



*“The Hose Company”*

***So, you have decided that you need fire hose***

First, look at all the equipment you already have. The state of the art pumper that can provide thousands of gallons of water at whatever pressure you require. The best communication equipment money can buy. The breathing apparatus that would make an astronaut envious. Head-to-toe protection a knight of the round table would be proud.

You are ready for the bell and the subsequent response. You are on the scene and you see the devil in front of you. How will you make the attack? How will get the “wet” stuff on the “red” stuff? If not a surround- and-drown scenario, you must make an advance and take on the devil. Face to face.

What kind of hose will be between you and the pumper when you make your advance? Let’s assume you have consistent water supply and will be able to advance with a flow determined during size up. All that is missing is the hose that is going to provide you the needed water to protect you and meet the mission. This is when you might think “when did we last test this hose?” “Was this the low bid hose that did not meet our specifications?” “I hope this does not kink when I get inside?”

Backup a few months and consider the meetings where hose was discussed. What was considered? What hose criteria were discussed?

For the fire fighter responding to a scene where he will be placed 200 to 300 feet from the pumper he really must consider the hose he is bringing to war.

Hose types are numerous. Hose construction techniques are different. Some are okay and some are much better. All options must be evaluated and tested before you are placed in that 300’ out position. Remember, as with all your other equipment the hose selection is just as critical to the safe completion of the mission.

Do we need double jacket nylon or double jacket polyester? Do we need a rubber lined inner jacket or thermoplastic? Do we need an extruded through the weave rubber hose? Do we need something else?

All these options will work but which will work best for you and your department?

Let’s look at some options

**Double Jacket** hose has two jackets; an outer jacket and an inner. Simple enough. Don’t forget it also has a liner under the inner jacket. The outside of the hose provides some of the structural integrity of the hose but this is where the abrasion abuse will occur. Look for a strong abrasion resistant outer jacket. The inner jacket is where most of the strength is located. The liner inside of this jacket will have a lot to do with the overall performance.

- Outer jacket - Spun-Polyester, Filament-polyester, Nylon-Polyester blend, Nylon
- Inner-jacket - Same options
- Inner-jacket liner - Rubber (EPDM - SBR), plastic such as thermoplastic. TPU

Look for the unique characteristics that each of these options bring to the assembly.

Another option to consider is the extruded-through-the-weave inner with and an additional outer jacket. If you use rubber covered supply hose consider this type of construction but with a woven jacket fitted over the outside. This type construction, with the correct materials, will provide the best performance and longevity although at a higher price than conventional double jacket hose.

We talked earlier about abrasion or wear resistance of the outer jacket. All agree this is a critical point for consideration. In addition to abrasion resistance consider the heat resistance of the material selected. What has the higher melting point, nylon or polyester?

What can you do to improve the abrasion resistance of your fire hose. Look at the materials first. Does a nylon based jacket have less (or more) abrasion resistance than a polyester jacket? A coating over the outer jacket will add additional abrasion protection as well as reduce “water pickup” but what type coating should I ask for? If you are going with a nylon



outer jacket this is always coated but if you go with a polyester outer jacket you must specify a coating. Ever wonder why???

Considered jackets both inner and outer and looked at their materials of construction and options for abrasion resistance. We need to look a little further at that tube inside the inner jacket. Why is it there and why do care of what is made?

The tube inside that inner jacket is what keeps the water in the hose. Other than that it will have impact on; the friction loss, the weight, the longevity and the kink resistance of the hose. Of the options out there today for double jacket hose there really only a few for municipal fire fighters to contend with. These are rubber (EPDM or SBR) and TPU or thermoplastic.

The thermoplastic liner came into play when the fire service was looking for a lighter weight hose. With today's extrusion technology rubber lined hose is very close in weight to that of plastic lined hose; a difference of only a few pounds per 50" section. Both of these provide for keeping the water inside the inner jacket but thermoplastic liners will generally lead to higher friction loss and problems with liner adhesion. Earlier we talked about the melt temperature of nylon verse polyester on the outer jacket. Remember that a rubber lined hose will generally have a longer (time) "burn through" than a thermoplastic lined hose.

EPDM rubber is of a construction similar to that of the radiator hose found in your car, very durable and flexible. SBR rubber is another option but generally is not as durable as EPDM and may result in the formation of sulfuric acid within the hose if water is retained for extended periods of time. SBR may be a thicker liner adding to weight when compared to EPDM.

In summary:

- Nylon or polyester blend outer jacket?
- Heat and burn-through resistance?
- EPDM lined, thermoplastic or SBR lined inner jacket?
- Hose weight if critical?
- Friction loss for our SOP?
- Abrasion resistance coating on the outer jacket? Color coding.
- Service and support?
- Warranty

Remember, a thorough evaluation of all hose being considered on the front end is critical to the specification and purchasing process. Give yourself the best opportunity to acquire the best available hose. Ask for and test your hose options before you buy.