



No-Skive hydraulic hose and reusable fittings

Data Sheet



A range of No-Skive hose and reusable fittings, that facilitates the on site assembly of hose lines.

No-Skive assemblies keep the protective rubber cover on the hose. The fitting automatically accepts the right amount of hose with no damage or weakening of the wire braiding. Such errors as skiving too short or too long are eliminated. The solid cushioned grip action prevents destructive flexing and also protects the high tensile carbon steel braid against moisture and corrosive atmospheres.

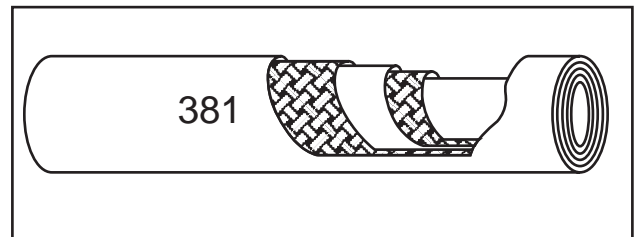
Repairs or refurbishment can be undertaken with the use of a bench vice and simple hand tools.

WARNING:

The range of No-Skive hose and reusable fittings is capable of transmitting fluids at high pressures. To ensure product safety it is recommended that only compatible hose and fittings are used, and the assembly and installation instructions are adhered to.

No-Skive hose 381

DIN 20022 2SN – SAE 100 R2AT – ISO 1436/11



Application

High pressure service with petroleum base hydraulic fluids, water glycol and water-oil fire-resistant-hydraulic fluids, hot oil, grease, lubricants, crude and fuel oils, petroleum, air, water. Pin prick cover for air or gas applications above 14bar (200psi). Chemical agents in all mineral base fluids may be detrimental to the resistance of the hose material.

Construction

Buna N(Nitrile) liner. Two braids of high tensile steel wire reinforcement separated by synthetic rubber layer; oil, weather and abrasion resistant synthetic rubber outer cover.

Temperature range: _____ –40°C to +100°C
(–40°F to +212°F)

Air _____ +66°C (+150°F) max.

Water _____ +82°C (+180°F) max.

Hose ID inch	Hose OD mm	Pressure rating						Min. bend radius mm	Weight kg/m
		Min. burst		Proof		*Max. working			
		bar	psi	bar	psi	bar	psi		
1/4	15.1	1,600	23,200	960	14,000	400	5,800	100	0.36
3/8	19.1	1,320	19,100	795	11,500	330	4,800	130	0.56
1/2	22.2	1,100	16,000	660	9,600	275	4,000	175	0.64
5/8	25.4	1,000	14,500	600	8,700	250	3,625	200	0.79
3/4	29.0	850	12,300	510	7,400	215	3,100	240	0.95
1	38.1	650	9,400	390	5,600	165	2,400	300	1.38

*Maximum working pressure indicates dynamic pressure systems.

Basic factors for your hose selection

1. Line size: Undersized pressure lines produce high velocity of fluid causing excessive pressure drop, and heat build-up, which impair overall system performance.

Undersized suction lines can cause cavitation at the hydraulic pump, affecting performance, shortening pump life, and creating excessive noise levels.

Required pressures and flow rates in systems will determine the necessary bore sizes of hose assemblies. If fluid velocity is too high, the turbulence in the system will produce pressure losses, and consequent heat problems. If the hose must be of different size to the accessory port, 'jump size adaptors' should be used causing only localised restrictions in the system.

2. Working pressure: 381 hoses are rated for continuous operation at the maximum working pressures specified for a given hose. The pressure data is based on the SAE recommended design factor of 4 to 1, that means each maximum working pressure is rated at 4/1 of the minimum burst pressure. In the case of hydrostatic working pressures the design factor may be reduced to 3:1.

3. Pressure surges: Dynamic pressure is common for almost all hydraulic systems. These systems develop pressure surges which exceed the relief valve settings and affect the service life of your hose assembly and system components. If the surges are severe select a stronger hose that will increase your design factor. If the rated working pressure is exceeded by up to 20%, then your expected hose life will be reduced by 50%.

4. Proof pressure: This is twice the rated maximum working pressure. Hose assemblies should be hydrostatically tested to the specified proof pressure for a period of not less than 30sec or more than 60sec. There should be no leakage or failure.

5. Burst pressure: These ratings are test values only. The hose assembly should have been used and assembled for not more than 30 days. There should be no burst, leakage or failure below the minimum ratings.

6. Gas systems: High pressure gas systems are very dangerous. Hose assemblies should be provided with a safety chain for each hose connection to prevent the line from thrashing around in case of failure.

