

Medium/Low/High Pressure 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.



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# 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 inventory 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 :
  - Rheometric 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**

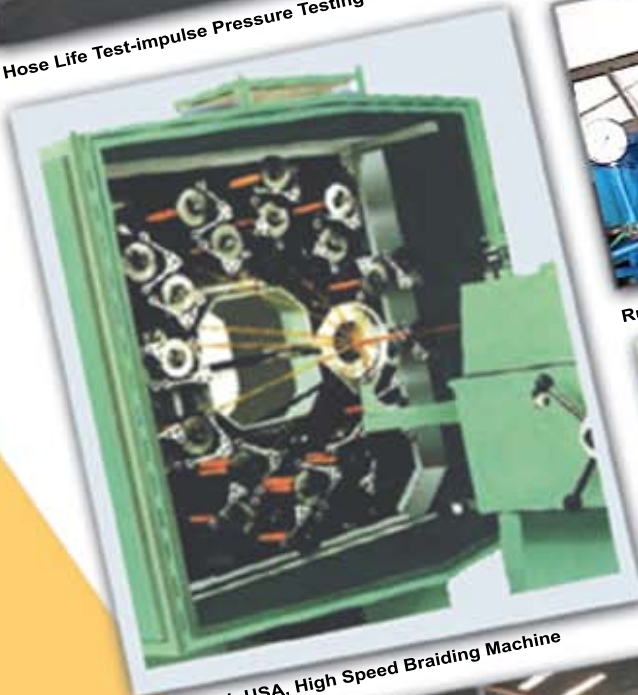
# PLANT & MACHINERY



Hose Life Test-impulse Pressure Testing



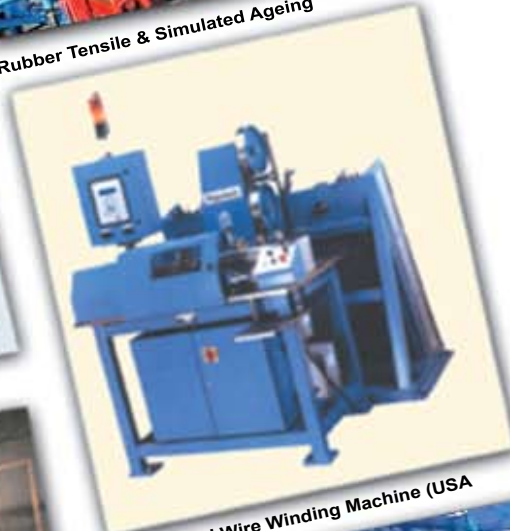
Rheometer



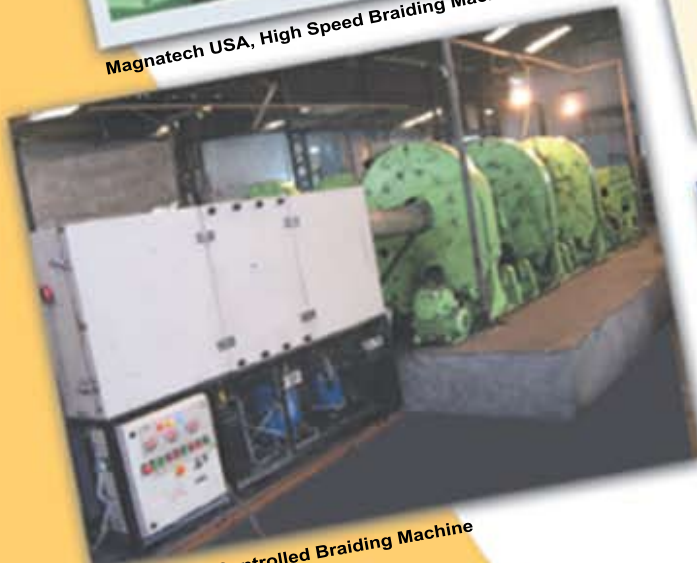
Magnatech USA, High Speed Braiding Machine



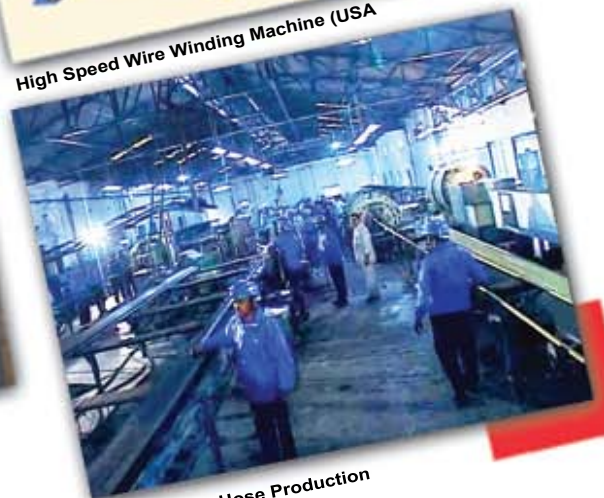
Rubber Tensile & Simulated Ageing



High Speed Wire Winding Machine (USA)

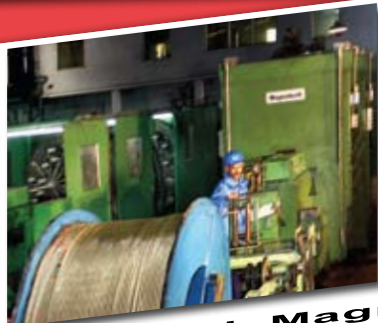


Temperature Controlled Braiding Machine



Long Length Hose Production

## 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-SAE 100 R1- 1 WIRE BRAIDED HYDRAULIC HOSE

**Specification** : SONI-SAE100 R1

**Application** : Medium Pressure Hydraulic Oil Lines, Fuel OH, Gasoline, Air and Water.

**Construction** : Tube : Black, Oil Resistant Synthetic Rubber,

Reinforcement : One ply braided High Tensile Steel Wire.

Cover : Oil Weather and abrasion resistant synthetic Rubber.

