

IKT Comparative Test “Sewer lateral liners 2010”



Overview: Samples from the Comparative Test, showing liners, pipe and escaped resin

IKT has investigated the material quality and practical usability of CIPP liner products for sewer laterals in the context of an extensive programme of tests. Practically orientated tests performed in the test pipes at the IKT's large-scale test facility were the focus of this programme. The IKT Comparative Test “Sewer lateral liners” provides drain/sewer operators with reliable and impartial information on the product properties of commercially available refurbishing procedures.

Title

Comparative testing of the quality of refurbishing methods for sewer laterals II

Downloads

(German versions only)

Table of results, “Standard situation”

Table of results, “Extreme situation”

Test report (188 pages)

Short report (34 pages)

Client

Ministry for the Environment, Agriculture, Nature Conservation and Consumer Protection of the German Federal State of NRW

Participating sewer-system operators



6 x 6 pipes: Layout of the test lengths in IKT's large-scale test facility

- Stadtwerke Aachen AG (municipal utilities)
- City of Alsdorf municipal technical utilities
- City of Bielefeld
- Bocholt disposal and service utility
- City of Datteln
- City of Detmold
- Düsseldorf urban drainage utilities
- Stadtwerke Essen AG (municipal utilities)
- City of Gladbeck
- Göttingen urban drainage utility
- City of Hilden
- Cologne urban drainage utilities
- City of Lemgo

- City of Monheim-on-the-Rhine
- Schwalmthalwerke municipal utilities
- KOWA Vorsfelde and district water authority
- Wuppertaler Stadtwerke AG municipal utility

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IKT Comparative Test “Repair methods for main sewers”



Layout of the test lengths:
Pipes with built-in faults

Many waste-water system operators are unsure of what can be

achieved by main sewer repair methods and what quality is attainable. Twelve different techniques from the three groups of methods: "Injection/grouting + injection methods", "Short-liners" and "Internal sleeves" have been comparatively tested under defined and replicable conditions using the IKT Comparative Test "Repair methods for main sewers". The principal focus was the testing of the techniques in IKT test rigs under conditions approximating to actual practice. The IKT Comparative Test provides reliable and impartial information on the quality of the techniques tested and statements concerning the general suitability of the individual techniques and method groups

Title

IKT Comparative Test "Repair methods for main sewers (DN 200 – DN 600)"

Downloads

(German versions only)

Table of results

Test Report (155 pages)

Short report (30 pages)

Test Report "Validation of the adhesion properties of short-liners on variously pre-treated substrate surfaces and the use of selected repair methods under external water pressure" (99 pages)

Clients

- Ministry for the Environment, Agriculture, Nature Conservation and Consumer Protection of the German Federal State of North Rhine-Westphalia
- Environment ministry of the State of Baden-Württemberg
- City of Dortmund waste-water utility
- City of Willich waste-water utility
- Troisdorf waste-water utility
- Bergisch Gladbach waste-water utility

- City of Bad Honnef waste-water utility
- Castrop-Rauxel EUV municipal utility
- Göttingen disposal utility
- InfraStruktur Neuss
- Munich urban drainage utility
- City of Herford
- City of Iserlohn
- City of Oberhausen and WBO Wirtschaftsbetriebe Oberhausen GmbH (municipal utility)
- City of Plettenberg
- Düsseldorf urban drainage utility
- Frankfurt am Main urban drainage utility
- Hagen drainage utility (SEH)
- Kamen urban drainage utility
- Reutlingen urban drainage utility (SER)
- Cologne urban drainage utilities
- Minden municipal utilities
- Espelkamp municipal utilities
- Stadtwerke Essen AG municipal utility
- Vellmar municipal utilities
- Burscheid municipal technical utilities
- Technische Werke Emmerich am Rhein GmbH municipal technical utilities
- City of Marl central municipal utility

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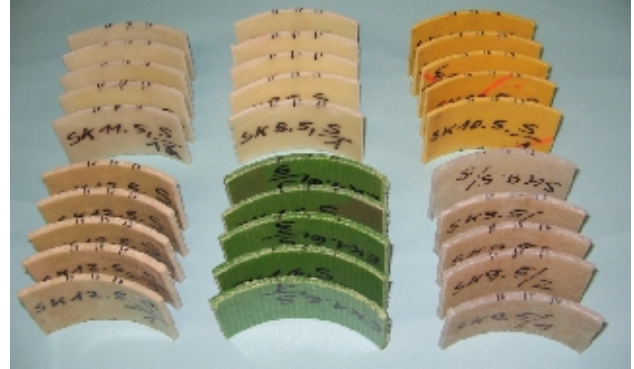
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IKT Comparative Test

“Sewer lateral liners 2005”



Liner fragments: Samples taken for three-point bending tests

This IKT Comparative Test assesses the suitability and the practical usability of CIPP liners available on the market for sewer laterals. The central focus is on highly practically orientated comparison of the products, in order to be able to provide waste-water system operators with impartial and technically substantiated information on the strengths, weaknesses and potentials/limitations for use of the products tested. The test programme itself has been developed jointly with the participating system operators.

