

*Avoid fluid transport problems the Centron Way. Advanced filament wound construction gives Centron® tubular fiberglass products superior physical properties and performance capabilities.*

## FEATURES

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- Operating pressures to 3500 PSI in hostile corrosive environment.
- Tubing and casing with deep hole capabilities of more than 10,000 feet.
- Fast, reliable, make-up. Industry standard and premium end connectors available.
- Flow characteristics 1–1/2 times better than steel.
- Provides for low solids build-up and low pressure drop.
- At 1/4 the weight of steel, handling and installation costs are reduced substantially.

## APPLICATIONS

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- Flow lines
- Chemical disposal lines
- Injection lines
- Gas gathering and transport lines
- Water processing
- Solution mining lines
- Recirculating lines
- Production oil wells
- Injection wells
- Chemical disposal wells
- Water wells
- Solution mining wells
- Mine acid lines

## ADVANTAGES

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- API 15 HR and 15 LR monogrammed pipe available
- About 1/4 the weight of steel
- Assemble in any weather
- Superior flow characteristics
- Low paraffin and scale build-up
- Excellent corrosion resistance and long service life
- Exceptional pressure and axial load capabilities
- Low installation costs



Q1, 15LR, 15HR  
ISO 9001

**Important Note Limited Warranty**

*The information and recommendations contained in this literature regarding Centron® Fiberglass Products are based on currently available data and believed to be representative of the product under specific conditions. However, such factors as variations in environment, application or installation, changes in operating procedures, or extrapolation of data may cause different results. Centron International Inc. makes no representation or warranty, express or implied, including warranties of merchantability or fitness for purpose or service life, as to the accuracy, adequacy, or completeness of the recommendations or information contained herein. Centron International Inc. neither assumes nor authorizes any representative or other person to assume for it, any obligation or liability other than such as is expressly set forth. Centron International Inc. reserves the right to change any and all specifications or descriptions without notice.*

**Bell x Spigot Pipe (CBS) and Integral Joint Line Pipe (CEN)**

Lightweight, easy to handle and install, Centron® Fiberglass Epoxy Line Pipe is ideal for all flow lines. Joint make-up is by hand, and no special tools or skills are required. The strong, coarse threads make up fast and sure. For orientation of fittings, pipe joint may be backed off up to 360° from full make-up. The white band is used for quick and positive visual indication of proper make up. Centron pipe is filament wound on polished steel mandrels to produce an exceptionally smooth inside diameter. It is highly resistant to damage from brines, sweet and sour crudes, H<sub>2</sub>S, CO<sub>2</sub>, and other fluids.

*Centron Bell x Spigot (CBS), adhesive bonded pipe and IJ Line Pipe (CEN) are available in the sizes listed below to 500 psi (CBS) and 800 psi (CEN) maximum static pressure rating.*

Size	ID Inches (mm)	Operating Pressure Ratings Available PSI (MPa)	Joint Length Feet (M)
2	2.23 (56.6)	500 (3.45) to 800 (5.51)	30 (9.1)
3	3.35 (85.1)	500 (3.45) to 800 (5.51)	30 (9.1)
4	4.33 (110.0)	500 (3.45) to 800 (5.51)	30 (9.1)

For larger diameters use Bondstrand 150, 200 or 300 for sizes 6- to 12-inches, depending on performance characteristics required. For 14 to 16-inch diameters use Bondstrand 150 or 200 as needed for performance required. For 18 to 40-inch diameters use Bondstrand 3400.

**CONNECTION SYSTEM FEATURES**

**> Integral Joint High-Performance Line Pipe (SP, SPH, SP8\*)**

Centron SP Line Pipe with its ultra high strength threaded joint, multiple seal and advanced filament wound construction make it the choice for demanding oil field, solution mining, fluid transport and natural gas applications.

- **Multiple seal** — for high reliability—threads and O-ring.
- **Coarse threads** — (4 thd/in)—provide seal at high pressure with exceptional across the joint strength and fast make-up without cross threading problems. Standard API 8 round thread also available.
- **O-ring** — provides high pressure seal, keeps thread sealant in box and keeps internal fluids out of threads.
- **Wrench tight** — make-up provides multiple seal.

