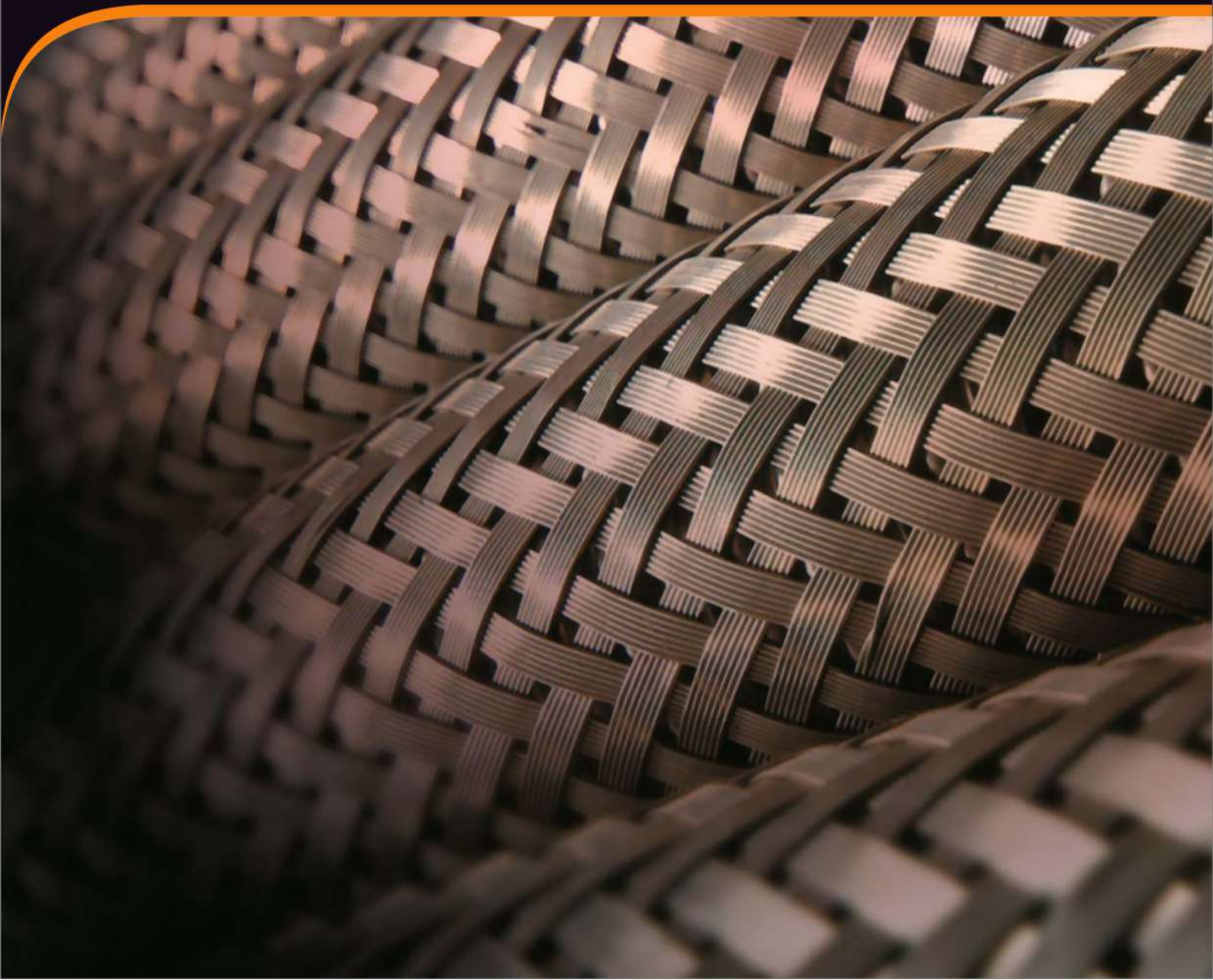
ALFA HOSES
Managing Flexibility

# ALFA METALLIC HOSES, BRAIDING, HOSE ASSEMBLY



ALFA HOSES

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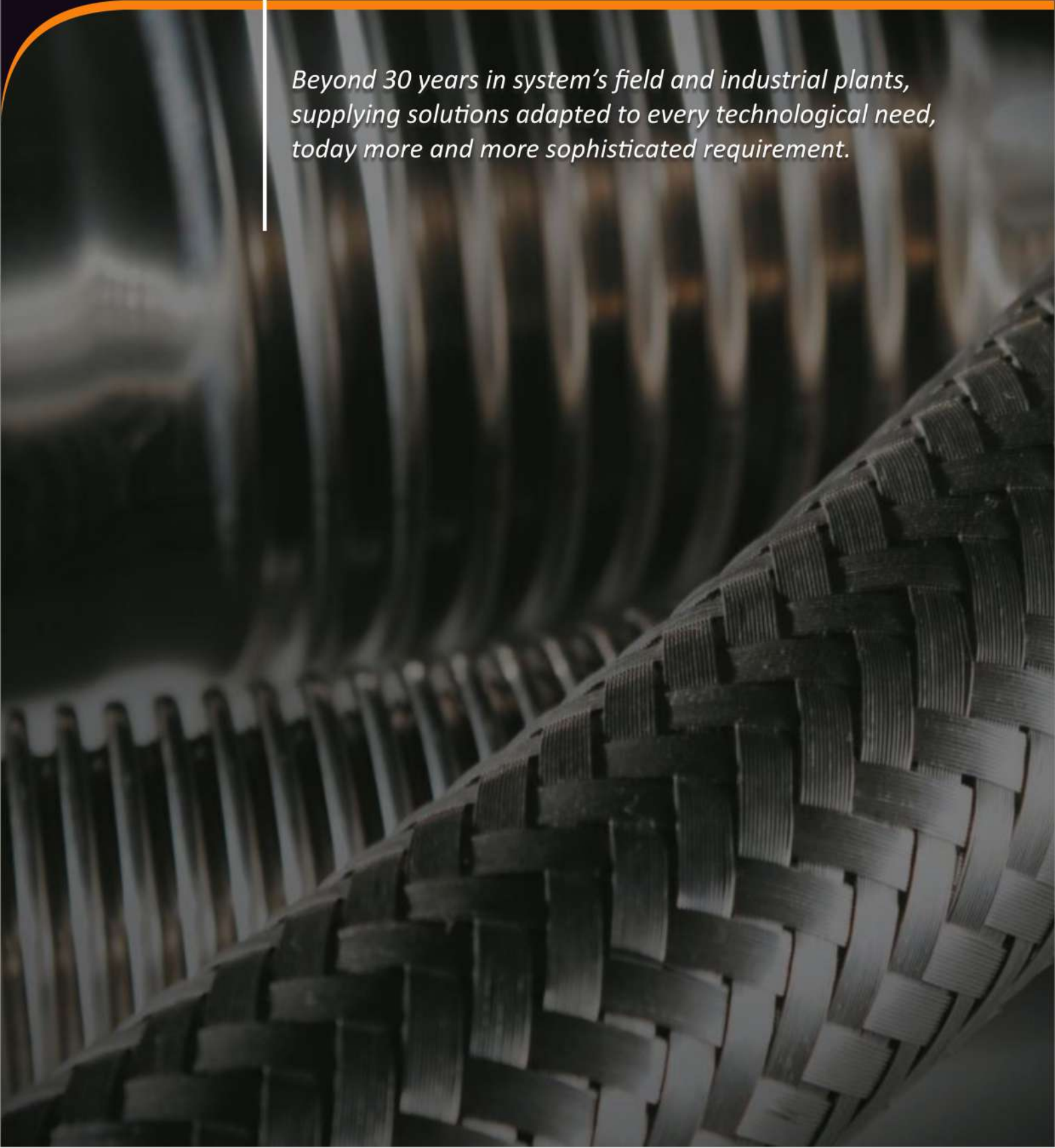
*Beyond 30 years in system's field and industrial plants, supplying solutions adapted to every technological need, today more and more sophisticated requirement.*



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# INTRODUCTION

*The range of our metallic flexible corrugated hoses, comes obtained from tubes wire drawing with or without longitudinal welding. These hoses are placed on special machines that from a number of mechanic or hydraulic convolutions that may be parallel or helical according to the flexible hoses application. It is very important for the flexible hoses supporting high pressure to be externally coated with one or more braids since the single corrugated part can resist to quite law pressure.*

