

### **MODEL: 470/500MM TEST PRESS**

THE 18 IN" SQUARE FILTER ELEMENTS ARE SUPPORTED IN A FABRICATED MILD STEEL, FILTER PRESS FRAME-WORK.

**PLATE SUPPORT** FILTER PLATES REST ON STAINLESS STEEL COVERED ROUND SECTION SIDEBARS.

### **FILTER PLATES**

HIGH PERFORMANCE MOLDED POLYPROPYLENE, MEMBRANE MIXED PACK. DESIGNED FOR SLURRY FEED PRESSURE OF 100 PSI (7 BAR), AT AMBIENT TEMPERATURE, A 225PSI (15 BAR) MEMBRANE SQUEEZE. RECESSED OR PLATE & FRAME PLATE STACKS ARE ALSO AVAILABLE.

### **CLOSING SYSTEM**

ONE HYDRAULIC CLOSING/SPRING RETURN, HINGED CYLINDER, COMPLETE WITH LOCKING CAPSTAN IS CLOSED BY A HAND HYDRAULIC PUMP.

### **FILTER CLOTH**

ONE SET OF FILTER CLOTHS (OR ADDITIONAL AS AGREED) WILL BE PROVIDED FOR THE TEST.

**STANDARD PUMPS:** ONE COMBINATION, AIR DRIVEN DIAPHRAGM FEED AND WASH PUMP, CAST IRON BODY EPDM BALLS AND DIAPHRAGMS. ONE; AIR DRIVEN, PISTON MEMBRANE SQUEEZE PUMP FED FROM THE INTEGRATED MEMBRANE WATER TANK.

**EQUIPMENT SIZE:** 4' WIDE X 5'6" LONG X 5' HIGH (1.2M X 1.7M X .5M)

**WEIGHT:** 2,000 LBS.

**TERMS OF RENTAL** RENTAL CHARGE WILL BE \$ AS AGREED PER WEEK. RENT STARTS WHEN THE UNIT IS RECEIVED IN YOUR PLANT AND STOPS ON THE DATE THE UNIT LEAVES YOUR PLANT. DATES SHOWN ON THE CARRIER RECEIVING/ SHIPPING PAPERS WILL BE CONSTRUED AS CONTRACTUAL. RENTAL INVOICES WILL BE RENDERED AT THE END OF THE RENTAL. PAYMENT TERMS ARE NET 10 DAYS.

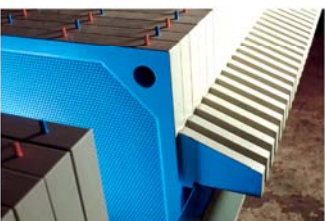
ALL FREIGHT CHARGES BOTH WAYS BETWEEN PORTSMOUTH, NH AND YOUR LOCATION ARE FOR YOUR ACCOUNT.

THE PRESS MUST BE RETURNED IN CLEAN CONDITION. YOU AGREE TO ACCEPT BILLING FOR COST OF ADDITIONAL CLEANUP AND ANY RECONDITIONING, WHICH, IN OUR OPINION, ARE NECESSARY AS A RESULT OF YOUR USAGE OF THE UNIT. ANY SUCH CHARGE WOULD, OF COURSE, BE EXCLUSIVE OF NORMALLY EXPECTED WEAR AND TEAR.

IT IS UNDERSTOOD THAT WE ARE NOT TO BE LIABLE TO YOU FOR LOSS, DAMAGE, OR INJURY TO PERSONS OR PROPERTY INCLUDING PRODUCTS PROCESSED BY OR ARISING OUT OF THE INSTALLATION, OPERATION, USE, NON- USE, REPAIR OR REPLACEMENT OF THE TEST EQUIPMENT.

SHOULD THE MATERIAL TO BE PROCESSED BE OF A TOXIC NATURE IT IS IMPERATIVE THAT THE UNIT BE COMPLETELY DECONTAMINATED BY YOU PRIOR TO ITS RETURN TO OUR FACTORY. WE ALSO REQUEST TO BE NOTIFIED IF ANY POSSIBLE CONTAMINATION DOES EXIST SO THAT WE MAY PROTECT OUR PERSONNEL FROM A POSSIBLE HAZARDOUS CONDITION.

