



STYLE 3020/3023 1.5" VARI-NOZZLE OPERATING INSTRUCTIONS AND TECHNICAL MANUAL

The following is intended to provide the basic instructions for operating a Brass Marine Type nozzle. Read and understand these operating instructions before use.

PRODUCT RATINGS

Maximum pressure 200 psi/14 bar.

NSN: 4210-00-465-1906	4210-00-601-0986
CAGE: 00912	00912
P/N: 3020 (95 GPM)	3023 (125 GPM)
ISSUED: 10-99	10-99

PRODUCT WARNINGS

- ⚠ WARNING:** Charge all lines slowly to facilitate a controlled water pressure build-up during start-up. Open and close slowly. Rapid opening will produce a sudden thrust. Rapid opening and closing can cause water hammer. Have enough firefighters on the line to safely control the reaction force created by the stream.
- ⚠ WARNING:** At pressure below that indicated on the label, the nozzle will have reduced flow and reach. Be sure you have enough flow and pressure for the situation (See IFSTA and NFPA manuals for guidelines).
- ⚠ WARNING:** Do not use the nozzle in portable hose holders.
- ⚠ WARNING:** Ensure the nozzle is aimed in a direction that is safe, prior to opening the shutoff bale.
- ⚠ WARNING:** Do not use the nozzle as a forcible entry tool. Doing so may damage it or make it inoperable.
- ⚠ WARNING:** Ensure the thread on the nozzle swivel is matched to the thread on the hose connection.

PRODUCT CAUTIONS

- ⚠ CAUTION:** If any tags or bands on the nozzle are worn or damaged and cannot be easily read, they should be replaced.
- ⚠ CAUTION:** For use with fresh or seawater and standard fire fighting foams only. After use with foam, flush with fresh water.
- ⚠ CAUTION:** For firefighting use only.
- ⚠ CAUTION:** When using with an eductor, make sure the nozzle is properly matched to the eductor. If they are not, the nozzle flow, pressure, and reach may be reduced or the eductor may shut down. Do not throttle your nozzle with an eductor in the line. This can cause the eductor to shut down.
- ⚠ CAUTION:** Do not overtighten the nozzle onto the hose connection.
- ⚠ CAUTION:** The nozzle is configured for optimum performance. Do not alter in any manner.
- ⚠ CAUTION:** Do not expose the pistol grip or shutoff handle to Trichloethylene or Trichlorethane. These chemicals can weaken the parts and make the nozzle inoperable over time.
- ⚠ CAUTION:** Your nozzle should be inspected prior and after each use, to ensure it is in good operating condition. Periodically, an unanticipated incident may occur where the nozzle is used in a manner that is inconsistent with standard operating practices and those listed in IFSTA. A partial list of potential misuses follows:

- Operating above maximum rated pressure and flow.
- Not draining; and allowing water to freeze inside the nozzle.
- Dropping the nozzle from a height where damage is incurred.
- Prolonged exposure to temperatures above +130 degrees F, or below -25 degrees F.
- Other misuse that might be unique to your fire fighting environment.

There are many “tell tale” signs that indicate nozzle repair is in order, such as:

- Controls that are either inoperable or difficult to operate.
- Excessive wear.
- Poor discharge performance.
- Water leaks.

If any of the above situations are encountered, the nozzle should be taken out of service and repaired, plus tested by qualified nozzle technicians, prior to placing it back in service.

OPERATING INSTRUCTIONS

A. SHUTOFF

- Open and close slowly.
- To open: Pull the handle toward the inlet.
- To close: Push the handle toward the outlet.

