37TH INTERNATIONAL NO-DIG FLORENCE 2019

Fortezza da Basso • FLORENCE (Italy)

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The DLT Method: Stress Test for Pressure Pipes

- Dipl.-Ing. Andreas Haacker, Germany
- www.siebert-testing.com

The DLT Method:
Stress Test for Pressure Pipes

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Content

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- Requirements for a Pressure Pipe Testing Method
- The DLT: How it works
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About us

- Siebert + Knipschild is the leading company in Germany for testing CIPP
- Founder Rolf Siebert established CIPP quality control in Germany in the 1980s
- 7000 samples a year
- Focus on testing and certification, expert assessment, R&D

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Standard Tests for Gravity Liners

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Wanted: A Test Method for Pressure Pipes

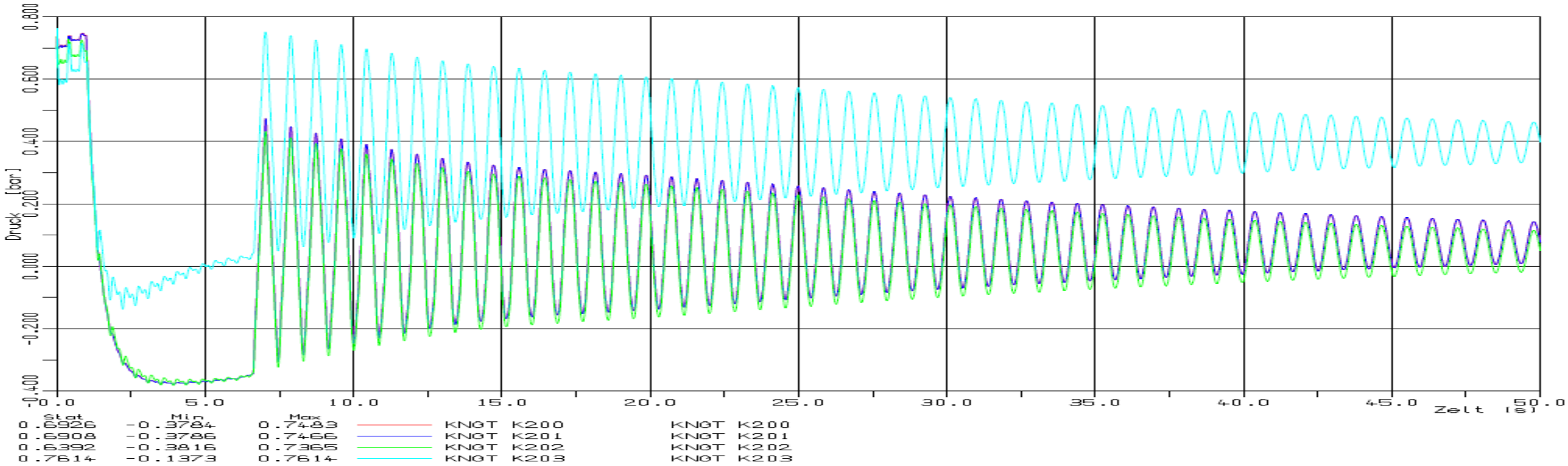
Growing market for trenchless rehabilitation systems

No acknowledged testing and approval method

Requirements

- Proof of suitability for pipe liners in pressure pipes
- Practical testing according to the requirements in continuous operation / illustration of worst-case situations
- Load cases occurring in the pressure pipe area

