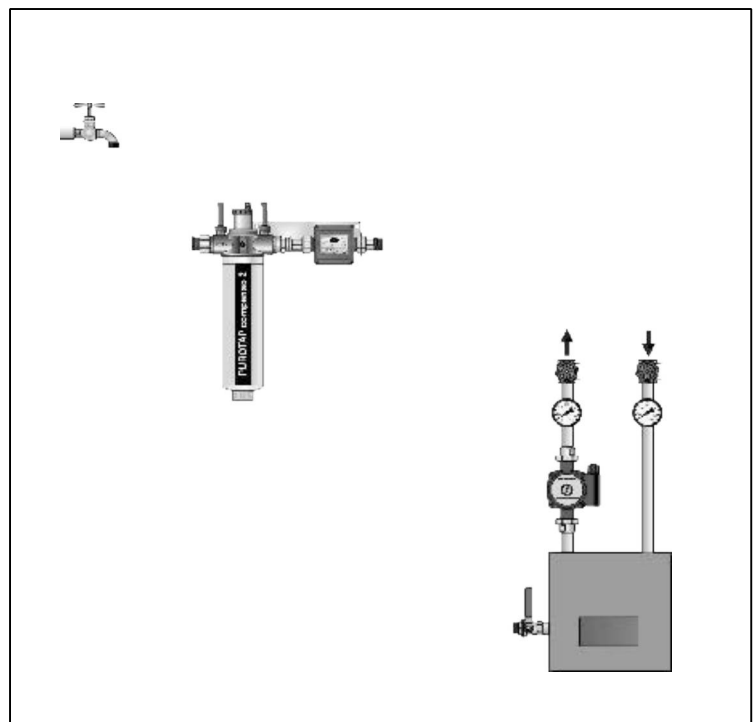
PUROTAP compenso should be pre-flushed with approx. 10 l water before each use in order to displace the initial flow water.

It is not permissible for a heating system fill hose to remain permanently connected. The refill appliance should never be left unattended whilst in use. Where DIN EN 1717 is applied (Germany), observe the regulations regarding system separation.

After use, always close the freshwater tap, the shut-off valve on the PUROTAP and the boiler fill valve and remove the fill hose.

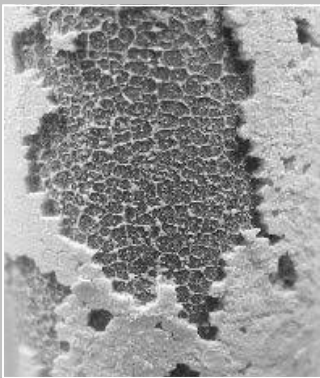
The ion exchange resin in the cartridge must not enter the heating system. As a precaution, a fine filter is fitted in the outlet which must not be removed.

3. Close valves; remove hoses

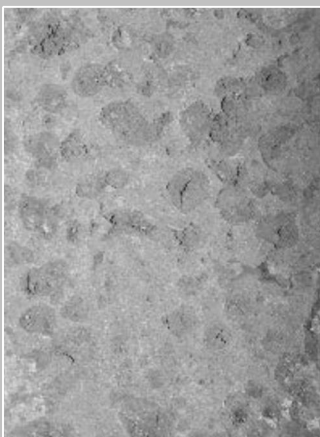
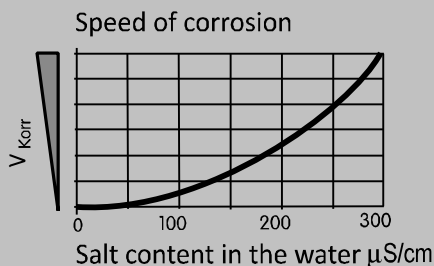




Overheating, stress crack



Limescale deposits in the boiler

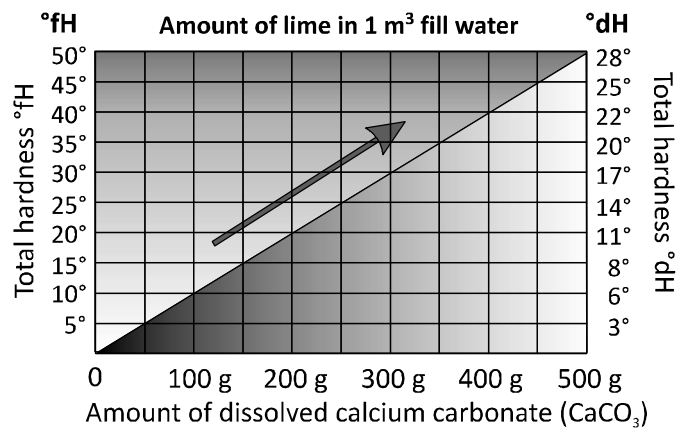


Pitting due to high salt content

Protection against limescale deposits in the boiler and heat exchanger

Fully desalinated water no longer contains any substances that can settle out or be deposited in the boiler and heat exchanger.

