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**Showersave**

**Product &  
Installation Guide**

**new**



WASTE WATER HEAT RECOVERY FOR  
DOMESTIC APPLICATIONS

**wavin**

## Showersave System

### What is Showersave?

Heat generated by hot water for showering is usually lost down the drain. Showersave is a simple heat recovery system which reclaims up to 60% of this heat. In doing so, Showersave will save between 300kg and 1000kg of CO<sub>2</sub> per year, depending on shower frequency and the type of fuel used for hot water heating.

### Private Housing

Showersave is a highly cost effective solution for achieving the Dwelling Emission Rates (DER) required by SAP to comply with Part L of the Building Regulations and the Code for Sustainable Homes. Showersave is Appendix Q listed.

### Social Housing

As well as reducing CO<sub>2</sub>, Showersave reduces the cost of hot water heating for showering is simple to install and requires no maintenance.



### Key Benefits

- Low cost, high impact approach to reducing CO<sub>2</sub> emissions
- Included in SAP Appendix Q
- Easy to install as part of a waste system
- No maintenance cost
- Reliable
- Long life span
- Passive system, no pumps, controllers or moving parts
- No electricity
- Works all year round

### How Does Showersave Work?

Showersave is a copper counter flow heat exchanger and works in a cycle (see Fig.1)

Hot waste water from the shower drains through the shower tray and into the waste pipe system.

Showersave is installed as part of the waste system. As hot waste water passes through the inner bore ("grey" side) of the heat exchanger, cold mains water is delivered simultaneously through the gap between the inner and outer copper pipe (see Fig.2).

Heat exchange takes place and the cold mains water is pre-warmed to a temperature of around 25°C before being delivered to the hot water heater, normally a combi or cylinder, and the shower mixer tap's cold water feed. This means that the boiler has to work less hard to heat shower water to the required temperature, greatly reducing energy consumption.

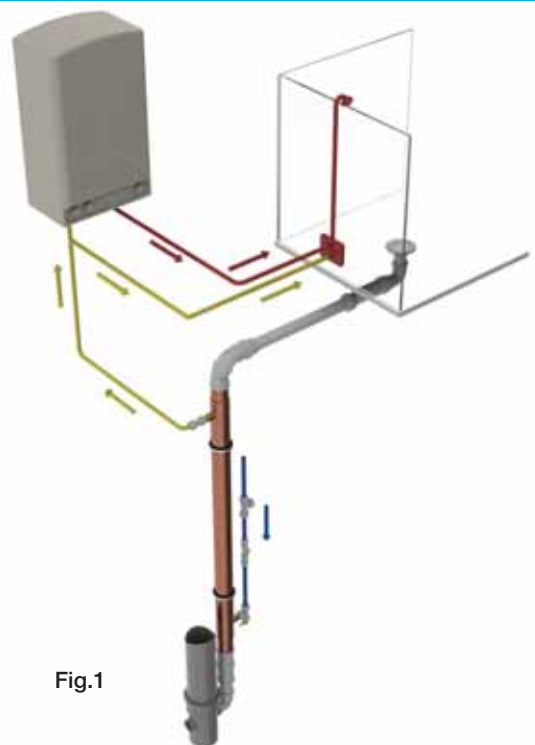


Fig.1

### Installation Instructions for Showersave

#### Showersave points of attention

- Ensure that a controllable non-return valve and a cut-off valve have been installed and that these are properly accessible
- Ensure that the heat exchanger is installed in a space in which the temperature normally does not exceed 25 °C
- Watch out for loss of pressure on the tap water side and the discharge capacity if dealing with a rain dome shower head
- Make sure the mains water connections are preferably made using straight thread, that no hemp is used and that the tightening moment is limited to 120 - 150 Nm
- Installation should be in accordance with Part L and Part H of the Building Regulations

#### General points

On average, a shower uses 60 litres of water at a temperature of between 40 and 41 °C (see Fig.4). By running the hot water through Showersave, this heat can be transferred to the water on its way to the boiler and the cold water tap of the shower's mixer tap. This heat transfer takes place during simultaneous flows i.e. while you shower.

