



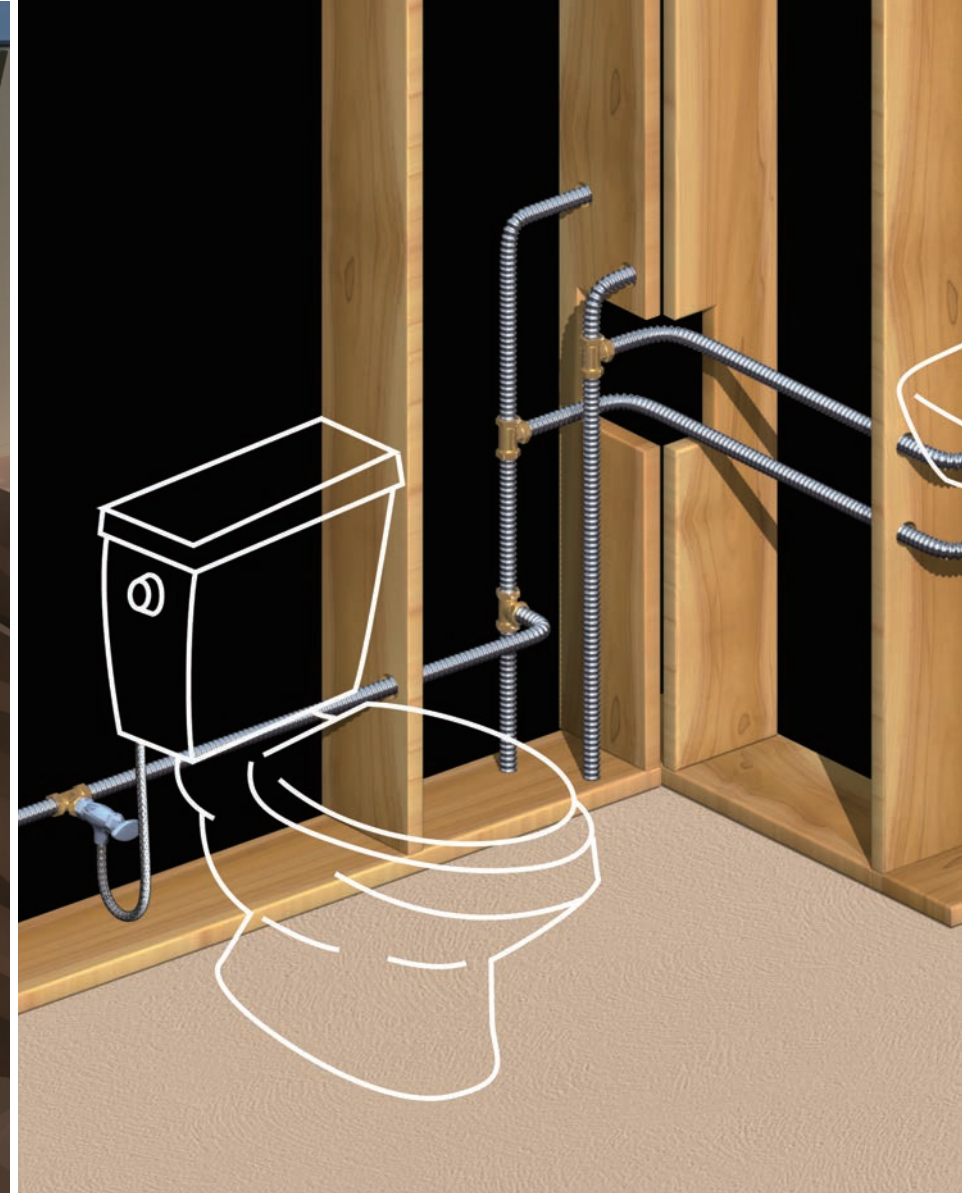
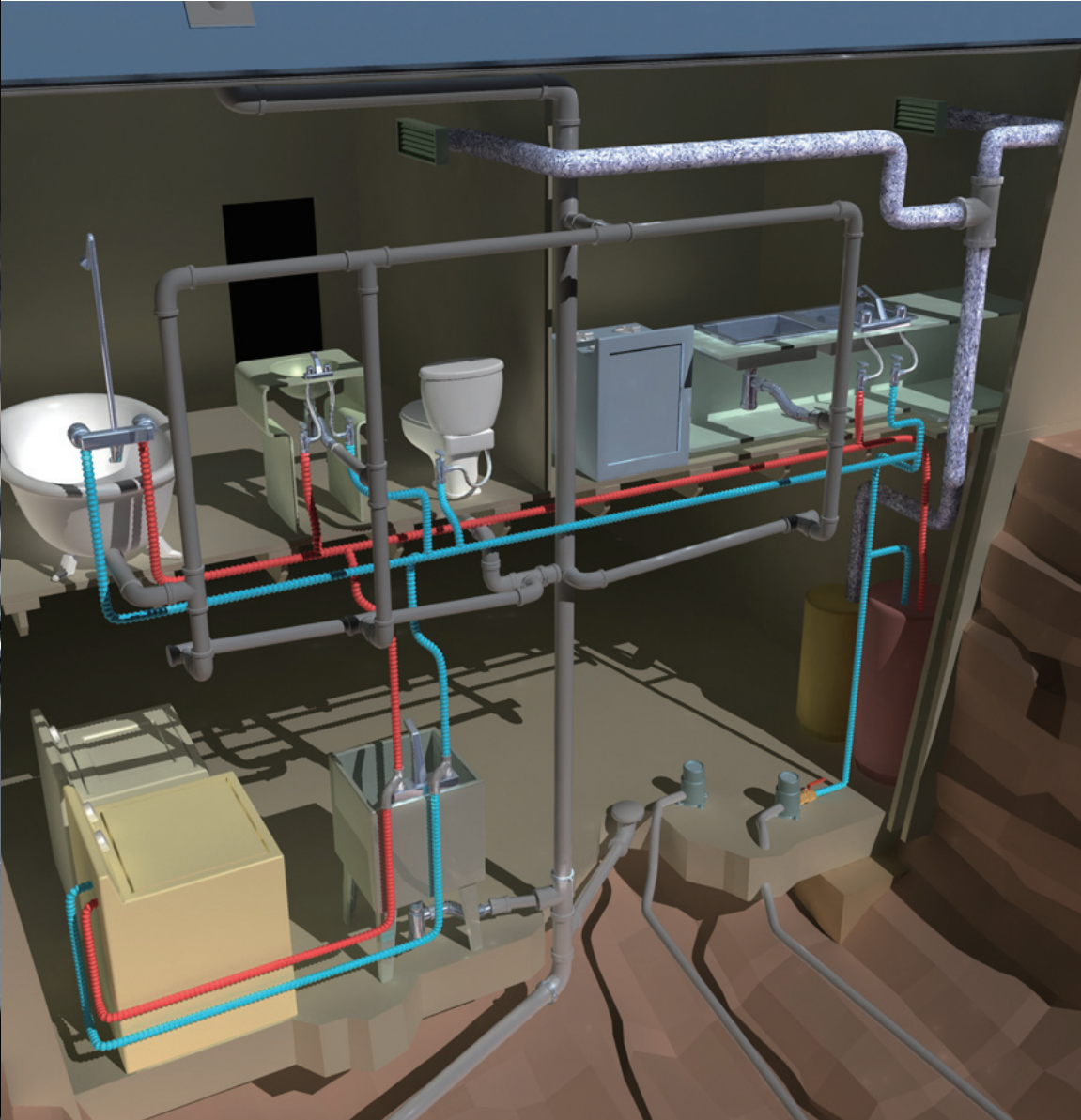
Corrugated Stainless Steel Tubing Water Line System

