Operation Manual

SPC50/SPC75 Close Coupled Pulping Systems

165 Independence Ct. Lancaster, Pa 17601 (Ph:800-237-6628) (service@somatcompany.com)

To better serve your needs in the future, please record your equipment's information below.

Model Number:	Serial number:
Service Company:	Service Phone Number:
Rep/ Dealer:	Rep/Dealer Phone number:
Somat Service Dept: 800-237-6628 x176	
Somat Parts: Visit SomatCompany.com for an authorized parts distributor	

To expedite service or parts, please have the above information available before you call. The serial number of your equipment is located inside of the main electrical control panel of your Somat equipment.

SOMAT COMPANY MANUFACTURES WARRANTY

SOMAT COMPANY warrants each new product manufactured by it to be free from defects in material and workmanship under normal use and service for a period of one (1) year from the date of initial startup or 18 months from date of shipment, whichever occurs first. "Normal use and service", with respect to Pulpers, Food Grinders, Dehydrators, Hydra-Extractors, Waste Handling and Processing Systems, shall mean the handling only of waste items of the types approved by SOMAT® therefore and within the **LIMITATIONS THEREIN** set forth, its obligation under this warranty being limited to repairing or replacing any part or parts thereof, free of charge **INCLUSIVE** of labor to remove and replace, f.o.b. factory from which shipped. This warranty shall not apply to any product or part which shall have been repaired or altered by any person not employed or retained by SOMAT®, so as in the judgment of SOMAT® to affect its operation and reliability, nor which has been installed, operated, or maintained contrary to SOMAT® OPERATION or PREVENTIVE MAINTENANCE INSTRUCTION MANUALS or to other written instructions or drawings approved by SOMAT®, nor which has been subject to misuse, negligence, or accident. This warranty shall not apply should the SOMAT® System be initially started up without a duly authorized SOMAT® representative present.

Except as herein expressly stated, no warranty, expressed, implied or by law, (including but not limited to any implied warranty of merchantability or fitness for a particular purpose), is made by SOMAT; and in any event SOMAT'S liability, whether in contract, tort, strict liability, or under any warranty, or otherwise, shall not exceed the purchase price received by it and shall in no event include any consequential, incidental, punitive or other special damages. No change in this warranty and limitation of liability and substitute therefore (whether incorporated in a purchase order or otherwise) shall be effective unless specifically set forth in a written instrument signed by an officer of SOMAT®.

STANDARD EQUIPMENT WARRANTY EXCEPTIONS

Warranty work is for defective parts or workmanship on Somat original equipment and does not cover wear items, cleaning, or problems resulting from improper use by the end user. Any cutting blade, rotating blade, impact bar, sizing ring, or any other cutting mechanism part damaged due to improper waste materials or any cutting mechanism part that has been worn due to misuse may not be covered under Somat warranty. Any motor, solenoid valve, electrical panel, junction box, or any electrical device in Somat equipment that has been damaged by water, improper installation, electrical short from surges or storm related strikes may not be covered under Somat warranty. Extractor screws and screens will not be warranted for wear. Defective or workmanship related extractor parts must be submitted to Somat for verification before credit will be issued. Line clogs that are resultant of improper feeding, clogs due to improper line installation, leaks in areas that Somat did not fabricate (i.e. table connection), leaks due to improper pipe bracing, tampering with system settings, jams due to non-waste stream items or jams due to dull/missing cutting mechanism parts, alterations to equipment without prior Somat approval or any other action that could cause harm to the equipment's performance may not be covered by Somat warranty.

Table of Contents:

SPC-75S, SPC-75UDT, SPC-50S SPC-50UDT

Safety Precautions and Warnings

READ THE MANUAL COMPLETELY BEFORE ATTEMPTING TO OPERATE THE UNIT.

HIGH VOLTAGE! DO NOT PERFORM ANY REPAIRS TO MOTORS OR CONTROL

SYSTEMS WITHOUT TURNING OFF THE MAIN POWER.

ALWAYS ***TURN THE MAIN POWER OFF*** AND LET ALL MOTORS COME TO A

STANDSTILL BEFORE DOING ANY MAINTENANCE ADJUSTMENTS OR CLEANING OF THE UNIT.

BEFORE STARTING, BE SURE ***ALL PERSONNEL ARE CLEAR*** OF MOVING PARTS.

KNOW LOCATION AND FUNCTIONS OF ALL ***START/STOP BUTTONS*** AND SAFETY SWITCHES.

DURING PERIODIC MAINTENANCE, ***CHECK ALL SAFETY SWITCHES*** TO BE SURE THEY ARE OPERATING PROPERLY.

DO NOT REMOVE OR ALTER GUARDS.

DO NOT REMOVE SAFETY LABELS. IF LABELS ARE MISSING OR DESTROYED, CONTACT FACTORY FOR REPLACEMENT.

DO NOT OBSTRUCT ELECTRICAL PANELS OR PUSH BUTTONS.

GOOD HOUSEKEEPING IS THE MOST IMPORTANT SAFETY PROCEDURE.

Safety Precautions and Warnings

This equipment has locations which are hazardous and cause severe injury or death if warnings are not followed. Always turn off power before reaching into any unit! Maintenance to be performed by trained and authorized personnel.

This equipment has moving parts operating at high speeds! Death or serious injury can occur if warnings are not followed.

This equipment has moveable lids protecting you from moving parts. Do not alter safety devices or guards. Do not reach into any part of the unit with the power turned on.

This equipment uses High Voltage! Only trained and authorized personnel should perform maintenance on the electrical components of this machine.

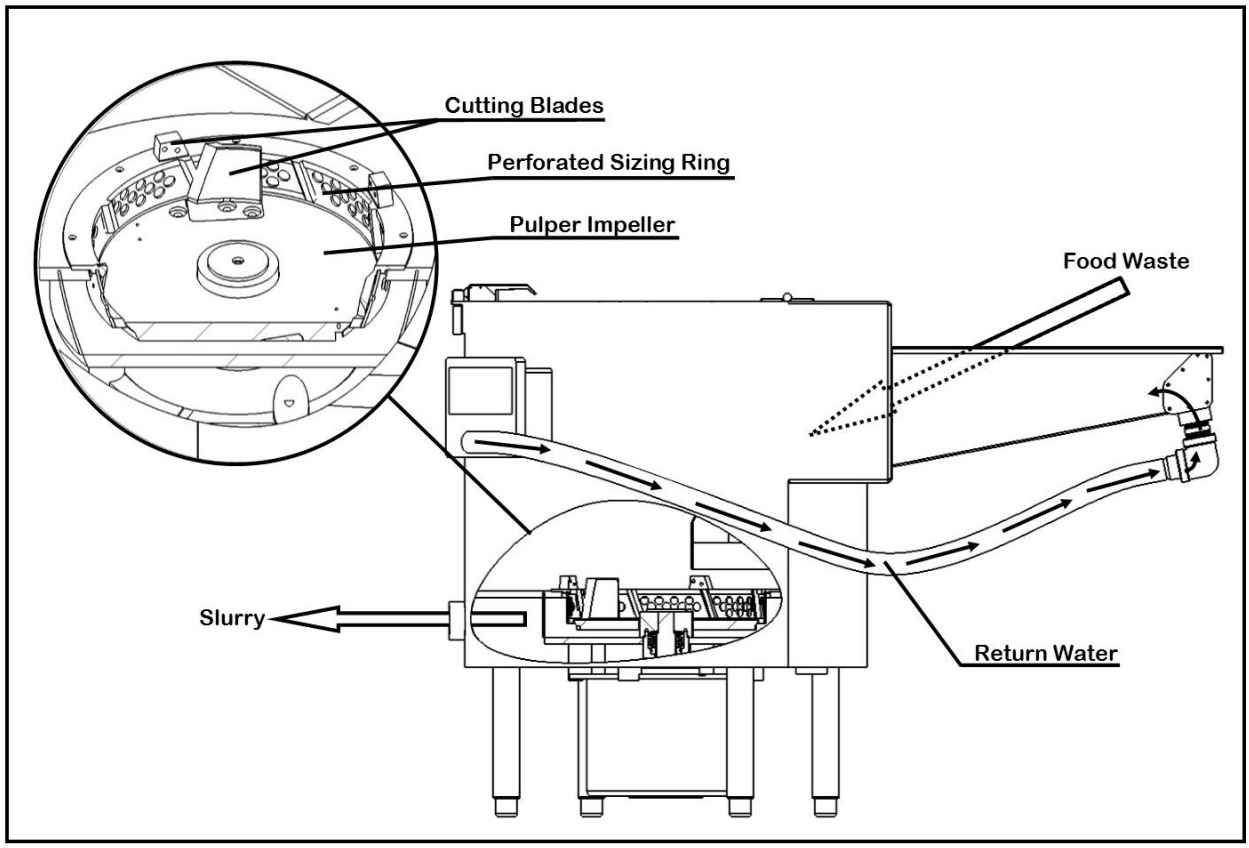
This equipment has moving parts that can crush and cut. Do not alter safety devices or guards. Do not reach into any part of the unit with the power turned on.

Caution: Damage will occur to this equipment if unsafe objects are fed into the machine(s). Keep these items out of the machine(s) to avoid component failure and unwanted downtime. When in doubt, keep it out of the machine(s)!

