Petroleum Hose

An ISO 9001 Co.

HYDRAULIC HOSES & FITTINGS

SONI RUBBER PRODUCTS LTD.

Managing Director

About Us...

SONI Group was setup in 1966 and from the day of inception the enterprise started dealing in various types of hoses and hose assemblies which include Hydraulic, Pneumatic, Rockdrill etc. and within a short span of time started their own assembly plant to manufacture hydraulic hose assemblies with wire braided and spiral wire reinforced super high pressure hoses.

Offlate the management decided to manufacture Hydraulic Hoses and the founder members of the group Late A.S. Soni, Mr. Tajindar Singh, Mr. J.S. Soni started visiting renowned hose manufacturers in the world for search of excellence in hose manufacturing & finally in the year 1981 production of Wire Braided Hoses started and late in a very short period the product was established and accepted in the market as well as by the reputed Engineering Industries.

In 1983 'SONI' launched Spiral Wire Reinforced Super High Pressure Hoses for the first time in the country as on date and have been able to provide a total import substitution in case of Spiral hoses.

Soni has got the complete in-house facility of manufacturing both hoses and end fittings. This unique feature has enabled "SONI" to become the market leader of the finished product.

"SONI" is playing one of the most important role in Indian Hose Industries and will always be ahead in providing solutions related to any problem of Hydraulic Hose Applications.

"SONI" has got ex-stock availability of hoses and end fittings which enable "SONI" to despatch the ordered goods within 24 hours.

The Organisation has also taken up modernisation programme for further technological development in the field of hoses and has also diversified their activities regarding manufacture of Moulded rubber products which include Push on Rubber, Gaskets, Dump Body Pads of HEMMs, Rubberized Fabrics, Battery Containers.

In brief SONI Group is committed to maintain quality standards to an optimum level and also to offer an unbeatable price along with superior after sales service through Nation wide network of their Branch Offices and distributors, to remain in the forefront of Indian Hose Industry.

CONTENTS

The benefits of purchasing SONI hoses and hose assemblies

1. **'SONI' is the only manufacturer of hoses as well as hose assemblies**
   i) 'SONI' is the only manufacturer to offer entire range of hydraulic and pneumatic hoses from 3/16" ID to 5" ID. Pressures rating from low, medium, high and super high pressure.
   ii) End fittings are manufactured and assembled under one roof.
   iii) The benefit of having a hose manufacturer who is also the end fitting manufacturer is the minimization of cost and delay in various forms.
   iv) This also enables 'SONI' to offer prices and delivery schedule which none can match in the industry.
   v) This compatibility pays off in maintaining better quality and production schedules as the entire setup and control is under one roof.

2. **Quality Product**
   i) At 'SONI' we believe that when the input & process is of top quality then the output has to be of unquestionable quality. The basic raw material rubber is imported from world class manufacturers Du Pont (USA), Bayer (Germany). The high tensile carbon steel wire imported from Bekaert (Belgium). The chemicals from ICI, PIL, Bayer and the carbon black from Philips.
   ii) The process machinery from the best in the world. The braiders & Spiralling machine from TMW/ Rockwell (USA). The boilers from Thermax and rubber mixing machinery from Santosh, (Bombay), Iddon (U.K.).

3. **50 years Experience**
   i) 'SONI' is in the field of Hydraulic Hoses and Hose Assemblies for the last 50 years. This vast experience gained over the years by 'SONI' has resulted in extensive know how that is guaranteed to help solve any problem.
   ii) 'SONI's products are used in nearly all the major industries i.e. earth moving, steel and allied industries as well as various original equipment manufacturers thereby providing 'SONI' with a wide spectrum of clients which help 'SONI' in the better understanding of the working of hydraulic systems and their limitations and capabilities.

4. **Ex-Stock Delivery**
   i) Soni's huge inventry of 45,000 mtrs. of bare hose and 3,50,000 end fittings enables 'SONI' to make deliveries within the same day of call.
   ii) All those are just a fax, email or telephone call away.

5. **Pioneering efforts in R & D**
   i) In 1984 we pioneered the production of Super high pressure spiral hoses in India and in 1996 we are still the pioneer and leader in the said field.
   ii) The only manufacturer to manufacture 5" ID wire braided hoses.

6. **Comprehensive in-house Testing facilities**
   i) 'SONI's commitment to quality is firm and as a result of this we have a most modern and sophisticated laboratory, which includes the following :
   - Rhenometric test on the Monsanto Rheometer MDR 2000.
   - Tensile test, Elongation, Hardness, Oil Swelling, Ageing etc.
   - Hydrostatic proof pressure test
   - Change in length test
   - Burst pressure test
   - Impulse test
   - Ozone test
   - Cold leend test
   - Oil resistanceted

7. **Competitive pricing**

   'SONI' is one the of the largest manufacturers of hydraulic hoses and hose assemblies in the country and also manufacturing hoses and hose assemblies under one roof enabling 'SONI' to offer price and delivery schedule which none can match in the industry.

Serving Industries for more than 50 years

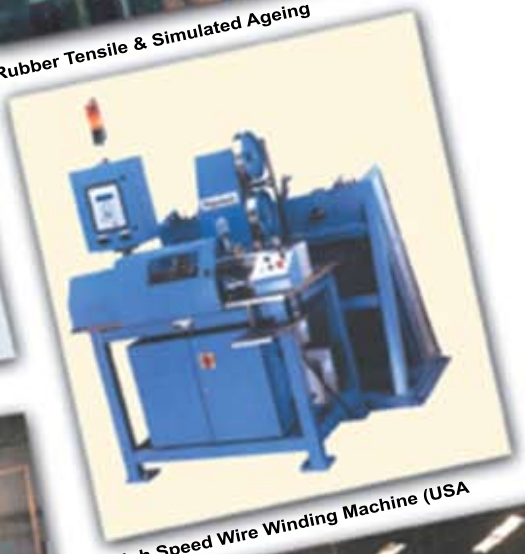
PLANT & MACHINERY

Hose Life Test-impulse Pressure Testing

Rheometer

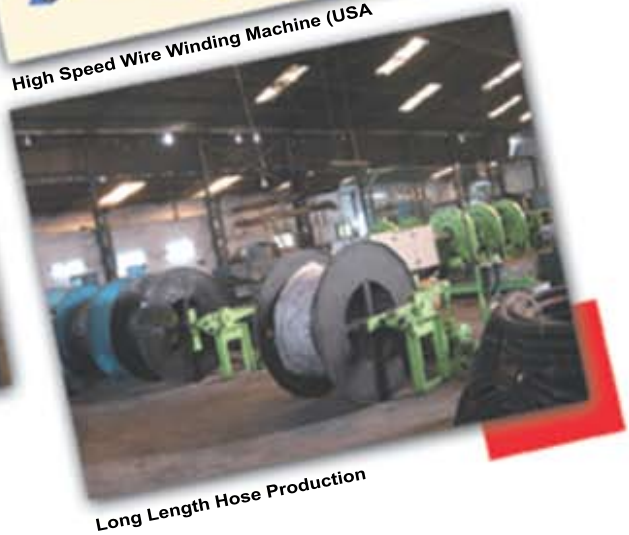
Magnatech USA, High Speed Braiding Machine