Showersave is installed vertically, making it only suitable for heat reclamation from shower water from an upstairs shower.

When you start showering it takes a little while for Showersave to start contributing to the heating of the cold water. This means the temperature of the shower water will continue to rise for some time. Using a thermostatic mixer tap is therefore recommended.

connected directly to the indoor plumbing. No open connection in the indoor plumbing is therefore required. Every Showersave has a sticker with technical information and unique number. The sticker must be legible.

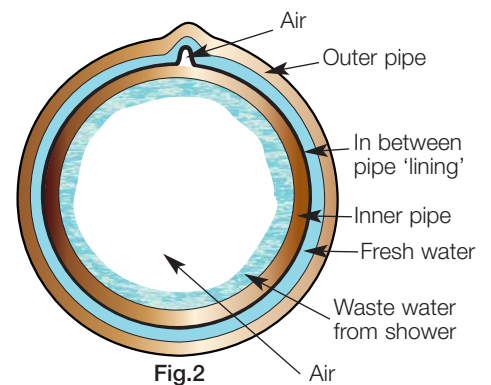
#### Description of heat exchanger

In principle, the Showersave consists of two concentric pipes (see Fig.2); the inner and the outer pipe. Waste water from the shower flows down through the inner pipe. Cold tap water flows up to the boiler and the shower's mixer tap through the space in between the two pipes.

Showersave has a double barrier between the waste water and the tap water. The heat exchanger consists of 3 pipes. A thin-walled pipe, the so-called lining, has been installed around the inner pipe. The minuscule space between the lining and the inner pipe contains air. If the inner pipe develops a leak, this becomes visually apparent as waste water will drip from the heat exchanger. The purpose of this pipe construction is to prevent waste water from coming into contact with mains water.

The great advantage of a double barrier is that this allows the heat exchanger to be

#### Cross section of Showersave



**Installation Instructions** (continued)

**Connections**

The mains water connections must be demountable. As can be seen in Fig 4, the mains water supply pipe should include a controllable non-return valve and a shut-off valve. Please note: this does not replace the inlet combination required for the water heater. The heat exchanger can be emptied by demounting both fresh water connections. The amount of water that flows out of Showersave is less than 1 litre. The tap water connections are non-conical G1/2, internally threaded. It is recommended that only fittings with non-conical thread be used. A maximum tightening of 120Nm is recommended. The supply of waste water to Showersave must take place via the rotator, comprised of the parts supplied, please refer to the product details (p.7) and Fig.7. The rotator makes the waste water rotate as it enters the Showersave, creating an immediate vortex against the side walls of the inner pipe. Achieving maximum contact between the waste water and inner pipe wall is important for reasons of efficiency.

**Air admittance**

It is important to give full consideration to air admittance. This can be achieved by replacing the shower trap with a HepvO® valve (see Fig.7).

**Materials and dimensions**

Showersave is made of copper. The external diameter of the inner pipe is 50 mm (see Fig.7). Using the fittings supplied, the rotator allows connection to BS EN 1451-1:2000 ; BS EN 1455-1:2000 or BS EN 1566-1:2000 waste systems.

The bottom connection is a BSEN 1451-1:200 spigot.

Pipe length (both pre-heated water and shower waste water) should be minimised.

**Safety**

When no cold water is flowing up Showersave, the temperature in the pipe should be prevented from becoming higher than 25 °C. Showersave may therefore not be installed near heat conducting pipes or on warm surfaces. The cold water pipe, connection and the outer wall of Showersave may therefore not be insulated.

Showersave can be positioned with bath/shower combinations, but it should be noted that no benefit is achieved when just using the bath, as Showersave is designed for simultaneous consumption and drainage of water.

