



Magnetel® Gauge for Liquid CO₂ Storage & Transport Applications

Application

This product is used to extend the dial chamber on any Magnetel® gauge away from the gauge head far enough to pass through the insulating jacket on tanks containing CO₂, thus reducing refrigeration effects on the dial.

General Information & Features*

Gauge available in Trim 11, steel and stainless steel; and Trim 12, all stainless steel with enclosed magnet.

Dial in percent of total tank volume.

Length of epoxy glass laminated tube is available to specifications.

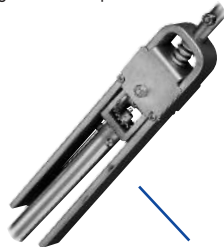
Stainless steel spiral wound teflon filled gasket.

For mobile applications specify model DM 6342.(Shown below)

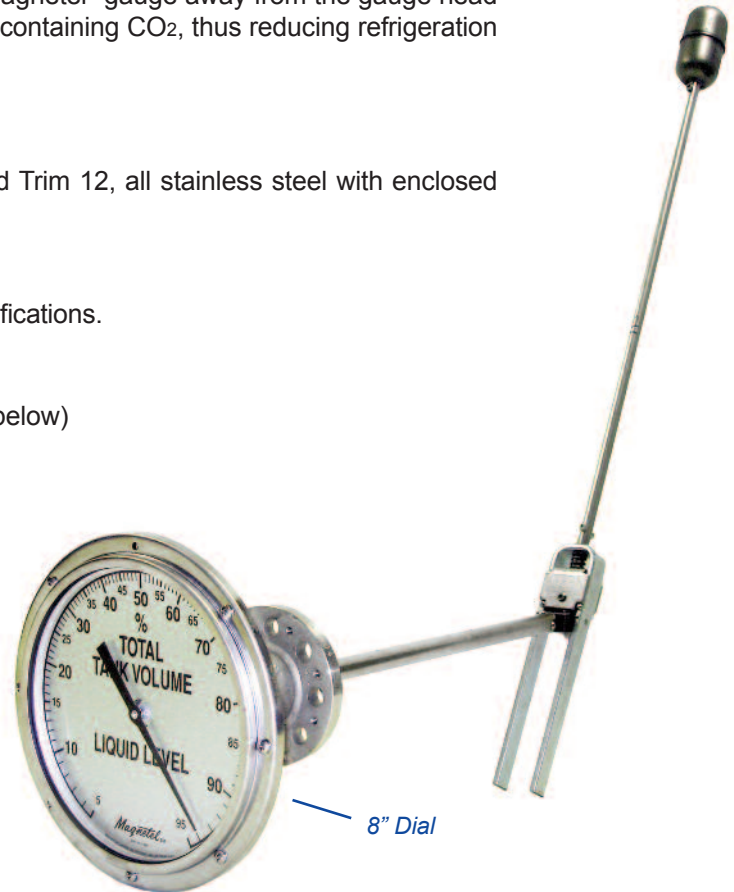
See DS-681 for special installation instructions.

See 6300 Series sheet for standard gauge features.

* Materials and specifications are subject to change without notice. Pressure ratings subject to change due to temperature and other environmental considerations.



An exclusive spring steel shock absorber controls shock and vibration on mobile model DM 6342.



8" Dial

Instruction Sheet For Magnetel® Gauge with CO₂ Extension

The purpose of the head extension is to extend the dial chamber from the gauge mounting flange. This insulates the dial chamber from the tank and allows for the insulating space between the inner tank and the outer shell.

Installation

The head extension is equipped with a plugged 1/8" N.P.T. hole in the bottom of the extension tube. Before installation of the gauge in the tank, this plug should be replaced with a tubing fitting. The tubing (1/4" minimum) should be routed to a convenient access point and then capped.

