



MANUAL: 2 1/2" FLIP TIP2™ NOZZLE

PATENTS PENDING

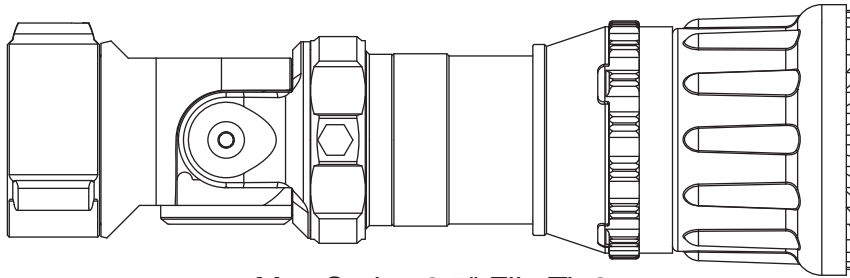
INSTRUCTIONS FOR INSTALLATION, SAFE OPERATION AND MAINTENANCE

⚠ WARNING

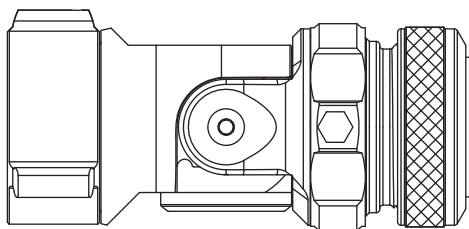
Understand manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. Obtain safety information at www.tft.com/serial-number

NOTICE

This instruction manual is intended to familiarize firefighters and maintenance personnel with the operation, servicing and safety procedures associated with the Flip Tip2 fire fighting nozzles. This manual should be kept available to all operating and maintenance personnel.



Max Series 2.5" Flip Tip2
No Shutoff



2.5" Flip Tip2 Tip Only
No Shutoff

⚠ DANGER

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

TASK FORCE TIPS, INC.
MADE IN USA • www.tft.com





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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 Z535.6-2011, the definitions of the four signal words are as follows:

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

2.0 GENERAL INFORMATION

The Task Force Tips Flip Tip2 nozzles are designed to provide excellent performance under most fire fighting conditions. Their rugged construction is compatible with the use of fresh water as well as fire fighting foam solutions. Other important operating features include:

- Changeable smooth bore tips
- TFT's five-year warranty and unsurpassed customer service

	WARNING 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.
	WARNING 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: Voltage of the line or equipment; Distance from the nozzle to the line or equipment; Size of the stream; Weather the stream is solid or broken; Purity of the water. ¹
	WARNING Water discharged at high velocity can cause injury or death from impact, ingestion, or loss of footing. Make sure the nozzle is pointing in a safe direction before discharging water. Use care in directing the stream.
	WARNING Failure to restrain nozzle reaction can cause firefighter injury from loss of footing and/or stream protection. Expect reaction variations from: opening or closing other nozzles, hose line kinks, changes in pump settings, spray pattern change, or flushing. Nozzle control valves must be opened and closed slowly to eliminate unnecessary strain on the hose and couplings and reduce pressure surges.
	WARNING Do not attempt to regain control of nozzle/monitor while flowing water. Injury from whipping can occur. If nozzle/monitor gets out of control or away from operator, retreat immediately. Shutoff water at the source.
	WARNING Use of compressed air foam (CAF) with portable nozzles can cause sudden surges in nozzle reaction force resulting in injury or death from loss of footing, hose whipping, or an out of control portable monitor. Be prepared for sudden changes in nozzle reaction caused by: Slug loading (Loss of foam concentrate sends slugs of air and water into the nozzle) Sudden release of built-up pressure in the hose when opening a nozzle

[Footnote 1: The Fire Fighter and Electrical Equipment, The University of Michigan Extension Service, Fourth Printing 1983, Page 47.]

2.1 VARIOUS MODELS AND TERMS

The TFT Flip Tip2 nozzle is available in several different configurations. Figure 2.1 shows the common models.

