



SELECT DOSETM 380

Instructions for Use

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DESCRIPTION

The Select Doser™ 380 is a high pressure proportional additive pump for agricultural and industrial operations, accurately dispensing vaccines, medications, vitamins, sanitizers, and other solutions into high pressure watering systems.

By combining a computerized main control unit with a Stenner® Company motor/pump, the Select Doser™ 380 accommodates a wide range of dosing ratios. The components are the main pump/control box unit, power supply, a flow sensor assembly, and connections to drinking lines. There are no user serviceable parts inside the main control unit or the motor.

Water Line Pressure

The Select Doser™ 380 will pump into water pressures up to 80 psi.

Electrical Supply

The Select Doser™ 380 uses a 12V DC power supply. This can either be supplied from a 12V battery or via a transformer power supply from the mains electricity supply. A 4 Amp maximum current power supply is recommended. The Select Doser™ 380 normally runs approximately 2 Amps when pumping, although starting currents are larger and dependent on the pumping conditions encountered.

Flow Sensors and Capacities

Below is a list of the Flow Sensors we offer:

Sensor Size/Type	Flow Range gal/min (gal/hr)
3/4" Turbine	*0.2 – 7.5 (10 – 450)
1-1/4" Turbine	**0.8 – 40 (50 – 2,400)
1.5" Paddle	15 – 150 (900 – 9,000)
2" Paddle	30 – 300 (1,800 – 18,000)
3" Paddle	60 – 600 (3,600 – 36,000)
4" Paddle	100 – 1,000 (6,000 – 60,000)
1" Magmeter	2.3 – 110 (138 – 6,600)
2" Magmeter	6 – 300 (360 – 18,000)
3" Magmeter	14 – 760 (840 – 40,200)

* Starts reading at 3 gal/hr but accuracy not guaranteed

** Starts reading at 10 gal/hr but accuracy not guaranteed

Pumping Accuracy

The Select Doser™ 380 is designed to dose accurately. If, during normal operation, the output needs to increase or decrease slightly, the screen command **Adjust%** can be used to change the output accordingly.

Proportional Dosing

By utilizing different diameters of pump tubes, a full range of dosing ratios is achievable with the Select Doser™ 380. The correct tube to use with each ratio is displayed on the main control screen. Each pump tube is identified on the tube's end fitting.

During proportional dosing, the Select Doser™ 380 continuously monitors water flow. Every 5 seconds, the doser dispenses an exact amount of solution into the water line, according to a pre-selected dosing ratio. In a low water flow situation, interruptions in the 5-second dosing intervals can occur. During these incidences, the doser collects water flow information and dispenses a solution whenever the minimum dose can be applied.

Pump Tube Life

The life of the pump tube will depend on many factors including the product being dosed, the back pressures under which the pump is working, and the amount of time the pump needs to run to perform correctly. The life of the pump tubes is estimated to be up to 1 year, but the tube life could be considerably less depending on operating conditions. Periodic inspection and replacement of the pump tube will ensure that tube fractures and damage to the pump are avoided.

Select Doser™ 380 Safety Recommendations

- Normal electrical safety precautions apply. Avoid water contact with any pump parts during normal operation, aside of the pump tube.
- The use of safety circuit breakers is recommended. Seek assistance from a qualified electrician if you have questions about your operation's electrical supply.
- Disconnect from electrical supply before opening main control unit.
- Cover stock solution container at all times.
- Make sure the Select Doser™ 380 cannot fall into the stock solution container. Consider extra tethering if necessary. If accidental immersion occurs, isolate the Select Doser™ 380 from the electrical supply immediately.
- If possible, place the stock container in a location that is not directly under the doser as corrosive fumes may degrade the operation of the pump and/or electronics.
- **Be careful not to pinch fingers in rollers when changing pump tubes.**

Select Doser™ 380 Parts List

The Select Doser™ 380 includes the main control unit/pump, pre-fitted pump tube and spare pump tube. The complete system includes the following parts:

1-Flow Sensor Assembly
1-Injection Port with Non-return Valve
1-Pack of Delivery Tubing
1-12VDC Adapter
3-Plastic Nuts
5-Ferrules
1-End Weight with Strainer

Additional pump heads, tubes, and equipment are available through your dealer.

