THE BOLD LOOK OF KOHLER®

TOOBI AUTO SAND FILTER SYSTEM
INSTALLATION INSTRUCTIONS

23852IN-NA

Toobi Auto Sand Filter System

CONTENTS

IMPORTANT INSTRUCTIONS

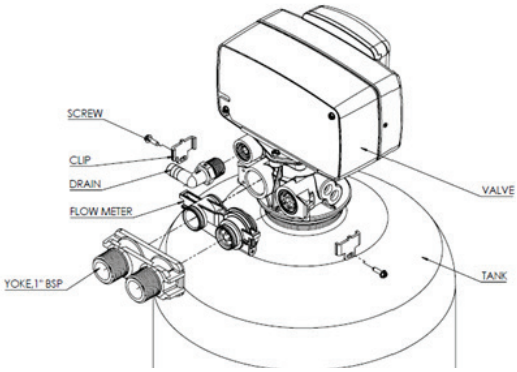
- The information, specifications and illustrations in this manual are based on the latest information available at the time of printing. The manufacturer reserves the right to make changes at any time without notice.
- The System must be wired according to local electrical codes to prevent the possibility of electrical shock.
- Water Pressure in system should not exceed 6 bar.
- Do not place the unit in direct sunlight. Black units will absorb radiant heat increasing internal temperatures. The controller must not be exposed to weather elements.
- If system is not installed upon delivery, store system in a cool dry location out of direct sunlight.
- Do not allow the system to freeze.
- The System has been designed and tested to offer reliable service when installed by a qualified professional and operated and maintained according to the instructions in this service manual.
- Warranty of this product extends to manufacturing defects. Misapplication of this product may result in failure to properly filter water, or damage to product.
- Correct and constant voltage must be supplied to the control valve to maintain proper function.
- Always shut off the water flow and release water pressure before cleaning or maintaining the System.

GENERAL SYSTEM ARRANGEMENT

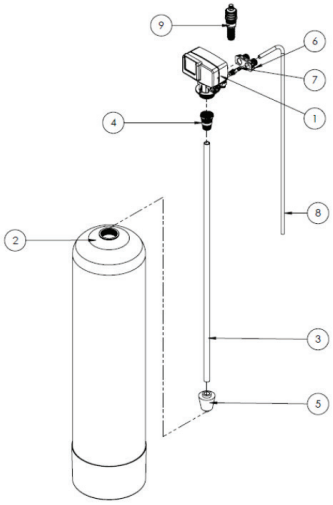
This is general information of your purchased system showing the assembled view and major components of construction. For details please refer to the assembly and installation drawings provided separately.

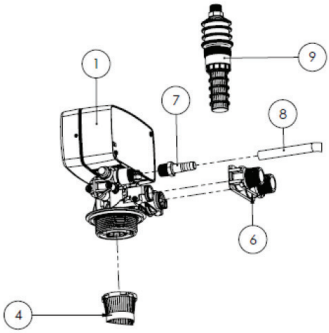
TOOBI AUTO SAND FILTER

- Please refer to the Technical specifications sheet for model number/valve/tank details.
- Top Mount Valve supplied with the system is 5600 SXT filter model with turbine type flow sensor.The images below show details about how to connect the valve to the plumbing and tank.



Toobi Auto Sand Filter Spare Part List





S.NO.	KOHLER PART NUMBER	REF. PART NUMBER	DESCRIPTION
1	1381648	560006-018	5600, FIL, DFN, M34,SXT-24-50
2	1381649	30721-4	1354 PG 2.5"T GREY
3	1381650	SYC-1009	UPVC PIPE 3/4" SCH 40 PM40-34 AST
4	1381651	18280	COLLECTOR, TOP,1" X .011,GRAY, BAYONET
5	1381652	PWG1201066	BOTTOM STRAINER - PLASTIC
6	1381653	18706-10	YOKE, 1", BSP, PLASTIC
7	1381654	13308	1/2" DRAIN FITTING HOSE BARB
8	1381655	SYC-9086	1/2" HOSE PIPE-NYLON BRAIDED
9	1381656	M-Pumps-1603	AERATION VALVE 1.5" BSP PWI TANK
10	1381657	SYS-1187	FINE GRAVEL (4mm to 6mm)
11	1381658	SYS-9165	FILTER MEDIA SAND 18*35 MESH SIZE
12	1381659	60125	Seals and Spacer Kit 5600(60125)
13	1381662	13305	O-RING, Adapter Coupling
14	1381663	61672-0201	TIMER ASSY,56SXT
15	1381664	41475	Transformer, 220VAC to 24VAC(41475)
16	1381665	16944	Drive Motor
17	1381666	10218	Micro/Aux. Switch
18	1381660	60102-10	PISTON ASSY,56SE/6700,D/F

