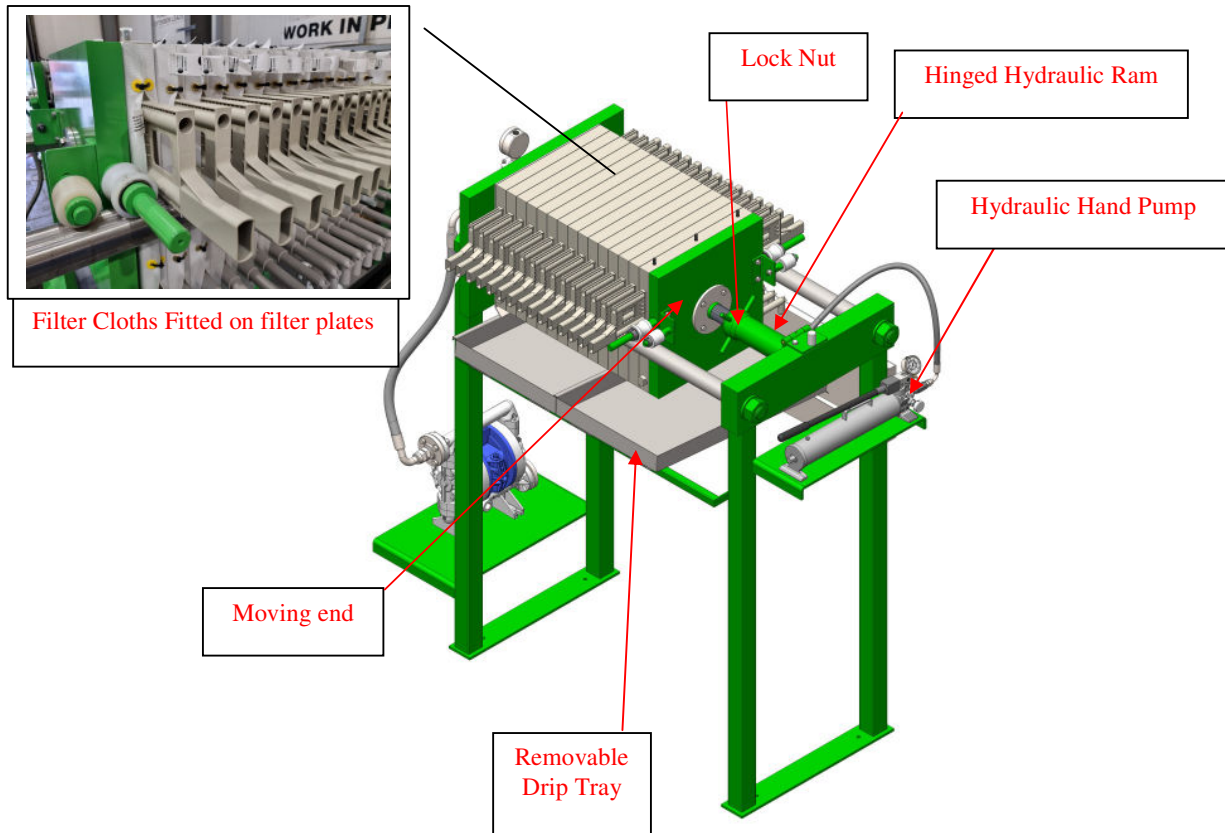
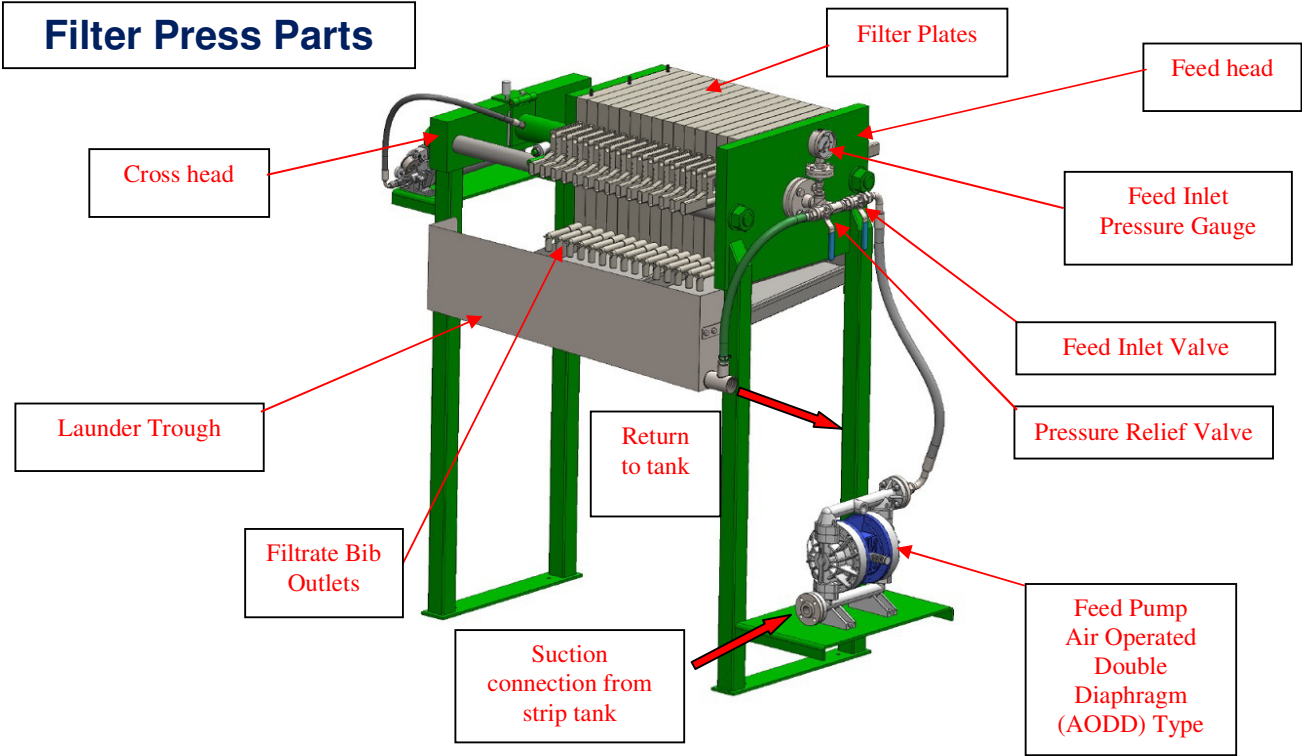