The hose rubber cover should be perforated in all cases where the working pressure exceeds 17 bar (250 psi).

7. Change in length: Each hose has a certain elongation or contraction under service pressure depending on the tolerances of the reinforcement. The change in length should not exceed +2% to -4% under maximum working pressure. This must be considered when determining the overall length of hose assemblies.

8. Bend radius: The recommended minimum bend radii are based on the maximum recommended working pressure without any flexing of the hose. Safe working pressure decreases when the bend radius is reduced below the recommended minimum.

9. Spring guards: Spring guards increase the life of hose lines when exposed to sharp and abrasive materials. They distribute bending radii to avoid sharp kinks in hose lines at juncture of couplings and protect the hose from excessive wear and deep cuts.

10. Temperature range: The range specifies the maximum operating temperature of the fluid being conveyed. High temperature conditions may have a detrimental effect on the hose and will limit the hose life and reduce fitting retention. In some cases the deterioration of the hose rubber may be slowed down by the fluid being conveyed whereas other fluids may accelerate it. Maximum and minimum temperature does therefore not apply to all fluids. Continuous use at extreme temperatures should be avoided where possible; alternatively increase safety factors to give a lower effective working pressure.

11. Ambient heat or cold: Very high or low ambient temperatures will be detrimental to the rubber material and the bonding of the hose and will reduce the expected hose life. Therefore avoid installing your hose in these areas, or alternatively protect by means of sheathing.

12. Chemical resistance: Consider chemical resistance of both hose cover and tube stock. The rubber hose is generally resistant to mineral based fluids, air, cleaning solvents, moisture and mildew. More details are given in the hose compatibility chart. This is only a guide to chemical compatibility.

Flow capacity nomogram

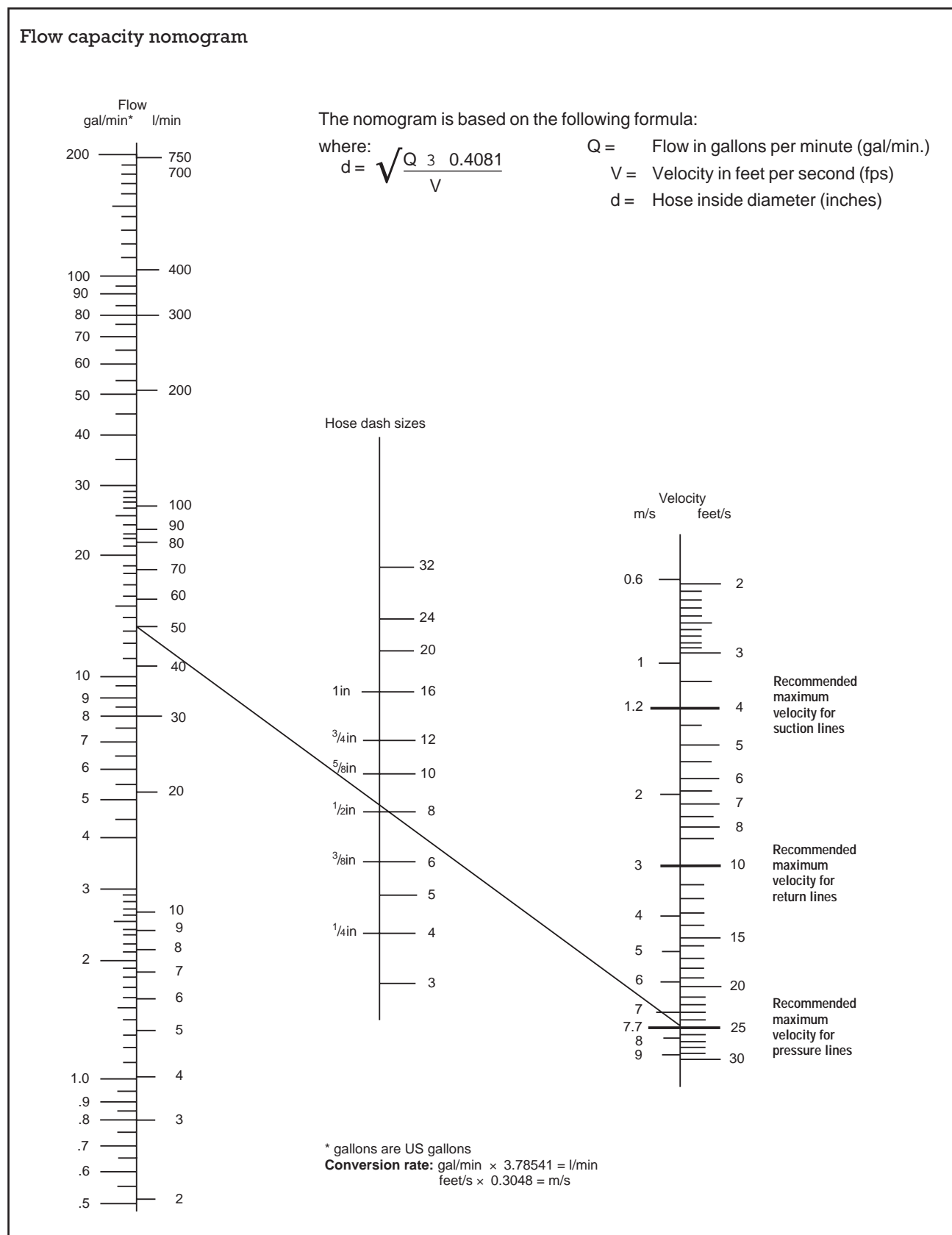
Flow capacities of hose at recommended flow velocities