**Loss of pressure**

Fig.3 illustrates the loss of pressure for Showersave at the mains water side.

Showersave is generally only suitable for use with un-vented (mains pressure) hot water systems in situations with a cold water pressure in excess of 1.5 bar. A small reduction in maximum flowrate will be inevitable.

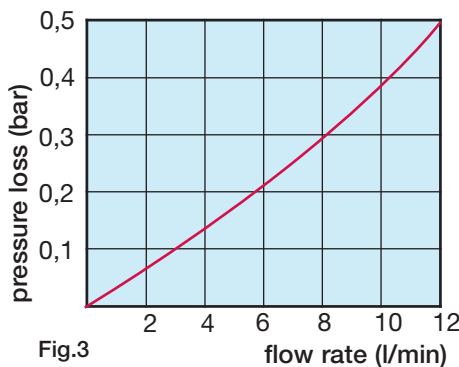


Fig.3

**Maintenance and cleaning**

Efficiency can decrease as a result of dirt accumulating on the inside of Showersave. As with any other waste pipe, Showersave is largely self-cleaning. If, for whatever reason, dirt accumulates,

then a soap-based cleaning agent can be used to flush the pipe. Cleaning agents based on scouring or polishing agents are not recommended as these can stick to the wall of the pipe, reducing its efficiency. Connecting a wash basin to Showersave is also not recommended as shaving gel and toothpaste are very sticky and could adhere to the wall of the inner pipe.

**Showersave is SAP Appendix Q eligible**

Following extensive testing and analysis BRE have decided to make Showersave 'Appendix Q eligible'.

This means that the large energy, carbon and running cost savings which Showersave can make can now be accurately calculated as part of the Standard Assessment Procedure (SAP). This will improve DEA carbon ratings for new build as well as helping to achieve high levels under the Code for Sustainable Homes; for example Levels 3 & 4 for social housing projects.

SAP Assessors can download the relevant spreadsheet for Showersave from the Appendix Q website which is at: [www.sap-appendixq.org.uk](http://www.sap-appendixq.org.uk)

In Appendix Q, Showersave is described as Showersave Recoh-Vert RV2.

Showersave has been classified as a Waste Water Heat Recovery System (WWHRS) so will be found under that section heading on the menu called "How to use the data".

For example, using the Appendix Q calculation it is estimated that Showersave in a 100 square meter house, could save 1061kWh of gas, which is comparable to a small solar hot water heating system.

### Installing Showersave

#### System A, B and C

The inlet side of Showersave can be connected to the mains water system. The outlet side can be installed in three different ways, namely:

- A.** Combined connection to the shower mixer tap's cold water connection and the boiler or cylinder.
- B.** Separate cold water connection to the shower's mixer tap.
- C.** Separate connection of the cold water connection to the boiler or cylinder.