Filter Press Parts



Filter Press Operation

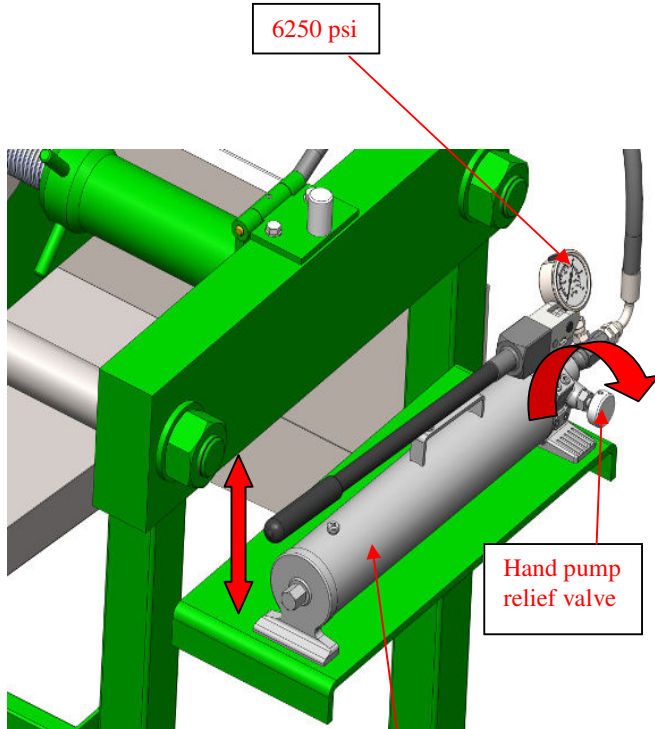


Fig a

Hydraulic Hand Pump

Locknut

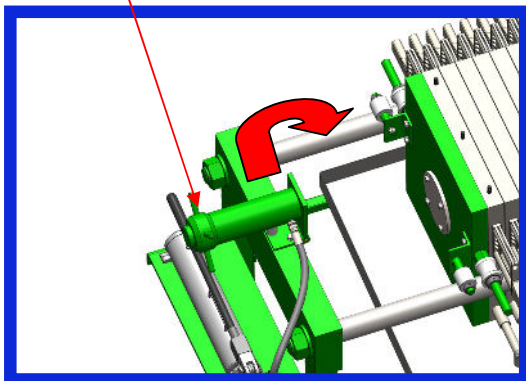


Fig b

TO CLOSE THE PRESS

- 1) Ensure all the cloths are in position and smooth out any
- 2) Keep all plates on the sidebars and pushed towards the Feed end of the press. Ensure all personnel are standing clear during the closing operation.
- 3) Lower the hinged ram into position (Fig b)
- 4) Close the hand pump relief valve (Rotate clockwise).
- 5) Operate the hand pump and continue pumping to a pressure of 6250p.s.i (Fig a)
