



**REDRING**

# **POWERSTREAM HANDBOOK**

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**IMPORTANT:** This booklet should be given to the customer after installation and demonstration.

**Applied Energy Products Limited**

## **Contents**

Using the Powerstream	3
Installing the Powerstream	4
Accessories & Spares	7
Commissioning the Powerstream	7
How the Powerstream works	8
If you have a problem...	10
Guarantee	Back Cover

Keep this guide in a safe place once your Powerstream unit has been installed. You may need to refer to it for general instructions or future maintenance.

# Using the Powerstream

## WARNING

Do not use the unit if you think it may be frozen, as this could result in serious damage to the unit. Wait until you are sure that it has completely thawed out before you switch it on.

## Basin

- Check that the power is switched on at the mains isolator switch.
- Turn on the hot water tap **FULLY**. If you do not turn the tap full on, you will find that the temperature of the water will vary. The hot water temperature will have been set using the service valve (see page 6).
- If the unit has been used recently, run the water through for a few seconds to let the temperature settle down. You may initially get a short burst of very hot water from the unit.
- If a second tap connected to the unit is also turned on, the hot water will be shared between the two and so the flow will drop.
- When you have finished, do not switch off the power if you are going to use the unit again shortly.

## Shower

- Check that the power is switched on at the mains isolator switch.
- Turn on the hot (or 'flow') tap **FULLY** (diagram1).
- If the unit has been used recently, run the water through for a few seconds to let the temperature settle down. You may get a short burst of very hot water from the unit.
- Turn on the cold (or 'temperature') tap, if necessary, to adjust the temperature of the water.
- Make sure that no other outlets connected to the unit are used while you are in the shower, or the water flow will drop suddenly.
- When you have finished, do not switch off the power if you are going to use the unit again shortly.
- It is important to clean the shower spray plate regularly (see page 11)
- In order for the Powerstream to function correctly the Redring Mixer Kit must be used. The kit Cat. No. 85-793605 comes complete with full accessories including a 3 position multi-function shower handset.

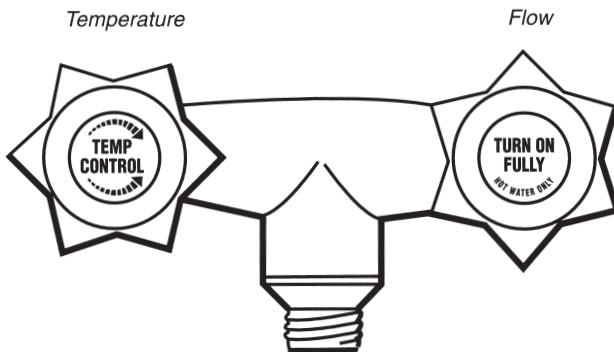


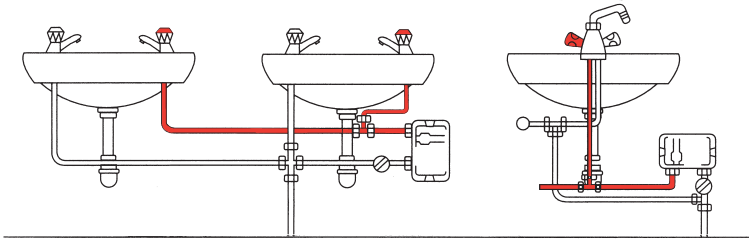
Diagram 1: Mixer Units

# Installing the Powerstream

## WARNING

Do not install the Powerstream in a room where there is a chance of freezing.

Diagram 2: Examples of fitted units



## Before you start

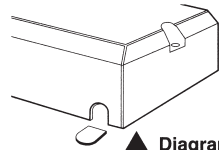
Check that the mains is capable of supplying the required current. See the rating plate for current supply requirements.

Check the pressure of the main water supply. To operate correctly, the unit requires the following running pressures -

Model	Dynamic Water Pressure			
	Basin		Shower	
	Minimum	Maximum	Minimum	Maximum
Up to 9.5kW	10psi (0.7bar)	150psi (10.3bar)	15psi (1.1bar)	150psi (10.3bar)
Up to 10.8kW	15psi (1.1bar)	150psi (10.3bar)	20psi (1.4bar)	150psi (10.3bar)
Up to 12kW	20psi (1.4 bar)	150psi (10.3bar)	25psi (1.8bar)	150psi (10.3bar)

## Deciding the wiring route

- You have a choice of whether to feed the electric cable through the side or through the back of the unit.
- If it is going through the side of the unit, cut out the plastic lug to expose the grommet (diagram 3).



