



# MANUAL: MASTERSTREAM with Flush Nozzle Series

## INSTRUCTIONS FOR INSTALLATION, SAFE OPERATION AND MAINTENANCE

### **WARNING**

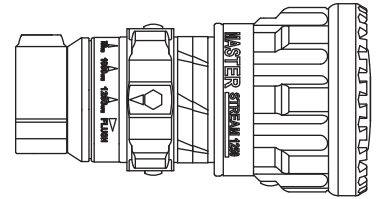
Understand manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. Obtain safety information at [www.tft.com/serial-number](http://www.tft.com/serial-number)

This instruction manual is intended to familiarize firefighters and maintenance personnel with the operation, servicing and safety procedures associated with the Masterstream Series firefighting nozzles.

This manual should be kept available to all operating and maintenance personnel.

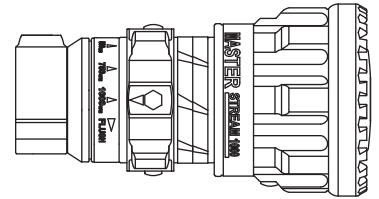
### Masterstream 1250 Selectable Flow with Flush

500-750-1000-1250 GPM @ 100 PSI  
2000-3000-3800-4800 l/min @ 7 BAR



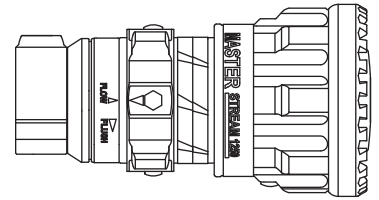
### Masterstream 1000 Selectable Flow with Flush

350-500-750-1000 GPM @ 100 PSI  
1300-2000-3000-3800 l/min @ 7 BAR



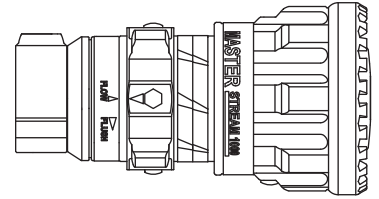
### Masterstream 1250 Fixed Flow with Flush

1250 GPM @ 100 PSI K = 125  
4800 l/min @ 7 BAR



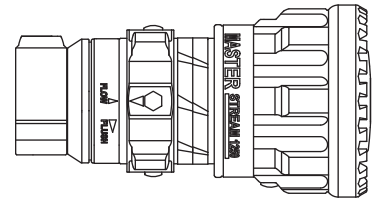
### Masterstream 1000 Fixed Flow with Flush

1000 GPM @ 100 PSI – K=100  
3800 l/min @ 7 BAR



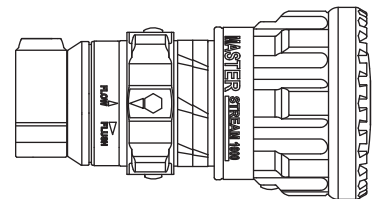
### Masterstream 1250 Automatic Pressure with Flush

300-1250 GPM @ 80-120 PSI  
1100-4800 l/min @ 5.5-8.3 BAR



### Masterstream 1000 Automatic Pressure with Flush

300-1000 GPM @ 80-120 PSI  
1100-3800 l/min @ 5.5-8.3 BAR




**TASK FORCE TIPS, INC.**  
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# Table Of Contents


- 1.0 MEANING OF SAFETY SIGNAL WORDS
- 2.0 SAFETY
- 3.0 GENERAL INFORMATION
  - 3.1 VARIOUS MODELS & TERMS
  - 3.2 SPECIFICATIONS
  - 3.3 USE WITH SALT WATER
  - 3.4 ELECTRIC INSTALLATION
- 4.0 FLOW CHARACTERISTICS
  - 4.1 AUTOMATIC
  - 4.2 SELECTABLE FLOW
  - 4.3 FIXED FLOW
  - 4.4 FLUSHING DEBRIS
- 5.0 REACH AND TRAJECTORY
- 6.0 OPERATION
  - 6.1 PATTERN CONTROL
  - 6.2 DETERMINING FLOW WITH PRE-PIPED MONITORS
  - 6.3 USE WITH FOAM
- 7.0 DRAWINGS AND PART LIST
  - 7.1 DRAWING AND PART LIST
- 8.0 WARRANTY
- 9.0 MAINTENANCE
  - 9.1 FIELD LUBRICATION
  - 9.2 SERVICE TESTING
    - 9.2.1 FLOW TESTING
    - 9.2.2 RECORDS
  - 9.3 REPAIR
- 10.0 ANSWERS TO YOUR QUESTIONS
- 11.0 INSPECTION CHECKLIST



**PERSONAL RESPONSIBILITY CODE**

The member companies of FEMSA that provide emergency response equipment and services want responders to know and understand the following:





1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.
2. It is your responsibility to read and understand any user's instructions, including purpose and limitations, provided with any piece of equipment you may be called upon to use.
3. It is your responsibility to know that you have been properly trained in Firefighting and /or Emergency Response and in the use, precautions, and care of any equipment you may be called upon to use.
4. It is your responsibility to be in proper physical condition and to maintain the personal skill level required to operate any equipment you may be called upon to use.
5. It is your responsibility to know that your equipment is in operable condition and has been maintained in accordance with the manufacturer's instructions.
6. Failure to follow these guidelines may result in death, burns or other severe injury.



Fire and Emergency Manufacturers and Service Association  
P.O. Box 147, Lynnfield, MA 01940 • [www.FEMSA.org](http://www.FEMSA.org)











## 1.0 MEANING OF SAFETY SIGNAL WORDS

A safety related message is identified by a safety alert symbol and a signal word to indicate the level of risk involved with a particular hazard. Per ANSI standard Z535.4-2011, the definitions of the four signal words are as follows:

	<b>DANGER</b> indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	<b>WARNING</b> indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	<b>CAUTION</b> indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.
	<b>NOTICE</b> is used to address practices not related to physical injury.

## 2.0 SAFETY

**OPERATING NOTE ABOUT AUTOMATIC NOZZLES:** The automatic nozzle is considerably different than Fixed and Selectable Flow nozzles because of basic changes in the operating principle. These differences not only assure the most effective operation under a variety of conditions, but will also utilize the available water supply most efficiently. It is important that nozzle operators, pump operators, and officers be fully aware of these differences. Therefore, proper instruction is required for safe and effective operations.

