

Flexible

Metal Hose Assemblies



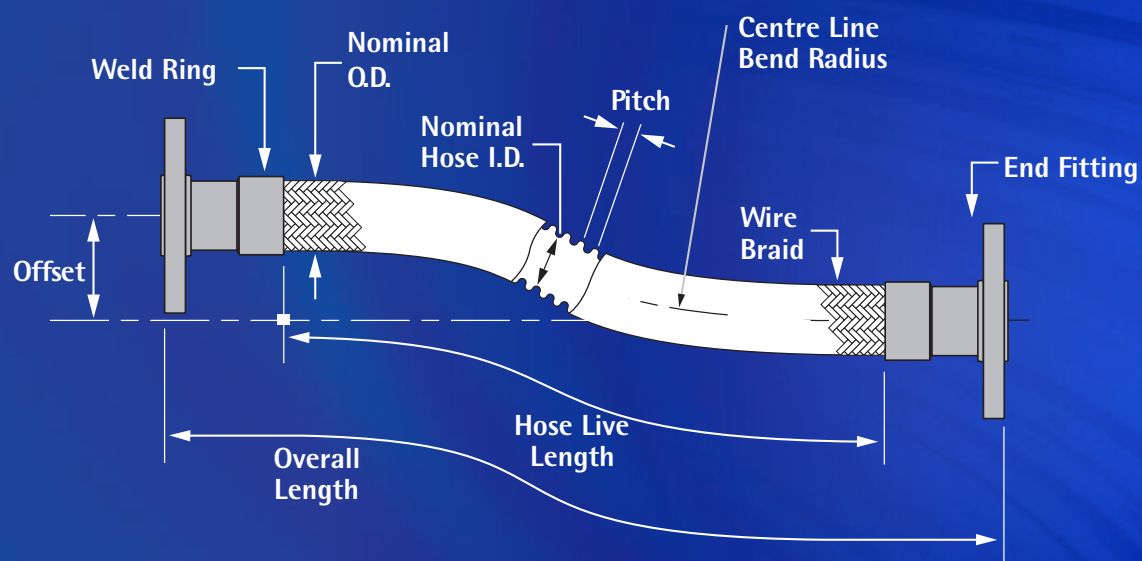
- Custom Designed
- Unique Purpose
- High Temperature Applications
- Chemical Resistant

• Superior Flexibility

Quality Flexible Metal Hose

Introduction to Flexible Metal Hose

Convolut Technologies flexible metal hose, is hydraulically formed from 316L stainless steel material. It is fitted with a 304 stainless steel outer braid. Other grades of material are available on request.



Pressure

Metallic hose can be used without braid for vacuum or low pressure applications. To resist higher pressures and prevent the hose from elongating one or two braids can be fitted over the hose, no further pressure resistance is gained with additional layers of braid. See the technical data charts which can be found on pages 10-12 for the maximum working pressures.

Maximum Working Pressure of metallic hose is 25% of the burst pressure stated in the technical data charts.

Test Pressure of a metallic hose is 1.5 times the maximum working pressure for a hydraulic test. For a pneumatic test the pressure is equal to 10% of the service pressure or 200kPa whichever is lower.

Burst Pressure actual - failure of the hose is determined by the laboratory test in which the braid fails in tensile or the hose ruptures due to the internal pressure applied. This test is usually conducted at room temperature with the assembly in a straight line.

Meeting Customers Individual Needs



Pressure Loss in metallic corrugated hose is about 150% higher than rigid piping, this is due to the shape of the corrugations. This could be a significant factor in longer lengths of hose and can be solved by using the next size hose upwards with rigid reducers on either end to meet up with the nominal size required.

The Flow Velocity in corrugated metal hose should never exceed 45m/sec for gas or 22m/sec for liquids. When a hose is installed in a bent condition, the flow values should be reduced by 25% for a 45° bend or 50% for a 90° bend. Where the flow velocity exceeds these rates, an interlocked metal hose liner or larger hose I.D. is recommended.