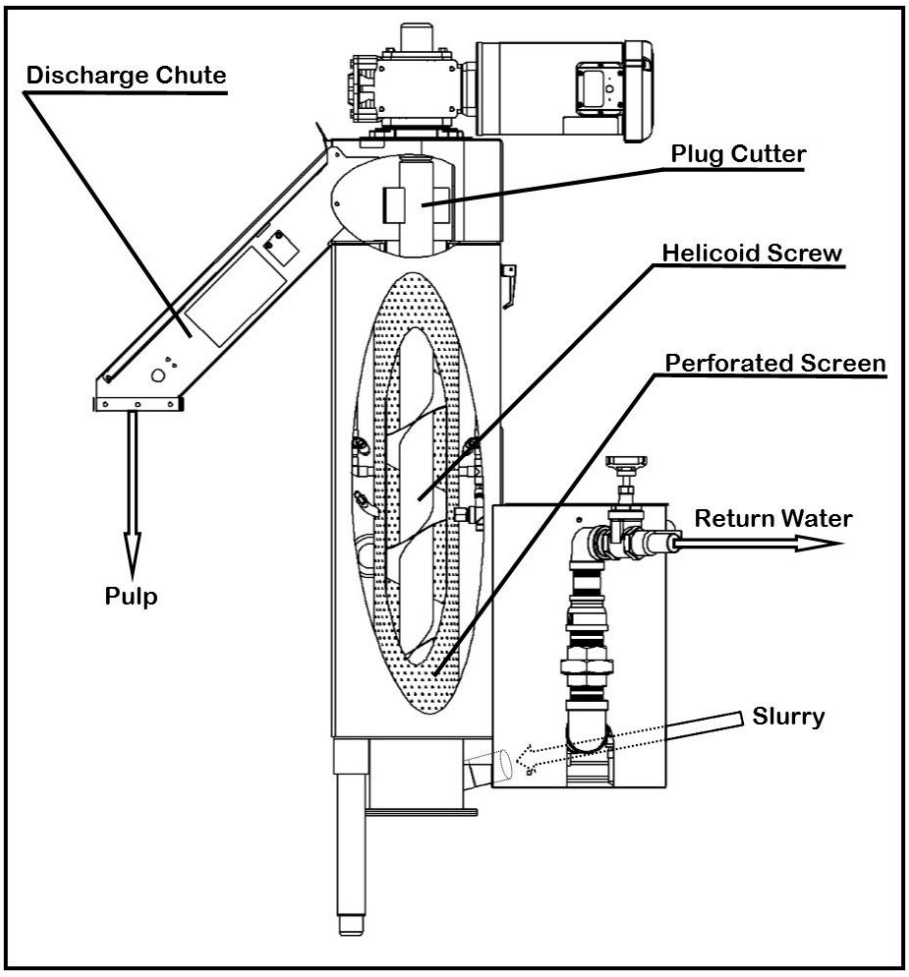
Always turn the power off before servicing the pulper!

GENERAL DESCRIPTION

The SOMAT® system prepares solid waste materials for disposal by transforming the materials, with water, into a pulp. This transformation takes place in a unit called a Pulper which is designed to pulp all forms of paper, plastic, cardboard and food waste. The waste material is fed manually or automatically to the Pulper. The continual down flow of water and the rotation of the Pulper impeller create a strong vortex action which pulls the waste down against the cutting blades of the impeller. The resultant slurry is then forced through a perforated stainless-steel Sizing Ring surrounding the impeller.



The SOMAT® System is designed to pump the mixture of macerated solids and water, called slurry, to the Hydra-Extractor® where the slurry is reduced to a semi-dry pulp. Within the Hydra-Extractor®, the slurry is carried by a helicoid screw within a perforated tubular screen. The water passes through the screen and is pumped back to the pulping unit. The solids continue up the helicoid screw to a compression chamber or plug area where additional water is removed by extrusion. The solids in this area are called the plug. This plug is broken up at the Hydra-Extractor® discharge opening by a cutter and the pulp then falls out of the discharge chute.



TYPICAL HYDRA-EXTRACTOR®

This system can reduce the volume of average non-compacted waste by approximately 80 percent.

The system is powered by electric motors with the associated controls housed in Som-A-Trol (electric control panels). Since, in the course of operation, some water is absorbed by the pulp, fresh make-up water is supplied to the Pulper automatically through a solenoid valve.

In addition to the basic system as discussed to this point, numerous additional items of equipment may or may not be required to comprise a specific system.

DEFINITIONS – GENERAL

Pulper - device that contains an impeller and sizing ring to grind solid waste. The resultant mixture of waste particles and water is called slurry.

1. Hydra-Extractor® - Inclined screw-type press for removing transport water from pulp.
2. Slurry - A water solution containing a low percentage of suspended solids.
3. Pulp - Semi-dry solid from which transport water has been extracted.
4. Som-A-Trol® - Electrical control panel, including motor starters and sequencing controls for automatic operation of the SOMAT® system.
5. Slurry Pump - Specially designed pump used to transport slurry from a SOMAT® Pulper to Hydra-Extractor®.
6. Return Pump - Specially designed pump used to return water from Hydra-Extractor® to SOMAT® Pulpers.
7. Water Level Control - a PLC controlled function utilizing time-based programming.
8. Chemical Additive Pump - A proportioning type Additive pump that adds de-foaming, deodorizer, and/or buffering solutions to the process water.

DEFINITIONS – COMPONENTS

SOMAT® PULPER:

1. Tank - Pulping or grinding chamber of the SOMAT® Pulper.
2. Impeller - Rotating metal plate with Tungsten Carbide Blades which de-fiber and pulp the waste and along with the Security Ring provides a shearing action for non-fibrous waste.
3. Security Ring - Perforated stainless-steel ring surrounding the impeller through all slurry must pass after waste is pulped. Dimensions of security ring holes controls particle size of materials leaving the Pulper.
4. Junk Box - Chamber in bottom of tank that segregates non-pulpable materials from tank.

HYDRA-EXTRACTOR®:

1. Screw - Vertical helix which lifts and compresses solids from the slurry and permits water to drain off by gravity.
2. Screen - Mesh screen that surrounds the screw, through which water drains off.
3. Plug - Mass of pulp extending beyond last helix of the screw. The force required to extrude the plug squeezes additional water from pulp.
4. Brush - Nylon brush attached to edge of screw helix which serves to clean the screen.
5. Plug Cutter – Assists in breaking apart waste to discharge down the chute

GENERAL:

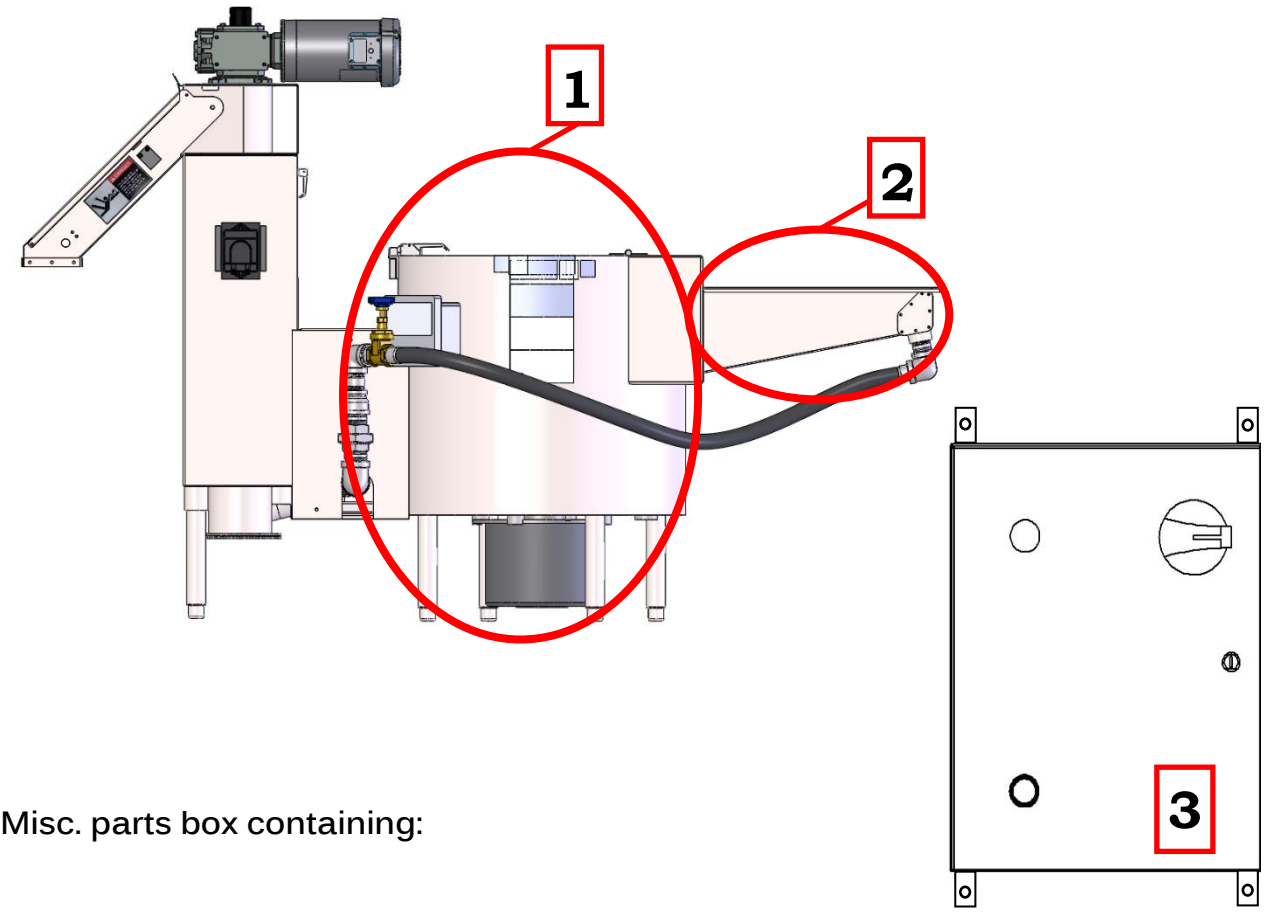
1. Throttling Valve - Full ported gate valve used to control water flow.
2. Timer - Electrical device used to automatically shut down the SOMAT® System at a pre-determined time.
3. Fresh Water Solenoid - Electric valve used to control freshwater make-up to the SOMAT® System.
4. Motor Operated Valve - (MOV) Electric valve used to drain water from tank and lines for daily maintenance.
5. PLC- Computer controller designed to handle pulper and extractor operation.

