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OPERATING & MAINTENANCE MANUAL

4.2 GALLON PRESSURE FILTER

General Information

The 3 gallon batch pressure filter may be operated with either a side or bottom discharge, since the base of the filter is furnished with both side and bottom discharge drain ports. A 1/4" plug is furnished for placing into the drain outlet NOT being used. The filter cover has two 1 /4" NPT ports, one is for the air coupling; the other is for: the air regulator assembly, consisting of a petcock valve, air gauge, and pop type safety relief valve.

The filter should be mounted to a firm table, capable of withstanding 140 Lbs. dead load, and resistant to water and any other chemicals that may be present. It is recommended to bolt the filter to a table for safety reasons, to prevent the filter from tipping over during filling or discharge, but it is not necessary to operate the filter. The table height should be at a height comfortable for the operator, normally 2' to 2-1/2' (61 cm to 76 cm). The filter should be placed near water drainage, preferably a floor drain. Alternate drainage would be a sink type drain, with the filter mounted on the counter sloping towards the sink.

A water line with a short length of hose should be available near the filter, for cleaning the filter in between batch filtering, and general washing. A compressed air source, with at least the capacity for 1 cfm@ 40 psi, should be connected to the quick connect hose coupling on the filter lid. A short length of pressure hose should be used, since it is necessary to have a flexible air coupling to the filter. The filter should not be opened without disconnecting the quick dis-connect coupling and opening the petcock valve to release any pressurized air inside of the filter. Maximum operating pressure of the filter is 75 psi, as the pressure relief valve is set to this pressure. (Units are tested at 100 psi, but for a larger safety factor, we only recommend 75 psi).

Operation of the Pressure Filter

A. Assuming that the filter is in the closed position, (the lid securely clamped by the hand wheel clamping device), shut off the air supply. Open the petcock valve and allow the pressurized air to exit the filter chamber, when the pressure gauge reads zero and no more air is exiting the filter, release the lid by loosening the clamping screw. Tilt the yoke-lid and lift the cylinder off of the base. Clean all parts thoroughly.

B. Place the filter cloth over the backing screen (10 mesh stainless steel screen on the filter base), wet filter cloth thoroughly. (This helps cloth, paper to seal) Place piece of filter paper on top of cloth and wet filter paper thoroughly.

C. Lift the filter chamber and set it firmly on the base, being certain that it is in the proper position. Note there are position centering pins in the base to assist in setting the chamber on the base correctly. If necessary, cut a slot in the cloth and/or filter paper to allow for the positioning pins.

D. Pour the pulp to be filtered into the filter chamber, being careful to add it slowly until the filter paper is completely covered, then it may be added faster. This prevents damage to the filter paper. After all pulp has been added to the filter, rinse the pouring vessel with the solids being added to the filter chamber. Spray a small stream of water into the filter chamber to wash accumulated solids from the filter chamber walls.

E. Carefully place the cover on the filter by raising the yoke/lid into position and tightening firmly by means of the hand clamping screw mechanism. Connect the air hose coupling.

F. Slowly turn the air supply valve to the open position, allowing air to enter the filter chamber. Inspect the base of the filter for leaks. (If leaks are detected, depressurize the chamber and re-tighten the clamping mechanism, or use a hi-seal filter cloth)

G. The filtrate should begin to exit through the drain in a small amount initially, increasing to maximum flow and then decreasing to a trickle then nothing. White the filtrate ceases to flow, the process is over.

H. Opening the filter is the same process as described in the foregoing step (A). When the cover has been removed, run a spatula between the filter cake and lift the filter cake off of the base by picking up the filter cloth. Discharge the filter cake into a drying pan. If a small amount of the filter cake adheres to the filter chamber, it can be removed with a spatula onto the filter paper to avoid any loss of solids.

I. Wash the filter chamber, cover and base with water and the filter is now ready for re-use.

Vacuum Filtration

The pressure filter can be used to vacuum filtration of pulps by leaving top plate (cover) off the filter and attaching a vacuum line to the filtrate port. If many vacuum filter tests are to be conducted, is it better to use the specially de-signed Sepor Vacuum Filtration Batch Unit, 10" diameter by 6" height.

