

# A HOSE SELECTION GUIDE:

7 Factors to Consider When Choosing Your Hose Type

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## 7 FACTORS TO CONSIDER

### Selecting the best hose for each situation

Hose selection is based on a variety of considerations, keeping in mind that one hose won't work for all situations. The service the hose will perform and the chemicals or product with which the hose will be in contact are the bases for hose selection. However, these are not the only factors for proper consideration in hose selection.

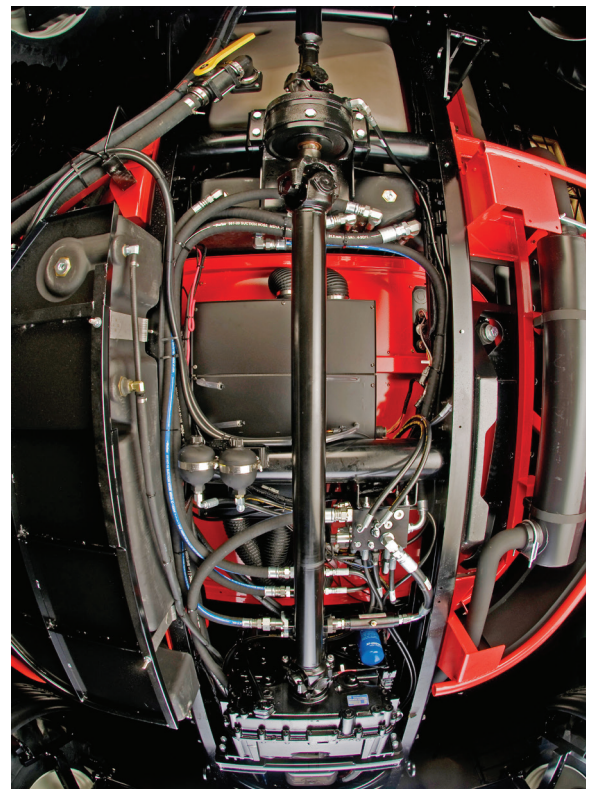
Before purchasing a hose, you should evaluate the following seven factors regarding the potential usage of the hose. By evaluating each factor before making your hose selection, you will be better prepared to sort through the many hose options and find which one will offer you the highest return on investment (ROI) in your Apache Sprayer.

### 1. Determine the hose's function

The purpose of the hose will determine what type of hose will be needed. There are a variety of hoses available for many different functions. For example:

- Fuel hoses
- Ag spray hoses
- Suction hoses
- Biodiesel pumpflex hoses
- Chemical transfer hoses
- Anhydrous ammonia specific hoses

Hoses are designed for specific purposes and it is important to select a hose for the conditions it will face. Using a hose that is not suited to what you are using it for can create damage and safety problems.



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## 2. Evaluate what the hose will be in contact with

Hoses are made of different materials based on intended function. If the hose will be in contact with anhydrous ammonia or petroleum, it will be designed differently than if it was only meant to be used for water. Using a hose designed for chemical to carry petroleum can cause hose deterioration and will decrease the life span of the hose since it is not designed with petroleum-resistant covers.

The Ethylene Propylene Diene Monomer (EPDM) rubber hose lineup is designed to be compatible with most fertilizer and diluted chemical solutions. However, using petroleum products in an EPDM rubber hose will weaken this type of hose and cause the hose lining to become brittle or soft and deteriorate. Concentrated chemicals, such as pesticides and fertilizers, may require special hoses that are manufactured with heavier reinforcements and weather or ozone-resistant EPDM coverings.

## 3. Gauge type and amount of pressure the hose will withstand

A hose's ability to withstand pressure is determined by the diameter of the hose and the volume a pump can push forward. The higher the pump volume, the higher the pressure will be within the hose.

In application situations, discharge hoses are commonly used. The discharge hose needs to withstand higher pressure because of its function. It is always on the outflow and is exposed to pressure when the pressure pump is running. The inside of the hose is composed of a tube that is created to be compatible with the chemicals it will contact. Surrounding the tube is the reinforcement layer which is designed using different materials to withstand different amounts of pressure. Local dealerships offer hoses manufactured with different reinforcement materials to suit your needs.

