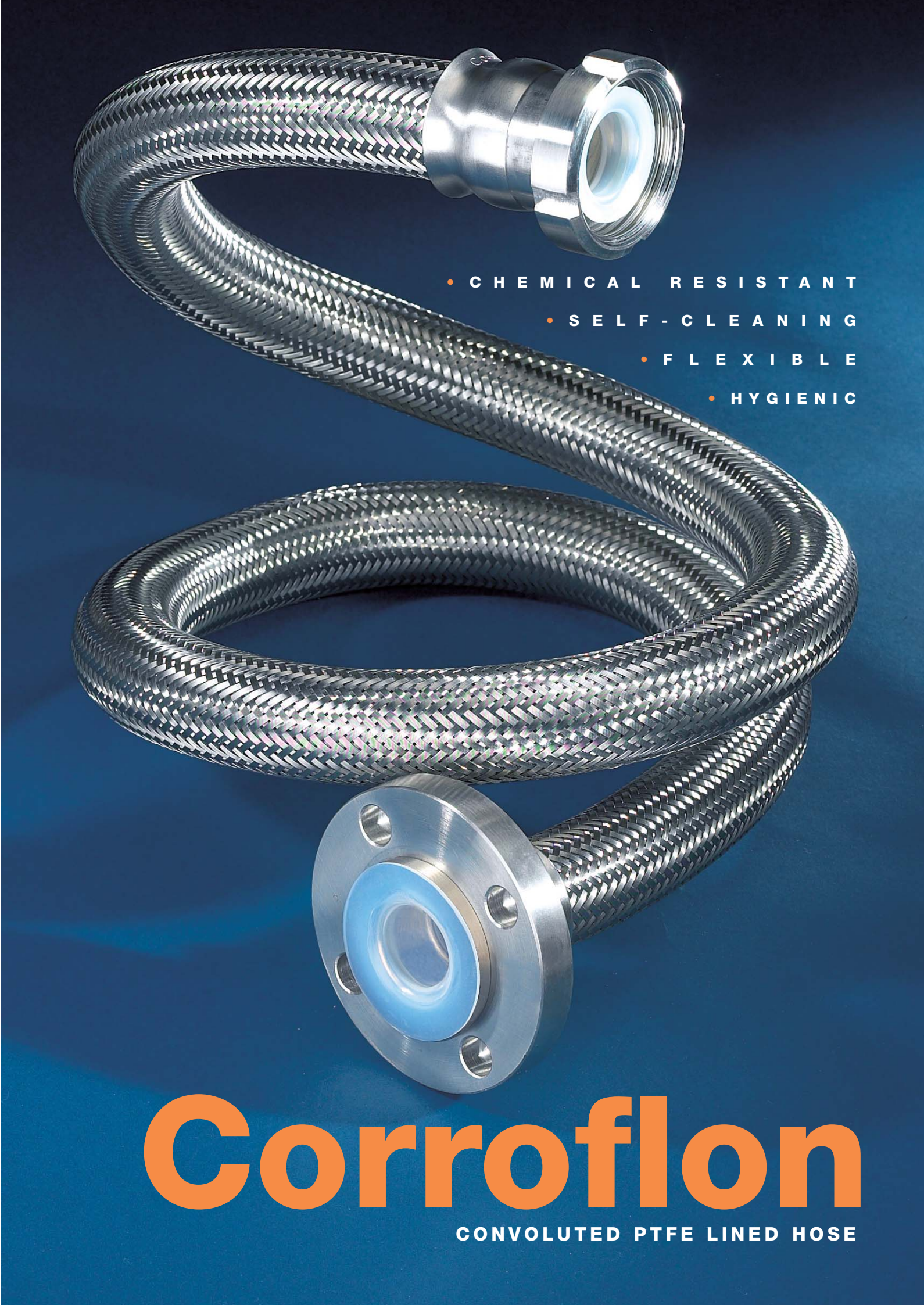
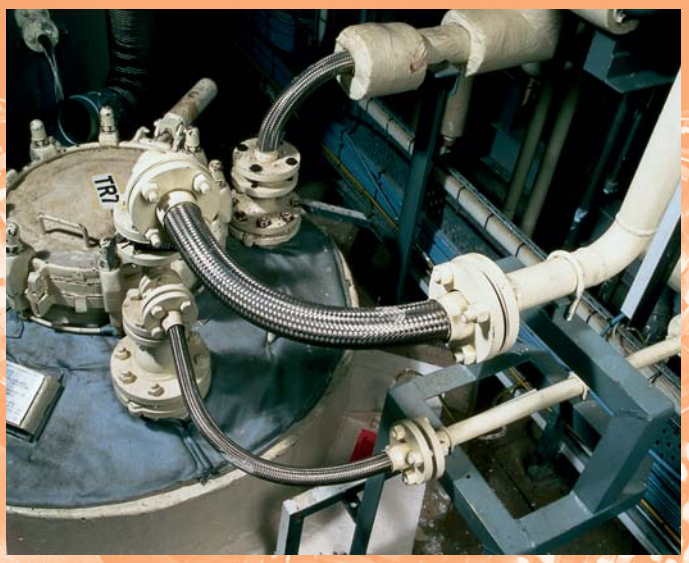

• CHEMICAL RESISTANT
• SELF-CLEANING
• FLEXIBLE
• HYGIENIC
Corroflon
CONVOLUTED PTFE LINED HOSE


TR7

Contents

Aflex Hose

The World's Leading Manufacturer of PTFE Flexible Hose

Aflex Hose pioneered the concept of PTFE lined flexible hose for the transfer of process fluids more than 25 years ago.

Corroflon convoluted and Bioflex smoothbore hose, both manufactured and supplied by Aflex, are used by major Chemical, Pharmaceutical and Food companies worldwide.

Over the years, hundreds of thousands of custom-built hoses have been designed and built to cope with the most difficult of operating conditions, and we have continuously developed and expanded our product range to meet increasingly stringent customer demands.

Corroflon

Convoluted, Reinforced PTFE Lined Hose

Corroflon was launched in 1978 and, since then, has been continually updated and improved. Now it is the industry-standard convoluted flexible PTFE hose for major chemical, pharmaceutical and food companies worldwide.

The key to Corroflon's success lies in its design and build quality, which guarantees a long, safe and reliable service life.

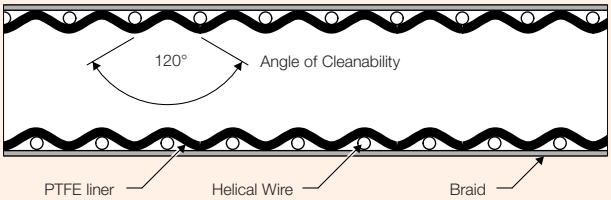
Corroflon's design differs from every other convoluted PTFE hose on the market, which results in distinctive and measurable performance and safety advantages.

Firstly, Corroflon will give better cleanability and drainability than any other convoluted PTFE hose on the market. This is because Corroflon is designed and manufactured in such a way that the angle of the convolutions is extremely shallow - 80° to 120°, compared with only 45° to 65° in other convoluted hose designs.

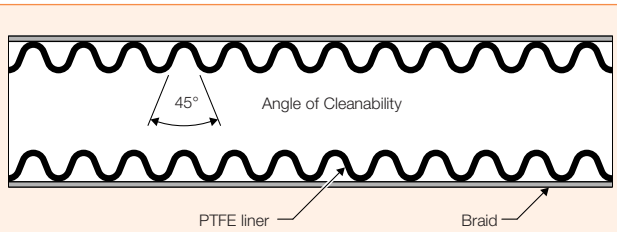
Secondly, Corroflon is the only PTFE lined convoluted hose on the market to be fully kink and vacuum resistant at high pressures and temperatures. This is because Corroflon's design incorporates a thick section external helical reinforcement wire which gives the radial support necessary to ensure maximum strength, whilst maintaining optimum flexibility and cleanability. The helix wire is welded directly to the end fittings at each end, ensuring security of attachment and electrical continuity.

And thirdly, Aflex is the only PTFE hose manufacturer to guarantee a minimum PTFE liner thickness of 1.5mm for hose sizes 1" and above, which ensures sufficient strength to prevent the tube from being internally pressurised from a sine wave shape into an extended square wave shape, which would lead to porosity, and eventually premature failure of the tube. This thick wall liner also minimises permeation, and is extended through the end fittings to give an uninterrupted clean flow of fluid through the fitting.

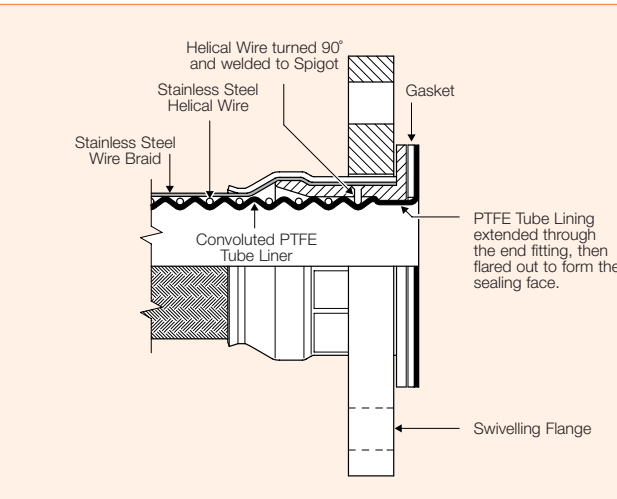
Corroflon GP PTFE Hose



Typical Convoluted PTFE Hose



Corroflon GP, SS Hose and PTFE Lined Flange Fitting



How to Order Corroflon

Corroflon Hose Assemblies

Corroflon is custom built to individual order and is supplied in the form of finished hose assemblies after the length, liner, braid and end fittings have been decided upon.

Selecting the Hose Grade

The basic grade of Corroflon is Corroflon GP,SS. In many cases, however, one or more of the alternative design options shown on pages 7 to 10 are incorporated in order to 'custom build' a hose. A hose grade is specified by using the abbreviations given. For example, a hose which requires a general purpose, anti-static liner with a polymer braid would be designated Corroflon GP,AS,PB.

