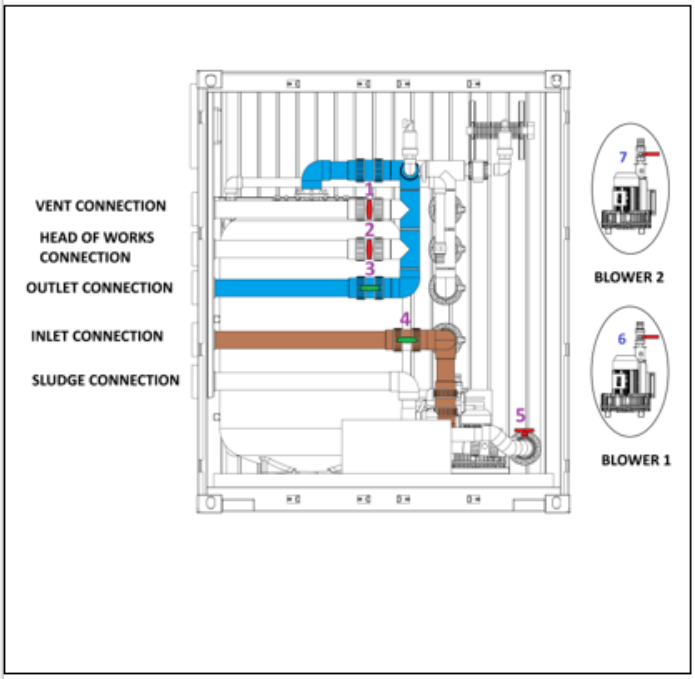
c. XFM40 Operational Functionality

The Flocell XFM40 filtration unit operates in multiple modes to ensure efficient filtration, cleaning, and sludge removal. The unit uses a combination of manual valve adjustments and semi-automated cleaning cycles, controlled via the push-button panel.