▲ Diagram 3:  
Lug cut out

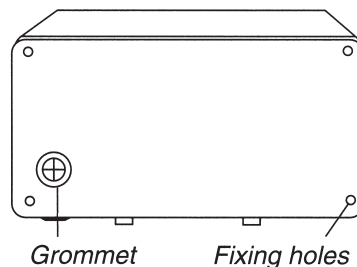
## Fixing the unit to the wall

### Deciding the position

- If being used in a public place, position the unit out of easy reach to discourage vandalism.
- Fit the unit onto a flat piece of wall, well away from any potential splashes of water or spray.
- Position the unit either upright or lengthways (diagram 2), whichever is most convenient for plumbing and wiring. Remember to keep the lengths of hot water pipe to a minimum in order to save energy.
- If the unit is to supply a basin, you can fit it either above or below the basin.

- If it is going through the back of the unit, cut through the grommet on the backplate with a sharp knife. Make sure that you do not remove the grommet from the backplate (diagram 4). Feed the cable through the grommet before you fix the unit to the wall.

▼ Diagram 4:  
Back of unit



## Fixing to the wall

- Undo the retaining nuts and take the front cover off the unit. Hold the backplate in position against the wall while you mark the four fixing holes.
- Drill the holes and fix the unit to the wall using the four No 8 x 38mm wood screws supplied.

## Plumbing the unit

### Warning

- Do not use a non-return valve in the inlet feed to the unit.
- Do not fit the unit within 2 metres of a stop valve.

### Fitting the pipes

- The unit should be connected directly to the main cold water supply.

In some cases it may be worth fitting a second unit.

- If the unit is to supply more than one basin outlet, the head should be the same at each outlet if they are to be used at the same time. If not, one outlet will take all the water.
- When the pipework has been plumbed on, flush it through with water before you connect the unit, to remove any swarf or loose particles.

## Connecting the unit to the pipes

- The inlet and outlet are clearly marked on the unit. They each have a  $\frac{3}{8}$ " NPT connector.
- Two  $\frac{3}{8}$ " NPT x 15mm adapters are included with the unit to attach it to the inlet and outlet pipes.  
(Model 45-793270: See addendum sheet for local installation requirements).

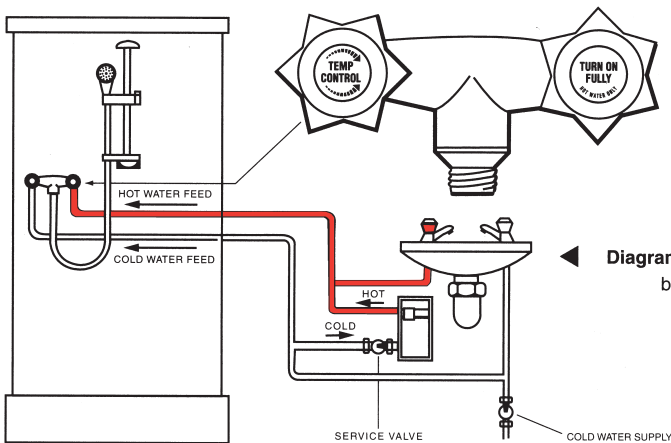


Diagram 5: Unit serving basin and shower

- We recommend that you use 15mm copper or stainless steel pipe for the inlet and outlet connections. (See addendum sheet for local installation requirements).
- Use PTFE tape for making screw joints. Do **NOT** use a jointing compound.
- Remember to keep the hot water pipe runs as short as possible.
- The unit comes with a service valve (diagram 6) which should be fitted on the inlet of the unit. You can do this using the inlet adaptor provided. The valve can be used to turn off the water supply to the unit if it needs servicing, or to reduce the main supply pressure if it is too high.

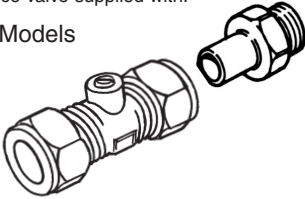
## Fitting the attachments

- If the unit is to supply a shower, you will also need a Redring mixer unit. Available in chrome/white finish and suitable for surface or concealed pipe entry see page 7 for details.

