

# Recoup Energy Solutions Ltd – SWIG Awards 2015 – Product Category

Product – Recoup Pipe+ HE

The Recoup Pipe+ HE is a Waste Water Heat Recovery Systems (WWHRS) for showers. It is a passive vertical heat exchanger that uses the outgoing waste water from a shower to pre-heat the incoming cold feed.

Heating hot water is very expensive and showering is the biggest user of hot water in the home. In fact, showering is the second largest user of energy in the family dwelling, behind electricity. When we shower, we use a small amount of the energy put into heating the hot water, with 40°C shower water only losing around 3 – 5°C before going down the drain. This warm water runs down the inside of our heat exchanger, with the cold water refilling the system being sent on the outside; by the warm water transferring heat to the cold, we achieve temperature increases of around 15°C, so 10°C cold water entering our system, leaves at around 25°C, meaning less hot water and energy is required to get the fresh water up to temperature.

Due to the above, our system boasts efficiencies of up to 67% at a shower flow rate of 5.5 litres p/min, which provides incredible savings in both energy and CO<sub>2</sub>. In a family home of 4, with each person showering every day, the system will pay for itself in around 4 to 5 years.

The Recoup Pipe+ HE is used mostly in new build houses with showers on the first floor or above, however it has also been specified for leisure facilities and hotels. The product is used by many national and regional house builders including Barratt Developments plc., Miller, Bovis & Redrow, with the first units being installed around 2012/13. Barratt/DWH actually specify the Recoup Pipe+ HE in many of their standard house type specifications to meet 2013 building regulation compliance.

Being completely passive, there are no moving or mechanical parts and no end-user interaction. No planned maintenance means that it really is a fit and forget product working as part of your plumbing and therefore saving energy every time you shower. Installation is very simple, with any qualified plumber being able to do so. There are 3 installation methods, all relating to where the pre-heated water is fed to (Water heater (normally a combi-boiler or cylinder), shower mixer or a combination of these). Please see the install/technical guide for details, but install cost for a new build should not be much more than £100.00 or so, depending on pipe runs and position.

The Recoup Pipe+ HE is usually supplied to house builders and their sub-contractors through national stockists such as the Travis Perkins Group (PTS/City Plumbing/TP) & Plumb Center. Costs vary depending on project/specification size, however budget figures of £360 – £400.00 +VAT for the pipe and install kit are common.

Our product is KIWA tested for efficiencies, WRAS approved, SAP listed & Legionella Control risk assessed – one of the only plumbing products in the UK to have been so.

SAP is the method used to calculate the energy efficiency of new build dwelling to ensure they meet building compliance. The Recoup Pipe+ HE is listed in all versions of SAP from 2005 and it is the highest scoring system in its class in the latest 2012 version. The reason this product is so popular with house builders is that it gains one of the best £ to point ratios in SAP when comparing all products and materials on the database. As a rough comparison, it will score similar points to a standard solar thermal array for around 20-25% of the cost with none of the installation, aesthetic, maintenance or orientation issues.

In addition, we are about to release an app for both Apple and Android so installers/developers can register their Recoup Pipe+ HE installation for SAP compliance, removing the need for time consuming paperwork, and also the product will be available through BIM store for BIM modelling in the coming weeks.

Our most popular waste water heat recovery system due to it's efficiency of up to 67%, low price and superb all round performance. Providing incredible pounds to points ratio in SAP, the double walled (EN1717) Copper heat exchanger is mechanically pulled together giving consistent production. Ideal for new build applications, this product is sure to deliver results, whatever your criteria. Our unique PVC outer provides unrivaled benefits, including cost reduction, manufacturing consistency, theft deterrent and a lower product weight.

**General Information**

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. Mains water working temp	85	°C
Mains water connection	15	mm
Waste water connection	50	mm
Weight	7.9	kg
Water volume - mains water	0.3	Litres

**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)		

**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	

