



# The Mth- Story

**Trelleborg Pipe Seals Establishes Mth System Internationally**

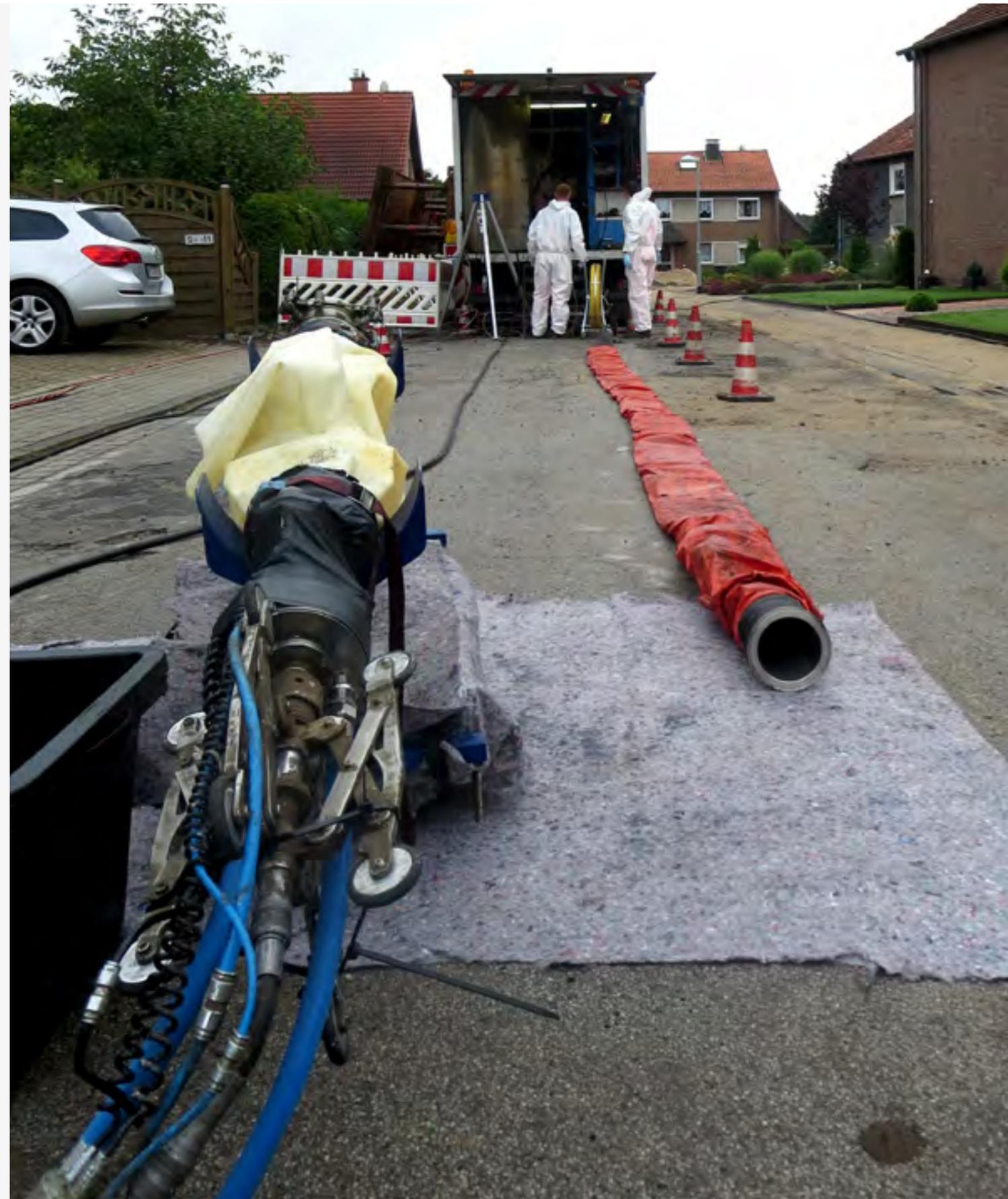
# epros<sup>®</sup> DrainMth

**Products and systems for the efficient rehabilitation and sustainable maintenance of wastewater systems have to accomplish one thing above all else – be impressive in practice.**

## From research and development to implementation in construction



Most new developments must undergo a long and intense process of research and development, improvement, and then, modification. With the Mth System, Trelleborg Pipe Seals has succeeded for the first time in developing a practical solution that is easily integrated into the pipe rehab professional's work process and which allows him to remotely seal and rehabilitate both lateral connections and pipes from the main sewer to a building, without needing to access the private property.