The following table shows the amount of lime accumulating in a heating system that is filled once with untreated water.



VDI 2035, SWKI Directive BT102-01 and other European standards state that water for filling heating systems should generally be demineralised for low salt operation. Practical experience has shown that even at a low hardness level, modern appliances such as wall mounted gas boilers, heat pumps and solar thermal systems can suffer damage from limescale deposits.

Compared to water that has been softened, demineralised water no longer contains any salts. Its electrical conductivity is extremely low, allowing it to act as a corrosion inhibitor.

Protection against corrosion

Full desalination additionally removes all neutral salts such as chlorides, sulphates and nitrates, which are known to cause corrosion above a certain concentration and in certain combinations.

In line with applicable standards

It has long been clear to experts in the field that fully desalinated water is ideal for filling heating systems and that this will extend the service life of all components. Today, this technology is so user friendly and affordable that it recommends itself for practical application.

The process of full desalination (demineralisation) is therefore ideal for ensuring that the water quality requirements of the following directives and standards are met:

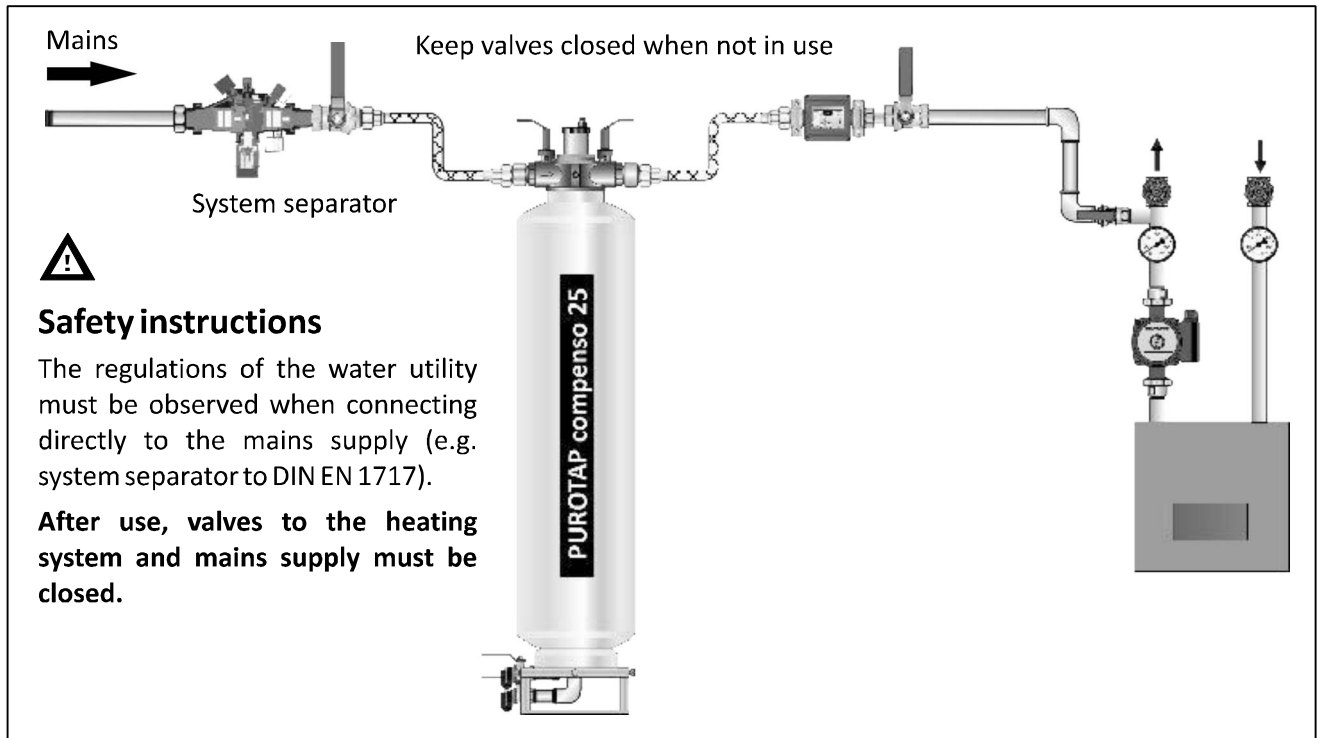
- VDI Guideline 2035
- SWKI BT 102-01
- ÖNORM 5195-1
- DIN 50930