If you are going to work with hoses, you will need to be aware of working pressure rates and bursting pressure rates. Typically, the bursting pressure rate is four times higher than the working pressure rate. Since outside factors like external temperatures will alter the pressure rates, it is crucial to select hoses with much higher working pressure ratings than the pump pressure.

When working with chemicals, both anhydrous ammonia and chemical transfer situations, hoses are designed for higher performance and often have a bursting pressure rate higher than the working pressure rate. Additionally, hoses are stamped with the manufactured date and recommended date to replace by. It is necessary to replace hoses by this date because this will help prevent hose malfunctions. When you are working with chemicals, you have higher liability and using manufacturer recommendations will help keep you safe.

Suction hoses, also commonly used in chemical applications, use vacuum pressure. Unlike discharge hoses, suction hoses are more rigid and are designed not to collapse. Comparable diameters of suction and discharge hoses are not created equal in terms of working pressure rates. Discharge hoses are generally designed to withstand more pressure than suction hoses of similar size. Since suction hoses and discharge hoses are reinforced differently, we do not recommend using a discharge hose in place of a suction hose. However, suction hoses may be versatile enough to work as either a discharge or a suction hose.

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## 4. Estimate the size of hose needed

Hose size is measured both in length and diameter as different hose functions require different diameters for working within optimal pressure ranges. Hoses have both an inside and outside diameter. The inside diameter is more important when dealing with pressure. The outside diameter will relate to hose fittings and clamps but is less relevant to what happens on the inside of the hose.

The goal in selecting the best diameter of hose needed is to find the hose that will be able to work at the lowest feasible pressure. This will cause less stress to the hose especially if you are dealing with higher pressure situations. Additionally, this will help keep cost down because high pressure situations typically require, stronger, more expensive hoses.

In terms of length, it is important to note that hoses can shrink or expand based on internal temperatures. You should allow for a little slack when estimating length so the hose won't be subject to stretching or run the risk of it pulling off.

## 5. Determine the hose's need to bend or flex

Consider how often the hose will be folded and unfolded. For example, a hose that is folded and unfolded frequently on a boom sprayer, the hose's bend radius will be crucial. In situations where hoses are constantly folded, it is important to use a hose designed to maintain its inside diameter. The bend radius on a hose shows how much the hose can fold and unfold without jeopardizing the hose's reliability. Properties that affect a hose's bend radius include the wall thickness, its reinforcement material and construction material. In general, discharge hoses bend more easily than similarly sized suction hoses. In this case, it would not be recommended to try to substitute a suction hose for a discharge hose.

## 6. Consider the environmental factors the hose will encounter

Hoses, like many other products, can be affected by sunlight, extreme temperatures and excessive dragging or rubbing against other objects. All of these situations may cause a hose to dry out and become brittle and even lose its ability to expand under pressure. More specifically, in extremely cold temperatures, hoses will become less flexible and may even freeze the rubber compound in hoses which causes them to crack when they are bent.

On the other hand, extreme heat will cause rubber hoses to prematurely break down. This is important when thinking about hose placement around engines. It may be possible to use a thicker hose or protect it by placing an old hose as a sleeve on it, or if possible, reroute hoses away from the heat sources. Beyond this, hoses need extra protection against abrasions from dragging or rubbing against other objects. Some hoses can be protected by using springs or plastic rings that will reduce the effects of rubbing against other objects.

When considering which hose to purchase, evaluate the different temperatures and conditions it will be exposed to. Since certain applications expose hoses to extremely hot or cold temperatures, it is important to select a hose that is designed to perform under those extreme conditions.

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## 7. Assess which accessories the hose will need

Clamps are designed with a specific purpose in mind, which gives you three major considerations when dealing with hose clamps. To choose the best clamps for the hose, evaluate the application, corrosiveness of the material and the working pressure. Hose clamps are designed to fit over the hose's external diameter. The clamps secure the hose to fittings and allow for more safety when working in high pressure situations. Using the correct clamps will keep the hose from blowing off any fittings.

### Summary

Careful consideration during the hose selection process will save wasted time and money later resulting from poor hose selections, which in the long-run will contribute to higher ROI. By taking the time to make the best hose choice, you won't need to worry about hose malfunctions and safety issues. A few extra minutes spent selecting an appropriate hose for its function is well worth it to avoid hose hassles on your equipment.

Looking to get additional information or have any questions?  
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