

Superior Performance
Unbeatable Pricing
Pride in Workmanship
Energy Efficient
Rugged Construction



MANUAL AUTOMATIC DEWATERING ST-60N



SUPER GIANT ENTERPRISE CO., LTD.
E-mail:super@superpump.tw
Website:http://www.superpump.tw

INDEX

1. Instruction	
Feature.....	2
Application.....	2
2. Specification & Dimension.....	3
3. Parts List.....	4
4. Operation Procedure.....	5
5. Controll Box Layout.....	6
Controller Wiring	7
Hydraulic Circuit.....	8
Air Circuit.....	9
6. Installation	
Cautions.....	10
Examples.....	11
Air Compressor and Air Dryer Wiring.....	12
Control Panel.....	13
7. Operation	
Prior to Automatic running.....	14
Automatic running.....	14
Prior to manual running.....	15
Un-sufficient cake dewatering and capacity.....	16
8. Trouble shooting.....	17
9. Maintenance.....	18
10. Appendix	
A. Inspection List.....	19
B. How to replace the paper roll.....	20

Automatic Dewatering Filter

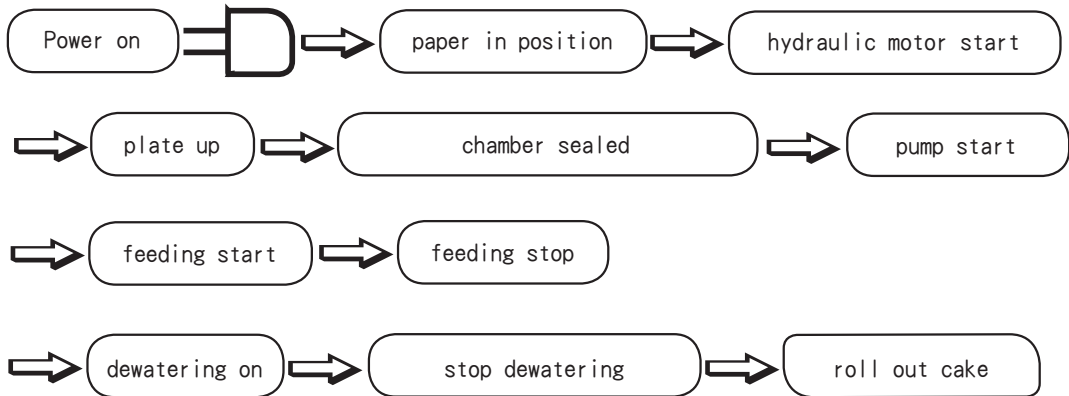
ST-60 N

(1) (2) (3)

(1) ST- Style

(2) 60-filter plate area(60cmX60cm)

(3) N-Rubber material (NBR)



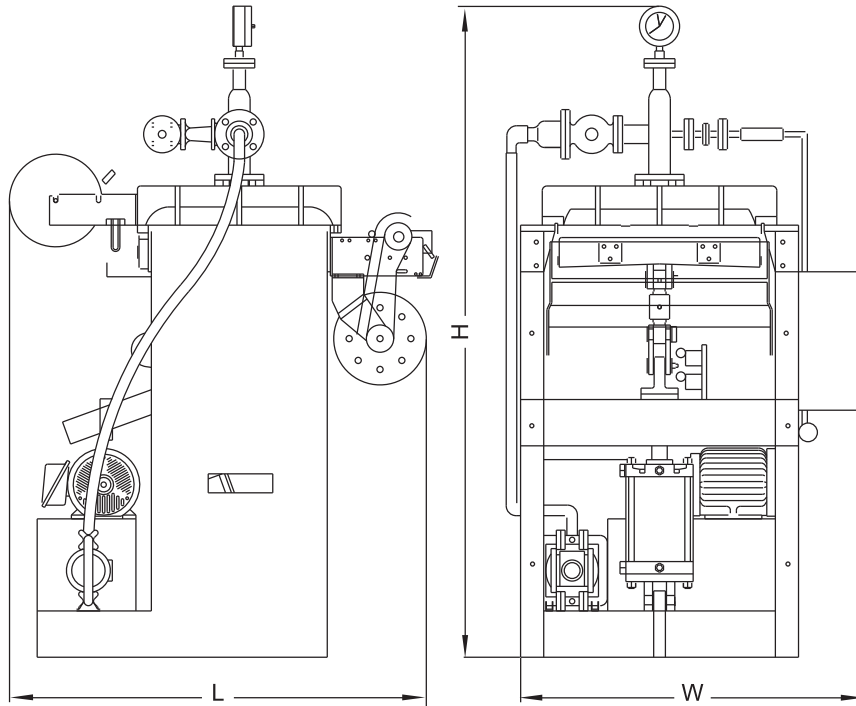
Feature :

- 1.This machine do the dewatering by air and polution free.
- 2.Programmable PLC control.
- 3.No need for sun drying, dewatering by air, fast and polution free.
- 4.Fully automatic control by setting the timer.
- 5.Can make cake up to 3.5~4cm for normal slurry and 1.5~3cm for thin viscos slurry.
- 6.It will take longer time for thin viscos slurry dewatering.
- 7.The paper filter area is 0.36m².
8. Use fine paper to get better filtration.

Application :

- 1.This machine has triple functions: A: Filtration B: Cake forming C: Dewatering.
2. Suitable for powder filtration for various surface finishing acid, alkaline, solvent, oil, settled sludge, phosphoric acid and waste water, actiated carbon, grinding liquid.