Pulsating Pressure - A rapid change in pressure above and below the normal base pressure, usually associated with reciprocating type pumps, causes excessive wear between the braid and the crests of the hose corrugations.

Shock Pressure - A sudden increase of pressure in a hydraulic or pneumatic system which produces a shock wave, can cause severe permanent deformation of the corrugations in a hose, as well as rapid failure of the assembly due to metal fatigue. The peak of this shock pressure should not exceed 50% of the maximum working pressure stated in the technical data charts.

Quality Flexible Metal Hose

Technical Data

*Hose manufactured to ISO 10380 -
Pipework - corrugated metal hoses and hose assemblies.*



Size		Standard Flex Unbraided SS316L Tube				
Nominal hose ID		Max Working Pressure	Test Pressure	Burst Pressure	Static Bend Radius	Dynamic Bend Radius
inch	mm	Bar	Bar	Bar	mm	mm
1/4	6	22	33	-	25	100
5/16	8	18	27	-	25	100
3/8	10	17	25	-	40	150
1/2	12	12	18	-	50	200
5/8	16	10	15	-	50	200
3/4	20	6	9	-	70	200
1	25	4	6	-	90	200
1 1/4	32	3	4.50	-	110	250
1 1/2	40	2.50	3.75	-	130	250
2	50	1.50	2.25	-	175	350
2 1/2	65	1.50	2.25	-	200	410
3	80	1.00	1.50	-	205	450
4	100	0.80	1.2	-	230	560
5	125	0.60	0.90	-	280	660
6	150	0.50	0.75	-	320	815
8	200	0.30	0.45	-	435	1015
10	250	0.20	0.30	-	560	1220
12	300	0.20	0.30	-	760	1520

*BURST PRESSURE NOT APPLICABLE FOR UNBRAIDED HOSES

Size		Standard Flex Single Braid SS316L Tube				
Hose ID		Max Working Pressure	Test Pressure	Burst Pressure	Static Bend Radius	Dynamic Bend Radius
inch	mm	Bar	Bar	Bar	mm	mm
1/4	6	180	270	720	25	100
5/16	8	154	230	616	25	100
3/8	10	105	157	420	40	150
1/2	12	88	132	352	50	200
5/8	16	73	109	292	50	200
3/4	20	64	96	256	70	200
1	25	50	75	200	90	200
1 1/4	32	42	63	168	110	250
1 1/2	40	32	48	128	130	250
2	50	31	46	124	175	350
2 1/2	65	26	39	104	200	410
3	80	18	27	72	205	450
4	100	16	24	64	230	560
5	125	16	24	64	280	660
6	150	12	18	48	320	815
8	200	10	16	40	435	1015
10	250	6.5	9.75	26	560	1220
12	300	5.9	8.85	23.6	760	1520

Size		Standard Flex Double Braid SS316L Tube				
Nominal hose ID		Max Working Pressure	Test Pressure	Burst Pressure	Static Bend Radius	Dynamic Bend Radius
inch	mm	Bar	Bar	Bar	mm	mm
1/4	6	288	432	1152	25	100
5/16	8	246	369	984	25	100
3/8	10	168	252	672	40	150
1/2	12	140	210	560	50	200
5/8	16	116	174	464	50	200
3/4	20	102	153	408	70	200
1	25	80	120	320	90	200
1 1/4	32	67	100	268	110	250
1 1/2	40	51	76	204	130	250
2	50	49	73	196	175	350
2 1/2	65	41	61	164	200	410
3	80	28	42	112	205	450
4	100	26	39	104	230	560
5	125	25	37	100	280	660
6	150	20	30	80	320	815
8	200	16	24	64	435	1015
10	250	10.5	15.75	42	560	1220
12	300	9.6	14.4	38.4	760	1520

NOTE: Where maximum flexibility is required we recommend the use of our Superflex hose as this hose has more corrugations per metre resulting in exceptional flexibility.

