



Where do I start?

User guide to measuring and identifying components to build you custom Hydraulic Hose.

Steps to Build Your Hose

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1. Select your hose.

Selecting your hose type is very important. The wrong hose type could potentially do damage to machinery and possibly cause injury to humans.

There are many aspects involved around selecting your hose type including Size, Temperature Application, Media and Pressure. We provide some of the most common hose types in the Hose builder but there are many other types available on request.

Size is the Inside diameter of the hose. All hose sizes are measured this way and all hoses are Imperial. Some hoses have a Metric identification but will measure as imperial. i.e DN 6 will measure as 6.4mm or ¼ Inch DN 25 will measure as 1 Inch. There are other measurements to take into account but these sizes can vary between manufacturers. Dimensions like reinforcement diameter and outside diameter will be slightly varied between manufacturers. These dimensions can be found on our Hose Identification charts.

Temperature is the next important factor to consider. High or Low. If your machine works in Extreme North or South climates, Low temperature hoses need to be considered but it is the outside

of the Hose that is affected in these cases. In most other cases it's the temperature of the media that decides whether the hose needs to be High Temperature rated or not. High Temp hose in most cases has a Blue outer cover but can be discoloured by temperature or other external Factors. Sometimes there is no cover at all so temperature consideration needs to be considered using other means like heat gun etc. Usually oil cooler hoses are High Temp as it is generally the hottest part of the system. Also Hot oil Shuttle valve hoses and case drains also see elevated temperatures. Generally a Hydraulic system does not need a High Temperature hose unless there is a problem with the system. A hose that is severely heat affected may be a sign that your Hydraulic system needs attention.

Application is usually considered by the manufacturer when the machine was designed and built but can also be considered when making modifications. Factors such as Environment, Pressure impulses, External force mechanism etc. are considered with regards to Application. When selecting the hose consider the reasons for the hose failure, if replacing an existing hose, or consider Environmental factors for new Hoses. Sometimes things like Spiral Wrap, High Temp hose, Spiral Hose, Abrasion sleeve, Spring Guard etc. might be mitigation for Environmental factors. In extreme cases things like hoses rated to API 16D may be needed.

Media generally refers to the fluid used. As technology improved different hydraulic fluids are used for different reasons. Some of the reasons might be Fluids that are environmentally friendly, extreme pressure fluids or non-flammable fluids to name a few. Modern hoses generally cover most fluids but if your fluid is exotic i.e. Water Glycol or Liquid Nitrogen there needs to be a hose selected that is more suitable.

Pressure is referred to as pressure inside the hose. Some hoses are constructed to handle more pressure than others. Generally the higher the pressure the heavier and less flexible the hose becomes due to the extra re-enforcement required to keep the Media from escaping. The hose charts have the pressure rating of the hoses in both BAR and PSI. The hose charts also state the hose Burst Pressure. This should never be considered as mitigation to get a cheaper/lighter/more flexible hose as hoses that see more than their rated pressure have their life span significantly reduced. A hose may last more than 1 million impulse cycles up to its rated pressure but will only last a few impulse cycles up to its burst pressure.

2. Select your end fittings.

Once you have selected your hose you need to select your end fittings. If you know what your end fittings are then this process will be quite easy. If you don't know then there is some Fitting identification charts available on the Hose Builder form. Usually identifying fittings will require a Vernier calliper and a thread pitch gauge to be absolutely certain. There is also some rule of thumb that can help with the process of elimination if you can't decide between 2 similar fittings.

Generally machines built in European countries like Germany will have Metric fittings as it is standard in Europe. Machines built in America will have NPT, JIC or O-ring Face seal as they are made to standard that were developed in America. British built machines will generally have BSP. Australian built machines could quite possibly have any or all of them as Australians have not adopted one standard and could use them all. Some manufactures of machines could possibly have more than one type i.e. Komatsu. Some Komatsu machines are built in Germany (Metric), some are built in America (O-ring face seal), and some are built in Japan (JIS or Komatsu Fittings). So it is helpful to know where your machine was made if replacing a hose. If the hose is for a new installation then the pressure of the system needs to be considered. Metric Heavy (S) fittings can

handle quite high pressures but JIC and BSP not so much. Fittings with O-rings usually can handle higher pressures than ones without.