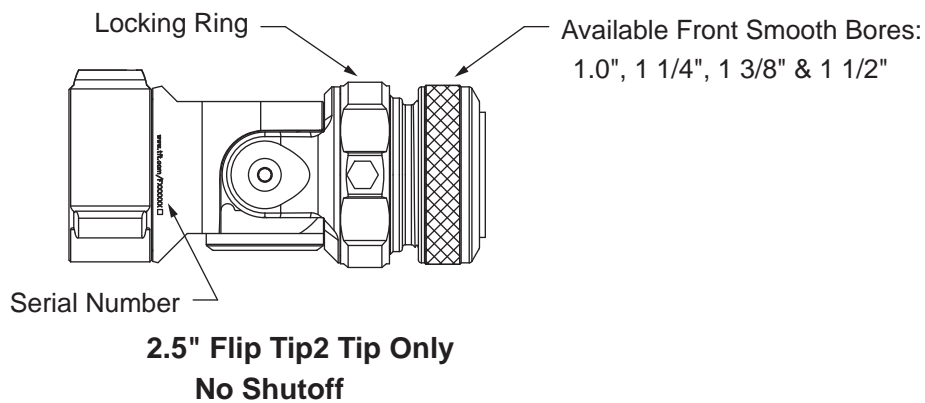
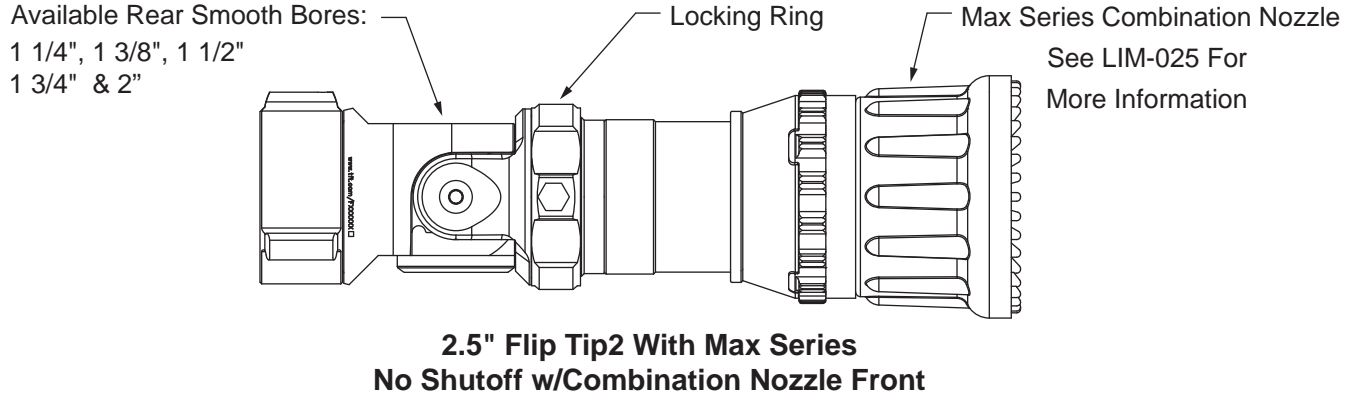


Figure 2.1 Common Models and Terms

2.2 NOZZLE COUPLINGS

NH (National Hose Threads per NFPA #1963) threads are standard on all FlipTip2 nozzles. Other threads such as NPSH (National Pipe Straight Hose threads per ANSI/ASME #B1.20.7) can be specified at time of order.

CAUTION

Nozzle must be properly connected. Mismatched or damaged threads may cause nozzle to leak or uncouple under pressure and could cause injury.

CAUTION

Dissimilar metals coupled together can cause galvanic corrosion that can result in the inability to unscrew the threads or complete loss of thread engagement over time. Per NFPA 1962 (2008 edition), if dissimilar metals are left coupled together an anti-corrosive lubricant should be applied to the threads. Also, the coupling should be disconnected and inspected at least quarterly.

2.3 FLIP TIP2 LOCK

The front nozzle is locked in both positions. To change positions follow the steps in figure 2.3.