### Diagram 6:

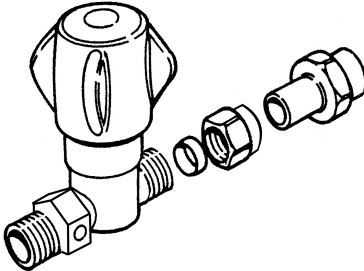
Service valve supplied with:

UK Models



Service valve supplied with:

Export Models



- If the unit is to supply a shower, and the shower handset can reach water in a bath or basin, you must fit a vacuum breaker to comply with Water By-laws. These vacuum breakers are available from our sales office (see page 7). Alternatively use the hose retaining feature built into the soap dish.

Because water can sometimes seep through, you should position the vacuum breaker where dripping will not do any damage.

- If the unit is to supply a basin, we recommend that you use spray taps, which you can get from your local stockist (not Redring supplied).

## Making the electrical connections

### WARNING

- The wiring must comply with BS7671 (formerly IEE regulations).
- The unit must be installed by a qualified electrician.
- The unit must be earthed.

### Wiring to the mains

- A 40 amp 240V supply is required for the 9.5kW unit.
- A 45 amp 240V supply is required for the 10.8kW unit.
- A 50 amp 240V supply is required for the 12kW unit.

### 9.5kW Powerstream Wiring Conditions

If the cable run is less than 10M and is surface run, 6mm<sup>2</sup> cable can be used.

This unit must be permanently connected to the mains through an isolator double pole switch with a minimum contact gap of 3mm providing class A disconnection.

The isolating switch should be rated at:  
*40 amps or greater for the 9.5Kw unit.*

Wire the unit using a suitable mcb/fuse:  
*40 amp/mcb for the 9.5Kw unit*

### 12 & 10.8kW Powerstream wiring conditions

This unit has been designed to accept 10mm<sup>2</sup> supply cable. Therefore this is the size of cable that should be used between the isolator switch and the unit, even if you decide to use 16mm<sup>2</sup> between the fuse box and isolating switch. 10mm<sup>2</sup> supply cable is recommended for the 12Kw, and for long cable runs (greater than 10M) also for the 10.8Kw unit.

The isolating switch should be rated at:  
*45 amp for the 10.8kW unit*  
*50 amp for the 12 kW unit*

Wire the unit using 10mm<sup>2</sup> cable and a suitable mcb/fuse:

*45 amp fuse/mcb for the 10.8kW unit*  
*50 amp fuse/mcb for the 12kW unit*

## If the unit is fitted in a bathroom:

### 9.5 & 10.8kW Powerstream:

A standard 45A cord operated isolator switch is recommended.

### 12kW Powerstream:

A pull cord isolator switch is not available for this model. A double pole 50A isolator switch is required. This must be mounted out of reach of the shower cubicle or bath.

## Connecting the unit to the mains

- Strip back the insulation on the **LIVE** (brown or red) and **NEUTRAL** (blue or black) mains wires about 8 mm. Any insulation on the **EARTH** (green/yellow or green) should be stripped back about 20 mm.
- Feed the cable through the side or rear entry grommets, as appropriate. The outer sheath of the cable must project through the grommet (diagram 7). If the side entry is used, this will stop water getting into the unit.
- Connect the cables to the terminal block and earth stud (diagram 7).
- Make sure that the live and neutral terminal block screws are tightened securely (minimum 1 Nm).
- Make sure that the earth wire is wrapped around it's terminal stud and into the saddle washer. The nut should be tightened securely (minimum 2 Nm).
- Check that the Power Selector Screw on the flow switch is set to 'HI' (diagram 8). If it is set to 'LO' only one heater element will operate.
- Fit the front cover and tighten the retaining nuts.

## Ensuring the earth continuity

- If the unit is fitted in a bathroom, to conform with BS7671 (formerly IEE regulations), the unit's earth continuity conductor must be effectively connected to **ALL** exposed metal parts of **ALL** other appliances in the room.