Installation

UNPACKING

The crate containing your SOMAT® Pulper will contain the following items:

1. Pulper
2. Tray, if so equipped
3. Som-A-Trol® Panel



Misc. parts box containing:

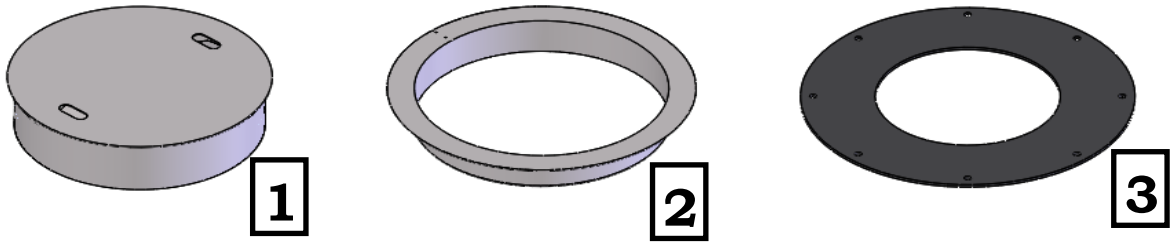
ALL UNITS:

Anti-Vibration Pads

Installation Drawings

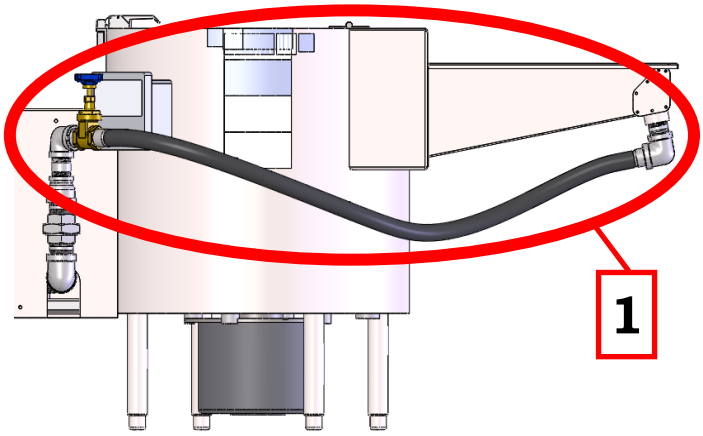
UDT UNITS ONLY:

1. Stainless Steel Lid
2. Stainless Steel Adapter (Unless shipped directly to table manufacturer).
3. UDT Gasket (on unit)



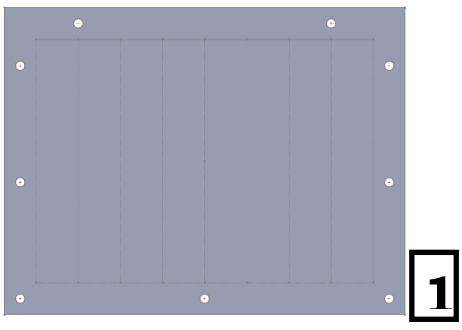
TRAY ONLY:

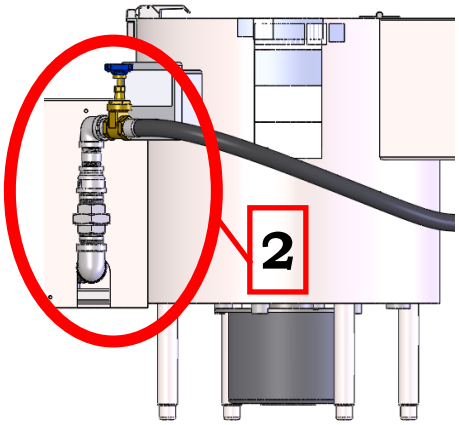
1. Return Water Assembly



TROUGH ONLY:

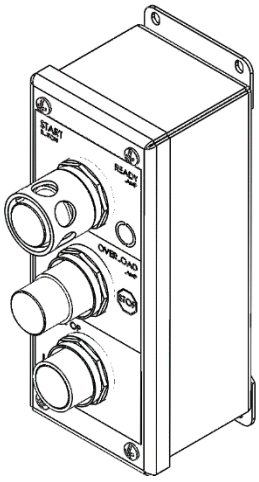
1. Trough Gasket & Hardware
2. Trough Nozzles & Throttling Gate Valves
   (See Installation Drawing for quantity)





OPTIONAL EQUIPMENT:

1. Remote Push Button Station
2. Trough Magnet & Hardware
3. Tray Feed Hood



1

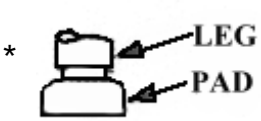
2

3

MECHANICAL INSTALLATION

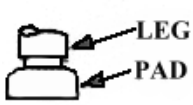
HIGH TANK MODELS:

1. Put the pulper/extractor into position as shown on the Installation Drawings.
2. Place the Anti-Vibration Pads under each leg of the Pulper and Hydra-Extractor®. *
3. TRAY FEED UNITS ONLY - Install the tray to the Pulper (if it was not already installed at the factory) using the provided gasket material and hardware.
4. TROUGH FEED UNITS ONLY - Install the provided trough gasket between the Pulpers inlet and the trough outlet and secure with the provided hardware.

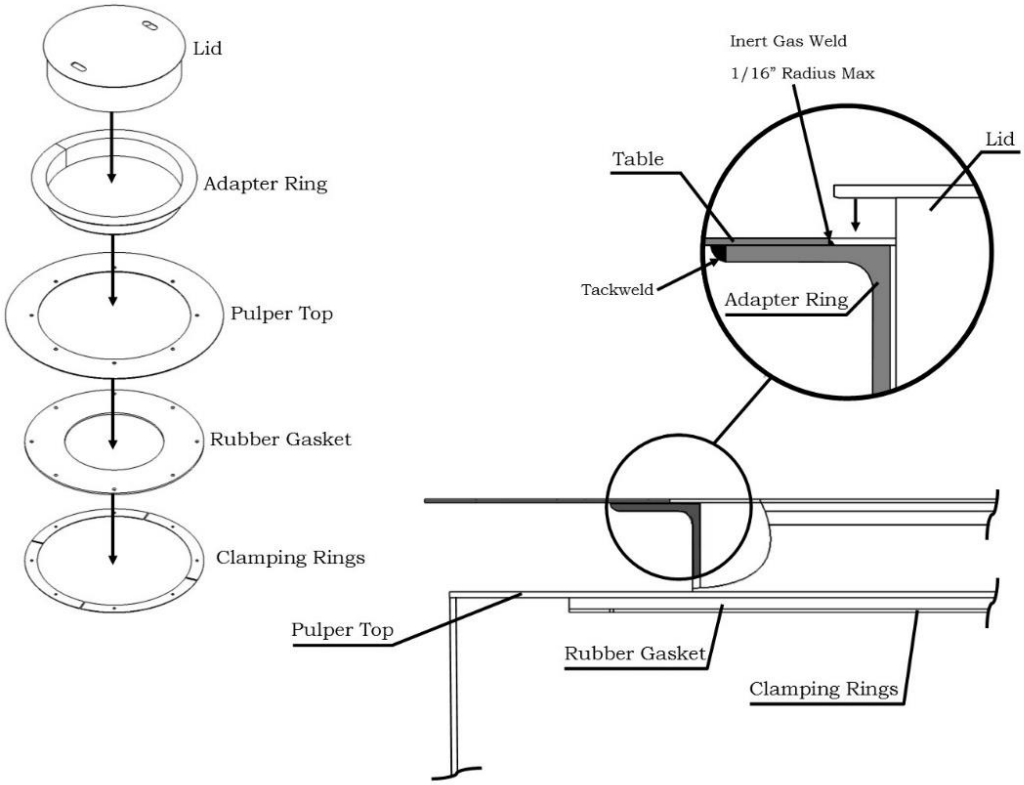


UDT MODELS:

1. Cut a hole in the top of the table as shown on the drawing (If not done by table manufacturer).
2. Center the provided UDT Adapter beneath the opening and weld it into place as shown. Please follow print detail for welding instructions (if not done by table manufacturer).
3. Put the Pulper into position.
4. Place the anti-vibration pads under each leg of the Pulper and Hydra-Extractor®.



