



MUNICIPEX[®] WATER SERVICE LINE

TESTED. TRUSTED. CHOSEN BY PROFESSIONALS.

ENGINEERED FOR POTABLE WATER

ONE BILLION FEET OF INSTALLATION EXPERIENCE



REHAU's MUNICIPEX (PEXa) cross-linked polyethylene service line pipe is backed by more than 35 years and more than 1 billion feet (300 million meters) of installation experience worldwide. MUNICIPEX meets or exceeds all required certifications, is the first PEX pipe certified by AWWA C904 and is field-proven for use in municipal service lines.

Mineral build-up and corrosion from both soil and water are common problems in buried copper service lines. MUNICIPEX has a smoother interior, resulting in minimal flow restriction. Unlike copper or composite tubing, MUNICIPEX does not contain any metal. It is an engineered polymer water service line that resists corrosion, delivering greater service life while retaining maximum flow.

MUNICIPEX may also be used for other water applications such as splash parks, water parks and some industrial facilities. Contact REHAU about using MUNICIPEX for other water supply applications.

Superior Performance

MUNICIPEX pipe is manufactured using REHAU's high-pressure peroxide method for cross-linked polyethylene pipe. It is co-extruded with a PE shield that protects the pipe when exposed to ultraviolet light for an extended time. This manufacturing process provides MUNICIPEX with enhanced benefits over other water service line pipes in the market.

According to a Plastics Pipe Institute (PPI) report¹, PEXa pipes such as MUNICIPEX surpass the performance of HDPE in the following ways:

- Increased environmental stress crack resistance
- Increased resistance to slow crack growth
- Increased resistance to creep
- Increased hydrostatic design basis (HDB) pressure at 180°F (82.2°C)
- Increased flexibility
- Increased elongation to break

Compared to traditional copper pipe, MUNICIPEX is:

- More affordable
- More resistant to freezing and corrosion
- Lighter weight and easier to handle and install
- Able to be squeezed shut without damage to the pipe during curb stop replacement

MUNICIPEX is an engineered solution that optimizes performance and affordability in water service line applications.

Meets or Exceeds Industry Standards

- Manufactured in accordance with AWWA C904 and to SDR9 copper tube sizes (CTS)
- Certified to CSA B137.5, *Cross-linked Polyethylene (PEX) Tubing for Pressure Applications*
- Certified to ASTM F876 and F877
- Certified to NSF Standard 14 and 61 (NSF-pw-g)
- Exceeds chlorine resistance requirements of ASTM F876, when tested in accordance with ASTM F2023
- In accordance with UV resistance to ASTM F2657 for 1 year



Superior corrosion and impact resistance, excellent flow capacity and low cost make MUNICIPEX the obvious choice for municipal specifiers.

¹ Source: PPI Reference TN-17

PERFORMANCE PROPERTIES

PROVEN RELIABILITY

For service line and underground applications, it is the responsibility of the installer to ensure fittings selected meet local jurisdictional codes.



Pipe sizes 3/4" to 2"



No internal deposits



Corrosion build-up in metal pipes

SDR9 Copper Tube Sizes (CTS)

Produced to copper tube size OD, MUNICIPEX connects to standard, off-the-shelf, potable water fitting solutions such as AWWA C800 compression joint valves and fittings and ASTM F2080 brass compression-sleeve fittings. When using AWWA C800 fittings, the manufacturer's recommended insert is required to stiffen the pipe at these connections. These fitting options make MUNICIPEX pipe easy and convenient to install.

Tools

No special tools are required for MUNICIPEX connections. Standard pipe wrenches are used with compression joint connections.

Corrosion Resistance

As a polymer material, MUNICIPEX resists corrosion in soil or aggressive water conditions.

Mineral Build-up Resistance

MUNICIPEX resists scaling and internal deposits.

Chlorine Resistance

MUNICIPEX exceeds the requirements of ASTM F876 for chlorine resistance, when tested in accordance with ASTM F2023, and is listed by NSF for chlorine resistance.

Chemical Resistance

MUNICIPEX is resistant to a wide range of chemicals. However, while some chemicals may not harm MUNICIPEX, chemical concentration, temperature, pressure and other parameters can influence the suitability and service life of the MUNICIPEX application. Do not bury MUNICIPEX in contaminated soil. If you have questions regarding chemical compatibility, please contact your REHAU regional sales office.

