

FLEXIBLE HOSES FOR FLUIDS AND GASES:

ANACONDA CORRUGATED HOSES TYPE BW656, BW756, BW856, BW956, BW673 & ANAFLEX®



YOUR PARTNER IN FLEXIBLE SYSTEMS

HOSE SELECTION TABLE

| Hose | Material | Material | | Size (mm) | | np. C) | Pressure Rating | Page |
|----------------|---------------------------------|--------------------------------|-----------|--------------|------|-----------|-----------------------|------|
| Туре | Hose | Braid | Min. Max. | | Min. | Max. | | |
| DDDDDDDAKKKKK) | Stainless steel | Stainless steel | 6 | 150 | -70 | +600 | Standard up to medium | 1-05 |
| BW 656 | AISI-316L | AISI-304 | | | | | | |
| BW 756 | Stainless steel AISI-316L | Stainless steel AISI-304 | 32 | 350 | -70 | +600 | Medium | 1-06 |
| DW 730 | AISI-310L | AISI-304 | | | | | | |
| BW 856 | Stainless steel AISI-316L | Stainless steel AISI-304 | 6 | 150 | -70 | +600 | High | 1-07 |
| BW 956 | Stainless steel AISI-316L | Stainless steel AISI-304 | 6 | 100 | -70 | +600 | Extra High | 1-08 |
| BW 673 | Monel 400 | Monel 400 | 6 | 100 | -50 | +540 | Standard up to medium | 1-09 |
| LOOSE BRAID | - | Stainless steel AISI-304 | 6 | 100 | -70 | +600 | Standard / Heavy | 1-10 |
| ANAFLEX | Stainless steel AISI-316L | Stainless steel AISI-304 | 12 | 25 | 0 | +250 | Standard | 1-32 |

The end connections for hoses BW656, BW756, BW856, BW956 and BW673 are described on pages 1-11 till 1-24. The self-mountable fittings for ANAFLEX are described on page 1-33.

In addition, and on request, we also can supply:

- GMA gas meter connection
- Fully interlocked (UI) Casing as mechanical hose protection.
- Hiprojacket heat protection products.
- Rubber hoses for fluids.
- Teflon hoses for fluids.
- Vibration eliminators.
- Expansion joints.

This corrugated hose catalogue supersedes all previous corrugated hoses catalogues. Information and technical details are subject to change without notification.



ENGINEERING DATA GENERAL

INTRODUCTION

ANACONDA metal hose is the leader in the flexible hose field since our beginning in 1908. ANACONDA stands for a complete line of flexible products, such as corrugated metal hose, stripwound hose, metal bellows and expansion joints, vibration eliminators, Sealtite electrical wiring conduit and specially designed flexible connectors for many applications.

Our leadership in the field was made possible by years of dedication to producing only the highest quality metal hose products available. Strict quality control guidelines, coupled with modern manufacturing practices and an expert team of engineers and research and development personnel, assures the best possible products and technical services. Special hose assemblies for unique applications can be designed by our engineering department and manufactured to meet specific customer requirements. Highly-trained sales representatives located in offices all over the world are only part of our dedicated customer service network. Contact your nearest ANAMET representative for assistance.

ANACONDA products are manufactured by ANAMET Electrical, Inc., Mattoon, Illinois, USA; ANAMET Canada Inc., Frankfort, Ontario, Canada and ANAMET EUROPE B.V., Amsterdam, The Netherlands.



CORRUGATED METAL HOSE - what it is..., how it is made ..., where it is used...

Open pitch may be used where high flexibility is not essential. Pitch can affect flexibility and it varies from one manufacturer to another. Specifications on open pitch are available by contacting your ANAMET representative.

For higher pressure applications, one or more wire braid coverings are applied to the corrugated hose. Braiding prevents hose elongation under pressure, dampens vibration and provides some mechanical protection for the inner core. Two or more braids are available to increase pressure capabilities of certain corrugated product lines; however, the deformation pressure (a point where corrugation material would



Open Pitch



Closed Pitch

yield or elastically deform) governs the maximum working pressure regardless of the number of braid layers. Acorrugated metal hose is defined as a length of tubing made flexible by forming convolutions so that it may be readily bent while remaining liquid- and gas-tight.

ANACONDA corrugated hose is made by thin wall tubing, corrugated into annular profiles. The annular hose profile is designed so that each convolution is a complete circle or ring in itself.

Corrugated hose is pressure tight and is particularly adapted to continuous flexing or vibration. It is available in closed pitch or open pitch. Closed pitch is standard, unless otherwise specified.

HOSE ASSEMBLY DESIGN CONSIDERATIONS

Flow velocity

Extremely high conveyant velocities in corrugated hose should be avoided as the corrugations could be forced into resonant vibration resulting in premature fatique failure.

Consult your ANAMET representative for applications involving flow velocities in excess of 35 m/s for braided hose and 6 m/s for unbraided hose.

Pressure

Pressure capabilities shown in the various hose tables are based on constant pressures.

For pulsating or shock pressures consult your ANAMET representative.



ENGINEERING DATA GENERAL

HOSE ASSEMBLY DESIGN CONSIDERATIONS - CONTINUED

Temperature

As the temperature of metal hose increases, the pressure capability decreases. The factors shown below should be used to adjust the pressure capabilities at higher temperatures

Temperature correction factors

As the service temperature increases, a hose assembly maximum pressure rate decreases. The maximum allowable pressure of the hose assembly shall be the lowest of any method of assembly (mechanical, soldered, welded, silver brazed).

By using the factors given in the table on the right, the approximate safe working pressure, at elevated temperatures, can be calculated for assemblies with welded or mechanically attached fittings.

Example

Given: Maximum operating temperature 350°C

Maximum operating pressure 30 bar.

Determine: Is 20 mm BW656-1S (hose AISI 316L with

braid AISI 304) with welded steel fittings satisfactory for the given operating

conditions?

From the hose capability chart the working pressure for 20 mm BW656-1S is 70 bar. The largest correction factor at 350°C is now determined, in this case 0,49 for the

AISI 304 braid (see table).

Calculation: 70 bar x 0,49 indicates an allowable work-

ing pressure of 34,3 bar at 350°C.

Solution: The hose BW656-1S will meet the required

conditions outlined above.

| Temp. | Steel | AISI-304 | AISI-321 | AISI-316L | Monel | Bronze |
|---------|-------|----------|----------|-----------|-------|--------|
| 20/-200 | - | 1 | 1 | 1 | 1 | 1 |
| 20 | 1 | 1 | 1 | 1 | 1 | 1 |
| 50 | 0,98 | 0,90 | 0,93 | 0,90 | 0,96 | 0,95 |
| | | | | | | |
| 100 | 0,90 | 0,73 | 0,83 | 0,73 | 0,87 | 0,86 |
| 150 | 0,89 | 0,66 | 0,78 | 0,67 | 0,83 | 0,82 |
| 200 | 0,86 | 0,60 | 0,74 | 0,61 | 0,80 | 0,75 |
| | | | | | | |
| 250 | 0,82 | 0,55 | 0,70 | 0,58 | 0,79 | - |
| 300 | 0,76 | 0,51 | 0,66 | 0,53 | 0,79 | - |
| 350 | 0,73 | 0,49 | 0,64 | 0,51 | 0,79 | - |
| | | | | | | |
| 400 | 0,70 | 0,48 | 0,62 | 0,50 | 0,79 | - |
| 450 | 0,41 | 0,46 | 0,60 | 0,49 | - | - |
| 500 | 0,24 | 0,46 | 0,59 | 0,47 | - | - |
| | | | | | | |
| 550 | - | 0,46 | 0,58 | 0,47 | - | - |
| 600 | • | - | 0,34 | 0,25 | - | - |
| 650 | - | - | 0,19 | - | - | - |

Corrosion

Recommended alloy selection to provide satisfactory performance with various media can be found in the corrosion resistance table on page 1-26.

ANACONDA CORRUGATED METAL HOSE ENGINEERING DATA GENERAL

HOSE ASSEMBLY DESIGN CONSIDERATIONS - CONTINUED

Motion movement

Length

The active or exposed length of a hose assembly must be sufficient to meet the conditions of movement. Lengths shorter than suggested can result in premature fatigue failure. Length tolerances as per our Quality Assurance Programme.

Bend Radius

The bend radius shown in the various hose tables are adequate to meet most industrial flexing requirements. Consideration should be given to those applications involving levels of high frequency or large amounts of travel by increasing the bend radius. Avoid sharp bends except where the installation is permanent and no additional flexing is expected. To prevent overbending of the hose, an overall casing can be used.

Installation Precautions

Hose assemblies must be installed so that all motion/movement is in the bending plane. Metal hose when flexed out of its bending plane will be subjected to torsion/twisting which develops a shear stress that can result in produce early hose failure. Braided hose must not be subjected to axial motion. Extension will result in preloading the braid. Compression will cause braid slack and can result in squirm of the corrugated core.

Abrasion

Allow for sufficient clearance so that hose in motion will not come in contact with adjacent objects. Where abrasion cannot be avoided, an overall casing is required to protect the hose from external damage.

Safety factor

We suggest that the maximum working pressures be no more than 25% of the rated burst pressure of the hose assembly after correcting for service temperature. Circumstances may require safety factors greater than 4:1.

Testing

Depending on diameter, length, pressure, type of hose and end fitting design, hose assemblies are tested in various ways. It is ANAMET's standard practice to test assemblies by using one or more of the following methods: vacuum, hydrostatic, pneumatic or dye penetrant. Test media include: air, nitrogen, helium, water or oil. If special testing is required, it must be detailed at the time of an inquiry.

Tolerances

The standard tolerances used by ANAMET are found to be acceptable by most users. When tolerance considerations are critical, consult your ANAMET representative.

Cleaning

Depending on the medium being conveyed, special cleaning practices are sometimes necessary. ANAMET has special cleaning procedures where cleaning to standard commercial levels is not acceptable. Where special cleaning is necessary, requirements must be clearly specified.

End connections

The use of flexible metal hose is complimented by the extensive range of end connections that are available. Such end connections may be male or female pipe threads, unions, flanges, flared tube fittings or other specially designed connectors. End connections are attached by welding, silver brazing, soldering and occasionally by mechanical means, depending on the type of hose and the alloy. In this catalogue a selection of various end connections are mentioned. For further detail or end connections that are not listed in the catalogue, please consult your ANAMET representative.



STANDARD UP TO MEDIUM PRESSURE

BW 656

Anaconda butt welded corrugated stainless steel hose type BW656 is designed for conveying chemicals, gases, steam, etc. It is suitable for use under full vacuum and has a temperature range of cryogenic to ca. +600 $^{\circ}$ C*. Type BW656 is designed for general purpose service and will meet most pressure requirements. It has a good flexibility and a good flexural strength, suitable for normal industrial vibrations.

Burst pressure: The burst pressure of hose with braid is at least 4 times the working pressure.

Material specifications: The core is manufactured from stainless steel AISI 316L (1.4404) with a standard stainless steel AISI 304 (1.4301) wire braid covering. Other alloys are available; consult your Anamet representative.

Types:

BW656-0 corrugated stainless steel hose, unbraided BW656-1S corrugated stainless steel hose,

with one standard braid BW656-2S corrugated stainless steel hose, with two standard braids

| Nomir | nal I.D. | Туре | Max | Min c/l Bend | ing Radius** | Min. exposed | Rated pressure | data at 20 °C*** | Approx. |
|-------|----------|----------------------|--------------|--------------|--------------|-------------------|----------------|------------------|--------------|
| | | | O.D. | Flexing | Permanent | length for normal | Max working | Max test | weight |
| (mm) | (inch) | | (mm) | bend (mm) | bend (mm) | vibration (mm) | pressure (bar) | pressure (bar) | (Kg/m) |
| , | , , | BW656-0 | 9,8 | | . , | , , | 18 | 18 | 0,07 |
| 6 | 1/4" | BW656-1S | 11,0 | 100 | 25 | 115 | 172 | 258 | 0,16 |
| 0 | Г/1/" | BW656-0 | 12,4 | 100 | 25 | 100 | 18 | 18 | 0,09 |
| 8 | 5/16" | BW656-1S | 13,6 | 100 | 25 | 125 | 120 | 180 | 0,19 |
| 10 | 3/8" | BW656-0 | 14,4 | 150 | 30 | 125 | 15 | 15 | 0,10 |
| 10 | 3/0 | BW656-1S | 15,6 | 130 | 30 | 123 | 105 | 158 | 0,21 |
| 12 | 1/2" | BW656-0 | 16,9 | 180 | 35 | 140 | 12 | 12 | 0,11 |
| | .,_ | BW656-1S | 18,5 | | | | 95 | 143 | 0,31 |
| 15 | 1/2" | BW656-0 | 20,2 | 180 | 35 | 140 | 10 85 | 10 128 | 0,18 0,39 |
| | | BW656-1S BW656-0 | 21,8 27,0 | | | | 7 | 7 | 0,39 |
| 20 | 3/4" | BW656-1S | 28,6 | 190 | 40 | 150 | 70 | 105 | 0,23 |
| | | BW656-0 | 32,6 | | | | 6 | 6 | 0,34 |
| 25 | 1" | BW656-1S | 34,6 | 215 | 70 | 180 | 62 | 93 | 0,71 |
| 22 | 1 1/4" | BW656-0 | 41,4 | 220 | 00 | 205 | 4 | 4 | 0,50 |
| 32 | 1.1/4" | BW656-1S | 44,2 | 230 | 90 | 205 | 48 | 72 | 0,99 |
| | | BW656-0 | 50,1 | | | | 2 | 2 | 0,71 |
| 40 | 1.1/2" | BW656-1S | 52,9 | 255 | 125 | 215 | 34 | 51 | 1,20 |
| | | BW656-2S | 55,7 | | | | 55 | 83 | 1,70 |
| | | BW656-0 | 60,8 | | | | 1 | 1 | 0,85 |
| 50 | 2" | BW656-1S | 63,6 | 280 | 190 | 240 | 28 | 42 | 1,47 |
| | | BW656-2S | 66,4 | | | | 35 | 53 | 2,09 |
| / [| 2 1/2" | BW656-0 | 78,9 | F10 | 205 | ٥٢٢ | 0,7 | 0,7 | 1,12 |
| 65 | 2.1/2" | BW656-1S BW656-2S | 82,4 85,9 | 510 | 205 | 255 | 19 34 | 29 51 | 1,99 2,86 |
| | | BW656-0 | 96,0 | | | | 0,7 | 0,7 | 1,50 |
| 75 | 3" | BW656-1S | 100,3 | 560 | 230 | 280 | 25 | 38 | 3,00 |
| 13 | J | BW656-2S | 100,3 | 300 | 230 | 200 | 32 | 48 | 4,50 |
| | | BW656-0 | 117,3 | | | | 0,5 | 0,5 | 2,25 |
| 100 | 4" | BW656-1S | 121,6 | 770 | 330 | 305 | 20 | 30 | 4,25 |
| | · | BW656-2S | 125,9 | ,,, | 000 | | 30 | 45 | 6,25 |
| | | BW656-0 | 146,3 | | | | 0,4 | 0,4 | 2,60 |
| 125 | 5" | BW656-1S | 150,6 | 1050 | 650 | 330 | 14 | 21 | 4,85 |
| | | BW756-2S | 159,8 | | | | 20 | 30 | 7,10 |
| | | BW656-0 | 171,5 | | | | 0,3 | 0,3 | 3,20 |
| 150 | 6" | BW656-1S | 175,8 | 1325 | 860 | 370 | 10 | 15 | 5,80 |
| | | BW756-2S | 184,4 | | | | 16 | 24 | 8,40 |

Note: for bigger sizes see type BW756 (page 1-06)

^{***} For temperatures higher than room temperature use the applicable temperature correction factor.

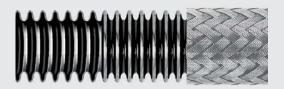


^{*} For working temperatures above 400°C environmental conditions are to be considered - consult your Anamet representative.

^{**} It is recommendet to increase the minimum bend radius with 25% when high pressures or temperatures are involved.

MEDIUM PRESSURE & LARGER SIZES

BW 756



Anaconda butt welded corrugated stainless steel hose type BW756 is designed for conveying chemicals, gases, steam, etc. It is suitable for use under full vacuum and has a temperature range of cryogenic to ca. +600°C*. Type BW756 will meet most pressure requirements and is also available in the bigger sizes up to 14". It has a good flexibility and a good flexure life, suitable for normal industrial vibrations.

Burst pressure: The burst pressure of hose with braid is at least 4 times the working pressure.

Material specifications: The core is manufactured from stainless steel AISI 316L (1.4404) with a heavy stainless steel AISI 304 (1.4301) wire braid covering. Other alloys are available; consult your Anamet representative.

