FILTER POT *Mini*

The All-in-One Side Stream Filter and Dosing Unit

*Worldwide Patent Pending

Building Services Products Ltd

Incorporating:

- BSRIA compliant side stream filtration
- BSRIA compliant dosing pot with 5.5L capacity
- Magnetic particle removal with rare earth magnets
- Non-magnetic particle removal with 3-stage depth cartridge filtration
- Anti-microbial cartridge filtration range: 50μm, 20μm, 5μm and 0.5μm
- Air removal, including micro-bubbles
- All stainless steel construction, including all valves and fittings
- Suitable for systems up to 90,000L, 10Bar working pressure and maximum working temperature up to 110°C
- Unique drain and fill feature
- Combined temperature and pressure gauge as standard
- Insulation jacket included

DID YOU KNOW

Side-stream filtration is suitable for most systems and strongly recommended for systems over 2,500 litres. (BSRIA BG29)

BSRIA Member

The power and BSRIA compliance of the

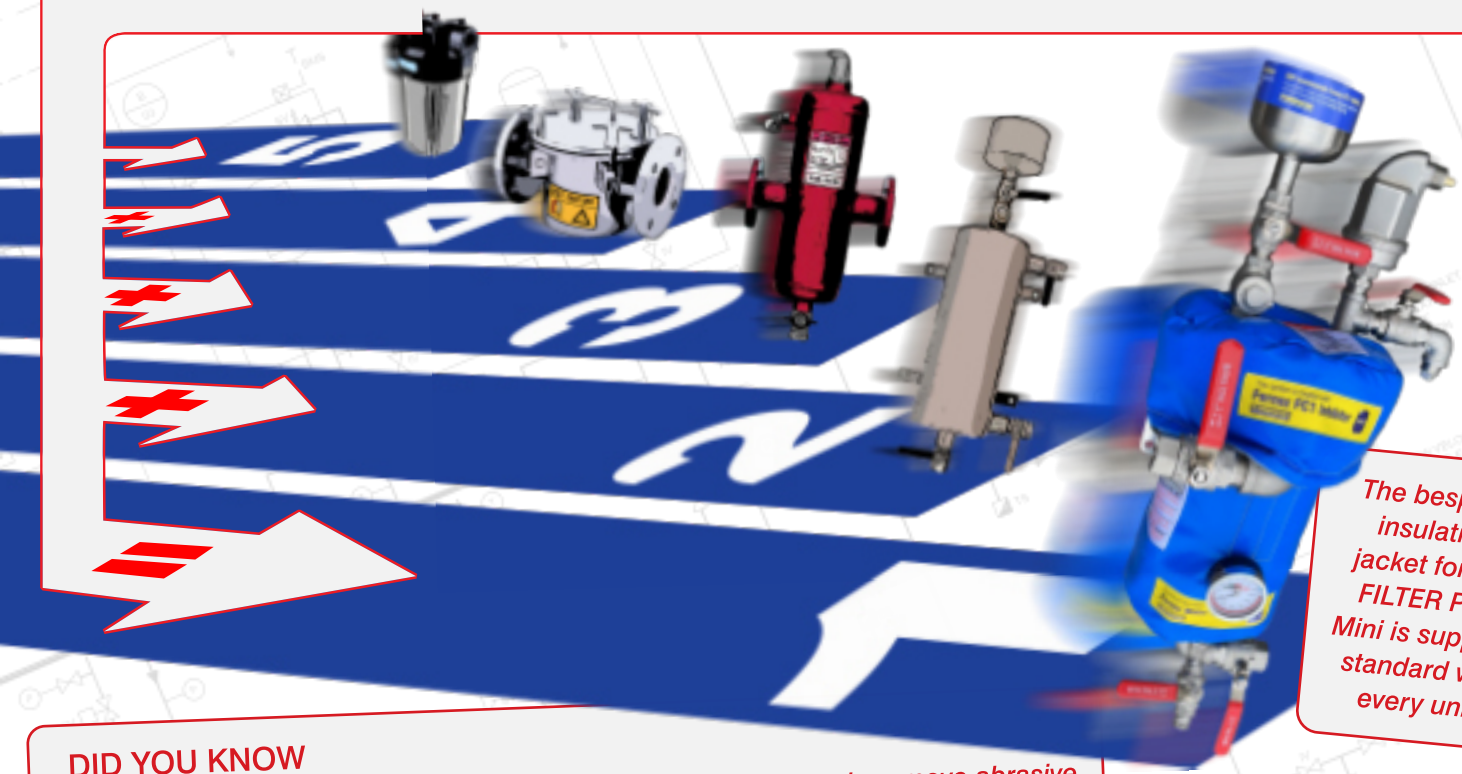
FILTER POT *Mini*

The Filter Pot complies with the intent of the BSRIA Guidelines BG29/2020 and BG50/2021

Description	BG29 Section	BG50 Section