Selecting the End Fittings

Corroflon is available with a range of standard end fittings, both integrally PTFE lined and non-lined, which are described on pages 11 to 18. These fittings may be applied to any grade of Corroflon hose, with either the same or different end fittings at each end of the hose assembly. Non-standard PTFE lined end fittings including RJP, Cherry Burrell and TW fittings are also available.

Hose End Fitting Materials

(1) Mild Steel (MS) End Fittings - These are manufactured from any suitable grade of carbon steel, and are zinc plated and iridescent (gold) passivated after machining.

Note: Due to the greater popularity and availability of Stainless Steel end fittings, however, end fittings ordered as MS are often supplied part, or completely with SS components at no extra charge.

(2) Stainless Steel (SS) End Fittings - All hose end fitting spigots are supplied made from Grade 316 SS, and all ferrules, swivelling nuts and flanges are from Grade 304 SS, or Grade 316 SS if Grade 304 is not available. The exception is for 1", 1 1/2" and 2" DIN specification PN10 flanges, which are supplied in 1.4571 (AISI 316Ti) SS. Grade 316 SS and Grade 304 SS, depending upon the method of manufacture, will be one of the following:

Grade	British Standard	American Standard	German/Euro Standard
316	316 S31	AISI 316	1.4401
316	316 S11	AISI 316L	1.4404
316	316 C16	CF8M	1.4408
304	304 S15	AISI 304	1.4301
304	304 S11	AISI 304L	1.4307
304	304 C15	CF8	1.4308

Corroflon Hose Lengths

Corroflon hose assemblies are made up to the specific lengths required. The hose length is taken as the length from the sealing face at one end of the hose to the same at the other end. The length tolerance is +10% -0% for lengths above 1 metre and +5% -0% for lengths up to 1 metre. Closer length tolerances are possible, but will incur an extra charge.

Corroflon Hose Assembly Length Limitations
(*For PTFE lined end fittings crimped to braided hose without a rubber cover)

Nominal Size of Hose		*Minimum Hose Assembly Length Used Straight		*Minimum Hose Assembly Length Flexed Thru' 90°		Maximum Hose Assembly Length	
in	mm	in	mm	in	mm	ft	mtrs
1/2	15	6	150	6	150	82	25
3/4	20	6	150	6	150	82	25
1	25	7	180	9	230	131	40
1 1/4	32	7	180	10	250	72	22
1 1/2	40	8	200	14	350	65	20
2	50	8	200	18	450	60	18
2 1/2	65	10	250	24	600	43	13
3	80	10	250	30	750	32	10
4	100	14	350	40	1000	32	10
6	150	20	500	60	1500	16	5

*For unbraided hose type TO (see page 8) the minimum lengths of hose assemblies may be reduced by 2" (50mm). For Assemblies with Non-Lined end fittings, and for PTFE lined end fittings on Rubber Covered Hose, the minimum lengths are longer, +4" (100mm) up to 1 1/2" bore, +6" (150mm) for larger sizes.

Corroflon

Quality Assurance, Certification, Testing and Identification

Quality Assurance Registrations

Corroflon Hose and Hose Assemblies are manufactured and supplied by Aflex Hose Ltd, which is independently certified, audited and registered to BS EN ISO 9001:2000.

Aflex Hose Ltd has also been assessed in compliance with the European Pressure Equipment Directive 97/23/EC Module D1, for the CE marking of all applicable hose products.

Certification

CE Marking

All CE marked hose assemblies (European supply only) are always accompanied by a Hose Usage Data Sheet and a CE Declaration of Conformity.

Other Certificates which can be supplied if requested, include:
Material Certificates, 3.1B certification to EN10204, including materials certificate copies from the original material suppliers.

Pressure Test Certificates and Certificates of Conformity, which confirm the fact that the hose assembly has been pressure tested to 1.5 times the maximum rated working pressure. Also, which certify that the hose assembly conforms to the requirements laid down.

(**NOTE:** Unassembled hose is supplied without pressure testing - see page 24).

Certificates of Conformity - In accordance with EN45014:1998

FDA and/or USP Documents, copies of letters from the PTFE raw material supplier, confirming compliance with FDA requirment 21 CFR 177.1550 and USP Class VI.

Certificates of Conformity for FDA Approved Materials.
Both for PTFE as above, but also for antistatic PTFE Lined Corroflon Hose which includes Carbon Black, in accordance with FDA requirement CFR 178.3297.

Testing of Corroflon Hose Assemblies

In addition to the rigorous quality control testing which is carried out at each manufacturing stage, all finished Corroflon hose assemblies are hydrostatically pressure tested to 1.5 times the Maximum Working Pressure of either the hose or the end fitting, which ever is the lower. See page 24 for further information, concerning untested hose assemblies.

Identification

Each hose assembly is supplied with a stainless steel identification tag or ring which includes the Manufacturer's Name (Aflex Hose Ltd), the hose description, working and test pressures, date of manufacture, and a unique serial number for traceability purposes.

Corroflon GP, SS

Purpose

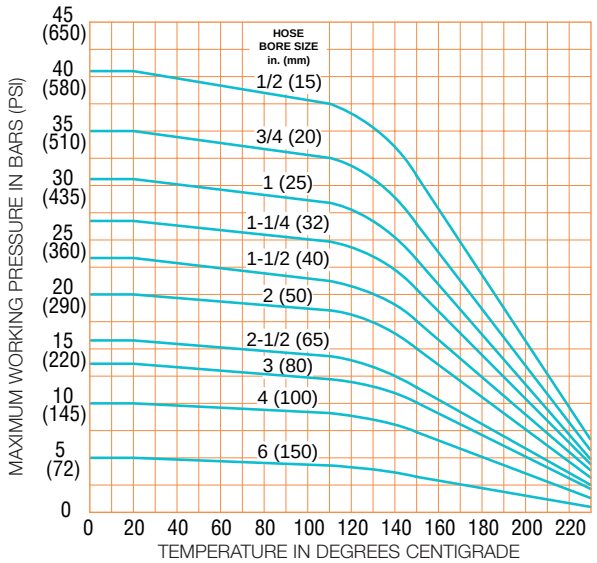
Corroflon GP, SS is the general purpose grade of hose and has been carefully designed to satisfy the widest range of application requirements.

Design

The hose liner is manufactured from hose quality grade PTFE conforming to FDA requirements 21 CFR 177.1550 and USP Class VI, extruded into tube and helically convoluted. It also includes a heavy gauge Grade 304 stainless steel reinforcing wire helically wound into the external root of the convolutions to strengthen the convoluted shape. The braid is high tensile grade 304 stainless steel wire braid to give maximum protection to the hose against internal pressure and external abrasion.

Temperature vs Pressure

The graph below gives maximum working pressures for each size of Corroflon GP, SS hose. At temperatures less than 0°C, the listed maximum working pressures apply, down to -70°C.



Temperature vs. Vacuum

All sizes of Corroflon GP,SS up to 2" bore are usable at full vacuum up to 130°C. At higher temperatures, the vacuum resistance should be reduced 1% for every degree above 130°C. For sizes above 2" bore, the vacuum resistance depends on the bend radius used. In general, for sizes above 2" when high/full vacuum resistance is required, use SP grade.

Corroflon Hose - Flow Rate Calculation

If it is required to determine the flow rate of a particular hose assembly, or if it is required to determine the pressure required to generate a certain flow rate, then this can sometimes be approximately calculated by the (Corroflon) supplier.

It should be noted that calculations can only be made for fluids with a viscosity like water, and for hose assemblies with PTFE lined end fittings (no bore restrictions at the ends of the hose).

The following information should be given to the supplier:
To calculate the Flow Rate in Cubic Metres per Hour:

- Pressure in Bars at the Entry into the Hose Assembly
- Pressure in Bars at the Exit from the Hose Assembly
- The hose configuration (roughly straight, or 33% Bends, or 66% Bends, or 100% Tightly Coiled)

To Calculate the Pressure Drop in bars over the length of the Hose Assembly:

- Required Flow Rate in Cubic Metres per Hour
- The hose configuration (roughly straight, or 33% Bends, or 66% Bends, or 100% Tightly Coiled)

Chemical Resistance - Use with Halogens

Although PTFE is well known for its almost universal resistance to chemicals in general, the fluorinated chemical structure of PTFE does allow the diffusion of trace quantities of Fluorine, Chlorine and a few other halogen related chemicals, under pressure. These can mix with atmospheric moisture to corrode stainless steel wire. Also, any chlorides outside the hose, in steam, or sea spray, if the hose is above 60°C, will induce 'chloride stress corrosion' of SS Braid. The KYB option (page 8) also special Monel or Hastelloy C276 wire braids are recommended for such applications.

As another alternative, Bioflex Hose (brochure available) has much superior diffusion resistance and is also available with the above braid options.