Requirement: Critical Load Cases



- Source Hamburg Wasser

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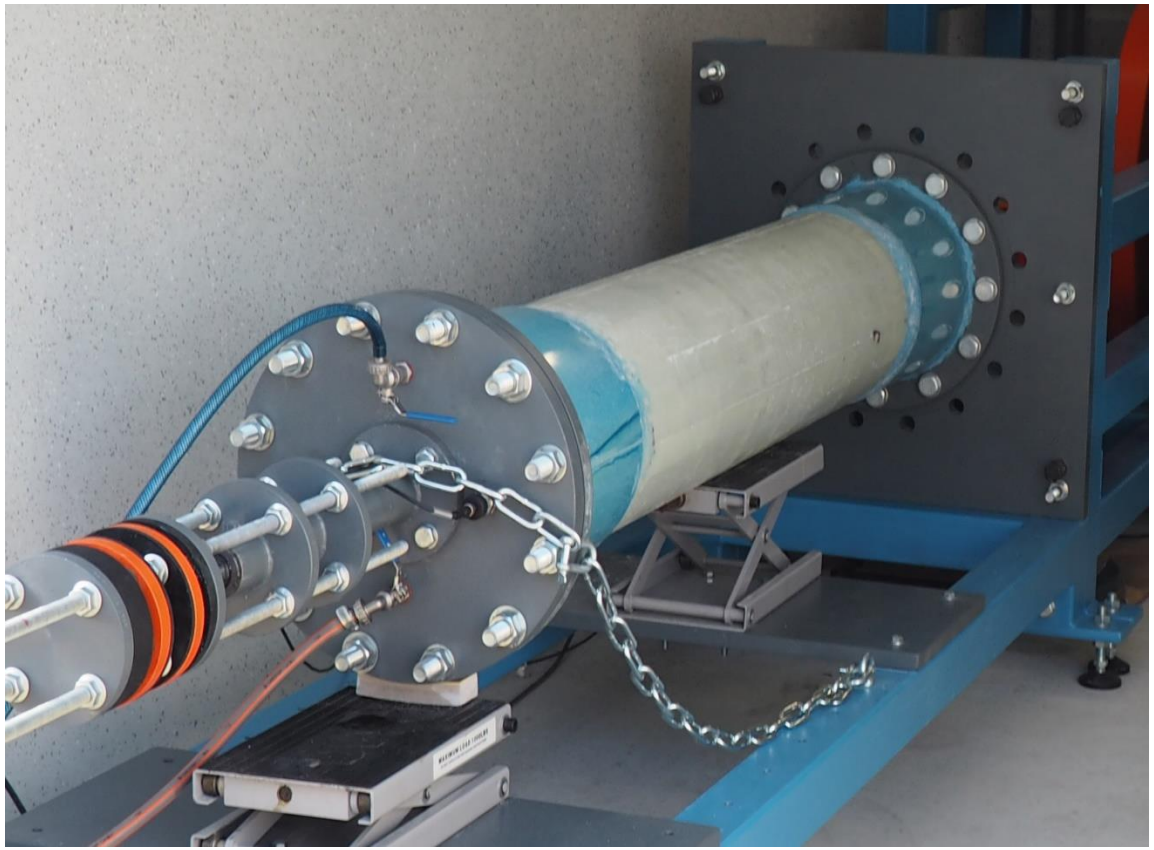
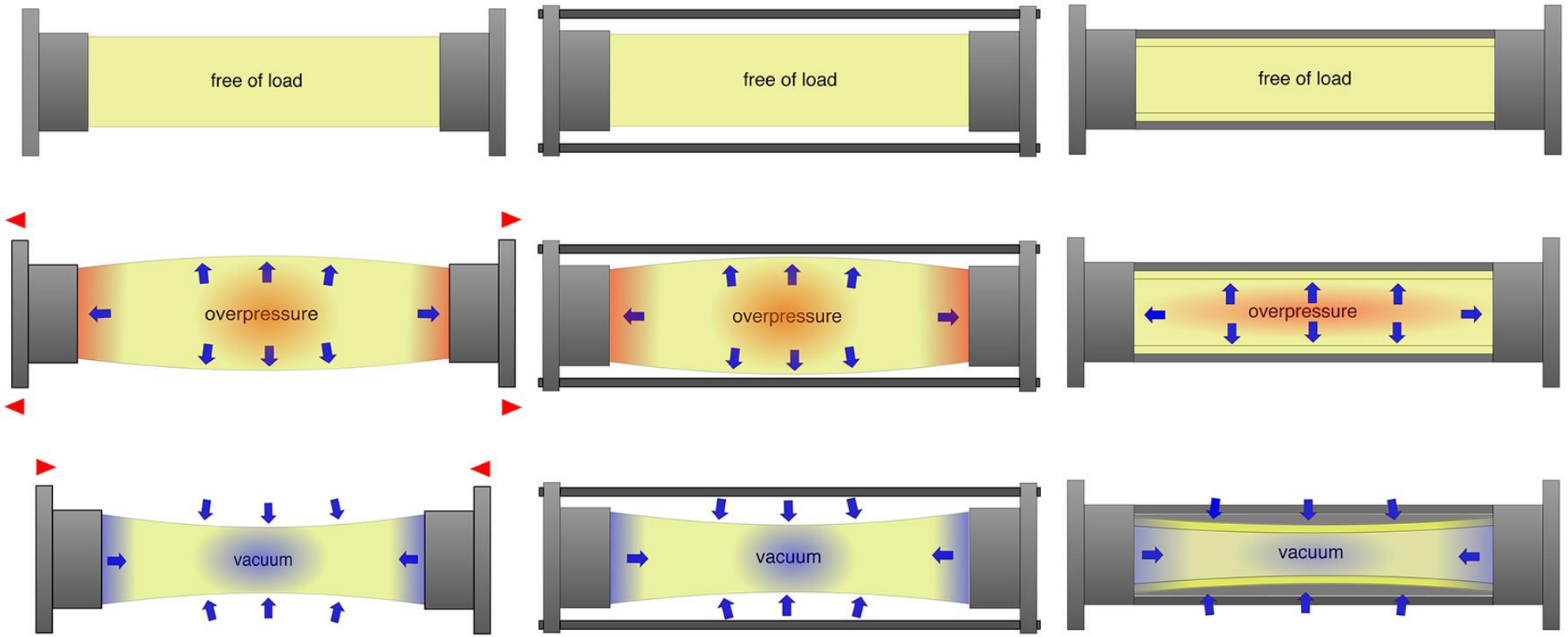
Dynamic Load Test Device



