

Hoses

Ratermann Manufacturing, Inc. carries a tremendous range of hoses suited for all your high pressure needs.



INDEX

Cryogenic Hoses

- Cryogenic Inert **16A-3**
- Cryogenic Oxygen **16A-2**
- Accessories
 - CGA to NPT Adapters **16A-2, 3**
 - Hose End Dust Caps **16A-2, 3**
 - Liquid Nitrogen Diffuser **16A-5**
 - Liquid Transfer Kit **16A-5**
 - T and "Candy Cane" Relief **16A-4**
 - Transfill Unit **16A-4**

Cryogenic Bulk Hoses

- Bulk Cryogenic Components **16A-8, 9**
- Bulk Cryogenic Hose **16A-6**
- Double Braided Bulk Hose **16A-7**
- Bulk Loading Hose **16A-8,9**

Bulk Smart Hose

- Smart Hose Fluid Systems
 - Fill Rack Manifold **16A-10**
 - Hydrogen & Helium Hoses. **16A-10**

High Pressure Hoses

- Corrosive Gas **16A-19**
- Female Swivel **16A-11,12,17**
- Hydrogen, Helium & Specialty Gas **16A-18**
- Teflon Lined Stainless Steel Braided
 - 3,000 PSI **16A-11**
 - 3,600 PSI **16A-12**
- Teflon Lined Stainless Steel Braided – Inert 580
 - 3,000 PSI **16A-13**
 - 3,600 PSI **16A-14**
- Teflon Lined Stainless Steel Braided – Oxygen 540
 - 3,000 PSI **16A-15**
 - 3,600 PSI **16A-16**
- Tsczel ETFE Lined Stainless **16A-17**
- Vacuum Jacketed Hoses **16A-22**

Miscellaneous

- CGA Fittings **16A-21**
- How to Order Custom Hoses **16A-20**

SUPERFLEX OXYGEN CRYOGENIC LIQUID CYLINDER HOSES

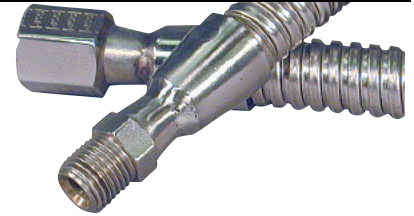


Transfer Hose

1/2" inner diameter standard duty stainless steel hose to provide a dependable, high pressure hose for your cryogenic transfer applications. Machine flare ends and stainless steel hex nuts are standard on these hoses.

Stamped with 1000 PSIG MAWP, and month/year of manufacturer.

(Oxygen hoses are cleaned, capped, bagged, and certified clean for oxygen service per CGA G-4.1.)



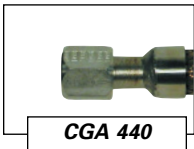
Without Armor Casing



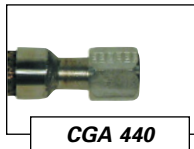
With Armor Casing

INLET

OUTLET



CGA 440



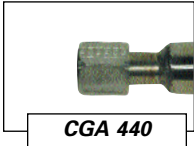
CGA 440

Hose Length	Part #
48"	FP-CGA440-CH-48
72"	FP-CGA440-CH-72
10'	FP-CGA440-CH-120
12'	FP-CGA440-CH-144
20'	FP-CGA440-CH-240

Hose Length	Part #
48"	FP-A-CGA440-CH-48
72"	FP-A-CGA440-CH-72
10'	FP-A-CGA440-CH-120
12'	FP-A-CGA440-CH-144
20'	FP-A-CGA440-CH-240

INLET

OUTLET



CGA 440



3/8" MNPT Male

Hose Length	Part #
48"	FP-M38CGA440-CH-48
72"	FP-M38CGA440-CH-72
10'	FP-M38CGA440-CH-96
12'	FP-M38CGA440-CH-120
20'	FP-M38CGA440-CH-144

Hose Length	Part #
48"	FP-A-M38CGA440-CH-48
72"	FP-A-M38CGA440-CH-72
10'	FP-A-M38CGA440-CH-96
12'	FP-A-M38CGA440-CH-120
20'	FP-A-M38CGA440-CH-144

INLET

OUTLET



CGA 440









1/2" MNPT Male

Hose Length	Part #
48"	FP-M12CGA440-CH-48
72"	FP-M12CGA440-CH-72
10'	FP-M12CGA440-CH-120

Hose Length	Part #
48"	FP-A-M12CGA440-CH-48
72"	FP-A-M12CGA440-CH-72
10'	FP-A-M12CGA440-CH-120

ORDER CUSTOM LENGTH HOSE

**Custom length hoses are not returnable for either credit or refund.*

Type Hose	With or Without Armor Casing	INLET	OUTLET	Length Hose
FP	<input type="checkbox"/> Armor Standard Pt # A <input type="checkbox"/> Non-Armor Standard	Choose Your Hose End Pt # CGA 440 – Liquid Oxygen Pt # CGA440  3/8 NPT Male Pt # M38  1/2 NPT Male Pt # M12 	Choose Your Hose End Pt # CGA 440 – Liquid Oxygen Pt # CGA440  3/8 NPT Male Pt # M38  1/2 NPT Male Pt # M12 	<input type="checkbox"/> Inches Pt # CH _____ IN
FP - _____ - _____		CH _____		IN

HOSE END DUST CAPS

Keep dirt and bugs out of hose while in storage.



CGA 440 Oxygen

Part No.	Description
Cap-440Hose	Hose Plug & Chain

HOSE COUPLER

CGA-440 Oxygen



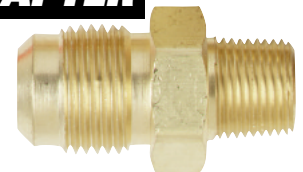
Part # CGA-440COU

CGA TO NPT ADAPTER

Oxygen Dewar Brass Fittings

CGA 440 x 3/8" NPT Oxygen, Liquid & Vent
**Most common*

O.D. of Hex 1 Inch

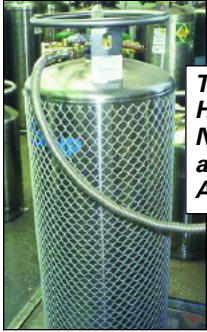


Part #	Description
CGA-44038	Oxygen Dewar 3/8" NPT*
CGA-44014	Oxygen Dewar 1/4" NPT
CGA-44012	Oxygen Dewar 1/2" NPT

CRYO LIQUID HOSES INERT

Hoses — Cryogenic & High Pressure
Section
16A

SUPERFLEX INERT CRYOGENIC LIQUID CYLINDER HOSES

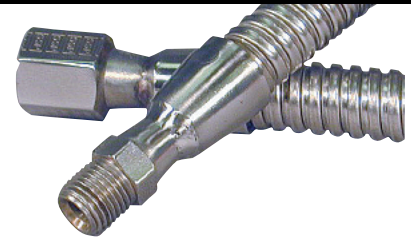


Transfer Hose for Nitrogen and Argon

1/2" inner diameter standard duty stainless steel hose to provide a dependable, high pressure hose for your cryogenic transfer applications. Machine flare ends and stainless steel hex nuts are standard of these hoses.

Stamped with 1000 PSIG MAWP, and month/year of manufacturer.

* Not cleaned for Oxygen Service



Without Armor Casing

With Armor Casing

Hose Length	Part #
48"	FP-CGA295-CH-48
72"	FP-CGA295-CH-72
10'	FP-CGA295-CH-120
12'	FP-CGA295-CH-144
20'	FP-CGA295-CH-240

Hose Length	Part #
48"	FP-A-CGA295-CH-48
72"	FP-A-CGA295-CH-72
10'	FP-A-CGA295-CH-120
12'	FP-A-CGA295-CH-144
20'	FP-A-CGA295-CH-240

Without Armor Casing

With Armor Casing

Hose Length	Part #
48"	FP-M38CGA295-CH-48
72"	FP-M38CGA295-CH-72
10'	FP-M38CGA295-CH-96
12'	FP-M38CGA295-CH-120
20'	FP-M38CGA295-CH-144

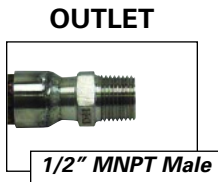
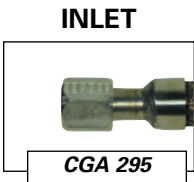
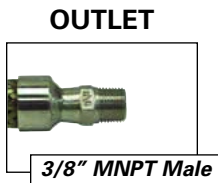
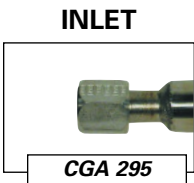
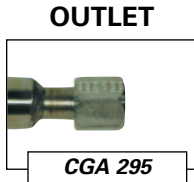
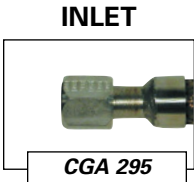
Hose Length	Part #
48"	FP-A-M38CGA295-CH-48
72"	FP-A-M38CGA295-CH-72
10'	FP-A-M38CGA295-CH-96
12'	FP-A-M38CGA295-CH-120
20'	FP-A-M38CGA295-CH-144

Without Armor Casing

With Armor Casing

Hose Length	Part #
48"	FP-M12CGA295-CH-48
72"	FP-M12CGA295-CH-72
10'	FP-M12CGA295-CH-120

Hose Length	Part #
48"	FP-A-M12CGA295-CH-48
72"	FP-A-M12CGA295-CH-72
10'	FP-A-M12CGA295-CH-120



ORDER CUSTOM LENGTH HOSE

*Custom length hoses are not returnable for either credit or refund.

Type Hose	With or Without Armor Casing	INLET	OUTLET	Length Hose
FP	<input type="checkbox"/> Armor Standard Pt # A <input type="checkbox"/> Non-Armor Standard	Choose Your Hose End Pt # CGA 295 – Inert Pt # CGA295 3/8 NPT Male Pt # M38 1/2 NPT Male Pt # M12	Choose Your Hose End Pt # CGA 295 – Inert Pt # CGA295 3/8 NPT Male Pt # M38 1/2 NPT Male Pt # M12	<input type="checkbox"/> Inches Pt # CH _____ IN
FP - _____ - _____ - _____ - CH _____ IN				

HOSE END DUST CAPS

Keep dirt and bugs out of hose while in storage.



CGA 295 Inert

Part No.	Description
Cap-295Hose	Hose Plug & Chain

HOSE COUPLER

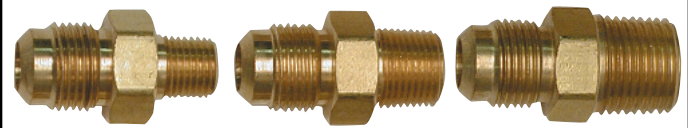
CGA-295 Inert



Part # CGA-295COU

CGA TO NPT ADAPTER

Hose Adapters for CGA-295 to NPT Fitting - O.D. Hex is 7/8"



1/4" NPT Male
Part # CGA-29514

3/8" NPT Male
Part # CGA-29538

1/2" NPT Male
Part # CGA-29512

LIQUID HOSES

T AND "CANDY CANE" RELIEF

1/4" NPT Safety Pressure Relief



1/4" NPT Safety Pressure Relief

Part #	Description
PR-22	22 PSI
PR-35	35 PSI
PR-50	50 PSI
PR-75	75 PSI
PR-100	100 PSI
PR-125	125 PSI
PR-150	150 PSI
PR-175	175 PSI
PR-200	200 PSI
PR-230	230 PSI
PR-235	235 PSI
PR-350	350 PSI
PR-375	375 PSI
PR-400	400 PSI
PR-425	425 PSI
PR-450	450 PSI
PR-500	500 PSI
PR-700	700 PSI

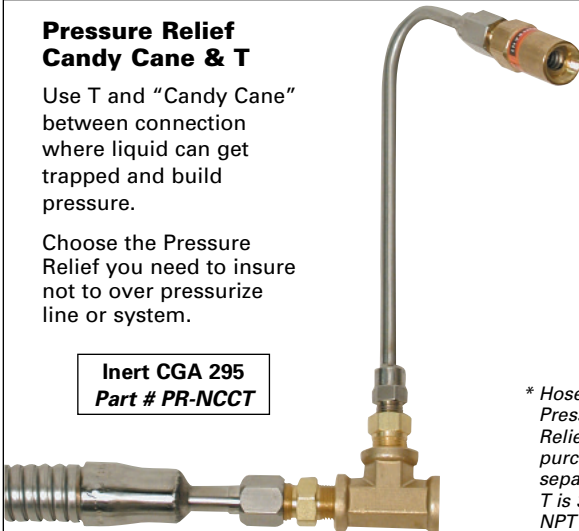
Custom Pressure Settings Also Available

Pressure Relief Candy Cane & T

Use T and "Candy Cane" between connection where liquid can get trapped and build pressure.