Corroflon Size Range

Nominal Hose Bore Size		Actual Bore Size		O/D of Tube	Braid Type	O/D of Braid or Rubber	Minimum Bend Radius
in	mm	in	mm	mm		mm	mm
1/2	15	3/8	9.5	16.00	TO SS PB SS,RC/FP RC,SI KYB	- 17.5 19.1 23.5 23.5 19.1	38 38 38 57 57 38
3/4	20	9/16	14.3	21.40	TO SS PB SS,RC/FP RC,SI KYB	- 23.1 26.0 29.6 29.6 26.0	51 51 51 76 76 51
1	25	13/16	20.6	29.40	TO SS PB SS,RC/FP RC,SI KYB	- 31.7 34.0 36.6 36.6 34.0	70 70 70 105 105 70
1 1/4	32	1	25.4	37.00	TO SS PB SS,RC/FP RC,SI KYB	- 38.4 43.6 42.8 42.8 43.6	82 82 82 123 123 82
1 1/2	40	1 1/4	31.7	42.70	TO SS PB SS,RC/FP RC,SI KYB	- 44.6 48.6 55.8 55.8 48.6	100 100 100 150 150 100
2	50	1 3/4	44.4	56.50	TO SS PB SS,RC/FP RC,SI KYB	- 59.0 62.0 68.0 68.0 62.0	140 140 140 210 210 140
2 1/2	65	2	50.8	71.00	TO SS PB SS,RC/FP RC,SI KYB	- 73.0 77.0 79.0 79.0 77.0	178 178 178 267 267 178
3	80	2 1/2	63.5	83.60	TO SS PB SS,RC/FP RC,SI KYB	- 86.0 90.0 95.0 95.0 90.0	230 230 230 345 345 230
4	100	3 1/2	89.0	123.3	TO SS PB SS,RC/FP RC,SI KYB	- 125.0 128.0 131.0 131.0 -	300 300 300 450 450 -
6	150	5 1/4	130.0	161.2	TO SS PB SS,RC/FP RC,SI KYB	- 170.0 173.0 176.0 176.0 -	600 600 600 900 900 -

& Specifications

MWP of Hose*	Minimum Burst Pressure	Maximum Continuous Hose Length	Weight per Unit Length
Bar	Bar	Mtrs	Kg/Mtr
6	18	25	.21
41	123	25	.33
41	123	25	.26
41	123	20	.40
41	123	10	.40
20.5	61.5	25	.23
5.25	15.75	25	.29
35	105	25	.45
35	105	25	.36
35	105	20	.54
35	105	5	.54
17.5	52.5	25	.31
4.65	13.95	40	0.45
31	93	40	0.70
31	93	40	0.56
31	93	20	0.84
31	93	5	0.84
15.5	46.5	40	0.49
4.05	12.15	22	0.53
27	81	22	0.82
27	81	22	0.66
27	81	20	0.98
27	81	5	0.98
13.5	40.5	22	0.57
3.45	10.35	20	0.97
23	69	20	1.50
23	69	20	1.20
23	69	20	1.80
23	69	5	1.80
11.5	34.5	20	1.05
3	9	18	1.36
20	60	18	2.10
20	60	18	1.68
20	60	20	2.52
20	60	5	2.52
10	30	18	1.47
2.40	7.20	13	1.68
16	48	13	2.58
16	48	13	2.06
16	48	20	3.10
16	48	5	3.10
8	24	13	1.81
2.10	6.30	10	2.14
14	42	10	3.29
14	42	10	2.63
14	42	20	3.95
14	42	5	3.95
7	21	10	2.30
1.5	4.5	10	3.46
10	30	10	5.33
10	30	10	4.26
10	30	20	6.40
10	30	3	6.40
-	-	-	-
0.75	2.25	5	6.50
5	15	5	10.00
5	15	5	8.00
5	15	20	12.00
5	15	3	12.00
-	-	-	-

Maximum Operating Temperatures (internal fluid): SS Braid -70˚C to +230˚C, PB Braid -30˚C to +100˚C.

SS, RC and SS, FP -40˚C to +140˚C, SS,SI -40˚C to +180˚C, KYB -40˚C to +120˚C.

(For external temperature limits, reduce maximum temperatures by 20˚C).

Pressure Variation with Temperature: SS Braid as per Graph on previous page; PB pressure as listed from -30˚C to +80˚C, then reducing 3% per ˚C up to a maximum temperature of 100˚C.

RC, FP and SI grades as per Graph on previous page, BUT only within the temperature range for the particular grade of rubber.

***MWP:** the Maximum Working Pressure of a hose assembly is limited to the lowest of the MWP's of either of the two end fittings, as given for each end fitting design on pages 11 to 20, or of the hose itself as listed.

Corroflon Hose Liners

AS - Anti-Static PTFE Liner

Purpose

Corroflon AS is suitable for use in applications where electrically resistive media, such as fuels, solvents, pure dry gases or freons are being conveyed, in order to prevent a damaging electrostatic charge build-up inside the hose.

Design

Manufactured from PTFE to USP Class VI, and FDA Requirement 21 CFR 177.1550. The Carbon Black additive is to FDA Requirement 21 CFR 178.3297.

Specifications

As for Corroflon GP,SS except that AS meets the anti-static hose requirements of BS2050:1978. The resistance is measured between the wetted inside surface of the hose liner and an end fitting, and this resistance must not exceed 10^7 ohms. When using an AS hose, at least one end fitting must always be connected to earth.

EC - Electrical Continuity (between end fittings)

Always specify EC grade if it is required. Resistances between end fittings for hoses up to 5 metres long are: for SS braided hose <10 ohms, and for PB or KYB <20 ohms.

SP - Special Purpose Liner

Purpose

For applications requiring a higher temperature/pressure rating, greater flexibility and improved kink and crush resistance.

Design

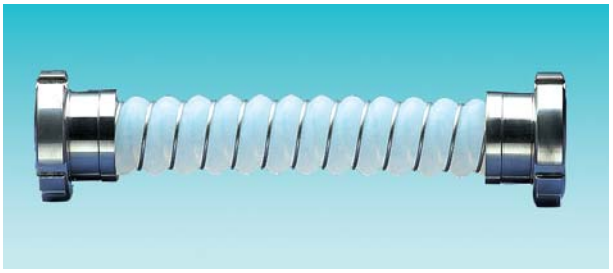
The convolutions are closer together, yielding greater radial strength to the hose design.

Specifications

As for Corroflon GP, except that the maximum working pressure for wire braided grades is increased by 25%, the weight per metre is increased by 30%, the actual through bore is reduced by 1/8" (3mm), the maximum continuous length is reduced by 50%, the minimum bend radius is reduced by 25% and the angle of cleanability is <80°.

Corroflon Hose Braids

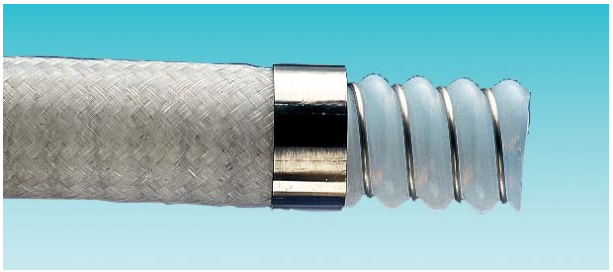
TO - Tube Only (no braid)



Purpose

TO grade hose is a lightweight hose, used in applications where working pressures are low and where there is no need for the physical protection offered by an external braid.

KYB - Kynar Braid (Polyvinylidene Fluoride Monofilament)



Purpose

Kynar Braid is primarily used where severe chemical corrosion conditions exist around the outside of the hose. This can happen when Chlorine or Fluorine are being transferred. Diffusion of these gases through the PTFE liner can lead to atmospherically wetted chlorine attacking the braid material, in which case the Kynar Braid would be resistant. For such applications it is recommended that Aflex Hose should always be given full application details to ensure an appropriate recommendation. Other, special braid alternatives for such applications include Monel and Hastelloy C276 wire.

Specifications

As for GP,SS except that the maximum working pressure is reduced by 50%, the maximum operating temperature (internal) is 120˚C and the weight per metre is reduced by 30%.

PB - Polypropylene Braid

Purpose

Polypropylene braided hose is often preferred to SS Braid in applications involving frequent handling and movement of the hose, and where temperatures are within the range -30˚C to +100˚C. PB braid is lighter in weight, and any broken strands will not cut the operator's hands. In addition, PB braid is not prone to chloride stress corrosion.

NB Electrical Continuity is maintained between end fittings by welding the helix wire to the spigot or ferrule at each end.

Specifications

As for GP, SS except that the operating temperature range (internal) is reduced to -30˚C to +100˚C, and the weight per metre is reduced by about 20%.

Corroflon External Protection & Coding

RC - Rubber Covered

Purpose

For the most rugged applications where the hose may be subjected to rough treatment and severe external abrasion. Road tanker hose is a typical application.

Design

A normal SS braided hose assembly has a specially formulated external rubber cover vulcanised directly onto the braid, to give excellent resistance to external abrasion and damage. The standard type of rubber applied is black anti-static EPDM rubber which has excellent chemical resistance and is temperature resistant up to 140°C (internal). Other colours are possible but these will not be anti-static. Other types of rubber which are also available, including silicone (RC, SI).

Colour Coding

Coloured stripes with individual texts, and/or different coloured rubbers may be used to identify the hose where required.

Specifications

As for GP,SS except that the operating temperature range is reduced, the weight per metre is increased by 20% and the minimum bend radius is increased by 50%.

Maximum hose lengths: EPDM etc: up to 20 metres.

Silicone: < 3/4" - up to 10 mtrs

3/4" to 3" - up to 5 mtrs

> 3" - up to 3 mtrs.

FP - Fireproof Rubber Covered

Purpose

For the same applications as normal rubber covered hose but where the hose is also required to be able to resist failure in the event of a fire, in accordance with Specification BS5173 Section 103.13 1994 (Fireproof).

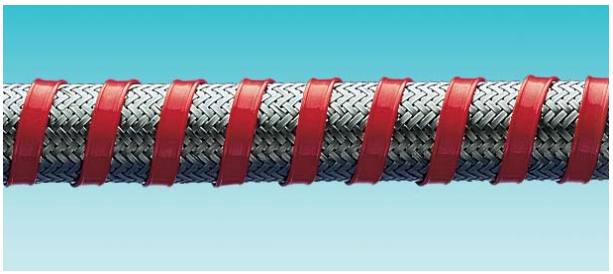
Design

As for RC hose, but the red EPDM rubber is specially compounded to be fire resistant. FP grade is not anti-static, but can be supplied anti-static (black) to special order.

Specifications

As for GP, SS, RC

CC - PTFE Colour Coded



Purpose

A coloured PTFE spiral tube marker is wound onto the hose. It is possible to do this with the hose already in application if required, and the marker may be removed with equal ease. The advantages of PTFE coloured markers are that they have excellent chemical resistance, and the non-stick PTFE surface ensures that the colour remains clean and bright. If required, it can be secured in place on the hose by a transparent heat-shrink polyolefin sleeve, but the PO sleeve cannot be applied to hoses in application.

