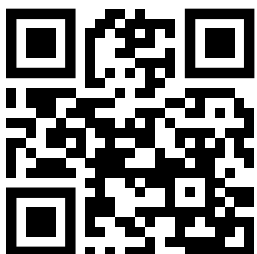


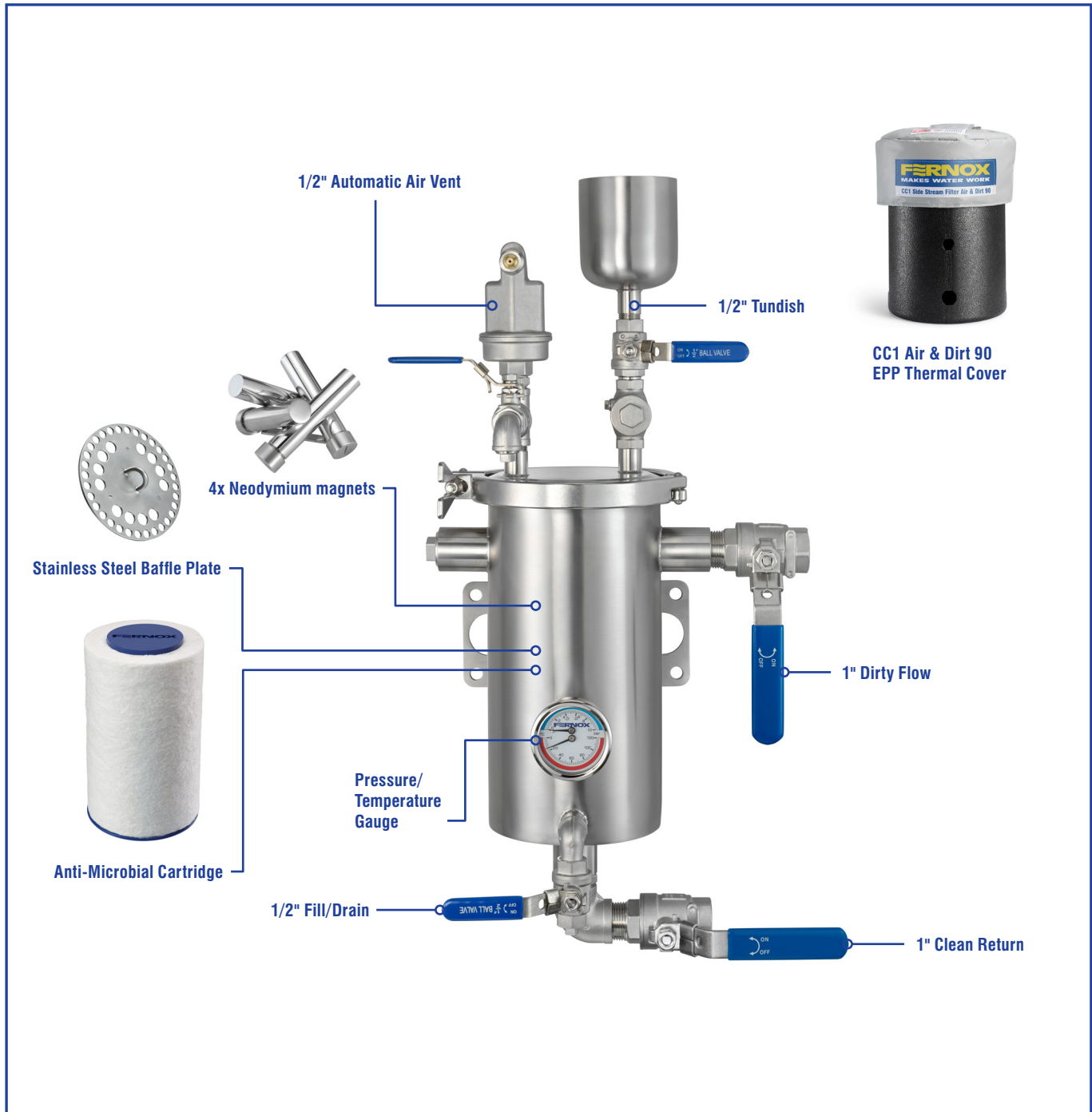
CC1 Side Stream Filter Air & Dirt 90


Instructions




Product Overview

Product code	Fernox Reference	Description
33006329	CC1 Air & Dirt 90	CC1 Side Stream Filter Air & Dirt 90