The chart below is provided as an aid in the determination of the correct hose size.

Example: At 13 gallons per minute (gal/min.), what is the proper hose size within the recommended velocity range for pressure lines?

Locate 13 gallons per minute in the left hand column and 25 feet per second in the right hand column (the maximum recommended velocity range for pressure lines). Lay a straight line across these two points. The inside diameter shown in the centre column is above 8 so we have to use 10 ($\frac{5}{8}$ in).

For suction hose, follow the same procedure except use recommended velocity range for intake lines in the right-hand column.



Hose compatibility chart

Medium	Hose	Fitting	Medium	Hose	Fitting	Medium	Hose	Fitting
	NBR	Steel		NBR	Steel		NBR	Steel
Acetic acid	X	X	Ferric chloride	A	X	Perchloroethylene	X	F
Acetone	X	A	Ferric sulphate	A	X	Petroleum ether	(3)	A
Acetylene	X		Formaldehyde	X	X	Petroleum oils	A	A
Air (1) (4)	A	A	Formic acid	X	X	Phenol (Carbolic acid)	(7)	X
Alcohol (Methanol-Ethanol)	A	F	Freon 12.22	(5)	A	Phosphate esters	X	A
Aluminium chloride	A	X	Fuel oil	(3)	A	- Energol SFD (BP)	X	A
Aluminium fluoride 20%	A	X	Gasoline	X	A	- Pyrelif DR (Elf)	X	A
Aluminium sulphate	A	X	Glue	(7)	A	- Pyroguard 53 (Mobil)	X	A
Alums	A	X	Glycerine glycerole	A	A	- Pyrguel EHC (Total)	X	A
Anhydrous ammonia	X	X	Grease	A	A	- Pydraul 60, F9, 150,		
Ammonium chloride	A	X	Heptane	(3)	A	625 and E series	X	A
Ammonium hydroxide	F	F	Hexane	(3)	A	- Pydraul A-200	X	A
Ammonium nitrate	A	F	Hydrobromic acid	X	X	- Pydraul 90, 135, 230,		
Ammonium phosphate	A	X	Hydrochloric acid	X	X	312, 540 and C series	X	A
Ammonium sulphate	A	F	Hydrocyanic acid	X	(7)	Pyro gard C, D, R	A	A
Amyl acetate	X	X	Hydrofluoric acid	X	X	Pyro gard 43	X	A
Amyl alcohol	X	X	Hydrofluorosilic acid	X	X	Phosphoric acid	X	X
Aniline	X	A	Hydrogen	F(2)	A	Picric acid, molten	X	(7)
Aniline dyes	F	X	Hydrogen peroxide	X	X	Picric acid, solution	X	(7)
Animal fats	F	(7)	Hydrogen sulphide	X	X	Potassium chloride	A	X
Asphalt	X	X	H-515 (NATO)	A	A	Potassium cyanide	A	A
Automotive brake fluids	X	X	Isocetane	(3)	A	Potassium hydroxide	X	(7)
Barium chloride	A	F	Isopropyl alcohol	A	F	Potassium sulphate	A	A
Barium hydroxide	A	F	JP3 and JP4	(3)	A	Propane	(2)	A
Barium sulphide	A	X	Kerosene	(3)	A	Sea water	F	X
Beer	(3)	X	Lacquer	X	X	Sewage	(3)	(7)
Beet sugar liquor	A	F	Lacquer solvent	X	X	Silicones	A	A
Benzene	X	A	Lactic acid	X	X	Skydrol (all)	X	A
Benzine	X	A	Linseed oil	A	A	Soap solutions	(3)	A
Borax	(3)	F	Lindol HF	X	A	Soda ash, sodium		
Boric acid	A	X	LP gas	(2)	A	carbonate	A	A
Brine	F	X	Lubricating oils	A	A	Sodium bisulphate	A	X
Bromine	X	X	Magnesium chloride	A	X	Sodium chloride	F	X
Butane	(2)	A	Magnesium hydroxide	F	F	Sodium cyanide	A	A
