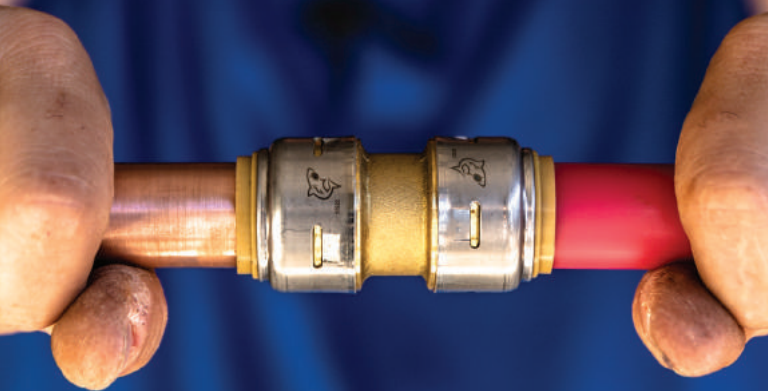




**SharkBite™**

# Push-to-Connect

Installation Guide





Reliance Worldwide Corporation (RWC) is a market leader and manufacturer of water control systems and plumbing solutions for residential and commercial applications. Established in 1949, the RWC portfolio includes industry-leading brands: SharkBite™ Push-to-Connect plumbing solutions; HoldRite™ engineered plumbing and mechanical solutions; Cash Acme™ control valves; John Guest™ fittings and fluid dispense products, and EZ-FLO™ and Eastman™ appliance connectors, supply lines, stop valves and gas connectors. Passing down more than 70 years of innovation, products from the RWC family of brands are engineered for quality and efficiency.

**A family of brands.**  
**One complete solution.**



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# SharkBite PEX Pipe

## PEX = Cross-Linked Polyethylene

- Silane method (PEX-B)  
Largest producer of PEX-B pipe globally.
- Red, white and blue
- Sizes range from 3/8" to 2"
- Straight lengths and coils  
Straight lengths available in 10' and 20'.  
Coils lengths from 100' to 500'.
- Bend radius = 8x OD  
(outside diameter)

PEX **5306** 160psi@73F 100psi@180F 80psi@200F



## Material Designation Code: 5306

- 5 = Chlorine resistance  
Approved for continuous recirculation of hot water up to 140° F (highest available rating).
- 3 = UV resistance  
6 months (highest available rating).
- 06 = Hydrostatic Design Basis (temperature/pressure limits)  
160 psi @ 73.4° F  
100 psi @ 180° F  
80 psi @ 200° F

## Standards for Testing

- Chlorine resistance  
1 = 25% of recirculating time at 140° F  
3 = 50% of recirculating time at 140° F  
5 = 100% of recirculating time at 140° F
- UV resistance  
1 = 1 month  
2 = 3 months  
3 = 6 months

## Approved Fittings

- Push-to-connect ASSE 1061
- Crimp ASTM F1807/F2159
- Clamp ASTM F2098
- 25-year warranty provided on systems installed with SharkBite pipe and SharkBite branded fittings.



## Support Spacing Requirements: Horizontal

Pipe Size	IPC	UPC	NPCC
1/2" - 1"	32"	32"	0.8 meters
1 1/4" - 2"	48"	48"	0.8 meters

## Support Spacing Requirements: Vertical

All Pipe Sizes	IPC	UPC	NPCC
Base of Riser			
at each floor	X	X	
every other floor*			X
Mid-story guide	X	X	

\*Maximum distance between supports = 7.5 meters

## Expansion and Contraction

- Free body expansion rate  
 $1.1" / 10^{\circ}\text{F} / 100'$
- For pipe sizes 1" and smaller (e.g. final runouts to fixtures), do not pull tubing tight. Allow some additional pipe for normal expansion and contraction.

