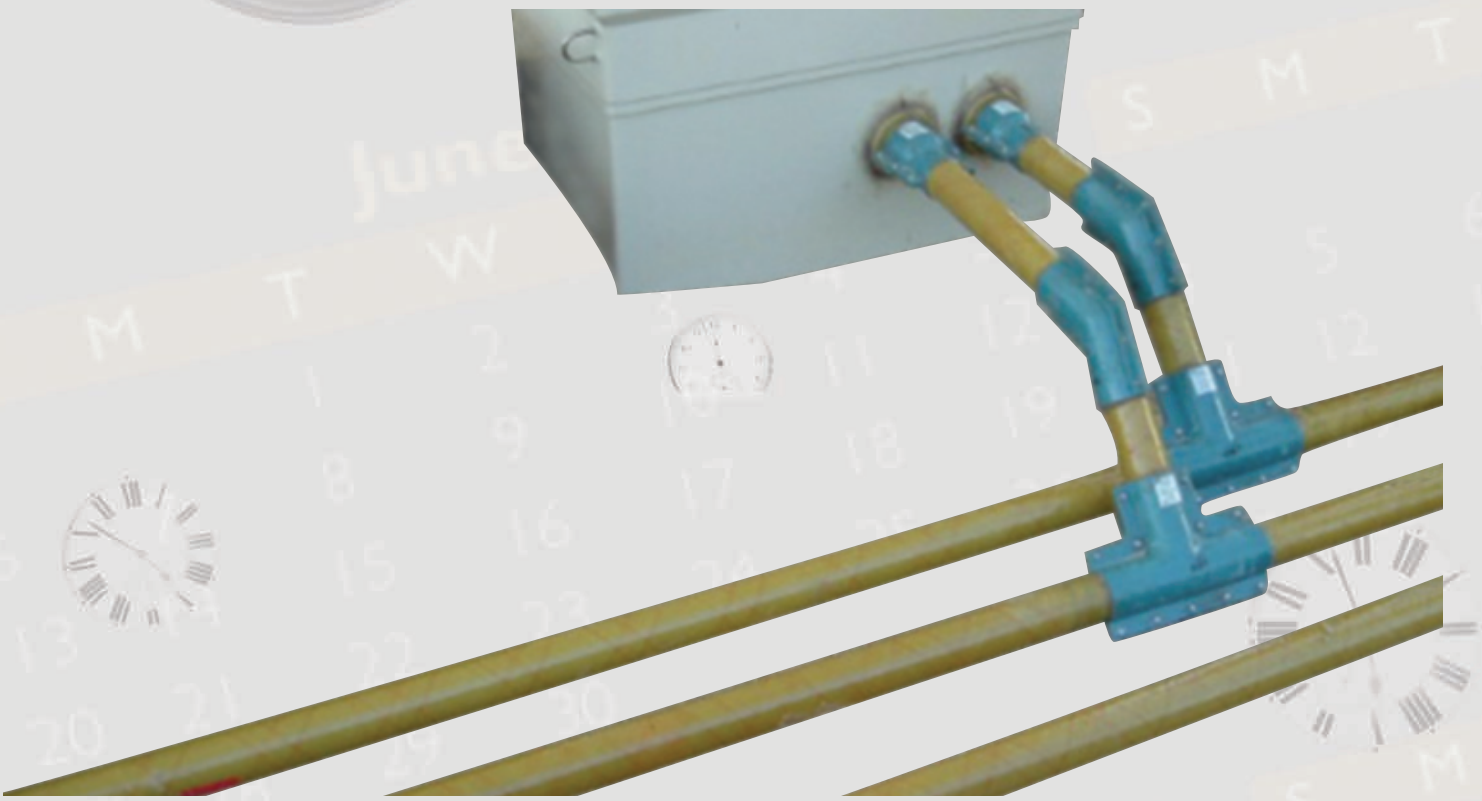
Bulletin No. B2101
October 1, 2007

FIBER GLASS SYSTEMS
UL/ULC Listed
Red Thread® IIA Piping



Time-Tested
Fiberglass Primary Piping and Secondary Containment Piping for Underground Fuel Installations

SMITH FIBERCAST 30 YEAR WARRANTY

Benefits of Fiberglass Piping in Underground Fuel Applications

TIME TESTED

- 30-Year Warranty
- Installed since 1964
- Never been removed due to fuel incompatibility
- Total immersion testing in fuels
- Case History G7301

LOWEST TOTAL COST OF OWNERSHIP

- No reinstall costs due to fuel incompatibility
- Homogenous system: no liner, no bladder

A TRUE PIPE IN A PIPE

- Interstitial space communication
- Leak prevention, not leak detection
- *INSTALL IT, BURY IT, FORGET IT!*

Lowest Total Cost Ownership†

[Material Cost + Installation Cost] ÷ System Life

† Maintenance cost and replacement cost not required with RED THREAD IIA piping system.

- **Thirty Year Warranty*** – With over 40 years proven performance in the marketplace, Underwriter's Laboratories, Inc. and Underwriter's Laboratories Canada (UL/ULC) Listed RED THREAD IIA pipe, fittings and adhesive carry a 30-year warranty. The product is warranted to be free from defects in material and workmanship–and against internal and external corrosion–when used for underground transportation of fuels.

- **Leak Prevention** – Sump entry/termination fittings provide positive seal at the sump to help prevent leaking of underground fuel in or out of the sump. This fitting also helps provide Class I (leak prevention) protection which complies with California's requirement for continuous interstitial monitoring of the piping system's secondary containment.

