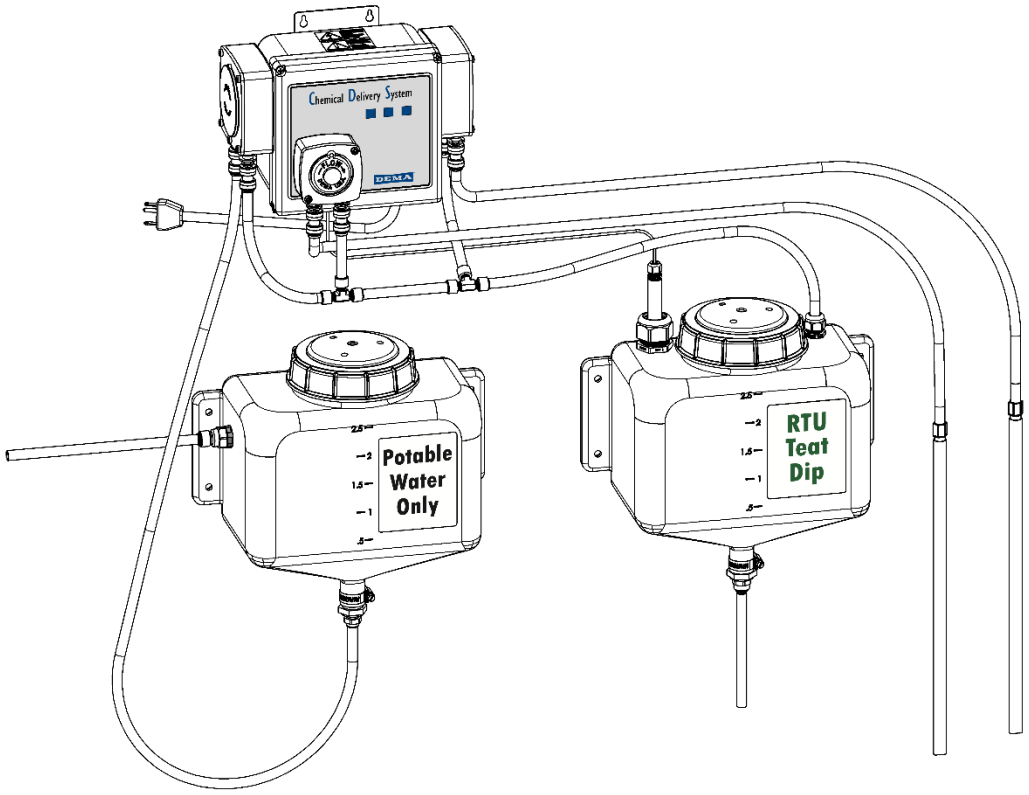
DEMA Chemical Delivery System

8500, 8501 and 8502 Instruction Sheet



Overview

The 8500 CDS product line can be used for numerous applications. There are currently four identified purposes: Clean-In-Place pipe washing systems, blending equal amounts of two or three separate chemicals (chlorine dioxide), iodine dilution for making RTU iodine on dairy farms and laundry chemical injection. These units are flexible and compact to meet the changing needs of the farmers, distributors and service technicians. Numerous squeeze tube materials are available for pumping all kinds of chemicals.

The control board can be activated by simply closing the normally open unpowered contacts, so no trigger signal is required. The CDS circuit board is powered by 24 volts DC. The internal power supply can handle any voltage between 100 volts AC and 250 Volts AC. Every CDS board has both time and speed capability.

Depending on the model ordered, various accessories are included.

- **8500** units are for teat dip dilution, and include 3 pumps, one fresh water reservoir, and one RTU chemical reservoir.
- **8501** units are for CIP or laundry applications, requiring three pumps.
- **8502** units are for Chlorine Dioxide or the blending two chemicals and include a remote start switch or our magnetic float switch.

Warnings



Installation of DEMA products must meet all applicable electrical codes and regulations established by national, city, county, parish, provincial or other agencies. It is possible that electrical codes and regulations require that a certified electrical contractor or engineer perform the electrical installation. For questions, contact a certified electrician.