**Temperature** : – 40°F to +212°F, Impulse Cycles : 150,000

I.D.	HOSE SIZE	Type A O.D.	Type AT MaxOD	MAX WORKING PRESSURE		TESTING PRESSURE		MIN. BURSTING PRESSURE		MIN. BEND RADIUS
in	mm	mm	mm	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	in
3/16	4.8	13.5	12.5	3,000	210	6,000	420	12,000	845	3.1/2
1/4	6.4	16.7	14.1	2,750	195	5,500	380	11,000	775	4
5/16	7.9	18.3	15.7	2,500	175	5,000	315	10,000	705	4.1/2
3/8	9.5	20.6	18.1	2,250	160	4,500	315	9,000	630	5
13/32	10.3	21.4	18.9	2,250	160	4,500	315	9,000	630	5.1/2
1/2	12.7	23.8	21.5	2,000	140	4,000	280	8,000	560	7
5/8	15.9	27.0	24.7	1,500	105	3,000	210	6,000	420	8
3/4	19.0	31.0	28.6	1,250	90	2,500	175	5,000	350	9.1/2
7/8	22.2	34.1	31.8	1,125	79	2,250	158	4,500	316	11
1	25.4	39.3	36.6	1,000	70	2,000	140	4,000	280	12
1.1/4	31.8	47.6	44.8	625	45	1,250	90	2,500	175	16.1/2
1.1/2	38.1	54.0	52.0	500	35	1,000	70	2,000	140	20
2	50.8	76.6	65.9	375	26	750	52	1,500	104	25
*2.3/8	60.3	77.6	—	362	25	724	50	1,448	100	30
*2.1/2	63.5	83.6	—	362	25	724	50	1,448	100	30
*3	76.2	97.6	—	290	20	580	40	1,160	80	36
*3.1/2	90	107	—	220	15	440	30	1,160	60	42
*4	101.6	120.6	—	145	10	290	20	580	40	43.5

\* Not covered in SAE Spec.

## SONI MEDIUM PRESSURE HOSE DIN 20022 / EN 853-1

**Specification** : SONI-DIN 20022 1 ST/1 SN/EN 853

**Construction** : Inner Tube : Seamless extruded synthetic rubber of uniform thickness

Reinforcement : One high tensile steel wire braiding.

Cover : Anti-abrasive synthetic rubber, resistant of oils, fuels and weathering.

**Temperature** : – 40°F to +210°F with intermittent service up to + 250°F.

(– 40°C to +100°C with intermittent service upto 120°C).

**Application** : Hydraulic fluids, lubricating oils, naphtha gasoline.

Nominal Size I.D.	I.D. mm.		O.D. mm.		Diameter on braid mm.		Pressure bar		Min. bend. radius mm.	Weight Kg/m
			1 ST	1 SN			Working	Burst		
	min.	max.			max.	max.	min.	max.		
DN	min.	max.	max.	max.	min.	max.				
1/4	6.2	7	16.7	14.1	10.6	11.6	225	900	100	0.36
5/16	7.7	8.5	18.3	15.7	12.1	13.3	215	850	115	0.41
3/8	9.3	10.1	20.6	18.1	14.5	15.7	180	720	130	0.52
1/2	12.3	13.5	23.8	21.5	17.5	19.1	160	640	180	0.63
5/8	15.5	16.7	27	24.7	20.6	22.2	130	520	200	0.73
3/4	18.6	19.8	33	28.5	24.6	26.2	105	420	240	0.88
1	25	26.4	39.1	36.6	32.5	34.1	88	350	300	1.23
1.1/4	31.4	33	47.6	44.8	39.3	41.7	63	250	420	1.67
1.1/2	37.7	39.3	54	52.1	45.6	48	50	200	500	2.00
2	50.4	52	69.3	65.9	58.7	61.7	40	160	630	2.40



**Specification** : SONI-SAE 100 R2 AT/EW-8532SIV

**Application** : Medium Pressure Hydraulic Oil Lines, Fuel Oil, Gasoline, Air and Water.

**Construction** : Tube : Black, Oil Resistant Synthetic Rubber.

Reinforcement : Two ply braided High Tensile Steel Wire.

Cover : Oil Weather and abrasion resistant synthetic Rubber.

**Temperature** : - 40°F to +212°F, Impulse Cycles: 200,000

HOSE SIZE		Type A	Type	MAX		TESTING		MIN.		MIN.
I.D.		O.D.	AT	WORKING		PRESSURE		BURSTING		BEND
			O.D.	PRESSURE				PRESSURE		RADIUS
in	mm	mm	mm	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	in
3/16	4.8	16.7	14.1	5,000	350	10,000	705	20,000	1,405	3.1/2
1/4	6.4	18.3	15.7	5,000	350	10,000	705	20,000	1,405	4
5/16	7.9	19.8	17.3	4,250	300	8,500	600	17,000	1,195	4.1/2
3/8	9.5	22.2	19.7	4,000	280	8,000	560	16,000	1,125	5
1/2	12.7	25.4	23.1	3,500	245	7,000	490	14,000	985	7
5/8	15.9	28.6	26.3	2,750	195	5,500	385	11,000	775	8
3/4	19.0	32.5	30.2	2,250	160	4,500	315	9,000	630	9.1/2
7/8	22.2	35.7	33.4	2,000	140	4,000	280	8,000	560	11
1	25.4	40.9	38.9	2,000	140	4,000	280	8,000	560	12
1.1/4	31.8	52.4	49.6	1,625	115	3,250	230	6,500	455	16.1/2
1.1/2	38.1	58.7	56.0	1,250	90	2,500	175	5,000	350	20
2	50.8	71.4	68.6	1,125	79	2,250	158	4,500	315	25
*2.3/8	60.3	76	—	1,015	71	2,030	142	*4,060	284	30
2.1/2	63.5	84.1	—	1,000	70	2,000	140	4,000	280	30
*3	76.2	96.8	—	650	46	1,300	92	*2,600	184	36
*3.1/2	90	112.3 (A)	—	400	28	800	56	*1,600	112	42
*4	101.6	122.6 (A)	—	365	26	730	52	*1,460	106	43.5

\* Not covered in SAE Spec.



**Specification** : SONI-DIN 20022 2ST/2 SN/EN 853

**Construction** : Inner Tube : Seamless extruded synthetic rubber of uniform thickness.

Reinforcement : Two high tensile steel wire braiding.

Cover : Anti-abrasive synthetic rubber resistant of oils, fuels and weathering.

**Temperature** : - 40°F to +100°F with intermittent service upto 120°C).

Exceeds requirements of SAE 100 R2.

