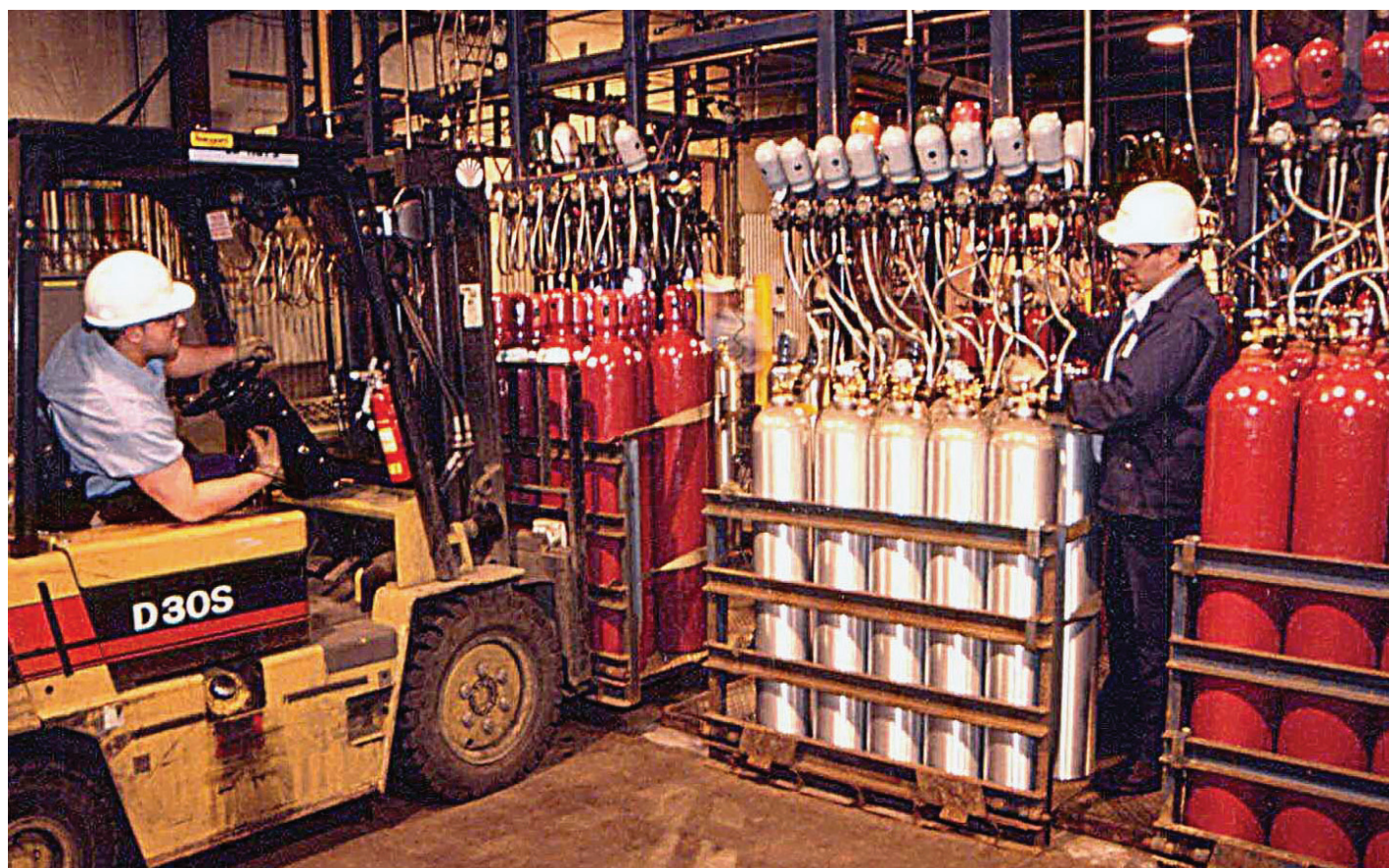# Compressed Gas – Non-Metallic Core Pigtails for High Pressure Cylinder Filling

Extreme flexibility and durability make non-metallic core pigtails the most widely specified hose assemblies. Our large variety of end fittings, safety and productivity options allows you to select the hose best suited to your application.

PTFE Chemfluor® Inner Core, Stainless Steel Braid

- Ideal for a wide range of industrial applications, PTFE Chemfluor® is non-porous, chemically inert and requires zero maintenance.
- PTFE is an FDA approved material.
- When coupled with the Oxy-Flex® end fitting and cleaned for oxygen use, high temperature capabilities make PTFE the best choice for medical or industrial oxygen filling.
- Up to 30% thicker than competitive products for greater flexibility, kink resistance, longer life and less permeation.

4TS: Single SS braided PTFE Chemfluor® inner core – 3000 psi

4TD*: Double SS braided PTFE Chemfluor® inner core with SS end fittings – 4500 psi

4TH: High Density SS braided PTFE Chemfluor® inner core – 5000 psi

4TX: Double SS braided and High Pressure Double SS spiral wrapped PTFE Chemfluor® inner core – 6000 psi

*Available with brass end fittings at 3600 psi.

ETFE Tefzel® Inner Core, Stainless Steel Braid

- Tefzel® pigtails are widely specified for use in hydrogen and helium service.
- Tefzel® has a permeation rate approximately 77% lower than PTFE.

