

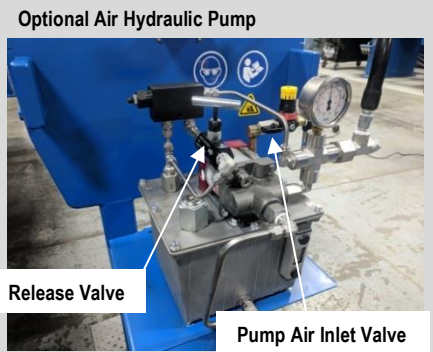
Filter Press Quick Start Guide

This guide is intended to help operator with basic filter press operating instruction. See opposite side for off-loading procedure. The IOM manual should be consulted for more detailed instructions and specifications.

OPERATION

To Close Filter Press

1. Push the filter plates and follower forward, and pivot the hydraulic cylinder downward into position.
2. To extend the cylinder, turn the pump release valve knob clockwise (when facing the knob) to a closed (seated) position. **Note:** Do not over tighten.
3. Use the manual hydraulic pump to extend the cylinder, push the follower forward, and clamp the filter plate stack. If optional air hydraulic pump is included, close the release valve and open the pump air inlet valve. A closing pressure of 7,000 PSI is required throughout the entire "feed" cycle.
4. Open the filter press manifold inlet valve and start the feed pump. If an air-operated diaphragm pump is used, feed pump pulsing will slow as press is filled. When the press has been completely filled, the feed pump will stall.
5. Turn off the feed pump.
6. Air blowdown (optional). Maximum pressure is 40 PSI.
 - a. Close center inlet valve on line from feed pump.
 - b. Close the three valves on discharge manifold. (See manifold drawing).
 - c. Open air valve on discharge manifold expelling any water left in the press (approx. 2 minutes or longer).
 - d. Close air valve.
 - e. Open the three valves on discharge manifold. Leave inlet valve closed. This will allow gravity drainage of press (approximately 2 minutes).



To Open Filter Press

Note: Make sure feed pump has been turned off, and pressure has been relieved.

1. Open pump release valve slowly by turning the knob counterclockwise (when facing the knob) to release hydraulic pressure gradually. With optional air hydraulic pump, close the pump air inlet valve and open the release valve.
2. Carefully pivot the hydraulic cylinder upward and gently place it on the rest bracket.
3. Pull the follower back toward the cylinder bracket.
4. Clean the plates.
 - a. Manually separate the plates. **Note:** New gaskets have a tendency to stick. Use care in separation of plates as not to damage them.
 - b. Use the non-abrasive paddle furnished to remove any cake that has not fallen free. All cake should be cleaned from sealing surfaces. **Note:** Failure to thoroughly clean the plates can cause cracking due to unbalanced pressure build up.

CAUTION: If flow to the filter press is interrupted for a period of time, such as overnight, it is recommended that the feed pump be restarted at a low pressure for 5 to 10 minutes before slowly increasing to maximum pressure. When the feed to the press is interrupted, the sludge build up will have a tendency to fall from the sides of the chamber and settle to the bottom, possibly blocking the center feed hole. Restarting with high feed pressure does not give the sludge time to re-soften and distribute itself in the chamber. Blockage of the center feed can cause uneven pressure build up and result in plate breakage.