**Application** : Hydraulic fluids, lubricating oils, naphtha gasoline.

NOMINAL SIZE I.D.	I.D. MM.		O.D. MM.		DIAMETER ON BRAID MM.		PRESSURE BAR		MIN. BEND. RADIUS mm.	WEIGHT Kg/m.
			2 ST	2 SN			WORKING	BURST		
	DN	min.	max.	max.	max.	min.	max.	Bar max	Bar min	
3/6	4.6	5.4	16.7	14.1	10.6	11.6	415	1650	90	0.42
1/4	6.2	7	18.3	15.7	12.1	13.3	400	1600	100	0.49
5/16	7.7	8.5	19.9	17.3	13.7	14.9	350	1400	115	0.59
3/8	9.3	10.1	22.2	19.7	16.1	17.3	330	1320	130	0.70
1/2	12.3	13.5	25.4	23	19	20.6	275	1100	180	0.85
5/8	15.5	16.7	28.6	26.2	22.2	23.8	250	1000	200	1.00
3/4	18.6	19.8	32.6	30.1	26.2	27.8	215	850	240	1.20
1	25	26.4	40.9	38.9	34.1	35.7	165	650	300	1.64
1.1/4	31.4	33	52.4	49.5	43.3	45.7	125	500	420	2.58
1.1/2	37.7	39.3	58.8	55.9	49.6	52	90	360	500	3.17
2	50.4	52	71.4	68.6	62.3	64.7	80	320	630	4.00



**SONI 1 WIRE - HIGH TEMPERATURE HOSE**

**Specification :** SONI 1 Wire - High Temperature Hose

**Application :** Medium Pressure Hydraulic Oil Lines, Air and Water.

**Construction :** Tube : Black, Oil Resistant Synthetic Rubber,  
Reinforcement : One ply braided High Tensile Steel Wire.  
Cover : Oil Weather and abrasion resistant synthetic Rubber.

**Temperature :** - 25°C to +135°C



I.D.	HOSE SIZE		Type At Max OD	MAX WORKING PRESSURE		TESTING PRESSURE		MIN. BURSTING PRESSURE		MIN. BEND RADIUS
	in	mm	mm	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	in
3/16	4.8	1/2	16.7	3,000	210	6,000	420	12,000	845	3.1/2
1/4	6.4	5/8	18.3	2,750	195	5,500	380	11,000	775	4
5/16	7.9	11/16	19.8	2,500	175	5,000	315	10,000	705	4.1/2
3/8	9.5	25/32	22.2	2,250	160	4,500	315	9,000	630	5
13/32	10.3	13/16	25.4	2,250	160	4,500	315	9,000	630	5.1/2
1/2	12.7	29/32	28.6	2,000	140	4,000	280	8,000	560	7
5/8	15.9	1.1/32	32.5	1,500	105	3,000	210	6,000	420	8
3/4	19.0	1.3/16	35.7	1,250	90	2,500	175	5,000	350	9.1/2
7/8	22.2	1.5/16	36.6	1,125	79	2,250	158	4,500	316	11
1	25.4	1.1/2	44.8	1,000	70	2,000	140	4,000	280	12
1.1/4	31.8	1.13/16	52.0	625	45	1,250	90	2,500	175	16.1/2
1.1/2	38.1	2.1/16	65.9	500	35	1,000	70	2,000	140	20
2.1/4	57.2	2.5/8	75.6	375	26	750	52	1,500	104	25
*2.3/8	60.3	2.95	78.7	362	25	724	50	1,448	100	30
*2.1/2	63.5	3.12	82.3	362	25	724	50	1,448	100	30
*3	76.2	3.72	96.4	290	20	580	40	1,160	80	36
*3.1/2	88.9	4.15	112.3	220	15	440	30	880	60	42
*4	101.6	4.6	118.8	145	10	290	20	580	40	43.5

\* Not covered in SAE Spec.


**SONI 2 WIRE - HIGH TEMPERATURE HOSE**

**Specification :** SONI 2 Wire - High Temperature Hose

**Application :** Medium Pressure Hydraulic Oil Lines, Air and Water.

**Construction :** Tube : Black, Oil Resistant Synthetic Rubber.  
Reinforcement : Two ply braided High Tensile Steel Wire.  
Cover : Oil Weather and abrasion resistant synthetic Rubber.

**Temperature :** - 25°C to +135°C

I.D.	HOSE SIZE	Type AT OD	MAX WORKING PRESSURE		TESTING PRESSURE		MIN. BURSTING PRESSURE		MIN. BEND RADIUS
			Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	
in	mm	mm	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	in
3/16	4.8	16.7	5,000	350	10,000	705	20,000	1405	3.1/2
1/4	6.4	18.3	5,000	350	10,000	705	20,000	1405	4
5/16	7.9	19.8	4,250	300	8,500	600	17,000	1195	4.1/2
3/8	9.5	22.2	4,000	280	8,000	560	16,000	1125	5
1/2	12.7	25.4	3,500	245	7,000	490	14,000	985	7
5/8	15.9	28.6	2,750	195	5,500	385	11,000	775	8
3/4	19.0	32.5	2,250	160	4,500	315	9,000	630	9.1/2
7/8	22.2	35.7	2,000	140	4,000	280	8,000	560	11
1	25.4	38.9	2,000	140	4,000	280	8,000	560	12
1.1/4	31.8	49.6	1,625	115	3,250	230	6,500	455	16.1/2
1.1/2	38.1	56.0	1,250	90	2,500	175	5,000	350	20
2.1/4	57.2 (ID)	68.6	1,125	79	2,250	158	4,500	315	25
*2.3/8	60.3	80.0	1,015	71	2,030	142	4,060	284	30
*2.1/2	63.5	84.1	1,000	70	2,000	140	4,000	280	30
*3	76.2	98.1	650	46	1,300	92	2,600	184	36
*3.1/2	90	112.3	400	28	800	56	1,600	112	42
*4	101.6	122.6	365	26	730	52	1,460	106	43.5

\* Not covered in SAE Spec.



Approved  
by Director  
General  
of Mines  
Safety



## SONI-2 WIRE BRAIDED SUPER LOADER HOSE

**Specification** : SONI-2 Wire Braided Super Loader Hose

**Application** : High Pressure Hydraulic Oil Lines, Fuel Oil, Gasoline, Air and Water.

**Construction** : Tube : Black, Oil Resistant Synthetic Rubber.

Reinforcement : Two ply braided High Tensile Steel Wire.

Cover : Oil Weather and abrasion resistant Synthetic Rubber.

