



LAB FILTER PRESS

MODEL .02-7 PPMH

PRICE CODE NO. 43-0857

OPERATION AND
SERVICE GUIDE
O-1520B
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Refer to Bulletin F-710

The laboratory filter press is designed for lab analysis and small batch production. The press should be operated on 5 to 500 gallon batches of solution having a near neutral pH. Solution should contain sludge/solids in concentrated form. Dual capacity of the plate and frame design allows for adjusted volume. Unit is ideal for field-testing for up scaling to full production size semi-automatic or manual presses.

! SAFETY PRECAUTIONS

1. Operating personnel should always wear protective clothing, face mask or goggles, apron and gloves.
2. Note pressure limitations of regulator and diaphragm pump.
3. Drip pan must be placed under plates to collect solution leakage.
4. Contact SERFILCO's technical support department for clarification if operation is not fully understood.

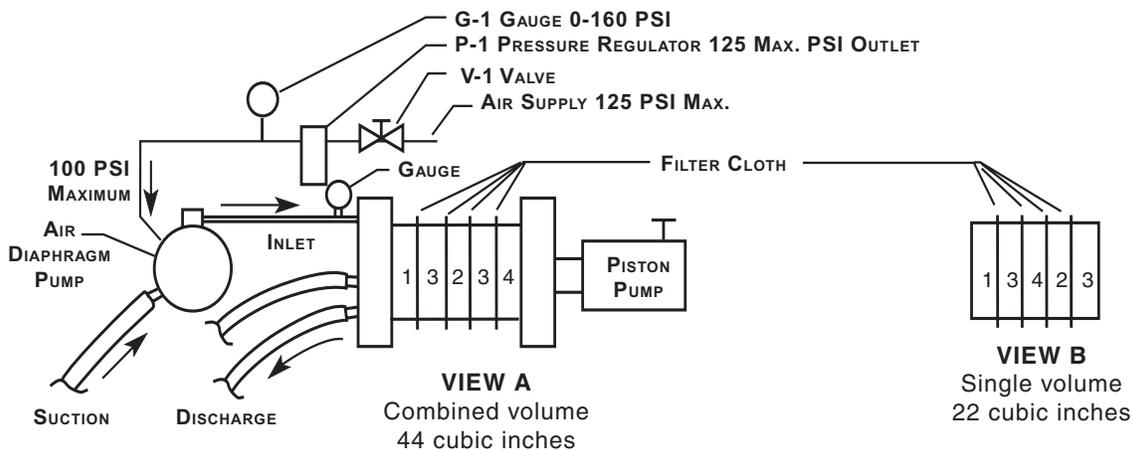
INSTALLATION

Unit is shipped completely assembled with the filter cloths installed. Plates are set up for combined volume as shown in view-A to hold 44 cubic inches of solids. For shipping purposes some fittings may have been loosened. Ensure that all fittings to connections are tight. Install suction hose into the slurry mixture and the two discharge hoses into an empty, clean container. Make sure valve V-1 is in the closed position. Connect air supply to airline coupler on valve V-1 @ 125 PSI maximum. Pressure limitation of diaphragm pump is 100 PSI maximum. Do not use an air oiler. Turn on air supply and adjust reading on pressure gauge G-1 to 40 PSI by turning pressure regulator P-1 clockwise. Slowly open valve V-1 to start pump. Increase pressure regulator P-1 until reading on gauge G-1 is 80 PSI. Diaphragm pump will begin to pump solution into the filter press. Regulating pressure regulator

P-1 and adjusting valve V-1 will control flow rate to build a dry cake in the plates. As sludge collects in the frame plates the pump flow rate will decrease. To obtain maximum solids density and dry cake, set reading on gauge G-1 between 80 to 100 PSI by adjusting pressure regulator P-1. At this time flow from discharge hose will be minimal. Allow unit to operate for several minutes at near zero flow to obtain maximum cake density and dryness. Close valve V-1 and disconnect air supply. Slowly open valve V-1 to vent air from unit. Open relief valve of the hydraulic jack to disassemble plates. Inspect caking in the frame plates to determine the effect of different time intervals or operating pressure. A data sheet is provided to help establish end results.

FILTER CLOTH/PLATE INSTALLATION

Open and close the press by the hydraulic jack located on the back of the unit. Note there is a pressure relief valve on the jack. Use the notched end of the jack handle to open and close. The unit consists of five plates numbered and identified by dimples located on the side of the plate. Two of the plates hold 22 cubic inches of solids. They are marked number three and are identified as frame plates. These frame plates may be used singly or in combination to hold a maximum capacity of 44 cubic inches of solids. The other three plates are identified as press plates. Plates must be installed in the order shown, with the dimples facing to the right of the unit when facing the air diaphragm pump. Filter cloth must be installed between the plates with the holes in the cloth carefully aligned to the holes in the plate. Wetting the filter cloths with water will help facilitate alignment of holes when closing press. If unit is to be set up for single use as shown in view-B, position press plate number two after press plate number four, then frame plate number three after press plate number two as spacers.



SUGGESTED TEST PROCEDURE & EVALUATION

1. Select enough uniform sample to run several tests.
2. Retain raw sample in a small closed container. This will be used to determine the initial solids content.
3. Preset* the air pressure to 80 PSI.
4. Record the starting time.
5. Discharge into a separate container and record the flow at 15, 20 and 25 minutes.
6. At 30 minutes record the discharge flow and discontinue the test.
7. Record the cake volume and filtrate volume.
8. Retain a sample of the filter cake in a **closed container**. This sample will be used to determine dry solids content.
9. The above procedure should be repeated several times to determine reliability or to determine the affect of different time intervals or operating pressure.

DATA

Start time _____
Flow rate at 15 minutes _____
Flow rate at 20 minutes _____
Flow rate at 25 minutes _____
Final flow rate _____
End time _____
Cake volume _____
Filtrate volume _____

CALCULATIONS

$$\% \text{ Reduction} = 100 \times \left(1 - \frac{\text{Cake volume}}{\text{Cake volume} + \text{Filtrate Volume}} \right)$$

For up scaling to full production size unit, refer to SERFILCO Product Bulletin F-705 for calculating required size of filter press.

SUGGESTED TESTING BY LABORATORY

Initial solids content of raw sample.

Cake solids content of sludge sample.

* It may be advisable to run one sample to become familiar with the test procedure.



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