INSTALLATION

Mounting the Unit

1. Mount the Select Doser™ 380 in a vertical position.

NOTE: *if possible, mount the unit so that it is **NOT** directly over the stock container as fumes from the product being pumped can adversely affect the operation of the Doser.*

2. Make sure the main control unit electrical cord reaches from the unit to a standard AC outlet.
3. Plug the 12VDC adapter into a standard AC outlet. Then plug the adapter's plug into the main control unit jack (lower right side).



4. Install the flow sensor assembly so the arrow on the assembly points in the same direction as the water flow.

NOTE: *If installing a paddle sensor, see installation manual (included with paddle sensor) for directions.*

5. Plug the sensor cable into the jack on the lower left side of the main control unit.



Attaching Suction & Discharge Line

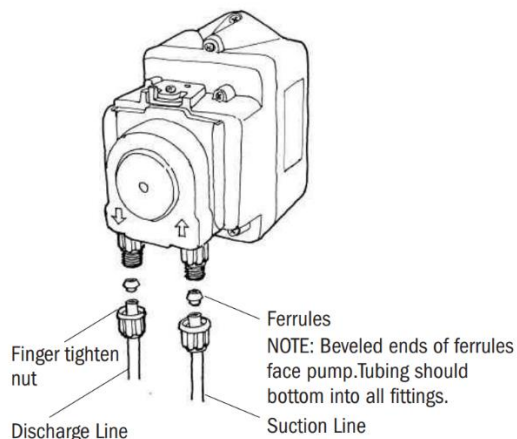
1. Place a plastic nut onto one end of the newly cut Suction Line, followed by a ferrule (a ferrule is a shaped washer that makes a seal between a line and a pump tube end). Push the ferrule 1/4" onto the Line, as shown. Warm ferrule to ease fitting, if necessary.
2. Repeat step #3 instructions with a newly cut Discharge Line.



3. Push each Line onto its pump tube end, making sure each Line bottoms out in the tube.
4. **TIGHTEN A PLASTIC NUT ONTO EACH PUMP TUBE END BY HAND ONLY.** Hold the pump tube end fitting with one hand while tightening the nut with the other hand.

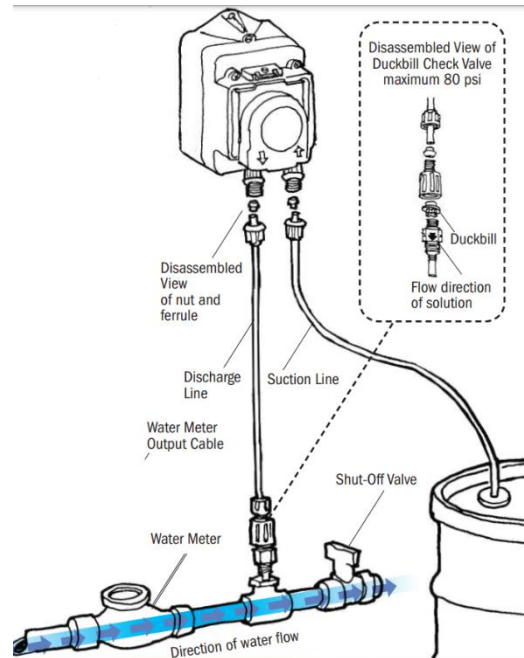
Tips

- Make sure that beveled ends of ferrules face pump.
- Use no Teflon or other sealing tape, as tape will prevent ferrules from seating.
- Do not use pliers, as doing so can damage ferrules. Using pliers can also break internal seals and twist the pump tube.



