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Installation instructions

RECOUP Pipe+ HE

Shower Waste Water Heat Recover unit

These instructions are to be left with the user for the homes user pack

WRAS APPROVED PRODUCT

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Contents

1. Introduction

The RECOUP Pipe+ HE is a Waste Water Heat Recovery Unit (WWHRU) for shower water, meaning it recovers heat from the warm waste water as it passes through before going to the drainage system for the property.

The heat recovery is possible due to the double walled heat exchanger within the Pipe+ HE being manufactured from copper, which is a very effective material for transferring heat. The double walled exchanger gives full protection against any contamination between the waste water going out and the fresh potable water coming in. This preheated water then supplies the mains cold feed to the shower and either a combination boiler or a hot water storage cylinder.

The reason for doing this is to save money and energy. In an average shower the water will come out of the shower head at 40°C, and the water going down the drain will only be a few degrees cooler than this. This energy has been paid for once, and we believe at Recoup Energy Solutions, that the home owner should get as much benefit from this energy before paying to reheat more water and at the same time reduce the energy consumption and CO_2 emissions of the home.

The RECOUP Pipe+ HE should be installed by a suitably qualified plumber who gives consideration and attention to the system design as well as a correct installation.

The RECOUP Pipe+ HE is a vertical heat exchanger, and is designed to work with showers positioned on the first floor or above. It is very important to follow all the instructions for installation of the RECOUP Pipe+ HE for the product to perform successfully.

IMPORTANT – For recognition of the RECOUP Pipe+ HE energy saving performance within the National Calculation Method (NCM) for the energy rating of a new build dwelling within the UK (also known as the Standard Assessment Procedure (SAP)) it is vital that the following are complied with: -

a) This Instruction Manual
b) A system design checklist
c) Installation checklist
d) Certificate of installation

b, c & d are supplied as a single document and are attached with this document and also available at: www.ncm-pcdb.org.uk/sap – A signed copy of each should: -

1. Be left with the home user pack (for the home owner)
2. Retained by the installer
3. A copy sent to RECOUP Energy Solutions Ltd (See company details on Page 10).
   (Note: Building control officers may also request a copy)

A NCM (SAP) identifier label should be permanently fixed to the RECOUP Pipe+ HE unit and a second label attached to a nearby boiler or service cupboard. The 'model qualifier' section of the first label denotes the system installation configuration (A, B or C) and will state 'Refer to Installation certificate otherwise System B will be assumed. The actual system configuration will be recorded on the system design checklist, installation checklist/certificate of installation and the second NCM (SAP) identifier label.

2. Product technical data

2. a. General Information – RECOUP Pipe+ HE

Description	Value	Unit
Overall length (Height) required for installation	2400	mm
Outside diameter of external tube	50	mm
Material – Internal tube	Copper	
Material – External tube	PVC	
Shower flow rate range	5 – 12.5	litres/min
Max. Mains water inlet pressure	10	bar
Min. Mains water inlet pressure	1	bar
Max. Waste water working temp.	85	°C
Mains water connection	½" male	BSP
Waste water connection	50	mm
Weight	7.9	kg
Water volume – mains water	0.3	litres

The mains water and preheat connections are a ½" male BSP connector which can be joined to either a 15mm or 22mm pipe with reducer.

2. b. Performance & Efficiency

Shower Flow Rate @ 40°C (Litres/min)	Pipe+ HE efficiency (Recovered energy kWh)		
	System A	System B	System C
9.0	64.2 % (12.1)	49.4% (9.3)	55.5% (10.4)
9.2	63.7 % (12.3)		
11.0	61.5% (14.1)	48.4% (11.1)	52.6% (12.1)
12.5	60.0 % (15.7)		

2. c. Pressure drop on main water circuit

Shower Flow Rate @ 40°C (Litres/min)	Pipe+ HE Pressure drop (bar)		
	System A	System B	System C
9.2	0.34	<0.21	
12.5	0.45	<0.27	