Rubber Tensile & Simulated Ageing



High Speed Wire Winding Machine (USA

Temperature Controlled Braiding Machine



Long Length Hose Production

PLANT & MACHINERY

HOSE MANUFACTURING

High Speed Magnatech Braiders

HOSE ASSEMBLIES MACHINE

Computerised Impact Making Machine

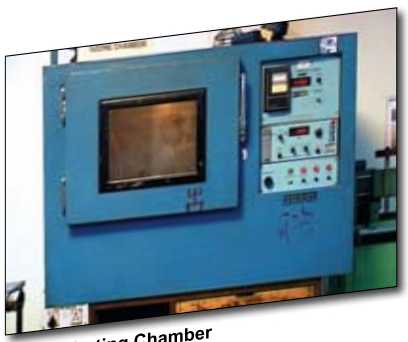
CNC Turning Centers

Digital Finn-Power Crimping Machine

QUALITY TESTING MACHINE

Impulse Testing Machine

Cold Bend Test Chamber



Ozone Testing Chamber

Soni Hoses are manufactured conforming to standard **SAE, DIN, IS** and **EN** specification and are guaranteed against manufacturing defects. Soni Hoses are subject to the following tests : • Dimensional check test • Proof test • Charge in length test • Burst test • Leakage test • Oil Resistance test • Visual examination. Soni manufactures both Hoses and Fittings. This hydraulic compatibility pays off in improved efficiency and performance of the hydraulic system. For BCS-174 Hoses following tests are also conducted • Fire resistance Test • Antistatic Test.

Range of European Crimping Machine to crimp upto 5" I.D.

SONI LPG HOSE BS EN 1762 TYPE D (SINGLE BRAID)

Specification : Exceeds BS EN 1762, TYPE D

Construction : Low permeation synthetic rubber tube resistant to n-pentance, single wire braids reinforcement and perforated outer cover, resistant to abrasion and outer exposure with PIN pricked cover.

Application : Designed for the transfer of LPG in liquid or gaseous phase and natural gas.

Temperature : – 40ºC to +70ºC (-40ºF to +158ºF)

S.S. Ref. No.	HOSE SIZE		MAXIMUM WORKING PRESSURE	MINIMUM BURST PRESSURE	MINIMUM BEND RADIUS
	I.D.	O.D.			
	mm / in	mm / in	Bar / Psi	Bar / Psi	mm / in
1762D-8	12.7 0.500	22.7 0.890	25 363	100 1450	100.0 4.00
1762D-10	15.9 0.625	25.9 1.020	25 363	100 1450	127 5.00
1762D-12	19.1 0.750	31.0 1.220	25 363	100 1450	160.0 6.30
1762D-16	25.4 1.000	38.1 1.500	25 363	100 1450	200.0 7.90
1762D-20	31.8 1.250	45.0 1.770	25 363	100 1450	250 9.80
1762D-24	38.1 1.500	52.0 2.050	25 363	100 1450	320.0 12.60
1762D-32	50.8 2.000	67.0 2.640	25 363	100 1450	400.0 15.70

DGAQA APRROVED

SONI AIRCRAFT REFUELLING HOSE

(EN 1361:1997 IS 5797 :1994 API BULLETIN 1529:1982)

Specification : 1) SONI EN 1361 : 1997
2) SONI IS 5797:1994
3) SONI API BULLETIN 1529 : 1982

Construction : Lining : Synthetic rubber resistant to petroleum fuel.
Reinforcement : A reinforcement of layers of woven, braided on spirally wound textile material with electrical continuity through braided copper wire.
Cover : Anti-static synthetic rubber resistant to abrasion, outdoor exposure and petroleum fuel.

Temperature : – 30°C to +65°C.

Application : Re-fuelling & de-fuelling of oils in Aircrafts.

I.D.	O.D.	Working Pressure	Bursting Pressure
mm	mm	Bar	Kg./cm^2
19.10	33.0	20	80
25.40	41.0	20	71.4
31.80	45.0	20	71.4
38.00	54.5	20	71.4
50.80	69.2	20	71.4
63.00	81.9	20	71.4

SONI PETROL HOSE EN 1360 - 3 / BS3395-3 HARDWALL

ATEX APPROVED

CE MARKED

Specification : SONI EN 1360 : 2005 (TYPE-3)/BS3395-3 Hardwall I Wire Braid Construction :
Lining : Smooth, fuel resistant lining of rubber.
Reinforcement : 1 High tensile Steel Wire.
Cover : Weather and abrasion resistant synthetic rubber cover.

Temperature : – 40°C to +55°C.

Application : Used in dispensing pumps for petrol and diesel fuels.

Marking : Soni ITS 10 ATEX 46922 (Maximum working Pressure 16 Bar)

HOSE SIZE					MAXIMUM WORKING PRESSURE	MINIMUM BURST RADIUS	MINIMUM BEND RADIUS	
			I.D.	O.D.				
DN	Dash	in	mm	mm	Bar	Bar	in	mm
16	10	5/8	15.9	25.6	16	48.96	4	100
19	12	3/4	19	28.7	16	48.96	6	150
25	16	1	25	35.1	16	48.96	8	200

SONI LIQUID PETROLEUM GAS HOSES (TYPE - IS 9573 BS 4089)

Specification : SONI LPG IS 9573/BS-4089

Construction : Inner Tube: Low diffusion rate seamless extruded synthetic rubber of uniform thickness

Reinforcement : One high resistance steel wire braiding.

Cover : Black synthetic rubber perforated to prevent the formation of blisters, resistant to abrasion, oils, fuels and weathering with PIN pricked cover.

