



SharkBite® New Construction System Installation Guide

INCLUDING

SharkBite® EvoPEX™ Fittings

SharkBite® Universal Fittings

SharkBite® Integral Valves

SharkBite® PEX Pipe



An Evolutionary PEX Push System

Table of Contents



| | |
|--|-----------|
| INTRODUCTION | 3 |
| Features and Benefits of SharkBite® EvoPEX™ Fittings | |
| Features and Benefits of SharkBite® Universal Fittings | |
| MAKING A SHARKBITE® EVOPEX™ CONNECTION | 4 |
| Connection with SharkBite® PEX | |
| MAKING A SHARKBITE® UNIVERSAL CONNECTION | 5 |
| Connection with SharkBite® PEX | |
| SHARKBITE® PEX PIPE | 6 |
| Proper Support | |
| Concrete Installation | |
| Cross Linking Methods | |
| TECHNICAL DATA | 6 |
| SharkBite® PEX Pipe Marking Certifications | |
| Maximum Working Pressure | |
| Thermal Expansion | |
| Pipe Dimensions, Bend Radius and Fluid Capacity | |
| Pressure Loss Data | |
| FREQUENTLY ASKED QUESTIONS (FAQS) | 8 |
| INSTALLATION REQUIREMENTS | 10 |
| WARRANTY | 12 |



Introduction



The purpose of this guide is to familiarize plumbing professionals with the SharkBite® Connection System, and the recommended method of installing the SharkBite® EvoPEX™ system, SharkBite Universal brass push-to-connect fittings, and SharkBite PEX Pipe.

SharkBite EvoPEX fittings and SharkBite Universal brass fittings are for use in hot and cold domestic water, and radiant heating/cooling systems. The SharkBite EvoPEX push-to-connect fittings are for use with only PEX Pipe and has a 25 year system warranty when installed with SharkBite PEX Pipe. SharkBite EvoPEX system is rated to 80 PSI @ 200 °F (93 °C), 100 PSI @ 180 °F (82 °C), and 160 PSI @ 73.4 °F (23 °C). SharkBite Universal fittings are rated to 200 °F (93 °C) max and 200 PSI max.

FEATURES & BENEFITS OF SHARKBITE® EVOPEX™ FITTINGS

- **Instant push-to-connect connection for increased ease-of-use**—No soldering, clamps, unions or glue required. Permanent connection.
- **Visual indicator to confirm successful connection**
- **PEX Only**
- **ID pipe seal**
- **No tools required**
- **Pressure test system immediately**
- **Made in the USA**
- **Patent pending**

FEATURES & BENEFITS OF SHARKBITE® UNIVERSAL FITTINGS

- **Instant push-to-connect connection for increased ease-of-use**—No soldering, clamps, unions or glue required. Removable fitting with demount clip or tongs.
- **Universal transition fitting for copper, CPVC, PE-RT, HDPE SDR-9, and PEX Pipe**
- **No tools required**
- **Made in Australia and in the USA**
- **Integral pipe liner for PEX installations**—Integrated design means no loose components, ensures secure, reliable connection
- **Compact, robust DZR brass body**—Foundation of a strong, corrosion resistant, durable fitting
- **Patented Technology**

CERTIFICATIONS

- **SharkBite EvoPEX and SharkBite Universal push-to-connect fittings, size 1/2", 3/4", and 1" are:**
 - Largest push-to-connect fitting brand listed with CSA
 - Certified to ASSE 1061, ASTM F877* and CSA B125.3 standards
 - Listed to ASSE 1061, NSF/ANSI 61, NSF/ANSI 372, ASTM F877* by IAPMO
 - Tested to CAN/ULC S102.2
 - UPC, IPC, NSPC, and NPC of Canada compliant
- SharkBite Universal brass fittings are certified for underground applications. All SharkBite Universal fittings with brass bodies (Universal and EvoPEX) must have an impervious barrier between the fitting and the surrounding soil. Self-fusing, formaldehyde and chloride-free, fully cured silicone tape with a minimum thickness of 0.020" should be used for this purpose. Failure to adequately wrap SharkBite Universal Fittings will void warranty.
- SharkBite EP EvoPEX fittings are certified for underground applications without a wrapping material and have a 5 year warranty when buried.
- Approved for behind the wall installations without access panels. Designed for potable water distribution, as well as non-potable water applications such as radiant and hydronic heating.

**EvoPEX Only*

Making a SharkBite® EvoPEX™ Connection



STEP 1

When cutting SharkBite PEX Pipe, ensure that the ends are cut square and the surface is smooth. Ensure that both the EvoPEX pipe and fitting are clean and free of dirt and debris in preparation for making a connection.



STEP 2

Push the pipe into the fitting firmly (a twisting action reduces insertion force). Take care to avoid inserting the pipe at an angle.