- Non destructive
- -0,9 bar underpressure to +10 bar overpressure (Medium: potable water)
- Frequency: 2 Hertz
- Procedure corresponds to ISO 15306 and DIN 50100

Options for Testing Procedures



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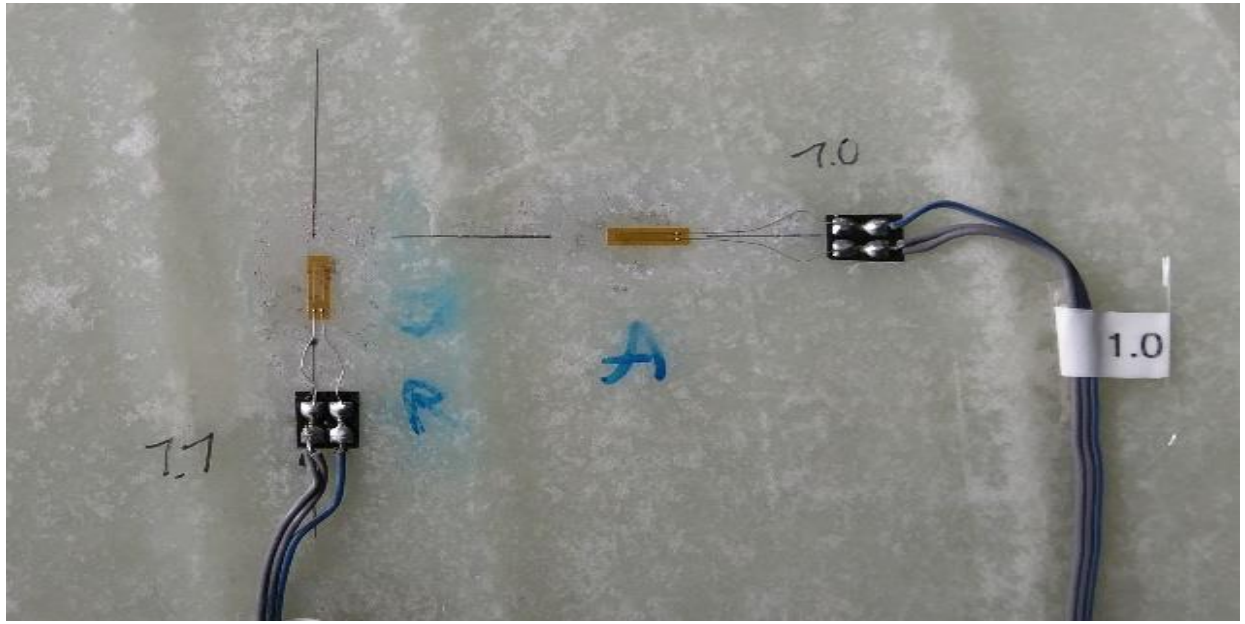
Monitoring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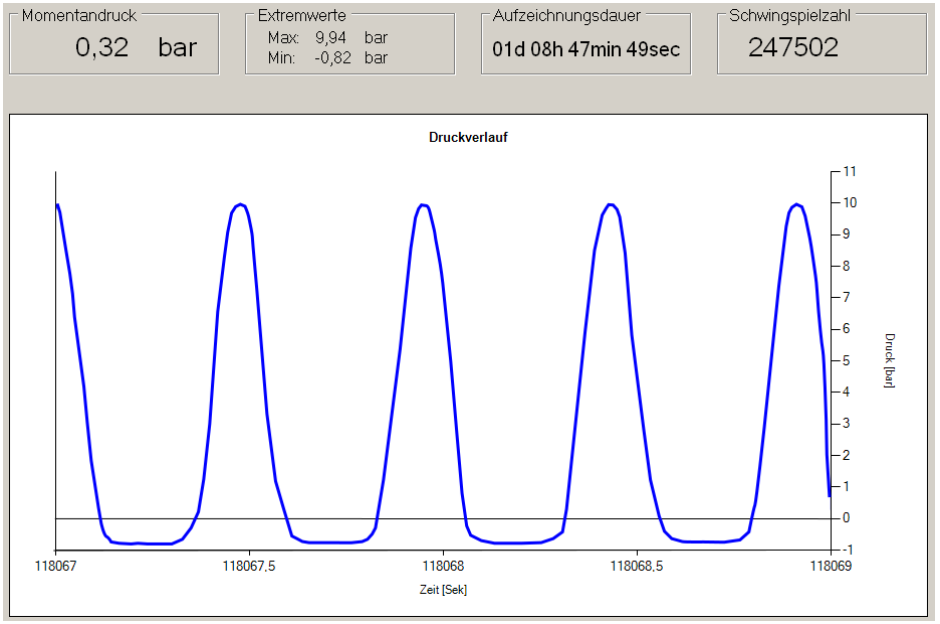
1.0
1.1


