



#### **HOSE MANUFACTURING DATA**

#### **STORAGE**

Detailed recommendations for storage of product are contained in BS 5244, 1986 (1991). Tables 1, 2 and 3 of this document are produced with the kind permission of BSI.

#### **Hose & Hose Assemblies Stored as Separate Items**

Before fitting, all hose assemblies should be subjected to visual examination for evidence of deterioration.

The recommendation in Tables 1 and 2 apply to stored hoses and assemblies, depending on their age.

TABLE 1 TEST RECOMMENDATIONS FOR RUBBER HOSES			
AGE	RECOMMENDATIONS		
Up to 3 years	Use without further testing		
3 to 5 years	Use after representative samples subjected to a proof pressure test		
5 to 8 years	Use after representative samples subjected to proof, impulse and burst pressure tests, and cold bend and electrical tests		
Over 8 years	Scrap		

TABLE 2			
TEST RECOMMENDATIONS FOR RUBBER HOSES ASSEMBLIES			
AGE	RECOMMENDATIONS		
Up to 3 years	Use without further testing		
3 to 5 years	Use only after subjecting each assembly to a pressure test of 1.5 x design working pressure and representative samples to a burst pressure test		
5 to 8 years	As for 3 to 5 years plus impulse pressure test and cold bend and electrical tests on representative samples		
Over 8 years	Scrap		



TABLE 3			
TEST RECOMMENDATIONS FOR STORED EQUIPMENT			
AGE		RECOMMENDATIONS	
Up to 3 years		Use without further testing	
3 to 5 years		Use only after subjecting each assembly to a pressure test of 1.5 x design working pressure and representative samples to a burst pressure test	
Over 5 years		Scrap	
NOTE 1:	It is important that hose assemblies fitted to stored equipment should be filled with the operating fluid with which they will be used on that equipment.		
NOTE 2:	It is highly recommended that hose assemblies fitted to stored equipment in conditions of extreme temperature, humidity or ozone concentration (strong sunlight) should be tested after 1 year according to the criteria stipulated for 3 to 5 year old assemblies.		

TABLE 4			
TEST RECOMMENDATIONS FOR THERMOPLASTIC HOSE			
AGE	RECOMMENDATIONS		
Up to 5 years	Use without further testing		
5 to 8 years	Use after representative samples subjected to proof pressure test		
8 to 12 years	Use after representative samples subjected to proof, impulse and burst pressure tests, and cold bend and electrical tests		
Over 12 years	Scrap		

TABLE 5 TEST RECOMMENDATIONS FOR THERMOPLASTIC HOSE ASSEMBLIES			
AGE	RECOMMENDATIONS		
Up to 5 years	Use without further testing		
5 to 8 years	Use only after subjecting each assembly to a pressure test of 1.5 x design working pressure and representative samples to a burst pressure test		
8 to 12 years	As for 3 to 5 years plus impulse pressure test and cold bend and electrical tests on representative samples.		
Over 12 years	Scrap		



#### **ROUTING**

In general, routing should be such that bends lower that minimum bend radius or tensile loading of the hose assemblies must be avoided. The minimum bend radius is measured to the inside of the bent hose and the length of the assembly should be such that there is a 25mm long straight portion of the hose at the inlet to each end fitting. Where abrasion of the product is likely, consideration should be given to extra protection. This can be provided in the form of steel or plastic spring guarding over the external surface of the hose preventing exposure to damage.

To this end, specific attention must be paid to the movement of the hose when operating between components of a hydraulic system which move relative to each other. It is advisable to ensure that hose is routed such that there is no bending of the hose within 25mm of the end fitting to which it is attached and that where possible, assemblies are not manufactured with swept elbows at either end. When deciding the routing of hose assemblies specific attention should also be paid to clipping and/or clamping hoses at appropriate points.

#### **INSTALLATION**

Before attempting to connect a hose assembly it is essential to ensure that the joining surfaces are completely free from foreign matter and from burrs, flash or fins. Damage to these surfaces, especially where metal to metal cone connections are concerned, may result in leakage. Also, hose assemblies should have been cleaned internally to avoid any contamination entering the system which may be residue of the hose assembly manufacture.

PROBLEM	POSSIBLE CAUSE &	SOLUTION	
	MISAPPLICATION		
Hose bursts on outside of	Hose bent too tight in routing.	Increase hose length, also may	
bend and is out of shape.	Reinforcement opened up too	be able to use different end	
	much on outside bend.	fittings, i.e. swept 90 instead	
		of straight.	
Coupling blows off end when	Incorrect coupling used.	Check hose coupling	
under pressure.	Couplings not crimped to	compatibility, check swage	
	correct swage dimension.	information. Does routing	
	Coupling not fully inserted.	cause excessive stress on	
	Hose not correct skived. Hose	assembly.	
	too short, twisted or bent too		
	tight.		
Hose liner swells or	Hose liner is not compatible	Before making assembly,	
deteriorates, blocking fluid	with fluid. Temperature may	identify fluids and	
flow or leaking	be a factor.	temperature in use. Check compatibility.	
Wire reinforcement is rusty at	Hose cover broken by cutting,	Use hose guard, nylon sleeve,	
site of hose burst.	abrasion, extreme	anti-abrasive cover hose.	
	temperatures, chemical attack,	Check temperature & fluid	
	improper cover skiving, internal	compatibility. Cover may	
	gas caused by blisters.	require perforating.	
NOTE: IN SOME INSTANCES, FAILURE MAY BE CAUSED BY PREVIOUS REPAIRS.			



