

## Installation Instructions



# THE RECOH<sup>®</sup>-VERT, RV12-V3

We would like to congratulate you on the purchase of the 'Recoh-vert'. The 'Recoh-vert' is one of most economically interesting forms of energy saving. The pay-back time is short! Using the 'Recoh-vert' saves on fossil fuels. The stocks of fossil fuels are limited and using the 'Recoh-vert' can help reduce global warming.

## 1 The RECOH-VERT

### Points of attention:

- \* Please ensure the heat exchanger is easily accessible so that it can be easily installed and uninstalled.
- \* Please ensure that a controllable non-return valve and a cut-off valve have been installed and that these are properly accessible.
- \* Please ensure that the heat exchanger is installed in a space in which the temperature normally does not exceed 25 °C.
- \* Please watch out for loss of pressure on the tap water side and the discharge capacity if dealing with a rain dome shower head.
- \* Please make sure the tap water connections are preferably made using straight thread, that no hemp is used and that the tightening moment is limited to 120 - 150 Nm.

### 1.1 Introduction

On average, a shower uses 60 litres of water at a temperature of between 40 and 41 °C. This shower water goes straight down the drain, wasting a great deal of heat. By running the hot water through the 'Recoh-vert', 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.

### 1.2 General

The Recoh-vert is also called the Douche pijp-wtw RV12-V1.

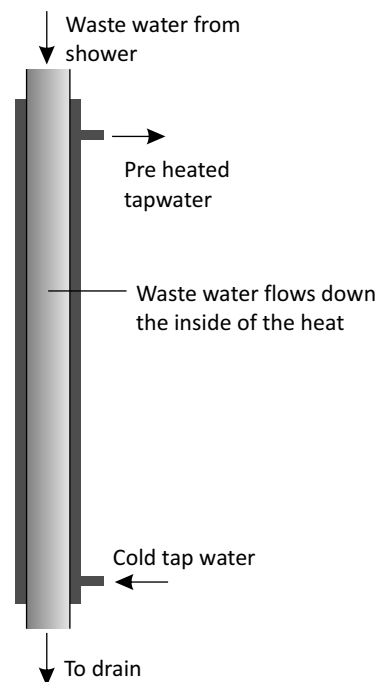
The 'Recoh-vert' is 1.27 m long and can only be installed vertically. The 'Recoh-vert' is therefore, generally, only suitable for heat reclamation from shower water from an upstairs shower.

Preferably the shower pipe needs to be located as close as possible to the shower drain plug, but dragging is not allowed. Normally the shower pipe is only connected to the shower. If the shower is integrated into the bath and there is no separate shower, the shower pipe can be connected to the bath.

When you start showering it takes a little while for the 'Recoh-vert' 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 recommendable.

When using the shower pipe, the tap limit of the hot water preparer must be taken into account. It is possible the necessary energy (blending hot water) is lower than the minimal quantity of energy delivered by the hot water preparer (switch-off point burner).



### 1.3 Description of the heat exchanger

In principle, the 'Recoh-vert' consists of two concentric pipes; 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.

The exceptional thing about the 'Recoh-vert' is that it has a double barrier between the waste water and the tap water. The heat exchanger consist 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 waste water can never come into contact with the tap water. The great advantage of a double barrier is that this allows the heat exchanger to be connected directly to the indoor plumbing. No open connection in the indoor plumbing is therefore required!

Every Recoh-vert has a sticker with technical information and unique number. **The sticker must always be legible. If not legible the guarantee will expire.**

### 1.4 Connections.

The tap water connections must be able to be taken apart. As can be seen in the diagram, the tap water supply pipe should include a controllable non-return valve and a cut-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 the Recoh-vert 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. Hemp may not be used to seal the thread. A maximum tightening moment of 120 Nm is recommended. To protect the connection nipple on the heat exchanger the tightening moment may not exceed 150 Nm.

Drains must be independently removable. The supply of waste water to the 'Recoh-vert' must take place via the rotator. This is comprised of the parts supplied, please refer to the instructional drawings for installation. The rotator makes the waste water rotate as it enters the 'Recoh-vert', whirling it against the side walls of the inner pipe so it flows down the walls along the inner pipe's entire length. This is important for reasons of efficiency.

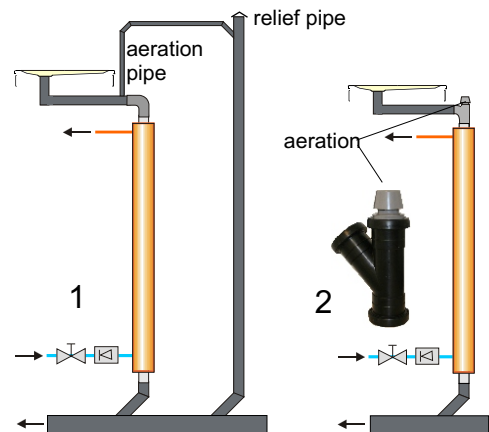
Deaeration of the Recoh-vert is not necessary, all air will disappear automatically because the water flows from the bottom to the top.