Temperature : – 40°Cto +60°C

Application : Liquid gas applications (methane, propane, LPG), refilling and emptying of tankers

Size	Nominal I.D.		I.D. mm		O.D. mm		Diameter on Braid mm		Pressure Bar		MIN. BEND RADIUS Inches	Weight Kg./m
	mm	in	min	max	min	max	min	max	Working	Min Burst		
4	6.5	1/4	6.1	7	16.7	18.3	12.1	13.3			70	0.40
5	8	5/16	7.9	8.5	18.3	19.8	13.7	14.9			95	0.50
6	9.5	3/8	9.3	10.1	20.6	23.7	16.1	17.3			120	0.60
8	13	1/2	11.0	13.5	23.8	26.0	19	20.6			130	0.75
10	16	5/8	15.5	16.7	27	28.6	22.2	23.8	25	100	155	0.85
12	19	3/4	18.6	19.8	31	32.5	26.2	27.8			225	1.05
16	25	1	25	26.4	38.5	40.9	34.1	35.7			300	1.40
20	32	1.1/4	31.4	33	49.2	52.4	43.2	45.6			380	2.20
24	38	1.1/2	37.7	39.3	55.6	54.8	49.6	52			450	2.75
32	51	2	50.4	52	68.3	67.5	62.3	64.7			600	3.50

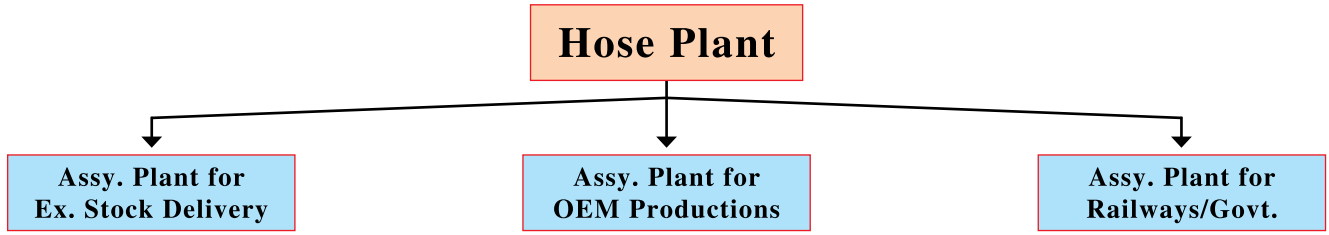
DROP IN PRESSURE DURING HYDRAULIC OPERATION

Pressure drop or decrease in outlet/end pressure signifies the difference between the pressure of a hydraulic fluid when it enters through a hydraulic hose assembly and at the point it leaves the assembly through the other end-which might be lesser due to various reasons as follows :

FRICTION	:	It generates as the fluid moves with contact upon/against the inside walls of the hose assembly.
NATURE OF FLUID	:	Behaviour under pressure differs with the fluid type. Thicker fluids generate more friction and may cause greater pressure drop.
TEMPERATURE OF THE FLUID	:	Fluids turn thinner with the increase of the temperature resulting a smoother movement.
LENGTH OF THE HOSE ASSEMBLY	:	The length of the hose assy, is inversely proportional with the pressure i.e. the longer surface consists of more area of friction, hence responsible for greater pressure drop.
INTERNAL DIAMETER (I.D.) OF THE HOSE	:	At a constant flow rate, decrease-in-hose ID affects the velocity of fluids. As the higher velocity produces a considerable decrease in pressure, so a large ID hose would be helpful for less pressure drop.
DESIGN OF ADAPTOR & COUPLINGS	:	Change in orientation and/or bore design (like in 45°, 90° elbows etc.) may result in higher pressure drop.
FLOW RATE	:	Variation in flow rates affect the pressure negatively in same size (ID & Length) hose.

SALIENT FEATURES

- Only Hose manufacturer in India having in-house facility to manufacture both Hoses and End Fittings.
- Latest Manufacturing Technology and Process Control.
- Hose manufacturer approved by DGMS - Underground Mining ATEX certified CE Marked Petroleum Gasoline Hoses.
- Wide network and distribution Centers having offices in the Major Metro Cities to provide speedy delivery and superior after sales services.
- Approved supplier to Indian Railways, EIL, BHEL, MECON, ONGC, Coal India Ltd. and various Original Equipment Manufacturers.
- One of the largest Installed Capacity to Manufacture Hydraulic Hoses in India of 2 Million Mtrs. per annum.
- India's first Hose manufacturer to manufacture SUPER HIGH PRESSURE MULTI SPIRAL HOSES rated up to 6000 PSI conforming to SAE and DIN standards.
- Only manufacturer to produce Wire Braided Hoses upto 4″ ID and provide crimped assemblies.
- Only manufacturer to offer hoses and hose assemblies under one roof resulting in lower costs and better quality.



Raw material procured from the best in the world. Rubber from Dehra. Reinforcment wire from Bekaert, Belgium. Chemicals from Bayer and ICI.

Worlds most renowned machinery. Rockwell Spiral Winder (USA). Braiders from Magnatech (USA).

Modern and well equipped Laboratory including the latest Rheometer MDR 2000 Ozone, Cold Chamber, Abrasion.

Hose & Assemblies validation through Life Test on Impulse Pressure Test Machine.

Hose Plant built over a land area of 1,72,000 sq. ft with built up area of 75,000 sq.ft.

DECIMAL AND MILLIMETER EQUIVALENTS OF FRACTIONS

Inches		
Fractions	Decimals	Millimeters
1/64	.015625	.397
1/32	.03125	.794
3/64	.046875	1.191
1/16	.0625	1.588
5/64	.078125	1.984
3/32	.09375	2.381
7/64	.109375	2.778
1/8	.125	3.175
9/64	.140625	3.572
5/32	.15625	3.969
11/64	.171875	4.366
3/16	.1875	4.763
13/64	.203125	5.159
7/32	.21875	5.556
15/64	.234375	5.953
1/4	.250	6.350
17/64	.265625	6.747
9/32	.28125	7.144
19/64	.296875	7.541
5/16	.3125	7.938
21/64	.328125	8.334
11/32	.34375	8.731

Inches		
Fractions	Decimals	Millimeters
23/64	.359375	9.128
3/8	.375	9.525
25/64	.390625	9.922
13/32	.40625	10.319
27/64	.421875	10.716
7/16	.4375	11.113
29/64	.453125	11.509
15/32	.46875	11.906
31/64	.484375	12.303
1/2	.500	12.700
33/64	.515625	13.097
17/32	.531625	13.494
35/64	.546875	13.891
9/16	.5625	14.288
37/64	.578125	14.684
19/32	.59375	15.081
39/64	.609375	15.478
5/8	.625	15.875
41/64	.640625	16.272
21/32	.65625	16.669
43/64	.671875	17.06

Inches		
Fractions	Decimals	Millimeters
11/16	.6875	17.463
45/64	.703125	17.859
23/32	.71875	18.256
47/64	.734375	18.653
3/4	.750	19.050
49/64	.765625	19.447
25/32	.78125	19.844
51/64	.796875	20.241
13/16	.8125	20.638
53/64	.828125	21.034
27/32	.84375	21.431
55/64	.859375	21.828
7/8	.875	22.225
57/64	.890625	22.622
29/32	.90625	23.019
59/64	.921875	23.416
15/16	.9375	23.813
61/64	.953125	24.209
31/32	.96875	24.606
63/64	.984375	25.003
1	1.000	25.400

METRIC (SI) - U.S. UNITS FOR FLUID POWER HOSES

The following conversions are based on information taken from ASTM (American Society for Testing and Materials) Handbook E380-72.)