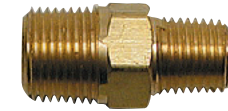
Choose the Pressure Relief you need to insure not to over pressurize line or system.

Inert CGA 295
Part # PR-NCCT



* Hose and Pressure Relief purchased separately. T is 3/8" NPT female

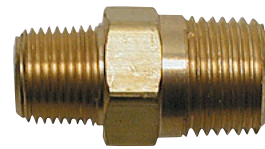
NPT Adapters



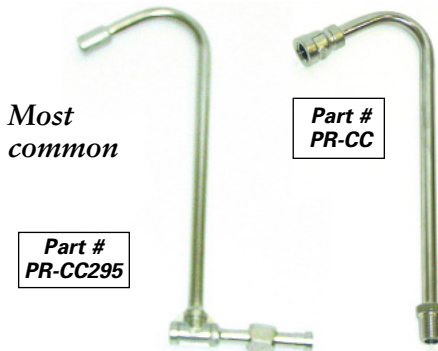
3/8" To 1/4" Male NPT
Part # FIT-M38M14



3/8" To 3/8" Male NPT
Part # FIT-M38M38



3/8" To 1/2" Male NPT
Part # FIT-M38M12



Part #	Description
*PR-CC295	For Nitrogen Candy Cane & T Pressure Relief Kit 3/8" NPT Male CGA 295
*PR-CC440	For Oxygen Candy Cane & T Pressure Relief Kit 3/8" NPT Male CGA 440
PR-CC	Candy Cane with 1/4" NPT Female for Pressure Relief
PR-CCT	Candy Cane & T for Pressure Relief without CGA Hookup 3/8" NPT Female
FIT-M38M14	Adapter to 1/4" NPT
FIT-M38M38	Adapter to 3/8" NPT
FIT-M38M12	Adapter to 1/2" NPT

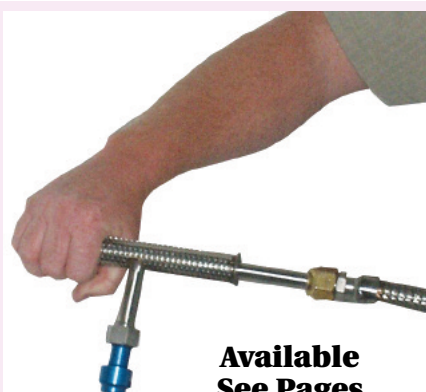
* Pressure Reliefs – Need to order desired Pressure Reliefs Separately. Not included with Candy Cane or T.

COMPLETE TRANSFILL UNIT FOR DEWARs

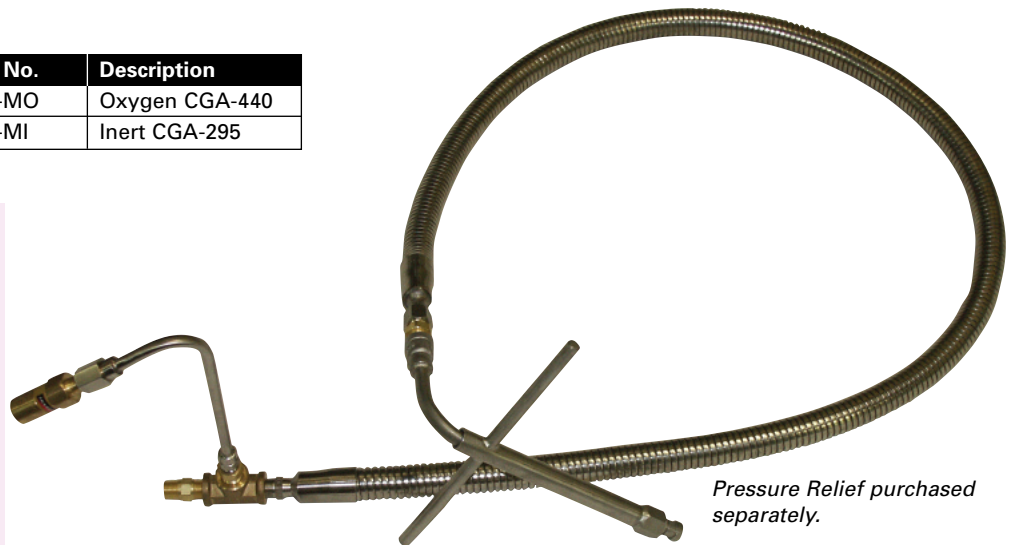
Unit Includes

- Candy Cane / T / 3/8" NPT
- 6 Foot Armored Hose and
- Quick Turn CGA Fill Tool

Part No.	Description
CRY-MO	Oxygen CGA-440
CRY-MI	Inert CGA-295



Available See Pages 16A-2 & 16A-3



Pressure Relief purchased separately.

Photo shown with Optional Pressure Relief and NPT Adapter. Choose NPT Adapter from above

LIQUID HOSE PHASE SEPARATORS

LIQUID NITROGEN DIFFUSER



**Diffuser
Connects
Directly
to Male
NPT Hose**



Part # CRY-ACC18PS
1/8" FNPT x 1/2" OD x 1 3/16" L

**Most
Common
Size**



Part # CRY-ACC38PS
3/8" FNPT x 1 3/8" OD x 2 3/4" L



Part # CRY-ACC12PS
1/2" FNPT x 1 5/8" OD x 4 1/4" L

LIQUID TRANSFER KIT

Hose & Diffuser –

Armored Hose CGA-295 with 1/8" Diffuser

Part #	Hose Length	Description
FPA4D18	4'	CGA-295 w/ 1/8" Diffuser
FPA6D18	6'	CGA-295 w/ 1/8" Diffuser
FPA8D18	8'	CGA-295 w/ 1/8" Diffuser
FPA12D18	12'	CGA-295 w/ 1/8" Diffuser

Hose & Diffuser –

Armored Hose CGA-295 with 3/8" Diffuser

Part #	Hose Length	Description
FPA4D38	4'	CGA-295 w/ 3/8" Diffuser
FPA6D38	6'	CGA-295 w/ 3/8" Diffuser
FPA8D38	8'	CGA-295 w/ 3/8" Diffuser
FPA12D38	12'	CGA-295 w/ 3/8" Diffuser

Hose & Diffuser –

Armored Hose CGA-295 with 1/2" Diffuser

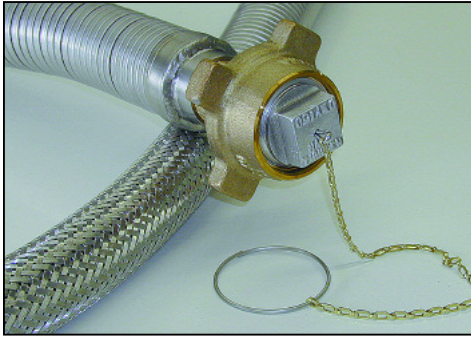
Part #	Hose Length	Description
FPA4D12	4'	CGA-295 w/ 1/2" Diffuser
FPA6D12	6'	CGA-295 w/ 1/2" Diffuser
FPA8D12	8'	CGA-295 w/ 1/2" Diffuser
FPA12D12	12'	CGA-295 w/ 1/2" Diffuser



Part # FPA4D38

BULK CRYOGENIC HOSE

FOR TANK & TRAILER LOADING / UNLOADING



- All Stainless Steel
- 516 to 571 PSIG MAWP Rated – SS FNTP End Fittings

This is an all-stainless steel corrugated hose with stainless steel over braid. It is ideal for cryogenic liquid bulk transfer. Light weight and flexible at cryogenic temperatures. Standard assembly has 18" long stainless steel armor casing cuffs to act as bend restrictors. Prices include 1" assemblies, normally used in micro-bulk applications. 100% leak tested.

Style Specifications

**1 Inch, 1 1/2 Inch & 2 Inch
100% Leak Tested**

Liner: Corrugated 321 SS standard pitch

Reinforcement: Stainless steel braid

Temperature: Cryogenic to + 1500° F

Branding: Manufacturer, pressure rating, date.

Bulk Hose with FNPT x FNPT Ends

Standard Build with 18" Armored Cuffs

1" I.D. – 571 PSI, 1" FNPT x 1" FNPT

Hose Length	Part #
10'	BH-A18-1ID-120F1
12'	BH-A18-1ID-144F1
20'	BH-A18-1ID-240F1

With No Armor Cuffs

Hose Length	Part #
10'	BH-1ID-120F1
12'	BH-1ID-144F1
20'	BH-1ID-240F1

1 1/2" I.D. – 472 PSI, 1 1/2" FNPT x 1 1/2" FNPT

Hose Length	Part #
10'	BH-A18-112ID-120F112
12'	BH-A18-112ID-144F112
20'	BH-A18-112ID-240F112

Hose Length	Part #
10'	BH-112ID-120F112
12'	BH-112ID-144F112
20'	BH-112ID-240F112

2" I.D. – 516 PSI, 2" FNPT x 2" FNPT & 1 1/2" FNPT x 1 1/2" FNPT

Hose Length	Part #
10'	BH-A18-2ID-120F2
12'	BH-A18-2ID-144F2
20'	BH-A18-2ID-240F2
10'	BH-A18-2ID-120F112
12'	BH-A18-2ID-144F112
20'	BH-A18-2ID-240F112

Hose Length	Part #
10'	BH-2ID-120F1
12'	BH-2ID-144F1
20'	BH-2ID-240F1
10'	BH-2ID-120F112
12'	BH-2ID-144F112
20'	BH-2ID-240F112

Bulk Hose with FNPT x MNPT Ends

Standard Build with 18" Armored Cuffs

1" I.D. – 571 PSI, 1" FNPT x 1" MNPT

Hose Length	Part #
10'	BH-A18-1ID-120F1M1
12'	BH-A18-1ID-144F1M1
20'	BH-A18-1ID-240F1M1

With No Armor Cuffs

Hose Length	Part #
10'	BH-1ID-120F1M2
12'	BH-1ID-144F1M2
20'	BH-1ID-240F1M2

1 1/2" I.D. – 472 PSI, 1 1/2" FNPT x 1 1/2" MNPT

Hose Length	Part #
10'	BH-A18-112ID-120F112M112
12'	BH-A18-112ID-144F112M112
20'	BH-A18-112ID-240F112M112

Hose Length	Part #
10'	BH-112ID-120F112M112
12'	BH-112ID-144F112M112
20'	BH-112ID-240F112M112