Types:

BW756-0 corrugated stainless steel hose, unbraided BW756-1H corrugated stainless steel hose, with one heavy braid

| Nomir | nal I.D. | Туре | Max | Min c/l Bend | ing Radius** | Min. exposed | Rated pressure | data at 20 °C*** | Approx. |
|-------|----------|---------------------|----------------|--------------|--------------|-------------------|----------------|------------------|----------------|
| | | | O.D. | Flexing | Permanent | length for normal | Max working | Max test | weight |
| (mm) | (inch) | | (mm) | bend (mm) | bend (mm) | vibration (mm) | pressure (bar) | pressure (bar) | (Kg/m) |
| 32 | 1.1/4" | BW756-0 BW756-1H | 47,8 50,6 | 270 | 90 | 205 | 2 55 | 2 83 | 1,13 1,88 |
| 40 | 1.1/2" | BW756-0 BW756-1H | 56,4 59,9 | 305 | 105 | 215 | 1 52 | 1 78 | 1,25 2,29 |
| 50 | 2" | BW756-0 BW756-1H | 66,9 70,4 | 380 | 130 | 240 | 1 50 | 1 75 | 1,34 2,72 |
| 65 | 2.1/2" | BW756-0 BW756-1H | 83,0 87,3 | 510 | 205 | 255 | 0,7 38 | 0,7 57 | 1,73 3,31 |
| 75 | 3" | BW756-0 BW756-1H | 97,0 101,3 | 560 | 230 | 280 | 0,7 34 | 0,7 51 | 1,80 3,67 |
| 100 | 4" | BW756-0 BW756-1H | 124,2 128,5 | 685 | 330 | 305 | 0,5 24 | 0,5 36 | 2,51 4,67 |
| 125 | 5" | BW756-0 BW756-1H | 151,2 155,3 | 790 | 455 | 330 | 0,4 20 | 0,4 30 | 3,72 6,42 |
| 150 | 6" | BW756-0 BW756-1H | 175,8 180,1 | 915 | 485 | 370 | 0,3 18 | 0,3 27 | 5,16 9,04 |
| 200 | 8" | BW756-0 BW756-1H | 234,1 238,4 | 1015 | 510 | 490 | 0,3 16 | 0,3 24 | 8,27 14,04 |
| 250 | 10" | BW756-0 BW756-1H | 286,5 292,0 | 1270 | 635 | 670 | 0,3 16 | 0,3 24 | 10,12 19,19 |
| 300 | 12" | BW756-0 BW756-1H | 339,0 345,0 | 1525 | 765 | 940 | 0,2 11 | 0,2 17 | 13,42 22,06 |
| 350 | 14" | BW756-0 BW756-1H | 376,0 383,0 | 1780 | 890 | 1350 | 0,2 8 | 0,2 12 | 20,98 32,28 |

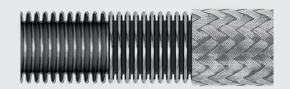
^{*} For working temperatures above 400°C environmental conditions are to be considered - consult your Anamet representative.

^{**} It is recommendet to increase the minimum bend radius with 25% when high pressures or temperatures are involved.

^{***} For temperatures higher than room temperature use the applicable temperature correction factor.

HIGH PRESSURE

BW 856



Anaconda butt welded corrugated stainless steel hose type BW856 is designed for conveying chemicals, gases, steam, etc. It is suitable for use under full vacuum and as a temperature range of cryogenic to ca. $+600^{\circ}$ C*. Type BW856 engineered design and construction allows it to operate at higher pressures than the standard and medium series. Its durable construction makes it suitable for severe applications, vibrations and high pressures.

Burst pressure: The burst pressure of hose with braid is at least 4 times the working pressure.

Material specifications: The core is manufactured from AISI 316 L (1.4404) stainless steel with a heavy stainless steel AISI 304 (1.4301) wire braid covering. Other alloys are available; consult your Anamet representative.

Types:

BW856-0 corrugated stainless steel hose, unbraided BW856-1H corrugated stainless steel hose, with one heavy braid BW856-2H corrugated stainless steel hose, with two heavy braids

| Nomir | nal I.D. | Туре | Max | Min c/l Bending Radius** | | Min. exposed | Rated pressure | data at 20 °C*** | Approx. |
|-------|----------|---------------------|--------------|--------------------------|---------------|-------------------|----------------|------------------|--------------|
| | | | O.D. | Flexing | Permanent | length for normal | Max working | Max test | weight |
| (mm) | (inch) | | (mm) | bend (mm) | bend (mm) | vibration (mm) | pressure (bar) | pressure (bar) | (Kg/m) |
| () | (| BW856-0 | 10,5 | 20114 (11111) | 20114 (11111) | Tibration (min) | 12 | 12 | 0,15 |
| 6 | 1/4" | BW856-1H | 11,9 | 140 | 25 | 115 | 230 | 345 | 0,13 |
| | 17 1 | BW856-2H | 13,3 | 110 | 20 | 110 | 275 | 413 | 0,37 |
| | | BW856-0 | 16,4 | | | | 7 | 7 | 0,30 |
| 10 | 3/8" | BW856-1H | 18,4 | 205 | 40 | 125 | 150 | 225 | 0,50 |
| | 0.0 | BW856-2H | 20,4 | | | | 190 | 285 | 0,70 |
| | | BW856-0 | 21,4 | | | | 6 | 6 | 0,58 |
| 12 | 1/2" | BW856-1H | 24,0 | 205 | 40 | 140 | 132 | 198 | 0,89 |
| | | BW856-2H | 26,6 | | | | 225 | 338 | 1,20 |
| | | BW856-0 | 31,3 | | | | 5 | 5 | 1,07 |
| 20 | 3/4" | BW856-1H | 34,1 | 205 | 55 | 150 | 90 | 135 | 1,51 |
| | | BW856-2H | 36,9 | | | | 145 | 218 | 1,95 |
| | | BW856-0 | 38,7 | | | | 3 | 3 | 1,37 |
| 25 | 1" | BW856-1H | 41,5 | 230 | 80 | 180 | 85 | 128 | 2,03 |
| | | BW856-2H | 44,3 | | | | 118 | 177 | 2,69 |
| | | BW856-0 | 47,8 | | | | 2 | 2 | 1,89 |
| 32 | 1.1/4" | BW856-1H | 50,6 | 255 | 85 | 205 | 64 | 96 | 2,64 |
| | | BW856-2H | 53,4 | | | | 112 | 168 | 3,39 |
| 40 | 4 4 /011 | BW856-0 | 56,4 | 055 | 0.5 | 045 | 1 | 1 | 1,92 |
| 40 | 1.1/2" | BW856-1H | 59,9 | 255 | 85 | 215 | 60 | 90 | 2,96 |
| | | BW856-2H | 63,4 | | | | 96 | 144 | 4,00 |
| F0 | 011 | BW856-0 | 64,8 | 005 | 140 | 0.40 | 1 | 1 | 1,90 |
| 50 | 2" | BW856-1H | 68,3 | 295 | 140 | 240 | 55 or | 83 | 3,36 |
| | | BW856-2H | 71,8 | | | | 85 | 128 0,7 | 4,74 3,19 |
| 65 | 2.1/2" | BW856-0 BW856-1H | 83,0 87,3 | 610 | 180 | 255 | 0,7 38 | 57 | 3,19 4,77 |
| 00 | 2.1/2 | BW856-2H | 87,3 91,6 | 010 | 180 | 200 | 64 | 96 | 6,35 |
| | | BW856-0 | 97,0 | | | | 0,7 | 0,7 | 5,12 |
| 75 | 3" | BW856-1H | 101,3 | 715 | 195 | 280 | 34 | 51 | 7,01 |
| /3 | 3 | BW856-2H | 101,3 | 713 | 173 | 200 | 55 | 83 | 8,90 |
| | | BW856-0 | 123,2 | | | | 0,5 | 0,5 | 4,65 |
| 100 | 4" | BW856-1H | 123,2 | 1020 | 510 | 305 | 24 | 36 | 6,81 |
| 100 | 4 | BW856-2H | 131,8 | 1020 | 310 | 303 | 35 | 53 | 8,97 |
| | | BW856-0 | 176,6 | | | | 0,3 | 0,3 | 5,38 |
| 150 | 6" | BW856-1H | 180,9 | 1220 | 610 | 370 | 18 | 27 | 9,26 |
| 100 | U | BW856-2H | 185,2 | 1220 | 010 | 010 | 28 | 42 | 13,14 |

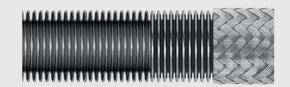
^{*} For working temperatures above 400°C environmental conditions are to be considered - consult your Anamet representative.

^{**} It is recommendet to increase the minimum bend radius with 25% when high pressures or temperatures are involved.

^{***} For temperatures higher than room temperature use the applicable temperature correction factor.

EXTRA HIGH PRESSURE

BW 956



ANACONDA butt welded corrugated stainless steel hose type BW 956 is designed for conveying chemicals, gases, steam, etc. It is suitable for use under full vacuum and has a temperature range of cryogenic to ca. $+600^{\circ}$ C*. The engineered design and construction allows it to operate at higher pressures than the BW856 type. Its extra durable construction makes it suitable for severe applications, vibrations and extreme high pressures.

Burst pressure: The burst pressure of hose with braid is at least 4 times the working pressure.

Material specifications: The core is manufactured from AISI 316L (1.4404) stainless steel with an extra heavy stainless steel AISI 304 (1.4301) wire braid covering. Other alloys are available; consult your Anamet representative.

Types:

BW956-0 corrugated stainless steel hose, unbraided BW956-1E corrugated stainless steel hose, with one extra heavy braid

BW956-2E corrugated stainless steel hose, with two extra heavy braids

| Nomir | nal I.D. | Туре | Max | Min c/l Bend | ing Radius** | Min. exposed | Rated pressure | data at 20 °C*** | Approx. |
|-------|----------|---------------------|----------------|--------------|--------------|-------------------|----------------|------------------|---------------|
| | | | O.D. | Flexing | Permanent | length for normal | Max working | Max test | weight |
| (mm) | (inch) | | (mm) | bend (mm) | bend (mm) | vibration (mm) | pressure (bar) | pressure (bar) | (Kg/m) |
| 6 | 1/4" | BW956-0 BW956-2E | 13,1 17,9 | 305 | 155 | 115 | 12 310 | 12 465 | 0,30 0,61 |
| 10 | 3/8" | BW956-0 BW956-2E | 17,4 22,6 | 305 | 155 | 125 | 7 270 | 7 405 | 0,46 0,97 |
| 12 | 1/2" | BW956-0 BW956-2E | 21,4 27,0 | 330 | 180 | 140 | 6 255 | 6 383 | 0,73 1,48 |
| 20 | 3/4" | BW956-0 BW956-2E | 31,3 36,9 | 380 | 190 | 150 | 5 185 | 5 278 | 1,35 2,45 |
| 25 | 1" | BW956-0 BW956-2E | 38,7 44,3 | 410 | 205 | 180 | 3 158 | 3 237 | 1,66 3,07 |
| 32 | 1.1/4" | BW956-0 BW956-2E | 47,8 53,8 | 460 | 220 | 205 | 2 132 | 2 198 | 2,58 4,37 |
| 40 | 1.1/2" | BW956-0 BW956-2E | 56,4 63,4 | 485 | 245 | 215 | 1 120 | 1 180 | 3,84 6,26 |
| 50 | 2" | BW956-0 BW956-2E | 64,2 71,8 | 610 | 305 | 240 | 1 92 | 1 138 | 4,98 7,94 |
| 65 | 2.1/2" | BW956-0 BW956-2E | 83,0 91,6 | 690 | 340 | 255 | 0,7 70 | 0,7 105 | 5,07 8,54 |
| 75 | 3" | BW956-0 BW956-3E | 97,0 110,0 | 815 | 435 | 280 | 0,7 65 | 0,7 98 | 6,53 12,20 |
| 100 | 4" | BW956-0 BW956-3E | 123,2 136,2 | 1220 | 560 | 305 | 0,5 45 | 0,5 68 | 7,07 13,55 |

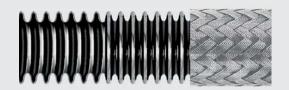
^{*} For working temperatures above 400°C environmental conditions are to be considered - consult your Anamet representative.

^{**} It is recommendet to increase the minimum bend radius with 25% when high pressures or temperatures are involved.

^{***} For temperatures higher than room temperature use the applicable temperature correction factor.

EXTREME CORROSION RESISTANT

BW 673



ANACONDA type BW673 is extremely resistant to corrosion, and is used to convey corrosive liquids and gases for applications that involve high pressure, temperatures up to +540 $^{\circ}\text{C}^{\star}$, vibration and flexure. Type BW673 is designed for Chlorine applications. Applicable as transfer hose for tankcar, cargotank, tankbarge, etc.

Burst pressure: The burst pressure of hose with braid is at least 4 times the working pressure.

Material specifications: The hose and braid are manufactured from Monel 400. For other alloys please consult your Anamet representative.

Types:

BW673-0 corrugated Monel hose, unbraided BW656-1S corrugated Monel hose, with one Monel braid BW656-2S corrugated Monel hose, with two Monel braids

| Nomir | nal I.D. | Type | Max | Min c/l Bend | ing Radius** | Min. exposed | Rated pressure | data at 20 °C*** | Approx. |
|-------|----------|-----------|-------|--------------|--------------|-------------------|----------------|------------------|---------|
| | | 31 | O.D. | Flexing | Permanent | length for normal | Max working | Max test | weight |
| (mm) | (inch) | | (mm) | bend (mm) | bend (mm) | vibration (mm) | pressure (bar) | pressure (bar) | (Kg/m) |
| , | V - / | BW673-0 | 11,9 | , | , | , , | 9 | 13,4 | 0,19 |
| 6 | 1/4" | BW673-1S | 13,4 | 155 | 50 | 115 | 117 | 176 | 0,31 |
| | | BW673-2S | 14,7 | | | | 167 | 250 | 0,43 |
| | | BW673-0 | 15,7 | | | | 6,2 | 9,3 | 0,23 |
| 10 | 3/8" | BW673-1S | 17,2 | 155 | 50 | 125 | 88 | 132 | 0,40 |
| | | BW673-2S | 18,7 | | | | 135 | 202 | 0,60 |
| | | BW673-0 | 19,5 | | | | 4,5 | 6,8 | 0,28 |
| 12 | 1/2" | BW673-1S | 20,8 | 180 | 65 | 140 | 59 | 88 | 0,46 |
| | | BW673-2S | 22,3 | | | | 93 | 139 | 0,64 |
| | | BW673-0 | 27,0 | | | | 3,4 | 5,2 | 0,41 |
| 20 | 3/4" | BW673-1S | 28,2 | 205 | 65 | 150 | 49 | 73 | 0,64 |
| | | BW673-2S | 29,7 | | | | 80 | 120 | 0,89 |
| | | BW673-0 | 34,5 | | | | 2,4 | 3,6 | 0,74 |
| 25 | 1" | BW673-1S | 36,3 | 230 | 75 | 180 | 48 | 72 | 1,15 |
| | | BW673-2S | 38,4 | | | | 78 | 117 | 1,61 |
| | | BW673-0 | 44,7 | | | | 1,4 | 2,1 | 0,95 |
| 32 | 1.1/4" | BW673-1S | 47,5 | 255 | 105 | 205 | 42 | 63 | 1,46 |
| | | BW673-2S | 49,5 | | | | 68 | 102 | 2,02 |
| | | BW673-0 | 53,3 | | | | 1 | 1,5 | 1,16 |
| 40 | 1.1/2" | BW673-1S | 55,2 | 255 | 105 | 215 | 29 | 43 | 1,76 |
| | | BW673-2S | 57,3 | | | | 53 | 79 | 2,41 |
| | | BW673-0 | 64,9 | | | | 0,7 | 1 | 1,44 |
| 50 | 2" | BW673-1S | 67,2 | 280 | 155 | 240 | 22 | 32 | 2,16 |
| | | BW673-2S | 69,7 | | | | 42 | 64 | 2,96 |
| | | BW673-0 | 98,3 | | | | 0,5 | 0,7 | 2,63 |
| 75 | 3" | BW673-1S | 102,4 | 510 | 255 | 280 | 21 | 31 | 3,97 |
| | | BW673-2S | 105,4 | | | | 34 | 52 | 5,46 |
| 400 | 4 | BW673-0 | 122,3 | | | 0.05 | 0,3 | 0,4 | 3,10 |
| 100 | 4" | BW673-1S | 127,3 | 610 | 305 | 305 | 18 | 27 | 5,27 |
| | | BW673-2S | 132,3 | | | | 30 | 45 | 7,69 |

^{*} For working temperatures above 400°C environmental conditions are to be considered - consult your Anamet representative.

^{**} It is recommendet to increase the minimum bend radius with 25% when high pressures or temperatures are involved.

^{***} For temperatures higher than room temperature use the applicable temperature correction factor.

STAINLESS STEEL BRAIDING

BRAID



Anaconda braid type S (standard braid) and H (heavy braid) are mainly supplied in combination with our Anaconda butt-welded corrugated hoses type BW656, BW756, BW856 and BW956. However they can also be obtained as loose braids.

Burst pressure: The burst pressure of hose with braid is at least 4 times the working pressure.

Material specifications: The braids are manufactured from stainless steel AISI 304 (1.4301) wire. Other alloys are available; consult your Anamet representative.

