

# PhLOCRITE Series Filter

## Installation Operation Maintenance Manual



## PhLOCRITE Filter WS1 Series Valve

### Models

CpH1054	CpH1248	CpH1354
CpH1465	CpH1665	CpH1865
CpH2160	CpH2469	CpH3072

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### 1.0 UNPACKING AND PARTS LIST

#### 1.1 UNPACKING NOTES

The unpacking of the Filter is quite straightforward, and there are no 'hidden' items. It is advisable to keep the packages sealed until such time as they are used, to prevent dust or water entry.

#### 1.2 BASIC PARTS LIST

1. VALVE (c/w flow controllers on outlet and drain)
2. Clack MANUAL
3. INSTRUCTIONS
4. VESSEL (c/w riser and distribution system)
5. 4" - 2 1/2" REDUCER (if required)
6. Phlocrite MEDIA (qty as specified)
7. GRAVEL (qty as specified)
8. Sand (qty as specified)

#### 1.3 MISSING OR DAMAGED GOODS

Immediately on receipt of the goods, it is advisable to check that all items ordered have been received. If you have any doubt that goods have been supplied as requested, please contact your supplier immediately. If any items are missing or damaged, the carrier and your supplier must be notified within 2 days of receipt if a claim is to be made.

### 2.0 TEMPORARY STORAGE

If installation is not to start immediately after delivery, the equipment should be stored in a clean dry area, where it will not be damaged, or be subjected to temperatures below freezing.

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### 3.0 GENERAL NOTES

These instructions cover the PHLOCRITE Range of filters, which includes model numbers from CpH 1054 to CpH3072.

It is recommended that these instructions are read thoroughly before commencing any work on the unit, particularly if you have no previous experience of installing and using a filter.

#### 3.1 Ph Correction

Phlocrite is a synthetic high magnesia semi calcined dolomitic limestone filter medium for the removal of carbon dioxide, iron and manganese from water. It also provides automatic pH control and adjustment of the Langelier Saturation Index, establishing well balanced water through simple filtration.

Phlocrite filter media requires backwashing with the raw water to clear the bed. The operating parameters for Phlocrite make it suitable for a number of water types.

#### 3.2 System Management

In order to remove accumulated deposits from the filter bed, the water flow through the filter is reversed (backwashed). Water is run to drain at a high rate to separate the filter media from the deposits. The control valve completes the backwash cycle automatically at the intervals and times set during installation. Backwash and fast rinse times are set for 20 minutes per cycle but can be altered to suit individual requirements.

Due to the open structure of the blended Phlocrite media a high service flow can be achieved with a low backwash flow rate. Backwashing of Phlocrite media can therefore be achieved at only a slightly higher flow as the service flow rate and still ensure a good lift of the bed and to allow all accumulated debris to be removed. All filter valves have the option of an additional volt free microswitch, which can be used to initiate a regen pump etc.

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### 4.0 REGENERATION/BACKWASH

#### 4.1 The Backwash Process

The backwash process consists of two stages:-

**Backwash** - Water flows upwards through the media bed, and out to a drain. As it does so it separates the deposits from the filter media and cleans off any particles of dirt or pipework corrosion products, which may have accumulated during the service cycle.

**Fast Rinse** - This follows the backwash cycle and entails rinsing away any residual deposits from the media and re-packing the media bed. This is carried out down flow with water flowing through the media in the direction of service.

#### 4.2 TIME CLOCK CONTROL OF REGENERATION INITIATION

Most filter application systems are supplied with a time clock configuration valve, which initiate regeneration at a pre-set time (usually 2:00 AM) after a pre-set number of days. The frequency of regenerations is fully adjustable, but a minimum of once every 3 days is recommended.

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### 5.0 PRE-INSTALLATION CHECKS

#### 5.1 MECHANICAL

##### 5.1.1 Foundation/Drainage

The filter will not require any special foundations, provided that a firm, level area, which is capable of supporting the working weight, is available. (See Engineering Data, Section 11.2)

Unwanted water from the backwash process must flow to drain, and so an open drain or gully, capable of passing the necessary flow is required (see Process and Operating Data, 11.1, for relevant flows). The total flow of water to drain depends on site conditions, but will be at least the same as the service flow. Preferably the drain should be level but no higher than 500mm above the filter valve.

##### 5.1.2 Operating Space

The space occupied by the filter can be found in the Engineering Data (Section 11.2).