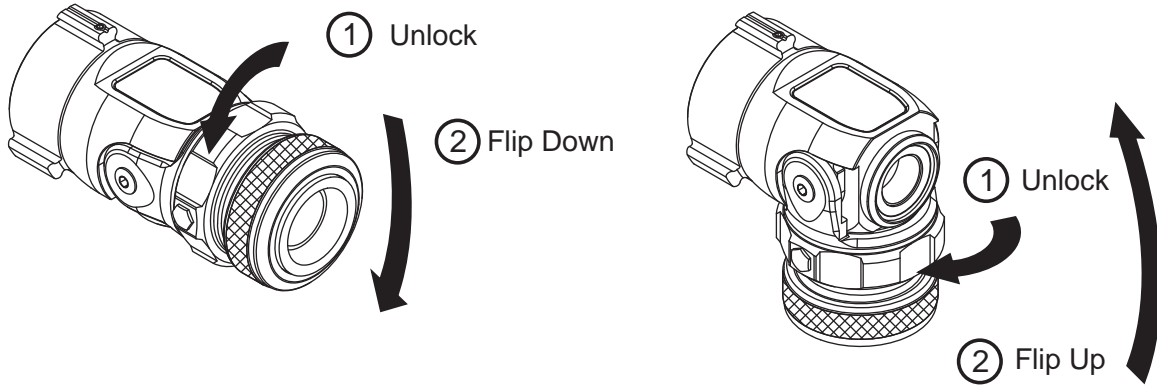


Figure 2.3 Using the Flip Tip2 Lock

CAUTION

Do not pivot the Flip Tip between positions while flowing water. High velocity water can be discharged in harmful directions. Always turn off water before changing positions.

NOTICE

When the front nozzle is in the down position the sealing surfaces are exposed. Avoid actions which can damage the sealing surface to prevent possible leakage and repairs.

2.4 REAR SMOOTH BORE INSERTS

The rear smooth bore inserts may be removed by removing the retaining ring and pulling the insert out the front of the nozzle.

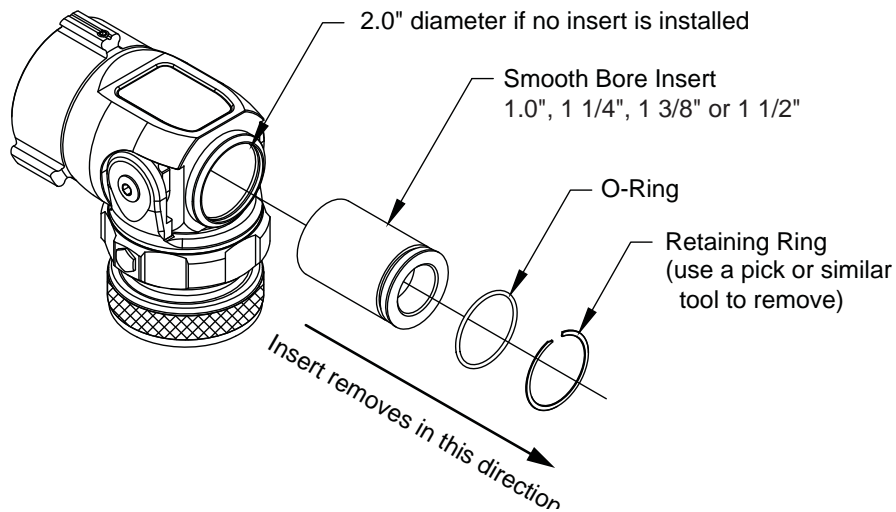


Figure 2.4 Rear Smooth Bore Inserts

2.5 FRONT SMOOTH BORE NOZZLE

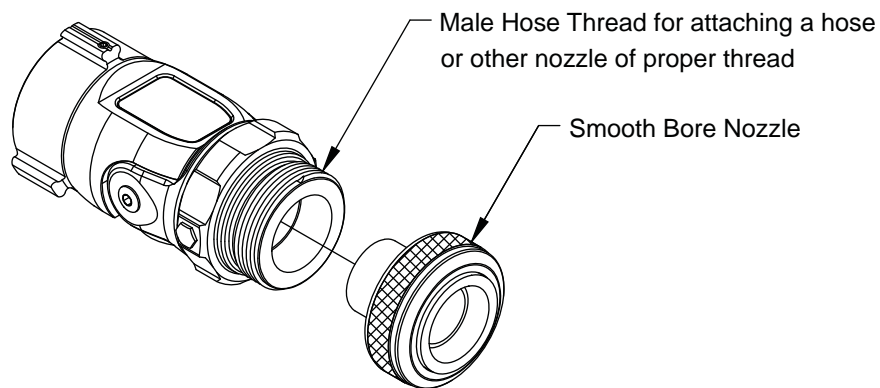


Figure 2.5 Front Smooth Bore Nozzles

2.6 FRONT MAX SERIES COMBINATION NOZZLE

The Flip Tip2 with Max Series combination nozzle allows selection between a smooth bore and a fog nozzle. See the Max-Force owners manual LIM-025 for details.