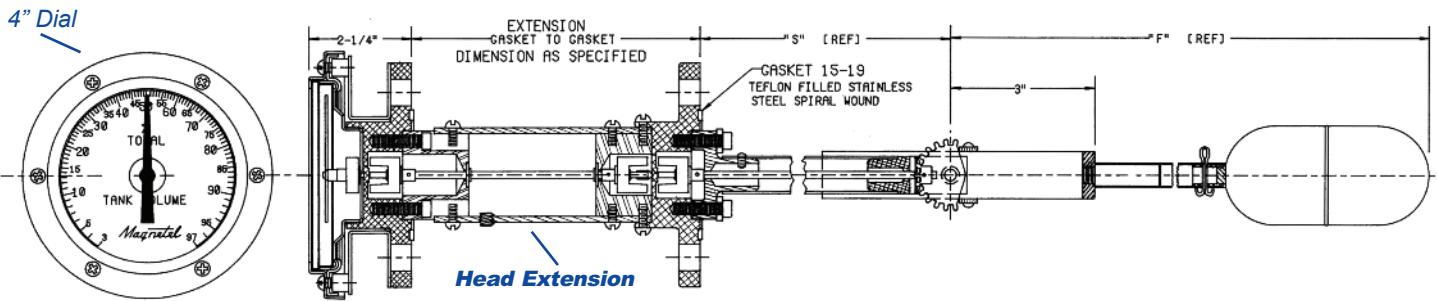
Trouble Shooting

If the gauge reading seems to be "stuck", there are several possibilities: There may be a problem with the float mechanism inside the tank, a problem with the head extension or a problem with the dial chamber. Check the dial chamber first.

Dial Chamber Removal

Remove 8" dial chamber by removing the three screws located nearest the 9 o'clock, 3 o'clock and then the 12 o'clock positions. Remove 4" dial chamber by removing the two screws located nearest the 9 o'clock and 3 o'clock positions. After the dial chamber has been removed, DON'T disassemble.

See reverse side for dimensional data, materials of construction, performance, and advice on how to order.



Dial Chamber Test

Test dial chamber from the back side. You should be able to rotate the pointer easily by rotating the bar test magnet against the center back of the dial chamber. The Small Test Magnet has the appropriate magnetic properties for this test. If the pointer cannot be rotated freely, the dial chamber should be replaced.

PLEASE NOTE: Bent dial brackets can cause the pointer to bind when the dial chamber is re-installed. Be sure brackets are not bent. If the dial chamber is functional, the next test is for the head extension.

Head Extension Test

With the dial chamber removed, place the large test magnet in the center of the dial chamber recess on the exposed portion of the head extension. This recess is about two inches in diameter and about $\frac{3}{8}$ " deep. The Large Test Magnet has the appropriate magnetic properties for this test. Rotate the large test magnet slowly one complete revolution. The large test magnet should overpower the drive magnet in the tank and rotate the magnet and shaft assembly in the head extension. If the magnet and shaft assembly in the head extension is frozen, the large test magnet will be repelled by the non-rotating magnet in the head extension. This repelling force will try to push the large test magnet out of the recess as it is rotated. If the CO₂ extension is frozen, the corrective action is drying. If the extension is functional, proceed to "float mechanism".

Drying

Drying the inside of the head extension is usually done by injecting a dry gas such as nitrogen. The gas is injected by inserting a $\frac{1}{8}$ " or $\frac{5}{16}$ " diameter plastic supply tube inside the $\frac{1}{4}$ " access tube that is attached to the head extension. Be sure that the small tube goes completely inside the extension and that the exhaust gas can pass through the annular space between the outside of the supply tubing and the inside of the access tubing.

This process works best if the temperature of the head extension can be raised above the freezing point of water. One way to do this is to warm the flowing gas before it reaches the CO₂ extension. Another way is to wrap the extension with a water pipe heating strip. After the head extension has thawed and dried, retest using the large magnet. If the function seems satisfactory, allow the temperature of the head extension to return to the normal below freezing condition. Retest the head extension again using the large test magnet.

Float Mechanism

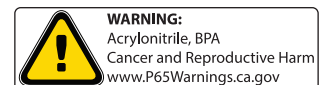
If the head extension seems to be functioning properly, the next test is for the gauge and float mechanism inside the tank. For this test you will need to replace the dial chamber. Before bolting the dial chamber to the mounting brackets, be sure that all brackets touch the dial chamber without the dial chamber rocking. If the dial chamber does not fit properly, one or more of the dial brackets may be bent and should be replaced. Once the dial chamber has been replaced, take steps necessary to produce a significant change in the level of the product inside the tank. If the pointer does not move, then the problem may be in the gauge mechanism inside the tank. If this seems to be the case, then follow the trouble shooting guide for the gauge. This guide is located in bulletin 115-820.

If the gauge function is still not satisfactory after following the trouble shooting guide, then the entire gauge including head extension and dial chamber should be returned to the factory for overhaul, adjustment and re-lubrication of the head extension.