Access will be required to carry out adjustments or maintenance on the equipment. It is therefore recommended that a minimum of 500mm clearance be allowed around the unit for this purpose.

##### 5.1.3 Incoming Water

The raw water to be fed to the filter must comply with the following:-

1. Temperature = 3 - 45°C (35 - 110°F)
2. No Oil or Polyphosphates
3. Backwash flow rate must be at least the same as the service flow rate available with a pressure of 3 bar

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### 5.1.4 Pipework

Pipework to be connected to the filter should not have an excessive amount of deposits. Piping that is heavily built up with scale (or Iron deposits) should be replaced.

Make sure that the pipework can be connected to the filter in such a way as to impose no stresses on the control valve, and that it is properly aligned and supported.

A system for the complete by-passing and isolation of the filter should be installed.

### 5.1.5 Water Supply Company Requirements

During backwash the accumulated debris and oxidised iron and manganese is flushed to drain. Please contact your local Water Authority for advice on effluent issues if concerned with flow to drain.

## 5.2 ELECTRICAL

All filter valves are supplied as 12v complete with a transformer for 240v. A continuous supply of 240v, 5 VA is required which should be provided by an uninterrupted mains supply, which is separately 1 Amp fused, and does not have any additional switch.

A plug is provided with this filter, the cable should be connected to fused spur outlet. However if that is not possible then a plug should be fitted to the cable with a 1 amp fuse. The socket used should be unswitched to prevent the filter from being inadvertently turned off.

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### 6.0 ASSEMBLY/INSTALLATION

#### 6.1 MECHANICAL

Check all the items against the parts list and shipping documents, and ensure you have them all before starting work. In addition to the filter you will require installation materials and basic tools, (i.e., spanners, screwdrivers etc., and PTFE tape)

##### 6.1.1 Pipework

Pipework can be constructed from any normally acceptable material (Copper, Galvanised, Plastic), provided it is properly supported and aligned. Ensure that the pipe is sufficiently large to accommodate the flow of water required, making due allowance for the pressure drop between the filter and the point of discharge of treated water.

***NOTE: IF BRAZED OR SOLDERED FITTINGS ARE TO BE USED, THE PIPE WORK MUST BE DISCONNECTED FROM THE VALVE DURING HEATING AND COOLING. EXCESS HEAT CAN CAUSE PERMANENT DAMAGE TO SOME OF THE VALVE COMPONENTS.***

##### 6.1.2 Drains and overflow connections

The drain connection from the backwash valves is a 3/4" or 1" BSPM thread. Flexible tube should be run from this spigot to a drain capable of taking the maximum flow in regeneration (see Section 11.2), and leaving a similar gap above the drain edge. The drain must not be higher than 500mm above the control valve and preferably should have an air break at the same height as the control valve.

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### 6.2 ASSEMBLY

**Refer to the installation diagrams in Section 13 and note the direction of flow through the system.**

Ensure the installation site is clear and level.

Ensure that the piping system in the building transfers the treated water into a vented header tank to feed any hot water systems.

If possible, place the filter vessel into its final location before filling. Check that the riser tube has the cap in place before commencing filling.

Using a hose 1/3 fill the vessel with water. This is to prevent damage to the bottom distributor when pouring in the media.

Using a funnel slowly pour in the support gravel. Next, slowly pour in the Phlocrite media, taking care not to spill any on the floor and that the riser remains central in the vessel during filling.

After pouring in all of the filter media, the vessel should be, at most, 70-75% full. This is to allow rising space for the media during the backwashing cycle. Once the vessel is filled, immediately sweep up any spilled filter media.

Remove the cap from the riser tube and brush any debris out of the threads in the neck of the filter vessel.

Unpack the valve and reducer (if used). Screw the reducer into the filter vessel, then slip the valve down onto the distributor tube. No top distributor is used on filter valves to allow the maximum amount of debris to be backwashed off the media.

Screw the valve into the filter vessel, taking extreme care not to cross the threads. As the valve is being run into the vessel excessive force should not be required. Finally tighten to approximately 20ft.lbs torque.

Adjust the position of the filter vessel to line up with the pipework connections, not the position of the valve on the vessel.

Connect the inlet and outlet pipework to the valve using flexible connections or plastic high pressure piping. Flexible pipework is essential to prevent stress on the vessel as it cycles during service since it will expand and contract longitudinally.

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Connect the drain line to the outlet of the drain line flow controller on the valve.