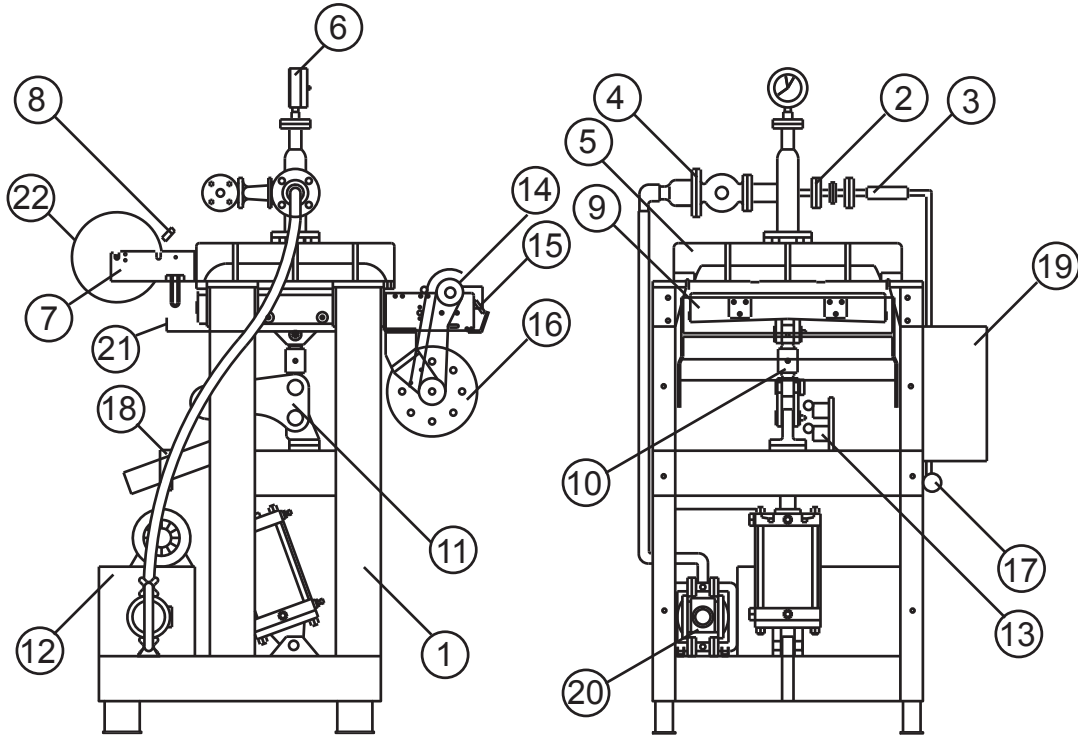
Dimension



Specification

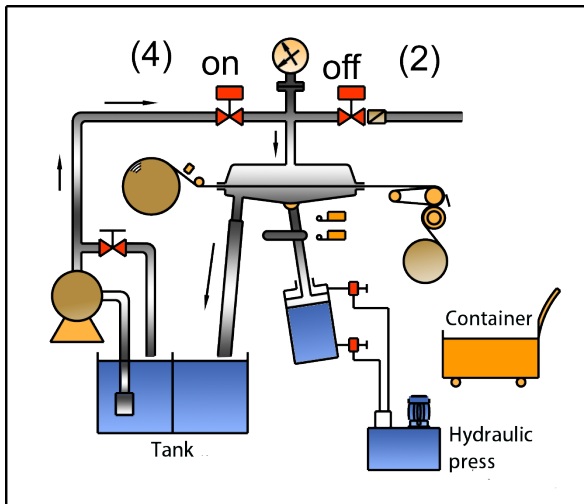
Style		ST-60N
Filtration area		0.36m ²
Paper size		66cm × 50m
Hydraulic motor		2 HP
Air compressor		2 HP+
Air operated double diaphragm pump		1" Outlet
Paper mesh		200 ~ 300(75~48μm)
Power		3Ø, 220V / 380V / 400V / 415V, As per customer.
Dimension	L	1400 mm
	W	1235 mm
	H	2200 mm
Weigth		1100 kg

Parts List



NO	Description	NO	Description
1	Frame	12	Hydraulic system
2	Dewatering valve	13	Limit switch
3	Dewatering check valve	14	Paper roller motor
4	Feeding valve	15	Paper collection rack
5	Upper cover	16	Paper roller
6	Pressure gauge	17	FRL set
7	Paper rack	18	Air system solenoid valve
8	Photoelectric switch	19	Control box
9	Moving plate	20	Feeding AODD pump
10	Paper rack	21	Water Collection plate
11	Rotate arm	22	Filter paper

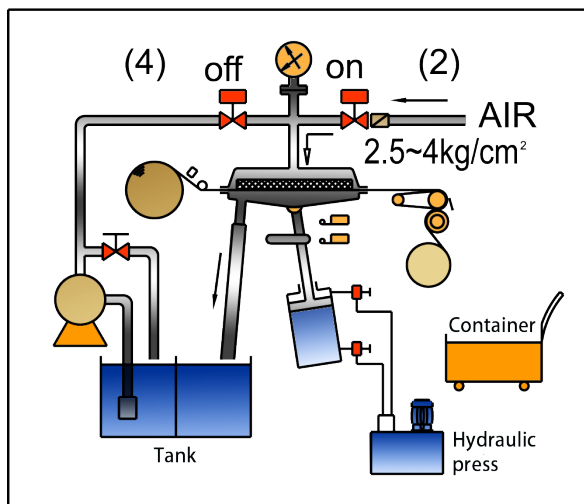
Operation Procedure



Feeding

When the feeding pump is running, the feeding valve is opened and the dewatering valve is closed.

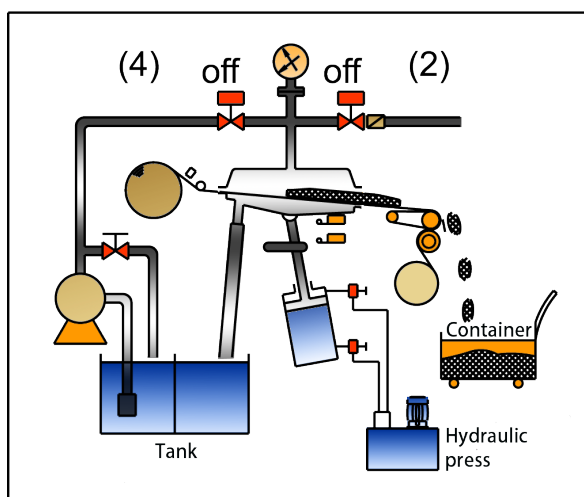
The filtration liquid goes back to the tank.



Dewatering

When dewatering starts, the feeding valve is closed and the dewatering valve is opened.

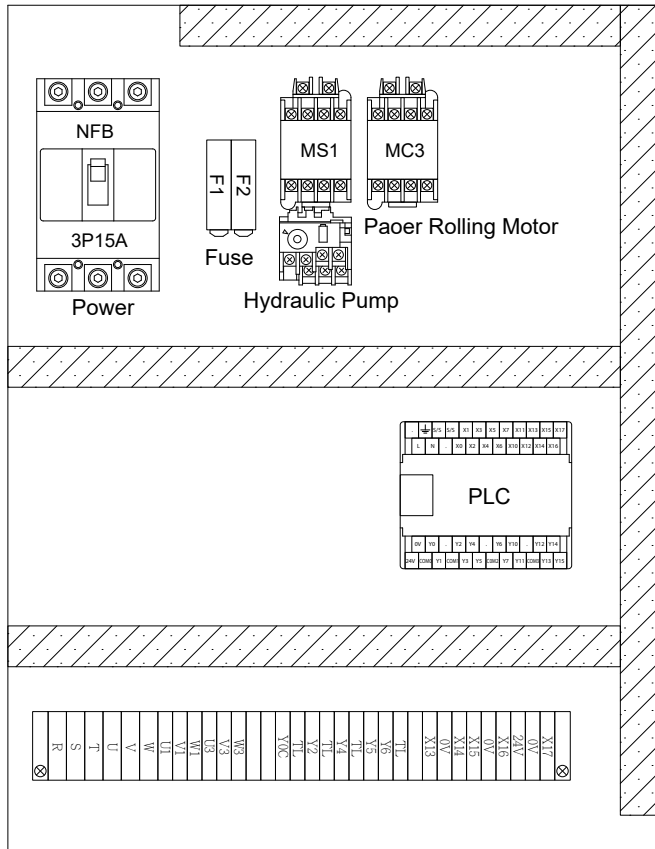
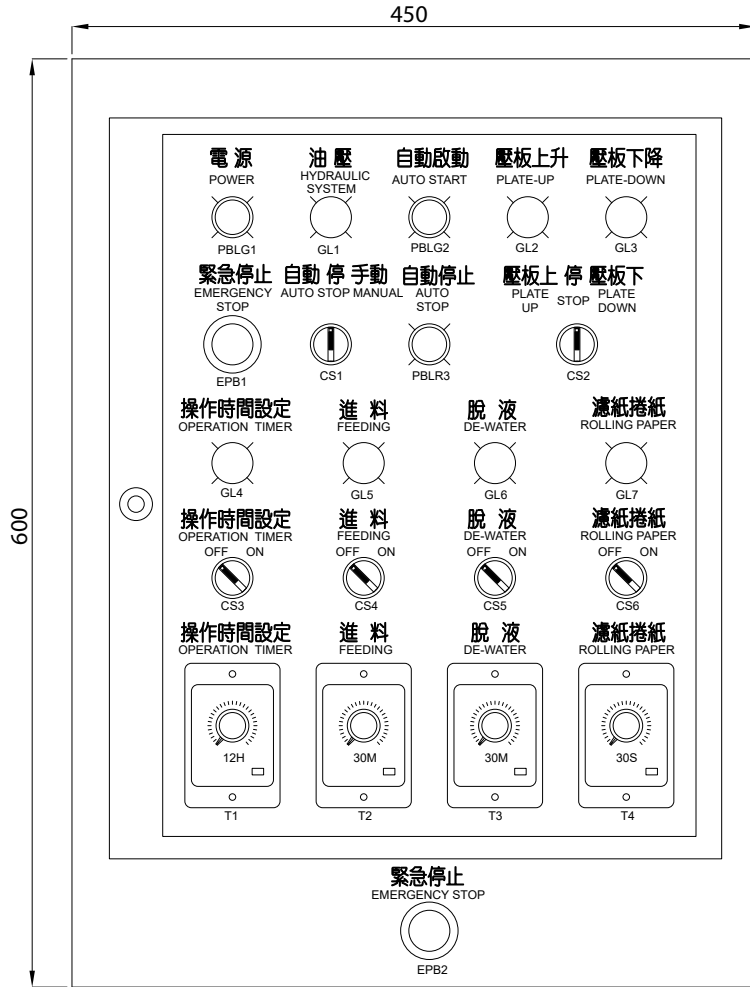
The air goes in, and the liquid is squeezed out.