- **Exceptional Flow Characteristics** - Two-inch RED THREAD IIA pipe has the largest I.D. (2.235") in the fueling industry–allowing you to sell twice the fuel per foot than any 1 1/2" flexible product on the market. Three-inch RED THREAD IIA fiberglass pipe has a nominal 3.36" I.D.; four-inch pipe has a 4.36" I.D.

- **Outstanding Corrosion Resistance** – RED THREAD IIA piping systems resist internal and external corrosion from hazardous soils, fuels and other corrosive fluids.

- **Quality Assurance** – FGS Smith Fibercast quality assurance procedures meet or exceed the test requirements of UL/ULC.

- **Permeability** – RED THREAD IIA permeability resistance greatly exceeds UL allowable permeability.

2004 UL 971:
Primary - 1 gm/m^2/day (0.053 gal/100 ft. of 2" pipe, 30 days)
Secondary - 4 gm/m^2/day (0.213 gal/100 ft. of 2" pipe, 30 days)

1995 UL 971:
Primary - 4 gm/m^2/day (0.213 gal/100 ft. of 2" pipe, 30 days)
Secondary - 24 gm/m^2/day (1.278 gal/100 ft. of 2" pipe, 30 days)

Old vs New *- Pipe in the foreground was installed in 1973 and removed 27 years later when the station closed.*

*Please review FGS Smith Fibercast's written warranty to determine the terms and conditions.

UL/ULC Listed Red Thread® IIA Piping System

• **High Pressure/ Temperature Rating** – RED THREAD IIA pipe offers cyclic operating pressure ratings of up to 250 psig at 150°F.

• **Thermosetting Properties** – Manufactured with thermosetting epoxy resin, RED THREAD IIA pipe won't soften or creep at its maximum operating temperature of 150°F. And, it won't get brittle in temperatures as low as -40°F.

• **Proven Joining System** Lightweight RED THREAD IIA pipe is joined with the proven T.A.B.™ (Threaded and Bonded) or Bell and Spigot joint which promotes fast, positive make-up and prevents "backout" problems during cure time. These features assist the installer and assure economical installation.

• **Reliability** – FGS Smith Fibercast fiberglass piping is designed and manufactured to meet the requirements of governmental environmental regulations, including EPA. As an example of this reliability, Smith Fibercast RED THREAD IIA piping has never been removed because of fuel incompatibility.

• **Easy, Economical Installation**
– The exclusive T.A.B. joint is supplied on primary piping
– Containment fittings have female threaded inserts
– Compatible adhesives have no shelf life
– Power tools taper and scarf pipe. Manual tool also available

Literature available:

B2101 - General Brochure
B2102 - RT IIA Specifications
B2160 Installation Instructions
B2161 Installation Checklist
B2108 Bonded Termination Fittings
B2109 Gasketed Termination Fittings
B2104 Vacuum Monitoring System
F6624 B2102 Power Tool
F6625 B2100 Power Tool
F6600 Manual Tapering Tool
G7300 Service Station Installation Case History
G7301 18-Year In-Service Case History

UL/ULC Listed RED THREAD IIA fiberglass primary piping is available in 2", 3" and 4" diameters; secondary containment piping is available in 3" and 4" containment pipe. Containment fittings are rated to 50 psig in 3"-4" sizes.
Non-UL Listed containment piping is available in 6" - 16" diameters. Containment fittings are rated to 20 psig in 6" sizes. Other items contained in this bulletin may not be UL/ULC Listed. Contact your regional manager or representative for more information.

For a complete catalog, CD, case histories describing real-life RED THREAD IIA application success stories, and MSDS please fax your request to 501-568-6836 or visit our web site at www.smithfibercast.com.

Time line for UL/ULC Listed Service Station Product

UL Listed RED THREAD Pipe 1968

This product was UL Listed as "Nonmetallic Underground Piping for Petroleum Products Only." Under the UL test program, the pipe was totally immersed in the following chemicals (all at 100°F): regular leaded gasoline, premium unleaded gasoline, premium leaded gasoline, no. 2 fuel oil, benzene, toluene, ASTM reference fuel C, ASTM reference fuel A, distilled water, nitric acid (5% by weight), sodium carbonate and sodium bicarbonate solution, sodium hydroxide (5% by weight), sodium chloride solution (saturated), dilute sulfuric acid (pH=3), and dilute sulfuric acid (20% by weight). Smith Fibercast recommended this pipe for methanol/ gasoline blends up to 5% methanol at temperatures up to 75°F. The pipe was also recommended for all mixtures of ethanol and gasoline including 100% ethanol.

UL/ULC Listed RED THREAD II Pipe 1984

Same as UL Listing above. Smith Fibercast recommended this piping system for all methanol and ethanol gasoline blends up to and including 100% methanol and 100% ethanol at temperatures up to 75°F.

UL/ULC Listed RED THREAD IIA Pipe 1990

This product was UL Listed as "Nonmetallic Underground Piping for Petroleum Products, Alcohols and Alcohol/Gasoline Mixtures."