	<b>DANGER</b> An inadequate supply of nozzle pressure and/or flow will cause an ineffective stream and can result in injury, death, or loss of property. See flow graphs or call 800-348-2686 for assistance.
	<b>WARNING</b> This equipment is intended for use by trained personnel for firefighting. Their use for other purposes may involve hazards not addressed by this manual. Seek appropriate guidance and training to reduce risk of injury.
	<b>WARNING</b> Injury can result from an inadequately supported monitor. The monitor mount must be capable of supporting 931 lbs (422 kg) of nozzle reaction force.
	<b>WARNING</b> Some volatile liquids can be ignited by static discharge. Static build-up can occur from: <ul style="list-style-type: none"><li>• Electrochemical separation of charge as water drains through low conductivity, refined products.</li><li>• Applying foam over a low conductivity liquid of sufficient depth to retain the charge created as the foam blanket drains.</li><li>• Streaming currents as water or foam is introduced into the storage tank.<sup>1</sup></li></ul>
	<b>WARNING</b> Water is a conductor of electricity. Application of water solutions on high voltage equipment can cause injury or death by electrocution. The amount of current that may be carried back to the nozzle will depend on the following factors: <ul style="list-style-type: none"><li>• Voltage of the line or equipment</li><li>• Distance from the nozzle to the line or equipment</li><li>• Size of the stream</li><li>• Whether the stream is solid or broken</li><li>• Purity of the water<sup>2</sup></li></ul>
	<b>WARNING</b> The stream exiting a nozzle is very powerful and capable of causing injury and property damage. Make sure the nozzle is securely attached and pointing in a safe direction before water is turned on. Use care in directing the stream.
	<b>WARNING</b> The nozzle may be damaged if frozen while containing significant amounts of water. Such damage may be difficult to detect visually and can lead to possible injury or death. Any time the nozzle is subject to possible damage due to freezing, it must be tested by qualified personnel before being considered safe for use.
	<b>CAUTION</b> Nozzle must be properly connected. Mismatched or damaged threads may cause nozzle to leak or uncouple under pressure and could cause injury.
	<b>CAUTION</b> Do not connect aluminum to brass or brass to aluminum. Dissimilar metals coupled together can cause galvanic corrosion that will freeze the threaded joint or cause complete loss of thread engagement. If dissimilar metals must be coupled together, the effects of corrosion can be greatly delayed by various coatings on the metal such as powder paint, hard anodizing, or silicone grease.
	<b>NOTICE</b> To prevent mechanical damage, do not drop or throw equipment.

<sup>1</sup> Electrostatic Hazards of Foam Blanketing Operations by Peter Howels. Industrial Fire Safety July/August 1993

<sup>2</sup> The Fire Fighter and Electrical Equipment, The University of Michigan Extension Service, Fourth Printing 1983. Page 47.

### 3.0 GENERAL INFORMATION

The Master Stream 1250 with Flush has the ability to produce an excellent hard-hitting stream at any flow from 300 GPM to 1250 GPM (1100 l/min to 4800 l/min). Easily adjustable from a straight stream to a wide dense fog pattern, the Master Stream 1250 with Flush is standard with a rugged aluminum bumper with fixed fog teeth. The nozzle features a selector ring behind the shaper that allows gallonage selection or flushing the nozzle of debris without shutting down flow. Applications include truck mounted deluge devices, aerials, fireboats, industrial applications, or when flush while flowing is necessary or desired. The Master Stream 1250 with Flush is suitable for use with foam and accepts the FJ-LX-M Foamjet low expansion air aspirating attachment.

### 3.1 VARIOUS MODELS AND TERMS

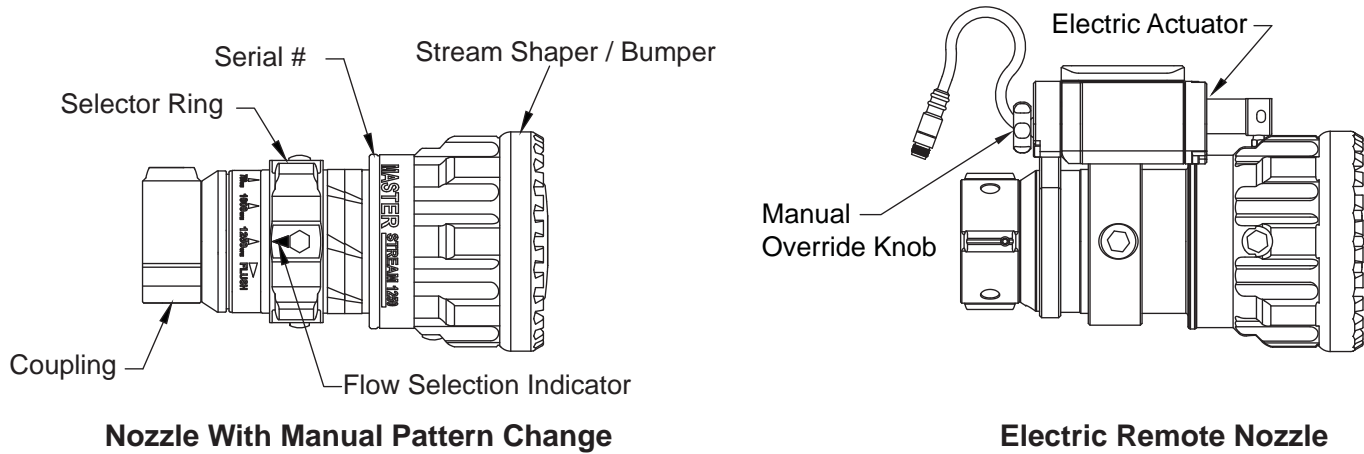


Figure 3.1

### 3.2 SPECIFICATIONS

NOZZLE SERIES	FLOW RANGE		NOMINAL PRESSURE		K-Factor
	GPM	L/min	PSI	BAR	
1250 Selectable	500 / 750 / 1000 / 1250	2000 / 3000 / 3800 / 4800	100	7	
1000 Selectable	350 / 500 / 750 / 1000	1300 / 2000 / 3000 / 3800	100	7	
1250 Fixed	1250	4800	100	6	125
1000 Fixed	1000	3700	100	6	100
1250 Automatic	300-1250	1100-4800	80-120	5.5-8.3	
1000 Automatic	300-1000	1100-3800	80-120	5.5-8.3	

	US	METRIC
Weight	11.1 LBS	5.0 KG
Max Flow	1250 GPM	4800 LPM
Max. Flush Opening	5/8"	16mm
Max Operating Pressure	120 PSI	8.3 BAR
Max Fog Angle	110°	110°
Operating Temp Limits	-25°F to 135°F	-40°C to 57°C

### 3.3 USE WITH SALT WATER

Use with saltwater is permissible provided nozzle is thoroughly cleaned with fresh water after each use. The service life of the nozzle may be shortened due to the effects of corrosion and is not covered under warranty.

### 3.4 ELECTRIC INSTALLATION

Nozzles with electric stream shaper actuation are shipped with a wiring diagram (TFT item #LIM-040). Other documentation is available on request. The actuator is not rated as ignition proof, explosion proof, or intrinsically safe. NOTE: ER nozzles are equipped with manual override in case of electrical power failure. (See figure 3.1)

**WARNING** The electric motor and other components are ignition sources. The electric stream shaper should be operated only in areas where there is adequate ventilation and no hazard of flammable vapor buildup.

## 4.0 FLOW CHARACTERISTICS

### 4.1 AUTOMATIC

The operating pressure of the Masterstream Automatic with Flush Nozzles is user adjustable. Pressure adjustment is performed by twisting the knob on the front of the nozzle to the desired pressure setting. Figures 4.1- show typical flow performance for each model when adjusted to the marked pressure settings. The automatic pressure control will maintain the set pressure anywhere within the flow ranges shown on the graphs, which vary according to pressure setting.

