

MUNICIPEX[®] PIPE

MUNICIPEX[®] is a cross-linked polyethylene (PEXa) pipe engineered specifically for the potable water industry. It is backed by over 35 years of experience and more than one billion feet (300 million meters) of installation experience worldwide. MUNICIPEX meets or exceeds all required certifications and is field-proven for use in municipal service lines. MUNICIPEX may also be used for other water applications such as splash parks, water parks and some industrial facilities.

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MUNICIPEX[®] offers the following benefits:



Picture 1 2 3

- Resistance to corrosion delivers greater service life while retaining maximum flow
- Resistance to scaling and internal deposits
- Proven record of installation with over 35 years experience
- Lower thermal conductivity than copper, frozen services may be delayed or prevented completely
- Flexibility of the pipe ensures high impact resistance, so pipe will not crush or collapse when proper backfill techniques are used
- Economical costing half the price of copper
- Lightweight and is 5 to 6 times lighter than copper
- Supplied in boxed coils, minimizing joints, reducing waste, speeding installation and saving money
- Produced to copper tube size OD, MUNICIPEX connects to standard AWWA C800 compression joint brass valves and fittings, right of the shelf
- Special tools are not required for connections. Standard pipe wrenches are used with compression joint connections

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MUNICIPEX[®] is available in a wide range of sizes:

3/4" (19 mm), 1" (25 mm), 1-1/4" (32 mm), 1-1/2" (38 mm) and 2" (51 mm)

The coil sizes are available in:

100ft (30.5 m), 300ft (91.4 m) and 500ft (152.4 m)





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 over 35 years and more than 1 billion feet (300 million meters) of installation experience worldwide. MUNICIPEX meets or exceeds all required certifications 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 smooth interior without surface roughness, 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 cannot corrode, 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

With significantly lower thermal conductivity than copper, frozen services may be delayed or prevented completely. Unlike copper and composite pipe, MUNICIPEX will expand if frozen, rather than splitting or cracking.

Unlike polyethylene (PE), MUNICIPEX remains flexible down to -184°F (-120°C). If the service does freeze, MUNICIPEX will return to its original shape once the service is thawed. The thermal memory of MUNICIPEX allows this transition without damage to the pipe and need for replacement.

MUNICIPEX Thermal Conductivity
0.237 BTU/hr-ft-hr-°F (0.353 kcal/hr-m-K).

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)
- 80 psi @ 200°F (550 kPa @ 93°C)

MUNICIPEX exceeds the following minimum burst pressure ratings:

- 475 psi @ 73.4°F (3310 kPa @ 23°C)
- 210 psi @ 180°F (1450 kPa @ 82°C)
- 180 psi @ 200°F (1240 kPa @ 93°C)

Meets or Exceeds Industry Standards

- Certified to CSA B137.5 "Cross-linked Polyethylene (PEX) Tubing for Pressure Applications"
- Certified to ASTM F 876 and F 877
- Certified to NSF Standard 14 and 61 (NSF-pw)
- Manufactured in accordance with AWWA C904 and to SDR9 copper tube sizes (CTS)
- Exceeds chlorine resistance requirements of ASTM F 876, when tested in accordance with ASTM F 2023



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

PERFORMANCE PROPERTIES

PROVEN RELIABILITY



Pipe sizes 3/4" to 2"



No internal deposits



Corrosion build-up

SDR9 Copper Tube Sizes (CTS)

Produced to copper tube size OD, MUNICIPEX connects to standard AWWA C800 compression joint brass valves and fittings, right off the shelf. A thin stainless steel insert is required to stiffen the pipe at these connections. It's easy and convenient to install. Plus, MUNICIPEX is the economical choice for budget-conscious city planners.

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 does not corrode in soil or aggressive water conditions.

Mineral Build-up Resistance

MUNICIPEX resists scaling and internal deposits.

