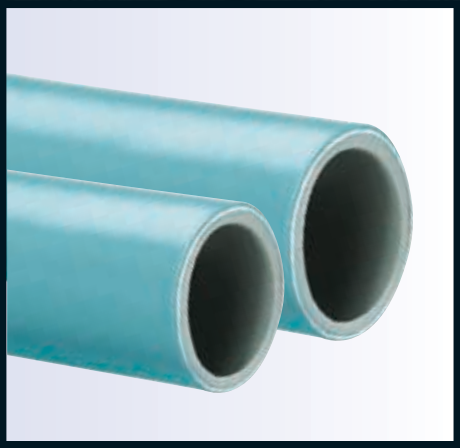
COMPOSITE WATER SERVICE TUBING

Q-Line®



MUNICIPAL SYSTEMS

IPEX by aliaxis

THE PERFORMANCE OF PLASTIC WITH THE STRENGTH OF METAL

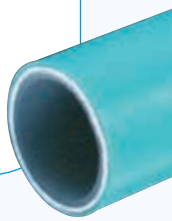
20mm and 25mm
3/4" and 1"

We Build Tough Products for Tough Environments®

IPEX Q-LINE®
WATER SERVICE TUBING

Advanced water service technology that outperforms traditional tubing

Introducing Q-Line – a unique composite, water service tubing that combines the advantages of both metal and plastic. Now available from IPEX, the world's leading technical innovator in thermoplastic piping systems.



Manufactured by IPEX to AWWA C903, Q-Line is the only water service tubing in North America that delivers the strength of metal, the flexibility of soft copper and the durability of thermoplastic. What's more, because it eliminates the shortcomings of traditional piping materials, Q-Line is superior to them all.

ENGINEERED COMPOSITE CONSTRUCTION

A composite pipe constructed of flexible aluminum tubing permanently bonded between inner and outer layers of raised temperature polyethylene (PE-RT), Q-Line's unique structure offers optimum strength and toughness in a lightweight, easily handled and installed water service tubing.

SUPERIOR TO TRADITIONAL PIPE

Unlike copper, Q-Line's non-corroding thermoplastic layers resist the most aggressive water conditions and hot-soil environments. Q-Line won't leach copper or other metallic ions, so the quality of drinking water is assured and service life is longer.

POTABLE WATER CERTIFIED

Q-Line carries third-party ASTM F1282 and CSA B137.9 certification, as well as NSF-PW potable water certification, and meets all North American plumbing codes for water supply up to and inside the building.

STRONG AND LIGHTWEIGHT

Q-Line has been fully tested and approved for continuous operating pressures of 200psi at 73°F (23°C) and 100psi at 180°F (82°C). These high pressure and temperature ratings ensure water service line integrity under the toughest operating conditions, and protect against the effects of any back-up of hot water from the building into the water supply system.

Q-Line's engineered composite structure is extremely lightweight. In fact, a 100-foot (30.5m) coil of 3/4" (25mm) Q-Line water service tubing weighs just 12 lbs (6 kg), about 1/4 the weight of copper.

HIGH FLOW RATES

With larger inside diameters than CTS polyethylene piping and a super-smooth interior wall that does not permit build-up of calcium or other minerals, Q-Line offers the best flow rates in the industry. With a Hazen-Williams flow coefficient of C=150, Q-Line will not corrode or allow build-up inside the tube which can increase friction losses.

HANDLES LIKE COPPER

Simply roll Q-Line tubing down the trench and it stays where it's laid (unlike plain polyethylene). Goosenecks and bends can easily be made just like copper, and Q-Line keeps its shape.

Q-Line comes conveniently packaged in long coils from 100 up to 1,000 feet (30.5 to 305m) – giving better installation efficiency and reducing waste.

Q-Line can also be ordered in code-compliant purple for reclaimed water applications. It comes imprinted with the message, "CAUTION: RECLAIMED WATER, DO NOT DRINK".

EXCELLENT CORROSION RESISTANCE, LONG SERVICE LIFE

Q-Line's tough inner and outer polyethylene layers resist most acids, salt solutions and alkalies found in aggressive water and soil environments. Q-Line also carries tough NSF CL-TD chlorine resistance certification. Bury Q-Line directly in the ground or encase it in concrete – without the need for protective sleeving. Brass fittings should be sleeved in plastic when embedded in concrete. And because Q-Line is not susceptible to corrosion and pitting, it provides longer service life than metallic water service tubing.