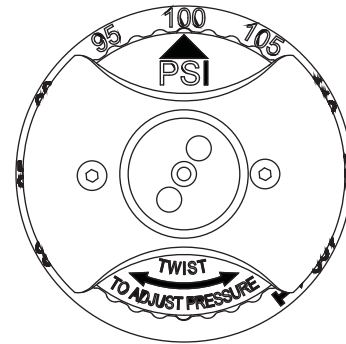


Figure 4.1

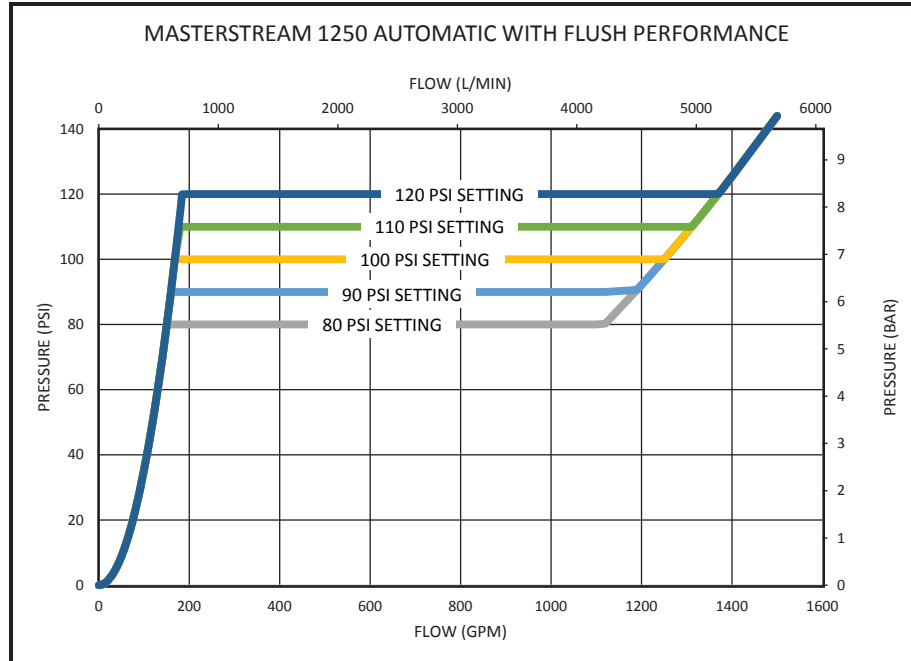


Figure 4.1A MASTERSTREAM 1250 AUTOMATIC WITH FLUSH PERFORMANCE

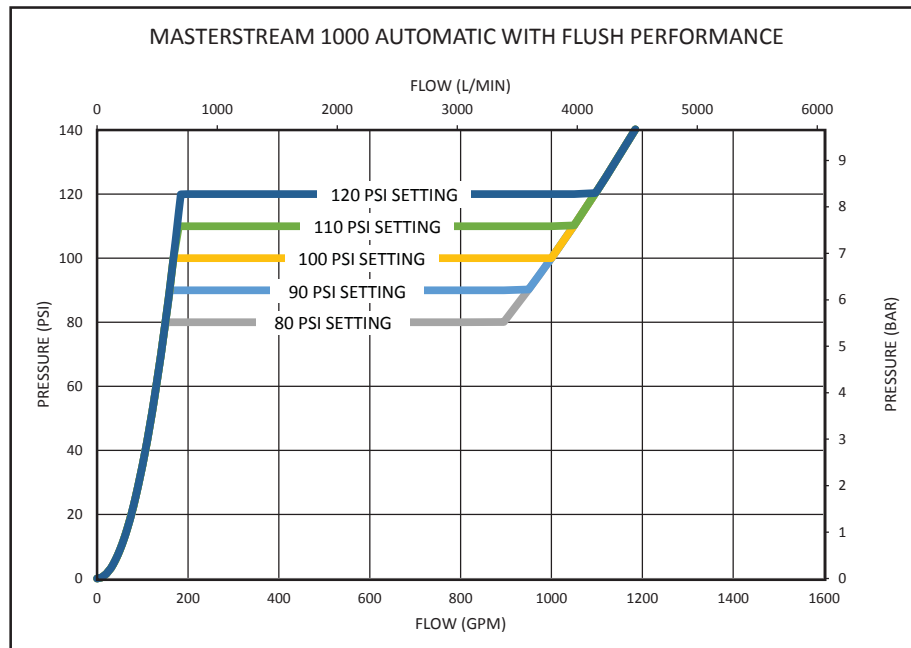


Figure 4.1B MASTERSTREAM 1000 AUTOMATIC WITH FLUSH PERFORMANCE

## 4.2 SELECTABLE FLOW

The Masterstream 1000/1250 Selectable with Flush Nozzles allows the user to select one of several flow-limiting settings by turning the selector ring at the base of the nozzle. The indicator on the selector ring lines up with the flow-limit selection. Figure 4.2 gives the relationship of flow and pressure for each flow setting.

