

Triflex

Delivering solutions together.

From the liquid-applied waterproofing specialist

Industrial roof systems

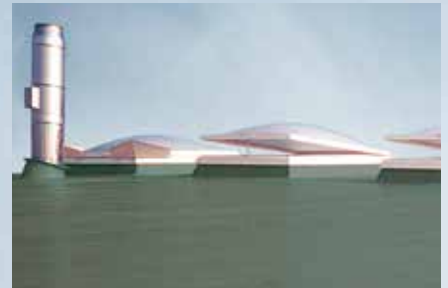


FLAT ROOFS | ROOF FLASHINGS

Triflex solutions for industrial roofs and roof flashings

Multiple challenges. One solution.

All year round, industrial roofs in particular are exposed to the elements, as well as mechanical, thermal and chemical loads. Wall and skylight joints, roof penetrations such as ventilation pipes and even junctions are particularly susceptible. Here, moisture penetration, cracks and weathering can have an impact on the fabric of the building. Triflex roof systems offer a solution to handle even the most demanding challenges with ease. The systems tailored to the application not only reliably and permanently waterproof surfaces, but also complicated details. Furthermore, they offer sustainable waterproofing, even in high temperatures and strong direct sunlight. High-quality products, more than 40 years of experience and know-how paired with a comprehensive and expert service make Triflex the partner to turn to when it comes to premium roof systems.



Triflex system strengths

Your requirements for the perfect roof.



Fleece-reinforced waterproofing of details, junctions, joints and surfaces.
Long-lasting protection equals safety, especially in particularly challenging areas.



Highly reactive liquid-applied waterproofing that is rainproof within 30 minutes.
Simple application and quick project implementation.



Hydrolysis-resistant and extremely resistant to chemical influences
Long-lasting functional solutions which ensure great reliability.



Certified and proven service life of more than 25 years.
Long service life, longer intervals between refurbishments and considerable increase in property value.

Thoroughly impressive.



Unbeatably versatile.

Whether you're dealing with a new build, a refurbishment project or minor repairs, surface waterproofing, details, complex roof structures, green roofs or different substrates, Triflex offers the ideal, customised and long-lasting solution to meet every challenge.



Extremely durable.

Triflex solutions are certified in the highest performance categories and have performed successfully in extensive tests and in long-term practical use. The expected service life of the waterproofing in accordance with ETAG 005 is 25 years.



Extremely waterproof down to the smallest detail.

Whether you're dealing with penetrations, columns, ventilation pipes, joint details or special structures, Triflex solutions come into their own when handling complicated details. The flexible material together with the fleece reinforcement ensures seamless and jointless waterproofing.



Easy, full-surface adhesion to most substrates.

Highly reliable application in combination with other materials, such as PVC, metals, bitumen, wood.



Maximum loading level.

Reliable waterproofing of even soft roofing membranes and thermally insulated surfaces.



Can be used in substrate temperatures from -5 °C to +50 °C.

Reliable planning and application regardless of the weather conditions and time of year.



Highest classification in accordance with European standards B_{ROOF} (t1), (t2), (t3), (t4).

Flameless application, cured with optimum protection against external fire exposure.



Made in Germany.

With Triflex roof systems, you're on the safe side when it comes to surface and detail waterproofing. At Triflex, we regard continuous internal and external quality controls in production and extensive field tests prior to market launch as essential.

- **Highest possible categories as per ETAG 005 (W3, M and S, P1–P4, S1–S4, TL4, TH4).**
- **Certified safety as per ETA, root- and rhizome-resistant as per FLL and according to DIN EN 13948.**
- **Approved without restrictions for standard designs and roofs with stringent requirements.**



Roof surface usage

The diversity of industrial roofs

A waterproofing system must adapt to the conditions on the flat roof, offer maximum design variety and perform its function without compromise, even in terms of the mixture of materials. To put it simply, the roof must be watertight. Only an intelligent roof system can meet these requirements.

By choosing Triflex liquid-applied waterproofing systems, you are choosing a long-term solution. Reference projects spanning over 40 years in this field demonstrate the quality of our solutions. Triflex systems can be used both for refurbishment and for new buildings. The diverse properties of the material can generally spare the client the expense of removing the existing waterproofing system. With a low mass per unit area and full-surface adhesion, Triflex systems can be applied to old waterproofing systems.