Attaching Discharge Line to Injection Assembly

1. A Discharge Line connects to the injection assembly the same way it fits onto a pump tube end. After attaching a plastic nut and ferrule, push Discharge Line onto the injection assembly fitting. A duckbill type check valve is included in the injection assembly. This check valve will need to be replaced periodically.
2. Make sure the Line bottoms into the injection assembly fitting. **TIGHTEN PLASTIC NUT BY HAND ONLY.**



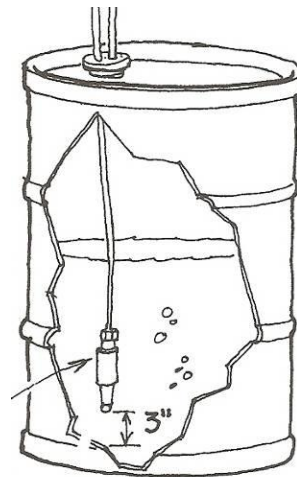
Running Suction Line to Stock Solution Container

The Select Doser™ 380 comes with an end weight and strainer to fit the Suction Line. If no strainer is required, use an alternative end weight such as a stainless steel nut.

1. Remove the collet from the end weight and push the Suction Line 3 1/2" through the collet. Then, re-fit the collet to the end weight.

NOTE: DO NOT push tubing all the way to the bottom of the end weight and strainer. Tubing could become flush with the strainer's nose and the pump may not prime due to blockage.

2. Run the Suction Line into the stock solution container. Allow at least 3" between the Suction Line and the bottom of the container.



Check all connections by re-pressurizing the water system and running the unit as described below. Tighten for re-fit any connections that show leakage.

OPERATION

<p>This is the startup screen. If this screen does not appear at start-up, press and hold the ADJUST button for several seconds. The top row displays your program number, in this case it is "3010".</p> <p>To view and choose doser options, press Options (SET).</p> <p>To start dosing or metering, choose Start (ADJUST).</p>	<div data-bbox="967 323 1317 474"> <div>3010</div> <div>StartOptions</div> </div>
<p>Viewing and Choosing Doser Options</p> <p>After choosing Options, the screen forwards to Doser options. Here, you can choose settings for the following three functions:</p> <ol style="list-style-type: none"> 1. Cont at Hi Flow. This means "Continue at high flow," or continue to dose in a situation where the water flow is out of range (too high, see explanation on page 10). The default screen choice is Y (Yes), which allows continuous dosing during high water flow. To choose this option, press Y (SET). The doser will then forward to the next screen which is an unavailable option, press SET and continue on. <p>To stop dosing during high water flow, you need to choose N (No). For this choice to appear, press ADJUST once. You will see N (No) on the screen. Press Set to confirm selection.</p>	<div data-bbox="967 611 1317 762"> <div>Doser options</div> <div>Cont at Hi Flo Y</div> </div> <div data-bbox="967 863 1317 1014"> <div>Doser options</div> <div>Not Available N</div> </div>
<ol style="list-style-type: none"> 2. Lang. The third doser option is the operating language selection. English is the only language available on this model. Press SET to confirm selection. <p>The unit returns to the startup screen after all Doser options have been set.</p>	<div data-bbox="967 1167 1317 1318"> <div>Doser options</div> <div>Lang. English</div> </div>
<p>Water Metering (Without Dosing)</p> <p>If Dosing is required, skip to Dosing Product on next page.</p> <ol style="list-style-type: none"> 1. From the startup screen, choose Start (ADJUST). The Meter-Dose screen appears. Press Meter (ADJUST). This forwards you to the Sensor Type screen. 2. Press the ADJUST button repeatedly, until the displayed sensor number matches the sensor being used. Then press Set. The VTY-10 ¾" will be #2, the VTH-25 will be #3. If you have another sensor such as paddle or magmeter it will be #1 unless specified different. 	<div data-bbox="967 1388 1317 1539"> <div>3010</div> <div>MeterDose</div> </div> <div data-bbox="967 1608 1317 1759"> <div>Sensor Type</div> <div>2</div> </div>