BUILT-IN PERMEATION BARRIER

Permeation is a real issue with small diameter water service tubing. Unlike plastic water service tubing which is susceptible to permeation by a variety of chemicals, Q-Line's built-in aluminum core creates a permeation barrier against ground source contaminants. In fact, Q-Line composite water service tubing has been successfully tested against the most aggressive contaminants, like termiticides. A Q-Line system is sealed for good.

INCREASED ELECTRICAL SAFETY, REDUCED GALVANIC CORROSION

A policy statement from the AWWA prohibits the use of the water pipe system as an essential part of any electrical system. Water service lines should never be used for grounding electrical systems. Q-Line is non-conductive and will ensure this unsafe practice does not occur.

ZERO SCRAP VALUE

Because Q-Line's metallic core is permanently locked between layers of polyethylene, it has zero scrap metal value. So unlike copper and other valuable metals which are continually disappearing due to theft, Q-Line is more likely to stay on the job site where it's needed. By having an alternative material to copper, jobsite security will be a lesser concern.

INSTALLING Q-LINE WATER SERVICE TUBING

When unrolled down the trench, Q-Line stays where it's laid and does not recoil. Q-Line's flexibility allows goosenecks, bends and changes in shape to be made easily by hand, and thanks to its aluminum core, Q-Line tubing keeps its position.

When laying out Q-Line coils:

1. Stand the coil upright.
2. Hold down the leading end, toward you.
3. Roll out the coil.

Q-Line pipe cuts easily with simple handheld pipe cutters. And it requires no special bedding materials or procedures. As with any buried piping installation, normal precautions should be taken, such as the removal of large rocks from around the pipe.

BRASS WATER SERVICE FITTINGS

A wide range of municipal red brass fittings conforming to AWWA C800 is available to connect Q-Line water service tubing to curb valves, corporation valves, couplers and adapter fittings. Contact Cambridge Brass, Mueller, A.Y. McDonald or Ford Meter Box for more information.

INSTALLATION

1. Cut the Q-Line tubing to the correct length using the handheld cutter supplied.
2. Remove the nut and split ring from the fitting and slide them over the tubing.
3. Using the IPEX beveling tool, prepare the tubing to receive the insert by beveling the inside of the tubing, rotating the tool fully several times.
4. Fully insert the fitting into the tubing.
5. Slide the split ring and nut up, then tighten the nut, according to the fitting manufacturer's instructions.

Note: No additional metal inserts are required as with PE or PEX tubing.

PHILMAC® 3G™ COMPRESSION FITTINGS

Philmac 3G compression fittings are manufactured from an advanced high performance polypropylene, are corrosion resistant and possess the strength and durability of a design life of fifty years or more.

Engineered with a unique mechanical turn and lock design, no pipe preparation is needed and no force is required to push the pipe past the seal. With 3G, Philmac has created a common platform of fittings for all PE pipe applications in North America including residential and cottage country water service.

3G is available for all sizes and offers adapter kits for Q-Line connections.

Flow Rate U.S. gpm	3/4"		1"	
	Head Loss psi/100 ft.	Velocity fps	Head Loss psi/100 ft.	Velocity fps
1	0.1	0.7	0.0	0.4
2	0.5	1.3	0.2	0.8
3	1.0	2.0	0.4	1.3
4	1.8	2.6	0.6	1.7
5	2.7	3.3	0.9	2.1
6	3.8	4.0	1.3	2.5
7	5.0	4.6	1.7	3.0
8	6.4	5.3	2.2	3.4
9	8.0	5.9	2.7	3.8
10	9.7	6.6	3.3	4.2
11	11.6	7.2	3.9	4.6
12	13.6	7.9	4.6	5.0
13	15.7	8.5	5.3	5.5
14	18.0	9.2	6.1	5.9
15	20.5	9.9	6.9	6.3
16	23.1	10.5	7.8	6.7
17	25.8	11.2	8.7	7.1
18	28.7	11.8	9.7	7.6
19	31.7	12.5	10.7	8.0
20	34.9	13.2	11.8	8.4
21	38.2	13.8	12.9	8.9
22	41.7	14.5	14.1	9.2
23	45.2	15.1	15.3	9.7
24	–	–	16.5	10.1
25	–	–	17.8	10.5
26	–	–	19.2	11.0
27	–	–	20.6	11.4
28	–	–	22.0	11.8
29	–	–	23.5	12.2
30	–	–	25.0	12.7

