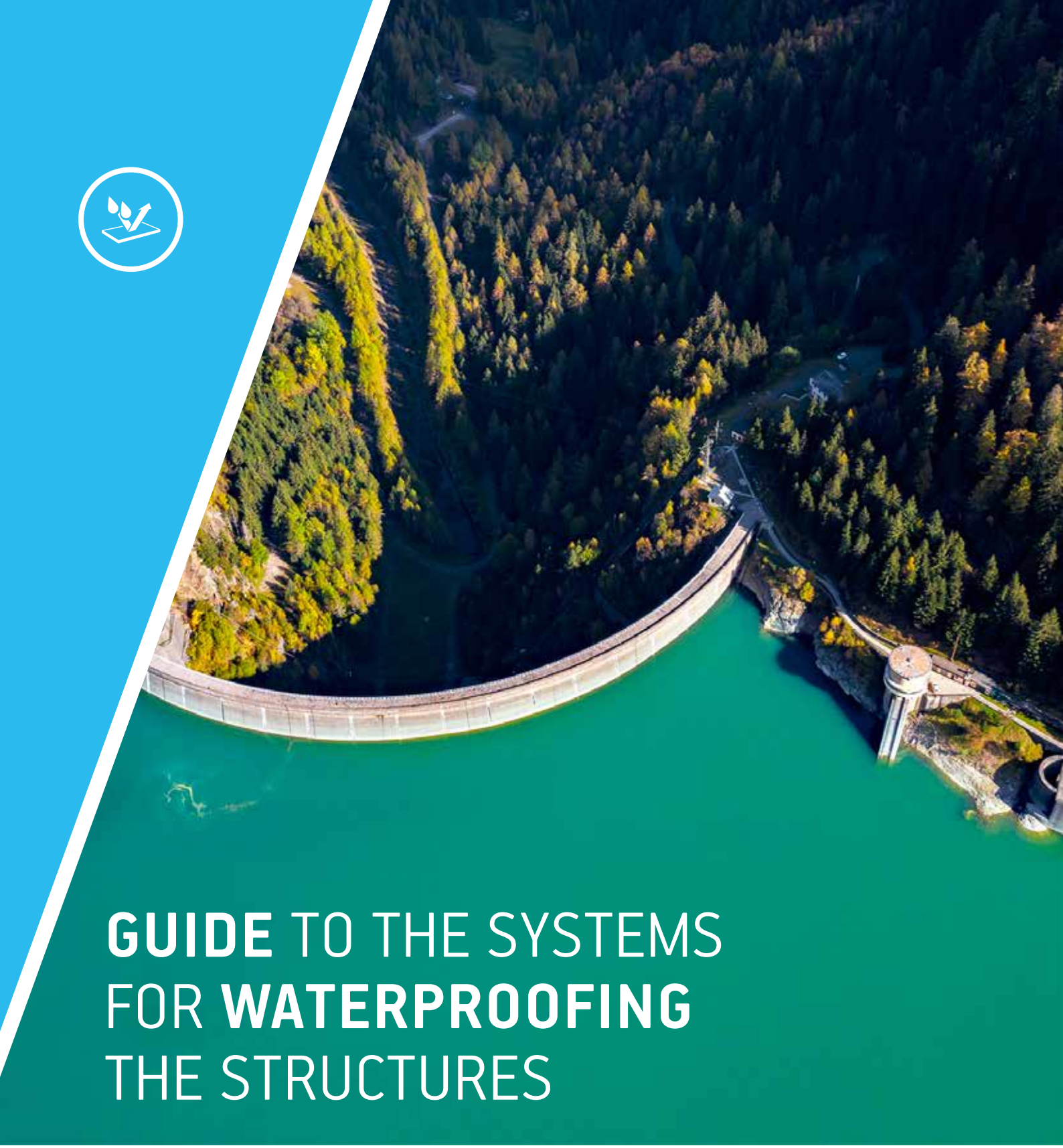


GUIDE TO THE SYSTEMS FOR **WATERPROOFING** THE STRUCTURES

TECHNICAL BOOK FOR PLANNING
WATERPROOFING WORK
BELOW AND ABOVE GROUND

www.draco-edilizia.it

DRACO

QUALITY YOU CAN BUILD ON

LOOKING AHEAD FOR OUTSTANDING PERFORMANCE

For over 40 years we have been looking at the future of Italian housing stock with products and systems based on cutting-edge research and state-of-the-art technology.

THE COMPANY

A PROFESSIONAL TRADITION HONED OVER TIME

DRACO's story began in the 1980s, when the company took its first steps in the field of mortars and admixtures for concrete. It has since continued to grow and diversify its product range, while specialising and increasing its presence in the field and offering comprehensive solutions to meet all construction needs.

The DRACO range offers many solutions with one goal in mind: to achieve absolute quality on site thanks to the certainty of performance. All the products are designed to ensure optimal performance on the work site and to make them last over time.

DRACO offers assistance and advice from design to execution of the work. A flexible customer-oriented structure allows DRACO to provide not only quality products but also a service capable of making a difference.
The staff, who are scrupulously trained, are able to assist the customer in choosing the most suitable solution to improve work on site.

40 ANNIVERSARY 1982 - 2022

QUALITY YOU CAN BUILD ON

WE BUILD A WORLD MADE TO LAST

DRACO HAS BEEN DEVELOPING AND PRODUCING STATE-OF-THE-ART TECHNICAL SOLUTIONS FOR THE CONSTRUCTION INDUSTRY SINCE 1982

Quality, advanced technology, and a touch of tradition. These are what make DRACO currently one of the top Italian players in the field of design and production of building chemicals. The company has earned this title in the field, thanks also to an ambitious qualification programme involving Italy's best universities and most authoritative bodies, which has led to over 300 certifications.

www.draco-edilizia.it

CONTENTS

WATERPROOFING WORK ABOVE GROUND

CONTENTS

WATERPROOFING WORK BELOW GROUND

WATERPROOFING OF UNDERGROUND STRUCTURES, FOUNDATIONS, GARAGES AND CELLARS

SYSTEMS:

RELATED PRODUCTS:

SYSTEMS:

RELATED PRODUCTS:

PRODUCTS FOR WATERPROOFING AND HYDRAULIC SEALING OF JOINTS AND CASTING JOINTS

INJECTIONS WITH HYDROACTIVE RESINS TO PROTECT AGAINST WATER INGRESS


DRACO

WATERPROOFING SYSTEMS: THE GENERAL CRITERIA

A structure is made impermeable not just through the use of a single waterproofing product, but rather with the design of a system consisting of several specific technologies for application on continuous surfaces and for the protection of critical points, in order to ensure continuity and watertightness.

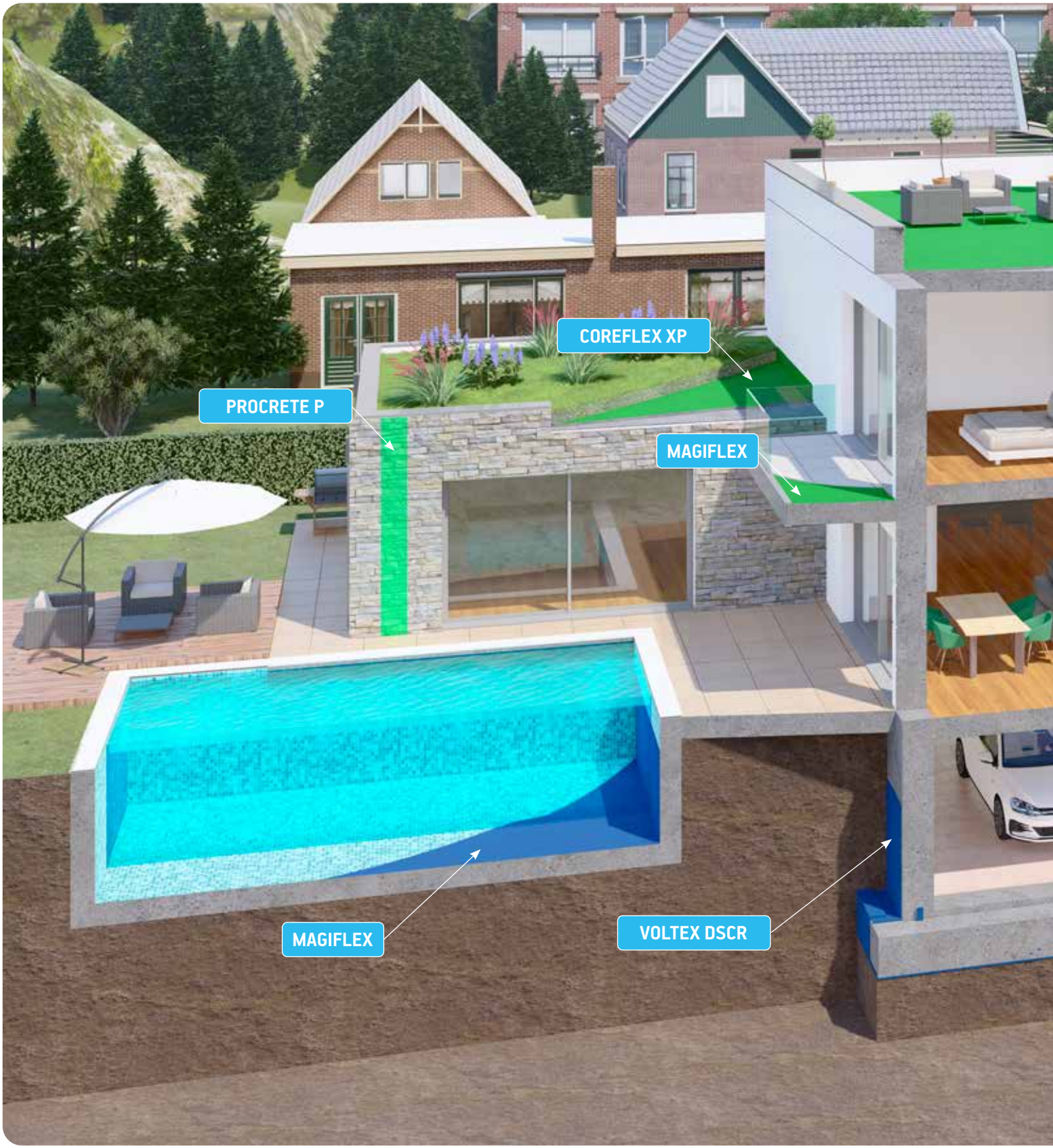
When it comes to waterproofing, the details are what make the difference and there is no such thing as the perfect system. Certain systems are recommended for specific contexts, depending also on the design needs.

Water

Water is the main reason for the degradation of civil and industrial structures, as it causes freeze and thaw phenomena, conveys aggressive agents (carbon dioxide, chlorides, etc.) inside the materials and creates the ideal habitat for the development of pathogens (moulds, fungi, etc.). It is therefore necessary to prevent the excessive persistence of water inside building materials, in order to avoid their degradation.

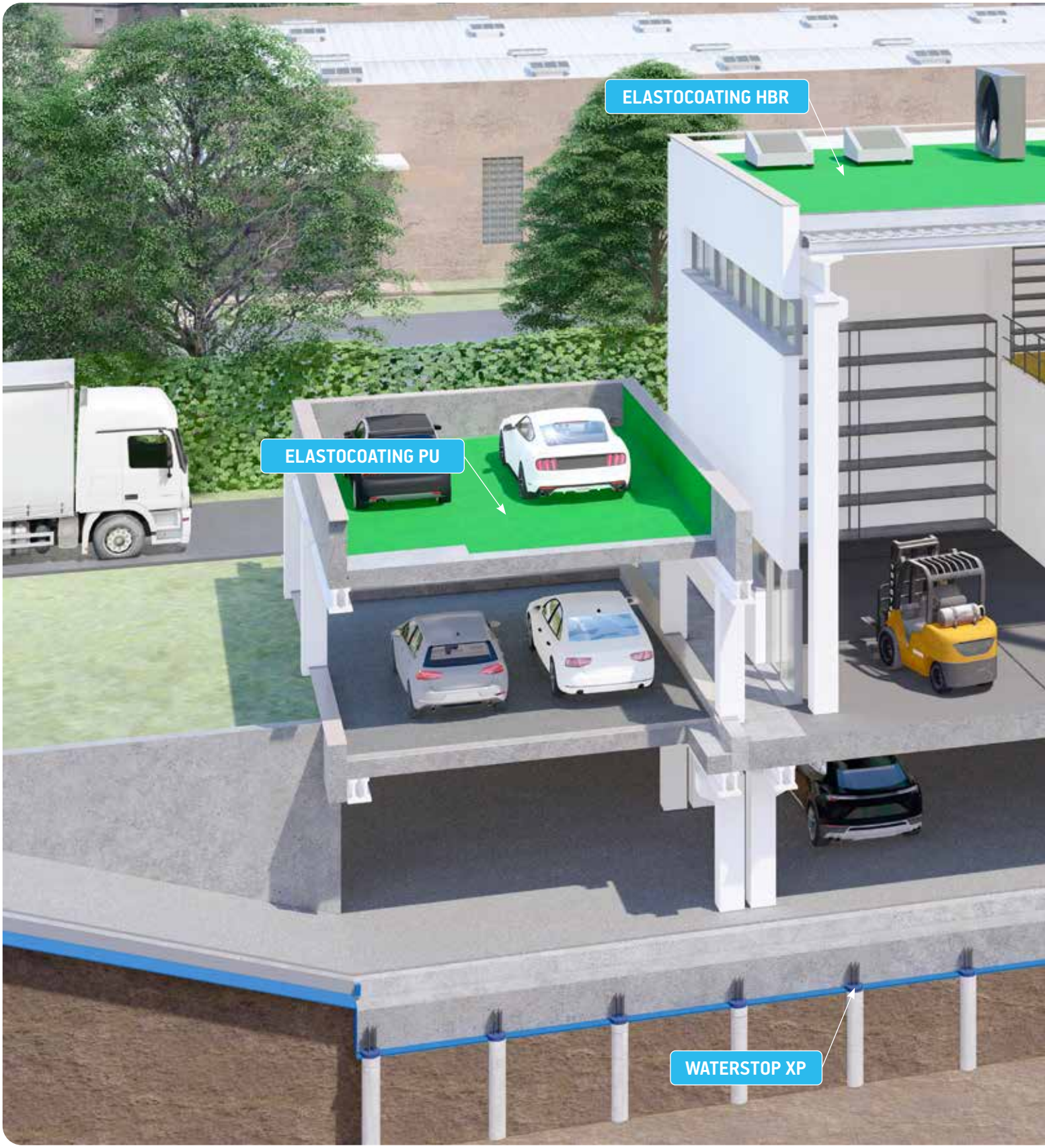
Protection against the degrading action of water is a requirement both for structures above ground, directly exposed to rainwater, and for those below ground. This guide aims to provide solutions for all situations where proper and long-lasting waterproofing of structures is required.

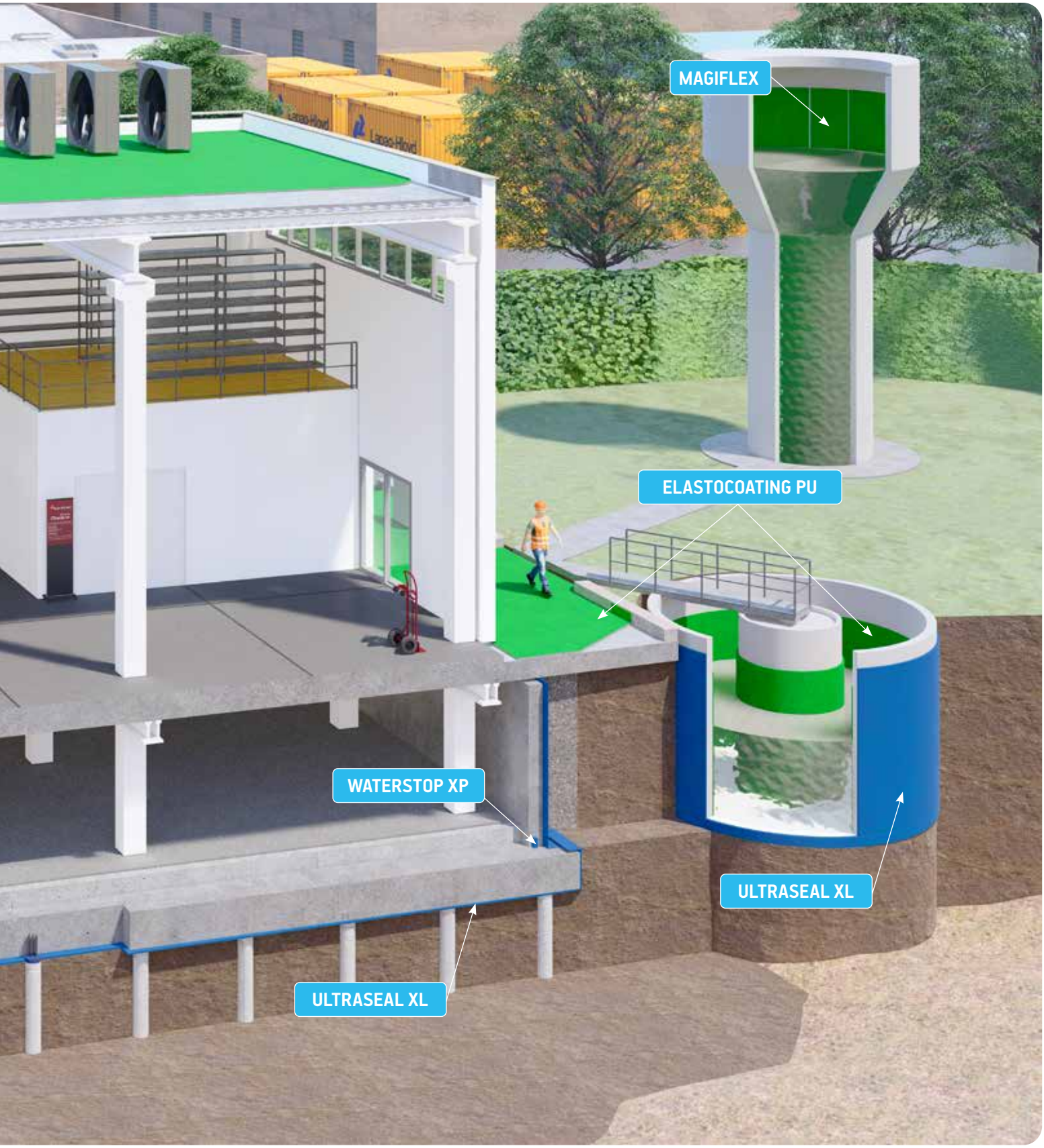
Products and systems for the waterproofing of civil structures and in urban contexts




ELASTOCOATING EP
COREFLEX XP
VOLTEX DSCR
VOLTEX CR
WATERSTOP XP
VOLTEX CR

Products and systems for the waterproofing of industrial structures and production premises




MAGIFLEX
ELASTOCOATING PU
WATERSTOP XP
ULTRASEAL XL
ULTRASEAL XL

SUMMARY TABLE OF WATERPROOFING SYSTEMS

AREAS OF APPLICATION AND PRODUCTS	DESCRIPTION	ABOVE GROUND				
		HORIZ/VERT SURFACES	JOINTS	STRUCTURAL JOINT	DRINKING WATER	UNDER HOT MIX ASPHALT
TERRACES AND BALCONIES						
MAGIFLEX	WATERPROOF FLEXIBLE CEMENT MORTAR	●				
ELASTOCOATING EP	EPOXY-POLYURETHANE LIQUID MEMBRANE	●				
ELASTOCOATING PU TOP	ELASTIC POLYURETHANE MEMBRANE	●				
MAGINET	ALKALI-RESISTANT REINFORCEMENT MESH	●				
MAGIJOINT BT	BUTYL RUBBER ADHESIVE TAPE		●			
FLEXIJOINT + EP FIX HP	TPE + EPOXY ADHESIVE TAPE			●		
TANKS AND SWIMMING POOLS						
MAGIFLEX	WATERPROOF FLEXIBLE CEMENT MORTAR	●			●	
DRACOSEAL	OSMOTIC CEMENT MORTAR	●			●	
MAGINET	ALKALI-RESISTANT REINFORCEMENT MESH	●				
MAGIJOINT	WATERPROOF TAPE FOR JOINTS		●			
FLEXIJOINT + EP FIX HP	TPE + EPOXY ADHESIVE TAPE			●		
ROOFS, COVERINGS AND GREEN ROOFS						
ELASTOCOATING PU	POLYUREA RESIN	●				
ELASTOCOATING HBR	POLYURETHANE RESIN	●				
COREFLEX XP	ACTIVE POLYMER BASED SHEET	●				
FLEXIJOINT + EP FIX HP	TPE + EPOXY ADHESIVE TAPE			●		
BRIDGES AND VIADUCTS						
ELASTOPROOF	EPOXY-POLYURETHANE RESIN	●				●
ELASTOBITUME	EPOXY-BITUMINOUS COATING	●				●
MAGIFLEX CLE	WATERPROOF FLEXIBLE CEMENT MORTAR	●				
TREATMENT OF EXPOSED SURFACES						
IDROSILOXAN	HYDROPHOBIC TREATMENT IN AQUEOUS VEHICLE	●				
SILOXAN V	SOLVENT-BASED HYDROPHOBIC TREATMENT	●				
PROCRETE P	WATER- AND OIL-REPELLENT IN SOLVENT PHASE	●				
UNDERGROUND STRUCTURES						
VOLTEX	BENTONITE-BASED SHEET					
VOLTEX DS	BENTONITE + PE BASED SHEET					
VOLTEX CR	BENTONITE-BASED SHEET					
VOLTEX DS CR	BENTONITE + PE BASED SHEET					
ULTRASEAL XL	ACTIVE POLYMER BASED SHEET					
WATERSTOP RX 101/103	BENTONITE JOINT					
DRACOJOINT	BENTONITE AND BUTYL RUBBER JOINT					
WATERSTOP XP	JOINT BASED ON ACTIVE POLYMERS					
SEALJOINT	BUTYL RUBBER JOINT					
MAGISWELL 101	HYDRO-EXPANDING MASTIC					
WATERSTOP IN PVC	PVC JOINT					
MAGIFLEX BRAVO	WATERPROOF FLEXIBLE CEMENT MORTAR					
GARAGES & CELLARS						
MAGIFLEX BRAVO	FLEXIBLE CEMENT MORTAR					
MAGISWELL 101	HYDRO-EXPANDING MASTIC					
HYDROPLUG	MORTAR FOR INSTANTLY BLOCKING THE INGRESS OF WATER					
VOLTEX	BENTONITE-BASED SHEET					
WATERSTOP RX 103	BENTONITE JOINT					
FLEXIJOINT + EP FIX HP	TPE + EPOXY ADHESIVE TAPE					
INJECTIONS						
DRACOGEL GT2	ACRYLIC GEL					
MAGISTAR	POLYURETHANE RESIN					
MAGISTAR 2K	POLYURETHANE RESIN					

BELOW GROUND										
SLAB	PRE-CAST WALLS	POST-CAST WALLS	NEGATIVE PRESSURE WALLS	CASTING JOINT	STRUCTURAL JOINT	PASSING BODIES	WATER INGRESS	FRESH WATER	SALINE WATER	SALINE AND CONTAMINATED WATER
								●	●	●
●	●							●		
		●						●		
●	●								●	
		●							●	
●	●	●						●	●	●
				●	●			●		
				●	●			●		
				●	●				●	●
				●	●				●	●
						●		●		
					●			●	●	●
		●								
			●	●				●	●	
						●		●		
							●	●	●	
●	●	●	●					●		
						●		●		
				●	●		●	●	●	●
							●			
							●			
							●			

WATERPROOFING WORK ABOVE GROUND

Structures and infrastructures above ground are constantly exposed to the aggressive action of atmospheric agents that can cause the ingress of water, compromising the healthiness of the environments concerned (as in the case of coverings, roofs and terraces) or even compromising the durability of the works also from a static point of view.

A good waterproofing system, in addition to guaranteeing the durability of the works by protecting them against chemical attacks and the disruptive action of freeze-thaw cycles, must not require frequent or expensive maintenance, and should be designed to protect both the most exposed parts and the internal parts of the structure, and safeguard critical points in particular.

This guide contains DRACO waterproofing products and systems designed and developed to ensure the perfect watertightness of:

- terraces and balconies;
- tanks and swimming pools;
- roofs, coverings and green roofs;
- bridges and viaducts.

TERRACES AND BALCONIES

If we wanted to make a distinction between balcony and terrace, we could generally define the former as an element added to the main body of the building (and usually protruding), and the latter as an element incorporated in the body of the building.
Climatic conditions, wear and tear over time and structural movements can compromise the watertightness of these external surfaces.
Water, infiltrating through any cracks, joints and unsafe sealants, can cause serious damage by causing oxidation of the reinforcing bars, carbonation of the concrete, and cracking, detachments and efflorescence.
In terraces, a further aggravating factor is the difference in temperature between the external and internal environment of the room below, which can lead to the development of mould on the internal surface.
Remedying problems of infiltration in these elements often involves demolition of the paved surfaces, with a consequent increase in costs and inconvenience.
Ultimately, the ingress of water not only affects the aesthetics of these structural elements but also their performance. In the case of older buildings, which present problems due to incorrect waterproofing during their construction, it is possible to implement solutions for restoring degraded elements on the surface and waterproofing the structure.

SYSTEM DATA SHEET

SISTEMA MAGIFLEX TERRAZZO

CEMENTITIOUS SYSTEM FOR CIVIL USE FOR THE PAVING OF TERRACES AND BALCONIES

MAGIFLEX TERRAZZO is quick and practical to apply and stands out for its high flexibility, tensile strength and adhesion to the substrate. **MAGIFLEX TERRAZZO** makes it possible to apply waterproofing coatings with thicknesses of 1.5-3 mm to surfaces in general, even ones that are subject to microcracking.