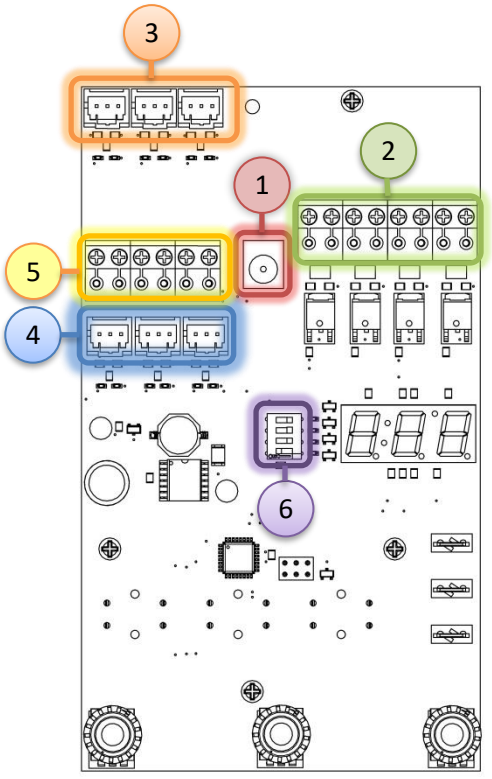


All installations must conform to local plumbing codes and use approved backflow prevention devices. A pressure indicating tee is to be installed with existing faucets according to local plumbing codes in the state of Wisconsin and any other state that requires the use of a pressure indicating tee.



ALWAYS WEAR PROTECTIVE CLOTHING AND EYEWEAR WHEN WORKING WITH CHEMICAL PRODUCTS.

Electrical Details



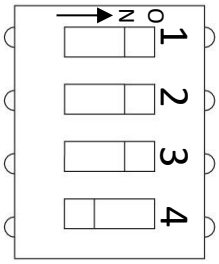
1. **Power**
   - When possible use the 115VAC power cord and plug into a 115VAC wall outlet.
   - System can be hardwired by cutting off the plug on the main power cord and connecting the brown wire to line voltage, blue wire to neutral and the green/yellow wire to an earth ground.
2. **Outputs**
   - Power for Pump 1, 2 and 3 are identified on the board. They are 24VDC outputs.
   - Power for an auxiliary alarm device is located with the pump outputs and is 24VDC.
3. **Trigger Inputs**
   - Each pump has a pair of screw terminal trigger inputs which are identified on the board and are designed to accept a dry contact.
     - Normally open dry contact sensors (float switches, relay contacts, push button momentary switches, etc.) may be connected via 81.190.1 Auxiliary Sensor Cable or screw terminals.
     - Each trigger may be used independently or a single trigger may be used for all pumps. See DIP Switch Settings in the Operation section.
   - Optional Sensors for trigger inputs include DEMA® 82.23.1 Magnetic Field Reader or DEMA's® 82.33.1 Voltage Sensor can be plugged into the trigger input receptacles that are identified on the board.

4. **Alarm inputs**
   - Sensors for alarm inputs include DEMA® Out of Product Sensor's 84.65.64, 84.65.65, 84.65.66 or 84.65.67
   - Normally open dry contact sensors (float switches, relay contacts, etc.) may be connected via 81.190.1 Auxiliary Sensor Cable or terminal screws.
5. **Float Switch Inputs**
   - The six screw terminals are used if the low level sensors are not used.
6. **Dip Switch**
   - See Operation section below.

Auxiliary Power Output (12 or 24 volts depending on the power supply being used). There are three ¼" spade tabs for that provide constant power out to operate a valve or with a float switch or similar applications.

Operation

DIP Switch Settings

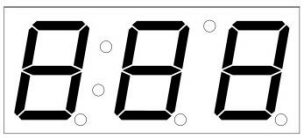


Dip Switch

- Switches set to the right are turned on and switches set to the left are turned off.
- Switch 1 is on the top. (position dispenser so words are orientated properly)
- Switch 1:
  - OFF = Pumps run for a set period of time. When a trigger is received the associated pump will run for the specified amount of time. It will not run again until the trigger is lost and then re-established. There is a five second qualifying time. Maximum programmable running time is 4 minutes and 15 seconds. This is needed when using the dispenser with blending chemicals and a remote switch.
  - ON = Pumps run at a set speed. When a trigger is received the associated pump will run continuously at the set speed (up to 100%). Speed mode can be used with microprocessor controlled systems where required running times are longer than 4 minutes and 15 seconds. This is needed when blending iodine teat dip.
- Switch 2:
  - OFF = Individual triggers. Each trigger controls its respective pump (one trigger per pump). This is used with a CIP (Clean in Place) or laundry installation.
  - ON = One trigger. All pumps are controlled with any trigger. This is used on chemical or teat dip blending applications.
- Switch 3:
  - OFF = One second delay; when a remote is used, all pumps will start after one second delay.
  - ON = thirty-five second delay.
- Switch 4:
  - OFF = Alarm output will pulse during an alarm condition. There is a five second qualifying time.
  - ON = Alarm output will be on during an alarm condition. There is a five second qualifying time.