Types:

S Standard braid H Heavy braid

E Extra heavy braid (on demand)

| For ho | se I.D. | Туре | Core | Bra | aid construct | ion | Coverage | Rated pressure | data at 20 °C*** | Approx. |
|--------|---------|------|----------|------------|---------------|------------|----------|----------------|------------------|---------|
| | | | diametre | Number | Wires | Wire | grade | Max. working | Max. test | weight |
| (mm) | (inch) | | (mm) | of Strands | per Strand | diam. (mm) | % | pressure (bar) | pressure (bar) | (Kg/m) |
| 6 | 1/4" | 1S | 9,8 | 32 | 4 | 0,3 | 89 | 172 | 258 | 0,09 |
| 8 | 5/16" | 1S | 12,4 | 32 | 4 | 0,3 | 83 | 120 | 180 | 0,10 |
| 10 | 3/8" | 1S | 14,4 | 32 | 5 | 0,3 | 83 | 105 | 158 | 0,11 |
| 15 | 1/2" | 1S | 20,2 | 32 | 5 | 0,4 | 88 | 85 | 128 | 0,21 |
| 20 | 3/4" | 1S | 27,0 | 32 | 7 | 0,4 | 87 | 70 | 105 | 0,29 |
| 25 | 1" | 1S | 32,6 | 48 | 6 | 0,4 | 92 | 62 | 93 | 0,37 |
| 32 | 1.1/4" | 1S | 41,4 | 48 | 8 | 0,4 | 93 | 48 | 72 | 0,49 |
| 40 | 1.1/2" | 1S | 50,1 | 48 | 8 | 0,4 | 87 | 34 | 51 | 0,49 |
| 50 | 2" | 1S | 60,8 | 48 | 10 | 0,4 | 83 | 28 | 42 | 0,62 |
| 65 | 2.1/2" | 1S | 78,9 | 48 | 8 | 0,5 | 80 | 19 | 29 | 0,87 |
| 75 | 3" | 1S | 96,0 | 48 | 9 | 0,63 | 86 | 25 | 38 | 1,50 |
| 100 | 4" | 1S | 117,3 | 48 | 12 | 0,63 | 86 | 20 | 30 | 2,00 |
| 125 | 5" | 1S | 146,3 | 72 | 8 | 0,63 | 74 | 14 | 21 | 2,25 |
| 150 | 6" | 1S | 171,5 | 72 | 10 | 0,63 | 74 | 10 | 15 | 2,60 |

| For ho | se I.D. | Туре | Core | Bra | aid construct | tion | Coverage | Rated pressure | data at 20 °C*** | Approx. |
|--------|---------|------|----------|------------|---------------|------------|----------|----------------|------------------|---------|
| | | | diametre | Number | Wires | Wire | grade | Max working | Max test | weight |
| (mm) | (inch) | | (mm) | of Strands | per Strand | diam. (mm) | % | pressure (bar) | pressure (bar) | (Kg/m) |
| 6 | 1/4" | 1H | 10,5 | 32 | 5 | 0,3 | 95 | 230 | 345 | 0,11 |
| 10 | 3/8" | 1H | 16,4 | 32 | 5 | 0,4 | 94 | 150 | 225 | 0,20 |
| 12 | 1/2" | 1H | 21,4 | 32 | 5 | 0,5 | 96 | 132 | 198 | 0,31 |
| 20 | 3/4" | 1H | 31,4 | 32 | 7 | 0,5 | 95 | 90 | 135 | 0,44 |
| 25 | 1" | 1H | 38,9 | 48 | 7 | 0,5 | 99 | 85 | 128 | 0,66 |
| 32 | 1.1/4" | 1H | 47,8 | 48 | 8 | 0,5 | 99 | 64 | 96 | 0,75 |
| 40 | 1.1/2" | 1H | 56,4 | 48 | 7 | 0,63 | 98 | 60 | 90 | 1,04 |
| 50 | 2" | 1H | 64,8 | 48 | 9 | 0,63 | 97 | 55 | 83 | 1,38 |
| 65 | 2.1/2" | 1H | 83,0 | 48 | 10 | 0,63 | 96 | 38 | 57 | 1,58 |
| 75 | 3" | 1H | 97,0 | 48 | 12 | 0,63 | 96 | 34 | 51 | 1,89 |
| 100 | 4" | 1H | 123,4 | 72 | 9 | 0,63 | 89 | 24 | 36 | 2,16 |
| 150 | 6" | 1H | 176,6 | 96 | 13 | 0,63 | 89 | 18 | 27 | 3,88 |

^{***} The rated pressure data are based onh the combination with Anaconda hoses. For other combinations or other applications, please contact Anamet Europe B.V. for specific braid calculation.



END CONNECTIONS





Standard end connections figures:

Figure 1 to 14 show the standard Anamet hose end connections.

All connections are TIG-welded onto our corrugated hoses.

Weld oxides can be removed by brushing with a plastic wire brush or by electrolytic cleaning (to be specified on order).

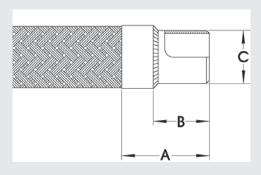
Next to our standard program, Anamet can supply their hose assemblies with a great variety of trade fittings, couplings, and custom designed fittings. Frequently used hose fixtures are:
DIN 2353 L- and S-series fittings, SAE J/514 JIC 37° fittings, SAE 3000 and 6000 lbs flanges,
DIN 11851 food couplings, Camlock coupling, Mann-tek Dry disconnect couplings and

custom fittings according to drawing.

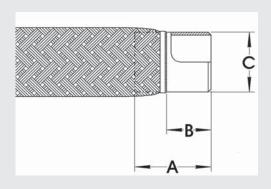
Please contact our Fluid and Gases sales team for our comprehensive service.

Fig. 1

Welding end, hose Id. 1/4" to 4".



| Welding end, hose ld. 5" to 8". |
|----------------------------------|
| - Carbon steel / Stainless steel |



| Hose No | minal ID | Dimer | nsions | in mm | *C ANSI | *C ISO |
|---------|----------|-------|--------|-------|-------------|-------------------------|
| (mm) | (inch) | А | В | С | | |
| 6 | 1/4" | 59 | 50 | - | 13,7 x 2,2 | 10,2 x 1,6 / 13,5 x 1,8 |
| 10 | 3/8" | 60 | 50 | 1 | 17,2 x 2,3 | 17,2 x 1,8 |
| 12 | 1/2" | 62 | 50 | 1 | 21,3 x 2,8 | 21,3 x 2,0 |
| 20 | 3/4" | 65 | 50 | 1 | 26,7 x 2,9 | 26,9 x 2,3 |
| 25 | 1″ | 70 | 50 | 1 | 33,4 x 3,4 | 33,7 x 2,6 |
| 32 | 1.1/4" | 70 | 50 | 1 | 42,2 x 3,6 | 42,4 x 2,6 |
| 40 | 1.1/2" | 85 | 60 | 1 | 48,3 x 3,7 | 48,3 x 2,6 |
| 50 | 2" | 90 | 60 | 1 | 60,3 x 3,9 | 60,3 x 2,9 |
| 65 | 2.1/2" | 90 | 60 | 1 | 73,0 x 5,2 | 76,1 x 2,9 |
| 75 | 3" | 95 | 65 | - | 88,9 x 5,5 | 88,9 x 3,2 |
| 100 | 4" | 105 | 75 | - | 114,3 x 6,0 | 114,3 x 3,6 |

^{*} If fittings with other dimension "C" are required please specify when ordering.

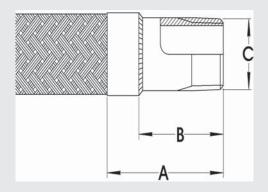
| Hose No | minal ID | Dimer | nsions | in mm | *C ANSI | *C ISO |
|---------|----------|-------|--------|-------|-------------|-------------|
| (mm) | (inch) | Α | В | С | | |
| 125 | 5″ | 125 | 75 | - | 141,3 x 6,5 | 139,7 x 4,0 |
| 150 | 6" | 125 | 75 | - | 168,3 x 7,1 | 168,3 x 4,5 |
| 200 | 8" | 135 | 75 | - | 219,1 x 8,2 | 219,1 x 5,9 |

END CONNECTIONS

Fig. 2

Pipe nipple male (tapered thread).

- BSPT Stainless steel
- NPT Carbon steel / Stainless steel

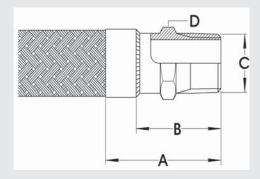


| Hose No | minal ID | | Dimer | nsions in mm | | Dimer | sions in mm |
|---------|----------|-----|-------|--------------|-----|-------|-------------|
| (mm) | (inch) | Α | В | С | А | В | С |
| 6 | 1/4" | 38 | 29 | 1/4" BSPT | 45 | 36 | 1/4" NPT |
| 10 | 3/8" | 39 | 29 | 3/8" BSPT | 46 | 36 | 3/8" NPT |
| 12 | 1/2" | 52 | 40 | 1/2" BSPT | 54 | 42 | 1/2" NPT |
| 20 | 3/4" | 55 | 40 | 3/4" BSPT | 61 | 46 | 3/4" NPT |
| 25 | 1″ | 70 | 50 | 1" BSPT | 73 | 53 | 1" NPT |
| 32 | 1.1/4" | 75 | 55 | 1.1/4" BSPT | 75 | 55 | 1.1/4" NPT |
| 40 | 1.1/2" | 85 | 60 | 1.1/2" BSPT | 84 | 59 | 1.1/2" NPT |
| 50 | 2" | 95 | 65 | 2" BSPT | 87 | 57 | 2" NPT |
| 65 | 2.1/2" | 105 | 75 | 2.1/2" BSPT | 120 | 90 | 2.1/2" NPT |
| 75 | 3" | 105 | 75 | 3" BSPT | 120 | 90 | 3" NPT |
| 100 | 4" | 125 | 95 | 4" BSPT | 125 | 95 | 4" NPT |

Fig. 3

Hexagon nipple male (tapered thread).

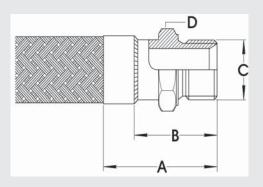
- BSPT Stainless steel
- NPT Carbon steel / Stainless steel



| Hose No | minal ID | [| Dimens | ions in mm | | Dim | ensions in mm | |
|---------|----------|-----|--------|-------------|----|-----|---------------|----|
| (mm) | (inch) | Α | В | С | А | В | С | D |
| 6 | 1/4 | 33 | 24 | 1/4" BSPT | 39 | 27 | 1/4" NPT | 14 |
| 10 | 3/8 | 38 | 28 | 3/8" BSPT | 43 | 33 | 3/8" NPT | 19 |
| 12 | 1/2 | 46 | 34 | 1/2" BSPT | 50 | 38 | 1/2" NPT | 22 |
| 20 | 3/4 | 55 | 40 | 3/4" BSPT | 59 | 44 | 3/4" NPT | 27 |
| 25 | 1 | 66 | 46 | 1" BSPT | 69 | 49 | 1" NPT | 36 |
| 32 | 1 1/4 | 72 | 52 | 1.1/4" BSPT | 75 | 55 | 1.1/4" NPT | 42 |
| 40 | 1 1/2 | 79 | 54 | 1.1/2" BSPT | 81 | 56 | 1.1/2" NPT | 50 |
| 50 | 2 | 92 | 62 | 2" BSPT | 89 | 59 | 2" NPT | 65 |
| 65 | 2 1/2 | 103 | 73 | 21/2" BSPT | | | | |
| 75 | 3 | 120 | 90 | 3" BSPT | | | | |
| 100 | 4 | 130 | 100 | 4" BSPT | | | | |

Fig. 4

Hexagon nipple male. (parallel thread). 60° cone seat + flat seat on hexagon,



| Hose No | minal ID | | Dime | ensions in mm | | | |
|---------|----------|-----|------|---------------|-----|--|--|
| (mm) | (inch) | А | В | С | D | | |
| 6 | 1/4 | 33 | 24 | 1/4" BSPP | 17 | | |
| 10 | 3/8 | 39 | 29 | 3/8" BSPP | 22 | | |
| 12 | 1/2 | 44 | 32 | 1/2" BSPP | 27 | | |
| 20 | 3/4 | 55 | 40 | 3/4" BSPP | 32 | | |
| 25 | 1 | 65 | 45 | 1" BSPP | 41 | | |
| 32 | 1 1/4 | 65 | 45 | 1.1/4" BSPP | 50 | | |
| 40 | 1 1/2 | 72 | 47 | 1.1/2" BSPP | 55 | | |
| 50 | 2 | 81 | 51 | 2" BSPP | 70 | | |
| 65 | 2 1/2 | 95 | 65 | 2.1/2" BSPP | 85 | | |
| 75 | 3 | 110 | 80 | 3" BSPP | 100 | | |
| 100 | 4 | 120 | 90 | 4" BSPP | 135 | | |

^{*} Hexagon nipple male is also available with flat seat instead of 60° cone seat.

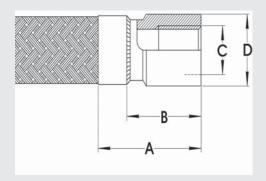


END CONNECTIONS

Fig. 5

Round socket female.

- BSPP Stainless steel
- NPT Carbon steel / Stainless steel

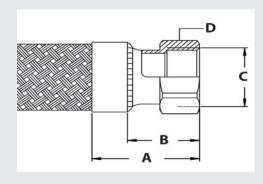


| Hose No | minal ID | | Dim | ensions in mm | | | |
|---------|----------|-----|-----|---------------|-----|------------|--|
| (mm) | (inch) | А | В | С | D | С | |
| 6 | 1/4 | 36 | 27 | 1/4" BSPP | 17 | 1/4" NPT | |
| 10 | 3/8 | 40 | 35 | 3/8" BSPP | 22 | 3/8" NPT | |
| 12 | 1/2 | 52 | 40 | 1/2" BSPP | 27 | 1/2" NPT | |
| 20 | 3/4 | 55 | 40 | 3/4" BSPP | 33 | 3/4" NPT | |
| 25 | 1 | 70 | 50 | 1" BSPP | 40 | 1" NPT | |
| 32 | 1.1/4 | 75 | 55 | 1.1/4" BSPP | 50 | 1.1/4" NPT | |
| 40 | 1.1/2 | 85 | 60 | 1.1/2" BSPP | 58 | 1.1/2" NPT | |
| 50 | 2 | 95 | 65 | 2" BSPP | 70 | 2" NPT | |
| 65 | 2 1/2 | 104 | 74 | 2.1/2" BSPP | 85 | | |
| 75 | 3 | 110 | 80 | 3" BSPP | 100 | | |
| 100 | 4 | 124 | 94 | 4" BSPP | 125 | | |

Fig. 6

Hexagon socket female.

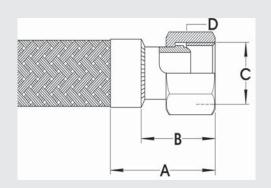
- BSPP Stainless steel
- NPT Stainless steel



| Hose No | ominal ID | | Dim | ensions in mm | | | |
|---------|-----------|------|------|---------------|----|--|--|
| (mm) | (inch) | Α | В | С | D | | |
| 6 | 1/4" | 40,5 | 28,5 | 1/4" BSPP | 30 | | |
| 10 | 3/8" | 46 | 31 | 3/8" BSPP | 35 | | |
| 12 | 1/2" | 53 | 38 | 1/2" BSPP | 42 | | |
| 20 | 3/4" | 56 | 41 | 3/4" BSPP | 47 | | |
| 25 | 1" | 66 | 46 | 1" BSPP | 53 | | |
| 32 | 1.1/4" | 69 | 49 | 1.1/4" BSPP | 71 | | |
| 40 | 1.1/2" | 76 | 51 | 1.1/2" BSPP | 78 | | |
| 50 | 2" | 86 | 56 | 2" BSPP | 92 | | |

Fig. 7

Sphere cone nipple with hexagon swivel nut.



| Hose No | minal ID | | Dim | ensions in mm | | | |
|---------|----------|----|-----|---------------|----|--|--|
| (mm) | (inch) | А | В | С | D | | |
| 6 | 1/4 | 37 | 28 | 1/4" BSPP | 19 | | |
| 10 | 3/8 | 38 | 28 | 3/8" BSPP | 22 | | |
| 12 | 1/2 | 40 | 28 | 1/2" BSPP | 27 | | |
| 20 | 3/4 | 45 | 30 | 3/4" BSPP | 32 | | |
| 25 | 1 | 54 | 34 | 1" BSPP | 41 | | |
| 32 | 1.1/4 | 54 | 34 | 1.1/4" BSPP | 50 | | |
| 40 | 1.1/2 | 59 | 34 | 1.1/2" BSPP | 60 | | |
| 50 | 2 | 68 | 38 | 2" BSPP | 70 | | |

 $^{^{\}star}$ Spherical cone nipple standard is AISI-316L. Unless specified otherwise.

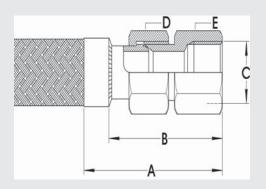


END CONNECTIONS

Fig. 7A

Sphere cone nipple with hexagon swivel nut (fig.7) with hexagon adapter BSPP female.

- Carbon steel / Stainless steel

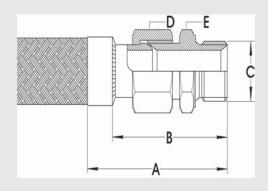


| Hose No | ominal ID | | Dime | ensions in mm | | | |
|---------|-----------|-----|------|---------------|----|----|--|
| (mm) | (inch) | А | В | С | D | Е | |
| 6 | 1/4 | 64 | 55 | 1/4" BSPP | 19 | 17 | |
| 10 | 3/8 | 66 | 56 | 3/8" BSPP | 22 | 22 | |
| 12 | 1/2 | 71 | 59 | 1/2" BSPP | 27 | 27 | |
| 20 | 3/4 | 80 | 65 | 3/4" BSPP | 32 | 32 | |
| 25 | 1 | 93 | 73 | 1" BSPP | 41 | 41 | |
| 32 | 1.1/4 | 95 | 75 | 1.1/4" BSPP | 50 | 50 | |
| 40 | 1.1/2 | 102 | 77 | 1.1/2" BSPP | 60 | 55 | |
| 50 | 2 | 113 | 83 | 2" BSPP | 70 | 70 | |

Fig. 7B

Sphere cone nipple with hexagon swivel nut (fig.7) with hexagon adapter BSPP male (parallel thread).

