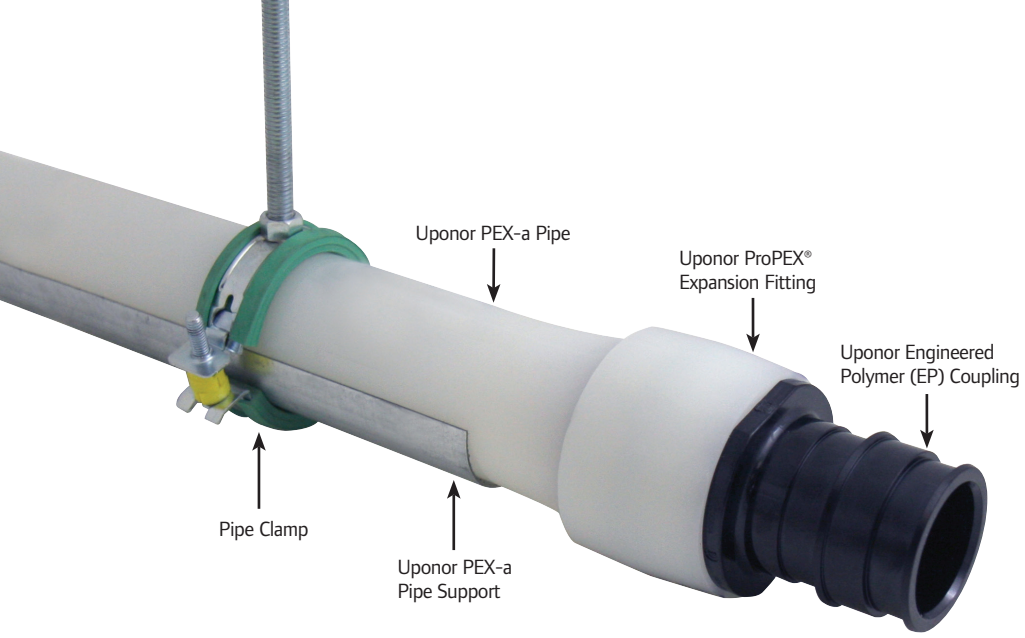


uponor

RADIANT HEATING AND COOLING SYSTEMS

WIRSBO HEPEX™ STRAIGHT LENGTHS

PRODUCT GUIDE

Wirsbo hePEX™ Straight Lengths for Distribution Piping Applications

A Straight Pipe with all the Benefits of PEX-a

For more than 35 years, North American plumbing and heating contractors have valued Uponor's Wirsbo hePEX™ pipe for its flexibility, durability and performance in hydronic radiant heating and cooling and plumbing installations.

Wirsbo hePEX straight length sizes:

- 5/8"
- 3/4"
- 1"
- 1 1/4"
- 1 1/2"
- 2"

Now professionals requiring an aesthetically pleasing straight run of pipe for hydronic distribution applications, such as near-boiler piping, risers, connections to fan coil units, radiators, baseboard heaters, VAV boxes, chilled beams and towel warmers, have the option to choose Uponor's PEX-a pipe.

Uponor's Wirsbo hePEX straight length offering features all the benefits of the durable PEX-a pipe — cost-effective, corrosion-resistant, 25-year warranty — without retaining the inherent curve of coiled PEX pipe.

Complete Offering for any Application

The 20-ft. straight lengths are available in 5/8", 3/4", 1", 1 1/4", 1 1/2" and 2" sizes, offering contractors the ability to provide aesthetically pleasing PEX piping solutions for any application.