Display

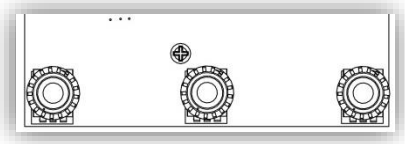
- The display will show information for the pump that is currently being adjusted.
- If DIP Switch 1 is OFF the display will show the run time of the pump being adjusted. **It will display in minutes and seconds (maximum running time is 4 minutes and 15 seconds) if switch is on.**



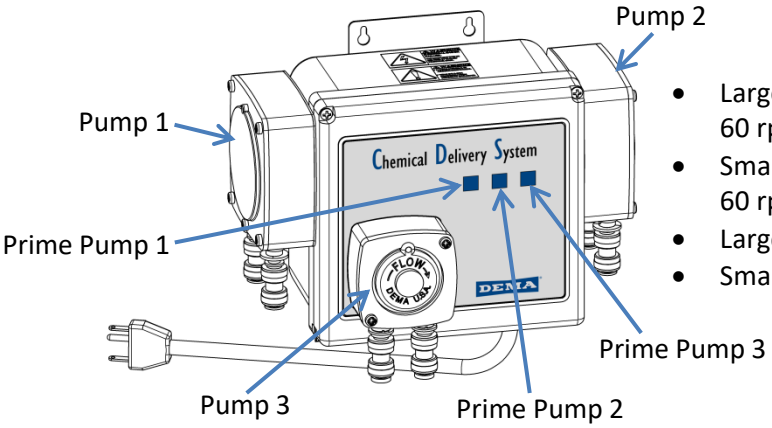
Digital Display

Control Knobs

- Knobs are for pump 1, 2 & 3. Pump 1 is on the left side of the box, pump 2 in on the right side of the box and pump 3 is on the front.

