



# Firequip Combat Master Flow Specifications

## GENERAL

Fire hose is one of the most important tools used by the fire department. As such, the following specifications must be strictly adhered to unless the proposed specification exceeds specification listed. Only the fire department can determine if a proposed product meets and exceeds these specifications.

### 1. HOSE CONSTRUCTION

Hose meeting specification shall be designed and constructed specifically for aggressive interior fire attack operations. The hose shall consist of a 100% synthetic yarn outer jacket over an inner lining consisting of a one-piece extruded-through-the-weave Nitrile rubber tube. The outer jacket and extruded-through-the-weave Nitrile inner tube must be manufactured from raw material in the same facility to insure proper quality control. Thermoplastic, EPDM and/or SBR liners do not meet the intent of this specification and will not be considered.

### 2. OUTER HOSE PROPERTIES

Construction: Outer jacket shall be woven from high quality synthetic yarns. The warp yarn shall be spun polyester and the weft yarn shall be filament nylon. The outer jacket shall be completely impregnated by a mechanical process with Wear Guard abrasion and heat resistant coating. Wear Guard coating shall be available in NFPA recommended colors, red, orange, yellow, blue, green and tan.

### 3. INNER TUBE PROPERTIES

When tested in accordance with the procedures listed in NFPA 1961 (current edition), liner and cover shall have the following properties:

- 3.1 Ultimate Tensile Strength: Tensile strength of inner hose lining and cover rubber compound shall not be less than 1500 PSI.
- 3.2 Ultimate Elongation: Ultimate elongation of inner hose liner and cover shall not be less than 500%
- 3.3 Permanent Elongation: Permanent elongation of liner shall not be greater than 20%.
- 3.4 Accelerated Aging Test: When using conditions as listed in ASTM D1349-87, samples of the vulcanized rubber compound subjected to air oven aging at 70 degrees C for 96 +/- 1/2 hr. and tested in accordance with ASTM D573-88 will exhibit a tensile strength of not less than 80% of the unaged sample. The ultimate elongation shall be not less than 65% of the original value.
- 3.5 Adhesion: Adhesion between liner reinforcement and liner shall be a minimum of 20 lbs when tested using ASTM D380-87 procedure.
- 3.6 Ozone Resistance: Hose liner shall show no visible signs of cracking of the lining or cover when tested in accordance with ASTM D1149-91 and ASTM D518-86, Procedure B, 100 pphm/118 degrees F/70 hours. Hose shall meet NFPA requirements for "ozone resistant".



3.7 Chemical Resistance: Exposure to sea water and contamination by most chemical substances, hydrocarbons, oils, alkalis, acids and grease must have no effect on the short or long term performance of the hose. Standard chemical resistance charts shall be provided by manufacturer.

**4. SAFETY FACTORS**

4.1. Abrasion Resistance – Factory Mutual Method: When a sample of coupled hose is submitted to the procedure listed in FM Standard 2111 or MIL-H-24606B (SH) there shall be no signs of leakage after 15,000 cycles of abrasion.

4.2. Cold Resistance Safety Factor: Cold resistance bears a direct relationship to the safe performance of the hose on the fire ground and as such will not be compromised. Hose meeting the cold resistance safety factors listed below shall do so without exceeding the average weights listed in paragraph 7.

4.2a. Hose shall have a capability of safe use down to -36° F. Hose shall have no apparent damage to cover reinforcement or lining when subjected to the following cold bending test. A 50 ft length of dry hose is to be firmly coiled and placed in a cold box at -36° F for duration of 24 hours. Immediately after removal of the hose from the box, hose should be uncoiled and laid out by one operator. Following this procedure, the hose shall not leak or show any damage to the reinforcement when subjected to hydrostatic acceptance test pressure as herein listed in item 5.1.

4.3. Heat Resistance Safety Factor: Heat resistance bears a direct relationship to the safe performance of the hose on the fire ground and as such will not be compromised.

4.3a. The hose when subjected to a static pressure of 100 PSI shall be capable of safely withstanding a surface temperature of 1112° F (600° C) applied by a hot metal cube for a minimum of 2 minutes without bursting.

4.4. Water Pick-Up Weight: The tendency for a hose to absorb water while in a wet environment can create significant handling difficulties. When tested against the procedure listed in MIL-H-24606B, the maximum weight gain shall not exceed 4.5 lbs per 50’ length.

4.5. Kink Resistance Safety Factor: At 100PSI static, the hose shall withstand a 12” diameter, 180° bend without kinking. Passes 34”, 24” and 18” doorway kink test.

**5. PERFORMANCE CHARACTERISTICS**

5.1. Hydrostatic Pressure Test: The hose shall comply with the National Fire Protection Association Standard: NFPA 1961 (2002)

Diam.	Service Pressure	Acceptance Pressure	Kink Proof Pressure	Short Lgth Burst Pressure	Curved Lgth Burst Pressure
1 ¾”	400 psi	800 psi	600 psi	1200 psi	1200 psi
2½”	400 psi	800 psi	600 psi	1200 psi	1200 psi

5.2. Enhanced waterway: Both sizes of hose have enlarged waterway, example: 1 ¾” hose has a 1.88” inner diameter tube for increased GPM and lower friction loss.



**6. QUALITY ASSURANCE PROVISIONS:**

6.1. Inspection: Purchasing Agent shall reserve the right to visit the manufacturing plant during each phase of the production operations. Hose construction, lining and cover properties, safety factors and performance characteristics will all be taken into consideration, insuring that the hose to be supplied is made exactly to these specifications.

6.2. Quality Standard: Hose is designed and tested to meet NFPA 1961 (current edition) Standards on Fire Hose. The fire hose furnished under the terms of this proposal has a potential service life of ten years, barring mistreatment or accidental damage that would render the hose unfit for service.

**7. WEIGHT:**

Diameter	Average Weight Uncoupled 50'	Coiled Size Coupled 50'
1 3/4"	15 lbs	21"
2 1/2"	28 lbs	22"

8. WARRANTY: The manufacturer warrants the hose to be free from defects in materials and workmanship for a period of ten years. This warranty shall provide for the repair or replacement of hose and couplings proven to have failed due to faulty material or workmanship.

**Firequip Inc. PO Box 2598 Burlington, NC 27216-2598**

**1-800-334-6823**

**E-Mail: [fqi@firequip.com](mailto:fqi@firequip.com)  
[www.firequip.com](http://www.firequip.com)**