

# AMIAD Automatic Filters

## 2" & 3" TAF - Electronically controlled Automatic Hydraulic Filter cat. no. 03-9

Serial Number: \_\_\_\_\_

Order Number: \_\_\_\_\_

Catalogue Number: \_\_\_\_\_

Filtration Degree: \_\_\_\_\_

Tested By: \_\_\_\_\_

## Installation, Operation and Maintenance Instructions

(Mark 2) - 0803

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With any inquiry please quote Filter Serial Number, located on the filter housing.

# TECHNICAL SPECIFICATIONS

## General

Filter type	2" TAF	3" TAF	
Inlet/Outlet diameter	50 mm (2")	80 mm (3")	2" = BSP or NPT thread 3" = Flanges per request, or threads
Maximum flow rate	25 m <sup>3</sup> /h (110 USgpm)	50 m <sup>3</sup> /h (220 USgpm)	Consult manufacturer for optimum flow depending on filtration degree & water quality.
Min. working pressure	2.5 bar (35 psi)		or lower if pressure is increased for flushing.
Max. working pressure	10 bar (150 psi)		
Filter area	465 cm <sup>2</sup> (72 in <sup>2</sup> )		
Max. working temperature	60°C (140°F)		

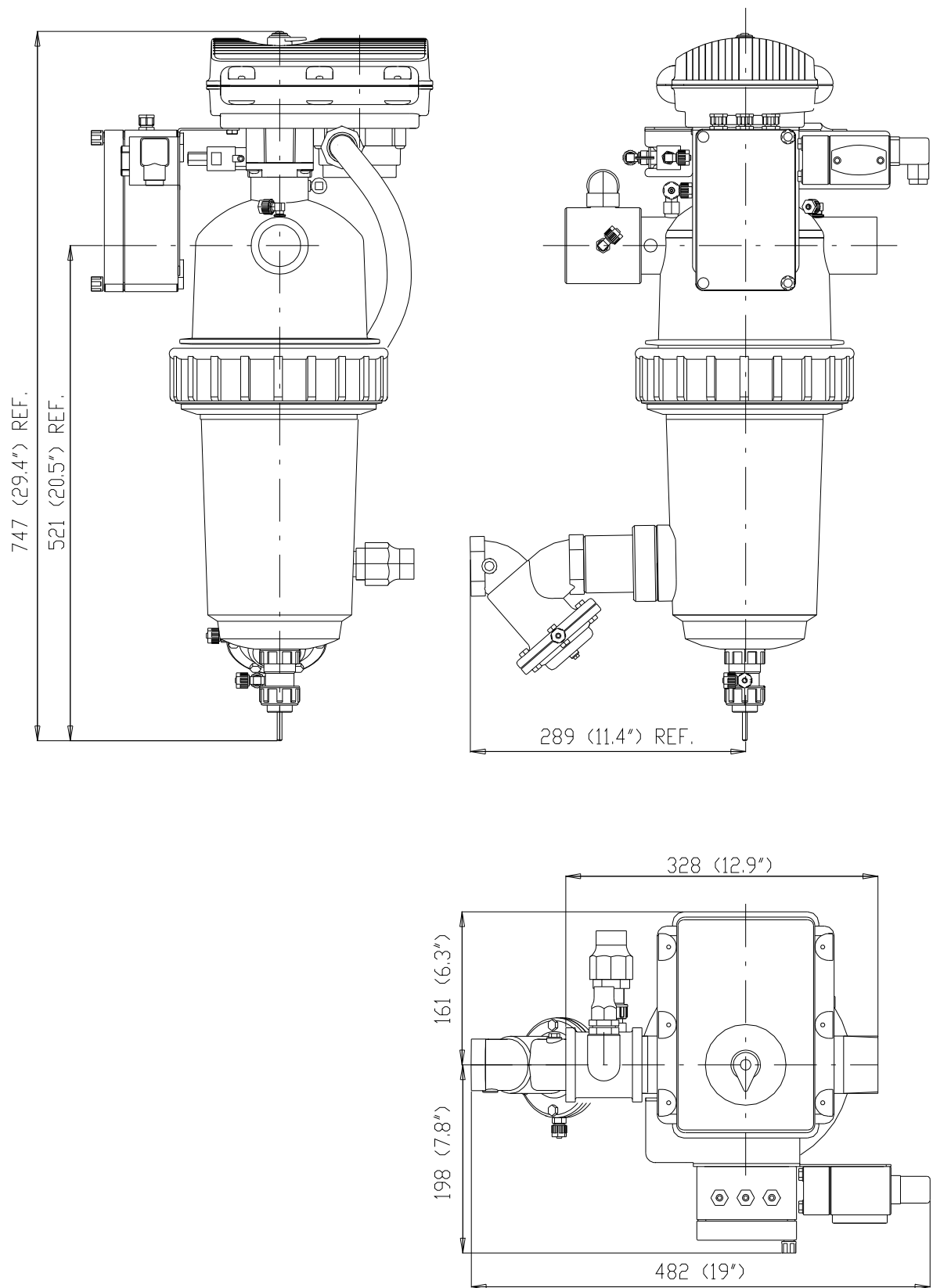
## Flushing Data

Exhaust valve	40 mm	1 1/2"	
Flushing cycle time	12 seconds	12 seconds	at 4 bar = 60 psi
Wasted water per cycle	32 liter	8.5 gallon	
Minimum flow for flushing	8 m <sup>3</sup> /h	35 USgpm	at 2.5 bar = 35 psi
Flushing criteria	Differential pressure of 0.5 bar and manual operation		