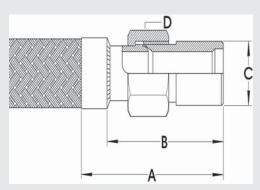
- Carbon steel / Stainless steel



| Hose No | minal ID | | Dim | ensions in mm | | | |
|---------|----------|-----|-----|---------------|----|----|--|
| (mm) | (inch) | А | В | С | D | Е | |
| 6 | 1/4 | 59 | 50 | 1/4" BSPP | 19 | 17 | |
| 10 | 3/8 | 64 | 54 | 3/8" BSPP | 22 | 22 | |
| 12 | 1/2 | 72 | 60 | 1/2" BSPP | 27 | 27 | |
| 20 | 3/4 | 85 | 70 | 3/4" BSPP | 32 | 32 | |
| 25 | 1 | 97 | 77 | 1" BSPP | 38 | 38 | |
| 32 | 1.1/4 | 90 | 70 | 1.1/4" BSPP | 50 | 50 | |
| 40 | 1.1/2 | 97 | 72 | 1.1/2" BSPP | 60 | 55 | |
| 50 | 2 | 110 | 80 | 2" BSPP | 70 | 70 | |

Fig. 7C

Sphere cone nipple with hexagon swivel nut (fig.7) with welding adapter.



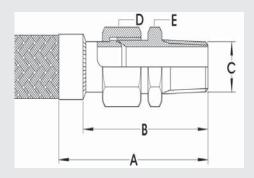
| Hose No | minal ID | | | Dimensions | in mm | |
|---------|----------|-----|----|------------|------------|----|
| (mm) | (inch) | А | В | C-ISO | C-ANSI | D |
| 6 | 1/4 | 62 | 53 | 10,2 x 1,6 | | 19 |
| 6 | 1/4 | 62 | 53 | 13,5 x 1,8 | 13,7 x 2,2 | 19 |
| 10 | 3/8 | 63 | 53 | 17,2 x 1,8 | 17,2 x 2,3 | 22 |
| 12 | 1/2 | 70 | 58 | 21,3 x 2,0 | 21,3 x 2,8 | 27 |
| 20 | 3/4 | 78 | 63 | 26,9 x 2,3 | 26,7 x 2,9 | 32 |
| 25 | 1 | 90 | 70 | 33,7 x 2,6 | 33,4 x 3,4 | 41 |
| 32 | 1.1/4 | 94 | 74 | 42,4 x 2,6 | 42,2 x 3,6 | 50 |
| 40 | 1.1/2 | 99 | 74 | 48,3 x 2,6 | 48,3 x 3,7 | 60 |
| 50 | 2 | 112 | 82 | 60,3 x 2,9 | 60,3 x 3,9 | 70 |

END CONNECTIONS

Fig. 7D

Spherical cone nipple with hexagon swivel nut (fig.7) with Hexagon adapter BSPT male (tapered thread).

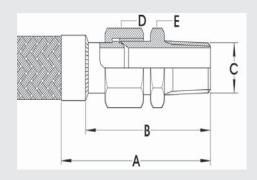
- Carbon steel / Stainless steel



| Hose No | minal ID | | Dime | ensions in mm | | | |
|---------|----------|-----|------|---------------|----|----|--|
| (mm) | (inch) | А | В | С | D | Е | |
| 6 | 1/4 | 67 | 58 | 1/4" BSPT | 19 | 18 | |
| 10 | 3/8 | 72 | 62 | 3/8" BSPT | 22 | 23 | |
| 12 | 1/2 | 83 | 71 | 1/2" BSPT | 27 | 26 | |
| 20 | 3/4 | 90 | 75 | 3/4" BSPT | 32 | 33 | |
| 25 | 1 | 109 | 89 | 1" BSPT | 41 | 42 | |
| 32 | 1.1/4 | 115 | 95 | 1.1/4" BSPT | 50 | 52 | |
| 40 | 1.1/2 | 117 | 97 | 1.1/2" BSPT | 60 | 56 | |
| 50 | 2 | 149 | 119 | 2" BSPT | 70 | 70 | |

Fig. 7E

Spherical cone nipple with hexagon swivel nut (fig.7) with hexagon adapter NPT male (tapered thread).



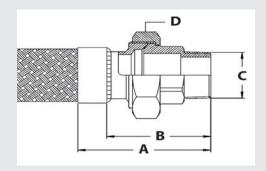
| Hose No | minal ID | | Dim | ensions in mm | | | |
|---------|----------|-----|-----|---------------|----|----|--|
| (mm) | (inch) | А | В | С | D | Е | |
| 6 | 1/4 | 67 | 58 | 1/4" NPT | 19 | 18 | |
| 10 | 3/8 | 72 | 62 | 3/8" NPT | 22 | 23 | |
| 12 | 1/2 | 83 | 71 | 1/2" NPT | 27 | 26 | |
| 20 | 3/4 | 90 | 75 | 3/4" NPT | 32 | 33 | |
| 25 | 1 | 109 | 89 | 1" NPT | 41 | 42 | |
| 32 | 1.1/4 | 115 | 95 | 1.1/4" NPT | 50 | 52 | |
| 40 | 1.1/2 | 117 | 97 | 1.1/2" NPT | 60 | 56 | |
| 50 | 2 | 149 | 119 | 2" NPT | 70 | 70 | |

END CONNECTIONS

Fig. 9B

Hexagon union BSPT male (tapered thread). EN ISO 4144 - BW / cone seat / Male

- Stainless steel



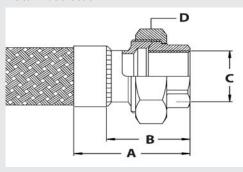
| Hose No | minal ID | | Dime | ensions in mm | | | |
|---------|----------|-----|------|---------------|----|----|--|
| (mm) | (inch) | А | В | С | D | Е | |
| 6 | 1/4" | 62 | 50 | 1/4" BSPT | 30 | 18 | |
| 10 | 3/8" | 65 | 50 | 3/8" BSPT | 35 | 23 | |
| 12 | 1/2" | 74 | 59 | 1/2" BSPT | 42 | 26 | |
| 20 | 3/4" | 81 | 66 | 3/4" BSPT | 47 | 33 | |
| 25 | 1" | 85 | 65 | 1" BSPT | 53 | 42 | |
| 32 | 1.1/4" | 103 | 83 | 1.1/4" BSPT | 71 | 52 | |
| 40 | 1.1/2" | 112 | 87 | 1.1/2" BSPT | 78 | 56 | |
| 50 | 2" | 124 | 94 | 2" BSPT | 92 | 70 | |

Fig. 10B

Hexagon Union BSPP Female. (parallel thread).

EN ISO 4144 - BW / cone seat / Female

- Stainless steel

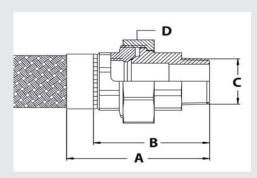


| Hose No | minal ID | | Dime | | | | |
|---------|----------|------|------|-------------|----|--|--|
| (mm) | (inch) | А | В | С | D | | |
| 6 | 1/4" | 47,5 | 35,5 | 1/4" BSPP | 30 | | |
| 10 | 3/8" | 53 | 38 | 3/8" BSPP | 35 | | |
| 12 | 1/2" | 57 | 42 | 1/2" BSPP | 42 | | |
| 20 | 3/4" | 66 | 51 | 3/4" BSPP | 47 | | |
| 25 | 1" | 68 | 48 | 1" BSPP | 53 | | |
| 32 | 1.1/4" | 79 | 59 | 1.1/4" BSPP | 71 | | |
| 40 | 1.1/2" | 89 | 64 | 1.1/2" BSPP | 78 | | |
| 50 | 2" | 99 | 69 | 2" BSPP | | | |

Fig. 11

Hexagon union 3000 lbs NPT male (tapered thread).

ANSI B16.11, forged to ASTM A182



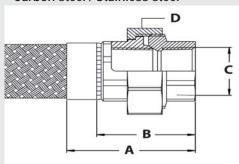
| ſ | Hose No | minal ID | | Dime | ensions in mm | | | |
|---|---------|----------|-----|------|---------------|-----|--|--|
| ĺ | (mm) | (inch) | А | В | С | D | | |
| | 6 | 1/4" | 73 | 61 | 1/4" NPT | 36 | | |
| ſ | 10 | 3/8" | 84 | 69 | 3/8" NPT | 41 | | |
| ſ | 12 | 1/2" | 90 | 75 | 1/2" NPT | 46 | | |
| ſ | 20 | 3/4" | 100 | 80 | 3/4" NPT | 56 | | |
| ſ | 25 | 1" | 110 | 90 | 1" NPT | 65 | | |
| ſ | 32 | 1.1/4" | 118 | 98 | 1.1/4" NPT | 80 | | |
| | 40 | 1.1/2" | 125 | 100 | 1.1/2" NPT | 87 | | |
| | 50 | 2" | 150 | 120 | 2" NPT | 100 | | |

END CONNECTIONS

Fig. 12

Hexagon Union 3000 lbs NPT female (tapered thread).

ANSI B16.11, forged to ASTM A182 - Carbon steel / Stainless steel



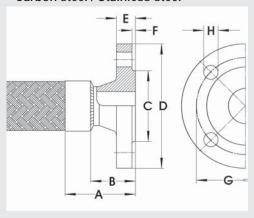
| Hose No | minal ID | | Dime | ensions in mm | | | |
|---------|----------|-----|------|---------------|-----|--|--|
| (mm) | (inch) | А | В | С | D | | |
| 6 | 1/4" | 57 | 45 | 1/4" NPT | 36 | | |
| 10 | 3/8" | 66 | 51 | 3/8" NPT | 41 | | |
| 12 | 1/2" | 67 | 52 | 1/2" NPT | 46 | | |
| 20 | 3/4" | 72 | 57 | 3/4" NPT | 56 | | |
| 25 | 1" | 83 | 63 | 1" NPT | 65 | | |
| 32 | 1.1/4" | 86 | 66 | 1.1/4" NPT | 80 | | |
| 40 | 1.1/2" | 103 | 78 | 1.1/2" NPT | | | |
| 50 | 2" | 121 | 91 | 2" NPT | 100 | | |

END CONNECTIONS

Fig. 13

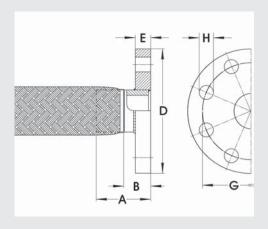
Fixed flange NW 06 to NW 100 EN1092-1 type 11 PN06 to PN40

- Carbon steel / Stainless steel



Fixed flange NW 125 to NW 250 EN1092-1 type 01 PN06 to PN40

- Carbon steel / Stainless steel



FIXED FLANGES ACCORDING TO EN 1092-1

PN 06 (DIN 2631*)

| Hose No | minal ID | | | D | imensio | ns in m | m | | | Number |
|---------|----------|-----|----|-----|---------|---------|---|-----|----|----------|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes |
| 10 | 3/8" | 38 | 28 | 35 | 75 | 12 | 2 | 50 | 11 | 4 |
| 15 | 1/2" | 42 | 30 | 40 | 80 | 12 | 2 | 55 | 11 | 4 |
| 20 | 3/4" | 47 | 32 | 50 | 90 | 14 | 2 | 65 | 11 | 4 |
| 25 | 1″ | 55 | 35 | 60 | 100 | 14 | 2 | 75 | 11 | 4 |
| 32 | 1.1/4" | 55 | 35 | 70 | 120 | 14 | 2 | 90 | 14 | 4 |
| 40 | 1.1/2" | 63 | 38 | 80 | 130 | 14 | 3 | 100 | 14 | 4 |
| 50 | 2" | 68 | 38 | 90 | 140 | 14 | 3 | 110 | 14 | 4 |
| 65 | 2.1/2" | 68 | 38 | 110 | 160 | 14 | 3 | 130 | 14 | 4 |
| 80 | 3" | 72 | 42 | 128 | 190 | 16 | 3 | 150 | 18 | 4 |
| 100 | 4" | 75 | 45 | 148 | 210 | 16 | 3 | 170 | 18 | 4 |
| 125 | 5″ | 105 | 54 | - | 240 | 20 | - | 200 | 18 | 8 |
| 150 | 6" | 105 | 54 | - | 265 | 20 | - | 225 | 18 | 8 |
| 200 | 8″ | 120 | 57 | - | 320 | 22 | - | 280 | 18 | 8 |
| 250 | 10" | 120 | 57 | - | 375 | 24 | - | 335 | 18 | 12 |

PN 10 (DIN 2632*)

| Hose No | minal ID | | Dimensions in mm | | | | | | | | |
|-----------|----------|-----|----------------------|-----|---------|---------|-----|--|--|--|--|
| (mm) | (inch) | Α | A B C D E F G H | | | | | | | | |
| 10 to 40 | | | Use PN 40 dimensions | | | | | | | | |
| 50 to 150 | | | | Use | PN 16 (| dimensi | ons | | | | |
| 200 | 8″ | 120 | 20 57 340 24 295 22 | | | | | | | | |
| 250 | 10" | 120 | 20 57 395 26 350 22 | | | | | | | | |

PN 16 (DIN 2633*)

| Hose No | minal ID | | Dimensions in mm | | | | | | | | | |
|----------|----------|-----|----------------------|-----|-----|----|---|-----|----|--------|--|--|
| (mm) | (inch) | А | A B C D E F G H | | | | | | | | | |
| 10 to 40 | | | Use PN 40 dimensions | | | | | | | | | |
| 50 | 2" | 75 | 45 | 102 | 165 | 18 | 3 | 125 | 18 | 4 | | |
| 65 | 2.1/2" | 75 | 45 | 122 | 185 | 18 | 3 | 145 | 18 | 4 / 8* | | |
| 80 | 3" | 80 | 50 | 138 | 200 | 20 | 3 | 160 | 18 | 8 | | |
| 100 | 4" | 82 | 52 | 158 | 220 | 20 | 3 | 180 | 18 | 8 | | |
| 125 | 5″ | 105 | 54 | - | 250 | 22 | - | 210 | 18 | 8 | | |
| 150 | 6" | 105 | 54 | - | 285 | 24 | - | 240 | 22 | 8 | | |
| 200 | 8" | 120 | 57 | - | 340 | 26 | - | 295 | 22 | 12 | | |
| 250 | 10" | 120 | 57 | - | 405 | 29 | - | 355 | 26 | 12 | | |

PN 25 (DIN 2634*)

| Hose No | minal ID | | | D | imensio | ns in m | m | | | Number | |
|-----------|----------|-----|----------------------|---|---------|---------|---|-----|----|----------|--|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes | |
| 10 to 150 | | | Use PN 40 dimensions | | | | | | | | |
| 200 | 8" | 120 | 57 | | 360 | 32 | | 310 | 26 | 12 | |
| 250 | 10" | 120 | 57 | | 425 | 35 | | 370 | 30 | 12 | |



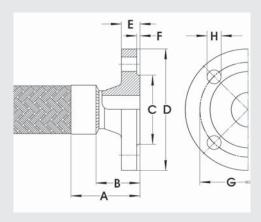
^{*} The European standard EN 1092-1 is based on the old DIN- standard. However, there are a few small differences.

END CONNECTIONS

Fig. 13

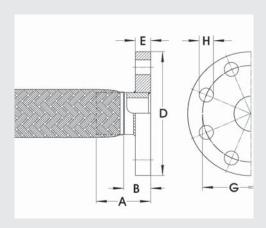
Fixed flange NW 06 to NW 100 EN1092-1 type 11 PN06 to PN40

- Carbon steel / Stainless steel



Fixed flange NW 125 to NW 250 EN1092-1 type 01 PN06 to PN40

- Carbon steel / Stainless steel



FIXED FLANGES ACCORDING TO EN 1092-1

PN 40 (DIN 2635*)

| Hose No | minal ID | | | D | imensio | ns in m | ım | | | Number |
|---------|----------|----|----|-----|---------|---------|----|-----|----|----------|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes |
| 10 | 3/8" | 45 | 35 | 40 | 90 | 16 | 2 | 60 | 14 | 4 |
| 15 | 1/2" | 50 | 38 | 45 | 95 | 16 | 2 | 65 | 14 | 4 |
| 20 | 3/4" | 55 | 40 | 58 | 105 | 18 | 2 | 75 | 14 | 4 |
| 25 | 1" | 60 | 40 | 68 | 115 | 18 | 2 | 85 | 14 | 4 |
| 32 | 1.1/4" | 62 | 42 | 78 | 140 | 18 | 2 | 100 | 18 | 4 |
| 40 | 1.1/2" | 70 | 45 | 88 | 150 | 18 | 3 | 110 | 18 | 4 |
| 50 | 2" | 78 | 48 | 102 | 165 | 20 | 3 | 125 | 18 | 4 |
| 65 | 2.1/2" | 82 | 52 | 122 | 185 | 22 | 3 | 145 | 18 | 8 |
| 80 | 3" | 88 | 58 | 138 | 200 | 24 | 3 | 160 | 18 | 8 |
| 100 | 4" | 95 | 65 | 162 | 235 | 24 | 3 | 190 | 22 | 8 |

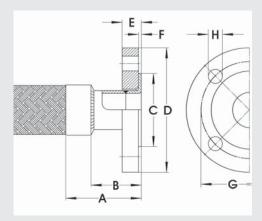
^{*} The European standard EN 1092-1 is based on the old DIN- standard. However, there are a few small differences.