B. NOZZLE

- To change the spray angle rotate the pattern sleeve/bumper. Rotate it clockwise for straight stream and counterclockwise for wide fog.
- There are indicators molded into the bumper for the different stream shapes shown below

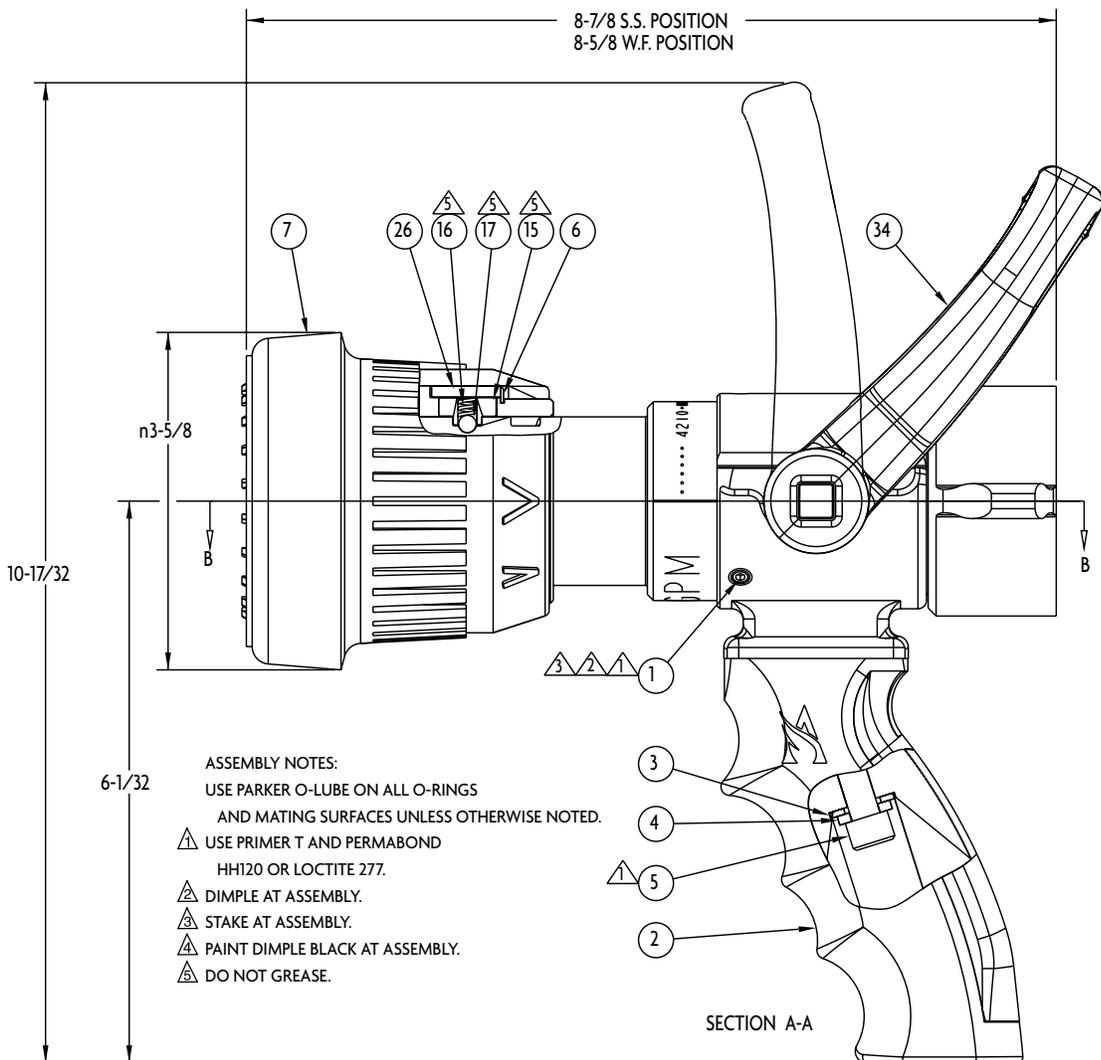
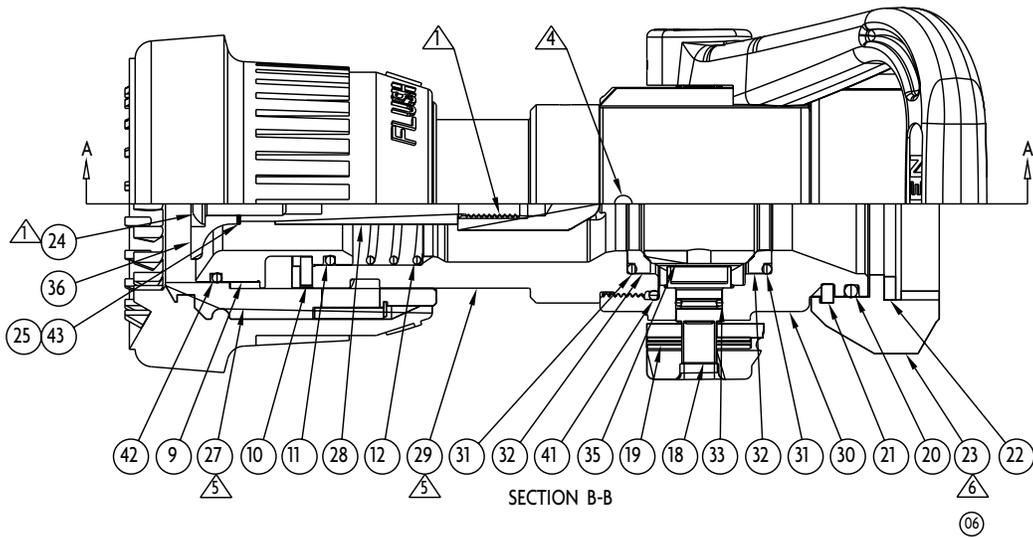
 | (straight stream) ∇ Narrow (Fog) ∇ (WideFog)

