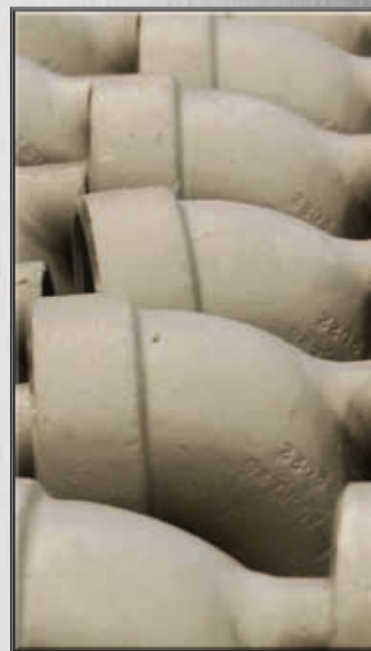
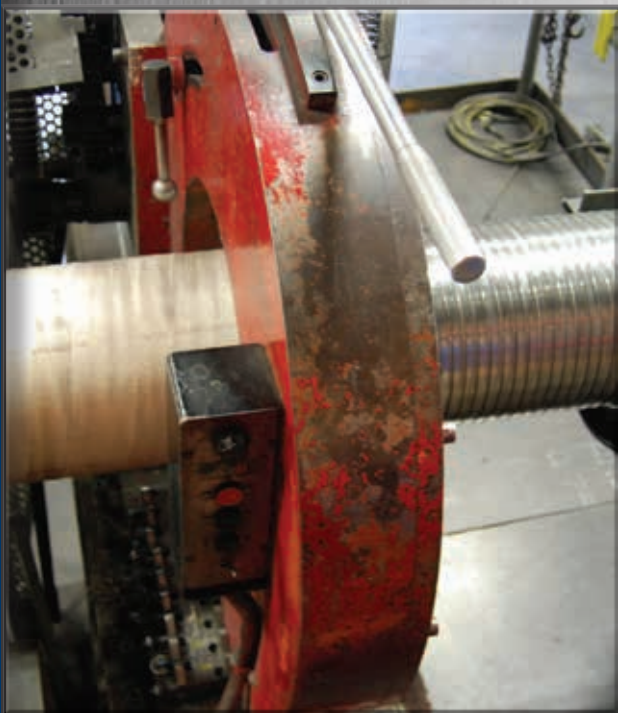




The Right Connection®

2014

Dixon
Specialty
Products



Service • **Solutions** • Selection

dixonvalve.com
877.963.4966

Table of Contents

Why Choose Dixon Specialty Products?	3
The Steel Mill Life Cycle	4-5
S.T.A.M.P.E.D.	6
Ordering Information for Hose Assemblies	6
GSM Armored Hose	7
GSM Hose and Fittings	8-14
Oxygen Hose	8
BOF Oxygen Lance Hose	8
Water Hose	9
Hydraulic Hose	9
Air Hose	10
Natural Gas Hose	10
Steam Hose	11
Black Liquor	11
GAM Hose	12-13
Armored Hose Fittings	14
PTFE Hose and Fittings	15-19
SAE 100R14 Nominal Smooth Bore Hose (WSB, BSB)	15
Nominal Fittings and Hose Insertion Tool	16-17
True ID Open Pitch Convuluted Hose (WOC, BOC)	18
True ID Smooth Bore Hose (WTB, BTB)	18
True ID Fittings and Collars	18-19
PTFE Flare Through	19
Swivel Joints	20-27
Swivel Joints and Parts Identification	20
Ordering Information	21
O-Ring	22-24
V-Ring	25-26
Type 35 Loading Arm	27
Split Flange Swivel Joint	27
Hose Restraints	28-29
King Safety Cables	28
King Safety Whipsack	29
Spring End Guard	29
Continuous Spring Guard	29
Technical Information	30-39
GSM Hose Assembly Installation	30-31
Pressure Loss and Flow Velocity	32
Classification of Motion	32-33
Flexibility and Bend Radius	34
Temperature Adjustment Factors	34
Nominal Bore PTFE Hose Explained	35
PTFE Hose Assembly Instructions	35-36
PTFE Crimp Specifications	37-38
Temperature Derating for PTFE	39
Glossary	40-42
Product Warranty	43

This catalog is intended as a product offering. It is not intended to be a user or technical manual. Information in this catalog is subject to change without notice. All users and distributors of products sold through this catalog should contact Dixon Specialty Products with questions of use, compatibilities, coupling procedures and life of product. Dixon's full-time engineering and test staff is always available to recommend uses and to assist distributors and users with any questions.

Why Choose Dixon Specialty Products?



GSM Armored Hose

- provides protection for hoses when applications require exposure to heat and abrasion
- wide selection of inner hoses available specific to a variety of applications
- sizes ¼" - 16" bore and lengths up to 120'
- half round wire ball joint design allows multiple plane movements and provides resistance to kinking
- all hose assemblies are inspected, tested, measured and verified for the intended service prior to shipping

PTFE Hose

- available as ready to assemble bulk hose and fittings or made-to-order assemblies
- SAE100R14 Nominal Smooth Bore sizes, True ID Smooth Bore and Open Pitch Convuluted hose in conductive and non conductive
- majority of hose and fittings stocked in Maryland and Texas providing rapid delivery on made-to-order PTFE hose assemblies
- common size hose and fittings stocked
- 24 hour or same day shipment for many orders

Swivel Joints

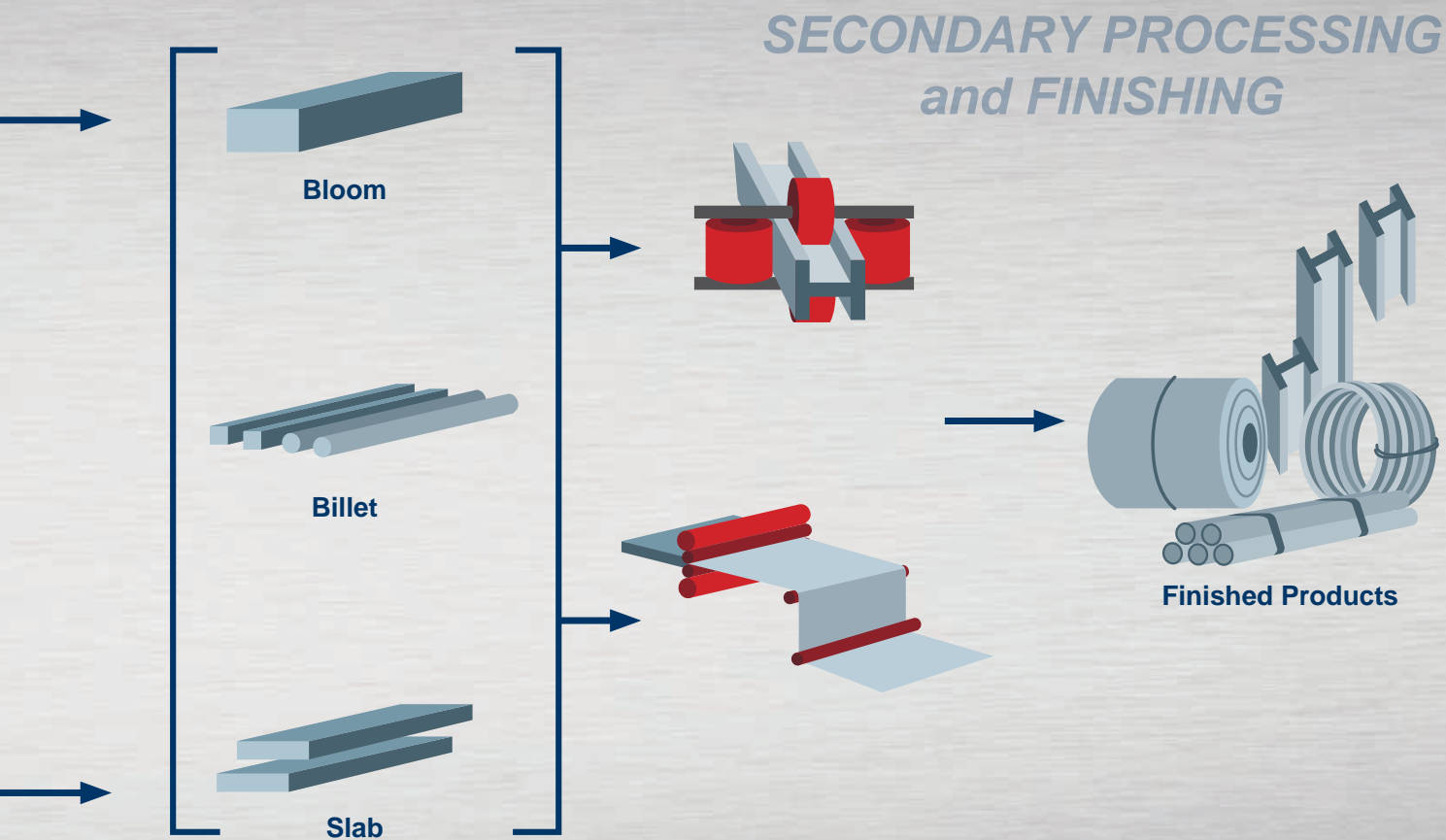
- wide variety of swivel options and configurations
- common sizes and configurations stocked
- majority of components stocked allowing for efficient turn around
- hydrostatic testing is performed on all swivels before shipment
- full penetration welds by ASME certified welders available

Hose Restraints

- available for a range of applications
- provide standby safety in the case of accidental failure of assembly or fitting
- **King Safety Cables** are a low cost answer to minimizing damage to equipment and injuries to operators caused by the failure of air hose connections
 - ideal for lower pressure hose-to-hose and hose-to-tool applications
- **King Safety Whipsocks** have dual anchor points that are secured beyond the fitting to keep the hose under complete control during a failure
 - ideal for higher working pressure hose-to-rigid outlets and hose-to-hose connections

Turn to Dixon, the Right Connection, for the right solution for your application requirements.





The Right Connection®

Technical Information for GSM Hose

Selection Criteria

S.T.A.M.P.E.D.

When fabricating and specifying hose assemblies ask the following questions:

- Size:** What is the ID (Inside Diameter) of the hose? What is the OD (Outside Diameter) of both ends of the hose? What is the overall length of the assembly required?
- Temperature:** What is the temperature range of the media (product) that is flowing through the hose assembly? What is the temperature range of the environment that surrounds the outside of the hose assembly?
- Application:** How is the hose assembly actually being used? Is it a pressure application? Is it a vacuum (suction) application? Is it a gravity flow application? Are there any special requirements that the hose assembly is expected to perform? Is the hose being used in a horizontal or vertical position? Are there any pulsations or vibrations acting on the hose assembly?
- Media:** What is the media/material that is flowing through the hose assembly? Being specific is critical. Check for: Abrasive materials, chemical compatibility, etc.
- Pressure:** What is the maximum pressure including surges (or, maximum vacuum) that this hose assembly will be subjected to? Always rate the maximum working pressure of your hose assembly by the lowest rated component in the system.
- Ends:** What couplings have been requested by the user? Are they the proper fittings for the application and hose selected?
- Dixon:** Dixon recommends that, based on the hose, fittings and attachment method used, all assemblies be permanently marked with the designed working pressure and intended media. Do not use other manufacturer's fittings or ferrules with Dixon products due to the differences in dimensions and tolerances. We also recommend that all hose assemblies be tested frequently.
Be Safe: Any questions on application, use or assembly call 888-226-4673.

Ordering Information for Hose Assemblies

To select the proper hose assembly you need the following information:

Hose Style:	Length OAL:
Size:	
A End Configuration:	A End Material:
B End Configuration:	B End Material:
Maximum Working Pressure:	Temperature Range:
Application:	
Media / Product being handled: (if a chemical, please advise concentration):	
Bend radius requirement:	
If for suction service, advise maximum vacuum in inches of Mercury (Hg):	

Please call Dixon Specialty Products at 888.226.4673 for assembly pricing.

GSM Armored Hose

Applications:

- **Coke Battery:** pusher, quench car; **Blast Furnace:** tuyere, bosch, tap-hole drill, mud gun; **BOF:** oxygen and water cooled lance; **EAF:** shell, roof water, oxygen supply, oxy burner, natural gas, carbon lime, slag door, tilt, roof and electrode lift cylinders, EBT; ladle car, argon stir; **Caster:** mold, oscillator, segment water, hydraulic, grease, tundish, ladle slide gate; **Rolling:** reheat furnace, roll stand water, pinch roll cylinder, peel bar, walking beam, coil car and more

Features:

- extremely flexible armor protects from heat, slag splash and harsh environments in mill applications for water, gases, hydraulic fluids, grease and abrasives
- heat resistant insulation to 1000°F
- temperature rating depends on specific applications, consult Dixon Specialty Products
- a variety of end connections are available

Materials:

- armor: galvanized steel or stainless steel
- wide selection of inner hoses specific to the demands of the application are industrial, hydraulic, stainless steel or PTFE

Sizes:

- ¼" through 16" bore
- lengths to 120'



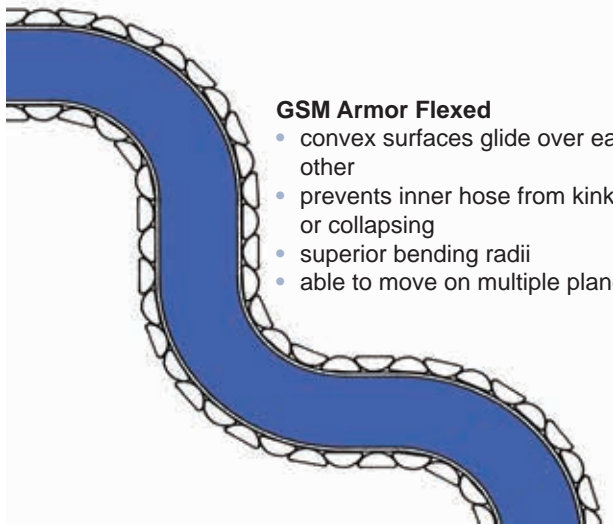
ball-joint armor protects against extreme heat, molten splash, abrasion and kinking

no interlocking parts to restrict bending



multiple layers of 1000°F fiberglass insulation are applied for extreme heat resistance

inner hoses, engineered for the application, are specialty industrial rubber, hydraulic, corrugated stainless steel or PTFE



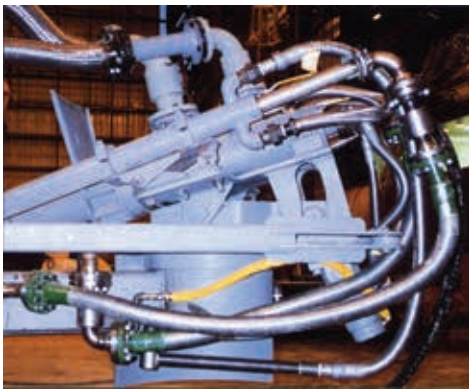
GSM Armor Flexed

- convex surfaces glide over each other
- prevents inner hose from kinking or collapsing
- superior bending radii
- able to move on multiple planes



GSM BOP hose tested at 2000°F, 2,000,000 BTU's at 5,000 PSIWP.