PRODUCTS USED

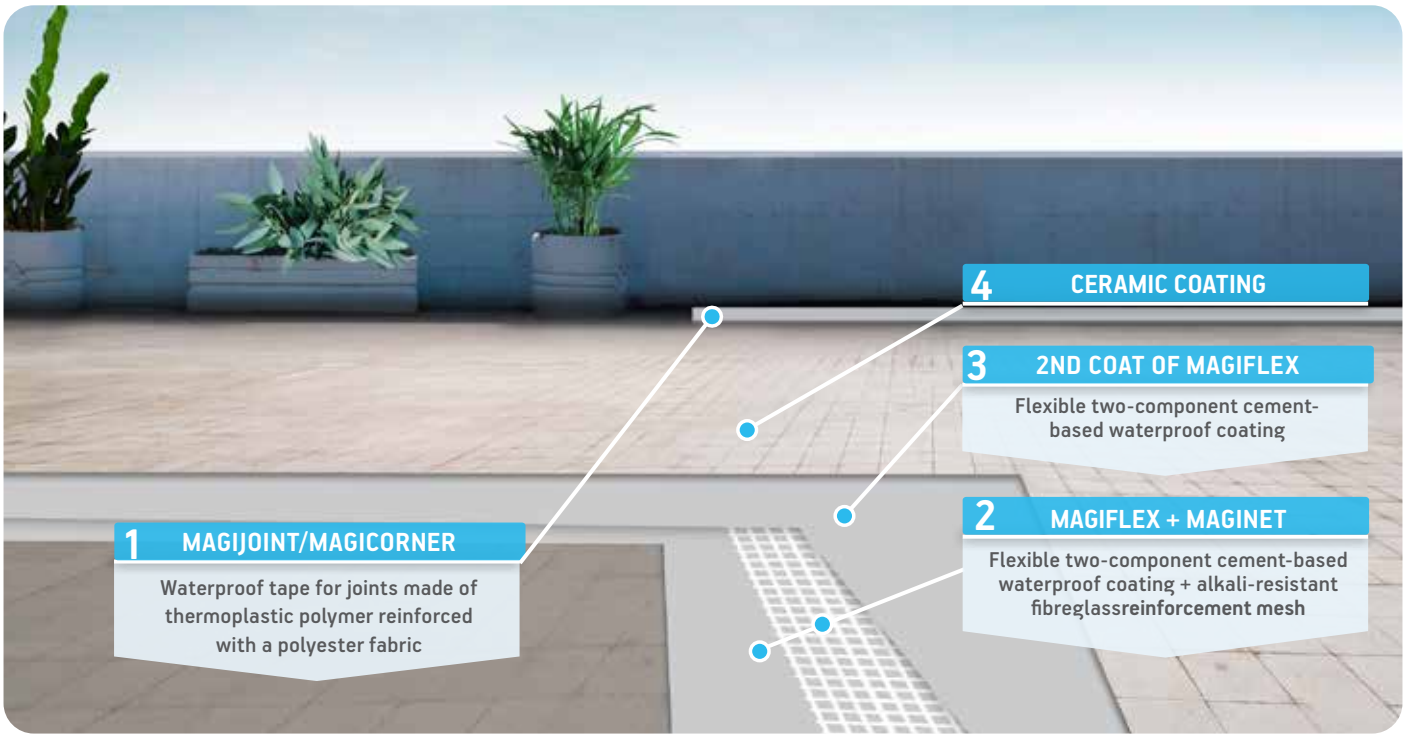
· MAGIJOINT / MAGICORNER · MAGIFLEX · MAGINET · DRAKOLLA FLEX C2 TE S1 ·

ADVANTAGES

- ✓ High chemical resistance.
- ✓ Waterproof and breathable.
- ✓ High adhesion to substrates.
- ✓ Flexible even at low temperatures down to -10°C.
- ✓ Easy application: MAGIFLEX is quick and easy to apply.

IDEAL FOR

- ✓ Structures subject to microcracks or structures that already have micro-cavities.
- ✓ Waterproof underfloor coating of flat or sloping surfaces, such as terraces, roofs, etc.
- ✓ Coating for the protection of structures, including prefabricated ones, subject to controlled deformation and cracking.



STEP 1

MAGIJOINT / MAGICORNER

Thermoplastic polymer tape reinforced with polyester fabric.

Use MAGIJOINT elastic tape and MAGICORNER corners at the point of joints, corners and intersections.

STEP 2

MAGIFLEX + MAGINET

Cementitious waterproofing coating based on selected aggregates, hydraulic binders, admixtures and polymers to be mixed with micronized synthetic latex + alkali-resistant fibreglass reinforcement mesh.

YIELD: 3.4 kg/m^2 approx in 2 coats
THICKNESS: approx. 2 mm

Moisten the surface of a clean substrate before applying MAGIFLEX. Apply a first coat of MAGIFLEX; when still cool, lay the MAGINET alkali-resistant fibreglass reinforcement mesh applying pressure with your hands and the trowel.

STEP 3

MAGIFLEX

Cementitious waterproofing coating based on selected aggregates, hydraulic binders, admixtures and polymers to be mixed with micronized synthetic latex.

YIELD: 3.4 kg/m^2 approx in 2 coats
THICKNESS: approx. 2 mm

After 4-8 hours, depending on the ambient temperature, apply the second coat of MAGIFLEX.

STEP 4

DRAKOLLA FLEX C2 TE S1

Flexible, high-performance cementitious adhesive for the ceramic coating of a terrace.

YIELD: approx. 4-5 kg/m^2

PRODUCTS USED:

MAGIFLEX
Flexible two-component cement-based waterproof coating
Page 24 / 32

MAGINET
Alkali-resistant fibreglass reinforcement mesh
Page 32

MAGICORNER / MAGIJOINT
Waterproof tape for joints
Page 32/33

DRAKOLLA FLEX C2 TE S1
Flexible, high-performance cement adhesive
Page 52

SYSTEM DATA SHEET

ELASTOCOATING EP TERRACE REPAIR SYSTEM

ELASTIC RESIN SYSTEM FOR WATERPROOF LINING AND OVERLAYING OF TERRACES AND FLAT ROOFS

ELASTOCOATING EP TERRACE REPAIR is an elastic epoxy-polyurethane lining system for waterproofing and protecting outdoor surfaces exposed to weathering (rainwater, sewage, chemically aggressive agents). The special epoxy-polyurethane formulation makes the product highly resistant to UV radiation, direct exposure to weather, and moderate pedestrian traffic.

PRODUCTS USED

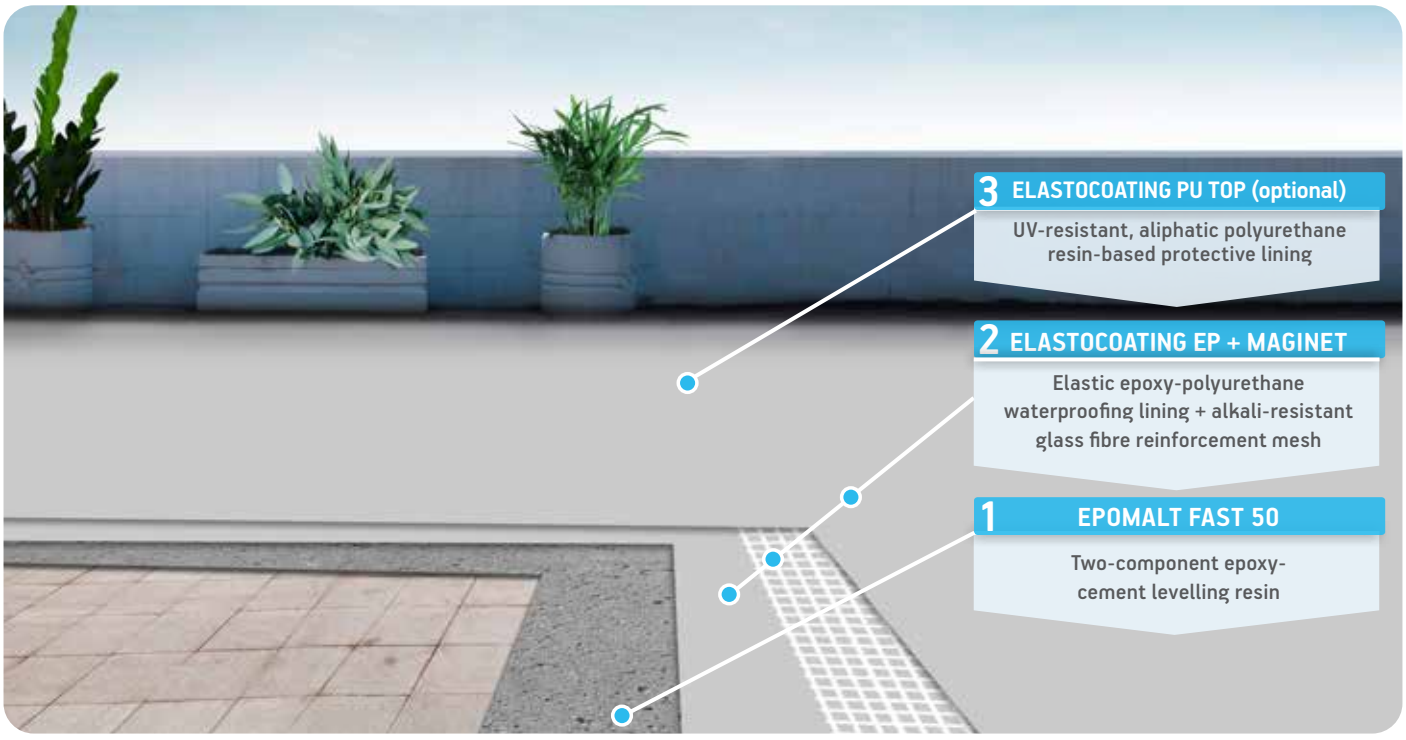
· EPOMALT FAST 50 · ELASTOCOATING EP · MAGINET · ELASTOCOATING PU TOP ·

ADVANTAGES

- ✓ elastic and resistant lining.
- ✓ Waterproof.
- ✓ Effective even in the presence of negative hydraulic pressure.
- ✓ Resistant to low temperatures.
- ✓ Resistant to environmental aggression.
- ✓ Easy application even on surfaces presenting an irregular geometrical layout.

IDEAL FOR

- ✓ Waterproofing of flat roofs, both civil and industrial.
- ✓ Waterproofing of terraces and balconies, even those exposed to pedestrian traffic.
- ✓ Restoration of old, deteriorated waterproofing without demolition.



STEP 1

EPOMALT FAST 50

Two-component epoxy-cement resin-based mortar for the repair and coating of deteriorated industrial concrete floors.

YIELD: Approx. 1.2 kg/m^2 in 2 coats
THICKNESS: approx. 0.5 - 0.9 mm

On a clean substrate, level the entire surface with EPOMALT FAST 50. Sand to regularise the surface using 60-80 grain sandpaper to remove any ridges or material carry-over. EPOMALT FAST 50 also acts as a bonding coat for the adhesion of the next layer.

STEP 2

ELASTOCOATING EP + MAGINET

Flexible two-component epoxy-cement resin-based mortar for the repair and coating of deteriorated concrete floors + alkali-resistant fibreglass reinforcement mesh.

YIELD: approx. 1 - 1.2 kg/m^2 in 2 coats
THICKNESS: approx. 0.8 ÷ 1 mm

On a clean substrate, apply the first coat of ELASTOCOATING EP by roller. Place MAGINET alkali-resistant glass fibre reinforcement mesh on the freshly applied product. Apply a second coat of ELASTOCOATING EP when the previous one has completely hardened until the reinforcement mesh is completely covered.

STEP 3

ELASTOCOATING PU TOP

UV resistant pigmented protective lining based on aliphatic polyurethane resins.

YIELD: approx. 150 g/m^2

In locations with high UV exposure, apply an aliphatic polyurethane finish such as ELASTOCOATING PU TOP to prevent yellowing of ELASTOCOATING EP.

PRODUCTS USED:

EPOMALT FAST 50
Two-component epoxy-cement resin for quick-repairing and coating of concrete flooring
Page 53

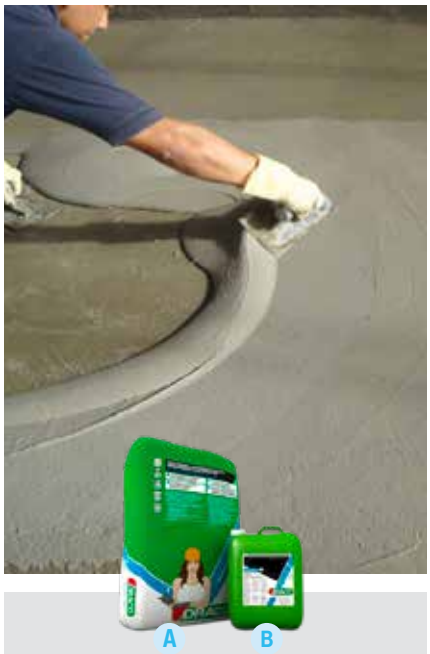
ELASTOCOATING EP
Elastic epoxy-polyurethane lining for protecting and waterproofing outdoor surfaces exposed to weathering
Page 25

MAGINET
Alkali-resistant fibreglass reinforcement mesh
Page 32

ELASTOCOATING PU TOP
UV resistant pigmented protective lining based on aliphatic polyurethane resins
Page 45

MAGIFLEX

Waterproofing of balconies and slabs with terrazzo system



PACKS
25-kg bag + 9-kg canister = (A+B) **34 kg**

FLEXIBLE TWO-COMPONENT CEMENT-BASED WATERPROOF COATING

MAGIFLEX is a cementitious waterproofing coating based on selected aggregates, hydraulic binders, admixtures and polymers (component A) to be mixed with micronized synthetic latex (component B). MAGIFLEX is quick and practical to apply and stands out for its high flexibility, tensile strength and adhesion to the substrate. MAGIFLEX makes it possible to apply waterproofing coatings with thicknesses of 1.5-3 mm to surfaces that are generally also subject to microcracking. It is used in the MAGIFLEX TERRAZZO SYSTEM.

IDEAL FOR

- Terraces, balconies, swimming pools and tanks of any surface.
- Waterproofing of horizontal surfaces of any size.
- For structures subject to microcracks or structures that already have micro-cavities.

ADVANTAGES

- High chemical resistance.
- Waterproof and breathable.
- High adhesion to substrates.

YIELD: approx. 1.7 kg/m² per mm of thickness
approx. 3.4 kg/m² (minimum recommended)
approx. 2.2 kg/m² (spraying with plastering machine)
approx. 4.4 kg/m² (minimum recommended for spraying with plastering machine)

MAGIFLEX 1K

Ideal for the protection and waterproofing of concrete structures against water and CO_2

PACKS
20 kg bag

SINGLE-COMPONENT WATERPROOF CEMENT-BASED FIBRE-REINFORCED COATING WITH VERY HIGH FLEXIBILITY

MAGIFLEX 1K is a highly flexible fibre-reinforced single-component cement-based waterproof coating, ideal for the protection and waterproofing of concrete works against water and CO2. MAGIFLEX 1K can be used for foundations, roofs, swimming pools, terraces and balconies, irrigation channels, gutters, etc., and on substrates of various kinds.

IDEAL FOR

- Protection of cementitious materials and concrete against the penetration of water and CO_2.
- Under-tile waterproofing.
- Waterproofing of foundations, swimming pools, roofs, terraces, balconies, irrigation channels, gutters, etc.

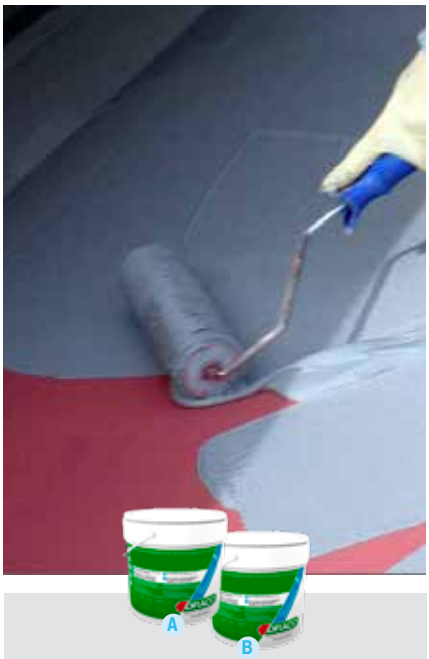
ADVANTAGES

- Very high waterproofing power.
- Solid adhesion even in extreme conditions (frost, heat, etc.).
- Perfect vertical application thanks to anti-sagging technology.

YIELD: approx. 1.2 kg/m² per mm of thickness

ELASTOCOATING EP

Flexible waterproofing coating for terraces, roofs, outdoor surfaces, tanks and swimming pools



PACKS
12-kg tub + 2-kg tub = (A+B) **14 kg.**

ELASTIC EPOXY-POLYURETHANE LINING FOR PROTECTING AND WATERPROOFING OUTDOOR SURFACES EXPOSED TO WEATHERING

ELASTOCOATING EP is a two-component product based on epoxy resins and special polyurethane elastomers. The special formulation of ELASTOCOATING EP gives the product a high elasticity, flexibility, excellent resistance to wear and ageing. ELASTOCOATING EP can be diluted up to a maximum of 3% with THINNER 105.

IDEAL FOR

- Waterproofing of flat roofs, both civil and industrial.
- Waterproofing of balconies and terraces, even those exposed to light pedestrian traffic.
- Restoration of old, deteriorated waterproofing without demolition.

ADVANTAGES

- High flexibility:
- Waterproof and breathable.
- High adhesion to substrates.

YIELD: 400 - 550 g/m² (per coat)
0.9 - 1.1 kg/m² (minimum recommended 2 coats)
1.6 - 2 kg/m² with interposed mesh (substrates subject to cracking)

COMPARISON OF PRODUCTS

	MAGIFLEX	MAGIFLEX 1K	ELASTOCOATING EP
			
COMPOSITION	Cement-based	Cement-based	Epoxy-polyurethane
STATIC CRACK BRIDGING (EN 1062-7)	Class A4 > 1.25 mm	Class A3 ≥ 0.75 mm	Class A5 > 2.50 mm
METHOD OF APPLICATION	With a trowel or brush	With a trowel or roller	With a roller, brush or spray
POSSIBLE LAYING OF COATING ON TOP OF THE PRODUCT	Yes	Yes	No

TANKS AND SWIMMING POOLS

Reinforced concrete structures are very often used for the construction of tanks and swimming pools, which, being in continuous contact with the water inside and with water in the ground, require appropriate waterproofing. The methodologies suggested in the following pages are indicated both for waterproofing newly built tanks and swimming pools, and for the restoration of existing structures. The aim is to reduce both the problems deriving from incorrect design requirements, and the issues caused by laying errors and a lack of attention to detail.

In the case of construction of swimming pools, the main focus tends to be on the aesthetic: the shape and size of the pool, the choice of lining, etc. In reality, when you decide to create a hydraulic structure, the most important and delicate aspect is the design of the hydraulic structure itself. The key points to be taken into account when designing hydraulic structures are, in brief:

- correct design mix of the concrete;
- external protection and waterproofing of the structures;
- sealing of the castings and passing elements for recirculation, filtration and lighting systems;
- preparation and internal waterproofing of the tanks;
- appropriate choice of materials for finishing the surfaces.

In the case of structures that must also withstand negative hydraulic pressure, it will be possible to directly use mortars that can offer this level of resistance.

SYSTEM DATA SHEET

MAGIFLEX SWIMMING POOL SYSTEM

FLEXIBLE WATERPROOF CEMENTITIOUS SYSTEM FOR LINING SWIMMING POOLS AND TANKS

MAGIFLEX PISCINA is an elastic cementitious coating system for waterproofing and protecting swimming pools and fresh water tanks.

PRODUCTS USED

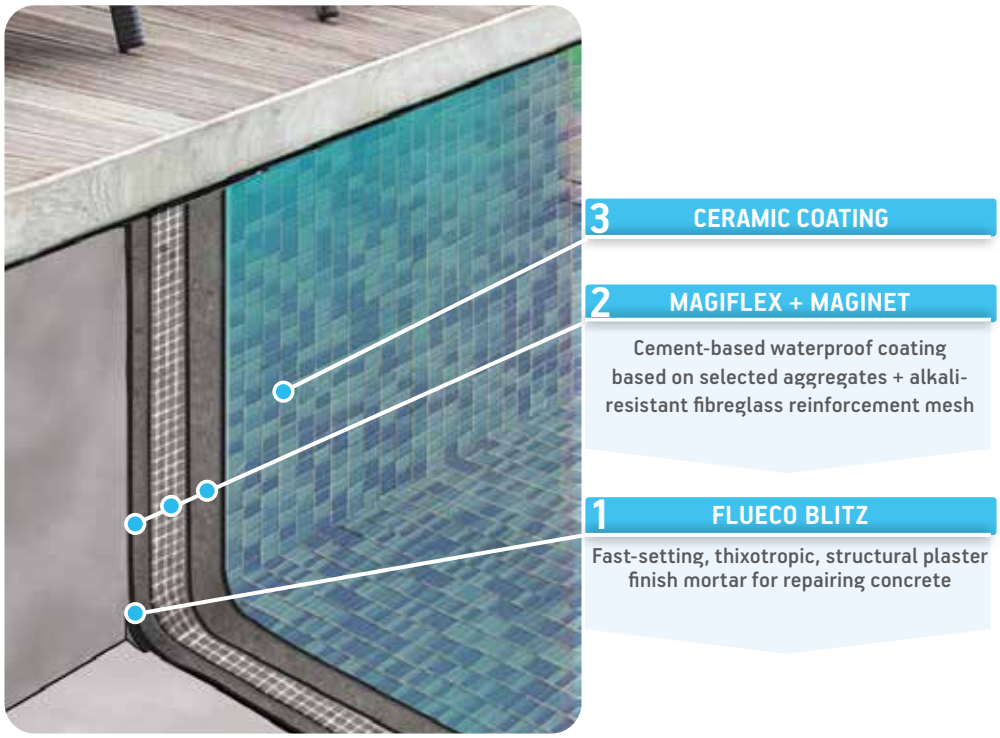
· FLUECO BLITZ · MAGIFLEX · MAGINET · DRAKOLLA FLEX C2 TE S1 ·

ADVANTAGES

- ✓ elastic and resistant lining.
- ✓ Waterproof and breathable.
- ✓ Effective even in the presence of negative hydraulic pressure.
- ✓ Resistant to chemical aggression.
- ✓ Easy application even on surfaces presenting an irregular geometrical layout.
- ✓ Effective even at low temperatures.

IDEAL FOR

- ✓ Waterproofing of swimming pools.
- ✓ Waterproofing of tanks.
- ✓ Lining and waterproofing against negative pressure of walls and retaining structures, tanks, purifiers and pipes.



STEP 1

FLUECO BLITZ

Fast-setting, thixotropic, structural plaster finish mortar for repairing and smoothing concrete surfaces.

YIELD: approx. 18 kg/m^2 per cm of thickness
THICKNESS: approx. 20 mm

Apply FLUECO BLITZ in the corner between the horizontal and vertical to make the fillet.

STEP 2

MAGIFLEX + MAGINET

Flexible, waterproof, breathable, two-component cementitious coating for foundations and retaining structures + alkali-resistant fibreglass reinforcement mesh.

YIELD: approx. 1.5 to 2 kg/m^2 per coat
approx. 3.2 kg/m^2 in 2 coats
THICKNESS: approx. 2 mm

Apply the first layer of MAGIFLEX on a clean substrate. Place MAGINET alkali-resistant glass fibre reinforcement mesh on the freshly applied product. Apply a second coat of MAGIFLEX when the previous one has completely hardened until the reinforcement mesh is completely covered.

STEP 3

DRAKOLLA FLEX C2 TE S1

Flexible, high-performance cementitious adhesive for the ceramic coating of a terrace.

YIELD: approx. 4-5 kg/m^2

PRODUCTS USED:

FLUECO BLITZ
Fast-setting, thixotropic, structural plaster finish mortar for repairing concrete
Page 53

MAGIFLEX
Flexible two-component cement-based waterproof coating
Page 24 / 32

MAGINET
Alkali-resistant fibreglass reinforcement mesh
Page 32

DRAKOLLA FLEX C2 TE S1
Flexible, high-performance cement adhesive
Page 52

SYSTEM DATA SHEET

DRACOSEAL TANK SYSTEM

WATERPROOFING SYSTEM FOR TANKS ALSO FOR DRINKING WATER WITH DRACOSEAL CEMENT SYSTEM

SISTEMA DRACOSEAL VASCA is an osmotic cementitious coating for waterproofing the walls of tanks. It can also be used in contact with drinking water.

PRODUCTS USED

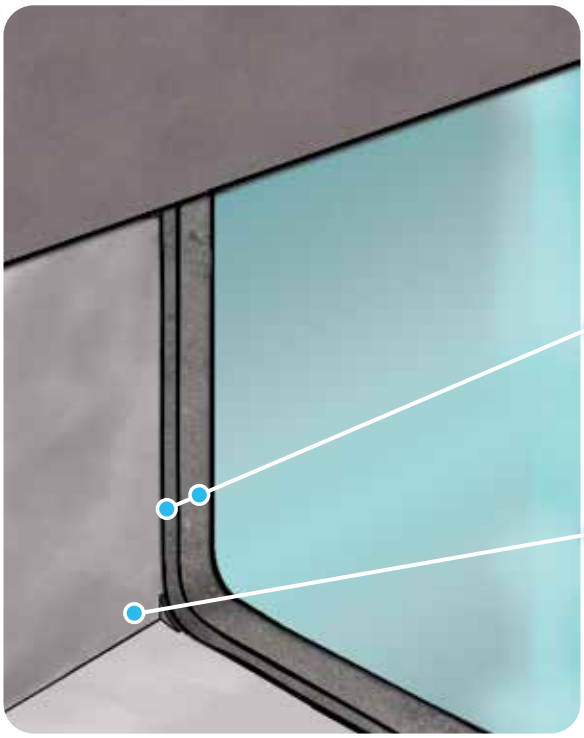
· **FLUECO BLITZ** · **DRACOSEAL** ·

ADVANTAGES

- ✓ **Abrasion resistant.**
- ✓ **Waterproof.**
- ✓ **Effective even in the presence of negative hydraulic pressure.**
- ✓ **Resistant to environmental chemical actions.**
- ✓ **Easy application.**

IDEAL FOR

- ✓ **Waterproofing lift shafts, tanks, and walls in general both inside and outside, including against the ground.**
- ✓ **Waterproofing of pipes, irrigation channels and tanks containing even drinking water.**
- ✓ **Waterproof coatings for wastewater and sewer pipes.**



STEP 1

FLUECO BLITZ

Fast-setting, thixotropic, structural plaster finish mortar for repairing and smoothing concrete surfaces.

