U-LINER AC – NEW AND UNIQUE
ADHESIVE PE-LINER FOR DOMESTIC CONNECTIONS
Modern trenchless renovation and refurbishment processes have become essential for the practice of buried pipeline construction. This facilitates a quick and economical rehabilitation of the operational reliability of the pipe network according to the current standards. Which renovation process is suitable depends on the requirements of the corresponding building project.

The CLOSE-FIT process with U-Liner for replacing gravity pipelines stands out because of the following advantages:
- Solid wall pipe made from high quality PE 80 material
- Pipe dimension matched to the pipeline to be renovated
- Quality inspection in the factory
- Best hydraulic properties
- High static load-bearing capacity

Domestic connections in the waste water area have always been a problem in the past in the case of trenchless pipe renovation with PE liners. With the new U-Liner AC there is now a trenchless, more economical, and safe option for connecting domestic connections.

The U-Liner AC (adhesive connection) consists of one PE 80 basic pipe which ensures the loading capacity under the static requirements. A non-detachable adhesive inner layer is co-extruded on to the inside of the pipe for an economical domestic connection assembly. Time-consuming, expensive and also unsafe welding solutions with robots are now finally a thing of the past. Don’t be without a new fully-fledged pipe system for your pipe renovation.

The benefits at a glance:
- Adhesive PE U-Liner
- Use of commercially available cap seals and compression technology and therefore any adhesive technology which has been tried and tested in practice
- Leak tightness to DIN EN 1610 tested and confirmed by the IKT
- High pressure cleaning to DIN EN 19523, Process 2, tested and confirmed by the IKT
- DIBt approval under Z-42.3-387

THE SYSTEM

The system
The pipe is given its characteristic U shape using a special thermo-mechanical deformation process. The cross-section of the pipe is reduced as a result of this. Depending on the dimension up to 600 m of pipe can be wound on to a drum and transported to the building site. The pipe is fed from the drum into the pipeline to be renovated using a hoist. As a consequence of the U cross-section only low tensile forces are required when doing this. Following the assembly of special connecting pieces the U-Liner AC is subjected to a defined process to return it to its original shape. During this process the pipe is heated with pressurised steam and the material-specific memory function activated. The U-Liner AC takes on its original round shape again, attaches itself to the inside of the old pipe and therefore forms a CLOSE FIT with the old pipeline.

Product range:

<table>
<thead>
<tr>
<th>DN</th>
<th>SDR</th>
<th>Material</th>
<th>Ring stiffness</th>
<th>Article number</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>26</td>
<td>PE 80</td>
<td>4.3 kN/m²</td>
<td>139673</td>
</tr>
<tr>
<td>200</td>
<td>26</td>
<td>PE 80</td>
<td>4.3 kN/m²</td>
<td>139683</td>
</tr>
<tr>
<td>225</td>
<td>26</td>
<td>PE 80</td>
<td>4.3 kN/m²</td>
<td>139693</td>
</tr>
<tr>
<td>250</td>
<td>26</td>
<td>PE 80</td>
<td>4.3 kN/m²</td>
<td>139703</td>
</tr>
<tr>
<td>300</td>
<td>26</td>
<td>PE 80</td>
<td>4.3 kN/m²</td>
<td>139713</td>
</tr>
<tr>
<td>350</td>
<td>32.25</td>
<td>PE 80</td>
<td>2.0 kN/m²</td>
<td>139636</td>
</tr>
<tr>
<td>400</td>
<td>32.25</td>
<td>PE 80</td>
<td>2.0 kN/m²</td>
<td>139646</td>
</tr>
</tbody>
</table>

The latest robot technology is used for the trenchless opening and sealing of the domestic connections or branches in open channels. If the domestic connection itself is not damaged and therefore requires no renovation or replacement, the U-Liner AC moulded back into its original shape on the domestic connection can be opened and sealed underground. The interior layer facilitates the use of commercially available cap seals and compression sleeve technology and therefore any adhesive technology for connecting domestic connections which have been approved by the DIBT and tried and tested in practice.

The sealing of the U-Liner which has been moulded back into its original shape takes place at the inlet to the chamber using rubber seals. These are matched to the dimension and are positioned on to the U-Liner pipe before it is moulded back into its original shape. Due to the tight fit of the U-Line after it has been moulded back into its original shape the sealing ring is compressed and is given its function.
QUALITY REQUIREMENTS

Quality requirements
REHAU places high value on the permanent monitoring of the quality of the materials and design used. The material properties of the pipe installed are already imprinted during production and are monitored in the factory. The industrial production of the U-Liner is carried out and confirmed on the basis of demonstrable quality requirements:
- All relevant pipe parameters can be verified without restriction
- The industrial production of the U-Liner represents a high level of safety due to the constant and reproducible process parameters
- An inspection certificate confirms the desired U-Liner AC properties to the customer

The polymer specialist REHAU has extensive test results to DIN EN 1542 regarding the adhesion strength of the inner layer. With an adhesion strength of 3 N/mm² the adhesion strengths are at least twice those of similar adhesive bonds to concrete surfaces.

