



# MANUAL SUPPLEMENT: K-FACTOR SHIMS FOR FIXED ORIFICE NOZZLES

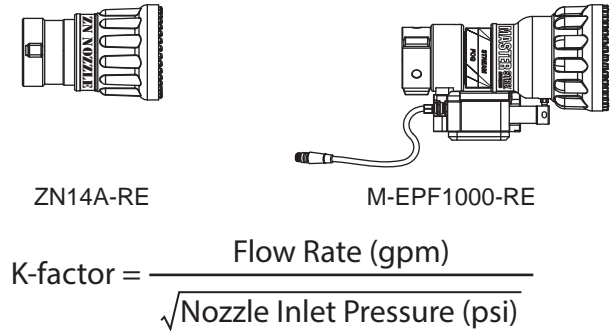


**Read instruction manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of the equipment. Obtain safety information at [www.tft.com/serial-number](http://www.tft.com/serial-number)**

These supplemental instructions apply to fixed orifice nozzles based on models ZN14A, M-RF1000, and MERFP1000 only.

Specific models include ZN14A-RE and M-EPF1000-RE.

Flow rate can be adjusted by altering the number of shim washers installed. This affects the K-factor, which relates flow rate to nozzle inlet pressure according to the following equation:



To adjust the K-factor, first remove jam nut and baffle from front of nozzle. Then, use the following tables to determine appropriate number of shim washers to install over the threaded shaft. There are separate tables for each nozzle series nozzles since the calibration ranges are different.

After installing the appropriate number of shim washers, install the baffle snug against the shim washers. Then, tighten the jam nut against the baffle with 30 ft-lb / 41 N-m of torque.

### ZN14A series nozzles:

Shim Washer: VW750X501-10 Washer 18-8 Stainless .75" OD x .50" ID x .01" thick  
 Jam Nut: VT50-13NT Hex Nut 18-8 Stainless 1/2"-13

ZN14A K factor	Number of shims	ZN14A K factor	Number of shims	ZN14A K factor	Number of shims	ZN14A K factor	Number of shims
12.3	0	31.1	8	51.5	16	68.1	24
14.3	1	33.7	9	53.9	17	69.7	25
16.5	2	36.3	10	56.2	18	71.2	26
18.7	3	38.9	11	58.4	19	72.6	27
21.0	4	41.5	12	60.5	20	73.9	28
23.5	5	44.1	13	62.5	21	75.1	29
26.0	6	46.6	14	64.5	22	76.1	30
28.5	7	49.1	15	66.3	23		

### Master 1000 Fixed series nozzles:

Shim Washer: VW875X625-10 Washer 18-8 Stainless .875" OD x .625" ID x .01" thick  
 Jam Nut: VT62-18NT Hex Jam Nut 18-8 Stainless 5/8"-18

Master K factor	Number of shims	Master K factor	Number of shims	Master K factor	Number of shims	Master K factor	Number of shims
50.9	18	68.1	25	83.8	32	97.9	39
53.4	19	70.4	26	85.9	33	99.7	40
56.0	20	72.7	27	88.0	34	101.6	41
58.4	21	75.0	28	90.0	35	103.4	42
60.9	22	77.2	29	92.0	36	105.2	43
63.3	23	79.5	30	94.0	37		
65.7	24	81.6	31	95.9	38		