SPECIAL REQUIREMENTS FOR TESTS:

1. Small Test Magnet - $\frac{1}{8}$ " DIA x $\frac{1}{4}$ " Neodymium Rod Magnet.
2. Large Test Magnet - $\frac{1}{2}$ " DIA x $\frac{3}{4}$ " Neodymium Rod Magnet.
3. Bulletin 115-820

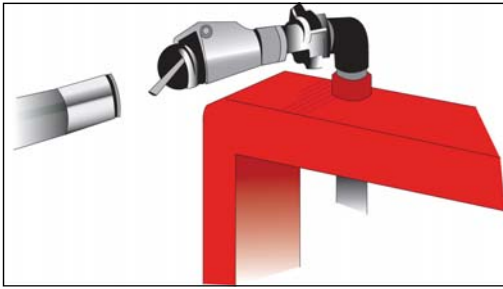
Test magnets may be obtained from: <http://www.kjmagnetics.com>



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Engineering Services

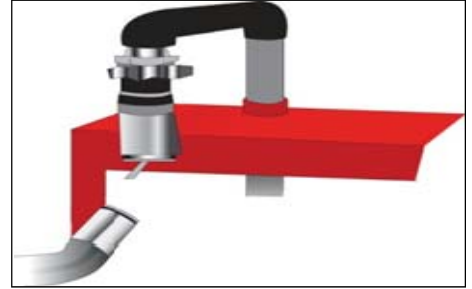
Smart Engineering for your new facility. Let us help you engineer a custom safety solution for your critical transfer applications.



Horizontal Pull Angle / Hose Port:
8900 LBS.



45 Degree Pull Angle / Hose Port:
1300 LBS.



90 Degree Pull Angle / Hose Port:
900 LBS.

Smart-Hose Technologies is an engineering company that designs safety systems in and around hazardous chemical transfer hose assemblies. Our management and engineering team has over 35 years of experience designing safety systems to protect your facility from the devastating consequences associated with a catastrophic hose failure and a pull-away incident.

If you are designing a new facility we can design a custom safety system to protect your facility from an uncontrolled release of hazardous chemicals associated from catastrophic hose failures. Smart-Hose Technologies engineering services can lower your engineering costs while adding a layer of protection in and around the weak-link, “the hose assembly.” The Smart-Hose Safety System is a truly passive device and therefore, needs no human intervention or expensive sensors or controls to activate.

Smart-Hose Engineered Solutions:



- Chemical Transfer
- Petroleum Transfer
- Railroad Car Loading / Unloading
- Tank Truck Loading / Unloading
- Loading Arm Applications
- Chlorine Transfer
- Agricultural Applications
- Ship to Shore Transfer

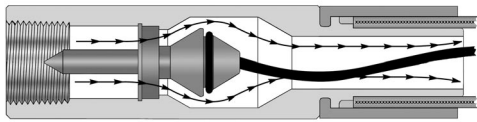
- Military Applications
- Oil Rig Applications
- Compressed Gas Transfer
- Industrial Gas Transfer
- Cylinder Filling
- Cryogenic Applications
- Pharmaceutical Applications



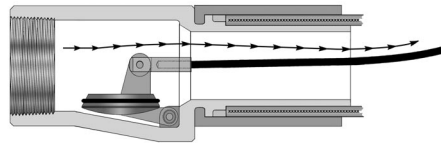
ENGINEERING DATA

Metal Hose – 316

STAINLESS STEEL



Lifeline 1



Lifeline 3



Single Braid



Double Braid

The Smart-Hose Safety System is built into a stainless steel metal hose to prevent or eliminate the catastrophic consequences of a hose separation resulting from a pull away or major hose rupture. In the event of such an occurrence, the Smart-Hose Safety System will shut off the flow of product in both directions instantly upon hose separation.

This type hose is an excellent choice for liquid and gaseous chemicals, along with compressed air, petroleum and other products requiring the chemical resistance of 312 stainless steel.

Each hose is welded by the manufacturer in accordance with their specifications and 100% pressure tested with dried air under water to insure assembly safety. Each serial numbered assembly has a test certification and instruction booklet attached. Mass-spectrometer testing is supplied on request for all hazardous material transfer service hoses. (2" ID and larger hose can have a Flex Guard installed to guard against over bending at the coupling.)