YIELD: approx. 18 kg/m^2 per cm of thickness
THICKNESS: approx. 20 mm

Apply FLUECO BLITZ in the corner between the horizontal and vertical to make the fillet.

STEP 2

DRACOSEAL

Osmotic single-component, cementitious waterproof coating

YIELD: approx. 0.5 to 0.6 kg/m^2 per coat
approx. 1 - 1.2 kg/m^2 in 2 coats

THICKNESS: approx. 2 mm

The areas to be treated must be moistened with water before treatment. DRACOSEAL is formulated to be applied by brush or spray. Application by brush: load the brush with material and apply a thick coat, then recoat as necessary to level it, taking care to completely fill the porosity of the substrate. Wait at least 5-6 hours (depending on substrate absorption and environmental conditions) between the first and second coat, avoiding applying the next one if the previous one is not completely dry. Brush strokes should have a single horizontal direction to achieve a pleasing finish. Take special care in the treatment of corners and splays. Spray application: wet the substrate to saturation and apply DRACOSEAL in two coats using a normal plastering machine.

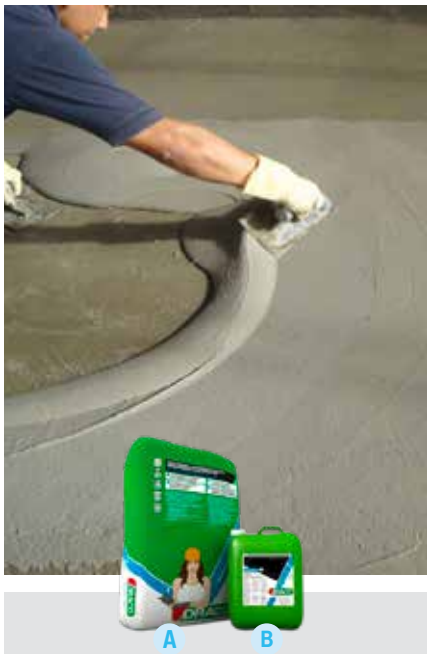
PRODUCTS USED:

FLUECO BLITZ
Fast-setting, thixotropic, structural plaster finish mortar for repairing concrete
Page 53

DRACOSEAL
"Osmotic" single-component, cementitious waterproof coating
Page 34

MAGIFLEX

Waterproofing of swimming pools



PACKS
25-kg bag + 9-kg canister = (A+B) **34 kg**

FLEXIBLE TWO-COMPONENT CEMENT-BASED WATERPROOF COATING

MAGIFLEX is a cementitious waterproofing coating based on selected aggregates, hydraulic binders, admixtures and polymers (component A) to be mixed with micronized synthetic latex (component B). MAGIFLEX is quick and practical to apply and stands out for its high flexibility, tensile strength and adhesion to the substrate. MAGIFLEX makes it possible to apply waterproofing coatings with thicknesses of 1.5-3 mm to surfaces that are generally also subject to microcracking. It is used in the MAGIFLEX TERRAZZO SYSTEM.

IDEAL FOR

- Terraces, balconies, swimming pools and tanks of any surface.
- Waterproofing of horizontal surfaces of any size.
- For structures subject to microcracks or structures that already have micro-cavities.

ADVANTAGES

- High chemical resistance.
- Waterproof and breathable.
- High adhesion to substrates.

YIELD: approx. 1.7 kg/m² per mm of thickness
approx. 3.4 kg/m² (minimum recommended)
approx. 2.2 kg/m² (spraying with plastering machine)
approx. 4.4 kg/m² (minimum recommended for spraying with plastering machine)

MAGIFLEX ACCESSORIES

PACKS
50 m2 roll (1x50 m)

MAGINET

ALKALI-RESISTANT GLASS FIBRE REINFORCEMENT MESH

ETAG 004 certified

Reinforcement mesh made of fibreglass and polyester to be used for laying the MAGIFLEX system. High alkali resistance and tensile strength.

Mesh size: 1.2 mm x 1.2 mm

PACKS
5 pcs (90°) + 5 pcs (270°)

MAGICORNER

WATERPROOF ELASTIC CORNER-PIECE

Waterproof corner to be used in combination with the MAGIFLEX flexible waterproofing coating. It consists of thermoplastic polymer tape reinforced with polyester fabric. High elongation capacity and resistance to freeze-thaw cycles.

MAGIFLEX ACCESSORIES

PACKS
25 m-long roll (tape width:12 cm)

MAGIJOINT

WATERPROOF TAPE FOR JOINTS

Waterproof tape for joints to be used in combination with the MAGIFLEX flexible waterproofing coating. It consists of thermoplastic polymer tape reinforced with polyester fabric. High elongation capacity and resistance to freeze-thaw cycles.

PACKS
15 m roll (tape width 8 cm)

MAGIJOINT BT

ADHESIVE BUTYL RUBBER WATERPROOFING TAPE WITH POLYPROPYLENE COATING

Ideal for perimeter joints and fittings between wall and floor

MAGIJOINT BT is a self-adhesive cold sealing tape for non-structural joints, corners and fittings between the wall and floor, consisting of a butyl rubber layer covered with polypropylene fibre non-woven fabric. MAGIJOINT BT is impervious to water and steam and resistant to alkalis, acids and ageing.

DRACOSEAL

Osmotic waterproofing coating for tanks and swimming pools

PACKS
25-kg bag

"OSMOTIC" SINGLE-COMPONENT, CEMENTITIOUS WATERPROOF COATING

DRACOSEAL is a single-component osmotic cementitious waterproofing agent ideal for waterproofing cellars, tanks, ducts, lift shafts, tanks and walls. Thanks to the osmotic mechanism, DRACOSEAL penetrates the cortical layer of the substrate ensuring maximum adhesion.

IDEAL FOR

- Waterproofing of concrete surfaces.
- Foundations, cellars, garages, tanks and swimming pools.
- Waterproofing of lift shafts.

ADVANTAGES

- Resistance to environmental chemical actions.
- Waterproof even with counter-thrust.
- Abrasion resistant.

YIELD: approx. 1.6 kg/m² per mm of thickness
approx. 3.2 kg/m² (minimum recommended in light humidity)
> 4 kg/m² (recommended with strong counter-thrust)

DRACOSEAL 2

Osmotic waterproofing coating with low modulus of elasticity for tanks and swimming pools

PACKS
25-kg bag + 6-kg canister = (A+B) **31 kg**

TWO-COMPONENT CEMENT-BASED "OSMOTIC" WATERPROOFING COATING FOR CONCRETE AND MASONRY SURFACES

Low modulus of elasticity

DRACOSEAL 2 is a two-component osmotic cementitious waterproofing agent ideal for waterproofing cellars, tanks, ducts, lift shafts, tanks and walls. Thanks to the "osmotic" mechanism, DRACOSEAL 2 penetrates the cortical layer of the substrate ensuring maximum adhesion.

IDEAL FOR

- Waterproofing of concrete surfaces.
- Foundations, cellars, garages, tanks and swimming pools.
- Waterproofing of lift shafts.

ADVANTAGES

- Resistance to aggressive environments.
- Extremely high surface resistance.
- Waterproofs and withstands even negative water pressures.

YIELD: approx. 2.1 kg/m² per mm of thickness
approx. 1.5 - 2 kg/m² (per coat)
approx. 3 kg/m² (minimum recommended)
> 4 kg/m² (recommended with strong counter-thrust)

COMPARISON OF PRODUCTS

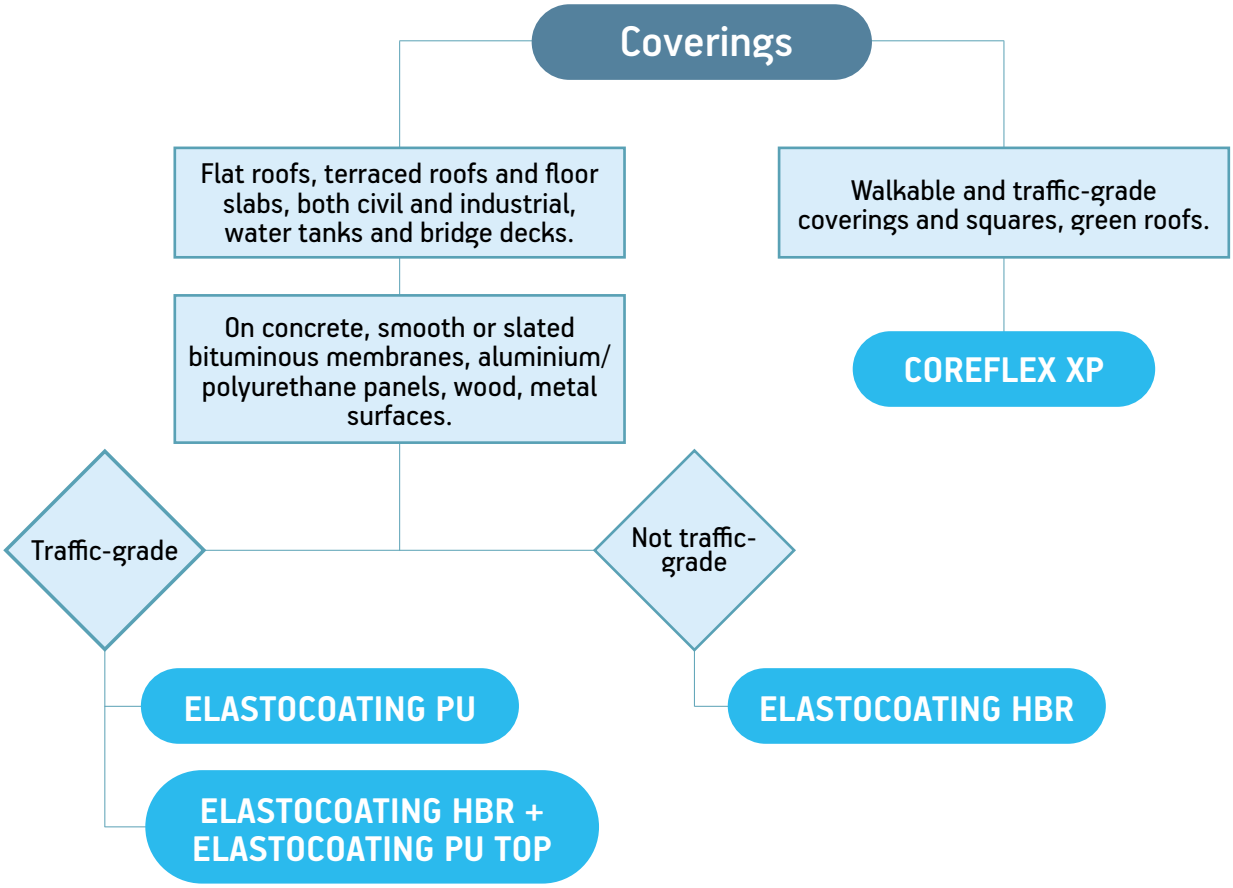
	MAGIFLEX	DRACOSEAL	DRACOSEAL 2
			
COMPOSITION	Two-component cement-based	One-component cement-based osmotic	Two-component cement-based osmotic
ADHESION TO CONCRETE	≥ 0.8 MPa	2,3 MPa	2.5 MPa
RESISTANCE TO POSITIVE HYDRAULIC THRUST	EN 14891: 1.5 Bar for 7 days - specification exceeded	UNI EN 12390/8: 5 Bar (50 metres water column)	UNI EN 12390/8: 7 Bar (70 metres water column)
RESISTANCE TO NEGATIVE HYDRAULIC THRUST	EN 14891: 0.5 Bar	UNI 8298/8: 1 Bar (10 metres water column)	UNI 8298/8: 1.5 Bar (15 metres water column)
METHOD OF APPLICATION	With a trowel or brush	With a brush, trowel or spray	With a brush, trowel or spray
POSSIBLE LAYING OF COATING ON TOP OF THE PRODUCT	Yes	No	No
FIRE REACTION (EN 13501-1)	Class E	Class A1	Class E

GREEN COVERINGS AND ROOFS

The function of the coverings is to protect the structure against rainfall, conveying water to appropriately designed collection and outflow points. For pitched roofs, the slope causes the rapid outflow of rainwater and makes waterproofing easier. This is not the case for flat roofs and green roofs, however, where the waterproofing system is more critical. The effectiveness of waterproofing depends on design that takes the critical points and construction details into careful consideration. For this reason, rather than a single product, it is good practice to adopt a waterproofing system based on different products that perform specific functions and which, in combination, ensure continuity and water tightness.

A leaky roof poses several problems: it can compromise the safety and integrity of the structure and also lead to a reduction in the comfort of the indoor environment, favouring the development of pathogens such as mould and mildew.

Waterproofing a roof, or a covering in general, therefore means preventing all the aforementioned problems. For this reason, it is necessary that waterproofing is carried out properly during the construction of the building; although it is also possible to remedy errors and problems that arise during the useful life cycle of the structure itself. Below are suitable waterproofing systems for these areas of application.



SYSTEM DATA SHEET

ELASTOCOATING PU (POLYUREA)

HIGH ELASTICITY TWO-COMPONENT POLYUREA-BASED WATERPROOFING MEMBRANE

ELASTOCOATING PU is a two-component, pure polyurea-based liquid membrane. It is waterproof, elastic and very fast-curing, and specifically for hot spray application with a special machine for two-component products. The special formulation of **ELASTOCOATING PU** makes the product highly resistant to UV radiation and direct exposure to the elements and traffic.

PRODUCTS USED

· PRIMER (DEPENDING ON THE SUBSTRATE) · ELASTOCOATING PU · ELASTOCOATING PU TOP (OPTIONAL) ·

ADVANTAGES

- ✓ High speed of hardening and achievement of the final mechanical characteristics.
- ✓ High flexibility:
- ✓ Waterproof.
- ✓ High adhesion to the substrate:
- ✓ Resistant to very low temperatures.
- ✓ Resistant to environmental aggression.

IDEAL FOR

- ✓ Waterproofing of flat roofs, terraced roofs and floor slabs, both civil and industrial.
- ✓ Inner lining for concrete water tanks.
- ✓ Waterproofing of even very large car parks.
- ✓ Restoration of old, deteriorated waterproofing without demolition (bitumen sheathing, slated bitumen sheathing, PVC, aluminium/ polyurethane panels, ...).
- ✓ Waterproofing of metal sheets, gutters, roofs and pergolas made of metal and wood material.
- ✓ Slabs for road and railway bridges, viaducts, underground structures.

STEP 1

PREPARING THE SUBSTRATE

CONCRETE SURFACES
Remove loose and brittle parts of the substrate and dry the surface. Check the joints and, if necessary, seal them with DRACOFLEX P polyurethane or butyl strips. Check the capacity for adhesion to the substrate (tensile strength of at least 1.5 MPa.). Perform mechanical preparation of the surface. Remove any stagnant water.

SURFACES ON BITUMINOUS MEMBRANE
It is advisable to carefully check the adhesion of the membrane to the substrate, and if necessary to secure it to the substrate with mechanical anchors. Thorough high-pressure washing (>300 bar) is also recommended.

STEP 2

PRIMING

CONCRETE SURFACES
Apply PRIMER E at a rate of 400g/m^2 per layer filled with 0.1-0.3 quartz. In the case of very porous surfaces, carry out double levelling, and in any case spread quartz 0.6:0.9 at saturation (max 1 kg/m^2). In the presence of damp surfaces greater than 15%, apply the EPOFONDO 3K three-component epoxy primer until a dry surface is obtained, then apply a further coat of PRIMER E. In any case, spread quartz 0.6:0.9 at saturation (max 1 kg/m^2). If pin-holes appear, apply a second layer of PRIMER E.

SURFACES ON BITUMINOUS MEMBRANE
Apply the PRIMER ES40 single-component polyurethane primer at a rate of 150-200 g/m^2 per coat.

METAL SURFACES
Dry sandblast, then apply a layer of STEEL PRIMER.

STEP 3

APPLICATION

Apply ELASTOCOATING PU at a rate of 1 kg/m^2/mm in a single coat. A thickness of 2-3 mm is recommended. The best performance is obtained by spraying the product with a suitable device at a temperature of 60-70°C and at a pressure of 180-200 bar, and applying it in a single layer keeping the gun in a vertical position about 80 cm from the substrate.

When exposed to UV radiation, ELASTOCOATING PU may show colour variations which do not alter its mechanical properties. To avoid such variations, it is necessary to protect it, for purely aesthetic purposes, with an aliphatic polyurethane finish such as ELASTOCOATING PU TOP in the chosen colour at a rate of 200g/m^2. To achieve a reflectance index of more than 98%, choose the colour RAL 9016 (pure white).

To create non-slippery surfaces (R10): immediately after applying the first coat of ELASTOCOATING PU, turn the gun so that it is parallel to the surface to be treated, hold the nozzle upwards and swing the arm to create a 'shower' of ELASTOCOATING PU.

PRODUCTS USED:

ELASTOCOATING PU
High elasticity two-component polyurea-based waterproofing membrane.
Page 44

PRIMER E
Solvent-free, two-component epoxy consolidating impregnating primer
Page 52

PRIMER ES40
Two-component solvent-based impregnating epoxy primer for consolidation
Page 53

STEEL PRIMER
Two-component, solvent-based epoxy primer for metal surfaces
Page 52

SYSTEM DATA SHEET

ELASTOCOATING HBR (ELASTOMERIC POLYURETHANE)

TWO-COMPONENT ELASTIC WATERPROOFING MEMBRANE BASED ON REACTIVE POLYOLS AND ISOCYANATES

ELASTOCOATING HBR is a highly reactive, waterproof and elastic, rapid hardening hybrid liquid membrane based on polyols and isocyanates.

PRODUCTS USED

· PRIMER E · PRIMER PS30 · ELASTOCOATING HBR · ELASTOCOATING PU TOP ·

ADVANTAGES

- ✓ High speed of hardening and achievement of the final mechanical characteristics.
- ✓ High flexibility:
- ✓ Waterproof.
- ✓ High adhesion to the substrate:
- ✓ Resistant to very low temperatures.
- ✓ Resistant to environmental aggression.

IDEAL FOR

- ✓ Waterproofing of flat roofs, terraced roofs and floor slabs, both civil and industrial.
- ✓ Inner lining for concrete water tanks.
- ✓ Restoration of old, deteriorated waterproofing without demolition (bitumen sheathing, slated bitumen sheathing, PVC, aluminium/ polyurethane panels, ...).
- ✓ Waterproofing of metal sheets, gutters, roofs and pergolas made of metal and wood material.
- ✓ Slabs for road and railway bridges, viaducts, underground structures.

STEP 1

PREPARING THE SUBSTRATE

CONCRETE SURFACES

Remove loose and brittle parts of the substrate and dry the surface. Check the joints and, if necessary, seal them with DRACOFLEX P polyurethane or butyl strips. Check the capacity for adhesion to the substrate (tensile strength of at least 1.5 MPa.). Perform mechanical preparation of the surface. Remove any stagnant water.

SURFACES ON BITUMINOUS MEMBRANE

It is advisable to carefully check the adhesion of the membrane to the substrate, and if necessary to secure it to the substrate with mechanical anchors. Thorough high-pressure washing (>300 bar) is also recommended.

STEP 2

PRIMING

CONCRETE SURFACES

Apply PRIMER E at a rate of 400g/m^2 per layer filled with 0.1-0.3 quartz. In the case of very porous surfaces, carry out double levelling, and in any case spread quartz 0.6:0.9 at saturation (max 1 kg/m^2). In the presence of damp surfaces greater than 15%, apply the EPOFONDO 3K three-component epoxy primer until a dry surface is obtained, then apply a further coat of PRIMER E. In any case, spread quartz 0.6:0.9 at saturation (max 1 kg/m^2). If pin-holes appear, apply a second layer of PRIMER E.

SURFACES ON BITUMINOUS MEMBRANE

Apply the PRIMER PS30 single-component polyurethane primer at a rate of 150-200 g/m^2 per coat.
It is always advisable to check the adhesion of the sheathing to the substrate.

STEP 3

APPLICATION

Apply ELASTOCOATING HBR at a rate of 1 kg/m^2/mm in a single coat. A thickness of 2-3 mm is recommended. The best performance is obtained by spraying the product with a suitable device at a temperature of 60-70°C and at a pressure of 180-200 bar, and applying it in a single layer keeping the gun in a vertical position about 80 cm from the substrate.

When exposed to UV radiation, ELASTOCOATING HBR shows colour variations which affect the mechanical properties. Protection with an aliphatic polyurethane finish such as **ELASTOCOATING PU TOP** in the chosen colour at a rate of 200g/m^2 is required. To achieve a reflectance index of more than 98%, choose the colour RAL 9016 (pure white).

To create non-slippery surfaces (R10): immediately after applying the first coat of ELASTOCOATING HBR, turn the gun so that it is parallel to the surface to be treated, hold the nozzle upwards and swing the arm to create a 'shower' of ELASTOCOATING HBR.

PRODUCTS USED:

EPOFONDO 3K
Three-component epoxy primer for damp substrates
Page 53

ELASTOCOATING HBR
Two-component elastic waterproofing membrane based on polyurethane.
Page 44

PRIMER E
Solvent-free, two-component epoxy consolidating impregnating primer
Page 52

PRIMER PS30
Single-component polyurethane primer for consolidating and adhesion treatments
Page 52

ELASTOCOATING PU TOP
Coloured traffic-grade and abrasion-resistant aliphatic elastic polyurethane coating specific for the UV protection of polyurea waterproofing membranes
Page 45

SYSTEM DATA SHEET

GENIUSFLEX SYSTEM

READY-TO-USE SINGLE-COMPONENT LIQUID POLYURETHANE WATERPROOFING MEMBRANE

Weather and UV resistant, ideal for exposed applications on new and existing roofs, terraces and balconies

GENIUSFLEX is a single-component liquid polyurethane that produces a strong, elastic membrane with excellent adhesion to different surfaces.

PRODUCTS USED

· EPOFONDO 3K · PRIMER PS30 · STEEL PRIMER · GENIUSLFEX · ELASTOCOATING PU TOP · DRAKOLLA FLEX C2 TE S1 ·

ADVANTAGES

- ✓ Excellent adhesion.
- ✓ Ready to use.
- ✓ Excellent weathering resistance.
- ✓ UV resistance
- ✓ excellent resistance to water stagnation.
- ✓ Excellent resistance to high temperatures.
- ✓ Resistance to low temperatures.
- ✓ Excellent mechanical properties.
- ✓ Excellent resistance to chemicals.
- ✓ Non-toxic.
- ✓ Vapour permeable.

IDEAL FOR

- ✓ roofs, old and new.
- ✓ bridge platforms.
- ✓ irrigation channels.
- ✓ lightweight sheet metal or fibre cement roofs.
- ✓ ceramic verandas, balconies and terraces.
- ✓ plaster stones and cement boards.
- ✓ protection of Bituminous Membranes.
- ✓ bituminous membranes, EPDM and TPO.
- ✓ car parks and stairways of exposed facilities, such as stadiums, sports fields and arenas.

STEP 1

PREPARING THE SUBSTRATE

CONCRETE SURFACES

Clean and smooth the surface. Immediately after preparation, apply **EPOFONDO 3K** with a roller, brush or airless spray, using approx. 0.3-0.6 kg/m^2 per coat.

SURFACES ON BITUMINOUS MEMBRANE

It is advisable to carefully check the adhesion of the membrane to the substrate, and if necessary to secure it to the substrate with mechanical anchors. Thorough high-pressure washing (>300 bar) is also recommended.

STEP 2

PRIMING

CONCRETE SURFACES

no primer is needed for concrete surfaces in good condition (Hardness: R28 = 15Mpa, Humidity: W < 10%, Temperature: +5°C to +35°C, Relative humidity: < 85%); If the conditions of the substrate are any different to the ones described above, apply the adhesion agent PRIMER PS30, a single-component polyurethane primer, with a roller or spray at a rate of 150 g/m^2.

SURFACES ON BITUMINOUS MEMBRANE

Apply the adhesion agent PRIMER PS30, a single-component polyurethane primer, with a roller or spray at a rate of 150g/m^2.

METAL SURFACES

The STEEL PRIMER can be applied as an adhesion agent.

STEP 3

APPLICATION

Apply GENIUSFLEX with a roller, brush or spray (airless) in at least two coats; no more than 48 hours must elapse between the first and second coat. Should the 48-hour period pass, use PRIMER PS30.

If a long-lasting, coloured aesthetic finish is required, GENIUSFLEX should be coated with ELASTOCOATING PU TOP, a coloured protective finish based on aliphatic polyurethane resins, to be applied in at least two coats within 24-48 hours after installation. In the absence of a finish, note that GENIUSFLEX in dark colours, such as tile red, may show a colour change.

For waterproofing under tiles, after the second layer has completely hardened, apply another layer of GENIUSFLEX and sprinkle with quartz sand (Ø 0.4 - 0.7 mm) to obtain an adhesive bridge between GENIUSFLEX and the tile adhesive. When the third layer has also hardened, remove the excess sand. Use as tile adhesive DRAKOLLA FLEX C2TES1 on GENIUSFLEX.