END CONNECTIONS

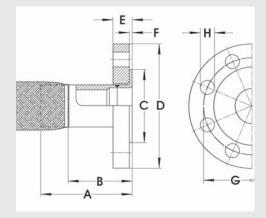
Fig. 14

Floating flange NW 06 to NW 100 EN1092-1 type 02/33 (thin plate collar) PN10

Carbon steel / Stainless steel



Floating flange NW 125 to NW 200 EN1092-1 type 02/33 (thin plate collar) PN10 Carbon steel / Stainless steel



FLOATING FLANGES ACCORDING TO EN 1092-1

PN 10 (DIN 2641 FORM G*)

| Hose No | minal ID | | | D | imensic | ns in m | ım | | | Number |
|---------|----------|-----|-----|-----|---------|---------|-----|-----|----|----------|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes |
| 10 | 3/8" | 62 | 52 | 40 | 90 | 14 | 2,5 | 60 | 14 | 4 |
| 15 | 1/2" | 64 | 52 | 45 | 95 | 14 | 2,5 | 65 | 14 | 4 |
| 20 | 3/4" | 67 | 52 | 58 | 105 | 16 | 3 | 75 | 14 | 4 |
| 25 | 1" | 72 | 52 | 68 | 115 | 16 | 3 | 85 | 14 | 4 |
| 32 | 1.1/4" | 72 | 52 | 78 | 140 | 18 | 3 | 100 | 18 | 4 |
| 40 | 1.1/2" | 87 | 62 | 88 | 150 | 18 | 3 | 110 | 18 | 4 |
| 50 | 2" | 92 | 62 | 102 | 165 | 20 | 4 | 125 | 18 | 4 |
| 65 | 2.1/2" | 92 | 62 | 122 | 185 | 20 | 4 | 145 | 18 | 8 |
| 80 | 3" | 98 | 68 | 138 | 200 | 20 | 4 | 160 | 18 | 8 |
| 100 | 4" | 108 | 78 | 158 | 220 | 22 | 4 | 180 | 18 | 8 |
| 125 | 5" | 177 | 126 | 188 | 250 | 22 | 4 | 210 | 18 | 8 |
| 150 | 6" | 177 | 126 | 212 | 285 | 24 | 4 | 240 | 22 | 8 |
| 200 | 8" | 203 | 139 | 268 | 340 | 24 | 4 | 295 | 22 | 8 |

^{*} For pressure ratings PN16 and PN40 Type 37,35 and 34 collars are available upon request.



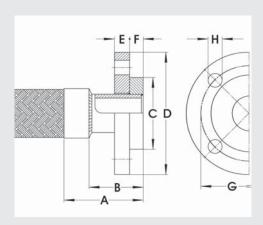
^{*} The European standard EN 1092-1 is based on the old DIN- standard. However, there are a few small differences.

END CONNECTIONS

Fig. 14

Floating flange NW 06 to NW 100 EN1092-1 type 02/32 (thick collar) PN06 to PN40

- Carbon steel / Stainless steel



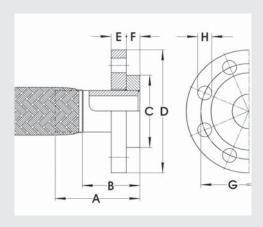
FLOATING FLANGES ACCORDING TO EN 1092-1

PN 06 (DIN 2641*)

| Hose No | ominal ID | | | D | imensic | ns in m | m | | | Number |
|---------|-----------|-----|-----|-----|---------|---------|----|-----|----|----------|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes |
| 10 | 3/8" | 62 | 52 | 35 | 75 | 12 | 10 | 50 | 11 | 4 |
| 15 | 1/2" | 64 | 52 | 40 | 80 | 12 | 10 | 55 | 11 | 4 |
| 20 | 3/4" | 67 | 52 | 50 | 90 | 14 | 10 | 65 | 11 | 4 |
| 25 | 1" | 72 | 52 | 60 | 100 | 14 | 10 | 75 | 11 | 4 |
| 32 | 1.1/4" | 72 | 52 | 70 | 120 | 16 | 10 | 90 | 14 | 4 |
| 40 | 1.1/2" | 87 | 62 | 80 | 130 | 16 | 10 | 100 | 14 | 4 |
| 50 | 2" | 92 | 62 | 90 | 140 | 16 | 12 | 110 | 14 | 4 |
| 65 | 2.1/2" | 92 | 62 | 110 | 160 | 16 | 12 | 130 | 14 | 4 |
| 80 | 3" | 98 | 68 | 128 | 190 | 18 | 12 | 150 | 18 | 4 |
| 100 | 4" | 108 | 78 | 148 | 210 | 18 | 14 | 170 | 18 | 4 |
| 125 | 5" | 170 | 119 | 178 | 240 | 20 | 14 | 200 | 18 | 8 |
| 150 | 6" | 170 | 119 | 202 | 265 | 20 | 14 | 225 | 18 | 8 |
| 200 | 8" | 195 | 131 | 258 | 320 | 22 | 16 | 280 | 18 | 8 |
| 250 | 10" | 200 | 136 | 312 | 375 | 24 | 18 | 335 | 18 | 12 |

Floating flange NW 125 to NW 250 EN1092-1 type 02/32 (thick collar) PN06 to PN40

- Carbon steel / Stainless steel



PN 10 (DIN 2642*)

| Hose No | minal ID | | | D | imensio | ns in m | m | | | Number |
|-----------|----------|-----|-----|-----|---------|---------|------|-----|----|----------|
| (mm) | (inch) | Α | В | С | D | Е | F | G | Н | of holes |
| 10 to 40 | | | | Use | PN 40 | dimens | ions | | | |
| 50 to 150 | | | | Use | PN 16 | dimensi | ons | | | |
| 200 | 8″ | 203 | 139 | 268 | 340 | 24 | 20 | 295 | 22 | 8 |
| 250 | 10" | 207 | 143 | 320 | 395 | 26 | 22 | 350 | 22 | 12 |

PN 16 (DIN 2643*)

| Hose No | minal ID | | | D | imensio | ns in m | ım | | | Number | | |
|----------|----------|-----|----------------------|-----|---------|---------|----|-----|----|----------|--|--|
| (mm) | (inch) | Α | В | С | D | Е | F | G | Н | of holes | | |
| 10 to 40 | | | Use PN 40 dimensions | | | | | | | | | |
| 50 | 2" | 92 | 62 | 102 | 165 | 20 | 16 | 125 | 18 | 4 | | |
| 65 | 2.1/2 | 92 | 62 | 122 | 185 | 20 | 16 | 145 | 18 | 4 / 8* | | |
| 80 | 3" | 98 | 68 | 138 | 200 | 20 | 16 | 160 | 18 | 8 | | |
| 100 | 4" | 108 | 78 | 158 | 220 | 22 | 18 | 180 | 18 | 8 | | |
| 125 | 5″ | 177 | 126 | 188 | 250 | 22 | 18 | 210 | 18 | 8 | | |
| 150 | 6" | 177 | 126 | 212 | 285 | 24 | 20 | 240 | 22 | 8 | | |
| 200 | 8" | 203 | 139 | 268 | 340 | 26 | 20 | 295 | 22 | 12 | | |
| 250 | 10" | 207 | 143 | 320 | 405 | 29 | 22 | 355 | 26 | 12 | | |



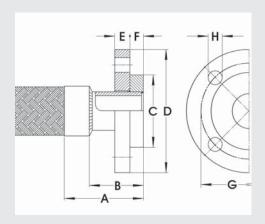
^{*} The European standard EN 1092-1 is based on the old DIN- standard. However, there are a few small differences.

END CONNECTIONS

Fig. 14

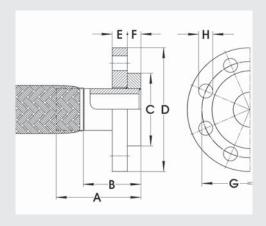
Floating flange NW 06 to NW 100 EN1092-1 type 02/32 (thick collar) PN06 to PN40

- Carbon steel / Stainless steel



Floating flange NW 125 to NW 250 EN1092-1 type 02/32 (thick collar) PN06 to PN40

- Carbon steel / Stainless steel



FLOATING FLANGES ACCORDING TO EN 1092-1

PN 25 (DIN 2644*)

| Hose No | minal ID | | | D | imensio | ns in m | m | | | Number |
|-----------|----------|-----|----------------------|-----|---------|---------|----|-----|----|----------|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes |
| 10 to 150 | | | Use PN 40 dimensions | | | | | | | |
| 200 | 8" | 213 | | | | | | | | 12 |
| 250 | 10" | 219 | 155 | 335 | 425 | 35 | 26 | 370 | 30 | 12 |

PN 40 (DIN 2635*)

| Hose No | ominal ID | | Dimensions in mm | | | | | | | | |
|---------|-----------|-----|------------------|-----|-----|----|----|-----|----|----------|--|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes | |
| 10 | 3/8" | 62 | 52 | 40 | 90 | 14 | 12 | 60 | 14 | 4 | |
| 15 | 1/2" | 64 | 52 | 45 | 95 | 14 | 12 | 65 | 14 | 4 | |
| 20 | 3/4" | 67 | 52 | 58 | 105 | 16 | 14 | 75 | 14 | 4 | |
| 25 | 1″ | 72 | 52 | 68 | 115 | 16 | 14 | 85 | 14 | 4 | |
| 32 | 1.1/4" | 72 | 52 | 78 | 140 | 18 | 14 | 100 | 18 | 4 | |
| 40 | 1.1/2" | 87 | 62 | 88 | 150 | 18 | 14 | 110 | 18 | 4 | |
| 50 | 2" | 92 | 62 | 102 | 165 | 20 | 16 | 125 | 18 | 4 | |
| 65 | 2.1/2" | 92 | 62 | 122 | 185 | 22 | 16 | 145 | 18 | 8 | |
| 80 | 3" | 98 | 68 | 138 | 200 | 24 | 18 | 160 | 18 | 8 | |
| 100 | 4" | 108 | 78 | 162 | 235 | 26 | 20 | 190 | 22 | 8 | |

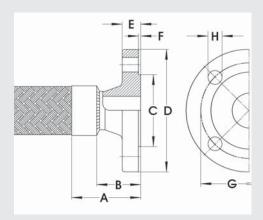


^{*} The European standard EN 1092-1 is based on the old DIN- standard. However, there are a few small differences.

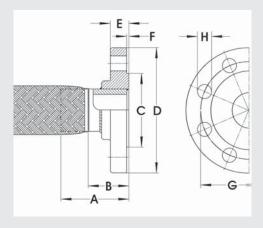
END CONNECTIONS

Fig. 13

Fixed flange 1/2" to 4" ANSI welding neck / RF Pressure class 150 lbs, 300 lbs Carbon steel / Stainless steel



Fixed flange 5" to 10" ANSI Slip-on / RF Pressure class 150 lbs, 300 lbs Carbon steel / Stainless steel



FIXED FLANGES ACCORDING TO ANSI / ASME B16.5

ANSI 150 lbs.

| Hose No | minal ID | | | D | imensio | ns in m | m | | | Number |
|---------|----------|-----|----|-------|---------|---------|-----|-------|------|----------|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes |
| 12 | 1/2" | 60 | 48 | 35,0 | 89,0 | 11,2 | 1,6 | 60,5 | 16,0 | 4 |
| 20 | 3/4" | 67 | 52 | 43,0 | 98,5 | 12,7 | 1,6 | 70,0 | 16,0 | 4 |
| 25 | 1″ | 76 | 56 | 51,0 | 108,0 | 14,2 | 1,6 | 79,5 | 16,0 | 4 |
| 32 | 1.1/4" | 77 | 57 | 63,5 | 117,5 | 15,7 | 1,6 | 89,0 | 16,0 | 4 |
| 40 | 1.1/2" | 87 | 62 | 73,0 | 127,0 | 17,5 | 1,6 | 98,5 | 16,0 | 4 |
| 50 | 2" | 94 | 64 | 92,0 | 152,5 | 19,1 | 1,6 | 120,5 | 19,0 | 4 |
| 65 | 2.1/2" | 100 | 70 | 105,0 | 178,0 | 22,4 | 1,6 | 139,5 | 19,0 | 4 |
| 75 | 3" | 100 | 70 | 127,0 | 190,5 | 23,9 | 1,6 | 152,5 | 19,0 | 4 |
| 100 | 4" | 106 | 76 | 157,0 | 228,5 | 23,9 | 1,6 | 190,5 | 19,0 | 8 |
| 125 | 5″ | 127 | 77 | 185,5 | 254,0 | 23,9 | 1,6 | 216,0 | 22,0 | 8 |
| 150 | 6" | 130 | 80 | 216,0 | 279,5 | 25,4 | 1,6 | 241,5 | 22,0 | 8 |
| 200 | 8″ | 150 | 90 | 270,0 | 343,0 | 28,4 | 1,6 | 298,5 | 22,0 | 8 |
| 250 | 10" | 156 | 96 | 324,0 | 406,5 | 30,2 | 1,6 | 362,0 | 25,5 | 12 |

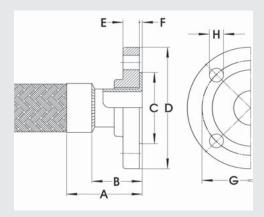
ANSI 300 lbs.

| Hose No | minal ID | | | D | imensio | ns in m | m | | | Number |
|---------|----------|-----|----|-------|---------|---------|-----|-------|------|----------|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes |
| 12 | 1/2" | 64 | 52 | 35,0 | 95,0 | 14,2 | 1,6 | 66,5 | 16,0 | 4 |
| 20 | 3/4" | 72 | 57 | 43,0 | 117,5 | 15,7 | 1,6 | 82,5 | 19,0 | 4 |
| 25 | 1″ | 82 | 62 | 51,0 | 124,0 | 17,5 | 1,6 | 89,0 | 19,0 | 4 |
| 32 | 1.1/4" | 85 | 65 | 63,5 | 133,5 | 19,0 | 1,6 | 98,5 | 19,0 | 4 |
| 40 | 1.1/2" | 93 | 68 | 73,0 | 155,5 | 20,6 | 1,6 | 114,5 | 22,0 | 4 |
| 50 | 2" | 100 | 70 | 92,0 | 165,0 | 22,3 | 1,6 | 127,0 | 19,0 | 8 |
| 65 | 2.1/2" | 106 | 76 | 105,0 | 190,5 | 25,4 | 1,6 | 149,0 | 22,0 | 8 |
| 75 | 3" | 109 | 79 | 127,0 | 209,5 | 28,4 | 1,6 | 168,5 | 22,0 | 8 |
| 100 | 4" | 116 | 86 | 157,0 | 254,0 | 31,7 | 1,6 | 200,0 | 22,0 | 8 |
| 125 | 5″ | 127 | 77 | 185,5 | 279,5 | 35,0 | 1,6 | 235,0 | 22,0 | 8 |
| 150 | 6" | 130 | 80 | 216,0 | 317,5 | 36,5 | 1,6 | 270,0 | 22,0 | 12 |
| 200 | 8″ | 150 | 90 | 270,0 | 381,0 | 41,1 | 1,6 | 330,0 | 25,5 | 12 |
| 250 | 10" | 156 | 96 | 324,0 | 444,5 | 47,7 | 1,6 | 387,5 | 28,5 | 16 |

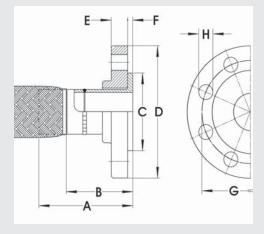
END FITTINGS

Fig. 14

Floating flange 1/2" to 4" ANSI lap joint with stub-end. Pressure class 150 lbs, 300 lbs Carbon steel / Stainless steel



Floating flange 5" to 10" ANSI lap joint with stub-end. Pressure class 150 lbs, 300 lbs Carbon steel / Stainless steel



FLOATING FLANGES ACCORDING TO ANSI / ASME B16.5

ANSI 150 lbs.

| Hose No | minal ID | | | D | imensio | ns in m | m | | | Number |
|---------|----------|-----|-----|-------|---------|---------|------|-------|------|----------|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes |
| 12 | 1/2" | 64 | 51 | 35,0 | 89,0 | 9,6 | 2,11 | 60,5 | 16,0 | 4 |
| 20 | 3/4" | 67 | 51 | 43,0 | 98,5 | 11,1 | 2,11 | 70,0 | 16,0 | 4 |
| 25 | 1" | 72 | 51 | 51,0 | 108,0 | 12,6 | 2,77 | 79,5 | 16,0 | 4 |
| 32 | 1.1/4" | 72 | 51 | 63,5 | 117,5 | 14,1 | 2,77 | 89,0 | 16,0 | 4 |
| 40 | 1.1/2" | 77 | 51 | 73,0 | 127,0 | 15,9 | 2,77 | 98,5 | 16,0 | 4 |
| 50 | 2" | 94 | 64 | 92,0 | 152,5 | 17,5 | 2,77 | 120,5 | 19,0 | 4 |
| 65 | 2.1/2" | 94 | 64 | 105,0 | 178,0 | 20,8 | 3,05 | 139,5 | 19,0 | 4 |
| 75 | 3" | 98 | 64 | 127,0 | 190,5 | 22,3 | 3,05 | 152,5 | 19,0 | 4 |
| 100 | 4" | 108 | 76 | 157,0 | 228,5 | 22,3 | 3,05 | 190,5 | 19,0 | 8 |
| 125 | 5" | 200 | 150 | 185,5 | 254,0 | 22,3 | 3,40 | 216,0 | 22,0 | 8 |
| 150 | 6" | 200 | 150 | 216,0 | 279,5 | 23,8 | 3,40 | 241,5 | 22,0 | 8 |
| 200 | 8" | 235 | 175 | 270,0 | 343,0 | 26,8 | 3,80 | 298,5 | 22,0 | 8 |
| 250 | 10" | 270 | 210 | 324,0 | 406,5 | 28,6 | 4,20 | 362,0 | 25,5 | 12 |

ANSI 300 lbs.

| Hose No | minal ID | | | D | imensio | ns in m | m | | | Number |
|---------|----------|-----|-----|-------|---------|---------|------|-------|------|----------|
| (mm) | (inch) | А | В | С | D | Е | F | G | Н | of holes |
| 12 | 1/2" | 64 | 51 | 35,0 | 95,0 | 12,6 | 2,11 | 66,5 | 16,0 | 4 |
| 20 | 3/4" | 67 | 51 | 43,0 | 117,5 | 14,1 | 2,11 | 82,5 | 19,0 | 4 |
| 25 | 1" | 72 | 51 | 51,0 | 124,0 | 15,9 | 2,77 | 89,0 | 19,0 | 4 |
| 32 | 1.1/4" | 72 | 51 | 63,5 | 133,5 | 17,4 | 2,77 | 98,5 | 19,0 | 4 |
| 40 | 1.1/2" | 87 | 51 | 73,0 | 155,5 | 19,0 | 2,77 | 114,5 | 22,0 | 4 |
| 50 | 2" | 92 | 64 | 92,0 | 165,0 | 20,7 | 2,77 | 127,0 | 19,0 | 8 |
| 65 | 2.1/2" | 92 | 64 | 105,0 | 190,5 | 23,8 | 3,05 | 149,0 | 22,0 | 8 |
| 75 | 3" | 98 | 64 | 127,0 | 209,5 | 26,8 | 3,05 | 168,5 | 22,0 | 8 |
| 100 | 4" | 108 | 76 | 157,0 | 254,0 | 30,1 | 3,05 | 200,0 | 22,0 | 8 |
| 125 | 5″ | 200 | 150 | 185,5 | 279,5 | 33,4 | 3,40 | 235,0 | 22,0 | 8 |
| 150 | 6" | 200 | 150 | 216,0 | 317,5 | 34,9 | 3,40 | 270,0 | 22,0 | 12 |
| 200 | 8" | 235 | 175 | 270,0 | 381,0 | 39,5 | 3,80 | 330,0 | 25,5 | 12 |
| 250 | 10" | 270 | 210 | 324,0 | 444,5 | 46,1 | 4,20 | 387,5 | 28,5 | 16 |

ENGINEERING DATA

IMPORTANT POINTS WHEN INSTALLING HOSE ASSEMBLIES

AXIAL LOAD

Axial compression may lead to squirm of the corrugated hose. Axial tension lowers the pressure capacity of braided hose.