STEP 3

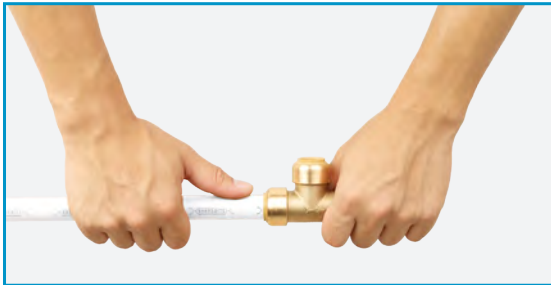
Ensure that the pipe is pushed into the fitting fully and engaged properly by checking that the green indicator ring is fully visible in all four slots. This ensures a permanent connection.

Making a SharkBite® Universal Connection



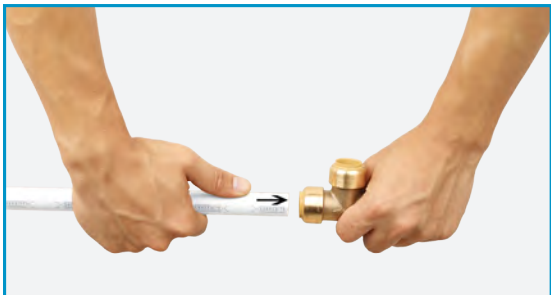
STEP 1

When cutting SharkBite PEX Pipe, ensure that the ends are cut square and the surface is smooth. Ensure that both the PEX pipe and fitting are clean and free of dirt and debris in preparation for making a connection.



STEP 2

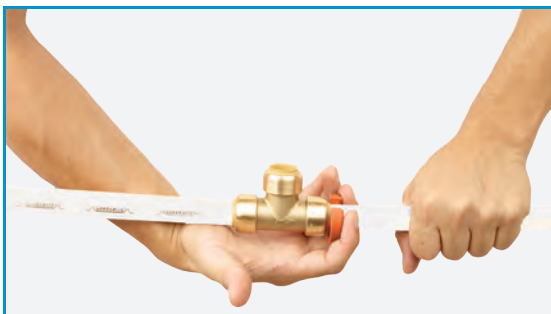
Insert the pipe through the release collar to rest against the grab ring.



STEP 3

Push the pipe firmly with a slight twisting action until it reaches the tube stop. To ensure that the pipe is correctly inserted, check that the depth mark is within 0.005 in (0.13 mm) of the end of the release collar.

NOTE: Install SharkBite push-to-connect fittings at least 1" apart to enable disassembly of the joint.

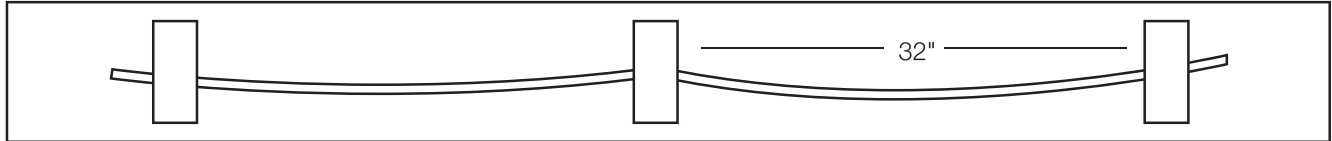
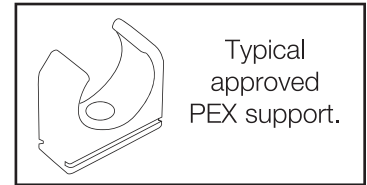


DISCONNECT

1. Place the SharkBite disconnect clip around the pipe with the non-branded face against the release collar. If using the SharkBite disconnect tong, place the teeth around the fitting assembly. The fork end with the SharkBite brand logo should be positioned around the pipe and the other end around the neck of the fitting.
2. Push the clip against the release collar and pull the pipe with a twisting action to release the pipe. If using the SharkBite disconnect tong, squeeze the tool with one hand and pull the pipe with a twisting action to release the pipe.
3. Check the fitting and pipe end for damage. The fitting and pipe should be free of damage, foreign objects and marks on the outside diameter. If the pipe is damaged or marked, then cut and use a new section of pipe.

PROPER SUPPORT OF SHARKBITE® PEX PIPE

SharkBite® PEX Pipe must be properly supported to protect against excessive strain. For both vertical and horizontal applications we recommend the pipe be supported every 32" between supports (sizes 1" and smaller), leaving a little slack (1/8"-1/4") in the pipe to allow for normal expansion and contraction. Always use approved PEX supports and never use a support that has sharp edges.



CONCRETE INSTALLATION OF SHARKBITE® PEX PIPE

The SharkBite PEX Pipe can be submerged in concrete but we recommend following these guidelines to ensure a long lasting, maintenance-free installation.

- Protect the SharkBite PEX Pipe with non-metallic sleeves when entering or exiting the concrete slab. A larger diameter piece of SharkBite PEX Pipe also works well in this application.
- Do not allow joints within the slab. Use a continuous length of SharkBite PEX Pipe within the slab and be sure to check for leaks before pouring concrete.