Homogeneous surfaces

Thanks to the seamless and jointless waterproofing of skylights, roof penetrations and vents, and the mixture of materials.



Sawtooth roofs

Complicated, partially vertical roof geometries and substrate variability.



Metal roofs

Reliable long-lasting protection against corrosion. Solutions for a range of expansion coefficients.



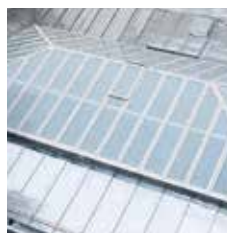
Complex structures

Technically sophisticated, flexible use to meet the most stringent requirements. Flameless application at low installation height.



Curved and dome roofs

Elaborate design, generally with a steep gradient and a mixture of materials.



Roofs made of glass, polycarbonate, acrylic

Excellent adhesion, highly detailed waterproofing of, among other things, joints and penetrations.



Solar roofs

Strong to vertical gradient, high light reflection and limited chance of heating up.



Details

Seamless and jointless detail waterproofing, absorption of structural movements. Solutions for building weak points.



Industrial sites – production sites

Cost-effective alternatives: refurbishment instead of demolition.

Refurbishments can be costly undertakings if the existing roof build-up has to be removed and a new structure installed, so as not to put the stability at risk.

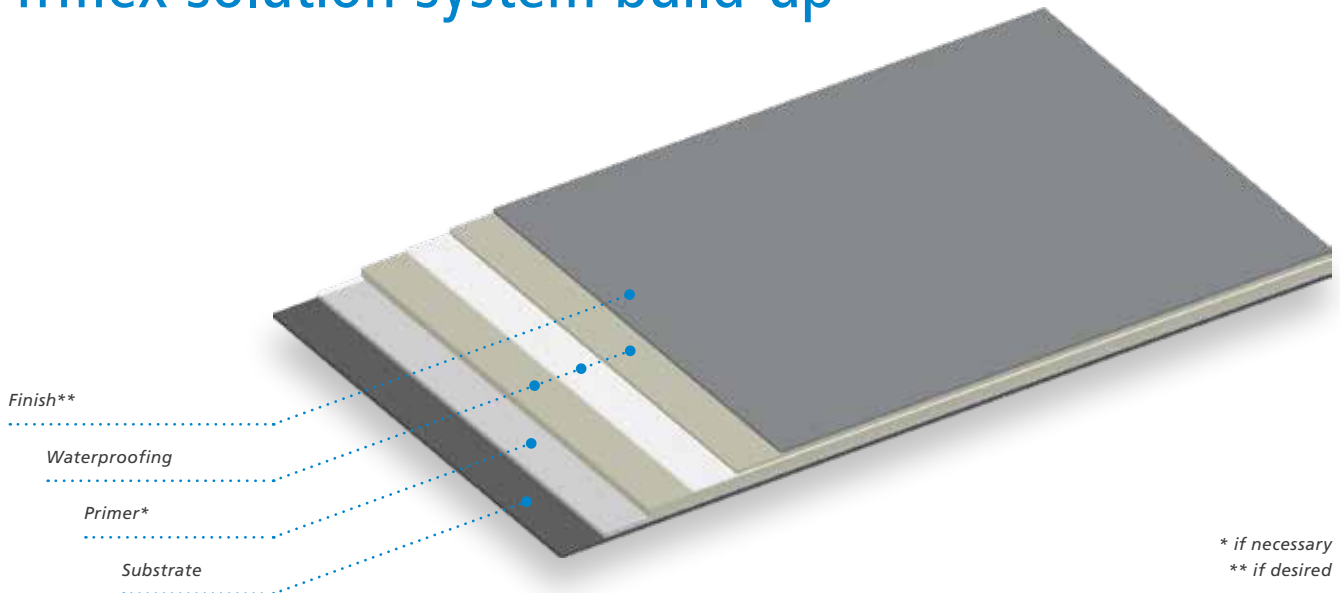
With a low mass per unit area and full-surface adhesion, Triflex systems can be applied to old waterproofing systems. A protective layer is not necessary, since the material is highly resistant to both weather and chemicals. Triflex liquid-applied waterproofing is vapour-permeable, meaning that the structural properties of existing functional layers are not negatively affected.