Flexible water distribution piping system for plumbing applications. The simplest and fastest solution for re-piping, renovations and new constructions.

Certifications & Approvals

- CSA
- UPC / NSF 61 Compliant for safe drinking water
- NSF 372 Compliant : Lead-Free





Applications

- General Plumbing
- Water Distribution Systems
- Tankless Water Heaters
- Heat Exchanger
- Fan Coil Units

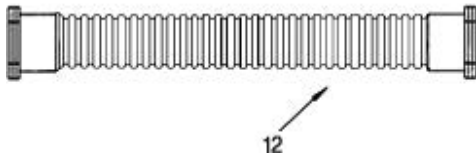
Benefits

- Reduced Labor Costs
- Resistance to Scaling & Corrosion
- No Special Tools required
- Minimal Fittings
- Environmentally Safe

Flexible, durable, lightweight, corrosion-resistant corrugated stainless steel tubing. Applications for general plumbing, water distribution systems, water heating systems, tankless water heaters, heat exchanger, and fan coil units.

Types of CSST

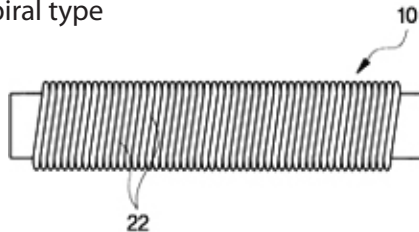
-Annular type



-With substantial durability and absorption of expansion & contraction and vibration, it is appropriate for application against water hammering phenomenon, vibration and earthquake.

-Installation can be carried out expediently and conveniently due to development of connector fitting, thereby reducing the duration of installation and cost.

-Spiral type



-Although the configuration of the thread is spiral, thereby enabling it to be subjected to less resistance of fluid than radial type, the connection method is more complicated than the radial type.



FC STEEL CSST

- Tubing : Stainless Steel 304
- Max. Operating Temperature : 212° F
- Max. Operating Pressure : 147psi



FC STEEL CSST - Blue PE Jacket

- Tubing : Stainless Steel 304
- Coating : Blue Polyethylene(PE)
- Coating Thickness: 0.02"
- Max. Operating Temperature : 212° F
- Max. Operating Pressure : 147psi



FC STEEL CSST - Red PE Jacket

- Tubing : Stainless Steel 304
- Coating : Red Polyethylene(PE)
- Coating Thickness: 0.02"
- Max. Operating Temperature : 212° F
- Max. Operating Pressure : 147psi

Technical Specifications

CSST Material	Stainless Steel 304 (ASTM A 240)			
Coating (Optional)	Polyethylene (ASTM D 335)			
Types	Uncoated, Blue PE, Red PE			
Sizes	1/2"	3/4"	1"	1-1/4"
Inner Dia.	0.55 in	0.83 in	1.03 in	1.26 in
CSST Thickness	0.010"		0.012"	
PE Coating Thickness	0.02"			
Available Lengths	50, 100, 150 ft / Roll Custom lengths are available			
Burst Pressure	588 psi with fittings attached			
Velocity	8 fps			
Rated Pressure	147 psi at 212° F			
Maximum Working Pressure	1/2"	220 psi		
	3/4"	176 psi		
	1"	147 psi		
	1-1/4"	110 psi		

Minimum Bend Radius	Size	Recommended
	1/2"	3 inches
	3/4"	3 inches
	1"	3 inches
	1-1/4"	5 inches
	1-1/2"	6 inches
	2"	8 inches

Friction Loss Data

GPM	Nominal Size (ID)			
	1/2"	3/4"	1"	1-1/4"
1	0.032	0.004	0.002	0.001
2	0.114	0.015	0.005	0.002
3	0.241	0.032	0.012	0.004
4	0.41	0.055	0.02	0.008
5	0.619	0.083	0.03	0.011
6	0.867	0.117	0.042	0.016
7	1.153	0.153	0.055	0.021
8	1.476	0.199	0.071	0.027
9	1.836	0.248	0.088	0.034
10	2.231	0.301	0.107	0.041

1. Table is based on the *Hazen-Williams formula.
2. Fluid velocities in excess of 5 - 8 ft/sec are not recommended.
3. Friction loss values shown are for the flow rates that do not exceed a velocity of 8 ft/sec.