The largest saving is achieved by using System A

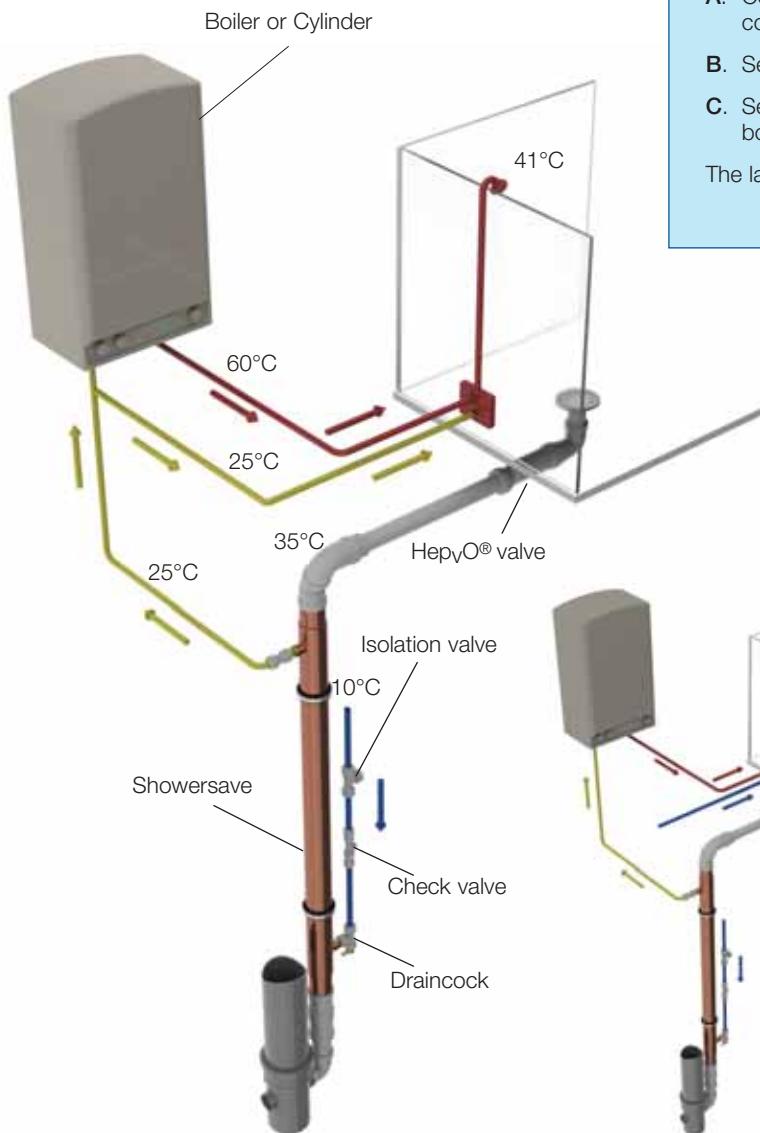


Fig.4 System A