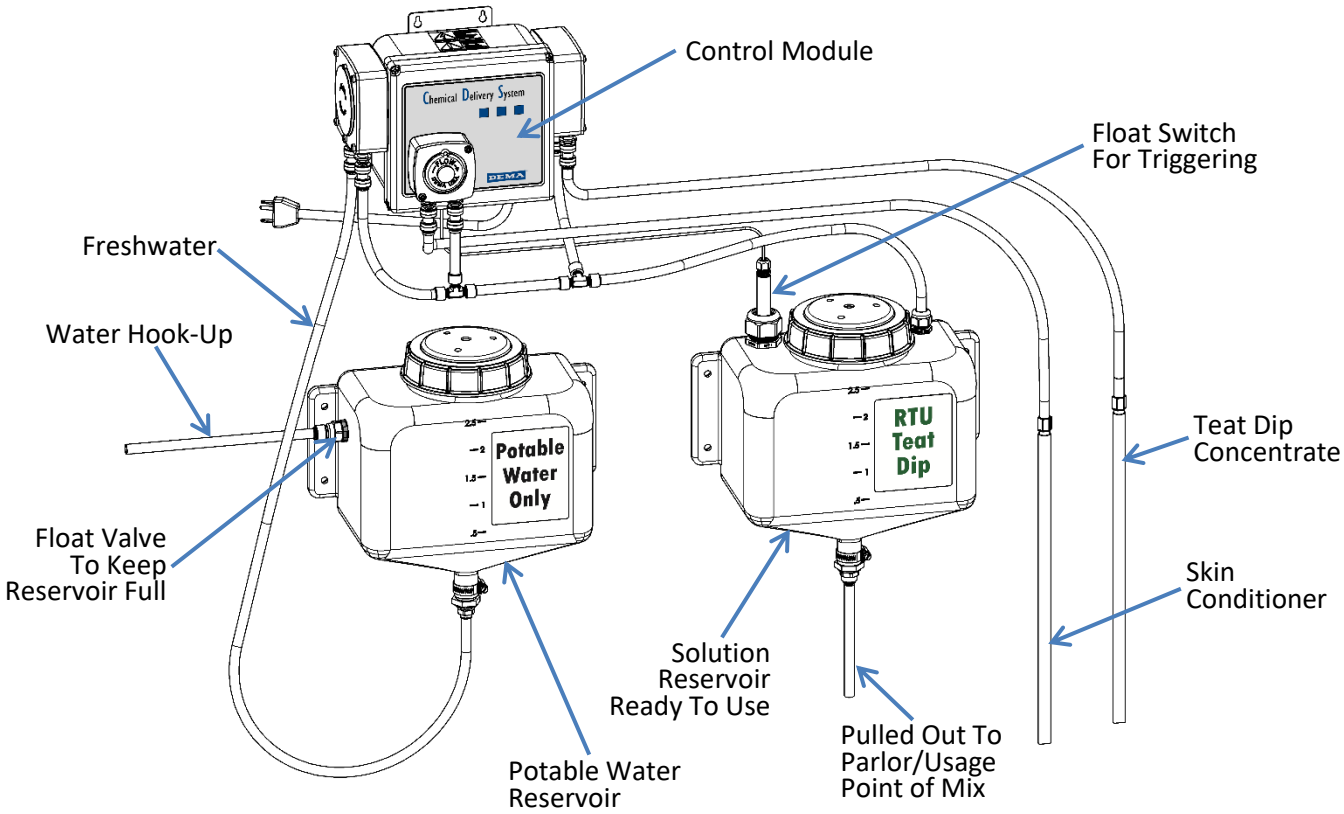


Control Knobs

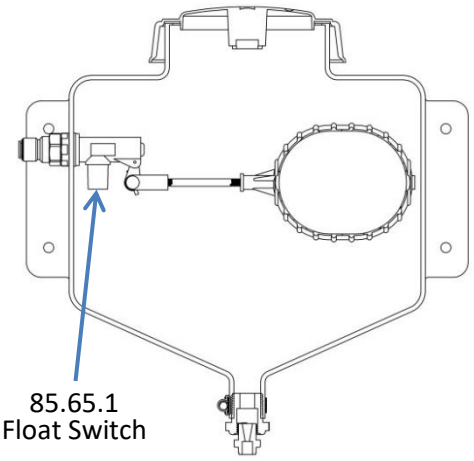


- Large pumps (shown on sides) moves up to 22 oz./min. with a 60 rpm motor.
- Small pump (shown on front) moves up to 10 oz./min. with a 60 rpm motor.
- Large pumps move water or concentrated iodine solution.
- Small pump is used for skin conditioner.

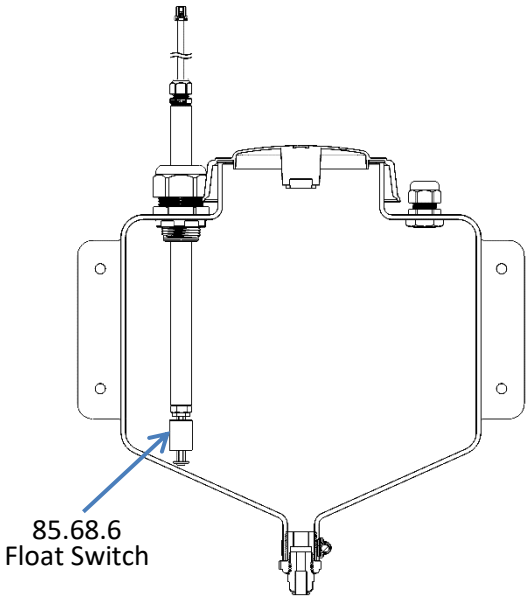
8500 System Hook-up



Potable Water Reservoir

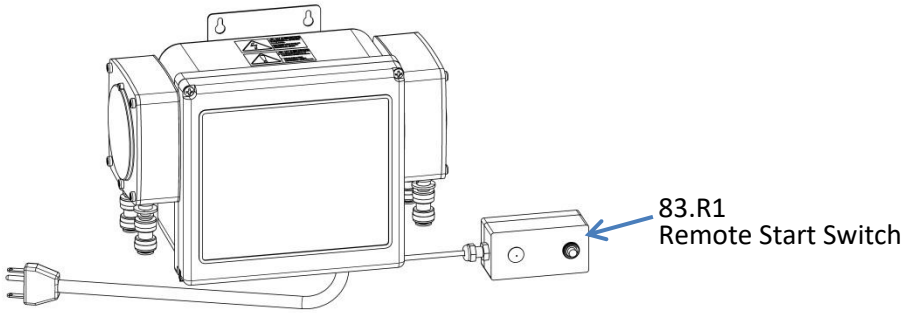


Ready-to Use Solution Reservoir



Remote Start Switch and Bottle Enclosure Installation Suggestions

The 8502 is primarily used for blending two chemical solutions like Chlorine Dioxide, but is capable of injecting hundreds of different chemicals. The 8502 is supplied with an 83.R1 remote start switch; it is supplied with a 20 foot cord and a momentary push button start switch. Double side Velcro sticky tape is supplied so the switch can be mounted to any clean smooth surface.