Quantity	Customary U.S. Unit	SI Unit	Conversion From U.S. to SI Units	Conversion SI to U.S. Units
Area	Square Inch (in^2)	Square Metre (m^2)	(in^2) x ($6{,}4516 \times 10^{-4}$)(m^2)	(m^2) x 1550.003 = (in^2)
Force	Pound (lb_f)	Newton (N)	(lb_f) x 4.4482 = (N)	(N) x (2.2481×10^{-1}) = (lb_f)
Frequency	Cycles/Second (cps)	Hertz (H_z)	1 (cps) = 1 (H_z)	1 (H_z) = 1 (cps)
Length	Inch (in)	Metre (m)	(in) x (2.540×10^{-2}) = (m)	(m) x 39.370 = (in)
Mass	Pound (lb_m)	Kilogram (kg)	(lb_m) x 0.4536 = (kg)	(kg) x 2.2046 = (lb_m)
Power	Electric Horsepower (HP)	Watt (W)	(HP) x (7.460×10^2) = (W)	(W) x (1.3405×10^{-3}) = (HP)
Pressure	Pounds/Sq In (psi)	Newtons/Sq Metre (N/m^2)	(psi) x (6.8948×10^3) = (N/m^2)	(N/m^2) x (1.4504×10^{-4}) = (psi)
		(Non-Preferred Conversions)		
	(psi)	Mega Pascal (MPa)	(psi) x (6.8948×10^{-3}) = (Mpa)	(Mpa) x 145 (psi)
	(psi)	Bar (Bar)	(psi) x (6.8948×10^{-2}) = (Bar)	(Bar) x (1.4504×10^{1}) = (psi)
	(Bar)	(N/m^2)	(Bar) x 100,000 = (N/m^2)	(N/m^2) x (1.00×10^{-5}) = (Bar)
Temperature	Degrees Fahrenheit (°F)	Degrees Celsius (°C)	(°F –32 ÷ 1.8 = (°C)	(°C x 1.8) + 32 = (°F)
Torque	Pound-Inch (lb_f-in)	Newton-Metres (N-m)	(lb_f-in) x (1.1298×10^{-1}) = (N-m)	(N-m) x 8.8507 = (lb_f-in)
Volume	US Gallon (Gal)	Cubic Metre (m^3)	(Gal) x (3.7854×10^{-3}) = (m^3)	(m^3) x (2.6417×10^2) = (Gal)
		(Non-Preferred Conversions)		
		Litre (l)	(Gal) x 3.7854 = (l)	(l) x (2.6417×10^{-1}) = (Gal)
Work	Foot-Pound ($ft\text{-}lb_f$)	Joule (J)	($ft\text{-}lb_f$) x (1.3558) = (J)	(J) x (7.3756×10^{-1}) = ($ft\text{-}lb_f$)

SELECTION OF HOSE & FITTINGS

Fluid compatibility

This chart indicates the fitting materials and inner tube compatibility for the fluid to be conveyed. It is intended for use as a guide only and is not a guarantee. Final selection of the proper hose style is further dependent on pressure, fluid and ambient temperature, concentration of agent, intermittent or continuous exposure.

NOTE : Rubber covered hose styles for use with gases above 250 psi must be perforated. Spiral hose constructions should not be perforated or used with gases above 250 psi.

Caution : ***These recommendations are intended as a guide only. Many factors such as concentration, fluid and ambient temperature, pressure, duration of exposure, etc. have a bearing on the suitability of any hose or end fitting material for a specific application.***

Use the chart as follows :

1. Locate the fluid to be carried.
2. Select suitability of hose style and fitting material.
3. Located hose part number under 1, 2, 3, 4 or 5 in chart below.
4. Check hose specifications on respective catalogue pages.

Resistance Rating Key

E = EXCELLENT
G = GOOD
C = CONDITIONAL
U = UNSATISFACTORY

Agent to be carried	Synthetic rubber 1	Synthetic rubber 2	Teflon® 3	CPE 4	Steel	Brass	Stainless Steel	Aluminium
	HOSE				FITTING			
Acetate Solvents, Crude	C	U	E	U	U	U	E	G
Acetate Solvents, Pue	C	U	E	U	U	U	E	G
Acetate Acid, dilute (10%)	U	U	E	U	U	U	E	E
Acetic Acid, glacial	U	U	E	U	U	U	E	E
Acetic Acid, Vapours	U	U	U	U	U	U	U	U
Acetone	E	U	E	G	E	E	E	E
Acetylene	E	U	E	G	E	G	E	E
Air	E	E	E	E	E	E	E	E
Air(Hot)(to200°F)	E	C	E	G	E	E	E	E
Alcohols	E	E	E	E	C	E	E	G
Aluminium Chloride	U	U	U	U	U	U	U	U
Aluminium Fluride 20%	U	U	U	U	U	U	U	U
Aluminium Sulphate	U	U	E	U	U	C	G	C
Alums	U	U	E	U	U	C	G	C
Ammonia Gas, Cold	U	U	U	U	E	U	E	E
Ammonia Gas, Hot	U	U	U	U	E	U	E	C
Ammonia, Liquid (Anhydrous)	U	U	U	U	E	U	E	E
Ammonia, Aqueous	U	U	U	U	E	U	E	E
Ammonium Chloride	E	E	E	E	G	C	G	U
Ammonium Hydroxide	E	G	G	C	G	U	G	E
Ammonium Nitrate	E	E	E	E	E	U	E	C
Ammonium Phosphate	U	U	E	U	U	U	G	C
Ammonium Sulphate	E	E	E	E	G	C	G	U
Amyl Acetate	G	U	E	U	C	E	E	E
Amyl Alcohol	E	E	E	E	G	G	G	C
Aniline, Aniline Oil	E	U	E	G	E	U	E	C
Aniline Dyes	U	U	G	U	U	C	E	C
Asphalt up to 180°F	U	G	E	E	E	G	E	C
Barium Chloride	E	E	E	E	G	G	G	C
Barium Hydroxide	E	E	G	E	G	U	E	U
Barium Sulphide	U	U	E	U	U	U	E	U
Beat Sugar Liquors	E	E	E	E	E	G	E	E
Benzene, Benzol	U	U	E	C	E	E	G	E
Black Sulphate Liquor	E	E	E	G	E	C	E	U
Blast Furnace Gas	U	U	E	E	E	C	E	U