The U-Liner AC also has another advantage in terms of quality assurance. The U-Liner AC is approved by the German Institute for building technology (DIBT) with effect from 5th February 2010 as are the U-Liner AW and RAULINER SEWER RAUSISTO from REHAU under the approval number Z 42.3-387 as a renovation process for underground sewer pipes in the nominal value range from DN 150 to DN 400. The approval confirms to the user the high quality of the liner used and the reliability of a professional and proper pipe installation. As part of continuous monitoring, the U-Liner AC is put through its paces twice per year during testing by an accredited testing institute. In parallel the renovation measures are monitored on site as an in-process test according to the specifications of the DIBT approval.
The installation is carried out by a specialist company with over 15 years experience, so a high quality installation which takes into account all of the relevant regulations is guaranteed.

The prerequisites for the installation of the U-Liner AC are the accessibility to the pipeline and storage areas for a steam system, drum wagon, hoist and compressor.

The preliminary works are limited to cleaning and calibrating the pipeline so that the necessary free cross-section of the pipeline for inserting the U-Liner AC is ensured.

The U-Liner AC is fed into the existing chambers.

The U-Liner AC is fed into the pipeline to be renovated directly from the drum. During the feeding in process the maximum permitted tensile force of the U-Liner AC according to the manufacturer’s information must not be exceeded.

In the case of a controlled and documented installation process up to 600 m a day can be installed.
OTHER PRODUCT RANGES

This document is protected by copyright. All rights based on this are reserved. No part of this publication may be translated, reproduced or transmitted in any form or by any similar means, electronic or mechanical, photocopying, recording or otherwise, or stored in a data retrieval system.

REHAU SALES OFFICES
AE: Middle East, Phone: +971 4 8839677, dubai@rehau.com, UAE, Phone: +971 4 8239031, adelaide@rehau.com, Boston, Phone: +1 75527183, brisbane@rehau.com, Melbourne, Phone: +1 3 95875544, melbourne@rehau.com, Perth, Phone: +61 8 94564311, perth@rehau.com, Sydney, Phone: +61 2 87414500, sydney@rehau.com, CA: Moncton, Phone: +1 506 5382546, moncton@rehau.com, Montreal, Phone: +1 514 9055349, montreal@rehau.com, St. John’s, Phone: +1 709 7473909, stjohns@rehau.com, Toronto, Phone: +1 905 3353284, toronto@rehau.com, Vancouver, Phone: +1 604 6264666, vancouver@rehau.com, GB: Glasgow, Phone: +44 1698 503-700, glasgow@rehau.com, Manchester, Phone: +44 161 7777-400, manchester@rehau.com, Slough, Phone: +44 1753 5885-90, slough@rehau.com, SG: Singapore, Phone: +65 63926006, singapore@rehau.com, US: Detroit, Phone: +1 614 8295816, detroit@rehau.com, Grand Rapids, Phone: +1 616 2965867, gradrapids@rehau.com, Los Angeles, Phone: +1 951 5499617, losangeles@rehau.com, Minneapolis, Phone: +1 612 253 0576, minneapolis@rehau.com, ZA: Durban, Phone: +27 31 657447, durban@rehau.com, Johannesburg, Phone: +27 11 2011300, johannesburg@rehau.com

www.rehau.com

REHAU SALES OFFICES

This document is protected by copyright. All rights based on this are reserved. No part of this publication may be translated, reproduced or transmitted in any form or by any similar means, electronic or mechanical, photocopying, recording or otherwise, or stored in a data retrieval system.

Our verbal and written advice relating to technical applications is based on experience and is to the best of our knowledge correct but is given without obligation.

The use of REHAU products in conditions that are beyond our control or for applications other than those specified releases us from any obligation in regard to claims made in respect of the products.

We recommend that the suitability of any REHAU product for the intended application should be checked. Utilization and processing of our products are beyond our control and are therefore exclusively your responsibility. In the event that a liability is nevertheless considered, any compensation will be limited to the value of the goods supplied by us and used by you.

Our warranty assumes consistent quality of our products in accordance with our specification and in accordance with our general conditions of sale.

www.rehau.com

393700 EN 09.2010