**Temperature** : – 40°C to +100°C Occasional use at +120°C.

HOSE SIZE				MAX WORKING PRESSURE		TESTING PRESSURE		MIN. BURSTING PRESSURE		MIN. BEND RADIUS
I.D.		O.D.								
in	mm	in	mm	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	in
3/8	9.5	25/32	22.2	4,800	330	9,600	660	19,200*	1,320	5.1
1/2	12.7	31/32	25.4	4,000	275	8,000	550	16,000*	1,100	5.9
5/8	15.9	1.3/32	26.3	4,000	275	8,000	550	15,000	1,100	7.5
3/4	19.0	1.1/4	30.2	4,000	275	8,000	550	16,000	1,100	9.0
1	25.4	1.1/2	38.9	3,600	250	7,200	500	14,400	1,000	11.8

## SONI BCS-174 DOUBLE WIRE BRAIDED HOSE

**Specification** : SONI BCS-174

**Construction** : Tube : Black oil resistant synthetic rubber.

Reinforcement : Two ply braided High Tensile Steel Wire.

Cover : Oil Weather and abrasion resistant Synthetic Rubber.

**Application** : High pressure Hose for Under ground Mining Equipment and powered roof support.

**Approvals** : (a) DGMS (Dhanbad).

(b) Central Mine Research Station, Dhanbad for fire resistance & antistatic test.

(c) Central Machine tools Institute, Bangalore for proof pressure test.

(d) R&D, Dighe, Pune (Ministry of Defence) for impulse test.

HOSE SIZE				WORKING PRESSURE	PROOF PRESSURE	BURST PRESSURE	MINIMUM BEND RADIUS
I.D.		O.D.					
in	mm	in	mm				
1/4	6.4	0.670	17.7	450	900	1800	4
3/8	9.5	0.860	22.1	380	760	1520	5
1/2	12.7	1.040	27.1	362	724	1448	6
3/4	19.0	1.325	34.3	276	552	1104	9
1	25.4	1.600	41.4	215	430	860	12
1.1/4	31.8	1.870	48.3	172	344	688	15
1.1/2	38.8	2.130	54.9	146	292	584	18
2	50.8	2.630	67.6	112	224	448	24

## SONI-SAE 100 R5 1 WIRE BRAIDED HYDRAULIC HOSE

**Specification :** SONI-SAE 100 R5

**Application :** Medium pressure Hydraulic Oil Lines, Fuel Oil, Gasoline, Air and Water.

**Construction :** Black, Oil Resistant Synthetic Rubber one braid cotton.

Reinforcement : One braid of High Tensile Steel Wire.

Cover : Oil and mildew resistant one ply braided cotton cover Impregnated with Synthetic Rubber.

In case of **R5 R Same** as above but instead of cotton, a synthetic Rubber cover is used.

**Working :** Impulse Cycles : Upto 7/8 inch 1,50,000. 1.1/8 inch & above. 1,00,000 cycles.

**Temperature :** – 40°F to +212° F

HOSE SIZE				MAXIMUM WORKING PRESSURE		TESTING PRESSURE		MINIMUM BURSTING PRESSURE		MINIMUM BEND RADIUS
I.D.		O.D.								
in	mm	in	mm	Psi	Kg./cm2	Psi	Kg./cm2	Psi	Kg./cm2	in
3/16	4.8	33/64	13.7	3000	210	6000	420	12000	845	3
1/4	6.4	37/64	15.3	3000	210	6000	420	12000	845	3.3/8
5/16	7.9	43/64	17.6	2250	160	4500	315	9000	630	4
13/32	10.3	49/64	20.0	2000	140	4000	280	8000	560	4.5/8
1/2	12.7	59/64	24.0	1750	125	3500	245	7000	490	5.1/2
5/8	15.9	1.5/64	28.0	1500	105	3000	210	6000	420	6.1/2
7/8	22.2	1.15/64	32.2	800	55	1600	110	3200	225	7.3/8
1.1/8	28.7	1.1/2	38.9	625	45	1250	90	2500	175	9
1.3/8	34.9	1.3/4	45.2	500	35	1000	70	2000	140	10.1/2
1.13/16	46.0	2.7/32	57.6	350	25	700	50	1400	100	13.1/4
2.3/8	60.3	2.7/8	74.2	350	25	700	50	1400	100	24.0
3	76.2	3.4/7	91.7	200	14	400	28	800	56	33.0

## SONI-SAE 100 R3 2 RAYON BRAIDED (NON-METALLIC) HYDRAULIC HOSE

**Specification :** SONI-SAE 100 R3

**Application :** Hydraulic Oil, Fuel Oil, Anti-Freeze.

**Construction :** Tube : Synthetic Rubber

Reinforcement : Two Braids High Tenacity Rayon.

Cover : Oil and abrasion resistant Synthetic Rubber.

**Temperature :** – 40°F to +200°F

HOSE SIZE Type A				MAXIMUM WORKING PRESSURE		TESTING PRESSURE		MINIMUM BURSTING PRESSURE		MINIMUM BEND RADIUS
I.D.		O.D.								
in	mm	in	mm	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	in
3/16	4.8	1/2	13.5	1500	105	3000	210	6000	420	3
1/4	6.4	9.16	15.1	1250	90	2500	175	5000	420	3
5/16	7.9	11/16	18.3	1200	84	2400	168	4800	315	4
3/8	9.5	3/4	19.8	1125	79	2250	140	4500	280	4
1/2	12.7	15/16	24.6	1000	70	2000	245	4000	245	5
5/8	15.9	1.1/8	27.8	875	61	1750	122	3500	210	5.50
3/4	19.0	1.1/4	32.5	750	53	1500	105	3000	110	6
1	25.4	1.1/2	39.3	565	40	1125	80	2250	160	8
1.1/4	31.8	1.3/4	46.0	375	29	750	58	1500	116	10
*1.1/2	38.1	2	52.8	250	17.5	500	35	1000	70	12

\* Not covered in SAE Spec.



## SONI-SAE 100 R6 ONE RAYON BRAIDED LOW PRESSURE HOSE

**Specification :** SONI-SAE 100 R6

**Application :** Hydraulic Oil Lines, Fuel Oil, Anti-Freeze Solutions and Water.

**Construction :** Tube : Specially Compounded Synthetic Rubber.

Reinforcement : One Braid High Tenacity Rayon.

Cover : Oil and abrasion resistant Synthetic Rubber.

