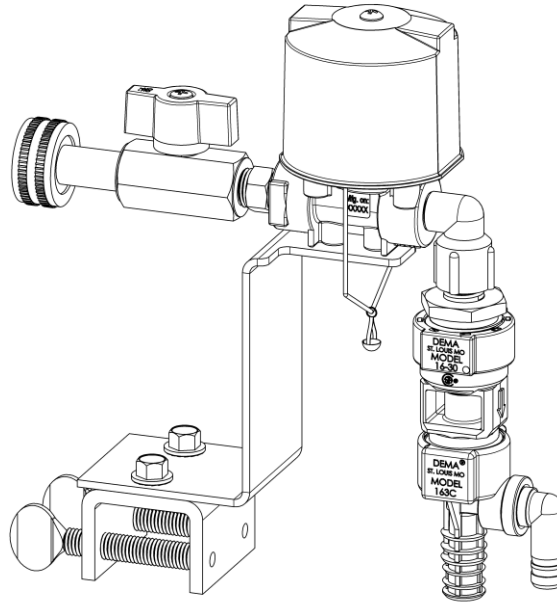


# Sentinel

## 540 Series Float Valve's



### Overview

The Sentinel 540 series float valve is designed to automatically fill and maintain fluid levels in reservoir's while accurately diluting chemical concentrates with water if used with DEMA's proportioners. Dispensers can be set up to meet specific application needs with different abilities to offer.

### Warnings



**WARNING: INSTALLATION OF DEMA PRODUCTS MUST MEET ALL APPLICABLE PLUMBING CODES AND REGULATIONS ESTABLISHED BY NATIONAL, CITY, COUNTY, PARISH, PROVINCIAL OR OTHER AGENCIES. IT IS POSSIBLE THAT PLUMBING CODES AND REGULATIONS REQUIRE THAT A CERTIFIED INSTALLATION CONTRACTOR OR ENGINEER PERFORM THE PLUMBING INSTALLATION.**

**ALWAYS TURN OFF THE WATER TO THE DISPENSER WHEN NOT IN USE.**



**READ ALL PRODUCT SAFETY DATA SHEETS (SDS) AND USE PERSONAL PROTECTIVE EQUIPMENT AS DIRECTED BEFORE INSTALLING OR DISPENSING ANY CHEMICAL FROM THIS DISPENSER.**

### Operational Requirements

	Minimum	Maximum
Water Pressure	20 psi (1.38 bar)	95 psi (6.55 bar)
Water Temperature	-	120°F (49°C)

**\*\* Recommended water pressure is between 20 psi (1.38 bar) and 80 psi. (5.52 bar). If pressure exceeds 80 psi, it is recommended that a P/N 66.43 regulator is used.**

## Installation and Servicing

---



**WARNING: INSTALLATION OF DEMA PRODUCTS MUST MEET ALL APPLICABLE PLUMBING CODES AND REGULATIONS ESTABLISHED BY NATIONAL, CITY, COUNTY, PARISH, PROVINCIAL OR OTHER AGENCIES. IT IS POSSIBLE THAT PLUMBING CODES AND REGULATIONS REQUIRE THAT A CERTIFIED INSTALLATION CONTRACTOR OR ENGINEER PERFORM THE PLUMBING INSTALLATION.**

**A. Valve Bracket and Proportioner Assembly:**

Attach bracket to tank. Connect a garden hose to the valve assembly or mount the valve assembly directly to a ¼ NPT pipe line by removing the inlet garden hose adapter. If using a ¼ NPT connection, apply pipe dope or 2-3 wraps of Teflon tape, hand tighten. Then turn with a wrench until snug. **DO NOT OVER TIGHTEN.**

Plastic discharge tubing is supplied and must be used. (Only on models with proportioners.). Do not kink discharge tubing. The discharge tubing outlet should be below the bottom of the float.

**B. Float and Chain:**

Run chain through the clip on the pull wire until the top of the float is about 1 or 2 inches above the desired maximum water level (with pull wire in "up" position). Snap the bead into the clip to hold the chain in place. Excess chain may be cut off if so desired.

**C. Chemical Supply (If using models with chemical proportioners):**

Place the chemical container in a convenient location not more than 6 feet below the valve, (greater lifts will reduce injection capacities). Slip the ceramic weight over the chemical intake tubing. Insert the end with the foot valve of the 8 foot vinyl tubing into the chemical container. Cut the tubing to any convenient length that will allow it to extend from the bottom of the chemical container to the proportioner inlet barb (See Figure 3). Thread desired metering tip into the barb end, then slide tubing over the metering tip and barb.