CROSS LINKING METHODS

Cross linking is a process that changes the chemical structure of high density polyethylene used to make PEX Pipe, so that the polymer chains are connected with each other in a three-dimensional matrix by chemical bonds. PEX A, B and C are terms used to describe the different manufacturing methods used to produce PEX Pipe, not grades of PEX. Regardless of which manufacturing method is used, all PEX Pipe meets the same ASTM standards for commercial and residential plumbing applications.

Classification of Crosslinked Polyethylene

| | Typology | Method | Symbol |
|---|----------|--------------------------------|--------|
| A | Chemical | Peroxide cross linking | PEX-a |
| B | Chemical | Silane cross linking | PEX-b |
| C | Physical | Radiation cross linking (beta) | PEX-c |

TECHNICAL DATA FOR SHARKBITE® PEX PIPE

SHARKBITE PEX PIPE MARKING:

All SharkBite PEX Pipe is marked with:

TUBING LENGTH

| | | | | | |
|---------|---------------------|------------|--|---|--|
| | | | | | |
| | MANUFACTURER | | OPTIONAL FOR OXYGEN BARRIER PIPE ONLY | TUBING SIZE & IDENTIFICATION | MANUFACTURING LOCATION & DATE |
| | | | | CHLORINE RESISTANCE | |
| 0025 ft | CASH ACME | 02 BARRIER | 1/2" SDR9 | PEX5006 160PSI@73F - 100PSI@180F | C1 WG 6.12.14=16:00 |

CODE EVALUATION

CSA B137.5 ANSI/AWWA C904 ASTM F876/877 (ASTM F1807, ASTM F2098, ASSE1061)

TECHNICAL DATA FOR SHARKBITE® PEX PIPE (CONT'D)

CERTIFICATIONS:

The SharkBite PEX Pipe is design certified to ASTM F-876, F-877, UL 1821, CSA B137.5 standards, and is listed to the NSF standards 14 and CSA B137.5 standards for use in potable water systems.

MAXIMUM WORKING PRESSURE:

160psi @ 73.4°F (23°C)

100psi @ 180°F (80°C)

80psi @ 200°F (93°C)

THERMAL EXPANSION:

Since SharkBite PEX Pipe will expand and contract during temperature changes, please allow slack when running the pipe through the building. SharkBite PEX Pipe will expand and contract at a rate of approximately 1" per 100 feet of Pipe for each 10°F change in temperature (see equation below). We recommend that offsets and expansion loops be used as ways to compensate for expansion and contraction. The change of pipe length due to temperature increase can be calculated as follows:

$$\Delta L = \alpha(L \cdot \Delta T)$$

where: ΔL = change of length (inches)

ΔT = change of temperature (°F)

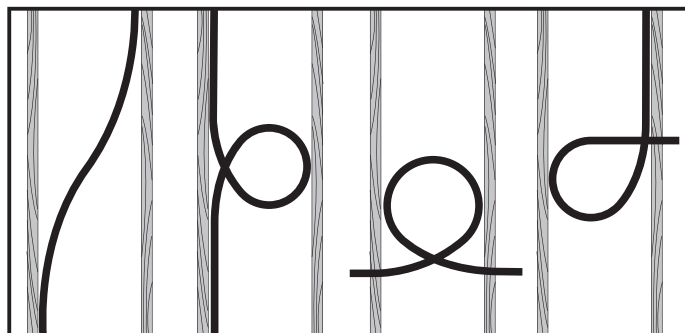
L = original pipe length (feet)

α = coefficient of linear expansion = (8 x 10⁻⁵ @ 68°F)

EXAMPLE:

$\Delta T = 10^\circ\text{F}$ L = 100' $\Delta L = 0.08"$

EXPANSION/CONTRACTION LOOP METHODS:



SHARKBITE PEX PIPE DIMENSIONS, BEND RADIUS AND FLUID CAPACITY:

| Nominal Diameter | OD inches | ID inches | Bend Radius | Fluid Cap 100'/Gals |
|------------------|-----------|-----------|-------------|---------------------|
| 3/8" | 0.5 | 0.35 | 4" | 0.53 |
| 1/2" | 0.625 | 0.475 | 5" | 0.96 |
| 3/4" | 0.875 | 0.671 | 7" | 1.9 |
| 1" | 1.125 | 0.885 | 10" | 3.1 |