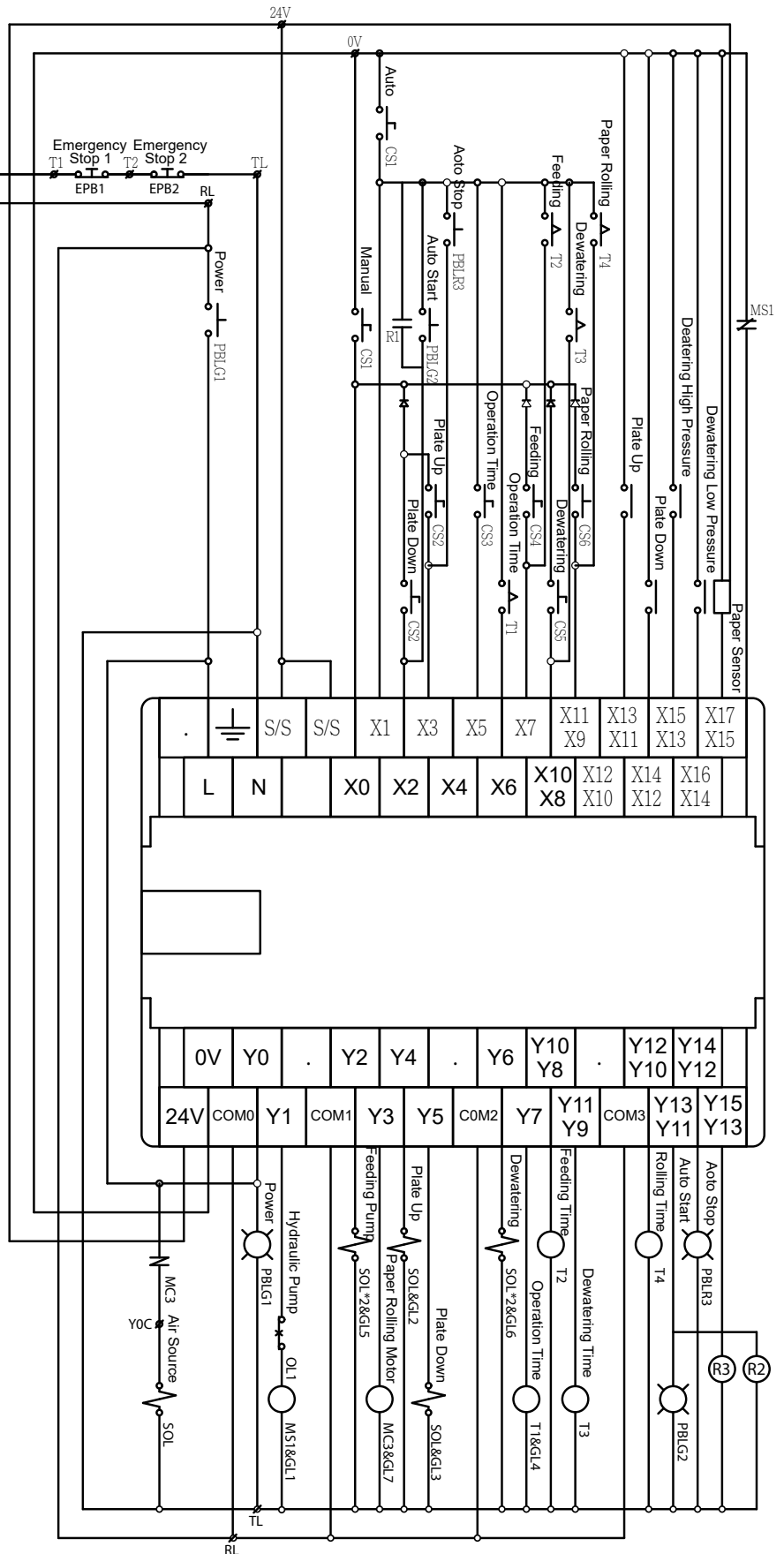
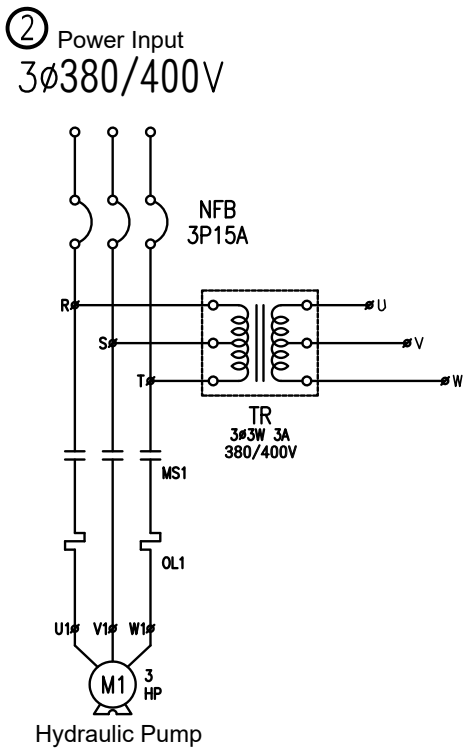
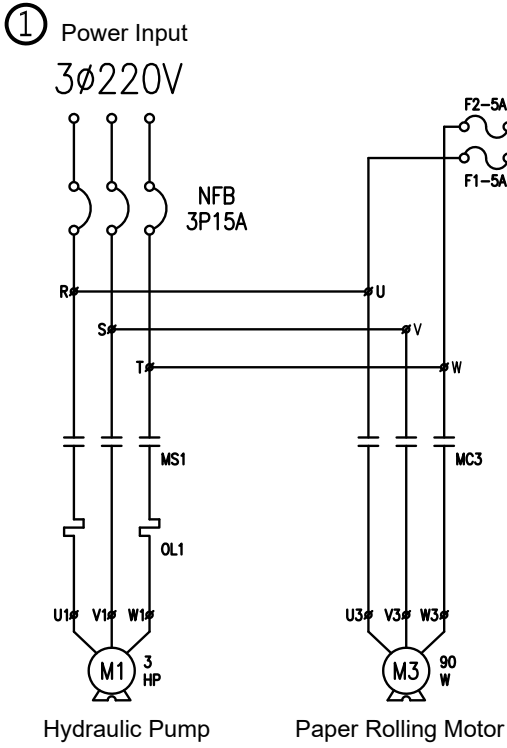
Drain out cake

The dried cake is drained out and falls into the container after the dewatering is finished.