- 6) Rotate the locknut clockwise towards the hydraulic cylinder to the locked position.
- 7) Release the hydraulic pressure using the hand pump relief valve (Optional)
- 8) Ensure pressure relief valve is in closed position and main feed valve is in open position.
- 9) Start the feed pump to feed slurry to Filter Press using the air shut off valve connected to a 7 bar air supply (Fig c)

Note: Needle valve is to control air flow and hence the speed of stroke when pump is initially started

Air Shut off valve

Needle valve

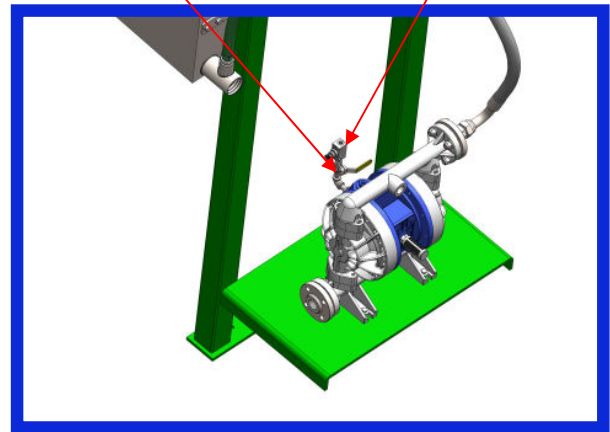
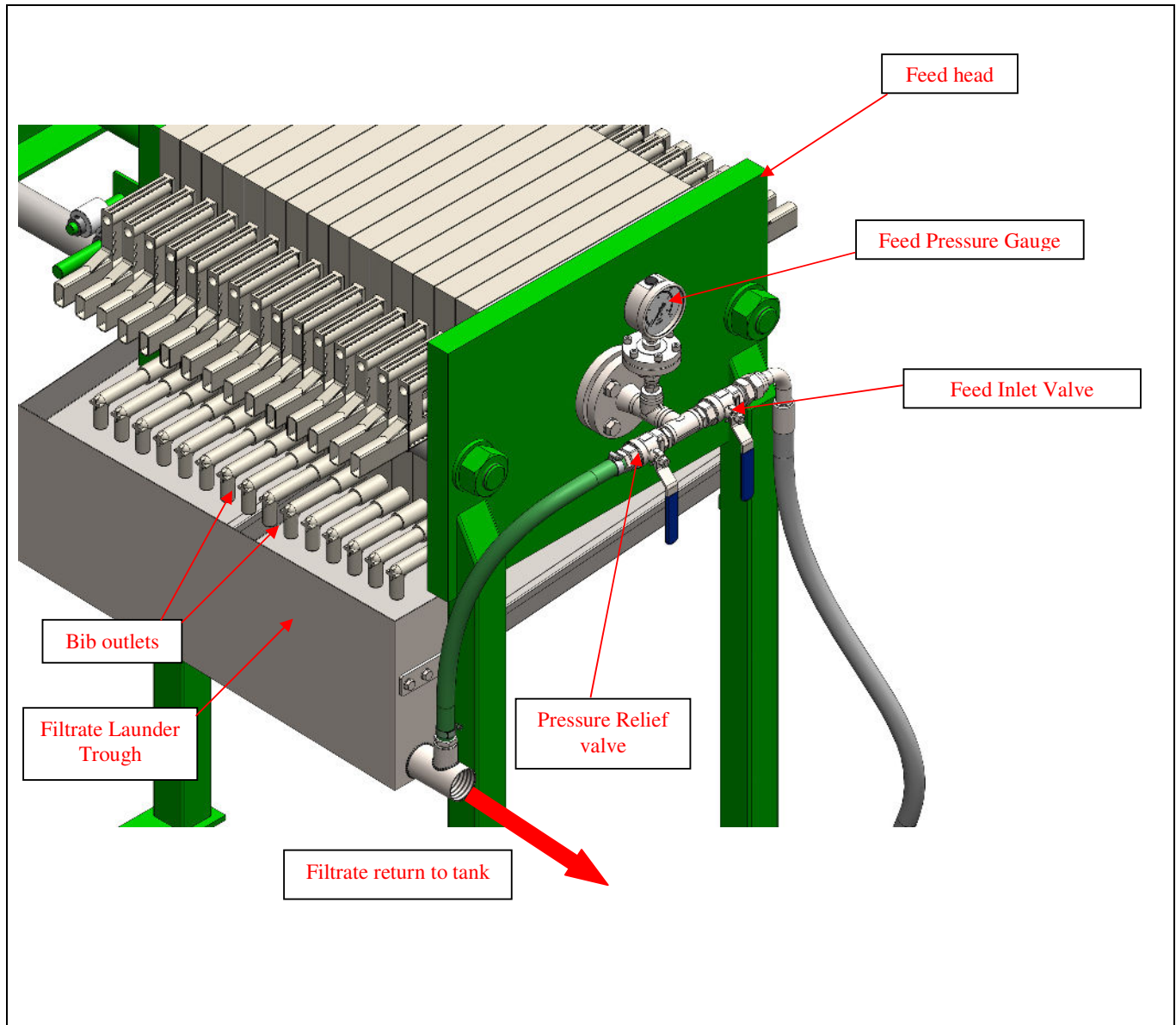
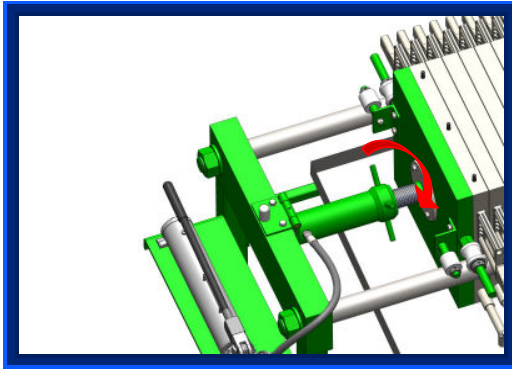