Oxygen Hose



GSM armor and insulation deliver maximum diffusion and absorption of heat

Application:

- reliable connector for the critical transfer of supplying oxygen into an oxy-fuel burner furnace

Features:

- specification: 256E
- multiple layers of 1000°F rated heat resistant insulation
- temperature rating depends on the specific application, consult Dixon Specialty Products for details

Materials:

- tube: neoprene rubber
- reinforcement: multiple high tensile wire braids
- cover: smooth neoprene
- GSM Ball-Joint Armor: galvanized steel or stainless steel

Sizes: 3/8" through 3"

Hose Dimension		Minimum Bend Radius	PSI		Approximate Weight / Ft. Lbs.
ID	Approximate OD		Working	Burst	
3/8"	60/64"	2"	500	2000	1
1/2"	1-17/64"	2 1/2"	500	2000	1.25
3/4"	1-19/64"	3"	500	2000	1.8
1"	1-45/64"	4 1/2"	500	2000	2
1 1/4"	1-52/64"	5"	500	2000	2.8
1 1/2"	2-18/64"	6 1/2"	500	2000	3
2"	2-53/64"	11"	300	1200	4
2 1/2"	3-27/64"	12"	300	1200	5
3"	3-45/64"	15"	300	1200	6.25

BOF Oxygen Lance Hose



flexibility of GSM will reduce noise caused by vibration

Application:

- reliable connector for the injection of oxygen directly into molten steel in a Basic Oxygen Furnace

Features:

- specification: LW65
- multiple layers of 1000°F rated heat resistant insulation
- temperature rating depends on the specific application, consult Dixon Specialty Products for details

Materials:

- tube: neoprene rubber
- reinforcement: multiple textile plies and metal helix wire
- cover: smooth neoprene
- GSM Ball-Joint Armor: galvanized steel or stainless steel

Sizes: 4" through 8"

Hose Dimension		Minimum Bend Radius	PSI		Approximate Weight / Ft. Lbs.
ID	Approximate OD		Working	Burst	
4"	5-36/64"	24"	300	1500	11
5"	6-50/64"	30"	300	1500	18
6"	7-45/64"	36"	300	1500	20
8"	10"	48"	300	1500	27.5

Application:

- water cooled applications where flexible connections are required to transfer water in abrasive environments

Features:

- specification: 350E
- multiple layers of 1000°F rated heat resistant insulation
- temperature rating depends on the specific application, consult Dixon Specialty Products for details

Materials:

- tube: ¾"-3" nitrile rubber, 4" and above are SBR rubber blend
- reinforcement: ¾"-3" have multiple high tensile wire braids, 4" and above have multiple textile plies and metal helix wire
- cover: SBR rubber blend
- GSM Ball-Joint Armor: galvanized steel or stainless steel

Sizes:

- ¾" - 10" hose, variations: 12", 14" and 16"

Hose Dimension		Minimum Bend Radius	PSI		Approximate Weight / Ft. Lbs.
ID	Approximate OD		Working	Burst	
¾"	52/64"	2"	200	800	1
½"	1-15/64"	2½"	500	2000	1.1
¾"	1-22/64"	3"	500	2000	1.4
1"	1-42/64"	4"	500	2000	1.8
1¼"	1-60/64"	5"	500	2000	2.4
1½"	2-18/64"	8"	500	2000	2.9
2"	2-50/64"	10"	500	2000	3.8
2½"	3-18/64"	13"	400	1600	4.5
3"	4-8/64"	17"	400	1600	6
4"	5-36/64"	24"	150	600	11
5"	7-50/64"	30"	150	600	18
6"	7-45/64"	36"	150	600	20
8"	10-7/64"	48"	150	600	27.5
10"	12"	60"	150	600	35
12"	13.625"	72"	150	600	43.75



circulating water in an electric arc furnace cooling roof or furnace door

Application:

- hydraulic service in abrasive environments needs the ultimate protection from external abuse, extreme heat, and kinking

Features:

- specifications: 100R2, 100R12, 100R13
- multiple layers of 1000°F rated heat resistant insulation
- temperature rating depends on the specific application, consult Dixon Specialty Products for details

Materials:

- tube: oil resistant, synthetic rubber
- reinforcement: 2, 4 and 6 wire braids
- cover: oil resistant, synthetic rubber
- GSM Ball-Joint Armor: galvanized steel or stainless steel

Sizes:

- ¼" through 2" standard, other sizes available

Hose Dimension ID	Working Pressure			Bend Radius		
	100R2	100R12	100R13	100R2	100R12	100R13
¼"	5800	n/a	n/a	3"	n/a	n/a
⅜"	5000	4000	n/a	4"	5"	n/a
½"	4250	4000	n/a	6"	7"	n/a
⅝"	2750	4000	n/a	7"	8"	n/a
¾"	3125	4000	5000	8½"	9½"	9½"
1"	2500	4000	5000	10"	12"	12"
1¼"	2250	3000	5000	14½"	16½"	16.2"
1½"	1800	2500	5000	18"	20"	20"
2"	1300	3000	5000	22"	25"	25"



better resistance to impact, abrasion and kinking

Air Hose



ideal in the applications where failures could be a disaster

Application:

- air service in the transportation industry for air brake systems for rail cars and signal hose

Features:

- specification: 460E
- multiple layers of 1000°F rated heat resistant insulation
- temperature rating depends on the specific application, consult Dixon Specialty Products for details

Materials:

- tube: nitrile blend
- reinforcement: multiple high tensile wire braids
- cover: neoprene rubber
- GSM Ball-Joint Armor: galvanized steel or stainless steel

Sizes: 3/8" through 3"

Hose Dimension		Minimum Bend	PSI		Approximate Weight /
ID	Approximate OD	Radius	Working	Burst	Ft. Lbs.
3/8"	52/64"	2"	200	800	1
1/2"	1-15/64"	2 1/2"	500	2000	1.1
3/4"	1-22/64"	3"	500	2000	1.4
1"	1-42/64"	4"	500	2000	1.8
1 1/4"	1-60/64"	5"	500	2000	2.4
1 1/2"	2-18/64"	8"	500	2000	2.9
2"	2-50/64"	10"	500	2000	3.8
2 1/2"	3-18/64"	13"	400	1600	4.5
3"	4-8/64"	17"	400	1600	6

Natural Gas Hose



reliable, flexible connector to meet your needs

Application:

- used in the transfer of gases, ideally the injection of oxygen, natural gas, argon, or other gasses into the ladle or blast furnace

Features:

- Specification: 524E
- multiple layers of 1000°F rated heat resistant insulation
- temperature rating depends on the specific application, consult Dixon Specialty Products for details

Materials:

- tube: neoprene rubber
- reinforcement: multiple high tensile wire braids
- cover: neoprene rubber
- GSM Ball-Joint Armor: galvanized steel or stainless steel

Sizes:

- 3/8" through 3"

Hose Dimension		Minimum Bend	PSI		Approximate Weight /
ID	Approximate OD	Radius	Working	Burst	Ft. Lbs.
3/8"	60/64"	2"	500	2000	1
1/2"	1-17/64"	2 1/2"	500	2000	1.25
3/4"	1-19/64"	3"	500	2000	1.8
1"	1-45/64"	4 1/2"	500	2000	2
1 1/4"	1-52/64"	5"	500	2000	2.8
1 1/2"	2-18/64"	6 1/2"	500	2000	3
2"	2-53/64"	11"	300	1200	4
2 1/2"	3-27/64"	12"	300	1200	5
3"	3-45/64"	15"	300	1200	6.25

Steam Hose

Application:

- used to convey steam in applications where heat and abrasion are a concern

Features:

- specification: 769E
- multiple layers of 1000°F rated heat resistant insulation
- temperature rating depends on the specific application, consult Dixon Specialty Products for details

Materials:

- tube: Butyl blend
- reinforcement: wire braid
- cover: EPDM
- GSM Ball-Joint Armor: galvanized steel or stainless steel

Sizes:

- ½" through 3"



designed to extend the life of your hose in the harshest conditions

Hose Dimension		Minimum Bend Radius	PSI		Approximate Weight / Ft. Lbs.
ID	Approximate OD		Working	Burst	
½"	1-15/64"	3"	250	2500	1.25
¾"	1-34/64"	4½"	250	2500	2
1"	1-54/64"	5"	250	2500	2.25
1¼"	2-8/64"	6"	250	2500	3
1½"	2-26/64"	7"	250	2500	3.5
2"	3"	10"	250	2500	4.5
2½"	3-24/64"	13"	250	2500	6.25
3"	4-9/64"	16"	250	2500	7.5

Black Liquor Hose

Application:

- used to convey Black Liquor in applications where heat and abrasion are a concern such as the pulp and paper industry

Features:

- specification: 800E
- multiple layers of 1000°F rated heat resistant insulation
- temperature rating depends on specific application, consult Dixon Specialty Products for details

Materials:

- tube: Butyl blend
- reinforcement: wire braid
- cover: EPDM
- GSM Ball Joint Armor: galvanized steel or stainless steel

Sizes:

- ½" through 3"



keeping the hose protected for extended life of the hose

Hose Dimension		Minimum Bend Radius	PSI		Approximate Weight / Ft. Lbs.
ID	Approximate OD		Working	Burst	
½"	1-15/64"	3"	250	2500	1.25
¾"	1-34/64"	4½"	250	2500	2
1"	1-54/64"	5"	250	2500	2.25
1¼"	2-8/64"	6"	250	2500	3
1½"	2-26/64"	7"	250	2500	3.5
2"	3"	10"	250	2500	4.5
2½"	3-24/64"	13"	250	2500	6.25
3"	4-9/64"	16"	250	2500	7.5

GSM Ball Joint Armored Stainless Hose

****Exclusively with our genuine ball-joint armor******Application:**

- used where pressure, temperature, media, or environment exceeds the limitations of rubber or PTFE lined transfer hose

Features:

- specification: ISO 10380
- temperature: 1500°F, see temperature adjustments on pg 34
- heat resistant insulation to 1000°F

Materials:

- hose: 321 stainless steel and 316L stainless steel are available
- single or double braid available in 304 and 316 stainless steel
- **All metal hose assemblies must have GSM ball joint armor**

GAM Hose - DA1 & DA2



Hose	Hose Dimension			Bend Radius		PSI @70°F		GAM APROX WEIGHT Lbs
	ID	# Braids	OD	Dynamic	Static	Working	Burst	
DA1	1/4"	1	.82"	5	1	2100	10250	--
DA2		2	.89"			3100	12500	--
DA1	3/8"	1	1"	5.5	1.25	1500	6000	0.31
DA2		2	1.06"			2400	9600	0.42
DA1	1/2"	1	1.08"	6	1.5	1100	4300	0.94
DA2		2	1.21"			1700	6800	1.06
DA1	3/4"	1	1.53"	8	2.25	800	3150	1.55
DA2		2	1.6"			1250	5000	1.75
DA1	1"	1	1.83"	9	2.75	550	2300	2.4
DA2		2	1.9"			900	3600	2.63
DA1	1 1/4"	1	2.08"	10.5	3.5	500	2100	3.11
DA2		2	2.27"			850	3400	3.41
DA1	1 1/2"	1	2.44"	12	4	450	1800	3.58
DA2		2	2.62"			750	3000	3.98
DA1	2"	1	2.85"	15	5	500	2000	4.51
DA2		2	3.09"			800	3300	5.13
DA1	2 1/2"	1	3.5"	20	8	400	1500	5.54
DA2		2	3.68"			600	2400	6.24
DA1	3"	1	4.03"	22	9	300	1200	6.44
DA2		2	4.27"			500	2000	7.24
DA1	4"	1	5.1"	27	13	230	950	12.96
DA2		2	5.35"			350	1500	13.96
DA1	5"	1	6.15"	31	18	200	750	14.89
DA2		2	6.4"			300	1200	16.14
DA1	6"	1	7.12"	36	19	160	650	17.56
DA2		2	7.58"			260	1000	18.85
DA1	8"	1	9.34"	40	20	230	930	21.78
DA2		2	9.53"			370	1500	25.7
DA1	10"	1	11.43"	50	25	230	920	25.75
DA2		2	11.7"			360	1450	31.85
DA1	12"	1	13.5"	60	30	160	650	--
DA2		2	13.75"			250	1000	--

GSM Ball Joint Armored Stainless Hose

****Exclusively with our genuine ball-joint armor****

Application:

- intended for applications that require high pressure options

Features:

- specification: ISO 10380
- temperature: 1500°F, see temperature adjustments on pg 34
- heat resistant insulation to 1000°F

Materials:

- hose: 321 stainless steel and 316L stainless steel are available
- double braid available in 304 and 316 stainless steel
- All metal hose assemblies must have GSM ball joint armor**

High Pressure GAM Hose - D82 & D92

Hose	Hose Dimension			Bend Radius		PSI @70°F		GAM APROX WEIGHT Lbs
	ID	# Braids	OD	Dynamic	Static	Working	Burst	
D82	1/4"	2	.89"	5	1	4000	16400	--
D92		2	.89"	12	6	4400	17500	--
D82	3/8"	2	1.06"	5.5	1.25	2400	9600	0.96
D92		2	1.08"	12	6	3000	12300	1.29
D82	1/2"	2	1.27"	8	1.5	3500	1400	1.83
D92		2	1.27"	14	7	3500	1400	2
D82	3/4"	2	1.66"	8	2	2000	8300	2.75
D92		2	1.71"	15	7.5	3000	14000	2.24
D82	1"	2	1.95"	9	3	1700	6800	3.55
D92		2	2.02"	16	8	2500	10200	2.67
D82	1 1/4"	2	2.35"	10	3.25	1700	7000	4.65
D92		2	2.34"	18	9	2100	8400	2.88
D82	1 1/2"	2	2.68"	10	3.25	1400	5500	5.67
D92		2	2.68"	19	9.5	1700	6800	3.03
D82	2"	2	3.01"	11.5	5.38	1300	5200	2.51
D92		2	3.02"	24	12	1350	5300	3.53
D82	2 1/2"	2	3.75"	24	7	925	3700	7.16
D82	3"	2	4.28"	28	7.5	850	3500	10.31
D82	4"	2	5.3"	40	20	530	2100	16.26
D82	6"	2	7.58"	95	24	425	1700	20.19



Armored Hose Fittings

Available in carbon steel and stainless steel, consult Dixon Specialty Products for other options available



male NPT



Dixon ground joint



barrel crimp



150# and 300# fixed or floating flange



female JIC



FJIC 45° and 90° elbow



code 61 and 62 straight



code 61 and 62
45° and 90° elbow

Additional Ends



Dixon coupler cam & groove



Dixon adapter cam & groove



hammer union



weld end



grooved end



NPT threaded union

Nominal

Application:

- Suitable for conveying chemicals, foods, pharmaceuticals, oils, gas, fuels and steam

Features:

- nominal standard smooth bore PTFE hose meets SAE100R14
- size range: dash-3 to dash-20
- operating temperature: -100°F to 450°F (-73°C to 232°C)
- 304 stainless braided
- Extruded or heat shrink coverings are available upon request.
- high pressure hose assemblies available upon request
- nominal bore PTFE hose sizing explained on page 35
- **bulk, per ft. lengths and full reels available from Maryland and Texas**
- **boxed coils available from Dixon branch warehouses**

Nominal Smooth Bore PTFE Hose Per Foot Length (*fittings not included*)



Part #	Hose Dimension			Bend Radius Static	PSI		Approximate Weight / Ft. Lbs.
	Nominal Size	Average ID	OD		Working	Burst	
WSB or BSB-03	3/16	.125	.250	2	3,000	12,000	.047
WSB or BSB-04	1/4	.187	.312	2	3,000	12,000	.077
WSB or BSB-05	5/16	.250	.375	3	3,000	12,000	.098
WSB or BSB-06	3/8	.312	.445	4	2,500	10,000	.110
WSB or BSB-06T	7/16	.375	.503	4.5	2,250	9,000	.124
WSB or BSB-08	1/2	.405	.549	5.2	2,000	8,000	.124
WSB or BSB-10	5/8	.500	.648	6.5	1,500	6,000	.154
WSB or BSB-12	3/4	.625	.778	7.7	1,200	4,800	.170
WSB or BSB-12T	7/8	.750	.885	8.2	1,100	4,400	.198
WSB or BSB-16	1	.875	1.030	9	1,000	4,000	.273
WSB or BSB-16T	1 1/4	1.000	1.135	10	900	3,600	.305
WSB or BSB-20Z	1 1/4	1.125	1.290	16	750	2,800	.350

Nominal Smooth Bore PTFE Hose Boxed Coils (*fittings not included*)

Nominal Size	Average ID	Length in Feet	Dash Size	White, non-conductive tube Part #	Black, conductive tube Part #
3/16"	.125"	100	dash-3	WSB-03-100	BSB-03-100
1/4"	.187"	100	dash-4	WSB-04-100	BSB-04-100
5/16"	.250"	100	dash-5	WSB-05-100	BSB-05-100
3/8"	.312"	100	dash-6	WSB-06-100	BSB-06-100
3/8T"	.375"	100	dash-6T	WSB-06T-100	BSB-06T-100
1/2"	.405"	100	dash-8	WSB-08-100	BSB-08-100
5/8"	.500"	100	dash-10	WSB-10-100	BSB-10-100
3/4"	.625"	100	dash-12	WSB-12-100	BSB-12-100
1"	.875"	50	dash-16	WSB-16-50	BSB-16-50

Nominal Fittings

Crimp Collars for all Nominal fittings are included

Female JIC Swivel

Hose Size	Thread Size	Carbon Steel Part #	304 Stainless Steel Part #	Brass Part #
dash 4	1/4"	FJC-04-04	FJS-04-04	FJB-04-04
dash 5	5/16"	FJC-05-05	FJS-05-05	FJB-05-05
dash 6	3/8"	FJC-06-06	FJS-06-06	FJB-06-06
dash 8	1/2"	FJC-08-08	FJS-08-08	FJB-08-08
dash 10	5/8"	FJC-10-10	FJS-10-10	FJB-10-10
dash 12	3/4"	FJC-12-12	FJS-12-12	FJB-12-12
dash 16	1"	FJC-16-16	FJS-16-16	FJB-16-16
dash 20Z	1 1/4"	FJC-20Z-20	FJS-20Z-20	FJB-20Z-20

Rigid Male Pipe



Hose Size	Thread Size	Carbon Steel Part #	304 Stainless Steel Part #	Brass Part #
dash 4	1/8"	MPC-04-02	MPS-04-02	MPB-04-02
dash 4	1/4"	MPC-04-04	MPS-04-04	MPB-04-04
dash 5	1/4"	MPC-05-04	MPS-05-04	MPB-05-04
dash 6	1/4"	MPC-06-04	MPS-06-04	MPB-06-04
dash 6	3/8"	MPC-06-06	MPS-06-06	MPB-06-06
dash 8	3/8"	MPC-08-06	MPS-08-06	MPB-08-06
dash 8	1/2"	MPC-08-08	MPS-08-08	MPB-08-08
dash 10	1/2"	MPC-10-08	MPS-10-08	MPB-10-08
dash 12	3/4"	MPC-12-12	MPS-12-12	MPB-12-12
dash 16	1"	MPC-16-16	MPS-16-16	MPB-16-16
dash 20Z	1 1/4"	MPC-20Z-20	MPS-20Z-20	MPB-20Z-20



Female SAE Swivel

Hose Size	Thread Size	Carbon Steel Part #	Brass Part #
dash 6	3/8"	SAEC-06-06	SAEB-06-06
dash 12	3/4"	SAEC-12-12	SAEB-12-12

Tube End Stubs



Hose Size	Thread Size	304 Stainless Steel Part #
dash 4	1/4"	TES-04-04
dash 6	3/8"	TES-06-06
dash 8	1/2"	TES-08-08
dash 12	3/4"	TES-12-12
dash 16	1"	TES-16-16

Nominal Fittings

Crimp Collars for all Nominal fittings are included

45° FJIC

Hose Size	Thread Size	304 Stainless Steel Part #	Carbon Steel Part #
dash 3	3/16"	FJS45-03-03	FJC45-03-03
dash 4	1/4"	FJS45-04-04	FJC45-04-04
dash 5	5/16"	FJS45-05-05	FJC45-05-05
dash 6	3/8"	FJS45-06-06	FJC45-06-06
dash 8	1/2"	FJS45-08-08	FJC45-08-08
dash 10	5/8"	FJS45-10-10	FJC45-10-10
dash 12	3/4"	FJS45-12-12	FJC45-12-12
dash 16	1"	FJS45-16-16	FJC45-16-16
dash 20Z	1 1/4"	FJS45-20Z-20	FJC45-20Z-20



90° FJIC

Hose Size	Thread Size	304 Stainless Steel Part #	Carbon Steel Part #
dash 3	3/16"	FJS90-03-03	FJC90-03-03
dash 4	1/4"	FJS90-04-04	FJC90-04-04
dash 5	5/16"	FJS90-05-05	FJC90-05-05
dash 6	3/8"	FJS90-06-06	FJC90-06-06
dash 8	1/2"	FJS90-08-08	FJC90-08-08
dash 10	5/8"	FJS90-10-10	FJC90-10-10
dash 12	3/4"	FJS90-12-12	FJC90-12-12
dash 16	1"	FJS90-16-16	FJC90-16-16
dash 20Z	1 1/4"	FJS90-20Z-20	FJC90-20Z-20



Nominal PTFE Hose Insertion Tool and Dies

Feature:

- Designed to take the hassle out of installing crimp collars onto braided PTFE Hose. With a few simple steps even challenging braids can be easily and safely inserted into the crimp collar.

Description	Size	Part #
tool / die holder	---	ITDH
die	dash 4	ITD-04
die	dash 5	ITD-05
die	dash 6	ITD-06
die	dash 8	ITD-08
die	dash 10	ITD-10
die	dash 12	ITD-12
die	dash 16	ITD-16



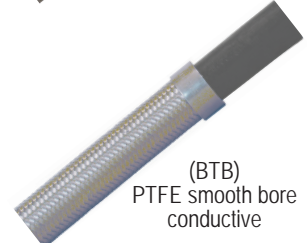
True ID

Application:

- suitable for conveying acids, chemicals, foods and pharmaceuticals

Features:

- range: ¼" to 2"
- temperature range: **-100°F to 450°F** (-73°C to 232°C)
- 304 stainless braided
- other braids including synthetic, extruded and heat shrink coverings are available upon request

True ID Hose (*fittings not included*)

True ID Open Pitch Convolute Hose

Part #	Hose Dimension			Bend Radius Static	PSI		Approximate Weight / Ft. Lbs.	Vacuum (in HG)
	Size	ID	OD		Working	Burst		
WOC or BOC-04	¼"	¼"	0.410	0.75	1500	6000	0.18	29.9
WOC or BOC-06	⅜"	⅜"	0.595	1	1500	6000	0.23	29.9
WOC or BOC-08	½"	½"	0.744	1.5	1600	6400	0.27	29.9
WOC or BOC-10	⅝"	⅝"	.906	1.97	1300	5230	0.33	29.9
WOC or BOC-12	¾"	¾"	1.039	2	1015	4060	0.43	29.9
WOC or BOC-16	1"	1"	1.299	2.5	725	2900	0.63	29.9
WOC or BOC-20	1¼"	1 ¼"	1.594	3	650	2600	0.75	29.9
WOC or BOC-24	1½"	1 ½"	1.850	3.75	580	2320	0.88	29.9
WOC or BOC-32	2"	2"	2.402	4.75	522	2088	1.11	29.9
WOC or BOC-48	3"	3"	3.705	12.2	290	1160	1.82	29.9
WOC or BOC-64	4"	4"	4.921	16	220	880	2.10	29.9

Heavy Wall True ID Smooth Bore Hose

Part #	Hose Dimension			Bend Radius Static	PSI		Approximate Weight / Ft. Lbs.	Vacuum (in HG)
	Size	ID	OD		Working	Burst		
WTB or BTB-04	¼"	¼"	0.24	1.5	3400	13600	0.05	full
WTB or BTB-06	⅜"	⅜"	0.37	2.95	2600	10150	0.08	full
WTB or BTB-08	½"	½"	0.505	5	2000	7830	0.13	full
WTB or BTB-10	⅝"	⅝"	0.632	5.98	1800	6960	0.16	full
WTB or BTB-12	¾"	¾"	0.886	7.99	1305	5220	0.22	full
WTB or BTB-16	1"	1"	1.155	12.01	1000	4000	0.34	20.1
WTB or BTB-20	1¼"	1¼" DB	1.2411	13.98	1650	6525	0.36	20.1
WTB or BTB-24	1½"	1½" DB	1.74	15.75	1100	4350	0.43	15.5

True ID Fittings



Female JIC Swivel

*Crimp collars for all True ID fittings are
sold separately*



Rigid Male Pipe

Size	Carbon Steel Part #	316 Stainless Steel Part #
¼"	FJC-T04	FJR-T04
⅜"	FJC-T06	FJR-T06
½"	FJC-T08	FJR-T08
¾"	FJC-T12	FJR-T12
1"	FJC-T16	FJR-T16
1¼"	FJC-T20	FJR-T20
1½"	FJC-T24	FJR-T24
2"	FJC-T32	FJR-T32

Size	Carbon Steel Part #	316 Stainless Steel Part #
¼"	MPC-T04	MPR-T04
⅜"	MPC-T06	MPR-T06
½"	MPC-T08	MPR-T08
¾"	MPC-T12	MPR-T12
1"	MPC-T16	MPR-T16
1¼"	MPC-T20	MPR-T20
1½"	MPC-T24	MPR-T24
2"	MPC-T32	MPR-T32

True ID Fittings



Sanitary Tri-Clamp

Hose Size	Clamp Size	316 Stainless Steel Part #
1/2"	1"	TCR-T08-16
1/2"	1 1/2"	TCR-T08-24
3/4"	1 1/2"	TCR-T12-24
1"	1"	TCR-T16-16
1"	1 1/2"	TCR-T16-24
1 1/2"	1 1/2"	TCR-T24-24
2"	2"	TCR-T32-32



Mini Sanitary Tri-Clamp

Size	316 Stainless Steel Part #
1/2"	TCMR-T08
3/4"	TCMR-T12

Convuluted Crimp Collars

Features:

- for open pitch convuluted PTFE hose only
- specifically designed for ease of installation and improved appearance of finished crimp



Size	Carbon Steel Part #	304 Stainless Steel Part #
1/4"	CSC-T04-1	SSC-T04-1
3/8"	CSC-T06-1	SSC-T06-1
1/2"	CSC-T08-1	SSC-T08-1
3/4"	CSC-T12-1	SSC-T12-1
1"	CSC-T16-1	SSC-T16-1
1 1/4"	CSC-T20-1	SSC-T20-1
1 1/2"	CSC-T24-1	SSC-T24-1
2"	CSC-T32-1	SSC-T32-1

Smooth Bore Crimp Collars

Features:

- for True ID smooth bore PTFE hose only
- specifically designed for ease of installation and improved appearance of finished crimp



Size	Carbon Steel Part #	304 Stainless Steel Part #
1/4"	CSC-T04-2	SSC-T04-2
3/8"	CSC-T06-2	SSC-T06-2
1/2"	CSC-T08-2	SSC-T08-2
3/4"	CSC-T12-2	SSC-T12-2
1"	CSC-T16-2	SSC-T16-2
1 1/4"	CSC-T20-2	SSC-T20-2
1 1/2"	CSC-T24-2	SSC-T24-2

Contact Dixon Specialty Products at 888.226.4673 for assembly instructions and crimp recommendations.

Flange Retainers

Feature:

- for use with lap joint flanges



Size	316 Stainless Steel Part #	316 Stainless Steel PTFE Encapsulated Part #
1/2"	FRR-T08	---
3/4"	FRR-T12	FRRE-T12
1"	FRR-T16	FRRE-T16
1 1/4"	FRR-T20	FRRE-T20
1 1/2"	FRR-T24	FRRE-T24
2"	FRR-T32	FRRE-T32

PTFE Flare Through



Application:

- widely used in the food, dairy, beverage, cosmetic and pharmaceutical industries

Features:

- convoluted PTFE inner-core tube extruded through the fittings and flared around the stub end protects and controls the environment from material being transferred
- Flare Through design reduces potential entrapment areas and promotes smooth flow of materials.

Materials:

- ends: outfitted with True ID fittings for higher pressure applications
- tube: available in non-conductive and black conductive tubing
- 316 stainless steel wire braid
- available for full vacuum applications

Swivel Joints

Application:

- Used wherever a leak-proof swivel connection is needed in pipelines or in combination with hoses to eliminate hose twisting.
- Typical uses are loading terminals, water treatment plants, BOF lance hoses, arc furnace roof supply hoses or roll stand water in the hot strip mill.

Features:

V-Ring Style:

- available in pressure ratings up to 1,000 PSI
- spring-loaded triple V-ring sealing system ensures a leak-proof seal at either high or low pressure and extends seal life
- 3" - 8" carbon steel swivels are manufactured from carbon steel with laser hardened dual raceways for greater load bearing capacity and longer life.

O-Ring Style:

- available in pressure ratings up to 1,000 PSI
- O-ring pressure seal ensures a leak-proof seal and smoother rotation at lower torques
- spring-loaded PTFE pressure seals are available through 3"
- carbon steel and stainless steel O-ring type swivels provide strength and corrosion resistance when needed for lower torque applications.