The specially designed Mth System liner is easy to work with and provides sustainable rehabilitation results.

## Benefits for Communities, Engineers and Contractors

The distinct advantage of this system is that access points such as manholes or inspection chambers in buildings are no longer required in order to rehabilitate the connection pipes of the main line, lessening inconvenience to local residents and building tenants. What's more, the technology opens up new possibilities to local authorities and municipalities: they are able to fully comply with their obligation to maintain and repair main public sewers in one step while minimizing the need to synchronize the work with multiple residents/tenants. "The technology allows one to rehabilitate lateral pipes up to the property edge or even beyond it, from the direction of the main sewer at the same time."

This is an important step towards the more integrated and sustainable rehabilitation of sewage systems. The new system also scores highly when it comes to productivity as the simple method of liner installation plus the short steam-curing time of the resin system means that an experienced team, with proper preparation, can complete up to three installations in the same main line per working day.



Starting from the main sewer and against the direction of flow – the Mth packer rehabilitates lateral pipes of up to 30 meters in length and, simultaneously, connect these to the main sewer pipe in one homogenous operation.

## Successful in the USA and Canada

The Trelleborg Mth System was introduced to the United States and Canada five years ago and is today fully established in these countries. Seen as a sophisticated system that draws on first-class materials and components, the Trelleborg system is now used by more than ten companies from the renowned Caryl Corporation. To date, more than 1,500 installations have been successfully carried out in US states such as Massachusetts, Connecticut, Rhode Island, New Jersey, Maryland, Pennsylvania, Kentucky, Kansas, Missouri, Minnesota and Florida.

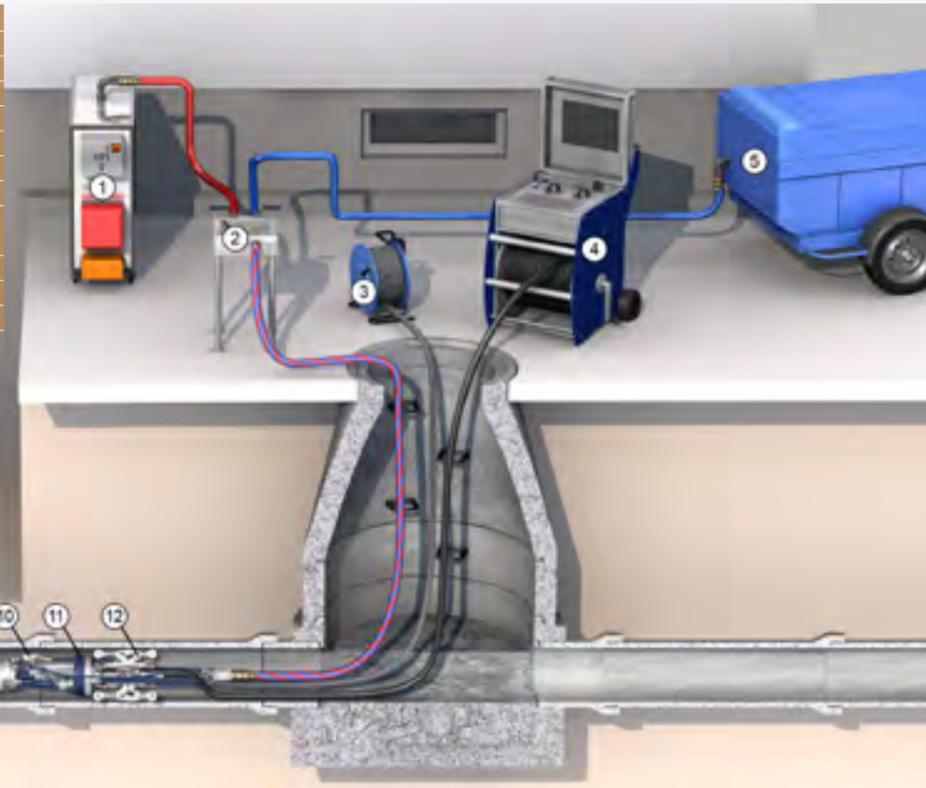
## Innovative Components and Functionality

The MtH System combines two well-known trenchless repair methods: the tried and tested CIPP method and lateral connection repair (LCR) techniques using hat profiles or LCR liners. However, the system pushes the envelope in its technical performance and capability thanks to Trelleborg's prior experience with house connection sewer rehabilitation – namely with the inversion process and connection repair techniques developed by Trelleborg under the brand names epros® DrainLining and epros® DrainLCR-S.