WARNING!
DO NOT OPEN WHILE THE SYSTEM FLUID IS HOT AND/OR UNDER PRESSURE.
WEAR APPROPRIATE PPE WHEN WORKING ON THIS VESSEL OR WITHIN THE MAGNETIC FIELD.

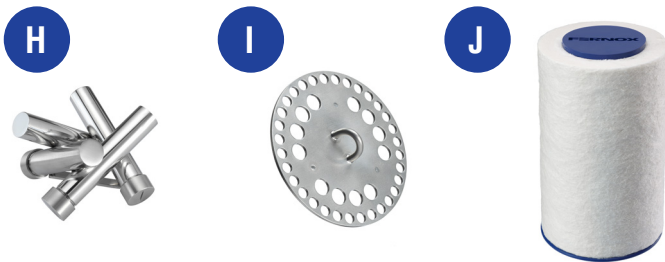
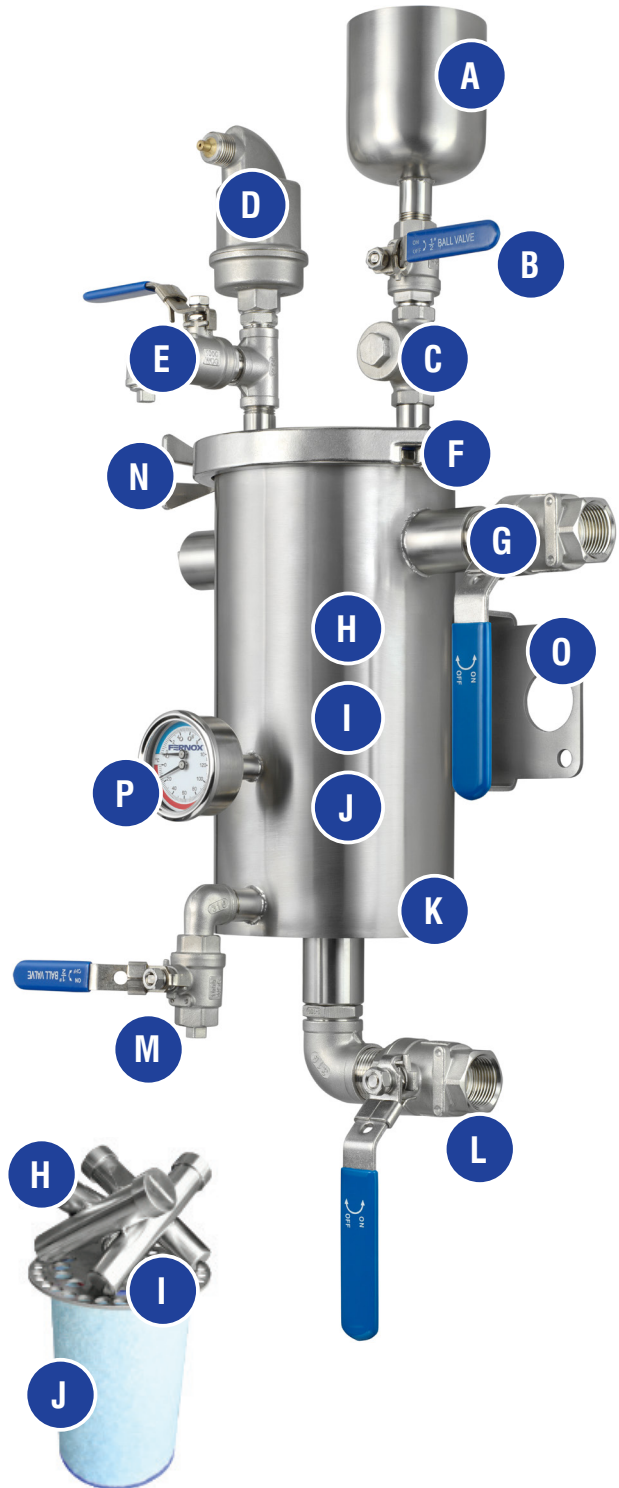


Operating Instructions

System Filling via CC1 Air & Dirt 90

The CC1 Air & Dirt 90 can be used as a controlled system fill point to prevent bacteria and fine contamination particles entering the system via the incoming cold water supply (CWS).

