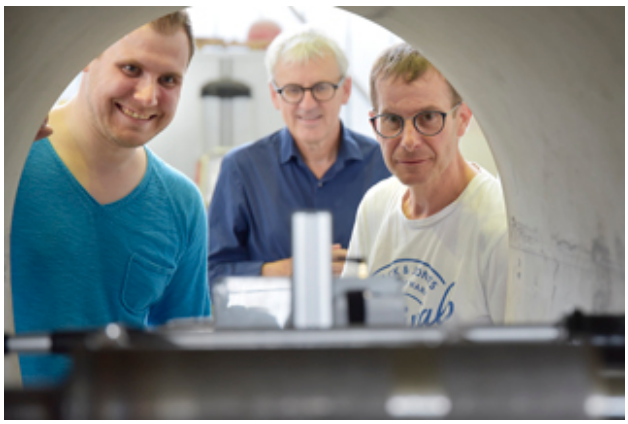
New Test System for Large Diameter Pipes – IKT Hands over a MAC System to Eau de Paris



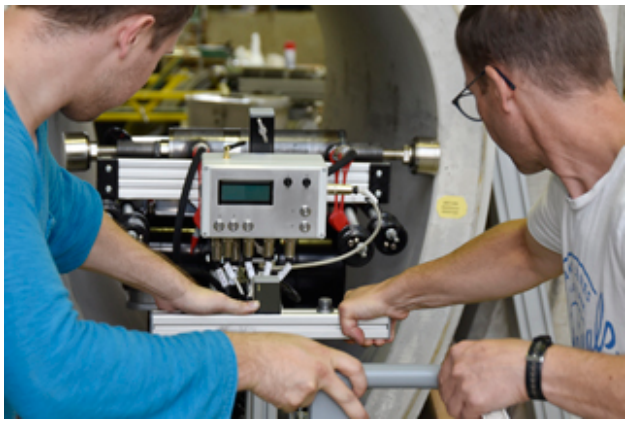
As pleased as Punch: Stefan Bretz, B. Eng. (left) hands over the Mini-MAC to Olivier Thépot (centre) and Jean-Philippe Meynier.

It was lucky that IKT scientist Stefan Bretz, B. Eng., was not required to sit still on this day – he would have been much too excited, because this was when he finally handed over to the customer the **MAC system** for testing the condition of large diameter pipes, which an IKT team has spent three years developing and several months building. And not to just any ordinary customer, but to **Dr. Olivier Thépot** of **Eau de Paris** (the French capital's water and waste-water management authority). As Bretz notes: "It has been a **great honour** to build a MAC system for the **inventor of the MAC** method".

Customised: an individual Mini-MAC

Paris already has a MAC, of course. However, that one was designed for very **large diameters**. Instead, the system

operator wanted another MAC system suitable for use in **DN 1000 to DN 1500** pipes. The French engineers also attached importance to acquiring measured data **accurate to the millisecond and the micrometer**. Furthermore, they required the whole system to **fit** neatly onto a standard **Euro-pallet**, with nothing protruding. IKT engineers Stefan Bretz and Frank Bersuck have realised these requirements in this new MAC version, fondly dubbed the “Mini-MAC”.



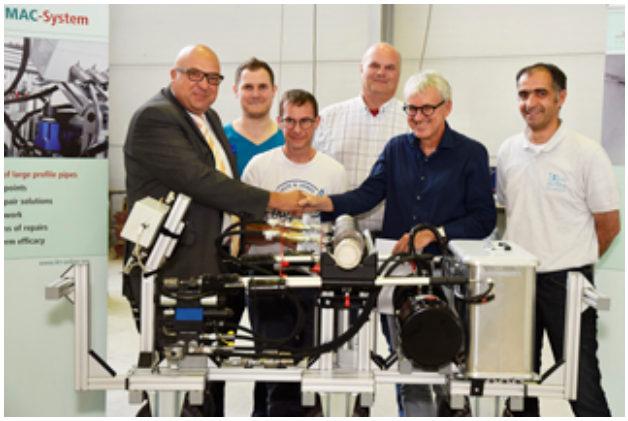
Bretz and Meynier loading the MAC system.

Olivier Thépot, MAC project manager at Eau de Paris and inventor of the MAC system, visited IKT with two of his co-workers during the morning for a **training course** on the use of the new **Mini-MAC unit**. Jean-Philippe Meynier and Laurent Martin will, in future, inspect the sewers of the city “de l’amour” using the new system.

Pressure is the key: how the MAC system works

The MAC method makes it possible to **identify weak points** in the pipe/soil system. In a series of **non-destructive tests**, the hydraulic cylinder of the MAC system applies sufficient force to the walls of the sewer to move them apart, in a **controlled** manner, by only a few tenths of a millimetre. **High-resolution sensors** measure the resulting deformation. This is so slight that **no damage to the sewer** can occur, but

nonetheless is sufficient to permit **calculation of the condition of the pipe** and the surrounding soil.