Corroflon External Protection

SI, SLV - Silicone Rubber Sleeve

Purpose

For use in hygienic applications where the external smoothness and cleanability of the hose is of prime importance and where the condition of the braid can be visually monitored.

Design

A semi-transparent silicone rubber sleeve is applied over the braid.

Limitations

Not available for hose sizes above 3" (80mm). Loose on the hose O/D - not tight like RC-Silicone.

SR - Scuff Rings

Purpose

For medium/heavy duty applications where the hose requires some protection against abrasion when dragged over the ground, but where a full rubber cover would be too heavy and cumbersome. Also for PB braided hose, which cannot be Rubber Covered.

Design

Specially moulded abrasion resistant rubber scuff rings are placed every half metre along the hose.

Limitations

Hose sizes 1" (25 mm) to 3" (80 mm) only.

Specifications

As for GP,SS except that the internal operating temperature should not exceed 140˚C.

PC - Protection Coil

Purpose

For applications where the hose requires protection against abrasion when dragged over the ground, but where any rubber reinforcement is not permissible (due to temperature, chemicals etc).

Design

A stainless steel wire helix is wound on to the braid and is then welded to the ferrules at each end.

Specifications

As for GP, SS except that the weight is increased by 15%.

EPR - Ends Protected by Rubber

Purpose

For applications where the hose may be severely flexed at the end fitting, and where handling of the hose at the end fitting may be required when the hose is very hot or cold to touch.

Design

The hose includes a rubber sleeve 300mm long attached to the ferrules at each end, which reinforces the hose against the effects of flexing at the fitting and insulates the operator's hands from the heat or cold of the hose.

Corroflon Standard Flange Fittings

Flange Fittings

Description

Swivel flange fitting, integrally PTFE lined and flared.

Specifications

Flanges to ASA150 or DIN PN10. Different pressure ratings of flanges to these specifications are also available.

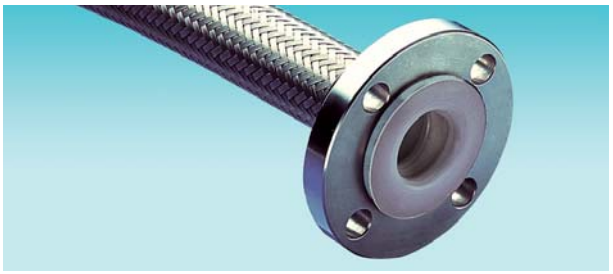
Note: DIN Standard PN10 and PN16 flange dimensions and specifications are identical. Flanges are normally stamped PN10, but are suitable for PN16 use if required.

Materials

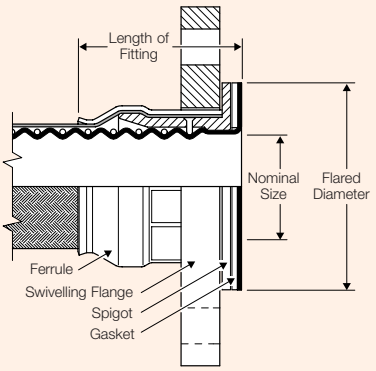
Spigot in 316 SS, Ferrule in 304 SS, Flanges either MS, Zinc Plated Mild Steel or in Grade 304 SS, except 1", 1 1/2" and 2" PN10 flange in Grade 316 Ti (1.4571) SS.

Maximum Working Pressures

These are defined by the flange specification. For standard ASA 150, the maximum working pressure is 16 Bar. For PN10, 10 Bar. For PN40, 40 Bar etc. Test pressures are 1.5 times the Maximum Working Pressure. (Exceptions: when the hose MWP is less than the fitting MWP)

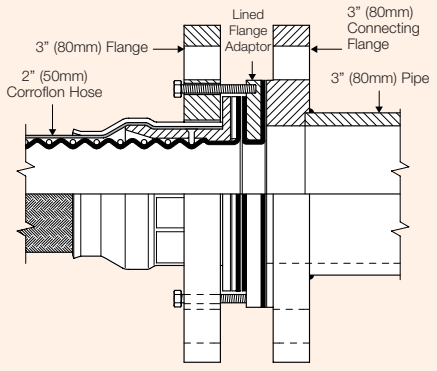


Standard Flange Fitting



Nominal Size - Flange & Hose		Fitting Length		Flared Diameter		Recommended Bolt Tightening Torques		Weight/ Fitting
in	mm	in	mm	ASA150 mm	PN10/16 mm	ft.lbs	Nm	kg
1/2	15	1 5/8	42	32.0	32.0	8	10.79	0.54
3/4	20	2 1/4	56	43.0	50.0	8	10.79	0.88
1	25	2 3/8	60	50.8	63.5	10	13.73	0.96
1 1/4	32	2 3/8	60	63.0	78.0	12	16.67	1.36
1 1/2	40	2 1/2	63	73.0	88.0	15	20.59	1.75
2	50	2 5/8	66	92.0	102.0	25	34.32	2.70
2 1/2	65	3 1/4	82	105.0	122.0	30	41.18	4.00
3	80	3 1/4	82	127.0	127.0	40	53.94	5.00
4	100	4 1/2	114	158.0	158.0	40	53.94	7.00
6	150	6	150	213.0	213.0	50	67.67	13.00

Flange Adaptor Joint



Adapting for Different Flange Sizes

To fit larger than nominal flange sizes

It may be necessary to fit a larger than nominal flange size to the hose - for example, 3" flange fitted to one end of a 2" hose - in which case it may also be necessary to increase the diameter of the sealing face to the correct size for the larger flange. This can be achieved by means of a flange adaptor as shown.

To fit smaller than nominal flange sizes

Within limits, it is also possible to make up an assembly with a flange one size smaller than the nominal size. The smaller flange is bored out and fitted to the larger hose and, if necessary, the flared diameter is reduced to suit.

Consult the supplier if a different flange size is required.

Corroflon DIN 11851 Fittings

DIN 11851 Fittings (Male & Female)

Description

DIN 11851 male and female fittings, integrally PTFE lined. Also available non-lined, up to 4" (100).

Specification

Generally to German DIN 11851 specification.

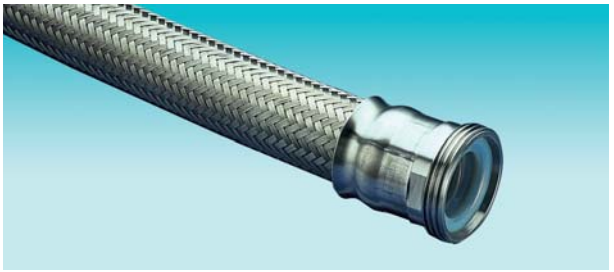
NB: The PTFE lined male fitting is designed to be used without a rubber seal. Please note that extra spanner tightening of the nut is sometimes required in order to provide a leak free connection.

Materials

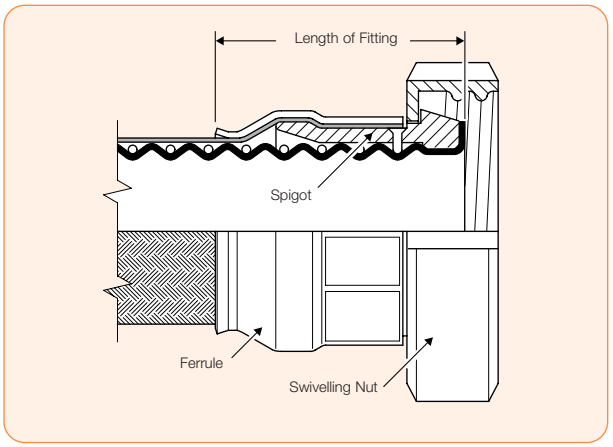
All components in stainless steel, Spigots Grade 316, Nuts and Ferrules Grade 304.

Maximum Working Pressures

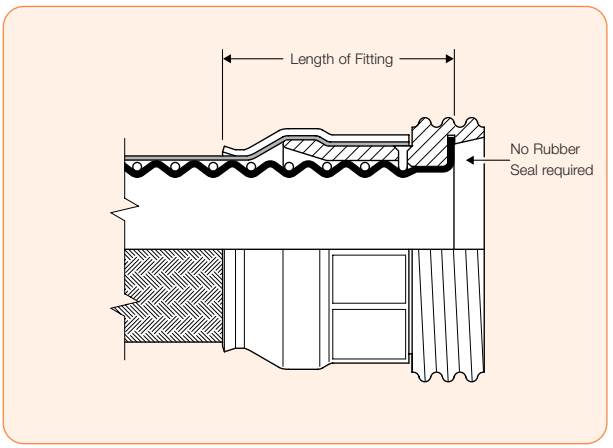
As listed for the type of Corroflon Hose used.



DIN11851 Female Fitting



DIN11851 Male Fitting



Nominal Size		Length (Male)		Length (Female)		Weight of Fitting	
						Male	Female
in	mm	in	mm	in	mm	kg	kg
3/4	20	2 3/8	60	2 3/8	60	0.18	0.22
1	25	2 3/8	60	2 5/8	67	0.22	0.36
1 1/4	32	2 1/2	65	2 3/4	70	0.27	0.47
1 1/2	40	2 5/8	67	2 7/8	73	0.33	0.55
2	50	2 5/8	67	2 7/8	73	0.58	0.93
2 1/2	65	3 1/2	89	3 5/8	92	0.73	1.31
3	80	4	100	3 5/8	92	1.00	1.57

Corroflon Standard Cam Action Fittings

Cam Action Coupler (Female) Fittings

Description

Cam Action Quick Release Coupler fitting, integrally PTFE lined.

Specifications

Generally to MIL-C-27487. (Fully interchangeable with other makes of Cam Action type quick-release fittings to this specification).

Materials

Cam action spigot in grade 316 SS, ferrule in grade 304 SS, standard gasket in Nitrile rubber with alternatives as shown below.