RED THREAD IIA PIPING

RED THREAD IIA Primary Piping			
Nom. Pipe Size (In.)	Nom. Pipe Size mm	Part Number	Pipe Length (ft.)
2	50	011020-069-1	15
2	50	011020-069-2	22-25
2	50	011020-069-3	26-30
3	80	011030-069-1	15
3	80	011030-069-2	22-25
3	80	011030-069-3	26-30
4	100	011040-071-1	15
4	100	011040-069-2	22-25
4	100	011040-071-3	26-30

RED THREAD IIA Secondary Containment Piping			
Nom. Pipe Size (In.)	Nom. Pipe Size mm	Part Number	Pipe Length (ft.)
3	80	011030-069-4	15
3	80	011030-069-5	22-25
3	80	011030-069-6	26-30
4	100	011040-077-5	15
4	100	011040-069-5	22-25
4	100	011040-077-6	26-30
6	150	011060-120-5	15
6	150	011060-120-4	22-25
6	150	011060-120-6	26-30

DIMENSIONAL DATA

Nominal Pipe Size (In./mm)	Nominal I.D. (In./mm)	Nominal O.D. (In./mm)	Nominal Wall Thickness (In./mm) Thickness (In./mm)	Nominal Weight (lbs./ft./kg-m)	Pressure/ Temperature Max. Rating	Mill Test Pressure (psig/MPa)	External Pressure Max. Rating (psig/MPa)	
							75°F/24°C	150°F/66°C
2	2.235	2.375	.070	0.5	250 psig @ 150°F	375	85	80
50	57	61	1.78	0.74	1.72 MPa @ 66°C	2.59	.57	.55
3	3.360	3.500	.070	0.7	175 psig @ 150°F	300	36	34
80	85	90	2.54	1.04	1.21 MPa @ 66°C	2.07	.25	.23
4	4.360	4.560	.085	1.2	125 psig @ 150°F	265	34	30
100	111	116	2.16	1.79	0.86 MPa @ 66°C	1.83	.23	.21

PROPERTY	RED THREAD IIA Pipe			
	psi @ 75°F	MPa @ 24°C	psi @ 150°F	MPa @ 66°C
Axial Tensile (ASTM D2105)				
Ultimate Stress	10,300	71.0	8,200	56.5
Design Stress	2,575	17.8	2,050	14.1
Modulus of Elasticity	1.82 x 10^6	12548	1.42 x 10^6	9791
Axial Compression (ASTM D695)				
Ultimate Stress	33,300	230.0	25,600	177.0
Design Stress	8,300	57.2	6,400	44.1
Modulus of Elasticity	1.26 x 10^6	8687	.89 x 10^6	6136
Beam Bending (SFPTM)				
Ultimate Stress	23,000	159.0	19,200	132.0
Design Stress(4)	2,900	20.0	2,400	16.5
Modulus of Elasticity (Long Term per ASTM D2925)	2.18 x 10^6	15031	1.70 x 10^6	11721
Hydrostatic Burst (ASTM D1599)				
Ultimate Hoop Tensile Stress	34,000	234	39,200	271
Hydrostatic Design (ASTM D2992)	2”-3”	2” & 3”	2” & 3”	2” & 3”
Procedure A	9,410(5)	64.9(5)	7,400(7)	51(8)
Cyclic 150 x 10^6	4”-6”	4”-6”	4”-6”	4”-6”
Cycles	13,040(6)	89.9(6)	10,450	72.1
Coefficient of Linear Thermal Expansion (SFPTM)	0.88 x 10^{-5} in./in./°F			
	1.58 x 10^{-5}mm/mm/°C			
Specific Gravity	1.8			
Flow Factor Hazen-Williams Coefficient	150			

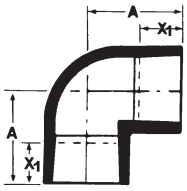
Bending Radius, Minimum

Nominal Pipe Size (inches)	2”	3”	4”	6”
Ft.	75	110	140	204
m	21.3	33.5	42.7	62.2

(1) All values except pressure-temperature maximum rating are nominal values. Tolerances or maximum/minimum limits can be obtained from Smith Fibercast.
(2) All sizes can accept full vacuum pressures at maximum temperature ratings.
(3) Ultimate and allowable design stresses are based on minimum reinforced wall thickness. Pipe is manufactured in compliance with ASTM D2996.
(4) Design bending stress is 1/8 of ultimate to account for combined stress (i.e. bending and pressure).
(5) Design stress is based on long term cyclic fatigue data using ASTM D2992 test method. However, all testing is not complete at time of printing.
(6) For RED THREAD IIA pipe the hydrostatic cyclic design stress was determined at 150° and 200°F, per ASTM D2992 Procedure A. Based on this data, the extrapolated value at 75°F is 13,030 psi.
(7) For RED THREAD IIA pipe the hydrostatic cyclic design stress was determined at 75° and 200°F, per ASTM D2992 Procedure A. Based on this data, the extrapolated value at 150°F is 7,400 psi.