**Temperature :** – 40°F to +212°F.

HOSE SIZE				MAXIMUM WORKING PRESSURE		TESTING PRESSURE		MINIMUM BURSTING PRESSURE		MINIMUM BEND RADIUS
I.D.		O.D.								
in	mm	in	mm	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	in
3/16	4.8	7.16	11.9	500	35	1000	70	2000	140	2
1/4	6.4	1/2	13.5	400	28	800	56	1600	112	2.1/2
5/16	7.9	9/16	15.1	400	28	800	56	1600	112	3
3/8	9.5	5/8	16.7	400	28	800	56	1600	112	3
1/2	12.7	25/32	20.6	400	28	800	56	1600	112	4
3/4	19.0	29/32	27.8	350	24.5	700	49	1200*	98	5
1	25.4	1.1/16	35.5	300	21	600	42	800	81	6

\* Bend Radius measured at inside of bend.

## SONI-SAE 100 R4 TWO RAYON BRAIDED HYDRAULIC SUCTION HOSE

**Specification :** SONI-SAE 100 R4

**Application :** Petroleum Base Hydraulic Oils, Gasoline and Fuel Oil in suction lines or low pressure return lines.

**Construction :** Tube : Synthetic Rubber.

Reinforcement : Two Rayon braids separated by a Spiral wire to prevent collapse.

Cover : Oil and Abrasion resistant Synthetic Rubber.

**Temperature :** – 40°F to +212°F.

HOSE SIZE				MAXIMUM WORKING PRESSURE		TESTING PRESSURE		MINIMUM BURSTING PRESSURE		MINIMUM BEND RADIUS
I.D.		O.D. (Max)								
in	mm	in	mm	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	in
3/4	19.0	1.3/8	34.9	300	21	600	42	1200	84	5
1	25.4	1.5/8	41.3	250	17.5	500	35	1000	70	6
1.1/4	31.9	2	50.8	200	14	400	28	800	56	8
1.1/2	38.1	2.1/4	57.2	150	10.5	300	21	600	42	10
1.1/4	31.8(ID)	3.1/4	50.8(OD)	62	4	125	8	250	17.5	14
2	50.8	2.3/4	69.9	100	7	200	14	400	28	12
2.1/2	63.5	3.1/4	82.6	62	4	125	8	250	17.5	14
2.1/4	57.2(ID)	3.3/4	76.9(OD)	56	4	112	8	225	16	18
2.3/8	60.3(ID)	—	80.0(OD)	45	3.2	90	6.4	180	12.8	21
5	127.0(ID)	—	147.5(OD)	35	2.5	70	5.0	140	10.0	24

## SONI HIGH TEMP. STEAM HOSE (ONE WIRE BRAIDED)

**Specification** : SONI High Temp 1 Wire

IS 10655 Type III

**Application** : For use on Hi-temperature Steam.

**Construction** : Tube : Seamless Synthetic heat resistant Rubber Tube.

Reinforcement : One ply H.T.S. wire braided.

Cover : Oil, Weather and abrasion resistant Synthetic black rubber.

**Temperature** : Upto to +185°C, for pressure 150 lbs, Psi of Steam.

HOSE SIZE				WORKING PRESSURE		MINIMUM BEND RADIUS
I.D.		O.D.				
in	mm	in	mm	Psi	Kg./cm <sup>2</sup>	in
3/16	4.8	1/2	12.7	150	10.50	3.1/2
1/4	6.4	5/8	15.9	150	10.50	4
5/16	7.9	3/4	19.0	150	10.50	4.1/2
3/8	9.5	27/32	21.4	150	10.50	5
1/2	12.7	31/32	23.8	150	10.50	7
5/8	15.9	1.3/32	27.8	150	10.50	8
3/4	19.0	1.1/4	31.0	150	10.50	9.1/2
7/8	22.4	1.3/8	34.9	150	10.50	11
1	25.4	1.9/16	39.3	150	10.50	15
1.1/4	31.8	2.1/16	47.6	150	10.50	16.1/2
1.1/2	38.1	2.1/4	57.2	150	10.50	20
2	50.8	2.3/4	69.9	150	10.50	25

## SONI HIGH TEMP. STEAM HOSE (TWO WIRE BRAIDED)

**Specification** : SONI High Temp 2 Wire

IS 10655 Type IV

**Application** : For use on Hi-temperature Steam.

**Construction** : Tube : Seamless Synthetic heat resistant Rubber Tube.

Reinforcement : Two ply H.T.S. wire braided.

Cover : Oil, Weather and abrasion resistant Synthetic black rubber.

**Temperature** : Upto to 185°C and for steam pressure 200 Psi.

HOSE SIZE			WORKING PRESSURE	MINIMUM BEND RADIUS
I.D.		O.D.		
in	mm	in	Psi	mm
3/16	4.8	14.8	220	90
1/4	6.4	17.0	220	100
5/16	7.9	19.1	220	115
3/8	9.5	22.0	220	125
1/2	12.7	25.4	220	180
5/8	15.9	29.9	220	200
3/4	19.0	32.0	220	240
1	25.4	40.9	220	380
1.1/4	31.8	52.4	220	420
1.1/2	38.1	53.5	220	510
2	50.8	70.0	220	635



### SONI SAE 100 R14 TEFLON HOSE

**Specification :** (P.T.F.E.) Inner Teflon tube.

Reinforcement by single layer of stainless steel wire.

**Application :** Diluted or concentrated acids, caustics, hot lacquers, solvents, fuel, oils, oxidising agents, and gases. Generally unaffected by all chemicals (except melted alkaline metals) used in Laundry, Rubber, Plastics, Chemical & Refrigeration Industries. Maximum utilisation of steam pressure 250 PSI.

Cover : Oil, Weather and abrasion resistant Synthetic black rubber.

**Temperature :** Teflon flexible hoses are capable to resisting low and high temperature between – 54°C to +204°C for longer period and have an unlimited shelf life.