- Each hose is tested with dry air or nitrogen to test pressure
- Each hose is serial numbered and has test certificate and Operating Booklet
- Hose can be made to meet DOT - E 12325 (special rail car unloading exemption eliminates the requirement for continuous human monitoring during load and unloading).
- Hose can be made to meet DOT HM225/49CFR173.315

Hose Data

Tube 316 Stainless Steel

Braid 321 & 304 Stainless Steel (1 or 2 braids)

Welds Performed by the manufacturer with ANSI code 9 welders

Testing Proof testing by manufacturer, second pressure test by Smart-Hose to a minimum of 1.5 working pressure based on specification

Temperature Cryogenic to +450°F (Cryogenic to +230°C)

ID	1 Braid WP psi	2 Braid WP psi	1 Braid Hose Wt./Ft.	2 Braid Hose Wt./Ft.	1 Braid Static Bend Radius	2 Braid Static Bend Radius	1 Braid Intermittent Bend Radius	2 Braid Intermittent Bend Radius	Cplg. Lgth.	Cplg. Type	Cplg. Wt. Ea.
1/2"	1050	1575	0.41	0.54	1.5"	1.5"	6.5"	6.5"	3"	LL1	12.7 oz
3/4"	880	1410	0.67	0.85	2"	2"	8"	8"	3.5"	LL1	1.62 lb
1"	605	970	0.97	1.19	2.75"	2.75"	8"	8"	4"	LL1	2.50 lb
1 1/2"	525	790	1.96	2.36	3.75"	3.75"	10"	10"	4.25"	LL3	3.4 lb
2"	455	730	2.21	2.82	5"	5"	14"	14"	5"	LL3	4.7 lb
3"	290	405	2.63	3.46	7"	7"	18"	18"	6.9"	LL3	7.1 lb
4"	285	350	3.3	4.5	11"	11"	22"	33"	6.9"	LL3	12.1 lb
6"	240	299	6.2	8.0	16.5"	16.5"	33"	41"	6.9"	LL3	44.5 lb

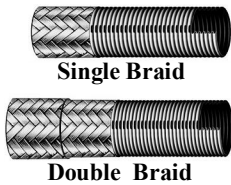
Smart-Hose® Cryogenic Metal Break-away Assembly



The Smart-Hose® Cryogenic Break-Away Assembly has been designed to protect your plant, bulkhead, tank truck piping and loading arms from the potential negative effects associated with a pull-away incident. It is engineered with a predetermined break point and works in conjunction with integrated valves that stop flow in both directions. The Smart-Hose® Cryogenic Break-Away Assembly adds an additional layer of protection inside your hose assembly while protecting your plant from the devastating consequences of a pull-away accident. Offered at a price point significantly less than conventional break-away technology. Patent pending.

Features and Benefits:

- Full Flow Break-away Design.
- 360 Degree Engineered Break-away point.
- Designed with a welded metal seal.
- 316 SS Schedule 80 construction.
- Integrated to work with the Smart-Hose Safety System
- Custom Engineered break-points for specific applications.
- Currently available for 2ö & 3ö applications.
- Priced significantly less than a conventional break-away technology



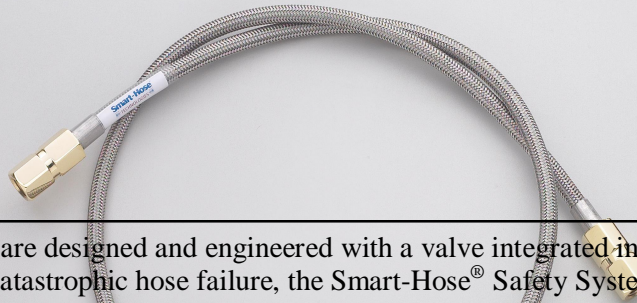
Hose Data

Braids 304 Stainless Steel - Single / Double
Construction P4 Series, Annular hose with a standard pitch
Tube 316L Stainless Steel
Cover SS Armor
Maintenance See Smart-Hose Proper Use, Care, and Maintenance Booklet

Hose ID	Braid Layers	Working Pressure PSI	Burt Pressure PSI	Bend Radius (in.)		Hose Weight Per Ft (lb.)	Smart-Hose End Fittings LL3-B x LL3	End Fitting Weight (lb.)	Part Number
				Dyn.	Static				
3ö	1	335	1,340	22.00	9.00	2.00	MNPT x MNPT	7.44	M20024872XXXX*
	2	536	2,145						M21024872XXXX*

* XXXX Represents the overall length of the hose assembly in inches

High Pressure Nitrogen Hose Assemblies



Smart-Hose® assemblies are designed and engineered with a valve integrated in each end fitting. If the hose assembly experiences a catastrophic hose failure, the Smart-Hose® Safety System is designed to instantaneously shut off the flow in both directions. Designed as a passive safety device, the Smart-Hose® Safety System needs no human intervention to activate.