Momentandruck
0,32 bar
Extremwerte
Max: 9,94 bar
Min: -0,82 bar
Aufzeichnungsdauer
01d 08h 47min 49sec
Schwingspielzahl
247502
Druckverlauf
11
10
9
8
7
6
5
4
3
2
1
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118067
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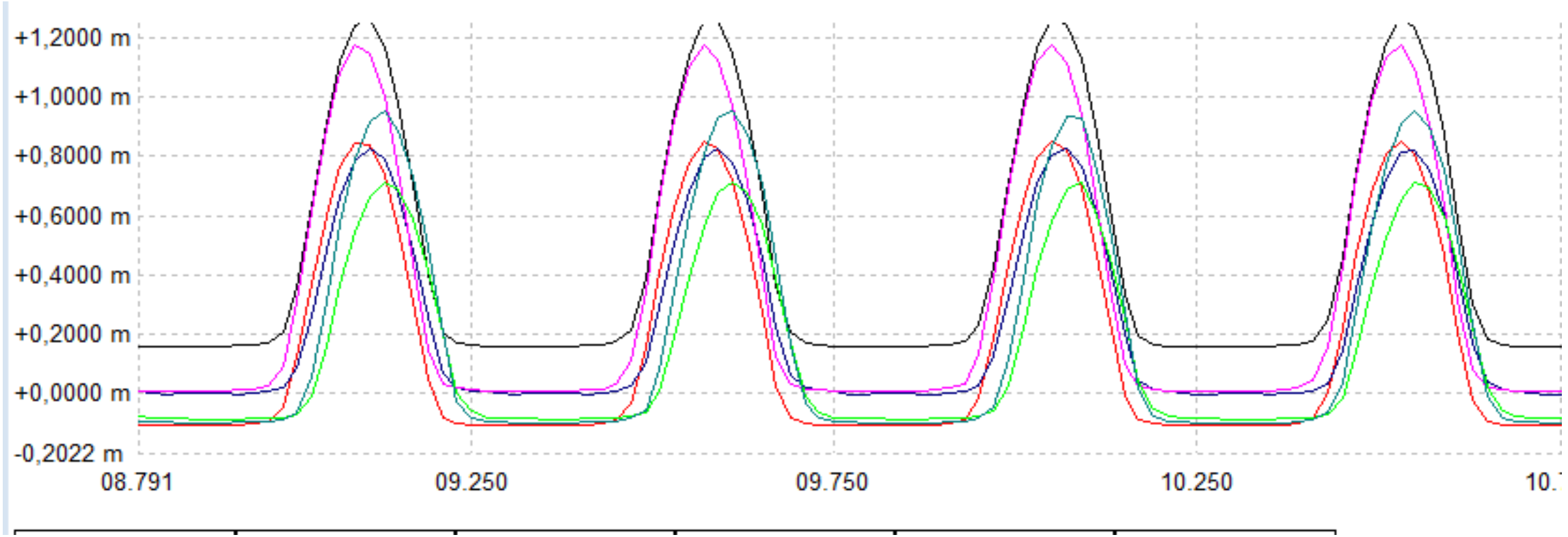
118068
118068,5
118069
Zeit [Sek]