PRESSURE LOSS DATA:

| Flow Rate GPM | Pressure Loss psi/100 ft of pipe | | | |
|---------------|----------------------------------|--------|--------|--------|
| | 3/8" | 1/2" | 3/4" | 1" |
| 0.2 | 0.427 | 0.099 | 0.019 | 0.006 |
| 0.3 | 0.880 | 0.204 | 0.039 | 0.012 |
| 0.4 | 1.470 | 0.341 | 0.065 | 0.019 |
| 0.5 | 2.189 | 0.508 | 0.097 | 0.029 |
| 0.6 | 3.032 | 0.703 | 0.135 | 0.040 |
| 0.7 | 3.993 | 0.926 | 0.177 | 0.053 |
| 0.8 | 5.069 | 1.175 | 0.225 | 0.067 |
| 0.9 | 6.258 | 1.450 | 0.278 | 0.082 |
| 1 | 7.555 | 1.751 | 0.335 | 0.099 |
| 1.1 | 8.960 | 2.076 | 0.397 | 0.118 |
| 1.2 | 10.470 | 2.425 | 0.464 | 0.138 |
| 1.3 | 12.080 | 2.799 | 0.535 | 0.159 |
| 1.4 | 13.800 | 3.195 | 0.611 | 0.181 |
| 1.5 | 15.610 | 3.615 | 0.691 | 0.205 |
| 1.6 | 17.520 | 4.058 | 0.776 | 0.230 |
| 1.7 | 19.530 | 4.523 | 0.865 | 0.256 |
| 1.8 | 21.640 | 5.010 | 0.958 | 0.284 |
| 1.9 | 23.840 | 5.519 | 1.055 | 0.313 |
| 2 | 26.140 | 6.050 | 1.157 | 0.343 |
| 2.5 | 39.000 | 9.024 | 1.724 | 0.511 |
| 3 | 54.100 | 12.510 | 2.390 | 0.708 |
| 3.5 | 71.360 | 16.500 | 3.150 | 0.933 |
| 4 | | 20.970 | 4.002 | 1.185 |
| 4.5 | | 25.900 | 4.943 | 1.463 |
| 5 | | 31.300 | 5.972 | 1.768 |
| 6 | | 43.440 | 8.284 | 2.451 |
| 7 | | | 10.930 | 3.232 |
| 8 | | | 13.890 | 4.108 |
| 9 | | | 17.170 | 5.076 |
| 10 | | | 20.750 | 6.134 |
| 11 | | | 24.630 | 7.281 |
| 12 | | | 28.810 | 8.514 |
| 13 | | | | 9.832 |
| 14 | | | | 11.240 |
| 15 | | | | 12.720 |

Frequently Asked Questions (FAQs)

SharkBite® EvoPEX™



Q. Why are SharkBite® EvoPEX™ push-to-connect fittings recommended to be used only with SharkBite PEX Pipe while SharkBite Universal brass fittings are recommended to be used with any manufacturers PEX Pipe that meets ASTM F876?

A. SharkBite EvoPEX fittings have been designed with SharkBite PEX Pipe in mind. We control the OD and wall thickness of our PEX Pipe to more rigorous tolerances than the ASTM standards to optimize O-Ring sealing and provide long fitting life. Use of other manufacturer's PEX pipe with SharkBite EvoPEX fittings may result in increased insertion force. SharkBite Universal brass fittings have been designed as transition fittings to connect to copper, PEX, CPVC, and PE-RT with enough O-Ring compression to cover the OD of all approved pipe types and their OD variation allowed within ASTM standards.

Q. Can SharkBite EvoPEX fittings be installed on copper or CPVC pipe?

A. No, SharkBite EvoPEX fittings cannot be installed on copper or CPVC pipe due to the inner pipe seal.

Q. Can a SharkBite fitting be rotated on the pipe?

A. Yes, SharkBite EvoPEX fittings and SharkBite Universal brass fittings can be rotated after assembly and will not affect the integrity of the joint.

Q. What is the effect of water hammer on the SharkBite fittings since they can rotate?

A. SharkBite Universal and EvoPEX fittings exceed the ASSE 1061 requirements to withstand pressure pulsation or water hammer. The rotation feature of the fitting does not impact the performance or make noise. However severe water hammer/pressure pulsation within the plumbing system is an indication that there are other issues within the system and should be investigated and resolved as a matter of cause.

Q. Can I use SharkBite fittings and SharkBite PEX Pipe for anything other than potable water (e.g., air, gas, oil, etc.) applications?

A. No, SharkBite fittings and PEX Pipe are only certified for potable water installations, Glycol mix up to 100% and non-potable applications such as hydronic and potable heating.

Q. How well do SharkBite joints hold up in freezing temperatures?

A. SharkBite PEX water systems are less susceptible to burst in freezing conditions due to the pipe's ability to expand. When water freezes, it expands and creates pressure that exceeds plumbing system pressure capabilities, i.e. pipes and fittings may burst.

Q. Does the outside temperature affect installation or testing of SharkBite Universal or SharkBite EvoPEX Systems?

A: The outside temperature does not affect installation of SharkBite Universal or SharkBite EvoPEX Systems and can be tested immediately once all connections are made.