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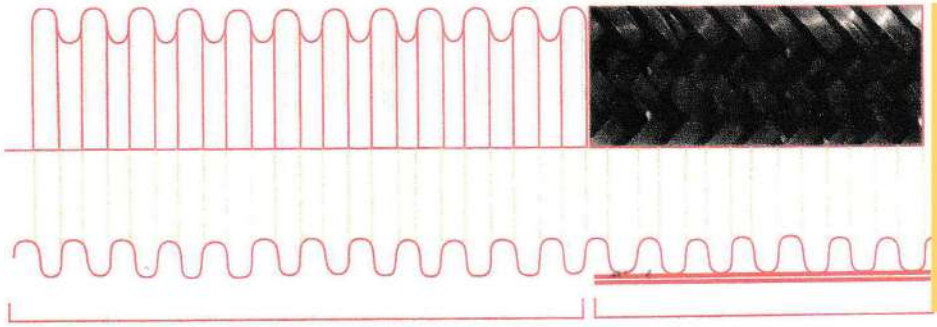
# ALFA MEDIUM PRESSURE HOSE TYPE 'B' FLEX



Stainless Steel Convoluted Hose Core  Stainless Steel Wire Braid

***Suitable For Most Application***

## SPECIFICATION - ALFA B - FLEX MATAL HOSE

| Normal Size | | Single Braid | | | | Double Braid | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Minimum Bend Radius | | | | Minimum Bend Radius | |
| Inch | mm | Working Pressure Bar | Test Pressure Bar | Static (mm) | Dynamic (mm) | Working Pressure Bar | Test Pressure Bar | Static (mm) | Dynamic (mm) |
| 1/4" | 6 | 80 | 120 | 30 | 100 | 140 | 210 | 40 | 120 |
| 3/8" | 10 | 70 | 105 | 40 | 150 | 125 | 180 | 50 | 160 |
| 1/2" | 12 | 64 | 64 | 44 | 200 | 100 | 150 | 60 | 220 |
| 5/8" | 16 | 66 | 90 | 56 | 200 | 90 | 135 | 60 | 220 |
| 3/4" | 20 | 50 | 75 | 70 | 200 | 90 | 135 | 80 | 250 |
| 1" | 25 | 50 | 75 | 90 | 200 | 80 | 120 | 100 | 260 |
| 1-1/4" | 32 | 40 | 60 | 110 | 250 | 60 | 90 | 120 | 350 |
| 1-1/2" | 40 | 32 | 50 | 130 | 260 | 50 | 75 | 160 | 400 |
| 2" | 50 | 26 | 40 | 175 | 350 | 40 | 60 | 180 | 410 |
| 2-1/2" | 65 | 20 | 30 | 200 | 410 | 32 | 50 | 200 | 450 |
| 3" | 80 | 10 | 25 | 210 | 450 | 25 | 45 | 220 | 550 |
| 4" | 100 | 14 | 21 | 230 | 560 | 20 | 30 | 260 | 660 |
| 5" | 120 | 12 | 12 | 230 | 660 | 18 | 30 | 300 | 815 |
| 6" | 150 | 10 | 15 | 320 | 815 | 15 | 25 | 420 | 1015 |
| 8" | 200 | 10 | 15 | 410 | 1015 | 15 | 25 | 540 | 1220 |
| 10" | 250 | 8 | 12 | 560 | 1220 | 12 | 20 | 620 | 1420 |
| 12" | 300 | 6 | 9 | 660 | 1430 | 9 | 15 | 750 | 1650 |

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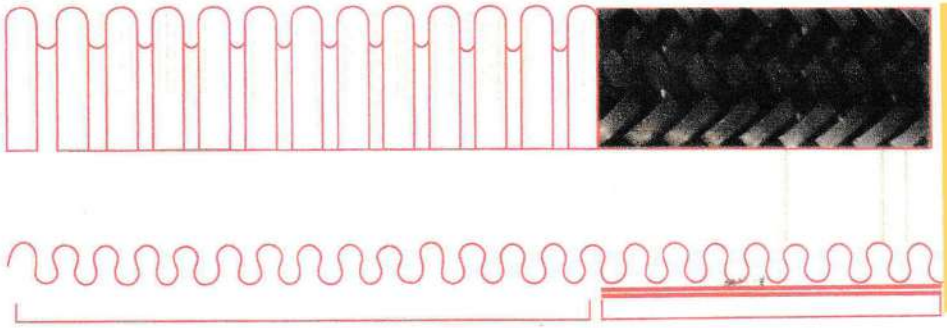
# ALFA MEDIUM PRESSURE HOSE TYPE 'C' FLEX