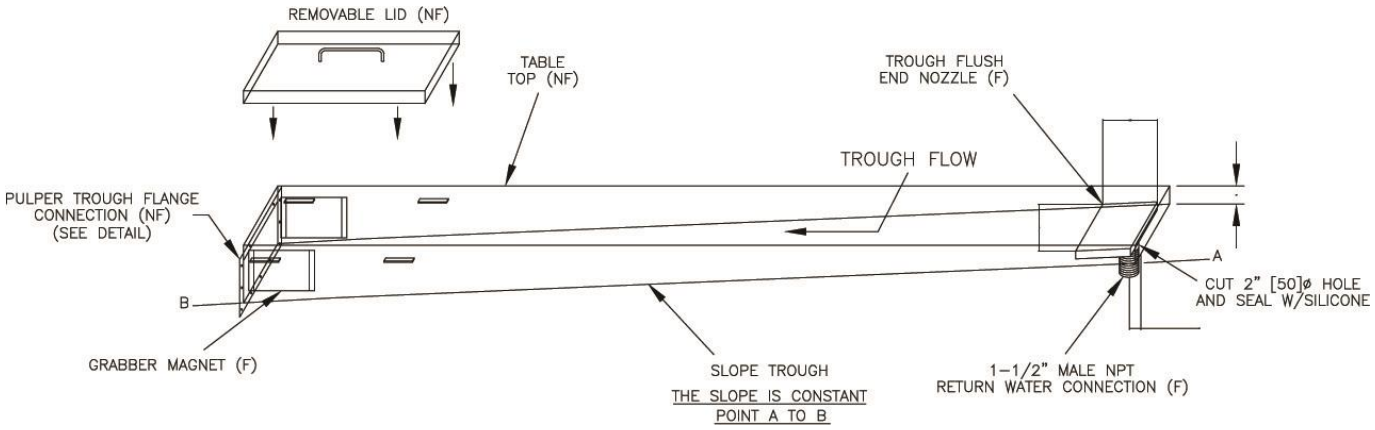
5. Adjust the Pulper and Hydra-Extractor® legs so that the unit sits level and the rubber UDT gasket provides a watertight seal with 2" clearance between Pulper top and the underside of the table.
6. Install the provided trough gasket between the Pulpers inlet and the trough outlet and secure with the provided hardware. Holes will need to be drilled in the field
7. Trim UDT Rubber Gasket to fit tightly around the pulper lid.



MOUNTING OF THE GRABBER MAGNETS:

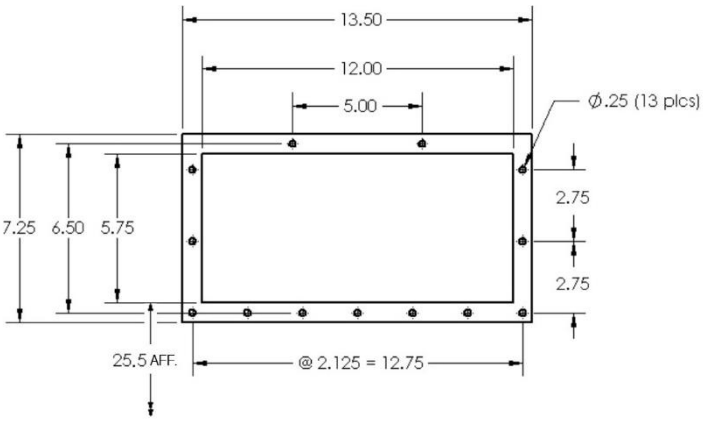
Preferred: Locate per detail below and weld into place.

Optional: Drill four 7/32" diameter holes into the trough as shown below. Seal the heads of the provided screws with silicone and attach the magnet.

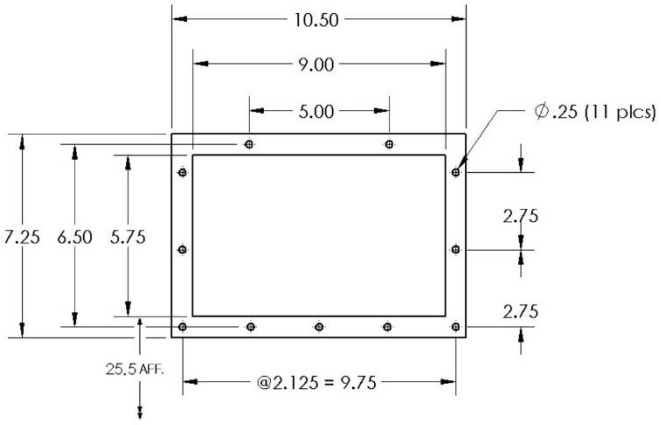


RECOMMENDED POSITION OF THE GRABBER MAGNETS

MOUNTING DETAIL OF TROUGH



12" TROUGH DETAIL



9" TROUGH DETAIL

Holes in Pulper Trough Connection to be Drilled in the Field not done by the FACTORY

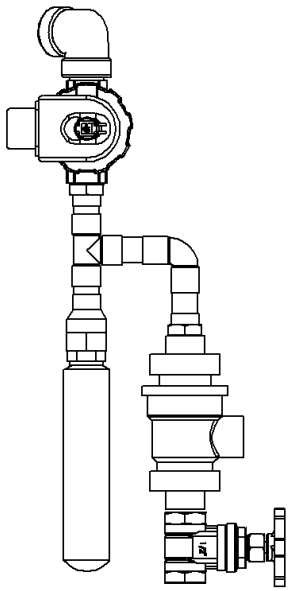
PLUMBING INSTALLATION

1. All freshwater lines and drain lines not supplied by Somat®.
2. Pipe sizes to be in accordance with Somat recommendations.
3. Trough return water piping to be Type L Copper piping
   (PVC Piping NOT Acceptable)
4. All fittings must be pressure rated drainage type.
5. Keep drains accessible to unit. Do not install drains under Somat equipment.
6. No external strain to be exerted on Somat equipment.
7. Protect all Somat equipment and piping from freezing and condensation.
8. All piping to be in accordance with state and local plumbing codes.
9. F" = furnished by Somat / "NF" = not furnished by Somat.

FRESH WATER:

***NOTE: Check local codes regarding the proper backflow prevention devices to be installed.**

1. Bring a 1/2" cold water line for the Pulper, to the pre-piped freshwater assembly. (See enclosed diagram and Installation Drawings)
2. Bring a 1/2" hot water line to the pre-piped freshwater assembly on the Hydra-Extractor (see enclosed diagram and Installation Drawing).



HYDRA-EXTRACTOR® OVERFLOW AND PULPER DRAIN:

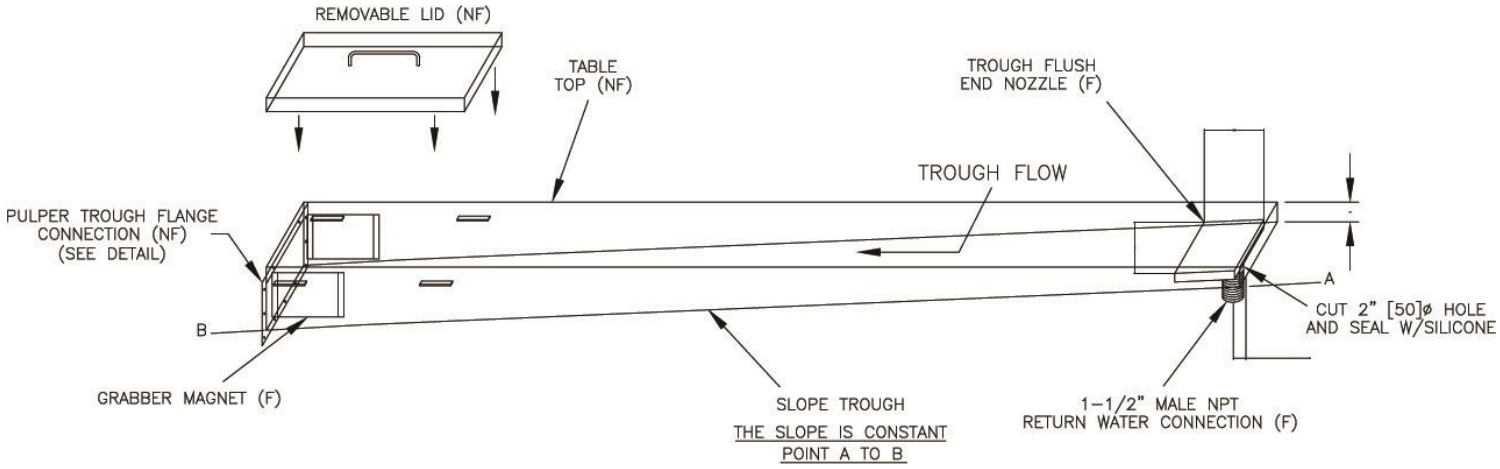
1. Install 1-1/2" pipe from the Hydra-Extractor® overflow to floor drain (**do not reduce**).
2. Install 2" pipe from the Pulper drain to floor drain (**do not reduce**).