Examples of industrial roofs in need of refurbishment:

- 1 Glass roof with metal struts
- 2 Platform with device
- 3 Inset drainage channel
- 4 Flat roof with metal substrate
- 5 Pitched metal roof

Triflex solution system build-up



System strengths

- + Efficient surface waterproofing
- + Hail impact test as per DIN EN 13583
- + Low surface weight of less than 4 kg/m²
- + Root- and rhizome-resistant as per FLL and according to DIN EN 13948
- + Highest performance classes as per ETAG 005
- + Suitable for normal pedestrian traffic
- + No further overlays for surface protection needed
- + Hydrolysis-resistant
- + Chemically resistant to red algae, bird droppings, oils and greases
- + Compatible with bitumen and PVC
- + Certified to ETA, BBA, CSTB

Additional products

- + White waterproofing for solar roofs
- + Non-slip, coloured coating for maintenance paths in signal colours



CE	
Triflex 03	
ETA-03/00020 Roof waterproofing Triflex ProTect	
Usage categories:	
Stress from external fire exposure in compliance with DIN EN 13501-5:	B _{ROOF} (t1), B _{ROOF} (t2) B _{ROOF} (t3), B _{ROOF} (t4)
Fire classification DIN EN 13501-1:	Class E
Working life:	W3
Climate zones:	M and S
Payloads:	P1 to P4
Roof slopes:	S1 to S4
Lowest surface temperature:	TL4
Highest surface temperature:	TH4
Statement on hazardous substances:	none contained



+ Fire protection.

Best European fire protection:
B_{ROOF} (t1), (t2), (t3), (t4)
(corresponds to DIN EN 13507-5).
Safe application for fire protection,
due to flameless, cold application.

+ Certified safety.

For standard designs and high-quality designs
with stringent requirements.

Seamless and jointless

Solutions for homogeneous roofs

Repairs are necessary from time to time if minor leaks arise in a building. Most are caused by a combination of materials with different expansion coefficients, which may occur in penetrations and joints. Triflex waterproofing systems adhere to up to around 90 % of all substrates generally available on the flat roof market. This gives you confidence in your combination of materials. All Triflex systems are highly resilient and flexible in low temperatures and have excellent mechanical properties thanks to fleece reinforcement. Liquid application ensures seamless and jointless waterproofing of all details. Thanks to their multi-layer design, Triflex liquid-applied waterproofing systems offer maximum protection from water penetration compared to conventional sheeting.

- Substrate flexibility
- Mixture of materials
- Reliable waterproofing of details
- Best fire protection



Situations on homogeneous roofs:

- 1 Skylights
- 2 Upstands on ventilation pipes
- 3 Fascia
- 4 Organic building design

Reliable protection of complicated geometries

Solutions for sawtooth roofs

Sawtooth constructions offer a large surface area for moisture ingress. The, in places, almost vertical roof areas, as well as complex details and the meeting of a wide range of materials at corners, windows, vents and drains place great demands on the waterproofing system. Triflex liquid-applied waterproofing, with its product combinations, is able to satisfy these demands. The Triflex waterproofing systems bond with a range of different materials, as well as on pitched surfaces, are weather and UV-resistant and reliably mould themselves to any substrate like a second skin. In combination with strengthening and crack-bridging reinforcement fabrics, the detail waterproofing system ensures reliable protection for complicated roof geometries.

- Geometry
- Mixture of materials, e. g. glass
- Steep gradient
- Light permeability



Examples of sawtooth roofs:

- 1 Sawtooth roof with glass flashings
- 2 Upstands on sawtooth roof
- 3 to 4 waterproofing under PU foam

Protection against corrosion

Solutions for metal roofs

Triflex offers a functional coating that was specially developed for metal roofs. It protects against corrosion and prolongs the life of metal roofs and constructions. The single-component, aqueous functional coating acts like a protective coat over the roof covering. Scratches and dents are encased by the elastic coating with a high polymer base, so that cracks and scaling cannot occur. Additional anti-corrosive pigments ensure complete protection against rust. When used together with the fleece-reinforced, liquid-applied waterproofing for all metal overlaps and details, the result is reliable long-lasting protection, which is also available in different colours.