The connection of the drain pipe between the shower and the shower pipe on the expansion pipe (de-aeration pipe) from the domestic sewage will generally not be necessary.

If aeration of the drainage area between the shower place and the Recoh-vert is desired it can be achieved in two ways:

1. a connection to a relief pipe or stand pipe (with relief pipe) of the sewer (see diagram 1);
2. an aerator.

The aerator must be mounted vertically above the heat exchanger and may not be placed lower than 1 m below the top of the shower place. The aerator can be placed on the rotator by replacing the 45 degrees bend for a tee connector (see diagram / picture 2).



### 1.5 Materials and dimensions

The 'Recoh-vert' is made of copper. The external diameter of the inner pipe is 50 mm which means it can be directly connected to standard PP and PVC pipe dimensions for indoor plumbing. Please refer to the instructional drawings for dimensions and further details.

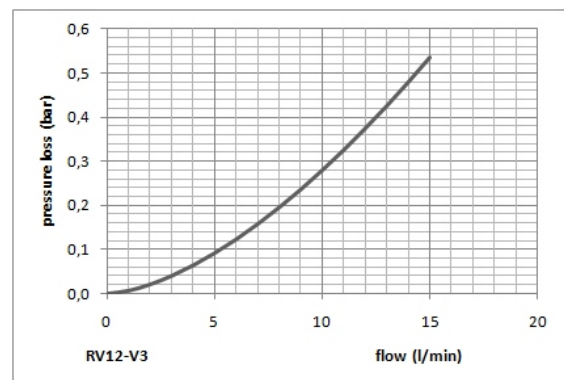
### 1.6 Safety and Legionaire's disease

When no cold water is flowing up the 'Recoh-vert' the temperature in the pipe should be prevented from becoming higher than 25 °C. The 'Recoh-vert' may therefore not be installed near heat conducting pipes, on warm surfaces or in spaces with constantly high temperatures (>25°C). The cold water pipe, connection and the outer wall of the 'Recoh-vert' may therefore not be insulated.

### 1.7 Loss of pressure

The figure at right illustrates the loss of pressure for the 'Recoh-vert' at the tap water side.

Because the 'Recoh-vert' has a large diameter of 50 mm a parallel pipe is generally not required unless the shower in question is a rain dome shower head. In that case, you should also check whether the pressure loss on the tap water side is not too high. In that case a Recoh-vert with mid connection must be applied.

