

# PermaLock® Mechanical Tapping Tees



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The Elster Perfection PermaLock Mechanical Tapping Tee offers gas line installers a unique combination of speed, economy and security when connecting a service line to a gas main.

## Benefits

- Installs in as little as five minutes
- Cutter assembly locks into the gas main preventing rotation and axial movement of the tee on the main
- Full-encirclement design creates extra connection support
- Large gas port (.80" on 2" to 12" mains/.55" on 1-1/4" mains) for high flow capacity
- Saves money vs heat fusion or electro fusion tapping tees
- More than 20 years of safe, reliable operation
- Permits pigging of the main
- No special tools or costly installation equipment - Suitable for all polyethylene service tee to main connections (no "dissimilar fusion" concerns)
- Molded from industry leading PE3408/PE4710
- PermaTite® cap hand tightens for easy installation, improving safety and long-term performance



PermaLock tapping tees can be installed in as little as five minutes without the need for expensive fusion equipment. The simplicity of its installation procedure eliminates the need for extensive training and multi-person crews. Additionally, PermaLock tees can be installed without shutting down the main.

Our full-encirclement tapping tee is designed to ensure a reliable, gas tight connection. The tee features a patented ratchet-style cutter that not only creates the port for gas flow, but securely locks the tee onto the gas main, preventing any movement or loosening of the connection. In addition, the cutter's locking sleeve is designed for minimal protrusion into the main, thereby allowing efficient pigging of the line.

## Save Time and Money vs. Heat Fusion

In today's competitive environment, utilities and contractors are looking for the most efficient method of installing gas services including tapping into a new or existing gas main. What these installers are finding is that PermaLock tees take only one person as little as five minutes to install without any expensive fusion equipment or extensive training.

Field studies prove PermaLock mechanical tees save as much as 50% compared to fusion methods.



## Permasert® Outlets Simplify Installation

Complementing our PermaLock tapping tee is the Permasert coupling. Although PermaLock tees are available with fusion outlets, the vast majority are supplied with Permasert outlets. The reason is simple. The PermaLock mechanical tapping tee with Permasert coupling outlet maximizes your installation cost savings. Permasert mechanical couplings are the fast, easy, safe and cost effective way to connect PE piping. When the Permasert coupling is combined with a PermaLock tapping tee, you've got the fastest, least expensive method of installing a service line.



Tapping a main line in inclement weather is no problem with a PermaLock tapping tee.



By-pass is made easy with a PermaLock tapping tee

## Full-Encirclement Tapping Tee

Other mechanical tapping tees depend primarily on bolts to hold and seal the tee to the main. Over time, the effects of soil-loading on the main or service line can cause the tee to deflect or rotate the tee off center. Either of these occurrences can result in reduced service flow or create an unsafe connection.

The PermaLock tee eliminates these potential problems by incorporating a double-locking design. First, the full-encirclement tee is securely attached to the main with four bolts (or two stainless steel straps for PMTT's 6" and larger). Then, our patented two-piece cutter assembly, with locking sleeve, is installed. Together, they provide unsurpassed connection strength and seal integrity.



# PermaLock® Main Line Connections

PermaLock Mechanical Tapping Tees provide a simple, gas-tight, mechanical connection without interruption of gas service or special tools for assembly.

## Fast and Leak-free Connections

When you select the PermaLock Mechanical Tapping Tee, you'll have the confidence of knowing you have chosen a reliable, safe mechanical tee. Since the mid-80's, PermaLock tapping tees have been in use in every conceivable soil and climate condition and have delivered safe, uninterrupted gas service. In addition, you will enjoy the benefits of making faster and less costly main line connections.

## Patented Cutter Assembly Locks Into Main

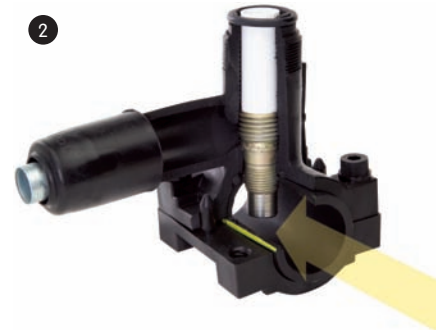
After the tee is bolted to the main, our two-piece cutter assembly is threaded downward into the gas main. The cutter assembly threads the locking sleeve into the main. As the cutter is withdrawn, the cutter sleeve remains threaded into the main, locking the tee to the main and creating a permanent, gas tight connection. This unique double-locking design allows PermaLock Mechanical Tapping Tees to withstand the inevitable soil loading forces that occur over time and provide years of safe gas delivery. The photographs illustrate how the PermaLock tee installs on the main and actually uses its cutter assembly to create this "double lock."

## Permatite® Cap

The Permatite Cap's unique shaft seal design allows for easy hand tightening of the cap, eliminating the stress associated with other tees that require a wrench for cap assembly. Also, our unique manufacturing process provides an o-ring gland free of potential leak paths.



PermaLock full-encirclement tee is bolted onto the main.



Patented ratchet-style cutter assembly is threaded into the main.



Cutter is reversed until flush with the top of tower. Locking sleeve remains permanently threaded into the gas main.



Cap is threaded onto tower. PermaLock tapping tees provide a .80" port for high gas flow (.55" in 1-1/4" mains).



## Improving Gas Distribution integrity with PE4710/ Bimodal PE3408

Elster Perfection is now molding its complete line of mechanical joining products from PE3408/PE4710. This resin shares many of the same properties as PE2406 and PE3408, while offering several significant performance enhancements. PE3408/PE4710 provides excellent resistance to Slow Crack Growth (SCG). In fact, it is 20 and 60 times more resistant to SCG than typical PE2406 and PE3408. The resin also provides greater than 6,000 hours PENT (PE Notching Test), which is 60 times the ASTM D 2513 requirement. In addition, PE3408/PE4710 has a proven track record, having been successfully used around the world for more than 20 years. All of which adds up to greater gas distribution integrity.