Materials:

- carbon steel, stainless steel, aluminum, brass and malleable iron

Sizes:

- 1" to 8", depending on model and configuration



Options Available:

- any combination of end configurations
- seal options: Buna, FKM, PTFE, EPDM and FDA Buna
- ball bearing materials: carbon steel, 440 stainless steel and 316 stainless steel
- grease materials: Standard, FDA approved/food grade and silicone
- drain holes or counter balance lugs
- swivels for oxygen service, steam service and submerged service can be specifically designed for unique applications (special order)
- 100% full penetration welding and oxygen cleaning available upon request
- rebuild kits available

Use with Hose:

The use of swivel joints to compensate for twist in hose (i.e. Style 20 or Style 60) should be carefully reviewed, since the hose must be sufficiently stiff to generate the torque needed to actuate the swivel before it kinks.

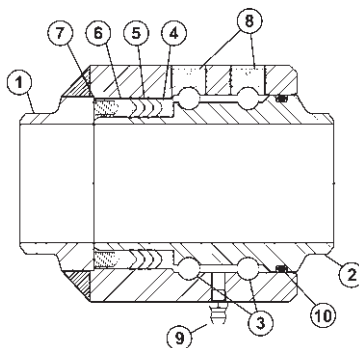
In many installations, the twist is caused by lateral movement that can be eliminated by the use of a swivel joint that addresses the lateral movement (i.e. Style 40 or Style 30).

Where this is not possible, the use of hose swivels may be a solution. Hose swivels are generally non-ball bearing designs that require less torque to initiate rotation; however, hose swivels are not designed for load bearing service.

Some hoses are unable to generate even the low torque required for a hose swivel, many metal hoses fall into this group. Other hoses are stiff enough to turn almost any swivel, many armored hoses fall into this group.

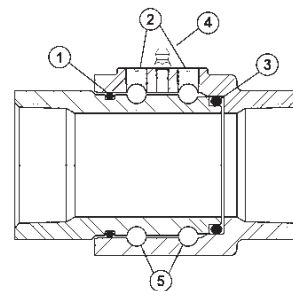
V-Ring Parts Identification List

1. body
2. sleeve
3. ball bearings
4. seal retainer
5. V-ring pressure seal
6. spring retainer
7. spring
8. ball retainer screw
9. grease fitting
10. O-ring dust seal



O-Ring Parts Identification List

1. O-ring dust seal
2. ball retainer screw
3. V-ring pressure seal
4. grease fitting
5. ball bearings



Ordering Information - Swivels

To select the proper swivel joint you need the following information:

Size: _____ Style (shape): _____

End Configuration: _____ Material: _____

Maximum Working Pressure: _____ Temperature Range: _____

Product being handled: (if a chemical, please advise concentration) _____

If for constant rotation, advise RPM: _____

If for suction service, advise maximum vacuum in inches of Mercury (Hg): _____

Our factory sales and engineering staff will be happy to help you evaluate your swivel application. Please call 888.226.4673.

Part Number Configuration

	<i>swivel size</i>	<i>swivel style</i>	<i>end configuration</i>		<i>end configuration</i>	<i>swivel material</i>	<i>pressure seal (Buna-N standard)</i>	<i>dust seal (Buna-N standard)</i>	<i>retainers (V-Ring ONLY)</i>	<i>ball bearings (carbon steel standard)</i>	<i>grease</i>
Example	<u>2</u>	<u>20</u>	<u>F</u>	X	<u>F</u>	<u>CS</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>
	[A]	[B]	[C]		[C]	[D]	[E]	[F]	[G]	[H]	[I]

[A] Size

[B] Style (see diagrams)

[C] End Connections	W Weld End	F Female End	FG 150# ASA Flange	TF Tank Truck Flange	PF 300# ASA flange (not available on aluminum)
[D] Material	CS (V-Ring) carbon steel	SS (V-Ring) stainless steel	AL aluminum	BR brass	MI malleable iron
	OC (O-Ring) carbon steel	OS (O-Ring) stainless steel			

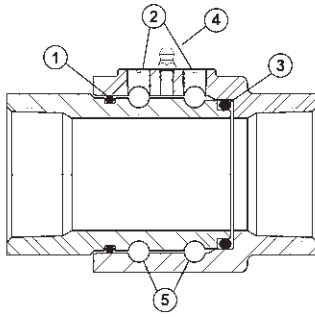
Code #	[E] Pressure Seal	[F] Dust Seal	[G] Retainers	[H] Ball Bearings	[I] Grease
0	Buna-N (standard)	Buna-N (standard)	No retainers (O-ring swivels)	Carbon steel (standard)	Standard
1	FKM	FKM	Aluminum (standard in CS V-ring)	440 grade stainless	FDA approved/ Food grade
2	PTFE	---	PTFE (standard in SS V-ring)	316 grade stainless	Silicone (required with EPR seals)
3	Ethylene Propylene (requires silicone grease)	Ethylene Propylene (requires silicone grease)	---	---	---
4	FDA Buna	FDA Buna	---	---	---

The swivel should be packed so that the surfaces coming in contact with the fluid being handled are compatible with that fluid. In the case of the use of the swivel in submerged service this would include the dust seals and ball bearings.

Dixon always recommends the use of stainless steel ball bearings when building a swivel for submerged service since the standard carbon steel bearings could rust together making it impossible to disassemble the swivel and possibly affecting its operation.

O-Ring Swivel Joints

O-Ring Parts Identification List



1. O-ring (dust) seal
2. ball retainer screw
3. O-ring (pressure) seal
4. grease fitting
5. ball bearings

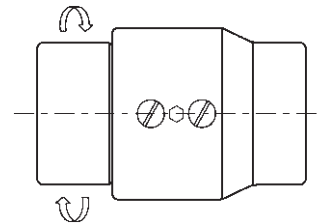
O-Ring Features:

- The O-ring pressure seal ensures a leak-proof seal at either high or low pressure and smoother rotation at lower torques than multiple seal designs.
- Spring-loaded PTFE pressure seals are available up through 3".
- Carbon steel and stainless steel O-ring type swivels provide greater strength and the corrosion resistance needed for lower torque applications.
- available in carbon steel, stainless steel, aluminum, brass and iron
- **100% full penetration welding available**

Single Plane O-Ring Style 20



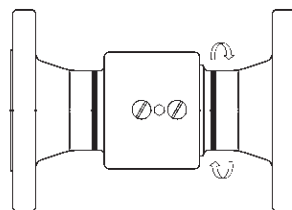
320FXFAL

female NPT x female NPT
sizes 1" - 4"

female NPT x female NPT
Buna-N seals
carbon steel ball bearings

Size	Aluminum Part #	Malleable Iron Part #
1½"	15020FXFAL00000	15020FXFMI00000
2"	220FXFAL00000	220FXFMI00000
3"	320FXFAL00000	320FXFMI00000
4"	420FXFAL00000	---

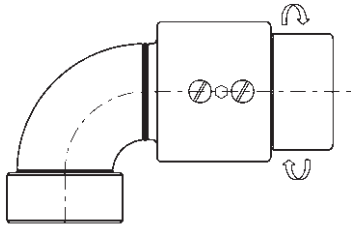
- stocked swivel joints available to ship from Dixon warehouses
- contact Dixon for additional sizes, materials and configurations

150# ASA flange x 150# ASA flange
sizes 1" - 4"

See page 21 for other options available.

O-Ring Swivel Joints

Single Plane O-Ring Style 30



female NPT x female NPT
sizes 1" - 4"

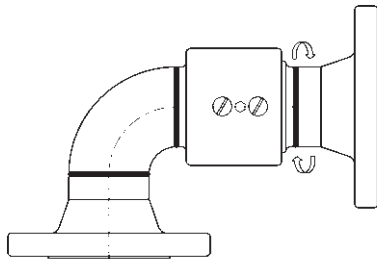


230FXFAL

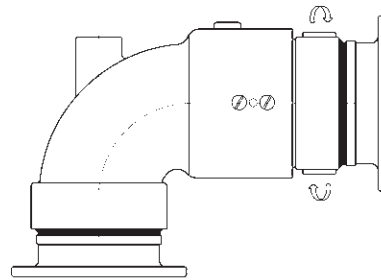
**female NPT x female NPT
Buna-N seals
carbon steel ball bearings**

Size	Aluminum Part #	Malleable Iron Part #
1½"	15030FXFAL00000	15030FXFMI00000
2"	230FXFAL00000	230FXFMI00000
3"	330FXFAL00000	330FXFMI00000
4"	430FXFAL00000	---

- stocked swivel joints available to ship from Dixon warehouses
- contact Dixon for additional sizes, materials and configurations



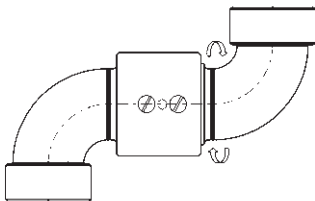
150# ASA flange x 150# ASA flange
sizes 1" - 4"



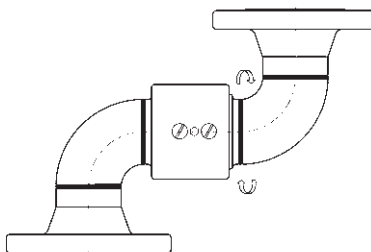
tank truck flange x tank truck flange
sizes 2" - 4"

See page 21 for other options available.

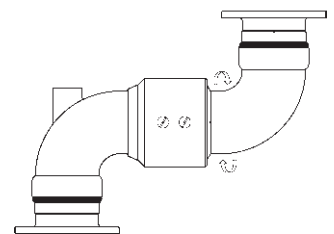
Single Plane O-Ring Style 40



female NPT x female NPT
sizes 1" - 4"

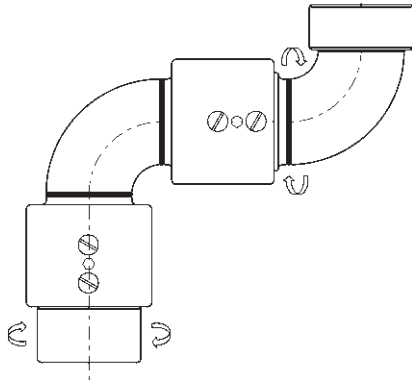


150# ASA flange x 150# ASA flange
sizes 1" - 4"

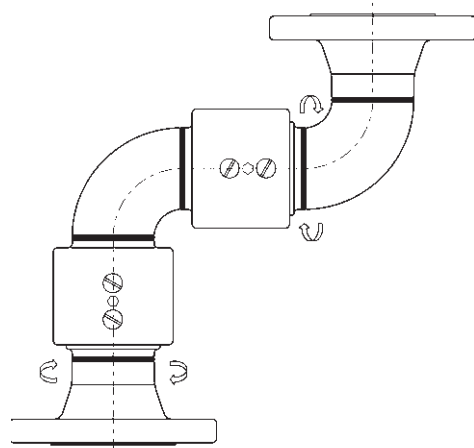


tank truck flange x tank truck flange
sizes 2" - 4"

Double Plane O-Ring Style 50

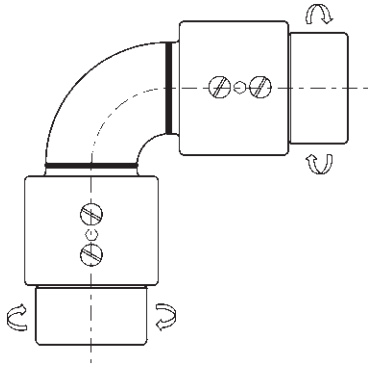


female NPT x female NPT
sizes 1" - 4"

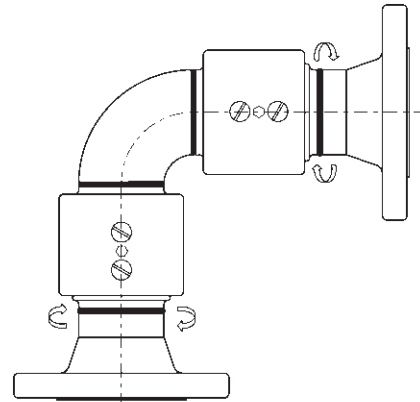


150# ASA flange x 150# ASA flange
sizes 1" - 4"

Double Plane O-Ring Style 60

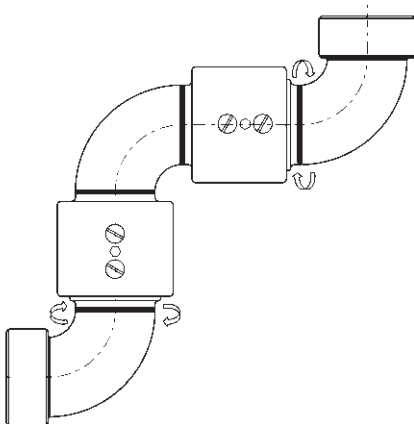


female NPT x female NPT
sizes 1" - 4"

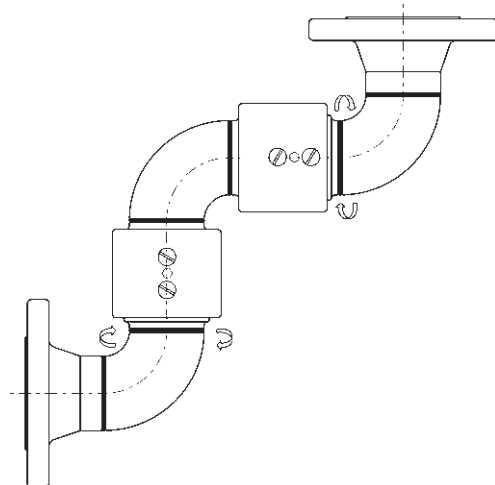


150# ASA flange x 150# ASA flange
sizes 1" - 4"

Double Plane O-Ring Style 70



female NPT x female NPT
sizes 1" - 4"

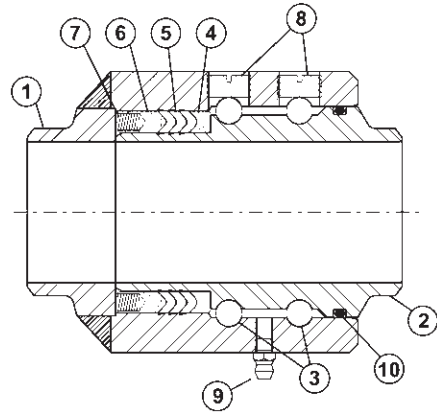


150# ASA flange x 150# ASA flange
sizes 1" - 4"

V-Ring Swivel Joints

V-Ring Parts Identification List

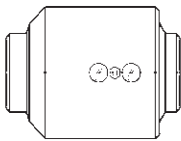
1. body
2. sleeve
3. ball bearings
4. seal retainer
5. V-ring (pressure) seal
6. spring retainer
7. spring
8. ball retainer screw
9. grease fitting
10. O-ring (dust) seal



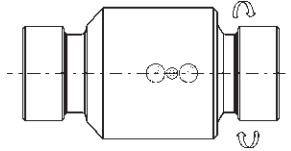
V-Ring Features:

- The spring-loaded triple V-ring sealing system ensures a leak proof seal at either high or low pressure and an extended seal life compared to the conventional single O-ring design.
- The 3" - 8" carbon steel swivels are manufactured from carbon steel with laser hardened dual raceways for greater load bearing capacity and longer life.
- The stainless steel swivels are manufactured in 316 grade stainless steel for superior corrosion resistance.
- available with pressure ratings to 1,000 PSI
- available in carbon steel, stainless steel and aluminum
- **100% full penetration welding available**