1. Sand media and gravel are not shown in the exploded view.
2. Aeration valve is a part of BOM and shown for representation purpose only. It is assembled at the outlet of valve.

TECHNICAL SPECIFICATIONS

Inlet water quality		<25 ppm (TSS)
Outlet water quality		< 5 ppm
Input turbidity		< 5 NTU
Minimum input pressure (bar)		2 bar
Maximum operating pressure (bar)		6 bar
Minimum free board (%)		50%
Max. velocity (service)	m/hr	20
Support Layer	Media	fine gravel
	Depth (mm)	To cover the done
	Size (mm)	4-6 mm
Quantity of sand	Kg	90
Service flow rate (valve alone)	m3/h	4.5 @ 15 PSID
Backwash flow rate (valve)	m3/h	1.6 @ 25 PSID
System service flow rate	m3/h	Upto 1.6
Tank size (D X H)	Inch	13 X 54
Standard pipe diameter	Inch	1" BSPT M
Drain line pipe diameter	Inch	1/2" NPTF
Electrical rating		24 v, 50 Hz
Cycles		Service, Backwash & Rapid Rinse

Pressure Toobi Auto Sand Filter

A pressure toobi auto sand filter is used to remove suspended solids and to reduce the turbidity of the water being passed through. The raw water is made to flow through a bed of sand with predefined thickness. As it passes through the bed, particles of the contaminants are trapped in the gaps in-between the sand grains thus clarifying the filtered water. During service, the sand bed will get clogged over a period of time with the accumulated contaminants. To clean and 'reclassify' the media to prevent channeling of water through the filter bed. Water requires running to drain at a high rate in the reverse direction to separate the filter sand from these deposits. This Backwashing frequency is usually controlled by a timer or meter based valve which will backwash the system at pre-set intervals or after a pre-set volume of water has been treated.

GENERAL INFORMATION ABOUT THE SYSTEM

This system has been shipped in kit form to facilitate easier transport and installation.

Basic parts list

1. Fleck Valve(with flow sensor, flow controllers on drain and owner's manual)
2. Operation and Maintenance Instructions with drawings
3. Grey Color Polyglass Tank(with riser and distribution system)
4. Flexible drain pipe
5. Media as per application and required quantity. (Sand media)
6. Support gravel as per required quantity.
7. Aeration Valve.

Missing or damaged goods

On receipt of the goods, it is advisable to check that all items ordered have been received. If you have any doubt that goods have not been supplied as requested, please contact your supplier immediately.

Temporary storage

If installation is not to start immediately after delivery, the equipment should be stored in a clean dry area, where it will not be damaged, or be subjected to temperatures below freezing.

LOCATION AND INSTALLATION

Unit Location:

- Units should be located close to a clean working drain.
- The drains capacity should be checked for accepting backwash and Fast Rinse flows.
- An air gap should be included on the drain connection to prevent backflow contamination.
- The systems drain line should be less than a 15-foot pipe length equivalent.
- Elevation of the drain line should be less than 2 feet above the valve.
- The floor should be able to support the installation weight of the system and be fairly level.
- It is recommended to provide a minimum of 500mm clearance around the unit for this maintenance access. Please refer to the drawing to see actual dimensions of the system.
- Protect the system from constant exposure to sunlight.

Installation:

Installation Instructions:

Water Pressure: A minimum of 30psi (2 bar) of water pressure is required for the automatic valve to operate effectively.

Existing Plumbing: Condition of existing plumbing should be free from lime and iron buildup. Piping that is built up heavily with lime and/or iron should be replaced. If piping is clogged with.

Caution: Water pressure is not to exceed 87 psi (6 bar), water temperature is not to exceed 110°F (43.3°C), and the unit cannot be subjected to freezing conditions.