Hand-over of the MAC system: (from left) IKT Managing Director Roland W. Waniek, Stefan Bretz, Jean-Philippe Meynier, Head of Project Martin Liebscher, Dr. Olivier Thépot, Laurent Martin

Hand-over of the system took place in the afternoon and Stefan Bretz presented the thick **manual**. IKT Managing Director Dipl.-Ök. Roland W. Waniek and Head of Project Dipl.-Ing. Martin Liebscher were also there to congratulate Thépot, Meynier and Martin on their new **large-diameter inspection system**. The new MAC owners were extremely pleased with the **high-quality workmanship** of the unit, the intensive training course and the **high level of detail** contained in the manual. The day's definitive statement came from Jean-Philippe Meynier: "Every sewer is different, and the Mini-MAC now enables us to get to know each and every one individually and in detail".

Fits on a pallet: a compact unit

Stefan Bretz then helped stow the MAC in the cargo space of an Eau de Paris Kangoo Maxi. After which that vehicle disappeared away around the corner, complete with the MAC system – **destination: Paris!** So now our colleague Stefan Bretz can again sit calmly at his desk – most of the time!

Bye-bye IKT, Bonjour Paris: the Mini-MAC starts its journey.

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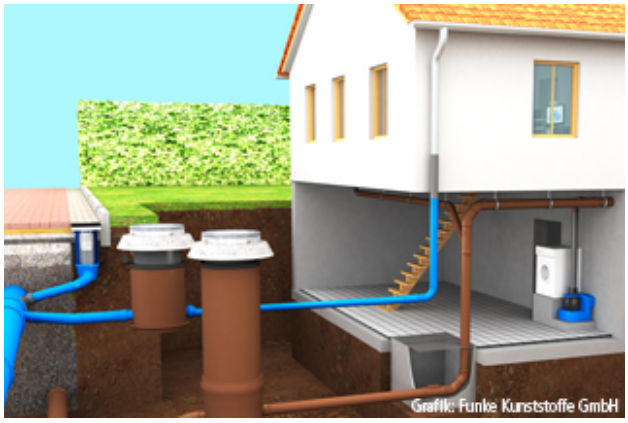
More than just Water-Tightness: Requirements for Private Site Drainage Systems



Site drainage system in accordance with generally accepted standards of technology

There are many **water management and operational targets** for wastewater systems which can be achieved only if **private site drainage** is included, as early as the conceptual planning stage concerning construction, operation and rehabilitation. This is legally supported by **identical technical requirements** for both private and public sewers in the German Water Management Act. Municipalities are therefore obliged to provide timely **information and advice** to site owners on both technical and legal requirements.

Water management needs to start at private sites

Neither legal nor technical codes of practice differentiate in principle between public and private sewers. This is true both

of **European requirements** and their specific expression in national legislation. What does this mean for site owners and for municipalities who bear **responsibility** for the disposal of wastewater? It is clear that more than just the water-tightness of the sewers is involved. The condition and functioning of the public and private network **as a whole** must be included and assured. Questions range from controlling the risk of **blockages** to the elimination of **illegal connections**, the prevention of **infiltration** and the avoidance of nuisance **odours**. Thus, it is clear that water management needs to **start at the individual site**.

Read more

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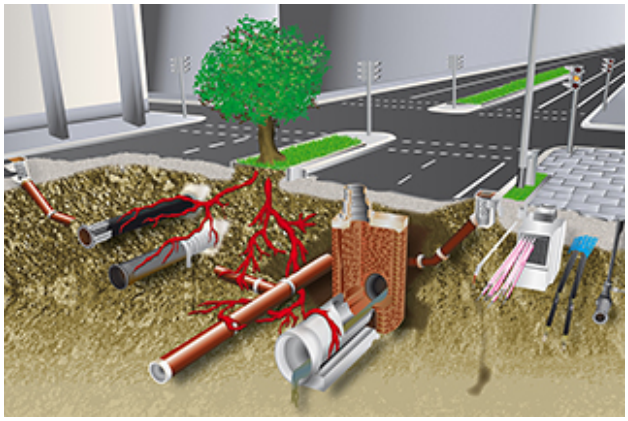
IKT International Masterclass “Sewers and Pipelines: Construction, Operation and Maintenance”



International Masterclass Sewers and Pipelines

Get the **experts‘ overview** of the major issues in sewerage and their **technical background**, refresh your existing knowledge, and get an update on **international developments** – at the IKT International Masterclass “Sewers and Pipelines: Construction, Operation and Maintenance”. The course is focussed on **sewerage**, however, it offers insights for other types of pipe networks as well.

Knowledge on university level

This course uses core elements from **university lectures** and a master course held by Professor Bert Bosseler, Scientific Director of IKT, supported by **case studies** and **research results** from IKT colleagues and updates from experts from **international standardization** committees at CEN and ISO. Contents of this masterclass are part of the curriculum at the Ruhr-University Bochum and Leibniz University Hanover, both being leading universities for civil engineering in Germany.