- To flush the nozzle, rotate the pattern sleeve/bumper counterclockwise to the FLUSH setting. Rotate slowly back to the required setting when obstruction is flushed.
- To determine the required engine pressures to achieve the flow setting, use the following formula: Engine pressure (EP) = Friction Loss (FL) + Nozzle Pressure (NP) + pressure loss or gain due to elevation ($1/2$ psi per foot of height difference).

C. MAINTENANCE

- Under normal conditions, periodically flushing the nozzle with clean water and cleaning grit and dirt from around exterior moving parts will allow the nozzle to operate as designed.

Figure 1



Find	Description	Item	Qty	Drawing No.	Material	Specifications
1	SCREW ALLEN HEAD CUP POINT SET #10-24 x 3/16"	765390	1	A-48702	300 SERIES STAINLESS STEEL	ASTM A580 OR A313
2	GRIP PISTOL BLACK	718233	1	C-43089	NYLON (ZYTEL ST-801)	ASTM D4066 PA-162
3	WASHER FLAT 5/16"	784264	1	A-48702	300 SERIES STAINLESS STEEL	ASTM A580 OR A313
4	WASHER HEAVY DUTY LOCK 5/16"	784265	1	A-48702	300 SERIES STAINLESS STEEL	ASTM A580 OR A313
5	SCREW SOCKET HEAD CAP 5/16-18 x 2-1/4"	763086	1	A-48702	300 SERIES STAINLESS STEEL	ASTM A580 OR A313
6	RING RETAINING	758352	1	A-48702	300 SERIES STAINLESS STEEL	ASTM A580 OR A313
7	BUMPER 1.5"	703482	1	D-40127	URETHANE THERMOPLASTIC	ASTM D2000
9	THROAT	109539	1	B-40175	UNS C92200 OR 85-5-5-5	ASTM B61 OR ASTM B62
10	PIN RETAINING	744178	3	A-18504	300 SERIES STAINLESS STEEL	ASTM A580 OR A313
11	O-RING 2-122	757515	1	A-48703	NITRILE BUNA N 70 DUROMETER	ASTM D2000 MIL-R-83248
12	SPRING	768237	1	A-21089	INCONEL ALLOY 625	ASTM B446
15	INSERT	723021	1	B-40129	NYLON (ZYTEL ST-801)	ASTM D4066
16	SPRING DETENT (3020, 3023 NAVY)	768320	1	A-48704	INCONEL ALLOY 625	ASTM B446
17	BALL 3/16"DIA.	803331	1	A-48702	300 SERIES STAINLESS STEEL	ASTM A580 OR A313
18	TRUNNION 1.5"	773239	2	B-21095	UNS C93200 OR 85-5-5-5	ASTM B61 OR ASTM B62
19	PIN ROLL 1/8" x 1-1/8"	744555	2	A-48702	300 SERIES STAINLESS STEEL	ASTM A580 OR A313