Side Stream Filtration	2.3.8	3.4.2 & 5.3
Chemical Dosing	2.3.8 & 7.2.6	3.4.3
Corrosion Inhibitor Treatment		5.1.3
Magnetic Filtration	2.3.8	5.3.2
Disposable Media Filtration		5.3.3
Passive Deaeration		5.4.1
Fill Water Pre-Treatment	4.3.4	3.4.1
Solids Removal & Filtration	2.3.8	3.4.2
Bacteria & Bio-fouling Inhibition	2.3.8	4.2 & 5.2
CPD Dynamic Filling	6.1	
Maintenance & Inspection	7.3	3.4.4
Dynamic Flushing Procedure	5.2.1	
On-Line Cleaning	2.3.8	6.4.1

DID YOU KNOW

There's a simple reason why the All-In-One FILTER POT Mini is the number 1 choice, it contains ALL the functions of Dosing Pots, Dirt & Air Separators, Magnetic In-Line Filters and Cartridge Filters, including the many other features within the BSRIA Guidelines as listed above.



The bespoke insulation jacket for the FILTER POT Mini is supplied standard with every unit.

DID YOU KNOW

"Magnetic filtration is frequently used on small heating systems to remove abrasive iron-oxides (magnetite) from circulating water. In larger systems, some form of side-stream filtration (that can remove solids) is preferred." (BSRIA BG29)