- Consideration of different expansion coefficients
- Perfect adhesion
- Low mass per unit area
- Protection against corrosion



Examples of metals roofs:

- ① Roof supporting structure
- ② Warehouse
- ③ Roof detail
- ④ Inset drainage channel

Flexible use to meet the most stringent requirements

Solutions for complex structures

There are structural conditions that are hard to access and make it harder to apply fleece-reinforced waterproofing systems. In such cases, a fibre-reinforced, liquid-applied waterproofing solution which requires no extra reinforcing with fleece is ideal. This roof waterproofing system can be applied at low temperatures, adhere to all conventional substrates and is particularly suitable for details.

- Wide range of details
- Hard to access
- Variability



Examples of complex structures:

- 1 Wide range of details on working platform
- 2 H-beams
- 3 Details on metal roof
- 4 Ventilation units on flat roof

Adhesion also without mechanical fastening

Solutions for curved and domed roofs

Curved and dome roofs are characterised by their complex structure, generally with a steep gradient and a mixture of materials. The proven Triflex waterproofing system, combined with our many years of experience in detail solutions ensure reliable solutions for waterproofing roofs. The product adheres to virtually all substrates, often without the need for primer and requires no mechanical fastening whatsoever. Furthermore, the adhesion of the dynamic, crack-bridging, liquid-applied waterproofing is completely safe from water penetration and protects the fabric of the building against weather influences even after years of exposure. Even vertical surfaces and joints are seamlessly incorporated into the waterproofing.

- Demanding geometry
- Application even on roofs with steep gradients
- Suitable for vertical application
- Best fire protection



Examples of curved and domed roofs:

- 1 Listed industrial warehouse
- 2 Extensively decorated domed roof
- 3 Glass flashings on curved roof
- 4 Domed roof of a nuclear power plant

Highly detailed waterproofing

Solutions for roofs made of glass, polycarbonate, acrylic

Joint waterproofing on glass roofs is a particular challenge. Even brittle putty can allow rainwater to penetrate. Here, our special solution ensures excellent adhesion to glass and a highly detailed, long-lasting refurbishment. The single-component primer is a time-saving, reliable solution that can be applied to the substrate without any prior grinding or sanding. It cures in no time at all, so that the subsequent system components can be applied after a short period of time. The fleece-reinforced, detail waterproofing easily absorbs movements from the building structure and provides long-lasting protection against extreme weather conditions such as UV radiation – down to the very last detail.

- Excellent adhesion
- Highly detailed waterproofing
- Low joint width
- Light permeability



Wide range of application examples for Triflex solutions on roofs made of glass, polycarbonate and acrylic

High light reflection

Solutions for solar roofs

For optimised energy yield on flat roofs with solar and photovoltaic systems, a white finish of the roof waterproofing has proven very effective. The utilisation factor of a photovoltaic system can be increased by lower ambient and operating temperatures. A bright, white surface reflects the sunlight. Only a small part of the energy is absorbed by the roof surface in the form of heat, so that it is possible to reduce the surface temperature from 75 to 50 °C and increase the efficiency of the PV system. Special cylindrical photovoltaic modules with a 360 °C irradiation radius also enable an increased energy yield thanks to the white finish, which has a high light reflection of some 95 percent.

- Geometry
- Strong to vertical gradient
- High light reflection
- Best fire protection



Application examples for waterproofing solutions on flat roofs with solar and photovoltaic systems

Unaffected by any movements of the structure

Solutions for details

It is not just surface waterproofing that ensures the complete water-tightness of a flat roof; the solution for joints and details is also crucial. It only takes one single weak point to compromise the functionality of the overall waterproofing membrane. A waterproofing system developed specially for joints that ensures the lasting reliable protection of details. It is able to mould itself exactly to the details of the roof and provide a seamless and joint-free solution. Triflex systems can be factory-set so that they can be used at substrate temperatures of -5 °C. These liquid solutions are rainproof after approx. 30 minutes and completely cured in approx. 45 minutes (PMMA). Repairs can therefore be reliably performed in all weathers.