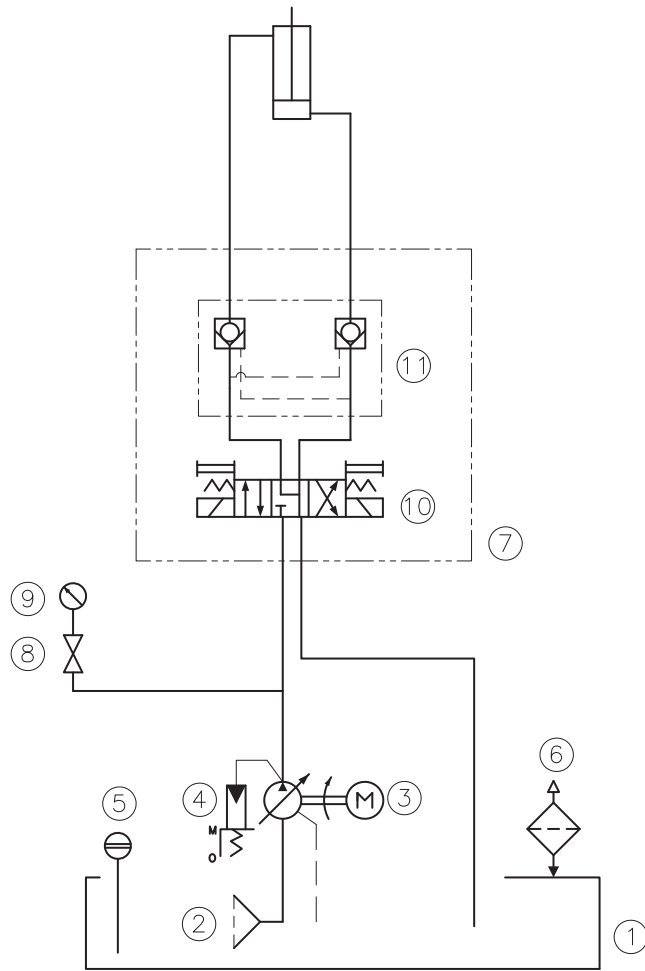
Control Box Layout



Controller Wiring

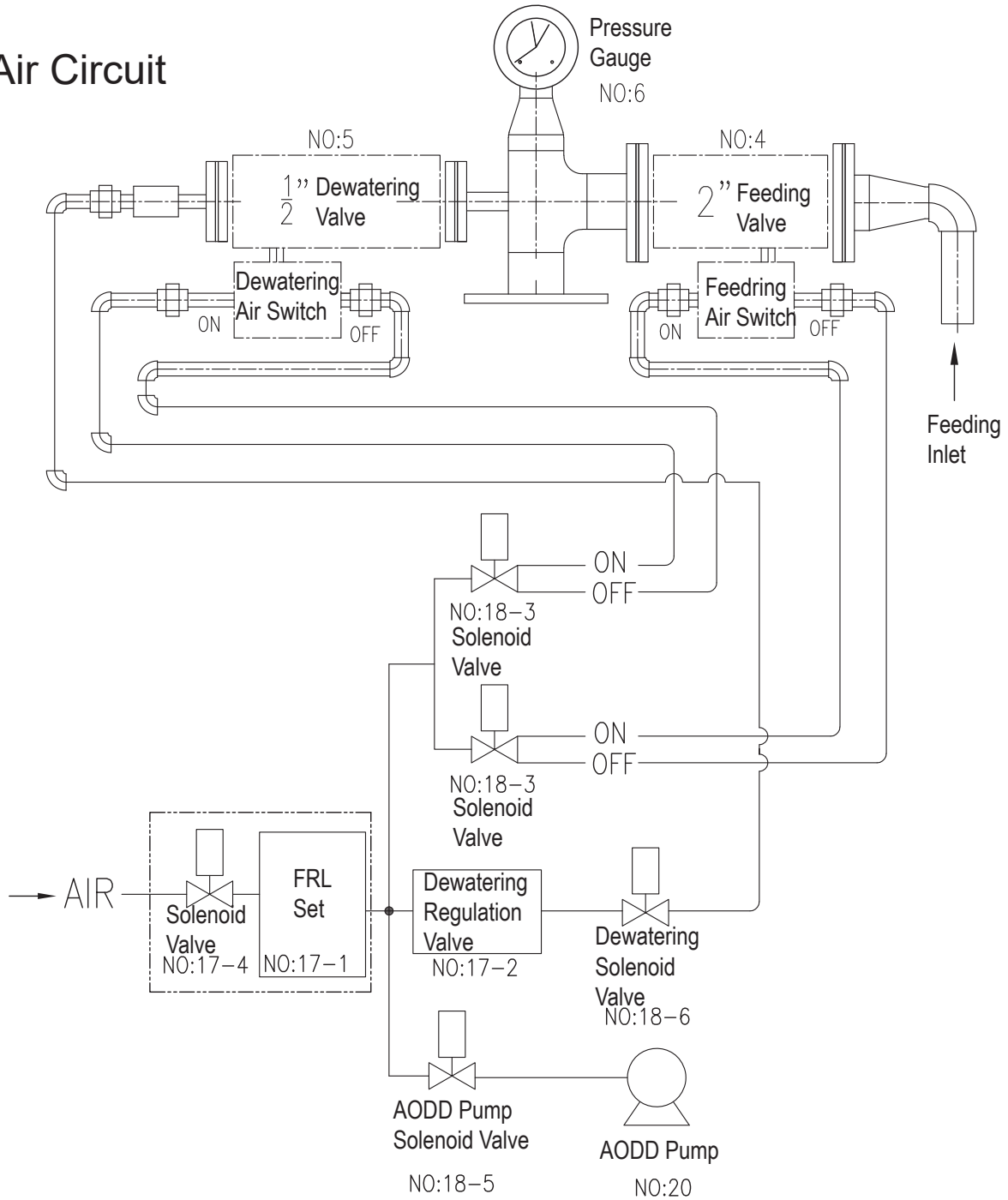


Hydraulic Circuit



Item	Description	Quantity
1	Oil Tank	1
2	Strainer	1
3	Motor	1
4	Pump	1
5	Oil Level	1
6	Oil Filler	1
7	Manifold Block	1
8	Pressure Cock	1
9	Pressure Gauge	1
10	Solenoid Valve	1
11	Pilot Check Valve	1