**Ensure** that there is an air break in the drain at the same height as the valve to prevent negative pressure on the vessel.

Connect the power supply to the valve and the unit is now ready for commissioning.

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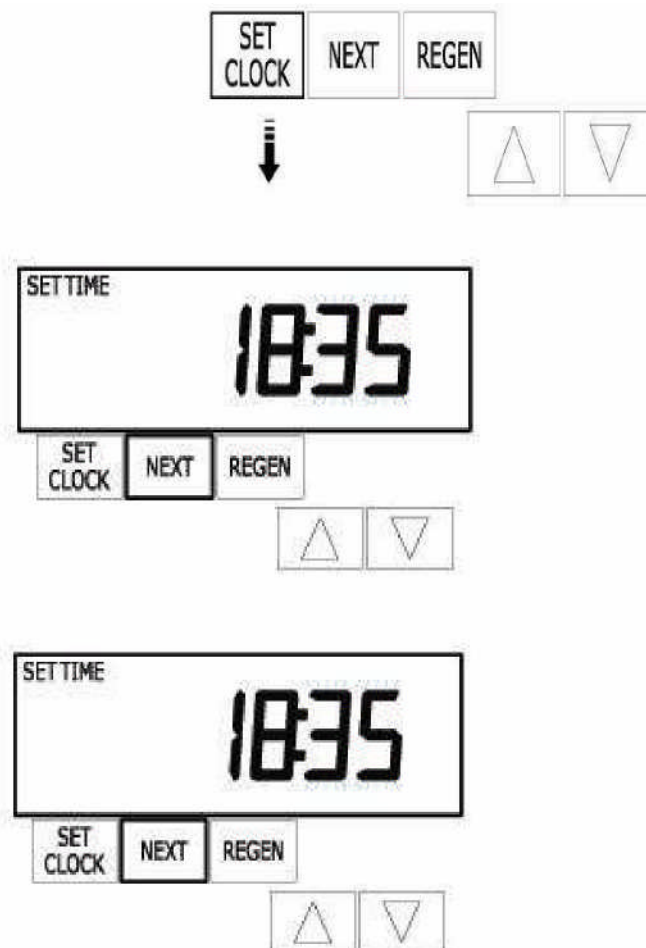
### 7.0 COMMISSIONING

#### 7.1 INTRODUCTION

It is recommended that the commissioning of the plant is undertaken by a trained service engineer, who will be able to put the plant into service quickly, and most efficiently. However, if the services of an experienced engineer are not available, following the steps outlined below will result in the system being properly commissioned.

#### 7.2

#### Setting the Time of Day



The diagram illustrates the process of setting the time of day on the filter control panel. It shows three stages of the process:

- 1. Press SET CLOCK**: The control panel shows the 'SET CLOCK' button highlighted. An arrow points down to the next stage.
- 2. Adjust hours with UP and DOWN arrows**: The display shows 'SET TIME' and '18:35'. The 'NEXT' button is highlighted. An arrow points down to the next stage.
- 3. Press NEXT**: The display shows 'SET TIME' and '18:35'. The 'NEXT' button is highlighted. An arrow points down to the next stage.
- 4. Adjust minutes with UP and DOWN arrows**: The display shows 'SET TIME' and '18:35'. The 'NEXT' button is highlighted. An arrow points down to the next stage.
- 5. Press NEXT to return to normal operation**: The display shows 'SET TIME' and '18:35'. The 'NEXT' button is highlighted.

The filter regeneration cycles have been factory programmed.

The time of day for regeneration to take place has been entered as 2.00 AM and this can be altered depending on site requirements.

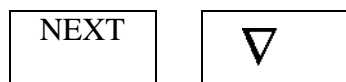
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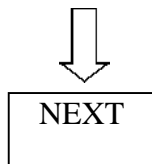
# Regeneration Programming

(All programming below is Factory set)

To alter settings – Press “□” and “□” keys  
To back up at any stage – Press “REGEN”  
To save any changes – Press “SET CLOCK”

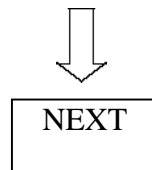


Press and hold together for 5 seconds

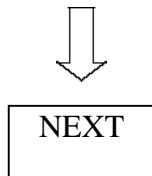


“Filtering” will be flashing in top right corner

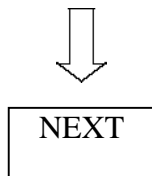
Set 1<sup>st</sup> cycle time in minutes –  
BACKWASH set at 10 min



