



**HighWater  
Hose Inc.**

# *Hose Specification*

**April 2009**

## **Hydra-Tak 600**

### **Hose Construction**

Municipal fire fighting imposes unique requirements for equipment. It is mandatory that the hose is designed specifically for municipal fire fighting. In order to meet these unique needs, the finished product shall be abrasion, heat and kink resistant. It shall be constructed of top quality synthetic yarns woven into an optimized web to produce high strength and low friction loss. To ensure complete conformance, the resultant hose must meet the following minimum requirements or it will be unacceptable.

### **Hose Physical Properties**

Hose shall be evaluated in accordance with the principles and practices listed in the National Fire Protection Association Standard 1961 (Latest edition) and related standards.

When tested as such it shall have the following properties:

#### **Ultimate Tensile Strength**

Tensile strength of the vulcanized rubber compound used in the hose shall not be less than 1750 psig.

#### **Ultimate Elongation**

Ultimate elongation of the vulcanized rubber compound shall be not less than 500%.

#### **Permanent Elongation**

Permanent elongation of the vulcanized rubber compound shall be less than 24%.

#### **Adhesion**

The adhesion between samples of the reinforcement web and either the liner or the cover shall exceed NFPA 1961 requirements. The sample width shall be 1 1/2" as called out in the standard.

#### **Accelerated Aging Properties**

When subjected to hot air oven aging at 158°F for 96 hours, the tensile strength and ultimate elongation shall be at least 75% of the original values.

#### **Heat Resistance**

When subjected to an internal static water pressure of 100 psi, the hose shall withstand a surface temperature of 1200°F for at least 60 seconds without bursting.

#### **Cold Resistance**

Hose shall be capable of practical use down to -35°F



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## **Ozone Resistance.**

When evaluated in accordance with standards ASTM D1 149 and ASTM D518, procedure B, 70 hours at 118°F, 100pphm of ozone, the cover or liner shall show no visible signs of cracking.

## **Chemical Resistance.**

Contamination by most chemical substances, oils, greases, hydrocarbons, and exposure to sea water shall have no effect on the short or long-term performance of the hose. A copy of the chemical resistance chart for the hose shall be provided on request by the manufacturer.

## **Abrasion and Wear Resistance.**

Long term use is determined in no small measure by the abrasion resistance of the cover of the hose. To ensure this is adequate, the hose, when built to the weights listed, shall withstand the following abrasion tests:

### **Factory Mutual Method.**

Hose shall exceed the Factory Mutual Research Corporation test for abrasion. This is listed in their Standard 2111 , latest edition

### **Underwriters Laboratories Method.**

When tested according to the method listed in Underwriters Laboratories Inc. Standard 219, Hose shall withstand 7,000 cycles on the defined reciprocating abrasion tester.

### **Taber Abraser Method.**

When evaluated against the procedure listed in ASTM D2215 Reinforcement shall not show signs of damage after 15,000 cycles. Load shall be 2.2 lbs per wheel and type shall be H22.

## **Water Absorption.**

When tested against the procedure listed in MIL STD 24606 the maximum water absorbance shall be no more than 0.5 lbs in a 50 foot length.

## **Couplings.**

The hose shall be fitted with lightweight, extruded aluminum alloy, hard coated, rocker lug couplings. These shall be expansion ring type, NH threads per NFPA 1963, latest edition, or as specified.

**Burst, Hydrostatic and Friction Loss Test Data.**

Hose shall comply with the requirements listed in the tables below and the requirements of The National Fire Protection Association Standard 1961, latest Edition.

**Sizes & Pressures**

<b>Size</b>	<b>Bowl Size</b>	<b>Service Pressure</b>	<b>Proof Pressure</b>	<b>Minimum Burst Pressure</b>
1"	1- 3/16"	300 psi	600 psi	900 psi
1-1/2"	1-3/4"	300 psi	600 psi	900 psi
1-3/4"	2"	300 psi	600 psi	900 psi
2"	2-3/16"	300 psi	600 psi	900 psi
2-1/2"	2-3/4"	300 psi	600 psi	900 psi
3"	3-5/16"	300 psi	600 psi	900 psi

**Average Coupled Weights**

<b>Size</b>	<b>50'</b>	<b>100'</b>	<b>50' Coil Diameter</b>
1-1/2"	15.5 lbs	30 lbs	16.0 ins
1-3/4"	17.75 lbs	34 lbs	16.5 ins
2"	19.25 lbs	37.5 lbs	17.0 ins
2-1/2"	25 lbs	50 lbs	17.5 ins
3"	32.5 lbs	62 lbs	18.0 ins

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Flow in U.S. g.p.m.	Average Friction Loss in PSI per 100' Length					
	1"	1 1/2"	1-3/4"	2"	2 1/2"	3"
60	30	7.2	3.5	1.4		
70	40	9.9	4.7	1.9		
80	58	13.1	6.1	2.4		
90	90	16.7	8	3.2		
100	110	21	9.6	3.9	1.1	
150		47	21.3	8.8	2.9	
200			40	16	4,7	1.7
250			59	24.7	8	3.4
300				35,0	11.8	4.6
350					15.4	6.2
400					20	8.1
500					33.2	12.7
600						18.3
700						24.7
800						32.5
900						42