Permanent connection

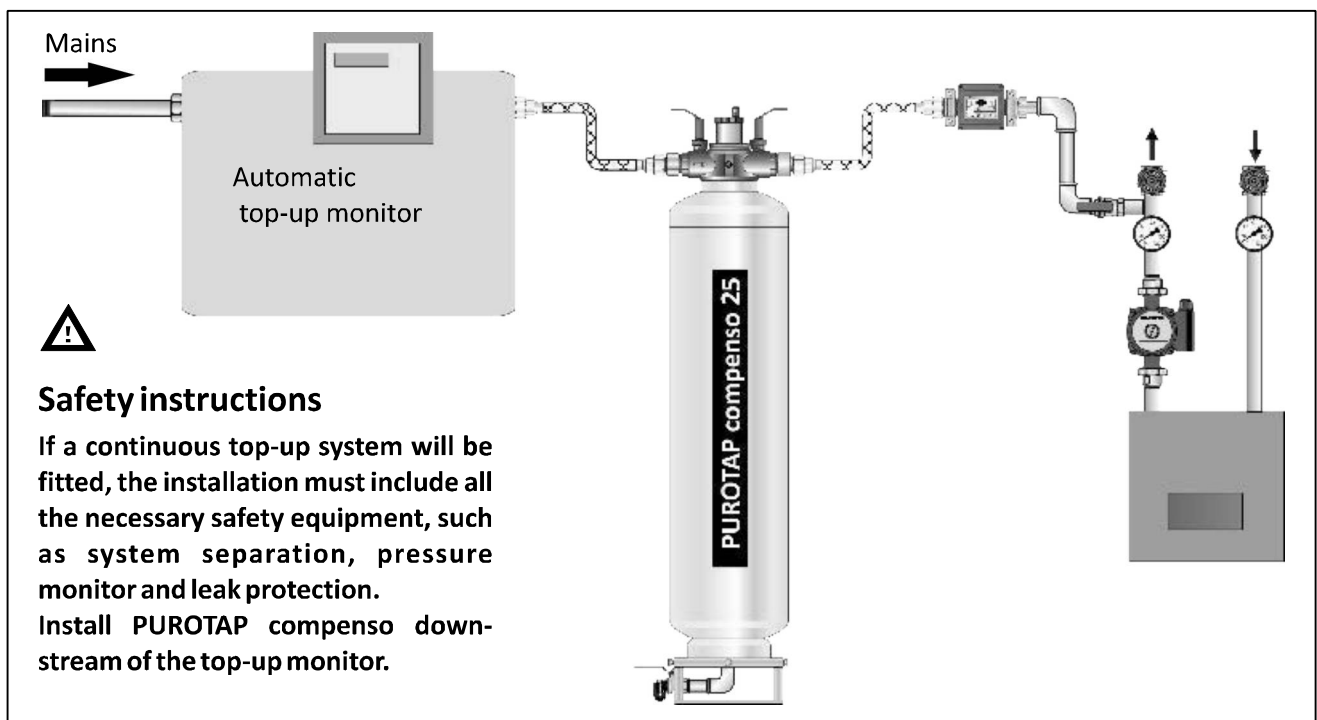
PUROTAP compenso is pressure-tested to 6 bar and is therefore suitable for making a permanent connection between the mains supply and the heating system.

Depending on national or local regulations, a direct connection may be subject to technical conditions which must be observed. Where DIN EN 1717 is applied (Germany), also install a system separator upstream of the fill appliance.