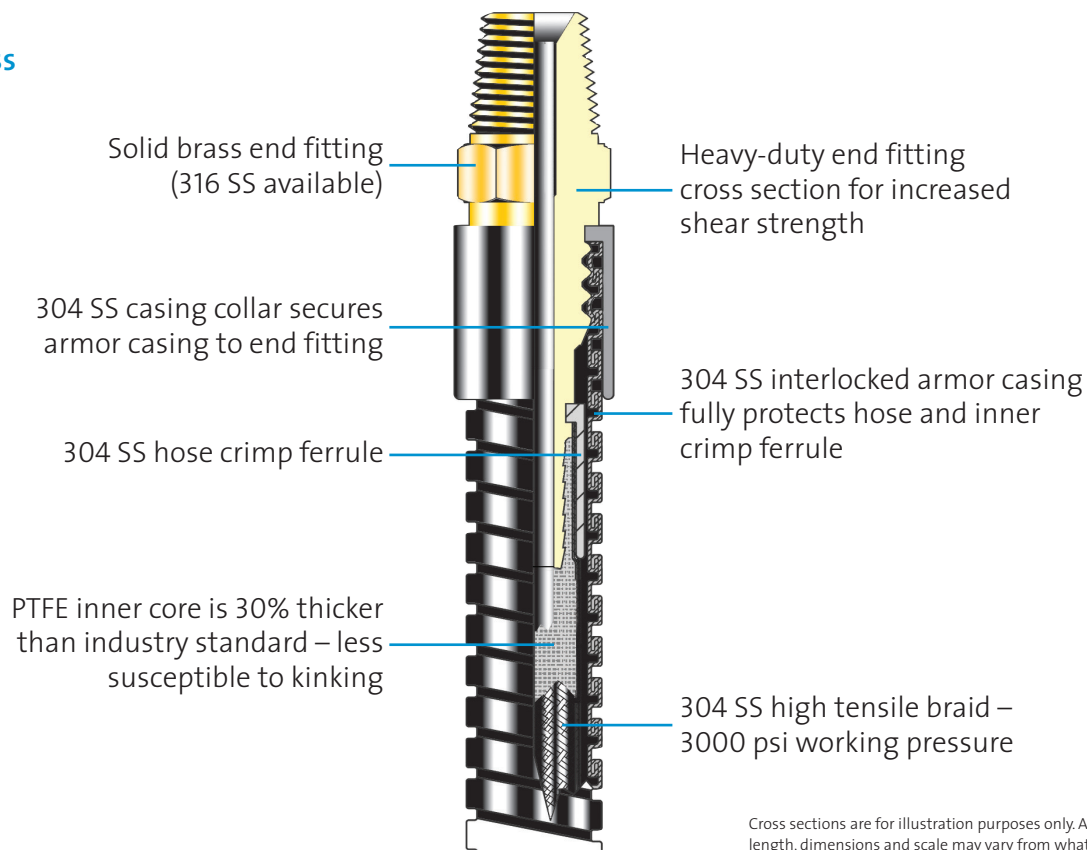**4TZ:** Single SS braided ETFE inner core – 3000 psi

4TZD*: Single SS braided ETFE inner core with SS end fittings – 3500 psi
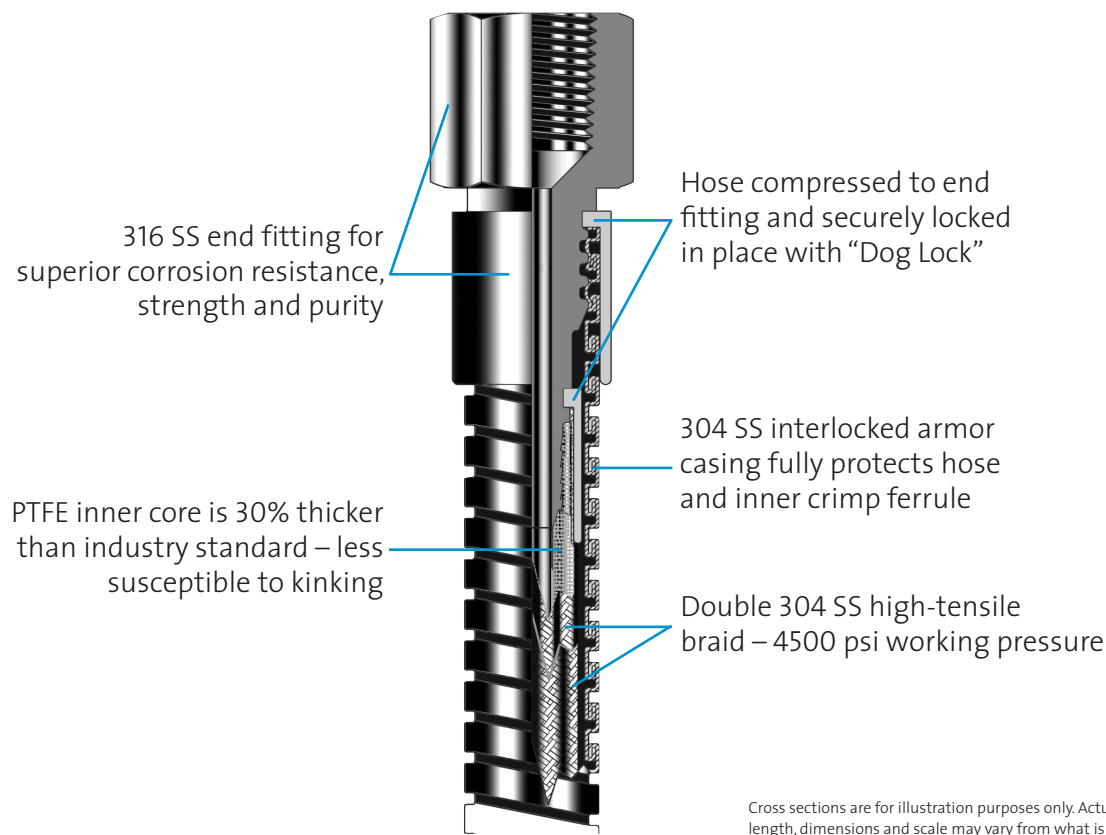
*Available with brass end fittings at 2800 psi.