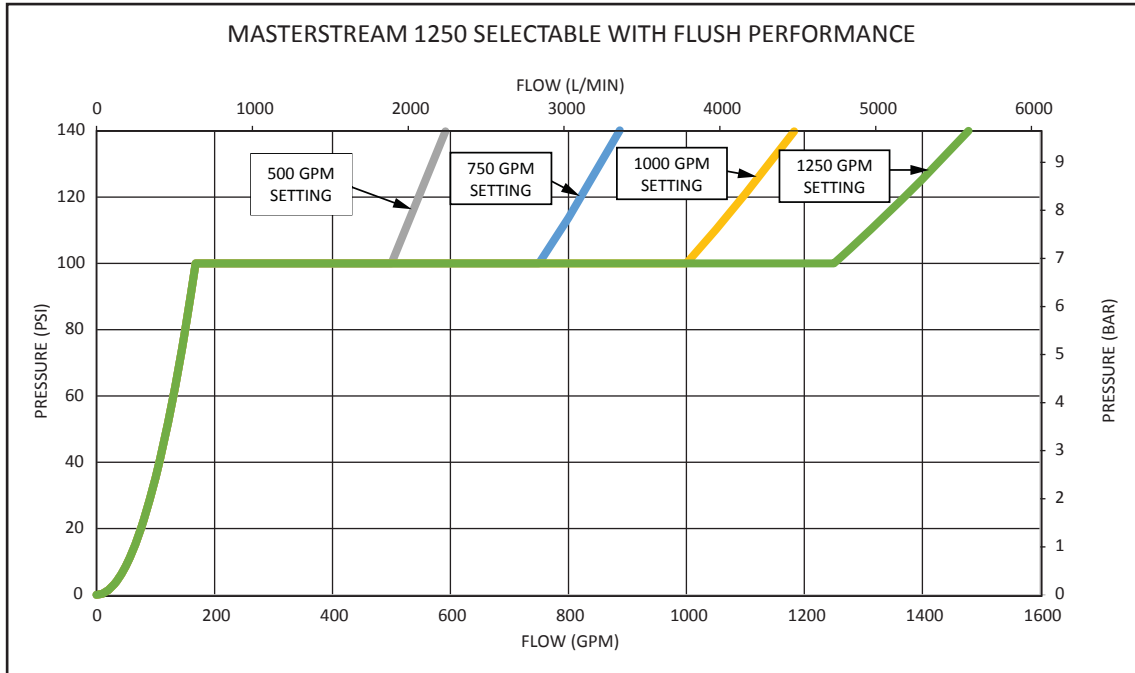


FIG 4.2A MASTERSTREAM 1250 SELECTABLE WITH FLUSH PERFORMANCE

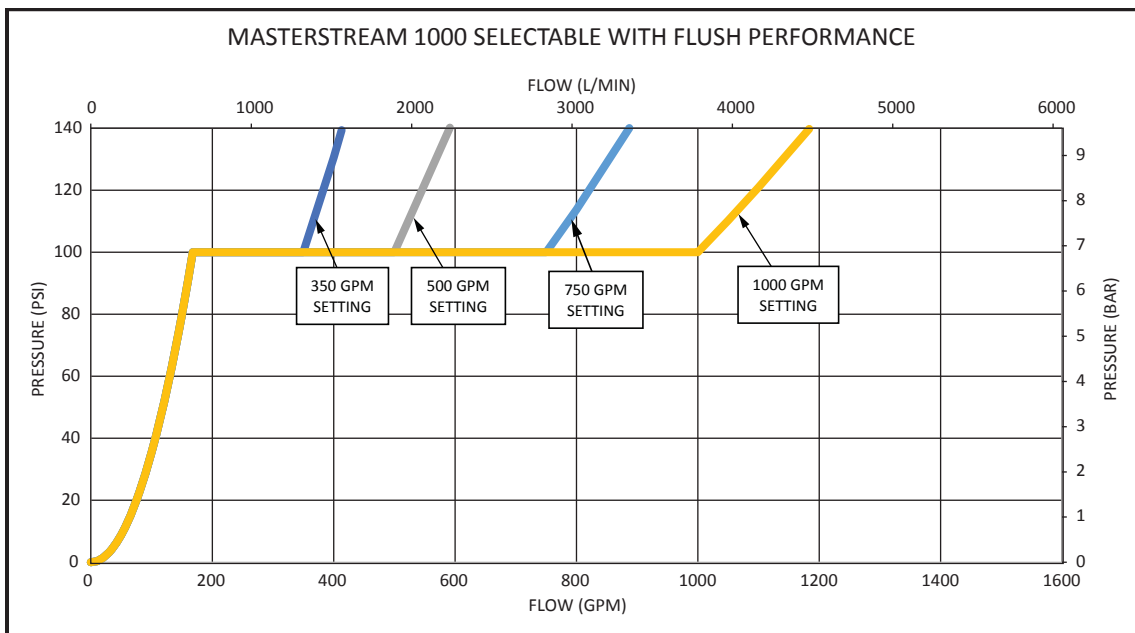


FIG 4.2B MASTERSTREAM 1000 SELECTABLE WITH FLUSH PERFORMANCE

### 4.3 FIXED FLOW

The Masterstream 1250 and 1000 Fixed with Flush Nozzles are factory calibrated to K=125, K=100, or user-specified K-Factor. Figure 4.3 shows the relationship between flow and pressure for various K-factors.

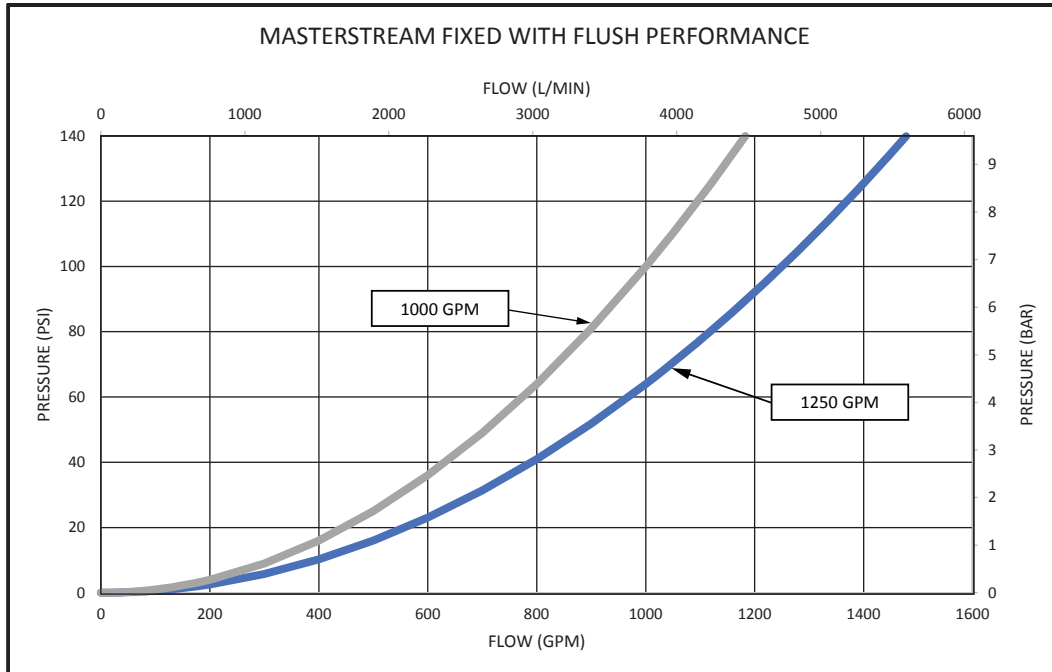


FIG 4.3 MASTERSTREAM 1250 & 1000 FIXED WITH FLUSH PERFORMANCE

### 4.4 FLUSHING DEBRIS

All nozzles are equipped with a flush setting so debris may be flushed from the nozzle while flowing. The flush opening is larger than the passageways inside the nozzle, allowing debris to pass.

Manually operated nozzles are flushed by turning the selector ring to FLUSH which opens the baffle further than the largest flow position. Resume operational flow by returning the selector ring to a flow setting. Stream pattern retains its original setting.

Electric Remote nozzles are flushed from the control panel by pushing the FOG button twice. Push and hold FOG to move the nozzle to full fog. A second push moves the nozzle to flush by increasing the opening size further than the largest flow position. Smart Stream controls both stream shape and flush. A second push avoids unintentional flush. Push the STRAIGHT STREAM button to return the nozzle normal flow and adjust the stream shape as desired.

Debris too large to pass the flush opening is retained at the nozzle inlet by the vanes. Uncouple the nozzle and remove debris.