When a high pressure cylinder filling hose assembly fails, the hose can whip violently resulting in property damage, personnel injury and even death. The Smart-Hose® Safety System can protect your facility and personnel from the potential devastating consequences associated with high pressure hose failures.

The Smart-Hose® Safety System is designed to work within high pressure industrial hose assemblies with a PTFE tube typically used for high pressure nitrogen, oxygen, argon and all inert gas applications.

- Each hose is tested under water with dry air or nitrogen to working and test pressure
- Each hose is serial numbered
- Each hose is shipped with a Test Certificate and Operating Booklet
- All high pressure hose assemblies are Oxygen cleaned to industry standards

Normal Flow—LL1 Valves Open



Coupling Ejection - LL1 Valves Closed



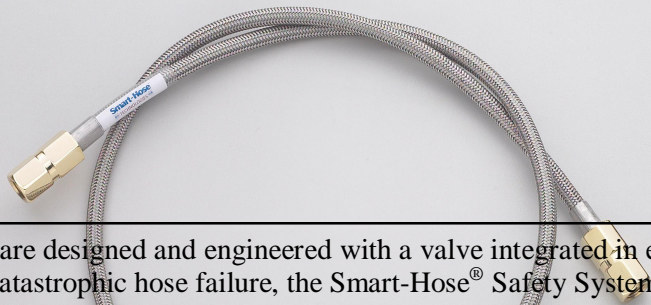
Hose Data

Cover	SS Armor available on request
Reinforcement	Double Braid 304 SS
Tube	PTFE Tube, True ID and Post Sintered PTFE Tube
Maintenance	See Smart-Hose® Proper Use, Care, and Maintenance Booklet
Accessories	Safety Loops, External Cable, Bend Restrictors, CGA, various ends available

Hose ID (in.)	Working Pressure PSI	Burst Pressure PSI	Smart-Hose End Fittings	End Fitting Weight (lb.) each	Part Number
1/4 ⁶	3500	14000	Brass FNPT 316-SS FNPT	0.40	P02-002-17-XXXX* P02-002-11-XXXX*
1/4 ⁶	4500	18000	Bronze FNPT 316-SS FNPT	0.40	P04-002-12-XXXX* P04-002-11-XXXX*
3/8 ⁶	4000	16000	Brass FNPT	0.60	P03-003-17-XXXX*
1/2 ⁶	4000	16000	Brass FNPT 316-SS FNPT	0.80	P03-004-17-XXXX* P03-004-11-XXXX*

* XXXX Represents the overall length of the hose assembly in inches

High Pressure Helium Hose Assemblies



Smart-Hose® assemblies are designed and engineered with a valve integrated in each end fitting. If the hose assembly experiences a catastrophic hose failure, the Smart-Hose® Safety System is designed to instantaneously shut off the flow in both directions. Designed as a passive safety device, the Smart-Hose® Safety System needs no human intervention to activate.

When a high pressure helium hose assembly fails, the hose can whip violently resulting in property damage, personnel injury and even death. The Smart-Hose® Safety System can protect your facility and personnel from the potential devastating consequences associated with high pressure hose failures.

The Smart-Hose® Safety System is designed to work within high pressure helium hose assemblies with a ETFE post sintered tube for applications requiring lower effusion, typically used for high pressure hydrogen and helium applications.