PRODUCTS USED:

EPOFONDO 3K
Three-component epoxy primer for damp substrates
Page 53

STEEL PRIMER
Two-component, solvent-based epoxy primer for metal surfaces
Page 52

PRIMER PS30
Single-component polyurethane primer for consolidating and adhesion treatments
Page 52

GENIUSFLEX
Single-component polyurethane waterproofing liquid membrane
Page 45

DRAKOLLA FLEX C2 TE S1
Flexible, high-performance cement adhesive
Page 52

ELASTOCOATING PU TOP
Coloured traffic-grade and abrasion-resistant aliphatic elastic polyurethane coating specific for the UV protection of polyurea waterproofing membranes
Page 45

ELASTOCOATING PU

Polyurea-based waterproofing for roofs and coverings

PACKS

205 kg drum + 225 kg drum = (A+B) **430 kg**

HIGH ELASTICITY TWO-COMPONENT POLYUREA-BASED WATERPROOFING MEMBRANE. SPECIFIC FOR HOT APPLICATIONS

ELASTOCOATING PU is a two-component liquid membrane based on pure polyurea. Waterproof and elastic, very fast curing, it can be applied by hot spray machine for two-component products.

IDEAL FOR

- Waterproofing of flat roofs, terraced roofs and floor slabs, both civil and industrial.
- Waterproofing of even very large car parks.
- Slabs for road and railway bridges, viaducts, underground structures.

ADVANTAGES

- Very fast hardening.
- High flexibility:
- Waterproof and breathable.

YIELD: approx. 1.1 kg/m^2 per mm of thickness
2.5 kg/m^2 in one layer (minimum recommended)

ELASTOCOATING HBR

Polyurethane-based waterproofing for roofs and coverings

PACKS

205 kg drum + 225 kg drum = (A+B) **430 kg**

TWO-COMPONENT ELASTIC WATERPROOFING MEMBRANE BASED ON POLYURETHANE.

ELASTOCOATING HBR is a highly reactive, waterproof and elastic, rapid hardening hybrid liquid membrane based on polyols and isocyanates.

IDEAL FOR

- Waterproofing of flat roofs, terraced roofs and civil floor slabs, requiring a UV-resistant finish.
- Waterproofing of metal sheets, gutters, roofs and pergolas made of metal and wood material.
- Slabs of road and railway bridges, viaducts, underground structures if covered with asphalt.

ADVANTAGES

- Waterproof and breathable.
- High adhesion to the substrate:
- Very fast hardening.

YIELD: approx. 1.1 kg/m^2 per mm of thickness
2.5 kg/m^2 in one layer (minimum recommended)

GENIUSFLEX

Ready-to-use polyurethane-based waterproofing

PACKS
25 kg pail

READY-TO-USE SINGLE-COMPONENT WATERPROOFING POLYURETHANE LIQUID MEMBRANE

Weather and UV resistant, ideal for exposed applications on new and existing roofs, terraces and balconies

GENIUSFLEX is a single-component liquid polyurethane that polymerises with atmospheric moisture. It produces a strong, elastic membrane with excellent adhesion to different surfaces. GENIUSFLEX is based on pure polyurethane, elastomeric and hydrophobic resins with special inorganic fillers, which provide the material with excellent weathering, chemical, UV, mechanical and thermal resistance.

IDEAL FOR

- Ceramic balconies and terraces, old and new roofs, sheet metal or fibre cement roofs.
- Bridge platforms, car parks and exposed structures.
- Protection of curing membranes, bituminous membranes, EPDM and TPO.

ADVANTAGES

- Excellent adhesion.
- Excellent resistance to high and low temperatures.
- Non-toxic and breathable.

YIELD: 1.5-1.8 kg/m² approx. in two layers (minimum recommended)

ELASTOCOATING PU TOP

Aliphatic polyurethane waterproofing coating for roofs and coverings

PACKS
7.5-kg tub + 2.5-kg tub = (A+B) **10 kg**

COLOURED TRAFFIC-GRADE AND ABRASION-RESISTANT ALIPHATIC ELASTIC POLYURETHANE COATING SPECIFIC FOR THE UV PROTECTION OF POLYUREA WATERPROOFING MEMBRANES

ELASTOCOATING PU TOP is a pigmented, UV-resistant, aliphatic polyurethane resin-based protective lining specifically for the traffic-grade finishing of polyurea-based waterproofing linings. ELASTOCOATING PU TOP is characterised by high levels of elasticity, abrasion resistance and chemical resistance even in the presence of aggressive weather.

IDEAL FOR

- Waterproofing of flat roofs, terraced roofs and floor slabs, both civil and industrial.
- Waterproofing of even very large car parks.
- Slabs for road and railway bridges, viaducts, underground structures.

ADVANTAGES

- UV resistance.
- High flexibility and resistance.
- Impermeability.

YIELD: approx. 150 kg/m² (minimum recommended)

SYSTEM DATA SHEET

GREEN ROOFS AND LARGE WALKABLE AND TRAFFIC-GRADE COVERINGS WITH COREFLEX XP

WATERPROOFING OF GREEN ROOFS AND LARGE PEDESTRIAN AND TRAFFIC-GRADE COVERINGS, ALSO OF ARCHITECTURAL VALUE, WITH HYDRO-ACTIVE THERMOPLASTIC MEMBRANE

COREFLEX XP is a very high-performance waterproofing system: it is a thermoplastic membrane composed of a polyester reinforced fabric, coupled with a polymer core with XP technology. When water is an element to be countered and high levels of salinity and contamination need to be addressed, COREFLEX XP's polymer technology ensures high efficiency thanks to its significant chemical resistance. The heat sealing that joins the membranes together helps to create a continuous monolithic double barrier that is waterproof and impenetrable, also with root inhibition properties.

PRODUCTS USED

· **COREFLEX XP** ·

ADVANTAGES

- ✓ **Easy to apply: the COREFLEX XP membrane is quick and easy to apply even in wet and cold conditions.**
- ✓ **Radon gas proofing: thanks to an extremely low gas diffusion coefficient, COREFLEX XP also acts as an effective barrier against gases and vapours.**
- ✓ **Self-repairing membrane: the XP layer is designed to activate on contact with water, expanding and forming an airtight seal; in the event of a puncture, this reactivity to water translates into self-repairing of the membrane itself, which expands and prevents water from permeating.**

IDEAL FOR

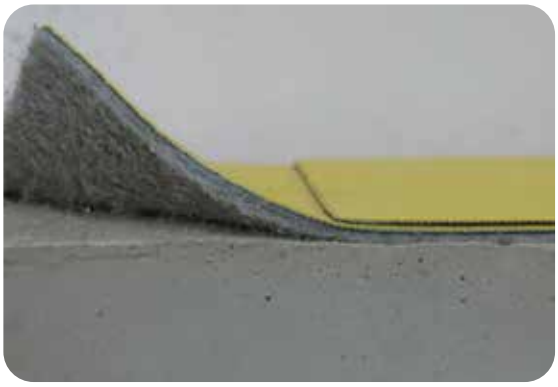
- ✓ **Waterproofing of green roofs.**
- ✓ **Waterproofing of large pedestrian and traffic-grade coverings, including those of architectural value (plaza deck).**
- ✓ **Waterproofing also of cast-in-place concrete foundation walls with backfill, foundation walls with masonry blocks**

INSTALLATION

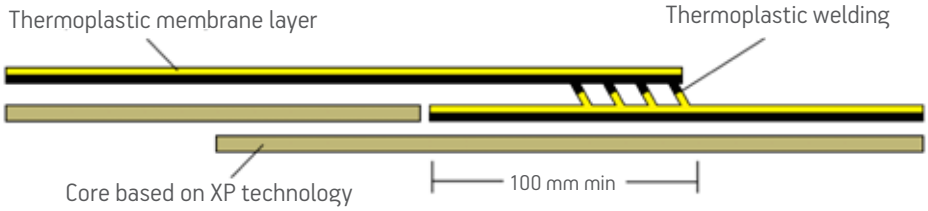
Install the COREFLEX XP waterproofing system strictly in accordance with the installation guidelines and data, using complementary products, protective and drainage layers, as well as roofing material as specified or required

Install COREFLEX XP so that the geotextile side (XP CORE) is directly in contact with the concrete to be waterproofed. The yellow thermoplastic membrane will face the installer's side.

All COREFLEX XP membrane overlaps require the thermoplastic membrane and active XP layer to overlap by at least 100 mm. PVC-PVC overlaps must be welded continuously. All welding must be carried out by a certified installer using specific equipment and machinery for PVC welding.



Cross-section of the membrane



PRODUCTS USED:

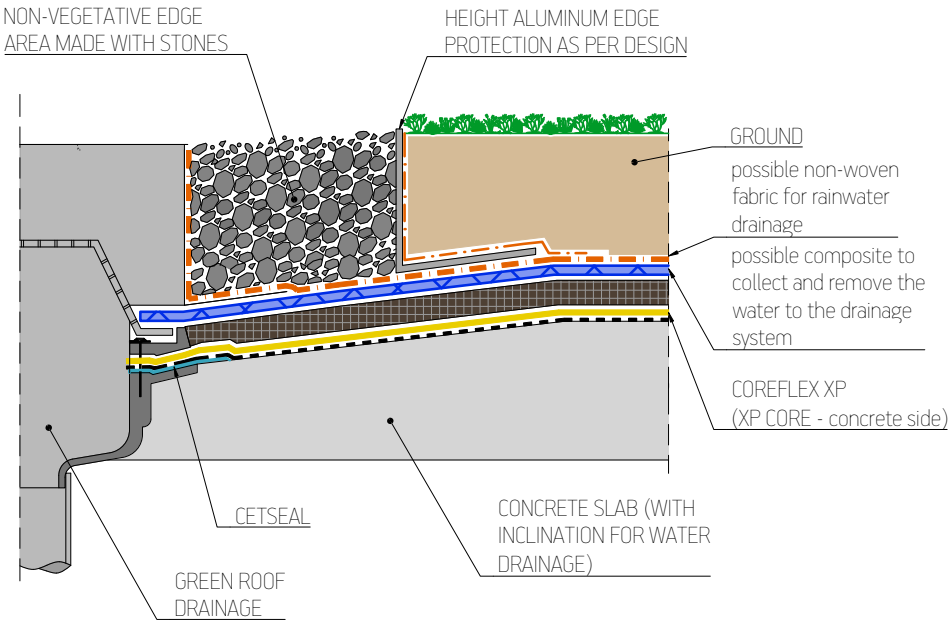
COREFLEX XP
Water-reactive thermoplastic waterproofing membrane with core based on XP technology with double waterproofing
Page 50

TECHNICAL DETAILS

THERMOPLASTIC HYDRO-ACTIVE WATERPROOFING OF GREEN ROOFS AND LARGE TRAFFIC-GRADE COVERINGS, INCLUDING THOSE OF ARCHITECTURAL VALUE

Waterproofing system with active polymer XP technology, ideal for waterproofing green roofs, large traffic-grade coverings including those of architectural value, but also for foundations, slabs and underground parts of structures. It guarantees the impermeability of the structure, is resistant to high hydrostatic pressures and puncturing, and is extremely durable.

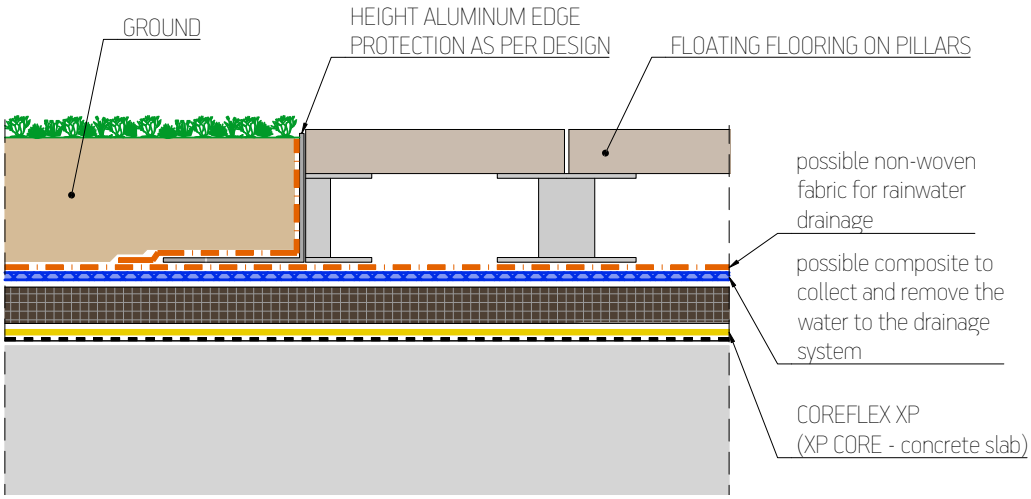
Detail of the application of COREFLEX XP on a green roof



Application steps:

1. Lay the **COREFLEX XP** thermoplastic sheets horizontally, with a minimum overlap of 10 cm between each sheet, on the concrete slab. The geotextile side must face the concrete to be waterproofed and the PVC membrane must face the installer.
2. Weld the PVC-PVC overlaps continuously. All welding must be carried out by a certified installer using specific equipment and machinery for PVC welding.
3. Complete laying of the screed and complementary works of the project.

Detail of the application of COREFLEX XP on a traffic-grade covering of architectural value (plaza deck)



Application steps:

1. Lay the **COREFLEX XP** thermoplastic sheets horizontally, with a minimum overlap of 10 cm between each sheet, on the concrete slab. The geotextile side must face the concrete to be waterproofed and the PVC membrane must face the installer.
2. Weld the PVC-PVC overlaps continuously. All welding must be carried out by a certified installer using specific equipment and machinery for PVC welding.
3. Complete laying of the screed and complementary works of the project.

PRODUCTS USED:

COREFLEX XP
Water-reactive thermoplastic waterproofing membrane with core based on XP technology with double waterproofing
Page 50

WATERSTOP XP
Hydro-expansive bentonite waterstop for sealing joints and casting joints
Page 106

CETSEAL
Sodium bentonite putty paste
Page 107

COREFLEX XP

Waterproofing of green roofs, flat roofs and roof gardens with polymer-based XP technology

PACKS
1.55 x 12.9 m roll = 20 m²

WATER-REACTIVE THERMOPLASTIC WATERPROOFING MEMBRANE WITH CORE BASED ON XP TECHNOLOGY WITH DOUBLE WATERPROOFING

Ideal for green roofs, flat roofs and roof gardens

COREFLEX® XP is a nominal 1.5 mm thermoplastic membrane reinforced with a 90g/m² polyester-reinforced fabric fully bonded to a core based on XP technology. COREFLEX® XP offers maximum protection as a waterproofing barrier thanks to XP technology. This advanced polymer technology offers exceptional performance in the face of a wide range of soil contaminants, including high salinity conditions.

IDEAL FOR

- Roofing systems, flat roofs, green roofs and roof gardens.
- Treadable flooring, flooring with double plate.
- Cast-in-place concrete foundation walls with backfill, foundation walls with masonry blocks.

ADVANTAGES

- Self-healing capacity.
- Waterproof monolithic barrier.
- High chemical stability.

YIELD: see technical data sheet

ACCESSORIES FOR LAYING COREFLEX XP

COREFLASH

REINFORCED THERMOPLASTIC WATERPROOFING MEMBRANE

COREFLASH is a thermoplastic membrane with a reduced thickness of 1.5 mm and high tear and puncture resistance. It is resistant to fungi, algae and microbiological attacks.

COREFLASH UV

UV-RESISTANT REINFORCED THERMOPLASTIC WATERPROOFING MEMBRANE

COREFLASH UV is a thermoplastic membrane with a reduced thickness of 1.5 mm and high UV, tear and puncture resistance. It is resistant to fungi, algae and microbiological attacks.

COREFLASH NR

UV-RESISTANT NON-REINFORCED THERMOPLASTIC WATERPROOFING MEMBRANE

COREFLASH NR is a non-reinforced thermoplastic membrane with a reduced thickness of 1.5 mm and high UV, tear and puncture resistance. It is resistant to fungi, algae and microbiological attacks.

COREDISC

THERMOPLASTIC DISCS FOR WELDING

Non-reinforced thermoplastic discs 100 mm in diameter used for patching at junction points and for repairing small holes in membranes.

COREFLEX UNIVERSAL CORNER

UNIVERSAL MOULDED CORNERS

Non-reinforced shaped thermoplastic waterproofing corners, to seal the corners of the structures on both sides. They are cut on-site to the required size.

PF-150

MOULDED WATERPROOFING COMPONENT FOR PROTRUDING ELEMENTS

Moulded thermoplastic waterproofing element, specifically for covering elements such as studs and reinforcing bars, with a variable circumference.

COMPLEMENTARY PRODUCTS

PRIMER E

SOLVENT-FREE, TWO-COMPONENT EPOXY CONSOLIDATING IMPREGNATING PRIMER

PRIMER E is a two-component epoxy resin ideal for use as an impregnating and adhesion agent for the application of all epoxy and epoxy-polyurethane cycles on substrates in concrete mix, stone materials, wood, etc.

STEEL PRIMER

TWO-COMPONENT, SOLVENT-BASED EPOXY PRIMER FOR METAL SURFACES

STEEL PRIMER is a two-component solvent-based epoxy resin primer, preloaded with a special filler mixture. STEEL PRIMERis specially formulated as a primer coat for metal substrates and as protection against oxide and rust formation. STEEL PRIMER is also suitable for painting vertical surfaces.

PRIMER PS30

SINGLE-COMPONENT POLYURETHANE PRIMER FOR CONSOLIDATING AND ADHESION TREATMENTS

PRIMER PS30 is a ready-to-use single-component resin based on modified polyurethane resins in solvent phase, with excellent adhesion characteristics and consolidating properties. Curing takes place by polymerisation in the presence of moisture.

DRACOFLEX P

SINGLE-COMPONENT POLYURETHANE SEALANT WITH AVERAGE MODULUS OF ELASTICITY FOR JOINTS

DRACOFLEX P is a single-component polyurethane sealant, characterised by high adhesion to the walls of the joint, elasticity and ability to move. It hardens in contact with moisture, creating elastic seals on horizontal or vertical joints that are resistant to water and the most common industrial detergents and chemicals.

DRAFIL

CLOSED-CELL POLYETHYLENE FOAM PROFILE

DRAFIL is a round profile of closed-cell polyethylene foam to form the third wall in joints or cracks to be closed with sealing products or fillers.

DRAKOLLA FLEX C2 TE S1

FLEXIBLE, HIGH-PERFORMANCE, NON-SLIP CEMENT ADHESIVE WITH EXTENDED OPEN TIME FOR TILES AND STONE MATERIAL

DRAKOLLA FLEX C2 TE S1 is a cement adhesive (C) with improved adhesion values (2), resistance to slipping (T), elongated open time (E) and deformability (S1) for the bonding of ceramic tiles and mosaics, marble and stone materials, etc. on floors and walls.

COMPLEMENTARY PRODUCTS

EPOMALT FAST 50

TWO-COMPONENT EPOXY CEMENT LEVELLING RESIN FOR THE RAPID REPAIR AND COATING OF FLOORING, EVEN OUTDOORS

EPOMALT FAST 50 is a two-component epoxy-cement resin-based mortar for the repair and coating of deteriorated industrial concrete floors. Its special formulation guarantees exceptional adhesion on even damp substrates.

FLUECO BLITZ

FAST-SETTING, THIXOTROPIC, STRUCTURAL PLASTER FINISH MORTAR FOR REPAIRING CONCRETE

FLUECO BLITZ is a fast-hardening, ready-to-use cement mortar suitable for the rapid repair and finishing of damaged concrete and reinforced concrete surfaces both vertically and horizontally.

FLUECO 60

POURABLE, SHRINKAGE-COMPENSATED, RHEODYNAMIC CEMENTITIOUS CONCRETE MIX WITH SPECIAL SYNTHETIC PAN FIBRES

FLUECO 60 is a shrinkage-compensated rheodynamic concrete consisting of a premix based on high-strength cements, viscosity modifying polymers and selected siliceous aggregates, and enriched with special synthetic PAN (polyacrylonitrile) fibres.

FLUECO 80 T2

STRUCTURAL THIXOTROPIC MODIFIED AND FIRE-REINFORCED POLYMER MORTAR

FLUECO 80 T2 is a modified, fibre-reinforced, two-component polymer mortar, consisting of a cement-based premix to be hydrated with a specific synthetic latex, to obtain thixotropic mixtures that are free from shrinkage in the plastic phase.

EPOFONDO 3K

THREE-COMPONENT EPOXY PRIMER FOR WET SUBSTRATES

EPOFONDO 3K is a three-component waterproofing agent based on special epoxy resins in a water emulsion and hydraulic binders that make it effective even against counterthrust. It is ideal for use as a base coat for resin floor coatings on damp subfloors and as a moisture barrier for concrete, stone, ceramic or stoneware surfaces, and existing resin coatings.

PRIMER ES40

TWO-COMPONENT SOLVENT-BASED IMPREGNATING EPOXY PRIMER FOR CONSOLIDATION

PRIMER ES40 is a two-component epoxy resin specifically formulated for the impregnation and consolidation of slightly porous substrates, including damp ones. It can be applied on concrete, stone materials, wood and the like prior to epoxy and polyurethane cycles.

Ponte della Cioca, Sogliano al Rubicone, Forlì-Cesena
Waterproofing of piers and pier caps with MAGIFLEX CLE

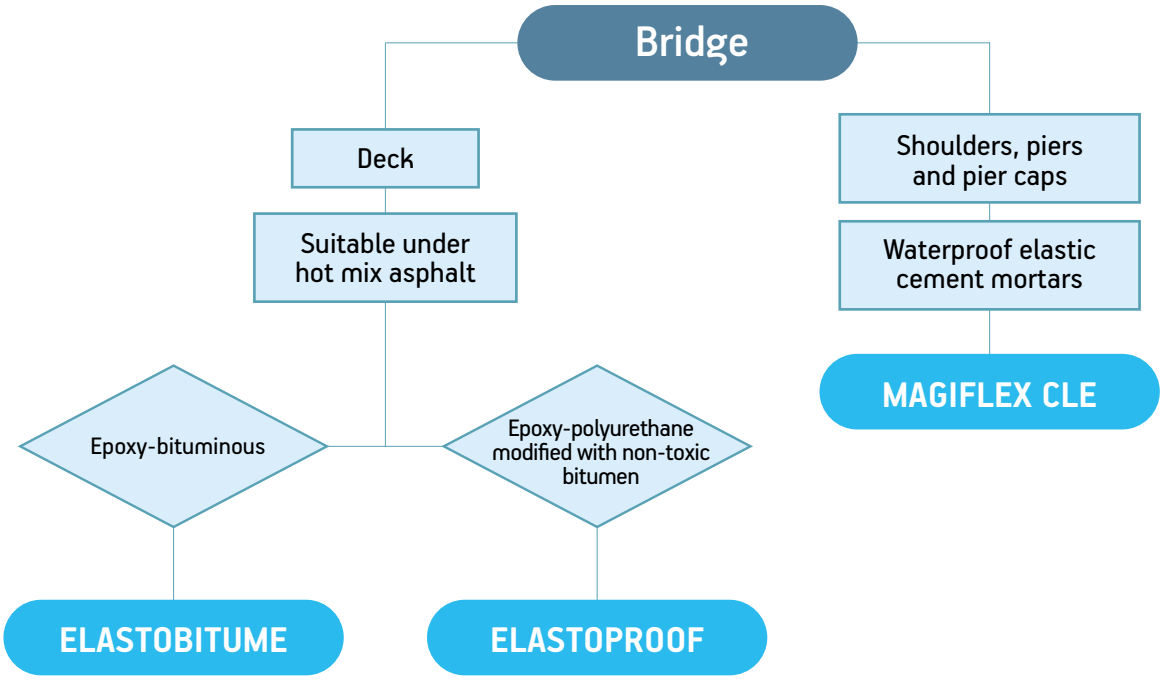
BRIDGES AND VIADUCTS

All overpass structures, such as bridges and viaducts, are composed of load-bearing structures at a height (piers, walls, abutments) and horizontal structures supporting the deck of the bridge. The road surface, due to its position and shape, is undoubtedly among the first parts of the work to come into contact with large quantities of water due to rainfall and, compared to a flat roof (similar in exposure and morphology), they are also clearly subjected to more severe stresses. Wind during a downpour can also cause the piers to come into contact with rainwater. However, it can be generally said that the decks are the part of the structural work most affected by contact with water.

Decks, especially road decks, are also subject to the degradation of freeze-thaw cycles and to vehicular traffic that produces dynamic loads, vibrations and other mechanical stresses. During the winter, decks around the country are also subject to direct contact with anti-freeze chlorides.

Given the aggressive and critical working conditions, it is necessary that the waterproofing membranes used for these works have characteristics superior to those of traditional products and, in particular, can guarantee the following performance requirements:

- mechanical, abrasion and punching resistance, so as not to suffer breakage or cracking both during the laying and compaction phases of the road surface and during operation (transit of vehicles);
- resistance to thermal stress, a consequence of the hot application of the bituminous conglomerate, directly on top of the waterproofing membrane;
- adhesion to the substrate and to the asphalt surface above, to prevent the asphalt from slipping during operation;
- chemical resistance to leaching solutions (e.g. antifreeze salts, oils, hydrocarbons);
- elasticity, to compensate for the movements and deformations of the decks.



ELASTOBITUME

Solvent-free epoxy-bituminous elastic waterproofing coating for bridge decks and structures in general

PACKS
20-kg tub + 20-kg tub = (A+B) **40 kg**

SOLVENT-FREE TWO-COMPONENT EPOXY-BITUMINOUS ELASTIC WATERPROOFING COATING

ELASTOBITUME is a solvent-free two-component, waterproof, elastic, anticorrosive coating with high mechanical, thermal, chemical and weathering resistance, and high adhesive power. ELASTOBITUME is a formulation based on epoxy resins modified with elastic epoxy-polyamide resins and non-toxic synthetic bitumen. Its chemical nature and performance make it ideal for waterproofing concrete, even prior to the construction of hot-laying bituminous membranes.

IDEAL FOR

- Concrete decks of bridges, viaducts and overpasses.
- Purification tanks, canals, sewers and pipes in general.
- Metal structures.