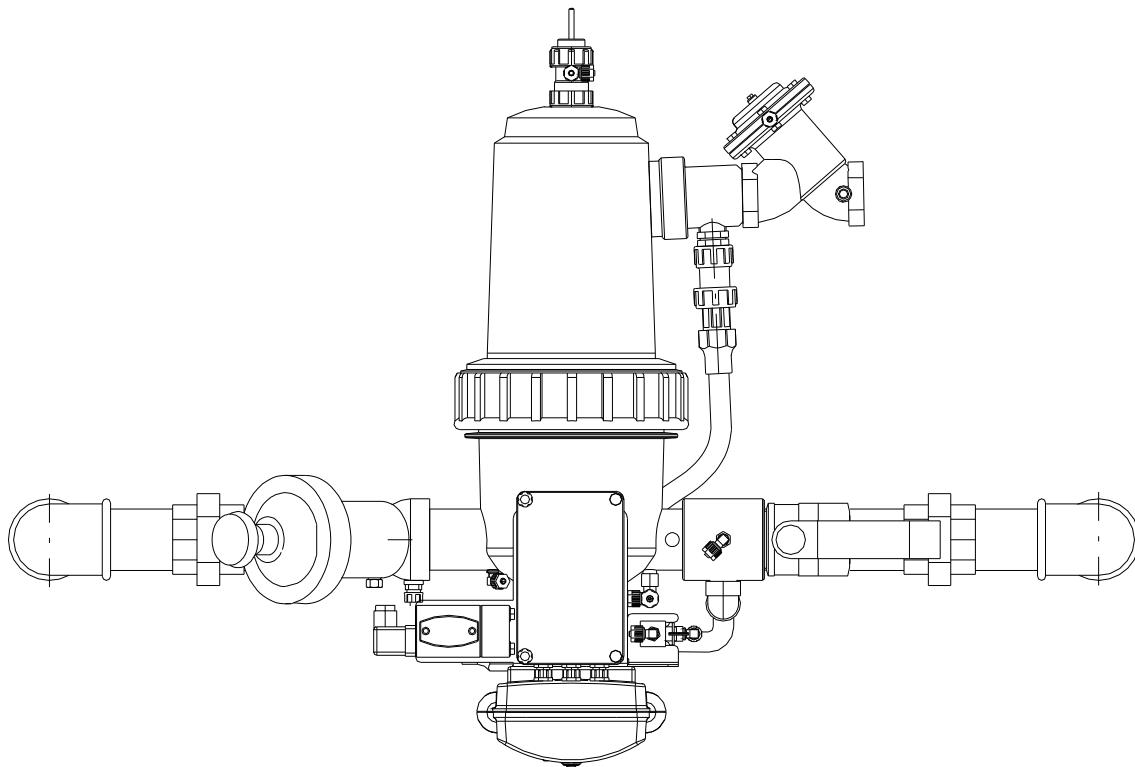
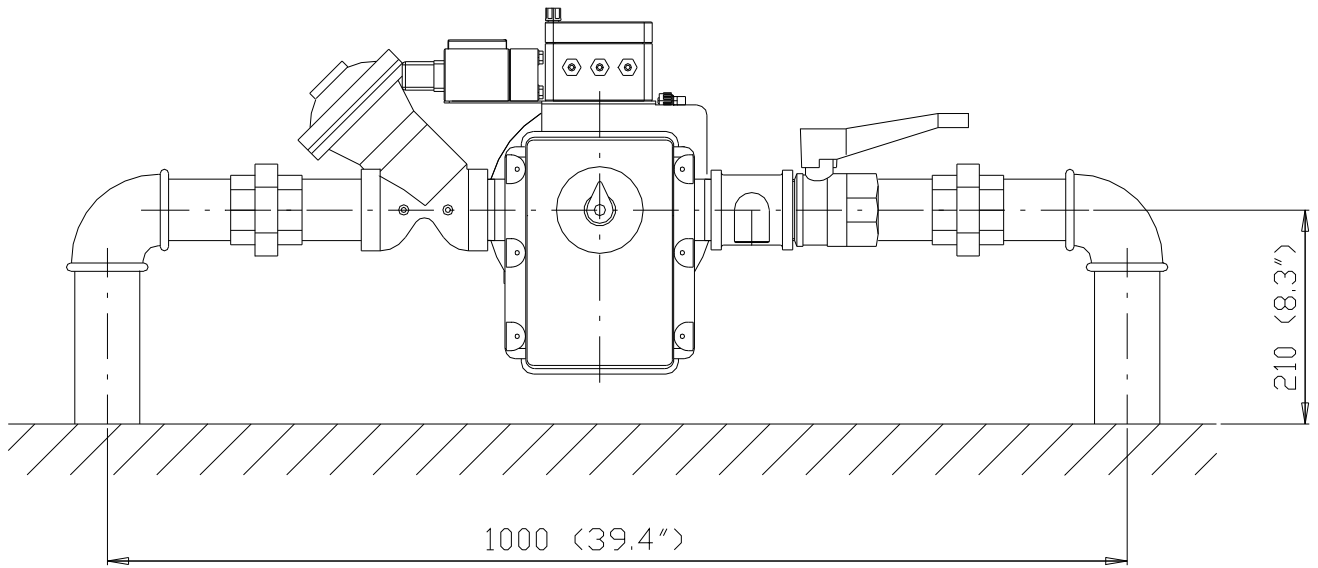
## Standard filtration degrees

	Moulded Stainless Steel Screen						
micron	500	300	200	130	100	80	50
mm	0.5	0.3	0.2	0.13	0.1	0.08	0.05
mesh	30	50	75	120	155	200	300

# GENERAL DIMENSIONS



# RECOMMENDED INSTALLATION DRAWING



# DESCRIPTION OF FILTER OPERATION

The "TAF" Automatic self-cleaning Filter is an electronically controlled hydraulic filter. The filter is designed to work with various types of screens in filtration degrees from 500 to 50 micron, and is available in 2", and 3" inlet/outlet diameter.

## **Filtering process:**

The filter comprises of the following components: Filter housing, lid and tightening nut, screen element, flushing chamber, self-cleaning mechanism and control system.

The water enters through the inlet pipe into the screen area from inside out. The "filtration cake" accumulates on the screen surface and causes head loss to develop.