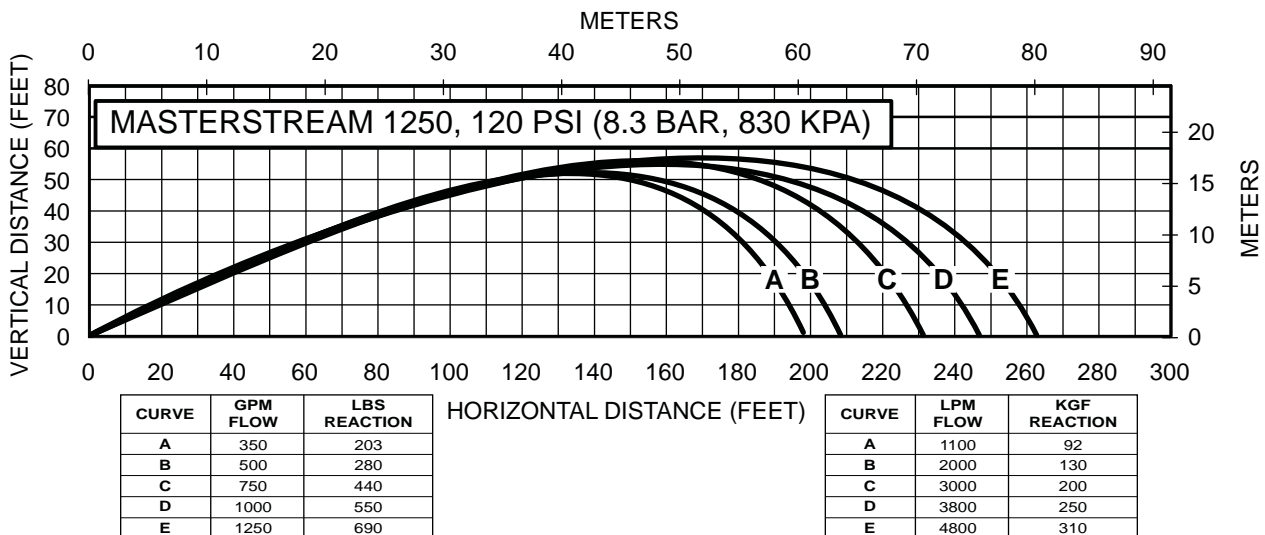
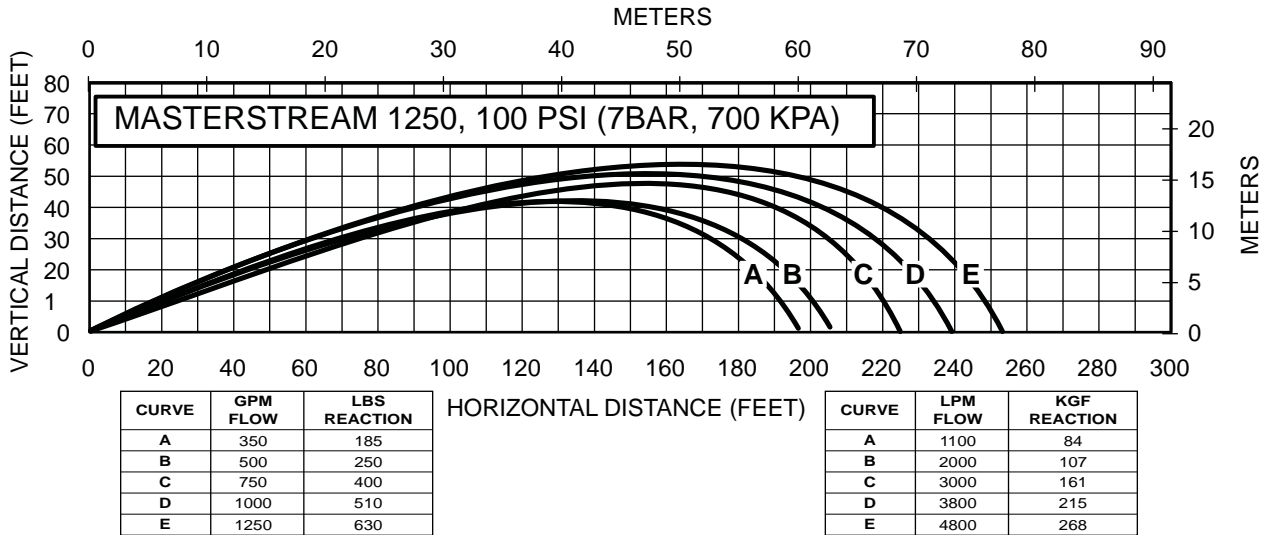
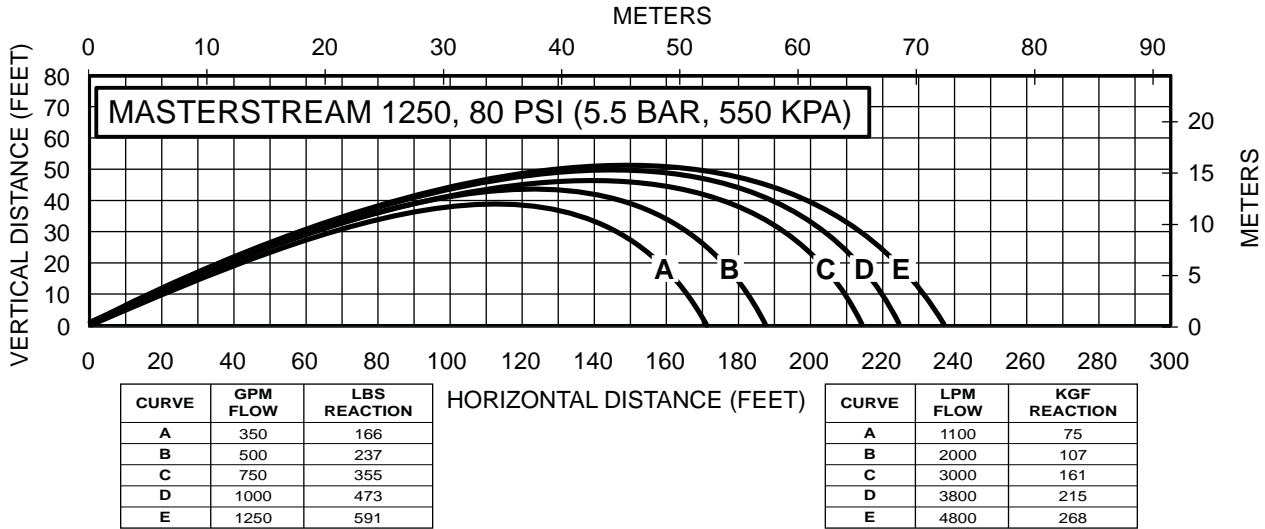
**WARNING** Large amounts or pieces of debris may be unflushable and can reduce the flow of the nozzle resulting in an ineffective flow. In the event of a blockage, it may be necessary to retreat to a safe area, uncouple the nozzle and remove debris.

## 5.0 REACH AND TRAJECTORY

Care must be taken to avoid dents or nicks in the nozzle tip because they can seriously affect the stream reach.

Notes on trajectory graphs:

- Graphs show approximate effective stream trajectory at 30 degrees elevation in no wind conditions. Distance to last water drops approximately 10% farther.
- To estimate trajectories at elevations other than 30 degrees, refer to document LTT-135, available at [www.tft.com](http://www.tft.com).
- Trajectories shown are for water. The addition of foam is expected to decrease the reach by 10%.
- Tail or head winds of 20 MPH (30 KPH) may increase or decrease the range approximately 30%.





## 6.0 OPERATION

### 6.1 PATTERN CONTROL

TFT's Masterstream with Flush Series nozzles have full pattern control from straight stream to wide fog. On models with manual shapers, turning the stream shaper clockwise (as seen from the operating position behind the nozzle) moves the shaper to the straight stream position.

On nozzles with ER controls, the fog & straight stream buttons control the shaper.

Since the stream trim point varies with flow, the nozzle should be "trimmed" after changing the flow to obtain the straightest and farthest reaching stream. To properly trim a stream, first open the pattern to narrow fog. Then close the stream to parallel to give maximum reach. Note: Turning the shaper further forward will cause stream crossover and reduce the effective reach of the nozzle.