2" I.D. – 516 PSI, 2" FNPT x 2" MNPT & 1 1/2" FNPT x 1 1/2" MNPT

Hose Length	Part #
10'	BH-A18-2ID-120F2M2
12'	BH-A18-2ID-144F2M2
20'	BH-A18-2ID-240F2M2
10'	BH-A18-2ID-120F112M112
12'	BH-A18-2ID-144F112M112
20'	BH-A18-2ID-240F112M112

Hose Length	Part #
10'	BH-2ID-120F2M2
12'	BH-2ID-144F2M2
20'	BH-2ID-240F2M2
10'	BH-2ID-120F112M112
12'	BH-2ID-144F112M112
20'	BH-2ID-240F112M112

CUSTOM LENGTH HOSE – BULK HOSE ALL STAINLESS STEEL

**Custom length hoses are not returnable for either credit or refund.*

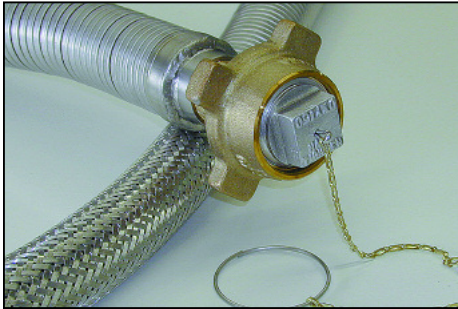
ORDER CUSTOM LENGTH HOSE

Bulk Hose	With or Without Armor Casing or Cuffs	Hose I.D. Size	Length of Hose in Inches	Choose Your Hose Ends Pt #
BH	With 18" Armor Cuffs Pt # A18	1 Inch	Pt # _____ IN	1" FNPT x 1" FNPT Pt # F1
	With Full Length Armor Pt # A	1 1/2 Inches		1" FNPT x 1" MNPT Pt # F1M1
	No Armor Cuffs or Casing Pt #	2 Inches		1 1/2" FNPT x 1 1/2" FNPT Pt # F112
				1 1/2" FNPT x 1 1/2" MNPT Pt # F112M112
				2" FNPT x 2" FNPT Pt # F2
				2" FNPT x 2" MNPT Pt # F2M2

BH - _____ - ID - _____ IN - _____

DOUBLE BRAIDED BULK HOSE

CRYO HOSE FOR TANK & TRAILER LOADING / UNLOADING



- All Stainless Steel, Double Braid
- 665 to 914 PSIG MAWP Rated – SS FNTP End Fittings

This is an all-stainless steel corrugated hose with stainless steel double braid. It is ideal for cryogenic liquid bulk transfer. Light weight and flexible at cryogenic temperatures. Standard assembly has 18" long stainless steel armor casing cuffs to act as bend restrictors. Prices include 1" assemblies, normally used in micro-bulk applications. 100% leak tested.

Style Specifications

**1 Inch, 1 1/2 Inch & 2 Inch
100% Leak Tested**

Liner: Corrugated 321 SS standard pitch

Reinforcement: Stainless steel double braid

Temperature: Cryogenic to + 1500° F

Branding: Manufacturer, pressure rating, date.

Double Braided Bulk Hose with FNPT x FNPT Ends

Standard Build with 18" Armored Cuffs
1" I.D. – 914 PSI, 1" FNPT x 1" FNPT

With No Armor Cuffs

Hose Length	Part #
10'	BHD-A18-1ID-120F1
12'	BHD-A18-1ID-144F1
20'	BHD-A18-1ID-240F1

Hose Length	Part #
10'	BHD-1ID-120F1
12'	BHD-1ID-144F1
20'	BHD-1ID-240F1

1 1/2" I.D. – 665 PSI, 1 1/2" FNPT x 1 1/2" FNPT

Hose Length	Part #
10'	BHD-A18-112ID-120F112
12'	BHD-A18-112ID-144F112
20'	BHD-A18-112ID-240F112

Hose Length	Part #
10'	BHD-112ID-120F112
12'	BHD-112ID-144F112
20'	BHD-112ID-240F112

2" I.D. – 700 PSI, 2" FNPT x 2" FNPT & 1 1/2" FNPT x 1 1/2" FNPT

Hose Length	Part #
10'	BHD-A18-2ID-120F2
12'	BHD-A18-2ID-144F2
20'	BHD-A18-2ID-240F2
10'	BHD-A18-2ID-120F112
12'	BHD-A18-2ID-144F112
20'	BHD-A18-2ID-240F112

Hose Length	Part #
10'	BHD-2ID-120F2
12'	BHD-2ID-144F2
20'	BHD-2ID-240F2
10'	BHD-2ID-120F112
12'	BHD-2ID-144F112
20'	BHD-2ID-240F112

Double Braided Bulk Hose with FNPT x MNPT Ends

Standard Build with 18" Armored Cuffs
1" I.D. – 914 PSI, 1" FNPT x 1" MNPT

With No Armor Cuffs

Hose Length	Part #
10'	BHD-A18-1ID-120F1M1
12'	BHD-A18-1ID-144F1M1
20'	BHD-A18-1ID-240F1M1

Hose Length	Part #
10'	BHD-1ID-120F1M1
12'	BHD-1ID-144F1M1
20'	BHD-1ID-240F1M1

1 1/2" I.D. – 665 PSI, 1 1/2" FNPT x 1 1/2" MNPT

Hose Length	Part #
10'	BHD-A18-112ID-120F112M112
12'	BHD-A18-112ID-144F112M112
20'	BHD-A18-112ID-240F112M112

Hose Length	Part #
10'	BHD-112ID-120F112M112
12'	BHD-112ID-144F112M112
20'	BHD-112ID-240F112M112

2" I.D. – 700 PSI, 2" FNPT x 2" MNPT & 1 1/2" FNPT x 1 1/2" MNPT

Hose Length	Part #
10'	BHD-A18-2ID-120F2M2
12'	BHD-A18-2ID-144F2M2
20'	BHD-A18-2ID-240F2M2
10'	BHD-A18-2ID-120F112M112
12'	BHD-A18-2ID-144F112M112
20'	BHD-A18-2ID-240F112M112

Hose Length	Part #
10'	BHD-2ID-120F2M2
12'	BHD-2ID-144F2M2
20'	BHD-2ID-240F2M2
10'	BHD-2ID-120F112M112
12'	BHD-2ID-144F112M112
20'	BHD-2ID-240F112M112

CUSTOM LENGTH HOSE – BULK HOSE ALL STAINLESS STEEL

**Custom length hoses are not returnable for either credit or refund.*

ORDER CUSTOM LENGTH HOSE

Bulk Hose	With or Without Armor Casing or Cuffs	Hose I.D. Size	Length of Hose in Inches	Choose Your Hose Ends Pt #
BHD	With 18" Armor Cuffs Pt # A18	1 Inch	Pt # _____ IN	1" FNPT x 1" FNPT Pt # F1
	With Full Length Armor Pt # A	1 1/2 Inches		1" FNPT x 1" MNPT Pt # F1M1
	No Armor Cuffs or Casing Pt #	2 Inches		1 1/2" FNPT x 1 1/2" FNPT Pt # F112
				1 1/2" FNPT x 1 1/2" MNPT Pt # F112M112
				2" FNPT x 2" FNPT Pt # F2
				2" FNPT x 2" MNPT Pt # F2M2

BHD - _____ - ID - _____ IN - _____

BULK CRYO HOSE & FITTINGS

BULK CRYOGENIC HOSE FOR LOADING AND UNLOADING

The BCH Series is specifically designed for bulk transfer of cryogenic liquid gases. BCH Series are lightweight and flexible at cryogenic temperatures and constructed with Type 321 stainless steel corrugated inner hose, Type 304 outer braid and Type 304 stainless steel female npt coupling each end to accommodate CGA connections. All standard bulk hose assemblies are equipped with 18" long Type 304 stainless steel armor casing cuffs to act as a bend restrictor. All hoses are 100% tested and cleaned for oxygen service.

KEY FEATURES

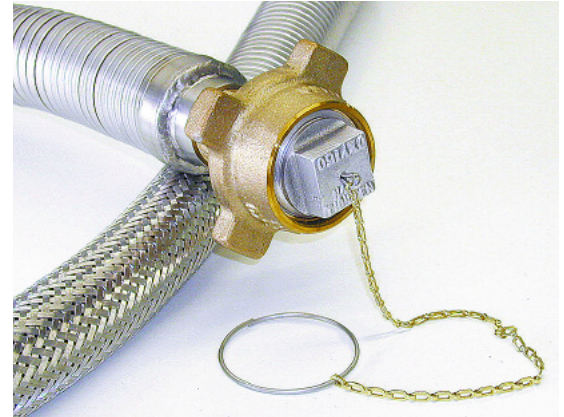
- 385psig to 571psig maximum working pressure depending on hose size.
- 1540psig to 3180psig burst pressure depending on hose size.
- Inner core is corrugated 321SS standard pitch.
- 304SS Stainless steel braid reinforcement.
- 304SS Stainless steel F.NPT fittings are standard.
- Cryogenic to 1500°F.
- 1", 1.5" 2" and 3" ID hoses available.
- 100% Leak tested

OPTIONS

- No casing cuffs.
- Full length double braiding.
- Full length nylon "tuff guard".

HOSE END THREADING

1.0	1" FNPT
1.5	1.5" FNPT
2.0	2" FNPT
2.5	2.5" FNPT
3.0	3" FNPT



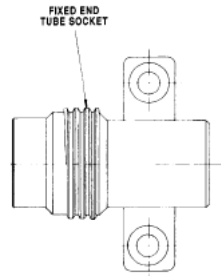
BULK CRYOGENIC HOSES FOR LOADING AND UNLOADING

Part Number	Ends	Length
BH-A18-1ID-120F1	1" Female NPT Both Ends	10 Feet
BH-A18-112ID-120F112	1 1/2" Female NPT Both Ends	10 Feet
BH-A18-2ID-120F2	2" Female NPT Both Ends	10 Feet
BH-A18-212ID-120F212	2 1/2" Female NPT Both Ends	10 Feet
BH-A18-3ID-120F3	3" Female NPT Both Ends	10 Feet

BULK CRYOGENIC COMPONENTS

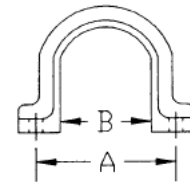
FILL BLOCK WITH LUGS - TUBE SOCKET

Part Number	Description
FBL-150-AR	1 1/2" Argon
FBL-250-AR	2 1/2" Argon
FBL-150-NI	1 1/2" Nitrogen
FBL-250-NI	2 1/2" Nitrogen
FBL-150-OX	1 1/2" Oxygen
FBL-200-OX	2" Oxygen



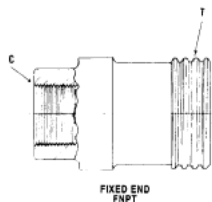
FILL BLOCK CLAMP ASSEMBLY - BRONZE

Part Number	Description
FBCA-150	1 1/2" Clamp
FBCA-200	2" Clamp
FBCA-250	2 1/2" Clamp
FBCA-300	3" Clamp



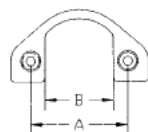
FILL BLOCK WITH FLATS - FNPT

Part Number	Description
FBF-150-AR	1 1/2" FNPT Argon
FBF-250-AR	2 1/2" FNPT Argon
FBF-150-NI	1 1/2" FNPT Nitrogen
FBF-250-NI	2 1/2" FNPT Nitrogen
FBF-150-OX	1 1/2" FNPT Oxygen
FBF-200-OX	2" FNPT Oxygen
FBF-300-OX	3" FNPT Oxygen



FILL BLOCK CLAMP ASSEMBLY

Part Number	Description
FBCA-RA-150	1 1/2" Clamp
FBCA-RA-150-ARGON	1 1/2" Clamp



Bulk Cryogenic Threaded Fitting Assemblies

Choose from the following CGA bronze trailer fitting assemblies for all BCH series hoses to complete your loading requirements. Each assembly includes the nut, fill sleeve, and tail plug.