ADVANTAGES

- Excellent elasticity.
- Possibility of being left exposed with spreading of quartz.
- High resistance to freeze-thaw cycles, resistant to de-icing salts and hydrocarbons.

YIELD: 1.6 kg/m² per mm thickness (min 2 mm, max 4 mm thick)

ELASTOPROOF

Flexible epoxy-polyurethane resin waterproofing coating

PACKS
12-kg tub + 2-kg tub = (A+B) **14 kg**
24-kg tub + 4-kg tub = (A+B) **28 kg**

FLEXIBLE TWO-COMPONENT WATERPROOFING COATING BASED ON EPOXY-POLYURETHANE RESINS MODIFIED WITH NON-TOXIC SYNTHETIC BITUMEN

Suitable for waterproofing underneath bituminous conglomerate membranes

ELASTOPROOF is a two-component, waterproof, elastic coating with high mechanical and thermal resistance. ELASTOPROOF is a formulation based on polyurethane and epoxy resins modified with hydrocarbon resin. Its chemical nature and performance make it ideal for waterproofing concrete, even prior to the construction of hot-laying bituminous membranes.

IDEAL FOR

- Waterproofing purification tanks
- Waterproofing bridge decks
- Waterproofing terraces

ADVANTAGES

- High elasticity.
- High resistance to freeze-thaw cycles.
- Resistant to de-icing salts and hydrocarbons.

YIELD: approx. 1.35 kg/m² per mm of thickness
approx. 4,05 kg/m² (minimum recommended)

COMPARISON OF SOLUTIONS

	ELASTOBITUME	ELASTOPROOF
		
COMPOSITION	Epoxy-bituminous	Epoxy-polyurethane modified with non-toxic bitumen
DUST DRY	4 hours approx.	12 hours approx.
POT LIFE (20°C)	60 min. approx.	70 min. approx.
ADHESION TO CONCRETE	2 MPa	1.5 MPa
WATER VAPOUR PERMEABILITY	Class III (EN ISO 7783-1)	Class II (EN ISO 7783-2)
METHOD OF APPLICATION	Spray	Roller/brush/spray or squeegee
FIELD OF APPLICATION	**For the waterproofing of deck slabs, both suitable for application under the bituminous surface.**	

MAGIFLEX CLE

Flexible cement-based waterproofing coating for large concrete works

PACKS
25 kg bag + 8 kg canister = (A+B) **33 kg**

TWO-COMPONENT ELASTIC CEMENT MORTAR FOR THE COATING AND PROTECTION OF LARGE CONCRETE STRUCTURES SUBJECT TO HIGH STRESSES

MAGIFLEX CLE is a two-component elastic cement mortar based on selected fine-grained aggregates, hydraulic binders, admixtures and polymers (component A) to be mixed with micronized synthetic latex (component B). MAGIFLEX CLE is quick and practical to apply and stands out for its high flexibility, tensile strength and adhesion to the substrate.

IDEAL FOR

- Structures subject to microcracks or structures that already have micro-cavities.
- Hydraulic works, infrastructures, viaducts and tunnels, including structures in contact with seawater, de-icing salts and sulphates.
- Restoration of the cortical layer of the concrete and repair of the detached concrete cover following the oxidation of the reinforcing bars.

ADVANTAGES

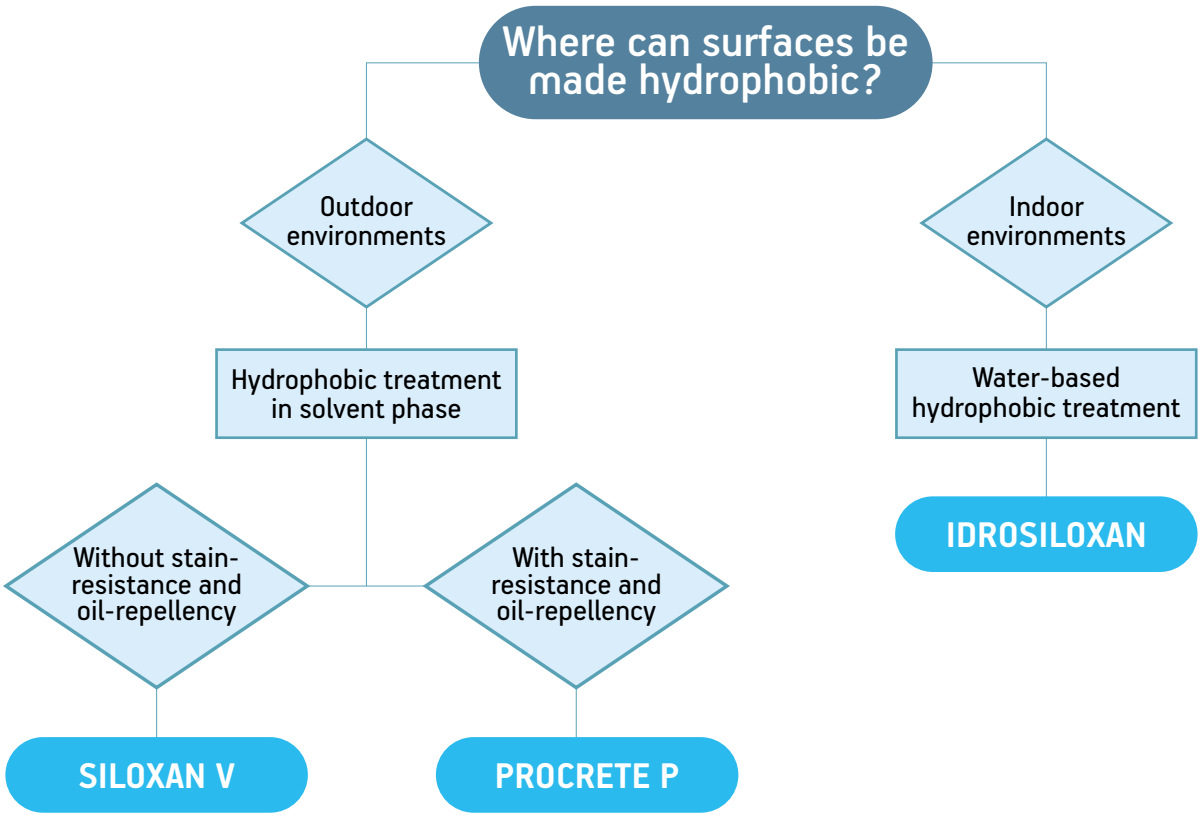
- Resistance to sulphates and environmental chemical aggression.
- Waterproof.
- High adhesion to the substrate:

YIELD: approx. 1.5 kg/m² per mm of thickness
approx. 3 kg/m² (minimum recommended)
approx. 1.9 kg/m² (spraying with plastering machine)
approx. 3.8 kg/m² (minimum recommended for spraying with plastering machine)

PROTECTIVE AND HYDROPHOBIC TREATMENTS

Most building materials are hygroscopic, so they absorb large amounts of water when they come into contact with it. This absorption generally takes place by capillarity, through the pores and any micro-cracks present on the surface of the element. As mentioned earlier, water is the main cause of numerous forms of degradation with effects such as: saline efflorescence; development of pathogens like fungi and moulds; penetration of pollutants; oxidation of iron parts; surface washout; breaks and cracks due to the expansion generated by freeze-thaw cycles.

The protective and hydrophobic treatments coat the pores of the material, without occluding them, so as to prevent the penetration of water while preserving the natural permeability of the material to water vapour. Substrates treated in this way remain breathable, allowing the progressive disposal of the moisture contained in them.
In general, hydrophobic treatments only last so long as they are gradually worn down by the force of water. This means maintenance must be carried out, on a basis depending on both the depth of penetration of the product and the degree of exposure to weathering. These products are able to make hydrophobic the surfaces of exposed systems in concrete, bricks, natural and artificial stone, plaster and skim coats, without modifying their original appearance.



IDROSILOXAN

Hydrophobic and protective treatment in aqueous vehicle for concrete, brick and stone

PACKS
7.5-kg canister + 0.5-kg canister = (A+B) **8 kg**
15-kg canister + 1-kg canister = (A+B) **16 kg**

TWO-COMPONENT WATER-BASED PROTECTIVE HYDROPHOBIC TREATMENT FOR CONCRETE AND BUILDING MATERIALS

IDROSILOXAN is a silane-based impregnating agent in aqueous vehicle with high penetration power. It penetrates deeply into the materials to be treated, making them hydrophobic without altering their appearance and breathability.

IDEAL FOR

- Hydrophobic treatment of concrete and stone materials while maintaining breathability.
- Stone, terracotta, brick, marble, exposed walls and building materials in general.
- Protection of the cortical layer of the concrete by eliminating the ingress of aggressive agents (chlorides, sulphates, etc.).

ADVANTAGES

- Excellent water vapour breathability.
- Resistant to freeze/thaw cycles and UV radiation.
- Guarantee of durability of the hydrophobic effect over time.

YIELD: 150 - 600 g/m² depending on the degree of absorption of the substrate

SILOXAN V

Hydrophobic and protective treatment in solvent phase for concrete, brick and stone

PACKS
1 l bottle
8 - 16-litre canister

SOLVENT-BASED SINGLE-COMPONENT WATER-REPELLENT WATERPROOFING TREATMENT FOR CONCRETE AND STONE MATERIALS

SILOXAN V is a ready-to-use hydrophobic treatment in solvent phase. It is used for the treatment of vertical surfaces, protects materials against chemical aggression, acid rain, antifreeze saline solutions, freeze-thaw cycles and prevents the formation of mould and efflorescence.

IDEAL FOR

- Hydrophobic treatment of concrete and stone materials while maintaining breathability.
- Stone, terracotta, brick, marble, exposed walls and building materials in general.
- Protection of the cortical layer of the concrete by eliminating the ingress of aggressive agents (chlorides, sulphates, etc.).

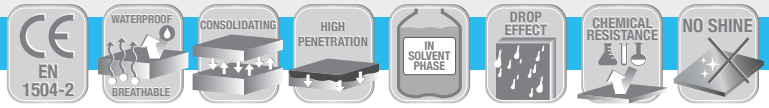
ADVANTAGES

- Guarantee of durability of the hydrophobic effect over time.
- Resistant to freeze/thaw cycles and UV radiation.
- Can be applied on highly and moderately alkaline substrates.

YIELD: 150 - 600 g/m² depending on the degree of absorption of the substrate

PROCRETE P

Water- and oil-repellent protective in solvent phase for stone, brick and concrete



PACKS
1l bottle
5 - 10 - 20-litre canisters

READY-TO-USE WATER-REPELLENT PROTECTIVE TREATMENT FOR STONE, BRICK AND CONCRETE

Transparent, does not alter surfaces

PROCRETE P is an organic polymer in solvent phase based on Teflon, formulated to make absorbent building materials such as concrete, synthetic cementitious conglomerates, Tuscan terracotta, absorbent natural stones, etc., oil-water-repellent and chemical-resistant. PROCRETE P creates a barrier that ensures water vapour breathability. Its special formulation enriched with Teflon makes it oil-repellent, promotes the washing away of dirt and the removal of spray paints, and prevents the formation of mould, salts and efflorescence.

IDEAL FOR

- Protection and consolidation of concrete, bricks, terracotta, natural and artificial stone, unglazed tiles and plasters.
- Making the surfaces of absorbent building materials water-repellent.
- Water-repellent and breathable protective treatment of historic buildings or elements of architectural and decorative value.

ADVANTAGES

- Water-repellent.
- Consolidating.
- Breathable.

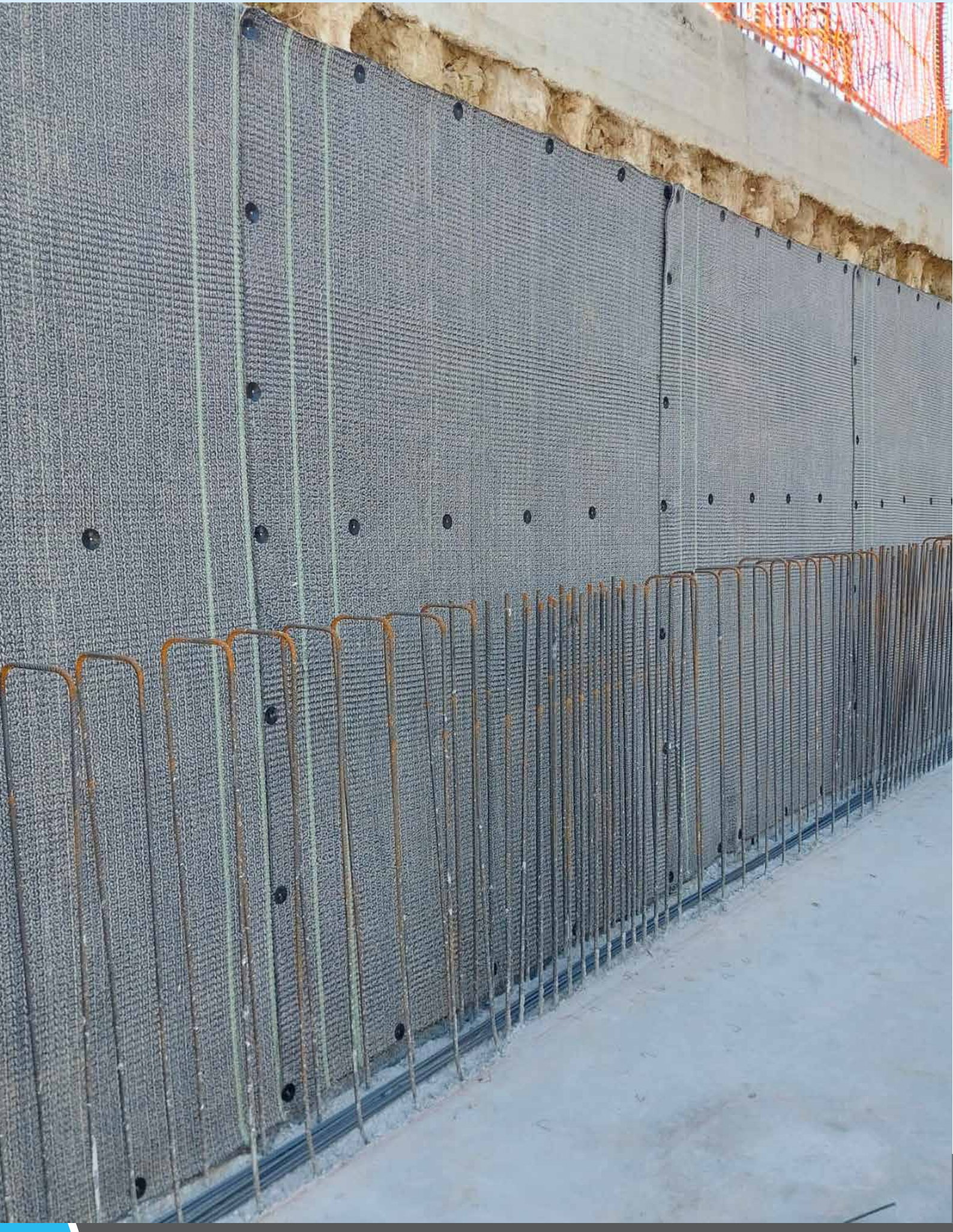
YIELD:from 3 to 6m²/l depending on the degree of absorption of the substrate

COMPARISON OF SOLUTIONS

	IDROSILOXAN	SILOXAN V	PROCRETE P
			
COMPOSITION	Alkyl-alkoxy-silane	Ethyl silicate Pure in solvent	Xylene, isomer mixture Formula enriched with Teflon
ACTIVE INGREDIENT	16%	0.85-1%	15%
STEP	Aqueous	Solvent	Solvent
IMPREGNATION DEPTH (UNI EN 14630)	Class I: < 10 mm	Class II - 16 mm	Class II - 14 mm
DENSITY	1kg/l	0.93 kg/l	0.89 kg/l
USE	Indoor	Outdoor	Outdoor
CONSUMPTION (depending on degradation of the substrate)	150/600 g/m²	150/600 g/m²	3-6 m²/l
DROP EFFECT	✓	✓	✓
OIL-REPELLENT / STAIN-RESISTANT	X	X	✓
CHROMATIC ALTERATION	None	None	None

WATERPROOFING WORK BELOW GROUND

Foundations are the set of structural elements whose function is to transmit loads to the ground and must therefore be designed prioritising their durability over time. Underground structures, however, are not only foundation works but are also useful for the construction of ancillary service structures (car parks, technical rooms, production units, warehouses or cellars), and the need to exploit the subsoil derives from the lack of new building spaces and the high urban density of many cities. Underground structures are in constant contact with soil moisture, percolation water or groundwater and consequently need to be protected and waterproofed, in order to safeguard their durability and prevent infiltration from compromising the functionality of the indoor environments and the integrity of the structure itself.



Foundations of a new building in San Benedetto del Tronto
Waterproofing of foundation structure with VOLTEX CR sheets

ACTIVE WATERPROOFING OF UNDERGROUND STRUCTURES

The choice of the most suitable waterproofing system to be adopted for underground structures, as well as the type of foundation, depends on the environmental conditions in which the structure is found:

1. moisture present in the soil;
2. non-draining soil in the excavation that generates water accumulation;
3. soil with pressurized water.

In the first case, the waterproofing is not subjected to significant hydrostatic loads. It may therefore be sufficient to waterproof only the retaining walls with products that can be applied in a quick and practical manner, such as MAGIFLEX BRAVO, a flexible cementitious waterproofing agent.

In the second case, the presence of compact soils or clayey soils in which no type of drainage has been applied, favours the accumulation of water. This means it is necessary to create continuous waterproofing from under the slab and up over the walls, bringing it above the level of the ground.

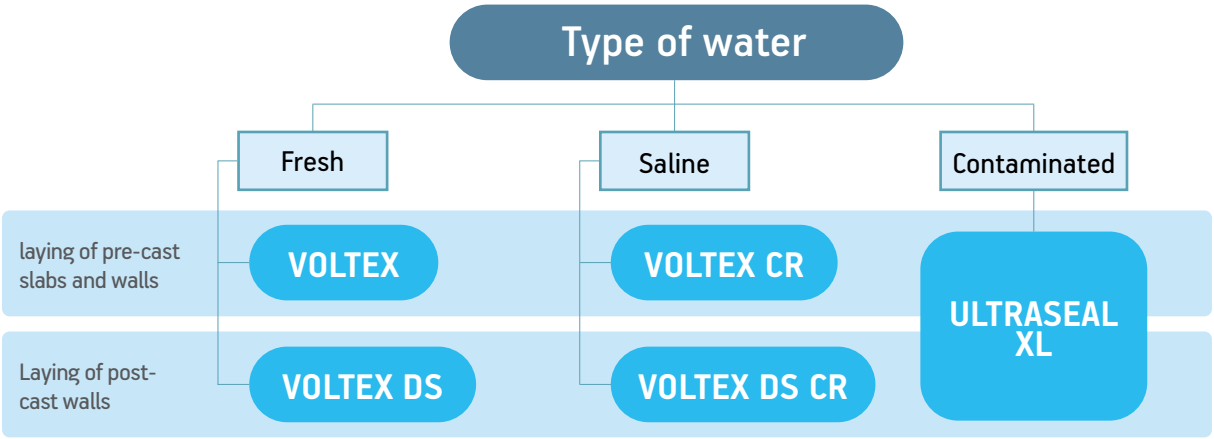
In the third case, the pressurized water, due to the presence of the aquifer, comes into direct contact with the structure, conditioning not only the choice of the type of waterproofing, but also the type of foundation. In this case, too, it is necessary to create continuous waterproofing from under the slab and up over the walls, bringing it above the level of the ground.

DRACO offers a wide range of waterproofing products suitable for protecting underground structures even in the presence of water with a high degree of salinity or contaminants. Starting with the VOLTEX bentonite sheet, suitable for fresh water; continuing with the VOLTEX CR bentonite sheet, specifically for water with a high degree of salinity; up to ULTRASEAL XL, a polymer-based water-reactive waterproofing membrane suitable for highly contaminated water.

DRACO OFFERS A FREE GROUNDWATER CHEMICAL ANALYSIS SERVICE

In some contexts, the chemical nature of the groundwater on site may be uncertain. For this reason, DRACO offers a free water chemical analysis service.

As a precautionary measure during design, it is always preferable to choose the best performing waterproofing system or products in order to prevent problems or situations that could prove particularly difficult to manage with basic solutions: for example, in the case of hydroactive membranes, it would be reasonable to apply ULTRASEAL XL. If the chemical analysis of the water does not reveal any particular issues with regard to waterproofing of the structure, the products chosen during the design stage can be replaced with more suitable solutions during the execution stage.



SYSTEM DATA SHEET

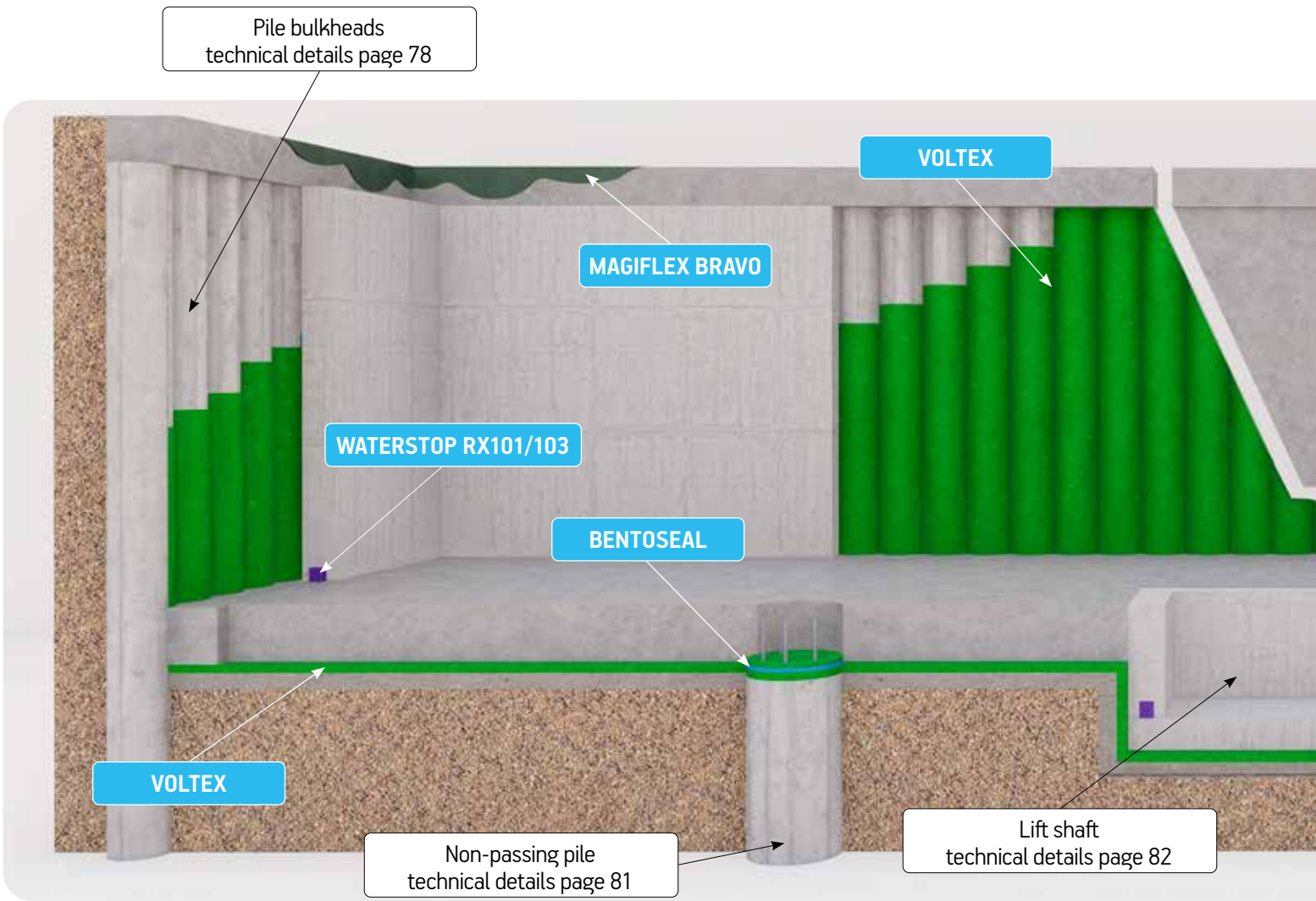
VOLTEX

HYDROACTIVE BENTONITE WATERPROOFING MEMBRANE IN THE PRESENCE OF FRESH WATER

VOLTEX is a waterproofing membrane composed of two geotextiles, one woven and one non-woven, with sodium bentonite (5 kg/m^2) in between. Bentonite is the active component able to expand in contact with fresh water (it is always recommended to perform the water compatibility test), creating a continuous waterproofing membrane. A patented needling process binds the geotextiles together to form an extremely strong composite that ensures an equal distribution of bentonite, protection in case of laying in adverse weather conditions, and appropriate confinement after its expansion.
The system is completed with the WATERSTOP RX101 hydro-expansive bentonite joint for protection of the casting joints as well as the BENTOSEAL bentonite sealant to be used for sealing the cut parts of the sheet at the point of passing bodies or other critical points of the structure.