### 6.2 DETERMINING FLOW WITH PRE-PIPED MONITORS

The simplest procedure to determine flow with automatic nozzles is with a flow meter. If a flow meter is unavailable, then the flow may be estimated using pressure loss data between the nozzle and an in-line pressure gauge at the pump or considerably upstream from the nozzle. Data is taken with a smooth bore nozzle and handheld pitot gauge. Note: Equations assume no substantial change in elevation between in-line pressure gauge and nozzle.

#### Step 1: Determine flow of smooth bore nozzle.

Flow water with a smooth bore nozzle and record the nozzle's size, pitot pressure and in-line pressure gauge reading. The smooth bore nozzle's flow is calculated from the Freeman formula:

Where:  $F = 29.71$  for English units (GPM, INCHES, PSI)

$F = .667$  for metric units (LPM, MM, BAR) Note: 1 BAR=100 KPA

$Q_{smooth}$  flow in GPM (or LPM)

$D$  exit diameter in INCHES (or MM)

$P_{pitot}$  pitot pressure in PSI (or BAR)

$$Q_{smooth} = F \times D^2 \sqrt{P_{pitot}}$$

#### Step 2: Find pressure loss constant.

Using the results from step 1, use the following equation to calculate the pressure loss constant between the in-line pressure gauge and the nozzle:

Where:  $C$  piping pressure loss constant in GPM<sup>2</sup>/PSI (or LPM<sup>2</sup>/BAR)

$P_{in-line}$  in-line pressure gauge reading in PSI (or BAR)

$$C = \frac{Q_{smooth}^2}{P_{in-line} - P_{pitot}}$$

#### Step 3: Calculate flow with automatic nozzle.

Using the pressure loss constant from step 2 and the following equation, the flow with an automatic nozzle can be calculated for your particular installation.

Where:  $Q_{auto}$  automatic nozzle flow in GPM (or LPM)

$P_{auto}$  nominal nozzle operating pressure in PSI (or BAR)

$$Q_{auto} = \sqrt{(P_{in-line} - P_{auto})C}$$

Mount a graph or table of the results adjacent to the in-line pressure gauge. Deliver any desired flow by adjustment of pump pressure.

### 6.3 USE WITH FOAM

Masterstream with Flush Series nozzles may be used with foam solutions. Refer to fire service training for the proper use of foam.

#### **▲ WARNING**

For Class B fires, lack of foam or interruption in the foam stream can cause a break in the foam blanket and greatly increase the risk of injury or death.

Assure that:

- Application rate is sufficient (see NFPA 11 or foam manufacturer's recommendations)
- Enough concentrate is on hand to complete task (see NFPA for minimum duration time requirements)
- Foam logistics have been carefully planned.

Allow for such things as:

- Storage of foam in a location not exposed to the hazard it protects
- Personnel, equipment and technique to deliver foam at a rapid enough rate
- Removal of empty foam containers

Clear path to deliver foam, as hoses and other equipment and vehicles are deployed

#### **▲ WARNING**

Improper use of foam can result in injury or damage to the environment. Follow foam manufacturer's instructions and fire service training to avoid:

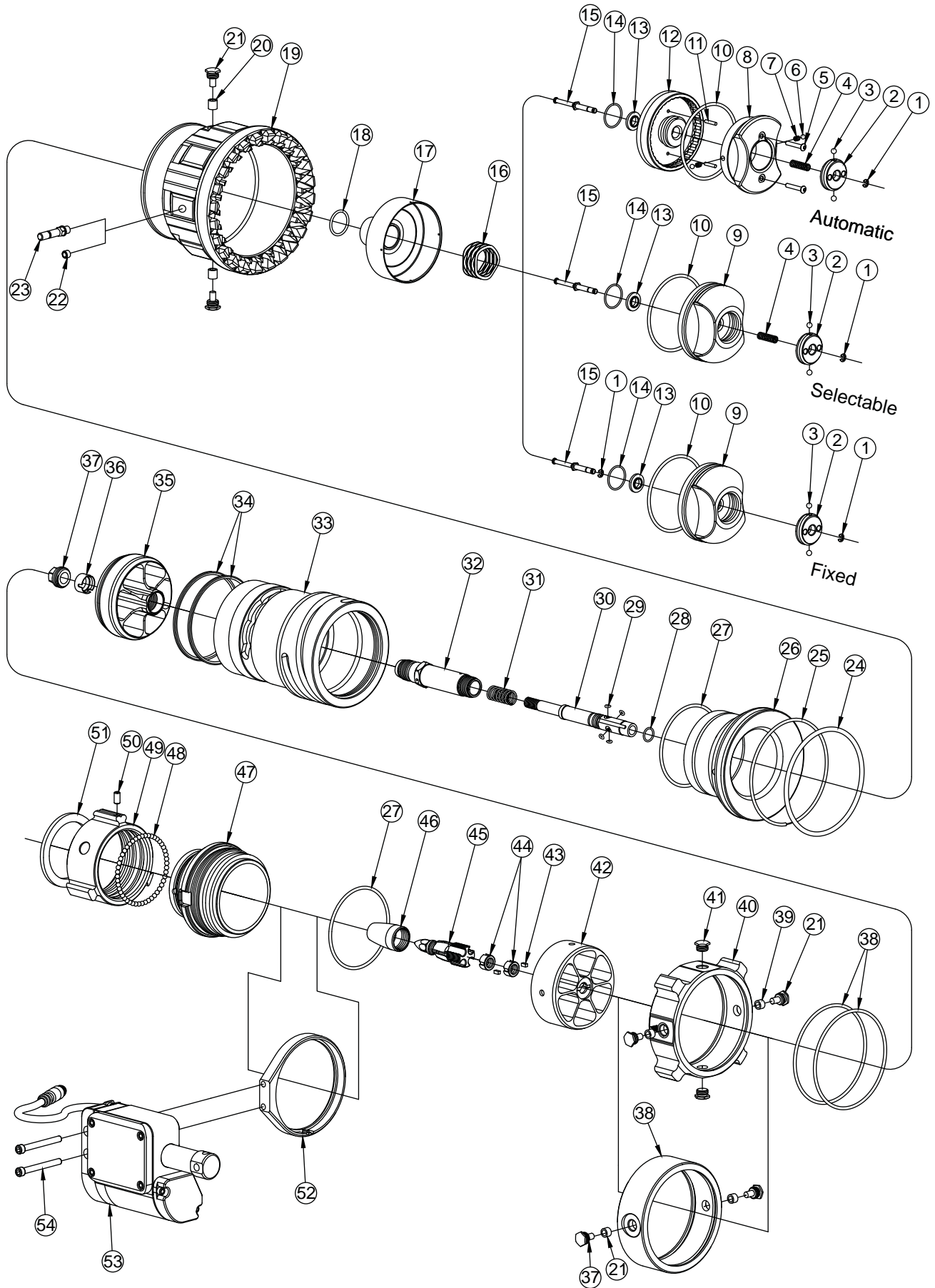
- Using wrong type of foam on a fire, i.e. Class A foam on a Class B fire
- Plunging foam into pools of burning liquid fuels
- Causing environmental damage
- Directing stream at personnel

#### **▲ WARNING**

There are a wide variety of foam concentrates. Each user is responsible for verifying that any foam concentrate chosen to be used with this unit has been tested to assure that the foam obtained is suitable for the purpose intended.