BENDING

Install a hose in its most natural loop. Overbending lowers the pressure capacity and the cycle life

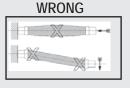
WEIGHT

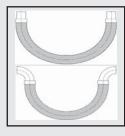
The weight of the hose and the medium must be supported adequately.

TORSION

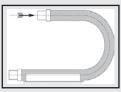
Torsion must be avoided. Torsion occurs when the movements are not in the same plane as the fittings.

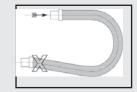
RIGHT

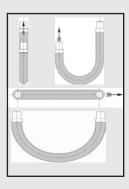


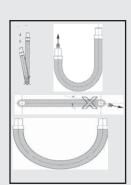












INSTRUCTIONS FOR SELECTING, INSTALLATING AND MOUNTING

The life time of metal hoses will increase when the following instructions are implemented:

- Select the right fittings
 Whenever possible select at least one swivel fitting or a floating flange. This avoids torsion problems during installation.
- Do not overbend the hose (check technical data)Avoid overbending, specially close to the fittings. Install the hose in its most natural position, free of kinks and sharp bends.
- Do not torque a corrugated metal hose
 Torsion can have dramatic consequences on the life of a corrugated metal hose. Torsion occurs when the movements are not in the same plane as the fittings. Use two keys when fixing swivel nuts.

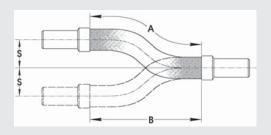
 Note: Stripwound hose can absorb some torsion.
- 4. Avoid scratching over rough surfaces
 The braiding is the essential part of a hose assembly to withstand the internal pressure. A damaged braid diminishes the pressure capacity of the assembly and is detrimental to its function.
- 5. Avoid exposure to weld or grinding splatters Weld or grind splatters may lead to corrosion of the stainless steel parts. Use a heat proof shield (no plastic!) during welding or grinding in the proximity of metal hoses.



ENGINEERING DATA

DETERMINING MINIMUM OVERALL LENGTH FOR INTERMITTENT FLEXURE

From the "minimum c/l bend radius for flexing bend" column in the hose specifications, obtain the proper bend radius for the type and size of hose chosen. Use the formulae below to calculate the length "A" of the exposed hose required. Determine the overall length of fittings from fitting specification pages and add to the exposed length of hose "A" to arrive at the assembly overall length. Distance between end connections should be such that there is no stress on the hose in the extreme offset position.



FOR INTERMITTENT FLEXURE

Use formulae and table for "K" below to determine the required hose length "A".

Formula

$$A = 2.8 \sqrt{R_h \times 2S}$$

B = K x A

* When S≤0,5R, otherwise another installation is required.

In order to find the overall length, add the length of the fittings to the calculated length "A".

Example

Hose nominal I.D. 32 mm.

Type BW656-1S, min. c/l bend radius for flexing bend $R_h = 230$ mm from table. Desired movement S = 80 mm, $0.5R_h = 0.5 \times 230 = 115$ $\Rightarrow S(=80) \le 115 \Rightarrow \text{is allowed.}$

Calculation

$$A = 2.8\sqrt{230 \times 2 \times 80} = 537 \text{ mm}$$

$$A/S = 537 / 80 = 6,71$$
 $K = 0,988$ (see table "K")

 $B = 0.988 \times 537 = 531 \text{ mm}$

FOR NON-MOVING OFFSET INSTALLATIONS

Use formulae and table for "K" below to determine the required hose length "A".

Formula

$$A = 2\sqrt{R_e \times 2S}$$

B = K x A

* When S≤1,5R_a ,otherwise another installation is required.

In order to find the overall length, add the length of the fittings to the calculated length "A".

Example

Hose nominal I.D. 50 mm.

Type BW856-1H, min. c/l bend radius for permanent bend $R_{\rm a}$ = 140 mm from table.

Desired movement S = 120 mm, $1.5R_e = 1.5 \text{ x } 140 = 210 \Rightarrow S(=120) \le 210 \Rightarrow \text{ is allowed.}$

Calculation

$$A = 2\sqrt{140 \times 2 \times 120} = 366 \text{ mm}$$

$$A/S = 366 / 120 = 3.05$$
 K = 0.930 (see table "K")

 $B = 0.930 \times 366 = 340 \text{ mm}$

EXPLANATION OF FORMULA

A = Exposed length of hose

B = Installed length of hose (as illustrated)

S = Lateral movement

K = Factor, see table below

R_b = min. c/l bend radius for flexing bend

R_a = min. c/l bend radius for permanent bend

TABLE FOR K

| A/S | 2 | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | ≥ 14 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| K | 0,825 | 0,897 | 0,928 | 0,947 | 0,960 | 0,970 | 0,975 | 0,985 | 0,990 | 0,993 | 0,994 | 0,995 | 0,996 | 0,997 | 0,997 | 0,998 |

ENGINEERING DATA

VERTICAL LOOP FOR MAXIMUM VERTICAL TRAVEL

The illustration on the right shows the proper method Example of installing hose in vertical loops.

The formula and the table for "B" will aid in determining the overall length of an assembly.

Formula

Overall length= B + 0 15 . A + 0,5S

Data

Using 25 mm type BW856-1H hose with fittings attached.

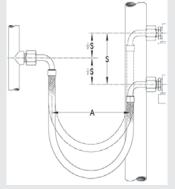
 $A = 230 \times 2 = 460 \text{ mm}$ (2x "minimum c/l bend radius for flexing bend", see table type BW856).

B = 410 mm (from table "B")

S = 200 mm (desired movement)

Overall length=

 $410 + 0.5 \,\mathrm{fr}$. $460 + 100 = 1232.6 \,\mathrm{mm}$ or appr. 1235 mm.



VERTICAL LOOP FOR SHORT HORIZONTAL TRAVEL

The formula and the table for "B" will aid in determining the overall length for an assembly when installed as illustrated in the drawing on the right.

Formula

Overall length = B + 0,5 [(A + S)

C =
$$\frac{A + B + (0.5 \, \Gamma . S)}{2}$$

Using 10 mm type BW656-1S, with fittings attached.

Example

 $A = 150 \times 2 = 300 \text{ mm}$ (2x min. c/l bend radius for flexing bend, see type BW 656).

B = 280 mm (from table "B")

S = 250 mm (desired movement)

Overall length =

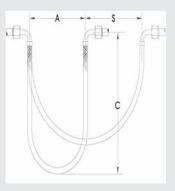
 $280 + 0.5 \Gamma (300 + 250) = 1143.9 \text{ mm or}$

appr. 1145 mm.

C =
$$\frac{300 + 280 + (0.5 \,\mathrm{\Gamma} \cdot 250)}{}$$

2

C = 486,3 mm or appr. 490 mm.



HORIZONTAL LOOP FOR MAXIMUM HORIZONTAL TRAVEL

The illustration on the right is another example of a typical installation of hose in which the movement is horizontal. The purpose of the support is to prevent the hose from sagging and causing failure near the fittings.

Formula

Overall length= B + 0,5 F. A + 0,5S

Using 12 mm type BW856-1H hose with fittings attached.

Example

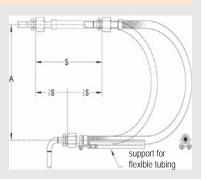
 $A = 2 \times 205 = 410 \text{ mm}$ (2x "minimum") c/l bendradius for flexing bend", see type BW856)

B = 310 (from table "B")

S = desired movement 550 mm

Overall length=

 $310+(0.5 \Gamma.410)+(0.5 \times 550)=1229 \text{ mm}$ or appr. 1230 mm.



EXPLANATION OF FORMULA

 $A = Bend diameter (2 x R_b)$

= Factor including the length of fittings and allowance for straight sections beyond each fitting.

S = Movement

C = Required free height

R_b = min. c/l bend radius for flexing bend

 $R_a^{"}$ = min. c/l bend radius for permanent bend

TABLE FOR B

| Inside hose | mm | 5-8 | 10 | 12-15 | 20 | 25 | 32 | 40 | 50 | 65 | 75 | 100 | 125 | 150 | 200 | 250 |
|-------------|------|------|------|-------|------|-----|--------|--------|-----|--------|-----|-----|-----|-----|------|------|
| Diameter | inch | 1/4" | 3/8" | 1/2" | 3/4" | 1" | 1.1/4" | 1.1/2" | 2" | 2.1/2" | 3" | 4" | 5" | 6" | 8" | 10" |
| В | mm | 230 | 280 | 310 | 360 | 410 | 460 | 510 | 560 | 610 | 660 | 760 | 840 | 910 | 1020 | 1170 |

ENGINEERING DATA

MISALIGNMENT AND OFFSET MOVEMENTS

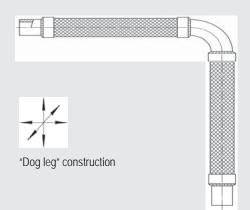
For intermittent offset movement consult offset formula on page 9 and the "minimum c/l bend radius for flexing bend" columns in specifications for each type and size of corrugated hose.

For misalignment and ease of installation where there is no significant movement or vibration, consult offset formula on page 9 and "minimum c/l bend radius for permanent bend" columns in specifications for each type and size of corrugated hose.



MULTIPLE MOVEMENTS

To absorb movements in several directions and at several planes, a 90° flexible hose assembly is recommended, made up out of two short flexibles which are connected by a 90° pipe angle. At both ends of the assembly swivel flanges are used for connection to the piping system. This is important in order to avoid tension of the flexible hoses during installation. The required length of the hoses is determined by various movements. Torsion on account of these movements will then be absorbed by both hoses.



VIBRATION

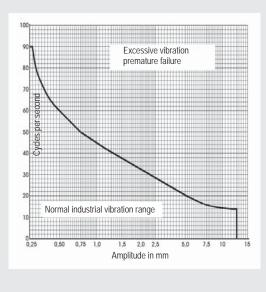
Normal vibration encountered in average industrial applications is illustrated in the chart on the right.

Under these conditions the exposed length of hose (Dimension L, drawing at right), should never be shorter than length given in "min. exposed length for normal vibration" in specifications for each type and size of corrugated hose.

Definitions

Amplitude equals lateral displacement from c/l of hose. Double amplitude equals lateral displacement on both sides of hose or 2 times the amplitude.





CORROSION RESISTANCE TABLE

The following tables may be used only as a guide in the selection of the most suitable hose and fitting material for a given medium. The listed media are in general considered to be pure, at room temperature and, unless otherwise specified, dry. A change in any one of these conditions may change the rating. No attempt has been made to account for variations in service conditions since these variables are too innumerable and complex.

Additional information on service life, etc., is keyed to the notes behind the rating code A, B or C.

"Dry" can also be referred to as "anhydrous".

When there is a question about this reference table or you have unusual service conditions or media, contact us before ordering.

RATING CODE

- A Suitable (normal condition)
- B Limited Service
- C Unsuitable

NOTES

- ¹ Susceptible to intergranular corrosion
- ² May cause explosive reaction
- ³ Susceptible to stress corrosion cracking
- ⁴ Susceptible to pitting type corrosion
- ⁵ Discolors
- 6 Concentration over 50% and/or temperature over 95°C, refer to our engineering department.

| | Monel | Carbon | Stainless | Stainless |
|--|----------------|---------------------|------------------|----------------|
| | | steel | 304L/321 | 316L |
| Acetaldehyde | Α | В | А | Α |
| Acetanilide | В | В | В | В |
| Acetic acid | В | С | B ¹ | A1 |
| Acetic anhydride | В | С | В | В |
| Acetone | А | С | В | В |
| Acetophenone | Α | A | В | В |
| Acetylene | A | A | A | A |
| Acrylates | В | В | В | В |
| Acrylic acid | В | C | В | В |
| Acrylonitrile | A | Ä | A | A |
| Alcohols | A | A ⁵ | A | A |
| Alum | B | C | B | В |
| Alumina | A | Ä | A | A |
| Aluminum acetate | B | C | B | В |
| | | | | |
| Aluminum chloride - dry | A B | B C ³ | A C3,4 | C ³ |
| Aluminum chloride - moist | | | | V |
| Aluminum fluoride | В | В | C | C |
| Aluminum hydroxide | В | В | A D12 | A |
| Aluminum sulfate | В | C | B ^{1,3} | A ³ |
| Ammonia - dry | A | A | A | A |
| Ammonia - moist | С | C ₃ | Α | Α |
| Ammonium acetate | Α | Α | Α | Α |
| Ammonium bromide | В | С | C ⁴ | C ⁴ |
| Ammonium chloride - dry | Α | В | Α | Α |
| Ammonium chloride - moist | В | С | C ^{3,4} | C ₃ |
| Ammonium hydroxide 6 | Α | В | Α | Α |
| Ammonium nitrate | C ² | C ₃ | А | Α |
| Ammonium sulfate | В | С | C ¹ | В |
| Amyl acetate | А | Α | Α | Α |
| Amyl alcohol | A | A | A | A |
| Amyl chloride - dry | A | В | A | A |
| Amyl chloride - moist | B | C | C ^{3,4} | C ³ |
| Aniline | A | C | В | В |
| Aniline dyes | A | Č | В | В |
| Asphalt | A | Ä | A | A |
| Atmosphere - industrial | A | C | B ⁴ | A ⁴ |
| Atmosphere - marine | A | C | B ⁴ | B ⁴ |
| Atmosphere - rural | A | C | A | A |
| Barium carbonate | B | В | В | В |
| Barium chloride - drv | A | A | A | A |
| Barium chloride - moist | B | В | C3,4 | C ³ |
| Barium hydroxide | В | В | В | A |
| | В | В | В | В |
| Barium sulfate | | С | В | В |
| Barium sufide | C | C | | |
| Beer | A | С | A | A |
| Beet sugar syrups | A | В | A | A |
| Benzaldehyde | В | C | В | В |
| Benzene (Benzol) | A | A | A | A |
| Benzoic acid | В | С | Α | A |
| Benzylamine | В | В | В | В |
| Benzyl chloride - dry | Α | В | Α | A |
| | В | С | C3,4 | C ³ |
| Benzyl chloride - moist Black liquor, sulfate process | A | C | В | B |

| | | Carbon | Stainless | Stainless |
|---|--------|---------------------|--------------------|-----------------------|
| | Monel | steel | 304L/321 | 316L |
| Bleaching powder - dry | Α | С | A | A |
| Bleaching powder - moist | В | C | C ^{1,3,4} | C ^{3,4} |
| Borax | Α | В | A | Α |
| Bordeaux mixture | A | В | A | A |
| Boric acid | В | C | A | A |
| Boron trichloride - dry | В | A | B | В |
| Boron trichloride - moist | В | В | C ^{3,4} | C ³ |
| Boron trifluoride - dry | В | A | B | B |
| Brines | В | C | C ^{3,4} | <u>C</u> ³ |
| Bromic acid | C | C | С | С |
| Bromine - dry Bromine - moist | A | C | В | В |
| | В | C | С | C |
| Butadiene | A A | A | A A | A |
| Butane Butanel (butul alaahal) | A | A A ⁵ | A | A |
| Butanol (butyl alcohol) | A | B ⁵ | В | |
| Butyl phenols | - ' ' | A A | A | B A |
| Butylamine | A B | | B | В |
| Butyric acid | В | C C | C ^{3,4} | C ³ |
| Cadmium chloride - moist Cadmium chloride - dry | A | A | A | A |
| | A | В | A | A |
| Cadmium sulfate Calcium bisulfite | В | В | B ¹ | В |
| Calcium bromide | В | С | C3 | C3 |
| Calcium chloride - moist | В | C | C ^{3,4} | C ³ |
| Calcium chloride - dry | A | A | A | A |
| Calcium fluoride | В | C | C | C |
| Calcium hydroxide | В | C | В | В |
| Calcium hypochlorite - moist | В | C | C ^{3,4} | C ^{3,4} |
| Calcium hypochlorite - dry | A | В | A | A |
| Calcium nitrate | В | C ¹ | B ¹ | В |
| Calcium oxide | A | A | A | A |
| Cane sugar syrups | A | В | A | A |
| Carbolic acid (phenol) | В | Č | В | A |
| Carbon dioxide - dry | Ā | Ä | Ā | A |
| Carbon dioxide - moist | A | C | A | A |
| Carbonated beverages | A | C | A | A |
| Carbonated water | Α | C | Α | Α |
| Carbon disulfide | В | В | В | В |
| Carbon tetrachloride - dry | А | В | Α | Α |
| Carbon tetrachloride - moist | В | С | C ^{3,4} | C4 |
| Castor oil | Α | А | Α | Α |
| Chlorine - dry | Α | В | Α | Α |
| Chlorine - moist | В | С | C ^{3,4} | C_3 |
| Chloroacetic acid | В | С | C ^{3,4} | C ₃ |
| Chloric acid | С | С | C ₃ | C ³ |
| Chlorine dioxide - dry | Α | В | Α | Α |
| Chlorine dioxide - moist | В | С | C ^{3,4} | C ³ |
| Chloroform - dry | Α | Α | Α | A |
| Chloroform - moist | В | С | C ^{3,4} | C ₃ |
| Chromic acid | В | C ₃ | C1,4 | В |
| Chromic fluorides | В | С | С | С |
| Chromic hydroxide | В | В | В | В |
| Chromium sulfate | В | С | В | В |
| | | | | |