ORDERING INFORMATION

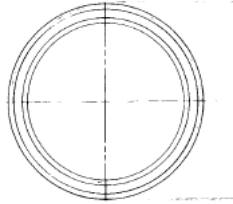
Part Number	Description
BCFA-150-150-NI	1 1/2" Cryo Bulk Fitting for 1 1/2" Hose Size, Nitrogen
BCFA-250-200-NI	2 1/2" Cryo Bulk Fitting for 2" Hose Size, Nitrogen
BCFA-250-250-NI	2 1/2" Cryo Bulk Fitting for 2 1/2" Hose Size, Nitrogen
BCFA-150-150-AR	1 1/2" Cryo Bulk Fitting for 1 1/2" Hose Size, Argon
BCFA-250-200-AR	2 1/2" Cryo Bulk Fitting for 2" Hose Size, Argon
BCFA-250-250-AR	2 1/2" Cryo Bulk Fitting for 2 1/2" Hose Size, Argon
BCFA-150-150-OX	1 1/2" Cryo Bulk Fitting for 1 1/2" Hose Size, Oxygen
BCFA-200-200-OX	2" Cryo Bulk Fitting for 2" Hose Size, Oxygen
BCFA-300-200-OX	3" Cryo Bulk Fitting for 2" Hose Size, Oxygen
BCFA-300-250-OX	3" Cryo Bulk Fitting for 2 1/2" Hose Size, Oxygen
BCFA-300-300-OX	3" Cryo Bulk Fitting for 3" Hose Size, Oxygen

BULK CRYO HOSE & FITTINGS

BULK CRYOGENIC COMPONENTS

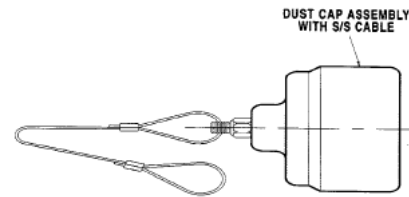
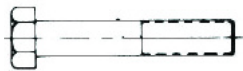
FILL CONNECTION GASKETS

Part Number	Description
BH-FCG-150-COPPER	1 1/2" Copper
BH-FCG-150-TEFLON	1 1/2" Teflon
BH-FCG-200-TEFLON	2" Teflon
BH-FCG-250-COPPER	2 1/2" Copper
BH-FCG-250-TEFLON	2 1/2" Teflon
BH-FCG-300-COPPER	3" Copper



BOLT ASSEMBLY (Fixed End Clamps)

Part Number	Description
BH-BOLTASSY	Bolt Assembly



STAINLESS STEEL CABLE

Part Number	Description
BH-SS-32CABLE	32" Cable

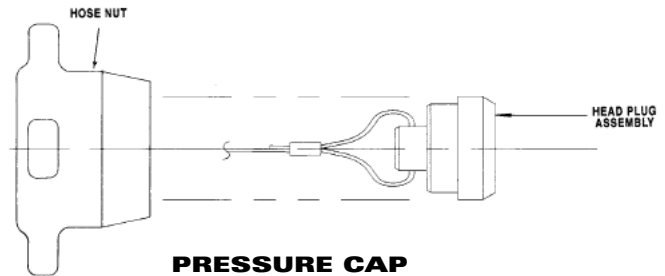
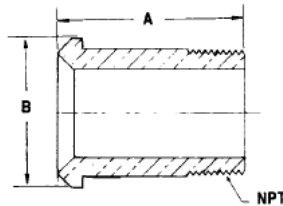


DUST CAP ASSEMBLIES

Part Number	Description
BH-DCA-150-AR	1 1/2" Argon
BH-DCA-250-AR	2 1/2" Argon
BH-DCA-150-NI	1 1/2" Nitrogen
BH-DCA-250-NI	2 1/2" Nitrogen
BH-DCA-150-OX	1 1/2" Oxygen
BH-DCA-200-OX	2" Oxygen
BH-DCA-300-OX	3" Oxygen

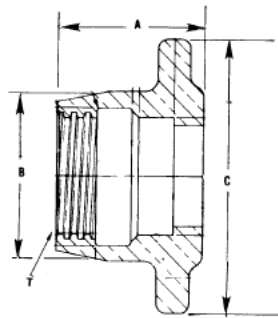
FILLING SLEEVE Brass

Part Number	Description
BH-FS-150	1 1/2" Hose and Nut
BH-FS-200	2" Hose and Nut
BH-FS-250	2 1/2" Hose and Nut
BH-FS-300	3" Hose and Nut



LOCKING CAP Bronze

Part Number	Description
BH-LC-150-AR	1 1/2" Argon
BH-LC-250-AR	2 1/2" Argon
BH-LC-150-NI	1 1/2" Nitrogen
BH-LC-250-NI	2 1/2" Nitrogen
BH-LC-150-OX	1 1/2" Oxygen
BH-LC-200-OX	2" Oxygen
BH-LC-300-OX	3" Oxygen

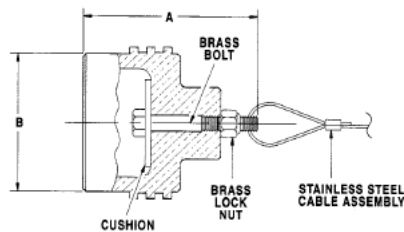


PRESSURE CAP ASSEMBLIES

Part Number	Description
BH-PCA-150-AR	1 1/2" Argon
BH-PCA-250-AR	2 1/2" Argon
BH-PCA-150-NI	1 1/2" Nitrogen
BH-PCA-250-NI	2 1/2" Nitrogen
BH-PCA-150-OX	1 1/2" Oxygen
BH-PCA-200-OX	2" Oxygen
BH-PCA-300-OX	3" Oxygen

DUST PLUGS

Part Number	Description
BH-DP-150-AR	1 1/2" Argon
BH-DP-250-AR	2 1/2" Argon
BH-DP-150-NI	1 1/2" Nitrogen
BH-DP-250-NI	2 1/2" Nitrogen
BH-DP-150-OX	1 1/2" Oxygen
BH-DP-200-OX	2" Oxygen
BH-DP-300-OX	3" Oxygen



BULK FITTING ALUMINUM WRENCH

Part Number	Description
BFAW-100/150-NUT WRENCH	1" & 1 1/2" Nut Wrench
BFAW-100/200-NUT WRENCH	1" & 2" Nut Wrench
BFAW-150/200-NUT WRENCH	1 1/2" & 2" Nut Wrench

BULK SMART HOSE

SMART-HOSE FLUID SYSTEMS

Engineering Data for the World's Safest Hose Assemblies!!

Open Flow

(Valves Kept Open by Internal Cable)



Coupling Failure

(Valves are Closed by Separation and/or Back Pressure)



A Flexible "Safety System" for use in the transfer of high pressure gases and liquids!

Protect against the hazardous effects due to hose rupture and tank pull away.

- Hose Whipping • Loss of Product • Personal Injury • Property Damage

Smart-Hose shuts off the flow of product in both directions upon hose and coupling separation, hose separation and hose stretching.

Failure of flexible pigtails may be caused by fatigue, poor coupling attachment, abuse or age. This potential for hose failure creates an unsafe working environment. Foremost among these failures is hose whipping as the pressurized gas or liquid is discharged at high velocity. In the case of high pressure cylinders, this rapid discharge is sufficient to cause the cylinder to fall over or be propelled about. Not only can equipment be damaged, but severe injury or death can result from being struck by the whipping pigtail.

Finally, the continuous discharge of toxic, flammable or otherwise hazardous gas or liquid may lead to major consequences. Smart-Hose with its Lifeline ends is designed to significantly reduce the unsafe potential of this type of accident!

Note: All hoses come oxygen cleaned.



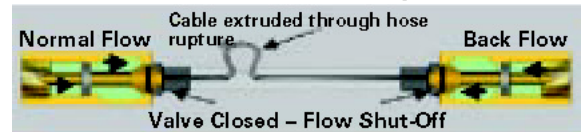
Hose Failure – Coupling Ejection



Hose Failure – Hose Separation



Hose Failure – Hose Rupture*



* Subject to certain conditions

HOSES FOR FILL RACK MANIFOLDS



Part #	Description
SHP-24F14-1	24" x 1/4" NPT, SS braided with teflon, 3000 PSI
SHP-36F14-1	36" x 1/4" NPT, SS braided with teflon, 3000 PSI
SHP-48F14-1	48" x 1/4" NPT, SS braided with teflon, 3000 PSI
SHP-60F14-1	60" x 1/4" NPT, SS braided with teflon, 3000 PSI
SHP-72F14-1	72" x 1/4" NPT, SS braided with teflon, 3000 PSI
SHP-10F12-1	10' x 1/2" NPT, SS braided with teflon, 3000 PSI

Contact us for additional lengths available.

HYDROGEN & HELIUM HOSES

Designed specifically for the ultra hazardous applications of high pressure hydrogen and helium gas transfer in tube trailers, facilities and cylinders. Whether you prefer metallic or Tefzel®, the Smart-Hose hydrogen hose is the Smart-Choice™. The inner hose, braid, armor casing cuffs, weld ring, and ends are all stainless steel. Each finished assembly is pneumatically tested to ensure it will withstand the application requirements.



Smart-Hose Tefzel® ETFE Lined Stainless Steel Braided Hoses
Smart-Hose's Tefzel® ETFE inner core has a permeation rate that is approximately 77% lower than PTFE inner core pigtails. This makes it an ideal choice for helium and hydrogen.

Smart-Hose Metallic Lined Stainless Steel Braided Hoses
Smart-Hose's metallic high pressure hose assemblies are specifically designed to transfer gaseous hydrogen to and from a bulk transport truck to the customer facility.

Part #	Description
SHB-HY-T-BH	1/2" Hydrogen Hose, Tefzel lined
SHB-HY-M-BH	1/2" Hydrogen Hose, Metal lined
SHB-HL-T-BH	1/2" Helium Hose, Tefzel lined
SHB-HL-M-BH	1/2" Helium Hose, Metal lined

Call for available connections.
Specify length when ordering.



Hoses for Following Gases

PIGTAILS

TEFLON® LINED STAINLESS STEEL BRAIDED PIGTAIL 3,000 PSI

STANDARD

These teflon core pigtails surpass the requirements of CGA E.9. Each pigtail is pressure tested on 1 1/2 times working pressure of 3,000 PSI.



SAFETY PIGTAIL

The Stainless Steel Armor Casing allows free movement of the hose and protects the hose from damage. The Stainless Steel Armor Casing also provides anti-kink and anti-whip protection.



(Oxygen hoses are cleaned, capped, bagged, & certified clean for oxygen service per CGA G-4.1.)

