Research & Development

Cured-in-place-Pipe (CIPP)

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„Possibilities and restrictions of district heating pipe renovations – with Cured-in-place pipe (CIPP) systems“ – *FW-Liner*

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Project partner:

AGFW

SWN Stadtwerke Neumünster

FH MÜNSTER

IMA DRESDEN

GEF Ingenieur AG

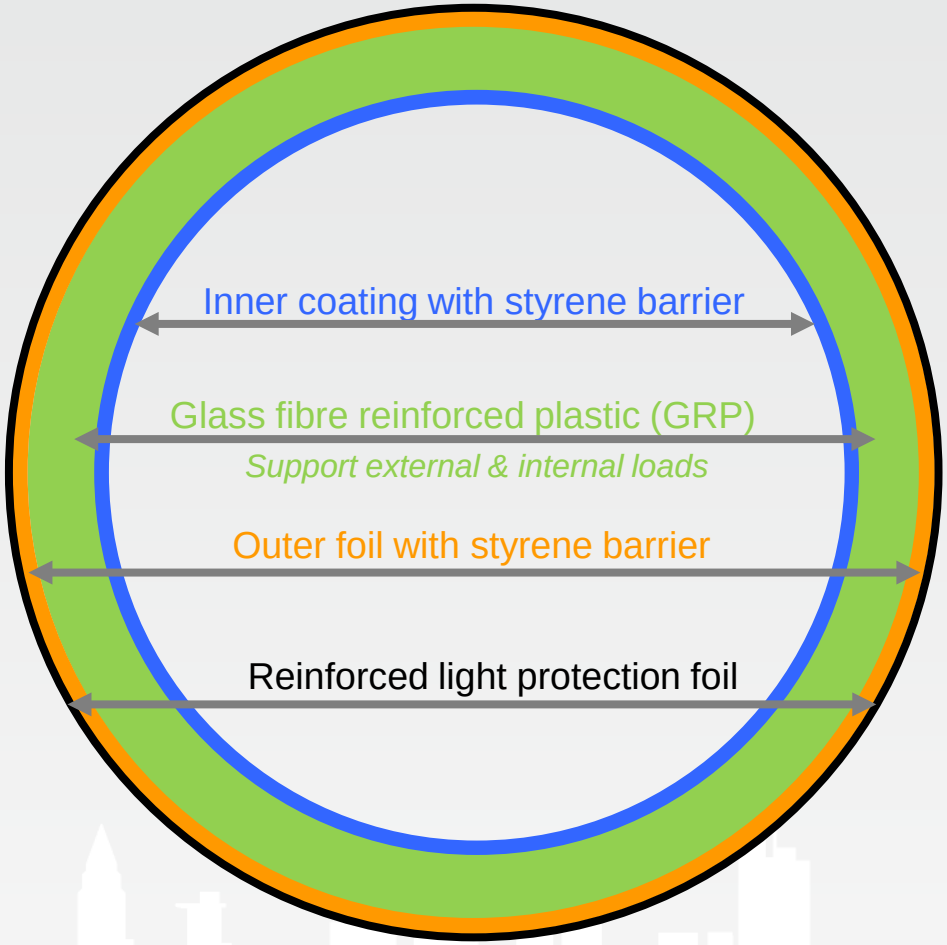
selle consult

SAERTEX multiCom

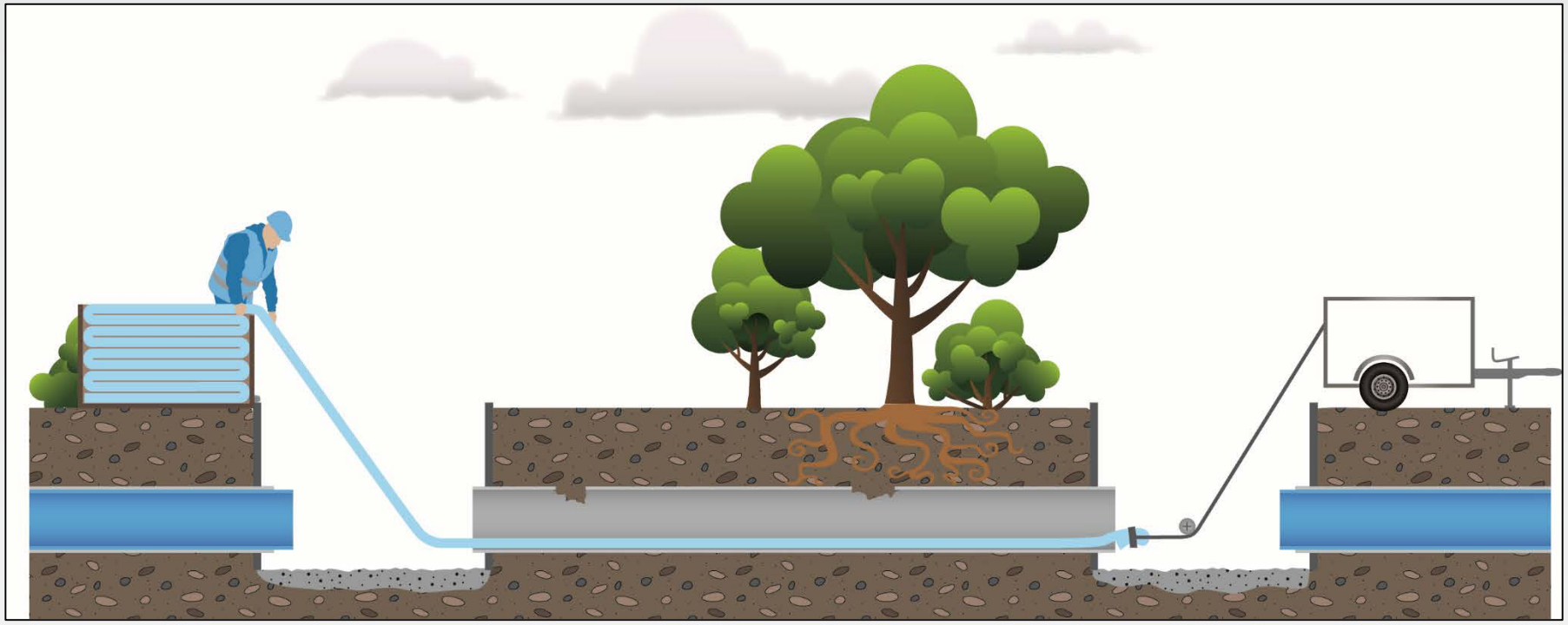
Motivation