FROM THE DATE OF SHIPMENT AND UNTIL RETURNED TO US YOU ARE TO ASSUME ALL RISKS OF LOSS, THEFT, DESTRUCTION OF AND DAMAGE TO THE EQUIPMENT.



	FEED	WASH	SQUEEZE	AIR BLOW	CORE BLOW	DISCHARGE
V1	O	O	O	X	O	X
V2	X	X	O	X	X	X
V3	O	O	X	X	X	X
V4	O	O	O	O	X	O
V5	O	O	O	O	X	O
V6	O	O	X	X	X	X
V7	O	O	O	O	X	O
V8	O	X	O	X	X	O
V9	X	X	X	X	O	O
V10	X	O	X	X	X	X
V11	X	X	X	X	X	X
V12	O	X	X	X	X	X
V13	X	X	X	O	X	X
V14	O	O	O	O	X	O
V15	O	O	O	O	X	O

V1	Main Air Valve
V2	Membrane Squeeze Pump Valve
V3	Feed Pump Valve
V4	Bottom Left Filtrate Port Valve
V5	Bottom Right Filtrate Port Valve
V6	Feed Inlet Valve
V7	Main Filtrate Discharge Valve
V8	Filtrate Manifold Valve
V9	Core Blow Valve
V10	Pump Isolation Valve
V11	Membrane Line Drain Valve
V12	Pump Directional Flow Valve
V13	Air Blow Down Valve
V14	Top Right Filtrate Port Valve
V15	Top Left Filtrate Port Valve
R1	Membrane Air Line Regulator
R2	Feed Pump Air Line Regulator

## SETTING UP THE FILTER PRESS

THE FILTER PRESS IS SELF CONTAINED AND SUPPLIED WITH A FEED PUMP AND A MEMBRANE SQUEEZE PUMP (IF THAT OPTION IS TO BE USED). FOR PRACTICAL PURPOSES A MEMBRANE MIXED PACK IS THE STANDARD PLATE CONFIGURATION SUPPLIED WITH THE FILTER. IF TESTING IS FOR RECESSED PLATE COMPARISONS ONLY, THEN THE MEMBRANE SQUEEZE PUMP IS NOT UTILIZED. INTERCHANGEABLE FRAMES ARE AVAILABLE OF DIFFERENT THICKNESSES TO COMPARE CAKE THICKNESS RESULTS. BEFORE STARTING, EXAMINE THE FILTER TO BE SURE NO DAMAGE HAS OCCURRED DURING TRANSIT.

PREPARE THE SLURRY TO BE TESTED, MAKING SURE TO MATCH CLOSELY THAT THE TEMPERATURE AND CONSISTENCY WILL BE AS CLOSE TO OPERATIONAL CONDITIONS AS PRACTICAL. WHERE NECESSARY MIX THE SLURRY TO AVOID ABNORMALLY LOW FEED SLURRIES BEING PICKED UP FROM A DECANTED SLURRY LAYER. GENERALLY, HIGHER FEED SOLIDS ARE EASIER TO FILTER.

## CLOSING THE FILTER

- LINE UP THE FILTER PLATES AND STACK THEM AGAINST THE FEED END, MAKING SURE THE FILTER CLOTH LAYS FLAT ON THE SEALING SURFACE OF THE FILTER PLATES.
- TURN THE RELIEF VALVE KNOB ON THE HAND PUMP CLOCKWISE TO CLOSE AND OPERATE THE HAND PUMP UNTIL 4,500 PSI IS REACHED ON THE PRESSURE GAUGE.
- TURN THE LOCKING CAPSTAN COUNTER CLOCKWISE UNTIL IT SEATS AGAINST THE TUBE OF THE HYDRAULIC CYLINDER.
- RELIEVE THE HYDRAULIC PRESSURE BY TURNING THE RELIEF VALVE ON THE HAND PUMP COUNTER CLOCKWISE.