Top Mount Multiport Valve Model

CAUTION: For piping, proper supports must be provided to redirect any stress away from the valve.

1. Place the vessel on the foundation and ensure that it is secure.
   NOTE: If possible, place the pressure vessel in its final location before filling. Please read the Installation procedure mentioned for Polyglass pressure Vessels supplied inside the box of Pressure vessel.
2. Unpack the valve and adaptor (if used). Place the O-ring properly and Screw the adaptor into the pressure vessel.
3. Place the riser tube bottom strainer assembly in the center of the vessel touching the bottom of vessel.
4. Incase extra length of riser tube is provided, Cut the extra length of pipe as per the required length and match approximately with the tank inlet surface.
5. Mount Top Strainer to the valve and place the Multi Port Valve on the vessel such that riser tube passes through the strainer and valve center port.
6. Check the O-Ring and screw the valve in to the pressure vessel (or reducer if applicable), taking care not to cross the threads.
   CAUTION: Hand tighten the Valve. Do not use excessive force.
7. Adjust position of vessel to line up pipework connections, not the position of the valve on the vessel.
8. Connect the Inlet and Outlet pipework to the valve using UPVC piping and glue it with Solvent cement carefully as shown in the installation drawing.
   CAUTION: Solvent Cement should be handled carefully.
9. Apply Teflon Tape to the Pressure Gauge thread and mount it to the Outlet Piping.
10. Connect hose barb to the drain line using Teflon and then push drain pipe onto the barb and clamp it with hose clamp.
11. The unit is now ready for hydrostatic testing to ensure that there are no leakages in the assembly.
12. System is ready for commissioning.

COMMISSIONING

Check the following before starting the Toobi Auto Sand Filter System:

- Pressure vessel, piping etc. are connected as per Installation diagram of the system.
- Check Aeration Valve is installed and correctly.
- Pressure vessels / Tanks are properly secured as per the manufacturer's information.
- Feed Pumps are ready for operation and required pressure is available at the valve for proper operation of the system.
- Pipes and Fittings are tight.
- Product water line is open
- Drain water line is open
- Inlet of toobi auto sand filter system is properly connected to feed water supply.

Commissioning:

The objective of commissioning is to prepare it for service. The simplest way to commission the unit is to initiate a backwash process. This will eliminate the air from the system and flush the media prior to use.

1. Perform hydro-test and check for leakages. Make necessary adjustments if necessary to eliminate any leaks.

NOTE: One can put some amount of media during hydro test to check any leakage from Strainer. Check drains water for this, if any media comes then there is a leakage otherwise its fine.

2. Gravel & Media Loading:

- Disconnect all power supply to the system.
- Disconnect the valve plumbing and remove the valve.
- Ensure pressure vessel is at-least 1/3 full of water. If required fill water using a hose, bucket, etc.
- Plug the PVC distributor riser pipe using a plastic cap, cork, rag, etc. No media should go into this distributor riser pipe.
- Place the riser tube inside the tank. Verify the riser tube is centered in the tank with the distributor resting on the bottom of the tank.
- With the distributor riser pipe still plugged, pour supplied amount of gravel first and then pour the supplied media through the top opening into the tank.
- **NOTE:** Media and gravel quantities are tank specific. Check with the specifications chart for the right quantity required.
- When loading is complete, remove plastic cap, cork, or rag that was used to plug the distributor riser pipe. Brush any debris out of the threads in the neck of the pressure vessel.
- **CAUTION:** Do not to let any foreign debris fall into the riser pipe. It may damage the system.
- Reinstall the valve and make all the plumbing connections.
- Next step is to initiate a manual backwash (Refer to attached Quick Programing Manual). Perform an extended back-washing to ensure that any dirt / suspended solids trapped in media are expelled out. During the flushing operation, check all pipe connections and valves for leaks and tighten connections where necessary. Program the valve as per the system procured. Refer to attached Quick Programing Manual guide which provided with the kit.

3. Complete the backwash cycle and collect a sample of the drain water in a glass beaker. If the water appears clear, proceed to service mode. If not repeat backwash and check again.