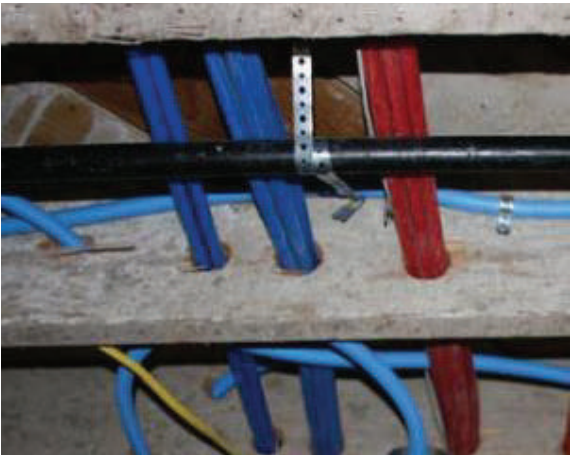
## Loop Methods:



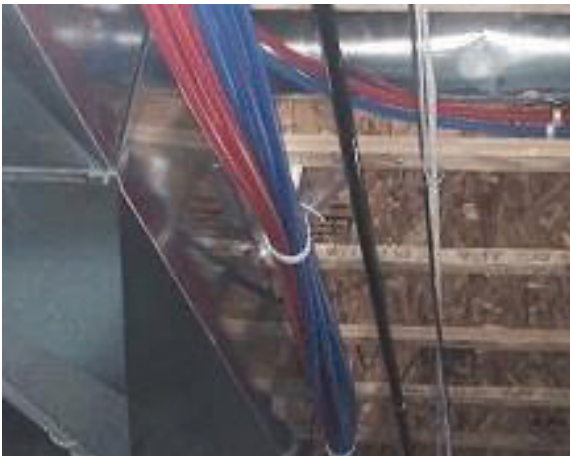
## Strapping and Bundling

- In parallel piping arrangements, SharkBite PEX may be bundled.  
Requires AHJ (code official) approval.  
Hot and cold water lines must be bundled separately.  
Bundles shall be supported at code-required spacing.  
Cable ties may be used to group a bundle.

### Correct



### Incorrect





# SharkBite Max<sup>TM</sup> Brass Push Fittings

- Fastest way to connect PEX, copper, CPVC, PE-RT or HDPE pipe.\*

\*Comparisons in relation to 1st generation SharkBite.

- Insertion effort reduced by 50% with double the burst pressure.
- Can be installed on wet lines and pressure tested immediately.
- Stainless-steel retainer adds strength and durability.



## SharkBite Max™ Brass Push Fittings

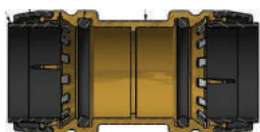
- Removable using approved disconnect tools.  
Clips, tongs or pro-disconnect tool
- Approved for direct underground burial.\*  
Use approved silicone wrap.  
Check local codes for limitations.

\*For further instructions, see page 23



- Dezincification (DZR) Brass Body  
Meets low-lead requirements.
- 316 stainless-steel grab ring  
Ring grabs outside of pipe.
- EPDM o-ring seal  
O-ring seals on the outside of the pipe.
- Release collar for removal of fitting
- 25-year warranty on fittings installed on approved pipe types  
PEX, copper, CPVC, PE-RT or HDPE  
transition fittings for PVC and polybutylene

\* HDPE installations must use a tube stiffener. Sold separately by HDPE manufacturer.



## Making Connections (3/8"-1")



- **Cut** the desired length of pipe.  
Square cut, perpendicular to the length of the pipe.



- **Deburr** the end of copper or CPVC pipe to remove any sharp edges.  
Inspect fitting and pipe for damage, dirt and debris.



- **Mark** the pipe.  
Use the pipe insertion depth chart to determine where to mark the pipe.



- **Push** the pipe into the fitting.  
Mark should rest against the edge of the release collar.

## Disconnections (3/8" - 1")



- **Remove fittings with disconnect clips.**  
Place disconnect clip against the end of the fitting.  
Push the disconnect clip, compressing the release collar.  
Pull pipe away from fitting using a slight twist.

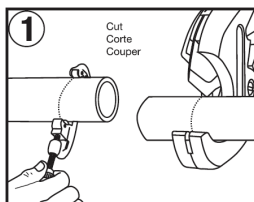


- **Disconnect tongs** can also be used.  
Position smaller opening of tongs on pipe at release collar, larger opening will go on body of fitting.  
Compress tongs handle.  
Pull pipe away from fitting using a slight twist.

## Making 1-1/4"-2" Connections

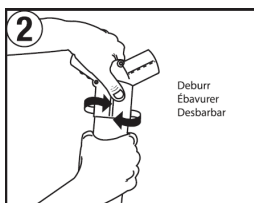
- **Cut** the desired length of pipe.