1. Once the main pipework is complete, prepare the unit for filling by installing the supplied **0.5 micron CC1 cartridge filter (J)**, **baffle plate (I)**, and **magnet grate with magnet bars (H)** inside the **vessel body (K)**.
2. Ensure valves **(M)**, **(E)**, **(B)**, **(G)**, and **(L)** are closed.
3. Connect a temporary incoming CWS to valve **(M)**, which will act as the system fill point. Ensure compliance with local water regulations.
4. Carefully open the quick release clamp **(N)** on the vessel lid **(F)** and remove the lid.
5. Install the **0.5 micron CC1 cartridge filter (J)** into the clean return bottom outlet spigot of the vessel body **(K)**.
6. Fit the **baffle plate (I)** over the cartridge filter, ensuring the locating prongs engage correctly, then place the **magnet grate and magnet bars (H)** on top.
7. Refit the vessel lid **(F)** by reversing step 4.
8. To fill the system, open valve **(M)** to allow CWS into the vessel body, then open the clean return valve **(L)**. Contaminants and bacteria will be captured by the cartridge filter and magnet grate, while free air is released via the **Automatic Air Vent (D)**.
9. Once filling is complete, close valves **(M)** and **(L)**, disconnect the temporary CWS supply, and note that valve **(M)** will function as the dedicated drain valve during normal operation.



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Operation, Dosing and Maintenance

Opening the Vessel for Chemical Dosing

10. Close valves **(G)** and **(L)** to isolate the CC1 Air & Dirt 90 from the system.
11. Remove the thermal cover lid from the vessel.
12. Position a suitable container beneath the drain valve **(M)**.
13. Open valve **(M)**, followed by valve **(E)**, to drain the vessel completely.
14. Check the pressure/temperature gauge and confirm the pressure is **0 bar**.
15. Close valve **(M)**.
16. Carefully open the quick release clamp **(N)** on the vessel lid **(F)** in a diagonal sequence and remove the lid.
17. Remove the **magnet grate (H)**, **baffle plate (I)**, and **cartridge filter (J)** from the **vessel body (K)**.

Chemical Dosing

18. Refit the vessel lid by reversing step 16.
19. Open valve **(B)** and dose water treatment chemicals via the **tundish (A)**.
 - a. Air will vent through the **manual air vent (E)**.**NOTE:** Do not dose more than 5.5 litres at one time.
20. Once dosing is complete, close valves **(B)** and **(E)**.
21. Open valve **(L)** to pressurise the vessel, ensuring all air is vented through the **automatic air vent (D)**, then open valve **(G)**.
22. Confirm pressure on the gauge and refit the insulation jacket lid.
23. System water will now circulate through the CC1 Air & Dirt 90, distributing the chemicals.

Cleaning and Replacing the Magnet Grate and Cartridge Filter

24. Isolate and open the vessel by repeating steps **10 to 16**.
25. Fit a new **cartridge filter (J)** into the clean return outlet of the **vessel body (K)**.
26. Install the **baffle plate (I)**, ensuring the locating prongs engage correctly.
27. Remove the magnet bars from the **magnet grate (H)**, clean thoroughly using cold water, dry, and reinstall the magnet bars.
28. Place the cleaned magnet grate back on top of the baffle plate inside the vessel.
29. Close the vessel by reversing step 16, ensuring the quick release clamp **(N)** are secure.
30. Pressurise the vessel by opening valve **(L)**, vent air via the **automatic air vent (D)**, then open valve **(G)**.
31. Refit the insulation jacket lid. The CC1 Air & Dirt 90 will now operate normally, filtering system water.