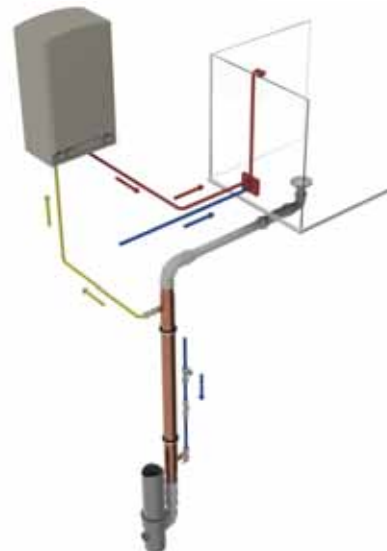


Fig.5 System B

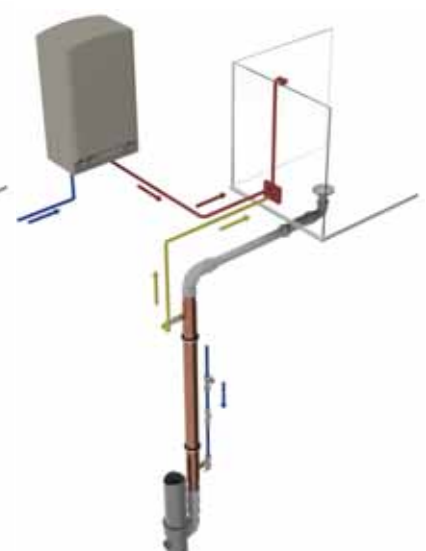


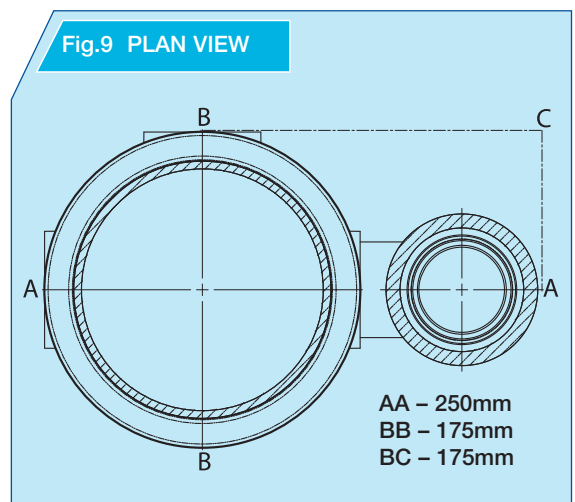