20	O-RING 2-224	757570	1	A-48703	NITRILE BUNA N 70 DUROMETER	ASTM D2000 MIL-R-83248
21	RING PISTON 1.5"	756003	1	B-00635	UNS C92200 OR 85-5-5-5	ASTM B61 OR ASTM B62
22	GASKET	717042	1	A-30337	BUNA N 70 DUROMETER	ASTM D2000
23	SWIVEL 1.5"NH (3020 COAST GUARD)	102251	1	B-17819	UNS C92200 OR 85-5-5-5	ASTM B61 OR ASTM B62
23	SWIVEL 1.5" NPSH (3020, 3023 NAVY)	106200	1	B-17443	UNS C92200 OR 85-5-5-5	ASTM B61 OR ASTM B62
24	SCREW ONE WAY RD HD 1/4-20 x 1"	767200	1	A-48702	300 SERIES STAINLESS STEEL	ASTM A580 OR A313
25	SHIM BAFFLE	768190	AS REQD	A-18562	POLYESTER	ASTM D882A
26	RING 1.5"	754057	1	B-40130	NYLON (ZYTEL ST-801)	ASTM D4066
27	SLEEVE PATTERN 1.5"	109496	1	B-40176	UNS C92200 OR 85-5-5-5	ASTM B61 OR ASTM B62
28	STEM BAFFLE	769955	1	B-46779	304 STAINLESS STEEL	ASTM A580 OR A313
29	BODY NOZZLE 95 GPM (3020 NAVY)	124130	1	C-47139	UNS C92200 OR 85-5-5-5	ASTM B61 OR ASTM B62
29	BODY NOZZLE 125 GPM (3023 NAVY)	124156	1	C-47139	UNS C92200 OR 85-5-5-5	ASTM B61 OR ASTM B62
29	BODY NOZZLE 95 GPM (3020 COAST GUARD)	124165	1	C-47139	UNS C92200 OR 85-5-5-5	ASTM B61 OR ASTM B62
30	BODY SHUTOFF	109535	1	D-40172	UNS C92200 OR 85-5-5-5	ASTM B61 OR ASTM B62
31	O-RING 2-125	757511	2	A-48703	NITRILE BUNA N 70 DUROMETER	ASTM D2000 MIL-R-83248
32	SEAT NOZZLE 1.5"	769245	2	B-16956	U.H.M.W. (POLYETHYLENE)	ASTM D4020
33	O-RING 2-012	757512	2	A-48703	NITRILE BUNA N 70 DUROMETER	ASTM D2000 MIL-R-83248
34	HANDLE 1.5"BLACK	721417	1	C-43085	NYLON (ZYTEL ST-801)	ASTM D4066
35	BALL 1.5"	704006	1	B-09964	ACETAL COPOLYMER (CELCON)	ASTM D4181
36	BAFFLE HEAD 1.5"	704522	1	B-40170	ALLOY C-92200 OR 85-5-5-5	ASTM B61 OR B62
41	O-RING 2-134	757513	1	A-48703	NITRILE BUNA N 70 DUROMETER	ASTM D2000 MIL-R-83248
42	O-RING 2-128	757514	1	A-48703	NITRILE BUNA N 70 DUROMETER	ASTM D2000 MIL-R-83248
43	SPACER 125 GPM (3023 NAVY)	768493	1	A-31767	304 STAINLESS STEEL	ASTM A580 OR A313



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