Chlorine Resistance

MUNICIPEX exceeds the requirements of ASTM F 876 for chlorine resistance, when tested in accordance with ASTM F 2023, 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

When allowed to expand along its entire length, MUNICIPEX will not split if frozen. MUNICIPEX will freeze at a slower rate than copper due to its significantly lower (4 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 (100°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, 100 psi @ 180°F and 80 psi @ 200°F (1100 kPa @ 23°C, 690 kPa @ 82°C and 550 kPa @ 93°C), and the highest operating temperature of 200°F (93°C).

Temperature and pressure ratings are based on extrapolated time-to-failure predictions as defined in ASTM D 2837. Please see PPI TR-3 for detailed explanation of these continuous use pressure ratings.

Lightweight

MUNICIPEX is 5 to 6 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" (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)
2" (51 mm)	100 ft (30.5 m)
	300 ft (91.4 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, 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

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

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



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.

For additional information, please refer to our "MUNICIPEX® Installation Guide" 855.622 or contact your regional REHAU Sales Office.

Unlike standard PE, MUNICIPEX remains flexible down to -184°F (-120°C).

WARNING: MUNICIPEX is not suitable for installation in soil or groundwater conditions which are thought or known to be contaminated with fuels, organic compounds or solvents or other possible hazards which may permeate the pipe and contaminate the water service or damage the pipe's integrity.



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 D 3350, and a minimum degree of cross-linking of 80% when tested in accordance with ASTM D 2765, 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 F 876, F 877 and F 2023
- CSA B 137.5
- NSF 61
- PPI TR-4

Pipe to be manufactured to industry standards:

- ASTM F 876 and ASTM F 877
- In accordance with AWWA C904
- 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)

Pipe to carry the following markings:

Manufacturer's name or trademark, nominal size, ASTM F 876, F 877, CSA B 137.5, NSF-pw, PEXa (material designation), SDR9 (standard dimension ratio), 160 psi @ 73.4°F, 100 psi @ 180°F, 80 psi @ 200°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	0.31	0.09	0.04	0.02	0.00
2	1.09	0.32	0.12	0.06	0.02
3	2.24	0.67	0.26	0.12	0.03
4	3.75	1.12	0.43	0.19	0.05
5	5.60	1.67	0.64	0.29	0.08
6	7.77	2.32	0.88	0.40	0.11
7	10.25	3.06	1.17	0.53	0.15
8	13.03	3.89	1.49	0.67	0.18
9	16.10	4.80	1.83	0.83	0.23
10	19.46	5.81	2.21	1.00	0.27
12	27.02	8.06	3.07	1.39	0.38
14		10.63	4.05	1.83	0.50
16		13.52	5.15	2.32	0.64
18		16.72	6.36	2.87	0.79
20		20.21	7.69	3.47	0.95
22			9.13	4.12	1.13
24			10.68	4.82	1.32
26			12.34	5.57	1.53
28			14.11	6.36	1.75
30			15.98	7.20	1.98
35				9.51	2.61
40				12.10	3.32
45					4.11
50					4.97
55					5.90
60					6.91

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)	I.D. 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)	0.680 (17.2)	0.10 (0.15)	0.0189 (0.2356)	4.50 (11.25)
1"	1.125 (28.6)	0.125 (3.2)	0.875 (22.2)	0.16 (0.24)	0.0316 (0.3939)	5.75 (14.40)
1 1/4"	1.375 (34.9)	0.153 (3.9)	1.070 (27.2)	0.25 (0.37)	0.0467 (0.5827)	7.00 (17.80)
1 1/2"	1.625 (41.3)	0.181 (4.6)	1.263 (32.1)	0.35 (0.52)	0.0650 (0.8118)	8.25 (21.00)
2"	2.125 (54.0)	0.236 (6.0)	1.653 (42.0)	0.60 (0.90)	0.1114 (1.3906)	10.75 (27.30)

**Average dimensions from ASTM F 876 ** Minimum wall thickness from ASTM F 876*



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 plumbing, fire protection and pipe markets complement each other in integrated high-performance solutions.

From the PVC municipal water supply, to a home's PEX water service and plumbing, REHAU provides proven, reliable systems that deliver pure, clean drinking water.

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