Results of strain measurements



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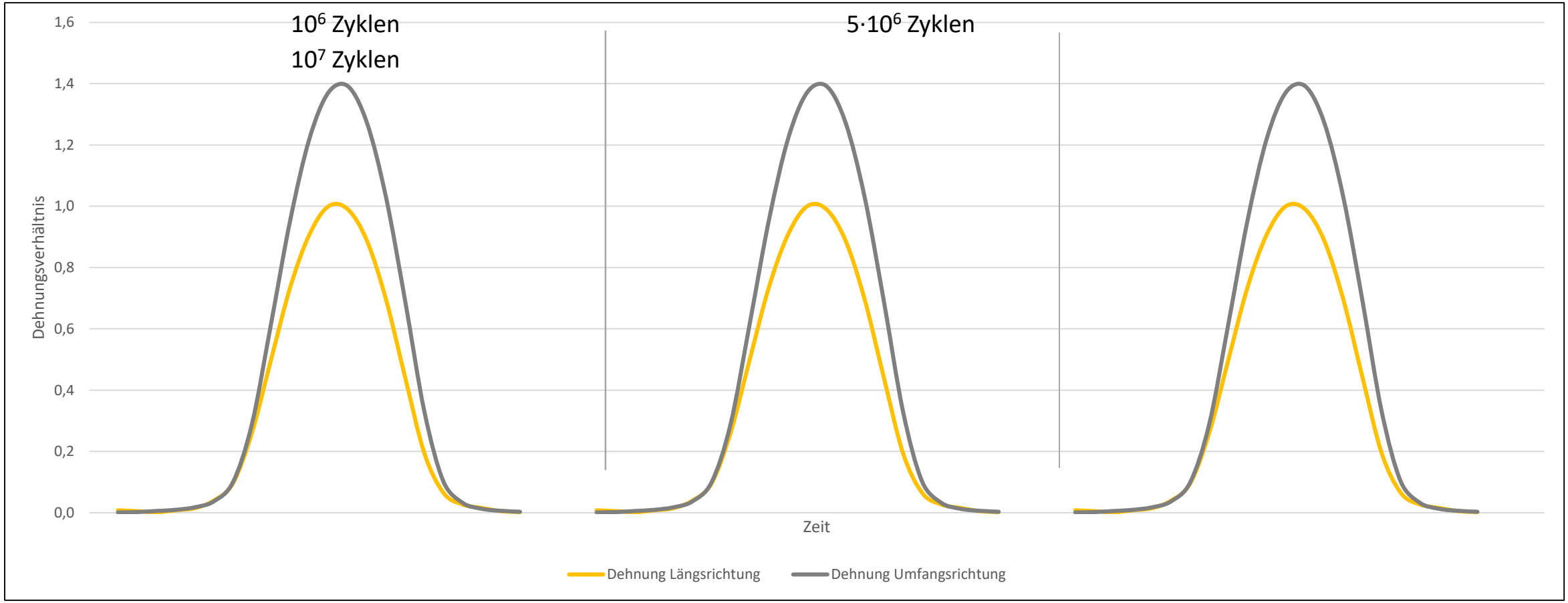
Monitoring System 1