Stainless Steel Convoluted Hose Core  Stainless Steel Wire Braid

***COMMONLY REQUIRED FOR HIGH FLEXING OPERATIONS***

## SPECIFICATION - ALFA C - FLEX MATAL HOSE

| Normal Size | | Single Braid | | | | Double Braid | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Minimum Bend Radius | | | | Minimum Bend Radius | |
| Inch | mm | Working Pressure Bar | Test Pressure Bar | Static (mm) | Dynamic (mm) | Working Pressure Bar | Test Pressure Bar | Static (mm) | Dynamic (mm) |
| 1/4" | 6 | 90 | 135 | 25 | 90 | 140 | 210 | 35 | 110 |
| 3/8" | 10 | 80 | 120 | 35 | 140 | 120 | 180 | 50 | 160 |
| 1/2" | 12 | 80 | 120 | 35 | 180 | 120 | 180 | 50 | 160 |
| 5/8" | 16 | 70 | 105 | 45 | 180 | 100 | 150 | 60 | 200 |
| 3/4" | 20 | 60 | 90 | 60 | 180 | 90 | 135 | 70 | 220 |
| 1" | 25 | 60 | 90 | 80 | 180 | 60 | 90 | 100 | 240 |
| 1-1/4" | 32 | 44 | 66 | 100 | 220 | 50 | 75 | 120 | 280 |
| 1-1/2" | 40 | 36 | 54 | 120 | 240 | 40 | 60 | 160 | 380 |
| 2" | 50 | 30 | 45 | 165 | 320 | 40 | 60 | 180 | 430 |
| 2-1/2" | 65 | 24 | 36 | 180 | 380 | 32 | 50 | 220 | 520 |
| 3" | 80 | 18 | 27 | 200 | 430 | 28 | 42 | 260 | 620 |
| 4" | 100 | 16 | 24 | 220 | 520 | 25 | 38 | 300 | 700 |
| 5" | 125 | 12 | 18 | 260 | 620 | 25 | 38 | 420 | 800 |
| 6" | 150 | 12 | 18 | 300 | 800 | 25 | 38 | 540 | 1020 |
| 8" | 200 | 12 | 18 | 420 | 1020 | 25 | 38 | 620 | 1340 |
| 10" | 250 | 10 | 20 | 540 | 1180 | 15 | 22 | 800 | 1600 |
| 12" | 300 | 8 | 12 | 620 | 1340 | 12 | 18 | 1020 | 1800 |

PRESSURE LOSS

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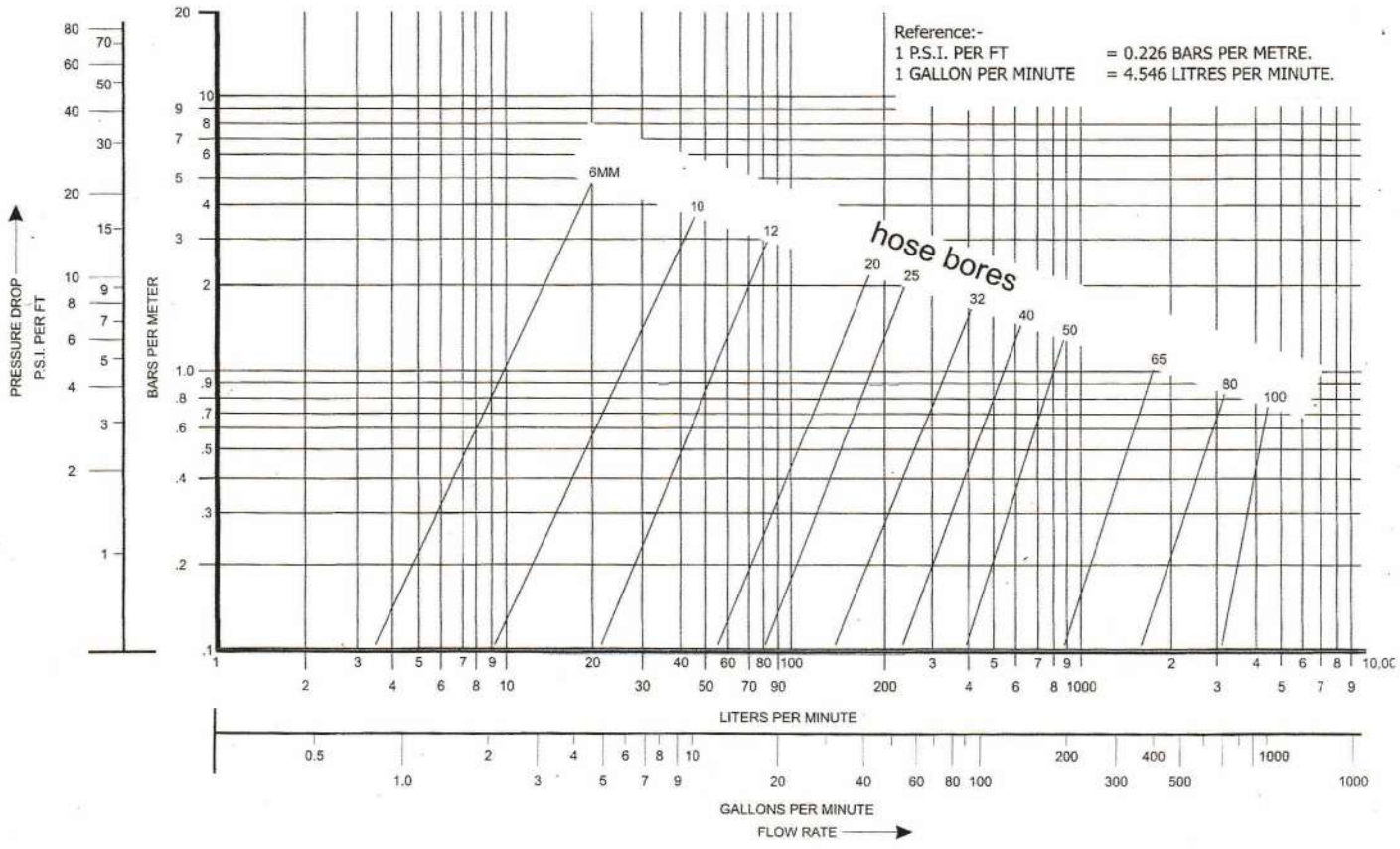
# PRESSURE LOSS