Simplified permanent connection

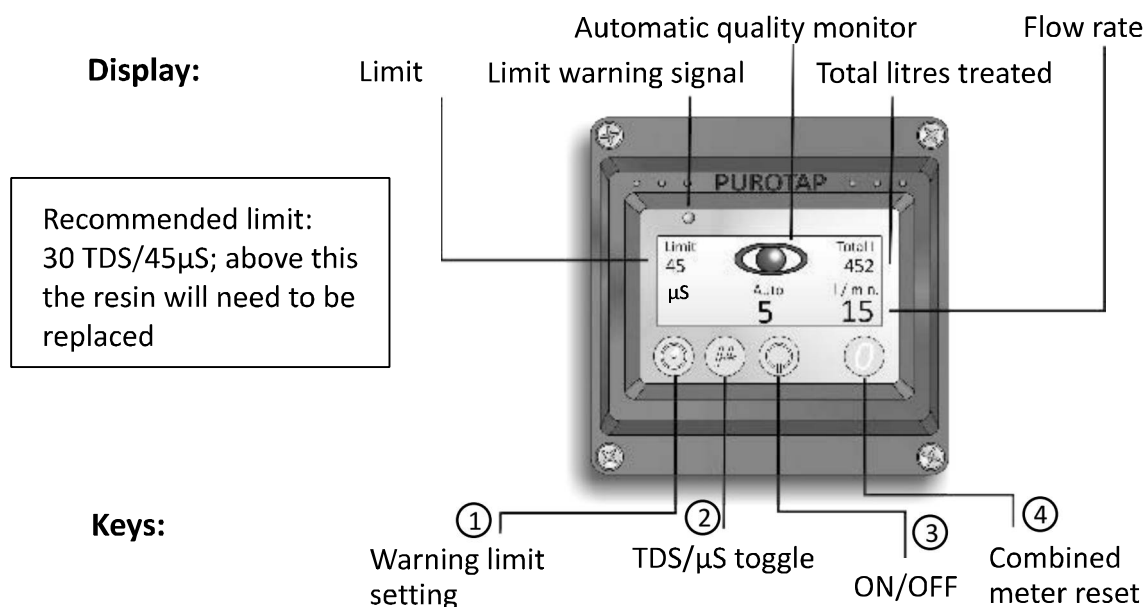


Permanent connection in conjunction with automatic top-up



Operating the combined meter

The combined meter is battery-operated. It measures the flow rate in l/min, the total volume in litres and the concentration of dissolved minerals (electrical conductivity), either in microsiemens or TDS. In addition, a limit can be set for the maximum concentration of minerals tolerated in the demineralised water (compensated outlet). The limit and flow rate total can both be reset.

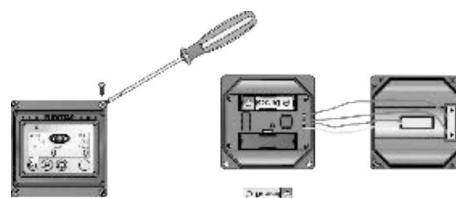


- ① Every time this key is pressed, the limit is increased by 10 TDS or 15 μ S/cm. Pressing the key for 3 seconds resets the limit to zero. Programming the limit ensures that a warning is issued when the ion exchange resin is spent.
- ② This key can be pressed at any time to switch between TDS (total dissolved solids) and electrical conductivity. Both are units of measurement for minerals dissolved in water. Most European component manufacturers use the unit of measurement μ S/cm (microsiemens).
- ③ If the ON key is pressed once, the water quality is measured for 10 seconds and compared to the set limit. The measured value is shown. If it is above the limit, the LED glows red; if it is below, the LED glows green while the measurement is being taken. If required, the measurement can be repeated manually.

Auto mode: If the ON key is pressed for a second time, the combined meter begins automatic monitoring. The eye symbol appears to indicate that monitoring has been enabled. In auto mode, the meter only takes measurements when water is actually passing over it. If the water draw-off is interrupted, the meter continues to show the last captured value. While water is being drawn off, the combined meter measures the water quality every 40 litres. If the limit is exceeded in two successive measurements, the display continuously flashes red. This indicates that the ion exchange resin is spent and needs replacing. If the ON key is pressed for a third time, the meter exits auto mode.

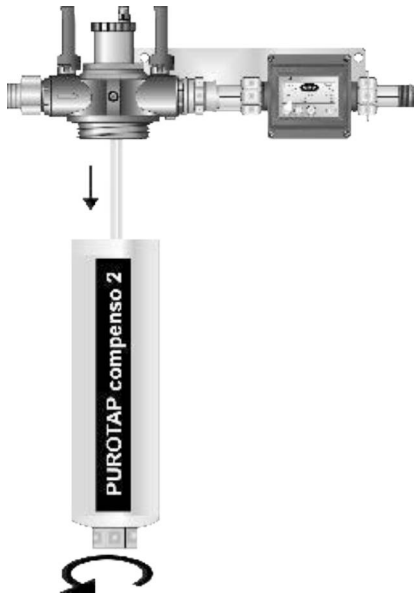
- ④ Pressing the reset key for 3 seconds resets the overall total on the meter. This is recommended every time the resin is replaced, as it gives a reference point for the remaining capacity of the ion exchange resin.