Title

IKT Comparative Test “Sewer lateral liners”

Downloads

(German versions only)

Table of results “Standard situation”

Table of result “Extreme situation”

Test Report (122 pages)

Short report (22 pages)

Clients

- City of Alsdorf municipal waste-water management utility
- City of Bergisch Gladbach waste-water utility
- City of Dinslaken
- Düsseldorf urban drainage utility
- City of Gladbeck
- Göttingen urban drainage utility
- City of Hilden
- Cologne urban drainage utilities
- City of Neuss
- Niederrheinische Versorgung und Verkehr AG (NVV; Lower Rhine regional supply/disposal and transport utility)
- Stadtwerke Quickborn (municipal utility)
- City of Recklinghausen
- Warendorf disposal utility
- Würzburg state civil-engineering department

with funding from the Ministry for the Environment, Agriculture, Nature Conservation and Consumer Protection of the German Federal State of North Rhine-Westphalia

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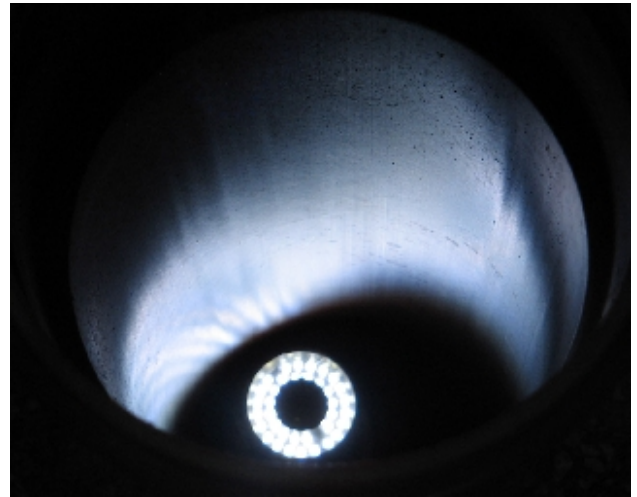
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IKT Comparative Test

“Inspection systems for site drainage networks”



Inspection cameras throw light on dark places

This IKT Comparative Test clarifies how the various inspection systems for site drainage available on the market meet the demands placed on them and reveals specific strengths and weaknesses in each system. All the systems tested were found to be basically suitable for the inspection of site drainage networks.

Title

IKT Comparative Test “Inspection systems for site drainage networks”

Downloads

(German versions only)
Table of results
Test Report (98 pages)
Short report (14 pages)

Clients



Cameras for sewer laterals
must have flexing capability

- City of Alsdorf municipal waste-water management utility
- City of Bergisch Gladbach waste-water utility
- City of Dinslaken
- Düsseldorf urban drainage utility
- City of Gladbeck
- Göttingen urban drainage utility
- City of Hilden
- Cologne urban drainage utilities
- City of Neuss
- Niederrheinische Versorgung und Verkehr AG (NVV; Lower Rhine regional supply/disposal and transport utility)
- Stadtwerke Quickborn (municipal utility)
- City of Recklinghausen
- Warendorf disposal utility
- Würzburg state civil-engineering department

with funding from the Ministry for the Environment,
Agriculture, Nature Conservation and Consumer Protection of
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IKT Comparative Test “Repair methods for sewer lateral connections”



Laterals all lined up: Test layout at the IKT large-scale facility

Damage to the lateral connections on main sewers is a frequent occurrence. Common types include intruding and detached damaged connecting lines and cracks and/or spalling around the lateral connections. Injection and top-hat section methods for the repair of sewer lateral connections have been tested to

the limit in an IKT Comparative Test. The assessment criteria were the system tests performed by IKT in test lengths, the method suppliers' Quality Assurance measures, and on-site tests.

Title

IKT Comparative Test "Repair methods for sewer lateral connections"

Downloads

(German versions only)

Table of results "Injection methods for standard damage"

Table of results "Injection methods for extreme damage"

Table of results "Top-hat section methods for standard damage"

Table of results "Top-hat section methods for extreme damage"

Test report (175 pages)

Clients

- City of Ahlen waste-water utility
- City of Alsdorf waste-water utility
- City of Beckum
- City of Bergisch Gladbach waste-water utility
- City of Braunschweig
- City of Dinslaken
- City of Dortmund
- Düsseldorf municipal drainage department
- City of Espelkamp
- Stadtwerke Essen AG municipal utilities
- City of Gladbeck
- Hamburg municipal drainage department
- City of Hamm
- City of Hemer
- City of Hilden
- City of Iserlohn
- Kamen municipal drainage department

- City of Kempen
- City of Monheim-on-the-Rhine
- City of Neuss
- Niederrheinische Versorgung und Verkehr AG (NVV, Lower Rhine municipal supply/disposal and transport utility)
- City of Recklinghausen
- City of Rietberg
- Troisdorf municipal utilities
- Tönisvorst municipal waste-water utility
- Warendorf municipal disposal utilities

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IKT Comparative Test “Sewer lateral saddles”



Testing sewer lateral saddles

IKT has tested nine commercially available sewer lateral saddles on behalf of fourteen sewer-system operators. In view of the frequency of damage in their own systems, these operators perceive a significant risk for their investments when installing sewer lateral saddles. The underlying concept of the IKT Comparative Test is that of intensive cooperation between research and practice. The IKT Comparative Test “Sewer lateral saddles” has therefore been developed on the basis of the practical experience of the participating system operators.

Title

IKT Comparative Test “Sewer lateral saddles”

Downloads

(German versions only)

Table of results

Test report (102 pages)

Short report (5 pages)

Clients

- City of Bergisch Gladbach waste-water utility
- City of Bochum, underground-engineering department
- City of Braunschweig, urban drainage department
- Duisburg municipal utilities
- City of Düsseldorf, urban drainage utility
- Stadtwerke Essen AG (municipal utilities)
- Gelsenkanal, Gelsenkirchen (drainage/sewer utility)
- City of Krefeld, underground-engineering department
- Leverkusen municipal technical utilities
- Niederrheinische Versorgung und Verkehr AG (NVV, Lower Rhine municipal supply/disposal and transport utility), Mönchengladbach
- Mülheim/Ruhr municipal urban drainage utility

- City of Neuss, urban drainage utility
- Wirtschaftsbetriebe Oberhausen GmbH (municipal utilities)
- City of Recklinghausen, underground-engineering department

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