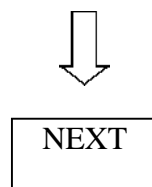
Set 2<sup>nd</sup> cycle time in minutes – RINSE set  
at 6 min



Regen set to oFF



Regen set to NORMAL



Programming Finished – Return to time of  
day

## User Programming

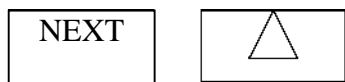
# PhLOCRITE Series Filter

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To alter settings – Press “□” and “□” keys

To back up at any stage – Press “REGEN”

To save any changes – Press “SET CLOCK”



Press together and hold for 5 seconds



Set influent Hardness to nA



Set effluent Hardness to nA



Set number of days to next regeneration  
(set to 3 days)



Set time for regeneration.

Time for Immediate regeneration valves  
cannot be altered and will show “on 0”

Returns to time of day

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### 7.3 COMMISSIONING

7.3.1 The objective of commissioning is to fill the filter with water, check for leaks and prepare it for service. The simplest way to commission the unit is to initiate a backwash. This will eliminate the air from the system and flush the media prior to use.

7.3.2 Before opening the inlet water supply switch on the power, which will activate the piston motor and the timer motor.

7.2.3 Next, start a manual backwash by pressing the regen button for 3 sec or until the motor starts to turn.

7.2.4 When the motor has stopped switch off the power and slowly open the inlet water supply. At first, air will be expelled from the drain line, followed by water once the vessel is full. Allow water to run to drain on the backwash cycle for 10-15 minutes in order to rinse the filter media and remove any fines.

7.2.5 Turn the power back on and allow the complete a manual regen in full by pressing the regen button for 3 sec and allowing the valve to complete the cycle.

7.2.9 The filter is now commissioned.

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### 8.0 ROUTINE MONITORING

The following recommendations are made to help the user of the filter confirm that it is performing as required, and to give early warning of possible problems. The operation of the filter is completely automatic, and should not require adjustment.

#### **Weekly**

Check the treated water quality with a test kit.

#### **Monthly**

Check raw water quality, and record. Compare with original quality and adjust frequency of backwash if required.

#### **Six Monthly**

Perform a chlorinated backwash to remove any organic build up on the media. Check filter media depth against original level.

#### **Annually**

Inspect and clean/replace as necessary the piston and the internal seals. A competent engineer familiar with Clack valves should perform this.

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### 9.0 FAULT FINDING AND RECTIFICATION

#### 9.1 NO FLOW TO SERVICE

Check mains pressure is above 1.7 bar.

Check inlet water supply

Check inlet and outlet isolating valves are open.

Check service outlet valve is open.

Check pressure drop across media. If excessive, media may be fouled, or internals blocked. Initiate a backwash. If this does not free up the media the filter will need to be inspected and serviced by a competent engineer.

Backwash with chlorine solution to remove organic build up

#### 9.2 POOR TREATED WATER QUALITY

Check manual by-pass closed.

Check raw water pressure above minimum. If flow is less than design rate, channelling of water can occur in media, which results in inadequate treatment.

Backwash with chlorine solution to remove organic build up

Increase frequency of backwash as media may be becoming overloaded.

Increase backwash flow.

Check piston and seals & spacers. Check raw

water analysis for changes

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### 9.3 NO BACKWASH

Check electrical supply, fuses etc. satisfactory.

Check program.

Check timer motor is running.

Check drive motor runs, by manually initiating a backwash, and listening for drive motor as it advances between cycles. Replace if necessary.

### 9.4 UNSATISFACTORY CAPACITY BETWEEN BACKWASHES

Increase frequency of backwash

Check age of media and media level

Backwash with chlorine solution to remove organic build up

Increase backwash flow

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### 10.0 WARRANTY AND SERVICE

#### 10.1 AFTER SALE WARRANTY

Your filter is covered by a parts warranty for a period of one year from installation or 14 months from purchase.

Consumable filter media is excluded from this warranty

Should you have any problems with your filter or require a routine service, please contact your supplier.