SERVICE

TOOBI AUTO SAND FILTER SYSTEM

1. Refer attached quick program guide for initializing the system for service.
2. Now take the first reading of all operating parameters.
3. After 24 hours of operation, take the reading of all plant performance data such as feed pressure, differential pressure, temperature, flows.
4. Compare system performance to design values.

5. Confirm proper operation of mechanical and instrumental safety devices.
6. Fill-up the Maintenance Log Sheet for the system on daily basis.

TROUBLESHOOTING

Problem	Possible Cause	Possible Solution
Low operating pressure	Insufficient feed water pressure or flow.	Start feed water pump. Check feed water pressure; check for restrictions in feed plumbing.
	Clogged pre-filter (If exists)	Backwash the pre-filter.
	Insufficient electrical power.	Verify if proper voltage is available check fuses and circuit breakers.
	Pump or motor not operating correctly.	Contact your distributor for replacement or repair of pump or motor.
Low production rate	Low operating pressure.	See above Sr. No. 1 of Trouble Shooting.
	Inaccurate flow meter.	Check the flow rate manually with a stop watch and a calibrated container.
High operating pressure	Plugged valve or Pipe.	Clean or replace the same.
	Choked media.	Initiate manual backwash
	Inaccurate pressure gauge.	Repair or replace pressure gauge.
Product water	Change in incoming water quality.	Test the water for pH, hardness, Turbidity and iron content. Obtain a water analysis of the new feed water & cross check.
High Chlorine in product water	Choked media.	Initiate Manual backwash and re-check filtrate.
	Ineffective media.	Check technical specifications for required quantity.
ON/OFF switch ON; System is not operating	No power to the System.	Ensure valve/pump is plugged in.
	Pressurized storage switch or storage tank float switch has cut power to system.	The storage tank may be full. The switch control may require adjustment (if installed with the system).
	Thermal overload of motor.	Allow motor to cool. Check the current draw of the motor.
	Alarm condition is turning the system ON/OFF	Check for minimum inlet pressure.
	Pump motor failure.	Check the fuses or circuit breakers; measure the voltage. Contact your distributor for service.
	Valve Malfunction.	Refer valve manual.

START-UP CHECKLIST

- Use this form to record initial system hardware and site conditions.
- Retain a copy for future reference.
- Fill in the appropriate data (if available).
- Checklist data should be collected and logged on this form for each system installed.

Start-up Data:

Installation Date: _____
Installer: _____
Installation Site: _____
Application: _____
System Model: _____
Serial Number: _____
Water Source: _____
Pretreatment Installed: _____
Feed Water Analysis: _____
SDI: _____
Turbidity: _____
Total Iron: _____
Chlorine: _____
Feed Water Temperature: _____
Starting System Inlet Pressure: _____
Starting System Outlet Pressure: _____
Pressure at start-up: _____
Flow Meter Readings: _____
Start-up: _____
Signature of Installer: _____
Installation Feedback Notes: _____
Installation Address: _____

Checklist of Installation:

1. Installation location allows access to electrical power, water supply and drain.
2. Listed components/fittings present.
3. Loose components assembled to system.
4. System securely in place into wall stud or support with 5/16" (8 mm) diameter screws or floor bracket.
5. Plumbing connections completed; feed water, service, brine tank overflow to drain with air gap.
6. Initial flush w/o leaks.
7. Electrical power connected single phase Volts Hz.
8. Controller display okay.
9. Dynamic water pressure to system is greater than 30 psi(2.1 Kg/cm2) [207 kPa] and less than 100 psi (7 Kg/cm2)[689 kPa].
10. Proper operation verified.
11. Installation/Set-Up information entered onto form.
12. Proper pre-treatment is installed based on water test, flushed and working.