- Many district heating networks in Germany getting close to the end of the expected lifetime (built in 50th & 60th)
- The oldest network parts are the hart of the system and buried in the area of the city centre
- Increasing number of renovations at the German district heating networks expected
- Short-term fixing options are limited
- Replacement of pipe systems is cost and time intensive (especially unplanned)

Composition example



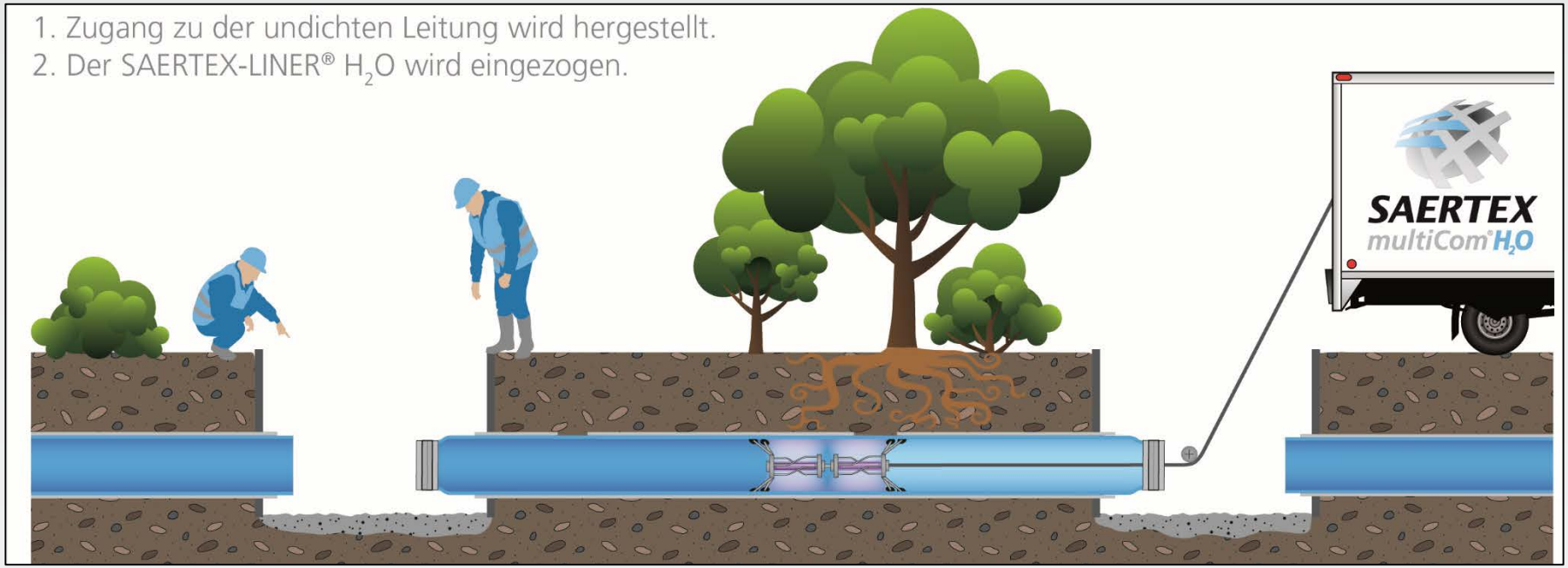
General information of the CIPP technology: Step 1