System Protection

Fernox recommends protecting the system with **Protector+ Filter Fluid F9** to provide long-term corrosion and limescale protection. Inhibitor levels should be checked during commissioning and routine maintenance using the Fernox Express Inhibitor Test, ensuring effective ongoing system protection.



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Staged Filtration to Meet and Exceed BSRIA Water Quality Guidance

This staged filtration process is intended to progressively restore system water quality in heavily fouled systems. In combination with Fernox Protector F9, the CC1 Side Stream Filter Air & Dirt delivers continuous magnetic separation, micron-rated anti-microbial filtration, integrated chemical dosing, and automatic air removal to maintain long-term system cleanliness and performance.

Stage 1 – Magnetic Cleaning Only

- For heavily contaminated systems, begin with magnetic cleaning only. Fit the magnetic grate without a cartridge to remove the bulk of ferrous debris and prevent early cartridge blockage. Clean magnets daily until debris loading reduces, then proceed to cartridge filtration starting at 50 µm.



Stage 2–4 – Progressive Cartridge Filtration + Magnets

- Progressively install finer Fernox anti-microbial cartridges while maintaining magnetic separation.
- Begin with the coarsest cartridge and move to finer grades only once debris loading reduces and cleaning intervals extend.
- Monitor system flow regularly and replace the cartridge if flow becomes restricted.
- Clean the magnetic grate daily during the initial cleaning phase.
- As cartridge replacement and magnet cleaning intervals extend beyond one week, progress to the next finer cartridge.
- CC1 Side Stream Filter 90 Cartridge 50 µm – removal of coarse non-magnetic debris
- CC1 Side Stream Filter 90 Cartridge 20 µm – finer particle capture
- CC1 Side Stream Filter 90 Cartridge 5 µm (BSRIA minimum) – compliance with BG29/BG50 particle size guidance
- Monitor system flow, clean magnets regularly, and replace cartridges as required. As cleaning intervals extend, progress to the next finer cartridge.



Stage 5 – CC1 Side Stream Filter 90 Cartridge 0.5 µm Cartridge + Magnets (Best Practice)

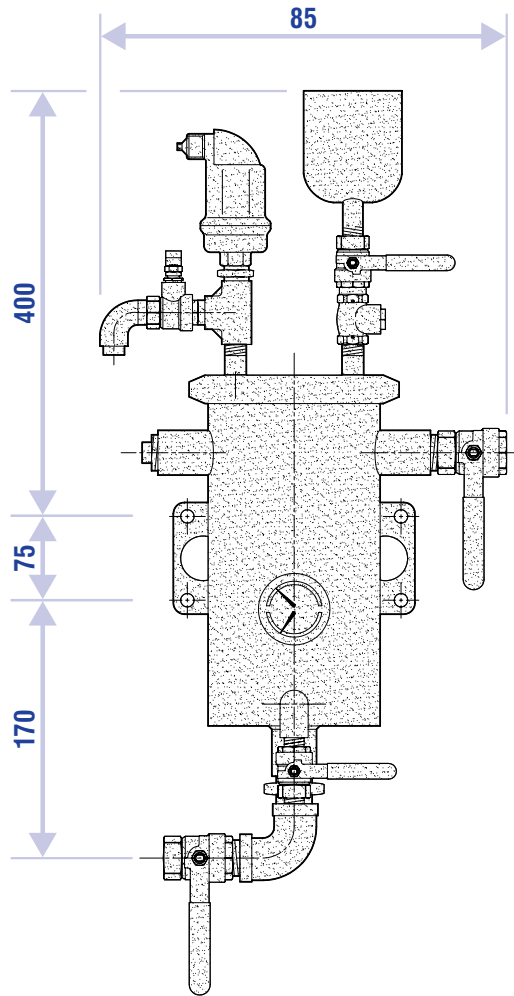
- Installing the 0.5 µm Fernox anti-microbial cartridge delivers industry best practice water quality, helping to control bacterial contamination and biofilm formation. This stage provides exceptionally clean system water, with magnets removing ferrous debris and the cartridge capturing non-magnetic particles $\geq 0.5 \mu\text{m}$.