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### 11.0 TECHNICAL DATA

#### 11.1 PROCESS AND OPERATING DATA

##### 11.1.1 Phlocrite Series Filters CF1 044 TO CF1 354

MODEL CpH1054 CpH1248 CpH1354 CpH1465 CpH1665

PARAMETER	UNITS					
Flow rate	m3/hr	0.6	0.85	1.00	1.2	1.5
Backwash Flow	m3/hr	0.9	1.28	1.5	1.8	2.25
Regeneration Time mins					20 minutes	
Max Operating Temperature	°C				45 minutes	

##### 11.1.2 Phlocrite Series Filters CpH1865 to CpH3072

MODEL CpH1865 CpH2160 CpH2469 CpH3072

PARAMETER	UNITS				
Flow Rate	m3/hr	1.9	2.6	3.4	5.3
Backwash Flow	m3/hr	2.85	3.9	5.1	7.95
Regeneration Time mins				20 minutes	
Max Operating Temperature	°C			45	

# PhLOCRITE Series Filter

## 11.2 ENGINEERING DATA

Phlocrite Series Filters

### 11.2.1 CpH1 054 to CpH1 665

MODEL	CpH1054	CpH1248	CpH1354	CpH1465	CpH1665	
VALVE (std)				WS1		
FILTER VESSEL	1054	1248	1354	1465	1665	
PARAMETER						
	UNIT					
Height of filter (approx)	mm	1607	1458	1601	1880	1885
Diameter of filter vessel	mm	254	305	331	356	407
Height of valve	mm				170mm	
Vessel Inlet Conn.	ins BSPM			1"		
Vessel Outlet Conn.	ins BSPM			1"		
Drain Conn.	ins			3/4"		
Qty of Gravel Media	Bags	1	1	1	1	2
Qty of Sand Media	Bags	1	1	1	1	2
Qty of Phlocrite Media	Bags	1	1.5	2	3	4
Electrical						
Power	v			24		
	Hz			50		
	V/A			1.2		

MAXIMUM OPERATING PRESSURE 8 Bar MINIMUM OPERATING PRESSURE 1.7 Bar MAXIMUM OPERATING TEMPERATURE 45.0C  
 HEADROOM - Allow 100 mm greater than overall height.

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### 11.2.2 CpH1 865 to CpH3072

MODEL		CpH1865	CpH2160	CpH2469	CpH3072
VALVE (std)		WS1	WS1 .5	WS1 .5	WS1 .5
FILTER VESSEL		1865	2160	2469	3072
PARAMETER	UNITS				
Height of filter (approx)	mm	1997	1840	2070	2290
Diameter of filter vessel	mm	458	534	610	762
Height of valve	mm			170mm	
Inlet Conn.	ins BSP	1 .0M	1 .5F	1 .5F	1 .5F
Outlet Conn.	ins BSP	1 .0F	1 .5F	1 .5F	1 .5F
Drain Conn.	ins F	3/4"	1"	1"	1"
Qty of Gravel Media cu ft	Bags	2	3	4	5
Qty of Sand Media cu ft	Bags	2	3	4	5
Qty of Phlocrite Media cu ft	Bags	6	7	11	17
Electrical Power	v			24	
	Hz			50	
	V/A			1.2	

MAXIMUM OPERATING PRESSURE 8 Bar MINIMUM OPERATING PRESSURE 1.7 Bar  
 MAXIMUM OPERATING TEMPERATURE 45.0C  
 HEADROOM - Allow 100 mm greater than overall height.

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### 13.0 SPARES LIST

#### 14.1 WS1 Valves

<b>PART NO.</b>	<b>DESCRIPTION</b>
XCV3011	Piston WS1
XCV3407	Piston WS1 .5
XFR1	Riser Tube c/w 1" Dist
XCV3005	Seal & Spacer kit WS1
XCV3430	Seal & Spacer kit WS1 .5
XCV3107-01	Drive Motor 12v
XCV3108	PCB
VDLFC3	3/4" Brass flow controller (please specify)
VDLFC4	1" Brass flow controller (please specify)

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### 15.0 CE Certificate

## Manufacturer's Declaration of Conformity

We the undersigned

**EURAQUA UK, HITCHIN, ENGLAND**

Certify that the product

---

***TYPE: PHLOCRITE FILTER WITH WS1 AC VALVE***

---


*has been designed and manufactured in accordance with the  
specifications of the following:*

#### **Directive**

Machinery Directive 89/392/EEC  
Low Voltage Directive 73/23/EEC  
EMC-Directive 89/336/EEC

#### **Standard**

EN 292-1, EN 292-2  
EN 60 335-1  
EN 55 014



RT Adam

Hitchin, England 03/01/02

Director

*Issue place & date*

PhLOCRI  
TE Series Filter  
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