

F-Chem® Product Data

Applications

- Potable Water
- pH 2-13 Solutions
- Wastewater
- Brine Solutions
- Food Processing
- Cooling Water
- Chemical Processing
- Saltwater Handling
- Produced Water
- Crude Oil & Gas
- CO₂
- Effluent Drains

Materials and Construction

All pipe manufactured by filament winding process using vinyl ester thermosetting resin. **F-Chem** pipe can be provided with custom tailored vinyl ester resin systems, reinforced corrosion and abrasion resistant barriers, reinforced structural walls and joining techniques to meet specific project requirements. The pipe is available in 14"-72" diameters.

Fittings

Fittings are manufactured with the same **chemical/temperature** capabilities as the pipe. Depending on the particular part and size, fittings will be contact molded, hand fabricated or filament wound.

Joining Systems

Bell & Spigot

Matched-taper joint secured with epoxy adhesive. Self-locking feature resists movement, facilitating joining runs of pipe without awaiting adhesive cure.



Butt & Wrap

Plain end pipes or pipe and fittings butted together and wrapped with multiple layers of resin-saturated mat or woven roving.

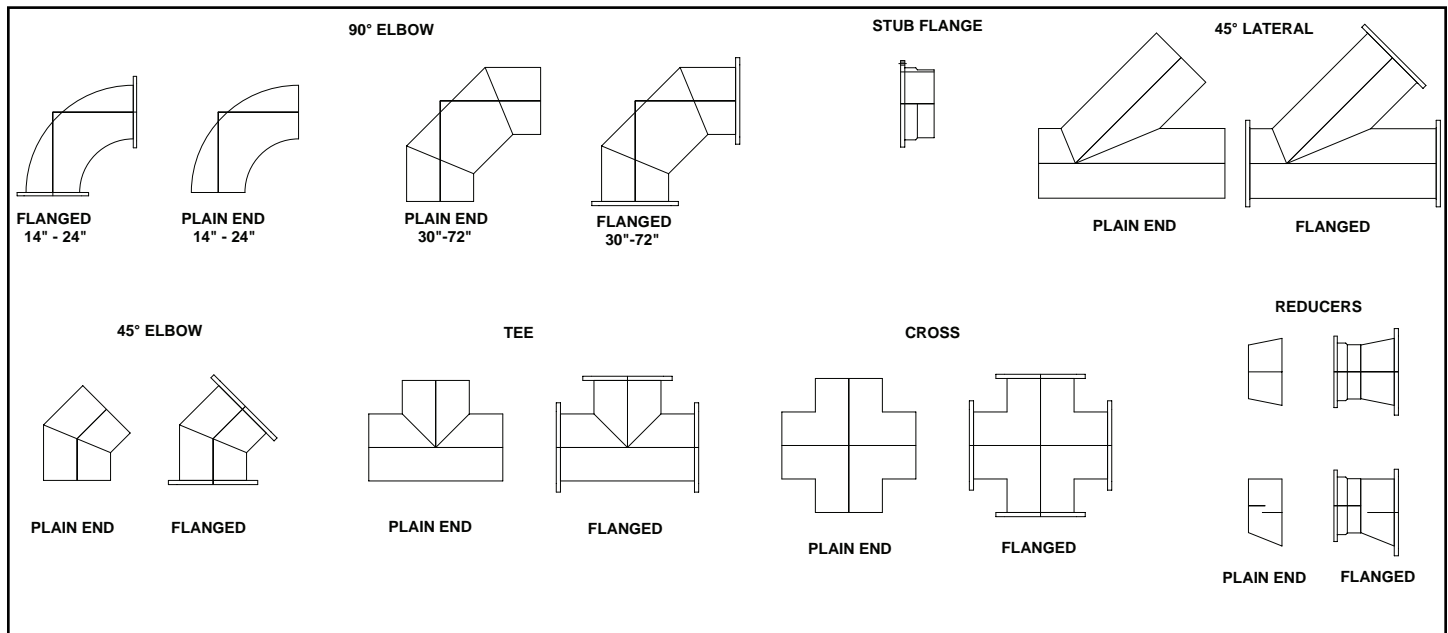


Flanged

Available for all piping systems and diameters; factory assembled or shipped loose for assembly in the field.



F-CHEM LARGE DIAMETER FITTINGS



F-Chem[®] Product Data

Average Physical Properties				
Property	75°F psi	24°C MPa	175°F psi	79°C MPa
Axial Tensile - ASTM D2105				
Ultimate Stress	9,300	64.1	5,500	37.9
Design Stress	2,325	16.0	1,375	9.5
Modulus of Elasticity ⁽¹⁾	1.50 x 10 ⁶	10,342	-	-
Poisson's Ratio $V_{a/h}$ ($V_{h/a}$)		0.33 (0.73)		
Axial Compression - ASTM D695				
Ultimate Stress	17,900	123.0	14,700	101
Design Stress	4,475	30.9	3,675	25.3
Modulus of Elasticity	1.40 x 10 ⁶	9,653	9.00 x 10 ⁶	6,205
Beam Bending - ASTM D2925				
Ultimate Stress	14,500	158.6	8,000	55.2
Design Stress ⁽²⁾	1,800	19.8	1,000	6.9
Modulus of Elasticity (Long Term)	1.99 x 10 ⁶	13,721	1.14 x 10 ⁶	7,860
Hydrostatic Burst - ASTM D1599				
Ultimate Hoop Tensile Stress	40,000	276	40,000	276
Hydrostatic Design - ASTM D2992, Procedure B - Hoop Tensile Stress				
Static 50 Year Life	14,000	96.5	-	-

⁽¹⁾Consult the factory for Modulus of Elasticity values between 75°F and 175°F.
⁽²⁾Design stress if one-eighth of ultimate to allow for combined stresses.

Thermal Expansion Coefficient - ASTM D696 (Insulated Pipe)	10.5 x 10 ⁻⁶ in/in/°F	18.9 x 10 ⁻⁶ mm/mm/°C
Thermal Conductivity	0.11 BTU/hr-ft-°F	0.06 W/m-°C
Specific Gravity - ASTM D792	1.8	
Hazen-Williams Coefficient	150	
Absolute Surface Roughness	0.00021 Inch	0.0053 mm
Manning's Roughness Coefficient, n	0.009	

ASTM D2996 Designation Codes:	
14"-24"	RTRP-12EU-3111
The scope of ASTM D2996 is limited to 24" and smaller	
ASTM D2310 Designation Codes	
30"-72"	RTRP-12EU
Mechanical properties cell classifications shown are minimum. Actual classifications may be higher for some sizes.	

National Specification Compliance:

Pipe is manufactured in compliance with ASTM D2996, ASTM D2310 and ASTM D2992.

The following national specifications are met or exceeded when specified:

Designed in accordance with AWWA M45

Can be manufactured with ANSI/NSF Std. No. 61 approved resin system for potable water usage.

ASTM D6041 fittings

ASME/ANSI B31.3 compliant installation and training.

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NOV Fiber Glass Systems

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