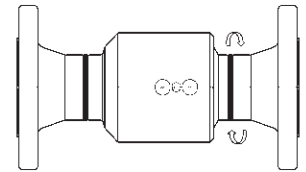
Single Plane V-Ring Style 20



weld end x weld end
sizes 2" - 8"

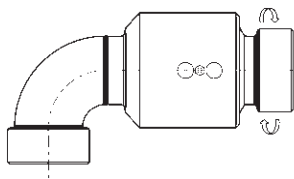


female NPT x female NPT
sizes 2" - 6"

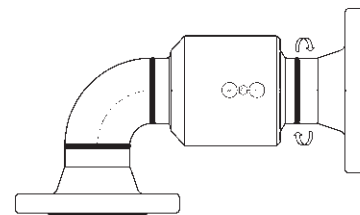


150# ASA flange x 150# ASA flange
sizes 2" - 8"

Single Plane V-Ring Style 30

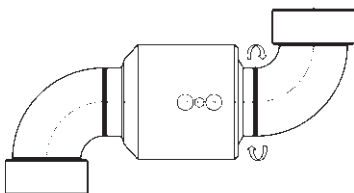


female NPT x female NPT
sizes 2" - 6"

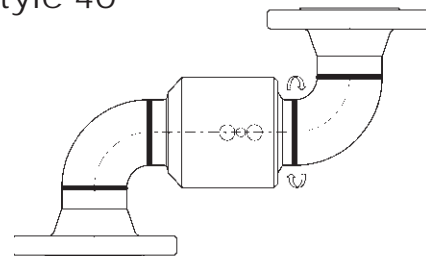


150# ASA flange x 150# ASA flange
sizes 2" - 8"

Single Plane V-Ring Style 40

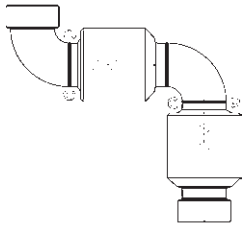


female NPT x female NPT
sizes 2" - 6"

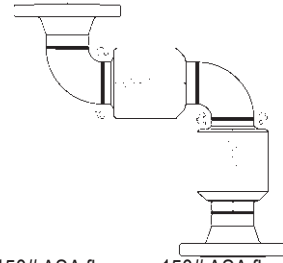


150# ASA flange x 150# ASA flange
sizes 2" - 8"

Double Plane V-Ring Style 50

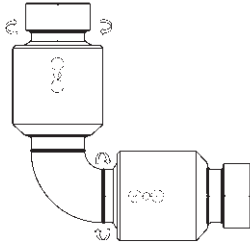


female NPT x female NPT
sizes 2" - 6"

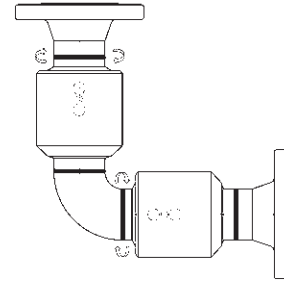


150# ASA flange x 150# ASA flange
sizes 2" - 8"

Double Plane V-Ring Style 60

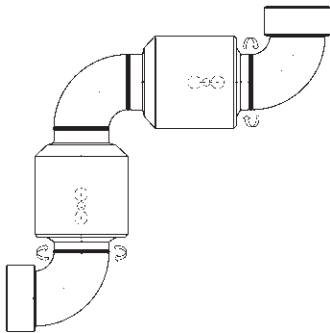


female NPT x female NPT
sizes 2" - 6"

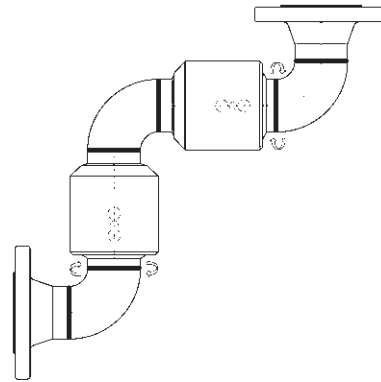


150# ASA flange x 150# ASA flange
sizes 2" - 8"

Double Plane V-Ring Style 70

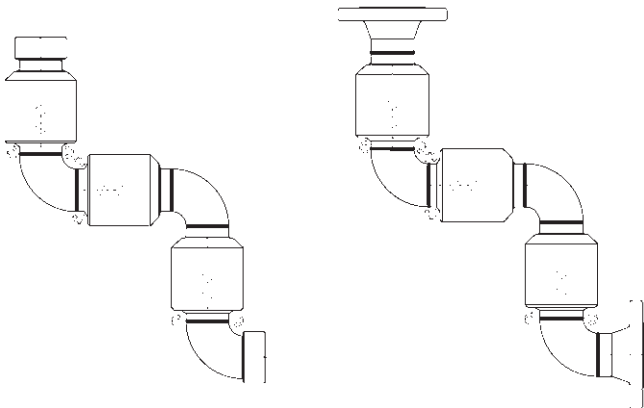


female NPT x female NPT
sizes 2" - 6"

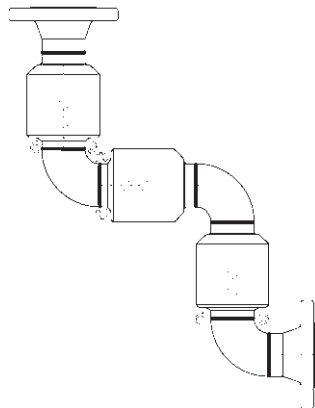


150# ASA flange x 150# ASA flange
sizes 2" - 8"

Triple Plane V-Ring Style 80

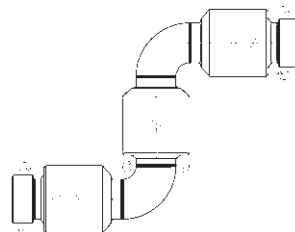


female NPT x female NPT
sizes 2" - 6"

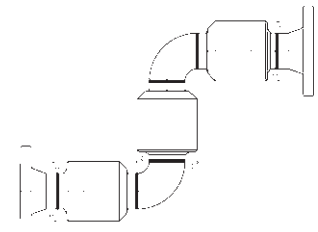


150# ASA flange x 150# ASA flange
sizes 2" - 8"

Triple Plane V-Ring Style 10



female NPT x female NPT
sizes 2" - 6"



150# ASA flange x 150# ASA flange
sizes 2" - 8"

Type 35 Loading Arm Swivel

Features:

- TTMA loading arm swivel with D style shovel handle
- TTMA flanges on both ends
- shovel handle is used to guide the API load coupler onto the adapter on the tank truck
- long radius elbow improves the flow into the API load coupler and provides spacing between the load arm and the tank truck

Size	Description	Aluminum Part #
4"	style 40 tank truck x Buna tank truck flange	44HTFXTFAL00000
4"	style 40 tank truck x FKM tank truck flange	44HTFXTFAL11000
4"	style 30 tank truck x Buna tank truck flange	43HTFXTFAL00000
4"	style 30 tank truck x FKM tank truck flange	43HTFXTFAL11000



style 40



style 30

Type 35 Loading Arm Swivel Replacement Parts

Description	Part #
4" aluminum nipple	ATN100x7
D style shovel handle	100DHAN-AL
Buna repair kit	4RKOBU
FKM repair kit	4RKOVIVI

Split Flange Swivel

Design:

- wide set bearing race allow higher moment load
- compact design allows for low profile applications
- split flange bearing pack design allows easy change of seals without removing the ball bearings

Features:

- pressure rating: up to 580psi
- temperature: -35° F to 350°F, depending on seal material
- seals: Baylast™ proprietary blend and FKM
- size: 2", 3" and 4"
- material: bearing pack is a high carbon alloy with both SS and CS end options
- full penetration weld available

Options Available:


- standard: style 20, other styles available upon request
- end configurations: SS or CS 150# and 300# Flanges, FNPT, and Butt Weld
- oxygen cleaning available upon request

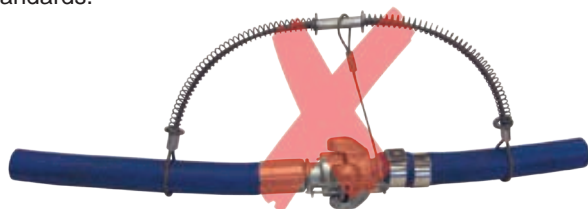


Split Flange Swivel series can be substituted for traditional swivel joint applications where a higher moment load capacity is required

King Safety Cables

Features:

- must be installed in the extended position (no slack) 
- cable reaches across hose fittings to provide standby safety for hose
- spring-loaded loops in the cable ends open easily to pass over the couplings for a firm grip on the hose
- no tools needed - easy to install and remove
- cables shipped with safety restraint labels attached
- highly resistant to rust and corrosion
- low cost answer to reducing injuries caused by broken air hose connections
- hose-to-hose or hose-to-rigid outlet
- maximum operating pressure: **200 PSI**
- When hose, couplings or clamps fail, or there is an accidental separation of the assembly, King safety cables minimize damage to equipment and injuries to operators. A positive safeguard for air hose connections - helping you meet today's safety standards.



incorrect installation



correct installation



hose end

tool end

Style WSR, for hose-to-tool service

Hose ID	Cable	Length	Maximum Working Pressure (PSI)	Steel Part #	Stainless Steel Part #
1/2" - 1 1/4"	1/8"	20 1/4"	200	WSR1	WSR1SS
1/2" - 2"	3/16"	28"	200	WSR3	---
1 1/2" - 3"	1/4"	38"	200	WSR2	WSR2SS
4"	3/8"	44"	200	WSR4	---



hose end

hose end

Style W, for hose-to-hose service

Hose ID	Cable	Length	Maximum Working Pressure (PSI)	Steel Part #	Stainless Steel Part #
1/2" - 1 1/4"	1/8"	20 1/4"	200	WB1	WB1SS
1/2" - 2"	3/16"	28"	200	WB3	---
1 1/2" - 3"	1/4"	38"	200	WA2	WA2SS
4"	3/8"	44"	200	WA4	---

King Safety Cable Options

**WB1C**

WB1 with safety clip and lanyard

**WSR1E**

WSR1E with stainless steel marine eye


Hose ID	Cable	Part #	Description	Max. Work. Press. PSI
1/2" - 1 1/4"	1/8"	WSR1C	WSR1 with safety clip and lanyard used to lock Air King couplings	200
1/2" - 1 1/4"	1/8"	WB1C	WB1 with safety clip and lanyard used to lock Air King couplings	200
1/2" - 1 1/4"	1/8"	WSR1E	WSR1 with stainless steel safety marine eye used to connect safety cable to a bolt on tool	200
1 1/2" - 3"	1/4"	WA2B	WA2 with bronze/copper ferrule for special environmental conditions	200

King Safety Whipsock

Application:

- used in high pressure applications such as air, water, hydraulic and slurry
- hose-to-rigid outlet and hose-to-hose

Features:

- King Safety Whipsocks keep the hose under control in the event of a high-pressure hose assembly failure.
- dual anchor points secured beyond the fittings
- be sure the anchoring points are rated for the application 
- galvanized steel woven stockings extend down the hose to grip securely over a larger area preventing whip, abrasion and wear
- contact Dixon with questions regarding working pressure, available options or custom configurations

Size	OD Range	Length	Max. Working Pressure PSI	Galvanized Steel Part #
3/8"	.315" - .5512"	15.75"	5000	KSW06
1/2"	.5512" - .7874"	21.65"	3000	KSW08
3/4"	.7874" - 1.181"	25.20"	2000	KSW12
1"	1.181" - 1.575"	34.25"	1500	KSW16
1 1/4"	1.575" - 1.969"	38.19"	1000	KSW20
1 1/2"	1.969" - 2.362"	49.21"	700	KSW24
2"	2.362" - 2.756"	51.18"	1300	KSW32
2 1/2"	2.756" - 3.346"	53.15"	800	KSW40
3"	3.346" - 3.937"	72.44"	750	KSW48
3 1/2"	3.937" - 4.724"	72.05"	550	KSW56
4"	4.724" - 5.512"	86.61"	550	KSW64
6"	5.512" - 7.087"	93.31"	250	KSW96



Spring End Guard



with tang



without tang

Features:

- protects hose against the effects of flexing at its most vulnerable point - immediately behind the coupling
- optional end tang allows end guard to be secured under a clamp or ferrule
- wire fits most hose OD's from 1/2" to 3 1/4", contact Dixon Specialty Products for custom sizes or lengths

Guard ID	Wire Gauge	Overall Length	Tang Length	Approx. # of Coils per Feet	Galvanized Steel with Tang Part #	304 Stainless Steel with Tang Part #	Galvanized Steel without Tang Part #	304 Stainless Steel without Tang Part #
3/4"	0.175	12"	1"	33	SEGC1-0.75-12	SEGS1-0.75-12	SEGC0-0.75-12	SEGS0-0.75-12
1"	0.175	12"	1"	33	SEGC1-1.00-12	SEGS1-1.00-12	SEGC0-1.00-12	SEGS0-1.00-12
1 1/4"	0.175	14"	2"	39	SEGC1-1.25-14	SEGS1-1.25-14	SEGC0-1.25-14	SEGS0-1.25-14
1 1/2"	0.175	14"	2"	39	SEGC1-1.50-14	SEGS1-1.50-14	SEGC0-1.50-14	SEGS0-1.50-14
1 3/4"	0.175	16"	2"	44	SEGC1-1.75-16	SEGS1-1.75-16	SEGC0-1.75-16	SEGS0-1.75-16
2"	0.280	16"	2"	44	SEGC1-2.00-16	SEGS1-2.00-16	SEGC0-2.00-16	SEGS0-2.00-16
2 1/2"	0.280	18"	2"	50	SEGC1-2.50-18	SEGS1-2.50-18	SEGC0-2.50-18	SEGS0-2.50-18
3"	0.280	18"	2"	50	SEGC1-3.00-18	SEGS1-3.00-18	SEGC0-3.00-18	SEGS0-3.00-18

Continuous Spring Guard

- protects hose from external abrasion and helps resist over flexing
- fits tight to hose reducing the potential for snagging
- contact Dixon Specialty Products for custom lengths or sizes

Guard ID	Wire Gauge	Overall Length	Approx. # of Coils per Feet	Galvanized Steel Part #	304 Stainless Steel Part #
3/4"	0.175	25'	33	CWG-C-0.75-25	CWG-S-0.75-25
1"	0.175	25'	33	CWG-C-1.00-25	CWG-S-1.00-25
1 1/4"	0.175	25'	33	CWG-C-1.25-25	CWG-S-1.25-25
1 1/2"	0.175	25'	33	CWG-C-1.50-25	CWG-S-1.50-25
1 3/4"	0.175	25'	33	CWG-C-1.75-25	CWG-S-1.75-25
2"	0.280	25'	33	CWG-C-2.00-25	CWG-S-2.00-25
2 1/2"	0.280	25'	33	CWG-C-2.50-25	CWG-S-2.50-25
3"	0.280	25'	33	CWG-C-3.00-25	CWG-S-3.00-25



Technical Information for GSM Hose

Assembly Installation

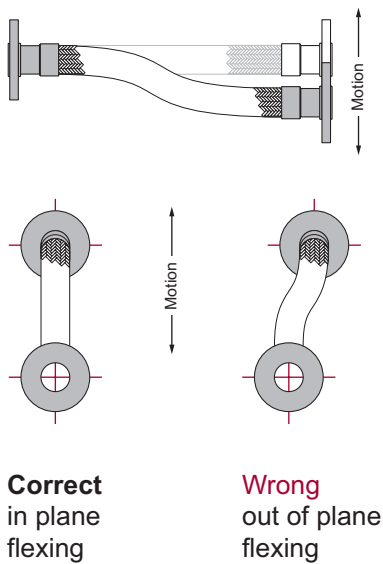
GSM hose is engineered to provide maximum service life when properly installed. Improper installation, incorrect flexing or careless handling in an application will reduce the effective service life of the hose and cause premature failure of an assembly. The following installation and handling precautions should be observed to achieve optimum performance from your corrugated hose assemblies.