**CONSTRUCTION FEATURES**

- **Balanced filament wound construction** — at operating pressure, Centron SP Line Pipe has little axial expansion or contraction, thus reducing thrust forces at fittings in the pipe line.
- **Fittings** — all fittings have the same internal pressure safety factor as the pipe for complete reliability throughout the pipe line.

Size	ID Inches (mm)	Operating Pressure Ratings Available PSI (MPa)	Joint Length Feet (M)
1½	1.60 (40.6)	800 (5.52) to 3500 (24.1)	29.5 (9.0)
2	1.95 (49.5)	600 (4.14) to 3500 (24.1)	29.5 (9.0)
2½	4.33 (110.0)	600 (4.14) to 3500 (24.1)	29.5 (9.0)
3	2.98 (75.7)	600 (4.14) to 3000 (20.5)	29.5 (9.0)
4	3.98 (101.0)	600 (4.14) to 3000 (20.5)	29.5 (9.0)
5	4.85 (123.0)	300 (2.07) to 1500 (10.3)	29.5 (9.0)
6	6.10 (155.0) 6.40 (163.0)	300 (2.07) to 2000 (13.8)	29.5 (9.0)
8	8.42 (214.0)	300 (2.07) to 1250 (8.62)	29.2 (8.9)
10	9.72 (246.9)	300 (2.07) to 1000 (6.90)	29.2 (8.9)

\*Standard 8rd EUE or LTC Integral joint connections are also supplied in sizes 2, 2½, 3, 4, 6 and 8 inch diameters. Consult factory for pressure limitations.

### Integral Joint Tubing (DH, DH8\*)

Centron® tubing has advanced filament wound construction to provide the high axial modulus and tensile strength required for downhole applications.

CONNECTION >  
SYSTEM  
FEATURES

- **Multiple seal** — for high reliability—threads and O-ring.
- **Coarse threads** — (4 TPI)—provide seal at high pressure with exceptional across the joint strength and fast make-up without cross threading problems. Standard API 8 round thread also available.
- **O-ring** — provides high pressure seal, keeps thread sealant in box and keeps internal fluids out of threads.
- **Wrench tight** — make-up provides multiple seal.

Available in five sizes. Centron Tubing is ideal for demanding high pressure & deep well applications.

Size	ID Inches (mm)	Operating Pressure Ratings Available PSI (MPa)	Rated Axial Load x 10³ Lbs. (N) (Max)	Joint Length Feet (M)
1½	1.60 (40.6)	2000 (13.8) to 4000 (27.6)	13.5 (62)	29.5 (9.0)
2¾	1.95 (49.5)	1500 (10.3) to 3500 (24.1)	17.0 (78)	29.5 (9.0)
2⅞	2.48 (63.0)	1500 (10.3) to 3000 (20.7)	22.0 (98)	29.5 (9.0)
3½	2.98 (75.7)	1200 (8.3) to 2500 (17.2)	26.0 (116)	29.5 (9.0)
4½	3.98 (101.0)	1200 (8.3) to 2500 (17.2)	42.0 (187)	29.5 (9.0)

\*Standard 8RD EUE Integral Joint Connections are also supplied in sizes 2¾, 2⅞, 3½, and 4½ inch diameters. Consult factory for pressure & axial load limitations.

**Integral Joint Casing (DHC, DHC8\*)**

Centron® Casing has advanced filament wound construction and a multiple seal connection system to provide the high compressive and axial tensile strength required for deep well casing applications.

The special, textured overwrap of Centron Casing provides superior cement bonding that satisfies the most demanding requirements.