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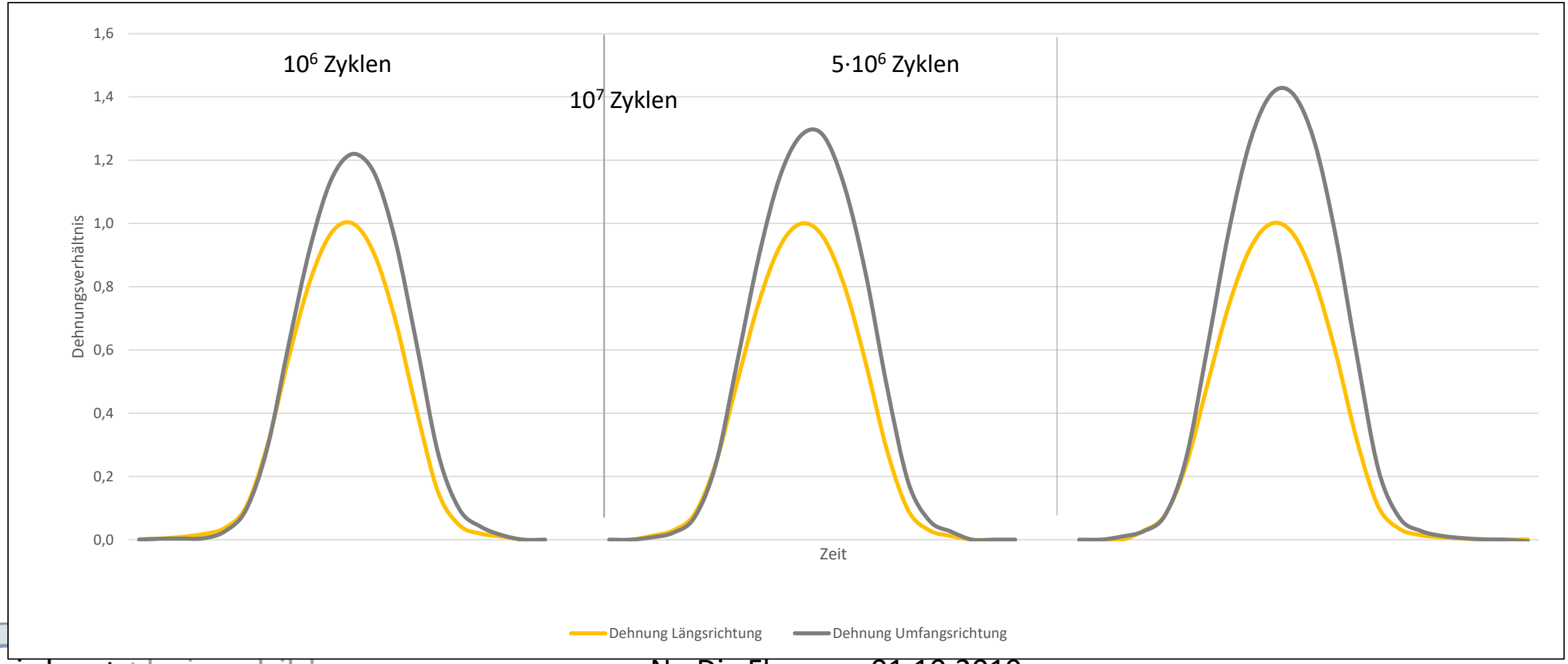
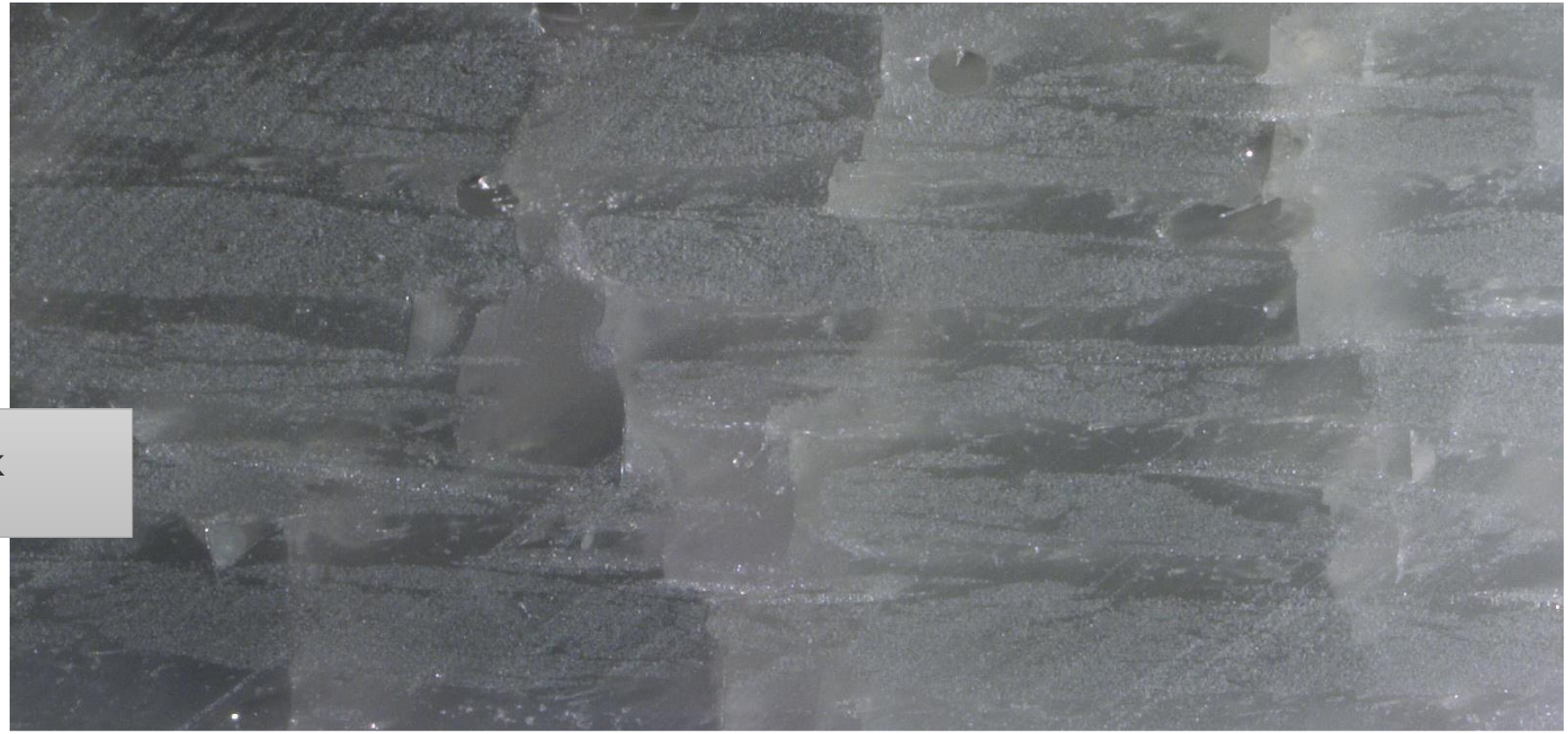
Monitoring System 2



Damages under the Microscope



Matrix break

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Damages

Bursting near the flange

Test and Development of Joint Systems

Faulty clamping sleeve

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Reviews

"As a system test for Hamburg Wasser, the pressure swing test is one of the most important tests within the framework of a proof of suitability for pressure hose liners."

Wolfgang Buchner, Hamburg Wasser

Reviews

"Exclusively through the practice-oriented testing with DLT it was possible to further develop our sleeve system."

Martin Cygiel, Pipe-Seal-Tec GmbH & Co. KG

Reviews

"The DLT provides security and trust for users and helps to market and establish the system."

Peter Wegewitz, PSM Rohrsanierung GmbH

Reviews

"The essential questions regarding operational safety could be proven for the pressure hose liner AND for the connections."

Dr. Susanne Leddig-Bahls, IQS Engineering AG

Summary

- Rehabilitation products can be tested and developed under practical conditions
- High interest on the part of manufacturers and network operators
- Hamburg Wasser demands DLT as proof of suitability
- Deutsches Institut für Bautechnik (DIBt) plans DLT as suitability test for approvals

Contact

Thank you!

For further information:

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