FLEXIBLE HOSES

Flexible hoses are used to transfer different types of fluids such as:

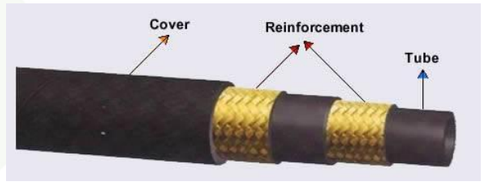
- diesel or petrol,
- hydraulic oil,
- high-pressure compressed air
- drilled cutting and,
- water and drilling fluids.

Sometimes the fluids inside the hoses are under very high pressure and sometimes they are under low pressure but in all cases, a leaking or a burst hose can cause damage to equipment and serious injury or even death to a person who is close to the burst hose.

Proper inspection of all flexible hoses is therefore an extremely important part of your pre-start inspection procedures and in order to properly inspect a hose you need to understand how hoses are constructed.

CONSTRUCTION OF FLEXIBLE HOSES

All flexible hoses are made up of three parts:



The tube – this is the inside part of the hose. The fluid that is being transported, is contained in the tube and so the tube will be specially selected for the fluid that it will transport.

The reinforcement –the reinforcement can consist of one or more layers of fibre (braid) or wire that are wound around the tube. The reinforcing is designed to allow the hose to withstand the pressure of the fluids inside the tube.

The cover – this is the outermost part of the hose and is designed to protect the reinforcement from being damaged.

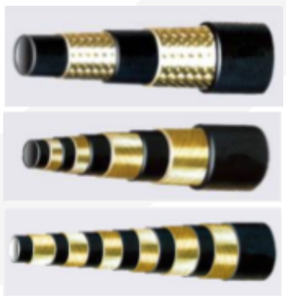
USES OF FLEXIBLE HOSES - HIGH PRESSURE APPLICATIONS

Hydraulic hoses

Hydraulic hoses carry very hot hydraulic fluids under extremely high pressure and so braided wire and spiral wire reinforcement are used to reinforce all hydraulic hoses.

The picture to the right shows 2, 4 and 6 braid hoses that are used as hydraulic oil lines.

The number of layers of wire reinforcing will increase as the working pressure of the hose increases. The 2 layer hose is used for low pressure lines and the 6 layer for very high pressure lines.



Air hoses

High-pressure compressed air is extremely dangerous and so air hoses on drill rigs are specially so that they can withstand the difficult conditions on drill sites.

Normally, air hoses have two layers of braided wire reinforcement, and the cover is specially designed to withstand the high levels of abrasion that occur when hoses are dragged on the ground on drill sites.

Reverse circulation sample hoses

Sample hoses used on reverse circulation drill rigs transport cuttings from the rotation head to the sampling system and so the tube must withstand the very high levels of abrasion that the cuttings will cause. In addition, these hoses, like air hoses, must withstand the high pressure and temperature of the compressed air and so the tube is made of abrasion resistant rubber and the reinforcing is generally made up of 4 layers of braided fibre.

USES OF FLEXIBLE HOSES - MEDIUM PRESSURE APPLICATIONS

Water swivel hoses

Circulation pumps used in drilling applications generally operate at a maximum pressure of 8 MPa (80 bar) and so a low-pressure hydraulic hose is generally used.

Radiator hoses

Radiator hoses transport coolant at high temperatures and high pressures, radiator hoses are therefore manufactured with two layers of synthetic braid reinforcement and a tube that can withstand coolants at high temperatures.

Some radiator hoses also include a spring reinforcement that prevents the hose from collapsing when the temperature of the coolant drops.

USES OF FLEXIBLE HOSES - LOW PRESSURE APPLICATIONS

Fuel hoses

Fuel hoses transport diesel or oil or other fuels, under low pressure and so hoses with fibre reinforcing are generally used in these applications.

The tube of the hose will me specifically selected to resist damage from the fuel being transported.