## **Control system:**

The control system comprises of a Pressure Differential Switch (PDS), Solenoid Valve and Flushing Controller.

The PDS senses the pressure differential across the screen and when it reaches 0.5 bar (7 psi) it sends a signal to the electronic controller. The controller activates the 3-way solenoid valve for the duration of the flushing cycle.

## **Initiation of self-cleaning:**

The filter will enter the self-cleaning process as a result of any of the following causes:

1. Pressure Differential across the screen.
2. Manually pressing the push button located in the controller box.
3. Time intervals that can be determined by the controller dip switches.

## **Self-cleaning process:**

The self-cleaning mechanism comprises of the following components: Hydraulic turbine, Scanner piston, Suction scanner, Exhaust valve, External valve (where applicable)

The hydraulic command provided by the solenoid valve, causes the downstream valve (if applicable) to close, the exhaust valve to open, and the piston to move inwards.

The exhaust valve, which is open to the atmosphere, allows water to flow through the turbine as well as through the suction scanner nozzles. The suction scanner scans the entire screen surface in a spiral movement by a combined action of the hydraulic turbine and the piston.

The turbine rotates the suction scanner that sucks in the dirt from the screen surface and expels it out through the exhaust valve.

After 12 seconds \* the controller stops the solenoid and eliminate the hydraulic command. At this stage the exhaust valve closes, the downstream valve opens and the piston returns to its original position.

\* The flushing duration is determined by the controller dip-switch S2. The time should be long enough to ensure complete travel of the piston. Please note that too long flushing duration will not provide any advantage since the piston is not moving and the suction scanner will rotate in the same place.

# INSTALLATION

## Design recommendations:

1. The filter requires 8 m<sup>3</sup>/h for flushing, in addition to the working flow rate at a minimum pressure of 2.5 bar (35 psi).
2. In case that the system cannot provide the flushing flow in addition to the working flow at the minimum pressure – a filter with a downstream valve must be used.
3. Do not allow water to flow in opposite direction. In case that there is a chance of back flow – install a non-return check valve downstream of the filter.

## Installation instructions:

1. Install a manual valve upstream of the filter in order to allow convenient maintenance.
2. The diameter of the inlet pipe must not be smaller than that of the filter inlet.
3. Install the filter horizontally in a way that allows convenient approach and enough space to dismantle the filter for maintenance purposes.
4. Ensure the direction of flow according to the arrows marked on the filter housing.
5. The exhaust valve can be facing downwards or sideways. Connect a minimum of 2" pipe to the exhaust valve using a detachable connector or a flexible pipe. The exhaust pipe should be designed so that it creates minimal resistance to flow of 8 m<sup>3</sup>/h (35 USgpm).
6. If the system is designed to operate with working pressure higher than 6 bar (85 psi), it is recommended that a manual valve is installed on the exhaust pipe, in order to enable regulation of the flushing flow rate.

## Start-up and first operation:

1. Set the controller dip switches to 12 seconds flushing time and 2 hours intervals.
2. Verify proper operation of the controller, please refer to the controller operation instructions.
3. Open the inlet valve to the filter, while the outlet valve remains closed or with an open by-pass valve (This will keep the flow in the filter at a minimum), and operate a flushing cycle by pressing the push-button on the controller panel.
4. Make sure the exhaust valve opens and all stages of the flushing cycle are carried out. Attend to leakage, if any. If necessary, change the time setting of S2 to ensure complete flushing cycle.
5. Gradually open the outlet valve and/or close the by-pass valve. Operate the filter at the designed hydraulic conditions.
6. Set the time intervals (S1) to 2 or 4 hours, follow the filter operation and change the timer setting if necessary.