2. d Dimensions & connections – RECOUP Pipe+ HE

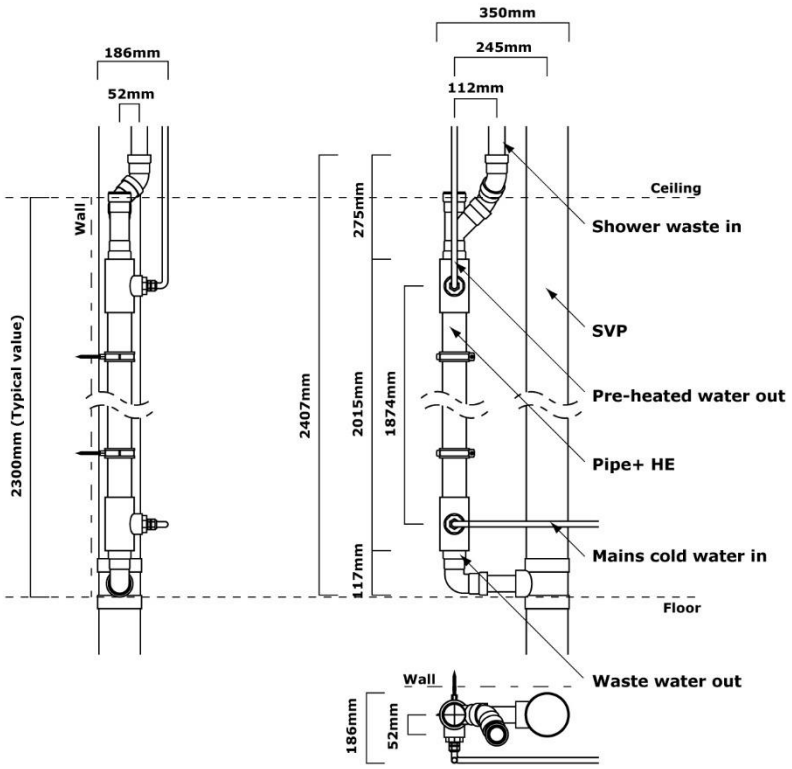

Fig. 1.a. Dimensions & Connections with vertical shower waste

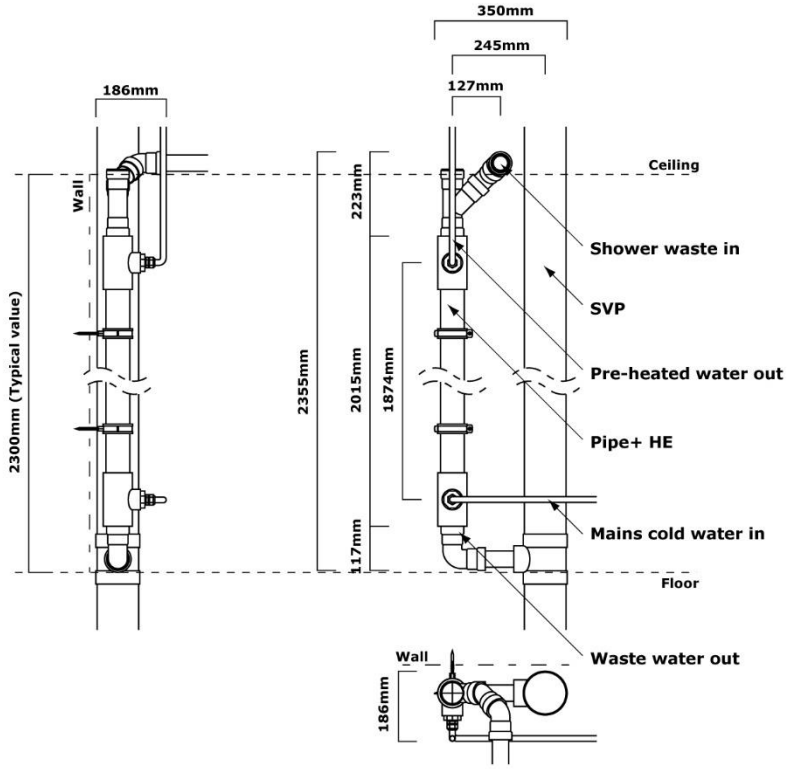

Fig. 1.b. Dimensions & Connections with horizontal shower waste

3. Pre-installation requirement

3. a. Basic system principle

The RECOUP Pipe+ HE is a Waste Water Heat Recovery Unit (WWHRU) for shower water, meaning it recovers heat from the warm waste water from a shower as it passes through before going to the drainage system for the property.