Avoid torque.

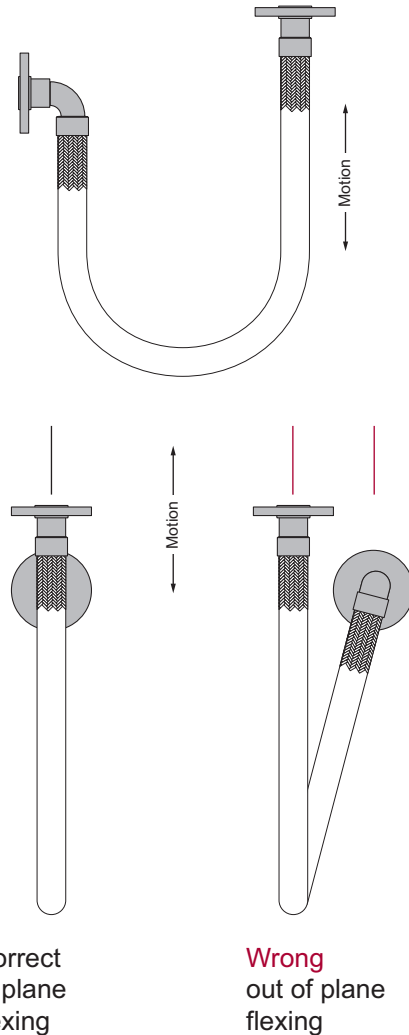
Do not twist the hose assembly during installation when aligning the bolt holes in a flange or in making up pipe threads. The utilization of lap joint flanges or pipe unions will minimize this condition. It is recommended that two wrenches be used in making the union connection; one to prevent the hose from twisting and the other to tighten the coupling.

In plane lateral offset installation

Prevent out-of-plane flexing in an installation. Always install the hose so that the flexing takes place in only one plane. This plane must be the plane in which the bending occurs.



In plane traveling loop installation

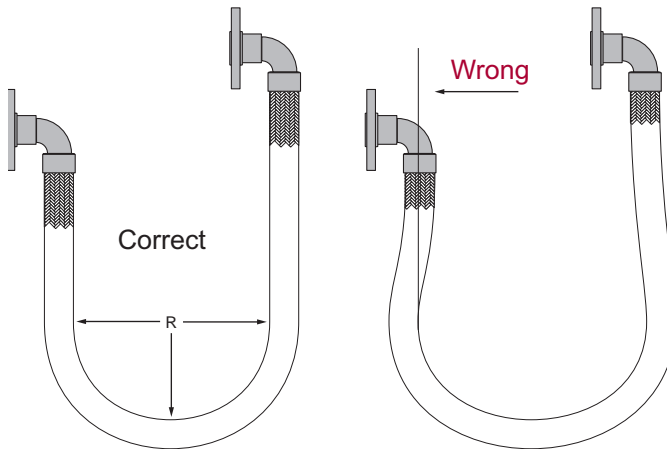


Technical Information for GSM Hose

Assembly Installation (continued)

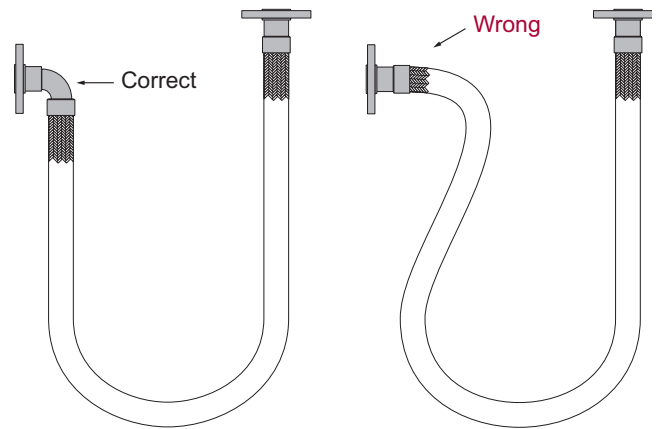
Avoid over bending.

The repetitive bending of a hose to a radius smaller than the radius listed in the specification tables for corrugated hose will result in premature hose failure. Always provide sufficient length to prevent over bending and to eliminate strain on the hose.



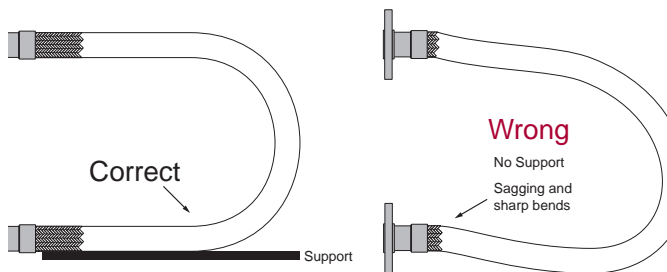
Avoid sharp bends.

Utilize sound geometric configurations that avoid sharp bends, especially near the end fittings of the assembly.



Provide support.

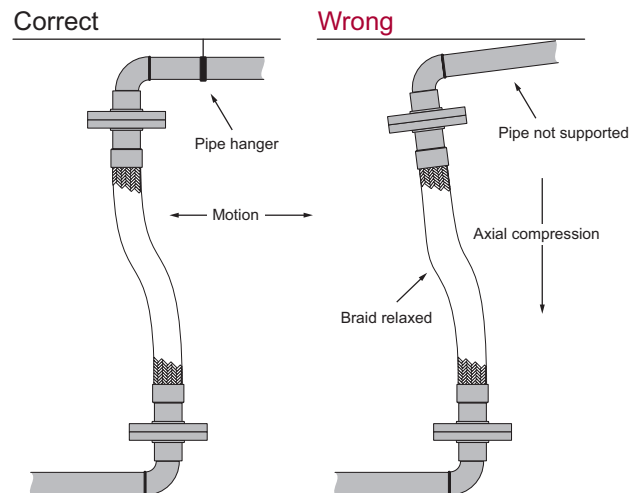
When installing the assembly in a horizontal loop, provide support for the arms to prevent the hose from sagging.



Do not extend or compress axially.

A piping system which utilizes GSM hose to absorb movement must be properly anchored and/or guided.

Always support the piping to prevent excessive weight from compressing the hose and relaxing the braid tension.



Technical Information for GAM Hose

Pressure Loss and Flow Velocity Information

Pressure Loss

For the same flow characteristics, the pressure loss is higher in metal hoses than rigid piping, due to the profile of the corrugations. As a rough estimation, expect the pressure loss in corrugated hoses to be 150 percent higher than in new, smooth steel pipes.

Flow Velocity Consideration

The flow velocity in corrugated metal hose should never exceed 150 ft./sec. for gas or 75 ft./sec. for liquids. When a hose is installed in a bent condition, the flow values should be reduced proportionally to the degree of the bend. Where the flow velocity exceeds these rates, an interlocked metal hose liner or larger hose ID is recommended.

Classification of Motion

Random Motion

Such motion is non-predictable and occurs from the manual handling of a hose assembly. Care must be taken to prevent over-bending of the hose and to avoid external abrasion of the wire braid. An armor covering of **GSM Ball Joint Armor** provides protection against these abuses.

Axial Motion

This type of motion occurs when there is extension or compression of the hose along its longitudinal axis. This class of motion is restricted to unbraided corrugated hose only and is accommodated by traveling loops.

Angular Motion

This type of motion occurs when one end of a hose assembly is deflected in a simple bend with the ends not remaining parallel.

To find the live hose length:

$$L = R\theta/180 + 2(s)$$

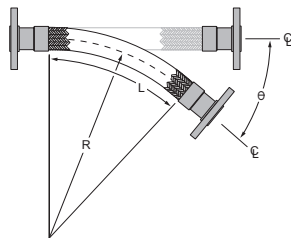
L = Live Hose Length (inches)

$$\pi = 3.1416$$

R = Minimum Centerline Bend Radius — Dynamic (in.)

θ = Angular Deflection (degrees)

S = Outside Diameter of Hose



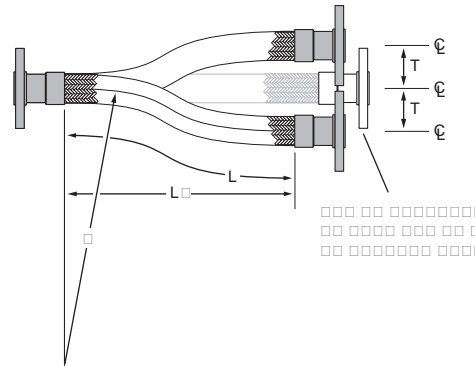
Minimum Bend Radius Occurs at Offset Position

Moving end is free to move "out of line" at neutral position.

To find the live hose length:

$$L = \sqrt{6(RT) + T^2}$$

$$L_p = \sqrt{L^2 - T^2}$$



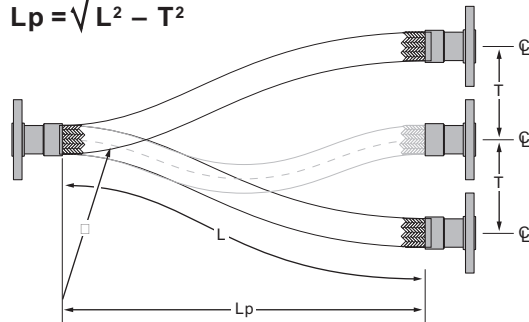
Minimum Bend Radius Occurs at Crowded Position

Moving end of hose is restricted to move only up and down as hose crosses neutral position.

To find the live hose length:

$$L = \sqrt{20(RT)}$$

$$L_p = \sqrt{L^2 - T^2}$$



Offset Motion

Offset motion occurs when one end of the hose assembly is deflected in a plane perpendicular to the longitudinal axis with the ends remaining parallel. This movement can be due to a one-time (static) bend or movement which repeatedly occurs slowly over time (such as thermal expansion).

- The appropriate formula to use to calculate Live Hose Length depends on the condition of the moving end.
 - When the offset motion occurs to both sides of the hose centerline, use total travel in the formula; i.e., $2 \times "T"$.
 - The offset distance "T" for constant flexing should never exceed 25 percent of the centerline bend radius "R".
- If the difference between "L" and "Lp" is significant, exercise care at installation to avoid stress on hose and braid at the maximum offset distance.

L = Live Hose Length (inches)

Lp = Projected Live Hose Length (inches)

R = Minimum Centerline Bend Radius — Dynamic (in.)

T = Offset Motion to One Side of Centerline (inches)

Technical Information for GAM Hose

Classification of Motion (continued)

Traveling Loops

In a piping system where axial movement must be accommodated or where the magnitude of the motion is in excess of the limits of an offset movement, the traveling loop configuration offers an ideal solution. In traveling loops, the centerline of a hose assembly is bent in a circular arc. Traveling loops accommodate movement in one of two ways. A constant radius traveling loop accommodates motion by varying the length of the arms of the assembly while the radius remains constant. A variable radius traveling loop accommodates motion by varying the bend radius of the hose assembly. Both types of traveling loops can be installed to absorb either horizontal or vertical movement. The constant radius traveling loop provides for greater movement while the variable radius traveling loop requires less installation space.

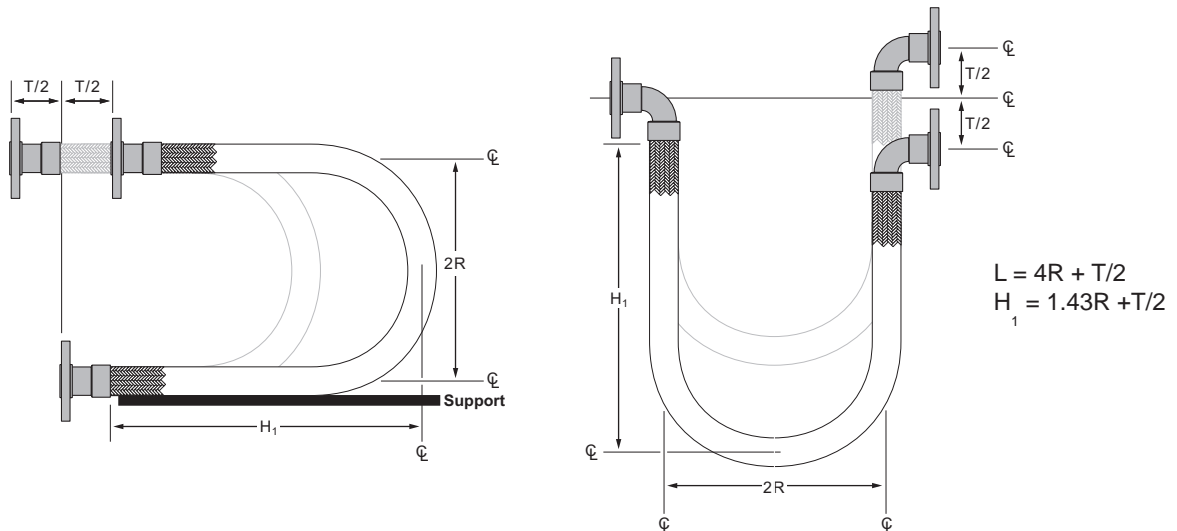
L = Live Hose Length (inches)

R = Minimum Centerline Bend Radius for Constant Flexing (inches)

