SECUFLEX®

Pre-applied fully bonded membrane system (FBVS)
OUR MISSION:
FORWARD CONSTRUCTING.

It is our mission not only to provide the very latest building technology, but also to be one crucial step ahead of the game at all times. That is why we are constantly undertaking pioneering work in all product areas. Our employees consistently put their extensive practical experience and creativity to use in the interests of our customers. In constant dialogue with our target groups on a partnership basis, we are already developing the products today that will be needed tomorrow. Our momentum continues to set new benchmarks in structural engineering – yesterday, today and tomorrow, too. This is what we mean by “forward constructing”.
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We are always there for you. We will be wherever you are.
SECUFLEX® TECHNOLOGY AND SYSTEM

SEALING CHALLENGES

Construction projects today present increasingly greater challenges for all parties involved in their planning and implementation. The complexity of the constructions, environmental and any other applicable conditions, as well as an extremely wide variety of different demands in terms of use and maintenance require detailed knowledge from all concerned. Only a perfect interplay between planning and execution as well as the coordination of building materials and supplies facilitate a high standard of quality, simultaneously prevent a high level of consequential costs and, in so doing, bring a project to an economically successful conclusion.

Water-impervious buildings with high-grade utilisation are a prominent example of the construction projects described above, which is why pre-applied fully bonded membrane systems (FBVS) are increasingly used in this area. These products are applied across the surface and are used as additional support for structures planned and built in line with watertight structure guidelines to reduce the cost and effort required for curing unplanned water-bearing separating cracks to a minimum for buildings with high-grade utilisation in particular. The application of the bonding system is brought forward, as it primarily features fresh concrete and requires structural components to be accessible. As pre-applied fully bonded membrane systems are not yet regulated by watertight structure guidelines or other provisions, their use must be contractually agreed in advance with the building developer.

AREA OF APPLICATION OF AN FBVS

The main area of application for pre-applied fully bonded membrane systems are water-impervious concrete structures with high-grade utilisation. As an additional sealing measure that is applied early on in the process, they need to be properly planned and implemented to avoid water running behind and prevent water transport to defects and unplanned separating cracks in water-impervious structures. In this way, these structures remain dry and the otherwise required subsequent repairs, usually by means of injection, are reduced to a minimum.

TECHNOLOGY AND EFFECT

HOW IT WORKS

Pre-applied fully bonded membrane systems comprise a sealing layer and a bonding layer, which are joined together permanently. These are supplemented with other components, such as adhesive tapes, liquid plastics, epoxy resin mortar, etc., which make a pre-applied fully bonded membrane system into a functional surface sealing system. Solutions for joints, penetration and corners also form an integral part of the system.

The sealing layer may contain flexible plastic or bitumen sealed against pressurised water. The bonding layer can be implemented in different ways to ensure bonding with the fresh concrete. The following versions are possible: Cement-adhesive, mechanical-adhesive, cement-mechanical-adhesive or bitumen-adhesive.

All systems aim to achieve bonding that permanently prevents water running behind in combination with a water-impermeable structure. To achieve this goal, there must not be any bonding defects in the boundary layer between the pre-applied fully bonded membrane film and the concrete. If contamination, rainwater, damage or other factors impair bonding, these must be removed or repaired prior to concreting. As far as the system is concerned, the consistency of the concrete and the compacting energy can also affect the bonding quality.
TECHNOLOGY AND SYSTEM

THE PRODUCT

SECUFLEX® is characterised by its three-layer structure. The pre-applied fully bonded membrane system comprises HDPE seal sheeting as the sealing layer, an adhesive layer covering the entire surface as well as special granular material at the top. The adhesive area integrated along one edge makes it possible to connect neighbouring strips. The system also includes different sealing tapes, which are used to connect strips and corners depending on the specific situation.

The granular material serves two purposes. On the one hand, it protects the bonding layer against contamination. On the other, it increases the surface area and roughness. The resulting interlocking with the cement paste additionally increases the bonding with the adhesive layer activated by hydration heat and concrete pressure. The mechanical-adhesive bonding created in this way in the contact zone between SECUFLEX® and the concrete structure guarantees the product's basic characteristic: The high bonding strength to the structure and the reliable prevention of water running behind even when subjected to significant amounts of water. To guarantee the perfect function of SECUFLEX®, damage to the seal sheeting and contamination of the granular surface must be prevented or eliminated prior to concreting. In the case of dry, loose contamination, the surface is cleaned by sweeping or extracting. Moist or stubborn dirt is removed using a gentle jet of water. The water used for cleaning, as well as any rainwater, must be removed prior to concreting.