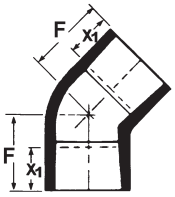
PRIMARY FITTINGS

90° ELBOW, belled ends



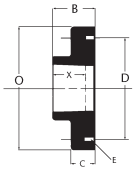
2” 90° ELBOW	012020-360-4
3” 90° ELBOW	012030-360-4
4” 90° ELBOW	012040-360-4

45° ELBOW, belled ends



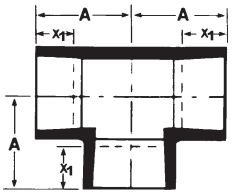
2” 45° ELBOW	012020-310-4
3” 45° ELBOW	012030-310-4
4” 45° ELBOW	012040-310-4

FLANGE, belled end



2” FLANGE	012020-170-4
3” FLANGE	012030-170-4
4” FLANGE	012040-170-4

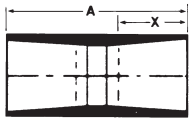
TEE, belled ends



2” TEE	012020-410-4
3” TEE	012030-410-4
4” TEE	012040-410-4

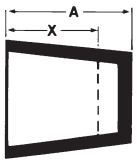
Nominal Pipe Size (In./mm)	A (In./mm)	B (In./mm)	C (In./mm)	D (In./mm)	E (In./mm)	F (In./mm)	O (In./mm)	X_1(1) (In./mm)	X_2(1) (In./mm)
2	3 3/8	2 1/4	3/4	4 3/4	3/4 D-4 Holes	2 5/8	6	1 3/8	1 1/2
50	86	54	19	121	19 D-4 Holes	67	152	35	38
3	4 5/8	2 5/8	1 3/8	6	3/4 D-4 Holes	3 3/4	7 1/2	1 5/8	1 7/8
80	117	67	35	152	19 D-4 Holes	95	191	41	48
4	5 1/8	2 5/8	1 3/8	7 1/2	3/4 D-4 Holes	3 7/8	9	1 1/2	1 7/8
100	130	67	35	191	19 D-4 Holes	98	229	38	48

SLEEVE COUPLING, belled ends



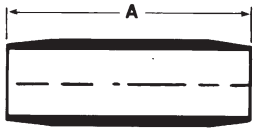
2” SLEEVE COUPLING	012020-101-8
3” SLEEVE COUPLING	012030-101-8
4” SLEEVE COUPLING	012040-101-4

END CAP*



2” END CAP 012020-180-4

NIPPLE



2” X 4”	012020-004-5	3” x 6”	012030-006-5
2” x 6”	012020-006-5	3” x 8”	012030-008-5
2” x 8”	012020-008-5	3” x 10”	012030-010-5
2” x 10”	012020-010-5	3” x 12”	012030-012-5
2 x 12”	012020-012-5	4” x 6”	012040-006-4
		4” x 8”	012040-008-4
		4” x 10”	012040-010-4
		4” x 12”	012040-012-4

Nominal Pipe Size (In./mm)	Sleeve Coupling A (In./mm)	Sleeve Coupling X_1(1) (In./mm)	End Cap A (In./mm)	End Cap X_1(1) (In./mm)	Nipple (Overall Length “A”) 4” 101.6mm	6” 152.4mm	8” 203.2mm	10” 254.0mm	12” 304.8mm
2	6	2 1/8	2 3/4	1 3/8	†	†	†	†	†
50	152	54	70	35	–	†	†	†	†
3	6	2 3/8	–	–	–	†	†	†	†
80	152	60	–	–	–	†	†	†	†
4	7	2 7/8	–	–	–	†	†	†	†
100	178	73	–	–	–	†	†	†	†

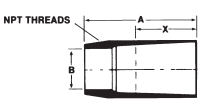
* Available 2” only.
† Available from stock

(1) X dimension is a nominal makeup dimension for drawing layout only. Do not use for assembly dimensions.

PRIMARY FITTINGS *(continued)*

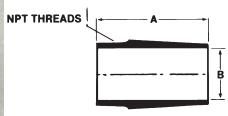
THREADED ADAPTERS[2] - NPT THREAD

Bell x Male

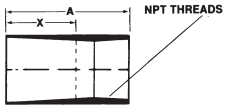


2” BxM	012020-191-4	2” SxM	012020-192-4	2” BxF	012020-194-4	2” SxF	012020-195-4
3” BxM	012030-191-4	3” SxM	012030-192-4	3” SxF	012030-194-4	3” SxF	012030-195-4
4” BxM	012040-191-4	4” SxM	012040-192-4	4” BxF	012040-194-4	4” SxF	012040-195-4

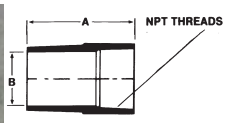
Spigot x Male



Bell x Female

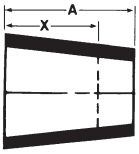


Spigot x Female



Nominal Pipe Size (In./mm)	Bell x Male			Spigot x Male		Bell x Female		Spigot x Female	
	A (In./mm)	B (In./mm)	X[1] (In./mm)	A (In./mm)	B (In./mm)	A (In./mm)	X[1] (In./mm)	A (In./mm)	B (In./mm)
2	4 1/4	2	1 3/8	3 5/8	2	3 1/2	1 3/8	3 7/8	2 1/8
50	108	51	35	92	51	89	35	98	54
3	5 1/2	3	1 5/8	4 5/8	3	4 1/2	1 5/8	4 3/4	3 1/8
80	140	76	41	117	76	114	41	121	79
4	5 1/2	4	1 1/2	4 7/8	4	4 1/2	1 1/2	4 7/8	4 1/8
100	140	102	38	124	102	114	38	124	105

REDUCER BUSHING

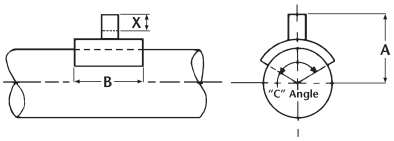


2” x 1”	FEMALE NPT	012020-233-4
2” X 1 1/4”	FEMALE NPT	012020-232-4
2” X 1 1/2”	FEMALE NPT	012020-231-4
3” X 2”	RED. BUSHING	012030-231-4
4” X 3”	RED. BUSHING	012040-231-4

Nominal Pipe Size (In./mm)	A (In./mm)	X[1] (In./mm)
2 x 1 50 x 25	1 3/4 44	* *
2 x 1 1/4 50 x 32	2 51	* *
2 x 1 1/2 50 x 40	1 3/4 44	* *
3 x 2 80 x 50	2 1/4 57	1 1/2 38
4 x 3 100 x 80	2 3/8 60	1 7/8 48

* Reduced opening has female NPT threads.