Source: SAERTEX multiCom®

- Identify the imperfect part of the pipe
- Create access to the effected area
- Pull in the flexible tube of fiberglass plastic

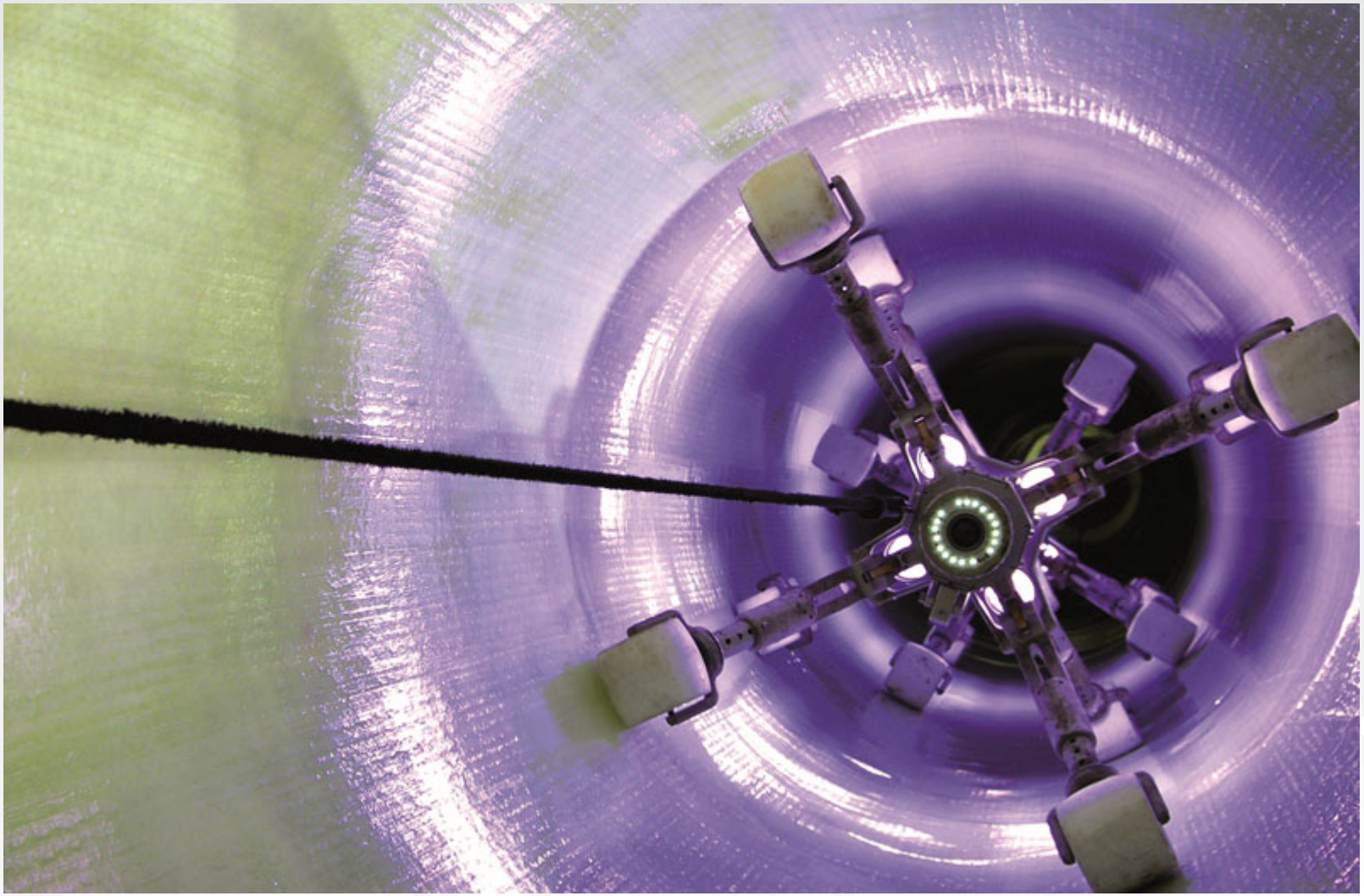
General information of the CIPP technology: Step 2