Size	ID Inches (mm)	Internal Pressure PSI (MPa)	External Collapse PSI (MPa)	Joint Length Feet (M)
4 1/2*	3.98 (101.0)	650 (4.48) to 2000 (13.8)	150 (1.03) to 1850 (12.8)	29.5 (9.0)
5	4.33 (110.0)	900 (6.20) to 1600 (11.0)	110 (0.75) to 600 (4.10)	30.0 (9.1)
5 1/2	4.85 (123.0)	800 (5.51) to 2000 (13.8)	80 (0.55) to 1150 (7.93)	29.5 (9.0)
6 5/8*	6.10 (155.0)	800 (5.51) to 2000 (13.8)	90 (0.62) to 1150 (7.93)	29.5 (9.0)
7	6.40 (163.0)	800 (5.51) to 1800 (12.3)	80 (0.55) to 1000 (6.87)	29.5 (9.0)
9 5/8*	8.42 (214.0)	750 (5.17) to 1500 (10.3)	70 (0.48) to 480 (3.31)	29.2 (8.9)
10 3/4	9.72 (246.9)	750 (5.17) to 1250 (8.60)	64 (0.44) to 280 (1.93)	29.2 (8.9)

\* API 8rd threads available on these sizes.

Centron International Inc. supplies a complete line of cementing accessories for use with all Centron Casing products.

**General Technical Data**

**LINE PIPE**

<i>Mill Test Pressure:</i>	Operating Pressure x 1.25
<i>Axial Tensile Strength:</i>	12,000 PSI
<i>Axial Modulus of Elasticity:</i>	1.85 x 10 <sup>6</sup> PSI (1.27 x 10 <sup>4</sup> MPa)
<i>Hoop Modulus of Elasticity:</i>	3.00 x 10 <sup>6</sup> PSI (2.05 x 10 <sup>4</sup> MPa)
<i>Density:</i>	0.07 lbs/in <sup>2</sup> (Sp. Gr. = 1.95)
<i>Coefficient of Thermal Expansion:</i>	1.43 x 10 <sup>-5</sup> in/in/°F (2.57 x 10 <sup>-5</sup> m/m/°C)
<i>Hazen-Williams Flow Factor:</i>	150
<i>Poissons Ratio (Hoop/Tensile):</i>	0.6

**TUBING**

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<i>Mill Test Pressure:</i>	Operating Pressure x 1.25
<i>Axial Tensile Strength:</i>	30,000 PSI
<i>Axial Modulus of Elasticity:</i>	2.7 x 10 <sup>6</sup> PSI (1.86x10 <sup>4</sup> MPa)
<i>Hoop Modulus of Elasticity:</i>	3.00 x 10 <sup>6</sup> PSI (2.05 x 10 <sup>4</sup> MPa)
<i>Density:</i>	0.07 lbs/in <sup>3</sup> (Sp. Gr. = 1.95)
<i>Coefficient of Thermal Expansion:</i>	1.43 x 10 <sup>-5</sup> in/in/°F (2.57 x 10 <sup>-5</sup> m/m/°C)
<i>Hazen-Williams Flow Factor:</i>	150
<i>Poissons Ratio (Hoop/Tensile):</i>	0.3

**CASING**

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<i>Mill Test Pressure:</i>	Operating Pressure x 1.25
<i>Axial Tensile Strength:</i>	12,000 PSI
<i>Axial Modulus of Elasticity:</i>	1.85 x 10 <sup>6</sup> PSI (Minimum)
<i>Hoop Modulus of Elasticity:</i>	3.00 x 10 <sup>6</sup> PSI (2.05 x 10 <sup>4</sup> MPa)
<i>Density:</i>	0.07 lbs/in <sup>3</sup> (Sp. Gr. = 1.95)
<i>Coefficient of Thermal Expansion:</i>	1.43 x 10 <sup>-5</sup> in/in/°F (2.57 x 10 <sup>-5</sup> m/m/°C)
<i>Hazen-Williams Flow Factor:</i>	150
<i>Poissons Ratio (Hoop/Tensile):</i>	0.6

*Note: Casing design may be altered to meet specific application requirements.*

## RESIN SYSTEMS &gt;

**General Considerations for Use**

Centron® Tubular products are manufactured with epoxy resin and two different hardener systems. Each system has certain characteristics such as mechanical properties, chemical resistance, temperature capability, and cost which may make one system more suitable than the other for a particular application. In all cases, the chemical compatibility and physical capability of the pipe for the expected conditions must be considered to optimize service life.