Agent to be carried	Synthetic rubber 1	Synthetic rubber 2	Teflon® 3	CPE 4	Steel	Brass	Stainless Steel	Aluminium
	HOSE				FITTING			
Borax	E	E	E	E	U	G	G	U
Boric Acid	U	U	E	U	U	C	E	G
Brine	E	E	E	E	U	G	G	U
Bromine	U	U	U	U	U	C	U	U
Butyl Acetate	G	U	E	G	E	E	E	E
Butyl Alcohol, Butanol	E	E	E	E	E	G	E	E
Calcium Bisulphite	U	U	E	U	U	U	G	C
Calcium Chloride	E	E	E	E	G	G	G	C
Calcium Hydroxide	U	E	E	E	E	E	E	U
Calcium Hypochlorite	E	C	E	E	C	C	G	U
Caliche Liquors	E	E	E	E	E	E	E	E
Cane Sugar Liquors	E	E	E	E	E	G	E	E
Carbolic Acid Phenol	U	C	E	E	U	E	E	E
Carbon Dioxide	E	U	E	E	E	E	E	E
Carbon Disulphide	U	U	E	U	E	G	E	E
Carbon Monooxide (hot)	C	C	E	E	G	C	G	G
Carbon Tetrachloride	U	U	E	C	C	G	G	C
Carbonic Acid	U	U	E	U	U	U	E	G
Castor Oil	E	E	E	E	E	E	E	E
Cellosolve Acetate	U	U	E	U	U	U	E	G
China Wood Oil (Tung)	U	G	E	G	E	G	E	E
Chlorinated Solvents	U	U	E	C	E	E	G	U
Chlorine (Dry)	U	U	U	U	E	G	G	G
Chlorine (Wet)	U	U	U	U	U	U	E	U
Chloreoacetic Acid	U	U	U	U	U	U	U	U
Chloroform	U	U	U	U	U	U	E	U
Chlorosulphonic Acid	U	U	E	U	C	U	E	U
Chromic Acid (30%)	U	U	E	U	U	U	U	C
Citric Acid 10%	U	U	E	U	U	C	G	G
Copper Chloride	U	U	U	U	U	U	U	U
Copper Sulphate	U	U	E	U	U	U	G	U
Cottonseed Oil	E	G	E	E	E	E	E	E
Creosote	U	E	E	E	E	C	E	E
Diesel Oil Light	U	G	E	E	E	E	E	E
DowthermAand E	U	U	E	U	G	U	E	E

Agent to be carried	Synthetic rubber 1	Synthetic rubber 2	Teflon® 3	CPE 4	Steel	Brass	Stainless Steel	Aluminium
	HOSE				FITTING			
Ethers	C	C	E	G	E	E	E	E
Ethyl Acetate	G	U	E	G	E	E	E	C
Ethyl Alcohol	E	E	E	E	E	E	E	G
Ethyl Cellulose	G	G	E	G	E	G	G	G
Ethyl Chloride	E	G	E	U	G	G	C	C
Ethylene Dichloride	U	U	E	U	U	E	U	U
Ethylene Glycol	E	E	E	E	E	G	E	E
Ferric Chloride	U	U	U	U	U	U	U	U
Ferric Sulphate	U	U	E	U	U	U	G	U
Ferrous Salt Solutions	U	U	U	U	U	U	U	U
Formaldehyde	E	G	E	E	G	G	E	G
Formic Acid	U	U	E	U	U	C	E	C
Freon12	E	C	C	C	E	G	E	G
Freon 13	E	C	C	C	E	G	E	G
Feon 22	E	C	C	C	E	G	E	G
Fuel Oil	E	G	E	E	E	E	E	E
Furfural	E	U	E	E	E	G	E	E
Gasoline	U	E	E	E	E	E	E	E
Glue	C	C	C	C	E	C	E	E
Glycerin, Glycerol	E	E	E	E	E	G	E	E
Grease Petro	U	E	E	E	E	E	E	E
Green Sulphate Liquor	U	U	E	U	U	U	E	U
Guinness (Draught)								
Heptane	U	E	E	E	E	E	E	E
Hexane	U	E	E	G	E	E	E	E
Hydraulic Fluids & Libricating Oils								
Straight Petroleum Base	U	E	E	E	E	E	E	E
Water & Petroleum Oil Emulsion (FR)	U	E	E	E	C	E	E	G
Water & Glycol Solution	E	E	E	E	E	G	E	G
Straight Phosphate-Ester (FR)	E	U	E	E	E	E	E	E
Phosphate-Ester Petroleum Oil \								
Blend (FR)	U	U	U	E	E	E	E	E
Ester Blend (MIL-L-007808)	U	G	E	E	E	E	E	E
Silicone Oils	E	E	E	E	E	E	E	E
Hydrobromic Acid	U	U	U	U	U	C	U	U
Hydrochloric Acid, cold	U	U	U	U	U	C	U	U
Hydrochloric Acid, hot	U	U	U	U	U	C	U	U
Hydrocyanic Acid	U	U	G	U	C	U	G	E
Hydrofluoric Acid, cold	U	U	U	U	U	C	U	U
Hydrofluoric Acid, hot	U	U	U	U	U	C	U	U
Hydrofluosilicic Acid	U	U	U	U	U	C	U	U
Hydrogen	C	C	C	C	C	C	C	C
Hydrogen Peroxide (dilute)	U	U	E	U	U	U	G	E
Hydrogen Peroxide (concentrated)	U	U	E	U	U	U	G	E
Hydrogen Sulphide	U	U	E	U	C	C	G	G
Kerozene	U	E	E	E	E	E	E	E
Lacquer	U	U	E	C	U	E	E	E
Lacquer Solvents	U	U	E	C	U	E	E	E
Lactuc Acid	U	U	E	U	U	C	G	U
Linseed Oil	E	E	E	E	E	E	E	E
Magnesium Chloride	E	E	E	E	G	C	C	U
Magnesium Hydroxide	E	G	E	E	G	G	G	U
Magnesium Sulphate	E	E	E	E	E	G	E	G
Murcuric Chloride	U	U	U	U	C	U	C	U
Mercury	E	E	E	E	E	U	E	U
Methyl Alcohol, Methanol	E	E	E	E	U	E	E	G
Methyl Chloride, cold	C	C	E	C	E	E	E	U
Methyl Ethyl Ketone	G	U	E	G	G	G	G	G
Methyl Isopropyl-Ketone	U	U	U	U	C	C	C	C
Mineral Oil	U	E	E	E	E	E	E	E
Naptha	U	G	E	E	E	G	G	E
Napthalene	U	U	E	G	E	G	G	G
Nickel Chloride	U	U	U	U	U	U	C	U
Nickel Sulphate	U	U	E	U	U	C	E	C