Mating Connectors

A wide variety of mating connectors is available, including BSP female threaded adaptors and PTFE lined flange adaptors.

Limitations

Usable at temperatures up to 100°C, but higher temperature use is possible, dependent upon the gasket materials (see below).

Maximum Working Pressures

All sizes 10 Bar (Test Pressure = 15 Bar)

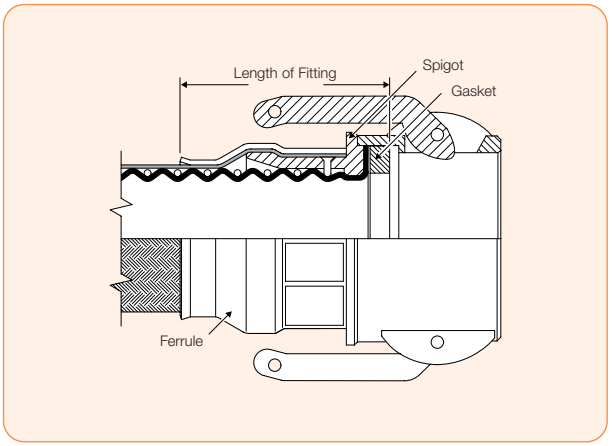
Higher working pressures up to 18 Bar are available to special order.

Alternative Gaskets

FEP-encapsulated silicone rubber gasket (Rubber fully encapsulated inside FEP outer). Usable at temperatures up to 160°C. **Note:** this type of gasket requires higher clamping forces to ensure a positive seal. Normally supplied with a polypropylene or aluminium male fitted, to compress and 'pre-set' the seal, which must be re-fitted when the hose is disconnected.

Other types of gaskets are also available, including EPDM or Viton Rubber gaskets.

Cam Action Coupler (Female) Fitting



Nominal Size		Length		Weight of Fitting
in	mm	in	mm	kg
3/4	20	2 1/4	57	0.35
1	25	2 1/2	63	0.45
1 1/2	40	2 3/4	70	0.84
2	50	2 3/4	70	1.10
2 1/2	65	3 3/8	86	1.38
3	80	3 3/8	86	1.87
4	100	5	127	2.81

Cam Action Adaptor (Male) Fittings

Description

Cam Action Quick Release Adaptor (male) fitting, integrally PTFE lined.

Materials & Size Range

As above for the Coupler fitting.

Corroflon Saflok Cam Action Fittings & Connectors

Saflok Autolocking Cam Action Coupler Fittings

Description

Waterson-type Locking Arm Cam Action Quick Release Fitting. The lock is released by pulling a wire ring horizontally away from the fitting, then using the ring to pull the arm open.

Construction & Materials

As for the Cam Action Coupler on the page opposite. The fitting is the same length, but has ring operated trigger locks on both arms.

Maximum Working Pressures

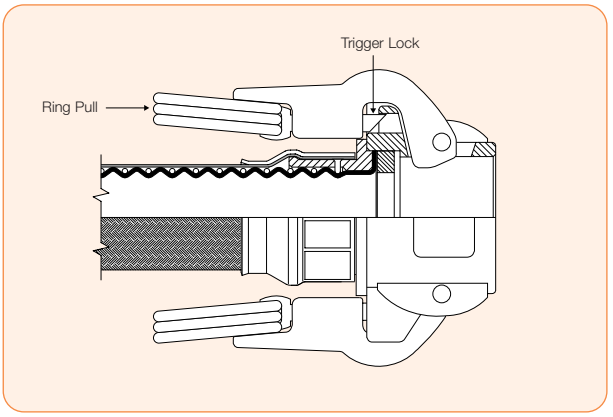
As on the page opposite.

Specifications

Other sizes available to special order.

Nominal Size		Length		Weight of Fitting
in	mm	in	mm	kg
1	25	3 1/4	82	0.59
1 1/2	40	3 3/4	95	1.15
2	50	3 3/4	95	1.40

Saflok Cam Action Fitting



Cam Action Adaptor to Flange Connectors

Description & Purpose

SS Cam Action Adaptor (male) to Flange Connector, PTFE lined right through the connector.

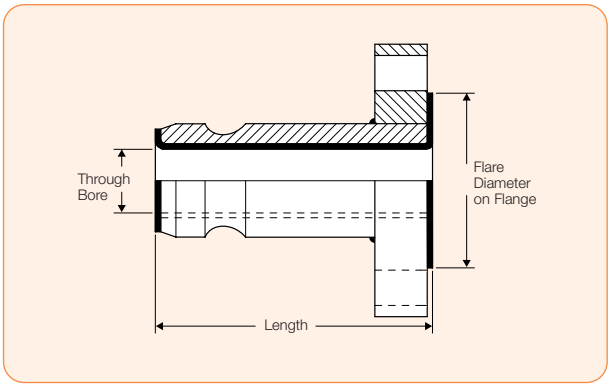
Construction & Materials

The SS Cam Action Adaptor and Flange components are welded together, and include a thick wall PTFE liner, either GP or AS grade, flared at both ends.

Alternatives

PTFE lined Cam Action Coupler to Flange Connectors can also be supplied, to special order. Also DIN11851 male or female or Triclover-to-Flange Connectors.

Cam Action Adaptor to Flange Connector



Cam Action Adaptor Size		Flange Size & Specification	Flare Dia. on Flange		Length		Minimum Through Bore	
in	mm		in	mm	in	mm	in	mm
1	25	1" ASA 150	2.00	50	4 1/8	105	0.84	21
1	25	DN25/PN16	2.58	63.5	4 1/8	105	0.84	21
1 1/2	40	1 1/2" ASA 150	2.87	73	4 3/8	118	1.35	34
1 1/2	40	DN40/PN16	3.47	88	4 3/8	118	1.35	34
2	50	2" ASA 150	3.63	92	4 3/8	118	1.69	43
2	50	DN50/PN16	4.00	102	4 3/8	118	1.69	43
3	80	3" ASA 150	5.00	127	5 1/8	130	2.79	71
3	80	DN80/PN16	5.44	127	5 1/8	130	2.79	71

Corroflon Triclover Fittings

Triclover Fittings

Description

Triclover fitting (also known as Triclamp or Clamp Pipe fittings) integral PTFE lined and hot formed. Hotformed design patented in Europe by Aflex Hose Ltd.

Specifications

Generally in accordance with BS4825: Pt 3, ISO 2852 or DIN 32676.

Materials

Spigots Grade 316 SS. Ferrules Grade 304 SS.

Size of Triclover Fittings

BS4825 and DIN32676 are the popular, listed specifications. Both specify the **same** range of flange diameters and groove dimensions, but specify **different** nominal sizes for the attached pipes or hoses.

To avoid confusion, it is therefore important to clearly identify the following:

1) What Flange Diameter is required?

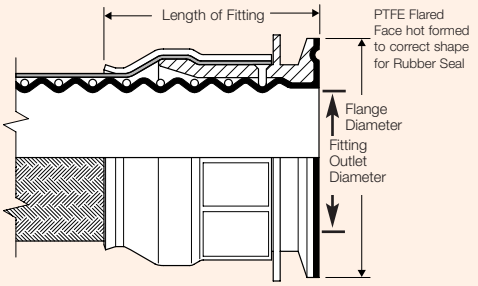
2) What Hose or Pipe Size is required?

3) Is the listed Outlet Diameter acceptable? (if not, consult Aflex Hose Technical Department).

Maximum Working Pressures

All sizes 16 Bar. (Test Pressure = 24 Bar).

PTFE Lined Triclover Fitting



Non-lined Triclover Fittings

Non-lined Triclover Fittings are also available, manufactured in the same materials to the same specifications as the lined Triclover Fittings.

Available with a polished or electro-polished bore to customers' requirements.

'Step Up or Step Down' sizes are also available to special order.

Standard Range - BS 4825 Pt 3 Range

Nominal Hose Bore Size		Nominal Pipe Size		Pipe Inside Diameter		Fitting Outlet Diameter		Flange Diameter	Length of Fitting
in	mm	in	mm	in	mm	in	mm	in	mm
1/2	15	1/2	12.7	3/8	9.5	3/8	9.5	25.4•	50
1	25	1	25.4	7/8	22.2	7/8	22.2	50.5	60
1 1/2	40	1 1/2	38.1	1 3/8	34.9	1 3/8	34.9	50.5	63
2	50	2	50.8	1 7/8	47.6	1 7/8	47.6	64	66
2 1/2	65	2 1/2	63.4	2 3/8	60.3	2 3/8	60.3	77.5	82
3	80	3	76.1	2 7/8	73.0	2 7/8	73.0	91	82

• A special, non standard size, not specified in ISO 2852 or BS 4825

DIN 32676 Range

Nominal Hose Bore Size		Nominal Pipe Size	Pipe Inside Diameter	Fitting Outlet Diameter	Flange Diameter	Length of Fitting
in	mm	mm	mm	mm	mm	mm
3/4	20	DN20	20.0	18.0	34	50
1	25	DN25	26.0	22.2	50.5	60
1 1/4	32	DN32	32.0	28.0	50.5	63
1 1/2	40	DN40	38.0	34.9	50.5	63
2	50	DN50	50.0	47.6	64	66

Corroflon SMS & RJT Fittings

SMS Female Fittings

Description

SMS female fitting, integrally PTFE lined.

Specification

Generally to Swedish SMS specification.

Materials

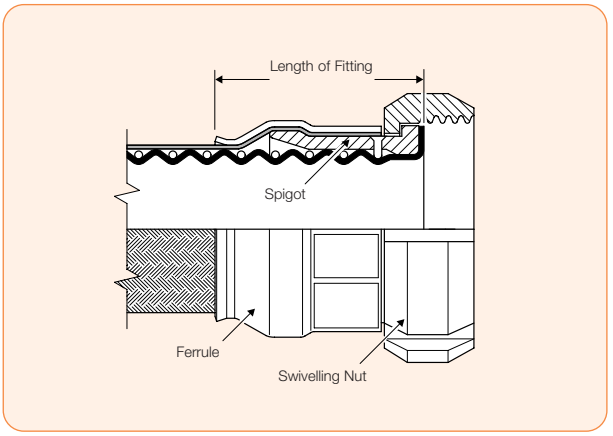
All components in stainless steel.