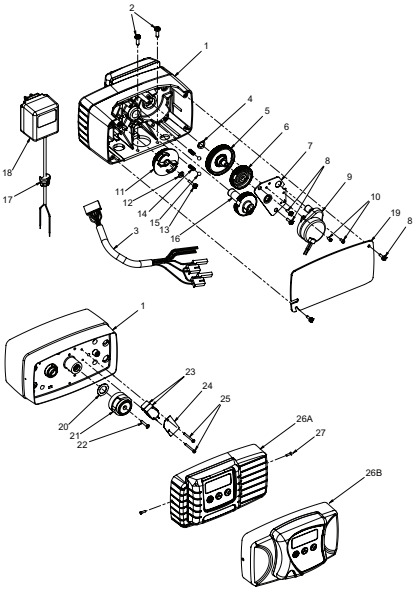
INLET WATER CONDITIONS

Inlet water Limiting conditions for TOOBI AUTO SAND FILTER SYSETM

PH Value: 6 - 8	SDI: _____	Iron : _____ppm
TSS : <25 ppm	Chlorine: _____ppm	Pressure: 2 – 6 Kg/cm^2
Hardness:_____mg(CaCO3)	Turbidity: <5 NTU	Temperature: 2°C -40°C
Manganese: _____ppm	Organics: _____ppm	

EXPLODED VIEW - AUTO VALVES

Powerhead Assembly Exploded View



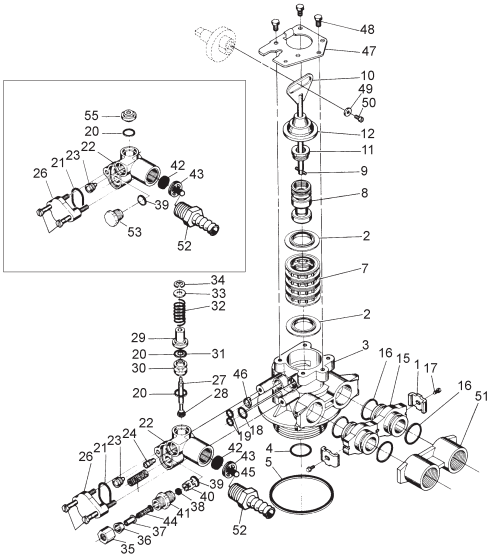
60501-58SE_REVA

Item No.	Quantity	Part No.	Description
1	1	26001-02	Housing, Control Valve Drive
2	2	12473	Screw, Hex Wsh 10-24 x 5/8
3	1	19474	Hamess, Power, 56SXT, Elect
4	1	13299	Washer, Spring, 3/8
5	1	13017	Gear, Idler
6	1	23045	Gear, drive, 6700
7	1	13175	Plate, Motor Mounting
8	4	13296	Screw, Hex Wsh 6-20 x 1/2
9	1	16944	Motor, Drive, 24V 60Hz 2RPM
10	2	11384	Screw, Phil, 6-32 x 1/4 Zinc
11	1	18722	Cam, Brine Valve, 56SXT/6700 Blk
12	1	12037	Washer, Plain, #10 18-8 SS
13	1	40214	Screw, Hex Wsh, #5-20 x 3/4
14	2	19080	Spring, Compression, 6700
15	2	13300	Ball, 1/4" SS
16	1	25005-10	Gear, Main Drive, SXT
17	1	13547	Strain Relief, Flat Cord
18	1	19674	Transformer, 24V, 9.6VA, Residential Valves
		41475	Transformer, 24V, 9.6VA, European
19	1	40338	Cover, Black Drive Housing
20	1	19079	Washer, Friction
21	1	17438	Cam, 56SXT/6700, Downflow
		40609	Cam, Double Backwash, D/F
22	1	15151	Screw, Flat Hd St, 6-20 x 3/4
23	2	10218	Switch, Micro
24	1	10302	Insulator, Limit Switch
25	2	17876	Screw, Phil, Pan, 4-40 x 1 1/18
26A	1	6672-0201	Front Panel Assy, 56SXT, Square,Black
26B	1	1673-0201	Front Panel Assy, 56SXT, Curved,Black
27	2	13898	Screw, Flat Hd, Phil Steel

Recommended Spares for Valve alone

61672-0201	TIMER ASSY,56SXT
41475	Transformer, 220VAC to 24VAC(41475)
16944	Drive Motor
10218	Micro/Aux. Switch