BSRIA Member

FILTER POT Mini Product Code

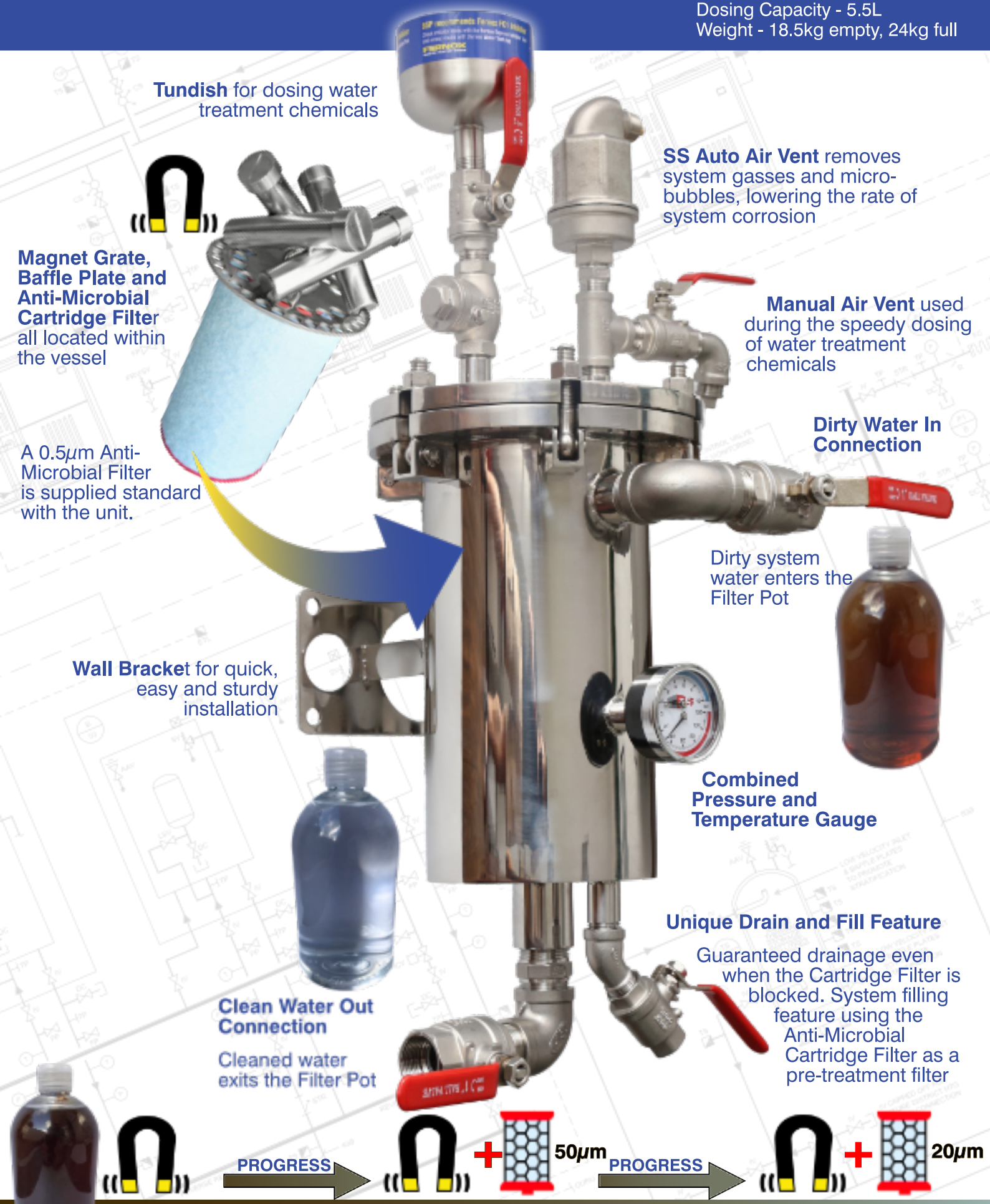
FPM202011

FILTER POT Mini Construction Materials

Vessel Body, valves & fittings = 304 SS
Magnet Grate & Baffle Plate = 316 SS

FILTER POT Mini Specification

Max. Operating Temp. - 110°C
Max. Operating Press. - 10Bar
Max. System Volume - 90,000L
Dosing Capacity - 5.5L
Weight - 18.5kg empty, 24kg full



Tundish for dosing water treatment chemicals

SS Auto Air Vent removes system gasses and micro-bubbles, lowering the rate of system corrosion

Magnet Grate, Baffle Plate and Anti-Microbial Cartridge Filter all located within the vessel

Manual Air Vent used during the speedy dosing of water treatment chemicals

A 0.5µm Anti-Microbial Filter is supplied standard with the unit.

Dirty Water In Connection

Dirty system water enters the Filter Pot

Wall Bracket for quick, easy and sturdy installation

Combined Pressure and Temperature Gauge

Unique Drain and Fill Feature

Guaranteed drainage even when the Cartridge Filter is blocked. System filling feature using the Anti-Microbial Cartridge Filter as a pre-treatment filter

Clean Water Out Connection

Cleaned water exits the Filter Pot

PROGRESS 50µm PROGRESS 20µm

From the worst case of dirty water, start with the magnet only, then add the 50µm Cartridge Filter