# PARTS SCHEDULE

Refer to drawing on pages 10 & 11

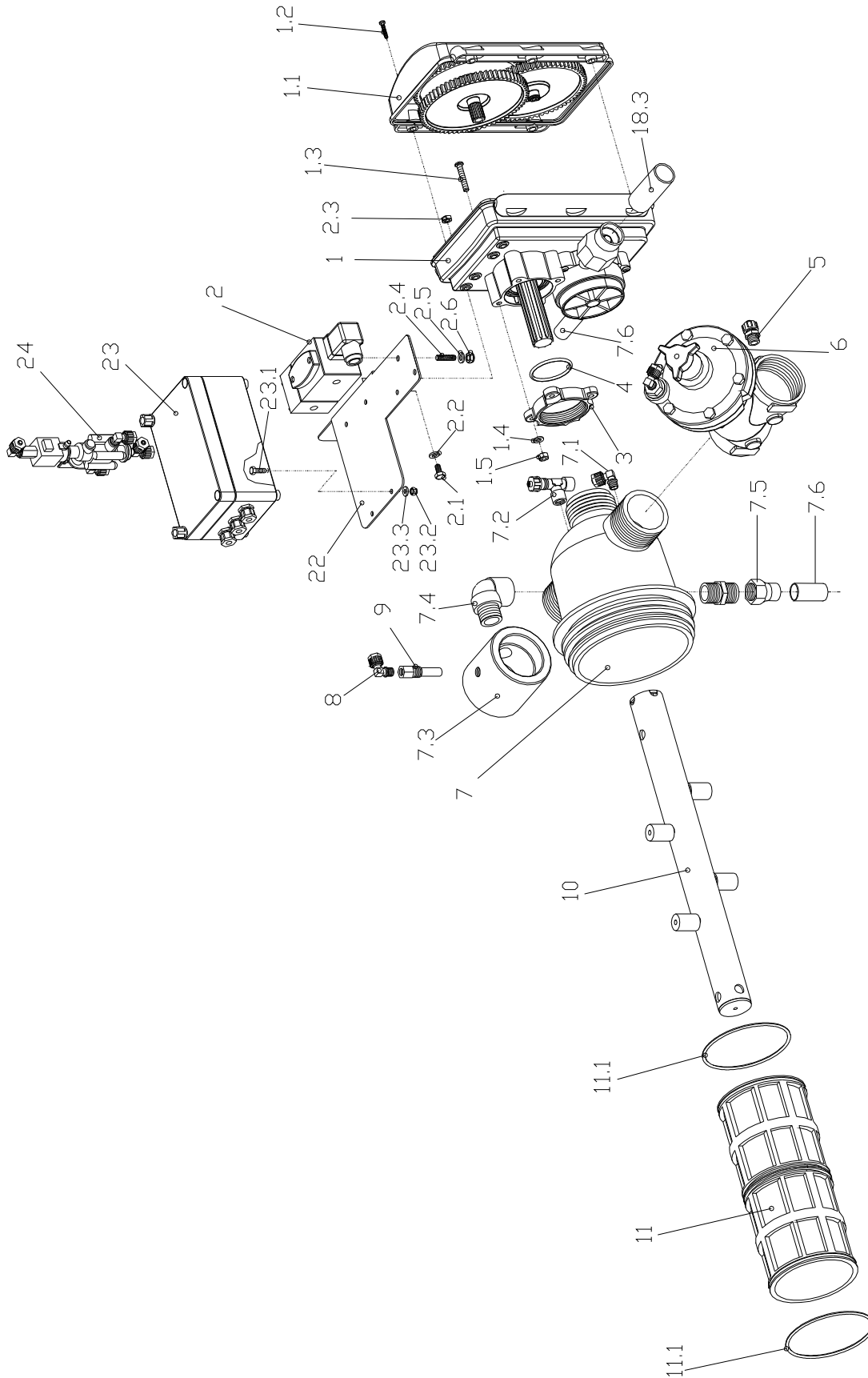
No.	Description	Cat. No.
1	Hydraulic Turbine	13-9203-0100
1.1	Hydraulic Turbine (Upper Part)	N/A
1.2	Bolt 4 X 20 (X6)	85-2123-04-020
1.3	Socket Bolt M6 X 20 (X4)	85-2142-06-020
1.4	Washer M6 (X4)	85-2312-06-000
1.5	Nut M6 (X4)	85-2212-06-000
2	Pressure Differential Switch	84-34-10-0003
2.1	Bolt M6 X 20 (X2)	85-2112-06-020
2.2	Washer M6 (X2)	85-2312-06-000
2.3	Nut M6 (X2)	85-2212-06-000
2.4	Socket Bolt M6 X 25 (X2)	85-2142-06-025
2.5	Washer M6 (X2)	85-2312-06-000
2.6	Lock-Nut M6 (X2)	85-2232-06-000
3	Flange adaptor 2"T	61-5200-0050
3.1	Adaptor for 3" T filter *	63-9301-0011
4	Flange adaptor Seal	81-41-4100-3545
5	Pressure Check Point	12-0100-0012
6	2" Hydraulic Valve	82-31-4020-0000
7	2" T Housing	63-9203-2131
	3" T Housing *	63-9303-2131
7.1	L-Connector 1/8" X 8 mm	82-11-0469-4802
7.2	T-Connector 1/4"	82-13-9000-0025
7.3	PVC T 2" X 3/4" X 2"	63-9201-0012
	PVC T 3" X 3/4" X 3" *	63-9301-0012
7.4	3/4" L Connector F X M	83-3825-0073-0000
7.5	3/8" Pipe Connector	84-84-20-0316
7.6	3/8" Flexible black tube	91-15-0311-006
8	L-Connector 1/8" X 8 mm	82-11-0469-4802
9	1/4" Finger filter	84-3900-0001
10	Suction Scanner for 2" T	13-9203-0200
	Suction Scanner for 3" T *	13-9303-0200
11	2"T Auto. Screen Element	51-5203-10XX
11.1	2"3" Cylinder O-Ring	81-41-4000-0242

