

**TRI-FLOW**

**TRI-FLOW 600™**

**SPECIFICATION FOR  
4" AND 5"**

**DOUBLE JACKET MUNICIPAL FIRE HOSE  
POLYAMIDE CONSTRUCTION  
IMPREGNATED OUTSIDE JACKET    THERMOPLASTIC LINED**

***NORTH AMERICAN FIRE HOSE***

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**SPECIFICATION FOR 600 PSI  
4" & 5" DOUBLE JACKET MUNICIPAL FIRE HOSE  
POLYAMIDE CONSTRUCTION IMPREGNATED JACKET  
THERMOPLASTIC LINED**

**SCOPE:**

QUALITY: The fire hose to be supplied under this specification shall be a premium quality, abrasion resistant, double jacket, lightweight municipal fire hose designed for ease of handling and use.

COMPLY \_\_\_\_\_ EXCEPTION \_\_\_\_\_

**QUALITY CONTROL:**

Total quality control must be managed by the hose manufacturer, including weaving of the jackets, manufacturing of the linings, physical and laboratory testing of all raw materials and finished products.  
NO EXCEPTIONS.

COMPLY \_\_\_\_\_ EXCEPTION \_\_\_\_\_

1. A system of accurate documentation will be maintained on hydrostatic tests. This documentation will include a standard hydrostatic test form, listing date of tests, inspector's name and all test results.

COMPLY \_\_\_\_\_ EXCEPTION \_\_\_\_\_

2. Physical tests shall be made to determine lining tensile, elongation, gauge, adhesion rate, set, hardness, accelerated aging and ozone resistance.

COMPLY \_\_\_\_\_ EXCEPTION \_\_\_\_\_

3. The results of these tests shall be readily available upon request of The Fire Department.

COMPLY \_\_\_\_\_ EXCEPTION \_\_\_\_\_

**LINING:**

The thermoplastic lining shall be a single-ply extruded tube and shall be unaffected by ozone. The finished form shall be free of pits or other imperfections and shall have a smooth finish. No reclaimed material shall be used. The thickness shall be .022" to .025" Shore hardness shall be 40 +/- 5 durometer on the "D" scale. The tensile strength of the liner shall not be less than 3000 PSI, with a minimum elongation of 400%.

**ADHESION:**

The adhesion between the liner and the inside jacket shall be such that the rate of separation of a 1-1/2" wide strip cut transversely, shall not be greater than 1" per minute, over a ten minute period, under a weight of 12 pounds.

**ACCELERATED AGING:**

Lining specimens shall be subjected to ASTM D 573 "Test Methods for Rubber Deterioration in an Air Oven". Specimens shall be exposed to 100 degrees C +/- 1 degree for a duration of 168 hours, and shall normalize for 24 hours before testing. The tensile and elongation of the liner shall not be less than 75% of the initial values.

COMPLY \_\_\_\_\_ EXCEPTION \_\_\_\_\_

The Fire Department reserves the right to forward 3 foot samples, cut from lengths of delivered hose, to a nationally recognized laboratory for testing. The tests shall cover the physical requirements of the linings as well as the jackets as outlined in these specifications. If the hose passes, the cost will be paid by the Fire Department. If the hose fails, the cost shall be paid by the supplier. Failure to comply with these specifications will be cause for all hose to be rejected.

The Fire Department also reserves the right to request one sample cut from each 1000 feet of delivered hose. The sample will be a minimum length necessary to conduct ozone resistance, accelerated aging, adhesion and liner tensile tests by the manufacturer. The results of these tests, along with the samples are to be forwarded to the Fire Department.

COMPLY \_\_\_\_\_ EXCEPTION \_\_\_\_\_

**JACKET CONSTRUCTION:**

The warp yarns and filler yarns shall be of adequate number and size to meet all the hydrostatic requirements of this specification. The warp yarn of both jackets shall be structured of Entangled Filament Grade (6-6) Polyamide (DuPont Cordura) No Exceptions. There shall be no knot splicing of the warp material in either jacket. The inside jacket shall have a reverse twill weave to provide a smooth waterway and reduce friction loss "NO EXCEPTIONS".