## 7.0 DRAWINGS AND PART LISTS

### 7.1 DRAWING AND PART LIST



#	DESCRIPTION	QTY.	PART #
1	RETAINING RING 3/16" EXTERNAL STAINLESS	2	M539
2	CALIBRATION SCREW	1	M566
3	7/32" ACETAL BALL	2	V2130
4	CONTROL SPRING MASTER 1500/2000/4000	1	MS760
5	8-32 X 1" BUTTON HEAD SCREW	2	VT08-32BH1.0
6	3/16" TORLON BALL	2	V2120-TORLON
7	STO DETENT SPRING	2	VM4200
8	ADJUSTING KNOB	1	M536
9	CAP - SELECTABLE & FIXED	1	M534
10	O-RING-235	1	VO-235
11	1/8 X 5/8 HDP SPIROL PIN	2	VP125X625H
12	CAP	1	M535
13	FLUSH SEAL	1	M525
14	O-RING-021	1	VO-021
15	POPPET	1	M540
16	RETURN SPRING	1	MM770
17	BAFFLE	1	M530
18	O-RING-119	1	VO-119
19	SHAPER	1	M503
20	NYLON BUSHING 1/4" LONG	2	M556
21	CAM SCREW	6	FF126
22	5/16-18 X 1/4 SOCKET SET SCREW CUP POINT	1	VT31-18SS250
23	DRIVE PIN	1	Y6119
24	O-RING-348	1	VO-348
25	WEAR STRIP	1	MM210
26	BARREL CONE	1	M501
27	O-RING-237	2	VO-237
28	O-RING-014	1	VO-014

#	DESCRIPTION	QTY.	PART #
29	O-RING-006	4	VO-006
30	CONTROL ROD - 1250	1	M572
	CONTROL ROD - 1000	1	M572A
31	ROD SPRING - MASTER 1250	1	M557
32	SHAFT - 1250	1	M575
	SHAFT - 1000	1	M575A
33	BARREL	1	M506
	BARREL	1	M507
34	QUAD-RING-239	2	VOQ-4239
35	STREAM STRAIGHTENER	1	M505
36	LOCKING SLEEVE	1	MM271
37	SHAFT LOCK NUT	1	M560
38	O-RING-243	1	VO-243
39	NYLON BUSHING 3/8" LONG	2	AY307
40	SELECTOR RING	1	M550
	SELECTOR RING	1	M552
41	SELECTOR RING SCREW	2	M561
42	SELECTOR INNER RING	1	M555
43	KEY	2	M559
44	ROD LOCK NUT	2	M585
45	NOSE CONE TIP	1	M577
46	NOSE CONE	1	M576
47	BASE RING	1	M500
48	3/16" SS BALL	48	V2120
49	COUPLING 2.5"NHF RL	1	M307*
50	1/4-28 X 1/2 SOCKET SET SCREW	1	VT25-28SS500
51	GASKET 2.5"	1	V3190
52	ER MOUNTING RING	1	M502
53	ACTUATOR MASTER FLUSH 6-WIRE	1	Y6200-MF
54	1/4-20 X 2-1/4 SOCKET HEAD CAP SCREW	2	VT25-20SH2.2

\* Consult Factory for special threads

## 8.0 WARRANTY

Task Force Tips, Inc., 3701 Innovation Way, Valparaiso, Indiana 46383-9327 USA (“TFT”) warrants to the original purchaser of its nozzles and other equipment (“equipment”), and to anyone to whom it is transferred, that the equipment shall be free from defects in material and workmanship during the five (5) year period from the date of purchase.

TFT’s obligation under this warranty is specifically limited to replacing or repairing the equipment (or its parts) which are shown by TFT’s examination to be in a defective condition attributable to TFT. To qualify for this limited warranty, the claimant must return the equipment to TFT, at 3701 Innovation Way, Valparaiso, IN 46383-9327 USA, within a reasonable time after discovery of the defect. TFT will examine the equipment. If TFT determines that there is a defect attributable to it, TFT will correct the problem within a reasonable time. If the equipment is covered by this limited warranty, TFT will assume the expenses of repair.

If any defect attributable to TFT under this limited warranty cannot be reasonably cured by repair or replacement, TFT may elect to refund the purchase price of the equipment, less reasonable depreciation, in complete discharge of its obligations under this limited warranty. If TFT makes this election, claimant shall return the equipment to TFT free and clear of any liens and encumbrances.

This is a limited warranty. The original purchaser of the equipment, any person to whom it is transferred, and any person who is an intended or unintended beneficiary of the equipment, shall not be entitled to recover from TFT any consequential or incidental damages for injury to person and/or property resulting from any defective equipment manufactured or assembled by TFT. It is agreed and understood that the price stated for the equipment is in part consideration for limiting TFT’s liability. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above may not apply to you.

TFT shall have no obligation under this limited warranty if the equipment is, or has been, misused or neglected (including failure to provide reasonable maintenance) or if there have been accidents to the equipment or if it has been repaired or altered by someone else.

**THIS IS A LIMITED EXPRESS WARRANTY ONLY. TFT EXPRESSLY DISCLAIMS WITH RESPECT TO THE EQUIPMENT ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. THERE IS NO WARRANTY OF ANY NATURE MADE BY TFT BEYOND THAT STATED IN THIS DOCUMENT.**

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

## 9.0 MAINTENANCE

TFT nozzles are designed and manufactured to be damage resistant and require minimal maintenance. However, as the primary firefighting tool upon which your life depends, it should be treated accordingly. Do not drop or throw equipment.

### 9.1 FIELD LUBRICATION

All Task Force Tip nozzles are factory lubricated with high quality silicone grease. This lubricant has excellent washout resistance and long term performance. If your department has unusually hard or sandy water, the moving parts may be affected. Foam agents and water additives contain soaps and chemicals that may break down the factory lubrication.