*At a rough estimate, it can be assumed that the pressure loss in Corrugated Hoses is100% higher than in new welded steel pipes. In strip wound Hoses, It is 20% higher. This means that in the case of Corrugated hoses an increase in diameter of 15%, and in the case of strip wound hoses of only 4%. is sufficient to reduce the pressure loss to the value of pressure loss in the steel pipe.*

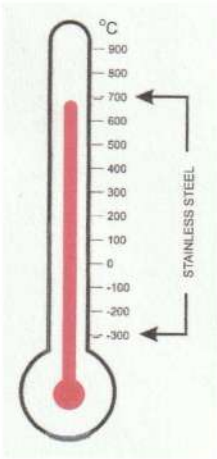
*Because of the nature of the bore of a Corrugated hose, the pressure drop due to friction !s greater than that of a smooth bore pipe. The chart shows the approximate pressure drop for each size of Corrugated hose related to flow rate where water is the fluid. To utilize the chart, read of on the base line the flow rate required. Where a vertical line from the selected point on the base line intersects the nominal bore line, the pressure drops shown on the vertical axis. corresponding to the point of intersection.*



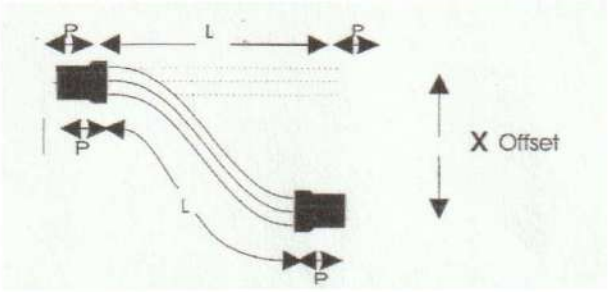
# STAINLESS STEEL HOSE TEMPERATURE CORRECTION FACTORS

*Where hose are required to operate at temperature above 20o c, the stated working pressure given for the selected hoses must be multiplied by a correction factor. The factors for stainless steel flexible hoses are given in the table.*

| Temperature °C | Temperature °F | Correction Factor |
|---|---|---|
| 20 | 68 | 1.00 |
| 50 | 122 | 0.97 |
| 100 | 212 | 0.93 |
| 150 | 302 | 0.88 |
| 200 | 392 | 0.84 |
| 250 | 482 | 0.79 |
| 300 | 572 | 0.76 |
| 350 | 662 | 0.71 |
| 400 | 752 | 0.67 |
| 450 | 842 | 0.64 |
| 500 | 932 | 0.61 |
| 550 | 1022 | 0.60 |
| 600 | 1112 | 0.58 |