Agent to be carried	Synthetic rubber 1	Synthetic rubber 2	Teflon® 3	CPE 4	Steel	Brass	Stainless Steel	Aluminium
	HOSE				FITTING			
Nitric Acid, crude	U	U	E	U	U	U	G	U
Nitric Acid 10%	U	U	E	U	U	U	G	U
Nitric Acid 70%	U	U	E	U	U	U	G	U
Nitrobenzene	U	U	E	C	E	U	E	U
Oleiuc Acid	U	U	E	U	U	C	G	U
Oleum Spirits	U	G	E	E	E	E	E	E
Oxalic Acid	U	U	G	U	C	C	G	G
Oxygen	U	U	C	U	U	E	E	E
Paint	C	U	E	C	E	E	G	E
Palmitic Acid	G	E	E	E	E	C	E	G
Perchlorethylene	U	U	E	C	G	U	G	G
Petroleum Ether	U	E	E	E	E	E	E	E
Petroleum Naptha	U	E	E	E	E	E	E	E
Petroleum Oil (see Hydraulic Fluids)								
Phosphoric Acid (Commercial)	U	U	E	U	U	U	G	U
Pitric Acid, Molten	U	U	U	U	U	U	U	U
Picric Acid, Solution	U	U	E	U	C	U	G	C
Potasskum Chloride	E	E	E	E	E	C	E	U
Potassium Cyanide	E	E	E	E	E	U	G	U
Potassium Hydroxide	U	U	E	U	C	U	E	U
Potassium Sulphate	E	E	E	E	G	G	E	G
Perstone	E	E	E	E	E	G	E	E
Sewage	C	E	E	E	C	C	C	C
Soap Solution	E	E	E	E	E	E	E	U
Soda Ash, Sodium Carbonate	E	E	E	E	E	G	E	U
Sodium Bisulphate	U	U	E	U	U	C	C	U
Sodium Chloride	E	E	E	E	G	C	G	U
Sodium Cyanide	E	E	E	E	E	U	E	U
Sodium Hydroxide 50%	E	U	E	C	E	U	E	U
Sodium Hypochlorite	U	U	U	U	U	U	U	U
Sodium Nitrate	E	G	E	E	E	C	E	E
Sodium Perborate	U	U	E	U	C	C	E	U
Sodium Peroxide	U	U	E	U	C	C	G	E
Sodium Phosphates	U	U	E	U	U	C	G	E
Sodium Silicate	E	E	E	E	G	C	E	U
Sodium Sulphate	E	E	E	E	E	G	E	E
Sodium Sulphide	E	E	E	E	E	U	G	E
Sodium Triosulphate "Hypo"	E	E	E	E	C	U	G	G
Soybean Oil	E	E	E	E	E	E	E	E
Stannic Chloride	U	U	U	U	U	U	U	U
Steam up to 250°F	C	C	E	C	E	E	E	G
Stearic Acid	G	G	E	E	C	C	E	E
Sulphur	G	C	E	E	E	U	E	E
Sulphur Chloride	U	C	E	E	C	U	C	U
Sulphur Dioxide	C	C	E	U	G	C	G	C
Sulphur Trioxide	C	C	E	E	E	E	C	C
Sulphuric Acid-10% Cold	U	U	U	U	U	U	U	U
Sulphuric Acid-10% Hot	U	U	U	U	U	U	U	U
Sulphuric Acid-75% Cold	U	U	U	U	U	U	U	U
Sulphuric Acid-75% Hot	U	U	U	U	U	U	U	U
Sulphuric Acid-95% Cold	U	U	U	U	U	U	U	U
Sulphuric Acid-95% Hot	U	U	U	U	U	U	U	U
Sulphuric Acid-Fuming	U	U	E	U	G	U	G	G
Sulphurous Acid	U	U	E	U	C	U	G	G
Tannic Acid	C	C	E	U	U	C	E	C
Tar	U	C	E	E	E	G	E	E
Tartaric Acid	U	U	E	U	U	C	E	C
Toluene	U	U	E	C	E	E	E	E
Trichlorethylene	U	U	E	C	C	E	E	E
Turpentine	U	C	E	E	G	G	G	G
Varnish	U	U	E	C	E	G	E	E
Water	E	E	E	E	C	C	E	G
Xylene	U	C	E	C	E	E	G	E
Zinc Chloride	U	U	E	U	C	U	U	U
Zinc Sulphate	U	U	E	U	C	C	G	C

SHORT DESCRIPTION OF NUTS (JIC)

NAME	HEX	LENGTH	ID (APPX.)
7/16" - 20 Plain	14 MM	16 MM	9.5 MM
7/16" - 20 C.T.	19 MM	16 MM	9.5 MM
1/2" - 20 Plain	16 MM	17 MM	11.1 MM
1/2" - 20 C.T.	17 MM	17 MM	11.1 MM
9/16" - 16 Plain	18 MM	18.3 MM	12.5 MM
9/16" - 16 C.T.	22 MM	18.3 MM	12.5 MM
5/8" - 18	19 MM	18.3 MM	14.1 MM
1.1/16" - 16	22 MM	17 MM	15.4 MM
3/4" - 16 Plain	24 MM	21.5 MM	17 MM
3/4" - 16 C.T.	24 MM	21.5 MM	17 MM
13/16" - C.T.	24 MM	21.5 MM	18.6 MM
7/8" - 14 Plain	25.4 MM	25 MM	19.9 MM
7/8" - 14 C.T.	27 MM	25 MM	19.9 MM
1" - 16	32 MM	18 MM	23.4 MM
1.1/16" - 12 Plain	32 MM	26 MM	24.3 MM
1.1/16" - C.T.	32 MM	26 MM	24.3 MM
1.3/16" - 12 C.T.	36 MM	28 MM	27.5 MM
1.5/16" - 12 Plain	38 MM	28.5 MM	30.7 MM
1.5/16" - 12 Plain	41 MM	28.5 MM	30.7 MM
1.5/16" - 12 C.T.	41 MM	28.5 MM	30.7 MM
1.7/16" - 12 C.T.	41 MM	28 MM	34.5 MM
1.5/8" - 12	50 MM	31 MM	39.3 MM
1.7/8" - 12	56 MM	36 MM	45.6 MM
2.1/2" - 12	73 MM	41 MM	61.5 MM
3" - 12		45 MM	74.2 MM