Cartridge Filter Product Codes

0.5µm	CFR2020041
5µm	CFR2020042
20µm	CFR2020043
50µm	CFR2020044

Cartridge Filter Construction Materials

Filter Media - Nylon infused with Silver Ions
End Caps - Nylon
Gasket - EDPM

Rare Earth Magnetic Rods housed within a 316SS Magnetic Grate

Magnetic Removal of Corrosion Debris

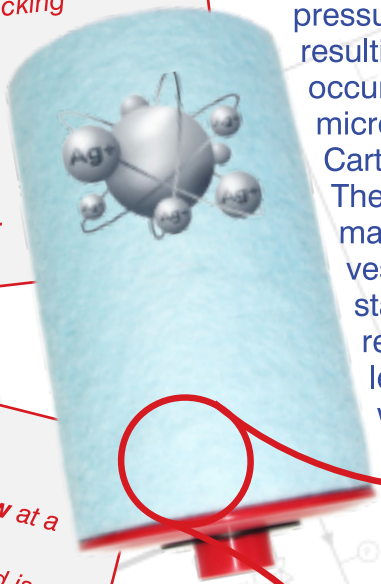
At the core of the FILTER POT Mini lies a 316SS Magnetic Grate containing four extremely powerful Rare Earth Magnetic Rods. The Magnet Grate has been designed to optimise the fluid dynamics required to capture magnetic corrosion particles as they enter the vessel body before the system water flows down to the Cartridge Filter below.

Magnetite collected on the external surface of the Rare Earth Magnetic Grate

DID YOU KNOW

The new BSP Anti-Microbial Depth Filtration Cartridges utilise a layer of nylon infused anti-bacterial additive to effectively trap and retain variously sized particulates down to a class leading 0.5µm, but they also inhibit the growth of trapped bacteria and microbes within the filter.

This prevents premature blocking from bio-film by using Silver-Ion technology with anti-microbial properties to neutralise bacteria so keeping the filter core open to capture more dirt.



Non-Magnetic Debris Removal by the Anti-Microbial Cartridge Filter

Not only is the new FILTER POT Mini filtration cartridge excellent at capturing dirt down to 0.5µm, but the vessel promotes a pressure drop within, resulting in coalescence occurring and producing micro-bubbles on the Cartridge Filter surface. These micro-bubbles make their way out of the vessel by way of the stainless steel AAV, reducing the overall gas levels in the system water and reducing the overall corrosion rate.

Non-magnetic dirt and debris captured by the Anti-Microbial Cartridge Filter

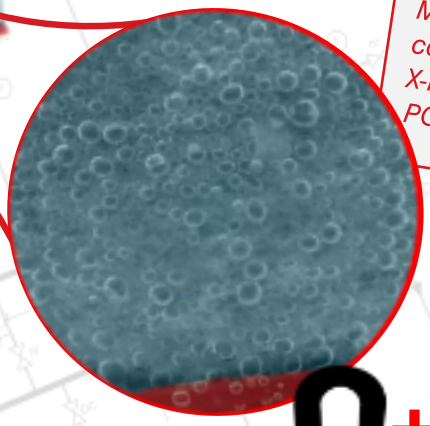
DID YOU KNOW

*According to **Henry's Law** at a constant temperature, the solubility of a gas in a liquid is directly proportional to the pressure of the gas.*

(In layman's terms, as the pressure drops, the liquid cannot hold as much gas, so the excess gas bubbles out of the solution.)

DID YOU KNOW

The BSP Anti-Microbial Depth Filtration Cartridges, for use in the FILTER POT Mini, are seamlessly compatible with the Vexo® X-POT® Compact and X-POT® 6 units.