Q. Is SharkBite PEX Pipe approved for continuous hot water recirculation?

A: SharkBite PEX pipe for potable water applications is certified by NSF International to meet the latest ASTM F876 oxidative-resistance requirements for continuous recirculation, as indicated by the PEX 5106 designation on white, red, and blue tubing. SharkBite PEX Pipe meets the highest chlorine resistance rating that indicates suitability for use in continuous recirculation systems where tubing is exposed to hot (up to 140 Deg. F), chlorinated water 100 percent of the time.

Q. Are SharkBite fittings approved for underground use?

1-A. All SharkBite Universal fittings with brass bodies (Universal and EvoPEX) must have an impervious barrier between the fitting and the surrounding soil. Self-fusing, formaldehyde and chloride-free, fully cured silicone tape with a minimum thickness of 0.020" should be used for this purpose.

2-A. SharkBite EP EvoPEX fittings are certified for underground applications without a wrapping material and have a 5 year warranty when buried. Cut pipe square and ensure that both the EvoPEX pipe and fitting are clean and free of dirt and debris in preparation for making a connection.

Q. How long after installation can a SharkBite system be pressure tested?

A. A SharkBite system can be tested immediately once all connections are made. Refer to page 11 for pressure testing guidelines and requirements.

Frequently Asked Questions (FAQs)

SharkBite® EvoPEX™



Q. Are SharkBite EvoPEX fittings, SharkBite Universal brass fittings, and SharkBite PEX Pipe UV resistant?

A. SharkBite Universal brass fittings can be used in sunlight when installed on copper or CPVC. SharkBite PEX Pipe and EvoPEX fittings are UV resistant for up to one (1) month.

Q. Are tools needed for SharkBite EvoPEX or SharkBite Universal brass fittings?

A. No tools are required to make a fitting connection. PEX cutters are required for cutting PEX pipe. Proper pipe cutters and deburring tools are needed for other pipe types used with Universal fittings.

Q. What is the insertion depth for SharkBite EvoPEX fittings?

A. Insertion depth will depend on the size of the fitting. Push the SharkBite PEX Pipe into the SharkBite EvoPEX fitting until green indicator ring appears in collet window. The visual appearance of the green indicator ring through the collet window is verification that the pipe is fully inserted for a proper connection.

Q. What is the insertion depth for SharkBite Universal brass fittings?

A. Insertion depth will depend on the size of the fitting. Push the SharkBite PEX Pipe into the SharkBite Universal brass fitting per the insertion depth below for each fitting size:

- 1/4" Pipe Insertion Depth = 13/16"
- 3/8" Pipe Insertion Depth = 15/16"
- 1/2" Pipe Insertion Depth = 15/16"
- 5/8" Pipe Insertion Depth = 1-1/8"
- 3/4" Pipe Insertion Depth = 1-1/8"
- 1" Pipe Insertion Depth = 1-5/16"

Q. Can SharkBite EvoPEX and SharkBite Universal brass fittings be removed?

A. SharkBite EvoPEX fittings are a permanent connection with PEX Pipe only and cannot be removed. SharkBite Universal brass fittings can be removed with SharkBite Disconnect Clips or Disconnect Tongs.

Q. Can SharkBite PEX Pipe be installed to a water heater?

A. SharkBite PEX Pipe should not be installed closer than 18" of the water heater unless specified otherwise by local code. SharkBite corrugated and stainless steel braided water heater connection hoses may be installed directly to a water heater. SharkBite Tank Booster is a thermostatic mixing valve with connections that may be installed directly to a water heater. Please reference www.sharkbite.com for more information regarding SharkBite water heater connectors and Tank Booster thermostatic mixing valves.

Q. Is there a minimum space requirement between fittings?

A. SharkBite EvoPEX fittings have no space requirement between fittings; whereas SharkBite Universal brass fittings require 1" spacing between fittings for removal if needed.

Q. Do extreme temperatures in excess of 140° Fahrenheit in an attic affect the quality or performance of SharkBite fittings?

A. SharkBite EvoPEX fittings are suitable for attic applications with temperature pressures of (80 PSI @ 200° F (93° C), 100 PSI @ 180° F (82° C), and 160 PSI @ 73.4° F (23° C)) when installed as per the installation instructions and relevant plumbing codes.

Q. What are additional precautions to take during the installation process with SharkBite EvoPEX fittings?

A. Prevent the EvoPEX fittings from coming in contact with primers, solvent cements, and other solvents. When using firestops or other expanding fillers, protect the EvoPEX fittings from contact by wrapping (polyethylene wrap - min. 2 layers) the fittings in areas where contact is possible.

Installation Requirements



SharkBite® Burial

SharkBite Universal fittings are suitable for burial in most applications; however care is required when using fittings in applications that require burial to ensure the correct installation practices are used and due care is given to any environmental factors that may have a detrimental effect on the life expectancy of the fittings and pipe.

The installation of SharkBite Universal fittings in applications that will require the burial of the fitting must comply with all local plumbing code requirements.