Air Circuit



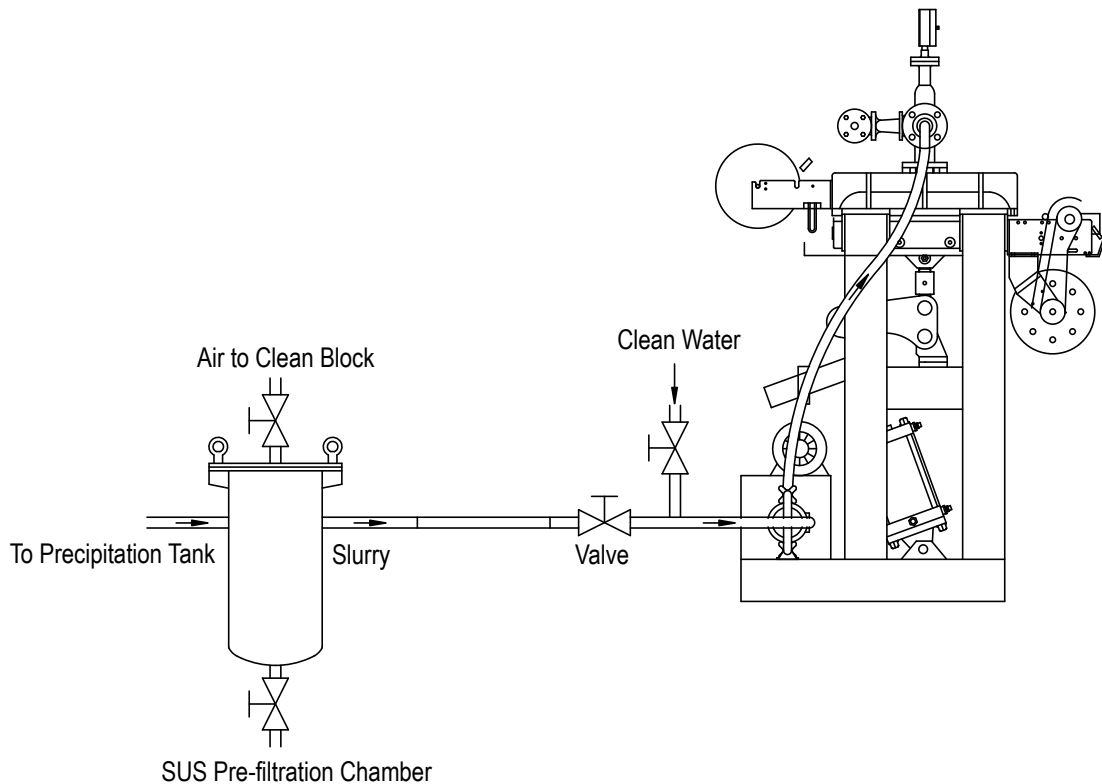
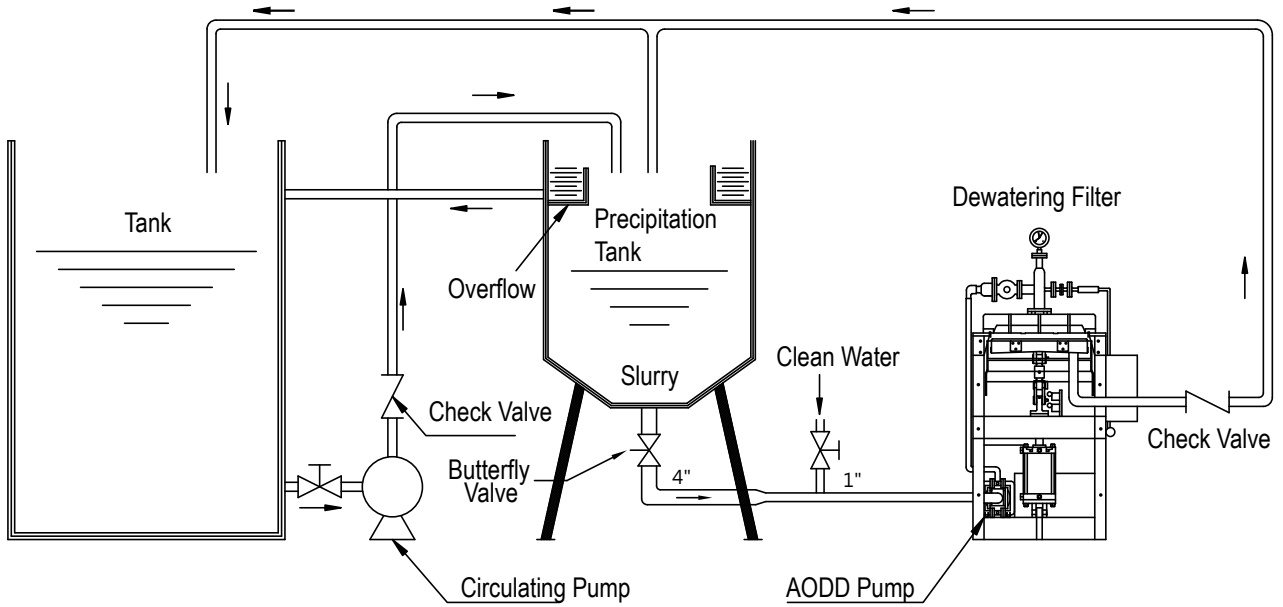
Item	Component code	Description	Quantity
1	NO.20	AODD Pump 1"	1
2	NO.4	Feeding Valve 2"	1
3	NO.5	Dewatering Valve 1/2"	1
4	NO.6	Pressure Gauge 4Kg/cm ²	1
5	NO.17-1,17-4	FRL Set	1
6	NO.18-6	Dewatering Solenoid Valve	1
7	NO.18-3	Solenoid	2
8	NO.18-5	AODD Pump Solenoid Valve	1
9	NO.17-2	Dewatering Regulation Valve	1