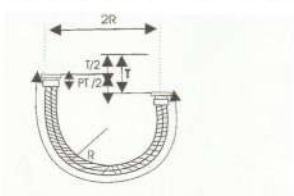

# CALCULATION OF MINIMUM HOSE LENGTH FOR FLEXING INSTALLATIONS




**STATIC FLEXING**
Minimum Overall Length = L (static) + (2 x P)
P - Dimension of end fittings.

**STATIC FLEXING**
Minimum Overall Length = L (flexing) + (2 x P)
P - Dimension of end fittings.

| NOMINAL BORE | STATIC | LENGTH 'L' mm (FREE HOSE LENGTH) DIMENSIONS 'X' mm (OFFSET MOTION) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0 | 15 | 25 | 35 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 |
| – | 85 | 140 | 180 | 215 | | | | | | | | | |
| 10,12 | 90 | 150 | 190 | 225 | 290 | | | | | | | | |
| 20 | 95 | 170 | 220 | 255 | 310 | | | | | | | | |
| 25 | 105 | 185 | 240 | 280 | 335 | 425 | | | | | | | |
| 32 | 110 | 205 | 260 | 305 | 365 | 450 | | | | | | | |
| 40 | 140 | 250 | 320 | 370 | 440 | 530 | 610 | | | | | | |
| 50 | 170 | 300 | 380 | 440 | 520 | 630 | 730 | 800 | 870 | 940 | | | |
| 65 | 200 | 340 | 430 | 500 | 590 | 720 | 830 | 920 | 1000 | 1070 | 1130 | 1190 | |
| 80 | 215 | 380 | 500 | 580 | 680 | 820 | 940 | 1040 | 1140 | 1230 | 1310 | 1380 | 1450 |
| 100 | 230 | 405 | 525 | 610 | 720 | 875 | 1005 | 1120 | 1225 | 1325 | 1415 | 1490 | 1560 |
| 125 | 245 | 430 | 550 | 640 | 760 | 930 | 1070 | 1200 | 1310 | 1420 | 1520 | 1590 | 1670 |
| 150 | 280 | 510 | 650 | 760 | 910 | 1100 | 1270 | 1420 | 1560 | 1690 | 1800 | 1900 | 1990 |
| 200 | 320 | 560 | 710 | 830 | 990 | 1210 | 1400 | 1560 | 1720 | 1860 | 1990 | 2100 | 2210 |
| 250 | 360 | 620 | 780 | 900 | 1070 | 1320 | 1510 | 1690 | 1820 | 2010 | 2160 | 2290 | 2340 |

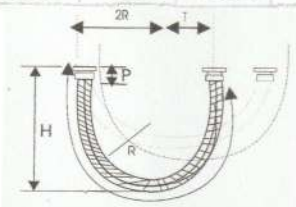



vertical loop (short horizontal travel)

**HORIZONTAL MOVEMENT**

$S = 1.2\ \pi R + T/2 + 2P$

$H = \frac{S - \pi R}{2} + R$




vertical loop (Maximum travel about fixed point)

**VERTICAL MOVEMENT**

$S = 1.2\ \pi R + T/2 + 2P$

$H = \frac{S - \pi R}{2} + R$

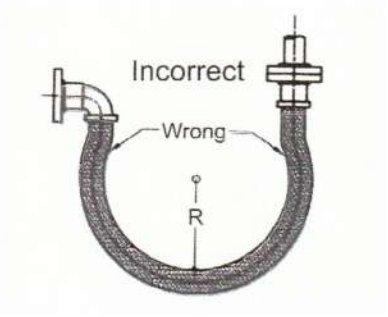
S = Overall Length
R = Bend Radius which must not be less that the minimum shown in table.
P = Length over End Fitting & Ferrule.
H = Height
$\pi$ = 3.142

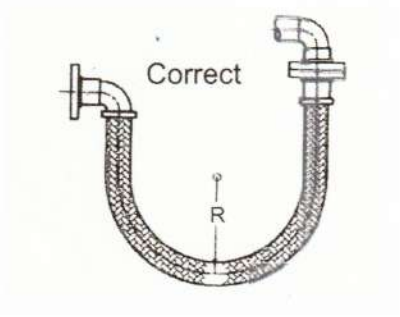
**IMPORTANT :** In loop installations. both connections and travel should be in the same plane as the bend.

installation...