Square cut, perpendicular to the length of the pipe.



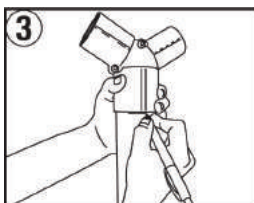
- **Deburr** the end of copper or CPVC pipe to remove any sharp edges.

Inspect fitting and pipe for damage, dirt and debris.



- **Mark** the pipe using the depth gauge tool.

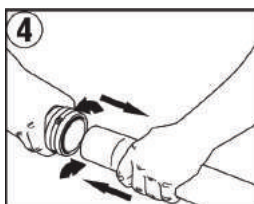
Use the depth gauge opening that corresponds to the pipe's outside diameter.



- **Push** the pipe into the fitting.

For PEX and PE-RT pipe, fully insert stiffener into pipe prior to making connection.

Mark should rest against the edge of the release collar.



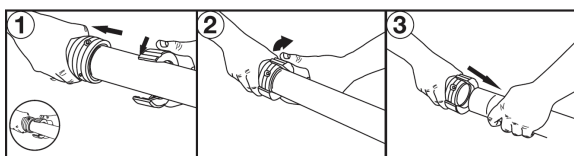
## SharkBite 1-1/4"-2" Stiffeners

- Stiffener required for PEX and PE-RT pipe. Stiffener required for PEX and PE-RT on 1-1/4" through 2" pipe. Stiffeners are made of copper and are not for use with copper or CPVC pipe. SharkBite Max 1/2" through 1" fittings do not require a PEX stiffener.



## Disconnections for SharkBite 1-1/4"-2"

1. Apply the demounting tool to pipe and slide down to engage the lugs on the head of the fitting.
2. Once engaged on the lugs, rotate demounting tool clockwise by 1/2."
3. Remove the pipe from the SharkBite 1-1/4"-2" fitting using a slight twist.



## SharkBite Fitting Reuse

SharkBite brass push fittings are intended to be a permanent connection and are not designed for repeated connection and disconnection after the initial install. If a fitting is installed incorrectly, it can be removed given that proper care is taken, as detailed in the following steps.

1. SharkBite disconnect tongs or SharkBite disconnect clips must be used when removing the fittings.
2. The fitting must be inspected by the installer and be free of damage and debris.
3. The initial pipe and the new pipe must be clean and free from scratches and burrs.
4. The insertion depth must be marked on the pipe.
5. The connection must be pressure tested and inspected by the installer to verify that there are no leaks.

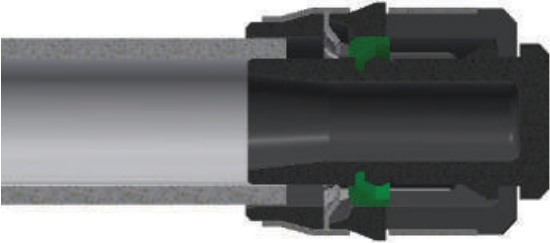


# SharkBite EvoPEX Fittings

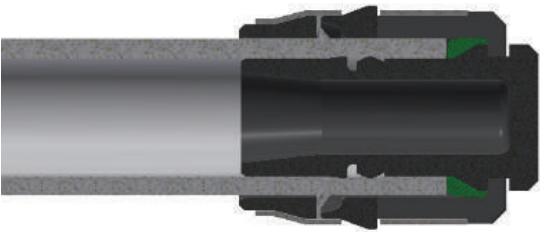
- For PEX pipe only.
- Certified to ASSE 1061 and ASTM F877.
- Available sizes 1/2"-1".
- Visual indicator and verification of full pipe insertion.
- System warranty of 25 years.  
When installed with SharkBite PEX pipe
- Permanent PEX pipe connection not intended to be removed or reused.

## How It Works

- Prior to installation, the green indicator ring sits between the grab ring and the radial seal.



- As the pipe is inserted, it pushes past the grab ring and comes into contact with the green indicator ring.
- The pipe and indicator ring slide over the radial seal. Seal is compressed as pipe slides over it.



- The pipe pushes the green indicator ring into the viewing windows, confirming that the pipe is fully inserted.



## Making EvoPEX Connections



- **Cut** the desired length of PEX pipe.  
Square cut, perpendicular to the length of the pipe.