When the combined meter displays the symbol indicating a battery change is due: Carefully unscrew the front and replace the batteries. 3 x AAA.



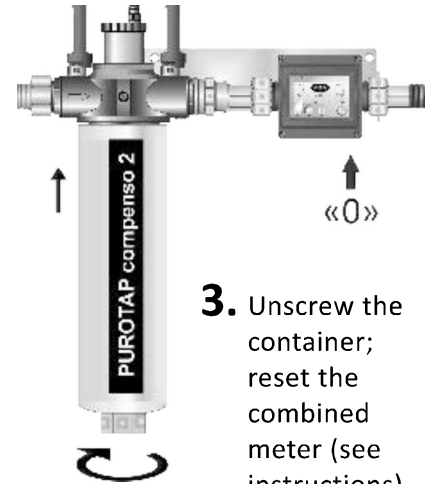
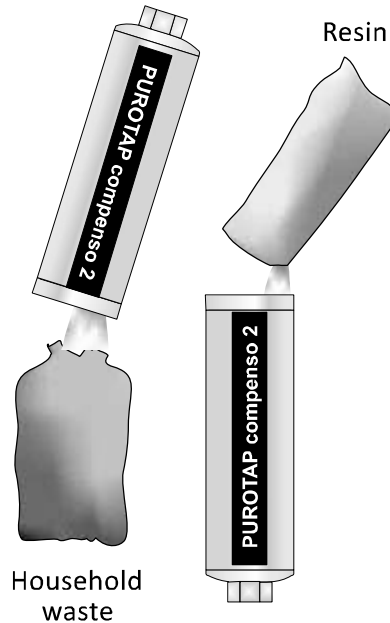
PUROTAP compenso 2

Replacing the resin



1. Close the ball valves; undo the container

2. Dispose of spent resin with household waste; refill with new resin



3. Unscrew the container; reset the combined meter (see instructions)

Capacity of the ion exchanger

The capacity of the ion exchange resin depends on the water hardness. The capacity can be read off the adjacent table or calculated using the capacity figure given for the quantity of resin. The PUROTAP compenso 2 resin filling has a capacity of **4500 l @ 1 °fH** or **2500 l @ 1 °dH**.

If using the German hardness scale, take the number 2500 and divide this by the water hardness in °dH. If using the French hardness scale, take the number 4500 and divide this by the water hardness in °fH. The result is the capacity of the resin in litres of water.

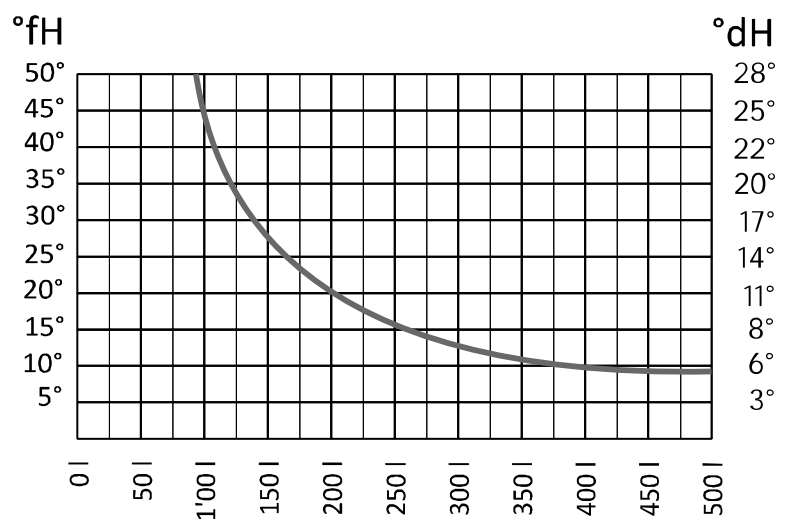
For example: If the water hardness is 12.5 °dH, the capacity of the resin will be exactly 200 l of demineralised water.