Diagram 8:

Power selector screw

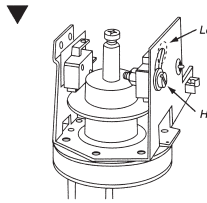
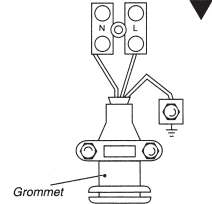


Diagram 7:

Cable termination



- The installation should be supervised by a qualified electrician.

## Accessories and Spares

### Item

### Catalogue number

Chrome & white shower mixer unit complete with full accessories including 3 position multi-function handset	85-793605
Shower curtain & rail	83-763501
Vacuum breaker	83-760808
3/8" x 15mm adaptor	93-793711
12mm plated elbow	93-793718
Descaling solution	95-711015

For further details, including a comprehensive list of accessories and spares for all Redring products, contact your local dealer, or call Redring's sales office on 01733 456700.

For non UK customers please contact your local distributor.

## Commissioning the Powerstream

### Checking for leaks

- Let the water run through the unit for a few seconds. Check that no pipe joints leak.

### Adjusting the service valve

Turn the service valve on, then -

- *If the unit is to supply a basin,*

- turn on the hot water tap fully at the basin.

- adjust the service valve until the water comes out of the tap at the required temperature.
- Check that the unit works correctly when the basin tap is closed and then opened again; if not, adjust the service valve slightly.
- *If the unit is to supply a shower,*
  - turn the hot water tap on the mixer unit fully on.
  - turn the service valve anticlockwise until the neon light goes out, then turn it back until the neon just comes on.
  - check the water temperature at the handset and, if necessary, turn the cold tap on and adjust to get the desired shower temperature.

**In order to maintain the performance of your shower you must clean the showerhead.**

All water contains particles of lime which build up in the showerhead and unit, reducing the performance. It is therefore important to clean the showerhead by regularly dipping it in a suitable descaling solution. The frequency of this will vary from weekly to quarterly depending on water hardness and experience.

Explain to the user that when the unit is used, the hot water tap should be turned fully on so that the water temperature is always the same.

***If you have any queries***

See page 10, then call the Redring Technical Advisory Hotline on 01733 456999. For non UK customers please contact your local distributor. If you need further information, we will be glad to help you with any installation enquiries.

**- IMPORTANT**

*Demonstrate the unit to the user and give them this guide.*

**How the Powerstream works**

Water comes in through the inlet, via a filter.

The flow switch measures how much water is passing through the unit. If it detects more than the preset level of:

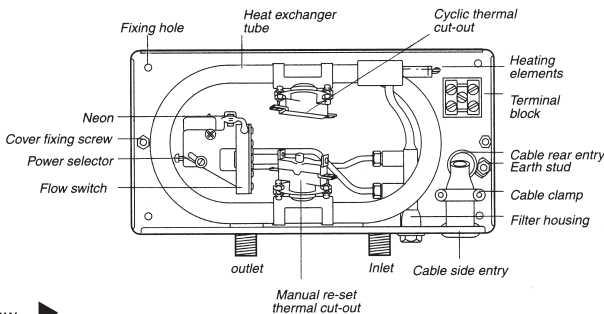
- 3 Litres/minute for the 9.5kW model,
- 4 litres/minute for the 10.8kW model,
- 5 Litres/minute for the 12kW model,

the units heating elements are switched on. This is shown by the neon light glowing. The neon light will glow less brightly if only one element is operating.

The water is heated instantly as it passes through the copper heat exchanger tube.

The temperature of the water coming out of the unit depends on :-

- The temperature of the mains water supply
- The water flow rate
- The power consumption of the unit



**Diagram 9:** Inside view ►



The temperature of the main supply can vary from 5°C in winter up to about 20°C in summer, with an average of about 12°C. The charts below shows the water temperature (°C) you can expect from the unit, operating at 9.5/10.8/12 kW for the different flow rates (in litres/minutes) -

### 9.5kW Powerstream

Flow rate (litres/min)	3.0	4.0	6.0
Summer temp °C	-	54°	43°
Winter temp °C	50°	39°	28°

On average (12°C main water supply at 4 Litres/minute) an outlet temperature of 46°C will be achieved.

### 10.8kW Powerstream

Flow rate (litres/min)	4.0	5.0	6.0
Summer temp °C	-	51°	46°
Winter temp °C	44°	36°	31°

On average (12°C main water supply at 5 Litres/minute) an outlet temperature of 43°C will be achieved.