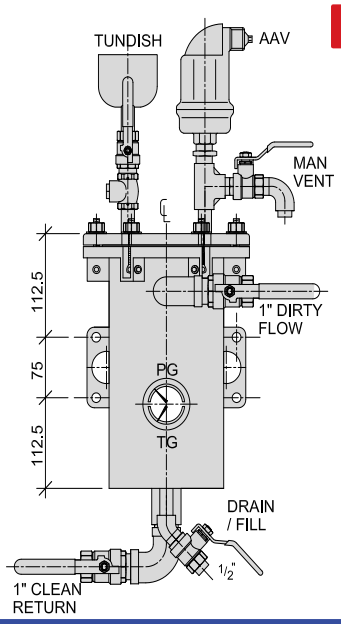


Micro-bubbles forming on the Cartridge Filter

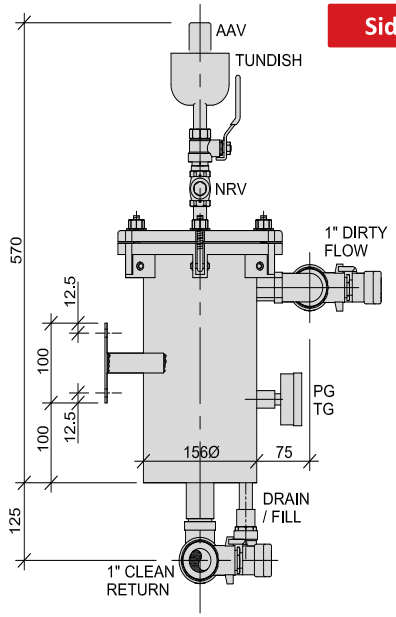
and by working your way down to the 0.5µm Cartridge Filter to achieve a polished clear water sample.

The Technical Bits

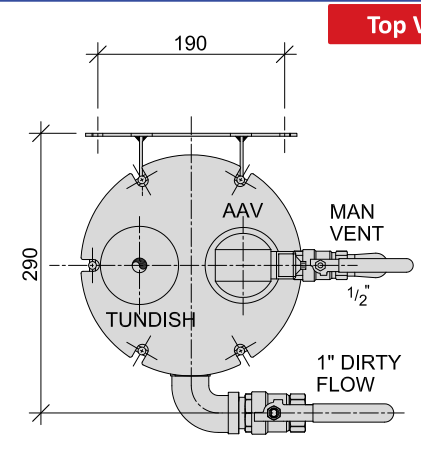
Front view



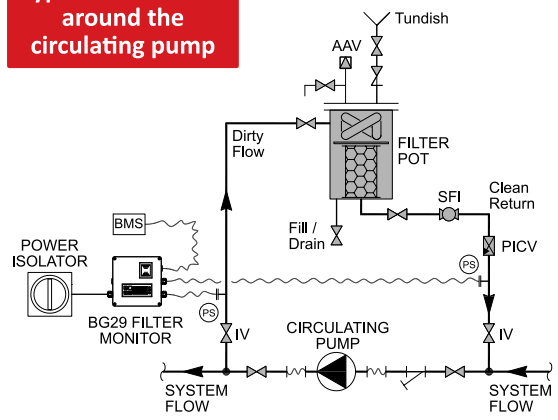
Side view



Top View



Typical installation around the circulating pump



Sizing the correct pipework to/from the FILTER POT Mini

To size the pipework to comply with BSRIA Guidance to/from a FILTER POT Mini and to control the flow rate is simple and can be broken down into three easy steps:

1. **PRESSURE**
   Make sure the system working pressure is below 10bar for this unit
2. **SYSTEM WATER VOLUME**
   The BSRIA guide advises the total system water volume of the system water should pass through the Filter Pot Mini in a 24-hour period.

If you know the system volume

Total volume of system	Pipework size to/from system
2,000L to 36,000L	½" pipework to the Filter Pot Mini
36,100L to 53,000L	¾" pipework to the Filter Pot Mini
53,100L to 90,000L	1" pipework to the Filter Pot Mini

You can estimate the system volume by multiplying the kW rating:
Heating kW x 12 = Litres Cooling kW x 15 = Litres

If you know the kW rating of the heating system:

Total heating system kW	Pipework size to/from heating system
170kW to 3,000kW	½" pipework to the Filter Pot Mini
3,000kW to 4,400kW	¾" pipework to the Filter Pot Mini
4,400kW to 7,500kW	1" pipework to the Filter Pot Mini

If you know the kW rating of the cooling system:

Total cooling system kW	Pipework size to/from cooling system
150kW to 2,400kW	½" pipework to the Filter Pot Mini
2,400kW to 3,500kW	¾" pipework to the Filter Pot Mini
3,500kW to 6,000kW	1" pipework to the Filter Pot Mini

3. **FLOW RATE CONTROL**
   To control the flow rate through the Filter Pot Mini, use the following calculation:

$$\frac{\text{Total Volume of System}}{86400} = \text{L/sec}$$

Example:

$$\frac{37{,}500\text{L}}{86400} = 0.43\ \text{L/sec}$$

Set the PICV (Pressure Independent Control Valve) to 0.43L/sec. This limits the flow through the Filter Pot Mini to comply with BSRIA regulations.

