

03/20/19

# THE NEXT GENERATION HVAC/R PIPING SOLUTION

Introducing Ultimate Flexibility and Strength





### FACTS, FIGURES AND TECHNICAL SPECIFICATIONS YOU SHOULD KNOW:

As with any revolutionary product that challenges an industry norm and raises the bar in a mature marketplace, there is always resistance to change from the status quo. Furthering that resistance to change are those who have a lot to lose should the new technology be widely embraced. The purpose of this White Paper is to educate the reader about YogaPipe ACR and to offer the reader facts concerning industry established minimum pressure rating standards.

While manufacturers of commodity products used in the HVAC/R industry have publicized the minimum standards of various plastic piping materials used in far different applications, nothing has been published against this extraordinary new product used for HVAC line sets. YogaPipe is a proprietary PERT-AL-PERT design and is not comparable to other products. Therefore, YogaPipe is rapidly becoming the logical choice for particular HVAC Line set applications.

**Conclusion: YogaPipe is not a commodity product and cannot be compared with other products used in other applications.**

### PLASTIC PIPE RATINGS:

Establishing a pressure rating requires extensive testing to ASTM, ISO standards and complying with PPI (Plastic Pipe Institute) Policies. It should be noted that most of these standards (specifications) also include product quality control criteria that are verified by ANSI accredited third-party agencies. Establishing these ratings starts by establishing a LTHSp (Long Term Hydrostatic Pressure-Strength) in accordance with ASTM D2837. This long-term

testing is done in accordance with ASTM D1598. The data is extrapolated to predict a minimum 50-year service life of plastic piping. It is important to note that PPI list products in classes based on meeting a set requirement based on the test data, not the actual long-term performance. Short term, or instant burst testing is done using ASTM D1599. Most products standards will have a short-term burst requirement, but note that requirement does not indicate the products actual performance capability in a particular application.

YogaPipe has been tested and certified to exceed industry standards. Extensive testing was conducted for over 2000 hours at sustained high pressure and temperature. YogaPipe is certified several times stronger than the requirements in ASTM F1281. Therefore, it is important to not compare YogaPipe with other plastic piping materials.

**Conclusion: YogaPipe, with its proprietary material and weld processes, is tested to such extremes it allows us to warrant our HVAC/R product for 10 years. No other product can offer such a warranty for HVAC/R line sets.**



## MATERIAL COMPATIBILITY:

E.S. Gallagher USA Ltd. commissioned independent engineers and nationally ranked laboratories to certify that our proprietary inner PERT stratum is not compromised by commonly used refrigerants such as R-410a used in HVAC applications. Our outer PERT stratum contains a carbon black UV stabilization component that enables our product to be used in continuous outdoor operation. Unlike copper tubing, YogaPipe does not have dissimilar metal contact or other corrosion issues that cause pin hole leaks.

**Conclusion: YogaPipe is the only premium grade PERT-AL-PERT material specifically engineered and approved for HVAC/R line set applications, including continuous outdoor service.**

## GENERAL SAFETY:

YogaPipe has been Certified by ICC-ES (International Code Council Evaluation Service) and is in strict compliance with ASME B 31.5 standards for use as secondary HVAC piping. Further, YogaPipe has been tested by multiple independent laboratories with the applicable requirements of UL 207 at sustained high (psi) pressure ratings at designed operating temperature. Original Equipment Manufacturers require pressure relief controls to be set at <700 psi (dependent on system refrigerant), even when compressors have internal high pressure controls. These industry mandated safety features prevent the secondary pipe (line sets) from being exposed to pressures exceeding the manufactures line ratings.

**Conclusion: YogaPipe surpasses the required industry standards for operational safety and compliance and exceeds North American HVAC industry and building code specifications.**

## SUMMARY:

Professional HVAC/R installers continuously seek out the latest technology to provide their clients the best service possible. It is imperative when utilizing new products to become properly educated on their actual performance specifications. There is only one place where you can find the truth regarding the performance of the YogaPipe system, [www.yogapipe.com](http://www.yogapipe.com). There you will find all the product features, installation guides, technical specifications, and training videos. Please contact your local representative for more in-depth expertise and details about our exclusive 10-year warranty.

## FIRE & SMOKE RATINGS:

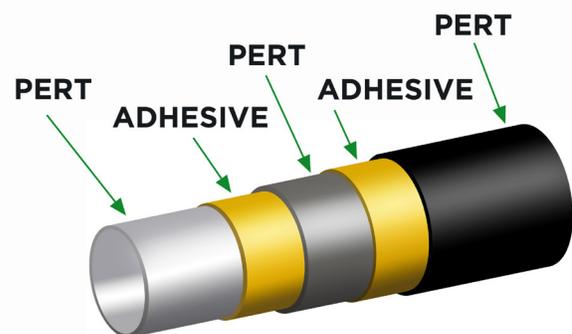
Our YogaPipe System using the factory installed insulation is independently tested in accordance to the standard ASTM E84. Building & Code Inspectors around the country are embracing the numerous safety and functionality advantages of YogaPipe.

**Conclusion: YogaPipe exceeds North American HVAC industry and building code specifications.**

## YOGAPIPE CONNECTIONS, FITTINGS AND O-RINGS:

German engineered with Stainless Steel crimping sleeves which are applied with 20,000 lbs. of torque. YogaPipe fittings and connections are manufactured using superior grade brass and copper. YogaPipe elastomeric seals (O-Rings) are specifically engineered for use with oils found in HVAC applications and are specifically designed with triple layer construction for added durability. DuPont refrigerants are used to test and certify YogaPipe O-rings.

**Conclusion: YogaPipe Premium Refrigerant Piping exceeds testing specifications and is certified for HVAC/R Line Sets.**





## REFERENCE DOCUMENTS:

<b>ASME B31.5</b>	Refrigeration Piping and Heat Transfer Components
<b>ASTM D1598</b>	Standard Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure
<b>ASTM D1599</b>	Standard Test Method for Resistance to Short-Time Hydraulic Pressure of Plastic Pipe, Tubing, and Fittings
<b>ASTM D2837</b>	Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products
<b>ASTM E84</b>	Standard Test Method for Surface Burning Characteristics of Building Materials
<b>PPI TR-3</b>	Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Hydrostatic Design Stresses (HDS), Pressure Design Basis (PDB), Strength Design Basis (SDB), Minimum Required Strength (MRS) Ratings, and Categorized Required Strength (CRS) for Thermoplastic Piping Materials or Pipe
<b>PPI TR-18</b>	Weatherability of Thermoplastic Piping Systems
<b>UL 207</b>	Standard for Safety—Refrigerant—Containing Components and Accessories, Nonelectrical