8502 Unit

8500 Iodine, 8501 CIP and 8502 Chlorine Dioxide Dispenser

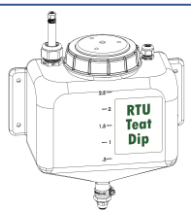
8500.AAA.R

OPTIONAL REMOTE
R = Remote (single button)
S = Float Switch

Pumps - 1st character left side pump, 2nd right side pump, 3rd front pump						
	Type	RPM	Voltage	Squeeze Tube		Connections
A	C2	60	24VDC	EPDM	1/2 X 1/4	1/4" STEM - both ends
B	C2	105	24VDC	EPDM	1/2 X 1/4	1/4" STEM - both ends
C	C4	60	24VDC	EPDM	5/8 X 3/8	3/8" STEM - both ends
D	C4	105	24VDC	EPDM	5/8 X 3/8	3/8" STEM - both ends
E	C2	60	24VDC	Santoprene	1/2 X 1/4	1/4" STEM - both ends
F	C2	105	24VDC	Santoprene	1/2 X 1/4	1/4" STEM - both ends
G	C4	60	24VDC	Santoprene	5/8 X 3/8	3/8" STEM - both ends
H	C4	105	24VDC	Santoprene	5/8 X 3/8	3/8" STEM - both ends
I						
J	C2	15	24VDC	Santoprene	1/2 x 1/4	1/4" STEM - both ends
K	C2	9	24VDC	Santoprene	1/2 x 1/4	1/4" STEM - both ends
L						
M						
N						
O						
P	C4	15	24VDC	Santoprene	5/8 x 3/8	3/8" STEM
Q	C2	15	24VDC	Santoprene	1/2 x 1/4	3/8" Barb - both ends
R	C4	60	24VDC	Santoprene	5/8 X 3/8	3/8" Barb - both ends
S	C4	15	24VDC	Santoprene	5/8 X 3/8	3/8" Barb - both ends
T	C2	60	24VC	Santoprene	1/2 X 1/4	3/8" Barb - both ends
U	C4	105	24VDC	Santoprene	5/8 X 3/8	3/8" Barb - both ends
V						

8500 – Iodine Dispenser
8501 – CIP Dispenser
8502 – Chlorine Dioxide Dispenser

Replacement Part Kits



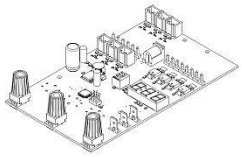
DEMA NO.	DESCRIPTION
85.68.1	CDS RTU Teat Dip Tank Kit (Float Switch)

*Screw/Anchor Kit Included

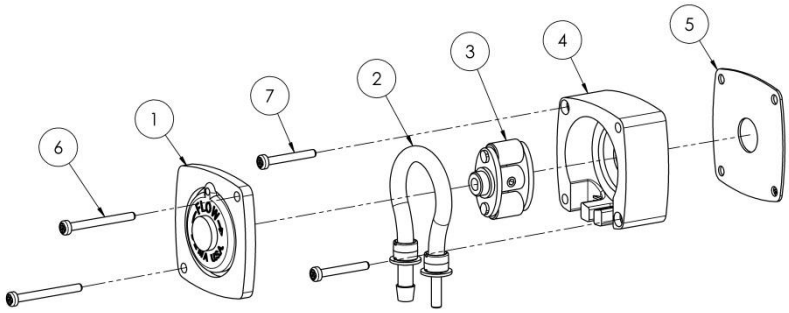


DEMA NO.	DESCRIPTION
85.68.2	CDS Potable Water Tank Kit (Float Switch)