- Each hose is tested under water with dry air or nitrogen to working and test pressure
- Each hose is serial numbered
- Each hose is shipped with a Test Certificate and Operating Booklet

Normal Flow—LL1 Valves Open



Coupling Ejection - LL1 Valves Closed



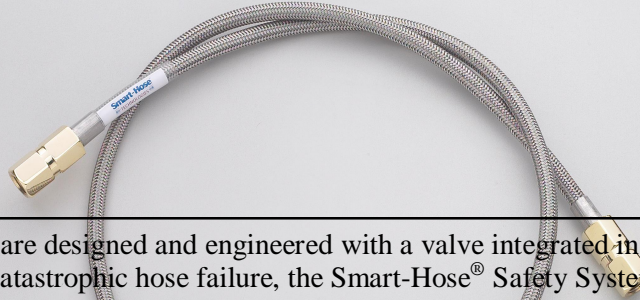
Hose Data

Cover	SS Armor available on request
Reinforcement	Double Braid 304 SS
Tube	ETFE Post Sintered tube (applications requiring low effusion)
Maintenance	See Smart-Hose® Proper Use, Care, and Maintenance Booklet
Accessories	Safety Loops, External Cable, Bend Restrictors, CGA, various ends available

Hose ID (in.)	Working Pressure PSI	Burst Pressure PSI	Smart-Hose End Fittings	End Fitting Weight (lb.) each	Part Number
1/4 ⁶	3500	14000	Brass FNPT 316-SS FNPT	0.40	P51-002-17-XXXX* P51-002-11-XXXX*
1/2 ⁶	4000	16000	Brass FNPT 316-SS FNPT	0.80	P52-004-17-XXXX* P52-004-11-XXXX*

* XXXX Represents the overall length of the hose assembly in inches

High Pressure Hydrogen Hose Assemblies



Smart-Hose[®] assemblies are designed and engineered with a valve integrated in each end fitting. If the hose assembly experiences a catastrophic hose failure, the Smart-Hose[®] Safety System is designed to instantaneously shut off the flow in both directions. Designed as a passive safety device, the Smart-Hose[®] Safety System needs no human intervention to activate.

When a high pressure hydrogen hose assembly fails, the hose can whip violently resulting in property damage, personnel injury and even death. The Smart-Hose[®] Safety System can protect your facility and personnel from the potential devastating consequences associated with high pressure hose failures.

The Smart-Hose[®] Safety System is designed to work within high pressure hydrogen hose assemblies with a ETFE post sintered tube for applications requiring lower effusion, typically used for high pressure hydrogen and helium applications.

- Each hose is tested under water with dry air or nitrogen to working and test pressure
- Each hose is serial numbered
- Each hose is shipped with a Test Certificate and Operating Booklet

Normal Flow—LL1 Valves Open



Coupling Ejection - LL1 Valves Closed



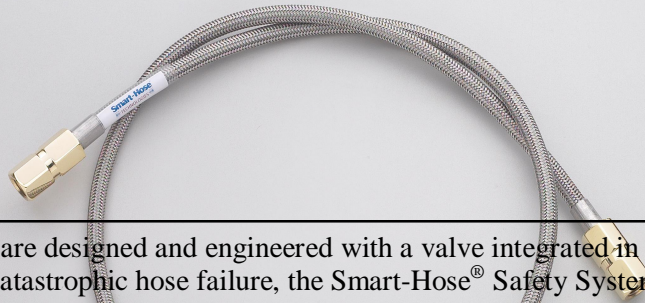
Hose Data

Cover	SS Armor available on request
Reinforcement	Double Braid 304 SS
Tube	ETFE Post Sintered tube (applications requiring low effusion)
Maintenance	See Smart-Hose [®] Proper Use, Care, and Maintenance Booklet
Accessories	Safety Loops, External Cable, Bend Restrictors, CGA, various ends available

Hose ID (in.)	Working Pressure PSI	Burst Pressure PSI	Smart-Hose End Fittings	End Fitting Weight (lb.) each	Part Number
1/4ö	3500	14000	Brass FNPT 316-SS FNPT	0.40	P51-002-17-XXXX* P51-002-11-XXXX*
1/2ö	4000	16000	Brass FNPT 316-SS FNPT	0.80	P52-004-17-XXXX* P52-004-11-XXXX*

* XXXX Represents the overall length of the hose assembly in inches

High Pressure Oxygen Hose Assemblies



Smart-Hose® assemblies are designed and engineered with a valve integrated in each end fitting. If the hose assembly experiences a catastrophic hose failure, the Smart-Hose® Safety System is designed to instantaneously shut off the flow in both directions. Designed as a passive safety device, the Smart-Hose® Safety System needs no human intervention to activate.

When a high pressure cylinder filling hose assembly fails, the hose can whip violently resulting in property damage, personnel injury and even death. The Smart-Hose® Safety System can protect your facility and personnel from the potential devastating consequences associated with high pressure hose failures.