Operation Information for Pressure Filtration

Time can sometimes be saves by flocculating the pulp (slurry) using anionic and/or cationic flocculants to increase the filtration rates on fine material. The sample to be filter should be thoroughly mixed and poured through the filter. This helps to prevent blinding of the filter by disseminating the larger particles among the fines. If only very fine material is being filtered, the filtration rate slows down; flocculation may be required to prevent blinding and to achieve filtration. Several major manufacturers of flocculants, such as Nalco, Ciba and GE Betz can supply all of the flocculants and information on their application required.

A good, solid seal between the filter medium, plate and filter chamber is essential. A rubber gasket is in a machined groove in the filter base of all filters manufactured after October, 2010, to ensure this seal. The yoke, when tightened firmly, should produce a tight seal. When sealing the chamber, the torque readings can give an accurate indication that the chamber is sealed. Mended that the bottom filter plate be tightened with the filter empty.

10” Pressure Filter MS 4.2gal • 070B-030

PART #	DESCRIPTION	QTY
070B-P010MS	H.R.S. Base 10" PF MS	1
070B-P011MS	Cylinder Body/Tube 10" PF	1
070B-P012MS	H.R.S. Lid for 10" PF MS	1
070B-T027SS	Threaded rods 3/4"X23" SS	2
070B-P014	Gasket for 10" P-Filter #25	2
070B-F020	Yoke Bar for 10" PF	1
070B-T018	3 Bolt Flange for 8"PF	1
070B-T022	Half Rings for 3 Gal Pressure	2
070B-T023	Clamping Screw 8" PF	1
070B-T024	Handle Bar Threaded 3 Gal PF	1
070B-T026	Perforated Drain Grid 8"or12"	1
400ST022	Black Iron Thrd 1/4" Cross	1
400ST041	Blk Steel Thrd Pipe Nipple 1/4	3
400ST051	Steel Plug Hex Socket 1/4"	1
500ST048	Coupler Plug (M) NPT 1/4 Steel	1
500ST049	Coupler Body (M)NPT 1/4 Brass	1
500ST013	Brass Ball Valve 1/4" NPT Fem	2
500ST015	Petcock 1/4" NPT #22	1
500ST020	Pressure Relief Valve CR25-100	1
500ST227	Pressure Gauge Test 2 In	1

10” Pressure Filter SS 4.2gal • 070B-050

PART #	DESCRIPTION	QTY
070B-F010SS	H.R.S. Base 10" PF SS	1
070B-F011SS	Cylinder Body/Tube 10"PF SS	1
070B-F012SS	H.R.S. Lid for 10" PF SS	1
070B-F013SS	Threaded Rods 3/4"X22-1/8" SS	2
070B-F020	Yoke Bar for 10" PF	1
070B-P014	Gasket for 10" P-Filter #25	2
070B-T018	3 Bolt Flange for 8"PF	1
070B-T023	Clamping Screw 8" PF	1
070B-T024	Handle Bar Threaded 3 Gal PF	1
070B-T026	Perforated Drain Grid 8"or12"	1
743ST075	10 Mesh T316 SS .025 48"x100'	1
400ST014	SS 316 Pipe Fitting 1/4 Cross	1
400ST042SS	SS 316 Pipe Nipple 1/4x2"	4
400ST053	SS Pipe Plug 1/4" Hex Socke	3
500ST012	SS Bal Valve-Lever Handle 1/4"	2
500ST018	SS 316 Petcock 1/4" NPT	1
500ST035SS	304 Pressure Relief Valve-1/2"	1
500ST063	SS 316 Coupler Plug 1/4"	1
500ST070	SS 316 Coupler 1/4 FNPT	1
500ST206	SS Gauge Pressure 0-100 2.5	1
500ST230	Dial Face Gauges with 100 psi	1

Filter Paper and Cloth for both SS & MS Models

PART #	DESCRIPTION	QTY
070C-003	12" Dia.Filter Cloth	1
070C-004	12" Dia.Filter Paper	1