#### **FACTORS AFFECTING SERVICE LIFE**

#### **Main Causes**

- \* Excessive Pressure
- \* Abuse
- \* End of Working

#### **Contributory Factors**

- \* Installation
- \* Below recommended minimum bend radius
- \* Twisting
- \* Pulling
- \* Temperature extremes
- \* Vibration
- \* Chemical attack
- \* High velocity oil erosion (hose tube)
- \* Ageing (ozone)
- \* Incorrect angle orientation



#### DO'S AND DON'TS TO PROLONG HOSE LIFE

Always use Hydraulic & Offshore

Supplies fittings together with

Hydraulic & Offshore Supplies approved

hose.

**DON'T** Ever mix and match hose and couplings

from different sources. Make hose assemblies from Hydraulic & Offshore Supplies matched components to ensure

compatibility and performance.

**DON'T** Cut out a piece from an existing

assembly to remove the "bad bit" and put a new coupling on. If a hose has failed it is likely that the reinforcement has passed its working life. First-aid repairs are potentially lethal and

invalidate any manufacturer's guarantee.

**DON'T** Alter the pressure relief valve in your

hydraulic system without considering whether the increased pressure will exceed the recommended max working pressures of your hose assemblies. If it

will, replace the hoses with more

suitable assemblies.





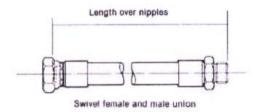
For most assemblies, the correct assembly length may be determined by direct measurement of the equipment or a drawing. Minimum bend radii as shown in the hose specification tables should be observed.

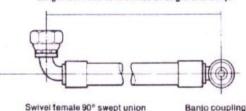
Assemblies are measured to the end of the seal.

of the equipment or a ssemblies with permanent or reusable couplings, s shown in the hose ved.

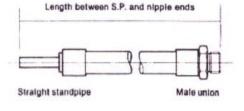
subtract Dimension "C" (Cut off factor) for each coupling from the required overall assembly length. Dimension "C" may be found in the coupling specification tables.

#### **How To Measure Assemblies**



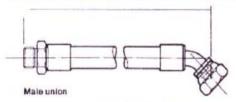


Length between centre lines of angle and banjo



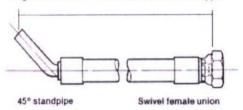
To determine the length of hose needed in making

Length between male nipple and centre of female nipple



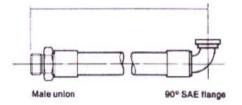
Swivel female 45° swept union

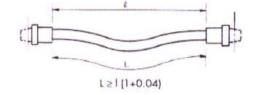
Length between centre line of S.P. and end of nipple



Remember that hydraulic hose under pressure will elongate up to 2% of its length or contract up to 4% depending on pressure, type and size. Sufficient allowance should be made to permit such changes in length.

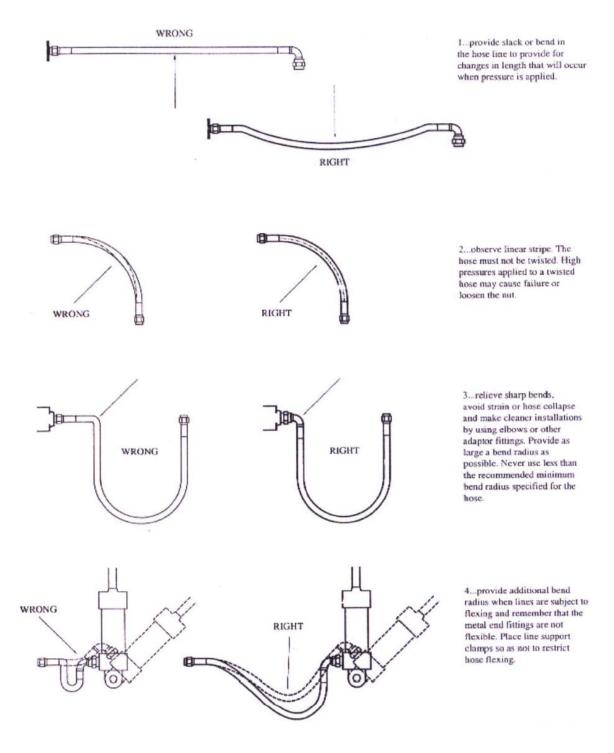
Length between centre of angle and nipple end





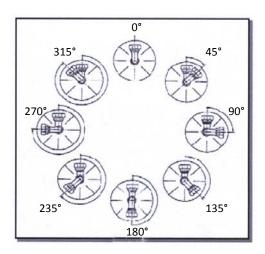


# GUIDELINES FOR THE USE OF HYDRAULIC FLUID POWER HOSE & HOSE ASSEMBLIES

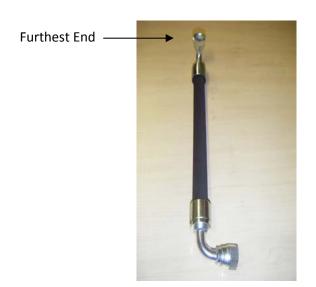




#### **ANGLE ORIENTATIONS**



Refer to the following picture to define the correct fitting orientation.



Keep straight the further end and rotate <u>clockwise</u> the closest end of the requested angle.