No.	Description	Cat. No.
12	Flushing Chamber	13-9203-0300
12.1	Flushing Chamber Seal	81-41-4000-0355
13	2"T Piston for	63-9201-0632
13.1	Piston O-Ring	81-41-4000-0331
13.2	Piston Indicator (Elec. Control)	63-9201-0632
14	2"T Piston Cylinder	63-9201-0631
14.1	Flow Restrictor (Green)	84-30-20-0002
14.2	T- Connector 8 X 8 X 1/8"	82-11-0472-4802
14.3	O-Ring P2 -008	81-41-4000-0008
14.4	O-ring P2-225	81-41-4000-0225
14.5	Cylinder Tightening Nut	63-9201-0624
15	2" T Auto. Housing Lid	63-9201-0610
15.1	Lid O-Ring P 2-437	81-41-4000-0437
16	Adapting Nipple	63-9201-0611
16.1	Adapting Nipple seal P 2-228	81-41-4000-0228
16.2	1 1/2" Pipe Adaptor	63-9201-0613
17	1 1/2" Connecting Pipe	63-9201-0625
17.1	O-ring P2-225	81-41-4000-0225
18	1/2" Pipe Connector	61-4040-4031
18.1	1" M X 3/4" F Connector	61-4040-4011
18.2	3/4" Plastic Nipple	83-2820-1075-1075
18.3	1/2" Flexible black tube	91-15-0311-008
19	1 1/2" NC Exhaust Valve	82-31-4015-1100
21	Piston Cover	63-9201-0635
21.3	Raccord Nut	61-4040-4012
21.4	O-Ring P2 -008	81-41-4000-0008
22	Control System Sling	63-9201-0423
23	FTG-S Flushing Controller	84-87-42-7003
23.1	M5 X 16 Bolt (X4)	85-2142-05-016
23.2	M5 Lock-Nut (X4)	85-2232-05-000
23.3	Washer M5 (X4)	85-2312-05-000
24	"Gal-Sol" Solenoid Assembly	18-7000-2001