Source: SAERTEX multiCom®

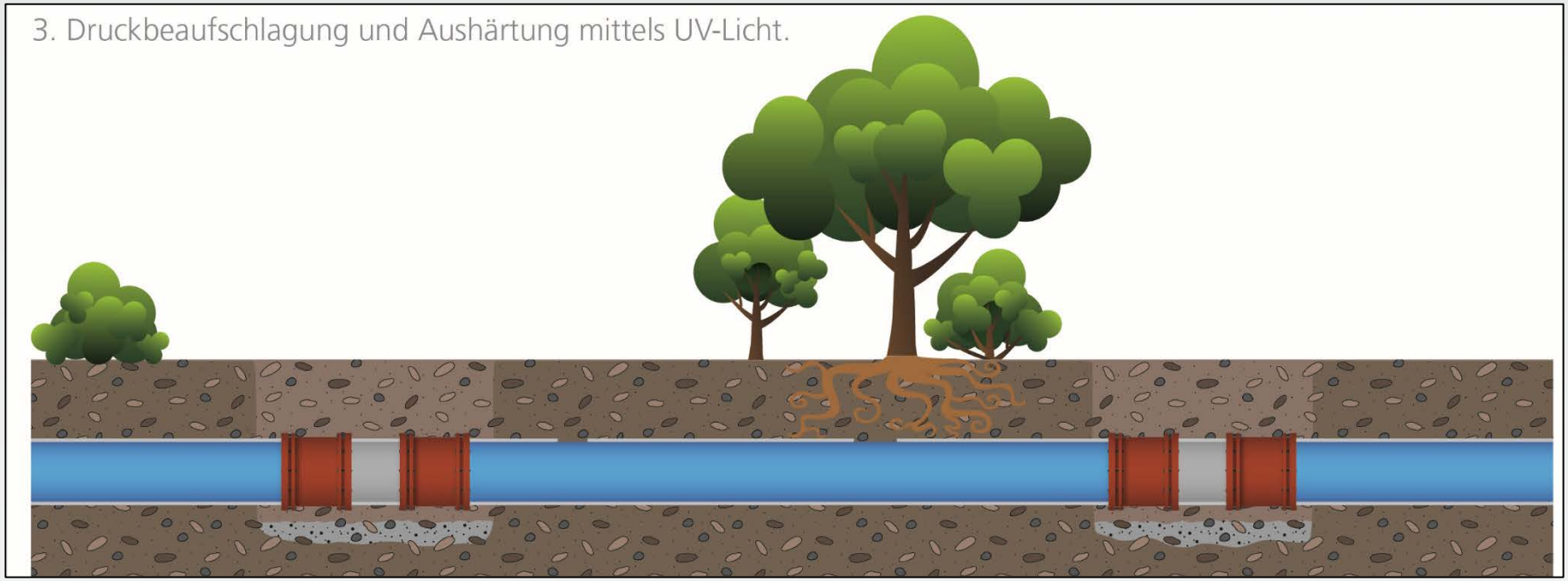
- Pressurise the flexible tube
- Harden the system with ultra violet light

General information of the CIPP technology: Step 2



Source: SAERTEX multiCom®

General information of the CIPP technology: Step 3



Source: SAERTEX multiCom®

- Leak test
- The restored pipe will be reconnected to the grid
- And enter into service

Expected benefits

- Well known, reliable technology for buried pipe systems (e.g. gas pipelines, fresh and sewage water)
- Timesaving alternative in case of short term issues
- Low impact on the effected are (e. g. streets, buildings)
- Cost efficient
- Eco friendly

Challenges and limitations for the DH use

» Just some cases of damage can be fixed (leakage)

Challenges, requirements and limitations for the DH use

- Just some cases of damage can be fixed (leakage)
- Many expansion bends of DH grids (L- and U-expansions)
- High level of temperature (up to 130°C-150°C) and pressure (up to 16 bar)
- Many connections with high variation of nominal diameters
- Limited minimum of diameter (size of the UV-Light)
- Reduction of dimeter (T-pieces)
- Tube will influence the pressure drop and flow rate

Influence on the effort of development

- Short- or long-term solutions
- Temperature level
- Diameter of DH-pipes
- Length on straight uninterrupted pipes

- Number of relevant error situations
- Potential market and business cases

Kontakt

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