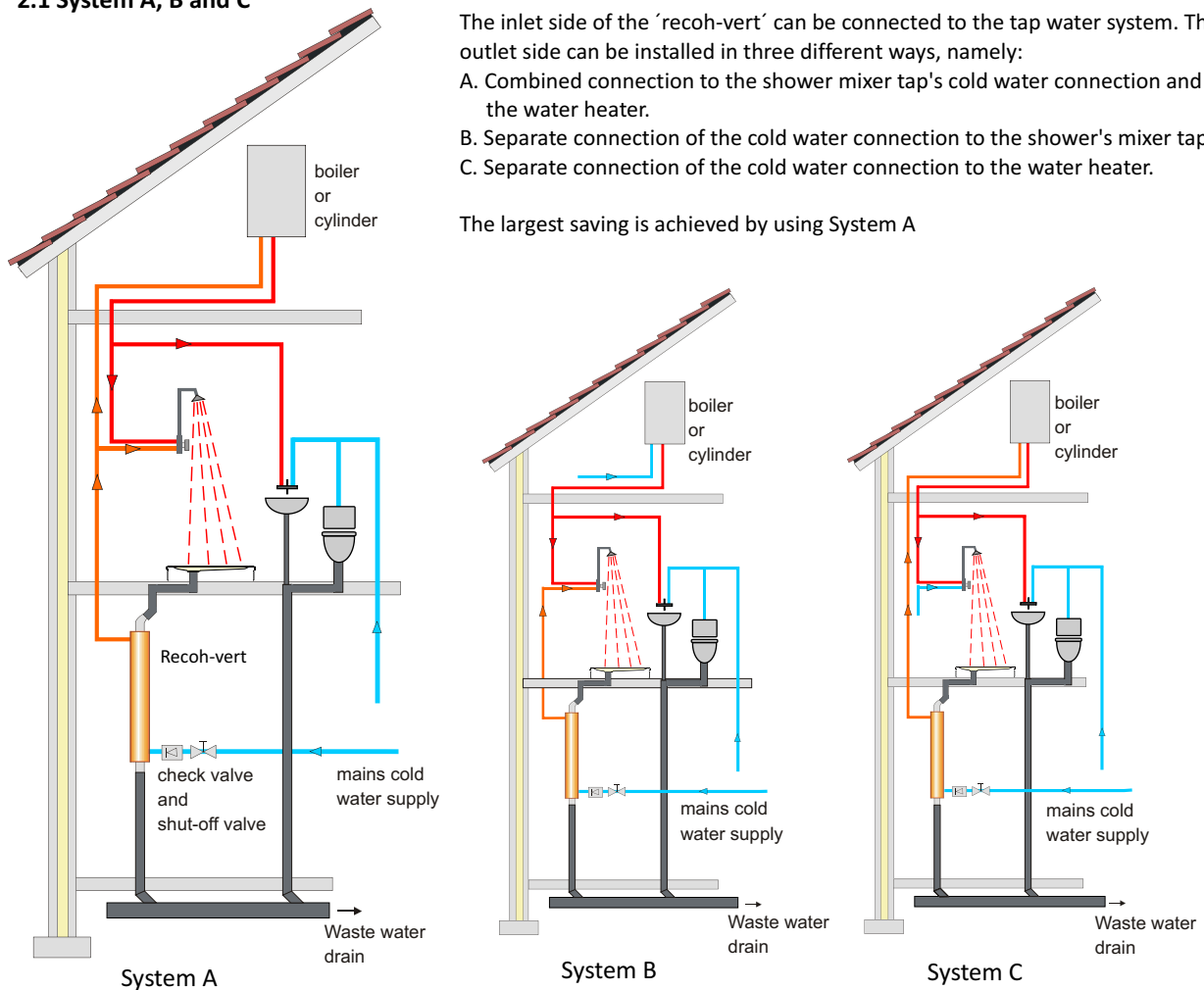


### 1.8 Maintenance and cleaning

Efficiency can decrease as a result of dirt accumulating on the inside of the 'Recoh-vert'. However, the waste water from the shower flows at a high speed of over 1 m/s along the inner pipe's wall. This is comparable to the water speeds in a dishwasher. The water flows through the pipe in 2 seconds and so no dirt can accumulate. To a large extent the 'Recoh-vert' is 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 the 'Recoh-vert' is also not recommended as shaving gel and toothpaste are very sticky and could adhere to the wall of the inner pipe.

## 2 INSTALLING THE RECOH-VERT

### 2.1 System A, B and C



### 2.2 The position of the Recoh-vert

The Recoh-vert is considered a device. The space it is installed in should be large enough so that inspections can be carried out properly and if necessary the Recoh-vert can easily be replaced. Access should be possible without too much work. In practice we sometimes see that the Recoh-vert is totally enclosed and not accessible. This is not allowed. For the same reason, no warranty is provided.

#### Mounting areas:

- Cylinder / shaft (if the cylinder/shaft is equipped with a removable panel).
- Fixed cabinet
- Eased frame (provided it's equipped with a removable panel)
- Technical area
- Stair cupboard
- Placement in the corner off a staircase with a top quarter
- Electricity meter cupboard

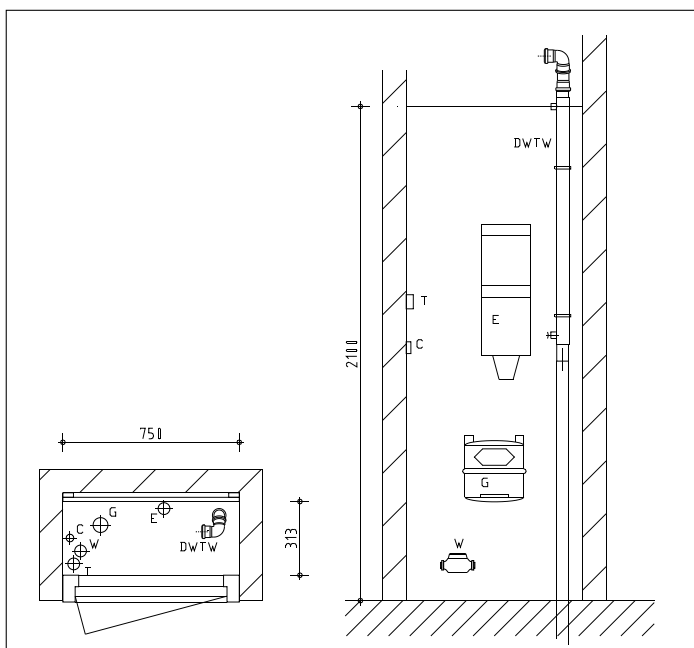
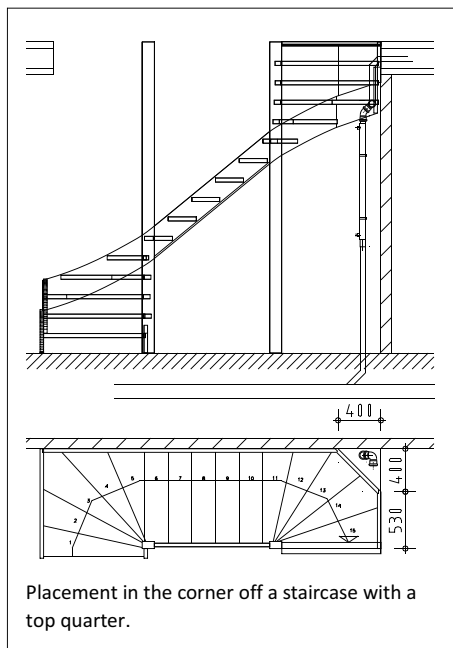
Placement in a standard electricity meter cupboard is possible if:

- \* Taking into account partitioning (classification) of the electricity meter cupboard
- \* The items that require maintenance have to be easily accessible
- \* During assembly and maintenance work no damage will occur to other installations and pipes.
- \* The classification of the electricity meter cupboard is aligned with the utility company.

It can be necessary to make the electricity meter cupboard slightly larger than usual.

When the electricity meter cupboard is equipped with a possibility for city heating, it is not allowed to place the shower pipe in the electricity meter cupboard.

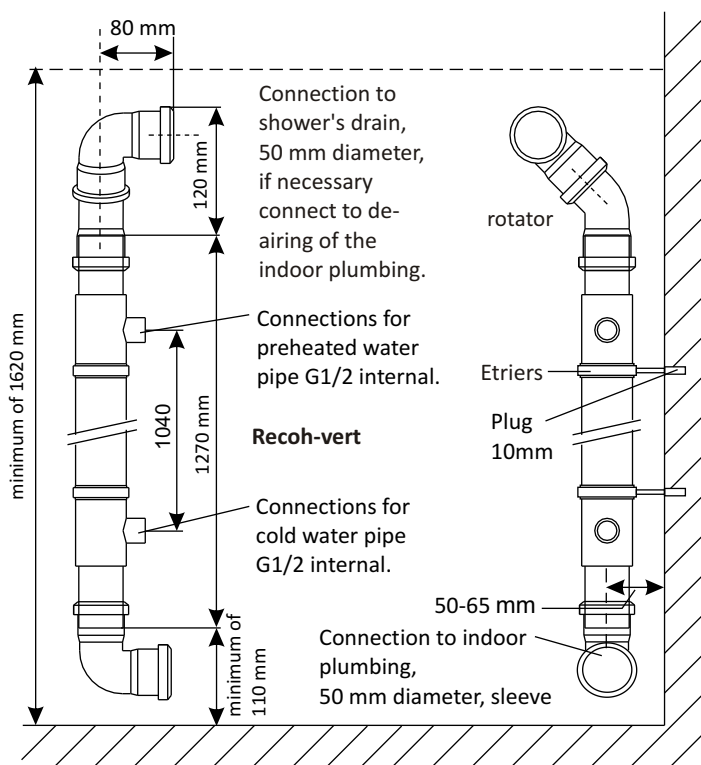
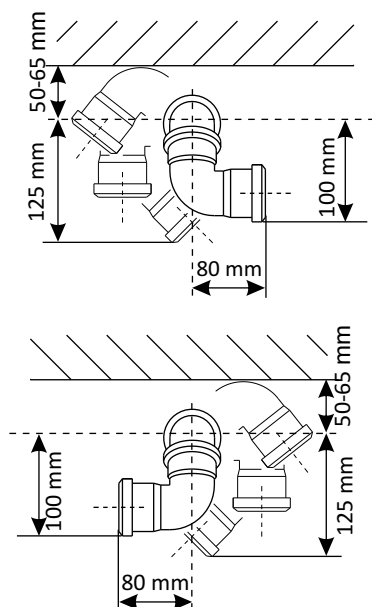
An example of placement of the shower pipe in a stair cupboard and in a standard cupboard for the electricity meter is shown in the following diagrams.



### 2.3 Dimensions for placing a shower pipe.

#### Top View

Rotator can be turned on the heat exchanger's axis.



### 2.4 Mounting the Reco-h-vert

2 brackets attach the 'Reco-h-vert' to the wall. It is important that the 'Reco-h-vert' be installed perfectly vertically, i.e. within 1 degree.

Should you have any comments or additions to this manual, please do inform us.

Edition : August 2011