**CHEMICAL INJECTION ADJUSTMENTS:**

**WARNING: USE CARE WHEN HANDLING HAZARDOUS CHEMICALS.**

Metering tips are used to control chemical dilution rates. Tables 1, 2, & 3 show the dilution ratios for various chemical viscosities. For highly viscous products, the induction rate can be increased by substituting 1/2" ID inlet tubing.

## Operation

---

Turn on water to the unit. Open the ball valve. The valve will close when water reaches approximately 1-2 inches below the top of the float. The float valve will operate again when the water level drops approximately 4 inches. If using models with chemical proportioners, At least 20 PSI pressure must be available to induct chemical. As the tank fills, chemical concentrate will be drawn up through the plastic tubing and will mix with the incoming water

## Metering Tip Kits

INDUCTION RATES BASED ON WATER THIN PRODUCTS (1 cps)  
INDUCTION RATES VARY PRODUCT TO PRODUCT. FIELD TESTS ARE  
RECOMMENDED.

### 4 GPM proportioner with 3/8" barb

Metering Tip Color	Injection Rates For Viscosities Shown					
	1 cps		75 cps		200 cps	
	Oz/Gal	Ratio	Oz/Gal	Ratio	Oz/Gal	Ratio
Clear	0.30	430-1	0.22	592-1	0.13	864-1
Purple	0.48	265-1	0.32	406-1	0.24	524-1
Yellow	1.28	100-1	0.82	157-1	0.6	212-1
Green	1.67	77-1	1.29	99-1	1	128-1
Pink	2.36	54-1	1.65	77-1	1.25	103-1
Turquoise	3.76	34-1	2.55	50-1	1.85	69-1
Black	4.47	29-1	3.03	42-1	2.12	60-1
Gray	5.53	23-1	3.67	35-1	2.58	50-1
Red	7.00	18-1	4.79	27-1	2.79	46-1
Blue	8.78	15-1	5.39	24-1	3.06	42-1
Brown	10.95	12-1	6.49	20-1	3.35	38-1
White	14.19	9-1	7.08	18-1	3.46	37-1
Orange	17.58	7-1	7.91	16-1	3.71	35-1
Light Blue*	21.75	6-1	8.66	15-1	3.9	33-1
Tan*	27.98	5-1	9.15	14-1	4.11	32-1
No Tip	33.15	4-1	10.54	12-1	4.52	28-1

### 2.5 GPM proportioner with 3/8" barb

Metering Tip Color	Injection Rates For Viscosities Shown					
	1 cps		75 cps		200 cps	
	Oz/Gal	Ratio	Oz/Gal	Ratio	Oz/Gal	Ratio
Clear	0.66	195-1	.027	470-1	.14	903-1
Purple	1.01	128-1	.041	315-1	.33	393-1
Yellow	1.53	83-1	1.03	128-1	.86	148-1
Green	2.52	51-1	1.64	78-1	1.44	89-1
Pink	3.53	36-1	2.04	64-1	2.09	64-1
Turquoise	5.73	22-1	3.24	40-1	2.92	44-1
Black	6.72	19-1	3.88	32-1	3.34	38-1
Gray	8.95	14-1	4.98	26-1	4.04	32-1
Red	12.34	10-1	6.22	21-1	4.67	27-1
Blue	14.00	9-1	7.28	18-1	4.99	26-1
Brown	18.68	7-1	9.02	14-1	5.35	24-1
White	24.45	5-1	10.35	12-1	5.53	23-1
Orange	30.97	4-1	11.86	11-1	5.88	22-1
Light Blue*	38.26	3-1	13.31	10-1	6.22	21-1
Tan*	53.96	2.5-1	15.21	8-1	6.49	20-1
No Tip	66.07	2-1	18.61	7-1	7.07	18-1

\* These tips are not included in the standard tip pack.

**Note:** All induction flow rates are based on a water pressure of 40 psi.

**Service Note:** Standard size 1/4" hose barbs and metering tips that come with this model are used for water thin (1cps) products. Ratios as low as parts-per-million, can be achieved with the use of a capillary metering tip. More viscous products (75cps – 200cps) may require larger 3/8" hose barbs and metering tips. If you are having difficulty achieving the ratio you require, call DEMA and ask for technical support.