Freeze Resistance

Unlike HDPE and copper pipes, MUNICIPEX will not split when frozen, if allowed to expand along its entire length. It will return to its original shape when thawed. In addition, MUNICIPEX will freeze at a slower rate than copper due to its significantly lower (four orders of magnitude) coefficient of thermal conductivity.

1. Thawing can be performed by using available hot water injection equipment. After thawing, MUNICIPEX can immediately be put back into service.

2. Thawing can also be performed by applying hot air to the pipe. When using a hot air gun to heat frozen areas, ensure that the temperature of the pipe does not exceed 210°F (93.3°C). Do not use an open flame to thaw MUNICIPEX.

Abrasion Resistance

The increased abrasion resistance of cross-linked polyethylene pipe ensures long service life even in directional drilling applications.

High Impact Resistance

MUNICIPEX is more flexible than other piping materials, and will not crush, kink or collapse when proper backfill techniques are used. MUNICIPEX also has high resistance to gouges or scratches and outstanding resistance to slow crack growth. Even at temperatures as low as -184°F (-120°C) MUNICIPEX will not become brittle.

Excellent Temperature-Pressure Capabilities

MUNICIPEX is rated for continuous use at operating conditions of 160 psi @ 73.4°F and 100 psi @ 180°F (1100 kPa @ 23°C and 690 kPa @ 82°C). MUNICIPEX has also been rated for continuous use at operating conditions of 200 psi @ 73.4°F (1,379 kPa @ 23°C) using a 0.63 design factor.

Temperature and pressure ratings are based on extrapolated time-to-failure predictions as defined in ASTM D2837 and ASTM F876. Please see PPI TR-3 for detailed explanation of these continuous use pressure ratings.

Lightweight

MUNICIPEX is five to six times lighter than copper, is easy to handle and economical to ship.

Waste Reduction

MUNICIPEX is supplied in boxed coils, minimizing joints, reducing waste, speeding installation and saving money.

Pipe Sizes	Available Coil Lengths
3/4" (19 mm)	100 ft (30.5 m)
	300 ft (91.4 m)
	500 ft (152.4 m)
	1,000 ft (304.8 m)
1" (25 mm)	100 ft (30.5 m)
	300 ft (91.4 m)
	500 ft (152.4 m)
1 1/4" (32 mm)	100 ft (30.5 m)
1 1/2" (38 mm)	100 ft (30.5 m)
	1,000 ft (304.8 m)
2" (51 mm)	100 ft (30.5 m)
	300 ft (91.4 m)
	1,000 ft (304.8 m)

Kink Resistance

MUNICIPEX is more flexible than HDPE or composite pipes and will resist kinking even at temperatures well below freezing. Kinking can be prevented by bending the pipe more slowly in cold temperatures, taking care not to bend it too far.

If MUNICIPEX becomes kinked, unlike HDPE, it can be repaired without cutting. To repair a kink, carefully heat the kinked area with a hot air gun until the kink disappears and the pipe becomes round (approximately 275°F [135°C]), then remove heat and let the pipe cool before moving it. There must be no pressure or stress on the pipe during heating to prevent deformation. Small bubbles or wrinkles may appear on the blue UV shield – this is normal.

UV Resistance

MUNICIPEX meets the requirements for ASTM F2657 and has a maximum exposure limit to sunlight of up to one year. MUNICIPEX should not be permanently installed in direct sunlight, either outdoors or indoors. Follow all handling and installation instructions found on the packaging.

All MUNICIPEX pipe is shipped in protective packaging such as boxes. MUNICIPEX should be stored in the original packaging until time of installation.



Prevent kinks; bend pipe more slowly in cold temperatures



Repair kinks without cutting



MUNICIPEX coil

INSTALLATION

EASY TO HANDLE

Lightweight and flexible, MUNICIPEX is supplied in longer coils to reduce the number of couplings, minimize waste and speed installation. Being five to six times lighter than copper, MUNICIPEX is easier and safer to handle. It is also easier to plan an installation as consecutive footage marks on the pipe indicate the length and how much material is available. Allowing a slight curve while laying MUNICIPEX in the trench is all that is required to accommodate expansion and contraction. Follow all published installation instructions.

Using a squeeze-off tool to temporarily stop the water flow through MUNICIPEX will not cause permanent damage or deformation to the service line, and is the fastest and cleanest way to temporarily stop flow through the pipe, such as when replacing a curb stop or other shut-off valve.



Standard tools and connections

SHORT FORM SPECIFICATION

Service line pipe to be cross-linked polyethylene (PEXa) pipe manufactured using the high-pressure peroxide (Engel) method of cross-linking, with an approved cell classification of 354400 in accordance with ASTM D3350, and a typical degree of cross-linking of 80% when tested in accordance with ASTM D2765, Method B.