* C.T. Crimp Type

B.S.P. NUTS

NAME	HEX	LENGTH	ID (APPX.)
1/4" B.S.P	19 MM	19.5 MM	11.5 MM
1/4" B.S.P	19 MM	16 MM	11.5 MM
1/4" B.S.P	19 MM	16 MM	11.5 MM
3/8" B.S.P	22 MM	14.5 MM	15 MM
3/8" B.S.P	22 MM	19 MM	15 MM
3/8" B.S.P	22 MM	19 MM	15 MM
1/2" B.S.P	27 MM	14.5 MM	18.6 MM
1/2" B.S.P	27 MM	21.5 MM	18.6 MM
1/2" B.S.P	27 MM	21 MM	18.6 MM
5/8" B.S.P	30 MM	23 MM	20.6 MM
5/8" B.S.P	30 MM	23 MM	20.6 MM
5/8" B.S.P	27 MM	17.5 MM	20.6 MM
5/8" B.S.P	28.5 MM	30 MM	20.6 MM
3/4" B.S.P	32 MM	26 MM	24.1 MM
3/4" B.S.P	32 MM	17.5 MM	24.1 MM
3/4" B.S.P	32 MM	23 MM	24.1 MM
3/4" B.S.P	36 MM	26 MM	24.1 MM
1" B.S.P	41 MM	28 MM	30.3 MM
1" B.S.P	38 MM	17.5 MM	30.3 MM
1" B.S.P	41 MM	28 MM	30.3 MM
1.1/4" B.S.P	50.8 MM	20 MM	39 MM
1.1/4" B.S.P	50.8 MM	28 MM	39 MM
1.1/4" B.S.P	50 MM	27 MM	39 MM
1.1/2" B.S.P	56 MM	22 MM	44.9 MM
1.1/2" B.S.P	56 MM	30.5 MM	44.9 MM
1.1/2" B.S.P	56 MM	30.5 MM	44.9 MM
2" B.S.P	70 MM	35 MM	56.7 MM

METRIC NUTS

NAME	HEX	LENGTH	ID (APPX.)
12 x 1.5	17 MM	15 MM	10.5 MM
14 x 1.5	19 MM	14.5 MM	12.5 MM
14 x 1.5	19 MM	20 MM	12.5 MM
16 x 1.5	21 MM	17 MM	14.5 MM
16 x 1.5	22 MM	21 MM	14.5 MM
18 x 1.5	24 MM	21 MM	16.5 MM
18 x 1.5	22 MM	17 MM	16.5 MM
20 x 1.5	24 MM	21 MM	18.5 MM
22 x 1.5	27 MM	20 MM	20.5 MM
22 x 1.5	27 MM	24 MM	20.5 MM
24 x 1.5	32 MM	26 MM	22.5 MM
24 x 1.5	30 MM	21 MM	22.5 MM
24 x 1.5	30 MM	21 MM	22.5 MM
26 x 1.5	32 MM	17.5 MM	24.5 MM
26 x 1.5	32 MM	21 MM	24.5 MM
27 x 1.5	36 MM	28 MM	25.5 MM
27 x 2	32 MM	26 MM	25 MM
30 x 1.5	36 MM	31 MM	28.5 MM
30 x 1.5	36 MM	21 MM	28.5 MM
30 x 1.5	36 MM	23 MM	28.5 MM
30 x 2	36 MM	23 MM	28 MM
33 x 1.5	41 MM	36 MM	31.5 MM
33 x 1.5	41 MM	28 MM	31.5 MM
33 x 2	41 MM	30 MM	31 MM
36 x 2	46 MM	28 MM	34 MM
36 x 1.5	46 MM	28 MM	34.5 MM
36 x 1.5	46 MM	36 MM	34.5 MM
38 x 1.5	46 MM	20.5 MM	36.5 MM
45 x 1.5	56 MM	22 MM	43.5 MM
45 x 2	56 MM	30.5 MM	43 MM
48 x 2	56 MM	30.5 MM	46 MM
42 x 2	50 MM	29.5 MM	40 MM
42 x 1.5	50 MM	43 MM	40.5 MM
52 x 1.5	60 MM	22 MM	50.5 MM
52 x 2	60 MM	30 MM	50 MM
65 x 2	75 MM	25 MM	63 MM
76 x 2			74 MM
78 x 2		25 MM	76 MM

In case of nut the inner dia must be carefully noted and thread gauge must be used to identify the nut. As for example, if you take 1.1/16" – 12 Nut, 3/4" - B.S.P. nut and 26 x 1.5 nut in the same design it will be difficult to identify the nut without thread gauge all are made from 32 mm Hex, and ID is near about same but thread per inch will differ with each other.

CAUTION

Following points are to be checked before assembly :

A. Length of the nut and thread length of nut from nut head to inside tube head colled open thread must be checked carefully, otherwise fitment problem may be arrise.

B. Front Side neck bore of the socket along with undercut dia of the insert where it will be gripped must be matched with the crimp pressure, otherwise the end fitting may come out from the assembly or may be broken from that point.

C. Reinforcement dia and socket inner dia (ID) must be checked with great care because if it does not follow norms then the assembly will have defect resulting into poor performance.

D. Wall Thickness of the undercut position of endfittings must be checked as there is chance of breaking from that position.

E. Orientation must be maintained exactly as per requirement other wise at the time of fitting the assembly will be twisted and will fail early.

F. Length of the assembly must be maintined carefully. It may be hose length, tube to tube length, or end to end length. In case of short or excess length it can't be fitted in the equipment.

G. Before cutting, a hose length must be checked carefully. In respect of socket to socket length tube to tube length, fitting end to fitting end length.

H. Hose fitting are Zinc plated thinkness of plating will be minium 15 micron.

COMMON FITTINGS IN RESPECT OF HOSES

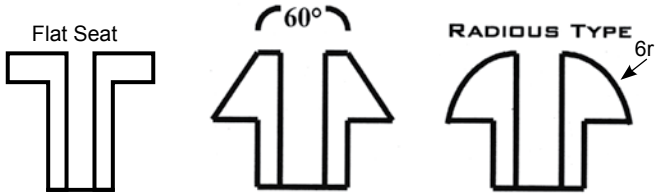
HOSE	U.N.F.	B.S.P.	METRIC
1/4"	7/16" - 20 1/2" - 20 9/16" - 18	1/4" - B.S.P. 3/8" - B.S.P.	14 X 1.5 16 X 1.5 18 X 1.5
5/16"	1/2" - 20 5/8" - 18 3/4" - 16	3/8" - B.S.P. 1/4" - B.S.P.	16 X 1.5 18 X 1.5
3/8"	9/16" - 18 3/4" - 16	3/8" - B.S.P. 1/2" - B.S.P.	18 X 1.5 20 X 1.5 22 X 1.5
1/2"	3/4" - 16 7/8" - 14 1.1/16" - 12 13/16" - 16	1/2" - B.S.P. 5/8" - B.S.P. 3/4" - B.S.P.	22 X 1.5 24 X 1.5 26 X 1.5
5/8"	1.1/16" - 12 1.5/16" - 12 1.3/16" - 12	5/8" - B.S.P. 3/4" - B.S.P.	24 X 1.5 26 X 1.5 27 X 2 30 X 1.5 30 X 2
3/4"	1.1/16" - 12 1.5/16" - 12 1.3/16" - 12	3/4" - B.S.P. 1" - B.S.P.	30 X 1.5 30 X 2 36 X 2 33 X 2 36 X 1.5
1"	1.5/16" - 12 1.7/16" - 12 1.5/16" - 12	1" - B.S.P. 1.1/4" - B.S.P.	33 X 1.5 36 X 1.5 42 X 2 45 X 1.5 38 X 1.5
1.1 X 4"	1.5/8" - 12 1.11/16" - 12 1.7/8" - 12	1.1/4" - B.S.P. 1.2/2" - B.S.P.	45 X 2 48 X 2 52 X 2