RETURN PIPING FOR UNITS WITH A TRAY FEED ONLY:

1. Install one side of the provided tubing over to the return water elbow on the feed tray and the other side onto the pump return water assembly (if not already factory installed)
2. Install the provided hose clamps at each connection.

RETURN PIPING FOR UNITS WITH A TROUGH:

Pipe from the return pump to the supplied trough end flush nozzle and silver saver connections as well as to the optional trough nozzles as shown in the trough detail on the Installation Drawing using the provided throttling gate valves.

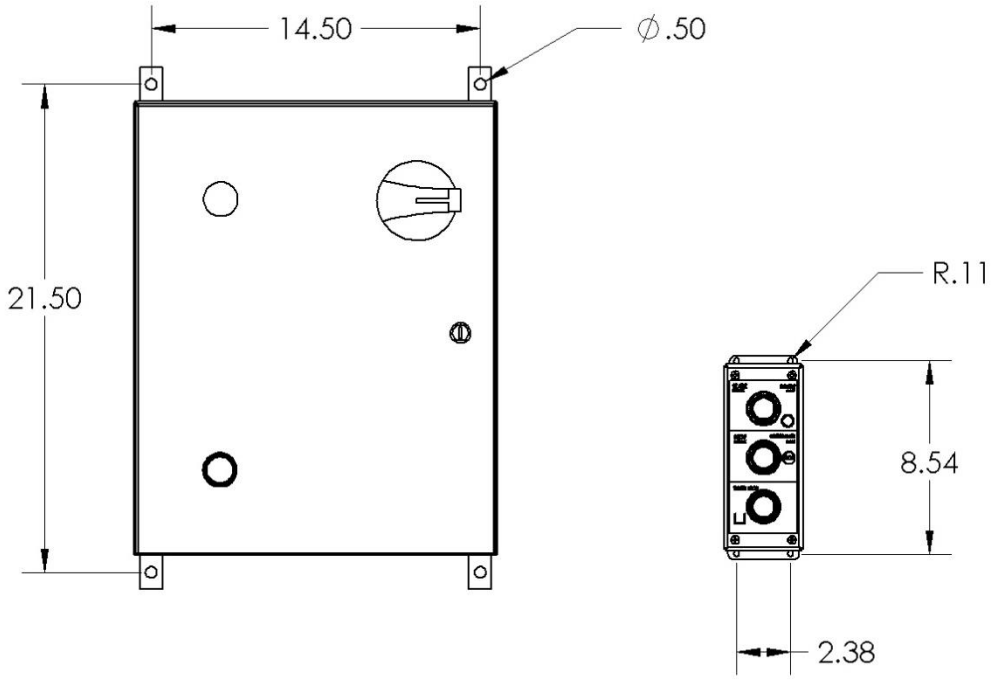


ELECTRICAL INSTALLATION

1. Pre-wired Som-A-Trol®, operator devices & electric valves by Somat.
2. Install conduits from panel to prewired junction box, pull high voltage wires and low voltage wires through separate conduit and do the final terminations.
3. Ground all electrical equipment.
4. Control circuit to be 115 VAC and/or 24VDC nominal. (See Approved Drawings)
5. All Som-A-Trol panels are to be wired in accordance to local, state and/or national electric code specifications.
6. Integral pushbuttons are in panel door and pre-wired at factory. Optional remote push button station if supplied; to be mounted & wired at workstation by electrician. (Bracket Required by Customer)

PANEL & OPTIONAL REMOTE PUSH BUTTON STATION MOUNTING

1. Mount the Som-A-Trol® (electrical control panel) in a suitable location (see installation Drawings) so that the bottom of the panel is at least 48" above the finished floor or in accordance with ADA and local requirements.
2. Install the Optional Remote Pushbutton Station onto the Dish Table or at another convenient location. (See Diagram and Installation Drawings.)



SUPPLYING THE SOM-A-TROL® WITH POWER

Bring the (4 wire) high voltage power supply to the top right side of the Som-A-Trol® and connect to the panel disconnect and ground lug. (See Diagram and Installation Drawings.)

All close couple systems are prewired; there is a prewired junction box mounted to the side of the extractor shell. Inside this pre-wired junction box there will be terminals that are the same as in the panel. Install conduits from the panel to the pre-wired junction box, pull the motor wires and control wires through these conduits separately and do your final wire terminations matching numbers from panel to pre-wired junction box.

REMOTE PUSHBUTTON STATION

Mount the remote pushbutton station, run the conduit from the remote pushbutton station to the pre-wired junction box or panel then pull the wires from the remote pushbutton station to the pre-wired junction box and do your final hookups in the pre-wired junction box.

WARNING

Improper connection of the equipment grounding conductor can result in a risk of electrical shock. An equipment grounding conductor must be run with the both high and low voltage circuit conductors and connected to the pulper/extractor grounding terminal.

Start Up

After installation is complete, call Somat Service **(800-237-6628 x176)** to schedule your equipment start up. Your equipment will be started up by a qualified Somat service representative. This start-up will get your equipment running in accordance with Somat guidelines. The equipment may be demonstrated to you by a Somat Representative.

SOMAT REQUIRES 2 WEEKS ADVANCE NOTICE OF START-UP FOR SCHEDULING PURPOSES. THANK YOU IN ADVANCE FOR YOUR UNDERSTANIDNG.

Equipment Start-up: Authorization from Somat is required before responding to start-up requests. Third party initiations will not be accepted. Authorization will be in the form of a "Pre-Start-up Checklist" which is sent from Somat.

Installation Errors: If the equipment is not ready for start-up due to installation errors or incomplete installation, the technician may have to schedule an additional start-up visit at the owner's expense.

Somat equipment carries a 1 year warranty from date of start-up. To accurately track this information, we ask that you fill out the Warranty Registration Sheet on the next page and it email back to us. This will ensure your equipment is registered with Somat's Service Department and will allow Somat's Service Department to efficiently process any warranty claims.

WARRANTY REGISTRATION FORM

Serial #:	Model #:

Date of Start-up: _____/_____/_____

Customer Name: _____

Address: _____

City: _____ State:_____ Zip:_____

Contact Name:_____

Contact Number:_____ Email:_____

Service Company:_____

City: _____ State:_____ Zip:_____

Please email to:

Somat Company Service Department

service@somatcompany.com

OR send with startup paperwork.

Operation

OPERATING PROCEDURE

The following start-up procedures must be followed prior to operating the System.

1. Check to ensure that the main power switch of the SOM-A-TROL® panels is in the "**ON**" position.
2. Push **GREEN** push button on SOM-A-TROL panel or remote pushbutton station to close drain if opened. If drain is open, you will see a slow **GREEN** flash to indicate the drain is open. Once pressed, the drain will automatically close and pre-fill the pulper tank.
3. The Pulper will begin to fill with water, this is indicated by a 2-flash, pause repeat **GREEN** light. When the water has reached the prescribed level as indicated by a solid **GREEN** light, press the Pulper ***START*** button and wait until there is a continuous flow of return water before feeding waste to the Pulper either manually or by starting waste down the flushed trough, if so equipped.

PULPER FEEDING

Best results are obtained if the Pulper is fed waste at a **UNIFORM RATE.** Under normal conditions, waste may be fed to the Pulper if a strong vortex is maintained in the tank. If waste is fed too fast the vortex will diminish to a point where it will no longer pull the material into the impeller for efficient grinding.

OVERLOADING "Slug Feeding"

DO NOT feed when the system is turned off. The system must be running when waste enters the pulping tank. Overloading and Slug Feeding can cause damage to the system.

When shutting down the Pulper for short periods, it is not necessary to run the Pulper until all the waste has been pumped out of the tank. Run the Pulper for a few minutes to thin down the slurry and then shut off the machine.

SHUTDOWN PROCEDURES

The following shutdown procedures must be followed prior to performing necessary cleaning and maintenance duties.

1. Allow the Pulper to operate approximately five minutes after the last waste has been fed.
2. Depress black "**TIMED STOP**" pushbutton once to engage spray rinse system, system will then time out on its own. The Pulper will stop when the shutdown timer has timed out.
3. Press "**DRAIN EMPTY**" pushbutton on panel door to drain the pulping system. This pushbutton will **DRAIN all water in the system.**
4. Turn power off to perform any cleaning or maintenance.
5. Refer to the applicable Pulper and Hydra-Extractor® maintenance sections of this manual for daily, weekly and long-term shutdown cleaning procedures and maintenance instructions.

LIGHT CODES

SOMAT systems employ a micro-computer to control many of the unit functions. If a fault or overload is detected, the system will flash a series of codes by lights located either on the pushbutton station OR on the panel enclosure itself. Below is a list of the most commonly used for close coupled machines.

Solid **Green**: All safeties are latched and secure, system is ready to run.

Flashing **Green**: System is in timed stop mode, extractor will spray, after less than 10 minutes system will shut down.

Slow flashing **Green**: Unit drain is open, press **Green** pushbutton to close drain.

Two **Green** flash, pause, and repeat: All safeties are latched and secure, tank is filling.

Solid **Red**: One of systems 3 motors is overloaded and must be reset.

Flashing **Red**: Lid switch on pulper or extractor lid is open, shut lid to resume normal operation.