Why Anti-microbial Cartridges Matter

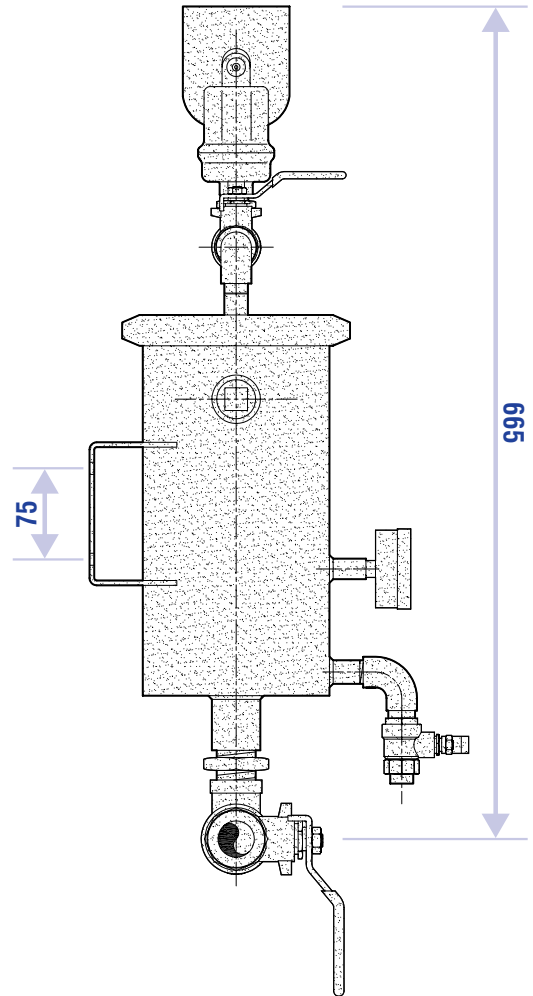
Bacterial biofilm can restrict valves, small-bore pipework and heat exchangers, reducing system efficiency. Fernox CC1 Anti-microbial Cartridges use a micron-scale treatment with silver (Ag) and zinc (Zn) particles to inhibit bacterial growth on the filter surface, helping to maintain effective filtration for longer.