If the system volume is between 2,000L and 7,300L the minimum flow rate is to be no less than 0.085L/s through ½" pipework.

Unit 22, Magnum Industrial Estate,
Lagonda Road, Billingham,
Teesside, TS23 4BF
+44(0) 07944 946695

Version 1.5 09/2022

Achieving and Maintaining BSRIA Compliance

DO IT ONCE!
DO IT RIGHT!

Be fully BSRIA compliant with 'Your Design and System'

BSRIA understands the levels of water cleanliness and water treatment required to maintain the efficiency of commercial heating or cooling systems. The recent introduction of the updated BSRIA BG29 and BG50 Guides highlight the technical information and procedures required to reach and achieve those levels. Not only does clean and dosed system water with Fernox inhibitor prevent corrosion and inhibit the formation of scale, but it maintains the original design efficiency of that new system when used with a side stream filter and increases efficiency in older less maintained systems when used with a side stream filter, it's a win-win for the system owner.

BSRIA recommends side stream filtration and the correct monitoring procedures to be put in place to ensure the highest standards in cleanliness are achieved.

"Side-stream filtration is suitable for most systems and strongly recommended for systems over 2,500 litres." BSRIA BG29/2020 Guide.

"Filters should be easily maintainable and fitted with a differential pressure indicator or BMS sensor so that they can be cleaned, or media replaced in accordance…..". - BSRIA BG29/2020 Guide.

BG29 Compliant Filter Monitor

Product Code 202090

The BG29 Compliant Filter Monitor has been especially designed and tailored to comply with the BSRIA BG29 Guidelines. The two 316SS pressure sensors are located either side of the all-in-one 'Filter Pot Side Stream Filter and Dosing Unit' monitoring the pressures to determine just how dirty the anti-microbial cartridge filters are within the Filter Pot Side Stream Filter in real-time and with a simple screen visual in % blocked to advise.

The BG29 Compliant Filter Monitor is a simple plug-n-play installation containing a BMS common alarm (N/O) connection available, visual beacon, alarm sounder and touch-pad controller all manufactured with simplicity and user friendliness in mind. The BG29 Compliant Filter Monitor is exactly matched to the Filter Pot, together they make a BSRIA compliant team.

BG29 Compliant PICV Valve Packs for use with the FILTER POT mini

1 x Danfoss PICV

2 x Dual Press/Temp Gauges

BSP Sight Flow Indicator

Building Services Products Ltd

The BSP BG29 Compliant PICV Valve Packs have been put together to comply with the latest BSRIA Standards to control the flow of water through the FILTER POT Side Stream Filter and Dosing Unit. Included within each Valve Pack are 1No Danfoss PICV, Unions, Reducers, 2No BSP Combined Press / Temp Gauges and a BSP Sight Flow Indicator to visually confirm a flow of filtered water is present through the FILTER POT Mini. Each Pack size has been specifically sized for the pipework to / from the FILTER POT and the flow rates required.

Building Services Products Ltd
Unit 22, Magnum Industrial Estate,
Lagonda Road, Billingham,
Teesside, TS23 4BF
+44(0) 07944 946695
tech@bsp.world | sales@bsp.world

Product Code:	Product Name:
PIC202100	BG29 Compliant DN15/½" PICV Valve Pack for the Filter Pot
PIC202101	BG29 Compliant DN20/¾" PICV Valve Pack for the Filter Pot
PIC202102	BG29 Compliant DN25/1" PICV Valve Pack for the Filter Pot