Capacity

4'500 l à 1°fH

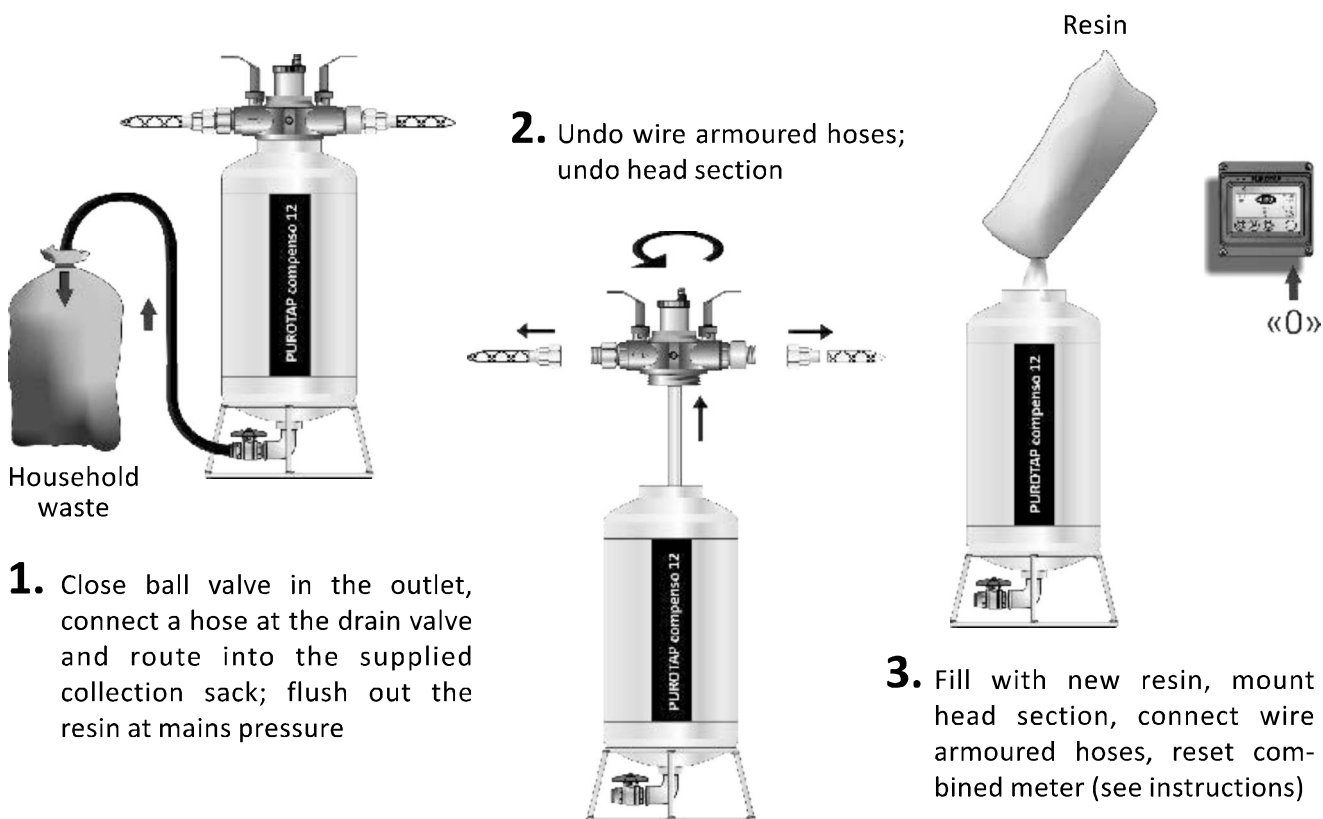
2'500 l à 1°dH

Litres of demineralised (fully desalinated) water per cartridge



PUROTAP compenso 12

Replacing the resin



Capacity of the ion exchanger

The capacity of the ion exchange resin depends on the water hardness. The capacity can be read off the adjacent table or calculated using the capacity figure given for the quantity of resin. The PUROTAP compenso 12 resin filling has a capacity of **35 m³ @ 1 °fH** or **20 m³ @ 1 °dH**.

If using the German hardness scale, take the number 20 and divide this by the water hardness in °dH. If using the French hardness scale, take the number 35 and divide this by the water hardness in °fH. The result is the capacity of the resin in cubic metres of water.