The MtH packer is able to – starting from the main sewer and against the direction of flow – rehabilitate lateral pipes of up to 30 meters in length and, simultaneously, connect these to the main sewer in one homogenous operation.

This integrated one-step system (patent pending) thus ensures absolute seal tightness at critical points in the connection area – an area known for being vulnerable to damage – and offers local authorities and municipalities the decisive technical edge over imitation two-step systems.

- 1 epros® SteamGen
- 2 epros® Steam mixing table
- 3 Towing rope
- 4 MtH control Unit
- 5 Compressor
- 6 MtH inversion hose
- 7 MtH packer
- 8 MtH liner
- 9 LinerEndCap with MtH steam outlet
- 10 MtH camera
- 11 MtH steam swivel unit
- 12 MtH wheel set



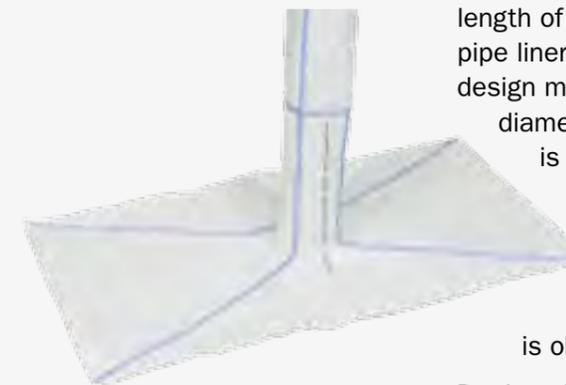
## Packer Types

The MtH System currently comes with three MtH Packer models to rehabilitate main pipes with diameters ranging from **DN 200 to DN 600** as well as lateral pipes with nominal diameters ranging from **100 to 200 millimetres**.

### Application areas MtH Packer/MtH Liner

<b>Main pipe</b>	Packer Type I	DN 200 bis DN 225
	Packer Type II	DN 250 bis DN 350
	Packer Type III	DN 400 bis DN 600
<b>Lateral pipe</b>	DN 100 bis DN 200	
<b>Connection angle</b>	30° bis 90°	

## Specially Developed Liner



The specially developed epros® DrainMtH Liner consists of two components: a tubular pipe liner, matched to the diameter and length of the lateral pipe connection to be rehabilitated, and a main pipe liner in the form of two flaps at the end. This multi-dimensional design means that – as with the packer types – multiple pipe diameters can be rehabilitated simultaneously. Excess material is easily cut off as required and the two flaps are connected by overlapping and gluing during the installation and curing process.

Thanks to this innovative material technology, a stable independent rehabilitation of the main pipe section is obtained without creating any outflow obstructions.

Produced in-house and in accordance to DIN ISO 9001 and 14001 standards, the epros® DrainMtH liner is made out of polyester felt with a single-sided flexible PP coating. The special structure of the felt ensures the product's excellent impregnation and installation qualities.



### Time-efficient Resin System

The epoxy resin system EPROPOX HC120 combines an exceptionally long working time (pot life) with a short curing time of only 45 minutes once a supply of steam-air mixture is administered as directed and the specified temperature of 80°C is measured on the liner in the pipe. The resin also features additional excellent processing properties – it is easy to mix, penetrates the liner felt well, and, after curing, results in good mechanical properties that meet the strict structural design requirements and standards of the German Institute for Building Technology (DIBt).



## Positive Feedback

Communities, engineers and contractors in the United States and Canada have a positive view of the technology and resin system as it does not contain any styrene nor solvents, has no unpleasant odour, and boasts excellent mechanical properties as well as a high chemical resistance. The resin has been structurally approved by the DIBt in Germany. The environmentally-friendly resin system is also gaining popularity over other resins such as polyester and vinyl ester, both of which can potentially harm the environment and public health.