Consult Electrical Schematic in Som-A-Trol® Panel Door For Additional Flash Codes

SPECIAL OPERATING CONDITIONS

The following conditions could occur and should be watched for:

1. **Overfeeding** - The SOMAT® Pulper is designed as a continuous process machine. In general, the feed rate should not exceed one tenth of the rated hourly capacity in any six-minute period. Exceeding this will cause the machine to bog down and operate under its rated capacity.

2. **Foaming** - this is caused by contaminants in the water, or by certain materials in the waste, such as glue in corrugated cardboard and excessive starches. Add a SOMAT de-foamer, or comparable commercial de-foamer.

3. **Freezing** - All equipment and piping should be protected from freezing. Insulation and heating cable are often used where equipment is exposed.

4. **Non-Pulpables** - The SOMAT® Pulper is designed to handle a limited amount of non-pulpable material. The lighter items are eventually ground, and the heavier material is discharged into the junk box. Occasionally, the amounts of non-pulpables may become excessive and the processing rate may begin to decrease. Safely stop the Pulper, scoop out the non-pulpable matter, and then restart the Pulper.

WEARABLE PARTS, moving parts, and their mating surfaces, will wear during normal production. Routine maintenance and inspection will disclose which parts are wearing and provide an indication as to when replacement will be necessary. The maintenance plan should include pre-ordering of spare parts and scheduled replacement. Rotating blades may be re-sharpened. To remove blades please follow instructions located in the “Cutting Mechanism” section of this manual.

CLEANING YOUR SYSTEM

CLEANING INSTRUCTIONS

After feeding waste to the SOMAT® System has been completed for the day, the equipment should be thoroughly cleaned. A regular cleaning program will eliminate odors, costly maintenance and unsatisfactory operation.

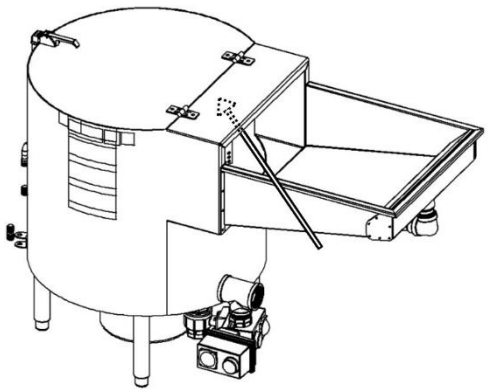
CLEANING THE PULPER:

With the system properly shut down, in accordance with the System "Shutdown Procedures", perform the following:

1. Clean the Junk Box of non-pulpable material.

2. **CAUTION BROKEN GLASS MAY BE PRESENT IN THE PULPER**

3. Wash the interior of the pulper shell with a hot water hose, suitable brush, detergent and deodorant or other cleaning solution. Exercise care in cleaning the underside of the upper shell flange. Wipe down the equipment exterior.



Underside of Flange

4.Leave lid open (if allowed) to let machine air out and reduce odors.

CLEANING THE HYDRA-EXTRACTOR®:

With a hot water high-pressure hose, wash down screens and interior walls of Hydra-Extractor® housing. If necessary, a long-handled brush can be used.

Long Term Shut Down Procedure - If the Pulper is to remain idle for a relatively long period (three weeks or more), perform the daily cleaning procedure and then circulate a solution of a cleaning and disinfecting agent through the lines followed by a secondary shutdown procedure to combat bacteria growth and odor.

CLEANING TIP

To ensure all food waste is removed from the extractor, you can use Styrofoam plates as a cleaning agent for the unit. The Styrofoam will force out most of the food waste leaving only Styrofoam at the top of the extractor screw. Run the plates as you would any waste and continue until nothing, but Styrofoam exits the extractor. We do not recommend using cardboard as a cleaning agent as it will dry out and create a very hard obstruction in the extractor which could cause motor overload on restart.

CLEANING SOLUTIONS

The ideal cleaning products for use with SOMAT® equipment combine four important functions: detergency, disinfection, pH buffering and odor counter action. To simplify this selection SOMAT® offers products to maintain a clean system.

SOMAT® NEUTRO PLUS (72000)

Designed for use in the SOMAT® System to keep it clean, to deodorize, and to reduce grease build-up. This is an industrial strength product. The surfactants in this detergent/deodorant are biodegradable.

SOMAT® DEFOAMER (73000)

A neutral, liquid silicone emulsion specifically designed for suppressing and Controlling undesirable foam. This is an industrial strength product. The surfactants in this de-foamer are biodegradable.

Please direct all orders to Authorized SOMAT Parts Distributors

MAINTENANCE

PERIODIC MAINTENANCE AND INSPECTION

Time intervals cited are based on normal use of the SOMAT® unit; averaging use of six hours per day, seven days per week. Equipment operating more than this will require more frequent inspection/maintenance. Particular attention should be paid to cutting blades and grinding teeth as these will sustain the highest degree of wear. Continued adherence to these inspections will provide adequate lead time when ordering spare parts, minimizing unnecessary and costly equipment downtime.

PULPER	DAILY	WEEKLY	MONTHLY	QUARTERLY
1. GENERAL				
a. Check shell and slurry chamber for wear.			X	
b. Check exterior finish for corrosion.			X	
2. IMPELLERS				
a. Check impeller blades for wear.		X		
b. Check stationary blades for wear.		X		
c. Check impeller for wear.		X		
d. Check security ring for wear.		X		
3. DRIVE				
a. Check seal for leakage.	X			
b. Check bearings for noise and wear.				X
1. GENERAL				
a. Check cutting mechanism for non-pulpable object impact damage.	X			
b. Check bolts for tightness.		X		
c. Check stationary cutter block to impeller cutter clearance.			X	

EXTRACTOR	DAILY	WEEKLY	MONTHLY	QUARTERLY
1. GENERAL				
a. Check exterior finish for corrosion.				X
2. EXTRACTING UNIT				
a. Check screw and brush for wear.				X
b. Check screen for wear.				X
3. DRIVE				
a. Check reducer for noise and leakage.				X
b. Check bushing and bottom pin.				X

Lubrication Chart	FREQUENCY	TYPE OF FITTING	LUBRICANT
Hydra-Extractor® speed reducer	6 months to 1 year	Oil fill plug	Amer. Worm Gear Oil Gear Oil 629 (Mobil)

Return Pump	DAILY	WEEKLY	MONTHLY	QUARTERLY
1. GENERAL				
a. Check exterior finish for corrosion				X
b. Check pump casing for wear				X
c. Check impeller for wear				X
2. DRIVE				
a. Check seals for leakage	X			
b. Check bearings for noise and wear				X

COMPONENT REMOVAL AND REPLACEMENT - The following steps are required in the removal and replacement of major components, assemblies, or piece parts necessary for corrective action.

DRIVE MOTOR REMOVAL

1. After turning the circuit breaker off, remove cover on drive motor junction box and disconnect motor leads.
2. Remove conduit from motor junction box.
3. Remove security ring assembly.
4. Remove impeller assembly.
5 Remove the drive motor from the slurry chamber assembly by removing four machine screws.

MECHANICAL SEAL REMOVAL

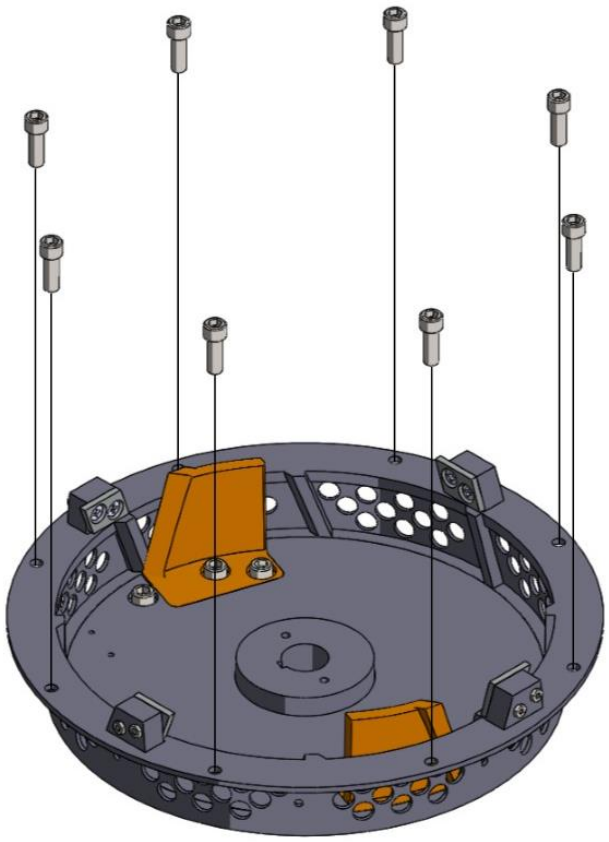
1. Remove spring and upper seal ring prior to removing motor.
2. With motor removed push upward on Ni-Resist Seal until it can be removed.

MECHANICAL SEAL INSTALLATION

1. Clean the seal cavity and moisten the O-ring of the Ni-Resist Seal with soapy water
2. Tap the Ni-Resist Seal in the cavity with seal installation tool. The cut out on face of the seal (some marked with an X) must face down.
3. Lubricate the upper seal ring and slip it over the drive shaft.
4. Slide the retainer spring onto the shaft.