HOSE	U.N.F.	B.S.P.	METRIC
1.1 X 2"	1.7/8" - 12	1.1/2" - B.S.P. 2" - B.S.P.	42 X 1.5 52 X 1.5 52 X 2
2"	2.1/2" - 12	2" - B.S.P. 2.1/2" - B.S.P.	65 X 2 68 X 2

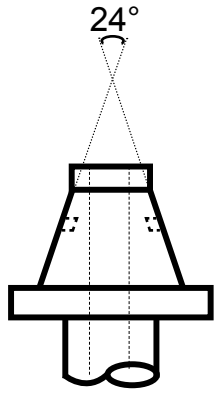
In case of U.N.F. fittings seating point of insert is generally found inside

74°/37°, 90°/45° or flat seat type.

In case of B.S.P. fittings it is generally found the seating point of the insert may be 60°/30° outside, spherical i.e. 6r radius and flat seat type.



In case of metric fittings the seating point of insert inside 60°/30° inverted for some Special machine, Ferul seat type and 'O' ring seat type tube angle will be 24° which in as per Garman Standard.



VERY IMPORTANT POINT

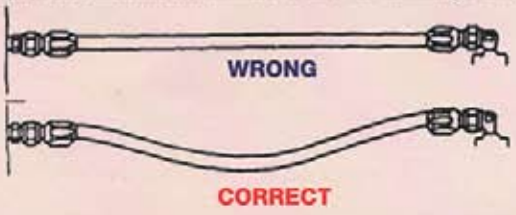
Before fitting every parts should be checked carefully.

As for example reinforncement dia i.e. wire od of the hose and ID of the socket along with under cut dia of the insert and front side bore of the socket must be checked carefully and it must be matched in each side. Difference between reinforcement dia and socket id must be checked as per manufacturer process, 0.5 mm difference between socket ID and reinforcement dia is allowed here. If crimp pressure is 2 mm over the socket then maximum difference between the socket front side bore and under cut dia of the insert will be 2 mm.

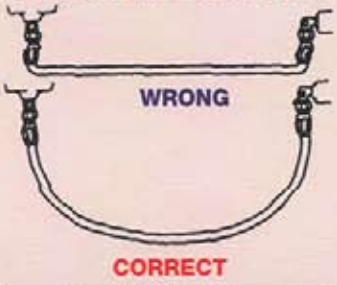
All assemblies must be tested at proof pressure with proper fluid and should be cleaned and then capped carefully before despatch.

CORRECT ASSEMBLY INSTALLATION

1. Under pressure, hose may change in length from – 4% to +2% (or 4%). So always provide sufficient slack in hose to allow for shrinkage or expansion.

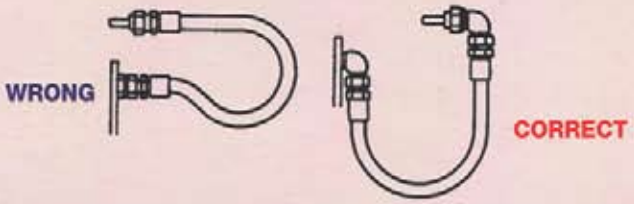


2. Do not use hose at bend radius less than the requirement min. bend radius. Provide sufficient length for a wide radius curve. To tight a bend prinches the hose and restricts the flow.

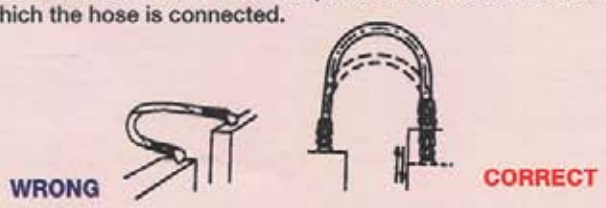


3. Do not install hose with a twist in it, because hose tends to be straightened under high operating pressure. This causes loosen of fitting out or even burst of hose at the point of strain

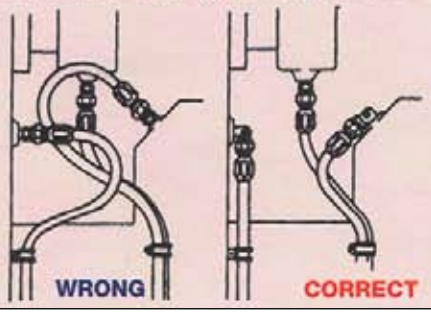
4. Where the radius falls below the required min. bend radius, an angle adapter must be used as below to avoid sharp bends in hose.



5. Hose must be bent in the same plane as the motion of the boss to which the hose is connected.



6. Obtain direct routing of hose through use of 45° and 90° adapters and fittings. Make appearance neater by avoiding excessive hose length.



FITTINGS


Square Adaptors

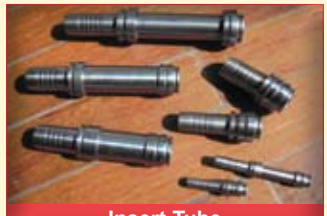

Quick Release Coupling


Fittings

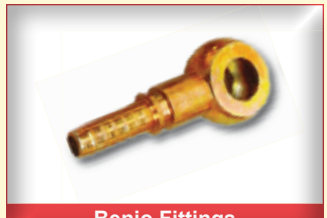

Male Fittings


Ferrule Sockets


Adaptors


Insert Tube


Female Fittings


Benjo Fittings


Split Flange Fittings

50 YEARS
SERVICE TO THE INDUSTRY

MANUFACTURER EXPORTER OF HOSES & HOSE ASSEMBLIES

Soni®

SONI RUBBER PRODUCTS LTD.

4, Princep Street, Kolkata - 700 072
Ph : 32930780, 22372691, 22377672, Fax : 91-33-2215-2925, 2221-5365
Email : marketing@soni.co.in, enquiry@sonigroup.com

Mumbai :
Tel. : 097304 38799
093314 33202
098920 27358
e-mail : mumbai@soni.co.in

Ahmedabad :
M : 9978404441
e-mail : ahmedabad@soni.co.in

Hyderabad :
M : 9030307878
e-mail : hyderabad@soni.co.in

AN ISO 9001 COMPANY

Website : www.sonigroup.com

Graphique International, Kolkata, 2017