This preheated water then supplies the mains cold feed to the shower and the Domestic Hot Water (DHW) heater or in the case of system configurations System B and System C, the shower or the DHW heater respectively. The DHW heater could be: -

a) Unvented hot water cylinder
b) a combination boiler
c) a thermal store (Mains pressure DHW delivery)
d) A Heat Interface Unit (HIU) on a district heating scheme (Mains pressure DHW delivery)

Note: The DHW heater must be a mains pressure system and able to accept preheated cold water.

3. b. Installation configuration

The inlet for the Recoup Pipe+ HE is connected to the mains water supply, and the outlet (pre-warmed water) can be connected in one of three ways: -

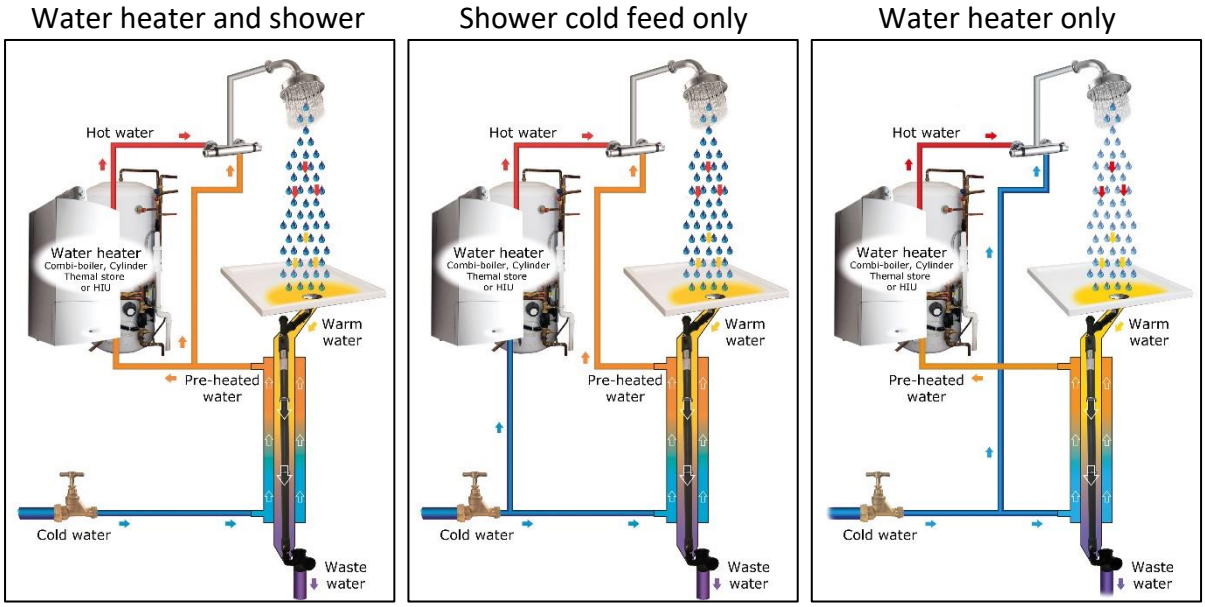

Fig. 2. System A,B & C Configuration

SYSTEM A – Preheated water supplied to shower mixer (Cold inlet) and DHW heater.
SYSTEM B – Preheated water supplied to shower mixer (Cold inlet) on the shower only
SYSTEM C – Preheated water supplied to DHW heater only

The performance of Systems A, B & C are all recognised within the SAP Products Characteristics Database (PCDB) for energy saving calculations, but remember that System A will produce the highest efficiencies (see section 2.b. for different system efficiencies).

3. c. Locating the RECOUP PIPE+ HE

The RECOUP Pipe+ HE needs to be installed vertically, and therefore, will be situated on the floor below the shower. Installation should take place on a flat wall using the fixings provided (Refer to Section 6 for maintenance and access requirements).

The RECOUP Pipe+ HE must be located within the heating envelope of the building.

The Pipe+ HE must be installed with consideration to the most recent 'Approved document – Part H of the Building Regulations' for preventing the ingress of foul sewer gases.