- Seamless and jointless surface
- Waterproof down to the smallest detail
- Substrate flexibility
- Movements in the building structure



Examples of details:

- ① Upstand
- ② Drainage outlet
- ③ Settlement joint
- ④ Drainage channel

Solutions for used roofs

Green roofs

Green roofs aren't just visually pleasing; they also combine a multitude of economic and ecological benefits. In accordance with the guidelines set down by the Forschungsgesellschaft Landschaftsentwicklung Landschaftsbau e. V. (FLL – The Landscaping and Landscape Development Research Society) and DIN EN 13948, Triflex waterproofing systems are root and rhizome-resistant, meaning that the waterproofing layer will not be damaged and sustainable roof waterproofing is guaranteed.

- Rhizome-resistant waterproofing
- Jointless waterproofing



Solutions for used roofs

Roof terraces

Conversion of flat roofs to roof terraces places great demands on the waterproofing material used. Triflex systems offer many impressive advantages compared to conventional waterproofing sheeting. The fully fleece-reinforced roof surface waterproofing system is long-lasting, can withstand mechanical loads, is highly weather-resistant and ensures longer intervals between refurbishments. It can also be used underneath other coverings, such as gravel, paving or grass. Its high resistance to hydrolysis means it can even be used in standing water applications.

- Withstands mechanical loads
- Under other coverings





Solutions for maximum safety

Safety roof

You can make flat roofs safer for maintenance personnel to walk on, by applying a non-slip coating in signal colours. Dangerous areas around the perimeter can be marked, as can inspection and maintenance paths for technical equipment. The durable, UV/IRresistant coating is available in a wide range of colours and can be applied to plastic or bitumen sheeting.

- Long-lasting protection
- Maintenance paths
- Also for the preservation of historical buildings



Solutions for visually appealing geometries

Design

Modern, unusual architecture and design make waterproofing particularly challenging. Triflex systems easily adhere to the surface in question and are the ideal solution for long-lasting waterproofing even when dealing with architecturally challenging and complex areas.

- Varied
- Individual
- Long-lasting
- Wide range of colours

SOLVED TOGETHER.

As the leading specialist for liquid-applied waterproofing and coatings in Europe, as well as a pioneer in innovative resin technology, Triflex has the solution for any task. For more than 40 years, Triflex has been researching and developing solutions for the protection, improvement and repair of the built environment. With our globally successful history and committed technical support, we work together closely with our clients – **solved together.**



CONSULTATION

Triflex listens to and works closely with its clients – this enables us to offer top-quality technical services and support – right through to completion of the project.

ASSESSMENT

At Triflex, it is our aim to make your life easier. On request, the Triflex team will visit your building site and make suggestions for further investigations and tests.

DESIGN

Triflex evaluates your project and helps you create an individual specification on the basis of the most suitable and tailor-made Triflex waterproofing and coating system.

Triflex roof systems

Reference projects.



Valbruna steelworks in Vicenza (IT)

- Waterproofing of flat roof incl. vertical surfaces
- Completed 2009



Nosta Forwarding Company, Stadthagen (DE)

- Solar roof
- 25,000 m² surface waterproofing
- 4.600 joints
- Completed 2009



Volkswagen Motor in Polkowice (PL)

- Flat roof
- PVC foil
- Galvanised steel
- Waterproofing details
- Completed 2014



Tower silo Corus Aluminium in Voerde (DE)

- Pumice slab roof
- Bituminous waterproofing incl. details
- Completed 2001



Municipal utilities (Stadtwerke) in Bamberg (DE)

- Bituminous pressed gravel roof
- Photovoltaic system
- 2,000 m² surface waterproofing
- Completed 2009



Kelvin company premises in Besnate (IT)

- Flat roof
- 900 m² surface waterproofing incl. details
- Slated bituminous sheeting
- Completed 2014



Fly ash silo RWE power plant in Hamm (DE)

- Flat roof
- Reinforced concrete
- Approx. 1,600 m² surface waterproofing incl. details
- Completed 2012



Industrial hall in Duisburg (DE)

- Flat roof
- In-situ PU foam
- 1,300 m²
- Waterproofing details
- Completed 2011

SOLUTION

Working together as a team, Triflex compiles all aspects of the project with the planner, the contractor and the owner and draws up an individual solution.

TRAINING

Triflex works exclusively with competent and certified partners who are highly trained in the application of our systems. Our technical team also offers on-site support and quality controls.

WARRANTY

Triflex solutions have the highest classification and comply with a wide range of European standards and regulations, such as ETAG 005, CSTB, BBA and EN 1504-2. Our faith in our solutions is supported by extensive warranties.

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