

Cryogenic Bulk Hoses

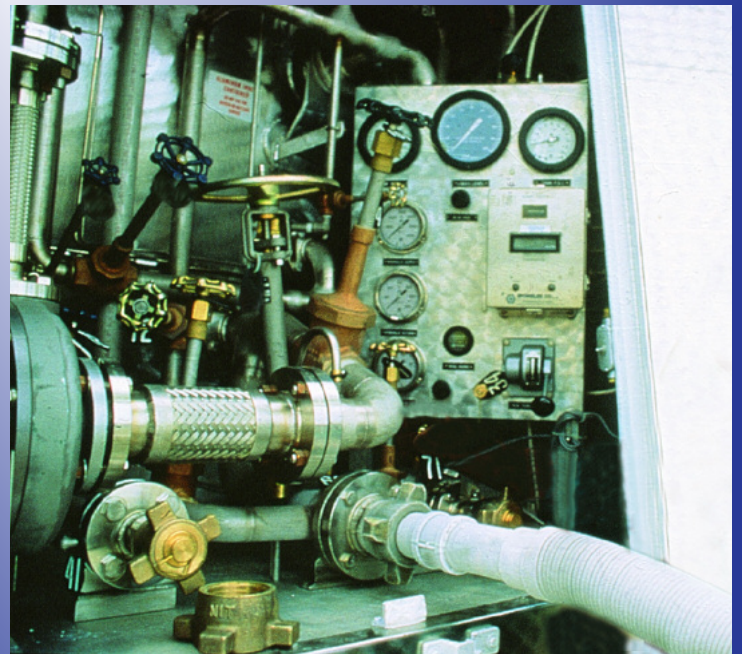
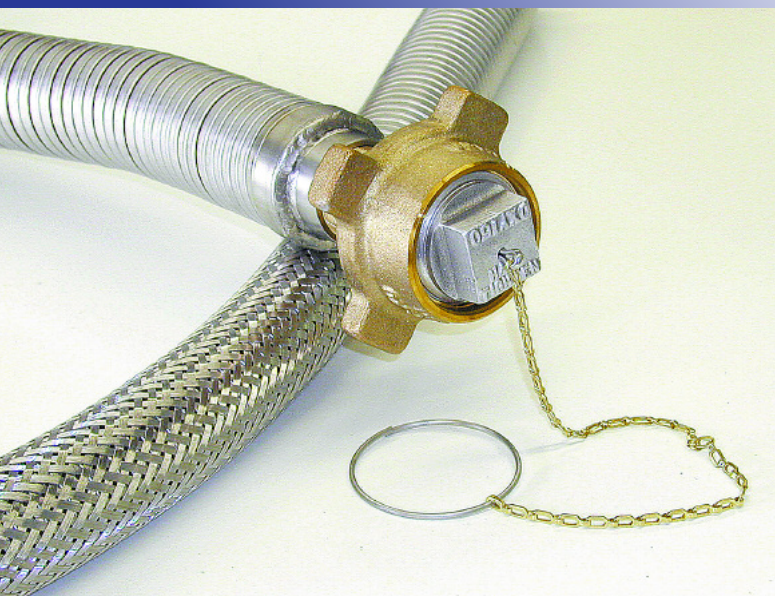
Ratermann Manufacturing, Inc. carries a wide selection of hoses for your bulk loading needs.



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Cryogenic Bulk Hoses

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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" 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



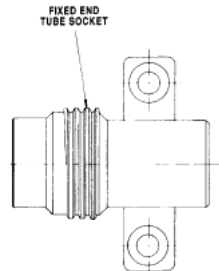
BULK CRYOGENIC HOSES FOR LOADING AND UNLOADING