SharkBite Universal fittings and SharkBite PEX are not suitable for use in areas where the soil is or may become contaminated* including the soil used for back filling. All SharkBite Universal fittings with brass bodies must have an impervious barrier between the fitting and the surrounding soil. Self-fusing, formaldehyde and chloride-free, fully cured silicone tape with a minimum thickness of 0.020" should be used for this purpose.

The soil used for back filling must be free of rocks, debris or any sharp objects that may cause damage to the fitting or pipe through impact or abrasion.

* Examples of contamination include, but are not limited to, petrochemicals (reclaimed service station sites), high levels of nitrogen compounds (this could be caused by animal waste or fertilizer that may be found in some agricultural applications), low pH levels (below pH 6), high pH levels (above pH 8), run off from land fill, formaldehyde compounds, and solvents. It should be noted that such contaminants have been known to migrate through plastic piping systems and contaminate the Potable water supplied through these pipes.

SharkBite Silicone Burial Wrap

Make a SharkBite Universal connection ensuring pipe is inserted to proper depth. While leaving the protective film in place, measure the amount of tape needed to completely wrap the fitting. To ensure a proper seal, overlap tape by 1" past the end of the fitting on every end and 1/4" – 1/2" between/across the fitting. Wrap the fitting by pulling the tape tight and removing the protective film. Completely cover the fitting. The tape will bond to itself within minutes and will cement to itself within a few hours forming an air and water tight seal.

SharkBite Distance Between Fittings

Allow at least 1" of spacing between SharkBite Universal fittings for removal purposes.

SharkBite Grounding on Copper Pipe

When connecting a SharkBite Universal fitting to a copper piping system, install a copper jumper cable to ensure proper grounding. SharkBite Universal fittings are not an electrically continuous fitting.

Threaded Connectors

Teflon tape should be used with threaded SharkBite connectors to make a proper seal.

Galvanized Tubing

SharkBite Universal fittings should not be installed (threaded or push-to-connect) on galvanized tubing.

SharkBite Soldering

When soldering is required near a SharkBite Universal connection, make all solder joints first and then make the SharkBite connections. Flame can cause the pipe to reach high temperatures and should not be used close to a SharkBite Universal fitting.

Installation Requirements



SharkBite Fitting Reuse

SharkBite Universal fittings are intended to be a permanent connection and are not designed for repeated connection and disconnection. If the need arises to change a fitting after initial installation this can be done given that proper care is taken when removing and reinstalling SharkBite Universal fittings.

SharkBite disconnect tongs or SharkBite disconnect clips must be used when removing the fittings.

The initial pipe and the new pipe must be clean and free from scratches and burrs.

Mark the correct insertion depth, insert the fitting to the mark, turn the water back on and check for leaks.

Working Pressure and Temperature

SharkBite Universal fittings have a maximum temperature of 200°F maximum pressure 200 psi when used on copper pipe. When used on PVC, CPVC, PEX, PE-RT or HDPE refer to the maximum pressure temperature rating of the pipe.

PEX Stiffeners

SharkBite Universal fittings (3/8" to 1") come with an Integral PEX Stiffener. 1/4" (3/8" OD) fittings do not require PEX stiffeners. PEX Stiffener are required for PEX, PE-RT and HDPE pipe. 2XL PEX Stiffeners sold separately.

Pressure Testing EvoPEX Systems:

Always refer to local code for pressure testing EvoPEX systems after installation. Testing must be completed prior to concealing fittings with concrete or by other means.

Water Testing:

When water is used for pressure testing and the building is unheated, the system should be drained after testing to prevent freezing. The test pressure applied to the system must meet the pressure testing requirements of local code, but cannot be lower than the system operating pressure. The pressure with water cannot exceed the following pipe listings:

73.4F (23C) at 160psi
180F (82.2C) at 100psi
200F (93.3C) at 80psi

It is recommended to test at a pressure of 80psi (unless local code indicates higher pressures). The test duration should not be less than 15 minutes.

Air Testing:

When air is used for pressure testing pressure should be from 40 psi to 125 psi, a common test pressure is 100 psi. The duration should be not be less than one hour and the pressure shall not drop more than 8 psi in one hour (deformation of the tube and slow expansion can cause the 8 psi pressure drop). If the system pressure falls more than 8 psi in one hour the test needs to be repeated. If the problem continues use a soapy solution to detect the faulty connection, replace the connection and repeat the test.

LIMITED WARRANTY

SHARKBITE® AND CASH ACME® PRODUCTS

WHAT DOES THIS WARRANTY COVER?

Subject to conditions outlined in this statement, RWC (in the USA, Reliance Worldwide Corporation and in Canada, Reliance Worldwide Corporation (Canada) Inc.) warrants to owners of real property in the United States and Canada that SharkBite and Cash Acme products, when used and installed in accordance with the requirements set forth, shall be free from defects in material and workmanship for the applicable Warranty Period. This Limited Warranty is in effect for installations made after January 1, 2016 and is applicable to products installed in the country in which they were purchased.

