

**CalMag**  
Calming troubled waters

**CalFlush**

# Powerflush Machine

Used to clean fouled central heating systems



Powerflush Pack



Includes Heating Filter



Includes full installation kit

ESSENTIAL  
FOR ENERGY  
SAVINGS

INSTALLERS-  
CONFORM TO THE  
CURRENT BUILDING  
REGULATIONS

Call for further information 01535 210320

Fax: 01535 210321 | Email: [sales@calmagltd.com](mailto:sales@calmagltd.com) | [www.calmagltd.com](http://www.calmagltd.com)



# Introduction

There are an estimated 17 million gas boilers in the UK, with around 1.5 million new boilers installed each year.

Following the Government's decision to require virtually all new boilers to be SEDBUK A rated boilers following the changes to Part L of the Building Regulations, rise has been given to areas of water treatment that need to be addressed which followed with the Domestic Heating Compliance Guide.

Water treatment fulfils a number of rolls within domestic central heating systems and can be summarised to minimise the corrosion of metals within the system, to inhibit the formation of the scale and sludge, to inhibit the growth of microbiological organisms and to maintain or restore the energy efficiency of the system.

Boiler noise, pump failure and cold spots are problems that can be rectified by correct treatment and cleaning. Dirty central heating systems can increase fuel bills by up to 35% something that homeowners will be keen to remedy.

Powerflushing is the most efficient way to pre-commission a new installation or clean an existing system. By flushing with mains water alone, around 10% of the debris in a system is removed. This can be increased by up to 30% by adding a

powerflushing unit to the process.

To increase this figure even further, you can combine powerflushing with the use of chemicals such as cleansers, sludge, flux, silt and descaling chemicals, which will remove up to 80% of the contaminants present.

The Building Regulations state that during the final filling of the system, a chemical water treatment formulation should be added to the primary circuit to control corrosion and the formation of scale and sludge.

Added to this, boiler manufacturers are increasingly reluctant to honour warranty repairs where they suspect that the problem has been caused or exacerbated by debris or sludge in the system.

Independent research carried out by GasTec has confirmed that sludge build up in radiators on a normal domestic heating system can reduce their overall effectiveness by as much as 15%. In addition, it says that proper cleansing of a system using a chemical additive to "break up" sludge deposits combined with a powerflush of the system will result in a greater uniformity of radiator temperature and result in a reduced risk of system imbalance.

## New Systems

### 4.0 System Preparation and water treatment

- Central heating systems should be thoroughly cleaned and flushed out before installing a new boiler.
- During final filling of the system, a chemical water treatment inhibitor meeting the manufacturer's specification or other appropriate standard should be added to the primary circuit to control corrosion and the formation of scale and sludge.
- Installers should also refer to the boiler manufacturer's installation instructions for appropriate treatment products and special requirements for individual boiler models.
- Where the mains total water hardness exceeds 200 parts per million, and if required by the manufacturer, provision should be made to treat the feed water to water heaters and the hot water circuit of combination boilers to reduce the rate of accumulation of limescale.

## Replacement Systems

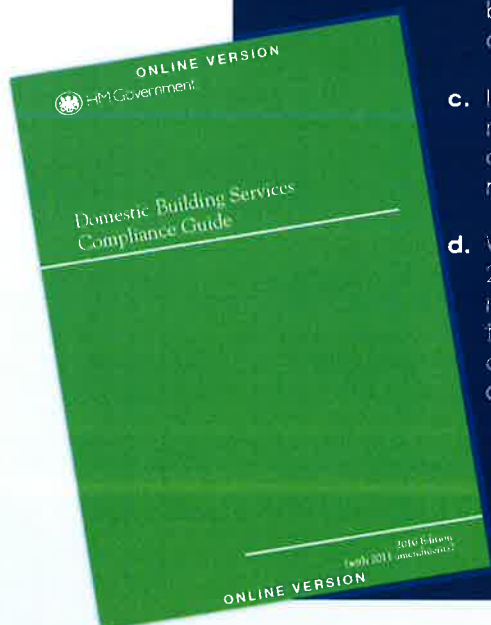
### a. Flushing



### b. Chemical



### d. Limescale



MAKE SURE THAT YOU FLUSH!