Pipe to have a co-extruded UV shield made from UV-resistant, high-density polyethylene, color blue; UV shield to resist exposure to natural sunlight for up to one year.

Pipe to be certified by approved testing agency to standards:

- ASTM F876, F877, F2023 and F2657
- CSA B137.5
- NSF 61 and NSF 14
- PPI TR-4

Pipe to be manufactured to industry standards:

- In accordance with AWWA C904
- ASTM F876 and ASTM F877
- Copper Tube Sizes (CTS)
- SDR9

Pipe to be manufactured in an ISO 9001 certified production facility.

Approved temperature and pressure ratings based on PPI Hydrostatic Design Basis, as certified by CSA and NSF or equivalent testing agency.

Minimum Burst Pressure Requirements:

- 475 psi @ 73.4°F (3310 kPa @ 23°C)
- 210 psi @ 180°F (690 kPa @ 82.2°C)
- 180 psi @ 200°F (550 kPa @ 93.3°C)

MUNICIPEX carries the following continuous-use temperature and pressure ratings:

- 160 psi @ 73.4°F (1105 kPa @ 23°C)
- 100 psi @ 180°F (690 kPa @ 82°C)
- 200 psi @ 73.4°F (1,379 kPa @ 23°C)
using a design factor of 0.63

Pipe to carry the following markings:

Manufacturer's name or trademark, nominal size, AWWA C904, ASTM F876, F877, CSA B137.5, NSF-pw-g, PEXa (material designation), SDR9 (standard dimension ratio), ES-pmg, 160 psi @ 73.4°F, 100 psi @ 180°F, 200 psi @ 73.4°F, potable tubing, footage mark, manufacturing date and hour code and machine number.

Pressure Loss (psi loss/100 ft of pipe)

Flow Rate USGPM	Pipe Size				
	3/4"	1"	1 1/4"	1 1/2"	2"
1	0.37	0.11	0.05	0.01	<.01
2	1.22	0.37	0.14	0.07	0.02
3	2.47	0.75	0.29	0.13	0.04
4	4.10	1.24	0.48	0.22	0.06
5	6.08	1.83	0.70	0.32	0.09
6	8.41	2.52	0.97	0.44	0.12
7	11.1	3.31	1.27	0.57	0.16
8	14.1	4.20	1.61	0.72	0.20
9	17.4	5.18	1.98	0.89	0.25
10	21.1	6.26	2.39	1.07	0.30
12	29.4	8.68	3.30	1.48	0.41
14		11.5	4.35	1.95	0.54
16		14.6	5.53	2.47	0.68
18		18.1	6.84	3.05	0.84
20		21.9	8.27	3.69	1.01
22			9.83	4.38	1.20
24			11.5	5.12	1.40
26			13.3	5.92	1.61
28			15.3	6.77	1.84
30			17.3	7.68	2.09
35				10.2	2.75
40				13.0	3.50
45					4.34
50					5.25
55					6.25
60					7.33

MUNICIPEX flows rates are excellent, and will not decrease over time due to internal corrosion or mineral deposits.

MUNICIPEX Sizes and Properties

Nominal Diameter in	O.D. in* (mm)	wall in** (mm)	weight lb/ft (kg/m)	Capacity gal/ft (l/m)	Bend Radius in (cm)
3/4	0.875 (22.2)	0.097 (2.5)	0.10 (0.15)	0.0189 (0.2356)	4.50 (11.25)
1	1.125 (28.6)	0.125 (3.2)	0.16 (0.24)	0.0316 (0.3939)	5.75 (14.40)
1 1/4	1.375 (34.9)	0.153 (3.9)	0.25 (0.37)	0.0467 (0.5827)	7.00 (17.80)
1 1/2	1.625 (41.3)	0.181 (4.6)	0.35 (0.52)	0.0650 (0.8118)	8.25 (21.00)
2	2.125 (54.0)	0.236 (6.0)	0.60 (0.90)	0.1114 (1.3906)	10.75 (27.30)

*Average dimensions from ASTM F876 **Minimum wall thickness from ASTM F876



As a leading supplier of polymer-based solutions to construction, REHAU addresses sustainable design priorities by engineering products that enhance comfort and convenience, reduce energy costs, create healthy and safe environments, and conserve finite resources.

REHAU's products and systems for the window and door, heating and cooling, fire protection and process piping markets complement each other in integrated high-performance solutions.