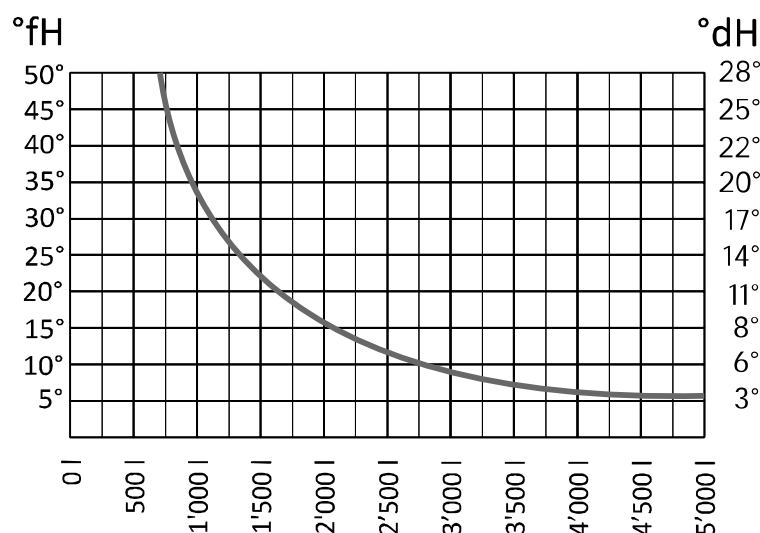
For example: If the water hardness is 20 °dH, the capacity of the resin will be exactly 1 m³ (1000 l) of demineralised water.

Capacity

35 m³ à 1 °fH

20 m³ à 1 °dH

Litres of demineralised (fully desalinated) water per cartridge



PUROTAP compenso 25/50

Replacing the resin



1. Close ball valve in the outlet, connect a hose at the drain valve and route into the supplied collection sack; flush out the resin at mains pressure

2. Undo wire armoured hoses; undo head section



3. Fill with new resin, mount head section, connect wire armoured hoses, reset combined meter (see instructions)

Capacity of the ion exchanger

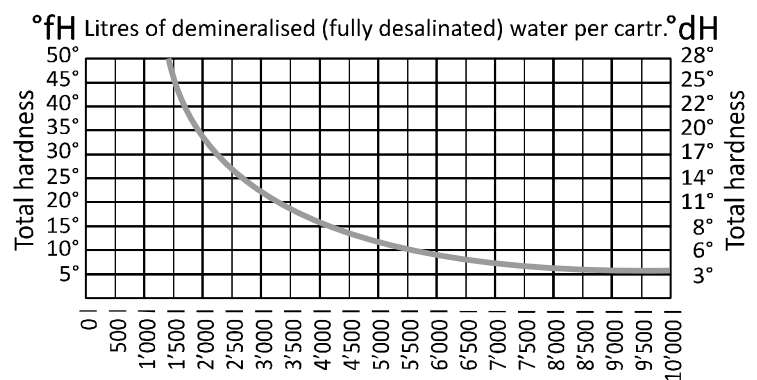
The capacity of the ion exchange resin depends on the water hardness. The capacity can be read off the adjacent table or calculated using the capacity figure given for the quantity of resin. The PURROTAP compenso 25 resin filling has a capacity of **70 m³ of 1 °fH**, or **40 m³ of 1 °dH**. For the compenso 50 the figures are doubled.

To calculate the capacity, divide the capacity figure for the PURROTAP compenso by the water hardness indicated.

For example: If the water hardness is 20 °dH, the capacity of the PURROTAP compenso 25 resin will be exactly 2000 l of demineralised water. (Capacity figure of 40 m³ divided by hardness 20 °dH = 2 m³ = 2000 l.)