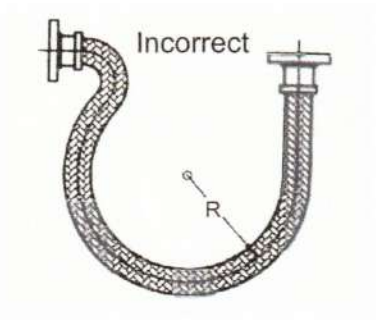
# INSTRUCTIONS FOR CORRECT INSTALLATION OF SS (METAL)FLEXIBLE HOSE ASSEMBLIES TO AVOID PRE-MATURE FAILUERS

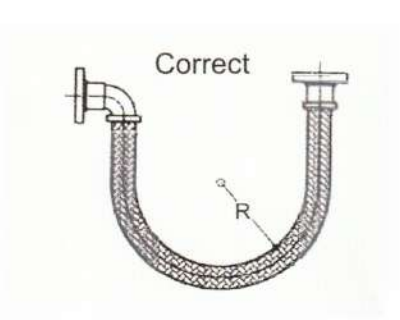
## TRAVELING LOOP INSTALLATION

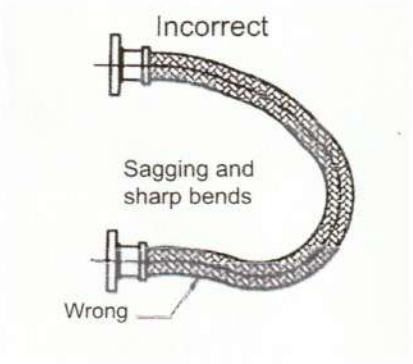


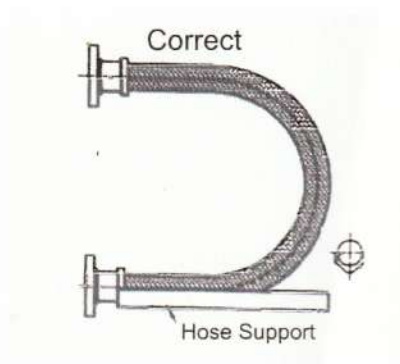




## LATERAL OFFSET INSTALLATION

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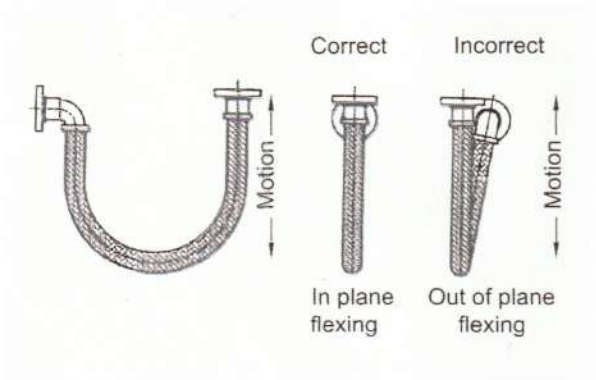


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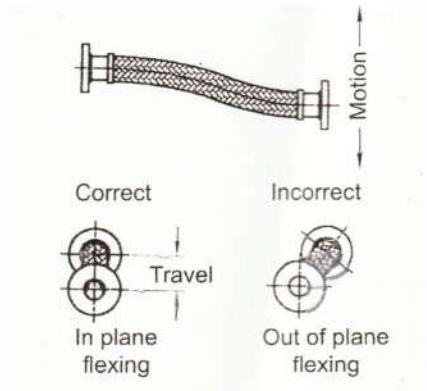
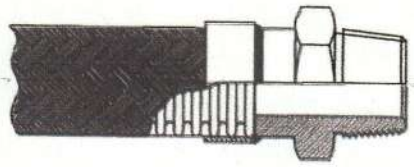


# TYPE OF END CONNECTIONS GENERALLY USED WITH SS CORRUGATED HOSE ASSEMBLIES

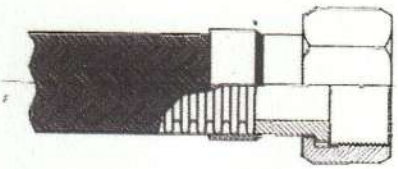
FIXED MALE
(HEXAGON) NPT.

TYPE AF - 1



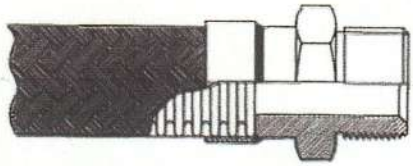
SWIVEL FEMALE FLAT SEAT
NIPPLE HEXAGON BSP.

TYPE AF - 2



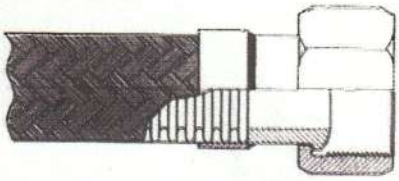
FIXED MALE
(HEXAGON) BSP/BSPT.