CORROSION RESISTANCE TABLE

RATING CODE

- A Suitable (normal condition)
- B Limited Service
- C Unsuitable

NOTES

- ¹ Susceptible to intergranular corrosion
- May cause explosive reaction
 Susceptible to stress corrosion cracking
 Susceptible to pitting type corrosion
- ⁵ Discolors
- ⁶ Concentration over 50% and/or temperature over 95°C, refer to our engineering department.

| | | Carbon | Stainless | Stainless |
|--|----------------|--------------------------|------------------------------------|----------------------------------|
| | Monel | steel | 304L/321 | 316L |
| Cider | A | С | A | A |
| Citric acid | В | C | В | В |
| Coffee | A | C | A | A |
| Copper chloride - dry | A | В | A | A |
| Copper chloride - moist | В | C | C ^{3,4} | C^3 |
| Copper nitrate | C | C | A | A |
| Copper sulfate | В | C | B^{1} | В |
| Copper suitate Corn oil | A | A | A | A |
| Cottonseed oil | Ā | Ā | Ä | A |
| Creosole | A | A | Ä | A |
| Crude oil | A | C | C^1 | В |
| Cyclohexane | В | В | В | В |
| DDT | B^4 | C | A | A |
| Dichloroethane - dry | A | A | A | A |
| Dichloroethane - moist | В | C | C^4 | C ⁴ |
| Dichloroethylene - dry | A | В | A | A |
| Dichloroethylene - moist | В | C | C ⁴ | C ⁴ |
| Dichlorophenol | В | C | B^3 | B^3 |
| Diisocyanate | A | В | A | A |
| Dimethyl sulfate | В | D D | В | В |
| Epichlorohydrin - dry | A | B C ⁴ | A | A |
| | В | C^4 | $C^{3,4}$ | C^3 |
| Epichlorohydrin - moist | | A | _ | _ |
| Ethane Ethers | <u>А</u> А | В | A | <u>А</u> А |
| Ethyl acetate | В | В | В | В |
| Ethyl alcohol | A | A | A | |
| | | В | | A |
| Ethyl benzene | В | A | B^3 A | В |
| Ethyl chloride - dry | A | | $C^{3,4}$ | A C ³ |
| Ethyl chloride - moist | В | <u>C</u> | | |
| Ethylene | A | <u>А</u> В | A | A |
| Ethylene chlorohydrin - dry | A | | A | A |
| Ethylene chlorohydrin - moist | <u>В</u> В | <u>С</u> В | C ⁴ | C⁴ B |
| Ethylene diamine | | A | <u>В</u> А | В |
| Ethylene glycol | A | | | A |
| Ethylene oxide | <u>В</u> В | <u>В</u> С | $B^{1,4}$ | A |
| Fatty acids | A | В | | A |
| Ferric chloride - dry | В | C | A C1,3,4 | A C ^{3,4} |
| Ferric chloride - moist | С | C | В | В |
| Ferric nitrate | C | C C | B ¹ | A |
| Ferric sulfate | A | В | A | A |
| Ferrous chloride - dry Ferrous chloride - moist | В | C | $C^{3,4}$ | C^3 |
| | A | C C | B^4 | В |
| Ferrous sulfate | | | | |
| Fluorine - dry | A | A C | A | A |
| Fluorine - moist | <u>B</u> A⁵ | C | <u>С</u> В | <u>С</u> В |
| Formaldehyde Formic acid | | C | B ¹ | |
| Formic acid Freon | B A | C | A A | A A |
| | | | | - / - |
| Fruitjuices | A | C C | A | A |
| Fuel oil | A | D | A | A |
| Furfural | A | В | A | A |
| Gasoline | A | <u>В</u> С | A | A |
| Gelatine | A | <i>D</i> | A | A |
| Glucose | A | В С | A | A |
| Glue | A | <u>C</u> | A | A |
| Glutamic acid | E^3 | $\frac{C}{B^{5}}$ | B ^{3,4} | B ^{3,4} |
| Glycerin (glycerol) | A | B | A | A |
| Heptane dry | A | A B | A | A |
| Hexachloroethane - dry | A | В | A | A |
| Hexachloroethane - moist | В | C | C^4 | C^4 |
| Hydrazine | C | C C | A | A C |
| Hydrobromic acid | C | C | C^4 | C |
| Hydrocarbons, pure | A | A C C ³ | A | A |
| Hydrochloric acid | В | C. | C ⁴ C ^{1,3} | C ⁴ C ³ |
| Hydrocyanic acid | В | C ³ | C1,3 | <i>C</i> ³ |
| Hydrofluoric acid | В | С | $C^{1,3}$ | С |
| Hydrofluorsilicic acid | В | С | С | C |

| Steel 304L/321 316L | | Monel | Carbon | Stainless | Stainless |
|---|----------------------------|----------------|--------|------------------|----------------|
| Hydrogen chloride - moist B | | Wierier | steel | 304L/321 | 316L |
| Hydrogen chloride - moist | | А | | | А |
| Hydrogen sulfide - dry | | | | | |
| Hydrogen sulfide - moist | | | | | |
| Hydroguinone BBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA | | | | | |
| Hydroquinone B B B³ B B Kerosine (kerosene) A B A A A A A A A A A A Lacquers A A A A A A A A Lacquers olvents A B C B³ B³ Linee B A B C B³ B³ Lime B A B A A A A A A A A A A A A A A A A A | | | | | |
| Rérosine (kerosene) | | | | | |
| Lacquers Lacquer solvents A Lacquer solvents A A A A A A A A A A A A A A A A A A A | | | | | |
| Lacquer solvents Lactic acid B C B C B B C B C B B C B C B B C B C | | | | | |
| Lactic acid | | | | Α | |
| Lime - sulfur B C B B L Linseed oil A B A A A Lithium chloride - dry A B B A A A Lithium chloride - moist B B B C C C C C C C C C C C C C C C C | Lactic acid | В | С | B ^{1,4} | B ¹ |
| Linseed oil A B A A A Lithium chloride - dry A B B A A A A Lithium chloride - moist B B B C34 C3 Lithium hydroxide B B B B B B B B B B B B B B B B B B B | | | | | |
| Lithium chloride - dry Lithium chloride - moist B B B C3.4 C3 C3 B B B B B B B B B B B B B B B B B | | | | | |
| Lithium chloride - moist B B C34 C3 Lithium hydroxide B A <td< td=""><td></td><td></td><td></td><td></td><td></td></td<> | | | | | |
| Lithium hydroxide Magnesium chloride - dry Magnesium chloride - moist Magnesium sulfate A Maleic acid B B B B A Mercuric chloride - dry A Mercuric chloride - moist B C C C 3.4 C 3 Mercury B B B B Mercury B B Methyl alcohol A A A Methyl chloride - dry A Methyl chloride - dry A Methyl chloride - moist B C C 3.4 C 3 Methyl chloride - moist B C C 3.4 C 3 Methyl chloride - moist B C C 3.4 C 3 Methyl chloride - moist B C C 3.4 C 3 Methyl chloride - moist B C B B Milk A C A A A A Mine water Mapthalene B C B A A A A A A A A A A Nickel chloride - dry A A A A A A A A A A A A Mine water B C B B B B B B B B B B B | | | | | |
| Magnesium chloride - dry Magnesium chloride - moist Magnesium bydroxide A A A A A A A A A A A A A A A A A A A | | | | | |
| Magnesium chloride - moist B C C3-4 C3 Magnesium hydroxide A | | | | | |
| Magnesium hydroxide A A A A Malgenesium sulfate A B B A Maleic acid B B B B B Mercuric chloride - dry A B A A Mercury B3 B B B B Mercury B3 B B B B Mercury B3 B B B B Mercury B3 B B B B B Meroury B A A A | | | | C3.4 | |
| Magnesium sulfate A B B A Maleic acid B A <t< td=""><td></td><td></td><td></td><td></td><td></td></t<> | | | | | |
| Mafeic acid B B B¹ B Mercuric chloride - dry A B A A Mercurous nitrate B³ B C C³⁴ C³ Mercurous nitrate B³ B B B B Mercury B³ B A | | | | | |
| Mercuric chloride - dry A B A A Mercuric chloride - moist B C C3.4 C3 Mercurous nitrate B³ B B B Mercury B³ B B B Metryl chloride A A A A Methyl chloride - dry A A A A Methyl chloride - moist B C C3.4 C3 Methyl chloride - moist B B B B Milk A C A A Milk A C A A Malural gas A A A A A A A A A A Natural gas A A A A A Nitrotolude - dry A B A A A Nitrotoludene B B B B B Nitrotoluene B B B B B Nitrotoluene B | Maleic acid | | | | |
| Mercuric chloride - moist B C C34 C3 Mercurous nitrate B³ B B B Mercury B³ B B B Methyl alcohol A A A A Methyl chloride - dry A A A A Methyl chloride - dry A A A A Methyl chloride - dry A A A A Methyl chloride - moist B C C3.44 C3 Methyl ethyl ketone B B B B B B Methyl ethyl ketone B B B B B B B B B B B B B B B B B A | Mercuric chloride - dry | | | Δ | A |
| Mercury B³ B B B B B Methyl alcohol A A A A A A A A A A A A A A A A A A A | | В | С | C ^{3,4} | C_3 |
| Methyl alcohol A A A A A A A A A A A A A A A A A A A | | | | | |
| Methane A A A A Methyl chloride - moist B C C3.4 C3 Methyl ethyl ketone B B B B Methyl ethyl ketone B B B B Milk A C A A Milk B C A A Milk B C A A Naphalene B B A A A Nitrolaide B C C3.4 C3 Nitricacid C C C A A Nitrogen A A A A A Nitrogen A A A A A Oleic acid A C B³ B B Oleic acid B C C¹ B¹ B | Mercury | | | | |
| Methyl chloride - dry | | | | | |
| Methyl chloride - moist B C C3-4 C3 Methyl ethyl ketone B B B B Milik A C A A Mine water B C A A Napthalene B A A A A Napthalene B A A A A A Natural gas A | | | | | |
| Methyl ethyl ketone B B B B Milk A C A A Mine water B C B B Napthalene B A A A A Natural gas A A A A A Natural gas A A A A A Nickel chloride - dry A B A A A Nickel chloride - dry A B A A A Nitroden B B C C3.4 C3 Nitroden B | | | | C3.4 | |
| Milk A C A A A A A A A A A A A A A A A A A | | | | | |
| Mine water B C B B Napthalene B A A A A Natural gas A A A A A A Nickel chloride - dry A B A A A A Nickel chloride - moist B C C A A Nitrotoluene B B B B B B B Nitrogen A A A A A A A Oleic acid A C B B B Nitrogen A A A A A A A A A Oleic acid B C C B B B Axalic acid B C C B B B Axalic acid B C C B B B B B B B B B B B B B B B B | | | | | |
| Napthalene B A A A Natural gas A A A A A Nickel chloride - dry A B A A Nickel chloride - moist B C C³ C³ Nitrotoluene B B B B B Nitrotoluene B B B B B Nitrogen A A A A A A Oleic acid A C B³ B A | | | | | |
| Nickel chloride - dry A B A A Nitric acid C C A A Nitrotoluene B B B B Nitrotoluene B B B B Nitrotoluene A A A A A Nitrotoluene A A A A A A Nitrotoluene B A A A A A A A | | | | | |
| Nickel chloride - moist B C C3.4 C3 Nitrotoluene B B B B B Nitrotoluene B B B B B Nitrogen A | | Α | | Α | Α |
| Nitric acid C C C A A A A Nitrotoluene B B B B B B B B B B B B B B B B B B | | | | | |
| Nitrotoluene B B B B B B B B B Nitrogen A A A A A A A A A A A A A A A A A A A | | | | | |
| Nitrogen A A A A A A A A A A A C Oleic acid A C B4 B B B B B B A A C A A A A A A A A A A A | | | | | |
| Oleic acid A C B4 B Oleum (fuming H2S04) C B³ B B Axalic acid B C C¹ B¹ Oxygen A C A A Palmitic acid A C A A Palmitic acid A B A A Pentane B B B B B Pentane B C C C C C C C C C< | | | | | |
| Oleum (fuming H2S04) C B³ B B Axalic acid B C C¹ B¹ Oxygen A C A A Palmitic acid A C A A Parafin A B A A Pentane B B B B B Pentane B C C¹ B B B B B B C C¹ C C C C C C C C C C C C < | | | | | |
| Axalic acid B C C¹ B¹ Oxygen A C A A Palmitic acid A C A A Parafin A B A A Pentane B B B B B B Pentane B C C¹ B B B B C C¹ C C C C C C C C C C C C C C C C <t< td=""><td>Oleum (fuming H2S04)</td><td></td><td></td><td>_</td><td></td></t<> | Oleum (fuming H2S04) | | | _ | |
| Oxygen A C A A Palmitic acid A C A A Parafin A B A A Pentane B B B B B Pentol (carbolic acid) B C B A A Phosphoric acid B C B A A Phthalic acid B C B ¹ B B Pitric acid C C B A | | | | | |
| Palmitic acid A C A A Parafin A B A A Pentane B B B B B B Pentane B B B B B B B B B B B B B B B B B B C C¹ B¹ B B C C¹ B¹ B B B C C¹ B¹ B B B B C C¹ B¹ B B C C¹ B¹ B B B B B B B B B B B B B B B B B B A | | | | | |
| Parafin A B A A Pentane B B B B B Phenol (carbolic acid) B C B A Phenol (carbolic acid) B C C B A Phthalic acid B C C C B B Pitric acid C C B A | | | | | |
| Phenol (carbolic acid) B C B A Phosphoric acid B C C¹ B¹ Phthalic acid B C B¹ B Pitric acid C C C B B Potassium bromide B C C C C Potassium carbonate A B A A A Potassium chloride - dry A A A A A Potassium chloride - moist B C C³.4 C³ C³ C³ C° C° C° B A A A A A A A A A A A A A A A A A A A B B B < | | Α | | А | А |
| Phosphoric acid B C C¹ B¹ Phthalic acid B C B¹ B Pitric acid C C B B Potassium bromide B C C C Potassium carbonate A B A A Potassium chloride - dry A A A A Potassium chloride - moist B C C³.4 C³ Potassium chromate B C B B Potassium dichromate A C A A Potassium fluoride B C C C Potassium hydroxide A³ B³ B³ A Potassium permanganate B B B B Potassium sulfate B C B B B B B B B B B B B B B B B B B B B B B B B | | | | | |
| Phthalic acid B C B¹ B Pitric acid C C C B B Potassium bromide B C C C Potassium carbonate A A A A Potassium chloride - dry A A A A Potassium chloride - moist B C C³.4 C³ Potassium chromate B C B B Potassium cyanide A B B B Potassium fluoride B C C C Potassium hydroxide A³ B³ B³ A Potassium permanganate B B B B Potassium permanganate B B B B Potassium sulfate B C B B Propane A A A A Propylene A A A A Propylene oxide C C A A | | В | С | В | |
| Potassium bromide B C C C Potassium carbonate A B A A Potassium chloride - dry A A A A Potassium chloride - dry B C C³.4 C³ Potassium chloride - dry B C C³.4 C³ Potassium chloride - dry B C C B B Potassium cyanide - dry A B A A A A A A A A A A A A A B B B B B B B A B B B B B B B B B B B B B B B B B B <td></td> <td></td> <td>C</td> <td>C1</td> <td></td> | | | C | C1 | |
| Potassium bromide B C C C Potassium carbonate A B A A Potassium chloride - dry A A A A Potassium chloride - dry B C C³.4 C³ Potassium chloride - dry B C C³.4 C³ Potassium chloride - dry B C C B B Potassium cyanide - dry A B A A A A A A A A A A A A A B B B B B B B A B B B B B B B B B B B B B B B B B B <td></td> <td>R</td> <td>C</td> <td>R,</td> <td></td> | | R | C | R, | |
| Potassium carbonate A B A A Potassium chloride - dry A A A A Potassium chloride - moist B C C³.4 C³ Potassium chromate B C B B Potassium cyanide A B B B Potassium dichromate A C A A Potassium fluoride B C C C Potassium hydroxide A³ B³ B³ A Potassium permanganate B B B B Potassium sulfate B C B B Propane A A A A Propylene A A A A Propylene oxide C C A A | Pitric acid | | C | | |
| Potassium chloride - dry A A A A Potassium chloride - moist B C C³.4 C³ Potassium chromate B C B B Potassium cyanide A B B B Potassium dichromate A C A A Potassium fluoride B C C C Potassium hydroxide A³ B³ B³ A Potassium permanganate B B B B Potassium sulfate B C B B Propane A A A A Propylene A A A A Propylene oxide C C A A | Potassium carbonato | | | | |
| Potassium chromate B C B B Potassium cyanide A B B B Potassium dichromate A C A A Potassium fluoride B C C C Potassium hydroxide A³ B³ B³ A Potassium nitrate B B B B Potassium permanganate B B B B Potassium sulfate B C B B Propane A A A A Propylene A A A A Propylene oxide C C A A | Potassium chloride - dry | Δ | | Δ | Δ |
| Potassium chromate B C B B Potassium cyanide A B B B Potassium dichromate A C A A Potassium fluoride B C C C Potassium hydroxide A³ B³ B³ A Potassium nitrate B B B B Potassium permanganate B B B B Potassium sulfate B C B B Propane A A A A Propylene A A A A Propylene oxide C C A A | Potassium chloride - moist | В | C | C ^{3,4} | C ³ |
| Potassium cyanide A B B B Potassium dichromate A C A A Potassium fluoride B C C C Potassium hydroxide A³ B³ B³ A Potassium nitrate B B B B Potassium permanganate B B B B Potassium sulfate B C B B Propane A A A A A A A A A Propylene A A A A A A A A A A A A A A A A B B B B B B B B B B B B B B B B B B B B B B< | Potassium chromate | | С | В | В |
| Potassium dichromate A C A A Potassium fluoride B C C C Potassium hydroxide A³ B³ B³ A Potassium nitrate B B B B Potassium permanganate B B B B Potassium sulfate B C B B Propane A A A A Propylene A A A A Propylene oxide C C A A | Potassium cyanide | Α | В | В | В |
| Potassium fluoride B C C C Potassium hydroxide A³ B³ B³ A Potassium nitrate B B B B Potassium permanganate B B B B Potassium sulfate B C B B Propane A A A A Propylene A A A A Propylene oxide C C A A | Potassium dichromate | | С | | |
| Potassium nitrate B B B A Potassium permanganate B B B B Potassium sulfate B C B B Propane A A A A Propylene A A A A Propylene oxide C C A A | Potassium fluoride | В | С | С | |
| Potassium permanganate B B B Potassium sulfate B C B B Propane A A A A A Propylene A A A A A Propylene oxide C C A A | | A ³ | | | A |
| Potassium sulfate B C B B Propane A A A A Propylene A A A A Propylene oxide C C A A | Potassium nitrate | | | | A |
| Propane A A A A Propylene A A A A Propylene oxide C C A A | Potassium permanganate | R | R | | R |
| Propylene A A A A A A Propylene oxide C C A A | | | | | |
| Propylene oxide C C A A | | | | | |
| Topylone shide | Propylene oxide | | | | |
| Propylene dichloride - dry A B A A | Propylene dichloride - dry | | | | |