PRODUCTS USED

· VOLTEX · WATERSTOP RX 101 · BENTOSEAL · VOLTEX DS · CETBIT 300 · TERMINATION BAR ·

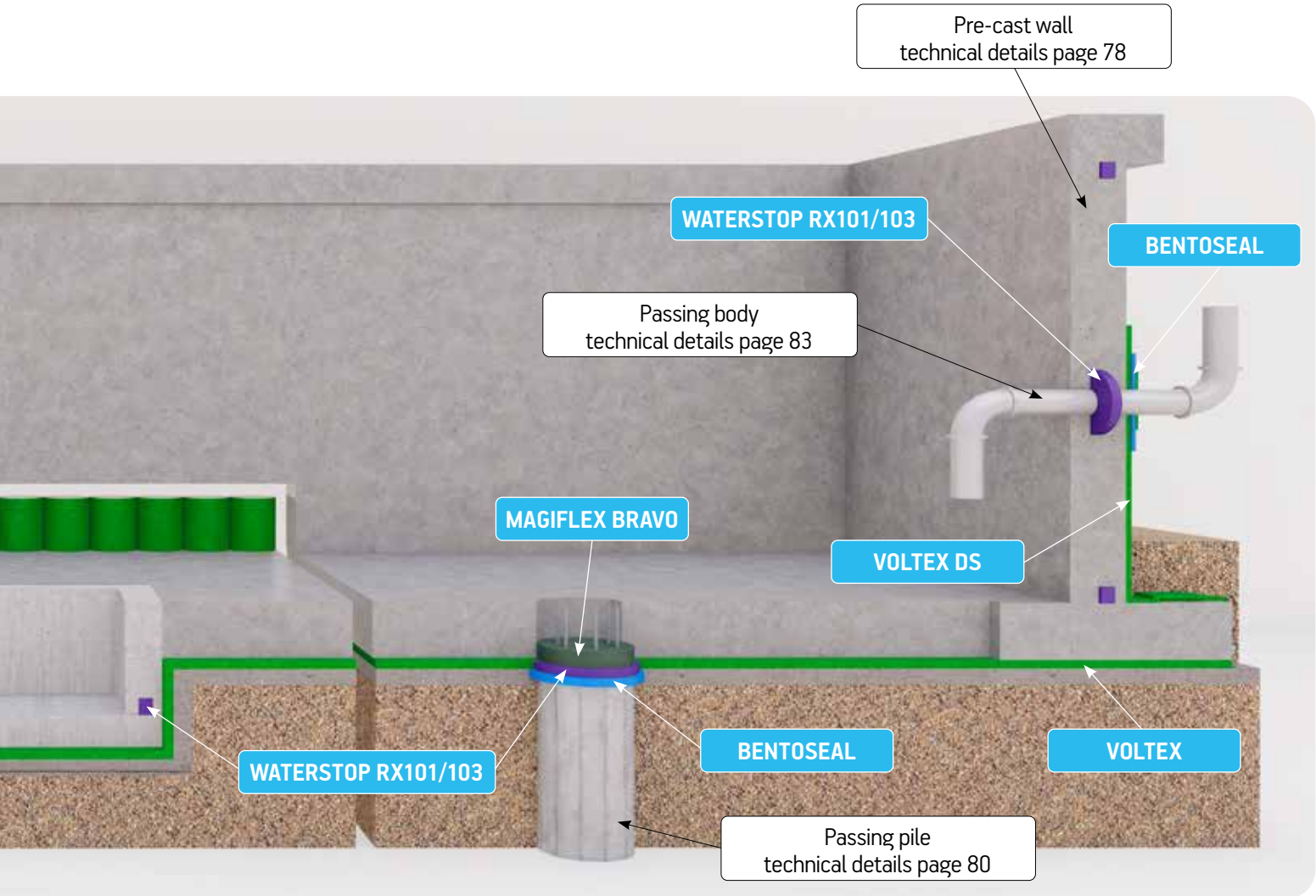


ADVANTAGES

- ✓ Easy to apply: the VOLTEX membrane is quick and easy to apply even in adverse weather conditions.
- ✓ Mechanical adhesion to the casting: the fibres of the geotextile are incorporated into the reinforced concrete casting.
- ✓ It self-seals with hydration.
- ✓ The overlaps are perfectly watertight, thanks to the expansive capacity leading to self-repair.
- ✓ It withstands hydrostatic pressure up to 70m (6.89 bar) of water column according to ASTM D 5385 mod.
- ✓ Thanks to its double layer of waterproofing, sodium bentonite + external PE membrane, the VOLTEX DS version ensures exceptional self-containment, making it suitable for pre-cast reinforced concrete walls.

IDEAL FOR

- ✓ Foundation and underground structures in general, in the presence of fresh water.
- ✓ Pre-cast reinforced concrete slabs and underground walls (VOLTEX).
- ✓ Post-cast reinforced concrete underground walls (VOLTEX DS).
- ✓ Applications on diaphragms, micropiles, pilings and metal sheet piles.



SYSTEM DATA SHEET

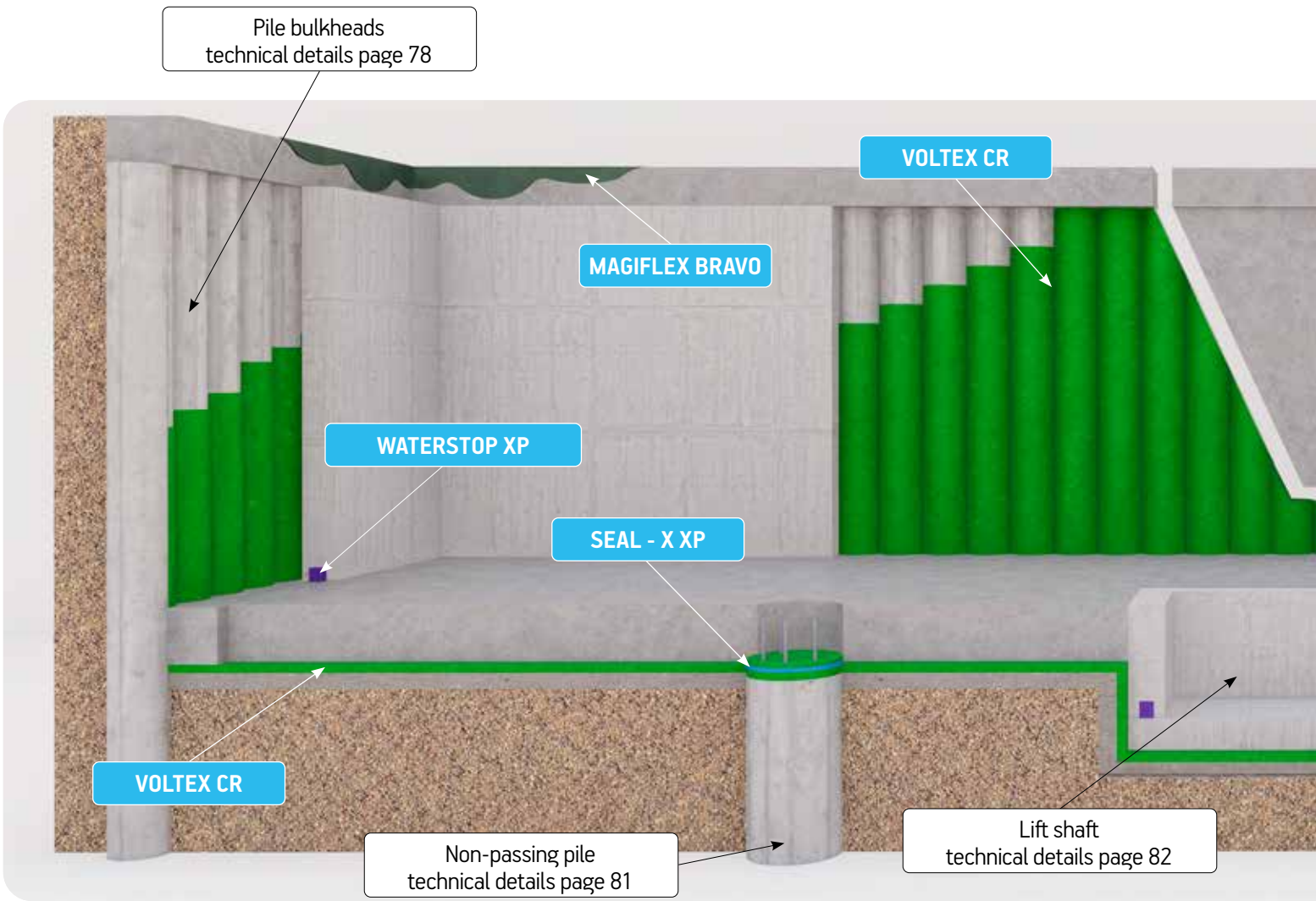
VOLTEX CR

HYDROACTIVE BENTONITE WATERPROOFING MEMBRANE IN THE PRESENCE OF SALINE WATER

VOLTEX CR (Chemical Resistant) is a waterproofing membrane composed of two geotextiles, one woven and one non-woven, with sodium bentonite (5 kg/m^2) in between. The bentonite in VOLTEX CR is able to expand in contact with saline water (it is always recommended to perform the water compatibility test), creating a continuous waterproofing membrane. A patented needling process binds the geotextiles together to form an extremely strong composite that ensures an equal distribution of bentonite, protection in case of laying in adverse weather conditions, and appropriate confinement after its expansion.
The system is completed with the WATERSTOP XP joint and the SEAL-X XP seaant, both based on active polymers to be used respectively for protecting casting joints and for sealing the cut parts of the sheet at the point of passing bodies or other critical points of the structure. Both the joint and the sealant are suitable for environments with saline and contaminated water, and can therefore be used in combination with both the VOLTEX CR and ULTRASEAL XL sheets.

PRODUCTS USED

· VOLTEX CR · WATERSTOP XP · SEAL - X XP · VOLTEX DSCR · CETBIT 300 · TERMINATION BAR·

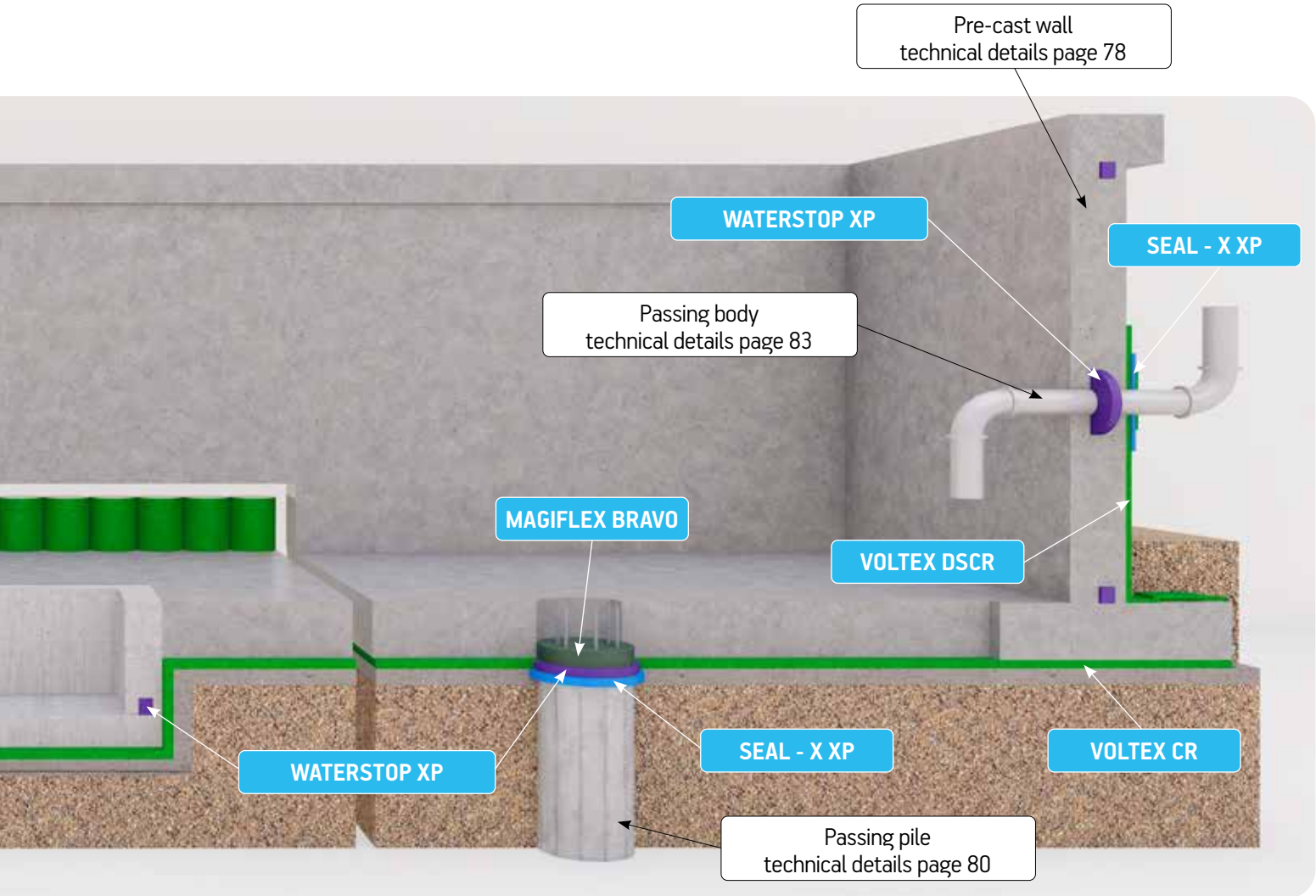


ADVANTAGES

- ✓ Reactive even in the presence of saline water.
- ✓ Easy to apply: the VOLTEX CR membrane is quick and easy to apply even in adverse weather conditions.
- ✓ Mechanical adhesion to the casting: the fibres of the geotextile are incorporated into the reinforced concrete casting.
- ✓ It self-seals with hydration.
- ✓ The overlaps are perfectly watertight, thanks to the expansive capacity leading to self-repair.
- ✓ It withstands hydrostatic pressure up to 70m (6.89 bar) of water column according to ASTM D 5385 mod.
- ✓ Thanks to its double layer of waterproofing, sodium bentonite + external PE membrane, the VOLTEX DSCR version ensures exceptional self-containment, making it suitable for pre-cast reinforced concrete walls.

IDEAL FOR

- ✓ New or old foundation and underground structures in general, in the presence of saline water.
- ✓ Pre-cast reinforced concrete slabs and underground walls (VOLTEX CR).
- ✓ Post-cast reinforced concrete underground walls (VOLTEX DSCR).
- ✓ Applications on diaphragms, micropiles, pilings and metal sheet piles.



SYSTEM DATA SHEET

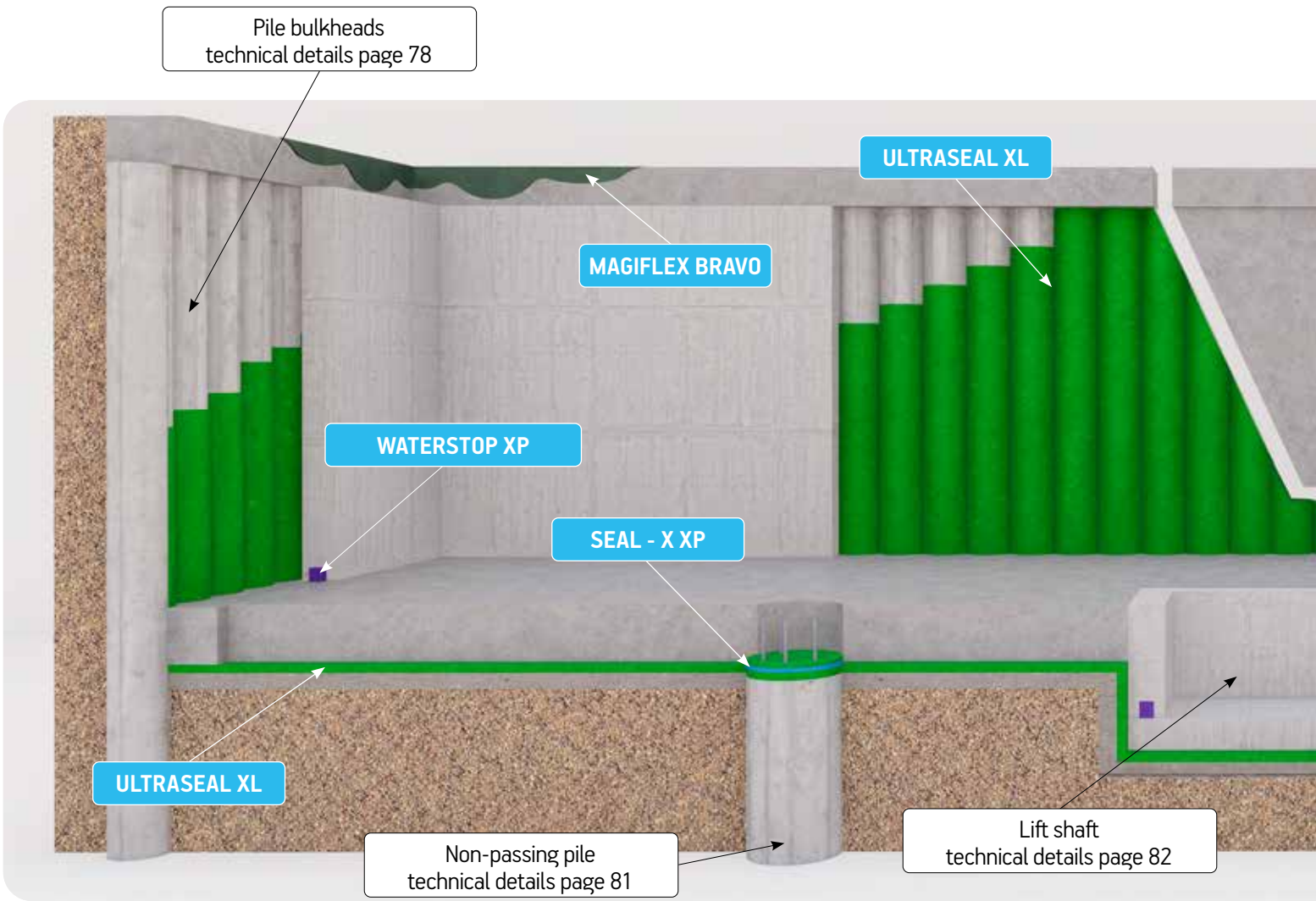
ULTRASEAL XL

HYDROACTIVE POLYMER WATERPROOFING MEMBRANE IN THE PRESENCE OF CONTAMINATED WATER

ULTRASEAL XL is a waterproofing membrane with XL technology, an advanced polymer technology that is effective even in the presence of contaminated water. The polymers in ULTRASEAL XL are able to expand in contact with highly contaminated water (it is always recommended to perform the water compatibility test), creating a continuous membrane. The membrane has a high puncture resistance and can be laid even in adverse weather conditions.
The system is completed with the WATERSTOP XP joint and the SEAL-X XP seaant, both based on active polymers to be used respectively for protecting casting joints and for sealing the cut parts of the sheet at the point of passing bodies or other critical points of the structure. Both the joint and the sealant are suitable for environments with saline and contaminated water, and can therefore be used in combination with both the VOLTEX CR and ULTRASEAL XL sheets.

PRODUCTS USED

· ULTRASEAL XL · WATERSTOP XP · SEAL - X XP · TERMINATION BAR ·

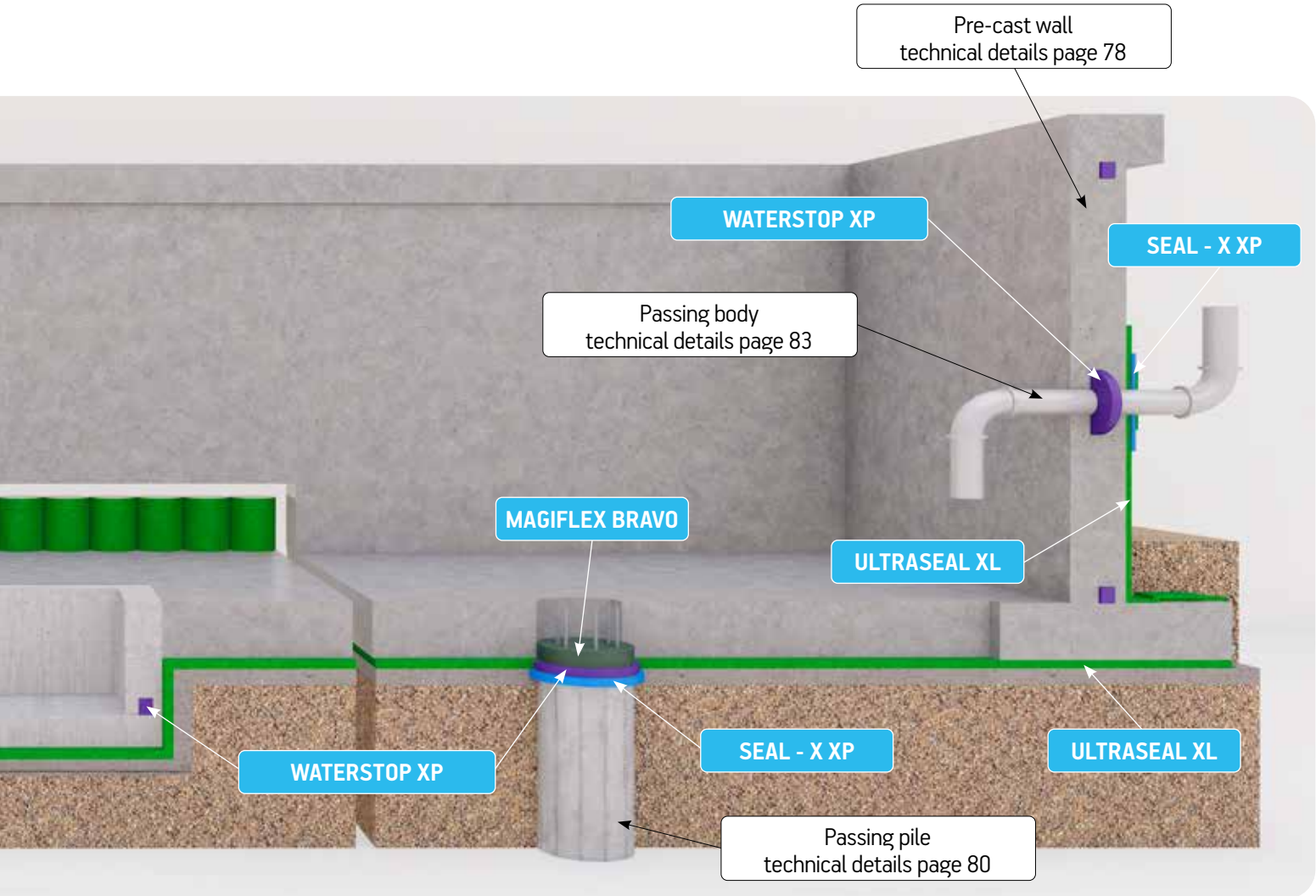


ADVANTAGES

- ✓ Reactive even in the presence of contaminated water.
- ✓ Easy to apply: the ULTRASEAL XL membrane is quick and easy to apply even in adverse weather conditions.
- ✓ Mechanical adhesion to the casting: the fibres of the geotextile are incorporated into the reinforced concrete casting.
- ✓ It self-seals with hydration.
- ✓ The overlaps are perfectly watertight, thanks to the expansive capacity leading to self-repair.
- ✓ It withstands hydrostatic pressure up to 70m (6.89 bar) of water column according to ASTM D 5385 mod.

IDEAL FOR

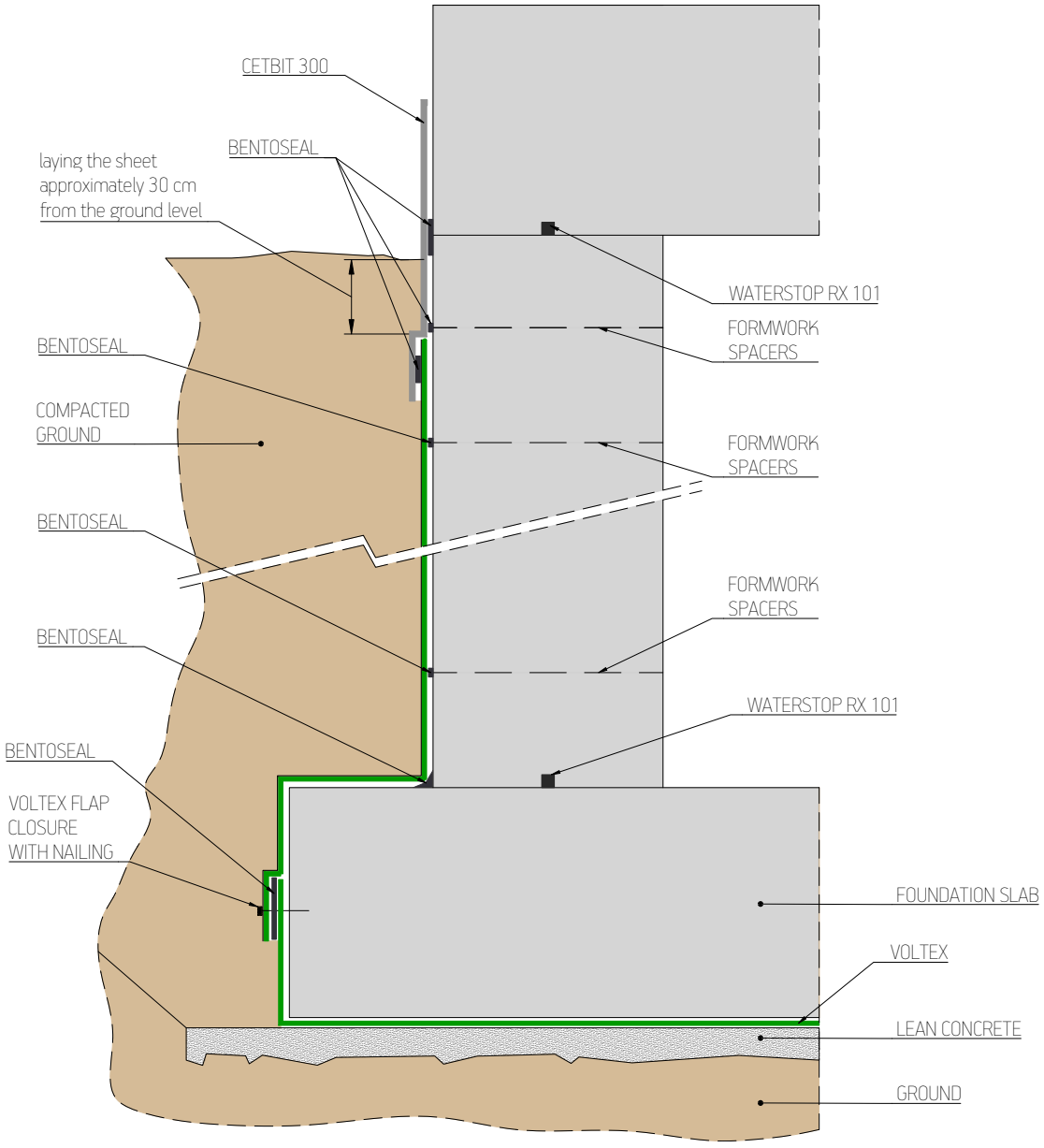
- ✓ New or old foundation and underground structures in general, in the presence of saline water.
- ✓ Pre-cast reinforced concrete slabs and underground walls.
- ✓ Post-cast reinforced concrete underground walls.
- ✓ Applications on diaphragms, micropiles, pilings and metal sheet piles.