SADDLE



2” x 1 1/2” SADDLE 012020-516-4

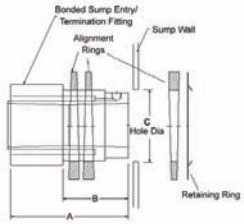
Nominal Pipe Size (In./mm)	A (In./mm)	B (In./mm)	X[1] (In./mm)
2 x 1 1/2 50 x 40	2 7/8 **73**	4 102	1 3/8 35

[1] X dimension is a nominal makeup dimension for drawing layout only. Do not use for assembly dimensions.

[2] Also available with British Standard Threads. Specify when ordering.

SUMP FITTINGS

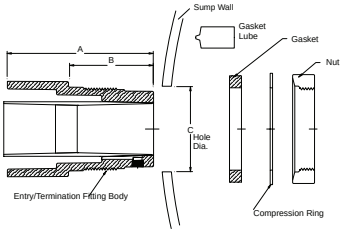
DOUBLE WALL
SUMP ENTRY/TERMINATION FITTING



3" BONDED FITTING 012030-626-0
4" BONDED FITTING 012040-626-0

Nominal Pipe Size (In./mm)	A (In./mm)	B (In./mm)	C (In./mm)
3 (3 X 2)	6.88	4.00	4.00
80 (80 x 50)	175	102	102
4 (4 X 3)	6.88	4.00	5.00
100 (100 x 80)	175	102	127

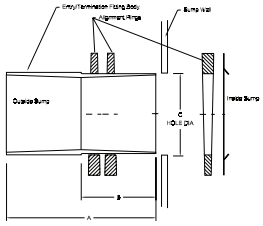
DOUBLE WALL
SUMP ENTRY/TERMINATION FITTING



3" GASKETED FITTING 012030-620-0
4" GASKETED FITTING 012040-620-0

Nominal Pipe Size (In./mm)	A (In./mm)	B (In./mm)	C (In./mm)
3 (3 X 2)	6.88	4.00	4.00
80 (80 x 50)	175	102	102
4 (4 X 3)	6.88	4.00	5.00
100 (100 x 80)	175	102	127

SINGLE WALL
SUMP ENTRY/TERMINATION FITTING

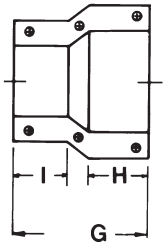


2" BONDED FITTING 012020-622-0
3" BONDED FITTING 012030-622-0
4" BONDED FITTING 012040-622-0

TABLE 1 - Fitting Dimensions

Size	A	B	C
In.	In.	In.	In.
2"	6	3	2 9/16
3"	6	3	3 3/4
4"	6	3	4 3/4

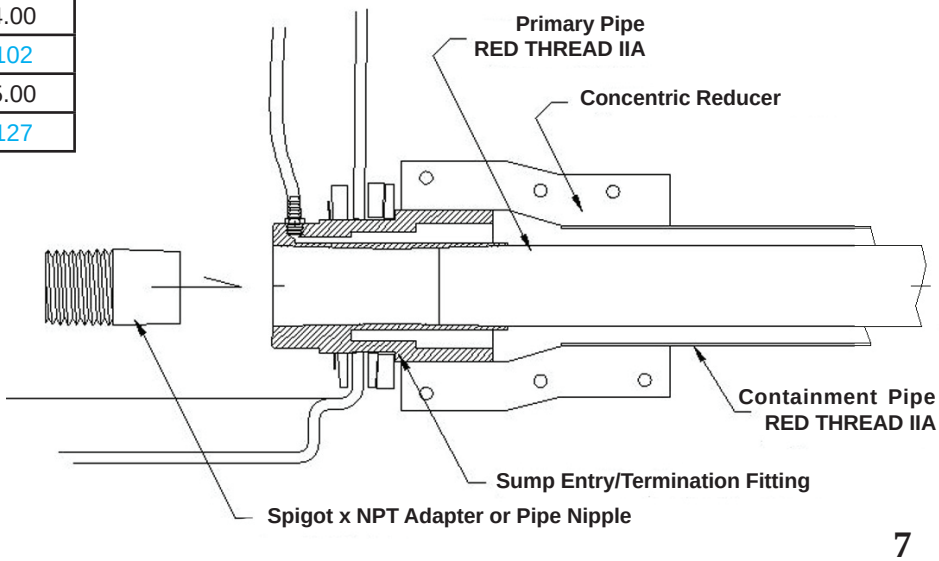
CONCENTRIC REDUCER



4" X 3" CONCENTRIC REDUCER 012040-238-3
5" X 4" CONCENTRIC REDUCER 012050-238-3

Nominal Pipe Size (In./mm)	G ± ⅛" (In./mm)	H ± ⅛" (In./mm)	I ± ⅛" (In./mm)
4 x 3	6	2½	2½
100 x 80	152	64	64
5 X 4	7	2½	2½
125 x 100	178	64	64