Proof of purchase is required to validate the Warranty Period. If proof of purchase is not available, the Warranty Period commencement shall default to the date of manufacture for each product. If the product suspected of a defect does not have a clear date of manufacture on it, a proof of purchase will be required.

WHAT ARE THE CONDITIONS OF THIS WARRANTY?

1. All products must be installed in accordance with all then applicable codes, good plumbing practice, in accordance with any local, state, provincial or federal requirements, and installed in a potable water or radiant heating application unless a non-potable water service is specifically allowed for in the pertinent product literature.
2. The installer must use construction techniques compliant with then applicable codes to install the product and use the product within the design parameters specified in any installation guidelines and technical notes for the applicable system. This shall include field pressure testing prior to concealing with concrete or by other means and wrapping any brass fitting when buried. Failure to install RWC products according to manufacturer's installation instruction will void all applicable warranties and may result in severe water damage.
3. Products must at all times be used in a manner consistent with their intended use and be used in installations and environments acceptable to their material and design specifications, including not being installed in a system that may operate at temperatures or at pressures that exceed the approved ratings which can be found on the product, packaging or installation instructions.
4. Additional product specific conditions of this Limited Warranty and the Warranty Period are documented in the section entitled "HOW LONG DOES THE LIMITED WARRANTY COVERAGE LAST AND WHAT OTHER SPECIFIC CONDITIONS EXIST FOR EACH PRODUCT?". A condition for SharkBite Connection Systems is that the product must be installed by a licensed professional plumbing contractor.
5. Without limiting the foregoing, this Limited Warranty does not apply and you do not have a right of reimbursement if the product failure or resulting damage is caused by: (a) evidence of tampering, mishandling, neglect, abuse, accidental damage, freeze damage (it is expressly understood that failure as a result of any freezing fluids within the pipes does not constitute a defect in material or workmanship and shall not be covered by this warranty) or unauthorized modifications or repairs that cause damage to warranted products; (b) exposure to harmful, unauthorized, or unanticipated chemicals or substances or corrosive water conditions; (c) exposure to ultraviolet light; (d) faulty installation including failure to follow proper burial instructions; (e) damage from abnormal operating conditions including exposure pressures and temperatures beyond the specified operating range; (f) failure to properly test and pass common testing methods (including pressure testing) after the installation and before the product or system is put in service; (g) components not manufactured or sold by RWC; or (h) acts of nature such as earthquakes, fire, flood or lightning.
6. Although RWC provides a plumbing system to facilitate a complete installation, other manufacturers pipe and/or fittings may be installed in any given installation provided manufacturing of the pipe and/or fittings demonstrates compliance with the applicable ASTM/CSA standards, and the product has been certified by a recognized third-party testing agency. The RWC product in the given installation will continue to be covered under this Limited Warranty although limits on Warranty Period may apply. RWC will be responsible only for proven defects in material or workmanship in RWC products. Problems in products manufactured by another company should be reported to that manufacturer.

HOW DO YOU GET SERVICE?

In order to be eligible for service under this Limited Warranty you must return the defective product to RWC for inspection and testing within thirty (30) days after detection of alleged failure or defect occurring within applicable Warranty Period (with shipping charges prepaid) to the original place of purchase. If the alleged defect involves a connection or joint with a RWC product, the fitting must be returned with a section of the pipe still inserted. You must include the model number of the product (if available), the original date of purchase, proof of purchase and the nature of the alleged product failure or defect. Products returned without shipping charges prepaid will be refused. For questions or inquiries, in the U.S. call 1(877)700-4242 and in Canada 1(888)820-0120.

WHAT WILL RWC DO?

If, after inspection, we find that a product covered by this Limited Warranty has failed due to a defect in material or workmanship during the specified Warranty Period, we will repair or replace, at our sole option, free of charge, the defective product during normal working hours and through a place of business as determined by RWC.

Notwithstanding anything to the contrary in this Limited Warranty, if RWC determines that any damages to the real property in which a defective product was installed were the direct result of a leak or failure caused by a defect in material or workmanship in any RWC product covered by this Limited Warranty and occurring within the first ten years after date of purchase or during the applicable Warranty Period, whichever is shorter, and if reasonable steps were taken to promptly limit or stop the effects of such leak or failure as soon as it was discovered, then RWC will reimburse the property owner for the reasonable costs of repairing or replacing such damaged real property to include flooring, drywall and painting and other real property damaged by the leak directly caused by the allegedly defective RWC product. Except as specified above or otherwise specifically authorized in writing by RWC, RWC shall not pay for any costs or expenses for transportation, relocation, labor, repairs or any other work associated with removing and/or returning failed or defective products or installing replacement products.

This shall constitute the sole and exclusive remedy for any defective product.

WHAT DOES THIS LIMITED WARRANTY NOT COVER?