TECHNICAL DETAILS

BENTONITE WATERPROOFING OF REINFORCED CONCRETE STRUCTURE HORIZONTAL - VERTICAL

Waterproofing system with bentonite active technology ideal for waterproofing foundations, slabs and underground parts of structures. It guarantees the impermeability of the structure, withstands high hydrostatic pressures, and is extremely durable and easy to lay.



Preparation of the laying surface

On the compacted soil, apply a weak mix to create a uniform and regular work surface. Prepare the perimeter formwork of the slab.

Application steps:

1. Lay the **VOLTEX** bentonite sheets horizontally, with a minimum overlap of 10 cm between each sheet, securing them with nails and plastic washers at a distance of 50 cm. Turn the sheet over onto the formwork, fixing it with nails and a plastic washer at a distance of 30 cm. Cast the foundation slab.
2. Lay the **WATERSTOP RX 101** bentonite joint in the casting joint, between the slab and the wall. Cast the wall.
3. Release the wall, remove the formwork sheets and eliminate any roughness, and smooth over any gravel nests. In the corner between the slab and the wall, apply a 2 cm thick layer of **BENTOSEAL**, sealant based on sodium bentonite and butyl rubber.
4. Apply **BENTOSEAL** at the point of the spacers for the formwork panels.
5. Lay **VOLTEX DS** vertically, starting from the top and going down to the foot of the slab. Fasten the sheets to each other with **SEAMTAPE**, a high-tack butyl adhesive tape, and with nails and washers at a distance of 30 cm.
6. At the end of the base of the slab, overlap the vertical **VOLTEX DS** sheet with the horizontal **VOLTEX** sheet. Place the **BENTOSEAL** sealant between the **VOLTEX** and the flap of the **VOLTEX DS**.
7. Fasten the two flaps of **VOLTEX** every 50 cm in the overlapping area.
8. Above ground, lay **CETBIT 300**, a self-adhesive waterproofing membrane, after applying a coat of primer.
9. Fix the **TERMINATION BAR,**, a galvanized steel profile, at the head of **CETBIT 300**.
10. Between the **CETBIT 300** and **VOLTEX DS** membranes, apply the **BENTOSEAL**, sealant to ensure continuity between the two.

PRODUCTS USED:

VOLTEX
Self-clinching hydroactive bentonite waterproofing membrane
Page 92

WATERSTOP RX 101
Hydro-expansive bentonite waterstop for sealing joints and casting joints
Page 105

BENTOSEAL
Sodium bentonite putty paste
Page 95

VOLTEX DS
Self-clinching water-reactive bentonite waterproofing membrane
Page 93

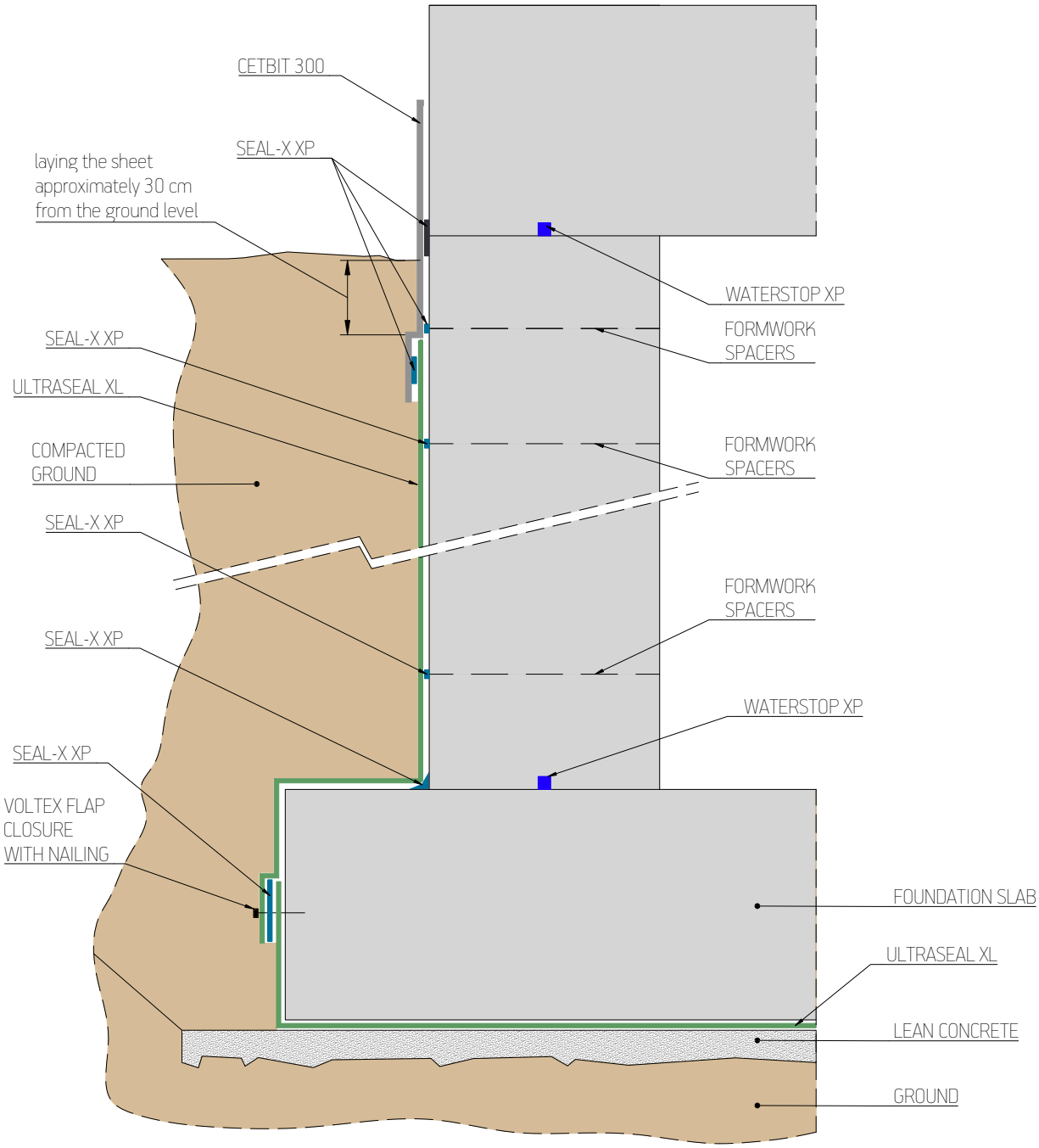
TERMINATION BAR
Galvanized metal flashing
Page 95

CETBIT 300
Self-adhesive waterproofing membrane
Page 95 / 101

TECHNICAL DETAILS

WATERPROOFING OF REINFORCED CONCRETE STRUCTURE HORIZONTAL-VERTICAL WITH POLYMERIC ULTRASEAL XL SUITABLE FOR CONTAMINATED WATER

Waterproofing system with polymer active technology ideal for waterproofing foundations, slabs and underground parts of structures. In the presence of contaminated water, it guarantees the impermeability of the structure, is resistant to high hydrostatic pressures, is extremely durable, and is easy to lay.



Preparation of the laying surface

On the compacted soil, apply a weak mix to create a uniform and regular work surface.

Application steps:

1. Lay the **ULTRASEAL XL** bentonite sheets horizontally, with a minimum overlap of 10 cm between each sheet, securing them with nails and plastic washers at a distance of 50 cm. Turn the sheet over onto the formwork, fixing it with nails and a plastic washer at a distance of 30 cm. Cast the foundation slab.
2. Lay the **WATERSTOP XP** bentonite joint in the casting joint, between the slab and the wall. Cast the wall.
3. Release the wall, remove the formwork sheets and eliminate any roughness, and smooth over any gravel nests. In the corner between the slab and the wall, apply a 2 cm thick layer of **SEAL-X XP**, sealant based on sodium bentonite and butyl rubber.
4. Apply **SEAL-X XP** at the point of the spacers for the formwork panels.
5. Lay **ULTRASEAL XL** vertically, starting from the top and going down to the foot of the slab. Fasten the sheets to each other with **SEAMTAPE**, a high-tack butyl adhesive tape, and with nails and washers at a distance of 30 cm.
6. At the end of the base of the slab, overlap the vertical **ULTRASEAL XL** sheet with the horizontal **ULTRASEAL XL** sheet. Place the **SEAL-X XP** sealant between the **ULTRASEAL XL** and the flap of the **ULTRASEAL XL**.
7. Fasten the two flaps of **ULTRASEAL XL** every 50 cm in the overlapping area.
8. Above ground, lay **CETBIT 300**, a self-adhesive waterproofing membrane, after applying a coat of primer.
9. Fix the **TERMINATION BAR,,** a galvanized steel profile, at the head of **CETBIT 300**.
10. Between the **CETBIT 300** and **VOLTEX DS** membranes, apply the **SEAL-X XP**, sealant to ensure continuity between the two.

PRODUCTS USED:

ULTRASEAL XL
Hydroactive polymer waterproofing membrane
Page 94

WATERSTOP XP
Hydro-expansive waterstop with active polymers (XP technology) for sealing joints and self-clinching casting joints
Page 106

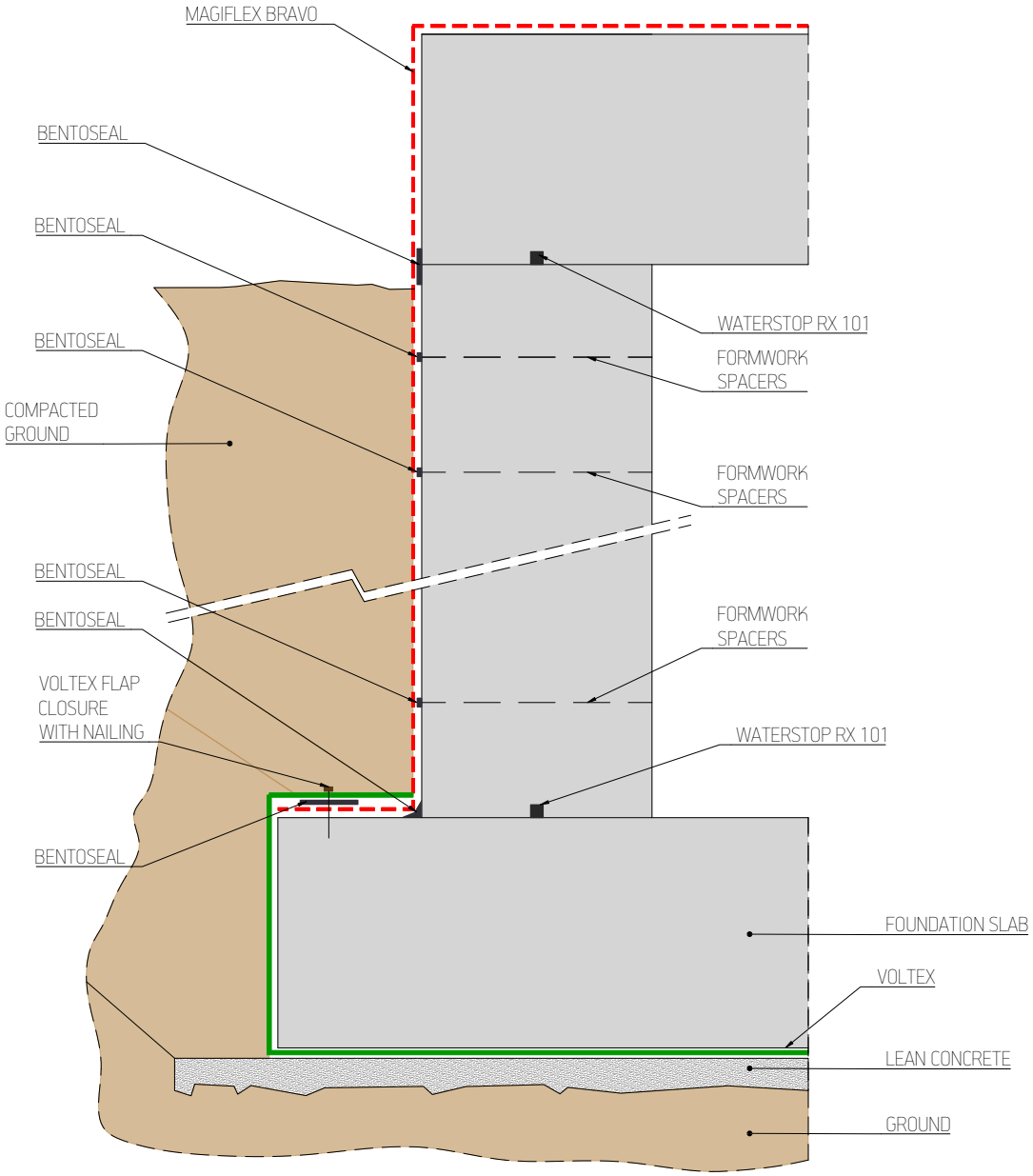
SEAL-X XP
Sealant based on active polymers
Page 95

CETBIT 300
Self-adhesive waterproofing membrane
Page 95 / 101

TECHNICAL DETAILS

CEMENT BENTONITE WATERPROOFING | REINFORCED CONCRETE STRUCTURE HORIZONTAL - VERTICAL

Hybrid waterproofing system with bentonite and cement active technology ideal for waterproofing foundations, slabs and underground parts of structures. It guarantees the impermeability of the structure, withstands high hydrostatic pressures, and is extremely durable and easy to lay.



Preparation of the laying surface

On the compacted soil, apply a weak mix to create a uniform and regular work surface. Prepare the perimeter formwork of the slab.

Application steps:

1. Lay the **VOLTEX** bentonite sheets horizontally, with a minimum overlap of 10 cm between each sheet, securing them with nails and plastic washers at a distance of 50 cm. Turn the sheet back onto the formwork, securing it with nails and a plastic washer at a distance of 30 cm. Cast the foundation slab.
2. Lay the **WATERSTOP RX 101** bentonite joint in the casting joint, between the slab and the wall. Cast the wall.
3. Release the wall, remove the formwork sheets and eliminate any roughness, and smooth over any gravel nests. In the corner between the slab and the wall, apply a 2 cm thick layer of **FLUECO BLITZ**, a thixotropic cement mortar.
4. Apply **FLUECO BLITZ** at the point of the spacers for the formwork panels.
5. Lay **MAGIFLEX BRAVO** vertically with a roller, starting from the top, above ground, and going down to the foot of the slab.
6. At the end of the foot of the slab, place the **VOLTEX** sheet on top of the **MAGIFLEX BRAVO**, applying the **BENTOSEAL** sealant between them and securing them with nails.

PRODUCTS USED:

VOLTEX
Self-clinching hydroactive bentonite waterproofing membrane
Page 92

WATERSTOP RX 101
Hydro-expansive bentonite waterstop for sealing joints and casting joints
Page 105

BENTOSEAL
Sodium bentonite putty paste
Page 95

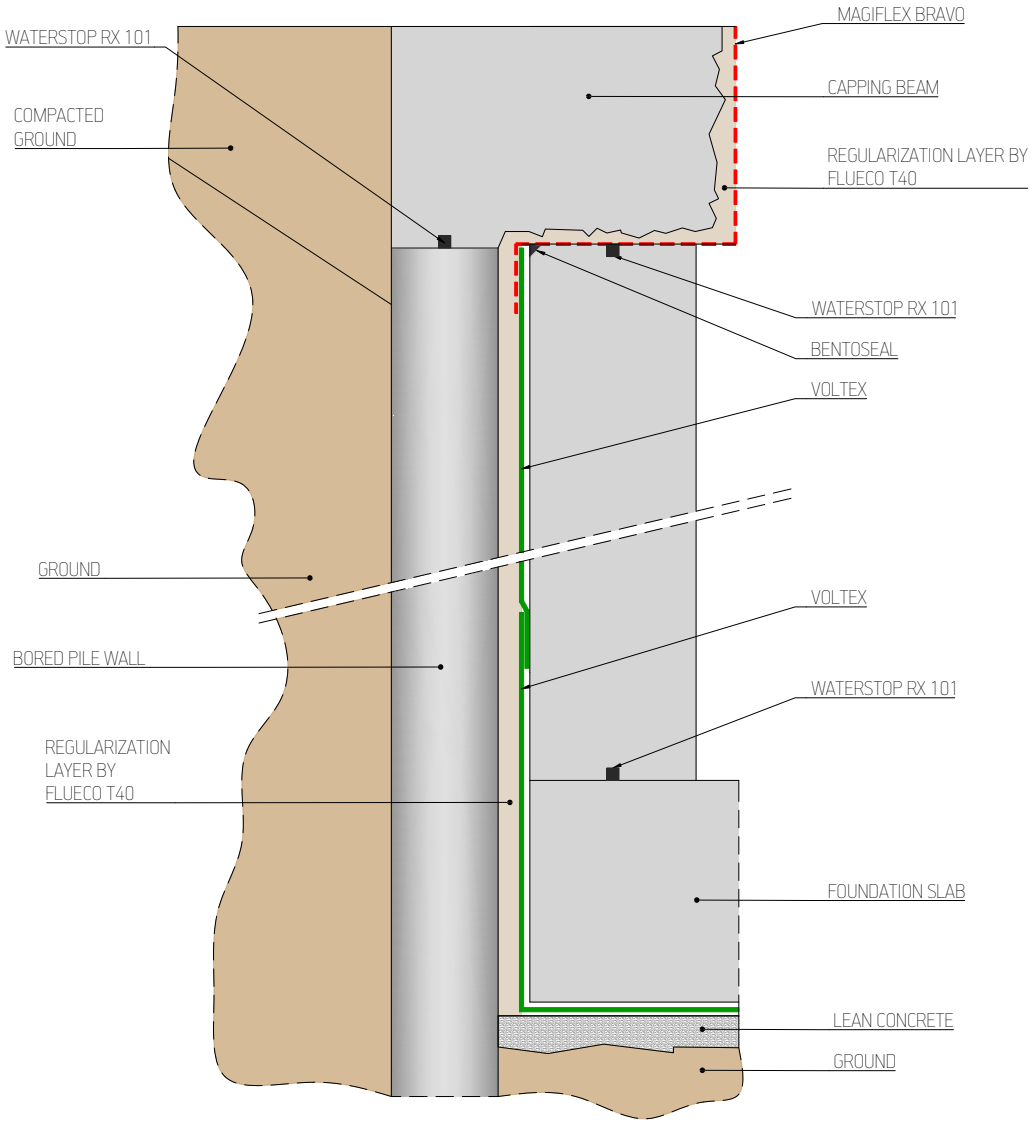
FLUECO BLITZ
Fast-setting, thixotropic, structural plaster finish mortar for repairing concrete
Page 53

MAGIFLEX BRAVO
Flexible, waterproof, breathable, two-component cementitious coating for foundations and retaining structures
Page 94

TECHNICAL DETAILS

BENTONITE CEMENTITIOUS WATERPROOFING | PRE-CAST ON PILE BULKHEADS

Waterproofing system with active technology ideal for waterproofing foundations and pile or sheet pile bulkheads, with vertical pre-cast laying of the bentonite sheet and cementitious coating. It guarantees the impermeability of the structure, withstands high hydrostatic pressures, and is extremely durable and easy to lay.



Preparation of the laying surface

On the compacted soil, apply a weak mix to create a uniform and regular work surface. Regularize the piling and the crowning beam with FLUECO 40 T.

Application steps:

1. Lay the **VOLTEX** bentonite sheets horizontally, with a minimum overlap of 10 cm between each sheet, securing them with nails and plastic washers at a distance of 50 cm. Turn the sheet over onto the perimeter formwork, securing it with nails and a plastic washer at a distance of 30 cm. Cast the foundation slab.
2. Lay the **WATERSTOP RX 101** bentonite joint in the casting joint, between the slab and the wall. Cast the wall.
3. In the highest part of the piling, under the crowning beam, up to 30 cm, apply **MAGIFLEX BRAVO**, a two-component elastic cementitious waterproof coating for foundations and retaining structures, waterproof even with counter-thrust.
4. Apply **MAGIFLEX BRAVO** under and at the head of the foundation beam.
5. Lay the **VOLTEX** bentonite sheet vertically under the crowning beam.
6. Lay a **WATERSTOP RX 101** or **RX 103** bentonite joint under the crowning beam, in the connection between **VOLTEX** and **MAGIFLEX BRAVO**.
7. Place the formwork only on the inner side and cast the wall between the piling and the formwork.

PRODUCTS USED:

VOLTEX
Self-clinching hydroactive bentonite waterproofing membrane
Page 92

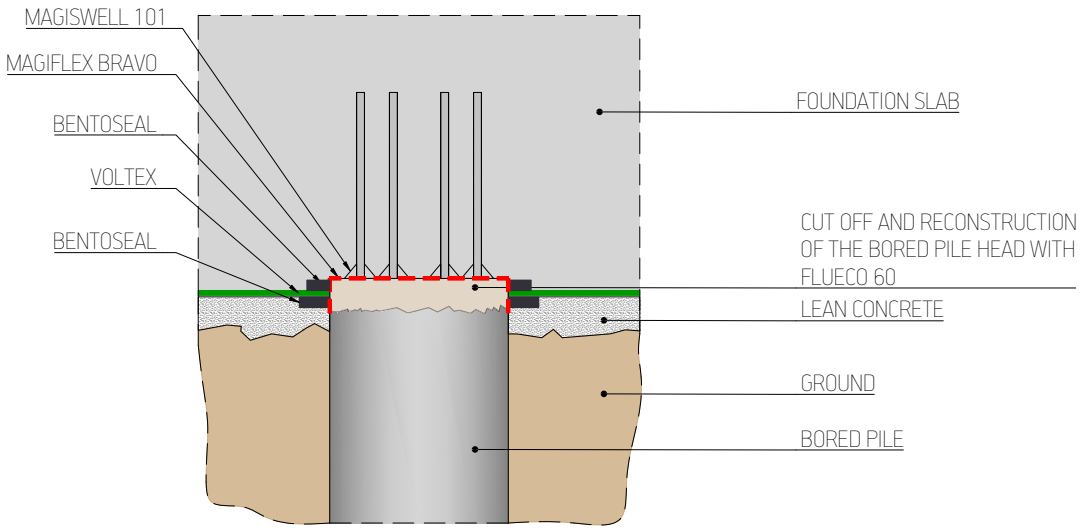
WATERSTOP RX 101 - 103
Hydro-expansive bentonite waterstop for sealing joints and casting joints
Page 105

MAGIFLEX BRAVO
Flexible, waterproof, breathable, two-component cementitious coating for foundations and retaining structures
Page 94

TECHNICAL DETAILS

BENTONITE CEMENTITIOUS WATERPROOFING | INTERRUPTION OF SHEET ON HEAD OF PASSING PILE

Waterproofing system with active and cementitious technology ideal for waterproofing pile foundations. It guarantees the impermeability of the structure, withstands high hydrostatic pressures, and is extremely durable and easy to lay.



Preparation of the laying surface

On the compacted soil, apply a weak mix to create a uniform and regular work surface.

Application steps:

1. Crop the heads of the piles.
2. Rebuild the pile head with a mortar from the **FLUECO** range.
3. Waterproof the reconstructed head of the pile with **MAGIFLEX BRAVO.**
4. Apply **BENTOSEAL** around the perimeter of the reconstructed head of the pile.
5. Lay the **VOLTEX** bentonite sheets horizontally, with a minimum overlap of 10 cm between each sheet, securing them with nails and plastic washers at a distance of 50 cm. Shape the sheet around the reconstructed head of the pile.
6. Around the reconstructed pile, on top of the sheet, lay **WATERSTOP RX 101**.
7. Apply **MAGISWELL 101** around the bars protruding from the piles.

PRODUCTS USED:

VOLTEX
Self-clinching hydroactive bentonite waterproofing membrane
Page 92

WATERSTOP RX 101
Hydro-expansive bentonite waterstop for sealing joints and casting joints
Page 105

BENTOSEAL
Sodium bentonite putty paste
Page 95

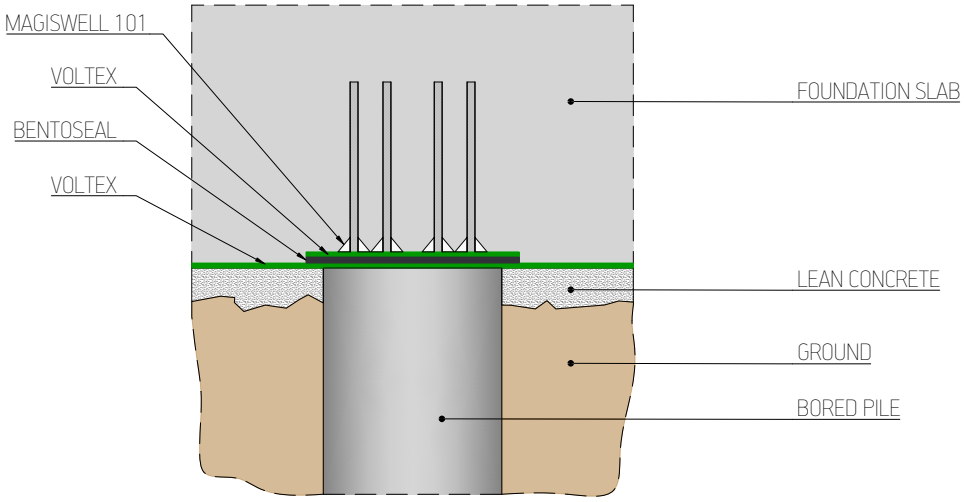
FLUECO 60
Pourable, shrinkage-compensated, rheodynamic cementitious concrete mix with special synthetic PAN fibres
Page 53

MAGISWELL 101
Water-expanding sealant (350%) for sealing joints and cracks
Page 106

MAGIFLEX BRAVO
Flexible, waterproof, breathable, two-component cementitious coating for foundations and retaining structures
Page 94

BENTONITE WATERPROOFING | CONTINUITY OF SHEET ON NON-PASSING PILE

Waterproofing system with bentonite active technology ideal for waterproofing pile foundations. It guarantees the impermeability of the structure, withstands high hydrostatic pressures, and is extremely durable and easy to lay.