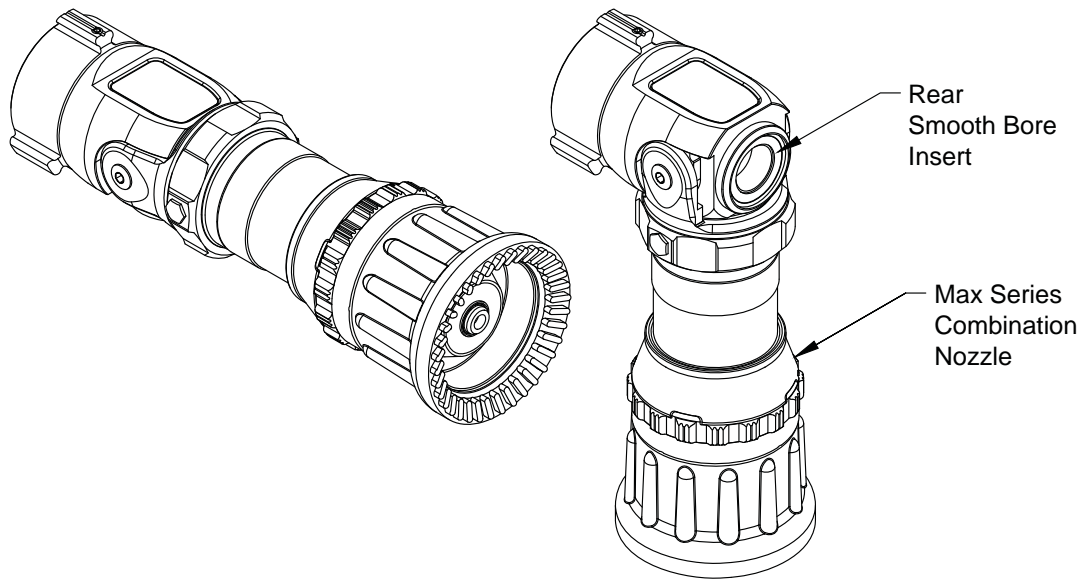


Figure 2.6 Front Max Series Combination Nozzle

CAUTION

The lock for the front nozzle is not designed to withstand the full force of the nozzle reaction. Injury from inadvertent unlocking may result. Do not use the front nozzle in the down position as a handle to restrain the nozzle reaction.

2.7 MECHANICAL SPECIFICATIONS

Maximum nozzle inlet pressure with valve shutoff*	300 psi	20 bar
Operating temperature range of fluid	33 to 120° F	1 to 50° C
Storage temperature range	-40 to 150° F	-40 to 65° C
Materials used	Aluminum 6000 series hard anodized MIL8625 class 3 type 2, stainless steel 300 series, nylon 6-6, nitrile rubber	
*Consult Factory for higher pressure applications		

3.0 FLOW CHARACTERISTICS AND CHARTS

The Flip Tip2 nozzle has fixed orifice sizes. Relationship of flow and nozzle pressure at each orifice size is shown below. **If the Flip Tip2 is connected behind a different nozzle, use the flow charts for the outlet nozzle.**