OUTLET

INLET



1/4" NPT Female

1/4" NPT Female

Standard Hose

Hose Length	Part #
24"	FP-24F14
36"	FP-36F14
48"	FP-48F14
72"	FP-72F14
10'	FP-120F14
20'	FP-240F14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-24F14
36"	FP-A-36F14
48"	FP-A-48F14
72"	FP-A-72F14
10'	FP-A-120F14
20'	FP-A-240F14

OUTLET

INLET



1/4" NPT Female

1/4" NPT Male

Standard Hose

Hose Length	Part #
24"	FP-24F14M14
36"	FP-36F14M14
48"	FP-48F14M14
72"	FP-72F14M14
10'	FP-120F14M14
20'	FP-240F14M14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-24F14M14
36"	FP-A-36F14M14
48"	FP-A-48F14M14
72"	FP-A-72F14M14
10'	FP-A-120F14M14
20'	FP-A-240F14M14

INLET

OUTLET



1/4" NPT Swivel Female

1/4" NPT Swivel Female

Standard Hose

Hose Length	Part #
24"	FP-24F14S
36"	FP-36F14S
48"	FP-48F14S

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-24F14S
36"	FP-A-36F14S
48"	FP-A-48F14S

INLET

OUTLET



1/4" NPT Male Non-Swivel End

1/4" NPT Swivel Female

Standard Hose

Hose Length	Part #
24"	FP-24M14F14S
36"	FP-36M14F14S
48"	FP-48M14F14S

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-24M14F14S
36"	FP-A-36M14F14S
48"	FP-A-48M14F14S

* Only Female NPT ends swivel. Male NPT ends do not rotate.

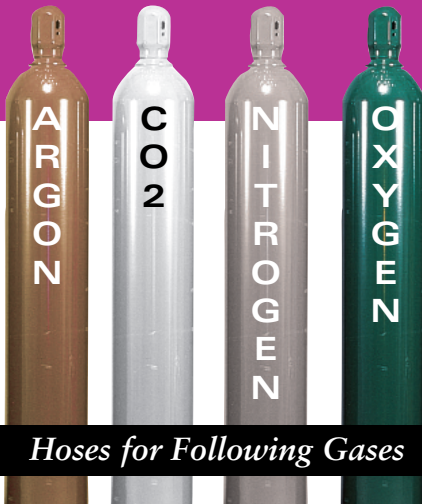
CUSTOM LENGTH HOSES - TEFLON LINED

3,000 PSI

*Custom length hoses are not returnable for either credit or refund.

ORDER CUSTOM LENGTH HOSE for Teflon Lined SS Braided Pigtails

Teflon Hose FP	With or Without Armor Casing	Length Hose	INLET		OUTLET	
	<input type="checkbox"/> Armor Standard Pt # A <input type="checkbox"/> Non-Armor Standard Pt # N	<input type="checkbox"/> Inches Pt # ____ IN All hoses are cleaned for Oxygen Service	Choose Your Hose End Pt #		Choose Your Hose End Pt #	
			1/4" NPT Male Pt # M14		1/4" NPT Male Pt # M14	
			1/4" NPT Female Pt # F14		1/4" NPT Female Pt # F14	
			1/4" NPT Swivel Female Pt # F14S		1/4" NPT Swivel Female Pt # F14S	
FP - _____ - IN - _____						



Hoses for Following Gases

PIGTAILS

TEFLON® LINED STAINLESS STEEL BRAIDED PIGTAIL 3,600 PSI

STANDARD

These teflon core pigtails surpass the requirements of CGA E.9. Each pigtail is pressure tested on 1 1/2 times working pressure of 3,600 PSI.



(Oxygen hoses are cleaned, capped, bagged, & certified clean for oxygen service per CGA G-4.1.)

SAFETY PIGTAIL

The Stainless Steel Armor Casing allows free movement of the hose and protects the hose from damage. The Stainless Steel Armor Casing also provides anti-kink and anti-whip protection.



OUTLET

INLET



1/4" NPT Female

1/4" NPT Female

Standard Hose

Hose Length	Part #
24"	FPT-24F14
36"	FPT-36F14
48"	FPT-48F14
72"	FPT-72F14
10'	FPT-120F14
20'	FPT-240F14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-24F14
36"	FPT-A-36F14
48"	FPT-A-48F14
72"	FPT-A-72F14
10'	FPT-A-120F14
20'	FPT-A-240F14

OUTLET

INLET



1/4" NPT Female

1/4" NPT Male

Standard Hose

Hose Length	Part #
24"	FPT-24F14M14
36"	FPT-36F14M14
48"	FPT-48F14M14
72"	FPT-72F14M14
10'	FPT-120F14M14
20'	FPT-240F14M14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-24F14M14
36"	FPT-A-36F14M14
48"	FPT-A-48F14M14
72"	FPT-A-72F14M14
10'	FPT-A-120F14M14
20'	FPT-A-240F14M14

INLET

OUTLET



1/4" NPT Swivel Female

1/4" NPT Swivel Female

Standard Hose

Hose Length	Part #
24"	FPT-24F14S
36"	FPT-36F14S
48"	FPT-48F14S

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-24F14S
36"	FPT-A-36F14S
48"	FPT-A-48F14S

INLET

OUTLET



1/4" NPT Male Non-Swivel End

1/4" NPT Swivel Female

Standard Hose

Hose Length	Part #
24"	FPT-24M14F14S
36"	FPT-36M14F14S
48"	FPT-48M14F14S

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-24M14F14S
36"	FPT-A-36M14F14S
48"	FPT-A-48M14F14S

* Only Female NPT ends swivel. Male NPT ends do not rotate.

CUSTOM LENGTH HOSES – TEFLON LINED

3,600 PSI

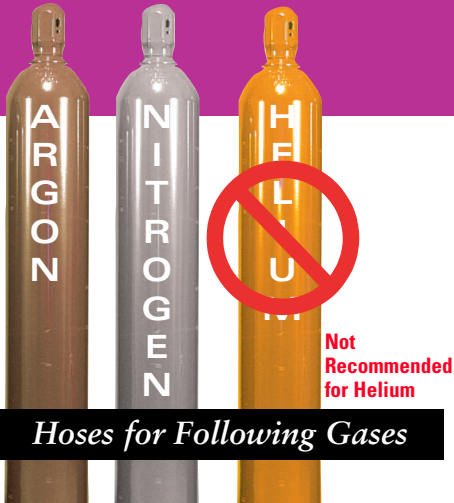
*Custom length hoses are not returnable for either credit or refund.

ORDER CUSTOM LENGTH HOSE for Teflon Lined SS Braided Pigtails

Teflon Hose FPT	With or Without Armor Casing <input type="checkbox"/> Armor Standard Pt # A <input type="checkbox"/> Non-Armor Standard Pt # N	Length Hose <input type="checkbox"/> Inches Pt # _____ IN All hoses are cleaned for Oxygen Service	INLET Choose Your Hose End Pt # 1/4" NPT Male Pt # M14 1/4" NPT Female Pt # F14 1/4" NPT Swivel Female Pt # F14S	OUTLET Choose Your Hose End Pt # 1/4" NPT Male Pt # M14 1/4" NPT Female Pt # F14 1/4" NPT Swivel Female Pt # F14S
	FPT - _____ - IN - _____			

PIGTAILS INERT 580

TEFLON® LINED STAINLESS STEEL BRAIDED PIGTAIL 3,000 PSI



Hoses for Following Gases

STANDARD

These teflon core pigtails surpass the requirements of CGA E.9. Each pigtail is pressure tested on 1 1/2 times working pressure of 3,000 PSI.



SAFETY PIGTAIL

The Stainless Steel Armor Casing allows free movement of the hose and protects the hose from damage. The Stainless Steel Armor Casing also provides anti-kink and anti-whip protection.



OUTLET

INLET



1/4" NPT Female

1/4" NPT Female

Standard Hose

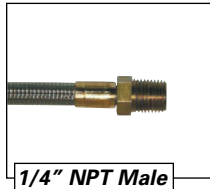
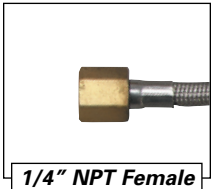
Hose Length	Part #
24"	FP-24F14
36"	FP-36F14
48"	FP-48F14
72"	FP-72F14
10'	FP-120F14
20'	FP-240F14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-24F14
36"	FP-A-36F14
48"	FP-A-48F14
72"	FP-A-72F14
10'	FP-A-120F14
20'	FP-A-240F14

OUTLET

INLET



1/4" NPT Female

1/4" NPT Male

Standard Hose

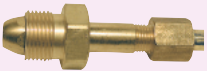
Hose Length	Part #
24"	FP-24F14M14
36"	FP-36F14M14
48"	FP-48F14M14
72"	FP-72F14M14
10'	FP-120F14M14
20'	FP-240F14M14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-24F14M14
36"	FP-A-36F14M14
48"	FP-A-48F14M14
72"	FP-A-72F14M14
10'	FP-A-120F14M14
20'	FP-A-240F14M14

OUTLET

INLET



CGA 580 Fittings

1/4" NPT

Standard Hose

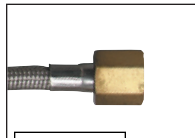
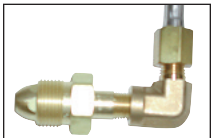
Hose Length	Part #
24"	FP-CGA580F14-24
36"	FP-CGA580F14-36
48"	FP-CGA580F14-48

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-CGA580F14-24
36"	FP-A-CGA580F14-36
48"	FP-A-CGA580F14-48

OUTLET

INLET



90° Brass Elbow with CGA 580 Fitting

1/4" NPT

Standard Hose

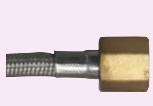
Hose Length	Part #
24"	FP-CGA580DF14-24
36"	FP-CGA580DF14-36
48"	FP-CGA580DF14-48

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-CGA580DF14-24
36"	FP-A-CGA580DF14-36
48"	FP-A-CGA580DF14-48

OUTLET

INLET



CGA 580 Plastic Hand Tight Nut

1/4" NPT

Standard Hose

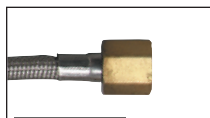
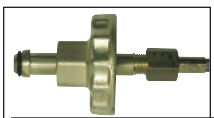
Hose Length	Part #
24"	FP-CGA580-24PHT
36"	FP-CGA580-36PHT
48"	FP-CGA580-48PHT

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPA-CGA580-24PHT
36"	FPA-CGA580-36PHT
48"	FPA-CGA580-48PHT

OUTLET

INLET



CGA 580 Brass Hand Tight Nut

1/4" NPT

Standard Hose

Hose Length	Part #
24"	FP-CGA580-24HT
36"	FP-CGA580-36HT
48"	FP-CGA580-48HT

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPA-CGA580-24HT
36"	FPA-CGA580-36HT
48"	FPA-CGA580-48HT



Hoses for Following Gases

PIGTAILS INERT 580

TEFLON® LINED STAINLESS STEEL BRAIDED PIGTAIL

3,600 PSI

STANDARD

These teflon core pigtails surpass the requirements of CGA E.9. Each pigtail is pressure tested on 1 1/2 times working pressure of 3,600 PSI.



SAFETY PIGTAIL

The Stainless Steel Armor Casing allows free movement of the hose and protects the hose from damage. The Stainless Steel Armor Casing also provides anti-kink and anti-whip protection.