The resin's highly effective and environmentally friendly sealing qualities has attracted the attention of the US Environmental Protection Agency (EPA), who invited Trelleborg and the Carylton Corporation to their headquarters in Washington D.C. to present the Mth System and its possibilities for the sustainable rehabilitation of damaged sewer systems.

## Established in the Rehab Market

Since its introduction to US market and then the European market three years ago, Trelleborg's Mth System is increasingly sought after and used by contracting authorities.

This is mainly because the innovative system gives local authorities and municipalities the opportunity to rehabilitate access lines as well as branches and connectors from the main pipe to buildings – all in one single step. Since time and resource savings are often a critical factor when awarding contracts, companies that implement the Mth System and who can offer a complete service package from a single source stand to benefit.

Furthermore, the system provides answers to previously unresolved repair problems. The building connection lines of the European Patent Office in Munich, for example, needed rehabilitation in 2012. Leaks had been identified in 16 sections of the building's star-shaped connection lines, seven of which were not easily accessible – hence ruling out conventional rehabilitation methods. Open excavation methods were also out of the question due to the site's busy ground level infrastructure. The clients thus required repair measures that would be friendly to these surroundings as well as the environment. Disruptions to the building's tenants were also to be kept to an absolute minimum. Despite the complexity of the task, the Trelleborg Mth System – just introduced into the European market at that time – proved itself both during installation and in the result. And the success story continued.

Today, renowned bigger German contractors such as Pader Kanaltechnik – Rohr Frei GmbH & Co. KG

and FLEER-TECH GmbH from the city of Lehrte have used Trelleborg's technology. Starting 2015 they successfully completed numerous projects on construction sites in German cities such Borchten, Osnabrück, Bremen, Dinslaken, Rheinberg and Neuss. More than 100 installations are clear indications of the strength and practicability of the German Institute for Building Technology-certified system (DIBt. Z-42.3-468). More and more companies are recognising the opportunities, such as Kanaltechnik DF-ING GmbH from Karlstein am Main, who are currently in the process of undergoing intensive training. They will integrate the system into their own portfolios soon.

## Future Challenges

"It is our aim to increase awareness of this innovative Mth technology – especially among decision-makers in municipalities and engineering firms" says Stephan Raab, Commercial Manager at Trelleborg's Pipe Seals operation. "That's why we, as developer and manufacturer, as well as associated contracting companies are offering special consulting services on the system's special features". In the future, this offer will be supplemented by Trelleborg with special help for tendering organizations.

As the topic of sewer repair is very complex, certain conditions relating to the technical capabilities of the Mth Systems have to be evaluated before tendering. This includes asking the following questions: How is the line set up? What is the design of the main sewer? What manhole structures exist? Considering these factors is the only way to establish correct specifications and, consequently, successfully implement the system. "We see it as our duty here to continuously improve our service, especially in order to help municipalities fully comply with their duty to maintain an intact sewer system," explained Stephan Raab, Commercial Manager at Trelleborg Pipe Seals.

There are regular opportunities across Germany for interested parties to visit demo construction sites to get an on-site idea of the system's benefits.

## USER FEEDBACK

*"With this system, we will be able to especially offer local authorities and municipalities the opportunity for them to comply with their obligation to competently repair public channels and main lines."*

**Rüdiger Fleer, CEO of  
Fleer-Tech GmbH**



*"The Mth technology is not only an optimal solution for the trenchless repair of connector lines for public sewer network operators, we also see it as forming a successful and logical combination with our building connection liners and long top-level profiles. As a result, we are able to combine our long-standing know-how with this practical system."*

**Gerhard Michel, CEO of  
Pader Kanal Technik - Rohr Frei GmbH & Co. KG**





Trelleborg is a world leader in engineered polymer solutions that seal, damp and protect critical applications in demanding environments. Our innovative engineered solutions accelerate performance for customers in a sustainable way. The Trelleborg Group has local presence in over 40 countries around the world.

Trelleborg Pipe Seals is a world leading supplier of new and rehabilitation sealing solutions for concrete and plastic pipes and manholes used for water, sewerage and drainage.

We deliver continuous innovation to customers across the globe, with a logistics and sales network. Comprising the most advanced polymer technology, our high performance seals ensure fulfillment of the highest possible reliability standards.

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