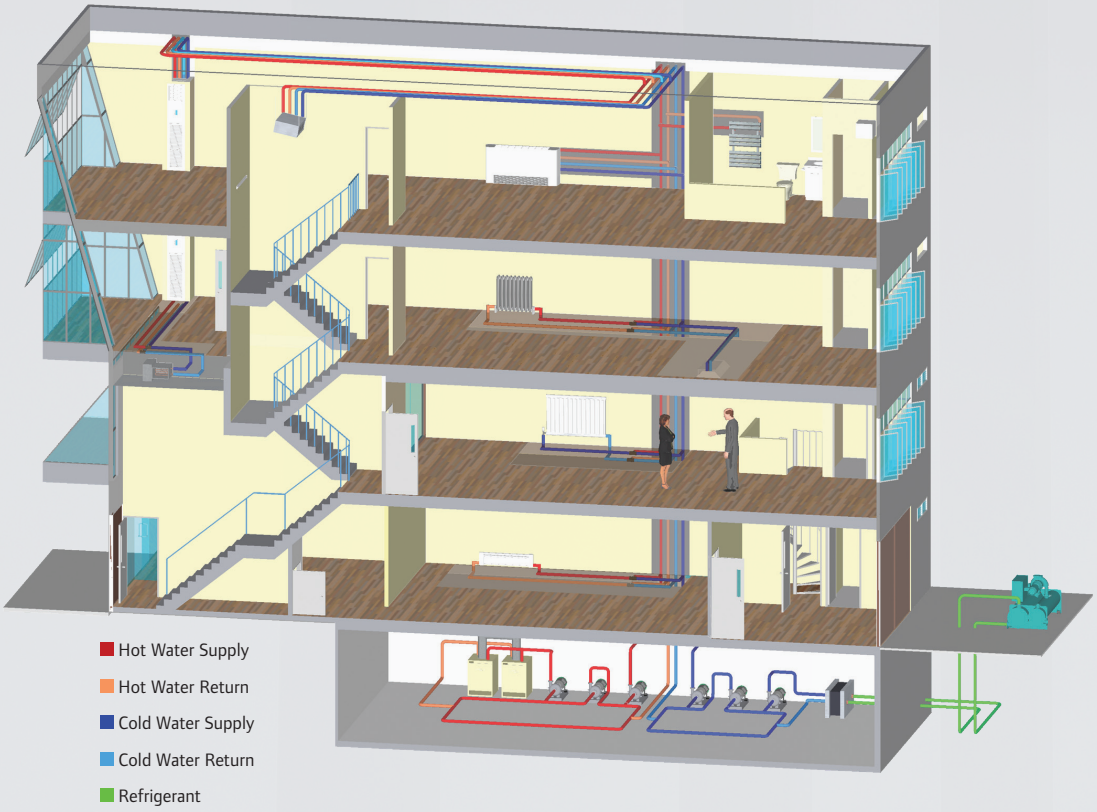
This solution also reduces the variety of materials contractors must carry on their service trucks and eliminates the need for torches, solder and flux completely.

Key Benefits

- Aesthetically pleasing PEX-a pipe solution for exposed hydronic piping applications
- Durable, economical alternative to rigid piping systems
- Utilizes proven ProPEX® fitting technology for strong, durable connections that hold tight without the need for torches, glues, solvents or gauges
- Ideal for use with Uponor's new PEX-a Pipe Support which enables hanger spacing equal to that of copper
- Uponor PEX-a Pipe Support, Uponor PEX-a pipe and Uponor ProPEX Engineered Polymer (EP) fittings are listed to ASTM E84 for use in plenums without the need for insulation

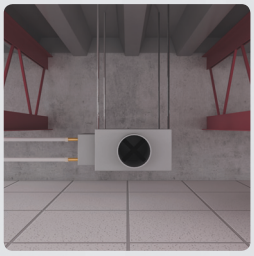
Installation Applications and Sizing Guidelines

Typical Commercial Hydronic Distribution System



Typical Equipment Installations


Chilled Beam


VAV Terminal Unit


Fan Coil


Baseboard Radiator

Wirsbo hePEX Pipe Sizing Guidelines

Pipe Size	Operating Limit	BTU/h	Gallons per Minute (gpm)	Velocity (feet per second)	Feet of Head Loss per Foot
⅝"	Lower Limit	15,000	1.5	1.86	0.02119
	Upper Limit	60,000	6.0	7.44	0.34573
¾"	Lower Limit	20,000	2.0	1.81	0.02119
	Upper Limit	85,000	8.5	7.71	0.30807
1"	Lower Limit	35,000	3.5	1.92	0.01764
	Upper Limit	145,000	14.5	7.97	0.24460
1¼"	Lower Limit	50,000	5.0	1.84	0.01283
	Upper Limit	215,000	21.5	7.91	0.19056
1½"	Lower Limit	70,000	7.0	1.85	0.01067
	Upper Limit	300,000	30.0	7.92	0.15757
2"	Lower Limit	115,000	11.5	1.77	0.00720
	Upper Limit	515,000	51.5	7.93	0.11531

Note: The values above assume a 180°F (82°C) supply water temperature, 20°F (6.7°C) supply/return temperature difference and velocity between 1.75 and 8.0 feet per second. Please refer to the Uponor Complete Design Assistance Manual (CDAM) for tables and formulas.