Installation

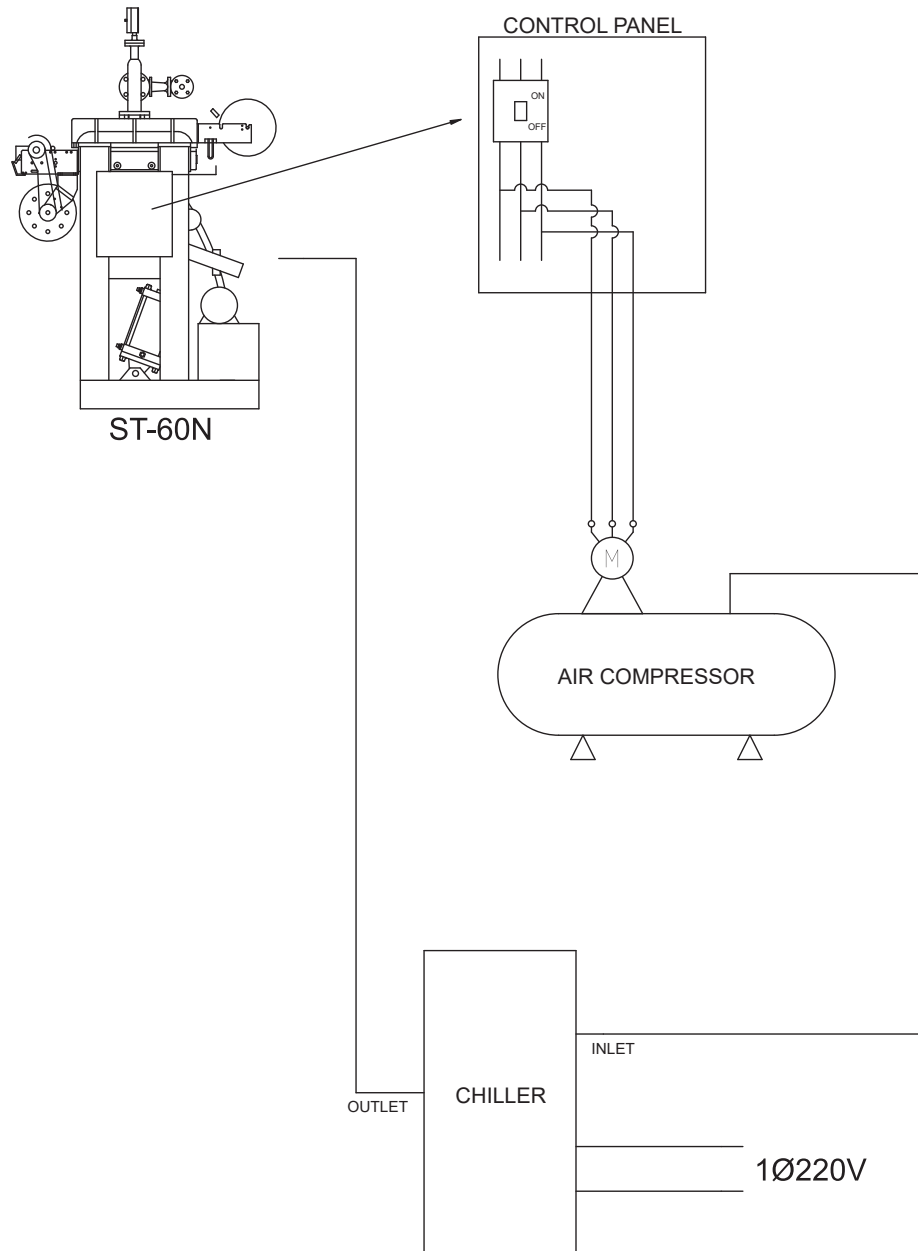
Cautions

1. Place the machine horizontal stably and keep it up-right.
2. Connect the inlet and outlet pipes according to picture 1. The inlet pipe is connected to the AODD pump. The outlet pipe is connected to the outlet under the filter plate.
3. A valve should be installed on the inlet pipe so repairing can be done easily (picture 2).
4. Set a Tee at the inlet of feeding pump to supply clean water for cleaning.
5. There should be no foreign substances inside the pipe before pumping. If necessary, clean it with water.
6. Make sure the installed pipes are steady. There should be no vibration.
7. Connect the air pressure pipe to the inlet of the 3-point joint.
8. The external air compressor must match the refrigerating dryer in specification.
9. Refer to picture 3 for the pumping method of the air compressor and refrigerating dryer.
10. This machine is 380V, 3-phase. Please connect the power line to the upper part of the circuit breaker.
11. Please turn on the motor and check whether the direction of operation is correct after the installation.
12. The refrigerating dryer is external single-phase, 220 V. Refer to picture 3 for power supply.
13. Air compressor power is supplied from ST-60N's control panel. You can connect the power line from the bottom part of the circuit breaker to the air compressor power line housing.
14. Please turn on the power and check whether the operating direction is correct after assembling the power line of the air compressor.
15. Please refer to the respective instruction manual if you don't understand the air compressor & refrigerating dryer fully.

Examples

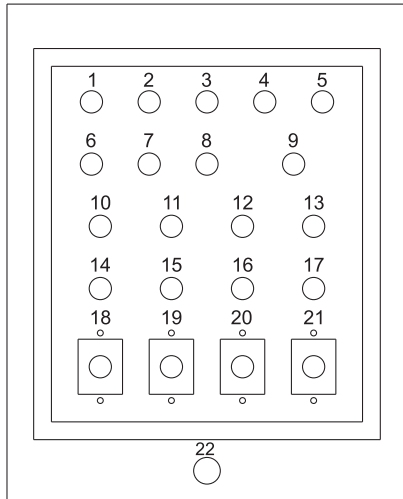


Air Compressor and Dryer Wiring



*Please keep the air dry for longer service life.

Control panel



1	Power light	12	De-watering light
2	Hydraulic system light	13	Rolling-paper light
3	Auto start	14	Operating timer switch(ON/OFF)
4	Plate up	15	Feeding switch(ON/OFF)
5	Plate down	16	De-watering switch(ON/OFF)
6	Power off	17	Rolling paper switch(ON/OFF)
7	Mode switch (auto/stop/manual)	18	TR1 operating timer
8	Auto stop	19	TR2 feeding timer
9	Plate switch (plateup/stop/platedown)	20	TR3 de-watering timer
10	Operating Timer light	21	TR4 Rolling paper timer
11	Feeding light	22	Emergency stop

.....

Operating condition

Compressor air pressure	Feeding pressure	De-watering air pressure
5kg~6kg/cm ²	1.5kg~3kg/cm ²	2.5kg~4kg/cm ²

.....

Timer setting

Timer	Setting time	Description
TR1	12hour	Operating timer
TR2	30min	The feeding time is dependent upon the thickness and viscosity of pulp
TR3	30min	The de-watering time is dependent upon the desired dryness of the pulp.
TR4	30sec	Roll paper and draw out the sediment

Operation

Prior to automatic running.

1. Set pressure gage range (part #6) at 1.5~2Kg/cm² for high (*1) and 0.50~0.80Kg/cm² for low.
2. Set feeding timer(Control panel #19) to 10~15 minutes, and can be up to 30 minutes for thin slurry, but will be terminated if the pressure gauge reaches the high point.
3. According to the dry up situation, set the de-watering timer(Control panel #20) to 3~5 minutes.
4. Set the paper rolling timer(Control panel #21) to 23~25 seconds to move out the cake.
5. Hold down the power button(Control panel #1) for 3~5 seconds to power on the machine.
6. Turn the mode switch(Control panel #7) to automatic.
7. Press auto start(Control panel #3) and the machine will work automatically. If it failed, check the paper is in position or not from the photoelectric switch (Control panel #8).
8. When the machine is running in automatic mode(Control panel #7), you can press auto stop(Control panel #8) to shift to semi-automatic mode.
9. Turn on operation timer switch(Control panel #14) and set timer(Control panel #18) to run the timing for automatic mode.
10. Clean the machine in manual mode with water before shutdown everyday.

Automatic running

1. Set pressure gage range(part #6) at 2.5~3Kg/cm² for high(*1)
2. Set feeding timer(Control panel #19) to 20~30 minutes
3. Set the de-watering timer(Control panel #20) to 15~20 minutes.
4. Turn the mode switch(Control panel #7) to automatic, and press auto start (Control panel #3).

(*1)

*Set higher pressure for thin slurry to get thicker cake.

*High pressure 1.5Kg/cm² for thick slurry.

*High pressure 2Kg/cm² for normal slurry.

*High pressure 2.5~3Kg/cm² for no moving cake out filtration.

*Set feeding timer to 15~20 minutes for high pressure 2Kg/cm².

*Set feeding timer to 20~30 minutes for high pressure 2.5~3Kg/cm2.

*Hold down and rotate the center knob to set the high and low range of pressure gauge(patt #6).

(*2)

*Set low pressure for de-watering timer. If de-watering time is up and the pressure hasn't down to the low pressure yet, set a longer timer or higher low pressure.

*Set longer timer for de-watering to get thinner cake.

15 minutes for 2cm cake, 10 minutes for 3cm cake.

5 minutes for cake over 4cm.

Precipitated slurry will get thicker cake and need fewer de-watering timer.

Prior to manual running.

1. Hold down the power button(Control panel #1) for 3~5 seconds to power on the machine.
2. Turn the mode switch(Control panel #7) to manual.
3. Make sure the paper is flat in the chamber and nothing will cause un-perfect sealing later.
4. Turn the switch(Control panel #9) to plate up to lift the moving plate up until light (Control panel #4) is off, then turn it back to stop.
5. Turn the feeding switch(Control panel #15) on at pressure gauge below 2Kg/cm2, and then turn it back to off.
6. Turn the de-watering switch(Control panel #16) on for 3~5 minutes and turn it back to off after de-watering is finished.
7. Make sure the pressure inside the chamber is 0 or below the low point before turn the switch (Control panel #9) to plate down to pull the moving plate down, and turn it back to stop after the light(Control panel #5) is off.
8. Turn the paper rolling switch(Control panel #17) on to move out the cake, and turn it back to off after finished.
9. Back to "3" to re-start the cycle.
10. Feed clean water and run the feeding pump to clean the machine for 10 minutes, then pull the moving plate down before shutdown.
11. Never exceed pressure 3Kg/cm2 to keep longer service life. Feed clean water and run for 1~8 cycles with lower pressure.

Un-sufficient cake dewatering.

1. Too short de-watering timer.
2. Cake thickness below 2cm.
3. Too thin slurry.
4. Liquid outlet is lower than the level in the solution tank and without check valve.
5. The chemical is not suitable for this machine.
6. Viscous slurry is not suitable for this machine (dry up by air).