## Trouble Shooting

---

### **CAUTION: TURN OFF WATER SUPPLY BEFORE SERVICING.**

#### **A. Proportioner fails to draw chemical:**

1. Proportioner outlet tubing cut too short or not attached. Pinch outlet tube to create back pressure, which will cause unit to prime. The foot valve will keep the inlet tube primed after initial use.
2. Insufficient water supply pressure. 15 psi is the minimum required water pressure.
3. Chemical inlet may be drawing air.

#### **B. Proportioner stops drawing chemical:**

1. Inspect foot valve for dried chemical or dirt. Soak in hot water to clean.
2. Proportioner metering tip clogged with dried chemical. Remove tip and soak in hot water. If there is no suction, remove proportioner and soak in hot water to clear interior passages.
3. If there is a buildup of calcium carbonate (lime) inside the proportioner, soak component in a vinegar or D-Limonene solution.
4. Chemical inlet may be drawing air.

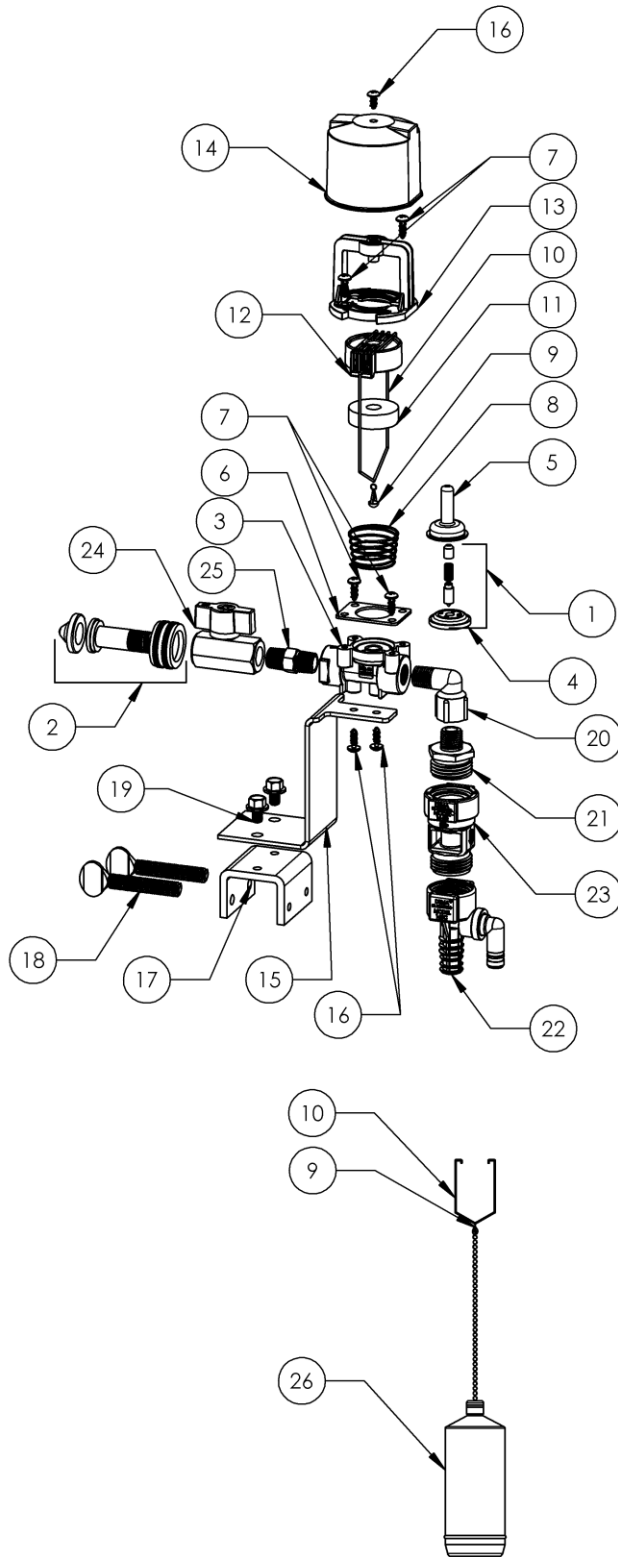
#### **C. Proportioner continues drawing chemical after water valve closes:**

1. Chemical supply is higher than bottom of discharge tube creating a natural siphon. Lower the supply container.

#### **D. Valve malfunction:**

1. Check that the wire moves freely up & down and that a “click” can be heard when the wire is pulled and released, indicating that the magnet is activating the plunger properly. To inspect internal parts, remove magnet housing and carefully pull off the enclosing tube so as not to drop the plunger, kick-off spring and spacer. Check the float valve assembly to verify the internal weight is free moving and not water logged.
2. Valve will not operate if pressure exceeds 150 psi.