OUTLET

INLET



1/4" NPT Female

1/4" NPT Female

Standard Hose

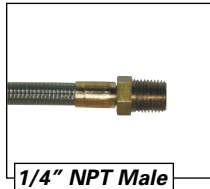
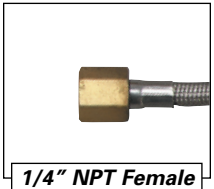
Hose Length	Part #
24"	FPT-24F14
36"	FPT-36F14
48"	FPT-48F14
72"	FPT-72F14
10'	FPT-120F14
20'	FPT-240F14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-24F14
36"	FPT-A-36F14
48"	FPT-A-48F14
72"	FPT-A-72F14
10'	FPT-A-120F14
20'	FPT-A-240F14

OUTLET

INLET



1/4" NPT Female

1/4" NPT Male

Standard Hose

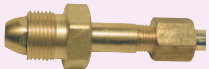
Hose Length	Part #
24"	FPT-24F14M14
36"	FPT-36F14M14
48"	FPT-48F14M14
72"	FPT-72F14M14
10'	FPT-120F14M14
20'	FPT-240F14M14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-24F14M14
36"	FPT-A-36F14M14
48"	FPT-A-48F14M14
72"	FPT-A-72F14M14
10'	FPT-A-120F14M14
20'	FPT-A-240F14M14

OUTLET

INLET



CGA 580 Fittings

1/4" NPT

Standard Hose

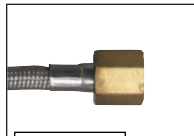
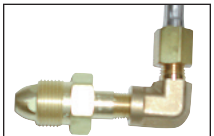
Hose Length	Part #
24"	FPT-CGA580F14-24
36"	FPT-CGA580F14-36
48"	FPT-CGA580F14-48

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-CGA580F14-24
36"	FPT-A-CGA580F14-36
48"	FPT-A-CGA580F14-48

OUTLET

INLET



90° Brass Elbow with CGA 580 Fitting

1/4" NPT

Standard Hose

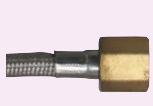
Hose Length	Part #
24"	FPT-CGA580DF14-24
36"	FPT-CGA580DF14-36
48"	FPT-CGA580DF14-48

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-CGA580DF14-24
36"	FPT-A-CGA580DF14-36
48"	FPT-A-CGA580DF14-48

OUTLET

INLET



CGA 580 Plastic Hand Tight Nut

1/4" NPT

Standard Hose

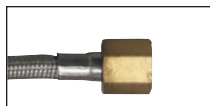
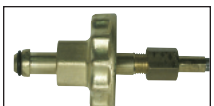
Hose Length	Part #
24"	FPT-CGA580-24PHT
36"	FPT-CGA580-36PHT
48"	FPT-CGA580-48PHT

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPTA-CGA580-24PHT
36"	FPTA-CGA580-36PHT
48"	FPTA-CGA580-48PHT

OUTLET

INLET



CGA 580 Brass Hand Tight Nut

1/4" NPT

Standard Hose

Hose Length	Part #
24"	FPT-CGA580-24HT
36"	FPT-CGA580-36HT
48"	FPT-CGA580-48HT

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPTA-CGA580-24HT
36"	FPTA-CGA580-36HT
48"	FPTA-CGA580-48HT

PIGTAILS OXYGEN 540

TEFLON® LINED STAINLESS STEEL BRAIDED PIGTAIL 3,000 PSI



Hoses for Following Gases

STANDARD

These teflon core pigtails surpass the requirements of CGA E.9. Each pigtail is pressure tested on 1 1/2 times working pressure of 3,000 PSI.

SAFETY PIGTAIL

The Stainless Steel Armor Casing allows free movement of the hose and protects the hose from damage. The Stainless Steel Armor Casing also provides anti-kink and anti-whip protection.



(Oxygen hoses are cleaned, capped, bagged, & certified clean for oxygen service per CGA G-4.1.)

OUTLET

INLET



1/4" NPT Female

1/4" NPT Female

Standard Hose

Hose Length	Part #
24"	FP-24F14
36"	FP-36F14
48"	FP-48F14
72"	FP-72F14
10'	FP-120F14
20'	FP-240F14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-24F14
36"	FP-A-36F14
48"	FP-A-48F14
72"	FP-A-72F14
10'	FP-A-120F14
20'	FP-A-240F14

OUTLET

INLET



1/4" NPT Female

1/4" NPT Male

Standard Hose

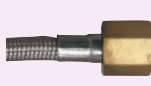
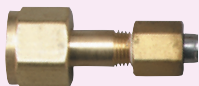
Hose Length	Part #
24"	FP-24F14M14
36"	FP-36F14M14
48"	FP-48F14M14
72"	FP-72F14M14
10'	FP-120F14M14
20'	FP-240F14M14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-24F14M14
36"	FP-A-36F14M14
48"	FP-A-48F14M14
72"	FP-A-72F14M14
10'	FP-A-120F14M14
20'	FP-A-240F14M14

OUTLET

INLET



CGA 540 Fittings

1/4" NPT

Standard Hose

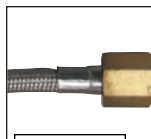
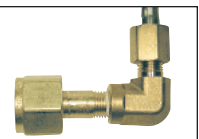
Hose Length	Part #
24"	FP-CGA540F14-24
36"	FP-CGA540F14-36
48"	FP-CGA540F14-48

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-CGA540F14-24
36"	FP-A-CGA540F14-36
48"	FP-A-CGA540F14-48

OUTLET

INLET



90° Brass Elbow with CGA 540 Fitting

1/4" NPT

Standard Hose

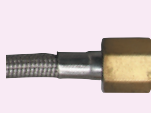
Hose Length	Part #
24"	FP-CGA540DF14-24
36"	FP-CGA540DF14-36
48"	FP-CGA540DF14-48

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FP-A-CGA540DF14-24
36"	FP-A-CGA540DF14-36
48"	FP-A-CGA540DF14-48

OUTLET

INLET



CGA 540 Plastic Hand Tight Nut

1/4" NPT

Standard Hose

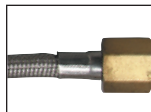
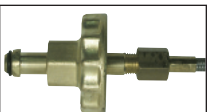
Hose Length	Part #
24"	FP-CGA540-24PHT
36"	FP-CGA540-36PHT
48"	FP-CGA540-48PHT

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPA-CGA540-24PHT
36"	FPA-CGA540-36PHT
48"	FPA-CGA540-48PHT

OUTLET

INLET



CGA 540 Brass Hand Tight Nut

1/4" NPT

Standard Hose

Hose Length	Part #
24"	FP-CGA540-24HT
36"	FP-CGA540-36HT
48"	FP-CGA540-48HT

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPA-CGA540-24HT
36"	FPA-CGA540-36HT
48"	FPA-CGA540-48HT



Hoses for Following Gases

PIGTAILS OXYGEN 540

TEFLON® LINED STAINLESS STEEL BRAIDED PIGTAIL

3,600 PSI

STANDARD

These teflon core pigtails surpass the requirements of CGA E.9. Each pigtail is pressure tested on 1 1/2 times working pressure of 3,600 PSI.

SAFETY PIGTAIL

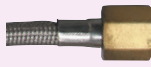
The Stainless Steel Armor Casing allows free movement of the hose and protects the hose from damage. The Stainless Steel Armor Casing also provides anti-kink and anti-whip protection.



(Oxygen hoses are cleaned, capped, bagged, & certified clean for oxygen service per CGA G-4.1.)

OUTLET

INLET



1/4" NPT Female

1/4" NPT Female

Standard Hose

Hose Length	Part #
24"	FPT-24F14
36"	FPT-36F14
48"	FPT-48F14
72"	FPT-72F14
10'	FPT-120F14
20'	FPT-240F14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-24F14
36"	FPT-A-36F14
48"	FPT-A-48F14
72"	FPT-A-72F14
10'	FPT-A-120F14
20'	FPT-A-240F14

OUTLET

INLET



1/4" NPT Female

1/4" NPT Male

Standard Hose

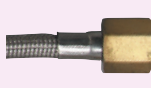
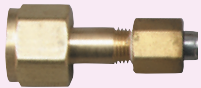
Hose Length	Part #
24"	FPT-24F14M14
36"	FPT-36F14M14
48"	FPT-48F14M14
72"	FPT-72F14M14
10'	FPT-120F14M14
20'	FPT-240F14M14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-24F14M14
36"	FPT-A-36F14M14
48"	FPT-A-48F14M14
72"	FPT-A-72F14M14
10'	FPT-A-120F14M14
20'	FPT-A-240F14M14

OUTLET

INLET



CGA 540 Fittings

1/4" NPT

Standard Hose

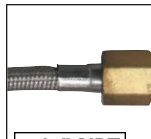
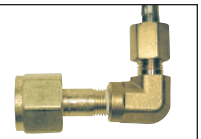
Hose Length	Part #
24"	FPT-CGA540F14-24
36"	FPT-CGA540F14-36
48"	FPT-CGA540F14-48

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-CGA540F14-24
36"	FPT-A-CGA540F14-36
48"	FPT-A-CGA540F14-48

OUTLET

INLET



90° Brass Elbow with CGA 540 Fitting

1/4" NPT

Standard Hose

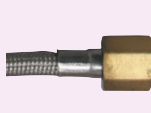
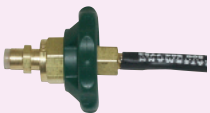
Hose Length	Part #
24"	FPT-CGA540DF14-24
36"	FPT-CGA540DF14-36
48"	FPT-CGA540DF14-48

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPT-A-CGA540DF14-24
36"	FPT-A-CGA540DF14-36
48"	FPT-A-CGA540DF14-48

OUTLET

INLET



CGA 540 Plastic Hand Tight Nut

1/4" NPT

Standard Hose

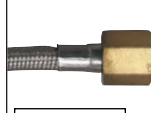
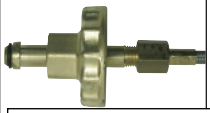
Hose Length	Part #
24"	FPT-CGA540-24PHT
36"	FPT-CGA540-36PHT
48"	FPT-CGA540-48PHT

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPTA-CGA540-24PHT
36"	FPTA-CGA540-36PHT
48"	FPTA-CGA540-48PHT

OUTLET

INLET



CGA 540 Brass Hand Tight Nut

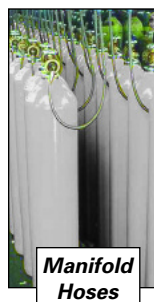
1/4" NPT

Standard Hose

Hose Length	Part #
24"	FPT-CGA540-24HT
36"	FPT-CGA540-36HT
48"	FPT-CGA540-48HT

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPTA-CGA540-24HT
36"	FPTA-CGA540-36HT
48"	FPTA-CGA540-48HT



Manifold Hoses

PIGTAILS TSCZEL

ETFE-LINED STAINLESS STEEL BRAIDED PIGTAILS 3,000 PSI

Economical Low Effusion

Style TSCZEL Specifications

Not recommended for oxygen service

Liner: White ETFE

Reinforcement: Series 300 stainless steel exterior braid

Temperature: -100° F to +250° F

Branding: Manufacturer, materials of construction, pressure rating, date





Style TSCZEL ETFE lined offers 75% less effusion than standard PTFE pigtails. Optional stainless steel armor casing provides additional life, safety and protection. Each assembly is tested to 1 1/2 times MAWP. Branded with MAWP, and month/year.

Hoses for Following Gases



3000 PSIG MAWP Rated – Brass End Fittings

Permeation rate that is 75% lower than PTEE lined pigtails

INLET	OUTLET
	
1/4" NPT Female	1/4" NPT Female



Standard Hose	
Hose Length	Part #
24"	FPZ-24F14
36"	FPZ-36F14
48"	FPZ-48F14
72"	FPZ-72F14

With Armor Casing Anti-Kink, Anti-Whip	
Hose Length	Part #
24"	FPZ-A-24F14
36"	FPZ-A-36F14
48"	FPZ-A-48F14
72"	FPZ-A-72F14

INLET	OUTLET
	
1/4" NPT Male	1/4" NPT Female

Standard Hose	
Hose Length	Part #
24"	FPZ-24M14F14
36"	FPZ-36M14F14
48"	FPZ-48M14F14
72"	FPZ-72M14F14

With Armor Casing Anti-Kink, Anti-Whip	
Hose Length	Part #
24"	FPZ-A-24M14F14
36"	FPZ-A-36M14F14
48"	FPZ-A-48M14F14
72"	FPZ-A-72M14F14

INLET	OUTLET
	
1/4" NPT Male Non-Swivel End	1/4" NPT Swivel Female

Standard Hose	
Hose Length	Part #
24"	FPZ-24M14F14S
36"	FPZ-36M14F14S
48"	FPZ-48M14F14S

With Armor Casing Anti-Kink, Anti-Whip	
Hose Length	Part #
24"	FPZ-A-24M14F14S
36"	FPZ-A-36M14F14S
48"	FPZ-A-48M14F14S







* Only Female NPT ends swivel. Male NPT ends do not rotate.