### 12kW Powerstream

Flow rate (litres/min)	5.0	6.0	7.0
Summer temp °C	54°	49°	44°
Winter temp °C	39°	34°	30°

On average (12°C main water supply at 6 Litres/minute) an outlet temperature of 41°C will be achieved.

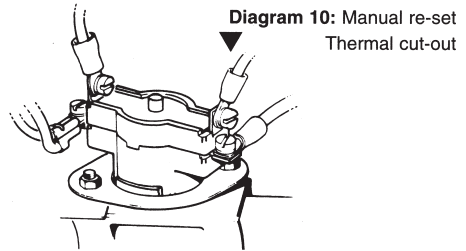
This means that with the 12kW unit you can shower at 40°C with a flow rate of 5L/min in the middle of winter

The unit includes two thermal cut-outs (diagram 9) which are attached to the heat exchanger tube. They will switch off the heater elements if the water flow is reduced too much and the temperature goes above a set limit.

One cut-out is cyclic and will automatically reset as the water temperature falls. The unit will then function normally again.

The other cut-out when triggered needs to

be reset manually inside the unit. This cut-out will only operate in exceptional circumstances (diagram 10)

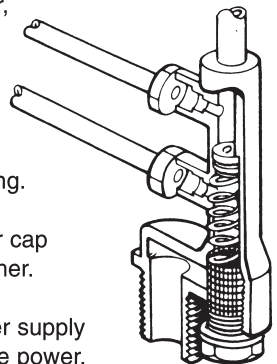


The unit can supply more than one outlet - for example, a shower and a basin, or two basins - but water from the unit will be shared between the outlets. This is particularly important if a unit supplies a shower and a basin, as the basin should not be used while someone is using the shower.

### Cleaning the filter

If the flow rate drops over a period of time, the filter unit (diagram 11) may be restricting the flow of water through the unit. It can be cleaned as follows-

- Switch off the power to the unit at the mains isolator.
- Turn off the water supply at the service valve.
- Unscrew the filter cap, remove the filter and clean it under the cold tap.
- Replace the filter, compression spring and brass jet. Make sure that the jet is firmly in place against it's seating.
- Replace the filter cap and sealing washer.
- Turn on the water supply and switch on the power.



▲ **Diagram 11:** Filter unit

**- Warning**

Always switch off the electricity supply to the unit before you remove the cover.

## If you have a problem...

<b>For the Installer</b>										
<b>Symptom</b>	<b>Cause</b>	<b>What to do</b>								
<b>Little or no water flows - neon light off.</b>	The water pressure is very low.	Use a pump to boost the supply from a storage tank.								
	The filter is blocked or there is dirt in the unit.	Disconnect the unit and flush it through. Clean the filter as described on page 9.								
<b>Cold water only - neon light off.</b>	The main water supply is connected to the <b>OUTLET</b> of the unit.	Reconnect the main supply to the <b>INLET</b> (marked in blue).								
	The water pressure is too low.	Use a pump to boost the supply from a storage tank.								
	The thermal cut-out has triggered.	Reset it by opening the unit and pushing the button on the cut-out (diagram 10.) Before you do this you must remove the cause of the problem.								
	The flow switch is not working.	Contact Redring.								
<b>Water too cold - neon light on.</b>	The power select screw set to ' <b>LO</b> '. (neon dim).	Change the power select screw to ' <b>HI</b> ' (see page 7).								
	One element is not working (neon dim).	Switch off the electricity supply & check the resistance of the elements. You should get the following readings:								
		<table border="1"> <thead> <tr> <th>Loading kW</th> <th>Resistance Ω</th> </tr> </thead> <tbody> <tr> <td>9.5</td> <td>12</td> </tr> <tr> <td>10.8</td> <td>10.6</td> </tr> <tr> <td>12</td> <td>9.6</td> </tr> </tbody> </table>	Loading kW	Resistance Ω	9.5	12	10.8	10.6	12	9.6
	Loading kW	Resistance Ω								
9.5	12									
10.8	10.6									
12	9.6									
The Power Supply Voltage has dropped.	The Heater should draw the following currents: 40 amps for the 9.5kW model 45 amps for the 10.8kW model 50 amps for the 12 kW model									
The flow switch is not set correctly.	Change the brass jet for one with a smaller hole.									
<b>Water flow too low, or temperature too high.</b>	The service valve is fitted to the <b>OUTLET</b> .	Fit the service valve to the <b>INLET</b> of the unit.								
	There are constrictions in the plumbing.	Check the plumbing. Only use <b>PTFE</b> tape for making pipe joints.								
<b>Water goes from hot to cold.</b>	The service valve is fitted to the <b>OUTLET</b> .	Fit the service valve valve to the <b>INLET</b> of the unit.								

