Approval as first mechanical coupling for PE100 piping systems up to 10 bar

Mechanical Permasert® joining products from Elster Perfection on the advance

Investigation and subsequent use of mechanical joining products is spreading worldwide. An ever greater challenge in maintaining and attracting gas customers and an increased competitive environment is forcing natural gas utilities to constantly monitor and evaluate all aspects of their cost structure. One area of focus is the installation of new gas services and the repair of existing services.

Many utilities are re-evaluating their method of joining plastic pipes. An ever increasing number of them is attracted by Elster's solution: mechanical fittings from Elster Perfection, a Division of the Elster Group, offer significant total installed cost savings compared to alternate connection methods. For this reason, Elster Perfection – the leading manufacturer of mechanical fittings for gas distribution systems in North America – has been supplying gas distribution products to utilities around the world for over 35 years, with millions of products in use in every conceivable climate and soil condition continuing to deliver safe, uninterrupted service.

Torsten Lotze (E.ON Avacon) and Torsten Hain (HTI Collin) when mounting Permasert® couplings

Since 1995, in Europe alone, more than 1 million mechanical joints have been successfully performed in gas distribution services with Elster Perfection products. The use of Elster Perfection's mechanical fittings has also been growing in Asia, Australia, the Middle East, Central and South America with a continuous history of successful tests and approvals to support it.

In light of the major interest in this innovative solution to reduce the cost of new and repaired service lines, Deutsche Vereinigung des Gas- und Wasserfaches (DVGW) – the certifying German technical and scientific association for gas and water – has developed and prescribed new testing standards for mechanical fittings.

As early as two years ago, Elster Perfection decided to introduce the Permasert® product line onto the German market. Since then, much testing has taken place and in the past six months, the most significant milestones have been reached. These milestones can be summarised in three words: tested and approved!

Tested and approved

Over the last two years, several successful tests of the Permasert® product line were conducted by DVGW and E.ON. The testing led to the formal approval of the Permasert system.

Elster Perfection's sealing compound was tested by EBI Laboratory in Karlsruhe, Germany, and after 8 months of sequential testing it was certified to the widely recognised European Norm EN 682 in November 2006, thereby allowing for the use of o-rings to mechanically seal joints throughout Europe. Next, Elster Perfection's couplings for PE pipes from 32 mm to 63 mm were tested by GWI Laboratory in Essen, Germany, and were certified in June 2007 to VP 600 for use up to 4 bar on PE80 pipes and up to 10 bar on PE100 pipes. This certification validates Permasert as the first mechanical coupling approved for PE100 piping systems up to 10 bar and demonstrates Permasert's compliance with the European Norm EN 1555-3.


DVGW

DVGW-Baumusterprüfzertifikat

DVGW type examination certificate

In June 2008, Elster Perfection's Permalock® mechanical tapping tees for 90 mm and 110 mm PE gas mains with service line outlets of 32 mm were tested by GWI laboratory and certified to VP 304 for use up to 4 bar (PE80) and 10 bar (PE100). As a result, Elster can now offer the natural gas market in Germany a complete range of DVGW certified products to install mechanically connected service lines from main to meter.

As an internal study from E.ON proved that by using these mechanical fittings as much as 50% could be saved in installation time and installation cost compared to other methods, E.ON – one of the biggest utilities – has been looking at Elster Perfection's products very carefully. As early as in 2001, a field test was conducted with Elster Perfection mechanical joining products in Paderborn, North Rhine-Westphalia. Twelve PE80 service lines were installed using a complete mechanical system. In 2006, as a follow up study, two of the tapping tee units were extracted with the adjoining main and service line segments. These units were subjected to a VP 304 qualification test: 80°C water bath while pressurised to 10 bar for 2000 hours. This testing was performed by the MPA laboratory in Hanover. These five year old field units also passed the 2000 hour VP 600 test without leakage.

In addition, new PE100 Permalock tapping tees produced by Elster Perfection were also subjected to the same testing conditions by the MPA laboratory. These units were successfully tested at 10 bar for 3000 hours.

Next, following the DVGW certifications, E.ON and its contractors conducted a pilot program of installations of Elster Perfection's couplings for PE pipes from 32 mm to 63 mm. Between 2007 and 2008, 32 mm couplings with and without integrated excess flow valves were installed on residential service lines, while 63 mm couplings and tapping tees were installed on the mains. These installations took place on both PE80 and PE100 piping systems. The perfect results obtained during the pilots and the ease of installation of the fittings led the PE fittings sourcing team leader for E.ON to approve the use of Elster Perfection's products for their distribution system. It also led E.ON Avacon's operations manager to decide to extend installations of Elster Perfection's fittings to its entire area of operation.

Elster Perfection's tapping tees for PE pipe mains of 110 mm and service lines of 32 mm were also installed during the September 2008 pilot program with the same success and the same result: the tapping tees for PE fittings have now been approved for use in E.ON's distribution system and are being installed in Lower Saxony and other German Federal states.

In addition, other utilities such as EWE of Oldenburg or RWE of Dortmund have also made the decision to test Elster Perfection's mechanical fittings.

In summary, constructing service lines with Elster Perfection's mechanical couplings and tapping tees is growing worldwide. Utilities have found that these products are safe, easy to install, and yield significant labour cost savings compared to traditional methods while at the same time providing a connection that is stronger than the pipe itself. With more than 40 million successful installations around the world, Elster Perfection's products have proven to be a cost effective alternative to fusion methods. This number speaks for itself – when are you going to join with Elster?

For further information contact your Elster customer service adviser.

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