NEW: IKT International Masterclass “Sewers and Pipelines: Construction, Operation and Maintenance”

10-14 October 2016
Programme and registration

Discussing and networking on international level

Masterclass: Attend online via web conference or on site at IKT

You can attend the course **on site** at IKT in Gelsenkirchen, Germany or **online** via web conference. Online participants are given full access to all course contents and can communicate with speakers and other attendees during the course. You will have the opportunity to meet and **network with experts** from network operators, industry, science, research, and international standardization.

Key Subjects:

- Construction and installation of sewers and pipelines
- Operation, maintenance and rehabilitation of sewers and pipelines
- Testing and rehabilitation of large sewers and manholes
- Principles of asset management and smart community infrastructure

Optional exam with certificate

Prof. Bert Bosseler, Scientific Director ofIKT, shares his university lectures with the participants of the IKT Masterclass

The course is open to all professionals. Attendees can take an **optional exam** to receive a **certificate** of “Successful attendance of IKT’s Masterclass Sewers and pipelines: construction, operation and maintenance”. The certificate summarizes the course content, its role in university studies at German Universities and confirms the successful result for the attendee.

IKT Masterclass

10-14 October 2016
Alternative dates:
– 30 January - 3 February 2017
– 23-27 October 2017
Programme and registration

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Inspecting pressure sewer pipes: Potential, requirements and results

Test rig: IKT research on inspection and condition-surveying of pressure sewer lines

Pressure sewer pipes are well down a sewer operator’s list of their favourite parts of the network. Because there are **no inspection or maintenance ports**. Because the precise location of the pipe is often not known. Because **numerous bends** obstruct the flow. They can be found in practically all drain and sewer networks, but their characteristics and their special design confront sewer network operators with a **real challenge** when it comes to inspection and condition surveying.

Legal provisions

Pressure sewer lines are subject to the legal provisions

concerning **inspection** and **condition survey**, as defined for example in German federal states' regulations for self-inspection and **self-monitoring**. Sewer network operators frequently find themselves facing special challenges in implementing the required inspection work. High points and low points with no valves complicate draining and venting. There is a **danger of blockages** of the gravity system if pump operation is interrupted, with the potential for **back-ups** and flooding.

IKT research project

The IKT research project "Inspection and condition-surveying of pressure sewer lines and culverts", which was conducted by IKT jointly with more than twenty sewer network operators, found that **life-cycle observation** of pressure sewers is becoming ever more important. The main results provide sewer network operators and technology suppliers with better understanding of the requirements for **inspection technologies**, the performance of **water tightness tests** and the selection of **rehabilitation methods** for pressure sewer pipes. A qualitative **risk model** for prioritizing pipe-specific inspection, which is already being used by operators, is also discussed.

Research Project: Pressure Sewer Lines

Read the whole article with key research results (PDF, 7 pages)

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Manhole Rehabilitation: Comparative testing of 13 different methods

On-site installation conditions simulated in IKT's large-scale test facility

Can **wastewater manholes** be rehabilitated so that they remain **permanently watertight**? What are the benefits and the drawbacks of mortar coating, plastic coating and lining. What quality can be expected? This first **comparative product test** in this field gives you the answers!

"Now for the manholes" – this is a train of thought in the repair/rehabilitation departments of many wastewater network operators. There is, indeed, little point in rehabilitating wastewater pipes without paying attention to the **numerous defective manholes**. This is particularly true in water infiltration zones, since a really watertight sewer network can only be achieved provided the manholes are also rehabilitated.

Under test: thirteen manhole rehabilitation methods

Which of the many manhole rehabilitation methods should we choose? Which one will seal **reliably and durably**? Which is suitable in which situation, and which are not suitable? Thirteen commercially available methods have now been **analysed** in IKT‘s “Manhole Rehabilitation” Comparative Test. The **results** range from GOOD to ADEQUATE, with one method failing the test.

Comparative Test: Manhole Rehabilitation

Read the whole article with all test results (PDF, 10 pages)

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IKT LinerReport 2015: Slight disappointment on wall thickness

Precision measurement necessary: wall thicknesses can differ

IKT’s LinerReport ranks the performance of both CIPP contractors and individual lining systems. CIPP-liner samples from six countries were tested. Results are still at high level. Only wall thicknesses are more frequently below target. Most non-German companies also score well. The report includes Austrian, Czech, Dutch, German, Swiss and UK results.
The report is based on 2,150 CIPP-liner samples taken for quality-control purposes on project sites and tested by the IKT CIPP Liner Test Centre in 2015.

Quality also good outside Germany

For some good time now, more and more results obtained from foreign site samples have been incorporated into the IKT LinerReport. Conspicuous here is the fact that, with a few exceptions, liner types supplied by German producers are mainly used abroad, too, and that the installation quality closely approaches that of the German refurbishing contractors. With only a few exceptions, foreign contractors were well able to hold their own against their German counterparts in the 2015 LinerReport.

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View all IKT LinerReports

More info on CIPP liner testing