Prior to semi-automatic running.

1. When the machine is running in automatic mode, you can press auto stop button(Control panel #8) to shift to semi-automatic mode.
2. The semi-automatic mode will run single cycle and stop. It's feeding, de-watering, moving plate down, moving cake out.
3. Precipitation tank before the de-watering machine is recommended to speed up the de-watering.

Capacity

With precipitation tank: 30% liquid, 70% sludge, 20~25Kg for each 10 minutes.

Without precipitation tank: 70% liquid, 30% sludge, 15~20Kg for each 15 minutes.

Slurry of higher specific gravity will slow down the capacity.

Slurry with coagulant is not suitable for this machine.

Trouble shooting

Condition	Reason	Solution
Bad filtration.	1. The paper is not in position 2. The paper is torn.	1. Re-install paper 2. Change the roll
No water coming out and the feeding pressure is too high	1. The outlet is stuck 2. Paper is too dirty	1. Clean the outlet pipe 2. Change the paper
No water coming out and no feeding pressure	1. Pump can't draw water. 2. Pump is broken	1. Clean the inlet pipe and check valve. 2. Fix the pump
Water coming out of the chamber.	1. Gasket doesn't seal perfectly. 2. Dewatering air pressure too high. 3. Packing is worn.	1. clean the gasket. 2. Down the dewatering air pressure. 3. Replace the gasket.
Water coming out of the plate	1. Filter housing is filled with sediment. 2. De-watering pressure is too high. 3. Filter housing is worn out.	1. Clean the housing. 2. Reduce the de-watering pressure 3. Change the housing
Water is coming out of the solenoid	1. Valve is broken. 2. Check valve is clogged.	1. Check the valve 2. Clean the check valve.
Machine won't run automatically	1. Paper has run out. 2. light sensor is broken. 3. The plate did not return to the limit switch S1 position	1. Change the paper 2. Clean or change the sensor. 3. Check the limit switch S1.
Feeding pump won't start	1. Air pressure is too low 2. Feeding valve is broken 3. Pump inlet is stuck	1. Check the solenoid and air pressure (above 5 Kg/cm ²) 2. Valve is stuck. 3. Clean the inlet.
Feeding valve doesn't work	1. Feeding valve is closed 2. Air pressure isn't above 4 Kg/cm ²	1. Lubricate 2. Check the air compressor pressure.
Dewatering valve doesn't work.	1. Air pressure is too low. 2. Air switch stalled. 3. Dewatering valve malfunctioned.	1. Make sure air pressure over 4Kg/cm ² . 2. Lubricant the valve. 3. Check the solenoid.
Paper is torn during rolling.	1. Belt is broken. 2. Paper is not in position 3. There is too much sediment.	1. Check the belt. 2. Re-install the paper or change it 3. Re-adjust the feeding pressure.
The belt doesn't run properly	The belt is broken	Replace it
*Clean the machine with clean liquid to avoid blockage for stop running.		

Maintenance

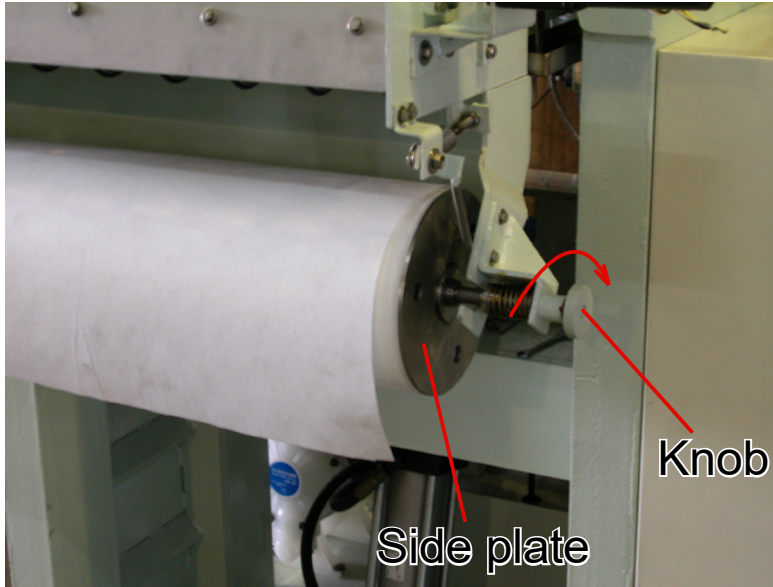
1. Clean the chamber gasket periodically.
2. Clean the chamber strainer periodically.
3. Make sure the limit switches for moving plate working correctly.
4. Make sure the paper photoelectric switch light is on or the machine won't start.
5. Lubricating the machine periodically.
6. Lubricating the paper collecting parts once a week.
7. Set a Tee to connect to clean liquid and run the machine with it after running.
8. Set a check valve before the AODD pump if the slurry tank is higher than the machine to stop the siphon.
9. Replace R-68 lube every 3000 hours.
10. Add grease to grease pot every 6 months or apply to moving parts for harsh condition.
11. Keep the hydraulic oil at appropriate level and replace every 2 years. Clean the hydraulic pump and strainer also.
12. Put on protection glasses and gloves while opening the chamber for maintenance.
13. Never leave anything in the chamber while running.

Apendix

Inspection List

Item	Contents	Testing Datum	Result	Remark
1. Machine	1. Frame.	Coating and painting well.		
	2. Lower platen movement.	Smooth.		
	3. Cylinder movement.	Smooth.		
	4. AODD pump running.	AODD pump running well and goes up to 3.5kg/cm ² at most.		
	5. Paper collecting.	(Air pressure: 6kg/cm ²) Smooth.		
	6. Sealing.	All leak-free at 3.5kg/cm ² .		
	7. Procedure running.	Correct and smooth.		
2. Controller	1. PLC Automatic running.	PLC automatic running well (pressure, timing).		
	2. Manual /Automatic.	Switching Smoothly.		
	3. Pressure control.	Signal correct.		
	4. Limit switch control.	Signal correct.		
	5. Timing control.	Signal correct.		
	6. Lighting control.	Correct.		
	7. Label.	Correct.		
	8. Wiring.	Same as the document.		
3. Function	1. Dewatering condition.	Normal		
	2. Cake containing water %.	Normal		
	3. Operating instruction (as per manual)	On site.		
4. Accessory	1. Paper roll 1 pc.	Installed.		
	2. AODD pump 1 pc.	Installed.		
5. Others	1. Air compressor.	2HP		
	2. Chiller	5HP		

How to replace the paper roll.