Maximum Working Pressures

All sizes 10 Bar (Test Pressure = 15 Bar).

Nominal Size		Length		Weight of Fitting
in	mm	in	mm	kg
1	25	2 1/2	63	0.25
1 1/4	32	2 5/8	67	0.36
1 1/2	40	2 3/4	70	0.46
2	50	2 3/4	70	0.64
2 1/2	65	3 3/8	86	0.75
3	80	3 3/8	86	0.87

SMS Female Fitting



RJT Female Fittings

Description

RJT female fitting, integrally PTFE lined.

Specification

Generally to BS4825 Part 5 1991.

Materials

All components in stainless steel.

Alternative Specification

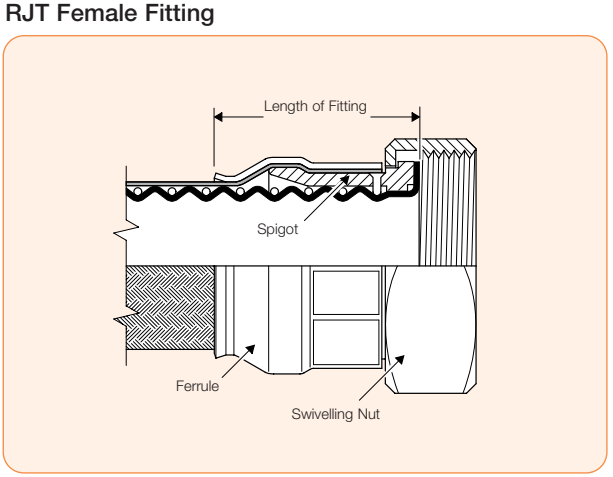
There is a variant of the RJT fitting referred to as the ILC fitting, which uses the RJT nut.

Maximum Working Pressures

All sizes 10 Bar (Test Pressure = 15 Bar).

Nominal Size		Length		Weight of Fitting
in	mm	in	mm	kg
1	25	2 1/2	63	0.25
1 1/2	40	2 3/4	70	0.46
2	50	2 3/4	70	0.64
2 1/2	65	3 3/8	86	0.75
3	80	3 3/8	86	0.87

RJT Female Fitting



Corroflon Non Lined End Fittings

Fixed Male Fittings

Description

Fixed male fitting, BSP taper thread non-lined.

Specifications

Threads to BS21 1985.

Materials

Spigots are either in zinc plated mild steel, grade 316 stainless steel, or polypropylene with a grade 304 stainless steel ferrule.

Alternatives

Can be supplied with NPT, metric or parallel screwthread, with a flat face or a 60˚ internal cone.

Limitations

P/P fixed male fittings are only usable between -10˚C to +60˚C, and maximum working pressures are reduced as below.

Maximum Working Pressures (MWP)

MS and SS MWP (As given for the hose). Polypropylene or other Plastic - 1/2 MWP for the hose, up to a maximum working pressure of 10 Bar.

Self Sealing Couplings

Fixed males can be supplied with self sealing quick release couplings or “Dry Break” couplings, like Epsilon or Dry-Link screwed on if required.

Cone Seat Female Fittings

Description

60˚ cone seat female union fitting, BSP parallel thread non-lined.

Specifications

Generally to BS5200 1997 and ISO 1179.

Materials

Spigots are either in mild steel or grade 316 stainless steel, Nuts in MS or grade 304 SS, and ferrules in grade 304 SS.

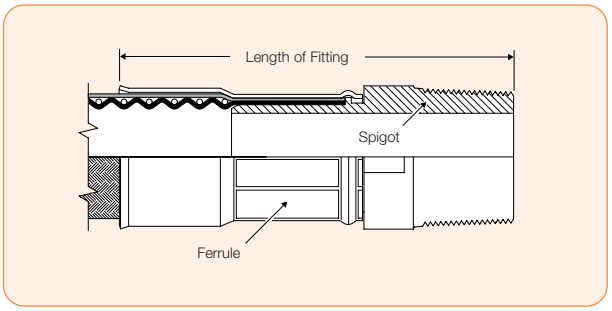
Alternatives

These fittings may be supplied with a flat seat, or with a metric or NPSM thread. Lug Nut female union (and male) fittings are also available, in gun metal or stainless steel.

Maximum Working Pressures

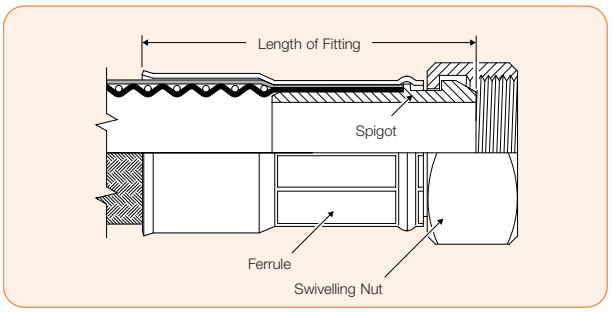
As given for the hose. (Test Pressures = MWP x 1.5).

Fixed Male Fitting



Nominal Size		Length		Weight of Fitting (steel)
in	mm	in	mm	kg
1/2	15	2 5/8	67	0.10
3/4	20	3 1/2	89	0.16
1	25	3 7/8	98	0.26
1 1/4	32	4 3/8	110	0.40
1 1/2	40	5 1/8	130	0.58
2	50	5 1/2	140	0.95
2 1/2	65	6 3/4	170	1.70
3	80	6 3/4	170	2.20
4	100	7 1/2	190	4.55

Cone Seat Female Fitting



Nominal Size		Length		Weight of Fitting
in	mm	in	mm	kg
1/2	15	2 1/2	63	0.08
3/4	20	3 1/2	89	0.18
1	25	3 1/2	89	0.27
1 1/4	32	3 1/2	89	0.50
1 1/2	40	3 7/8	98	0.58
2	50	4	100	0.92

Corroflon Dip Pipes & Cuffed Ends

Fixed Dip Pipes

Description

Fixed dip pipes are rigid tubes, either straight or bent through 90° (as shown) which, are crimped directly to the end of the Corroflon hoses. They are designed for insertion into drums, tanks and reaction vessels in order to suction drain (or inject) process fluids transferred through the hose.

Materials

Standard dip pipes are in anti-static (AS) PTFE. Also available in 316 SS, polypropylene, virgin PTFE and other materials.

How to order

Specify the size and material of the dip pipe, whether it is straight or 90° elbow. Give the length of the straight leg of the dip pipe and the length of the flexible section of the hose section separately.

Limitations

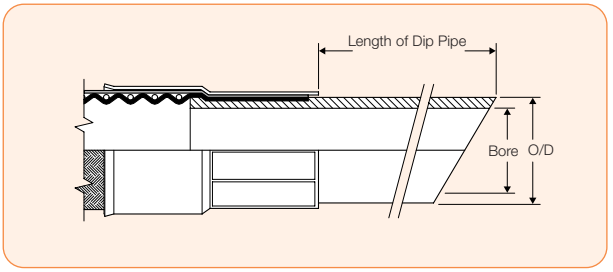
Only tested to 4 Bar pressure and not suitable for use at pressures higher than 3 Bar.

Lengths

Dip pipes can be supplied in any length, to individual requirements.
When a 90° elbow dip pipe is supplied, the hose length is measured from the hose fitting to the axis of the open ended leg of the dip pipe, and the dip pipe length from the axis of the hose to the open end of the dip pipe. Please specify both when ordering.

Nominal Hose Bore Size		Approximate Dip Pipe Dimensions			
		Outside Diameter		Inside Diameter	
in	mm	in	mm	in	mm
1/2	15	0.63	16	0.31	8
3/4	20	0.87	22	0.51	13
1	25	1.14	29	0.83	21
1 1/2	40	1.54	39	1.00	27
2	50	2.17	55	1.58	40

Fixed Dip Pipe



Cuffed End

Description

Cuffed end.

Limitations in use

Because the outer sleeve retaining the end of the braid is fairly loose, this type of end is only suitable for use where the cuff is to be permanently connected to a spigot. It is unsuitable for use unconnected, and for any disconnection and reconnection duties. It is not suitable for pressures above 3 bar (45 psi) in sizes up to 1 1/2" or 1 bar (15 psi) in sizes from 2" to 4". Spigots must be shouldered at the end, all edges rounded, and 2 clips must be used to make each connection.

Specifications

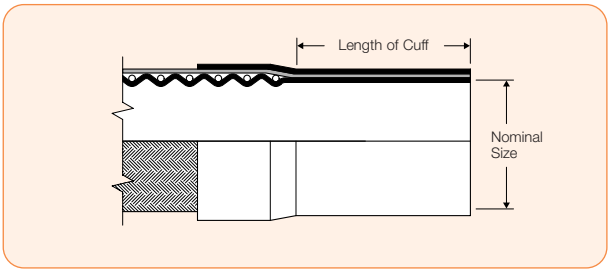
Bore of Cuff = Nominal Bore Size.

Materials

Outer sleeve in black PTFE.