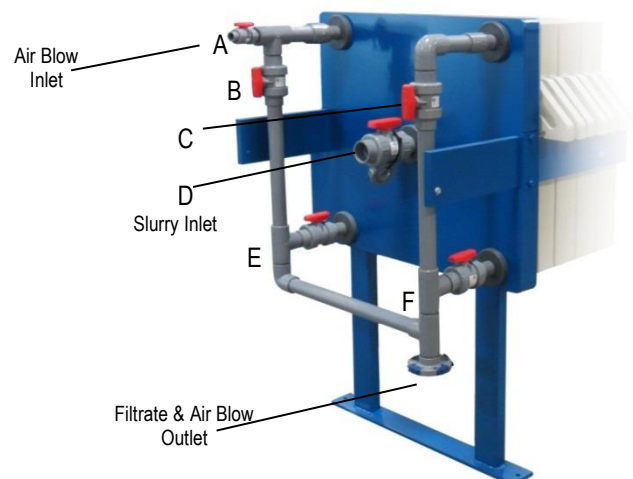
MANIFOLD VALVE POSITIONING

| Process | Open Valves | Closed Valves |
|-----------|---------------|---------------|
| Even Fill | B, C, D | All Others |
| Feed | B, C, D, E, F | All Others |
| Air Blow | A, F | All Others |

The standard manifold configuration is known as "Air Blow – Even Fill".

Even Fill includes a valve on each lower discharge port that may be closed during feeding of the press to force chambers to completely fill with slurry prior to filtrate discharge.

Air Blow blows air back through the top left corner and discharges at the bottom right corner, same place as filtrate. Air blow removes free water from within the filter plate stack and improves cake release from the filter cloths.



Filter Press Quick Start Guide

This guide is intended to help operator with immediate filter press receiving, installation, and basic operation instructions. The IOM manual should be consulted for more detailed instructions and specifications.

FILTER PRESS RECEIVING AND HANDLING INSTRUCTIONS

Inspect all equipment immediately upon receipt. If any damage occurred during shipping, notify the shipper and the carrier for claims inspection.

CAUTION: Be sure all lifting devices have sufficient capacity to lift the filter press.

CAUTION: Always use qualified riggers and appropriate equipment when lifting and moving the filter press.

DANGER: Never stand beneath the filter press when lifting or moving.

Recommended Off-Loading Procedure

There are two methods of lifting an M.W. Watermark filter press. If equipped, the use of lifting straps around the sidebars (Figure 1); a spreader bar is also recommended. For presses larger than 1000mm, the use of shackles and provided lifting eyes is recommended.

Alternate Off-Loading Procedure

If appropriate rigging equipment is not available for overhead lift, a forklift can be used to lift and transport the filter press. The filter press has been shipped in the clamped position to hold the filter plates. Un-clamp using the press (see instructions on next page) to retract the cylinder. Slide the filter plates toward the retracted follower to allow room for a fork from the lift truck. Pick up the filter press from under the side bars as shown in Figure 2. Be sure to lift near the center of the filter press to prevent the press from tipping. Verify load balance before moving the press.



Figure 1: Press Rigging Using Sidebars 800mm and Smaller Presses



Mounting and Leveling the Filter Press:

1. Place the filter press on the foundation and level the filter press horizontally and vertically.
2. Confirm the filter press is square by measuring diagonally from footpad to footpad. If diagonal measurements do not match, consult IOM manual or call M.W. Watermark for information on realignment.
3. Tighten the head leg bolts.
4. Install the plates if they were shipped out of the filter press.
5. Close the filter press and clamp it to full operating pressure.
6. Prior to connecting field piping to the filter press, verify all lock nuts on the feed and discharge liner pipes are tight.

NOTE: The filter press frame will move slightly as the press is clamped. To allow for this, during installation, bolt the manifold end of the press securely and allow the hydraulic cylinder end of the press to "float" by using a hex nut with a jam nut. This helps ensure even movement and loading of the filter press structure.

FILTER PRESS FEED / DISCHARGE / AIR CONNECTIONS

| Description | SCFM | Air Quality | PSI | Minutes |
|------------------------------|------|-------------|-----|---------|
| B Air Blow | * | Standard | 40 | 5-15 |
| D Slurry Inlet | - | - | - | - |
| E Filtrate / Air Blow Outlet | - | - | - | - |
| F Hydraulic Pump (optional) | 10 | Instrument | | |

*For air blow SCFM, see IOM manual. • Standard Plant Quality Air: Maximum Particle Size 40µm. • Instrument Quality Air: ANSI/ISA-S7.0-1996. • Air shall be free of all corrosive contaminants and hazardous substances.

