



Modern Technology for UV CIPP Lining and Robotic cutting and repair
Thomas Lengger, IMS Robotics GmbH, Germany



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About Thomas Lengger






- International Sales Manager/Procurement
- Responsible for Asia, North America, Austria and Key Accounts
- With IMS Robotics since 2011
- Profound knowledge of the trenchless technology from different countries

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Modern Technology for UV CIPP Lining and Robotic cutting and repair

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Some facts about IMS Robotics

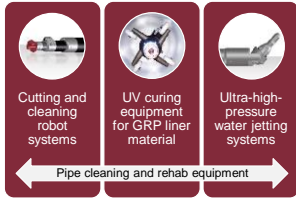


-  Founded in 1992
-  Production located in Germany
-  Focused on developing and manufacturing of:
 - Robotic cutting systems for pipe rehabilitation
 - Ultra-High-Pressure water jetting technology
 - UV curing technology for CIPP since 2014
 - Small-diameter camera systems

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Our equipment for maintenance of sewage systems



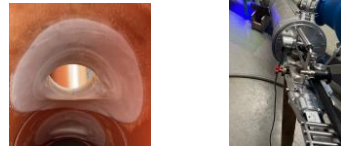
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UV Lining – Mercury bulb vs. LED



- With this knowledge its nearly impossible to cure mainline sewers with LED as liners with bigger wall thickness wont fully cure.
- LED is a great opportunity doing light-curing materials up to 3-4mm, as of today
 - LED top hat
 - Lateral pipe rehabilitation



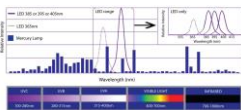
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UV Lining – Mercury bulb vs. LED



- UV curing with a conventional mercury lamp has an emission spectrum that contains UV, VIS and IR components and thus lead to over 50% heat emission
- LED curing with LED has only the UV components without IR components and thus do not radiate heat, which also leads to lower energy consumption



→ The German quality institution SBKS GmbH & Co. KG found out that LED cures just the first 3mm of a liner by it's UV light as the heat emission component is missing

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UV Lining – Light intensity



- UV mercury bulbs lose their light intensity after using it for a long time. To prevent only partial cured liners measuring the bulbs is mandatory
- Therefore, we doing tests with our own developed test equipment and together with liner manufacturers



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UV Lining – Light intensity



Mercury bulbs have a middle lifetime of 500 hours, if it contacts resin or fingers without wearing a glove the lifetime reduces a lot



To make sure the bulb is still in good shape we do measurements on all services When the UV systems with us.

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UV Lining – Use the right light sources



Mechanical light chains and cores



8x 400-650 W light train with 4x 400-650 extension DN150-500

4x3x400-650 W light core DN500-1200



3x4x1000 W light core DN600-1500

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UV Lining – Lining speed measurements



Next step to assure your lining project is driving with the right curing speed

Therefore, we do regular check-ups with liner manufacturers for sewer and manhole liners



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UV Lining – Use the right light sources



Electronic driven light cores



2x4x1000 W light core DN600-1200 Upgradeable to 3x4x1000

3x4x1000 W light core DN600-1500 Upgradeable to 2x6x1500



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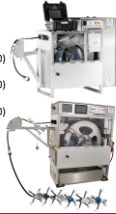
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UV Lining – Use the right UV unit



There's a wide range of UV units, choose the right one for your projects

- UV5200 8x400-650W DN150-600
- UV7800 12x400-650W DN150-1000 (DN1200)
- UV8000 Comp. 8x400-1000W DN150-1200 (DN1500)
- UV12000 Comp. 12x400-1000W DN150-1600 (DN1800)
- UV City light 12x400-1500W DN150-2000



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UHP – Ultra High pressure



Lateral UHP

Mainline UHP



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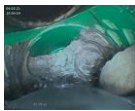
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UHP – Ultra High pressure



In the past years more and more companies in the sewer industry getting into UHP

With up to 2500 bar you can remove sediments, concrete, failed liners etc.



→ More efficient than normal cutting robots

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UHP – Ultra High pressure



Lateral UHP

- DN 100-250
- 90° bents from DN150
- Up to 2500 bar
- Mobile system
- Can reach any point in the pipe
- Camera cleaning while rotation
- One cable drum for cutting an UHP robot



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UHP – Ultra High pressure



Mainline UHP

- DN 200-800
- 3 different crawlers and 2 UHP arms to choose
- Up to 2500 bar
- Mobile system (Drive Plus)
- Can reach any point in the pipe
- Camera cleaning while rotation or rotation



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Thank you for your attention!

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