Control Valve Exploded View



Item No.	Quantity	Part No.	Description
1	2-4	13255	adapter clip (clock or meter)
2	5	13242	Seal
	5	40828	Seal, 559PE
3	1	61400-12	Valve body assembly, 1 dist.
	1	61400-11	Valve body assembly, 3/4 dist.
4	1	13304	o-ring, distributer tube, 1
	1	10244	o-ring, distributer tube, 13/10
5	1	12291	o-ring, top of tank
7	4	14241	soacer
8	4	17218	piston, 56SXT/6700, D/F
9	1	10696	piston, pin
10	2	14469	rod, piston, 56SXT/6700
11	1	14309	retainer, piston, rod
12	1	13243-40	plug, end, 56SXT/6700, green
13	1	13446-20	end plug assembly low water, gray
14	2	13315	screw, injector mounting
15	2	19228-01	adapter assy, coupling, 5600 w/o-ring

16*	4	13305	o-ring, adapter coupling
17*	2-4	13314	screw, adapter coupling (clock or meter)
18	1	12638	o-ring, drain
19	2	13301	o-ring, injector
20▲	2	13302	o-ring, brine spacer
21	1	13303	o-ring, injector cover
22	1	13163	injector body
23▲	2	10913-x	injector nozzle, specify size
24	1	10914-x	injector throat, specify size
25	2	10227	injector screen
26	1	13166	injector cover
27	1	13172	brine valve stem
28	2	12626	brine valve seat
29	1	13165	brine valve cap
30	1	13167	brine valve spacer
31	1	12550	quad ring
32	1	11973	spring, brine valve
33	1	16098	washer, brine valve
34	1	11981-01	retaining ring
35	1	10329	BLFC fitting nut
36	11	10330	BLFC ferrule
37	1	10332	BLFC tube insert
38		12094	BLFC button, .25 gpm
	1	12095	BLFC button, .50 gpm
	1	12097	BLFC button, 1.0 gpm
39▲	11	12977	o-ring, BLFC
40	1	13245	BLFC button retainer
41	1	13244	BLFC fitting, 3/8
42	1		DLFC button, specify size
43	1	13173-01	retainer, DLFC, button, w/o-ring
44		12767	screen, brine line
46	1	13497	air disperser
47	1	13546	end plug retainer
48	3	12112	screw
49	1	13363	washer
50	1	13296	screw
51	1	13398	yoke, brass, 1 NPT
	1	13708	yoke, brass, 3/4 NPT
	1	18706	yoke, plastic, 1 NPT
	1	18706-02	yoke, plastic 3/4 NPT
	1	19275	yoke, angle 90 deg, 3/4", NPT
	1	19275-45	yoke, angle 90 deg, 3/4" sweat
	1	19620-01	yoke assy, 3/4", r/angle, 90 deg w/o-rings, clips, & screws
	1	40636	yoke, 1 1/4" NPT
	1	40636-49	yoke, 1 1/4" sweat
52	1	13308	drain hose barb
53	1	13918	BLFC, plug
54▲	1	13857	brine valve, plug

PRESSURE VESSEL SAFETY GUIDELINES

IMPORTANT

For your safety, please read the entire installation manual before attempting to install this product.
Never install the Pressure Vessel where it can freeze.

WARNING

Failure to install and operate Structural Polyglass Pressure Vessel according to the manufacturer's recommendations may cause the Pressure Vessel to fail resulting in fatal injury, property damage and/or render the tank inoperable.

INSTALLATION INSTRUCTIONS

WARNING: Before starting the installation, please read all installation information and supplements.

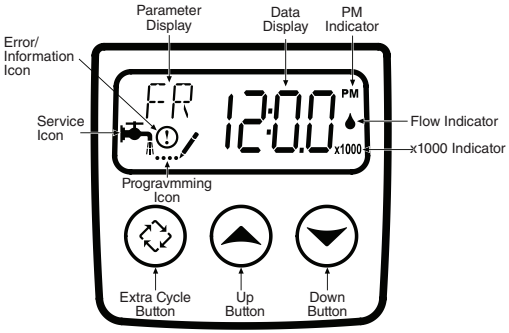
Checklist of Installation:

1. Please inspect the Structural Polyglass pressure vessels for any damages occurred in transit prior to signing the acceptance form.
2. All Structural Polyglass pressure vessels are to be placed in a vertical upright position.
3. Never roll or slide the Structural Polyglass pressure vessels on its side.
4. Never drop a pressure vessel or allow hard impact or abrasion of the pressure vessel from contact with walls, partitions, tools, or equipment.
5. Do not use hooks or chains around the pressure vessel during rigging.
6. It is recommended to use Vaccum Breaker (Aeration valve) with Polyglass Pressure vessels. Warranty is not applicable on any failure if the Vaccum Breaker is not installed on it.
7. System connections to the Structural Polyglass pressure vessel must accommodate vertical expansion between top and bottom openings. Either flexibility in piping or flex connectors is recommended
8. When assembling the valve to the Structural Polyglass pressure vessel be sure o-ring on valve fitting are in placed & clean, Use lubricant applied lightly, such as silicon grease or similar product.
9. Do not use metallic piping for installing Structural Polyglass pressure vessels as this may permanently damage the pressure vessels.
10. All Structural Polyglass pressure vessels are approved for water filtration use only and the manufacturer must approve for any other applications.
11. Structural Polyglass pressure vessels should not be exposed to temperature more than 49° C.
12. Structural Polyglass pressure vessels should not be used for pneumatic or hydro-pneumatic applications.
13. Structural Polyglass pressure vessels should not be exposed to direct sunlight unless otherwise protected.
14. Minimum two minutes system flushing is recommended for all Polyglass pressure vessels prior to use.
15. Warranty will be void if unauthorized modification is carried on Structural Polyglass Pressure Vessel.

AUTO VALVE – 5600 SXT FILTER – SET UP PROCEDURE

Quick Programming Manual (Timer valve based systems):

The image below describes the User Interface of the SXT controller



This programming manual describes only the steps needed for programming the SXT controller for a time based system.

This programming manual describes only the steps needed for programming the SXT controller for a metered valve system. If the system is equipped with time based valve please refer to the Quick Programming Manual for SXT (Timer based valve).

The instructions describe the programming of the valve (with SXT controller) for three usage scenarios-

1. Manual Regeneration – First time the valve is operated with a system, it requires a regeneration to be performed. Subsequently, when the system is in operation, this mode can be used for manual regeneration at any point.
2. Master Programming – Once the system is commissioned, the valve needs to be programmed to set up the valve parameters to make the system operational.
3. User programming – Once the system is operational, if the user wants to change certain parameters, this mode is used.

Section - I "Manual Backwash/Rinse"

1. Press Extra Cycle button ⟲ for 5 seconds
2. Display Panel will show "BW" blinking which means the valve position is in Back Wash Mode.
3. System will run in Back Wash for default 10min but if user wants to move to next position then press Extra Cycle button (EC button will only work after completing its duty cycle or once the noise of motor and gear in valve stops. This is applicable for all consecutive steps).
4. Press Extra Cycle button and next Position is Rapid Rinse which is represented by "RR" in display.
5. After completing all the cycles system will comes to its normal service mode and will show default factory set time.

Section - II "Master Programming Mode"

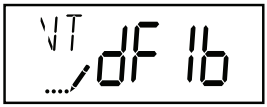
CAUTION: Before entering Master Programming, please contact your local authorized dealer.

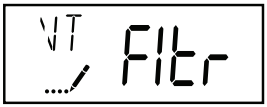
1. To enter the Master Programming Mode, the Time Of Day display should be set to 12:01 To set the time follow these steps –
   a. Press and hold either the Up or Down buttons until the programming icon replaces the service icon and the parameter display reads TD.

   b. Adjust the displayed time with the Up and Down buttons.
   c. When the desired time is set, press the Extra Cycle button to resume normal operation. The unit will also return to normal operation after 5 seconds if no buttons are pressed.

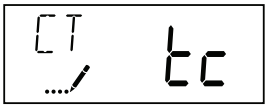
2. Once the time is set to 12:01 , press and hold the Up and Down buttons together until the programming icon replaces the service icon and the Display Format “DF” screen appears.
3. Display Format (DF) setting specifies the unit of measure. User will get two options by pressing up and down key:
    a. Ltr – Liters
    b. GAL – Gallons
4. Select “Ltr” and press Extra Cycle Button.