Distribution Piping Applications Offering

Wirsbo hePEX Pipe

Part No.	Part Description
A1930625	⅝" Wirsbo hePEX, 20-ft. straight length, 300 ft.
A1930750	¾" Wirsbo hePEX, 20-ft. straight length, 300 ft.
A1921000	1" Wirsbo hePEX, 20-ft. straight length, 200 ft.
A1921250	1¼" Wirsbo hePEX, 20-ft. straight length, 100 ft.
A1921500	1½" Wirsbo hePEX, 20-ft. straight length, 100 ft.
A1922000	2" Wirsbo hePEX, 20-ft. straight length, 100 ft.
A1982000	2" Wirsbo hePEX Expansion Joint (tube only)

ProPEX and QS-style Fittings

Part No.	Part Description
Q4506350	ProPEX Brass Fitting Adapter, ⅝" PEX x ½" Copper
Q4507550	ProPEX Brass Fitting Adapter, ¾" PEX x ½" Copper
Q4526375	ProPEX Brass Male Threaded Adapter, ⅝" PEX x ¾" NPT
Q4527575	ProPEX Brass Male Threaded Adapter, ¾" PEX x ¾" NPT
Q4527510	ProPEX Brass Male Threaded Adapter, ¾" PEX x 1" NPT
Q4521010	ProPEX Brass Male Threaded Adapter, 1" PEX x 1" NPT
Q4710625	ProPEX Brass Elbow, ⅝" PEX x ⅝" PEX
Q4760750	ProPEX EP Elbow, ¾" PEX x ¾" PEX
LF4710750	ProPEX LF Brass Elbow, ¾" PEX x ¾" PEX
Q4761000	ProPEX EP Elbow, 1" PEX x 1" PEX
LF4711000	ProPEX LF Brass Elbow, 1" PEX x 1" PEX
Q4761250	ProPEX EP Elbow, 1¼" PEX x 1¼" PEX
Q4761500	ProPEX EP Elbow, 1½" PEX x 1½" PEX
Q4762000	ProPEX EP Elbow, 2" PEX x 2" PEX
Q4386375	ProPEX Brass Elbow, ⅝" PEX x ¾" Copper Adapter
Q4387575	ProPEX Brass Elbow, ¾" PEX x ¾" Copper Adapter
Q4376375	ProPEX Brass Elbow, ⅝" PEX x ¾" Copper Fitting Adapter
Q4377575	ProPEX Brass Elbow, ¾" PEX x ¾" Copper Fitting Adapter
Q4396375	ProPEX Brass Elbow, ⅝" PEX x ¾" Copper Adapter with ⅛" vent tapping
Q4397575	ProPEX Brass Elbow, ¾" PEX x ¾" Copper Adapter with ⅛" vent tapping
A4382075	QS-style Baseboard Elbow, R20 x ¾" Copper Adapter
A4392075	QS-style Baseboard Elbow, R20 x ¾" Copper Fitting Adapter

Codes and Standards

Warnock Hersey Plenum Rating:

- 25 flame spread/50 smoke developed (plenum rated) to ASTM E84:
  - ½" and ¾" with spacing of 18" between each run of Wirsbo hePEX pipe
  - 1" through 2" when insulated with ½" fiberglass insulation
  - Up to 2" un-insulated when used with Uponor PEX-a Pipe Support, ProPEX Rings and ProPEX EP Fittings
- CAN/ULC S102.2:
  - ½" through 1" with spacing of 18" between each run of Wirsbo hePEX pipe
  - 1¼" through 2" when insulated with ½" fiberglass insulation