- **Examine** the EvoPEX fitting and SharkBite PEX pipe.  
Inspect fitting and pipe for damage, dirt and debris.



- **Push** the pipe into the fitting firmly.  
A twisting action reduces insertion force.  
Take care to avoid inserting the pipe at an angle.



- **Verify** that the pipe is pushed into the fitting fully and engaged properly.  
Check that the green indicator ring is fully visible.



- **Closely-spaced fittings**

The stainless steel collet retainer represents the depth that pipe must be inserted into the EvoPEX fitting.



Example: If the pipe is cut at this point, there will be approximately 1/4" of pipe visible after all connections are made.

## EvoPEX Connections: Street Tees

- The maximum number of street tees joined together is based on sizing requirements from the local plumbing code.



## EvoPEX Connections: Chamfer Tool

- **Insert** the pipe into the chamfer tool until it bottoms out on the mandrel.
- **Rotate** the chamfer tool a minimum of three full clockwise rotations.
- **Pull** the tool away while making third rotation.  
Pulling the tool away while not rotating will result in strands of pipe remaining on the end.  
If this happens, reinsert pipe and repeat process.
- **Inspect** the pipe to ensure it is free of debris and then proceed to EvoPEX fitting connection instructions.





# Storage & Handling

- Store in original packaging.  
Zip-locking closure  
Smaller bag quantities



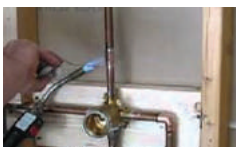
## Storage & Handling

- Do not store fittings in open bins or areas exposed to elements.



- Avoid UV exposure.  
Store in locations where fittings are not exposed to direct UV radiation (sunlight).
- Do not expose to open flame.
- Do not solder, braze, weld or fusion-weld within 18" of any SharkBite piping system component in the same water line.  
Complete all solder, braze, weld or fusion-weld connections and allow connections to cool prior to installing any SharkBite pipe or fitting.

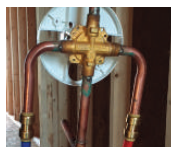
### Sweat



### Cool



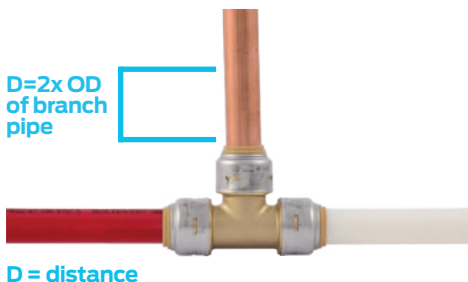
### Connect



## Bend Radius

- Unrestrained bend radius (no bend support): 8x OD
- When using a fitting to change direction parallel to the existing run, pipe should not change direction within a distance of 2x the OD of the pipe at that fitting.  
Ex: 1/2" pipe should be straight, entering a 3/4" x 3/4" x 1/2" tee for 1" prior to bending in any direction ( $2 \times 1/2" = 1"$ ).

- For change of direction at fitting, perpendicular to the existing run, the fitting will rotate.



## Minimum Distance Between Fittings

- SharkBite brass push-to-connect (1/2"-2")= minimum 1/2" spacing between ends of completed connections.
- EvoPEX= no minimum spacing required. Recommend 1/8".

## Verify System Component Compatibility With:

- Expanding or spray foam insulation.
- Firestop caulks, foam and sealants.
- Use SharkBite silicone wrap if there are compatibility concerns.
- SharkBite pipe may be in direct contact with HoldRite HydroFlame brand firestop products.  
Wrap SharkBite fittings that have any exposed polymers (plastics).  
FBC-compliant.



## Things to Avoid

- Avoid contact with solvents, primers, adhesives, adhesive tapes, strong acids, strong bases or other chemicals that are incompatible with SharkBite piping systems.



- Not approved to convey fuel gasses.
- Not approved for use in compressed air systems.
- Do not use as an electrical ground.
- Do not install PEX between tub-shower valve and tub spout.
- Do not install SharkBite fittings directly on galvanized pipe (applies to push-to-connect only).