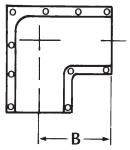
TERMINATION EXAMPLE *USING*
DOUBLE WALL SUMP ENTRY/TERMINATION FITTINGS



UL/ULC Listed Red Thread® IIA Piping System

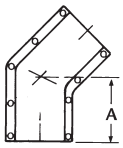
SECONDARY CONTAINMENT FITTINGS

90° ELBOW



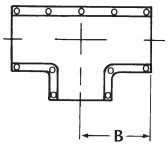
3” 90° SC ELBOW	012030-360-3
4” 90° SC ELBOW	012040-360-3
6” 90° SC ELBOW	012060-360-9

45° ELBOW



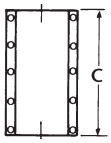
3” 45° SC ELBOW	012030-310-3
4” 45° SC ELBOW	012040-310-3
6” 45° SC ELBOW	012060-310-9

TEE



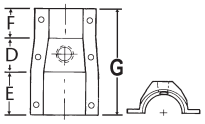
3” SC TEE	012030-410-3
4” SC TEE	012040-410-3
6” SC TEE	012060-410-9

SLEEVE COUPLING



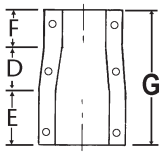
3” 90° SC SLEEVE COUPLING	012030-101-3
4” 90° SC SLEEVE COUPLING	012040-101-3
6” 90° SC SLEEVE COUPLING	012060-101-9

TERMINATION FITTING WITH NPT TAP



3”x2”” WITH 3/4 NPT TAP	012030-236-3
4”x3” WITH 3/4 NPT TAP	012040-236-3

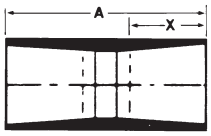
TERMINATION FITTING WITHOUT TAP



3”x2” WITHOUT TAP	012030-235-3
4”x3” WITHOUT TAP	012040-235-3
6”x4” WITHOUT TAP	012060-235-9

Nominal Pipe Size (In./mm)	A ± 1/8” (In./mm)	B ± 1/8” (In./mm)	C ± 1/8” (In./mm)	D ± 1/8” (In./mm)	E ± 1/8” (In./mm)	F ± 1/8” (In./mm)	G ± 1/8” (In./mm)
3	6	7	14	3	2½	2½	8
80	152	178	356	76	64	64	203
4	7½	8	14	3	3	2½	8½
100	191	203	356	76	76	64	216
6	8	9	16	4	4	3	11
150	203	229	406	102	102	76	279

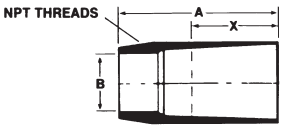
SLEEVE COUPLING, one-piece, scarfed O.D.



2” SC SLEEVE COUPLING	012020-101-9
3” SC SLEEVE COUPLING	012030-101-9
4” SC SLEEVE COUPLING	012040-101-9

Nominal Pipe Size (In./mm)	A (In./mm)	X(1) (In./mm)
2	5	2⅛
50	127	54
3	6	2⅜
80	152	60
4	6	2⅞
100	152	73

THREADED ADAPTER, bell x male, scarfed O.D.



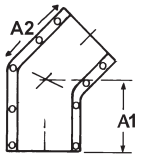
2” BxM THREADED ADAPTER	002020-191-7
3” BxM THREADED ADAPTER	002030-191-7
4” BxM THREADED ADAPTER	002040-191-7

Nominal Pipe Size (In./mm)	A (In./mm)	B (In./mm)	X(1) (In./mm)
2	4¼	2	1⅜
50	108	51	35
3	5½	3	1⅝
80	140	76	41
4	5½	4	1½
100	140	102	38

(1) X dimension is a nominal makeup dimension for drawing layout only. Do no use for assembly dimensions.

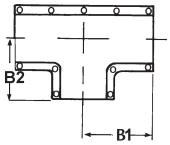
SECONDARY CONTAINMENT FITTINGS *(continued)*

CROSSOVER 45° ELBOW



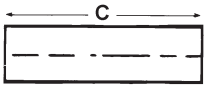
3" 45° SC CROSSOVER	012030-311-3
4" 45° SC CROSSOVER	012040-311-3

CROSSOVER TEE



3" SC CROSSOVER TEE	012030-411-3
4" SC CROSSOVER TEE	012040-411-3

CROSSOVER NIPPLE, scarfed both ends

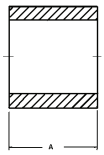


3"x6" CROSSOVER NIPPLE	012030-006-7
4"x6" CROSSOVER NIPPLE	012040-006-7
6"x8" CROSSOVER NIPPLE	012060-008-7

Nominal Pipe Size (In./mm)	Crossover 45		Crossover Tee		Crossover Nipples (Overall Length "C")	
	A1 (In./mm)	A2 (In./mm)	B1 (In./mm)	B2 (In./mm)	6" 152.4 mm	8" 203.2
3	6	4¾	7	5½	†	-
80	152	121	178	140	†	-
4	7½	5½	8	6⅜	†	-
100	191	140	203	162	†	-
6	-	-	-	-	-	†
150	-	-	-	-	-	†

† Available from stock.