The Smart-Hose® Safety System is designed to work within high pressure industrial hose assemblies with a PTFE tube typically used for high pressure oxygen and inert gas applications.

- Each hose is tested under water with dry air or nitrogen to working and test pressure
- Each hose is serial numbered
- Each hose is shipped with a Test Certificate and Operating Booklet
- All high pressure hose assemblies are Oxygen cleaned to industry standards

Normal Flow—LL1 Valves Open



Coupling Ejection - LL1 Valves Closed



Hose Data

Cover
Reinforcement
Tube
Maintenance
Accessories

SS Armor available on request
Double Braid 304 SS
PTFE Tube, True ID and Post Sintered PTFE Tube
See Smart-Hose® Proper Use, Care, and Maintenance Booklet
Safety Loops, External Cable, Bend Restrictors, CGA, various ends available

Hose ID (in.)	Working Pressure PSI	Burst Pressure PSI	Smart-Hose End Fittings	End Fitting Weight (lb.) each	Part Number
1/4ø	3500	14000	Brass FNPT 316-SS FNPT Brass Heat Dissipater FNPT	0.40	P02-002-17-XXXX* P02-002-11-XXXX* P02-002-19-XXXX*
1/4ø	4500	18000	Bronze FNPT 316-SS FNPT	0.40	P04-002-12-XXXX* P04-002-11-XXXX*
3/8ø	4000	16000	Brass FNPT	0.60	P03-003-17-XXXX*
1/2ø	4000	16000	Brass FNPT 316-SS FNPT Brass Heat Dissipater FNPT	0.80	P03-004-17-XXXX* P03-004-11-XXXX* P03-004-19-XXXX*

* XXXX Represents the overall length of the hose assembly in inches

High Pressure Pigtail Accessories

Smart-Hose Technologies produces the safest high pressure hose assemblies in the world. Designed with internal valves integrated with-in each end fitting, the Smart-Hose Safety System will instantaneously shut down the flow of material in both directions in the event of a catastrophic hose failure. The Smart-Safety System is a passive safety system and therefore, needs no human intervention to activate.

Smart-Hose High Pressure hose assemblies can be ordered with a wide range of accessories and configurations. Ask your Smart-Hose sales representative for additional details.



Smart-Hose: High Pressure Pigtail Accessories

- Spring Guard
 - Scuff Guard
 - Safety Loops
 - Heat Dissipater Fittings
 - Live Swivel Fitting (Built into the end fitting)*
 - Live Swivel Adapter (Screwed into Std. fitting)*
 - Bend Restrictors*
 - External Anti-Whip Cable (with safety loops)
 - CGA Fittings
 - Brass BSPP Fittings
 - SS BSPP Fittings
 - Male NPT
- (*) Indicates New Products



***Smart-Hose Technologies: Any Hose, Any Fitting,
Any Application. We can make your
transfer operation Safer!***



CRYOGENIC

LIQUID CYLINDER HOSE

We work closely with the cryogenic industry to develop flexible transfer assemblies for cryogenic applications and industrial gases. Our assemblies are available in a wide range of sizes and materials.



ADVANTAGES

- In-house oxygen cleaning
- Individually cleaned, capped and bagged
- Full or partial armor guard
- End fitting customization

END FITTINGS



- CGA 295 and 440
- Female Flared JIC Swivel Fittings
- Schedule 40 Straight Male NPT Fittings
- Hex Male NPT Fittings
- Plain Tube Fittings

* Custom fittings available



APPLICATIONS

- CNG/LNG
- Air Separation
- Manifold Lines
- Fueling and Fuel Systems
- Nitrogen and Oxygen Liquefiers
- Other Industrial Gas Applications

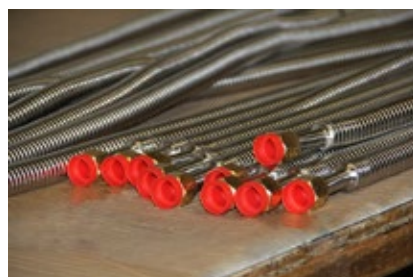


CLEANED, CAPPED, AND BAGGED

Oxygen cleaning services are performed in-house in our clean room.



Assembly that has been cleaned and bagged for oxygen service.



CRYOGENIC

PTFE PIGTAILS

All PTFE and stainless steel pigtails are fabricated at the factory in Rogers, MN.