As usual, the familiar joint seals PENTAFLEX®, KUNEX® or PLURAFLEX® protect construction, crack control and expansion joints in the water-impermeable structure. The additional use of SECUFLEX® along the outside of those joints makes for reliable surface sealing, which permanently and securely bridges even wide cracks and prevents water entering separating cracks and defects thanks to full-surface bonding.

SYSTEM CONSTRUCTION

SYSTEM CONSTITUENT PARTS

- SECUFLEX® SMT – HDPE seal sheeting as pre-applied fully bonded membrane film with adhesive layer and special granular material
- SECUFLEX® ST – HDPE sealing strips with adhesive layer and without special granular material for subsequent masking of joints
- SECUFLEX® MT – One-sided self-adhesive sealing tape with laminated HDPE film for connecting butt joints on the water side
- SECUFLEX® PT – One-sided self-adhesive sealing tape with special granular material for application on the concrete side, e.g. for protecting butt joints
- SECUFLEX® DT – Double-sided self-adhesive sealing tape for taping films together to replace or supplement the SMT seal sheeting tape

SYSTEM PRODUCTS FOR A WATER-IMPERVIOUS STRUCTURE

- PENTAFLEX® – The seam sheet system for all construction joints and crack control joints
- KUNEX® – The successful joint tape for all expansion and construction joints
- PLURAFLEX® – The versatile injection hose for all commonly used injection materials
THE PRODUCT
The SECUFLEX® pre-applied fully-bonded membrane system is a surface seal comprising HDPE seal sheeting and different sealing tapes. It is used together with a joint seal system (e.g. PENTAFLEX®) to guard against pressurised water in water-impervious structures. An adhesive layer, combined with a matching special granular material, ensures a bond between the surface seal and the concrete which prevents water from running behind it. In this way, unplanned cracks in the water-impervious structure are reliably bridged and remain permanently dry.

ADVANTAGES
- Very good material properties
- No water running behind due to mechanical and adhesive bonding
- Crack-bridging
- Consistency class from F3
- Bonding independent of vibration energy
- Integrated longitudinal tape

THE APPLICATION
The SECUFLEX® pre-applied fully-bonded membrane system is primarily used for buildings with high-grade utilisation, such as libraries, schools, shopping centres or hospitals. It is intended for use with water-impervious concrete structures and subject to appropriate contractual agreements with the building developer.
TECHNICAL INFORMATION

**SECUFLEX® SMT 1212**
HDPE seal sheeting as pre-applied fully bonded membrane film with adhesive layer and special granular material.
Dimensions:
- \( l = 20 \text{ m} \)
- \( w = 1200 \text{ mm} \)
- \( d = 1.2 \text{ mm} \)

**SECUFLEX® ST 600**
HDPE sealing strips with adhesive layer and without special granular material for subsequent masking of joints.
Dimensions:
- \( l = 20 \text{ m} \)
- \( w = 600 \text{ mm} \)
- \( d = 1.2 \text{ mm} \)

**SECUFLEX® MT 150**
One-sided self-adhesive sealing tape with laminated HDPE film for connecting butt joints on the water side.
Dimensions:
- \( l = 50 \text{ m} \)
- \( w = 150 \text{ mm} \)
- \( d = 0.3 \text{ mm} \)

**SECUFLEX® PT 150**
One-sided self-adhesive sealing tape with special granular material for application on the concrete side, e.g. for protecting butt joints.
Dimensions:
- \( l = 20 \text{ m} \)
- \( w = 150 \text{ mm} \)
- \( d = 1.0 \text{ mm} \)

**SECUFLEX® DT 75**
Double-sided self-adhesive sealing tape for taping films together to replace or supplement the SMT seal sheeting tapes.
Dimensions:
- \( l = 30 \text{ m} \)
- \( w = 75 \text{ mm} \)
- \( d = 1.0 \text{ mm} \)
## TECHNICAL INFORMATION