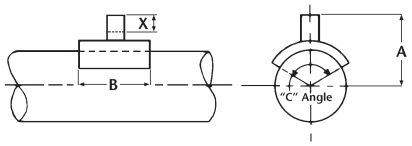
REDUCER BUSHING, scarfed O.D.



3"x2" REDUCER BUSHING	012030-231-7
4"x3" REDUCER BUSHING	012040-231-7

Nominal Pipe Size (In./mm)	A (In./mm)	X(1) (In./mm)
3 x 2	2¼	1 1/2
80 x 50	57	38
4 x 3	2⅜	1 7/8
100 x 80	60	48

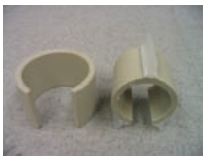
SADDLE



BELLED OUTLET		FEMALE NPT OUTLET	
3"x2" SADDLE	012030-521-4	3"x1" SADDLE	012030-511-4
4"x2" SADDLE	012040-521-4	3"x1 1/4" SADDLE	012030-512-4
4"x3" SADDLE	012040-531-4	3"x1 1/2" SADDLE	012030-516-4
		4"x1" SADDLE	012040-511-4
		4"x1 1/4" SADDLE	012040-512-4
		4"x1 1/2" SADDLE	012040-516-4

Nominal Pipe Size (In./mm)	A (In./mm)	B (In./mm)	X(1) (In./mm)
3 x 2	4	6	1⅜
80 x 50	102	152	35
4 x 2	4½	6	1⅜
100 x 50	114	152	35
4 x 3	5¼	6	1⅝
100 x 80	133	152	41
3 x 1	3½	6	*
80 x 25	89	152	*
3 x 1¼	3½	6	*
80 x 32	89	152	*
3 x 1½	3½	6	*
80 x 38	89	152	*
4 x 1	4	6	*
100 x 25	102	152	*
4 x 1¼	4	6	*
100 x 30	102	152	*
4 x 1½	4	6	*
100 x 40	102	152	*

CENTRALIZER



2"x3" CENTRALIZER	013020-650-3
3"x4" CENTRALIZER	013030-651-4
4"x6" CENTRALIZER	013040-650-6

* Reduced opening has female NPT threads.
(1) X dimension is a nominal makeup dimension for drawing layout only. Do not use for assembly dimensions.

Fiber Glass Systems, L.P. (FGS)
Worldwide Leader in Composite Piping

We call our fiberglass reinforced piping systems “time tested” because they have been proving their durability and value in harsh environments and unforgiving applications for decades. In fact, we’re closing in on our 60th anniversary, and some of our buried fuel-handling installations have been in the ground for almost 40 years.

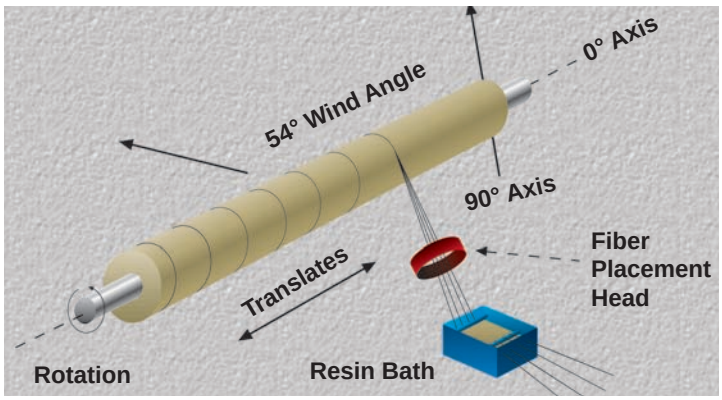
We offer extensive experience in designing, engineering, manufacturing, fabricating, and installing piping systems for caustic chemicals, abrasive slurries, hot temperatures, and high pressures - as well as less abusive forms of service.

Fiber Glass Systems, L.P. (FGS) combines the resources of Star Fiberglass and Smith Fibercast. With five manufacturing facilities in North America and two in the Far East, FGS offers a wide range of products to meet most piping needs.
FGS offers the broadest, most comprehensive product selection available. We’re the only manufacturer producing both filament wound and centrifugally cast piping. We market our products through a worldwide network of stocking distributors.
We are supported by the multi-billion global resources of our parent company, National Oilwell Varco - the leader in high-performance oil field equipment and advanced drilling and well-servicing technologies, with more than 5,000 employees in 49 countries.

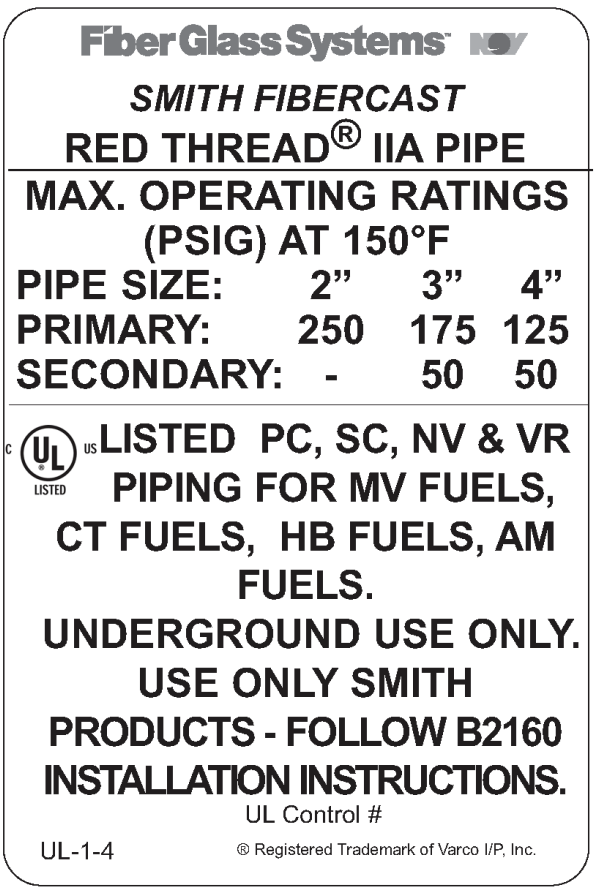
On-site installation training is available by FGS field technicians. Free Smith Fibercast piping-design CD-ROM programs for all markets, including the UL-Listed Fuel Piping markets (with the *Success by Design* engineering program), are available.