TYPE AF - 3



SWIVEL FEMALE BULL NOSE
NIPPLE HEXAGON BSP.

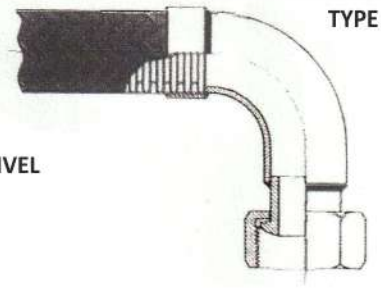
TYPE AF - 2



WELDING STUB

TYPE AF - 5

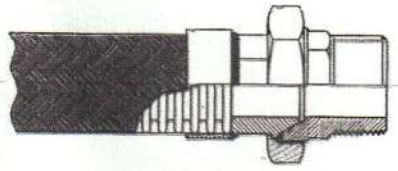
TYPE AF - 6



90° FEMALE SWIVEL
ELBOW BSP.

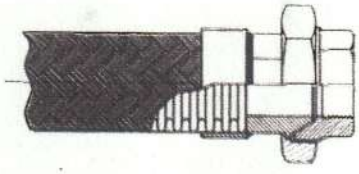
FULL UNION (MALE)

TYPE AF - 7



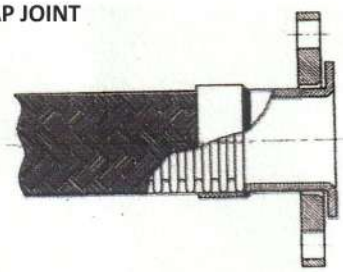
FULL UNION (FEMALE)

TYPE AF - 8



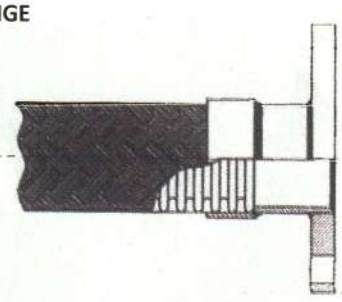
FLOATING/SWIVEL
FLANGE LAP JOINT

TYPE AF - 9



FIXED FLANGE

TYPE AF - 10



ALFA HOSES
Managing Flexibility

# BRAID

*The stainless steel flexible hose is covered with an external braiding made from stainless steel wire. The wire braiding can be either single or double layer according to pressure rating required. Braiding increases the hoop strength, stabilizes movement and offers a form of protection to inner corrugated tubing.*

**We have, India's first and only 124 carrier wire braiding machine**

## MATERIALS

*Wire braids are made af medium tensile bright stainless steel wires of different gauges in ASI 304 Steel.*
*ALFA stainless steel corrugated flexible hose assemblies are supplied with singlet/double braiding but can be supplied without braid also for low pressure or vacuum applications.*

## ADDITIONAL PROTECTIVE COVERING

*Hose assemblies can be supplied with additional covering such as strip wound hose, PVC Shrinkable tubings.*

## ADVANTAGES OF FLEXIBLE METAL HOSE

- Suitable for wide temperature range (-270 c to 700c).
- It compensates for thermal expansion or contraction in piping system.
- High physical strength.
- Good corrosion characteristics.
- Fire resistant.
- Moisture resistant.
- Long Life.
- Resistant to abrasion, penetration and damage.
- Absorbs or dampers vibration and noise from pumps, Compressors, engines and similar equipment.
- Connects misaligned rigid piping.
- Connects parts of machinery and equipment. against rigid piping in difficult locations.

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quality product...

## QUALITY MANAGEMENT

***ALFA FLEXITUBES*** *have established Total Quality Assurance systems as per ISO 9001-2000 and TQM techniques to assure the customers a very reliable products of consistent quality.*

*Company has complete Testing facilities for Productions Testes and Type Testes on metal hoses. All welding operations are performed by qualified welders in controlled parameters.*

### PRODUCTS OFFERED BY ALFA FLEXITUBES OTHER THAT CORRUGATED METAL HOSE.

- All Types Of End Connections For Metal Hose Assemblies.
- Industrial Bellows & Expansion Joints 10mm To 1000mm Id Single-ply As Well As Multi-ply.
- Pump Connectors / Vibration Absorbers
- Interlocked Metal Hose 6mm To 300 Mm Id In stainless steel And Galvanized Steel.
- Flex Connectors For Automotive Exhaust Systems
- Gas Connectorsr
- E.G.R Tubes For Automobiles.

**Quality Assurance Systems As Per ISO 9001:2000**

ALFA HOSES

Managing Flexibility

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