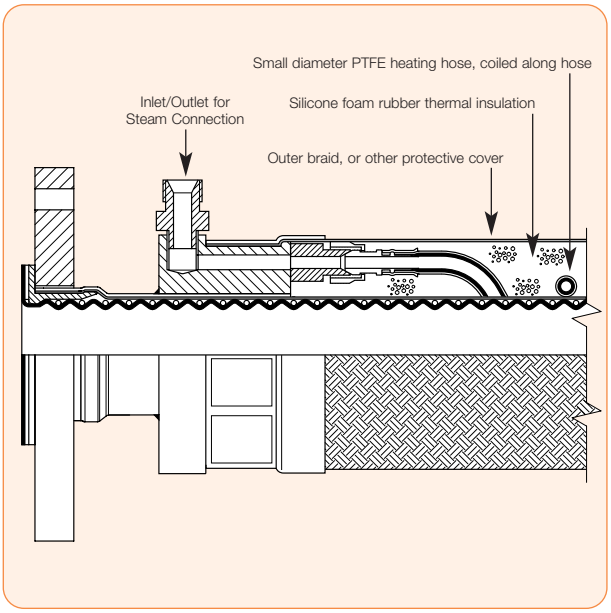
Bore (in)	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
Bore (mm)	13	19	25	32	38	50	63	76	101
Length (in)	1	1	1 1/2	1 1/2	2	2 1/2	3	3 1/2	4
Length (mm)	25	25	38	38	50	63	76	90	101

Cuffed End



Corroflon Steam Heated Hose Assemblies. (CH Grade)

CH Hose Assembly



Purpose

For use in applications where the temperature of the process fluid entering the hose assembly must be maintained as it passes through the hose. This is usually required to prevent solidification or an increase in the fluid viscosity. Steam or hot oil heating is preferred to electrical heating in some applications for reasons of availability or safety, but is less controllable.

Description

The heating element comprises a small diameter PTFE heating hose, 6mm or 9.5mm bore size, with a single SS wire braid. This is spirally wrapped around the hose, with inlet and outlet ports attached either both at one end or at opposite ends of the hose assembly. In the case of hose assemblies longer than 3 metres, it is usual to have not one but several heating hoses with inlet ports at opposite ends and along the hose. This reduces the effects of temperature loss over the length of the hose assembly. The thermal insulation is closed-cell, fire resistant silicone foam rubber. The outer cover may be Polypropylene Braid or SS wire braid with a rubber cover if necessary.

Design

Each hose is custom designed and built to suit the requirements of the particular application. The following information is therefore required:

- Fluid in Hose Assembly
- Maintained Temperature of Fluid in Hose
- Temperature of Steam or Fluid in the Heating Hose
- Min/Max Ambient Temperature
- External Conditions of Abrasion etc

Specifications

As for Corroflon GP, SS on page 4, except the size range is 1” to 3”, the minimum bend radius is tripled, and the outside diameter and weight are significantly increased in line with the particular design.

Corroflon Electrically Trace Heated Hose Assemblies. (ETH Grade)

Purpose

For use in applications where the temperature of the process fluid entering the hose assembly must be maintained as it passes through the hose. This is usually required to prevent solidification or an increase in the fluid viscosity. In some applications, an additional 'heating up' or 'melting' facility is also required. Electrical heating is often preferred to steam heating because it is more convenient, more controllable and usually more readily available. 'Zone 1 Hazardous Area' requirements can be met.

Description

The heating element comprises either a resistance element or a self-regulating element spirally wrapped around the hose assembly. Resistance element heated hoses usually also require a temperature sensor to be built in to the construction. The power leads and (if applicable) temperature sensor leads emerge from the hose assembly at one end, through glands and conduits. The thermal insulation is foam rubber, closed-cell fire resistant silicone foam rubber for temperatures above 80℃. The outer cover may be a Polypropylene Braid or SS wire braid with a rubber cover if necessary, or a ribbed PVC waterproof sleeve.

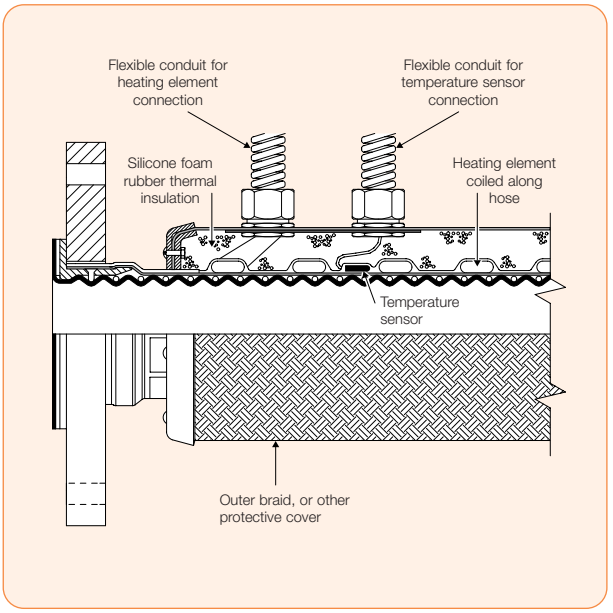
Design

Each hose is custom designed and built to suit the requirements of the particular application. Application details must be supplied by filling in an "ETH Hose Questionnaire", available from Aflex Hose. Generally, for Hazardous Areas, the Self Regulating type of heating element is employed, with or without a temperature sensor and control, and flameproof glands and conduit are also required. The watts per metre of the heating element, the pitch of the spiral on the hose, and the thickness of the thermal insulation are all calculated in accordance with established formulae to give the required maintained temperature for the process fluid passing through.

Specifications

As for Corroflon GP, SS on page 4, except that the minimum bend radius is tripled and the outside diameter and weight are significantly increased in line with the particular design. Maximum ETH Hose Assembly Lengths are as given for Corroflon GP, SS.

ETH Hose Assembly



Hose Configurations & Length Calculations

Hose Configuration Requirements

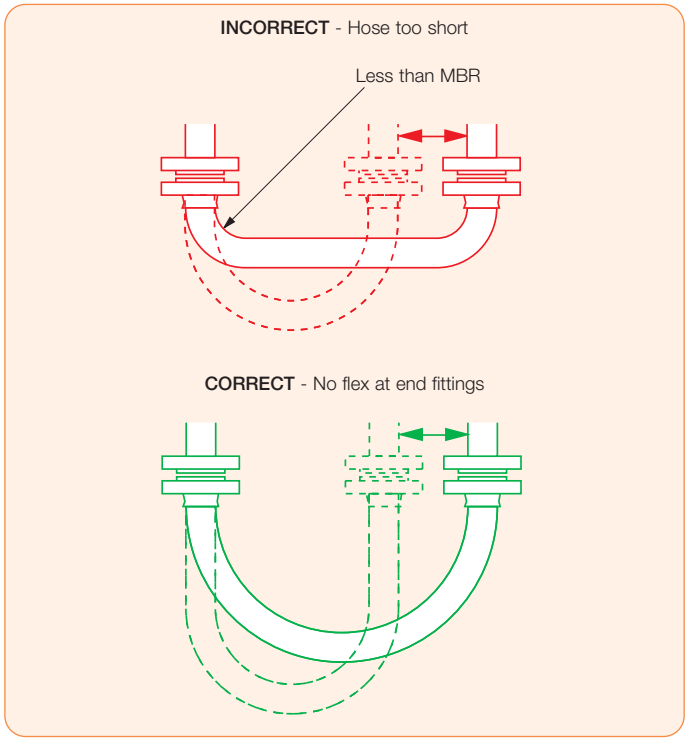
Hose Assemblies are usually connected at both ends in service. They may then either remain in a fixed, or static configuration or in a flexing, or dynamic configuration.

Whether static or dynamic, the First Rule concerning the configuration of the hose is that **the bend radius of the hose must never be less than the Minimum Bend Radius (MBR) for the hose** as listed in the relevant hose brochure.

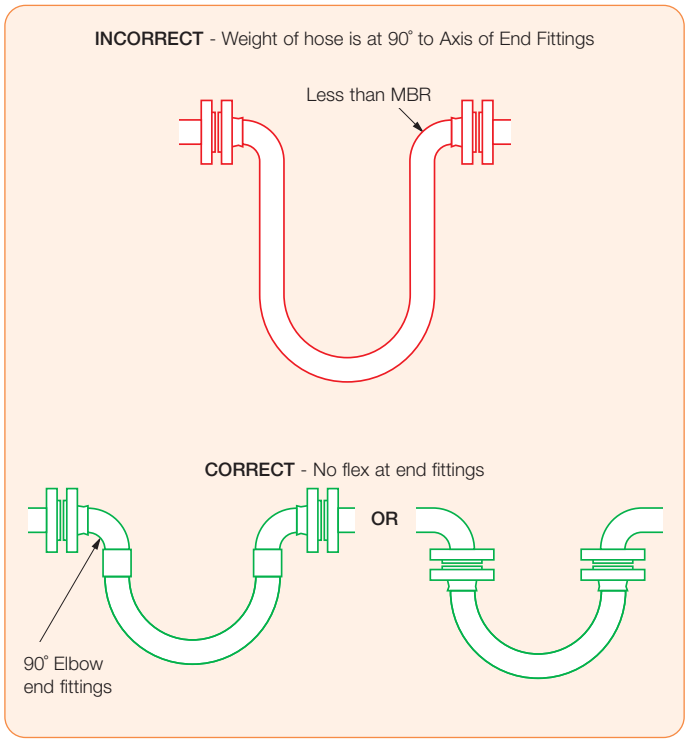
The most common situation when this is likely to occur is when the hose is flexed at the end fitting, with stress being applied to the hose at an angle to the axis of the end fitting. Typically, this happens either because the length of the hose is too short, or because the weight of the hose plus contents creates a stress at an angle to the end fitting.