See Pigtail Hose Selection Guide on page 9

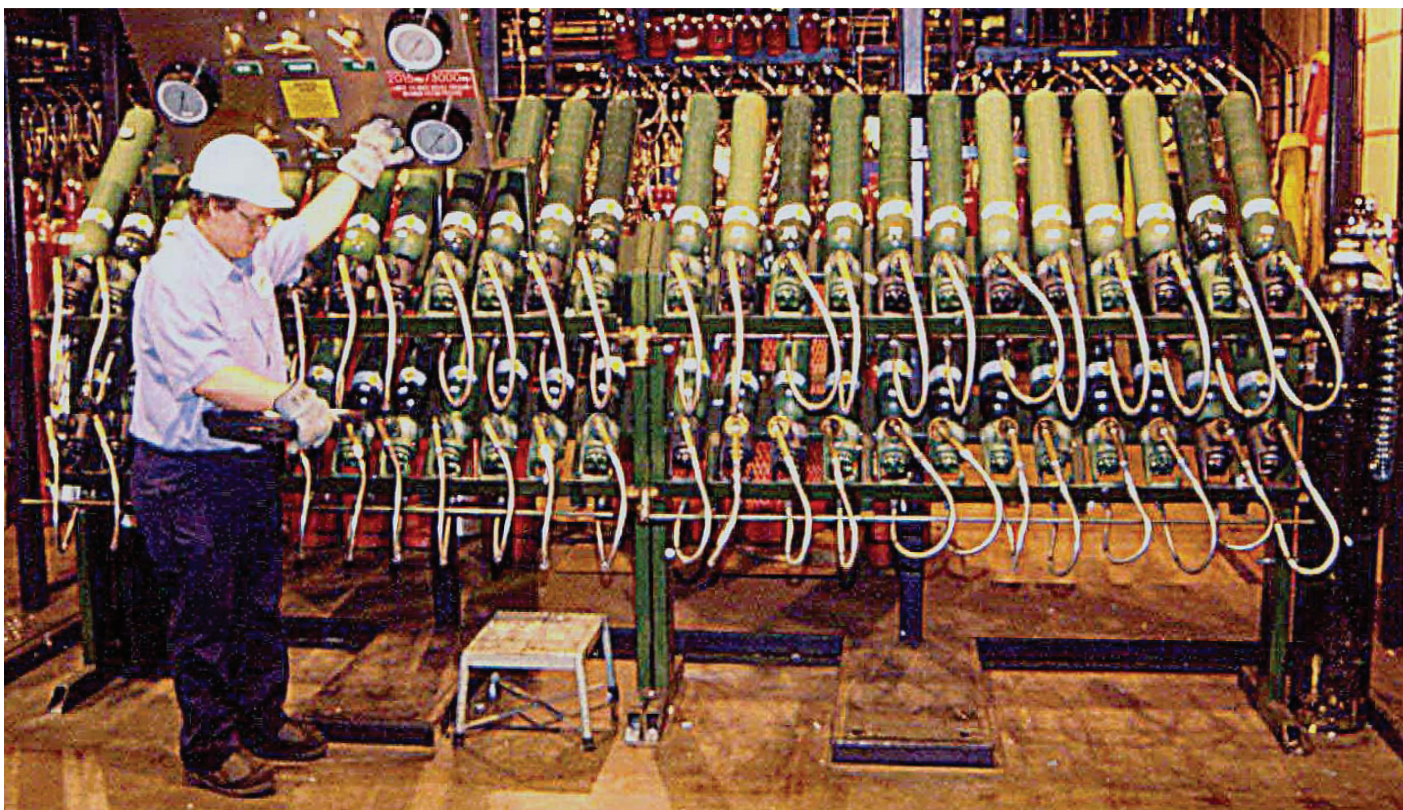# Compressed Gas – Non-Metallic Core Pigtails Cross Sections

1/4" Style 4TS (shown with Brass Male NPT and SS Armor Casing)

Solid brass end fitting (316 SS available)

Heavy-duty end fitting cross section for increased shear strength

304 SS casing collar secures armor casing to end fitting

304 SS interlocked armor casing fully protects hose and inner crimp ferrule

304 SS hose crimp ferrule

PTFE inner core is 30% thicker than industry standard – less susceptible to kinking

304 SS high tensile braid – 3000 psi working pressure

Cross sections are for illustration purposes only. Actual fitting length, dimensions and scale may vary from what is shown.

1/4" Style 4TD (shown with SS Female NPT and Armor Casing)

316 SS end fitting for superior corrosion resistance, strength and purity

Hose compressed to end fitting and securely locked in place with "Dog Lock"

304 SS interlocked armor casing fully protects hose and inner crimp ferrule

PTFE inner core is 30% thicker than industry standard – less susceptible to kinking

Double 304 SS high-tensile braid – 4500 psi working pressure

Cross sections are for illustration purposes only. Actual fitting length, dimensions and scale may vary from what is shown.

Compressed Gas – Metallic Core Pigtails for High Pressure Cylinder Filling

Many applications require a metal "bellows" type hose that provides an all welded, flexible alternative to rigid pipe and tubing with zero permeation even at high pressures and cryogenic temperatures. A variety of alloys, safety features and options are available so that an assembly matching your precise needs can be provided. All hose assemblies are constructed with heavy-gauge end fittings. Maximum allowable working pressure and date of manufacture are permanently marked on each assembly.

Stainless Steel Inner Core, Stainless Steel Braid

- Designed for strong, safe and flexible operation in demanding specialty gas environments.
- Zero permeation characteristics do not allow gas or atmosphere to pass through its wall in either pressure or vacuum applications.
- Ideal for flammable, toxic, high purity and small molecule gases.