CUSTOM LENGTH HOSES - TSCZEL ETFE-LINED

3,000 PSI

*Custom length hoses are not returnable for either credit or refund.

ORDER CUSTOM LENGTH HOSE

<p>Teflon Hose</p> <p>FPZ</p>	<p>With or Without Armor Casing</p> <p><input type="checkbox"/> Armor Standard Pt # A</p> <p><input type="checkbox"/> Non-Armor Standard Pt # N</p>	<p>Length Hose</p> <p><input type="checkbox"/> Inches</p> <p>Pt # _____ IN</p>	<p>INLET</p> <p>Choose Your Hose End Pt #</p> <p>1/4" NPT Male Pt # M14 </p> <p>1/4" NPT Female Pt # F14 </p> <p>1/4" NPT Swivel Female Pt # F14S </p>	<p>OUTLET</p> <p>Choose Your Hose End Pt #</p> <p>1/4" NPT Male Pt # M14 </p> <p>1/4" NPT Female Pt # F14 </p> <p>1/4" NPT Swivel Female Pt # F14S </p>
<p>FPZ - _____ IN - _____</p>				



Hoses for Following Gases

PIGTAILS

HYDROGEN, HELIUM & SPECIALTY GAS APPLICATIONS 4,500 PSI

Hydrogen, Helium and Specialty Gas Application up to Working Pressure of 4,500 PSI

Ratermann's Type 316L stainless steel innercore, double braided hose is extremely flexible and durable. The all-stainless steel, all-welded construction makes this hose ideal for Hydrogen and Helium. Extreme high pressure design.

Stamped with 4,500 PSIG MAWP, and month/year of manufacturer.



Photo shown with armour

Female to Female

Standard Hose

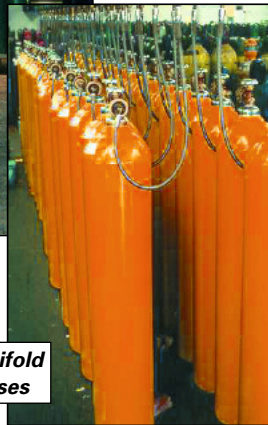
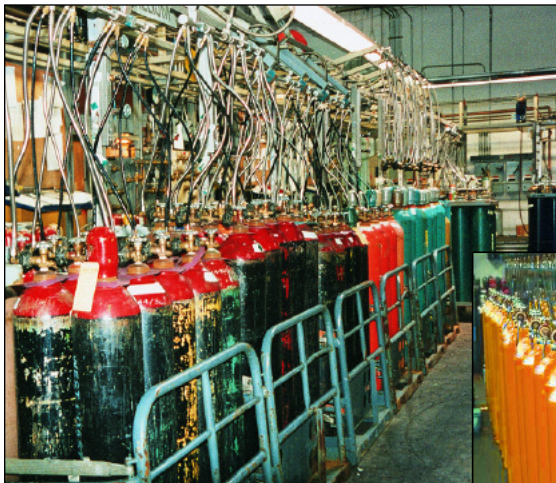
Hose Length	Part #
24"	FPS-48P24F14
36"	FPS-48P36F14
48"	FPS-48P48F14

1/4" F x 1/4" M hoses available

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPS-A-48P24F14
36"	FPS-A-48P36F14
48"	FPS-A-48P48F14

72" & 10' hoses available



Manifold Hoses



Male to Female

Standard Hose

Hose Length	Part #
24"	FPS-48P24F14M14
36"	FPS-48P36F14M14
48"	FPS-48P48F14M14

1/4" F x 1/4" M hoses available

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPS-A-48P24F14M14
36"	FPS-A-48P36F14M14
48"	FPS-A-48P48F14M14

72" & 10' hoses available

CUSTOM LENGTH HOSES - 316L SS INNER CORE

4,500 PSI

*Custom length hoses are not returnable for either credit or refund.

ORDER CUSTOM LENGTH HOSE

Teflon
Hose

With or Without
Armor Casing

Length Hose

Inches
Pt # _____ IN

All hoses are
cleaned for
Oxygen Service

INLET

Choose Your Hose End Pt #

1/4" NPT Male Pt # M14

1/4" NPT Female Pt # F14

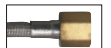
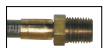


OUTLET

Choose Your Hose End Pt #

1/4" NPT Male Pt # M14

1/4" NPT Female Pt # F14



FPS-48P - _____ - IN - _____

CORROSIVE GAS APPLICATIONS

Hoses – Cryogenic
& High Pressure
Section
16A

PIGTAILS FOR CORROSIVE GAS APPLICATIONS 4,250 PSI



Hoses for Following Gas

Corrosive Gas Application up to Working Pressure of 4,250 PSI – Monel® Pigtails

1/4 inch I.D. Monel® corrugated inner core, stainless steel double braided, Monel® end fittings. Zero permeation, all welded construction ideal for corrosive gas applications.

Stamped with 4,250 PSIG MAWP, and month/year of manufacturer.



Female to Female

Standard Hose

Hose Length	Part #
24"	FPS-C24F14
36"	FPS-C36F14
48"	FPS-C48F14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPS-A-C24F14
36"	FPS-A-C36F14
48"	FPS-A-C48F14

Male to Female

Standard Hose

Hose Length	Part #
24"	FPS-C24F14M14
36"	FPS-C36F14M14
48"	FPS-C48F14M14

With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPS-A-C24F14M14
36"	FPS-A-C36F14M14
48"	FPS-A-C48F14M14

Male to Male

Standard Hose

Hose Length	Part #
24"	FPS-C24M14
36"	FPS-C36M14
48"	FPS-C48M14





With Armor Casing Anti-Kink, Anti-Whip

Hose Length	Part #
24"	FPS-A-C24M14
36"	FPS-A-C36M14
48"	FPS-A-C48M14

CUSTOM LENGTH HOSES – MONEL INNER CORE 4,250 PSI

*Custom length hoses are not returnable for either credit or refund.

ORDER CUSTOM LENGTH HOSE

Monel Hose FPS-C	With or Without Armor Casing	Length Hose <input type="checkbox"/> Inches Pt # _____ IN All hoses are cleaned for Oxygen Service	INLET		OUTLET	
	<input type="checkbox"/> Armor Standard Pt # A <input type="checkbox"/> Non-Armor Standard Pt # N		Choose Your Hose End Pt #	Choose Your Hose End Pt #	Choose Your Hose End Pt #	Choose Your Hose End Pt #
			1/4" NPT Male Pt # M14		1/4" NPT Male Pt # M14	
			1/4" NPT Female Pt # F14		1/4" NPT Female Pt # F14	
FPS-	- C	IN -				

HOW TO ORDER CUSTOM HOSES

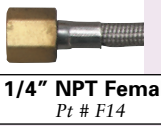
*Custom length hoses are not returnable for either credit or refund.

Choose Your Hose End

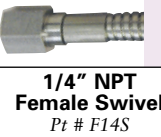
INLET



INLET



INLET



Hose Type

Teflon Lined Stainless Steel Braided



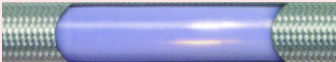
Working Pressure 3000 PSI Pt # FP

Teflon Lined Stainless Steel Braided



Working Pressure 3600 PSI Pt # FPT

Tsczel ETFE-Lined SS Braided



Working Pressure 3000 PSI Pt # FPZ

Stainless Steel Metal Core



Working Pressure 4250 PSI Pt # FPS

Choose Non-Armor or Armor Casing

Non-Armor Standard



Pt # N

Armor Standard



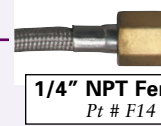
Pt # A

Choose Your Hose End

INLET



INLET



INLET



Choose Your Hose Length

Hose Length in Inches

Inches
Pt # _____ IN

4 Ft. = 48 In.
6 Ft. = 72 In.
10 Ft. = 120 In.
12 Ft. = 144 In.

Custom Length
Enter Length
in Inches

Fitting Connector	Connector Accessories	Hose End	Hose Type	Armor	Hose End	Connector Accessories	Fitting Connector	Length Inches
-------------------	-----------------------	----------	-----------	-------	----------	-----------------------	-------------------	---------------

INLET

Fast Test Connector

Gas Type	Sub Pt #
Air	CGA-346FT
CO2	CGA-320FT
Helium	CGA-580FT
Argon	CGA-580FT
Nitrogen	CGA-580FT
Hydrogen	CGA-350FT
Oxygen	CGA-540FT

Connector Accessories

Pipe Extension

Part #
FIT-PEF14M14

One Female Thread / One Male Thread
1/4" NPT, 3" OAL

OUTLET

Fast Test Connector

Gas Type	Sub Pt #
Air	CGA-346FT
CO2	CGA-320FT
Helium	CGA-580FT
Argon	CGA-580FT
Nitrogen	CGA-580FT
Hydrogen	CGA-350FT
Oxygen	CGA-540FT

INLET

ZipNut

Gas Type	Sub Pt #
Air	CGA-346IN
CO2	CGA-320IN
Helium	CGA-580IN
Argon	CGA-580IN
Nitrogen	CGA-580IN
Hydrogen	CGA-350IN
Oxygen	CGA-540IN

In-line Check Valves

Part #
FIT-CVF14M14

Gas Flow →

90° Brass Elbow

Part #
FIT-90F14

Description
Female Threads 1/4" NPT

OUTLET

ZipNut

Gas Type	Sub Pt #
Air	CGA-346IN
CO2	CGA-320IN
Helium	CGA-580IN
Argon	CGA-580IN
Nitrogen	CGA-580IN
Hydrogen	CGA-350IN
Oxygen	CGA-540IN

INLET

Fittings

Gas Type	Sub Pt #
Air	CGA-346
CO2	CGA-320
Helium	CGA-580
Argon	CGA-580
Nitrogen	CGA-580
Hydrogen	CGA-350
Oxygen	CGA-540

OUTLET

Fittings

Gas Type	Sub Pt #
Air	CGA-346
CO2	CGA-320
Helium	CGA-580
Argon	CGA-580
Nitrogen	CGA-580
Hydrogen	CGA-350
Oxygen	CGA-540

INLET

Plastic Hand Tight Nut

Gas Type	Sub Pt #
Air	CGA-346HP
CO2	CGA-320HP
Helium	CGA-580HP
Argon	CGA-580HP
Nitrogen	CGA-580HP
Hydrogen	CGA-350HP
Oxygen	CGA-540HP

OUTLET

Plastic Hand Tight Nut

Gas Type	Sub Pt #
Air	CGA-346HP
CO2	CGA-320HP
Helium	CGA-580HP
Argon	CGA-580HP
Nitrogen	CGA-580HP
Hydrogen	CGA-350HP
Oxygen	CGA-540HP

INLET

Brass Hand Tight Nut

Gas Type	Sub Pt #
Air	CGA-346HB
CO2	CGA-320HB
Helium	CGA-580HB
Argon	CGA-580HB
Nitrogen	CGA-580HB
Hydrogen	CGA-350HB
Oxygen	CGA-540HB