Codes and Standards

Hydrostatic Temperature and Pressure Ratings:

- 200ºF at 80 psi (93.3°C at 5.51 bar)
- 180ºF at 100 psi (82.2°C at 6.89 bar)
- 73.4ºF at 160 psi (23°C at 11 bar)

Manufacturing Standards:

- ASTM F876
- ASTM F877
- ASTM F1960
- CSA B137.5
- ANSI/NSF Standard 61

Product Listings:

- CSA
- ICC
- NSF-pw
- ITS
- PPI
- NSF-rfh
- UL

Applicable Codes:

- IMC
- IRC
- UMC
- NBC of Canada

Fire-rated Assemblies, United States:

- Tested in accordance with ASTM E119/UL 263
- G573 – Two-hour Hambro floor/ceiling assembly
- K913 – Two-hour concrete floor/ceiling assembly
- L557 – One-hour wood frame floor/ceiling assembly
- U372 – One-hour wood frame wall assembly
- V444 – One-hour steel stud wall assembly

Fire-rated Assemblies, Canada:

- Tested in accordance with CAN/ULC S101
- G573 – Two-hour Hambro floor/ceiling assembly
- UW/WA 60-01 – One-hour steel stud wall assembly
- UW/WA 60-02 – One-hour wood frame wall assembly
- WC/FCA 60-01 – One-hour wood frame floor/ceiling assembly
- WC/FCA 120-01 – Two-hour concrete floor/ceiling assembly
- WC/FCA 120-02 – Two-hour concrete floor/ceiling assembly

Wirsbo hePEX Pipe Straight Lengths FAQs

What is Wirsbo hePEX Pipe?

Wirsbo hePEX is crosslinked polyethylene (PEX-a) pipe that features a patent-pending oxygen-barrier coating technology that makes it ideal for closed-loop hydronic heating and cooling applications. Wirsbo hePEX can be used for hydronic distribution piping as well as potable-plumbing systems.

What applications are appropriate for Wirsbo hePEX straight lengths?

Using Wirsbo hePEX straight lengths for chilled water and heating hot water distribution is a very durable, cost-effective solution for transporting water to terminal units such as chilled beams and fan coil units. And since Wirsbo hePEX is also listed to ANSI/NSF Standard 61 for potable applications, it can also be used for plumbing systems as well.

Does Uponor offer a complete system for hydronic distribution applications?

In addition to Wirsbo hePEX straight lengths, Uponor also offers a PEX-a Pipe Support steel channel for suspended piping applications that enables hanger spacing equal to that of copper. In fact, Uponor's suspended piping assembly with Uponor PEX-a Pipe Support, Uponor's PEX-a pipe, ProPEX expansion connections and ProPEX engineered polymer (EP) fittings is listed to ASTM E84 for use in plenum applications without the need for insulation, making it an even more cost-effective and specifiable solution.

What is the proper method for sizing the pipe?

Refer to the steps below for gallons per minute (gpm), velocity and feet of head loss per foot.

1. Determine the amount of BTU/h for the desired zone (heat loss).
2. Determine the gallons per minute (gpm) flow rate required to supply the BTU/h to that zone by using the following equation where delta T (ΔT) is the supply/return temperature differential.

   $$gpm = BTU/h \div (\Delta T \times 500)$$

3. Determine the velocity of the fluid in the pipe using the calculated gpm and the pipe I.D. (in.) in the following equation.

   $$V = 0.408496 \times (gpm \div I.D.^2)$$

4. Determine the feet of head loss per foot using the gpm and the pipe I.D. in the following equation at 160°F (71°C).

   $$\text{Feet of Head Loss per Foot} = 0.0008436 \times (gpm^{1.85} \div I.D.^{4.8655})$$

5. For supply water temperatures not equal to 160°F (71°C) multiply the head loss (in step 4) by the appropriate temperature correction factor to yield the correct result.

Temperature Correction Factors							
200°F/ 93°C	180°F/ 82°C	160°F/ 71°C	140°F/ 60°C	120°F/ 49°C	100°F/ 38°C	80°F/ 26°C	60°F/ 15°C
0.96	0.98	1.00	1.02	1.05	1.10	1.14	1.20

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