Size		Super Flex Unbraided SS316L Tube				
Hose ID		Max Working Pressure	Test Pressure	Burst Pressure	Static Bend Radius	Dynamic Bend Radius
inch	mm	Bar	Bar	Bar	mm	mm
1/4	6	22	33	-	22	88
5/16	8	18	27	-	22	88
3/8	10	17	25	-	35	130
1/2	12	12	18	-	45	180
5/8	16	10	15	-	45	180
3/4	20	6	9	-	62	180
1	25	4	6	-	82	180
1 1/4	32	3	4.50	-	100	220
1 1/2	40	2.50	3.75	-	110	220
2	50	1.50	2.25	-	160	320
2 1/2	65	1.50	2.25	-	180	370
3	80	1.00	1.50	-	185	410
4	100	0.80	1.20	-	200	510

**BURST PRESSURE NOT APPLICABLE FOR UNBRAIDED HOSES*

• *Higher pressure hose available upon request*

Quality Flexible Metal Hose

Technical Data *continued*

Size		Super Flex Single Braid SS316L Tube				
Hose ID		Max Working Pressure	Test Pressure	Burst Pressure	Static Bend Radius	Dynamic Bend Radius
inch	mm	Bar	Bar	Bar	mm	mm
1/4	6	180	270	720	22	88
5/16	8	154	230	616	22	88
3/8	10	105	157	420	35	130
1/2	12	88	132	352	45	180
5/8	16	73	109	292	45	180
3/4	20	64	96	256	62	180
1	25	50	75	200	82	180
1 1/4	32	42	63	168	100	220
1 1/2	40	32	48	128	110	220
2	50	31	46	124	160	320
2 1/2	65	26	39	104	180	370
3	80	18	27	72	185	410
4	100	16	24	64	200	510

Size		Super Flex Double Braid SS316L Tube				
Hose ID		Max Working Pressure	Test Pressure	Burst Pressure	Static Bend Radius	Dynamic Bend Radius
inch	mm	Bar	Bar	Bar	mm	mm
1/4	6	288	432	1152	22	88
5/16	8	246	369	984	22	88
3/8	10	168	252	672	35	130
1/2	12	140	210	560	45	180
5/8	16	116	174	464	45	180
3/4	20	102	153	408	62	180
1	25	80	120	320	82	180
1 1/4	32	67	100	268	100	220
1 1/2	40	51	76	204	110	220
2	50	49	73	196	160	320
2 1/2	65	41	61	164	180	370
3	80	28	42	112	185	410
4	100	26	39	104	200	510

Specialty Hose

For some unique applications we have access to specialty hose to make up assemblies that fall outside the standard product range advertised in our Technical Data.

- Fully 316 configurations complete with material traceability if needed.
- Ultra high pressure rating heavy wall hose and braid.
- Exotic stainless steels with unique chemical resistance capabilities like Monel 400 hose and braid, Inconel 625 hose with T321 braid and Hastelloy C276 hose with T321 braid.
- Large diameter hoses over the standard 300 mm diameter hose we currently stock.

So if your requirements cannot be realized with our standard products that we keep in stock we would suggest speaking with our technical sales department to get a price of alternative products available to us. Once a unique product has been supplied by us we usually keep stock of that product.

Meeting Customers Individual Needs

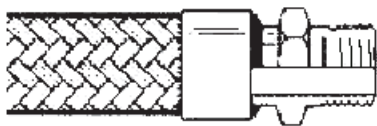
Fittings

Fittings manufactured to ISO 10806 - Pipework - fittings for corrugated metal hoses. An extensive fitting inventory enables Convolute Technologies to effectively supply our customers. The illustrations below represent a sampling of common fittings available from stock.

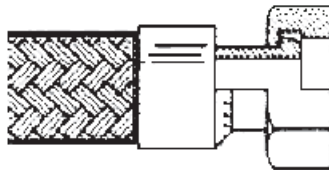


The fittings are available in steel and stainless steel, copper or brass. Non-standard fittings can be supplied to any specifications.