4MDS6: Double SS braided SS inner core – 4000 psi

4MDHP: Double SS braided SS inner core – 4500 psi

Monel® Inner Core, Monel® Braid

- Specify Monel® pigtails when 316 SS inner core is not compatible with corrosive gas such as hydrochloric acid.

4MDM: Double Monel® braided Monel® inner core – 3000 psi
Available with Monel® fittings

Monel® Inner Core, Stainless Steel Braid

- Ideal for oxygen service where particle impingement failure is a concern.
- SS braid is more economical and allows higher working pressures than Monel® braid.

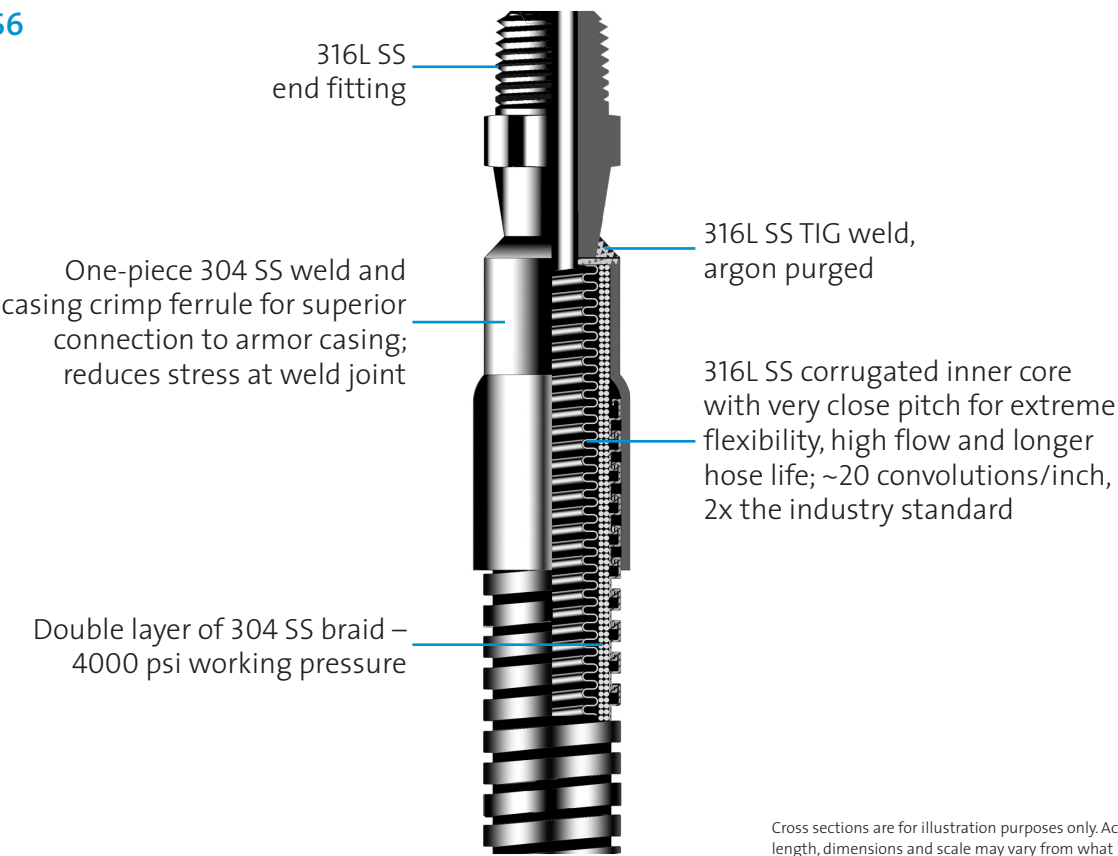**4MDMS*:** Double SS braided Monel® inner core – 4500 psi
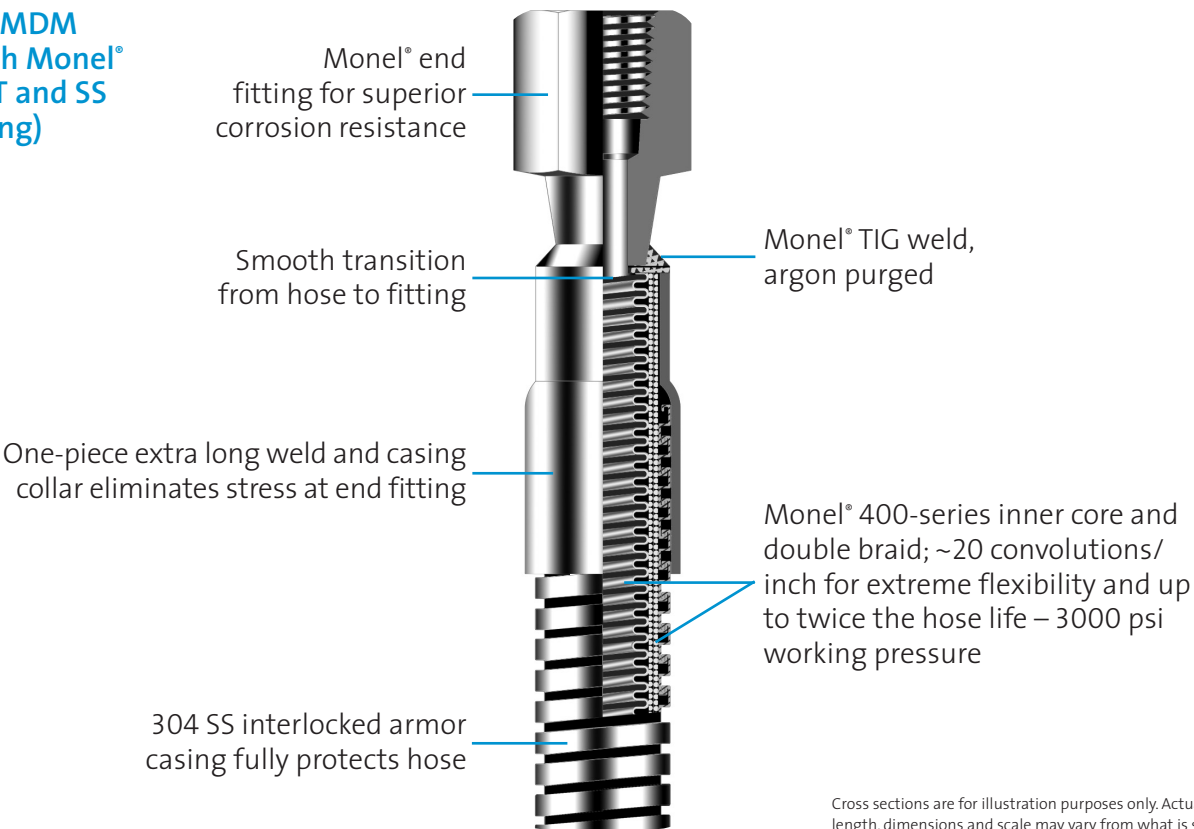Available with Monel® or SS fittings