CORROSION RESISTANCE TABLE

RATING CODE

- A Suitable (normal condition)
- B Limited Service
- C Unsuitable

NOTES

- ¹ Susceptible to intergranular corrosion
- ² May cause explosive reaction
- Susceptible to stress corrosion cracking
 Susceptible to pitting type corrosion
- ⁵ Discolors
- ⁶ Concentration over 50% and/or temperature over 95°C, refer to our engineering department.

| | | | | | - Total to our originating to | | | | |
|---|----------------|----------------|------------------|----------------|-------------------------------|-------|--------|------------------|----------------|
| | | Carbon | Stainless | Stainless | | | Carbon | Stainless | Stainless |
| | Monel | Carbon | | Stalliless | | Monel | Carbon | Stalliless | Stalliless |
| | | steel | 304L/321 | 316L | | | steel | 304L/321 | 316L |
| Propylene dichloride - moist | В | С | C ⁴ | C ⁴ | Trichloroacetic acid | В | С | C ^{3,4} | C ⁴ |
| Pyridine | В | B ⁵ | В | В | Trichloroethane - dry | A | Ä | A | Ä |
| Pyrrolidine | В | В | В | A | Trichloroethane - moist | В | C | C ⁴ | C ⁴ |
| Quinine | В | С | В | В | Trichloroethylene - dry | A | Ā | A | A |
| Rosin | A | C ⁵ | A | A | Trichloroethylene - moist | В | C | C ⁴ | C ⁴ |
| Sea water | В | C | C ^{3,4} | C^3 | Turpentine | A | В | Ä | A |
| Sewage | A | В | A | A | Varnish | A | В | A | A |
| Silver salts | A | C | В | В | Vinegar | B | C | A | A |
| Silver nitrate | C | C ³ | В | A | Water, potable | Ä | Č | A | A |
| Soap solutions | Ä | В | A | A | Xylene | A | B | A | A |
| Sodium | A | Ä | Ä | A | Zinc chloride - dry | A | Ā | Ä | A |
| Sodium acetate | В | В | B ⁴ | В | Zinc chloride - moist | В | C | C ^{3,4} | C ³ |
| Sodium bicarbonate | A | C | A | A | Zinc sulfate | В | C | В | A |
| Sodium bisulfate | В | Ĉ | B ^{1,4} | A | Zino danate | | - ŭ | | , , |
| Sodium bisulfite | B ⁴ | C | В | В | | | | | |
| Sodium bromide | В | В | C | C | | | | | |
| Sodium carbonate | Ā | В | Ă | Ä | | | | | |
| Sodium chlorate - dry | A | A | A | A | | | | | |
| Sodium chlorate - moist | В | C | C ^{3,4} | C^3 | | | | | |
| Sodium chloride - dry | Ā | В | A | Ā | | | | | |
| Sodium chloride - moist | В | C | C ^{3,4} | C ³ | | | | | |
| Sodium chromate | Ā | В | A | Ä | | | | | |
| Sodium citrate | В | В | В | В | | | | | |
| Sodium cyanide | В | В | В | В | | | | | |
| Sodium dichromate | В | C | A | A | | | | | |
| Sodium fluoride | Ā | В | C ⁴ | C | | | | | |
| Sodium hydroxide 6 | A | B ³ | B ³ | B ³ | | | | | |
| Sodium hypochlorite - dry | A | В | A | A | | | | | |
| Sodium hypochlorite - moist | В | C | C1,4 | C ⁴ | | | | | |
| Sodium metasilicate | Ā | В | A | Ä | | | | | |
| Sodium nitrate | A | B ³ | A | A | | | | | |
| Sodium nitrite | В | В | В | В | | | | | |
| Sodium peroxide | B | C | Ā | A | | | | | |
| Sodium phosphate | A | C | A | A | | | | | |
| Sodium silicate | A | В | A | A | | | | | |
| Sodium sulfate | A | В | B ³ | В | | | | | |
| Soldium sulfide | A | C | B ⁴ | В | | | | | |
| Sodium sulfite | A | Ĉ | В | В | | | | | |
| Sodium thiosulfate | A | Ĉ | В | В | | | | | |
| Stannic chloride - dry | A | В | Ā | A | | | | | |
| Stannic chloride - moist | В | C | C ^{3,4} | C ³ | | | | | |
| Stannous chloride - dry | Ā | В | A | A | | | | | |
| Stannous chloride - moist | В | C | C ^{3,4} | C ³ | | | | | |
| Steam | A^3 | Č | A | Ă | | | | | |
| Stearic acid | В | C ⁵ | В | В | | | | | |
| Strontium nitrate | В | Č | В | В | | | | | |
| Sulfate black liquor | В | В | В | В | | | | | |
| Sulfate green liquor | В | В | B ³ | В | | | | | |
| Sugar solutions | A | В | A | A | | | | | |
| Sulfur - dry | A | В | A | A | | | | | |
| Sulfur - molten | C | C | C | В | | | | | |
| Sulfur chloride - dry | Ā | C | Ä | A | | | | | |
| Sulfur chloride - moist | В | C | C ^{3,4} | C^3 | | | | | |
| Sulfur dioxide - dry | В | C | C ¹ | В | | | | | |
| Sulfur dioxide - dry Sulfur dioxide - moist | C | C | C ¹ | В | | | | | |
| Sulfur trioxide - dry | A | C | A | A | | | | | |
| Sulfuric acid. 95-100% | В | В | A | A | | | | | |
| Sulfuric acid, 80- 95% | В | C | В | В | | | | | |
| Sulfuric acid, 40- 80% | C | C | C ¹ | C ¹ | | | | | |
| Sulfuric acid, 40% | C | C | C ¹ | C ¹ | | | | | |
| Sulfurous acid | В | C | C1,4 | C1,4 | | | | | |
| Tail oil | В | В | В | В | | | | | |
| Tannic acid | В | C ⁵ | В | В | | | | | |
| Tar | A | В | A | A | | | | | |
| Tartaric acid | В | С | В | В | | | | | |
| Tetraphosphoric acid | С | C | В | В | | | | | |
| Toluene | A | A | A | A | | | | | |
| TOTALCTIC | A | | | Α | | L | L | | |

ANAFLEX® CORRUGATED HOSE: Quick and perfect solution for every HVAC installation



ANAFLEX® from Anamet Europe B.V. is the perfect flexible solution for HVAC installations. The ideal solution for a great number of applications. The ANAFLEX® system has been designed as a self-mounting flexible hose system for heating, steam-tracing, cooling-ceilings, watersupply, boiler-connection, machine-fluid-connection and solar-panel-connection applications. The flexible ANAFLEX® corrugated hose is made of high quality stainless steel (AISI-316L), does not age and is diffusion-tight. ANAFLEX® solves the problem of rubber and plastic hoses, which due to oxygen-diffusion and ageing can damage the installation. The flexible stainless steel hose is easy to handle and easy to cut to the desired length, which saves installation time.

Material & Construction:

Construction: Flexible parallel corrugated hose, made of thin wall

stainless steel AISI-316L

Temperature range: 0 °C tot +110 °C (for higher temperatures till

+250 °C please consult Anamet Europe B.V.).

Colour: Metal.



Product advantages:

- No oxygen diffusion, prevents damage and does not block the installation.
- Does not kink.
- Durable and does not age.
- Is corrosion resistant.

Mounting advantages:

- You decide the length on the spot.
- Quick and efficient mounting.
- Smooth installation.
- Very long life time.



Standard corrugation

| Anaflex® | Dian | netre | Working- | Bending- | Standard carton | | Smal | l carton | Reel | | Weight |
|----------|--------|---------|----------|---------------|-----------------|-------------|-------|-------------|-------|-------------|--------|
| Size | Inside | Outside | Pressure | radius | Metre | Article No. | Metre | Article No. | Metre | Article No. | (Kg/m) |
| DN | (mm) | (mm) | (Bar) | Static (mm) * | | | | | | | |
| DN 12 | 12,2 | 16,7 | 12 | 45 | 30 | 465.012.1 | 10 | 465.012.3 | 120 | 465.012.5 | 0,12 |
| DN 16 | 16,2 | 21,5 | 10 | 60 | 30 | 465.016.1 | 10 | 465.016.3 | 90 | 465.016.5 | 0,20 |
| DN 20 | 20,3 | 26,7 | 8 | 70 | 30 | 465.020.1 | 10 | 465.020.3 | 60 | 465.020.5 | 0,28 |
| DN 25 | 25,4 | 32,3 | 6 | 100 | 30 | 465.025.1 | 10 | 465.025.3 | - | - | 0,39 |

^{*} For dynamic applications, please consult your Anamet representative.

The ANAFLEX® stainless steel hoses can be used in combination with the unique ANAFLEX®-CLICK fittings, as mentioned on the next page.

This combination gives you many advantages:

- You can install the fittings yourself.
- Quick and efficient working method.
- Significant installation time reduction.
- Smooth and perfect result.

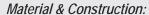


| Anaflex® | - | - | - | 12 | 16 | 20 | 25 | - | - | - | - | - |
|------------------|---|---|---|-----------|-----------|----------|----|---|---|---|---|---|
| Male BSPT | | - | - | 3/8"-1/2" | 1/2"-3/4" | 3/4"-1" | 1" | - | - | - | - | |
| Female BSPP | | - | - | 3/8"-1/2" | 1/2"-3/4" | 3/4"-1" | 1" | - | - | - | - | - |
| Pipe compression | - | - | - | - | 15-18 mm | 18-22 mm | - | - | - | - | - | - |

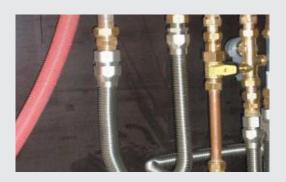
ANAFLEX® -CLICK FITTINGS: Nickel plated brass fittings with unique click-system.



For the stainless steel ANAFLEX® corrugated hose an unique mounting fitting has been developed. The major advantage of the ANAFLEX® -CLICK fitting is the quick-mounting directly on the hose. After turning the backnut (2 till 3 full turns) a tensile strong and liquid-tight connection is made. The nickel plated brass fittings are suitable for cold and hot water as well as steam.



Construction: Nickel plated brass fitting, consisting of 6 parts



(body, counter nut, retaining ring and filler ring are nickel plated brass, internal sealing sleeve is from PTFE and the internal flat seal is from silicone rubber). Special approvals: Click system tested and approved by the "Institut für Solartechnik SPF" (Switzerland). Temperature range: 0 °C till +110 °C (for higher temperatures please consult Anamet Europe B.V.). Colour: metal.



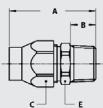


Figure C3, nickel plated brass click fitting, male, BSPT

| Thread | Anaflex | ID Hose | | Dime | nsions i | n mm | Standard | Article | Weight | |
|-----------|-----------|---------|----|------|----------|------|----------|---------|-----------|----------|
| size | Size (DN) | (mm) | Α | В | С | D | Е | Package | Number | (Kg/100) |
| 3/8" BSPT | DN 12 | 12,2 | 49 | 14 | 24 | - | 22 | 10 | 400.010.3 | 6,1 |
| 1/2" BSPT | DN 12 | 12,2 | 50 | 15 | 24 | 1 | 22 | 10 | 400.012.3 | 6.3 |
| 1/2" BSPT | DN 16 | 16,2 | 58 | 17 | 29 | - | 27 | 10 | 400.016.3 | 9,7 |
| 3/4" BSPT | DN 16 | 16,2 | 59 | 17 | 29 | - | 27 | 10 | 400.018.3 | 10,5 |
| 3/4" BSPT | DN 20 | 20,3 | 62 | 17 | 36 | - | 34 | 10 | 400.020.3 | 16,0 |
| 1" BSPT | DN 20 | 20,3 | 66 | 18 | 36 | - | 34 | 10 | 400.022.3 | 18,3 |
| 1" BSPT | DN 25 | 24,0 | 63 | 18 | 42 | - | 40 | 5 | 400.025.3 | 22,8 |



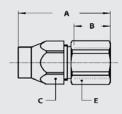


Figure C6, nickel plated brass click fitting, female, BSPP

| Thread | Anaflex | ID Hose | | Dimer | nsions i | in mm | Standard | Article | Weight | |
|-----------|-----------|---------|----|-------|----------|-------|----------|---------|-----------|----------|
| size | Size (DN) | (mm) | Α | В | С | D | Е | Package | Number | (Kg/100) |
| 3/8" BSPP | DN 12 | 12,2 | 45 | 13 | 24 | - | 22 | 10 | 400.010.6 | 6,5 |
| 1/2" BSPP | DN 12 | 12,2 | 48 | 15 | 24 | 1 | 27 | 10 | 400.012.6 | 7,8 |
| 1/2" BSPP | DN 16 | 16,2 | 54 | 15 | 29 | 1 | 27 | 10 | 400.016.6 | 9,9 |
| 3/4" BSPP | DN 16 | 16,2 | 55 | 17 | 29 | 1 | 32 | 10 | 400.018.6 | 11,8 |
| 3/4" BSPP | DN 20 | 20,3 | 58 | 17 | 36 | 1 | 34 | 10 | 400.020.6 | 16,6 |
| 1" BSPP | DN 20 | 20,3 | 62 | 20 | 36 | - | 41 | 10 | 400.022.6 | 22,1 |
| 1" BSPP | DN 25 | 24,0 | 65 | 20 | 42 | - | 40 | 5 | 400.025.6 | 22,8 |
| | | | | | | | | | | |



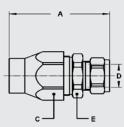


Figure C8, nickel plated brass click fitting, pipe compression.

| Pipe | Anaflex | ID Hose | | Dimer | nsions i | in mm | Standard | Article | Weight | |
|----------|-----------|---------|----|-------|----------|-------|----------|---------|-----------|----------|
| diameter | Size (DN) | (mm) | Α | В | С | D | Е | Package | Number | (Kg/100) |
| Ø 15 mm | DN 16 | 16,2 | 60 | 1 | 29 | 15 | 27 | 10 | 400.015.8 | 9,9 |
| Ø 18 mm | DN 16 | 16,2 | 61 | 1 | 29 | 18 | 32 | 10 | 400.018.8 | 11,8 |
| Ø 18 mm | DN 20 | 20,3 | 66 | - | 36 | 18 | 34 | 10 | 400.020.8 | 16,6 |
| Ø 22 mm | DN 20 | 20,3 | 67 | - | 36 | 22 | 41 | 10 | 400.022.8 | 22,1 |

ENGINEERING DATA

QUALITY ASSURANCE

Within ANAMET EUROPE B.V. quality assurance is integrated in the corporate philosophy and adopted at all levels within the company.

The objective of the company's Quality Assurance Programme is to operate a quality level conform to ISO-9001.

In addition to the requirements and specifications of end-users ANAMET produces conform international regulatory standards of independent classification authorities.

ANAMET EUROPE B.V. is since 2002 certified by "Stoomwezen B.V." to produce flexible hoses according to the Pressure Equipment Directive (PED) 97/23/EG, even up to category II.



European HQ: Amsterdam



Production



Welding zone



Laboratory



Warehouse & Logistics



Hose preparation zone



Testing zone



Warehouse facilities



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