$$P = \frac{4.52Q^{1.85}}{C^{1.85} D^{1.85}}$$

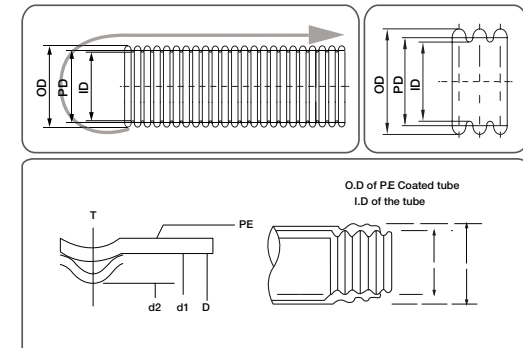
Where :

P= friction loss, psi per linear foot

Q= flow, gpm

D= average, ID, in inches

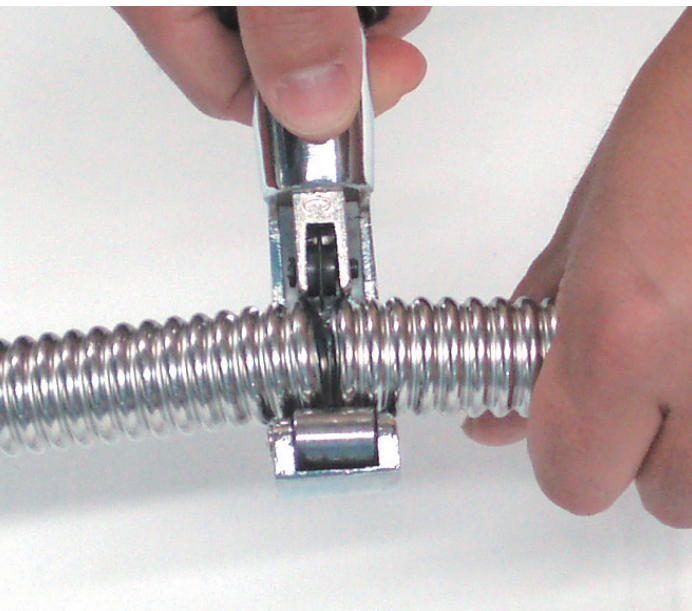
C= 70, friction constant



1. Cut

Determine the proper length of the tubing needed and cut to desired length. Cut a straight section that has not been bent.

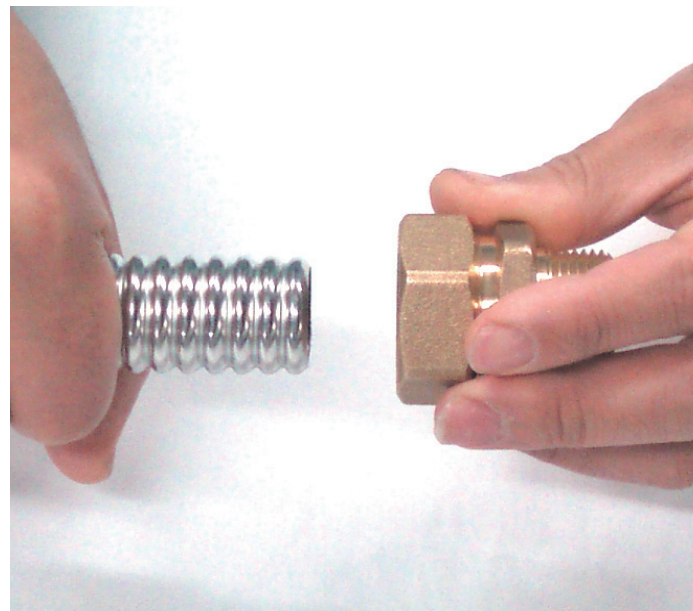
⚠ A clean cut must be applied.
A rough cut can perforate the silicone ring and cause leakage.