FIXED MALE (HEXAGON)



FEMALE SWIVEL



PLAIN PIPE END



WELDING STUB



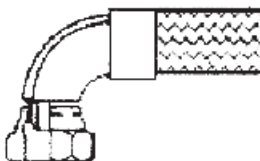
THREADED PIPE END



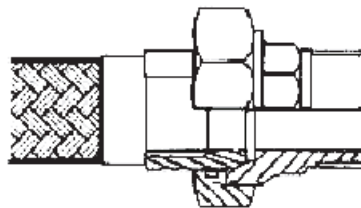
FIXED FEMALE



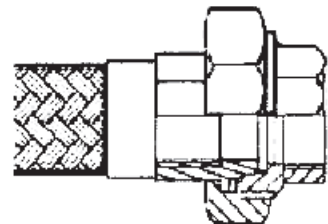
90° FEMALE SWIVEL ELBOW



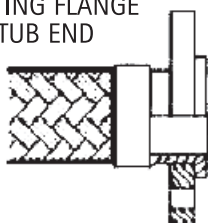
MALE UNION



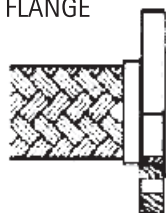
FEMALE UNION



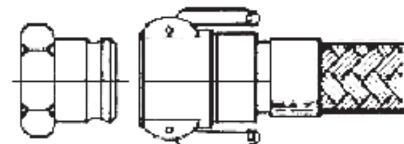
FLOATING FLANGE ON STUB END



FIXED FLANGE



CAMLOCK COUPLING

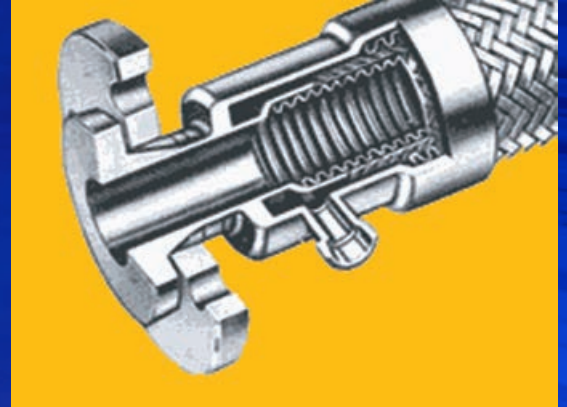


Quality Flexible Metal Hose

Special Assemblies

Jacketed or Duplex Hose assemblies are a hose within a hose. Both inner and outer hoses act independently as separate pressure carriers. Vacuum Jacketed Hose Assemblies are typically found in cryogenic applications because of their insulation properties. Steam Jacketed Hose Assemblies are utilised when the media is viscous and steam is used to help reduce viscosity and increase flow. Jacketed hoses are also used in applications where containment of the media is critical in case of rupture of the inner hose.

Critical Applications such as supplying commercial oxygen require the expertise of an experienced metal hose manufacturer. **Oxygen Lance Hoses** are fabricated to meet this critical application. They are available in sizes from 1/4" to 12", and when specified our fabrication department can customise the hose assembly to include a liner (to reduce turbulence resulting from high velocity), reinforced ends or special end fittings. Each hose assembly is cleaned and capped for commercial oxygen service.



Convuluted Technologies has the capability to design hose assemblies to meet **pressures higher than published ratings** and also has special grades of material e.g. Monel, Bronze or Inconel. If your requirements exceed published criteria, contact our staff and we will help determine if a suitable hose and braid design can be engineered to meet your specification.

Vibration Eliminators with female copper tube ends are cleaned, dehydrated and capped for refrigeration service.

Bottom Loading Hoses for loading and unloading of road tankers.

Bitumen Hoses. Convuluted Technologies manufactures various products for the bitumen industry e.g. Spray bar connectors, hand bar hoses and bituminous transfer hoses. These hoses need to comply with a pressure rating at elevated temperatures. We also supply a hose management program for these products as they fall under the dangerous goods act.