I. Filtration Mode

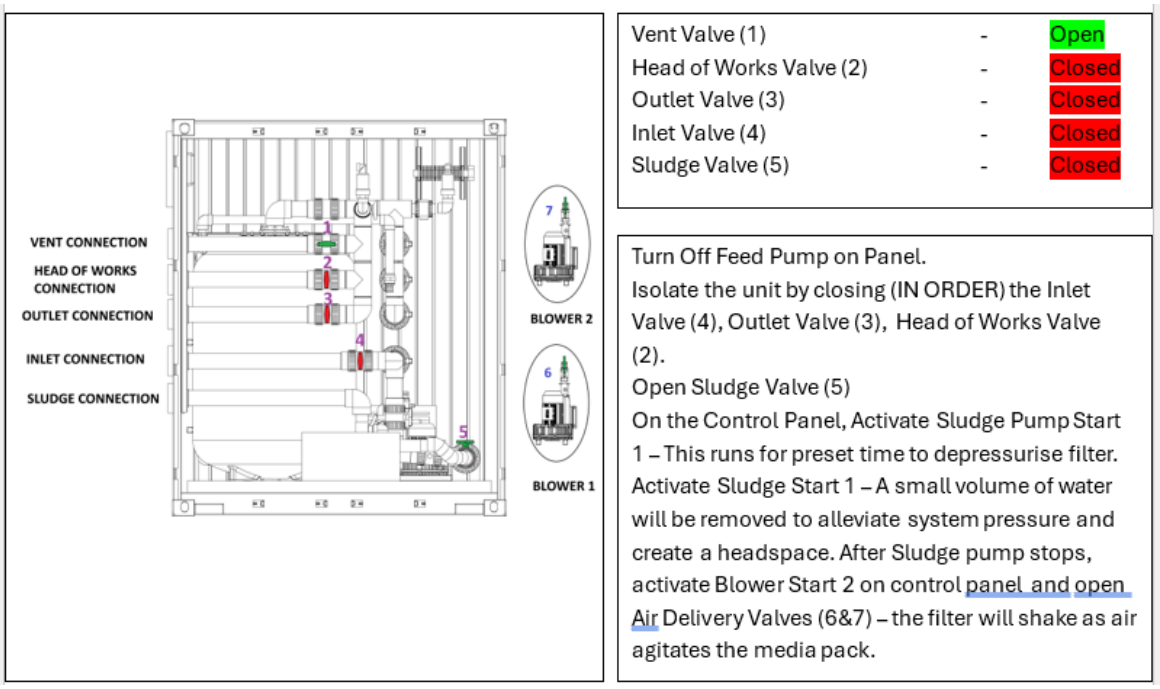


Vent Valve (1)	-	Closed
Head of Works Valve (2)	-	Closed
Outlet Valve (3)	-	Open
Inlet Valve (4)	-	Open
Sludge Valve (5)	-	Closed

Incoming water travels through Inlet up through the filter and then exits through the Outlet.

Inlet (4) and Outlet (3) Valves are Open and Air Delivery Valves (6&7) along with Sludge Valve (5) are closed.

II. Cleaning Mode

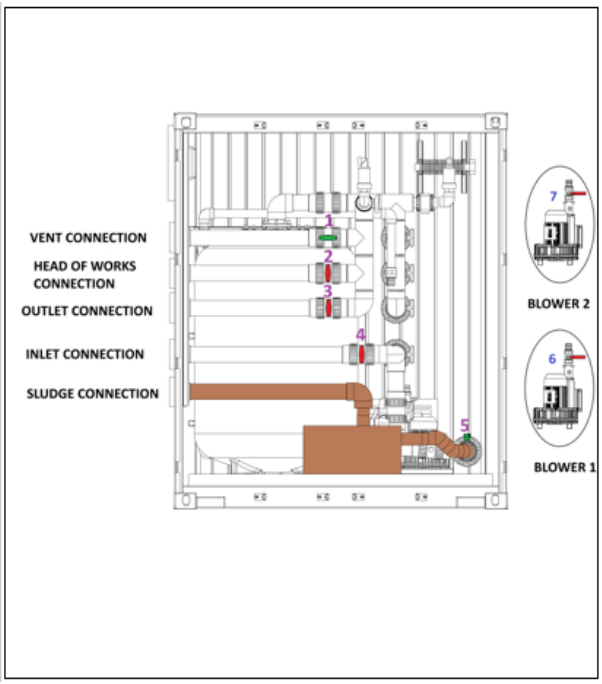


Vent Valve (1)	-	Open
Head of Works Valve (2)	-	Closed
Outlet Valve (3)	-	Closed
Inlet Valve (4)	-	Closed
Sludge Valve (5)	-	Closed

Turn Off Feed Pump on Panel.
Isolate the unit by closing (IN ORDER) the Inlet Valve (4), Outlet Valve (3), Head of Works Valve (2).
Open Sludge Valve (5)
On the Control Panel, Activate Sludge Pump Start 1 – This runs for preset time to depressurise filter.
Activate Sludge Start 1 – A small volume of water will be removed to alleviate system pressure and create a headspace. After Sludge pump stops, activate Blower Start 2 on control panel and open Air Delivery Valves (6&7) – the filter will shake as air agitates the media pack.

IMPORTANT – For effective cleaning and proper media movement, the media must be able to circulate freely inside the filter. To ensure this, the VENT line must be OPEN, and the Vent Valve must be OPEN to allow air to escape from the unit.

III. Sludge Removal Mode



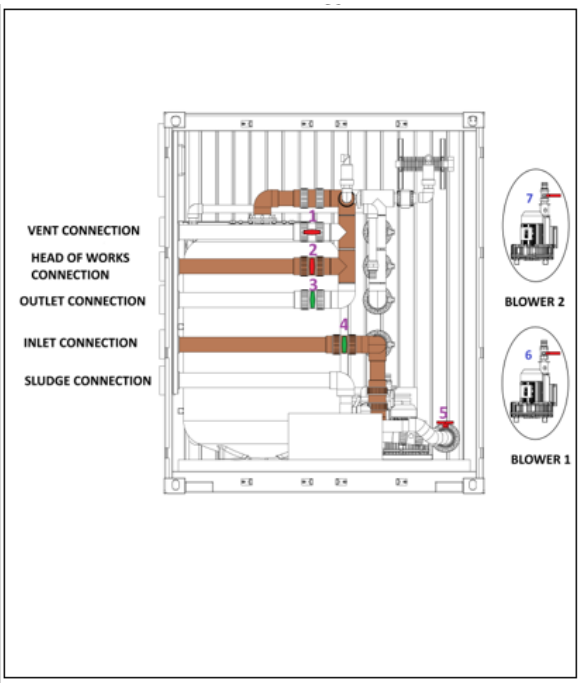
Vent Valve (1)	-	Open
Head of Works Valve (2)	-	Closed
Outlet Valve (3)	-	Closed
Inlet Valve (4)	-	Closed
Sludge Valve (5)	-	Open