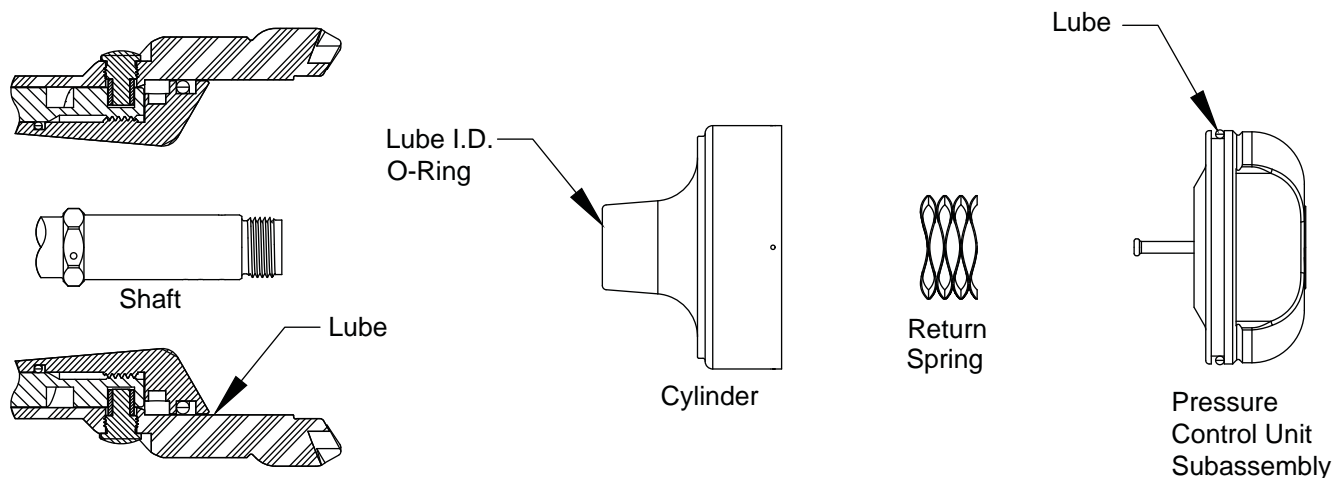


Figure 9.1 - Master stream 1250 Front End Parts

The moving parts of the nozzle should be checked on a regular basis for smooth and free operation, and signs of damage. **IF THE NOZZLE IS OPERATING CORRECTLY, THEN NO ADDITIONAL LUBRICATION IS NEEDED.** Any nozzle that is not operating correctly should be immediately removed from service.

For additional information refer to <http://www.tft.com/literature/literature.cfm?action=literature>

The field use of Break Free CLP (spray or liquid) lubricant will help to restore the smooth and free operation of the nozzle. However, these lubricants do not have the washout resistance and long-term performance of the silicone grease. Therefore, re-application of Break Free CLP will be needed on a regular basis. **CAUTION:** Aerosol lubricants contain solvents that can swell O-Rings if applied in excess. The swelling can inhibit smooth operation of the moving parts. When used in moderation, as directed, the solvents quickly evaporate without adversely swelling the O-Rings.

### 9.2 SERVICE TESTING

In accordance with NFPA 1962 (2013), nozzles must be tested a minimum of annually. Nozzles failing any part of this test must be removed from service, repaired and retested upon completion of the repair.

#### 9.2.1 FLOW TESTING

Flow testing must be conducted in the following manner.

1. The nozzle shall be mounted so that the flow rate and pressure through the nozzle and the pressure at the inlet can be accurately measured.
2. With the shut off fully open, the inlet pressure shall be adjusted to the rated pressure  $\pm 2$  percent.
3. The valve or shut off and pattern controls shall be operated through their full range of motion at 100 psi (6.9 bar or 690 kPa) with no signs of leaking, binding or other problems.
4. Evaluate the flow of nozzles as defined by NFPA 1964 in the following manner:
  - Basic Spray Nozzles shall flow no less than and no more than 10 percent over the rated flow at the rated pressure in the straight stream and wide-angle fog settings.
  - Constant and Selectable Gallonage Nozzles shall flow no less than and no more than 10 percent over the rated flow at the rated pressure at each predetermined flow selection.
  - Automatic (Constant Pressure) Spray Nozzles
    1. The flow rate shall slowly be increased to the maximum rated flow, and the minimum and maximum pressures through the flow range recorded.
    2. Nozzles shall maintain their rated pressure  $\pm 15$  psi ( $\pm 1$  bar or  $\pm 100$  kPa) throughout the rated flow range.

NFPA 1962: Standard for the care, use, inspection, service testing, and replacement of fire hose, couplings, nozzles and fire hose appliances. (2013 ed., Section 5.3). Quincy, MA: National Fire Protection Agency.

## 9.2.2 RECORDS

A record of testing and repairs must be maintained from the time the nozzle is purchased until it is discarded. Each TFT nozzle is engraved with a unique serial number which, if so desired, can be used to identify nozzle for documentation purposes.

The following information, if applicable, must be included on the test record for each nozzle:

1. *Assigned identification number*
2. *Manufacturer*
3. *Product or model designation*
4. *Vendor*
5. *Warranty*
6. *Hose connection size*
7. *Maximum operating pressure*
8. *Flow rate or range*
9. *Date received and date put in service*
10. *Date of each service test and service test results*
11. *Damage and repairs, including who made the repairs and the cost of repair parts*
12. *Reason removed from service*

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## 9.3 REPAIR

Factory service is available with repair time seldom exceeding one day in our facility. Factory-serviced nozzles are repaired by experienced technicians to original specifications, fully wet tested, and promptly returned. Repair charges for non-warranty items are minimal. Any returns should include a note as to the nature of the problem and whom to reach in case of questions.

Repair parts and service procedures are available for those wishing to perform their own repairs. Task Force Tips assumes no liability for damage to equipment or injury to personnel that is a result of user service. Contact the factory or visit the web site at [www.tft.com](http://www.tft.com) for parts lists, exploded views, test procedures and troubleshooting guides.

Performance tests shall be conducted on each nozzle after a repair, or anytime a problem is reported to verify operation in accordance with TFT test procedures. Consult factory for the procedure that corresponds to the model and serial number of the nozzle. Any equipment which fails the related test criteria should be removed from service immediately. Troubleshooting guides are available with each test procedure or, equipment can be returned to the factory for service and testing.

All replacement parts must be obtained from the manufacturer to assure proper operation of the product, and to maintain approval of the device



**Any alterations to the product and its markings could diminish safety and constitutes a misuse of this product.**

For additional information on care, maintenance and testing, refer to: NFPA 1962: Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances, 2013 Edition

## 10.0 ANSWERS TO YOUR QUESTIONS

We appreciate the opportunity of serving you and making your job easier. If you have any problems or questions, our toll-free "Hydraulics Hotline", 800-348-2686, is normally available to you 24 hours a day, 7 days a week.

## 11.0 INSPECTION CHECKLIST

**BEFORE EACH USE**, the nozzle must be inspected for proper operation and function according to this checklist:

1. There is no damage to the appliance that could impair safe operation (e.g. dents, cracks, corrosion, missing, broken or loose parts, damaged markings, or other defects)
2. The waterway is clear of obstructions
3. Coupling is tight and leak free
4. Gaskets are in good condition
5. Shaper moves smoothly to all positions
6. Nozzle flow is adequate as indicated by pump pressure and nozzle reaction
7. Shaper detent (if so equipped) operates smoothly and positively
8. Selector Ring moves smoothly to all flow positions and flush
9. The shut off valve (if so equipped) operates as designed and shuts the flow off completely

**BEFORE BEING PLACED BACK IN SERVICE**, nozzles must be inspected to this checklist;

1. All controls and adjustments are operational
2. Shut off valve (if so equipped) closes off the flow completely
3. There are no broken or missing parts
4. There is no damage to the appliance that could impair safe operation (e.g. dents, cracks, corrosion, missing, broken or loose parts, damaged markings, or other defects)
5. The thread gasket is in good condition
6. The waterway is clear of obstructions
7. Nozzle is clean and markings are legible
8. Coupling is retightened properly
9. Selector ring is set to desired position
10. Shaper is set to desired pattern

*NFPA 1962: Standard for the care, use, inspection, service testing, and replacement of fire hose, couplings, nozzles and fire hose appliances. (2013 ed., Section 5.3). Quincy, MA: National Fire Protection Agency.*



**Any nozzle failing any part of the inspection checklist is unsafe and must have the problem corrected before use. Operating a nozzle that fails any of the above inspections is a misuse of this equipment.**