*Screw/Anchor Kit Included

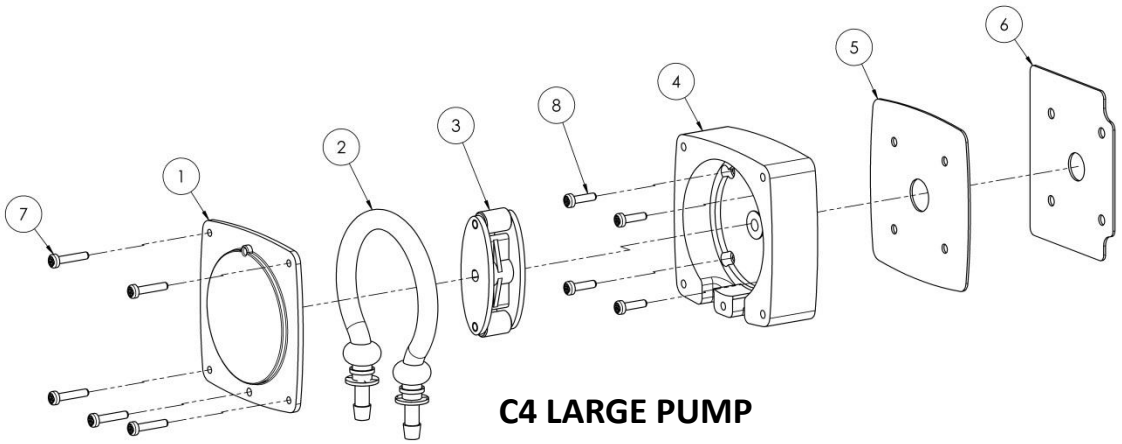


DEMA NO.	DESCRIPTION
85.50.1	Control Board



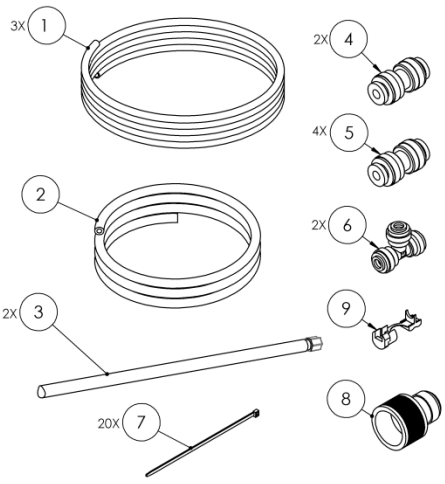
C2 SMALL PUMP

ITEM NO.	DEMA NO.	DESCRIPTION
1	25.83C2.2	Face Plate C2
2	81.370.1	Squeeze Tube, EPDM 1/4” JG Fitting
	81.370.2	Squeeze Tube, Santoprene 1/4” JG Fitting
	81.370.3	Squeeze Tube, Santoprene 3/8” Barb
	84.208.7	Squeeze Tube, Santoprene 5/8” x 3/8” JG Fitting
3	25.84C2	Roller Block C2, 2 Roller
4	25.67C2.2	Pump Head C2
5	25.91.C2	Gasket C2
6	25.85.19	#10-32 x 2” Machine Screw
7	25.18.18	#10-32 x 1-1/2” Machine Screw



C4 LARGE PUMP

ITEM NO.	DEMA NO.	DESCRIPTION
1	25.87C4	Face Plate C4
2	81.370.1	Squeeze Tube, EPDM 1/4” JG Fitting
	81.370.2	Squeeze Tube, Santoprene 1/4” JG Fitting
	84.208.1C	Squeeze Tube, EPDM 5/8” x 3/8” JG Fitting
	84.208.7C	Squeeze Tube, Santoprene 5/8” x 3/8” JG Fitting
	84.208.8C	Squeeze Tube, Santoprene 5/8” x 3/8” Barb
	81.177.1	Squeeze Tube, EPDM 1/4” Barb
3	25.86C4.1	Roller Block C4, 2 Roller
4	25.129.1	Pump Head C4
5	25.114C4	Gasket C4
6	81.63	Pump Head Mounting Plate
7	25.85.5	#18-8 x 1” Machine Screw
8	25.85.4	#18-8 x 3/4” Machine Screw



ITEM NO.	DEMA NO.	DESCRIPTION	QTY.
n/a	85.68.3	8500 CDS Installation Kit	1
85.68.3 Kit includes the following items			
1	25.115	Tubing 3/8” O.D. x 20 ft.	3
2	25.164.20	Tubing 1/2” O.D. x 20 ft.	1
3	80.66.4	Pick-up Tube Assembly	3
4	81.182.3	3/8” x 3/8” Union QC Fitting	2
5	81.182.5	3/8” x 1/4” Union QC Fitting	4
6	58.110.2	3/8” x 3/8” x 3/8” Tee JG Fitting	2
7	81.16.1	Cable Tie 8”	20
8	95.32	3/8” JG Garden Hose Fitting	1
9	81.183.5	Cable Strain Relief	1

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).