## Things to Do

- **Termiticides and pesticides**  
Spray application of termiticides and pesticides is acceptable.  
Applications where pooling or puddling of these chemicals may occur near the SharkBite piping system shall be avoided.  
Further information regarding application of termiticides and pesticides can be found in PPI TN-39 (2013).
- **Use Teflon tape for threaded transition fittings.**
- **Penetrations through masonry or concrete structures:**  
Must sleeve penetration.  
Avoid undue stress or strain on pipe at penetration.
- **Penetrations through steel structural members:**  
Must isolate pipe at each penetration through a steel structural member.



# Applications

## Proximity to Lighting Fixtures

- For installation of a SharkBite piping system in concealed spaces near recessed lighting fixtures:
  - 12" - minimum vertical distance from fixture.
  - 6" - minimum horizontal distance from fixture.Further information regarding proximity of plastic piping systems to recessed light fixtures can be found in PPI TN-56 (2018).
- UV exposure from light fixture:  
SharkBite piping systems shall be installed a minimum of 5' from any incandescent, fluorescent, LED light fixture unless protected with a UV-blocking material (i.e. approved insulation or plastic wrap or sleeve).

## Direct Burial

- Check local code requirements before installing SharkBite PEX tubing, SharkBite brass push-to-connect fittings or EvoPEX fittings in direct burial application.  
SharkBite PEX pipe is approved for direct burial applications.  
Protective wrap of fittings required per table below.

### Is silicone wrap required?

SharkBite brass push-to-connect fittings (1/4"-2")	Yes
EvoPEX fitting with brass bodies	Yes
EvoPEX fittings with all-polymer bodies	No

## How to Apply Silicone Wrap

- Make a SharkBite connection.
- While leaving the protective film in place, measure the length of tape needed to completely wrap the fitting.
- Wrap the fitting by pulling the tape tight and removing the protective film.  
Wrap should cover entire fitting and extend over a minimum of 1" of pipe at each end of fitting.  
Overlap wrap a minimum of 1/4" while applying to fitting and pipe.
- Wrap will bond to itself within minutes and will cement to itself within a few hours.



Start wrapping 1" before the fitting.



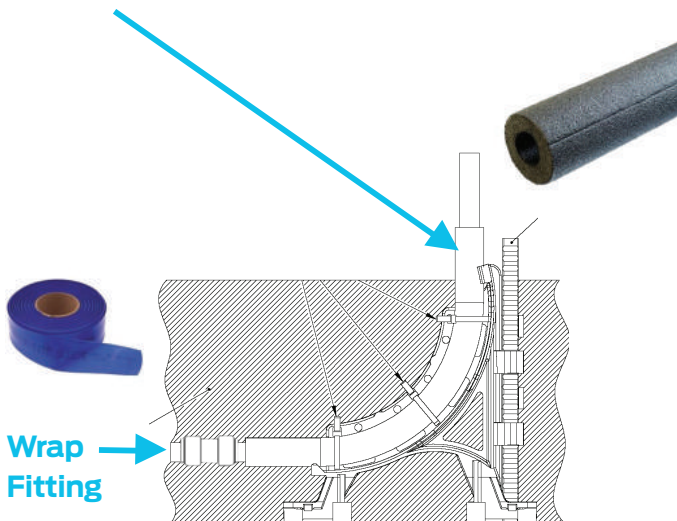
Wrap entire fitting, making sure to overlap each wrap a minimum of 1/4".



Finish by continuing to wrap 1" past the fitting.

## Embedded Pipe and Fittings

- UPC jurisdictions: Pipe and fittings shall NOT be in direct contact with concrete.
- IPC jurisdictions: Pipe may be directly embedded in concrete slab.
- SharkBite brass push-to-connect and EvoPEX fittings:  
Common practice is to NOT embed fittings in concrete, however, some situations arise that cannot be avoided. Should a situation arise, use a .02" self-sealing silicone wrap to completely isolate the fitting from the concrete.
- In areas where the pipe enters or exits a concrete slab, the pipe shall be sleeved a minimum of 2" above and in the slab.



## Pressure testing

- Water or air testing can be done immediately after making final connection.  
Recommend air testing in cold weather conditions  
Use dish soap and water for leak detection.  
Do not use products specifically designed for detection of leaks.