Butyl alcohol, Butanol	A	F	Magnesium sulphate	A	A	Sodium hydroxide	X	A
Calcium bisulphite	A	X	Mercuric chloride	X	(7)	Sodium hypochlorite	(7)	X
Calcium chloride	A	F	Mercury	A	A	Sodium nitrate	(7)	A
Calcium hydroxide	A	A	Methane	(2)	A	Sodium perborate	(7)	X
Calcium hypochlorite	(7)	X	Methanol	A	F	Sodium peroxide	X	X
Cane sugar liquors	A	A	Methyl alcohol	A	F	Sodium phosphates	X	X
Carbolic acid (Phenol)	X	X	Methyl chloride	X	A	Sodium silicate	A	A
Carbon dioxide	(7)	A	Methyl Ethyl Ketone (MEK)	X	F	Sodium sulphate	A	A
Carbon disulphide	X	A	Mineral oil	A	A	Sodium thiosulphate	A	X
Carbon monoxide (hot)	(7)	F	- Nuto H (Esso)	A	A	Soybean oil	A	A
Carbon tetrachloride	X	(7)	- Tellus (Shell)	A	A	Stannic chloride	A	X
Carbonic acid	A	X	- DTE (Mobil)	A	A	Steam	X	F
Castor oil	A	A	- HLP Energol (BP)	A	A	Stearic acid	F	(7)
Chlorinated solvents	X	A	- Hydrelf (Elf)	A	A	Sulphur chloride	(7)	(7)
Chlorine gas (dry)	X	F	- Sonhydro (Fina)	A	A	Sulphur dioxide	(7)	X
Chloroacetic acid	X	X	- Azolla (Total)	A	A	Sulphur trioxide	(7)	X
Chloroform	X	X	- Equivis (Total)	A	A	Sulphuric acid	F(7)	(7)
Chromic acid	X	X	- HS, HO, TM, TL (Opal)	A	A	Minesafe, sunsafe	A	A
Citric acid	(3)	X	- Pol (Wynn's)	A	A	Tannic acid	(3)	X
Coke oven gas	(7)	F	Morpholine (pure additive)	X	X	Toluene, toluol	X	A
Copper chloride	(7)	X	Naphtha	(3)	A	Transmission oil	A	A
Copper sulphate	A	X	Naphthalene	X	A	Trichlorethylene	X	X
Cottonseed oil	(7)	A	Natural gas	X	A	Turpentine	X	A
Creosote	A	X	Nickel chloride	A	X	Urethane formulations	A	A
Crude petroleum oil	A	(7)	Nickel sulphate	A	X	Varnish	X	F
Diesel fuel	(3)	A	Nitric acid	X	X	Vinegar	X	(7)
Ethanol	A	F	Nitrobenzene	X	X	Water (6)	A	F
Ethers	-	A	Oleic acid	F	X	Whisky	(3)	X
Ethyl acetate	X	F	Oleum spirit	X	X	Wine	(3)	X
Ethyl alcohol	A	A	Oxalic acid	F	(7)	Xylen, xylol	X	A
Ethyl cellulose	F	X	Oxygen	X	X	Zinc chloride	(7)	(7)
Ethyl chloride	X	F	O-148 (NATO)	(7)	A	Zinc sulphate	A	(7)
Ethylene dichloride	X	X	Ozone	(3)	A			
Ethylene glycol (to 65.5°C)	A	A	Palmitic acid	A	X			

Resistance rating key: A = Preferred F = Fair X = Unsuitable
 - = No recommendation

Notes:

- For high pressure inert gases, the cover should be *pin-pricked* and the pressure must not be released quickly. *Chain or restrain* the hose to prevent personal injury in the event of damage or failure.
- Hose applications for fuels must take into account legal and insurance regulations.

3. Specify service (**Hose type 381 not suitable**).

4. 66°C (150°F) maximum temperature.

5. Special hoses are required for refrigerants.

6. 82°C (180°F) maximum temperature.

7. Satisfactory at some concentrations and temperatures, unsatisfactory at others.

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