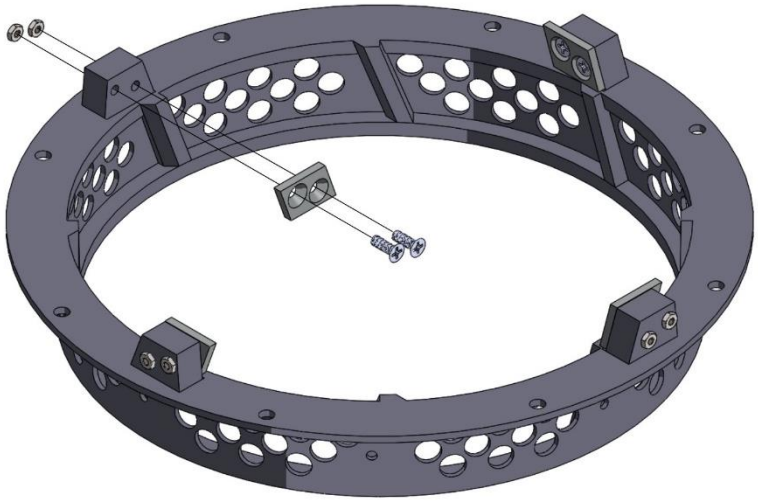
SECURITY RING REMOVAL

1. Remove mounting bolts and lift Security Ring Assembly out of machine.



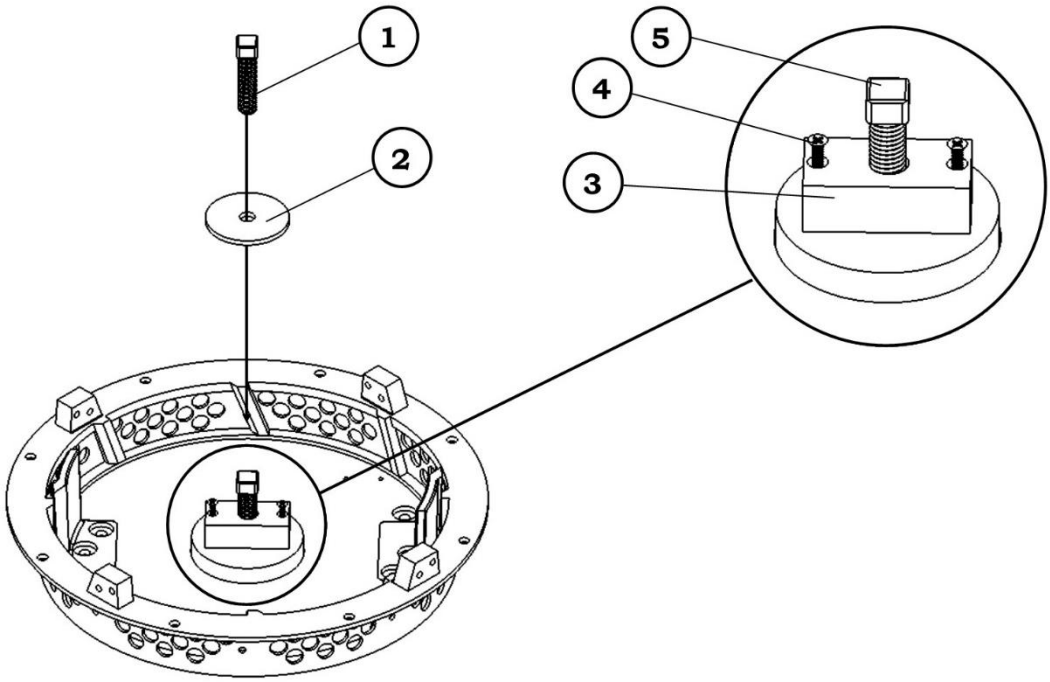
REPLACEMENT OF SECURITY RING STATIONARY CUTTER BLOCK

1. Remove stationary cutter block mounting screws and replace stationary cutter block. Shim if needed to a clearance of 0.005" to 0.010" between stationary blocks and rotating blades. Do not over-tighten.



IMPELLER REMOVAL

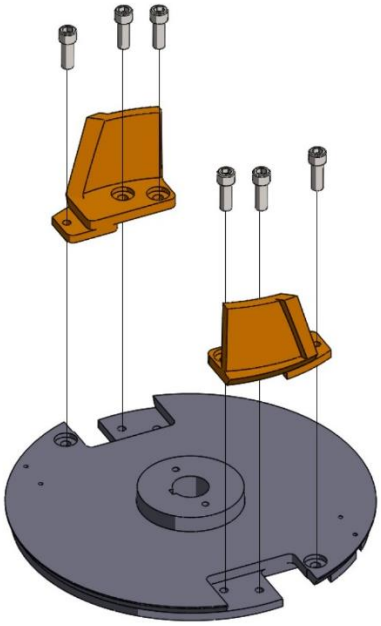
1. Remove impeller hold down bolt (1) and washer (2) carefully remove the impeller assembly from the motor drive shaft with an impeller puller (Somat P/N 84150) To use Impeller Puller (3): Tighten the two fastening screws (4) to secure puller to impeller. Next, turn center setscrew (5) to lift impeller out of security ring. Remove key



ROTATING BLADES

Replacement

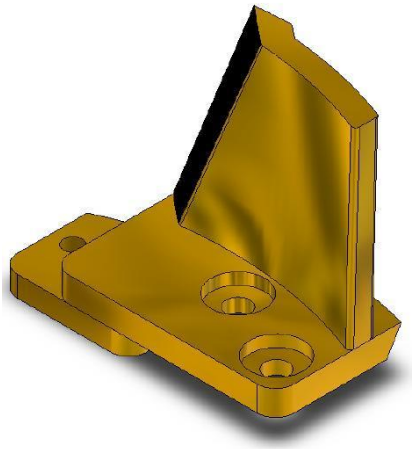
1. Remove two screws for the SPC50 and three screws on the SPC75 that hold the impeller cutter ear to the impeller.



SHARPENING

Rotating blades may be re-sharpened as cutting efficiency decreases. Remove impeller as described above. Remove attaching hardware for cutting ears. Using a gloved hand, firmly grasp blade and with an angle grinder grind a new edge on interior of blade only. Interior of blade will face center bolt of impeller. The picture below has the edge to be resurfaced highlighted in black. DO NOT grind on opposing side of blade as this will reduce or impair any cutting ability.

Grind only on area highlighted in black



EXTRACTOR DRIVE MOTOR REMOVAL

1. After turning the circuit breaker off, remove cover on drive motor junction box and disconnect motor leads.
2. Remove conduit from motor junction box.
3. The drive motor (1) can be removed from the head assembly by removing four screws (2).

EXTRACTOR GEAR REDUCER REMOVAL

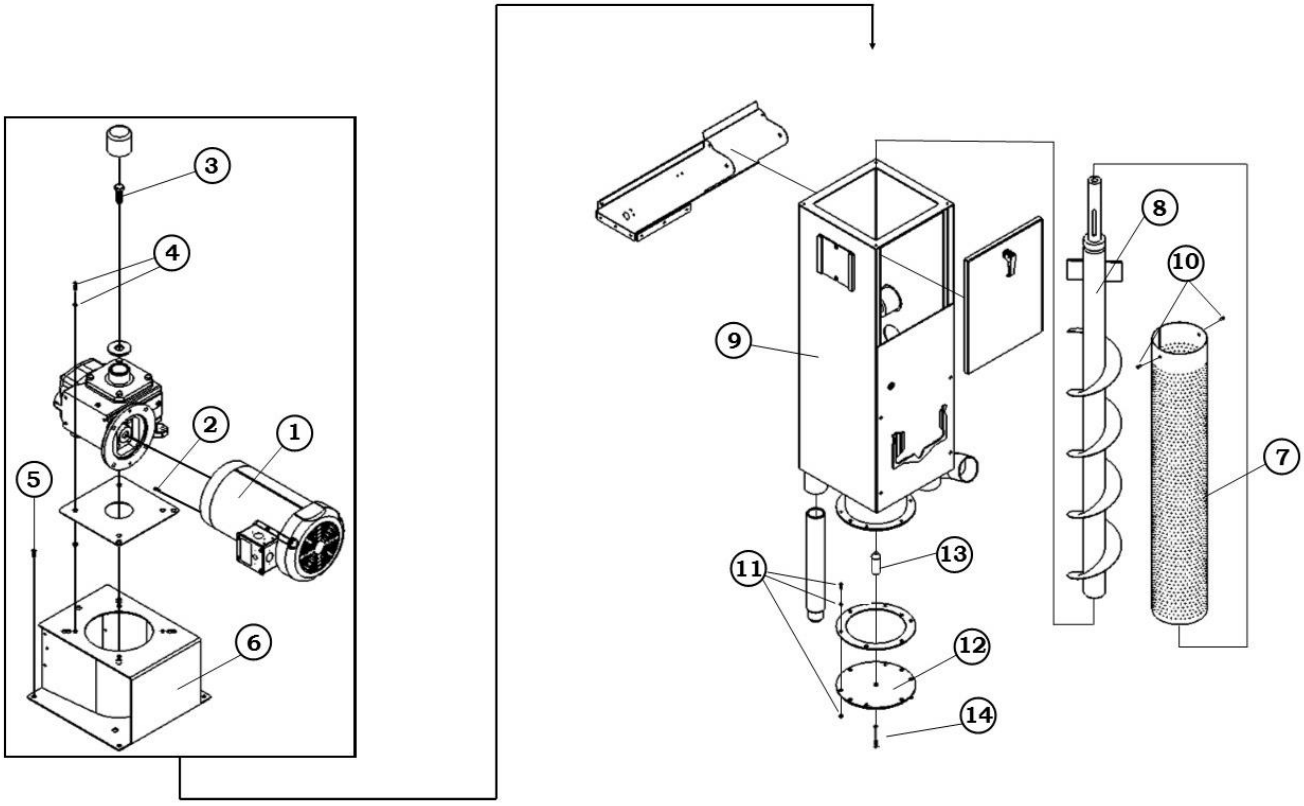
1. Remove bolt (3) and four machine screws (4).