### MATERIAL CHARACTERISTICS

<table>
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<th>Properties in accordance with DIN 13967</th>
<th>Testing standard</th>
<th>Test result</th>
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<tr>
<td>Visible defects</td>
<td>DIN EN 1850-2</td>
<td>Passed</td>
</tr>
<tr>
<td>Dimensions and deviations</td>
<td>DIN EN 1848-2</td>
<td>Length: 20 m ± 0.10 m Width: 1200 mm ± 5 mm Straightness: Passed</td>
</tr>
<tr>
<td>Thickness and area density</td>
<td>DIN EN 1849-2</td>
<td>Membrane thickness: 0.9 mm (+10/-5%) Area density: 1550 g/m² ± 10%</td>
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<tr>
<td>Watertightness</td>
<td>DIN EN 1928-A</td>
<td>Water pressure 60 kPa (0.6 bar) Passed</td>
</tr>
<tr>
<td>Watertightness</td>
<td>DIN EN 1928-B</td>
<td>Water pressure 400 kPa (4.0 bar) Passed</td>
</tr>
<tr>
<td>Resistance against impact load</td>
<td>DIN EN 12691-A</td>
<td>Fall from 400 mm height</td>
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<tr>
<td>Resistance against impact load</td>
<td>DIN EN 12691-B</td>
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<td>Durability against heat ageing</td>
<td>DIN EN 1296 and DIN EN 1928-A</td>
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<td>Durability against chemicals</td>
<td>DIN EN 1847 and DIN EN 1928-A</td>
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<td>Compatibility with bitumen</td>
<td>DIN EN 1548 and DIN EN 1928-A</td>
<td>Passed</td>
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<td>Tear propagation resistance (nail shank)</td>
<td>DIN EN 12310-1</td>
<td>Longitudinal ≥ 500 N Transverse ≥ 650 N</td>
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<td>Shear resistance of joint seams</td>
<td>DIN EN 12317-2</td>
<td>≥ 650 N/50 mm</td>
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<td>Steam permeability</td>
<td>DIN EN 1931-B</td>
<td>g: 6.97<em>10⁻¹⁰ kg/(m²</em>s) ± 30%</td>
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<td>Resistance against static load</td>
<td>DIN EN 12730-A</td>
<td>Load ≤ 15 kg</td>
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<tr>
<td>Resistance against static load</td>
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<tr>
<td>Resistance against static load</td>
<td>DIN EN 12730-C</td>
<td>Load ≤ 15 kg</td>
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<tr>
<td>Tensile properties (maximum tensile force)</td>
<td>DIN EN 12311-2</td>
<td>Longitudinal ≥ 120 N/6 mm Transverse ≥ 140 N/6 mm</td>
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<tr>
<td>Tensile properties (tearing strength)</td>
<td>DIN EN 12311-2</td>
<td>Longitudinal ≥ 13 N/mm² Transverse ≥ 14 N/mm²</td>
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<tr>
<td>Tensile properties (elongation at tear)</td>
<td>DIN EN 12311-2</td>
<td>Longitudinal ≥ 500 N Transverse ≥ 650 N</td>
</tr>
<tr>
<td>Fire behaviour</td>
<td>DIN EN ISO 11925-2 and EN 13501-1</td>
<td>Class E</td>
</tr>
</tbody>
</table>
INSTALLATION INSTRUCTIONS

PRELIMINARY NOTES

- Ensure the installation area is clean and free from dust.
- Temperature range: 5°C to 40°C.
- Avoid direct sunlight exposure.

- Do not install the product on wet or damp surfaces.
- Do not install the product on hot surfaces.
- Ensure the surface is level and stable.
INSTALLATION INSTRUCTIONS

PRELIMINARY NOTES
INSTALLATION INSTRUCTIONS

FLOOR

1. SMT 1212

2. MT 150

3. ≥ 500 mm

4. SMT 1212

5. MT 150

6. ≥ 500 mm

7. PT 150

8. ≥ 500 mm

9. ≥ 500 mm
INSTALLATION INSTRUCTIONS

FLOOR

1. 

2. 

3. 

4. 

5. 