Fig c

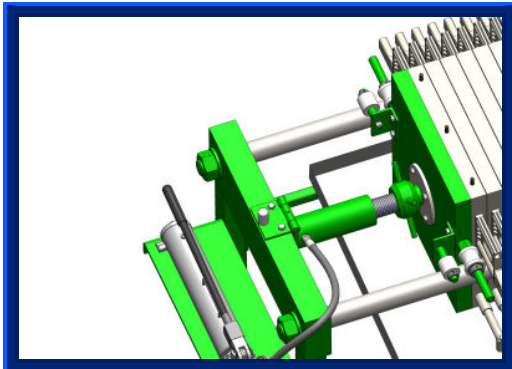


Feed inlet/Pressure relief manifold is mounted on the filter press feed end. However, the pictures indicate the feed pipe work arrange required. During the filtration part of the cycle the pressure relief valve is in the closed position with the main feed valve open to allow flow from the pump into the press. When the filtration cycle is completed and prior to opening the Feed pump is switched off and the main feed valve closed. At this point the pressure relief valve is opened to vent any pressure contained within the press before commencing the opening procedure.

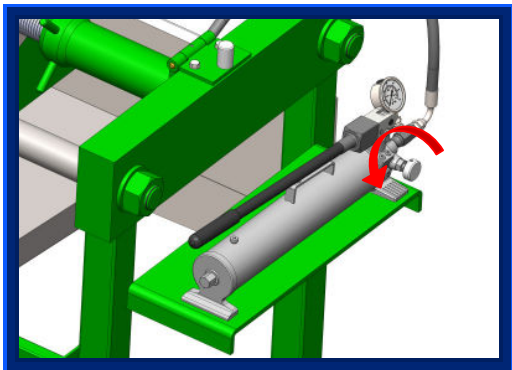
Note: Valves are in closed position when handle is at 90 degrees to the direction of flow and open when handle is in line with the direction of flow.