OUTLET

Brass Hand Tight Nut

Gas Type	Sub Pt #
Air	CGA-346HB
CO2	CGA-320HB
Helium	CGA-580HB
Argon	CGA-580HB
Nitrogen	CGA-580HB
Hydrogen	CGA-350HB
Oxygen	CGA-540HB

Needle Valve

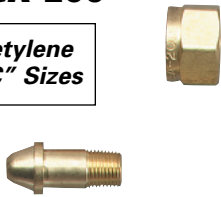
Part #
FIT-NVF14F14

Description
Needle Valve – 1/4" F In x 1/4" F Out

CGA FITTINGS FOR GAS

CGA-200

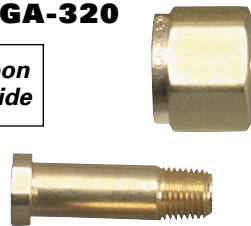
Acetylene
"MC" Sizes



Nut Pt # CGA-200Nut
Nipple Pt # CGA-200Nipple

CGA-320

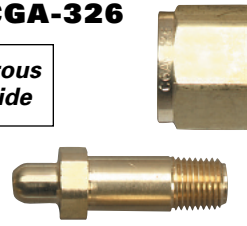
Carbon
Dioxide



Nut Pt # CGA-320Nut
Nipple Pt # CGA-320Nipple

CGA-326

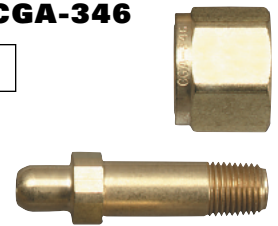
Nitrous
Oxide



Nut Pt # CGA-326Nut
Nipple Pt # CGA-326Nipple

CGA-346

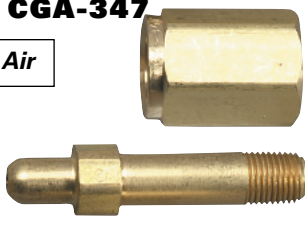
Air



Nut Pt # CGA-346Nut
Nipple Pt # CGA-346Nipple

CGA-347

Air



Nut Pt # CGA-347Nut
Nipple Pt # CGA-347Nipple

CGA-350

Hydrogen /
Methane



Nut Pt # CGA-350Nut
Nipple Pt # CGA-350Nipple

Plastic Hand Tight



Pt # PH-580 CGA 580
Pt # PH-540 CGA 540
Pt # PH-320 CGA 320

Brass Hand Tight



Pt # BH-580 CGA 580
Pt # BH-540 CGA 540
Pt # BH-320 CGA 320

Matching Nipple for CGA Hand Tight

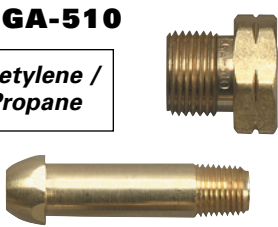
Pt # PH-580Nipple
Pt # PH-540Nipple
Pt # PH-320Nipple

Matching Nipple for CGA Hand Tight

Pt # BH-580Nipple
Pt # BH-540Nipple
Pt # BH-320Nipple

CGA-510

Acetylene /
Propane



Nut Pt # CGA-510Nut
Nipple Pt # CGA-510Nipple

CGA-520

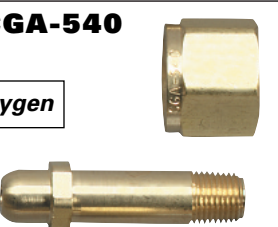
Acetylene
"B" Size



Nut Pt # CGA-520Nut
Nipple Pt # CGA-520Nipple

CGA-540

Oxygen



Nut Pt # CGA-540Nut
Nipple Pt # CGA-540Nipple

CGA-580

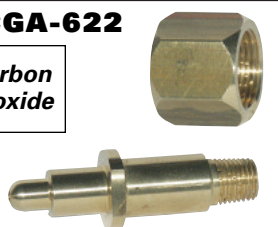
Argon /
Helium /
Nitrogen



Nut Pt # CGA-580Nut
Nipple Pt # CGA-580Nipple

CGA-622

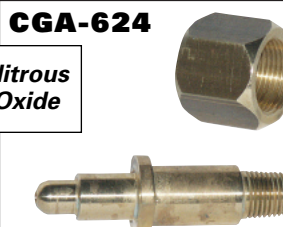
Carbon
Dioxide



Nut Pt # CGA-622Nut
Nipple Pt # CGA-622Nipple

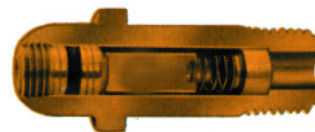
CGA-624

Nitrous
Oxide

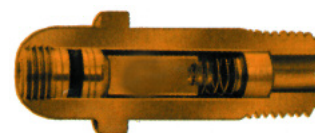


Nut Pt # CGA-624Nut
Nipple Pt # CGA-624Nipple

NIPPLES WITH CHECK VALVES



Normal Flow



Reverse Flow

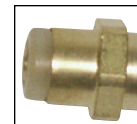
For nipples with check
valves reference part #'s:

Normal Flow:
CGA-____ NIPPLECV

Reverse Flow:
CGA-____ NIPPLERV

Replacement Tips & Washers

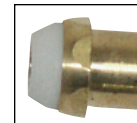
For PH-540Nipple



CGA
540
Oxygen

Pt # PH-540-NRPK10
Nipple Replacement Tip

For PH-580Nipple

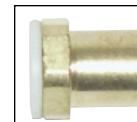


CGA
580
Inert Gas

Pt # PH-580-NRPK10
Nipple Replacement Tip

(use Pt # BH-580-ORPK10
for 580 Nipples
that require
O-Rings)

For PH-320Nipple



CGA 320
Carbon
Dioxide

Pt # PH-320-WPK10
Replacement Washer

VACUUM JACKETED HOSES

3 FT. THROUGH 25 FT. FOR LN2 CGA 295 - 3/8" & 1/2" NPT

End Connections



CGA-295 Inert



Male Pipe Thread



Female Pipe Thread

Specifications

Size	3/8" ID x 1 1/2" OD (Inner Hose) (Outside Armor Flex)	1/2" ID x 1 1/8" OD (Inner Hose) (Outside Armor Flex)
Pressure Rating	150 psi	150 psi
Material	304 SS w/ Vacuum Superinsulation	304 SS w/ Vacuum Superinsulation
Minimum Bend Radius	4 1/2"	6"
Length	3' through 25' std (Other custom configurations available)	3' through 25' std (Other custom configurations available)
End Connections	as needed	as needed

Not for use with oxygen

Vacuum Jacketed Hoses

3/8" I.D. 150 PSI CGA 295 x CGA 295

Also available with female ends

Size	Part Number	Description
3'	VS-38ID36CGA295	3 foot Vacuum Jacketed Hose, 3/8" ID, CGA-295 x CGA-295
4'	VS-38ID48CGA295	4 foot Vacuum Jacketed Hose, 3/8" ID, CGA-295 x CGA-295
5'	VS-38ID60CGA295	5 foot Vacuum Jacketed Hose, 3/8" ID, CGA-295 x CGA-295
6'	VS-38ID72CGA295	6 foot Vacuum Jacketed Hose, 3/8" ID, CGA-295 x CGA-295
10'	VS-38ID120CGA295	10 foot Vacuum Jacketed Hose, 3/8" ID, CGA-295 x CGA-295

3/8" I.D. 150 PSI CGA 295 x 3/8" Male NPT

Size	Part Number	Description
3'	VS-38ID36CGA295M38	3 foot Vacuum Jacketed Hose, 3/8" ID, CGA-295 x 3/8" MNPT
4'	VS-38ID48CGA295M38	4 foot Vacuum Jacketed Hose, 3/8" ID, CGA-295 x 3/8" MNPT
5'	VS-38ID60CGA295M38	5 foot Vacuum Jacketed Hose, 3/8" ID, CGA-295 x 3/8" MNPT
6'	VS-38ID72CGA295M38	6 foot Vacuum Jacketed Hose, 3/8" ID, CGA-295 x 3/8" MNPT
10'	VS-38ID120CGA295M38	10 foot Vacuum Jacketed Hose, 3/8" ID, CGA-295 x 3/8" MNPT

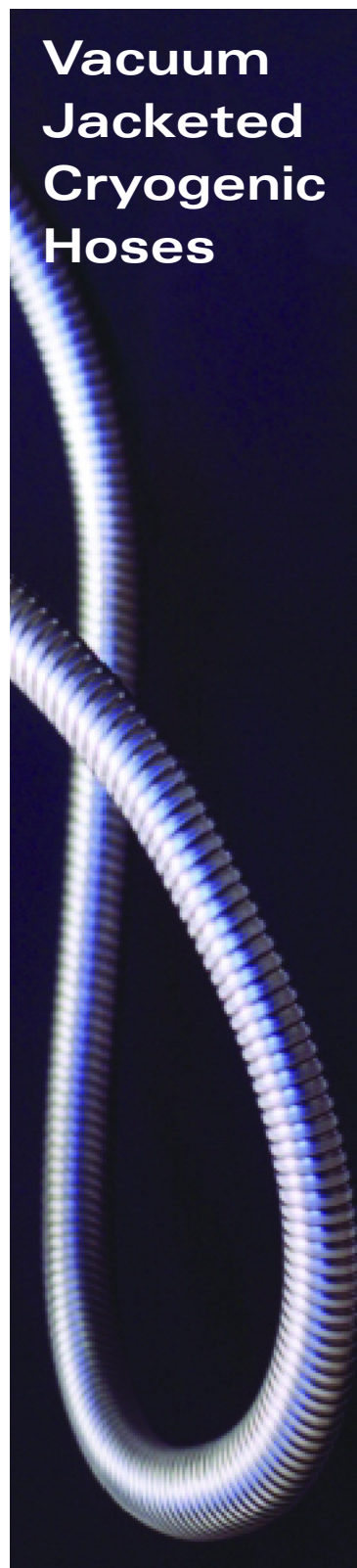
1/2" I.D. 150 PSI CGA 295 x CGA 295

Also available with female ends

Size	Part Number	Description
3'	VS-12ID36CGA295	3 foot Vacuum Jacketed Hose, 1/2" ID, CGA-295 x CGA-295
4'	VS-12ID48CGA295	4 foot Vacuum Jacketed Hose, 1/2" ID, CGA-295 x CGA-295
5'	VS-12ID60CGA295	5 foot Vacuum Jacketed Hose, 1/2" ID, CGA-295 x CGA-295
6'	VS-12ID72CGA295	6 foot Vacuum Jacketed Hose, 1/2" ID, CGA-295 x CGA-295
10'	VS-12ID120CGA295	10 foot Vacuum Jacketed Hose, 1/2" ID, CGA-295 x CGA-295

1/2" I.D. 150 PSI CGA 295 x 1/2" Male NPT

Size	Part Number	Description
3'	VS-12ID36CGA295M12	3 foot Vacuum Jacketed Hose, 1/2" ID, CGA-295 x 1/2" MNPT
4'	VS-12ID48CGA295M12	4 foot Vacuum Jacketed Hose, 1/2" ID, CGA-295 x 1/2" MNPT
5'	VS-12ID60CGA295M12	5 foot Vacuum Jacketed Hose, 1/2" ID, CGA-295 x 1/2" MNPT
6'	VS-12ID72CGA295M12	6 foot Vacuum Jacketed Hose, 1/2" ID, CGA-295 x 1/2" MNPT
10'	VS-12ID120CGA295M12	10 foot Vacuum Jacketed Hose, 1/2" ID, CGA-295 x 1/2" MNPT



Vacuum
Jacketed
Cryogenic
Hoses