Ensure Sludge Delivery Valve (5) is open.

Activate Sludge Pump Start 2 and the filter will be emptied of sludge.

When sludge pump stop running, close Sludge Delivery Valve (5) and Vent Valve (1).

IV. Refill on Head of Works Bypass Mode



Vent Valve (1)	-	Closed
Head of Works Valve (2)	-	Open
Outlet Valve (3)	-	Closed
Inlet Valve (4)	-	Open
Sludge Valve (5)	-	Closed

Open Head of Works Valve (2) and Inlet Valve (4).

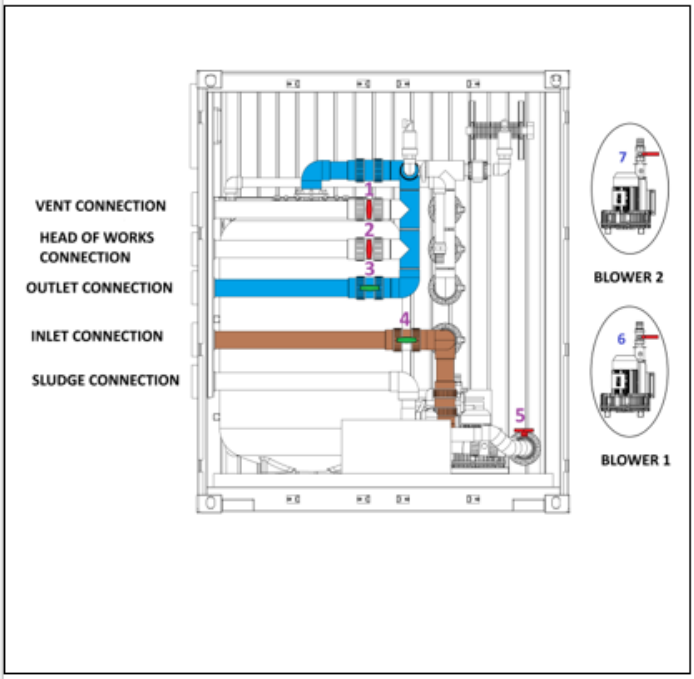
Start Feed Pump on Panel.

Filter will refill with carryover diverted to Head of Works / Sludge line.

Allow carryover to clear (normally around 10 minutes to optimal outlet quality)

NOTE – allow time for filter to fill first.

V. Return to Operating Mode



Vent Valve (1)	-	Closed
Head of Works Valve (2)	-	Closed
Outlet Valve (3)	-	Open
Inlet Valve (4)	-	Open
Sludge Valve (5)	-	Closed

Incoming water travels through Inlet up through the filter and then exits through the Outlet.

Inlet (4) and Outlet (3) Valves are Open and Air Delivery Valves (6&7) along with Sludge Valve (5) are closed.

8. Maximising efficiency / performance

As all installations are different, cleaning frequency will need to be determined in order to limit cleaning when necessary.

In single and parallel installations, it may be optimal to run more than one cleaning cycle to prevent carry-over of dirty water transferred to the top of the filter during air sparging but it is unlikely that more than 2 cleaning cycles will be needed in even the most loaded systems.

It is quite normal for some solids to appear in the outlet immediately after cleaning. This occurs as diluted material becomes trapped during cleaning. It will clear after a few minutes of filtering.