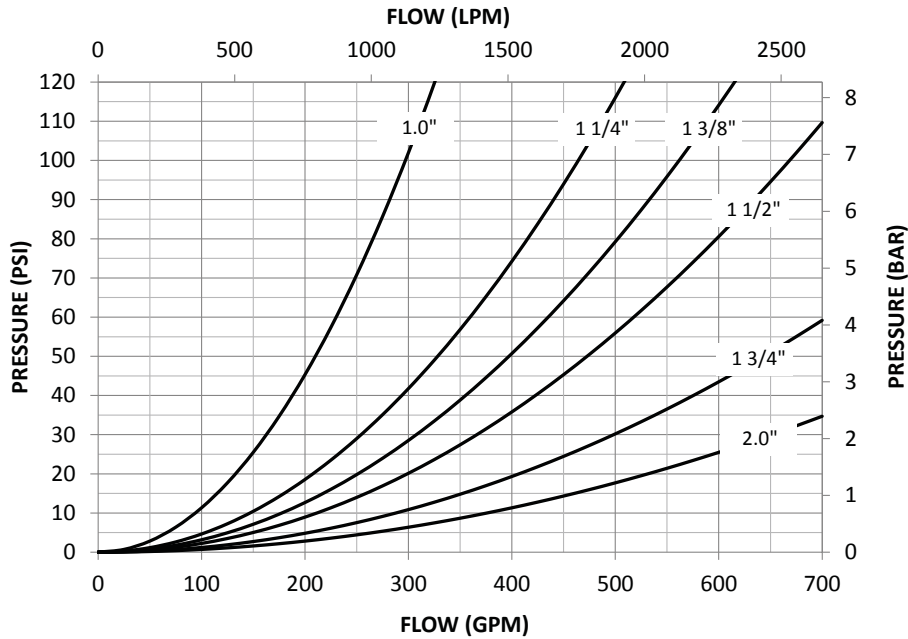


Figure 3.0 Flip Tip Flow Chart

Flows at specific pressures for each orifice size are as follows:

1.0" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	190	60
50	210	80
60	230	90
70	250	110
80	270	130
90	280	140
100	300	160

1 1/4" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	290	100
50	330	120
60	360	150
70	390	170
80	420	200
90	440	220
100	460	240

1 3/8" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	360	120
50	400	150
60	440	180
70	470	210
80	500	240
90	530	270
100	560	300

1 1/2" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	420	140
50	470	180
60	520	210
70	560	250
80	600	280
90	630	320
100	670	350

1 3/4" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	580	190
50	640	240
60	700	290
70	760	340
80	810	380
90	860	430
100	910	480

2.0" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	750	250
50	840	310
60	920	380
70	990	440
80	1060	500
90	1130	570
100	1190	630



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 charts in Section 3.0 or call 800-348-2686 for assistance.

The rear nozzle restricts flow somewhat to the Max-Series front nozzle. The smaller the rear nozzle the greater the effect. Figures 3.1, 3.2, and 3.3 show the range from no rear insert to a 1 3/8 inch rear smooth bore. 1 3/8 inch is the smallest size available for use with a Max-Series front end.