# Water treatment fulfils a number of roles within domestic central heating systems which can be summarised as follows:

- To minimise the corrosion of metals within the system.
- To inhibit the formation of limescale.
- To inhibit the formation of the scale and sludge.
- To inhibit the growth of microbiological organisms.
- To maintain or restore the energy efficiency of the system through a combination of the above effects.
- To neutralise and dispose acidic waste safely, without damaging the environment.

These are consistent with the requirements of British Standard, which is a referenced document within the current Building Regulations, and following this Code will guarantee compliance.

The current problem: In most cases, the quality of the water supplied to the home is determined by local conditions. There is no practical method of external treatment at the water works, which can reduce the potential for corrosion and scale within a home.

To minimise the likelihood of corrosion, scale, sludge, acidic waste and microbiological contamination, and to help us maintain the energy efficiency of the heating system, the water must be treated with the use of various products.

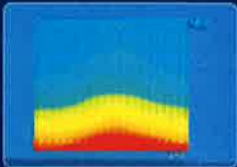
Each CalFlush unit comes complete with a heating filter, corrosion inhibitor and cleanser



## Problem



- Limescale can deposit on heat exchangers as soon as the boiler is heated, which will result in energy efficiency losses.



- Components, due to corrosion and erosion, need to be minimised and de-sludging of the system needs to be prevented.
- Black iron oxide will form within a heating system which will result in cold spots on radiators, component failure and efficiency losses.



- Condensing boilers produce acidic waste which, if not treated correctly, can be leached back into the water table, causing long term problems.

## Solution



Scale Inhibitor / Water softeners



Powerflushing & Chemicals



Acidic neutraliser & new cartridge



THE ABOVE ARE RECOMMENDATIONS FOR ALL INSTALLERS TO FOLLOW AND COMPLY WITH THE CURRENT REGULATIONS



# The Professional Choice For Power Flushing

## **NEW** improved CalFlush unit...

Central heating systems can gradually build up a combination of scale, sludge and corrosion by-products within the boiler, pipework and radiators. This manifests itself as cold spots on radiators, failure to pump to the furthest radiators and noise in the boiler.

Central heating systems also need to be flushed prior to filling with preservative, in order to remove flux and other deposits, before commissioning for the first time (BS7593:1992).

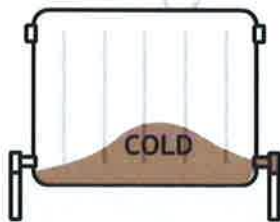
It can often be time consuming or impractical to remove radiators for cleaning out severe blockages. Even when radiators are removed, the only flushing capability often available is with a hose at mains pressures and flows, however, this process will not loosen or remove sludge which has bonded to the inside of radiators, or the remainder of the heating system.

The Calmag CalFlush is the culmination of many years experience of the use of Calmag's chemicals with high flow, low pressure cleaning sets.

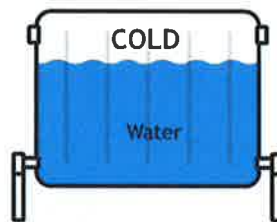
Fouled heating systems can be cleaned, whilst in normal service, with Calmag products which are left in the system to recirculate for a period of a few days. However this requires multiple visits to the site and often involves frequent draining down and refilling to restore badly fouled systems. This process can be simplified and shortened by recirculating the cleaning solution at a high flow through the system, while alternating the direction of flow. Thorough cleaning can be completed in a short time with high efficiency and minimal disturbance to the existing heating circuit.

Homeowners may require an explanation of Powerflushing to make it clear how this benefits a heating system and helps to prevent system breakdowns. The best way to promote the sale of Powerflush to customers is to cut a heat exchanger in half, and show them exactly how small the water ways are. This helps to demonstrate how quickly water ways could block if a new boiler is added to a dirty heating system.

## Problems Areas That Powerflushing Will Cure



1. Sludge build up at the bottom - cold.



2. Trapped air at the top - cold, due to gases.



3. Blocked valves and pipes - cold.



4. Boiler - no circulation from blocked pump.



5. Boiler noise and boiler cut-outs due to sludge and scale build up.



6. Hot water problems due to heat exchanger problems

## Note:

We would strongly recommend that when using our CalFlush the Powerflush Extra, Rapid Cleanse and CM1-500 chemicals are used on every job. This will ensure the customer's heating system has been treated correctly.