2. Loosen & Connect

Remove nut and check to make sure that internal components are in place. Replace loosened nut and insert tube completely into fitting until it meets internal wall (about 4~5 corrugations into the fitting).

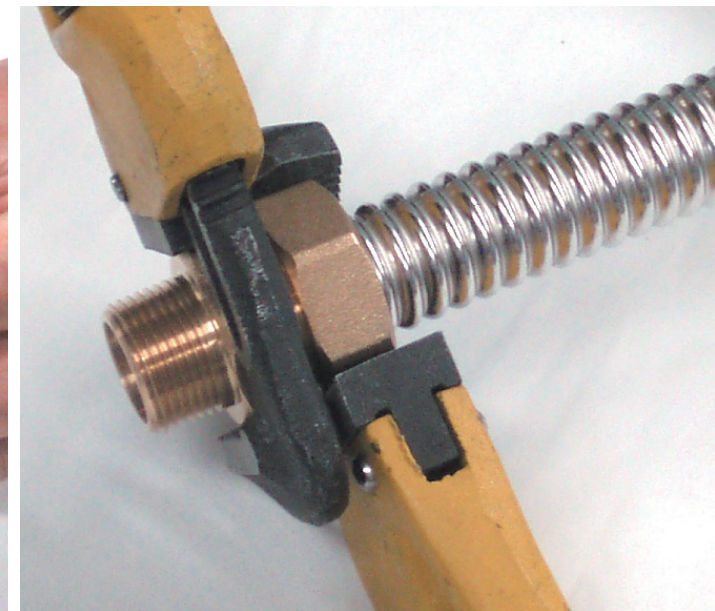
⚠ DO NOT use PTFE tape or sealant between body and nut connection.



3. Tighten

Tighten the nut and body using appropriate torque (see table below). If done properly, resistance should increase greatly or nut will not turn after 1.5 turns.

Tube size (ID)	1/2"	3/4"	1"	1-1/4"
Torque(ft-lbs)	40~44	44~48	72~76	120~140



Required System Parts

- Qty. 1 : Gas connector
- Qty. 1 : Adapter / valve

Required tool

- Wrenches
- Leak detection solution

INSTALLATION INSTRUCTION

Standards & Listings

NSF/ANSI 61	Drinking Water System Components - Health Effects
NSF/ ANSI 372	Lead Content Compliance
ASTM A240	Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications
ASTM D3350	Polyethylene Injection and Extrusion Material
ASTM DS-561	Metals and alloys in the Unified Numbering System
ASME B1.20.1	Pipe Threads, General Purpose (Inch)
IAPMO IGC-233	Corrugated Stainless Steel Hot- and Cold- Water Distribution Systems

Product Testing

Hydrostatic Test	Internal hydrostatic pressure increased to 220 ± 7 psi (1516 ± 48 kPa) or 1.5 times the rated pressure, whichever is greater, at the temperature of $68^\circ \pm 5^\circ$ F ($20^\circ \pm 3^\circ$ C) for a period of 5 minutes.
Hydrostatic Burst Test	Internal hydrostatic increased to 588 ± 7 psi (4051 ± 48 kPa) or 4 times that rated pressure, whichever is greater, at the temperature of $68^\circ \pm 5^\circ$ F ($20^\circ \pm 3^\circ$ C) for a period of 5 minutes.
Bending Test	Bending motion being applied uniformly at the rate of 5-6 cycles per minute.
Hydraulic Shock Test	Subjected to a hydraulic shock for 2,000 cycles at 68° F $\pm 5^\circ$ F. The Hydraulic shock shall consist of a sudden increase in pressure from 50 psi (345 kPa) to 284 psi (1967 kPa) lasting 1 second.
Vibration Test	Filled with water. The amplitude of vibration was 0.2 inches and the frequency was 25 Hz for 3 hours.
Flattening Test	Pressed to 2/3 D height of the outer diameter until the tube is flat. No signs of cracks or leakage shall be found.
Impact Test	An impact force of 9.76 to 15.19 lbf-ft was applied to various fitting sizes by using a hammer.