HOSE SIZE			MAX. OPERATING PRESSURE	MINIMUM BEND RADIUS
I.D.		O.D. (Max)		
in	mm	mm	Psi	mm
3/16	4.8	8.2	1500	51
1/4	6.4	10.1	1500	76
5/16	7.9	11.6	1500	102
3/8	9.5	13.4	1500	127
13/32	10.3	14.3	1000	133
1/2	12.7	16.8	800	165
5/8	15.9	20.1	800	197
3/4	19.0	23.3	800	229
7/8	22.2	26.9	800	229
1	25.4	29.8	800	305
1/8	28.6	33.5	600	406



### SONI CAR WASH HOSE EXCEEDS IS 444 TYPE - 3 B (TEXTILE BRAID)

**Specification :** Exceeds IS 444 Type - 3 B

**Application :** Suitable for use in automobile service station for pressurised water application

Lining : modified natural & synthetic blends of rubber compound

Reinforcement : Single braid of high tenacity synthetic yarn

Cover : Oil resistant synthetic rubber compound with excellent abrasion & ozone resistant

**Temperature :** Service Temperature Range -30°C to +80°C

NOMINAL BORE		MEAN OUTER COVER DIAMETER	MAXIMUM WORKING PRESSURE		MINIMUM BURST PRESSURE	
in	mm	mm	Psi	Bar	Psi	Bar
3/8	10.00	18.00	400	28	1600	112
1/2	12.50	23.00	400	28	1600	112

## SONI-SAE 100 R11 SUPER HIGH PRESSURE SPIRAL HOSE

**Specification :** SONI SAE 100 R11

**Construction :** Tube : Synthetic rubber. Six spiral Heavy Duty plies of High Tensile Steel wire wrapped in alternating directions and Synthetic Rubber Cover, resistant to oil, weather and abrasion.

**Application :** Extra high pressure hydraulic, service petroleum base hydraulic, fluids, water, diesel, fuel and lubricating oils.

**Working :** Impulse cycles 400,000 without leakage or other malfunctions.

**Temperature :** - 40°C to +100°C and tested to min.

**Approvals :** R&D Dighe, Pune for impulse test.

HOSE SIZE			WORKING PRESSURE		TESTING PRESSURE		BURSTING PRESSURE		MIN. BEND RADIUS
I.D.		O.D.							
in	mm	mm	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	Psi	Kg./cm <sup>2</sup>	
3/16	4.8	23.0	12500	880	25000	1761	50000	3521	4
1/4	6.4	24.6	11250	792	22250	1585	45000	3169	5
3/8	9.5	27.8	10000	704	20000	1408	40000	2817	6
1/2	12.7	31.8	7500	528	15000	1056	30000	2113	8
3/4	19.0	40.5	6250	440	12500	880	25000	1716	11
1	25.4	49.6	5000	352	10000	704	20000	1408	14
1.1/4	31.8	56.4	3500	246	7000	493	14000	986	18
1.1/2	38.1	62.7	3000	211	6000	423	12000	845	22
2	50.8	77.0	3000	211	6000	423	12000	845	28
2.1/2	63.5	92.9	2500	176	5000	351	10000	702	36

## SONI-SAE 100 R15 SUPER HIGH PRESSURE SPIRAL HOSE

**Specification :** SONI SAE 100 R15

**Construction :** This hose shall consist of an inner tube of oil resistant synthetic rubber, multiple spiral plies of heavy steel wire wrapped in alternating directions and an oil and weather resistant synthetic rubber cover. A ply or braid of suitable material may be used over or within the inner tube or over the wire reinforcement or over both to anchor the synthetic rubber to the wire.

This hose shall have the same construction and working pressures of ISO 3862 Type R 15.

MATIRC SIZE (1)	SAE DASH SIZE (2)	ID Min	ID Max	REINFORCEMENT DIA MAX	OD Max	Max Working Pressure MPa	Min Bend Radius (3)
10	-6	9.3	10.1	20.3	23.3	42	150
12.7	-8	12.3	13.5	24.0	26.8	42	200
19	-12	18.6	19.8	32.9	36.1	42	265
25	-16	25.0	26.4	38.9	42.9	42	330
31.5	-20	31.4	33.0	48.4	51.5	42	445
38	-24	37.7	39.3	56.3	59.6	42	530

## SONI HIGH PRESSURE HOSE EN 853-2SC

**Application :** High pressure service with tightbends for petroleum and water-based hydraulic fluids. Excellent impulse performance and flexibility exceeding SAE 100R2 and SAE 100R16 standards. Hose has compact dimensions tighter bend radius than 2SN hose for ease of assembly routing in machinery applications

**Inner Tube :** Synthetic Ruleep

**Reinforcement :** Two braid of high-tensile steel wire

**Cover :** Synthetic Peea

**Temperature :** -40°F to 212°F (-40°C to 100°C)

**Standards**

Hose ID				C.O.D.	MAX W.P.		MIN B.P.		Min B.R.
Dash	mm	in	Max mm	Max	Mpa	Psi	Mpa	Psi	mm
-4	6.3	1/4	7.0	14.2	40.0	5801	160	23204	50
-5	8.0	5/16	8.5	16.0	35.0	5076	140	20304	55
-6	10.0	3/8	10.1	18.3	33.0	4786	132	19144	65
-8	12.5	1/2	13.5	21.5	27.5	3989	110	15956	90
-10	16.0	5/8	16.7	24.7	25.0	3625	100	14500	100
-12	19.0	3/4	19.8	28.6	21.5	3118	86	12472	120
-16	25.0	1	26.4	36.6	16.5	2393	66	9572	150
-20	31.5	1 1/4	33	44.3	12.5	1813	50	7252	210



### SONI-SAE 100 R13 SUPER HIGH PRESSURE SPIRAL HOSE

**Specification :** SONI SAE 100 R13

**Construction :** Tube : Black oil resistant synthetic rubber  
Reinforcement : Multiple high tensile wire spirals  
Cover : Black, oil resistant synthetic rubber

**Working :** Impulse tested at 5,00,000 cycles

**Temperature :** - 40°C to +121°C

**Approvals :** R&D Dighe, Pune for impulse test  
Upto 1" - 4 Spiral. 1.1/4 and above - 6 Spiral

NOM SIZE	I.D.		O.D.		WORKING PRESSURE		TESTING PRESSURE		MIN. BURST PRESSURE		MIN. BEND RADIUS
	in	mm	in	mm	Bar	Psi	Bar	Psi	Bar	Psi	
3/4	19.0	750	33.2	1260	345	5 000	690	10 000	1379	20 000	9.5
1	25.4	1000	39.8	1543	345	5 000	690	10 000	1379	20 000	12
1.1/4	31.8 (ID)	1250	51.3	1960	345	5 000	690	10 000	1379	20 000	16.5
1.1/2	38.1 (ID)	1500	58.8	2255	345	5 000	690	10 000	1379	20 000	20
2	50.8	2000	72.7	2795	345	5 000	690	10 000	1379	20 000	25

Upto 1" - 4 Spiral.