**CalFlush**

## POWERFLUSH UNIT

### Features and Benefits

- **COMPACT** - Only 630mm high
- **LIGHTWEIGHT** - 17kg empty
- **EASY TO USE** - fully easy-to-understand - no need for external training session.
- **SAVE TIME AND MONEY**
- **SIMPLE & QUICK TO CONNECT TO A HEATING SYSTEM** - All fittings and hoses included
- **PORTABLE** - built in carry handle & wheels included
- **LARGE TANK CAPACITY** - 36 litres
- **COMPATIBLE WITH ALL APPROVED CHEMICALS**
- **IDEAL FOR CRITICAL APPLICATIONS REQUIRING HIGH EFFICIENCY PUMPS**
- **POWERFUL ACID PROOF FLUSHING PUMP** - 0.50Hp and IP55 rated
- **15M HEAD (UP TO 20/30 RADIATORS) PERFORMANCE**
- **ONE VISIT REQUIRED TO FLUSH ENTIRE SYSTEM**
- **FLOW REVERSER** - dump facility
- **OPTIMUM FLOW RATE FOR DOMESTIC PROPERTIES** - 50 litres per minute
- **WET TESTED PRIOR TO DESPATCH**

Product code:  
CHEM-PF-CALFLUSH



# Technical Specifications

Product Name	Calmag CalFlush
Height	630mm
Diameter	350mm
Weight Empty	17kg
Weight Working	45kg
Motor rating	0.50Hp
Full load current	370 W
Input power	230V – 50Hz
Fuse rating	13 Amps
Cable length	2.5 metres
Power connection	13 Amp plug BS1363
Motor insulation	IP55
Inlet Connection	¾" male
Drain Connection	¾" male
Recirculation connections	¾" male
Max inlet pressure	5 bar
Max drain pressure	1.2 bar
Max recirculation pressure	1.3 bar
Working recirculation pressure	1.3 bar
Max drain flow	50 lpm
Max recirculation flow	60 lpm
Typical working recirculation flow	50 lpm
Max temperature recirculating liquid	70°C

## CALFLUSH UNIT INCLUDES THE FOLLOWING:-

- 2 x 8 metres reinforced hose x ½" to be used for water inlet and dump.
- 2 x 2 metres flow & return hose - reinforced
- 2 x ½" male - 15mm compression brass fittings
- 4 x ¾" male brass hoseails
- 1 x overflow cap
- 1 x filling cap
- 6 x jubilee clips