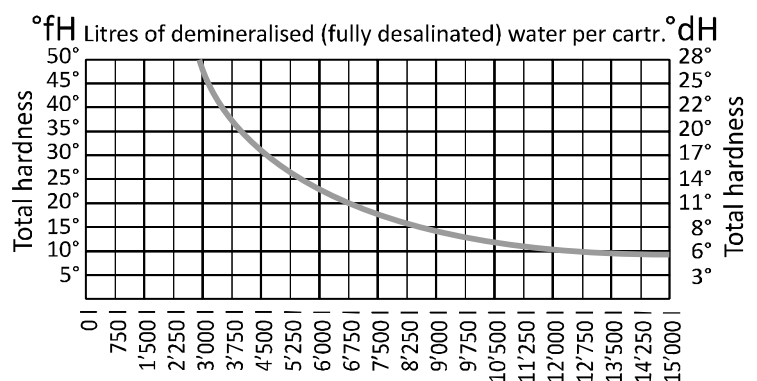
PUROTAP compenso 25 capacity

70 m³ à 1°fH 40 m³ à 1°dH



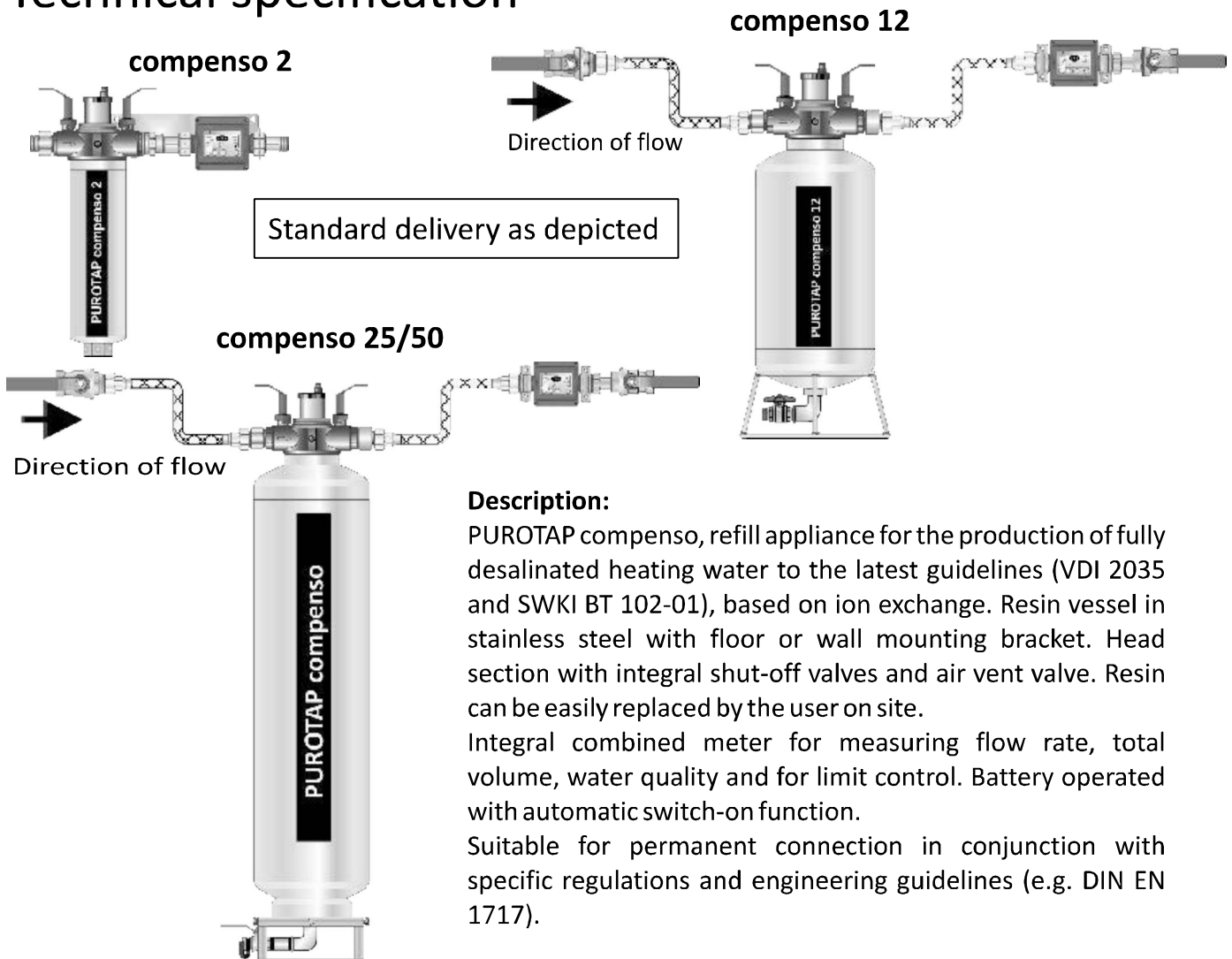
PUROTAP compenso 50 capacity

140 m³ à 1°fH 80 m³ à 1°dH



PUROTAP compenso

Technical specification



PUROTAP	compenso 2	compenso 12	compenso 25	compenso 50
Annual demand	< 250 l	< 2'500 l	< 5'000 l	< 10'000 l
Capacity at 1 °dH	2.5 m ³	20 m ³	40 m ³	80 m ³
Capacity at 1 °fH	4.5 m ³	35 m ³	70 m ³	140 m ³
Delivery capacity	2,5 l/min	10 l/min	20 l/min	20 l/min
Operating pressure	< 4.5 bar	< 4.5 bar	< 4.5 bar	< 4.5 bar
Tmax. temp.	60 °C	60 °C	60 °C	60 °C
Installed length	45 cm	80 cm	80 cm	80 cm
Height	46 cm	70 cm	115 cm	142 cm
Empty weight	5 kg	7.5 kg	15 kg	18 kg
Resin filling	1,75 l	12.5 l	25 l	50 l

