



**HighWater
Hose Inc.**

Hose Specification

Deluge 3", 4" and 5"

Hose Construction

Large water flows impose some special requirements for hose. It is mandatory that the hose is designed specifically for flowing large amounts of water at maximum working pressure. In order to meet these unique needs, the finished product shall be flexible, abrasion, heat and kink resistant. Recognizing also the physical limitations of the Firefighter, the maximum weight of the hose shall be controlled without compromising these properties. 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. As a minimum it shall meet the requirements of NFPA 1961 (Latest edition) for Supply Hose. Also, 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 22%.

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.

April 2009



Cold Resistance

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

Ozone Resistance.

When evaluated in accordance with standards ASTM D 1 149 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:

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.

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 either (A): Storz type Quick connect locking couplings in accordance with NFPA Standard 1963, Latest edition and will meet the connection requirements of that specification. Or (B): Lightweight, extruded aluminum alloy, hard coated, rocker lug couplings. These shall be expansion ring type, NH threads in accordance with NFPA 1963, Latest edition. Or (C) as specified.

April 2009



Burst, Hydrostatic and Friction Loss 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 and Pressures				
Size	Bowl Size	Service Pressure	Proof Pressure	Minimum Burst
3"	3-5/16"	300 PSI	600 PSI	900 PSI
4"	4-3/8"	250 PSI	500 PSI	750 PSI
5"	5-3/8"	200 PSI	400 PSI	600 PSI

<u>Maximum Coupled Weights</u>			
Size	50'	100'	Coil Diameter
3"	37 lbs	68 lbs	24.0 ins
4"	43 lbs	83 lbs	24.0 ins
5"	56 lbs	108 lbs	26.0 ins

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Average Friction Loss in PSI per 100' Length			
Flow in US gpm	3" Hose Size	4" Hose Size	5" Hose Size
200	1.7		
300	4.6		
400	8.1	1.4	0.5
500	12.8	2.3	0.8
600	18.5	3.2	1.2
700	24.8	4.5	1.6
800	32.6	5.9	2.1
900	42.6	7.4	2.8
1000	54.0	9.1	3.4
1100		10.9	4.1
1250		13.7	5.1
1500		20.5	7.6
1750		27.5	9.1
2000			13.1
3000			30.2

April 2009