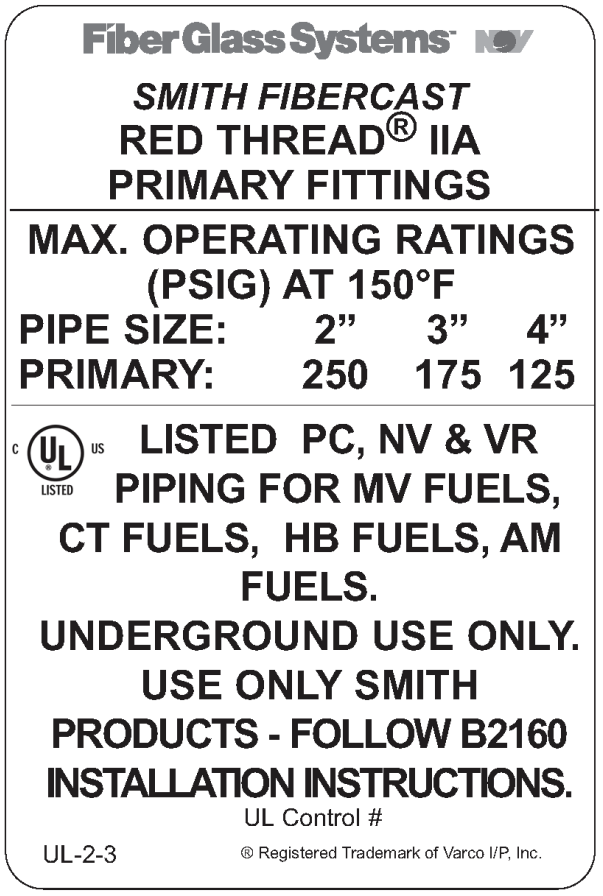
Filament Winding Process

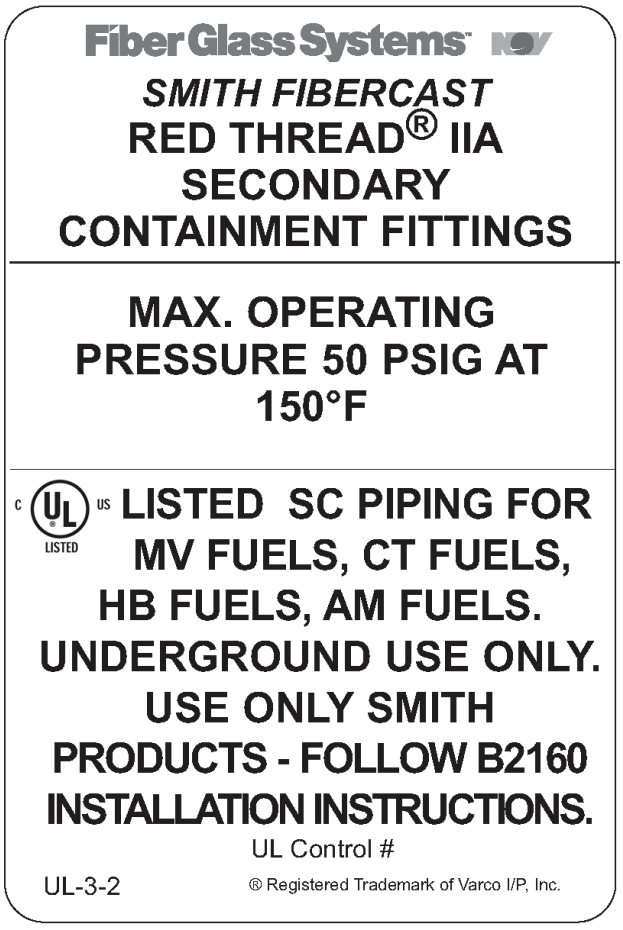
Resin-impregnated glass fibers are wound onto a mandrel in a predetermined pattern under controlled tension. Repeated passes create a strong layered wall of the desired thickness. This process results in a pipe that is at least 75% glass-reinforced for optimum internal pressure capability.



Samples of UL Labels







The colors of the labels used on the products are as follows:

RED THREAD IIA Pipe and Primary Fittings labels are yellow.

Secondary Containment Fittings label is green.

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BURY IT
FORGET IT!

Product Certifications

Factory Mutual System Approved

c UL us LISTED

CLASSIFIED UL WATER QUALITY
ANSI/NSF 61
Drinking Water System
Components 35GH
Water Contact Temp: 23C

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