RWC shall not be responsible for any other incidental, indirect, contingent, special or consequential damages, including without limitation, economic loss, lost profits or the cost of repairing or replacing other property which is damaged if these warranted products do not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, adverse chemical environments, or any other circumstances over which RWC has no control. This limitation applies even if RWC could have foreseen or has been advised of the possibility of these damages. This Limited Warranty shall be invalidated by any abuse, misuse, misapplication or improper installation of the product. Any remaining warranty coverage may not be assigned or transferred after the period ending ten years following the installation. RWC does not guarantee or in any way warrant the integrity or workmanship of the contractor/installer.

MISCELLANEOUS

Some States/Provinces do not allow limitations on how long an implied warranty lasts, and some States/Provinces do not allow the exclusion or limitation of incidental or consequential damages. Therefore, the above limitations may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights that vary from State/Province to State/Province. You should consult applicable State/Provincial laws to determine your rights.

SO FAR AS IS CONSISTENT WITH APPLICABLE STATE/ PROVINCIAL/FEDERAL LAW, THE EXPRESS WARRANTY SET FORTH HEREIN IS THE ONLY WARRANTY GIVEN BY RWC WITH RESPECT TO THE SHARKBITE® AND CASH ACME® PRODUCTS AND RWC MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

This Limited Warranty and any claims arising from breach of contract, breach of warranty, tort, or any other claim arising from sale or use of RWC's products shall be governed and construed under the laws of the State of Georgia. No action on the part of RWC under this Limited Warranty shall be construed as an admission of liability of that the product is not fit for its intended use.

HOW LONG DOES THE LIMITED WARRANTY COVERAGE LAST?

| CLASSIFICATION | PRODUCT CATEGORY | LIMITED WARRANTY PERIOD | COMMENTS |
|----------------------------------|---|-------------------------|---|
| SharkBite Connection Systems | SharkBite Brass and Poly PEX Barb Fittings in conjunction with SharkBite PEX Pipe and SharkBite Rings/Clamps | Twenty-Five (25) Years | System must be installed by a licensed professional plumbing contractor and include: <ul style="list-style-type: none"> • SharkBite PEX Pipe Only - ASTM F876/CSA B137.5 • SharkBite Copper Crimp Rings – ASTM F1807 or F2159 • Stainless Steel Clamp Rings – ASTM F2098 |
| | SharkBite EvoPEX Fittings in conjunction with SharkBite PEX Pipe | Twenty-Five (25) Years | System must be installed by a licensed professional plumbing contractor and include: <ul style="list-style-type: none"> • SharkBite PEX Pipe Only - ASTM F876/CSA B137.5 |
| SharkBite and Cash Acme Products | SharkBite Universal Push-To-Connect Fittings and SharkBite 2XL Large Diameter Push-To-Connect Fittings in Application with Copper, PEX, CPVC and/or PE-RT | Twenty-Five (25) Years | Must be used with: <ul style="list-style-type: none"> • Copper—ASTM B 88 hard drawn copper tube K, L, and M • PEX—ASTM F876/CSA B137.5 • CPVC—ASTM D2846 or CSA B137.6 • PE-RT—ASTM F2769 |
| | SharkBite Universal Push-To-Connect Fittings and SharkBite 2XL Large Diameter Push-To-Connect Fittings in Application with HDPE | Five (5) Years | Must be used with: <ul style="list-style-type: none"> • HDPE SDR-9 ASTM D2737 |
| | SharkBite PEX Pipe | Twenty-Five (25) Years | Must be used with: <ul style="list-style-type: none"> • ASSE 1061, ASTM F1807, ASTM F2098, and/or ASTM F2159 Fittings |
| | SharkBite Brass PEX Barb Fittings/ Copper Manifold | Five (5) Years | Must be used with Non-SharkBite PEX Pipe and Clamps/Rings that conform to: <ul style="list-style-type: none"> • PEX – ASTM F876/CSA B137.5 • Copper Crimp Rings – ASTM F1807 • Stainless Steel Clamp Rings – ASTM F2098 |
| | SharkBite Poly PEX Barb Fittings | Five (5) Years | Must be used with Non-SharkBite PEX Pipe and Clamps/Rings that conform to: <ul style="list-style-type: none"> • PEX – ASTM F876/CSA B137.5 • Copper Crimp Rings – ASTM F2159 • Stainless Steel Clamp Rings – ASTM F2098 |
| | SharkBite EvoPEX Fittings | Five (5) Years | Must be used on Non-SharkBite PEX Pipe that conform to ASTM F876/CSA B137.5 |
| | SharkBite Tools | One (1) Year | From date of purchase; used in accordance with instructions |
| | SharkBite and Cash Acme Thermostatic Mixing Valves | Five (5) Years | Must be installed per installation instructions |
| | Other SharkBite and Cash Acme Valves | Two (2) Years | Must be installed per installation instructions |
| | SharkBite Accessories (Ball Valves, Supply Hoses, Supply Stops, Supply Valve Box Systems, Kits, Manifolds, etc.) | Two (2) Years | Must be installed per installation instructions |



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