The Second Rule, therefore, if possible, is to **design the configuration to ensure that any flexing in the hose takes place away from the end fittings.**

(Dynamic) Configuration



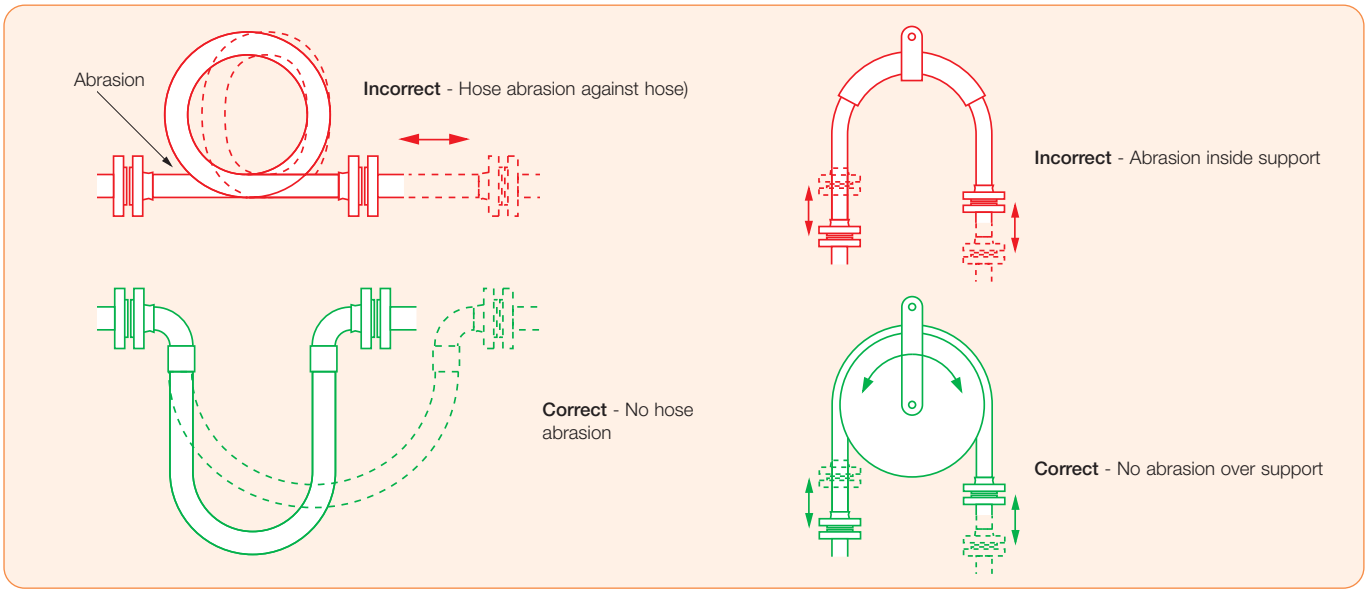
(Static) Configuration



Hose Configurations & Length Calculations

The Third Rule is that **the hose configuration should always be designed, and supported where necessary, to avoid any possibility of external abrasion.**

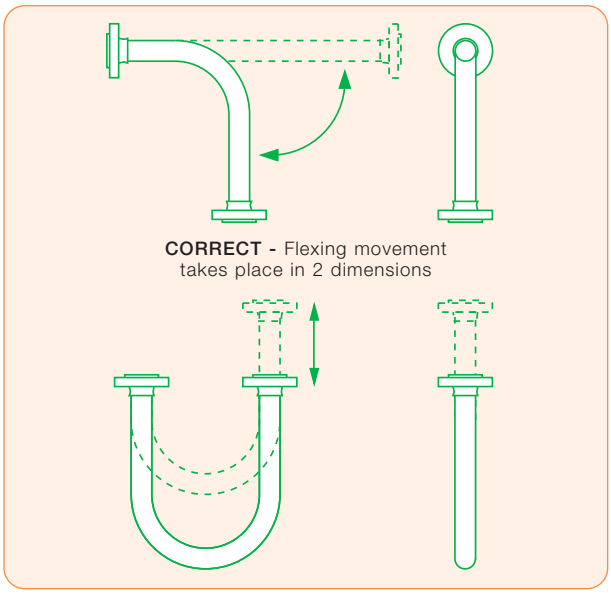
In some cases, the length, configuration and angle of the hose can be designed to avoid abrasion. In others, static or moving support frames or support wheels are required.

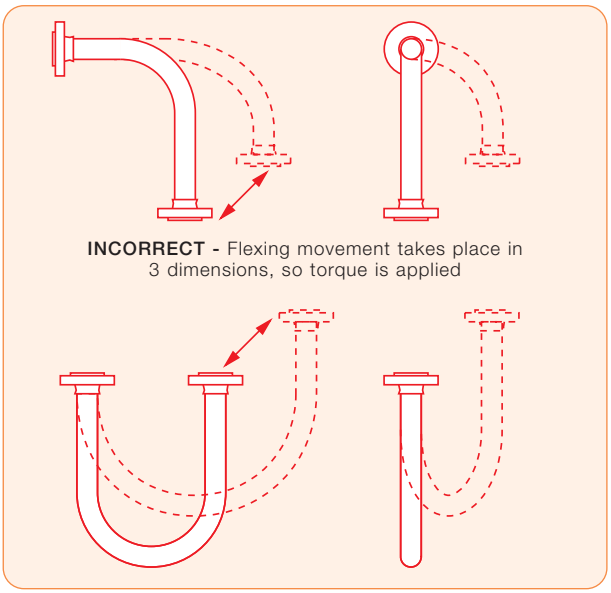


The Fourth Rule is that **the hose must not be subjected to torque, either during connection, or as a result of the flexing cycle.**

Torque (twist) in the hose can be applied during connection if the hose is accidentally twisted, or if the second end being connected is a screwed connection, and the hose is subjected to torque during final tightening.

In a flexing application, if any flexing cycle of the hose occurs in 3 dimensions instead of 2, then torque will also occur:





Both Corroflon and Bioflex hose have good resistance to a small level of torque, much better resistance that rubber or SS hose types, but it is still the best practice to take whatever steps are necessary to eliminate torque. If in doubt, consult Aflex Hose.

Hose Configurations & Length Calculations Continued

Calculating the Hose Length

The formula for calculating the bent section of the hose length around a radius is derived from the basic formula that the circumference of a circle = 2πR, where R = the radius of the circle, and π = a constant, = 3.142.

So, if the hose goes around a 90˚ bend, which is 1/4 of a full circumference, and the radius of the bend is R, then the length of the hose around the bend is = 1/4 x 2πR. Or half way round, in a U-shape, = 1/2 x 2πR.

Note :
In calculating the length of a hose assembly, the (non-flexible) length of the end fittings must be added in, also the length of any straight sections of hose, as in the following example:

Example :
To calculate the length for a 2" bore size hose with flange end fittings, to be fitted in a 90˚ configuration with one leg 400mm long, the other 600mm long.

Length of Bent Section (yelllow) = 1/4 x 2πR (334)
= 1/4 x 2 x 3.142 x 334 = **525mm**

Length of top, Straight Section, including the top end fitting length
= 600 - 334 = **266mm**

Length of bottom end fitting = **66mm**

Total length of Hose Assembly = 525 + 266 + 66 = **857mm**

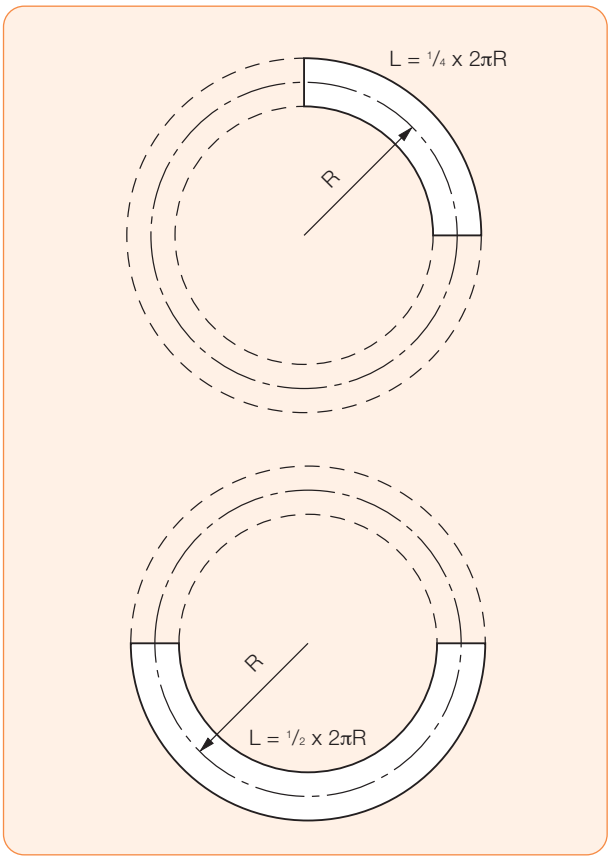
Things to consider

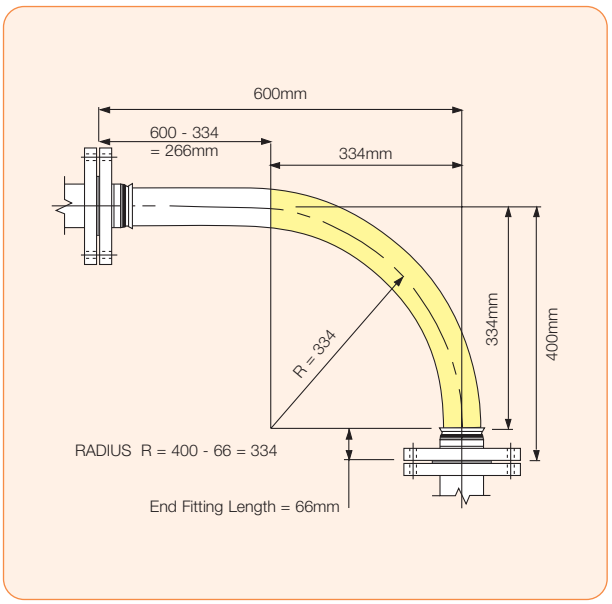
(a) A hose will normally take the longest radius available to it to go around a corner, not the MBR! Also - always remember to include the **non-flexible** end fitting lengths.

(b) In dynamic applications, remember to always calculate the lengths for the most extended configuration during the flexing cycle, not the least extended.

(c) If the configuration is simply too complex for calculation, then obtain a length of flexible tubing of some kind, mark on paper, or a wall, or floor, or both where the connection points will be relative to each other, scaled down if necessary, then manually run the flexible tubing between them with full radii round bends. Measure the extended length, then scale up if necessary to determine the approximate length of the hose.

If in doubt, consult Aflex Hose.





BIOFLEX - SMOOTHBORE FLEXIBLE PTFE HOSE

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