<p>3. The doser forwards to the Zero water tot screen. To re-set the water total to zero, choose Yes (Set). To retain the recorded water total, press No (Adjust).</p>	<div data-bbox="958 216 1312 352"> Zero water tot? No Yes </div>
<p>4. Next, the Metering . . . screen appears. For 5 seconds, the doser collects operational totals. During this time, the screen says Metering . . .</p>	<div data-bbox="967 392 1325 539"> Meter only 0H Metering ... </div>
<p>5. After reading totals, the Meter only screen appears, showing the flow rate of water, and the water meter total.</p> <p>6. To exit the Meter only screen, hold the Adjust button for several seconds. This returns you to the startup screen.</p> <p>Note: When any paddle sensor or magmeter is used, the flow rate and water total is shown in hundreds of gallons, so 34H is 3,400 gal/hr and 456T is 45,600 gallons.</p> <p><u>NOTE: The water total shown on the screen is stored in the computer memory every 5 minutes. Short recording times may omit small amounts of water data. The Select Doser™ 380 is able to record up to 10 million gallons before automatically re-setting to zero.</u></p>	<div data-bbox="951 594 1312 743"> Meter only 4740H 00000108T </div> <div data-bbox="940 785 1300 934"> Meter only 34H 00000456T </div>
<p>Dosing Product</p> <p>1. From the Startup screen, press Start (ADJUST). On the next screen, press Dose (SET) to reach the Sensor Type screen.</p> <p>3. On the Sensor Type screen, select the flow sensor type that matches the unit's flow sensor. The VTY-10 ¾" will be #2, the VTH-25 will be #3. If you have another sensor such as paddle or magmeter it will be #1 unless specified different. Press ADJUST to scroll through sensor types and press SET when you find the correct one. The doser advances to the Ratio screen.</p>	<div data-bbox="967 1203 1325 1350"> Sensor Type 2 </div>
<p>2. On the Ratio screen, use the Adjust button to scroll through the available ratios. Press Set when you reach the desired ratio.</p> <p><u>NOTE: Number above 1,000 will be shown on screen with a K, representing thousands.</u></p> <p>EXAMPLES: Thousands 12K5=12,500 20K=20,000 33K3=33,300</p>	<div data-bbox="967 1591 1325 1730"> Ratio 1:? 12k5 </div>

3. If your doser is programmed to dose in PPM, instead of the ratio screen you will be asked to select the PPM you want. You will need to specify your mixture strength at time of order placement, generally 34% or 50% is used. In this case, the screen shows that 40 PPM of a 50% solution is ready to be selected. When the desired PPM is shown, press SET .	<div>50% PPM?</div> <div>40</div>
4. Next, a Use tube: screen appears, showing the appropriate pump tube to use. Follow the CHANGING PUMP TUBES section found on page 8 if you need to switch out your pump tube. After fitting a new tube or verifying installed tube, press SET to proceed.	<div>1:12K5</div> <div>Use tube: H</div>
5. The Adjust % feature can be used to increase or decrease the amount of product dosed as required by the dosing operation being performed or as determined by downstream testing of water conditions. Going up to "+" range will increase product output and going down to the "-" range will decrease product output. The range is +/-20%.	<div>Adjust %</div> <div>0</div>
6. The unit forwards to Zero water tot. Choose Yes (SET) to re-set water total or No (ADJUST) to keep the pre-recorded water total. The water total is updated every 5 minutes. Short recording times may lose a small amount of water data.	<div>Zero water tot?</div> <div>No Yes</div>
7. Next, the Prime pump screen appears. To fill delivery tube with product, choose Yes (SET) . The pump will run continuously and fill the delivery tube. Press No (ADJUST) if priming is not required.	<div>Prime pump?</div> <div>No Yes</div>
8. The Priming screen appears while the pump runs and fills the delivery tube. Press Stop (SET) when tube is filled up to the injection assembly.	<div>Priming...</div> <div>Stop</div>
9. Before actual dosing begins, a Dosing. . . screen appears for 5 seconds. During this time, the unit collects water flow information.	<div>12k5 H 0 0H</div> <div>Dosing... S2</div>
10. This is the normal dosing screen. Every 5 seconds, the pump runs and doses a precise product amount according to the pre-set dosing ratio.	<div>12k5 H 0 420H</div> <div>00000106T S2</div>
11. Note: When any paddle sensor or magmeter is used, the flow rate and water total is shown in hundreds of gallons. In this example 13H is 1,300 gal/hr and 456T is 45,600 gallons. This screen also shows that a ratio of 1:12k5 has been selected, the tube being used is the H tube, the output has been adjusted by 0% and sensor being used is sensor 1.	<div>12k5 H 0 13H</div> <div>00000456T S1</div>