* Special order, consult factory.

See Pigtail Hose Selection Guide on page 9

Compressed Gas – Metallic Core Pigtails Cross Sections

1/4" Style 4MDS6 (shown with SS Male NPT and Armor Casing)

316L SS end fitting

One-piece 304 SS weld and casing crimp ferrule for superior connection to armor casing; reduces stress at weld joint

316L SS TIG weld, argon purged

316L SS corrugated inner core with very close pitch for extreme flexibility, high flow and longer hose life; ~20 convolutions/inch, 2x the industry standard

Double layer of 304 SS braid – 4000 psi working pressure

Cross sections are for illustration purposes only. Actual fitting length, dimensions and scale may vary from what is shown.

1/4" Style 4MDM (shown with Monel® Female NPT and SS Armor Casing)

Monel® end fitting for superior corrosion resistance

Smooth transition from hose to fitting

Monel® TIG weld, argon purged

One-piece extra long weld and casing collar eliminates stress at end fitting

Monel® 400-series inner core and double braid; ~20 convolutions/inch for extreme flexibility and up to twice the hose life – 3000 psi working pressure

304 SS interlocked armor casing fully protects hose

Cross sections are for illustration purposes only. Actual fitting length, dimensions and scale may vary from what is shown.

Compressed Gas – Pigtail Hose Selection Guide & Specifications

Pigtail Hose Selection Guide

Hose Style		4TS	4TD	4TH	4TX	4TZ	4TZD	4MDS6	4MDHP	4MDM	4MDMS*
Inner Core Material		PTFE	PTFE	PTFE	PTFE	ETFE	ETFE	316LSS	316LSS	MONEL®	MONEL®
Maximum Working Pressure — PSI		3,000	4,500	5,000	6,000	3,000	3,500	4,000	4,500	3,000	4,500
Maximum Working Pressure — BAR		206.89	310.34	344.82	413.78	206.89	241.37	275.86	310.34	206.89	310.34
Gas	CGA Connection										
Acetylene**	510	V	V	V	E	G	G	G	G	G	G
Air	346	E	E	G	G	G	G	G	G	G	G
Argon	580	E	E	G	G	G	G	G	G	G	G
Arsine**	350 or 660	N	N	N	N	N	N	N	N	G	G
Carbon Dioxide	320	E	E	G	G	N	N	G	G	G	G
Carbon Monoxide**	350	V	V	V	V	V	V	E	E	G	G
Chlorine**	660	N	N	N	N	N	N	N	N	V	V
Fluorine**	679	N	N	N	N	N	N	N	N	V	V
Helium	580	V	V	G	G	E	E	E	E	V	V
Hydrogen**	350	G	G	G	G	V	V	V	V	G	G
Natural Gas**	350	G	G	V	V	G	G	E	E	G	G
Nitrogen	580	E	E	V	V	G	G	G	G	G	G
Nitrous Oxide	326	V	V	G	G	G	G	G	G	G	G
Oxygen	540	E***	E***	G	G	N	N	G	G	V	V
Silane**	350	N	N	N	N	N	N	N	N	V	V

E – Excellent, V – Very Good, G – Good, N – Not Acceptable
All hoses are considered to be 0.250 I.D.
*Special order, consult factory.
**Flammable and poisonous gases should always be filled, stored, transfilled or used in a well-ventilated area.
***When coupled with Oxy-Flex® fitting.