EXTRACTOR SCREEN AND SCREW REMOVAL

1. After removing four machine screws (5), from head assembly (6) lift head with screen (7) and screw assembly (8) attached, from the Hydra-Extractor® shell (9).
2. Remove the screw assembly from the screen assembly by pulling the screw assembly through the bottom opening of the screen, while turning bottom of screw counterclockwise with a pipe wrench.
3. After removing the screw assembly, remove two button head machine screws (10), from the screen and slip the screen from the head assembly.

EXTRACTOR BOTTOM PIN REMOVAL

1. Remove six machine screws (11.)
2. The bottom pin plate (12) with bottom pin (13) attached can now be removed.
3. Remove screw (14). The bottom pin can now be separated from the bottom pin plate.



MP PUMP REMOVAL AND INSTALLATION OF MECHANICAL SEAL or MOTOR

MECHANICAL SEAL

1. Turn off power, lock out machine and remove stainless steel covers in pump area.
2. Remove (4) 5/16-18 hex nuts from Impeller housing.
3. Remove housing from pump-pack assembly.
4. The impeller will now be visible, take care to NOT place anything in impeller vanes. This will cause damage to the vane and will not be covered under warranty.
5. Loosen 2 bolts holding drive sleeve to motor shaft.
6. Remove impeller with drive sleeve as an assembly, mechanical seal should come off with drive sleeve.
7. Replace mechanical seal. Install with raised carbon face towards motor. Take care to install straight onto sleeve. Install ceramic disc into adapter seat bore with polished side up. Take extreme caution to not damage polished side as this will cause immediate leaks. Ensure seal is seated to bottom of adapter seat bore. If needed use a wooden dowel and gently tap into place to ensure tight seat into bore.
8. Replace impeller assembly back onto motor shaft. Use a light coating of anti-seize on motor shaft to ensure smooth seating.
9. Push down onto impeller head using a gloved hand to reach a gap of .030" between the bottom of impeller to top of adapter.
10. Tighten sleeve clamp while maintaining .030" clearance between impeller and housing.
11. Check rotation of impeller to ensure proper seating and gap clearance.
12. If rotation and clearance are ok, then replace housing to adapter.
13. Install (4) 5/16-18 nuts and lock-washers onto studs and tighten to 15-ft.lbs.
14. Verify that impeller does NOT hit or scrape pump housing.

MOTOR REPLACEMENT

1. Turn off power and lock out machine.
2. Remove (4) 5-16-18 hex head nuts from impeller housing.
3. Remove housing from pump-pak assembly.
4. Loosen 2 bolts holding drive sleeve to motor shaft.
5. Remove impeller with drive sleeve as an assembly, taking care not to damage mechanical seal or pumping vanes.
6. Remove (4) 3/8 – 16 x ¾ hex head screws from adapter plate to motor.
7. Remove adapter unit from motor.
8. Replace motor as required properly wiring unit. Ensure that wiring is for correct voltage.
9. Replace pump-pak as described in MECHANICAL SEAL REMOVAL SECTION #'s 8-14.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Not enough water in Pulper.	1. Trough valve not properly adjusted.	1. Open valve.
	2. Low water pressure	2. See "*Display Module Instructions"* to increase pre-fill and to increase frequency of make-up water
	3. Faulty operation of solenoid valve (see equipment schematic for location).	3. Check for loose electrical connections. If the valve plunger is stuck or the coil is burned out, replace with a new valve.
Too much water in Pulper.	1. Trough valve open too far	1. Throttle down valve to decrease water in pulper and increase water in extractor (more overflow)
	2. Misadjusted PLC POT setting.	2. The PLC controls the circuit to the solenoid valve. Too high a setting would tend to hold the solenoid valve open too long letting too much water into the Pulper. See "*Display Module Instructions"* to correct the problem.
	3. Faulty operation at valve. (see equipment schematic for location.)	3. Repair or replace solenoid valve.
	4. Overflow fitting and line clogged.	4. Clean fitting and line.

Pulper operates but pulping rate is low.	1. Plugging of sizing ring.	1. Check stationary blades and ears. If dull, replace. Refer to Pulper maintenance section. Check water level control - it may be adjusted too low. See previous section.
	2. Worn or missing impeller blades.	2. Refer to Pulper maintenance section for replacement procedure.
	3. Worn or missing stationary blades.	3. Adjust or replace blades in accordance with Pulper maintenance section of manual.
	4. Excessive foaming.	4. Add a de-foamer or any other suitable commercial preparation.
	5. Sluggish vortex:	
	.	a. See Previous section.
	b. Overload of waste.	b. Revise waste feeding rate (see Feeding Instructions, Section 4).
	6. Clogged or worn pump.	6. See pump section for require corrective action.
	7. Clogged slurry lines.	7. Check individual cleanouts for loss of pressure to locate blockage. Remove blockage.

Heavy flow from overflow pipe.	1. Excessive foaming	1. Add a de-foamer.
	2. Blockage of return line.	2. Check individual cleanouts to locate blockage.
	3. Improper Return water flow.	3. Readjust throttling valves.
Excessively wet pulp discharge from Hydra-Extractor®.	1. Blockage of screen.	1. Clean the Hydra-Extractor screen. Refer to Hydra-Extractor Maintenance Section of the manual.
	2. Worn screw and brush.	2. Remove and replace. Refer to Hydra-Extractor Maintenance Section of this manual.

Display Module Instructions

DISPLAY MODULE LOCATED IN CONTROL PANEL

SET POINTS FOR CLOSED COUPLED UNITS

D0 – Pulper water initial fill duration (seconds). 0-1,200 second span

D1 – Pulper makeup water during operation (seconds). 0-30 second span.

D2 – Timed Stop duration (seconds). 0-1,200 second span

D3 – Return Pump Start Delay (seconds) IF APPLICABLE. 0-20 second span

D4 – Auxiliary Fill Duration (Optional with auxiliary pump) IF APPLICABLE.

D5 – Pulper Hours of Operation.

D6 – Pulper Minutes of Operation.

D7 – Pulper seconds of Operation (displayed in 1/10ths of seconds).

SP/SPC-50 Water Control Module Settings

Fill Time (seconds)	Makeup Water (seconds per 30 seconds)
60 to 70	2
70 to 100	3
100 to 130	4
130 to 160	5
160 to 190	6
190 to 220	7
220 to 250	8

Factory settings: D0 – 120 seconds, D1 – 6 seconds

SP/SPC-75 Water Control Module Settings

Fill Time (seconds)	Makeup Water (seconds per 30 seconds)
50 to 80	4
80 to 120	6
120 to 160	8
160 to 200	10
200 to 240	12

Factory settings: D0 – 120 seconds, D1 – 4 seconds

STARTUP GUIDELINES FOR UNITS EQUIPPED WITH A DM MODULE

1. Follow normal startup procedure regarding Electrical Check, General Installation Check, Plumbing Installation Check as noted on the Startup Checklist.

2. Mark a fill line on the inside of the tank 7" deep.

3. Fill the pulper. Once the pulper has stopped filling, check water level and adjust if needed, press the green start button and allow the unit to run for 30 seconds.

4. Press Stop pushbutton.

5. Press Drain pushbutton.

6. With a timer, press the Green pushbutton once and time the water level to the fill line.

7. Using the seconds that it took to fill to the line, use the tables above to find the set points.

8. The power must be on to the PLC. If the date/time is displayed on the DM Module, then you are ready to proceed. If not, push the "ESC" button to display the date/time. Then press the "OK" button twice to display the "D" register(s).

From the Date/Time screen, after pushing the "OK" button twice, the DM Module will go to the last "D" register that was modified.

The "D" number is displayed on the bottom of the DM Module screen. The value of that "D" number is on the right-hand side of the screen. If you are on "D" with a zero on the bottom of the screen, you are in "D0".

To change prefill time press OK once (enter value found in table above) and the value on the right side of the screen will flash. Push the "+" value to increase the value and the "-" button to decrease the value. Once the value is the desired value, press "OK".

To go to D1 for a close couple machine and D11 for remote machines, press the "+" button once, if D2, press the "+" button twice, for instance.

9. To change make-up water duration time (D1) press OK once, then “+” or “-“ to change value and then press “OK” (enter value found in table above). To go toD3 (D13 for remote machines) press the “+” button once, if D4 (D14 for remote machines), press the “+” button twice.

10. To change the Timed Stop Duration (D2) press OK once, then + + (enter value found in table above).

11. To verify all changes, drain the pulper and follow restart procedure. Verify how many seconds the freshwater solenoid remains on while the pulper is in operation.

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