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

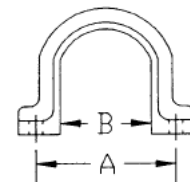
FILL BLOCK WITH LUGS - TUBE SOCKET

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



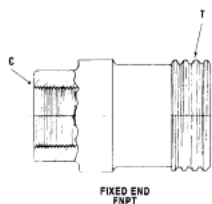
FILL BLOCK CLAMP ASSEMBLY - BRONZE

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



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

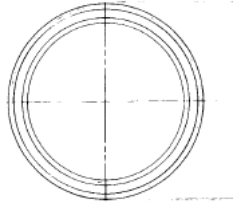
Part Number	Description
BCFA-150-150-NI	1 1/2" Cryo Bulk Fitting for 1 1/2" Hose Size, Nitrogen
BCFA-250-200-NI	2 1/2" Cryo Bulk Fitting for 2" Hose Size, Nitrogen
BCFA-250-250-NI	2 1/2" Cryo Bulk Fitting for 2 1/2" Hose Size, Nitrogen
BCFA-150-150-AR	1 1/2" Cryo Bulk Fitting for 1 1/2" Hose Size, Argon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

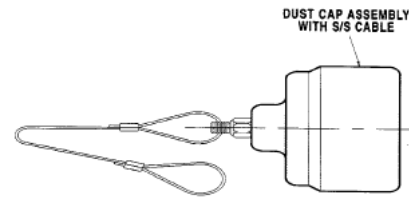
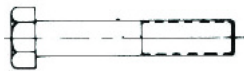
FILL CONNECTION GASKETS

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

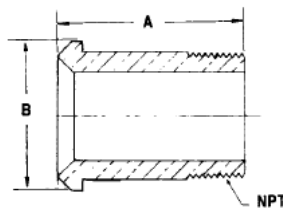


DUST CAP ASSEMBLIES

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

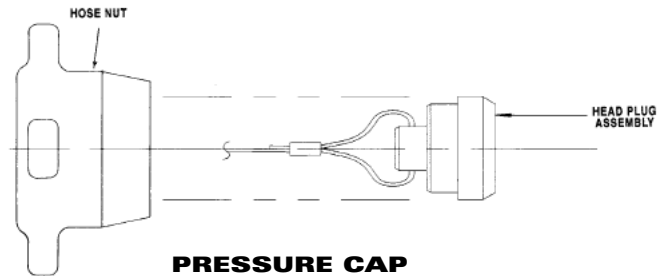
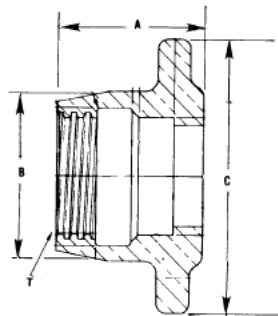
FILLING SLEEVE Brass

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

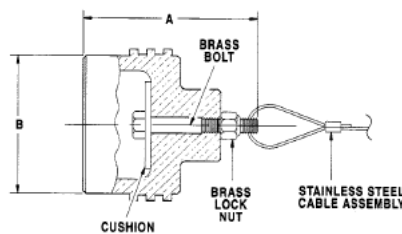


PRESSURE CAP ASSEMBLIES

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

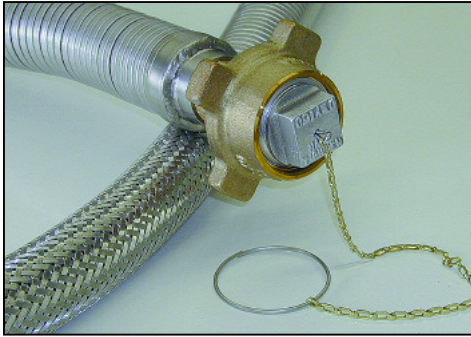


BULK FITTING ALUMINUM WRENCH

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 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-120F1M1
12'	BH-1ID-144F1M1
20'	BH-1ID-240F1M1

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

Hose Length	Part #
10'	BH-A18-112ID-120F1M1
12'	BH-A18-112ID-144F1M1
20'	BH-A18-112ID-240F1M1

Hose Length	Part #
10'	BH-112ID-120F1M1
12'	BH-112ID-144F1M1
20'	BH-112ID-240F1M1

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

Hose Length	Part #
10'	BH-A18-2ID-120F1M1
12'	BH-A18-2ID-144F1M1
20'	BH-A18-2ID-240F1M1
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.*