Pigtail Hose Specifications – Part 1 of 2

Hose Style	Size I.D. in.	Size I.D. mm	Size O.D. Without Armor in.	Size O.D. Without Armor mm	Size O.D. With Armor in.	Size O.D. With Armor mm	Inner Core Wall Thickness in.	Inner Core Wall Thickness mm	Maximum Working Pressure psi	Maximum Working Pressure bar	Minimum Burst Pressure psi	Minimum Burst Pressure bar
4TS	0.25	6.35	0.38	9.53	0.56	14.22	0.04	1.02	3,000	206.89	12,000	827.57
4TD	0.25	6.35	0.40	10.16	0.63	15.88	0.04	1.02	4,500	310.34	18,000	1241.30
4TH	0.22	5.59	0.38	9.65	0.63	15.88	0.04	1.02	5,000	344.82	16,000	1103.40
4TX	0.23	5.84	0.49	12.45	0.68	17.27	0.04	1.02	6,000	413.78	24,000	1655.10
4TZ	0.25	6.35	0.31	7.87	0.56	14.22	0.03	0.76	3,000	206.89	12,000	827.57
4TZD	0.25	6.35	0.40	10.16	0.63	15.88	0.03	0.76	3,500	241.37	14,000	965.49
4MDS6	0.29	7.24	0.54	13.72	0.83	20.96	0.01	0.25	4,000	275.86	16,000	1103.40
4MDHP	0.29	7.24	0.54	13.72	0.83	20.96	0.01	0.25	4,500	310.34	18,000	1241.30
4MDM	0.29	7.24	0.54	13.72	0.83	20.96	0.01	0.25	3,000	206.89	12,000	827.57
4MDMS*	0.29	7.24	0.54	13.72	0.83	20.96	0.01	0.25	4,500	310.34	18,000	1241.30

Pigtail Hose Specifications – Part 2 of 2

Hose Style	Minimum Bend Radius Without Armor in.	Minimum Bend Radius Without Armor mm	Minimum Bend Radius With Armor in.	Minimum Bend Radius With Armor mm	Weight Without Armor lb./ft.	Weight Without Armor kg/m	Weight With Armor lb./ft.	Weight With Armor kg/m	Temperature Range °F	Temperature Range °C	Conductive (Yes/No)
4TS	2.0	50.80	3.6	91.44	0.08	0.12	0.26	0.39	-100 to 450	-73 to 232	No
4TD	2.7	68.58	3.6	91.44	0.10	0.15	0.26	0.39	-100 to 450	-73 to 232	No
4TH	1.5	38.10	2.7	68.58	0.10	0.15	0.26	0.39	-100 to 450	-73 to 232	Yes
4TX	3.0	76.20	5.1	129.54	0.24	0.36	0.40	0.60	-100 to 450	-73 to 232	Yes
4TZ	2.0	50.80	3.6	91.44	0.08	0.12	0.22	0.33	-100 to 250	-73 to 121	No
4TZD	2.7	68.58	3.6	91.44	0.10	0.15	0.26	0.39	-100 to 250	-73 to 121	No
4MDS6	3.0	76.20	3.2	81.28	0.30	0.45	0.53	0.79	Cryo to 1500	Cryo to 815	Yes
4MDHP	3.0	76.20	3.2	81.28	0.30	0.45	0.53	0.79	Cryo to 1500	Cryo to 815	Yes
4MDM	4.0	101.60	4.3	109.22	0.33	0.49	0.53	0.79	Cryo to 1500	Cryo to 815	Yes
4MDMS*	3.0	76.20	3.2	81.28	0.33	0.49	0.53	0.79	Cryo to 1500	Cryo to 815	Yes

*Special order, consult factory.

# Compressed Gas – Special Pigtail Assemblies & Safety Options

Flexible Components brand is considered the innovator, not imitator in the industry. Here are a few examples of products designed to enhance your safety and productivity.
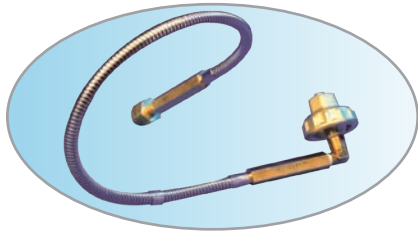
Oxy-Flex® Distance Volume Piece

Integral to the Oxy-Flex® pigtail, the Distance Volume Piece (DVP) contains heat of adiabatic compression, which may occur in a quickly pressurized hose where one end is closed off with a valve or check valve. The DVP prevents the heated slug of gas from affecting the PTFE tube of the pigtail. Constructed with solid brass and a 1/4" female NPT for connection to CGA 540 or other nipple.

Option Code DV – Part number of hose shown: 4TS71**DV**74**DV**LBA0540-36"
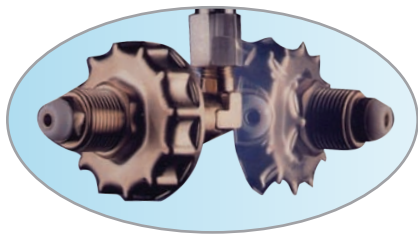
Swiv-L-Flex®
(available with TS or TD hose styles)

Specifically designed for palletized cylinder fill operations employing overhead fill manifolds. Swivels 360° for ease of connection regardless of the cylinder valve inlet's orientation to the pigtail.

Style 06X – Shown with optional elbow and hand tight CGA 580
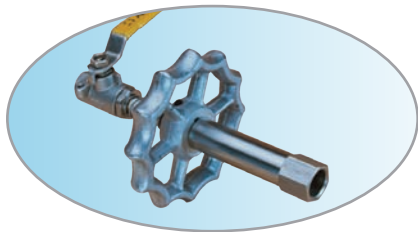
Quick Connect Handwheel with ball valve for Carbon Dioxide (Style HBV)

For quick connection of any Flexible Components pigtail to CGA 320 valves. Comes complete with SS 1/4-turn ball valve and extra gaskets.

Part number: **7704HBV320**
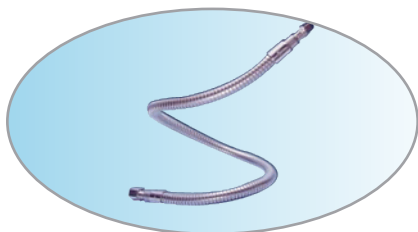
Armor Casing

For hoses that are constantly handled and flexed, armor casing protects against kinking, braid abrasion and stress at the end fittings. The smooth surface also provides additional handling protection for operators, plus the capability to support a 600-pound load under tension. Armor casing is protected under a special 3-year limited warranty. See back cover for details.