2 1/2" FLIP TIP2 100 PSI MAXFORCE AND MAXMATIC FRONT END

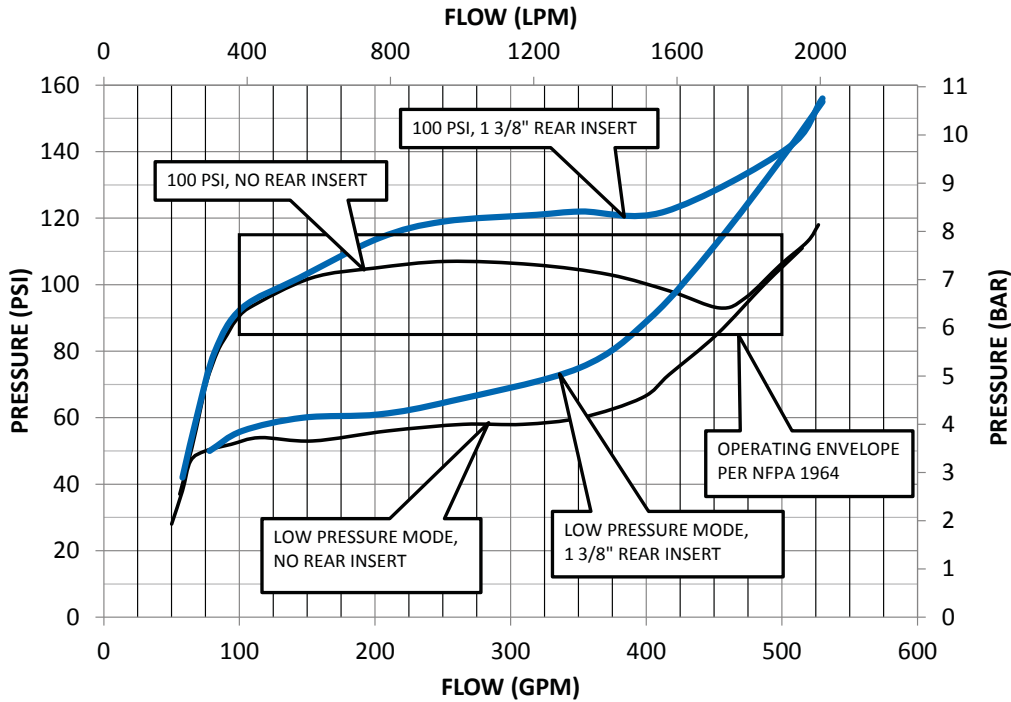


Figure 3.1

2 1/2" FLIP TIP2 80 PSI MAXMATIC

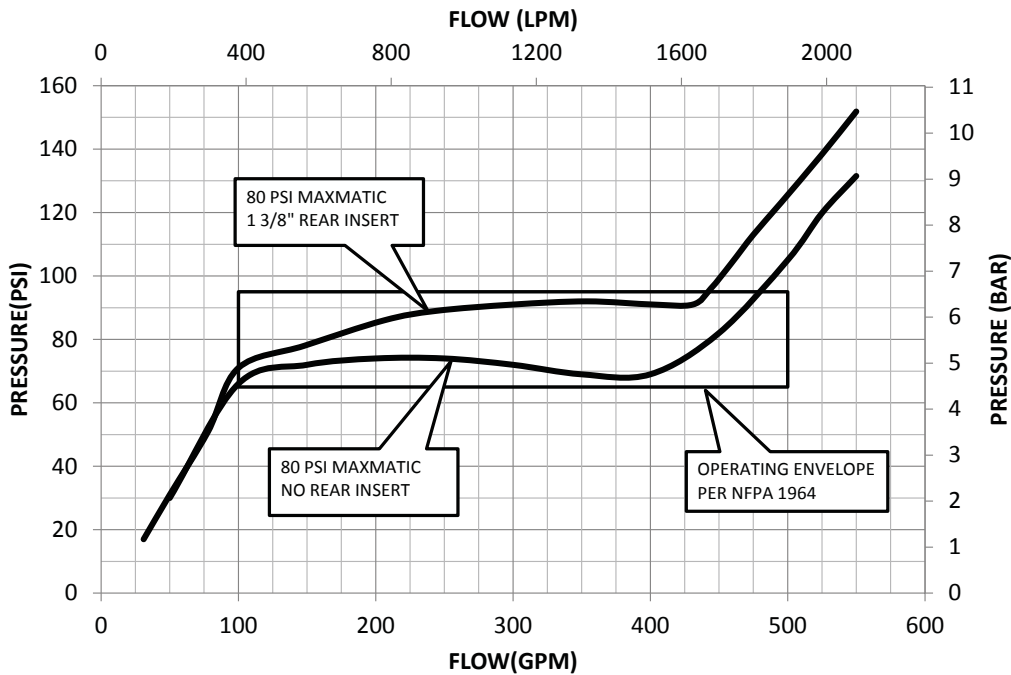


Figure 3.2

2 1/2" FLIP TIP2 500 GPM MAXFLOW

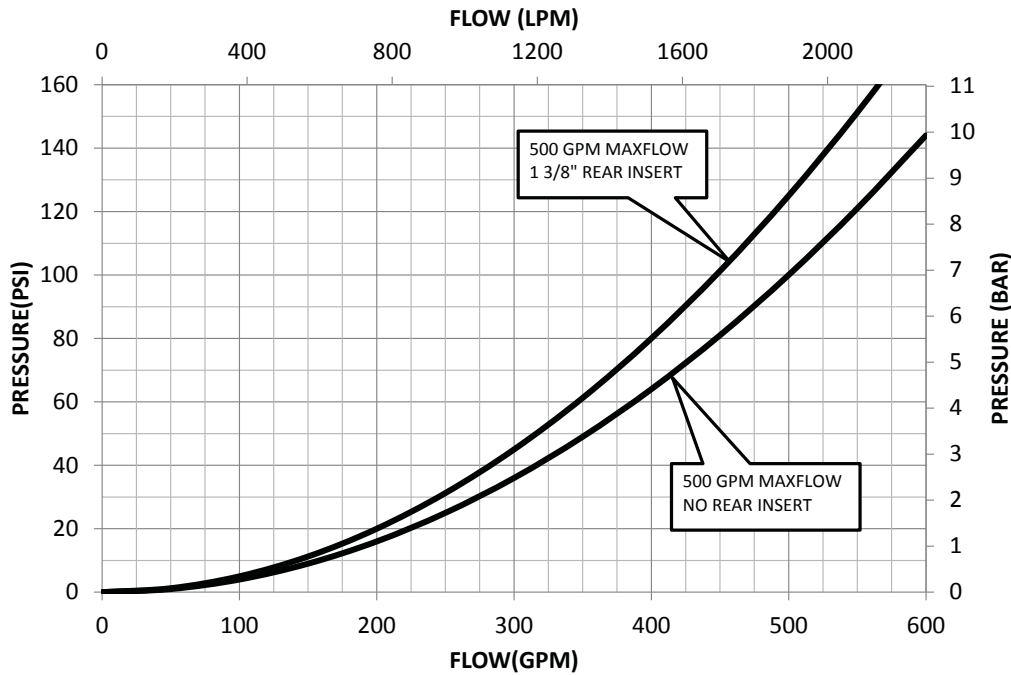


Figure 3.3

4.0 FIREGROUND USE OF FLIP TIP2 NOZZLES

IT IS THE RESPONSIBILITY OF THE INDIVIDUAL FIRE DEPARTMENT OR AGENCY TO DETERMINE PHYSICAL CAPABILITIES AND SUITABILITY FOR AN INDIVIDUAL'S USE OF THIS EQUIPMENT.

Many factors contribute to the extinguishment of a fire. Among the most important is delivering water at a flow rate sufficient to absorb heat faster than it is being generated. The flow rate depends largely on the pump discharge pressure and hose friction loss. The pump discharge pressure can be calculated using a hydraulic equation such as:

PDP = NP + FL + DL + EL	
PDP	= Pump discharge pressure in PSI
NP	= Nozzle pressure in PSI
FL	= Hose friction loss in PSI
DL	= Device loss in PSI
EL	= Elevation loss in PSI

For additional information on calculating specific hose layouts, consult an appropriate fire service training manual such as IFSTA, *A Guide to Automatic Nozzles*, or call TFT's "Hydraulics Hotline" at 800-348-2686.



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.

4.1 USE WITH SALT WATER



Use with salt water is permissible provided the 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.

5.0 FIELD INSPECTION

TFT'S Flip Tip2 is designed and manufactured to be damage resistant and require minimal maintenance. However, as the primary fire fighting tool upon which your life depends, it should be treated accordingly.

WARNING

Nozzle must be inspected for proper operation and function according to the inspection checklist in Section 6.0 before each use. Any nozzle that fails inspection is dangerous to use and must be repaired before using.

Performance tests shall be conducted on the Flip Tip2 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.

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 tested and promptly returned. Any returns should include a note as to the nature of the problem, who to reach in case of questions and if a repair estimate is required.

Repair parts 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.

CAUTION

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

All Task Force Tips 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.

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 and the problem corrected.

6.0 INSPECTION CHECKLIST

Nozzle must be inspected for proper operation and function according to the checklist before each use. Check that:

- 1) There is no obvious damage such as missing parts, broken or loose parts, damaged labels, etc.
- 2) Coupling is tight and leak free
- 5) Nozzle flow is adequate as indicated by the pump pressure and nozzle reaction.
- 6) Front end is tight and leak free
- 7) Locking ring operates smoothly.