3. Measure your hose length.

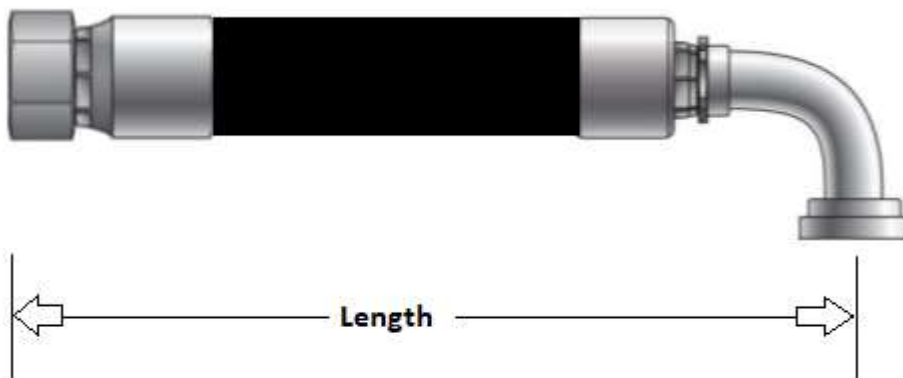
Very important as a Hose that is too short may not reach or will be destroyed the first time a machine moves through its full range of movement. A hose that is too long may get destroyed by catching or rubbing on other hoses or chassis of machines. Some people make hoses too long so as to be able to shorten it when it fails to get extra life out of the hose. Being too long may be the reason that a hose fails and the hose may have lasted much longer if it was the right length. Also hoses should never be re-ended after failure. Hoses fail when their life expectancy is up (Impulse Cycles) No one can determine how many impulse cycles as hose has had in its life and its failure may have been because it has run out of impulse cycles. Secondly if a hose has failed for any other reason it most certainly has hurt the hose along its length and the hose needs to be destroyed and a new one installed.

When measuring a hose the length is determined from the very end of the assembly for hoses with straight ends. **Not the length of actual Rubber hose** this is very important and is a universally accepted way of measuring hose. If the hose assembly has one or 2 bent ends on it then it is measured from the center of the sealing surface.

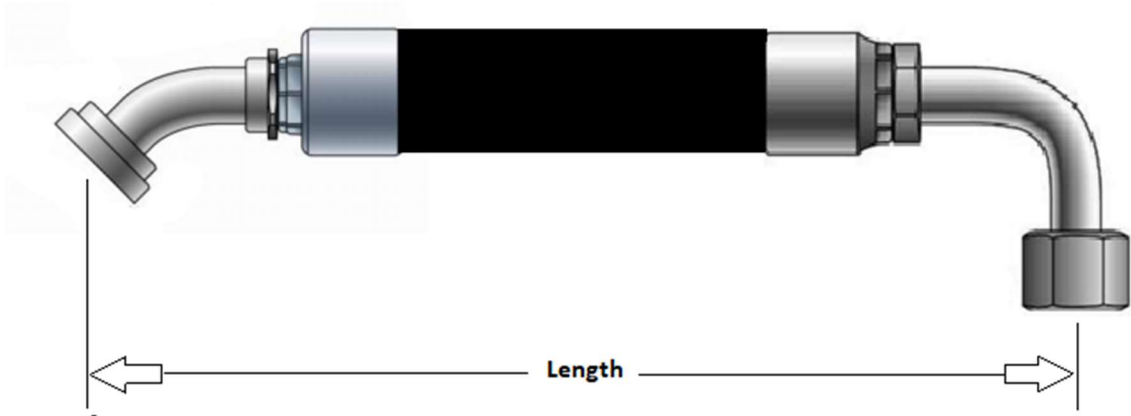
Measuring Hoses with 2 straight ends.



Measuring Hoses with 1 Bent End



Measuring Hoses with 2 Bent Ends



4. Select Hose Protection

Hose protection can be many things from a small piece of immersion rubber strategically placed to a well-placed cable tie or Hose strap. Other forms are Spiral Wrap, Spring guard, Abrasion sleeve etc.

You can select Spiral Guard on the Hose Builder. Please contact us if you require other forms.