3. d. Design Checklist

For recognition within the SAP calculations, the following must be complied with:-

- Consideration given to DHW delivery performance (Pressure & Flow rate)
- DHW system must be a mains pressure system
- DHW system must accept preheated water
- The RECOUP Pipe+ HE must be located within the heating envelope of the building.
- The shower must be fitted with a Thermostatic Mixing Valve
- Keep the distance from the shower tray to the RECOUP Pipe+ HE to within 3m to maintain a high level of efficiency by minimising heat losses in the drainage system prior to the WWHRS.
- The **Preheated** water supply from the RECOUP Pipe+ HE to the shower cold water inlet and water heater must be: -
    - Insulated in accordance with the 'Building Services Compliance Guide'.
      DO NOT INSULATE THE ACTUAL RECOUP PIPE+ HE
    - Labelled to prevent any future connection of hot water take-off points (E.g. Taps).
- Prevent the RECOUP Pipe+ HE being heated above 25°C by both external sources and from ambient temperature.
- If shut-off valves are specified they should be 'full-flow (non-restricting) shut-off valves.
- Approved document – Part H of the Building Regulations has been consulted and an appropriate method for preventing the ingress of foul sewer smells chosen.

4. INSTALLATION

4. a. Contents of Packages

Box	Part No.	Qty.	Name
1	1	1	RECOUP Pipe+ HE WWHRS unit - ∅ 63mm*
2	2	2	Coupling insert - ∅ 50mm*
2	3	1	T-piece 45° - ∅ 50mm*
2	4	1	Cap (insert) - ∅ 50mm*
2	5	2	45° connector - ∅ 50mm x 45°
2	6	1	Coupling sleeve - ∅ 50mm*- Alternative 90° sleeve also included (No. 9).
2	7	2	Double Pipe Nipple – ½" Male BSP (Connects to either a 15mm or 22mm pipe with reducer)
2	8	2	Mounting bracket - ∅ 63mm Wooden plugs - M8 x 80mm
2	9	2	90° connector - ∅ 50mm x 90° Alternative to item No. 6
2	10	1	∅ 50mm reducer to 40mm push-fit or Solvent weld
2	11	1	Installation instructions
2	12	1	NCM (SAP) Identifier label for nearby boiler or service cupboard.
2	13	1	Design checklist
2	13	1	Installation checklist

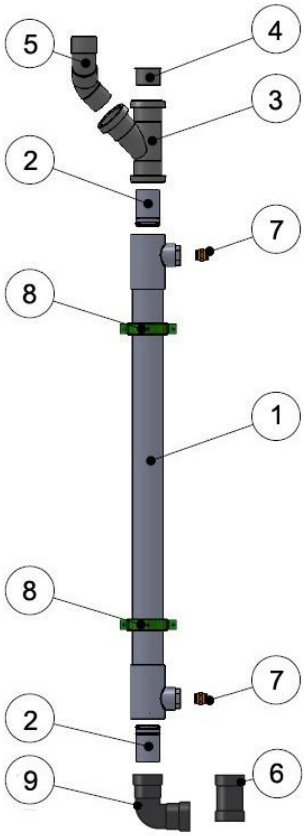

Fig. 3. Component arrangement.
**All waste pipe fittings are push-fit (50mm O/D). Part No. 10 is supplied to convert these to a UK 40mm push fit or solvent weld waste system (O/D 43 mm)*

Table 1 – Contents of packaging

Fig 4 – Contents of Ancillary kit box 2

4. b. Installation of the RECOUP Pipe+ HE

Check section 3. c. for guidance on locating a suitable area for installation.

The unit must be installed vertically on a suitable flat wall which is capable of holding the weight of the unit. If the mounting is not vertical the efficiency of the unit could be reduced, and installation should always be within a tolerance of +/- 20mm.