Option Code A – Part number of hose shown: 4MDS60306S6**A**-36"

Compressed Gas – Pigtail Hose End Fittings
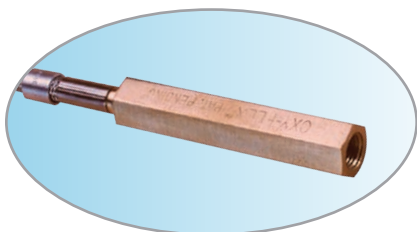
Distance Volume Piece (Oxy-Flex®) – Style DV

For hose styles: TS, TD
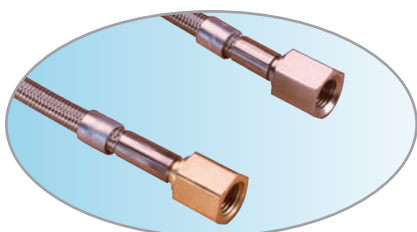Available in: B
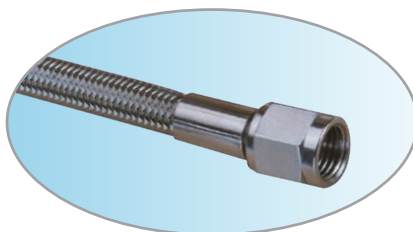
Female Flare 37° & 45° – Style 02

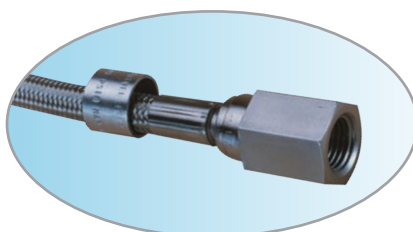For hose styles: TS, TD, TZ, TZD, TH, MDS6, MDHP, MDM, MDMS
Available in: S6, M, C
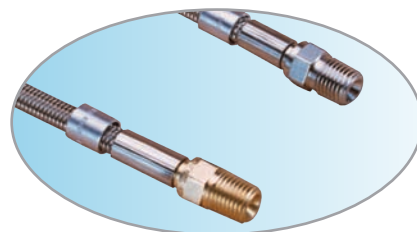
Male NPT – Style 03

For hose styles: TS, TD, TZ, TZD, TH, TX, MDS6, MDHP, MDM, MDMS
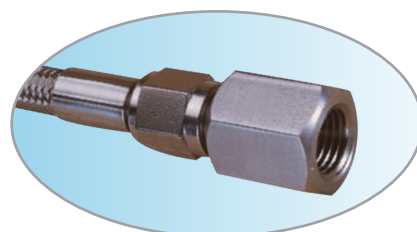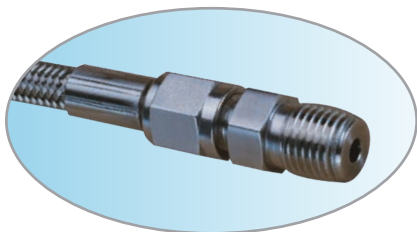Available in: S6, B, M, C

**Female NPT – Style 06**

For hose styles: TS, TD, TZ, TZD, TH, TX, MDS6, MDHP, MDM, MDMS
Available in: S6, B, M, C

Female NPT (Swiv-L-Flex®) – Style 06X

For hose styles: TS, TD, TZ, TZD
Available in: S6

Female Flare x Female NPT Union – Style 07

For hose styles: TS, TD, TZ, TZD, TH, MDS6, MDHP, MDM, MDMS
Available in: S6, C

Female Flare x Male NPT Union – Style 08

For hose styles: TS, TD, TZ, TZD, TH, MDS6, MDHP, MDM, MDMS
Available in: S6, C
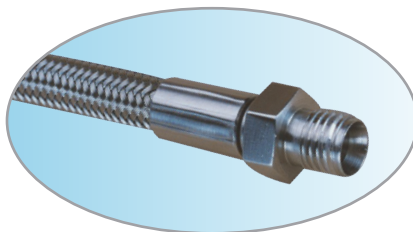
Compression Connector – Style 31, Style 31 FN (with ferrules & nut)

For hose styles: TS, TD, TZ, TZD, MDS6, MDHP
Available in: S6
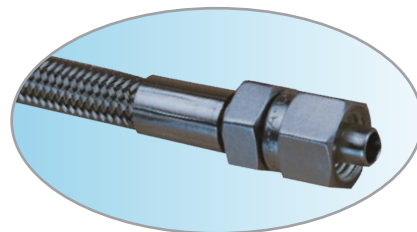
Compression Tube Adapter – Style 32, Style 32 FN (with ferrules & nut)

For hose styles: TS, TD, TZ, TZD, MDS6, MDHP
Available in: S6

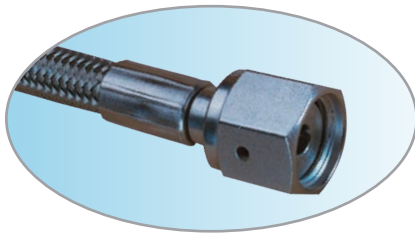**Fitting material designator:**
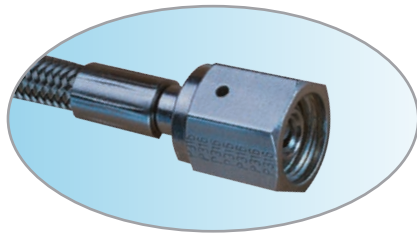S6 = 316 Stainless Steel
B   = Brass
M = Monel®
C   = Carbon Steel