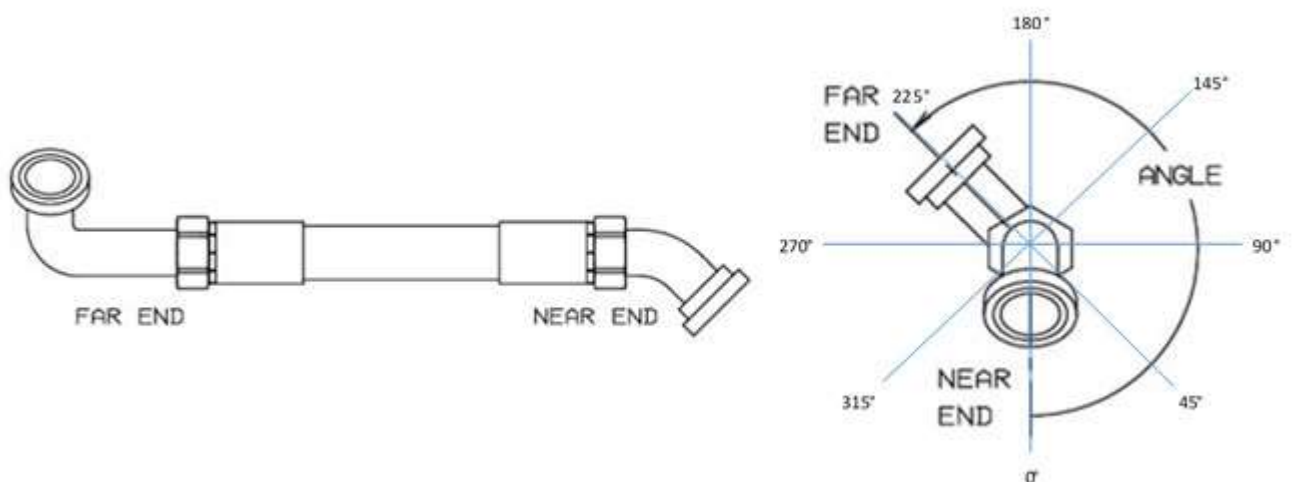
5. Define Orientation

Fitting orientation is determined by the number of degrees measured in a clockwise direction. The orientation angle tolerance should be $\pm 3^\circ$ for overall length (OAL) up to 24" or $\pm 5^\circ$ for OAL over 24" according to SAE J517. If the angle of the hose orientation is not correct in the construction of a hose assembly, the performance and life of the assembly will be greatly reduced.

To identify the angle of a hose end simply there are two different methods. There is a near end reference method and a far end reference method. Each set of directions is described below. Whether you are using the near or far end method, the key is to remain consistent. When ordering hose assemblies, specify which method was used to ensure correct orientation.

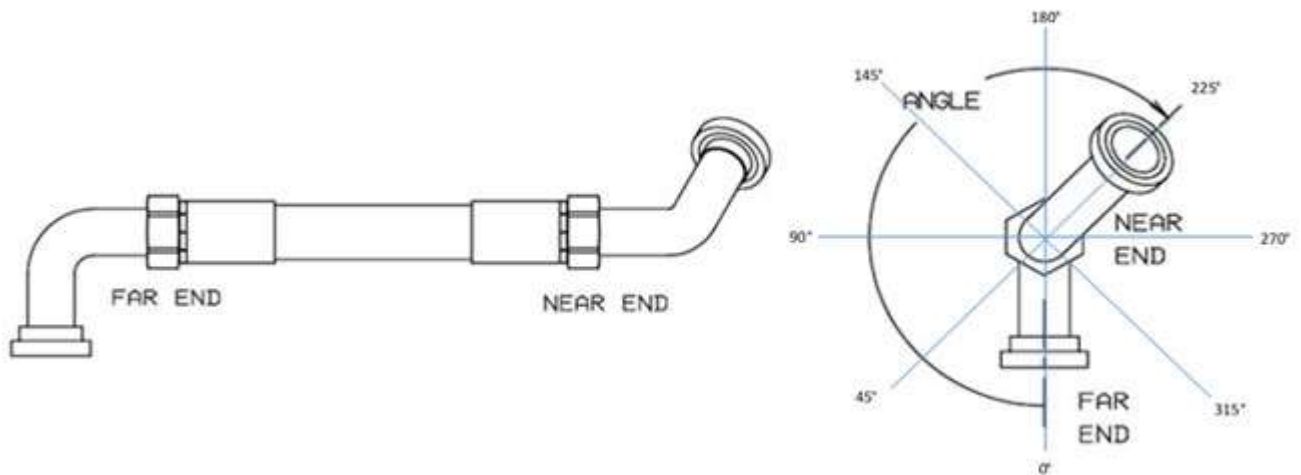
Near end reference method:

1. Hold the hose assembly as if you are looking into a telescope.
2. Position the elbow fitting closest to you at the 6 o'clock position (straight down).
3. Identify the position of the farthest fitting, reading counter-clockwise.



Far End Reference Method:

1. Hold the hose assembly as if you are looking into a telescope.
2. Position the elbow fitting farthest from you to 6 o'clock position (straight down).
3. Identify the position of the closest fitting, reading clockwise.



To avoid fitting orientation, do not use an angle fitting on both ends of a hose assembly. Use a straight fitting and an angle adapter on the other end. This method makes installation easier and eliminates the need for orientation. If it is possible we will supply a straight end hose with an adaptor.

Please add notes into the field provided, if necessary.

6. Add To Cart

Review the hose you have built and confirm all specifications. You can make changes using the EDIT button. Be sure to double check your listed specifications as Hotshot Hose Shop cannot be held responsible for incorrectly ordered hoses.

You can proceed to Checkout, or Return to Shopping to add other items to your Shopping Cart

7. Checkout

Enter your email address or mobile number depending on how you would like to receive confirmation and updates on your order.

Enter your mailing address. We generally use Australia Post, so PO Box addresses are acceptable.

Select your postage/delivery – if you are requiring Urgent Express delivery please contact us to ensure we are able to provide this service within your needs.

Enter your payment card details. If you are unable to pay by credit card please contact us to make alternate payment arrangements. Hoses will not be manufactured until payment is made.

Click PAY NOW to confirm and submit your order

You will receive an email or SMS confirming your order. It will also provide you with a link to view your order. Once in your order screen you can click TRACK YOUR ORDER WITH SHOP, and download the Shop App for easier ordering and tracking in future.