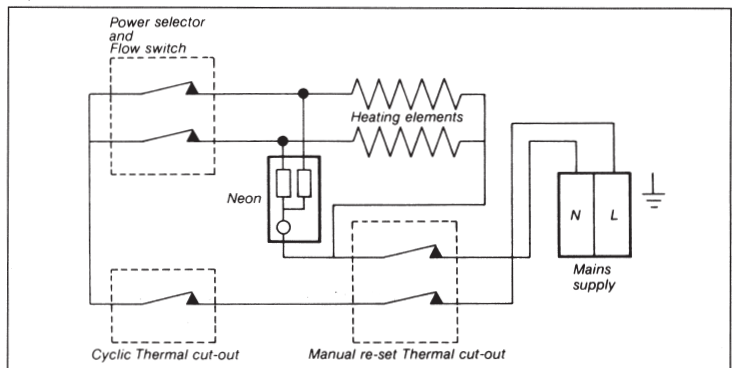
## For the User

Symptom	Cause	What to do
<b>Little or no water flows</b>	The main water supply is turned off.	Turn on the main supply fully at the stop valve.
<b>Cold water only - neon light off.</b>	The main water supply is not turned on enough.	Turn on the main supply fully at the stop valve.
	The filter is blocked or the brass jet is wrongly positioned	Clean and reassemble the filter as described on page 9.
<b>Water too cold - neon light on.</b>	The water flow rate is too high.	Adjust the service valve (see page 7).
	The inlet water temperature has dropped.	Adjust the service valve (see page 7).  For a shower, adjust the spray pattern available on the multi-mode handset.
<b>Water flow too low, or temperature too high</b>	The main supply water flow is too low.	Increase the supply water flow. Make sure that the service valve is correctly adjusted.
	The hot tap is not fully open.	Adjust the service valve so that the water is at the right temperature with the tap fully open (see page 7).  Always turn the hot tap full on.
<b>Water goes from hot to cold</b>	The water flow or pressure is too low, and the thermal cut-out is operating.	Increase the supply water flow. Make sure that the service valve is correctly adjusted.
	The filter is blocked.	Clean it (see page 9).
	A second outlet has been turned on.	Do not use the basin while using the shower.
<b>Shower spray pattern deteriorates</b>	The shower handset is clogged.	Clean the handset - using descaling solution if required (see pages 7&8).

### If the problem persists

The person who initially installed the unit is probably the best one to contact for help.  
You can also call Redring's Technical Advisory Hotline on 01733 456999.  
Please have this guide with you when you call.  
For non UK customers please contact your local distributor.

**Diagram 12:**  
Internal wiring plan



## Guarantee

We, Applied Energy Products Ltd., guarantee that should this Powerstream unit prove to be defective by reason of faulty workmanship or material within 36 months (outside the UK, please contact your local distributor) of the date of purchase or commencement of hire we will replace the defective parts FREE OF CHARGE on condition that:

- a) The appliance has been correctly installed and used only on the supply circuit or voltage stamped on the rating plate.
- b) The appliance has been used in accordance with these instructions and has not been tampered with or otherwise subject to misuse, neglect or accident.
- c) The appliance has not been taken apart, modified or repaired except by a person authorised by us.
- d) Evidence of the date of purchase in the form of an invoice, receipt (hire purchase documents) is included with the appliance if returned under guarantee.
- e) For non UK customers please contact your local distributor.

'This guarantee does not affect your statutory rights'

Full details of Terms and Conditions of guarantee are available on request from:-

Applied Energy Products Ltd., Morley Way, Peterborough, PE2 9JJ. U.K.

Telephone: +44 (0)1733 456789. Fax: +44 (0)1733 310606

Website: [www.redring.co.uk](http://www.redring.co.uk)