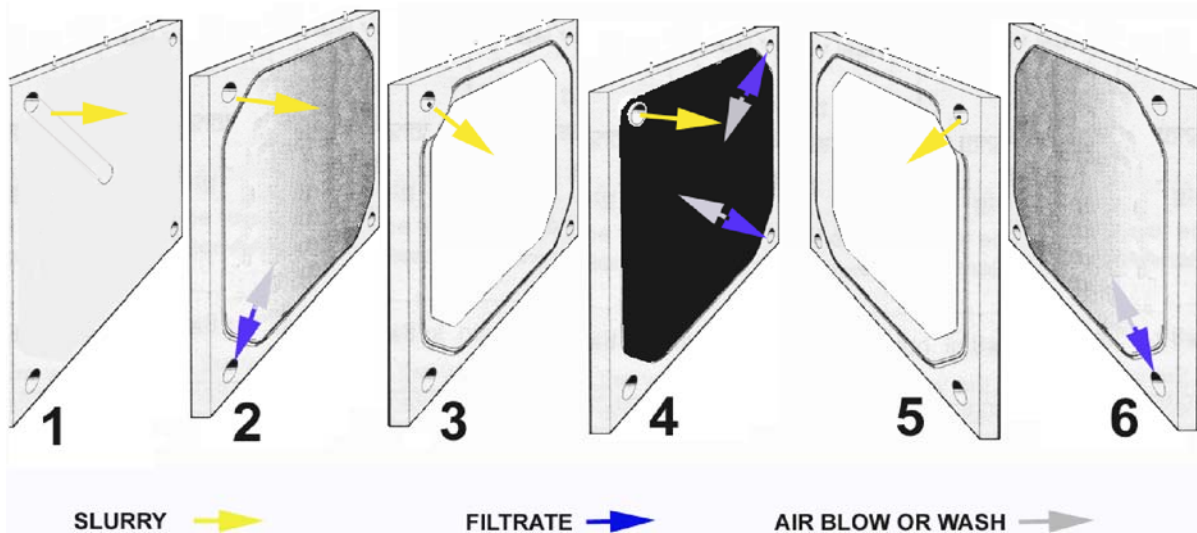
## OPENING THE FILTER

- TURN THE RELIEF VALVE KNOB ON THE HAND PUMP CLOCKWISE TO CLOSE AND OPERATE THE HAND PUMP TO PRESSURIZE THE CYLINDER. THE LOCKING CAPSTAN WILL LIFT OFF THE END OF CYLINDER TUBE AND ALLOW IT TO BE RELEASED.
- TURN THE CAPSTAN CLOCKWISE TOWARD THE TAIL PLATE.
- RELEASE THE HYDRAULIC PRESSURE BY TURNING THE RELIEF VALVE ON THE HAND PUMP COUNTER CLOCKWISE. THE CYLINDER WILL RETRACT (SPRING RETURN)
- THE CYLINDER MAY NOW BE PIVOTED USING THE HINGE AND RESTED ON TOP OF THE CROSSHEAD. PLATES MAY NOW BE MOVED BACK BY HAND AND THE CAKE DISCHARGED.

## FILTRATION

- CLOSE THE MAIN SUPPLY VALVE **V1** AND CONNECT AN AIR SUPPLY.
- TURN THE REGULATOR COUNTER CLOCKWISE UNTIL FULLY OPEN (TURN IT OFF)
- CLOSE THE FEED PUMP VALVE **V6**
- CONNECT THE SLURRY SUCTION LINE (SUPPLIED BY YOU)