Our Applications Technology department would be pleased to assist in finding further solutions.
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E-mail: technik@h-bau.de
INSTALLATION INSTRUCTIONS

FLOOR

1

2

3

MT 150

4

5

PT 150

6
INSTALLATION INSTRUCTIONS

INNER CORNER

1. Roll out the material and place it on the floor.
2. Cut a piece of the material to fit the inner corner.
3. Apply adhesive to the back of the piece and press it into the corner.
4. Trim the excess material around the corner.
5. Smooth the material with a trowel to ensure it is flat.
6. Place a strip of tape over the joint to secure it.
7. Cut a small piece of material to fit the corner and place it over the tape.
8. Apply MT 150 adhesive to the base of the corner and press the piece in place.
9. Apply PT 150 adhesive to the rest of the corner and press the piece in place.
INSTALLATION INSTRUCTIONS

OUTER CORNER

1

2

3

4

5

6

MT 150

PT 150
INSTALLATION INSTRUCTIONS

DETAILS (PENETRATION)

LP 1K

LP 1K
INSTALLATION INSTRUCTIONS

DETAILS (BORED PILE)
INSTALLATION INSTRUCTIONS

GENERAL
INSTALLATION INSTRUCTIONS

DETAILS

ABS

AS-CV
INSTALLATION INSTRUCTIONS

WALL

1. Roll out the material.
2. Lay down the material flat.
3. Mark the edges for cutting.
4. Cut the material according to the measurements.
5. Place DT 75 along the base.
6. Apply the finishing material.
INSTALLATION INSTRUCTIONS

WALL

ST 150x150

ST 600
ACCESSORIES

PR 50 PRESSURE ROLLER

PR 90 PRESSURE ROLLER

PR 100 L PRESSURE ROLLER

LP 1K LIQUID PLASTIC

SILICA SAND

EM EPOXY RESIN MORTAR
ACCESSORIES

INNER CORNER
EXTERNAL CORNER
ST 150X150

SHUTTERING STRIP A-CV
SHUTTERING STRIP AS-CV
SHUTTERING ELEMENT ABS
ADDITIONAL PRODUCTS

IN LINE WITH WATERTIGHT STRUCTURE GUIDELINES

PENTAFLEX® SEALING SYSTEM

PENTAFLEX® is a system for sealing joints designed for the construction of water-impervious concrete structures (white tank). The PENTAFLEX® elements are fully coated and were developed for buildings with high-grade utilisation. They ensure reliable sealing of joints in wall/floor or wall/ceiling areas, joints in wall/wall or floor/floor areas as well as joints in in-situ concrete and wall element constructions.

KUNEX® JOINT TAPES

The KUNEX® joint tapes securely seal construction and expansion joints in concrete. KUNEX® joint tapes guarantee an excellent mechanical connection between the concrete components and therefore reliable sealing. The joint tapes are made from extremely high-quality thermoplastic PVC-P/TPE. The sealing tubes are used to seal dummy joints. Object-specific joint tape designs are used to create watertight connections in existing structures.

PLURAFLEX® INJECTION HOSES

The PLURAFLEX® injection hose is a joint seal supplement to the PENTAFLEX® sealing system. The injection hoses are used in building construction, civil engineering and structural engineering where methodical sealing of construction joints is required. For tunnel construction in particular, this is the best solution for the first lowering under pressure.
SERVICE

We provide the standard details of our products to facilitate planning and implementation.

Our Applications Technology department would be pleased to assist you with further questions.
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READY TO GO: OUR TENDER DOCUMENT TEMPLATES.
Our tender document templates can be quickly and easily embedded in your tender program, e.g. with the tender managers at www.ausschreiben.de or www.heinze.de.

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FOR PLANNING AND APPLICATION: OUR VIDEOS AND SOFTWARE.
In addition to our installation and reference films, we also provide you with various software solutions, such as calculation programs, free of charge on our website.

HOTLINES

Personalised support when planning and executing projects:

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WE WILL BE WHEREVER YOU ARE.

Thanks to our global sales network, expert specialist advisors are available to you on a national level and on an international level. If there is no contact partner listed for your country, contact our Head Office in Klettgau – we will be happy to provide you with further assistance.
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Forward Constructing.

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