## PermaLock Sizes and Materials

- Main sizes of 1-1/4", 2", 3", 4", 6", 8", and 12"
- Permasert or fusion outlet sizes from 1/2" CTS to 2" IPS
- Molded from PE3408/PE4710 materials that meet or exceed the requirements of ASTM D 2513/ISO 4437
- Metric sizes available (main sizes of 40 mm, 63 mm, 90 mm and 110 mm with Permasert outlets of 20 mm to 63 mm)
- Meets or exceeds the requirements of US DOT Part 192, ASTM D 2513 and CSA B137.4.



PermaLock tapping tees with PermaTite® cap and EFV excess flow valves are an excellent way to ensure the safe delivery of gas.



PermaLock tapping tees allow for a much smaller excavation site compared to fusion tees.



# PermaLock® Mechanical Tapping Tee Product Companions



## Permasert® Saddle Fusion Tapping Tees

For utilities and contractors committed to using heat fusion for main line taps, yet interested in an easy to install PE service connection, we offer saddle fusion tapping tees with Permasert outlets. These saddle fusion tapping tees are available in medium density (PE 2406/2708) and PE3408/PE4710 polyethylene with a variety of Permasert outlets.

- Main sizes of 1-1/4", 2", 3", 4", 6" and 8"
- Permasert outlet sizes from 1/2" CTS to 2" IPS
- Meets or exceeds the requirements of US DOT Part 192, ASTM D 2513 and CSA B137.4

## Electrofusion Tapping Tees

Elster Perfection can supply most major brands of electrofusion tapping tees with Permasert outlet sizes from 1/2" CTS to 2" IPS.



## Brass Base Service Tee

- Brass base tee swivels after threading onto cast iron mains
- PermaTite® Cap hand tightens for easy installation, improving safety and long-term performance
- Red brass base offers superior corrosion resistance
- 1" and 1 1/4" IPS base threads
- Molded from PE3408/PE4710 polyethylene resin with Permasert outlets in most sizes
- Multiple outlet configurations – standard straight outlet and 90° outlet
- Meets or exceeds all DOT and ASTM requirements



## Excess Flow Valves (EFV)

As the natural gas industry looks for ways to safeguard the delivery of gas by finding ways to minimize the occurrences of gas leakage due to pipe line breaks from third party damage or natural disasters, Elster Perfection's EFV excess flow valves provide the easy, dependable and economical solution. They can be incorporated into our PermaLock Mechanical and Fusion Tapping Tees making them as easy to install as the tapping tee itself.

- Economical means of installing EFVs into new service lines without the need for special tools
- Allows for EFV installation closest to the main for maximum service line protection



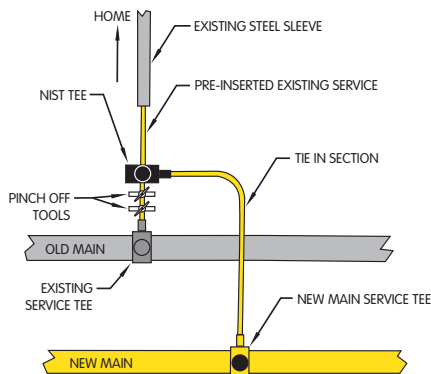


### Non-Interrupt Service Transfer (NIST) PermaLock® Mechanical Tapping Tees

The transfer of 1" CTS and 1-1/4" CTS polyethylene gas service lines to a replacement main line – without interrupting the flow of gas – is easily accomplished with PermaLock Mechanical Tapping Tees and the Non-Interrupt Service Transfer (NIST) Process.

This process eliminates any temporary interruption to a customer's gas service, as well as the need to gain entry into the home for relights, thereby reducing operating costs and increasing customer satisfaction.

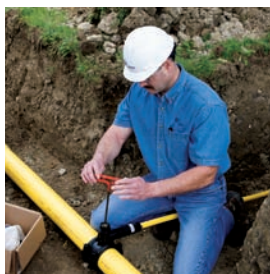
The basic component of this process is a specially designed PermaLock Mechanical Tapping Tee (PMTT) that is bolted onto the existing 1" or 1-1/4" CTS service line (see illustration). The new (replacement) main is then tapped, using a standard PermaLock Mechanical



Tapping Tee or other service tee, and a connection is made between the two tapping tees, creating a dual feed to the existing service line. The connection of this "tie-in" section is made simple and easy by the use of PermaLock tapping tees with Permasert coupling outlets.

Finally, the gas feed from the old (existing) main is squeezed off on the old main side of the NIST tee connection, the line is cut and the ends are capped - completing the uninterrupted transfer of service through an existing service line from an old main to a replacement main.

The final design of the NIST tee was tested and approved to ASTM standards, and, as with all PermaLock Mechanical Tapping Tees, it can be used with both medium and high-density polyethylene pipes and can be installed in just minutes.



## About Elster Group

A world leader in advanced metering infrastructure, integrated metering, and utilization solutions to the gas, electricity and water industries. Elster's systems and solutions reflect over 170 years of knowledge and experience in measuring precious resources and energy.

Elster provides solutions and advanced technologies to help utilities more easily, efficiently and reliably obtain and use advanced metering intelligence to improve customer service, enhance operational efficiency, and increase revenues. Elster's AMI solutions enable utilities to cost-effectively generate, deliver, manage, and conserve the life-essential resources of gas, electricity, and water.

Elster has over 7,500 staff and operations in 38 countries in North and South America, Europe, and Asia.

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