High Flow Warning

If water flow is too high, incorrect dosing will occur. A “**High Flow!**” screen appears every 5 seconds, alternating with the normal **Dosing** screen. An audible warning accompanies this screen (see explanation of High Flow on page 10).

If you've set the unit to continue dosing during high water flow, the product doses at inconsistent levels. However, when water flow returns to a manageable level, normal dosing resumes. If the unit has not been set to continue at high flow, the pump will alarm and stop pumping until the unit is reset.

To clear the **High Flow** message and stop the audible warning, hold the **Adjust** button for several seconds. This returns you to the startup screen.

12k5 H 0	1420H
High Flow!	S2

To make any adjustments to the settings, return to the startup screen and advance through the options. To return to the startup screen from normal operation, press and hold Adjust.

PUMP TUBES, PRIMING AND WATER FLOW

About Pump Tubes

Select Doser™ 380 pump tubes are available in 2 sizes: Tube H which has a maximum output of 1.242 gal/hr and Tube F, which will pump up to .222 gal/hr.

When using Tube F a different roller must be inserted into the unit as well.

The correct tube to use for any specific ratio is displayed on the control screen. The tube numbers are stamped on the black end fittings.

A pump tube's life depends on many factors, including the product being dosed, the back pressure under which the pump is working, and the amount of running time. An average pump tube life is approximately one year, but can be considerably less depending on operating conditions. Periodic inspection and scheduled pump tube replacements will prevent tube bursts.

Changing Pump Tubes

Please refer to the Stenner **ECON PUMP SERIES Installation and Maintenance Manual** pages 33-35 for step-by-step instructions on how to change tubes.

Priming Option

If you select the **Prime pump** option from the doser control screen menu, the pump rollers will turn continuously regardless of the flow in the drinking line. This is useful for filling the Suction and Discharge Lines prior to proportional dosing. The **Prime pump** option **Yes** is also useful for dosing a product quickly, within a given time period. The amount pumped during priming is determined by tube choice.

NOTE: *Operating more than 2 hours at a time in the priming mode is not recommended as tube and motor life will be reduced.*

Calculating Maximum Water Flow

Maximum water flow is the highest rate of flow in the water line that the pump can process. This rate depends on the ratio that's been selected and the pump tube being used.

The formula for Maximum water flow is:

$$(\text{Priming rate}) \times (\text{Ratio}) = \text{Maximum water flow}$$

Priming rate is the rate of product being pumped as the motor turns continuously and is relative to the pump tube's diameter.

Ratio is a number representing the product-to-water mix. A ratio of 1:128 means there is 1 part product to 128 parts water.