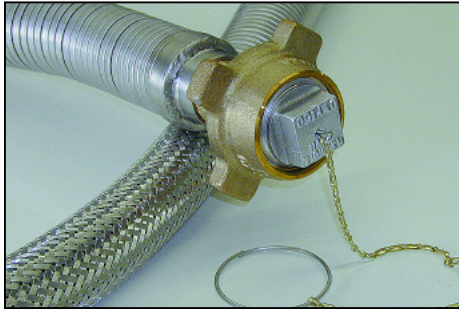
ORDER CUSTOM LENGTH HOSE

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 FNTF 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

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

With No Armor Cuffs

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

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

With No Armor Cuffs

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 - _____

CRYOGENIC HOSES

SMART-HOSE CRYOGENIC BULK TANK AND TRUCK LOADING AND UNLOADING HOSES

The World's Safest Hose Assemblies!!

LL3 – Open Flow

(Valves Kept Open by Internal Cable)



Coupling Failure

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

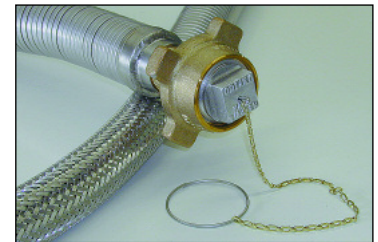


FEATURES

- 1-1/2" or 2" I.D. close pitch corrugated 304 stainless steel inner core.
- Full coverage heavy-duty braid.
- Heavy-duty fully machined female NPT end fittings.
- 18" armor casing cuffs (bend restrictors) each end.
- Cryogenic to 1500 degrees F

Contact us for additional sizes and CGA connections available.

Fitting Size (Diameter of the hose)	Gas Service	CGA Designation Threaded On	Aluminum Tail Plug	Trailer Connectors with Bronze Lugs
1 1/2"	Nitrogen	SHB-NI-150-BH	NI-150TP-BH	NI-150TC-BH
2"	Nitrogen	SHB-NI-200-BH	NI-200TP-BH	NI-200TC-BH
1 1/2"	Argon	SHB-AR-150-BH	AR-150TP-BH	AR-150TC-BH
2"	Argon	SHB-AR-200-BH	AR-200TP-BH	AR-200TC-BH
1 1/2"	Oxygen	SHB-OX-150-BH	OX-150TP-BH	OX-150TC-BH
2"	Oxygen	SHB-OX-200-BH	OX-200TP-BH	OX-200TC-BH



* When ordering designate length of hose needed.

CARBON DIOXIDE BULK LIQUID TRANSFER HOSES

LL3 – Open Flow

(Valves Kept Open by Internal Cable)



Coupling Failure

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



The Smart-Hose Safety System is built into a special rubber Carbon Dioxide discharge hose. Common uses include in-plant, truck and rail car loading. This low temperature hose has been uniquely developed to meet the rugged requirements of this application. Smooth elastomer inner tube resistant to deterioration from CO₂ and flexible between -65° F and 125° F. Stainless Steel reinforced braid. Pin-pricked outer cover resistant to deterioration from elements and abrasion. Corrosion resistant stainless steel end fittings with stainless steel crimp collar.

FEATURES

- Smooth inner tube elastomer formulated to be resistant to deterioration from CO₂ and maintain flexibility from -65° (-53.9° C) to 125°F (51.7° C) without cracking.
- Reinforcing braid of 300 Series Stainless Steel
- Outer cover resistant to deterioration due to exposure to the elements, oil, and abrasion.
- Fitting material is brass, the crimp collar or ferrule is aluminum.
- All assemblies are hydrostatically tested to 900 psig.
- End of fittings are stamped with month and year of manufacture

COVER – Black, Special low temperature abrasions resistant copolymer

REINFORCEMENT TUBE – 2 layers of stainless steel wire braid

BRANDING – Black, Special low temperature co-polymer resistant to CO₂ permeation, Orange Mylar brand – CO₂ Discharge

TEMPERATURE – -65° to 180° F (-55° to 83° C)

MAINTENANCE – See Smart-Hose "Proper Use, Care & Maintenance" Booklet Form # 1999-1

Call for available sizes and connections options.