5. Valve type “VT” will be display. User will get the following option by pressing up and down key:
    a. dF1b – Standard Downflow/Upflow, Single Backwash
    b. df2b – Standard Downflow/Upflow, Double Backwash
    c. Fltr – Filter
    d. UFbd – Upflow Brine First
    e. UFtr- Upflow Filter
    f. Othr – Other
6. Softener users will select “St1b” and Filter (ACF and PSF) user will select “Fltr”

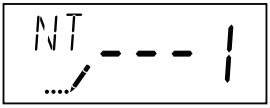




7. Press Extra Cycle button, Control Type “CT” will be displayed. User will get following options:
    a. Meter Delayed: Fd
    b. Meter Immediate: FI
    c. Time Clock: tc
    d. Day of Week: daY
    e. Variable Reserve: fdbr
8. Select “tc” and press Extra Cycle button



9. Number of Tanks “NT” will be displayed. Use up and down key to select number of tanks (1) and press Extra Cycle button



10. Day Override “DO” will be displayed. This setting specifies the maximum number of days between regeneration cycles. Select number of days by using up and down key

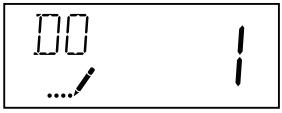
11. After selecting day press Extra Cycle button, Regeneration Time “RT” will be displayed. By default 02:00 hours will be displayed which means early morning 2:00am

12. Press Extra Cycle button, Backwash “BW” will be displayed. Enter the time for how much minutes you want to backwash your system. By default 10 will be displayed which means system will backwash for 10 minutes. Uses up and down key for increasing or decreasing the time.
13. Press Extra Cycle button, Rapid Rinse “RR” will be displayed. Enter the desired time using up and down key.
16. Press Extra Cycle Button and user will come out of Master programming to Service mode and all setting will get saved (if user does not complete the full cycle settings will not get saved).

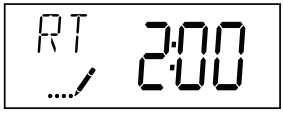
Note: Once all parameters are set user should not manipulate Master programing again and again. For changing Day Override and Regeneration time user should go to “User Programing Mode” which explained below:

Section - III “User Programming Mode”

1. **Entering User Programming mode :** Press the Up and Down buttons for five seconds and the time of day is NOT set to 12:01 PM.
2. **Setting days between regeneration :** As you enter the “user programming mode”, Day Override “DO” will be displayed. This setting specifies the maximum number of days between regeneration cycles. Select number of days by using up and down key.



3. **Setting Regeneration Time :** After selecting Day Override press Extra Cycle button, Regeneration Time “RT” will be displayed. By default 02:00 hours will be displayed which means early morning 2:00am. Set time using up and down key.



4. **Leaving “user Programming Mode” :** Press Extra Cycle button, user will come out of User Programing Mode to service mode.

MASTER PROGRAMMING CHART

Master Programming Options			
Abbreviation	Parameter	Option Abbreviation	Options
DF	Display Format	GAL	Gallons
		Ltr	Liters
		Cu	Cubic Meters
VT	Valve Type	St1b	Standard Downflow/Upflow Single Backwash
		St2b	Standard Downflow/Upflow Double Backwash
		Fltr	Filter
		UFbF	Upflow Brine First
		Othr	Other
CT	Control Type	Fd	Meter (Flow) Delayed
		Fl	Meter (Flow) Immediate
		tc	Time Clock
		dAY	Day of Week
NT	Number of Tanks	1	Single Tank System
		2	Two Tank System
TS	Tank in Service	U1	Tank 1 in Service
		U2	Tank 2 in Service
C	Unit Capacity		Unit Capacity (Grains)
H	Feedwater Hardness		Hardness of Inlet Water
RS	Reserve Selection	SF	Percentage Safety Factor
		rc	Fixed Reserve Capacity
SF	Safety Factor		Percentage of the system capacity to be used as a reserve
RC	Fixed Reserve Capacity		Fixed volume to be used as a reserve
DO	Day Override		The system's day override setting
RT	Regen Time		The time of day the system will regenerate
BW, BD, RR, BF	Regen Cycle Step Times		The time duration for each regeneration step. Adjustable from OFF and 0-199 minutes. NOTE: If "Othr" is chosen under "Valve Type", then R1, R2, R3, etc, will be displayed instead
D1, D2, D3, D4, D5, D6, & D7	Day of Week Settings		Regeneration setting (On or OFF) for each day of the week on day-of-week systems
CD	Current Day		The Current day of the week