Plus





# Typical Installation Points Within a System

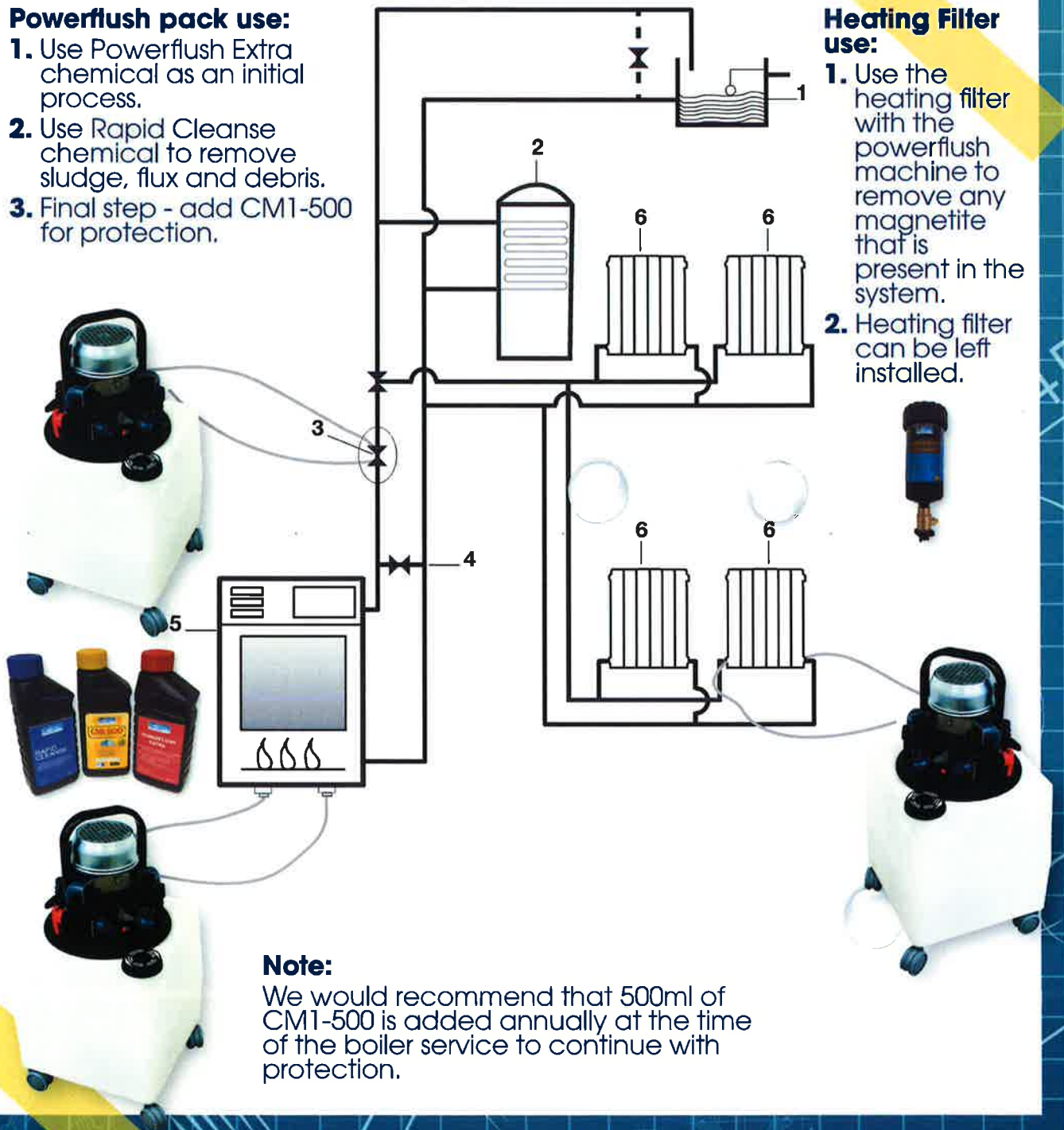
1. Feed and expansion cistern
2. Hot water storage vessel
3. Circulating pump
4. Bypass
5. Boiler
6. Closed circuit central heating system

## Powerflush pack use:

1. Use Powerflush Extra chemical as an initial process.
2. Use Rapid Cleanse chemical to remove sludge, flux and debris.
3. Final step - add CM1-500 for protection.

## Heating Filter use:

1. Use the heating filter with the powerflush machine to remove any magnetite that is present in the system.
2. Heating filter can be left installed.







# Guaranteed confidence in water quality

Calmag's **fresh, innovative approach** to water quality has led to the development of the most extensive and effective range of water treatment solutions within the UK water treatment industry – our products are designed with the **needs of our customers** in mind – the merchant, installer and consumer. Calmag's philosophy is based on providing products and services to meet the real needs of all our customers – we don't simply produce what we think you should buy - Calmag have the **unique design** and production capabilities to produce what you want - when you want it!

## Beware of imitations!

There have been a number of instances when customers have been under the impression that they have bought a Calmag product but, in reality, have been supplied with an alternative and inferior product that fails to match the industry-leading performance and aesthetic appeal of ours. So we strongly advise customers to **ask for our product by name**. Other products may seem to offer similar qualities, but if it isn't Calmag, it simply won't perform to our standards.

There are **two key ways to check** that you've purchased a genuine Calmag product: they carry the **WRAS approval** on scale inhibitors, and **BuildCert** and **ESTr** approvals on a range of chemical inhibitors.

Calmag is a member of and in partnership with:



Acid Neutralisers



Water Softeners



Water Filtration



Powerflushing

For more information regarding all Calmag products and services please go to [www.calmagltd.com](http://www.calmagltd.com)

Tel: 01535 210320 Fax: 01535 210321 Email: [sales@calmagltd.com](mailto:sales@calmagltd.com)

Calmag has a policy of continuous product development and reserves the right to alter any specifications without prior notice. Copyright Calmag Yorkshire Limited. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior consent and permission of Calmag Yorkshire Limited. Calmag Yorkshire Limited hereby exclude all liability to the extent permitted by law for any errors or omissions and for any loss, damage or expense (whether direct or indirect) suffered by a third party relying on any information contained in this brochure.

\* All figures are taken from various published figures