The following chart shows available Select Doser™ 380 tubes and their priming rates:

Maximum Pressure	Tube Number	Priming Rate (gal/hr)
80psi	H	1.242
	F	.222

EXAMPLE: Calculating Maximum water flow

If the system is dosing at a ratio of 1:12k5, then the **Maximum water flow** is determined as follows:

$$(\text{Priming rate}) \times (\text{Ratio}) = \text{Maximum water flow}$$

$$\text{H } 1.242 \quad \times \quad 12,500 = 15,525 \text{ gal/hr}$$

$$\text{F } 0.222 \quad \times \quad 12,500 = 2,775 \text{ gal/hr}$$

If the system is dosing at a ratio of 1:128, then the **Maximum water flow** is determined as follows:

$$(\text{Priming rate}) \times (\text{Ratio}) = \text{Maximum water flow}$$

$$\text{H } 1.242 \quad \times \quad 128 = 158 \text{ gal/hr}$$

$$\text{F } 0.222 \quad \times \quad 128 = 28 \text{ gal/hr}$$

Any water flow higher than the **Maximum water flow** amount will generate a “**High Flow!**” warning.

NOTE: *If you require pumping higher volumes and can reduce your water pressure to 30psi, contact your dealer for details on the Select Doser™ 640, our low pressure / high volume pump.*

WARRANTY

Genesis Instruments warrants the Select Doser™ 380 to be free of defects due to parts or workmanship for one year from the date of purchase. Since we cannot control water conditions, Genesis Instruments will not warrant any flow sensors that are damaged due to mineral deposits or any other water borne contaminants. Genesis Instruments will not warrant any pumps that are damaged due to leaking pump tubes.

MAINTENANCE

Weekly

- Flush out filters protecting the flow sensor.
- Flush inlet filter on the Suction Line end weight.
- Inspect the pump tube for signs of wear.
- Check doser output. Adjust, as necessary, via the control screen.

Monthly

Replace pump tube if any of the following occur:

- Rate of dosing increases or decreases sharply.
- The tube splits.

Every 6 Months

- After disconnecting from electrical supply, remove cover from Select Doser™ 380 and inspect interior of control box.
- Ensure no ingress of moisture or other contaminant.
- In case of inspection difficulty, contact your dealer.

TROUBLESHOOTING

If the Select Doser™ 380 fails to operate correctly, check the following:

Problem	Solution
Rotor jamming against the pump tube	Run the pump on Prime for 10 minutes; this will break the tube in before dosing begins.
Error message “ High Flow! ” showing on screen	<ol style="list-style-type: none">1. Problem may have passed; check if Maximum water flow is being exceeded.2. Consider using a more concentrated stock solution at a higher ratio.3. Possible pump fault. Contact your dealer.

Problem	Solution
Incorrect dosing-Dose too low	<ol style="list-style-type: none"> 1. Is the correct tube fitted, as shown on-screen? 2. Is water line pressure too high? 3. Is non-return valve blocked? 4. Is injection point blocked? 5. Is inlet filter blocked? 6. Has the doser been running on High Flow and unable to keep up with water flow? 7. Has water flow periodically been lower than the sensor rating? 8. Check inlet tube joints for leaks, as air may be getting sucked in.
Incorrect dosing-Dose too high	<ol style="list-style-type: none"> 1. Is the correct tube fitted, as shown on-screen? 2. Is the doser near high tension power cables? If so, move the doser to avoid interference.
Medication not being pumped from stock solution container	<ol style="list-style-type: none"> 1. Make sure all tube connections are firmly in place. 2. Check for blockages anywhere in the delivery lines, up to the injection point.
Sudden loss of pumping pressure (with possible return of fluid into stock solution container)	<ol style="list-style-type: none"> 1. Check for lateral movement in the rotor. 2. Inspect for physical damage to pump head from fixing screws. If the pump head is loose, pressure will be lost. 3. Make sure that the injection check valve is fitted in the Discharge Line. 4. Make sure that pump tube is not fractured.
Error message, " Pump error! "	A failure of the motor or data encoder is indicated. Check that connections to circuit board from motor are in place. Contact your dealer.
Proportional dosing not occurring	<ol style="list-style-type: none"> 1. Check for a flow sensor connection. 2. Is the water flowing? 3. Check the turbine in the flow sensor. Is it turning freely, or is it snagged? 4. Is main electrical supply connected to the pump?

Contact your dealer if the steps above do not resolve the problem.