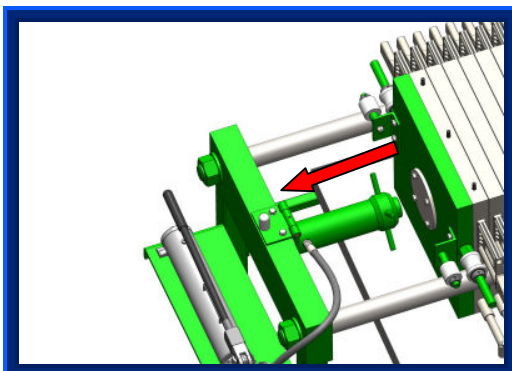
Hydraulic Ram in
Closed position with
locknut in position and
pressure from system
relieved



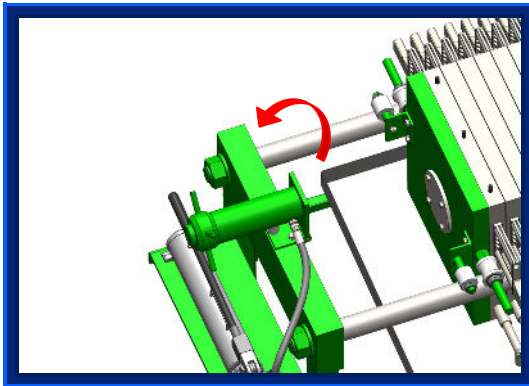
Hydraulic Ram is
pressurised to allow
locknut to be released
which is rotated anti
clockwise towards the
ram nose



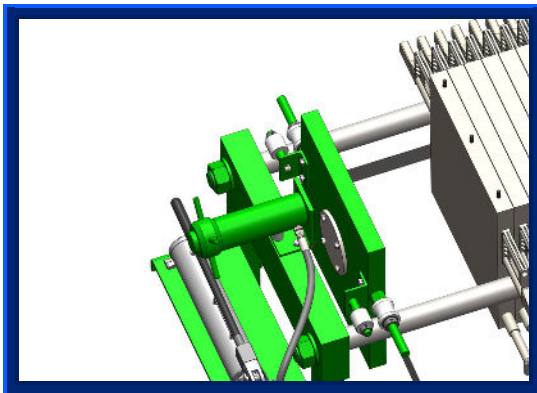
Rotate hydraulic
directional valve anti
clockwise to relieve
pressure in the system
back to the hand pump
reservoir



Hydraulic ram retracts
by means of an
internal spring



Hinge the ram 180° to rest on the stop fixed to the top of the crosshead & remove the drip trays from the underside of the filter press