Step-up and step-down fittings available.
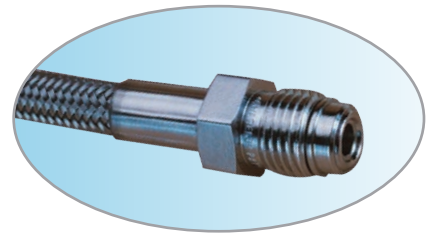
Compressed Gas – Pigtail Hose End Fittings

O Ring Female – Style 33

For hose styles: TS, TD, TZ, TZD, MDS6, MDHP
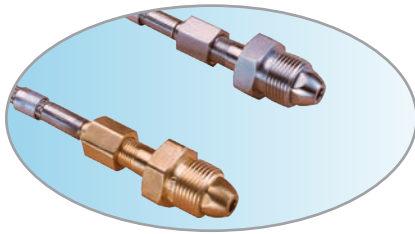Available in: S6

Vacuum Female – Style 34

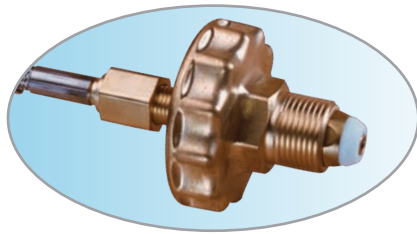For hose styles: TS, TD, TZ, TZD, MDS6, MDHP, MDM, MDMS
Available in: S6, M

Vacuum Male – Style 35

For hose styles: TS, TD, TZ, TZD, MDS6, MDHP, MDM, MDMS
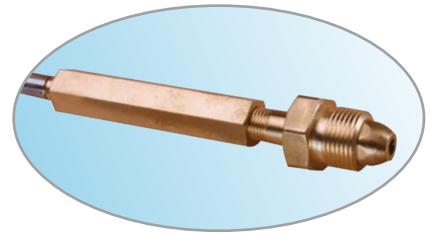Available in: S6, M

CGA Wrench Tight on Female NPT – Style 71

For hose styles: TS, TD, TZ, TZD, TH, TX, MDS6, MDHP, MDM, MDMS
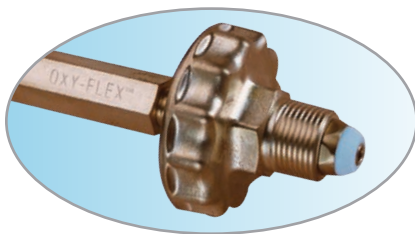Available in: S6, B

CGA Hand Tight on Female NPT – Style 74

For hose styles: TS, TD, TZ, TZD, TH, TX MDS6, MDHP, MDM, MDMS
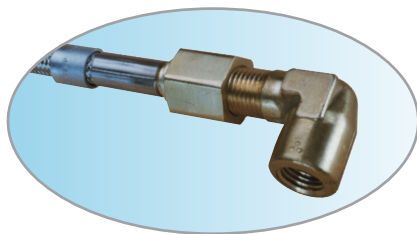Available in: B

CGA Wrench Tight on Oxy-Flex® – Style 71DV

For hose styles: TS, TD
Available in: B

CGA Hand Tight on Oxy-Flex® – Style 74DV

For hose styles: TS, TD
Available in: B

90° Elbow NPT – Style L

For hose styles: TS, TD, TZ, TZD, TH, TX MDS6, MDHP, MDM, MDMS
Available in: B

Fitting material designator:
S6 = 316 Stainless Steel
B = Brass
M = Monel®
C = Carbon Steel
Step-up and step-down fittings available.

Compressed Gas – How to Order Compressed Gas Pigtails

How to Order Compressed Gas Pigtails
Part Number Example: 4TD0674DVLBAO540-36"

Description: 1/4" I.D. PTFE inner core, double SS braid, brass female NPT on one end, brass DVP with elbow and CGA 540 hand tight fitting on the opposite end, armor casing, clean for oxygen, 36" overall length.

4	TD	06		74DV	L	B	A	O	540	36
Hose I.D. Size (in 1/16")	Hose Style	Fitting Style 1st End	Elbow Option 1st End	Fitting Style 2nd End	Elbow Option 2nd End	Fitting Material – Both Ends	Armor Casing	Oxygen Clean	CGA Spec.	Length ⚠ (Inches)
4 (1/4)	TS	02	L	02	L	S6 = 316 SS	A	O	320	
	TD	03		03		B = Brass			326	
	TH	06		06		M = Monel®			346	
	TX	06X		06X		C = Carbon steel			350	
	TZ	07		07					510	
	TZD	08		08					540	
	MDS6	31		31					580	
	MDHP	31FN		31FN					660	
	MDM	32		32					679	
	MDMS	32FN		32FN						
		33		33						
		34		34						
		35		35						
		71		71						
		74		74						
		DV		DV						
		71DV		71DV						
		74DV		74DV						

> ⚠ **Important:**
> - Minimum length of hose without armor = 6"
> - Minimum length of hose with armor = 18"
> - Minimum length of hose with Oxy-Flex® style DV on one end = 24"
> - Minimum length of hose with Oxy-Flex® style DV on both ends = 24"
> - Overall length is measured to the end of the permanently attached end fitting, not including elbows and/or CGA fittings

Follow These Simple Steps
Choose the code from each column that defines the part you want to order. Write the codes left to right, in column order, to create a part number.

For Example:
1. Select hose size in 16ths of an inch = 4
2. Select hose style = TD
3. Select the fitting style for the first end = 06
4. Select an elbow option for the first end = None (Leave blank for no elbow)
5. Select the fitting style for the second end = 74DV
6. Select an elbow option for the second end = L (Leave blank for no elbow)
7. Select fitting material for both ends = B
8. Select A for armor = A (Leave blank for no armor)
9. Select O for oxygen clean = O (Leave blank for no oxygen clean)
10. Select CGA style = 540
11. Select length in inches = 36