**CAUTION:** When servicing unit, be sure that replacement parts have been installed according to drawing.



ITEM NO.	QTY.	DEMA NO.	DESCRIPTION
1	1	63-87	VALVE REPAIR KIT
2	1	93-44	GRDEN HOSE SWIVEL REPAIR KIT
3	1	35-36	VALVE BODY
4	1	41-15-10	1-1/16" DIAPHRAGM
5	1	41-7-25	ENCLOSING TUBE
6	1	35-37	FLANGE
7	4	44-116-1	#8 HI-LO SCREW X 1/2" LONG
8	1	27925-1	SPRING, 540 FLOAT VALVE
9	1	35-12	FLOAT HANGER CLIP
10	1	27926-1	540 FLOAT VALVE HANGER
11	1	41860-1	MAGNET RING
12	1	27927-1	540 FLOAT VALVE MAGNET HOLDER
13	1	27928-1	540 FLOAT VALVE HOUSING
14	1	27929-1	540 FLOAT VALVE COVER
15	1	29097-1	Z BRACKET, BOTTOM MOUNT
16	3	44-116-2	#8 HI-LO SCREW X 3/8" LONG
17	1	35-50	U BRACKET
18	2	35-51	THUMBSCREW 5/16" X 2"
19	2	35-53	FLANGE BOLT
20	1	50-63	ELBOW, STREET
21	1	61-122-2	ADAPTER
22	1	61-22-2	4GPM PROPORTIONER, 3/8" BARB (WHITE)
		61-22-3	4GPM PROPORTIONER, 1/4" BARB (WHITE)
		61-99-1	1-GPM DBL BARB PROPORTIONER (3/8 BARB)
		61-99-2	1-GPM DBL BARB (GREEN) PROPORTIONER (3/8 BARB)
		61-97A	2.5 GPM PROPORTIONER ONLY 163CHA (BLUE) LG BARB
		163CHA-B	2.5 GPM PROPORTIONER 163CHA BLUE W/1/4" ELBOW
23	1	16-30	ACTION GAP BACK FLOW PREVENTOR
24	1	16-11	BALL VALVE 1/4 NPT-FEMALE X FEMALE
25	1	26-664-7	HEX NIPPLE
26	1	35-18	FLOAT ASSEMBLY

## Replacement Parts:

---

METERING TIP KITS AVAILABLE	
100-15K	1/4" METERING TIP KIT
61-9K	3/8" METERING TIP KIT
100-15KU	1/4" ULTRA LEAN METERING TIP KIT
TUBING AND FOOT VALVE ASSEMBLIES	
100-16E-1	TUBING AND FOOT VALVE ASSEMBLY, 1/4" X 8' LONG, EPDM
100-16V-18	TUBING AND FOOT VALVE ASSEMBLY, 1/4" X 8' LONG, VITON
100-16E-4	TUBING AND FOOT VALVE ASSEMBLY, 3/8" X 8' LONG, EPDM
100-16V-17	TUBING AND FOOT VALVE ASSEMBLY, 3/8" X 8' LONG, VITON
CERAMIC WEIGHT	
61-107	3/8" CERAMIC WEIGHT
61-107-2	1/4" CERAMIC WEIGHT

## Warranty

---

### Merchandise Returns

***No merchandise will be returned for credit without DEMA'S written permission. Returned merchandise authorization number is required in advance of return.***

### Product Warranty

DEMA products are warranted against defective material and workmanship under normal use and service for one year from the date of manufacture. This limited warranty does not apply to any products that have a normal life shorter than one year or failure and damage caused by chemicals, corrosion, physical abuse, or misapplication. Rubber and synthetic rubber parts such as "O"-rings, diaphragms, PVC tubing, and gaskets are considered expendable and are not covered under warranty. This warranty is extended only to the original buyer of DEMA products. If products are altered or repaired without prior approval of DEMA, this warranty is void.

Defective units or parts should be returned to the factory with transportation prepaid. If inspection shows them to be defective, they will be repaired or replaced without charge, F.O.B. factory. DEMA assumes no liability for damages. Return merchandise authorization number must be granted in advance of returned units for repair or replacement (See "Merchandise Returns" above).