**Anhydride/Epoxy System** — Ideally suited for the majority of common oil field applications. Fluids such as sweet and sour crudes, fresh water, salt water, natural gas, and nitrogen can be transported at continuous service temperatures to 180°F (82°C).

**Aromatic Amine/Epoxy System** — Suited for the majority of oil field applications plus the capability of handling a broader range of corrosive materials at higher temperatures than the anhydride system. The above mentioned fluids can be transported at continuous service temperatures to 212°F (100°C). Laboratory testing and field service indicates superior performance capability in high pressure CO<sub>2</sub> service and materials used in polymer floods.

**Hot Oiling** — Both the anhydride and amine systems may be hot oiled to 225°F(106°C) for periods of time up to 24 hours at pressures not exceeding 50% of the ambient static pressure rating of the pipe.

**Buried Pipe** — If the soil is rocky, care must be taken to pad the pipe, below and above with relatively rock free soil or sand to preclude damage. Fiberglass thin wall pipe is not recommended for use in extremely rocky conditions unless externally protected with a rock shield. It is recommended that all Centron Fiberglass pipe be buried.

**Above Ground Installation** — In above ground installations, the pipe should be run in low traffic areas to avoid incidental damage. In high traffic areas, the pipe should be run through steel conduit using centralizers to prevent rubbing. Centron Fiberglass Products used above ground and exposed continuously to the elements may be ordered “UV-Inhibited” to retard ultra violet degradation. Painting the pipe will also control ultraviolet degradation, if properly applied and maintained.

### Centron Delivers the Whole Package

Epoxy Fiberglass tubulars have a unique set of properties compared to traditional metal products. Everything is different; from the way a packer is dressed to land, seal and release, to the dramatically lower hydraulic resistance to flow. In addition to Centron's in-house engineering and manufacturing capabilities, we have developed a world-wide network of manufacturers, designers, contractors, agents and distributors that enable Centron to provide complete, hassle-free systems to suit most any oilfield application.

#### EXAMPLES



#### Turn-Key Line Pipe Systems

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- Injection or Gathering
- Flow/Capacity Design, single or multi-phase
- Metering Runs & Valving
- Well Head Tie-In Kits
- Complete Installation Service

#### Well Completion Systems

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- Production or Injection/Disposal
- Conventional & Horizontal
- Packer(s), on-off tools, expansion joints, gas lift mandrels
- Selective Zone Injection Equipment
- Pre-Packed Well Screens & Liners
- Pump Systems/Lift Equipment
- Written Completion Procedures
- Workover Crew Supervision

#### Well Casing Systems

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- Production, Injection/Disposal, Monitoring
- Tubingless/Slim Hole Completions
- Remediation of Corroded Casing

Centron would welcome the opportunity to provide a system for you. Just contact our local agent or distributor. We are ready, willing and most importantly able to deliver the whole package.

## OPTIONS

> *The Following options are available on most Centron® products:*

- **Precision Ground Boxes** — reduced outside diameter boxes for tight fits downhole or slip lining.
- **UV Light Resistant Overwrap** — protects product installed above ground from fiber bloom due to prolonged exposure to sunlight.
- **Cement Bond Overwrap** — cement bond strength that exceeds that of blasted steel for casing applications.
- **Liners** — for enhanced corrosion or abrasion resistance.
  - “C” Glass
  - Nexus
  - Ceramic
- **Boron Free Glass** — transparent to slow neutrons for monitoring wells.
- **Wound-In Tracers** — metallic tracers precisely located in exact length joints for logging applications.
- **Integral Centralizers** — for casing and slip lining applications.
- **Ballast Weighting** — for subsea and swamp installation where pipe may float.

ENGINEERED  
PRODUCTS

> In addition to Centron’s line of top quality oilfield tubulars and well screens, Centron designs and manufactures a variety of tubular structural elements where the mechanical and physical properties, in combination with high strength to weight ratio of Epoxy Fiberglass, can be engineered to advantage.

- Radio Frequency Transparent Antenna Masts & Booms
- Low Inertia Drive Shafts
- High Impact Resistant Packaging
- Ballast Tubes
- Tapered Pole Products
- Logging Tool Housings