1 1/4 ID and above - 6 Spiral

### SONI DIN 20023 - 4SP / EN 856 4SP SPIRAL HOSE

**Specification :** SONI DIN 20023 4SP / EN 856 4SP

**Construction :** Tube : Black oil resistant synthetic rubber  
Reinforcement : 4 high tensile wire spirals  
Cover : Black, oil resistant synthetic rubber

**Working :** Impulse tested at 4,00,000 cycles

**Temperature :** - 40°C to +121°C

**Approvals :** R&D Dighe, Pune for impulse test

NOM SIZE		I.D.		O.D.		WORKING PRESSURE		TESTING PRESSURE		MIN. BURST PRESSURE		MIN. BEND RADIUS
		mm	in	mm	in	Bar	Psi	Bar	Psi	Bar	Psi	
1/4	6	6.3	0.250	18.7	0.700	450	6 525	900	13 050	1800	26 071	6
3/8	10	9.5	0.375	22.2	0.842	445	6 450	890	12 905	1780	25 781	7.09
1/2	12	12.7	0.500	25.4	0.968	415	6 020	830	12 035	1660	24 070	9.06
5/8	16	16.0	0.625	29.0	1.122	350	5 075	700	10 150	1400	20 300	9.84
3/4	20	19.0	0.750	33.0	1.260	350	5 075	700	10 150	1400	20 300	11.81
1	25	25.4	1.000	40.9	1.563	280	4 060	560	8 120	1120	16 244	13.39
1.1/4	32	32.0	1.250	52.4	2.000	210	3 045	420	6 090	840	12 180	18.11
1.1/2	40	38.0	1.500	58.8	2.224	185	2 680	370	5 365	740	10 730	22.05
2	50	50.8	2.000	71.4	2.780	165	2 393	330	4 785	660	9 570	25.98

### SONI DIN 20023 - 4SH / EN 856 4SH SPIRAL HOSE

**Specification :** SONI DIN 20023 - 4SH / EN 856 4SH

**Construction :** Tube : Black oil resistant synthetic rubber  
Reinforcement : 4 high tensile wire spirals  
Cover : Black, oil resistant synthetic rubber

**Working :** Impulse tested at 4,00,000 cycles

**Temperature :** - 40°C to +121°C

**Approvals :** R&D Dighe, Pune for impulse test.

Meets & exceeds SAE-100 R-10 in all aspects



NOM SIZE		I.D.		O.D.		WORKING PRESSURE		TESTING PRESSURE		MINIMUM BURSTING PRESSURE		MINIMUM BEND RADIUS
		mm	in	mm	in	Bar	Psi	Bar	Psi	Bar	Psi	
3/4	20	19.0	0.750	33.0	1.260	420	6 090	840	14 500	1 680	24 360	11.02
1	25	25.4	1.000	39.9	1.563	380	5 510	760	13 195	1 520	22 040	13.40
1.1/4	32	31.8	1.250	47.1	2.000	325	4 715	650	11 310	1 300	18 850	18.11
1.1/2	40	38.1	1.500	55.1	2.224	290	4 205	580	10 150	1 160	16 820	22.05
2	50	50.8	2.000	69.7	2.780	250	3 625	500	8 700	1 000	14 500	27.66



## DROP IN PRESSURE DURING HYDRAULIC OPERATION

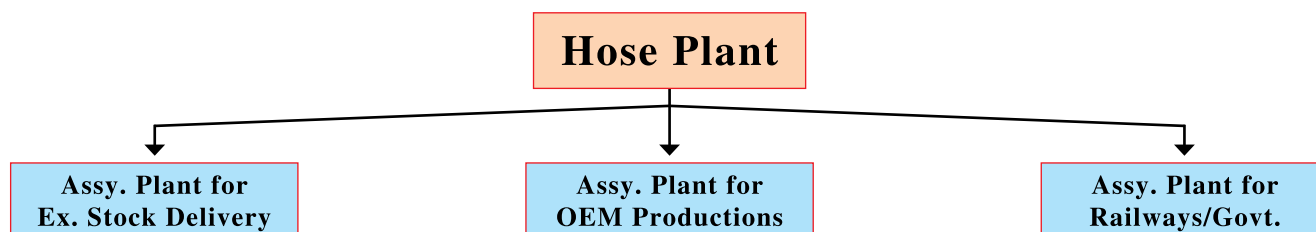
Pressure drop or decrease in outlet/end pressure signifies the difference between the pressure of a hydraulic fluid when it enters through a hydraulic hose assembly and at the point it leaves the assembly through the other end-which might be lesser due to various reasons as follows :