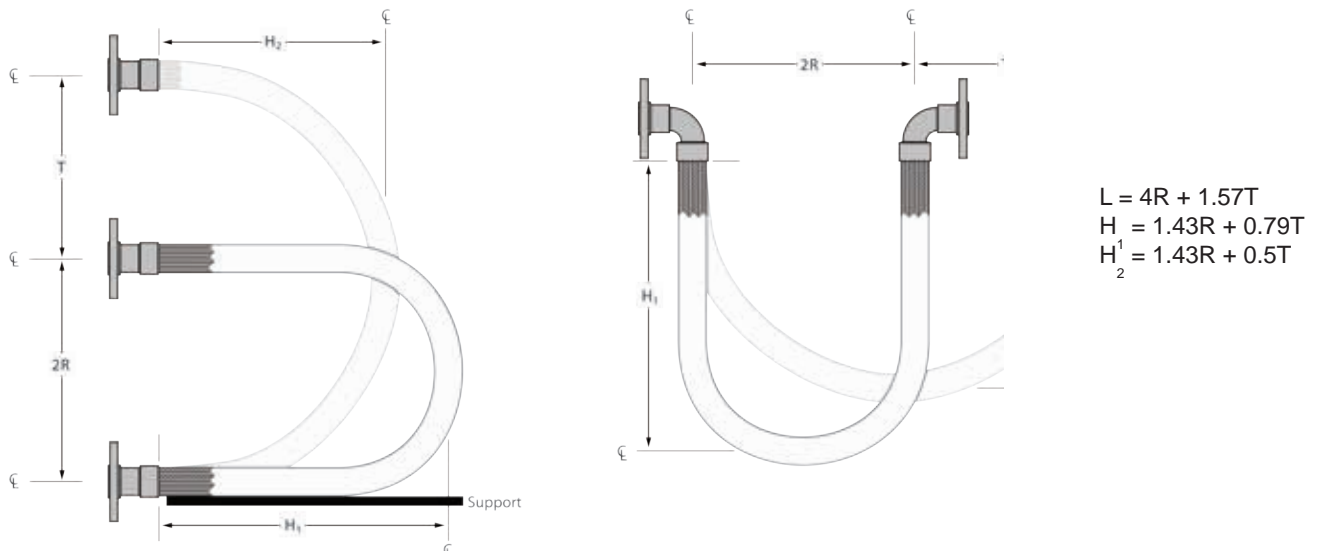
T = Total Travel (inches)

H = Hang Length of the Loop (inches)

Constant Radius Traveling Loop – Class A

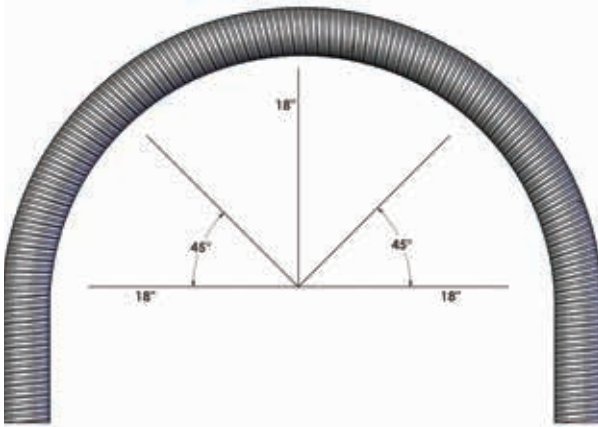


Variable Radius Traveling Loop – Class B



Technical Information for GAM Hose

Flexibility and Bend Radius



Bending a hose to a smaller bend radius than the hose is rated to may damage the hose and result in premature failure. The bend radius for the given application must be equal to or greater than the rated minimum bend radius.

Note: see page 40 for definition

The minimum bend radius is defined as the radius at which the hose can be bent in service without damaging or significantly shortening the life of the assembly.

Using the minimum bend radius and the angle at which the hose is bent, you can calculate the minimum length of hose needed to make the bend. Note: This is the live length of the hose required not the length of the entire hose assembly.

Formula:

$$\frac{A}{360^\circ} \times 2\pi B = L$$

For example, a 3" hose bent at 180° needs a minimum live length of 53.88" or 1,356mm given its minimum bend radius of 17"

$$\left(\frac{180}{360^\circ}\right)(2)(3.14)(17) = 53.38"$$

$$\left(\frac{180}{360^\circ}\right)(2)(3.14)(431.8) = 1,356\text{mm}$$

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Temperature Adjustment Factors

In general, the strength and therefore the pressure rating of metal hose decreases as the temperature increases. Thus, as the operating temperature of a metal hose assembly increases, the maximum allowable working pressure of the assembly decreases.

The pressure ratings shown in the specifications charts for corrugated and interlocked hose are valid at 70°F. Elevated service temperatures will decrease these pressure ratings by the factors shown in the following chart for the alloy used in the braid wire. What also must be considered is the maximum working temperature of the end fittings, of the hose and their method of attachment.

For example to calculate the maximum working pressure for:

- ¾" ID, 321 stainless steel corrugated hose
- with single-braided, 304L braid
- at 800°F

From the corrugated metal hose specification table, the maximum working pressure at 70°F is 792 PSIG. Multiply 792 PSIG by 0.73. The maximum working pressure at 800°F is 578 PSIG.

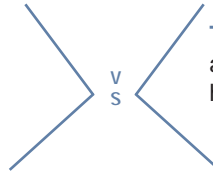
Temperature Adjustment Factor Based on Braid Alloy

Temperature (°F)	304/304L Stainless Steel	316L Stainless Steel	321 Stainless Steel
70	1.00	1.00	1.00
150	.95	.93	.97
200	.91	.89	.94
250	.88	.86	.92
300	.85	.83	.88
350	.81	.81	.86
400	.78	.78	.83
450	.77	.78	.81
500	.77	.77	.78
600	.76	.76	.77
700	.74	.76	.76
800	.73	.75	.68
900	.68	.74	.62
1000	.60	.73	.60
1100	.58	.67	.58
1200	.53	.61	.53
1300	.44	.55	.46
1400	.35	.48	.42
1500	.26	.39	.37

Technical Information for PTFE Hose

Nominal Bore PTFE Hose Explained

Nominal Bore Hose follows the SAE 100R14 tubing standard which is typically labeled in 'dash' sizes (1/16 of an inch). For example, 1/2" tubing is 1/2" OD with a slightly smaller ID. Thus, dash 8 (-08) nominal hose is 8/16" or 1/2" OD, yielding an average ID of 13/32". All manufacturers of Nominal Fluoropolymer hose follow the same nominal ID / OD standard.



True Bore Hose on the other hand follows the same ID as schedule 40 pipe; therefore, a typical 2" ID true bore hose is the exact same bore size as its mating 2" pipe.

PTFE Hose Assembly Instructions

1. Determine the cut-off length using the Overall Length Calculation (see page 36).
2. Using the calculated cut-off length, mark the hose to the desired length. Depending on the cutting option, tape can be used to reduce the flowering effect of the braid.
3. Cut the hose to desired OAL using one of the preferred hose cutting options (see page 36).
4. Making sure the interlocking step of the collar is facing the cut end of the hose, slide the collars over the braid on each end of the hose or use collar insertion tool (see page 36).
5. Prior to inserting the fittings into the hose, be sure the tube is not folded over or compromised. Using a tool, such as a nail punch, expand the ID of the hose so that the fitting may slide in the hose without folding or bunching the tube. Make sure you do not puncture or damage the hose while opening up the tube ID.
6. Push the fitting into the hose so that the step of the collar is lined up with the interlocking ring of the stem. Be sure that the fitting is securely pushed all the way in to the cut end of the hose.
7. Using the proper PTFE hose crimp specs on pages 37 and 38, determine the correct set of dies for proper reduction. While crimping, make sure the step of the collar is securely locked into the fitting. For best results, use a 2 or 3 step crimp while rotating the hose assembly hitting the high spots made by the previous pass.
8. Use a caliper to check crimp dimensions and make any macro adjustments in the finished OD.
9. All assemblies made by Dixon Specialty Products are pressurized air under water tested to 125 PSI for 15 seconds.

Technical Information for PTFE Hose

Dixon PTFE Hose Cutting Options

There are several methods to effectively cut stainless steel braided PTFE hose:

Hose Cutting Tool Options:

1. **Metal Cutting Wheel** - non-scalloped (used to cut hydraulic hose). Since Dixon PTFE braid doesn't flare much on the female side of the braid there is no need to tape the braid.
2. **Beverly Shear** - flattens the hose but does a nice job cutting the hose and braid; Dixon offers a simple ferrule tool to assist in putting on the collars (this is the preferred method of cutting stainless braided hoses).
3. **Thin Abrasive Blade** - works well except creates a lot of dirt and dust and many times you need to tape the braid

Dixon PTFE Insertion Tools:

Insertion tools are available from Dixon Specialty Products by calling 888-226-4673.

Overall Length (OAL) Calculation:

1. Select the fitting you plan to insert in the hose.
2. Measure the distance from the ferrule groove to the connection end of the fitting for each fittings.
3. Add the two end distances together and subtract this number from the assembly overall length
4. The result is the cut length of the hose.

Assembly Installation

Do...

- follow any printed instructions included with the flexible connector
- follow industry recommended practices and use care in handling and installing flexible connector
- install flexible connectors so the bend is as close to the center of the connector as possible
- observe the minimum bend radius as specified by the connector manufacturer
- trial-fit threaded connections by hand, unmake and then make permanent
- use a flexible connector of proper length to suit the installation
- only wrench on the fitting hex flats as provided
- design the installation to allow for ground movement after installation, such as settling or frost heave
- install the proper length connector to allow a 2" straight run of hose at each end fitting
- use pipe wrenches on both mating hexes to avoid twisting the hose
- keep hose free from all objects and debris
- handle and store connectors carefully prior to installation
- check for leaks before covering the installation
- install in such a manner that the connector can be removed
- make sure the pressure rating of connector is not exceeded

Don't...

- apply a wrench to a hose, collar or assembly
- twist hose assemblies during installation or when aligning the bolt holes in a flange or when making up pipe threads
- "pre-flex" a flexible connector to limber it up. Over-bending could cause damage and result in leakage
- over-bend a flexible connector, a 45° - 90° bend should be sufficient to install any flexible connector
- install a flexible connector with the bend next to the end fittings, this could cause damage and result in leakage
- lay the flexible connector on rocks or objects which could puncture the hose and cause leakage
- attempt to stretch or compress a flexible connector to fit an installation
- restrict flexibility by allowing connector to come into contact with other components or equipment during installation

Nominal Smooth Bore PTFE Crimp Specification

Dixon PTFE Hose		
Hose Part #	Crimp Collar Part #	Crimp Spec
WSB-03 or BSB-03	CSC-03-03	.300 / .310
	SSC-03-03	
WSB-04 or BSB-04	BRC-04-04	.325 / .335
	CSC-04-04	
	SSC-04-04	
WSB-05 or BSB-05	BRC-05-05	.395 / .405
	CSC-05-05	
	SSC-05-05	
WSB-06 or BSB-06	BRC-06-06	.471 / .480
	CSC-06-06	
	SSC-06-06	
WSB-08 or BSB-08	BRC-08-08	.575 / .585
	CSC-08-08	
	SSC-08-08	
WSB-10 or BSB-10	BRC-10-10	.685 / .695
	CSC-10-10	
	SSC-12-10	
WSB-12 or BSB-12	BRC-12-12	.790 / .800
	CSC-12-12	
	SSC-12-12	
WSB-16 or BSB-16	BRC-16-16	1.070 / 1.080
	CSC-16-16	
	SSC-16-16	
WSB-20Z or BSB-20Z	BRC-20Z-20	1.420 / 1.430
	CSC-20Z-20	
	SSC-20Z-20	

- Specifications are valid only when using Dixon Nominal Fittings
- Z = double braid

Open Pitch Convoluted True Bore Hose Crimp Specifications

Dixon PTFE Hose and CC-60 Crimper				
Hose Part #	Universal True ID Crimp Collar		New Style Convoluted Hose Crimp Collar	
	Crimp Collar Part #	Crimp Spec	Crimp Collar Part #	Crimp Spec
WOC-T04 or BOC-T04	CSC-T04 SSC-T04	.580 .590	CSC-T04-1 SSC-T04-1	.545 / .550
WOC-T06 or BOC-T06	CSC-T06 SSC-T06	.647 / .657	CSC-T06-1 SSC-T06-1	.645 / .655
WOC-T08 or BOC-T08	CSC-T08 SSC-T08	.795 / .805	CSC-T08-1 SSC-T08-1	.794 / .804
WOC-T10 or BOC-T10	CSC-T10 SSC-T10	.960 / .970	CSC-T10-1 SSC-T10-1	.982 / .992
WOC-T12 or BOC-T12	CSC-T12 SSC-T12	1.085 / 1.095	CSC-T12-1 SSC-T12-1	1.035 / 1.045
WOC-T16 or BOC-T16	CSC-T16 SSC-T16	1.370 / 1.380	CSC-T16-1 SSC-T16-1	1.357 / 1.367
WOC-T20 or BOC-T20	CSC-T20 SSC-T20	1.745 / 1.755	CSC-T20-1 SSC-T20-1	1.649 / 1.659
WOC-T24 or BOC-T24	CSC-T24 SSC-T24	1.875 / 1.885	CSC-T24-1 SSC-T24-1	1.904 / 1.914
WOC-T32 or BOC-T32	CSC-T32 SSC-T32	2.432 / 2.442	CSC-T32-1 SSC-T32-1	2.397 / 2.407

- Specifications are valid only when using Dixon True Bore Fittings

True ID Heavy Wall Smooth Bore Hose Crimp Specifications

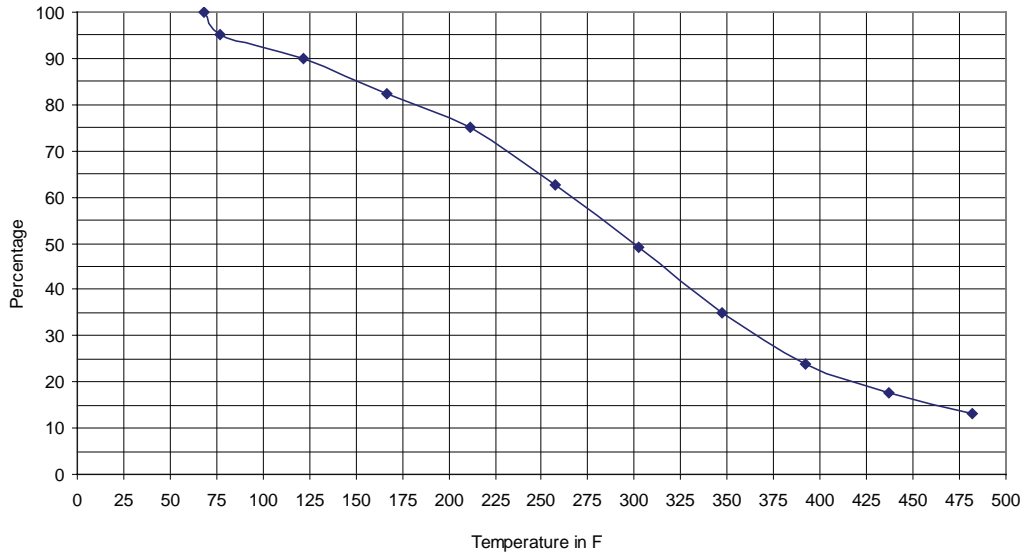
Dixon PTFE Hose and CC-60 Crimper				
Hose Part #	Universal True ID Crimp Collar		New Style Convoluted Hose Crimp Collar	
	Crimp Collar Part #	Crimp Spec	Crimp Collar Part #	Crimp Spec
WTB-T04 or BTB-T04	CSC-T04 SSC-T06	.580 / .590	CSC-T04-2 SSC-T04-2	.545 / .550
WTB-T06 or BTB-T06	CSC-T06 SSC-T06	.647 / .657	CSC-T06-2 SSC-T08-2	.633 / .643
WTB-T08 or BTB-T08	CSC-T08 SSC-T08	.745 / .755	CSC-T08-2 SSC-T08-2	.802 / .812
WTB-T12 or BTB-T12	CSC-T12 SSC-T12	1.065 / 1.075	CSC-T12-2 SSC-T12-2	1.035 / 1.045
WTB-T16 or BTB-T16	CSC-T16 SSC-T16	1.345 / 1.355	CSC-T16-2 SSC-T16-2	1.326 / 1.336
WTB-T16Z or BTB-T16Z	CSC-T16 SSC-T16	1.390 / 1.400	CSC-T16-2 SSC-T16-2	---
WTB-T20Z or BTB-T20Z	CSC-T20 SSC-T20	---	CSC-T20-2 SSC-T20-2	---
WTB-T24Z or BTB-T24Z	CSC-T24 SSC-T24	1.932 / 1.942	CSC-T24-2 SSC-T24-2	1.932 / 1.942