- SET ALL VALVES ACCORDING TO THE CHART FOR FEEDING THE FILTER. **X** = CLOSED, **O** = OPEN (THE VALVE IS IN AN OPEN POSITION WHEN THE HANDLE IS IN LINE WITH THE PIPING AND CLOSED WHEN AT RIGHT ANGLES TO THE PIPING)
- BE PREPARED FOR FILTRATE TO DISCHARGE VIA THE DRAIN CONTROLLED BY VALVE **V7** BY DIRECTING IT TO A SUITABLE DRAIN OR TANK. DO NOT CREATE ANY BACKPRESSURE WHEN DOING THIS.
- OPEN **V1** AND GRADUALLY BRING UP THE AIR PRESSURE BY TURNING THE REGULATOR CLOCKWISE (TURN IT ON). JUDGE THE OPTIMUM FEED PRESSURE BY EXPERIMENTING WITH THE REGULATOR SETTING. USUALLY, A MAXIMUM PRESSURE (UP TO 100 PSIG) IS BEST BUT NOT ALWAYS, DEPENDING UPON THE MATERIAL BEING FILTERED AND THE REQUIREMENT OF THE FINAL CAKE. ONCE THIS HAS BEEN DETERMINED THE REGULATOR CAN BE PRESET AND THE FEED SWITCHED ON AND OFF BY OPENING VALVE **V3**.
- RUN THE FILTRATION CYCLE UNTIL THE FILTER IS FULLY FILLED AND FLOW HAS ALMOST TOTALLY DIMINISHED. IF LEFT LONG ENOUGH THE PUMP WILL EVENTUALLY STOP RUNNING, AS THE BACK PRESSURE CAUSED BY THE FILTER CAKE RESISTANCE, OVERCOMES THE DRIVE (SUPPLY PRESSURE) OPERATING THE PUMP – THE PUMP WILL “DEAD HEAD”. A RULE OF THUMB FOR DETERMINING WHEN A FILTER PRESS IS FULL, DURING A FIRST TEST, IS TO MEASURE THE INITIAL FLOW BY USING A 5 GALLON BUCKET AND TIMED PERIOD. RECORD THIS INFORMATION AND THEN AS THE FILTER SLOWS DOWN MEASURE AGAIN USING THE SAME TIME PERIOD. WHEN THE FLOW IS LESS THAN 5% OF THE FIRST FLOW RECORDED IT CAN BE ASSUMED THE FILTER IS FULL.
- WHEN THE FILTER HAS COMPLETED FILTRATION SWITCH THE VALVES TO THE SETTING SHOWN ON THE CHART TO RELIEVE ANY INTERNAL PRESSURE AND DISCHARGE THE CAKE.



TEST FILTER PLATE PACK

**NOTE:**

Maximum feed pressure must be regulated to 100 psi (7 bar) Maximum squeeze pressure must be regulated to 225 psi (15 bar) Maximum wash or air blow must be regulated to 100 psi (7 bar)

PLATE	PURPOSE	DESCRIPTION
1	<b>Connector Plate</b>	Diverts the centre feed piping to the top corner feed for the test corner feed membrane plate pack.
2	<b>Filter plate</b>	Double filter cloth, ported as shown.
3	<b>Filter frame</b>	Frame thickness may be varied to test different cake thickness inlet as shown.
4	<b>Membrane plate</b>	Squeeze plate, inflated by maximum 225 (15 bar) water pressure, ported as shown, double filter cloth.
5	<b>Filter plate</b>	Double filter cloth, ported as shown.
6	<b>Tail plate</b>	Moving end filter plate has single filter cloth, ported as shown.

**SHIPPING**

- BEFORE THE FILTER PRESS IS PREPARED FOR RETURN SHIPMENT REMOVE ALL THE USED FILTER CLOTHS AND DISPOSE OF APPROPRIATELY.
- THOROUGHLY CLEAN THE FILTER PLATES MAKING SURE THAN NO RESIDUAL SLURRY REMAINS IN THE FILTER PLATE PORT, FEED OR FILTRATE HOLES.
- PUMP CLEAN WATER THROUGH THE FEED PUMP; PUMP CLEAN WATER THROUGH THE WASH MANIFOLD TO FLUSH OUT THE FEED AND WASH LINES.
- WASH DOWN THE FILTER PRESS FRAMEWORK AND PROTECTION CAGE. ENSURE THAT THE STAINLESS STEEL PARTS BOX IS CLOSED AND INSPECT INSIDE AFTERWARDS. IF NECESSARY DRY OUT HE INSIDE.
- DRAIN THE STAINLESS STEEL MEMBRANE SQUEEZE WATER TANK FULLY.
- REPLACE ALL THE FILTER PLATES IN THE FRAMEWORK, ENSURING THE CORRECT QUANTITY RECEIVED ARE RETURNED, AND CLOSE THE FILTER TO 4500 PSI. LOCK THE CYLINDER CAPSTAN AND RELIEVE THE HYDRAULIC PRESSURE. **DO NOT SHIP WITHOUT CLAMPING THE FILTER.**
- RETURN THE FILTER PREPAID.