PTFE pigtails consist of PTFE smooth bore hose with stainless steel braid and choice of end fittings. Recommended for frequent cylinder replacement situations.

Sizes Available :	End Fittings:
1/4", 3/8", 1/2"	Male or female brass
Open Overall Length	or stainless steel

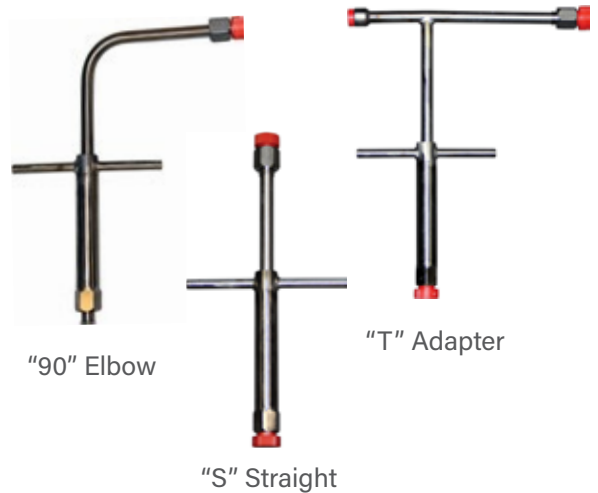
Stainless steel pigtails consist of corrugated stainless steel hose with stainless steel braid. Recommended for high-usage or corrosive gas.

Sizes Available :	End Fittings:
1/4", 3/8" and 1/2"	Male or female NPT
Open Overall Length	stainless steel

Custom PTFE or stainless steel assemblies are available with a variety of end fittings.



FILLER ADAPTERS



Easy On and Off:

This unique design requires no tools. The filler adapter freely spins to allow for quick connect and disconnect, this saves time when filling one or more cylinders.

Styles and Sizes:

The filler adapter is available in either a straight, T or 90 degree elbow configuration to fit your specific system, design and set-up.

Advantages:

90 degree elbow prevents the hose from over-bending, thus extending the life of the hose. Stainless steel construction eliminates oxidizing, distortion, cracking and leaking.

Series 4770 LCO₂ Transfer Hose

Let Unisoure's 4770 LCO₂ compatible hose help you meet your **FOOD SAFETY MODERNIZATION ACT (FSMA)** requirements.



Series 4770 thermoplastic hose is specially designed for the transfer of liquid and gaseous carbon dioxide (CO₂) for beverage applications. It is commonly used on small bulk delivery trucks as well as flexible lines from the restaurant wall-box to the liquid cylinders. **Series 4770** hose is specially formulated to perform well in temperatures as low as -40°F, and the proprietary core tube is plasticizer free and FDA compliant. Our unique bonding process guarantees excellent kink resistance, and the proprietary "Tuff-Skin" cover provides for superior handling and abrasion resistance.

Test Results

- **CGA 6.5 Compliant**
- **CGA 6.6 Cold Bend Test Compliant**
- **NFPA 55 Compliant**
- **NSF 51 Compliant**
- **Leachate Resistant to Liquid CO₂**
- **Contains no Bisphenol A (BPA)**

Construction

- Tube - Proprietary Polymer
- Reinforcement - Polyester Braid
- Cover - Proprietary Polyurethane ("Tuffskin")
- Cover Color - Blue, Perforated

Features

- Plasticizer Free core tube
- Core tube is FDA compliant
- 100% Bonded Construction
- Excellent kink resistance
- Non-stick, low co-efficient of friction cover (75% better)
- Superior abrasion resistant cover (67% better)

Temperature

- -40°F to + 150°F (-109°F Intermittent)
- -40°C to + 66°C (-78°C Intermittent)
- (Delta) Working length @ rated WPSI: ±2% max.

Part Number	Nominal I.D.		Maximum O.D.		Minimum Bend Radius		Maximum Working Pressure		Minimum Burst Pressure		Weight		Couplings
	in	mm	in	mm	in	mm	psi	bar	psi	bar	lbs/100 ft	kg/100 m	
4770-04	1/4	6	0.510	13	1.25	32	2,750	190	11,000	759	6.5	9.7	SB
4770-06	3/8	10	0.660	17	2.0	51	2,250	155	9,000	621	9.7	14.4	SB
4770-08	1/2	13	0.810	21	3.0	76	2,000	138	8,000	552	13.4	19.9	SB