Line Drawings

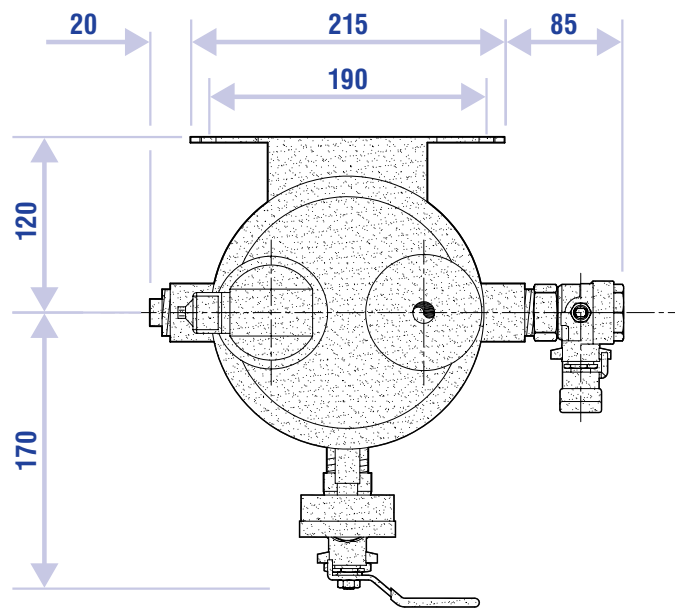
Front View



Side View

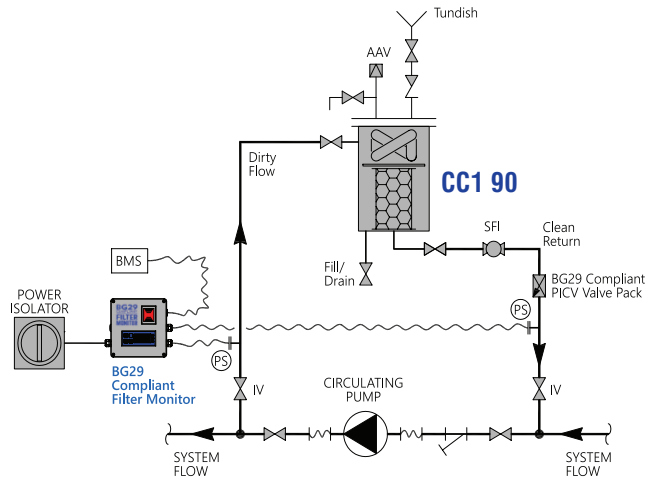


Top View

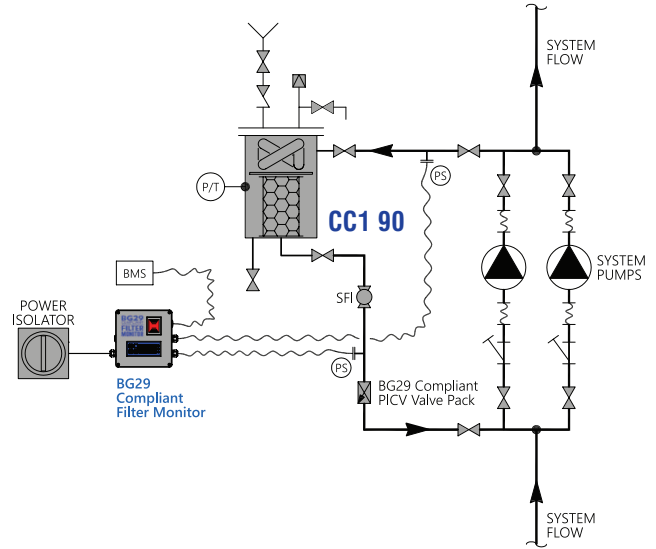


Typical Installation Diagram

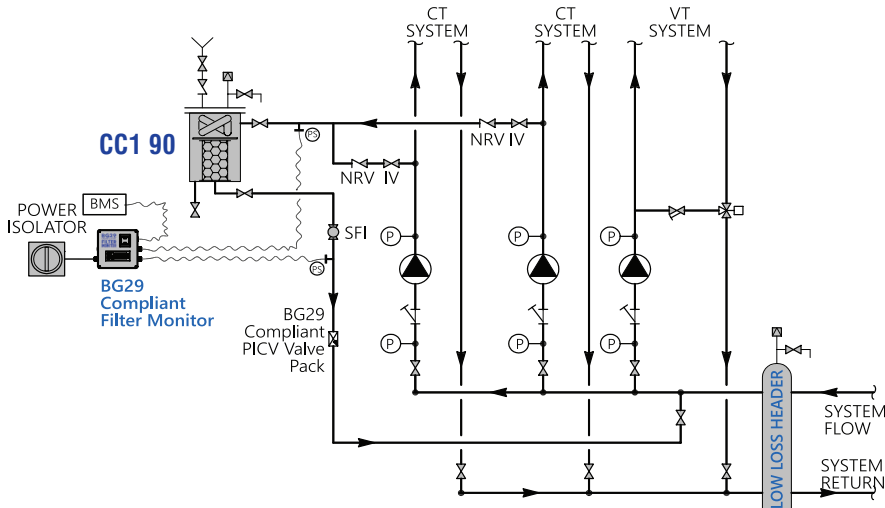
Single Pump Installation



Twin Pump Installation



Low Loss Header Installation



Key

- IV Isolation Valve
- NRV Non-Return Valve
- SFI Sight Flow Indicator
- PICV Pressure Independent Control Valve
- P Pressure Gauge

For the sizing of the dirty flow and clean return pipework, see the sizing details on page 5.

Note: These schematics are indicative of pipework schematics only

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