The filler yarn shall be high strength, low elongation filament polyester.

COMPLY \_\_\_\_\_ EXCEPTIONS \_\_\_\_\_

**IMPREGNATION:**The outside jacket shall be thoroughly impregnated with a high performance polymer (Color To Be Advised). The polymer compound shall be heat set in the textile of the outside jacket at temperatures not less than 250 degrees F. Coatings applied to finished hose and/or set with ambient temperature processes are not acceptable. To assure consistency in color and penetration, the impregnation shall be applied to continuous jackets up to 5000 feet in length or the total footage of the order requirement, which ever is least.

COMPLY \_\_\_\_\_ EXCEPTIONS \_\_\_\_\_

The outside and inside jacket fit is critical to the finished hose. After the initial proof test pressure, there shall be no excess outer jacket bagginess. The jackets must fit snugly inside one another under zero pressure or under proof and service test pressures.

COMPLY \_\_\_\_\_ EXCEPTIONS \_\_\_\_\_

**HYDROSTATIC TESTS:**

All hoses shall be in compliance with NFPA 1961 (Latest Edition) requirements for Double Jacket, 600 PSI Proof Test Pressure, Attack Grade Fire Hose. All measurements and tests necessary to determine compliance of the fire hose with the specified requirements, shall be made in accordance with NFPA 1961 (Standard on Fire Hose), and ASTM D-30 (Standard Test Methods for Rubber Hose), except as otherwise specified.

The results of these tests shall be readily available, upon request by The Fire Department

**WATER ABSORPTION:**

A 50 foot length of hose, offered to meet this specification, conditioned in a oven at 158 +/- 5 degrees F for 72 hours and cooled to room temperature shall then be totally submerged in water for 1 hour, removed from the water and allowed to drip dry for 10 minutes. The difference in weight before and after submersion shall not exceed 7% of the original weight before submersion.

COMPLY \_\_\_\_\_ EXCEPTIONS \_\_\_\_\_

**HOSE WEIGHT:**

WEIGHT IN POUNDS PER 100 FOOT LENGTH COUPLED ALUMINUM

	4"	5"
MAXIMUM	75	98
MINIMUM	72	95

COMPLY \_\_\_\_\_ EXCEPTIONS \_\_\_\_\_

**COIL DIAMETER:**

The coil diameter of a 100 foot length of 4" or 5" hose offered to meet this specification shall not exceed 26 inches.

COMPLY \_\_\_\_\_ EXCEPTIONS \_\_\_\_\_

**MARKINGS:**

Beginning at a point not less than 4 feet from each end, each length shall be stenciled in indelible letters at least 1" in height, with the trade name, name of the hose manufacturer and all additional markings required by NFPA 1961 (Latest Edition), for 600 PSI attack grade fire hose.

COMPLY \_\_\_\_\_ EXCEPTIONS \_\_\_\_\_

**COUPLINGS:**

The couplings supplied shall be lightweight rocker lug, one male and one female with NST threads, or with field attachable Storz, and are to be properly installed on each length of hose by the hose manufacturer. The couplings shall be hard coated, and all threaded couplings shall have tapered ends on the coupling bowls. All Storz couplings shall be supplied with locking devices. All couplings shall comply with NFPA 1963 Latest Edition.

COMPLY \_\_\_\_\_ EXCEPTIONS \_\_\_\_\_

COMPLY \_\_\_\_\_ EXCEPTIONS \_\_\_\_\_

**WARRANTY:**

The manufacturer shall assure, the fire hose proposed shall meet the requirements and specifications as herein set forth. The manufacturer shall also, as part of their proposal, warranty such fire hose for a period of (3) years from date of shipment, against failure due to defects in material or workmanship. During the warranty period, any fire hose removed from service for the above referenced defect shall be repaired or replaced free of charge to the customer.

Complete detailed specifications, along with a 12 inch sample of the hose proposed to meet this specification, shall be submitted with the hose bid.