To Wall mount the unit: -

1. Mark and drill in a straight vertical line two holes that are 150 cm apart to screw the wall mounting brackets into, making sure there is adequate clearance top and bottom for the additional connections.
2. Fix the mounting brackets (Part No. 8) to the wall, and locate the RECOUP Pipe+ HE (Part No. 1) into the wall brackets, with the highest wall bracket approx. 25 cm lower than the top of the Pipe+ HE and the bottom bracket approx. 25cm above the bottom of the Pipe+ HE.
3. Check that the unit is in a vertical position.
4. Attach the waste water connections (Part No's 2,3,4,5 & 6 or 9), as shown in figure 3 (These are all Push-fit waste connections).
5. Connect the shower drain to the shower waste water inlet (Part No. 5) and the shower waste outlet (Part No's 6 or 9) to the sewer. Part 10 is supplied to convert to 40mm solvent weld system (O/D 43mm) or 40mm push fit to 50mm connections.
6. Connect the ½" Parallel Nipples (Part 7) – For connection to the water supply, ensure a ½" Female BSP x 15mm connection is used (Not supplied). A reducer could also be used to connect to a 22mm pipe. See Product Technical Data for more information.
7. A Non return valve with full flow shut off should be installed (Not supplied) on the mains water supply prior to the WWHR unit and another installed close to the connection for the pre-heated water leaving the WWHRU to facilitate in any replacement of parts.
8. Check and complete the following: -
    a. Ensure the preheated water supply is only feeding the DHW water heater and the cold water inlet of the shower's thermostatic mixing valve (System A), the cold inlet of the shower's thermostatic mixing valve only (System B) or the water heater only (System C).
    b. The preheated water supply from the Pipe+ HE is clearly labelled to avoid future connections of other services. Preheat supply tape is available for this, see Fig.5.
    c. Pipework between the Pipe+ HE and the water heater and/or cold water inlet of the thermostatic mixing valve is insulated.
    d. When the complete system is being checked and pressure tested, the Pipe+ HE must be isolated if the system testing is to proceed above 10 bar.
    e. Ensure the SAP label supplied correctly identifies the System installed and is applied near to the boiler in the property, see Fig.6.
    f. Complete the design and installation checklist or register the installation

For a full image installation guide or to watch our installation video visit the Pipe+ HE product page on our website.

5. Safety

5. a. Double Walled Heat Exchanger

European regulations (NEN 1717) require that double walls must be used to separate drain water and drinking water. In the RECOUP Pipe+ HE, this is accomplished by squeezing two copper pipes against each other. This creates a very sturdy and reliable construction, in which the contact between the pipes does not depend on the water pressure.
The design meets all the relevant safety requirements.
The Pipe+ HE should be protected against return flow through a verifiable non-return valve plus shut-off valve. It is permissible to connect the system directly to the sewer system.

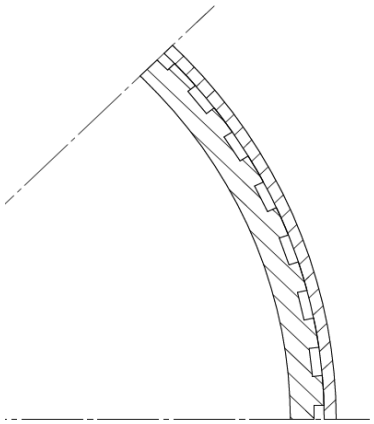

Fig. 7. Double wall exchange

5. b. Legionella Risk & Protection

Consideration must be given to the potential risks of legionella bacteria growth when installing any hot water system and this includes ALL devices that are used in the production and transportation of hot water in the domestic home or commercial environment. Please refer to the separate sheet provided covering Legionella and ensure that the copy is also left with the home owner pack.

6. Maintenance

The maintenance required for the RECOUP Pipe+ HE is very minimal, as in normal circumstances the flow rate of the shower water should not allow any residue to build up. In the unlikely event that residue build up does occur, a soap based cleaning product can be used to flush through the pipe.

Additional access (Through normal use this should not be required) should be obtainable with a pipe cleaning brush either via the shower/bath trap (or by removing the cap, Part 4 in Figure 3, if there is access). Once cleaned rinse through with warm water from the shower.

7. Warranty

The Recoup Pipe+ HE comes with a 2 year warranty unless agreed otherwise. This starts from either

1. The date of invoice from Recoup Energy Solutions Ltd
   or
2. The date of installation recorded on the received SAP documentation in line with the SAP Design and Installation Checklist.

This warranty is conditional on the product being installed in accordance with these instructions (Installation and **ALL** requirements for SAP, if product is to be recognised for Energy efficiency calculations), correct plumbing practices and Building Regulations.

8. Registration

The installation of a WWHRS should be registered to comply with SAP requirements. Registration can be completed by filling in the paper based design and installation checklist enclosed and returning it to use. Alternatively, you can download the Recoup WWHRS App which provides waste water heat recovery system customers and installers with an easy to use and easy to access facility. Visit registration.recoupwwhrs.co.uk or scan the QR code to download the Apple or Android App or access additional copies of the paper based registration form.

Company contact details:

Telephone: 01379 844010
Email: info@recoupwwhrs.co.uk
Website: www.recoupwwhrs.co.uk

Please post completed documents to: -
Recoup Energy Solutions Ltd, PO Box 365, EYE, IP22 9BH