

# HOSE AND FITTING SELECTION

Some applications allow a relatively simple hose selection (for example suction/return lines); however we suggest to consider the points below as guidelines to help assure all the factors have been taken into account in the selection process.

This will lead to the correct product choice and to help assure safety, long service life and the optimization of the overall cost of the assembly.

## SIZE

The power transmitted by means of pressurized fluid varies with pressure and rate of flow. The size of the components (hose and fittings) must be adequate to keep pressure drops to a minimum and avoid damage due to heat generation or excessive fluid velocity.

The DASH nr. is the internal diameter of the hose in sixteens of an inch. This size is a measurement of the inside tube of the hose.

HOSE SIZE

DN	INCH	MM	DASH
5	3/16"	4,8	-03
6	1/4"	6,4	-04
8	5/16"	7,9	-05
10	3/8"	9,5	-06
12	1/2"	12,7	-08
16	5/8"	16,0	-10
19	3/4"	19,0	-12
25	1"	25,4	-16
31	1.1/4"	31,8	-20
38	1.1/2"	38,1	-24
51	2"	50,8	-32
63	2.1/2"	63,5	-40
76	3"	76,2	-48
89	3.1/2"	88,9	-56
102	4"	101,6	-64

## PRESSURE

Hose and fitting selection must be made so that the maximum recommended working pressure of the hose assembly is equal to - or greater than - the maximum system pressure. Surge pressures or peak pressures must be below the max WVP of the hose assembly.

The pressure rating of a hose assembly is determined by the pressure rating of the component in the hose assembly with the lowest WP.

Surge pressures and peak pressures can usually only be determined by sensitive electrical instrumentation; mechanical pressure gauges indicate only average pressures and cannot be used to determine surge pressures or peak transient pressures.

## TEMPERATURE

The temperature of the fluid in the hose and ambient around the hose in combination with the medium of both the conveyed fluid and the environment, need to be carefully considered in the hose selection process. Please note that the temperatures in our catalogues refer to the temperatures of the fluid in the hose.

When working at high temperatures, the operating pressure must be reduced.

Temperature and pressure reduction in a hydraulic system must take into consideration the construction material used to fabricate the hose. Male stud couplings may require extra pressure reductions, related to the material where the fitting is screwed into. The working temperature depends on the materials:

- fittings in carbon steel: -40°C up to +200°C
- seal materials NBR: -35°C up to +100°C
- steel: pressure reduction for working temperatures TB in °C

## FLUID COMPATIBILITY

Fluid compatibility is vital for long service life and leak free function of the hydraulic system. Please read the chart provided in this catalogue to find some guidelines to chemical compatibility with the internal fluid. The chart shall be intended only as a guide and it is not a guarantee; other combined factors in working operations as pressure, temperature, vibration ect., may impact on the service life.

## FITTINGS

Hose ends, or hose fittings as commonly named, are heavily influenced by the country of origin. Despite many efforts being made in order to standardize and rationalize connection types, many connection systems still exist due to national or international standards or even specific for a customer or a market segment.

In general, there are five main fittings systems that are generally used for hydraulic connections today, whereby the overall list is much longer.

### CONNECTION TYPES:

BRITISH	- (BSP)
GERMAN	- (DIN)
NORTH AMERICAN	- (SAE)
JAPANESE	- (JIS)
FRENCH	- (GAS & METRIC)

## ENVIRONMENT

To ensure maximum service life and safety the routing of a hose assembly should be made to avoid stretching, compressing, kinking the hose or the contact with sharp edges.

Care must be taken to ensure that the hose and fittings are either compatible with or protected from the environment to which they are exposed. Environmental conditions including but not limited to ultraviolet light, heat, ozone, moisture, water, salt water, chemicals and air pollutants can cause degradation and premature failure and must be therefore considered.

## CHOICE OF COMPONENTS

To gain safe and long-lasting hydraulic assemblies it is fundamental to choose the right components from the outset. The „right“ components means those couplings, hoses, crimping equipment and accessories that are all designed to work together.

Not all manufacturers offer safe, high-quality components. Mixing and matching couplings from one manufacturer with hoses from another one can lead to premature or catastrophic assembly failure. Hoses, couplings, assembly equipment and crimping tolerances vary from one manufacturer to another, and they're not interchangeable.

When components from different manufacturers are mixed together, coupling retention can be adversely affected. Mixing component can not only cause unnecessary downtime, it can result in personal injury as well. Also, the thread or flange ends of couplings must be properly matched to their mating components to create leak-proof connections.