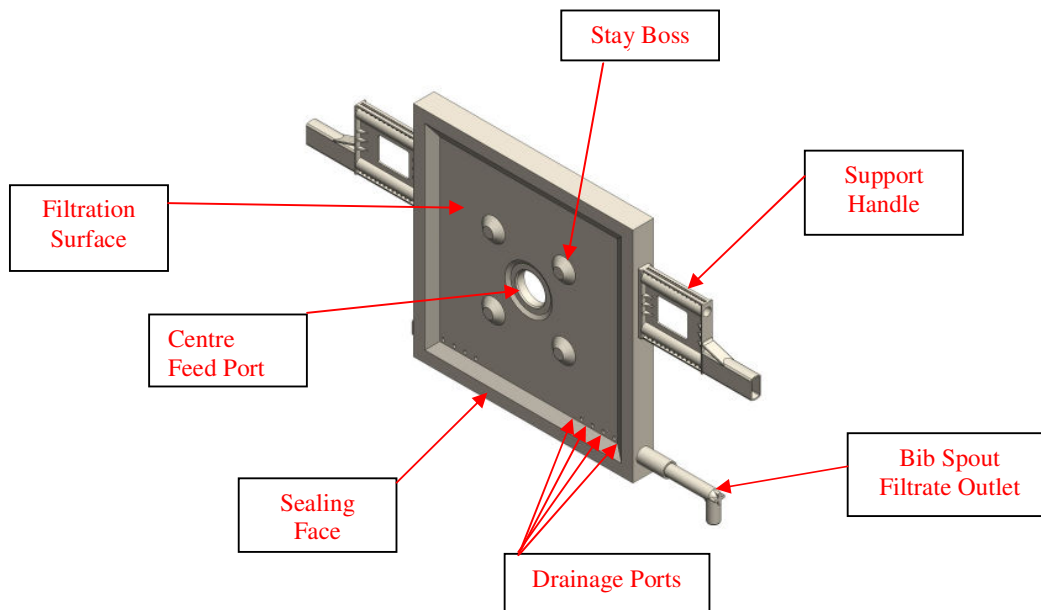


Manually move the moving end towards the crosshead to create the opening distance for the filter plates.

Move each filter plate manually towards the moving end allowing the cake in each chamber to discharge.

Filter Press Description & Operation

The filter plates are constructed from injection-moulded polypropylene consisting of a raised periphery, a pipped surface recess, central feed port, and filtrate drain. A double-sided filter cloth consisting of two panels joined by a fabric centre is fitted to the plate by passing one cloth panel through the centre of the plate covering the surface on each side. The two cloth faces are then joined by means of ties around the external edge of the filter plate (See fig 1)



The filter plates are suspended in the filter press frame and when pushed together the raised periphery meets to form a seal creating a chamber between each two plates. The plates are held together with a hydraulic force exerted by the main hydraulic ram to prevent material being fed to the unit from leaking out around the sealing faces. Slurry is fed by means of a double air diaphragm pump through a port at the centre of the feed head, which in turn then fills each individual chamber created by the plate pack.

The filter cloth captures the solid particulates and allows liquid to pass through. The pipped surface of the filter plate supports the filter cloth creating a free area behind it allowing the liquid to run down the filtration surface of the plate and exit through a series of holes at the bottom of the filtration surface exiting the plate via a bib spout. This discharges into the launder trough running positioned on one side of the Filter Press where it is collected and returned to the system or drain. As more contaminated liquid is fed to the filter press the layer of solids build on the cloth surface and thicken from each side of the chamber until eventually the chamber becomes completely filled with captured solids.

As the solid layer builds it becomes increasingly more difficult for the liquid to penetrate through the filter cake to and hence the back pressure in the filter press increases to maintain flow. The operation of the diaphragm pump allows the pressure to rise as resistance increases to a final pre-set pressure. Eventually the pump is unable to deliver flow and hence stalls when the unit cannot accept any more solids. At this point liquid flow from the bibs will be minimal potentially an intermittent drip.

The pre-set air pressure feeding the pump determines the point at which the pump stalls and which would normally recommend 7 bars to achieve the best possible cake formation.

When the pump has stalled or is only pumping very slowly i.e., one stroke every 5 minutes or so the cycle can be terminated.

At this stage you can follow the operation procedure above for opening the filter press

Once the main ram is retracted the moving end plate can be moved and then each plate in turn separated to discharge the cake contained in each chamber. As each cake is discharged check the centre feed hole is clear and that no solids are left deposited on the sealing face of the plate.

When all the cakes have been discharged follow the procedure for closing the Filter Press and then begin the next cycle.



Cloth Maintenance

Assuming a correctly formed filter cake is achieved discharge should be clean with little or no action required for further cleaning of the filter cloth surface. In this instance no action is required. and the press can be closed for the next cycle with only attention being paid to the sealing face edge to ensure there are no solid deposits around the periphery.

Regular washing of the filter cloths will help to optimise filtration performance, assuming the level of solids in the tank is closely managed.

Washing can be undertake using a standard 100-140 bar standard pressure washer with fan nozzle.

Note: In no circumstances use a turbo lance nozzle to clean the filter cloth surface or irreparable damage to the cloth surface will occur and instead of improving performance both filtration and cake release will be negatively affected.

Increased solid level in the tank will cause the cake quality to deteriorate which will result in poor discharge and the increased requirement to perform cleaning due to residual cake being left on the cake surface.

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