# Codes & Standards

## Code Compliance:

### International Code Council:

International Code Council

International Plumbing Code (IPC)

International Mechanical Code (IMC)

International Residential Code (IRC)

### IAPMO:

Uniform Plumbing Code (UPC)

Uniform Mechanical Code (UMC)

### Canada:

National Plumbing Code of Canada (NPCC)

## Standard Listings

### PEX Pipe:

#### ASTM F876

Standard Specification for Crosslinked Polyethylene (PEX) Tubing

#### ASTM F877

Standard Specification for Crosslinked Polyethylene (PEX) Hot- And Cold-Water Distribution Systems

#### NSF/ANSI 14

Plastic Piping System Components and Related Materials

#### NSF/ANSI/CAN 61

Drinking Water System Components - Health Effects

#### NSF/ANSI/CAN 372

Drinking Water System Components - Lead Content

#### ASTM F2023\*

Standard Test Method for Evaluating the Oxidative Resistance of Cross-linked Polyethylene (PEX) Pipe, Tubing and Systems to Hot Chlorinated Water

#### ASTM F2657\*

Standard Test Method for Outdoor Weathering Exposure of Crosslinked Polyethylene (PEX) Tubing

#### CSA B137.5

Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications

#### AWWA C904

Crosslinked Polyethylene (PEX) Pressure Pipe for Water Service

#### UL 1821

Standard for Safety Thermoplastic Sprinkler Pipe and Fittings for Fire Protection Service

#### ASTM E84

Standard Test Method for Surface Burning Characteristics of Building Materials

#### CAN/ULC S102.2

Standard Method of Test for Surface Building Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies

#### ASTM E119

Standard Test Method for Fire Tests of Building Construction and Materials

#### CAN/ULC S101

Standard Methods of Fire Endurance Tests of Building Construction and Materials

## **SharkBite Max Fittings:**

### **ASSE 1061**

Performance Requirement for Push-Fit Fittings

### **CSA B125.3**

Plumbing Fittings

### **NSF/ANSI 14**

Plastic Piping System Components and Related Materials

### **NSF/ANSI/CAN 61**

Drinking Water System Components - Health Effects

### **NSF/ANSI/CAN 372**

Drinking Water System Components - Lead Content

### **UL 1821**

Standard for Safety Thermoplastic Sprinkler Pipe and Fittings for Fire Protection Service

### **ASTM E84**

Standard Test Method for Surface Burning Characteristics of Building Materials

### **CAN/ULC S102.2**

Standard Method of Test for Surface Building Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies

### **ASTM E119**

Standard Test Method for Fire Tests of Building Construction and Materials

### **CAN/ULC S101**

Standard Methods of Fire Endurance Tests of Building Construction and Materials

### **ASME A112.4.14/CSA B125.14\*\***

Manually or Automatically Operated Valves for Use in Plumbing Systems

### **ASME A112.18.1/CSA B125.1\*\***

Plumbing Supply Fittings

### **ASME A112.18.6/CSA B125.6\*\***

Flexible Water Connectors

## **SharkBite EvoPEX Fittings:**

### **ASSE 1061**

Performance Requirement for Push-Fit Fittings

### **ASTM F877**

Standard Specification for Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems

### **CSA B137.5**

Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications

### **NSF/ANSI 14**

Plastic Piping System Components and Related Materials

### **NSF/ANSI/CAN 61**

Drinking Water System Components - Health Effects

### **NSF/ANSI 372**

Drinking Water System Components - Lead Content

### **ASTM E84**

Standard Test Method for Surface Burning Characteristics of Building Materials

### **CAN/ULC S102.2**

Standard Method of Test for Surface Building Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies

### **ASTM E119**

Standard Test Method for Fire Tests of Building Construction and Materials

### **CAN/ULC S101**

Standard Methods of Fire Endurance Tests of Building Construction and Materials

**ASME A112.4.14/CSA B125.14**

Manually Operated Valves for Use in Plumbing Systems

**ASME A112.18.1/CSA B125.1\*\***

Plumbing Supply Fittings

## **HydroFlame Collars, Wraps and Caulks**

**ASTM E814**

Standard Test Method for Fire Tests of Penetration Firestop Systems

**CAN/ULC S115**

Standard Method of Fire Tests of Firestop Systems

\*PEX tubing is tested in accordance with ASTM F2023 and F2657 for establishing the chlorine resistance rating and UV resistance ratings as reference in ASTM F876

\*\*Only applies to the applicable product referenced by the standard

Customer Service:  
**support@sharkbite.com**  
**877-700-4242**

AN RWC BRAND



2023-3