SMITH PUMPS

DON'T READ THIS!

(UNLESS YOU WANT BETTER PERFORMANCE AND LONGER DURABILITY)

Smith Precision Products Company, Inc. has been manufacturing MeaSUREmix injector units since 1950, in recognizable configurations similar to the current models. During this time, most users have been very pleased with the equipment, which in the last several decades, has been employed within a wide variety of good to poor working conditions. Based upon this experience we have attempted to cover the most common causes of injector trouble. They are as follows:

a. *Using machines at higher water flow rates than recommended in our literature*. That causes fast wear of crankshaft parts, pistons, and cylinders, as well as high water line pressure drop. Be sure to confirm the water flow rate as soon as the machine is installed.

b. *Using machines at lower water flow rates than recommended in our literature.* That does not cause fast wear, but it results in inaccurate proportioning and at very low flow rates the units will not work at all. Again, check the water flow rates as soon as the injector unit is installed.

c. *Using water containing sand and/or silt.* If that is done without first providing proper strainer or filter protection, the MeaSUREmix injector units will be subject to highly accelerated wear.

d. *Allowing check valves to become plugged.* Liquid fertilizer, suspensions, and other concentrates can eventually leave deposits in the check valves, if not back-flushed regularly. It is relatively easy to maintain them in good condition. Badly clogged check valves can cause other parts to wear more rapidly, leading to increasing operating expense.

e. *Assembling check valve parts together improperly.* After disassembling the stainless steel check valves for inspection and/or cleaning, be very sure they are reassembled properly. Improperly assembled check valves may “dead-head” the injector pump, and can cause aggravated damage to other associated parts.

f. *Neglecting to follow recommended instructions in Manual “CM-2”.* These are simple, and carefully outlined. They should be followed to the letter to attain the long, trouble-free service for which the SMITH MeaSUREmix is highly noted.

g. *Failure to correct small leaks in fittings and valves*. Tightening clamps, compression nuts, valve handles, and replacing tubing may be required during average service life. These procedures are easily accomplished.

h. *Failure to inspect and replace the injector piston o-ring in a timely fashion.* The injector piston o-ring should be removed, inspected, and replaced initially within six months, and thereafter annually, if not sooner. With the current style MeaSUREmix, this is very easy to do, and serves as an injection system internal condition indicator. The first spare is attached, to the right.

i. *Failure to properly store unit*. Do not store the machine as received from the factory. See dated tag. Always keep filled with water from a pressurized source. Keep from freezing.

SPARE O-RING IS ATTACHED HERE WHEN THIS SHEET ACCOMPANIES A NEW , EXCHANGE, OR REPAIRED UNIT SHIPPED DIRECTLY FROM THE FACTORY

USING THE MEASUREMIX TO CHECK THE WATER FLOW RATE

The SMITH MeaSUREmix injector unit should always be specified on the basis of water flow rate. Never order a MeaSUREmix on the basis of pipe size. Before ordering, check the water flow rate using one of several methods described in Catalog "CM-1", Manual "CM-2", or Bulletin "AM-6". Once the unit is installed at the site, it can be used as a sort of "flow meter", provided it is in good operational condition. To determine the *approximate* maximum flow rate, with the MeaSUREmix installed in the system, open the valves so the injected water system will handle the most flow per minute that would ever be used. Once this is done, count the number of revolutions of the crankshaft, or "strokes" per minute, as seen through either of the two clear plastic windows, or with the R-1, as seen through the check valve inserts. Multiply the number of revolutions counted in one minute by the approximate displacement figure ("multiplier"). Do not exceed the maximum RPM for any of the five listed model types.

MODEL	MAX. RPM	APPROX. FLOW / REV	MULTIPLIER**
R-1, R-3	240	1/20 USG	.05
R-4	180	1/9 USG	.11
R-6	160	1/4 USG	.25
R-8	180	1 USG	1.00

**** These figures are not exact; they are only for determining the approximate flow range. Actual water flow rates are variable, and can be affected by many conditions. For exact figures, contact the factory.**

To determine the minimum water system flow rate, again, with the MeaSUREmix installed in the piping, open the valves to achieve the lowest flow rate that would ever be used through the machine. Count the revolutions of the crankshaft, and multiply them by the approximate flow per rev. figure ("multiplier"), as before. Make sure that the minimum revolutions per minute for any of the five model types as listed on the following page, never go below the listed values.

MODEL	MIN. RPM	APPROX. FLOW / REV	MULTIPLIER**
R-1	40	1/20 USG	.05
R-3	60	1/20 USG	.05
R-4	45	1/9 USG	.11
R-6	40	1/4 USG	.25
R-8	20	1 USG	1.00

**** These figures are not exact; they are only for determining the approximate flow range. Actual water flow rates are variable, and can be affected by many conditions. For exact figures, contact the factory.**

In certain special applications involving very clean, distilled, or RO ("reverse osmosis") water, new or exchange MeaSUREmix units will initially perform with a minimum RPM of one-half shown in the above table. However, to maintain accuracy of injection *throughout their useful service life*, the minimum RPM of the average unit must never be less than shown, above. Even if the machine appears to be turning smoothly, accuracy of injection is not as good at these lower than recommended water flow rates. Units run at slower than recommended minimum speed are likely to run unevenly, or to stop running altogether, especially when occasional particulate matter carried by the water flow happens to pass through the working clearances of the water motor.

Should it be determined as a result of the previously mentioned tests that in spite of all the care taken to specify the correct model of machine, the wrong unit was ordered, contact the factory direct for advice. Possibly a larger or smaller model can be substituted, or the installed machine can be complemented with a second unit.

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SMITH PRECISION PRODUCTS COMPANY
P.O. Box 276, Newbury Park, CA 91319 USA
1299 Lawrence Drive, Newbury Park, CA 91320 USA
Tel.: 805/498-6616 FAX: 805/499-2867
e-mail: INFO@smithpumps.com **web: www.smithpumps.com**