\* In 3"T filter only

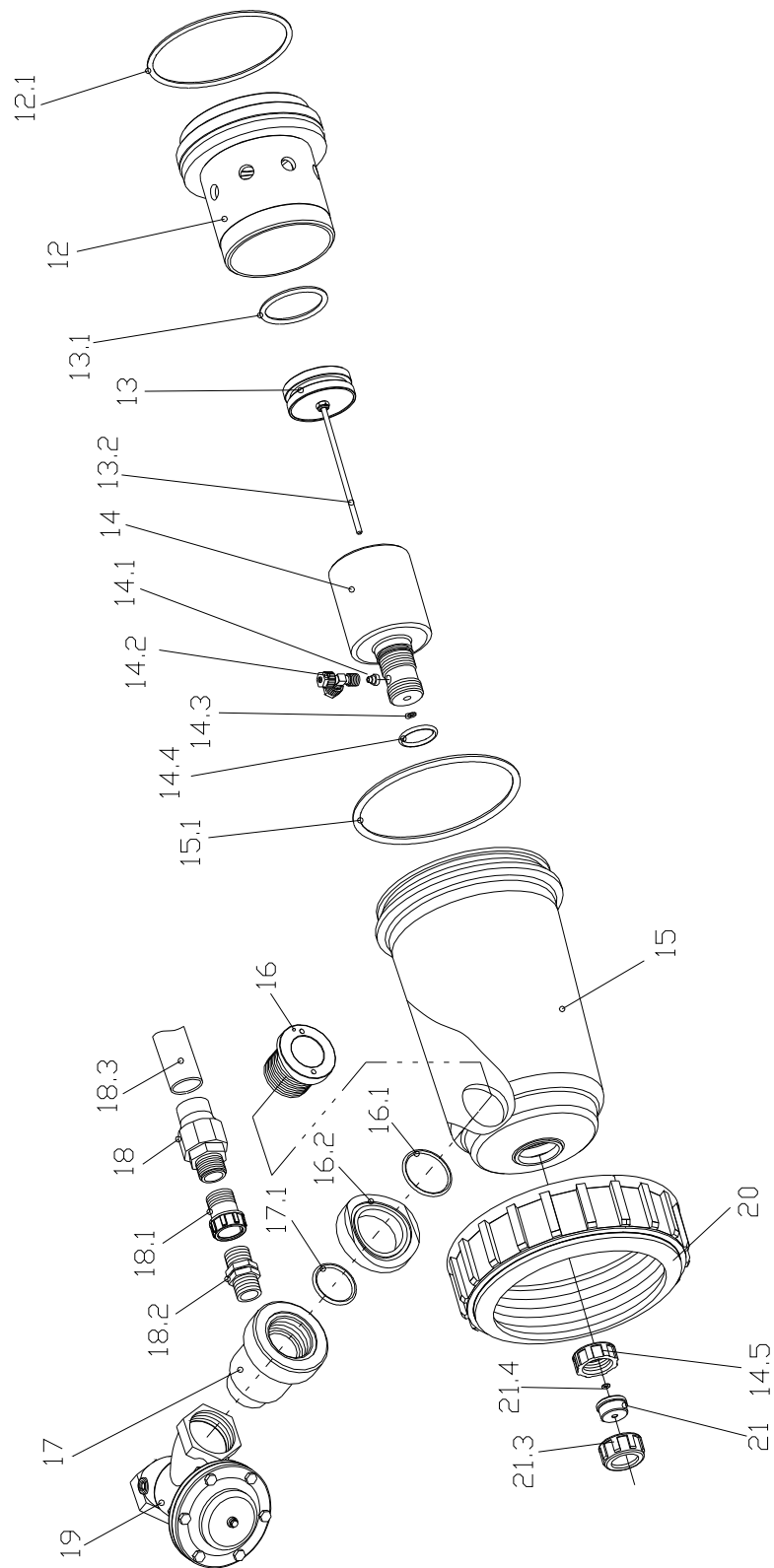
# PARTS DRAWING

## Section 1



# PARTS DRAWING

## Section 2



# CONTROL SYSTEM