Flow Rate l/s	20mm		25mm	
	Head Loss kPa/100m	Velocity m/s	Head Loss kPa/100m	Velocity m/s
0.1	7.2	0.3	2.4	0.2
0.2	26.1	0.6	8.8	0.4
0.3	55.3	1.0	18.7	0.6
0.4	94.2	1.3	31.8	0.8
0.5	142.4	1.6	48.1	1.0
0.6	199.6	1.9	97.4	1.2
0.7	265.5	2.2	89.7	1.4
0.8	340.0	2.6	114.8	1.6
0.9	422.9		142.8	1.8
1.0	514.0	3.2	173.6	2.0
1.1	613.3	3.5	207.1	2.2
1.2	720.5	3.8	243.3	2.5
1.3	835.7	4.1	282.2	2.7
1.4	958.6	4.5	323.7	2.9
1.5	1089.2	4.8	367.8	3.1
1.6	1227.5	5.1	414.5	3.3
1.7	1373.4	5.4	463.8	3.5
1.8	1526.8	5.7	515.5	3.7
1.9	1687.5	6.1	569.8	3.9
2.0	855.7	6.4	626.6	4.1

AWWA C903

NSF-PW
National Sanitation Foundation Standard 14

CSA B137.9

ASTM F1282

APPLICABLE CODES

Q-Line water service tubing is manufactured to AWWA C903, ASTM F1282 and CSA B137.9, and meets NSF-PW potable water requirements as well as the requirements of the following national codes:

National Plumbing Code of Canada
Uniform Plumbing Code
International Plumbing Code
International Residential Code
National Standard Plumbing Code
SBCCI Standard Plumbing Code

Description	Dimension inches		Dimensions mm	
Nominal Size	3/4	1	20	25
Inside Diameter	.806	1.032	20	25
Outside Diameter	.984	1.260	25	32
Min. Wall Thickness	.089	.114	2.5	3.5
Weight	12.4 lbs./100ft.	21.0 lbs./100ft.	18.4 kg/100m	31.2 kg/100m
Volume	.025 U.S. gal./ft.	.040 U.S. gal./ft.	.314 l/m	.500 l/m
Min. Bending Radius	5.0	6.3	125	160

LONG-TERM PRESSURE RATINGS

200psi @ 73°F (23°C), 100psi @ 180°F (82°C).

SURGE PRESSURES

With a long term pressure rating of 200 psi that includes a 2:1 safety factor, Q-Line easily handles pressure increases created by surges in a water service application.

The following table shows surge pressures created in Q-Line water service tubing for an instantaneous change in velocity of 1 foot per second (fps). For changes in velocity greater than 1 fps, multiply the surge pressure by the change in velocity (e.g., for a change in velocity of 3 fps, multiply the value shown in the table by 3).

PIPE DIAMETER		SURGE PRESSURE	
Pipe Size inches	Pipe Size mm	psi	kPa
3/4	20	26.5	184.3
1	25	25.0	173.8

SALES AND CUSTOMER SERVICE

IPEX USA LLC
Toll Free: (800) 463-9572
ipexna.com

About the IPEX Group of Companies

As leading suppliers of thermoplastic piping systems, the IPEX Group of Companies provides our customers with some of the largest and most comprehensive product lines. All IPEX products are backed by more than 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, we have earned a reputation for product innovation, quality, end-user focus and performance.

Markets served by IPEX group products are:

- Electrical systems
- Telecommunications and utility piping systems
- PVC, CPVC, PP, PVDF, PE, ABS, and PEX pipe and fittings
- Industrial process piping systems
- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- Electrofusion systems for gas and water
- Industrial, plumbing and electrical cements
- Irrigation systems

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AWWA C903