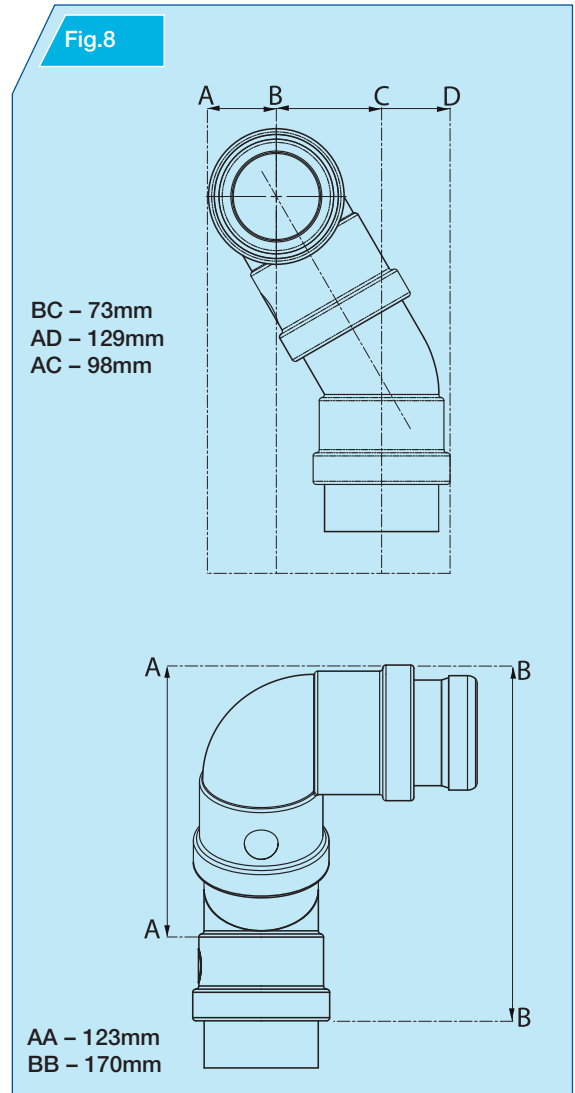
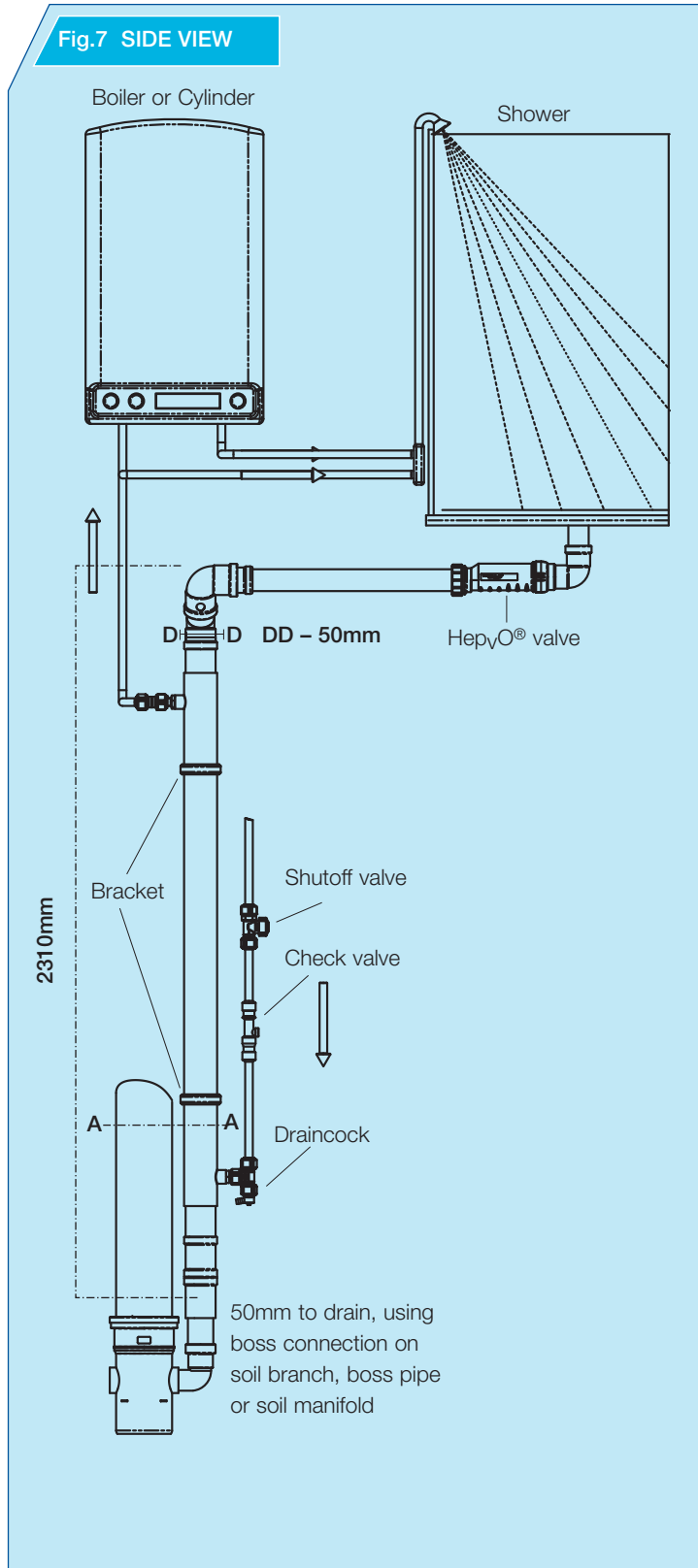
Fig.6 System C