- Specifications are valid only when using Dixon True Bore Fittings
- Z = double braid

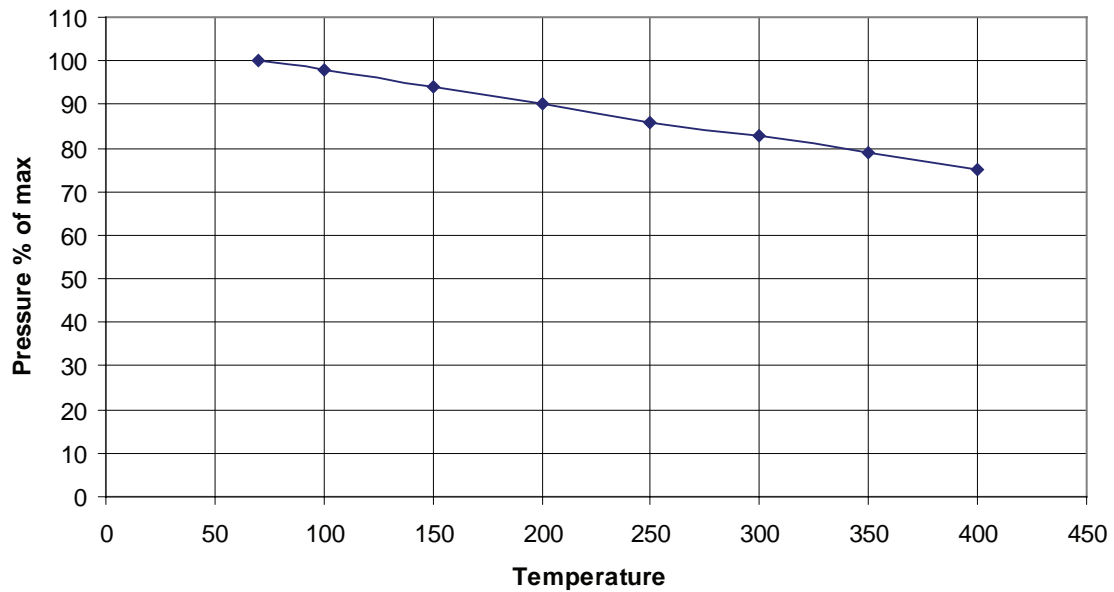
Technical Information for PTFE Hose

Temperature Derating for PTFE Hose

Temperature Derating Curve for Smooth Bore Hose



Temperature Derating for Open Pitch Convuluted Hose



Technical Information

Glossary

Abrasion: External damage to a hose assembly caused by it being rubbed on a foreign object.

Ambient or Atmospheric Conditions:

The surrounding conditions, such as temperature, pressure and corrosion, to which a hose assembly is exposed.

Amplitude of Vibration and/or Lateral Movement: The distance a hose assembly deflects laterally to one side from its normal position, when this deflection occurs on both sides of the normal hose centerline.

Anchor: A restraint applied to a pipeline to control its motion caused by thermal growth.

Annular: Refers to the convolutions on a hose that are a series of complete circles or rings located at right angle to the longitudinal axis of the hose (sometimes referred to as bellows).

Application: The service conditions that determine how a hose assembly will be used.

Attachment: The method of fixing end fittings to flexible hose – welding, brazing, soldering, swaging or mechanical.

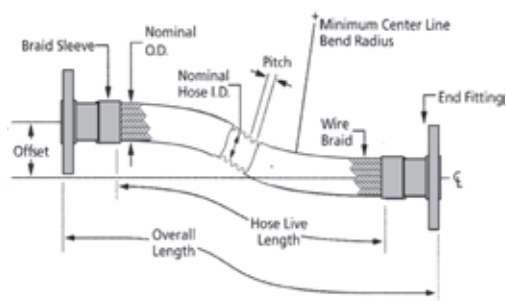
Axial Movement: Compression or elongation of the hose along its longitudinal axis.

Basket Weave: A braid pattern in which the strands of wire alternately cross over and under two braid bands (two over – two under).

Bend Radius: The radius of a bend measured to the hose centerline.

Braid: A flexible wire sheath surrounding a metal hose that prevents the hose from elongation due to internal pressure. Braid is composed of a number of wires wrapped helically around the hose while at the same time going under and over each other in a basket weave fashion.

Braid Angle: The acute angle formed by the braid strands and the axis of the hose.



Braid Construction: Term applies to description of braid, i.e., 36 x 8 x .014, 304L SS.

36 = number of carriers or bands in a braid
 8 = number of wires on each carrier
 .014 = wire diameter in inches
 304L = material, Type 304L stainless steel

Braid Color, Braid Band or Ferrule: A ring made from tube or metal strip placed over the ends of a braided hose to contain the braid wires for attachment of fittings.

Braid Wear: Motion between the braid and corrugated hose which normally causes wear on the OD of hose.

Braided Braid: In this braid, the strands of wire on each carrier of the braiding machine are braided together, and then braided in normal fashion, hence the term braided braid.

Brazing: A process of joining metals using a non-ferrous filler metal, which melts above 800°F, yet less than the melting of the "parent metals" to be joined.

Butt Weld: A process in which the edges or ends of metal sections are butted together and joined by welding.

Controlled Flexing: Controlled flexing occurs when the hose is being flexed regularly, as in connections to moving components. Examples: Platen presses, thermal growth in pipe work.

Convolution: The annular or helical flexing member in corrugated or strip wound hose.

Corrosion: The chemical or electrochemical attack of a media upon a hose assembly.

Cycle-Motion: The movement from normal to extreme position and return.

Dye Penetrant Inspection or Test: A method for detecting surface irregularities, such as cracks, voids, porosity, etc. The surface to be checked is coated with a red dye that will penetrate existing defects. Dye is removed from surface and a white developer is applied. If there is a defect in the surface being checked, the red dye remaining in it causes the white developer to be stained, thereby locating the defective area.

Dog-Leg Assembly: Two hose assemblies joined by a common elbow.

Duplex Assembly: An assembly consisting of two hose assemblies – one inside the other – and connected at the ends.

Erosion: The wearing away of the inside convolutions of a hose caused by the flow of the media conveyed, such as wet steam, abrasive particles, etc.

Exposed Length: The amount of active (exposed) hose in an assembly. Does not include the length of fittings and ferrules.

Fatigue: Failure of the metal structure associated with, or due to, the flexing of hose or bellows.

Fitting: A loose term applied to the nipple, flange, union, etc., attached to the end of a hose.

Flow Rate: Pertains to a volume of media being conveyed in a given time period, e.g., cubic feet per hour, pounds per second, gallons per minute, etc.

Technical Information

Glossary (continued)

Frequency: The rate of vibration or flexure of a hose in a given time period, e.g., cycles per second (CPS), cycles per minute (CPM), cycles per day (CPD), etc.

Galvanic Corrosion: Corrosion that occurs on the less noble of two dissimilar metals in direct contact with each other in an electrolyte, e.g., water, sodium chloride in solution, sulfuric acid, etc.

Helical: Used to describe a type of corrugated hose having one continuous convolution resembling a screw thread.

Helical Wire Armor: To provide additional protection against abrasion under rough operating conditions, GSM Ball Joint Armor can be supplied.

Installation: Referring to the installed geometry of a hose assembly.

Interlocked Hose: Formed from profiled strip and wound into flexible metal tubing with no subsequent welding, brazing, or soldering. May be made pressure-tight by winding in strands of packing.

Intermittent Bend Radius: The designation for a radius used for non-continuous operation. Usually an elastic radius.

Liner: Flexible sleeve used to line the I.D. of hose when the velocity of gaseous media is in excess of 180 ft. per second.

Medium (Singular)/Media (Plural): The substance(s) being conveyed through a piping system.

Metal Inert Gas Welding: A method of welding in which the filler metal wire supplies the electric current to maintain the arc, which is shielded from the access of air by inert gas, usually argon.

Minimum Bend Radius: The smallest radius to which a hose can be bent without suffering permanent deformation of its convolutions.

Misalignment: A condition in which two points, intended to be connected, will not mate due to their being laterally out of line with each other.

Operating Conditions: The pressure, temperature, motion, media, and environment that a hose assembly is subjected to.

Outside Diameter: This refers to the external diameter of a hose.

Penetration (Weld): The percentage of wall thickness of the two parts to be joined that is fused into the weld pool in making a joint. Our standard for penetration of the weld is 100 percent, in which the weld goes completely through the parent metal of the parts to be joined and is visible on the opposite side from which the weld was made.

Pitch: The distance between the two peaks of adjacent corrugation.

Pressure: Usually expressed in pounds per square inch (PSI) and, depending on service conditions, may be applied internally or externally to a hose.

- a. **Absolute Pressure** – A total pressure measurement system in which atmospheric pressure (at sea level) is added to the gauge pressure, and is expressed as PSIG.
- b. **Atmospheric Pressure** – The pressure of the atmosphere at sea level which is 14.7 PSI, or 29.92 inches of mercury.
- c. **Burst Pressure (Actual And Rated)**
 1. **Actual** – Failure of the hose determined by the laboratory test in which the braid fails in tensile, or the hose ruptures, or both, due to the internal pressure applied. This test is usually conducted at room temperature with the assembly in a straight line, but for special applications, can be conducted at elevated temperatures and various configurations.
 2. **Rated** – A burst value which may be theoretical, or a percentage of the actual burst pressure developed by laboratory test. It is expected that, infrequently, due to manufacturing limitations, an assembly may burst at this pressure, but would most often burst at a pressure greater than this.
- d. **Deformation Pressure (Collapse)** – The pressure at which the corrugations of a hose are permanently deformed due to fluid pressure applied internally, or, in special applications, externally.
- e. **Feet of Water or Head Pressure** – Often used to express system pressure in terms of water column height. A column of water 1 ft. high exerts a .434 PSI pressure at its base.
- f. **Proof Pressure or Test Pressure** – The maximum internal pressure which a hose can be subjected to without either deforming the corrugations, or exceeding 50 percent of the burst pressure. When a hose assembly is tested above 50 percent of its burst pressure, there often is a permanent change in the overall length of the assembly, which may be undesirable for certain applications.
- g. **PSIG** – Pounds per square inch gauge.
- h. **Pulsating Pressure** – A rapid change in pressure above and below the normal base pressure, usually associated with reciprocating type pumps. This pulsating pressure can cause excessive wear between the braid and the tops of the hose corrugations.
- i. **Shock Pressure** – A sudden increase of pressure in hydraulic or pneumatic system, which produces a shock wave. This shock can cause severe permanent deformation of the corrugations in a hose as well as rapid failure of the assembly due to metal fatigue.
- j. **Static Pressure** – A non-changing constant pressure.
- k. **Working Pressure** - The pressure, usually internal, but sometimes external, imposed on a hose during operating conditions.

Scale: Generally refers to the oxide in a hose assembly brought about by surface conditions or welding.

Seamless: Used in reference to a corrugated metal hose made from a base tube that does not have a longitudinal seam as in the case of a butt welded or lap welded tube.

Technical Information

Glossary (continued)

Strand(s): Individual groups of wires in a braid. Each group is constructed of wire strands from the braiding machine.

Stress Corrosion: A form of corrosion in stainless steel normally associated with chlorides.

Traveling Loop: A general classification of bending, wherein the hose is installed to a U-shaped configuration.

1. Class A Loop – An application wherein the radius remains constant and one end of the hose moves parallel to the other end of the hose.

2. Class B Loop – A condition wherein a hose is installed in a U-shaped configuration and the ends move perpendicular to each other so as to enlarge or decrease the width of the loop.

Torque (Torsion): A force that produces, or tends to produce, rotation of or torsion through one end of a hose assembly while the other end is fixed.

Tungsten-Electrode Inert Gas Welding: A method of welding in which the arc is maintained by a tungsten electrode and shielded from the access of air by an inert gas.

Velocity: The speed at which the medium flows through the hose, usually specified in feet per second.

Velocity Resonance: The sympathetic vibration of convolutions due to buffeting of high velocity gas or air flow.

Vibration: Low amplitude motion occurring at high frequency.

Welding: The process of localized join of two or more metallic components by means of heating their surfaces to a state of fusion, or by fusion with the use of additional filler materials.

LIMITED WARRANTY

DIXON SPECIALTY Products (herein called "Dixon") warrants the products described herein, and manufactured by Dixon to be free from defects in material and workmanship for a period of one (1) year from date of shipment by Dixon under normal use and service. It's sole obligation under this warranty being limited to repairing or replacing, as hereinafter provided, at its option any product found to Dixon's satisfaction to be defective upon examination by it, provided that such product shall be returned for inspection to Dixon's factory within three (3) months after discovery of the defect. The repair or replacement of defective products will be made without charge for parts or labor. This warranty shall not apply to: (a) parts or products not manufactured by Dixon, the warranty of such items being limited to the actual warranty extended to Dixon by its supplier; (b) any product that has been subject to abuse, negligence, accident, or misapplication; (c) any product altered or repaired by others than Dixon; and (d) to normal maintenance services and the replacement of service items (such as washers, gaskets and lubricants) made in connection with such services. To the extent permitted by law, this limited warranty shall extend only to the buyer and any other person reasonably expected to use or consume the goods who is injured in person by any breach of the warranty. No action may be brought against Dixon for an alleged breach of warranty unless such action is instituted within one (1) year from the date the cause of action accrues. This limited warranty shall be construed and enforced to the fullest extent allowable by applicable law.

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Some Products and Sizes May Be Discontinued When Stock Is Depleted, Or May Require A Minimum Quantity For Ordering.

NOTE: Reasonable care has been taken in preparing this Catalog. Dixon Specialty Products reserves the right to make corrections.

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