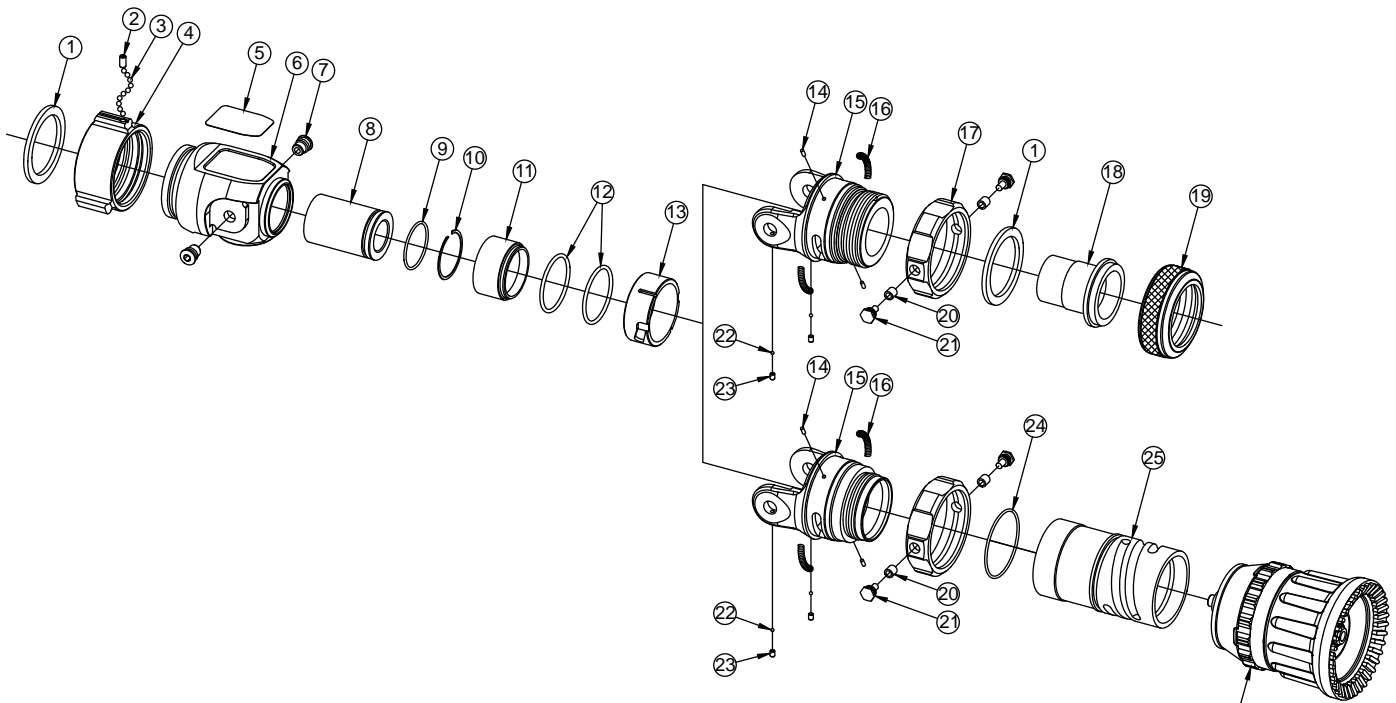
WARNING

Any Flip Tip2 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.

7.0 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 or 1-219-462-6161 is normally available to you 24 hours a day, 7 days a week.

8.0 EXPLODED VIEW AND PARTS LIST



MAX-SERIES FRONT END
**SEE LIM-025
 FOR MAX-SERIES
 PARTS LIST & EXPLODED VIEW**

ITEM	DESCRIPTION	QTY	PART #
1	GASKET - 2.5"	2	V3190
2	1/4-28 X 1/2 SOCKET SET SCREW	1	VT25-28SS500
3	3/16" SS BALL	48	V2120
4	COUPLING 1.5" ROCKERLUG	1	M307*
5	NAME LABEL	1	FF202L
6	BASE	1	FF202
7	TRUNNION	2	FF110
8	1 1/4" SMOOTH BORE INSERT	1	FF211
	1 3/8" SMOOTH BORE INSERT		FF212
	1 1/2" SMOOTH BORE INSERT		FF213
	1 3/4" SMOOTH BORE INSERT		FF214
9	O-RING-133	1	VO-133
10	SMALLEY RING	1	V4292
11	SEAT	1	FF240
12	O-RING-METRIC	2	VO-3.5X55
13	LOCK	1	FF220

ITEM	DESCRIPTION	QTY	PART #
14	DRAG NUBS	2	B650
15	YOKE 2.5"	1	FF250*
	YOKE, MAX SERIES		FF260
16	SLIDE SPRING	2	XG141
17	LOCK RING	1	FF225
18	1.0" SMOOTH BORE	1	FF251
	1 1/4" SMOOTH BORE		FF252
	1 3/8" SMOOTH BORE		FF253
	1 1/2" SMOOTH BORE		FF254
19	COUPLING 2.5"	1	FF245*
20	NYLON BUSHING	2	AY307
21	CAM SCREW	2	FF126
22	1/8" ACETAL BALL	2	VB125AC
23	10-32 X 1/4 SOCKET SET SCREW	2	VT10-32SS250
24	O-RING-147	1	VO-147
25	MAX BARREL	1	FF261

* - CONSULT FACTORY FOR SPECIAL THREADS

9.0 WARRANTY

Task Force Tips, Inc., 3701 Innovation Way, Valparaiso, Indiana 46383-9327 USA ("TFT") warrants to the original purchaser of its Flip Tip2 series nozzles ("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, Indiana 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.