<b>FRICTION</b>	: It generates as the fluid moves with contact upon/against the inside walls of the hose assembly.
<b>NATURE OF FLUID</b>	: Behaviour under pressure differs with the fluid type. Thicker fluids generate more friction and may cause greater pressure drop.
<b>TEMPERATURE OF THE FLUID</b>	: Fluids turn thinner with the increase of the temperature resulting a smoother movement.
<b>LENGTH OF THE HOSE ASSEMBLY</b>	: 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.
<b>INTERNAL DIAMETER (I.D.) OF THE HOSE</b>	: 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.
<b>DESIGN OF ADAPTOR &amp; COUPLINGS</b>	: Change in orientation and/or bore design (like in 45°, 90° elbows etc.) may result in higher pressure drop.
<b>FLOW RATE</b>	: 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. Reinforcement 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	.53125	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 <sup>2</sup> )	Square Metre (m <sup>2</sup> )	(in <sup>2</sup> ) x (6.4516 x 10 <sup>-4</sup> ) = (m <sup>2</sup> )	(m <sup>2</sup> ) x 1550.003 = (in <sup>2</sup> )
Force	Pound (lb <sub>f</sub> )	Newton (N)	(lb <sub>f</sub> ) x 4.4482 = (N)	(N) x (2.2481 x 10 <sup>-1</sup> ) = (lb <sub>f</sub> )
Frequency	Cycles/Second (cps)	Hertz (Hz)	1 (cps) = 1 (Hz)	1 (Hz) = 1 (cps)
Length	Inch (in)	Metre (m)	(in) x (2.540 x 10 <sup>-2</sup> ) = (m)	(m) x 39.370 = (in)
Mass	Pound (lb <sub>m</sub> )	Kilogram (kg)	(lb <sub>m</sub> ) x 0.4536 = (kg)	(kg) x 2.2046 = (lb <sub>m</sub> )
Power	Electric Horsepower (HP)	Watt (W)	(HP) x (7.460 x 10 <sup>2</sup> ) = (W)	(W) x (1.3405 x 10 <sup>-3</sup> ) = (HP)
Pressure	Pounds/Sq In (psi)	Newtons/Sq Metre (N/m <sup>2</sup> )	(psi) x (6.8948 x 10 <sup>3</sup> ) = (N/m <sup>2</sup> )	(N/m <sup>2</sup> ) x (1.4504 x 10 <sup>-4</sup> ) = (psi)
		<b>(Non-Preferred Conversions)</b>		
	(psi)	Mega Pascal (MPa)	(psi) x (6.8948 x 10 <sup>-3</sup> ) = (Mpa)	(Mpa) x 145 (psi)
	(psi)	Bar (Bar)	(psi) x (6.8948 x 10 <sup>-2</sup> ) = (Bar)	(Bar) x (1.4504 x 10 <sup>1</sup> ) = (psi)
	(Bar)	(N/m <sup>2</sup> )	(Bar) x 100,000 = (N/m <sup>2</sup> )	(N/m <sup>2</sup> ) x (1.00 x 10 <sup>-5</sup> ) = (Bar)
Temperature	Degrees Fahrenheit (°F)	Degrees Celsius (°C)	(°F - 32) ÷ 1.8 = (°C)	(°C x 1.8) + 32 = (°F)
Torque	Pound-Inch (lb <sub>f</sub> -in)	Newton-Metres (N-m)	(lb <sub>f</sub> -in) x (1.1298 x 10 <sup>-1</sup> ) = (N-m)	(N-m) x 8.8507 = (lb <sub>f</sub> -in)
Volume	US Gallon (Gal)	Cubic Metre (m <sup>3</sup> )	(Gal) x (3.7854 x 10 <sup>-3</sup> ) = (m <sup>3</sup> )	(m <sup>3</sup> ) x (2.6417 x 10 <sup>2</sup> ) = (Gal)
		<b>(Non-Preferred Conversions)</b>		
		Litre (l)	(Gal) x 3.7854 = (l)	(l) x (2.6417 x 10 <sup>-1</sup> ) = (Gal)
Work	Foot-Pound (ft-lb <sub>f</sub> )	Joule (J)	(ft-lb <sub>f</sub> ) x (1.3558) = (J)	(J) x (7.3756 x 10 <sup>-1</sup> ) = (ft-lb <sub>f</sub> )



## 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	HOSE				FITTING			
	1 Synthetic rubber	2 Synthetic rubber	3 Teflon®	4 CPE	Steel	Brass	Stainless Steel	Aluminium
Acetate Solvents, Crude	C	U	E	U	U	U	E	G
Acetate Solvents, Pure	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 Fluoride 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
Beet 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	HOSE				FITTING			
	1 Synthetic rubber	2 Synthetic rubber	3 Teflon®	4 CPE	Steel	Brass	Stainless Steel	Aluminium
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 Monoxide (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
Chloroacetic 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

	Synthetic rubber	Synthetic rubber	Teflon®	CPE	Steel	Brass	Stainless Steel	Aluminium
	1	2	3	4				
Agent to be carried	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	E	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
Mercuric 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

	Synthetic rubber	Synthetic rubber	Teflon®	CPE	Steel	Brass	Stainless Steel	Aluminium
	1	2	3	4				
Agent to be carried	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
Oleic 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
Perchloroethylene	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	G	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	C	C
Sulphur Trioxide	C	C	E	E	E	C	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



## END FITTINGS STANDARDS

### 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 collared open thread must be checked carefully, otherwise fitment problem may be arise.

- 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 maintained 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 thickness 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

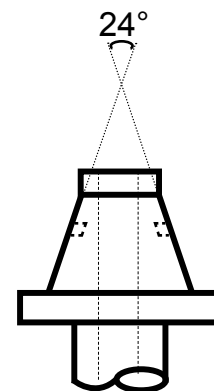
74°/37°, 90°/45° or flat seat type.



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

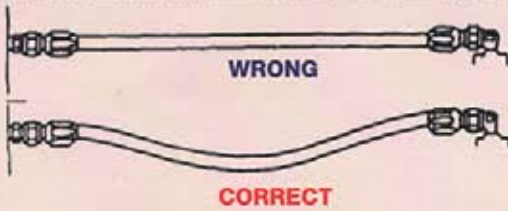
Before fitting every parts should be checked carefully.

As for example reinforcement 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.

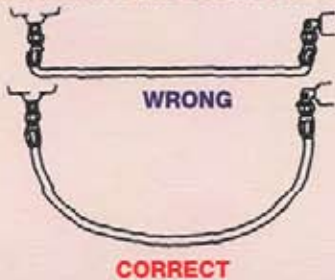
All assemblies must be tested at proof pressure with proper fluid and should be cleaned and then capped carefully before despatch.

## 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.



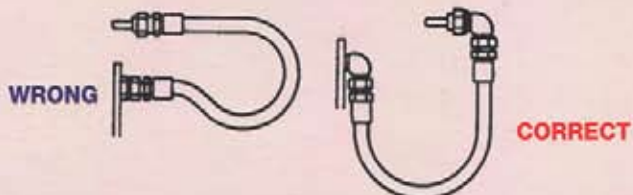
2. Do not use hose at bend radius less than the requirement min. bend radius. Provide sufficient length for a wide radius curve. To tight a bend pinches the hose and restricts the flow.



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



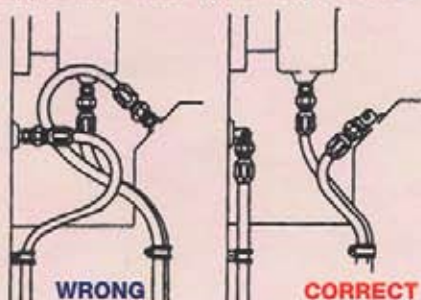
4. Where the radius falls below the required min. bend radius, an angle adapter must be used as below to avoid sharp bends in hose.



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



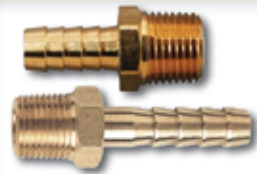
Square Adaptors



Quick Release Coupling



Fittings



Male Fittings



Ferrule Sockets



Adaptors



Insert Tube



Female Fittings



Benjo Fittings



Split Flange Fittings



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