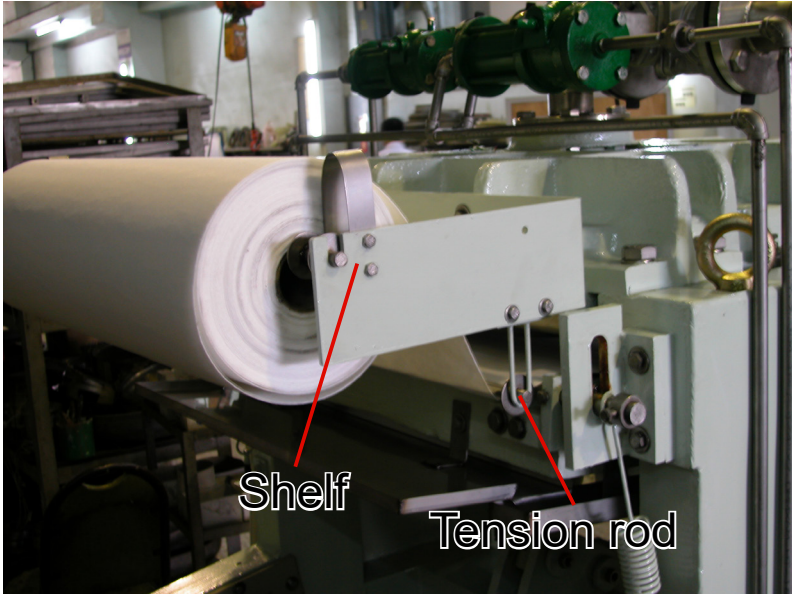


1. Pull the knob out and rotate clockwise 90 degree to unlock it, then take the paper unit out.

2. Put the paper unit down to the ground.

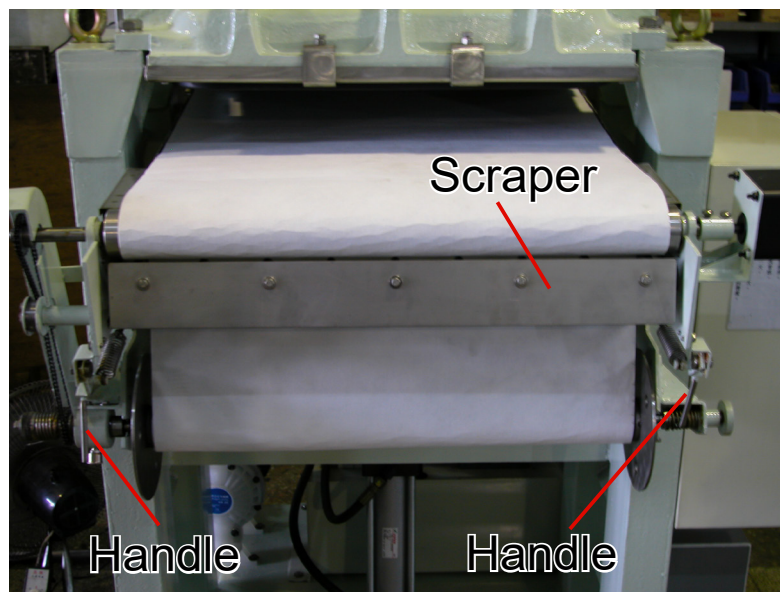
3. Rotate the side plate counter-clockwise to loose it, and replace the new paper roll.

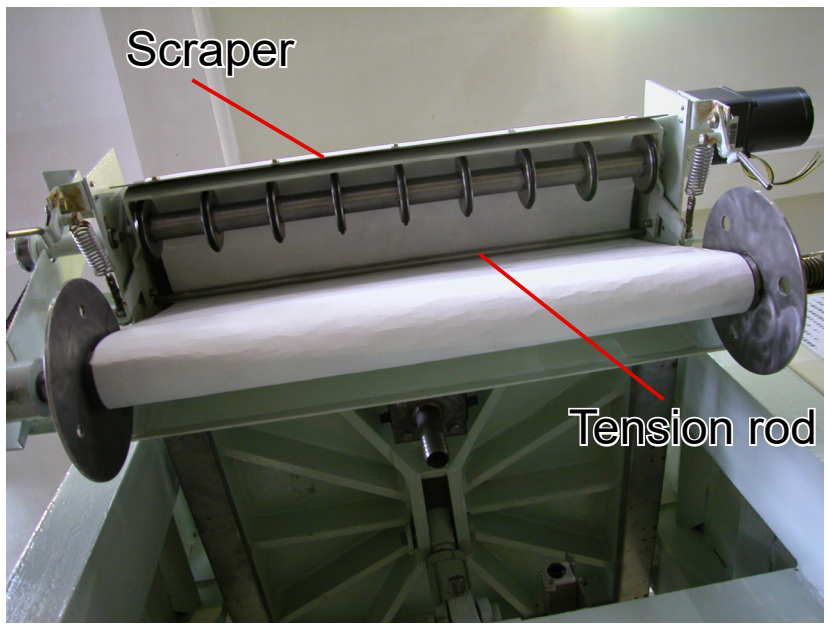




- 4. Mount the new paper unit onto the shelf.
- 5. Guide the end of paper down through the tension rod, and then going through the chamber.

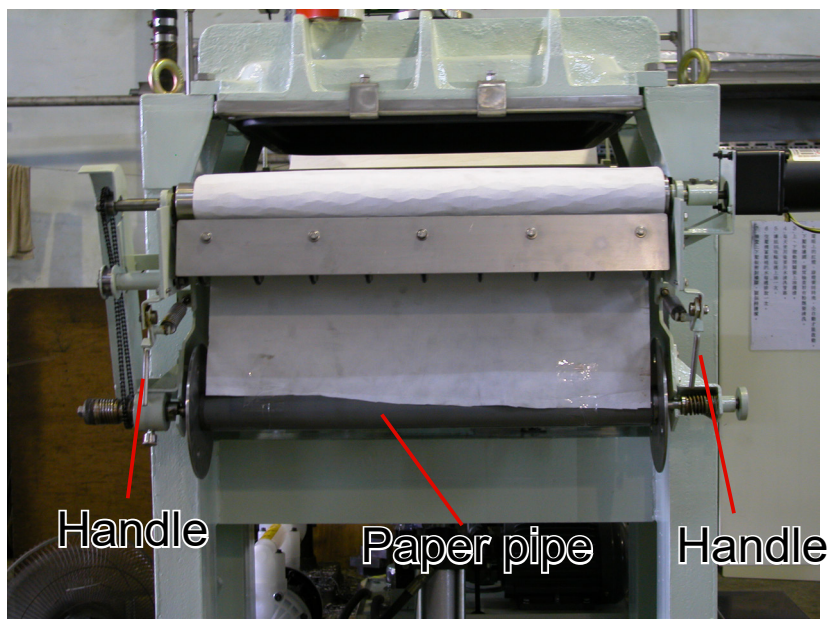
- 6. Push both handles down to loose the scraper, then guide the paper going through the scraper gap.





7. Guide the paper up through another tension rod, and then down to the paper pipe.

8. Adhesive the paper to the paper pipe with tape, pull both handle up to reset the scraper. Done.





While placing your order...
Please kindly provide us the following information.

1. Chemical: Name/Concentration/Temperature/
Specific gravity/Viscosity.
2. Capacity needed: _____ L/min
3. Head needed: _____ M
4. Power: Voltage/Frequency

订购时请提供下列资料:

1. 药液条件: 名称/温度/浓度/比重/黏度
2. 需求流量: _____ L/min
3. 需求扬程: _____ M
4. 马达: 电压/频率

总公司

升展实业股份有限公司
台湾省台南市永康区中正南路404巷7号

Tel:886-6-2534546, 2541601
Fax:886-6-2534226, 2420509

SUPER GIANT ENTERPRISE CO., LTD.
No.7, Lane 404, Chung Cheng South Road, Yen
Hang, Yung Kang, Tainan, Taiwan,

Tel:886-6-2534546, 2541601
Fax:886-6-2534226, 2420509

E-mail:super@superpump.tw
Website: www.superpump.tw
www.chemicalfilter.com.cn

上海区 塑宝环保机械

江苏省太仓市沙溪镇岳王区
镇北路16号 215400

Tel:0512-53303388,53303398
Fax:0512-53303588

E-mail:taichang@superpump.cn

Website: www.superpump.cn

广东区 升展机械

广东省广州市增城区新塘镇
民营西二路9号

(远航科技园B1座二楼)

Tel:020-82691835,82602341~3

Fax:020-82708706

E-mail:singtown@superpump.cn

Website: www.chemicalpump.cn