Only system A, in which there is a combined connection from Showersave to both the mains water feed to the boiler or cylinder and the cold water feed to the shower mixing valve, is recognised by SAP for energy saving calculations. This will provide the maximum energy saving. Arrangements B and C are alternatives to be used only where System A is not possible. Please also note that there must be no draw-off from the feed pipe between outlet from Showersave and inlet to the boiler, cylinder or shower mixing valve, as this is pre-heated water. It is not suitable for vented systems.

**Installing Showersave (continued)**

**Mounting the Showersave system**

Two brackets attach the Showersave to the wall. It is important that Showersave be installed vertically, within 1 degree.



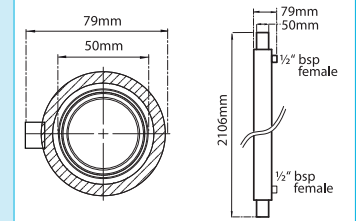
### Product Details



### Showersave Heat Recovery Kit – 2SH005

#### Heat Exchanger

| Material. | Colours | Nom size | Pack Qty |
|-----------|---------|----------|----------|
| Copper    | -       | 50       | 1        |

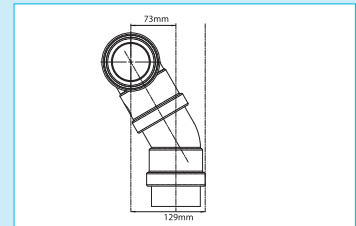


#### Connection Set

##### Top Connector

##### Rotator

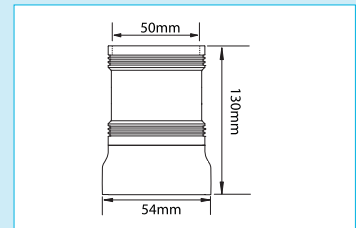
| Material. | Colours | Nom size | Pack Qty |
|-----------|---------|----------|----------|
| PP        | W       | 50       | 1        |



##### Bottom Connector

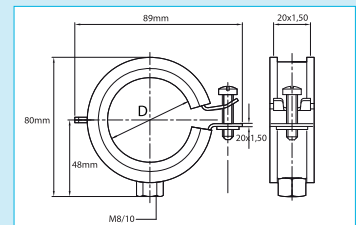
##### Adaptor

| Material. | Colours | Nom size | Pack Qty |
|-----------|---------|----------|----------|
| PP/PVC-U  | G       | 50       | 1        |



##### Bracket and Fixings

| Material.   | Colours | Nom size | Pack Qty |
|-------------|---------|----------|----------|
| EPDM, Steel | -       | 50       | 2        |

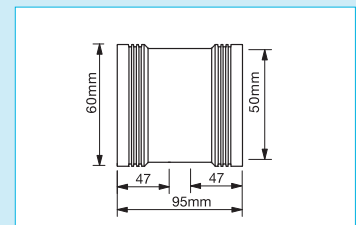


#### Items sold separately



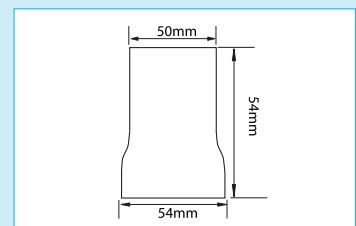
##### 50mm Double Socket – Part No. 1440210

| Material. | Colours | Nom size | Pack Qty |
|-----------|---------|----------|----------|
| PP        | G       | 50       | 1        |



##### 50 x 54mm P/E Connector – Part No. 2SH158G

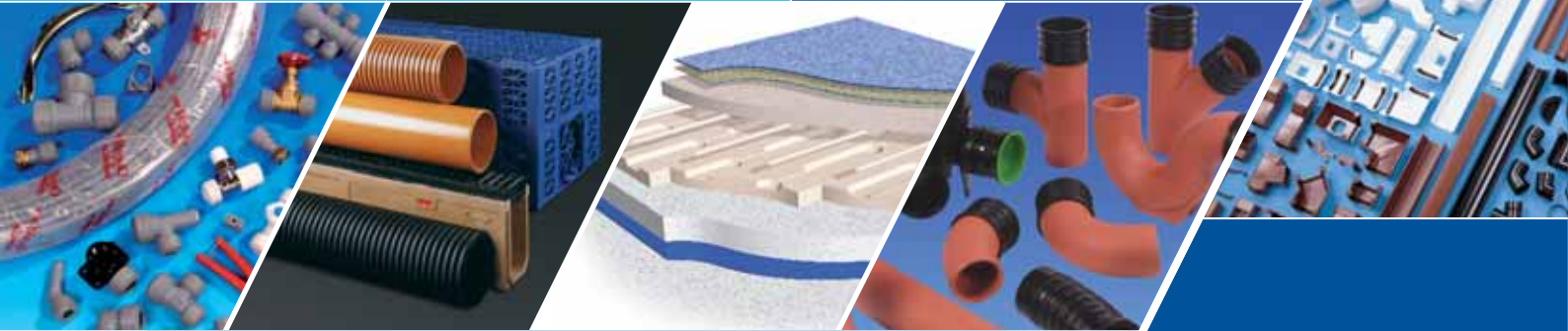
| Material. | Colours | Nom size | Pack Qty |
|-----------|---------|----------|----------|
| PVC-U     | G       | 50       | 1        |



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## Showersave

## Product & Installation Guide



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