Preparation of the laying surface

On the compacted soil, apply a weak mix to create a uniform and regular work surface.

Application steps:

1. Lay the **VOLTEX** bentonite sheets horizontally, with a minimum overlap of 10 cm between each sheet, securing them with nails and plastic washers at a distance of 50 cm. To allow the bars protruding from the pile to pass through the sheet, drill a hole in the latter at the point of the bars.
2. Apply **BENTOSEAL** to the area of the sheet at the point of the pile.
3. Cut out a piece of **VOLTEX** to lay on the **BENTOSEAL** layer.
4. Apply **MAGISWELL 101** around the bars protruding from the piles.

PRODUCTS USED:

VOLTEX
Self-clinching hydroactive bentonite waterproofing membrane
Page 92

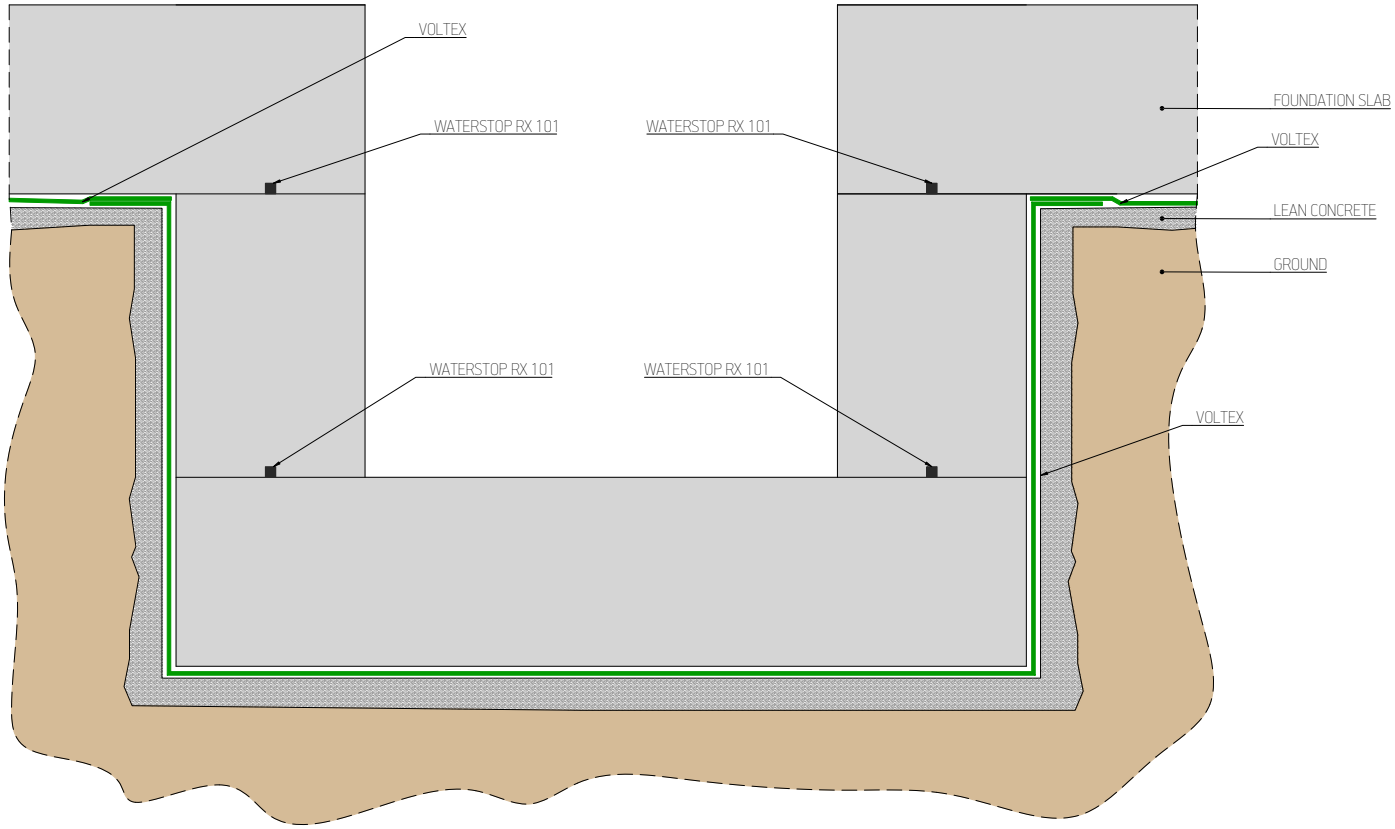
MAGISWELL 101
Water-expanding sealant (350%) for sealing joints and cracks
Page 106

BENTOSEAL
Sodium bentonite putty paste
Page 95

TECHNICAL DETAILS

BENTONITE WATERPROOFING OF LIFT SHAFT

Ideal waterproofing system for lift shafts, based on sodium bentonite. It withstands high hydrostatic pressures and is extremely durable and easy to install.



Preparation of the laying surface

On the compacted soil, apply a weak mix to create a uniform and regular work surface.

Application steps:

1. Lay the **VOLTEX** sheets horizontally, with a minimum overlap of 10 cm between each sheet, securing them with nails and plastic washers at a distance of 50 cm. Turn the sheet vertically over down to the weak mix of the slab. Cast the slab of the lift shaft of a thickness suitable to withstand the hydraulic counter-thrust.
2. Lay the **WATERSTOP RX 101** bentonite joint in the casting joint, between the slab and elevated walls. Place the formwork only on the inner side and cast the walls.
3. Lay the **WATERSTOP RX 101** bentonite joint in the casting joint, between the upper part of the elevated wall and the subsequent slab. Complete casting of the slab.

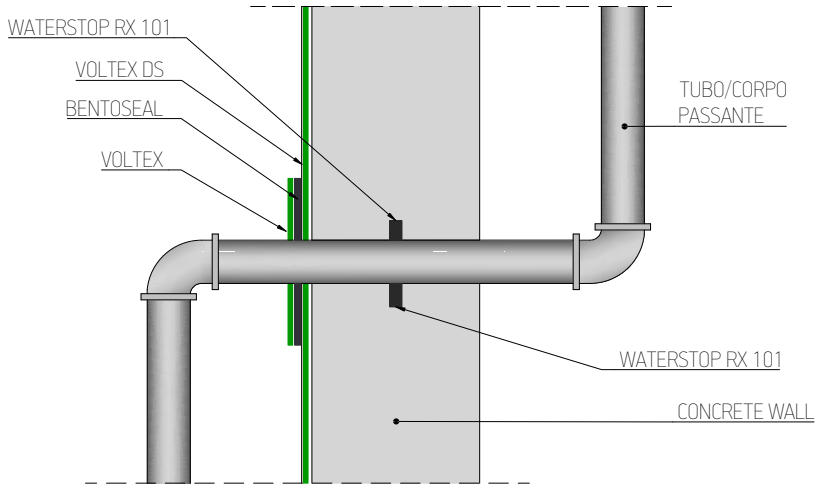
PRODUCTS USED:

VOLTEX
Self-clinching hydroactive bentonite waterproofing membrane
Page 92

WATERSTOP RX 101
Hydro-expansive bentonite waterstop for sealing joints and casting joints
Page 105

BENTONITE WATERPROOFING OF PASSING BODY

Waterproofing system with bentonite active technology, ideal for waterproofing critical points such as passing bodies. It guarantees impermeability, withstands high hydrostatic pressures, and is extremely durable and easy to lay.



Application steps:

1. Lay the **WATERSTOP RX 101** around the passing body at the point of the centre-line of the wall.
2. After pouring, lay the **VOLTEX DS** sheets vertically, starting from the top and going down to the foot of the foundation slab. Fasten the vertical sheets to each other with **SEAMTAPE**, a high-tack butyl adhesive tape, and with nails and washers at a distance of 30 cm.
3. Apply **BENTOSEAL** to the sheet all the way around the body.
4. Place an additional shaped cut section of the **VOLTEX DS** sheet on top of the **BENTOSEAL**.

PRODUCTS USED:

VOLTEX DS
Self-clinching water-reactive bentonite waterproofing membrane
Page 93

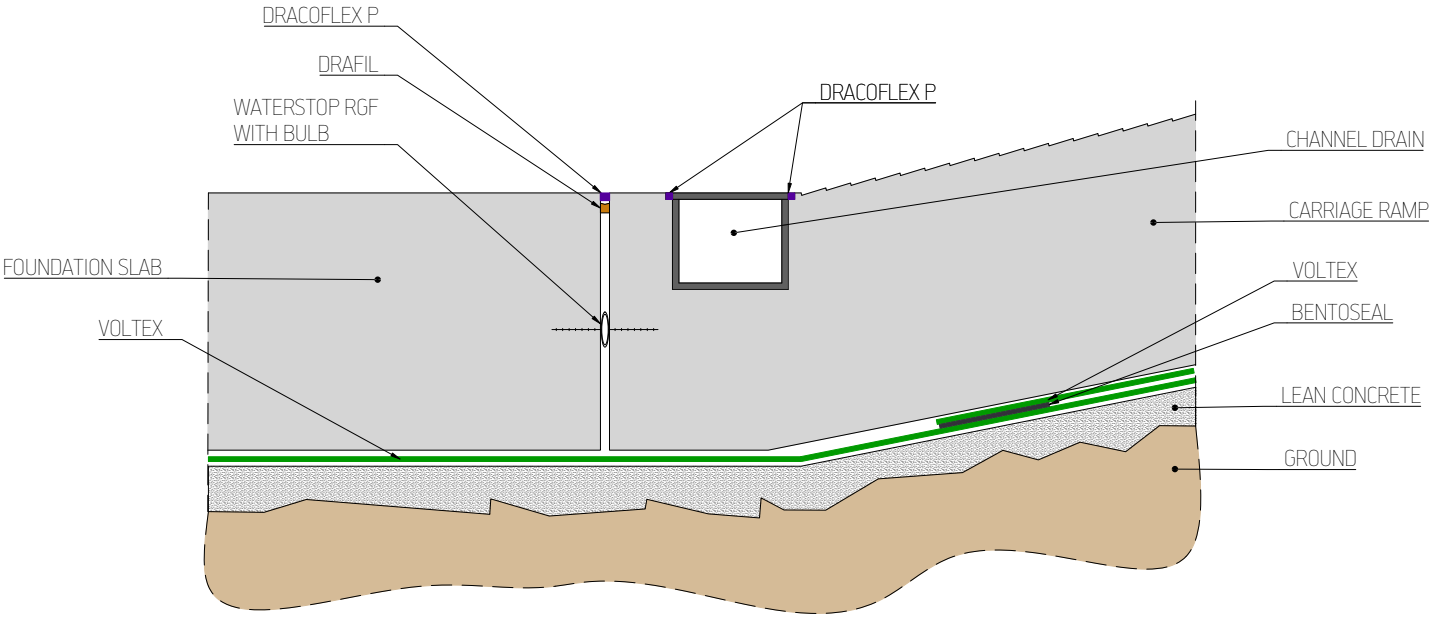
WATERSTOP RX 101
Hydro-expansive bentonite waterstop for sealing joints and casting joints
Page 105

BENTOSEAL
Sodium bentonite putty paste
Page 95

TECHNICAL DETAILS

WATERPROOFING OF REINFORCED CONCRETE STRUCTURE | COUPLING THE SLAB - UNDERGROUND ACCESS RAMP

Waterproofing system for critical connection points between the slab and the underground access ramp, to ensure the water permeability of the construction joint and foundation work.



Preparation of the laying surface

On the compacted soil, apply a weak mix to create a uniform and regular work surface.

Application steps:

1. Lay the **VOLTEX** bentonite sheets horizontally, with a minimum overlap of 10 cm between each sheet, securing them with nails and plastic washers at a distance of 50 cm.
2. Place a layer of **BENTOSEAL** at the overlaps between the sheets under the slab and those laid under the ramp.
3. Place the **WATERSTOP WITH BULB** between the bars inside the formwork. Cast the slab.
4. Position the channel and cast the ramp.
5. Apply **DRACOFLEX P** around the channel and at the structural joint. Adjust the sealing depth of the structural joint with **DRAFIL**, a polyethylene foam profile.

PRODUCTS USED:

VOLTEX
Self-clinching hydroactive bentonite waterproofing membrane
Page 92

WATERSTOP RGF WITH BULB
PVC WATERSTOP for casting joints and expansion joints
Page 110

BENTOSEAL
Sodium bentonite putty paste
Page 95

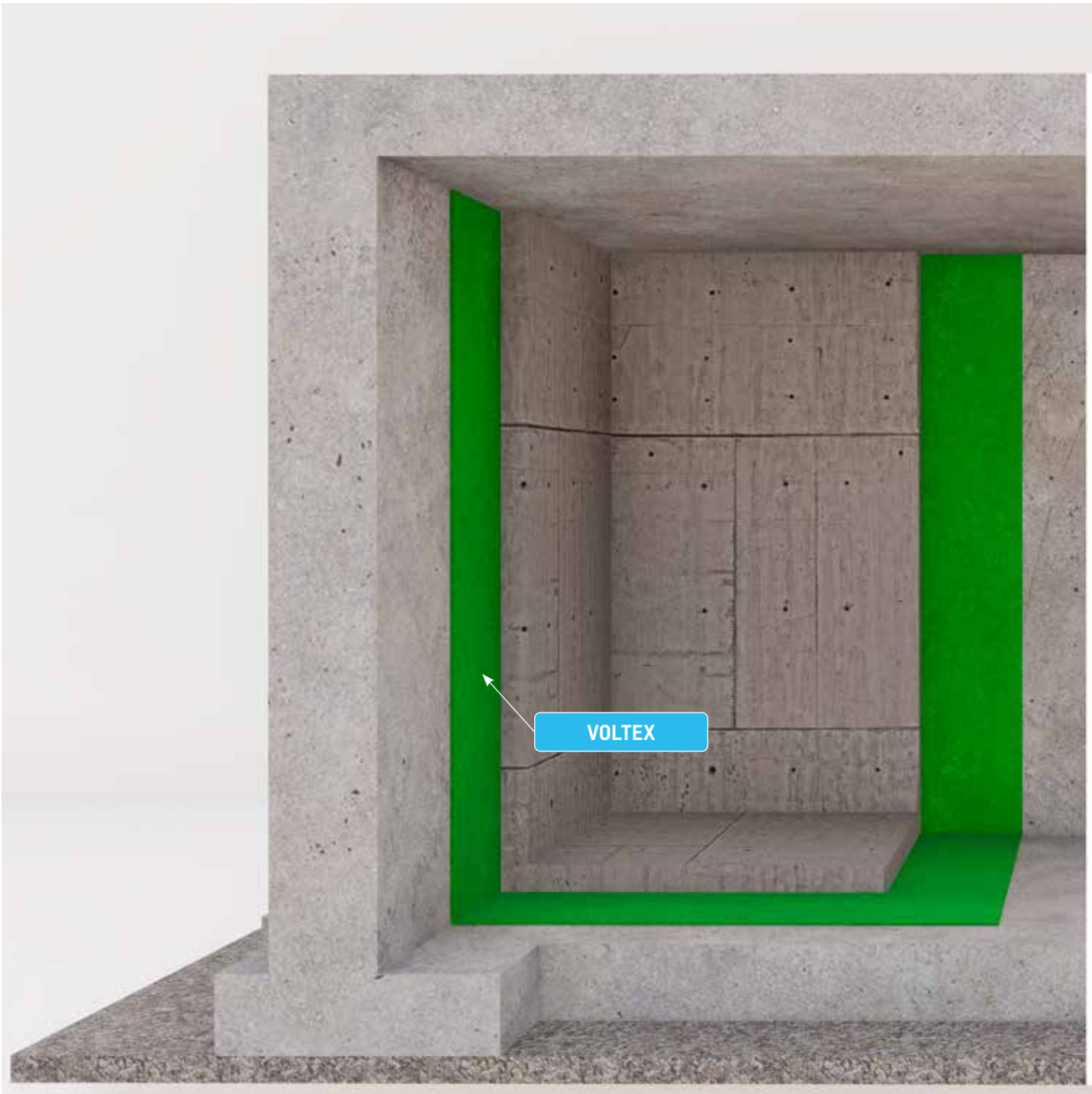
DRAFIL
Closed-cell polyethylene foam profile
Page 52

DRACOFLEX P
Single-component polyurethane sealant with average modulus of elasticity for joints.
Page 52

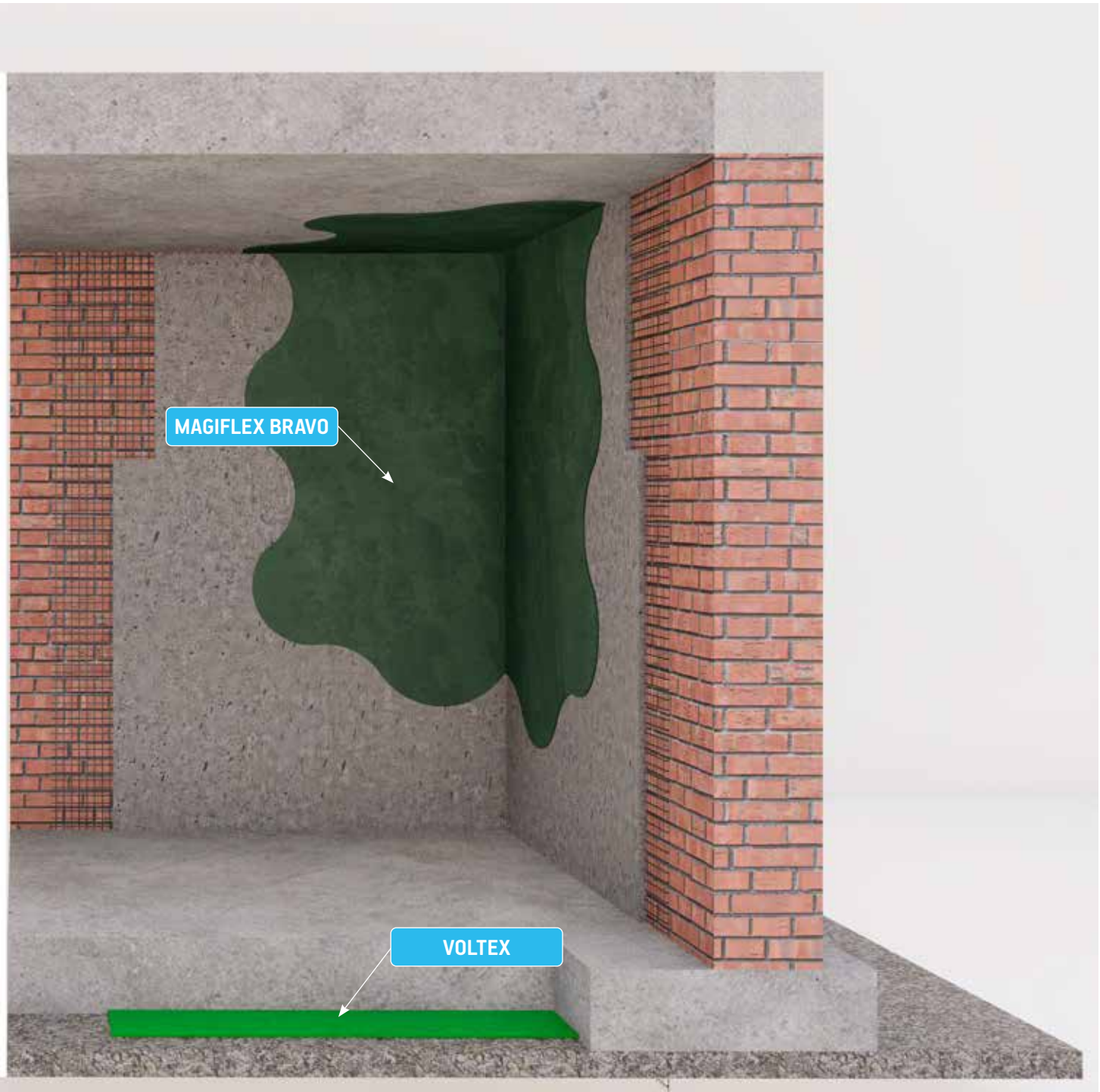
TECHNICAL DETAILS

WATERPROOFING OF EXISTING GARAGES AND BASEMENTS

Non-invasive systems and techniques for the restoration and waterproofing of garages, cellars and basements affected by moisture, infiltration and water ingress.



BENTONITE WATERPROOFING OF REINFORCED CONCRETE STRUCTURE

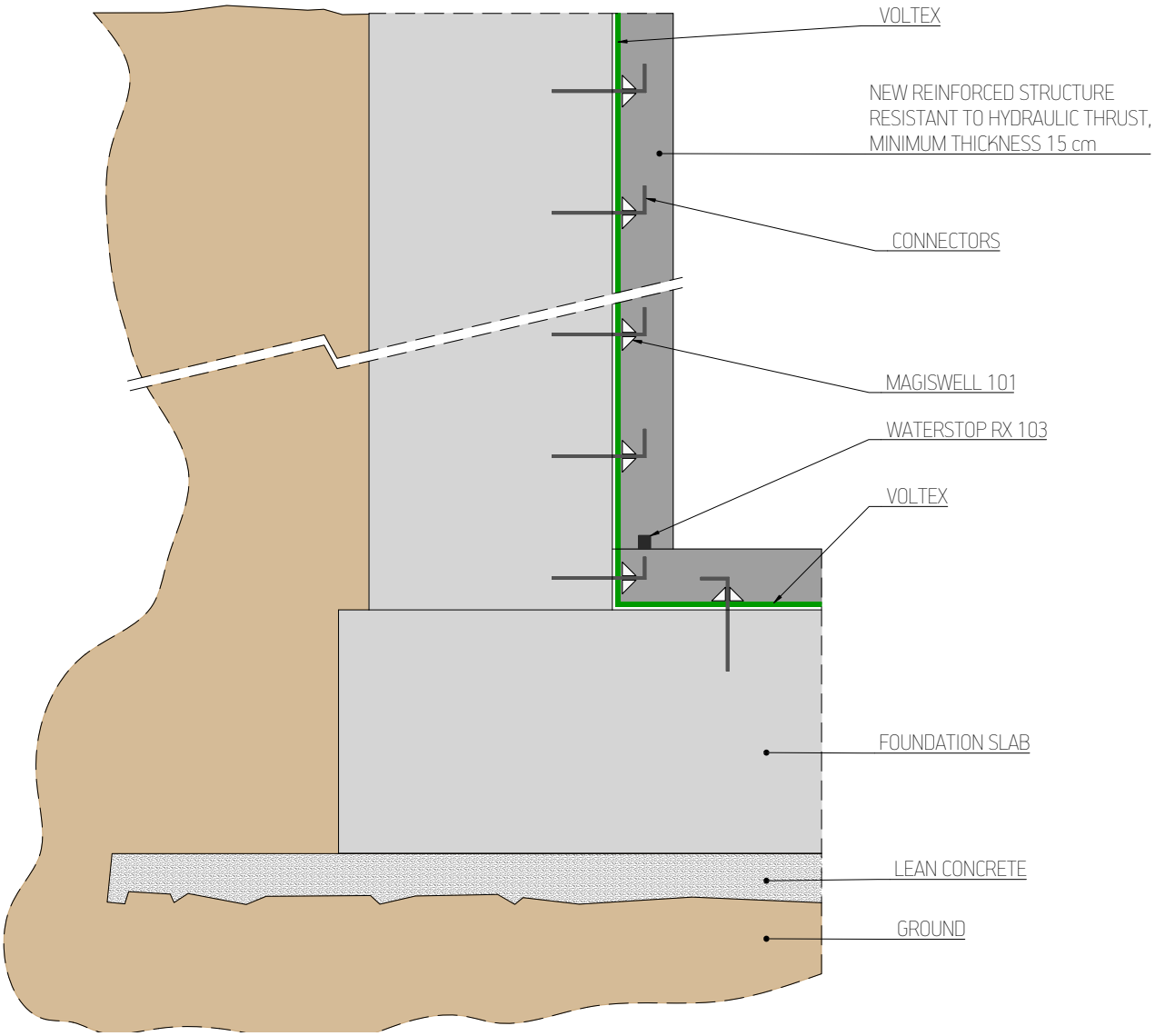


CEMENTITIOUS WATERPROOFING OF MIXED STRUCTURE

TECHNICAL DETAILS

BENTONITE WATERPROOFING OF REINFORCED CONCRETE STRUCTURE | INTERNAL RELINING OF EXISTING BASEMENT

Waterproofing system with bentonite active technology ideal for the internal lining of existing basements. It guarantees the impermeability of the structure, withstands high hydrostatic pressures and is extremely durable and easy to lay



Preparation of the laying surface

Regularize and clean the existing horizontal and vertical surface.

Application steps:

1. Lay the **VOLTEX** bentonite sheets, with a minimum overlap of 10 cm between each sheet, securing them with nails and plastic washers at a distance of 50 cm on the horizontal plane and 30 cm on the vertical plane.
2. Drill the sheet in the horizontal and vertical plane to insert connectors with chemical anchors. Seal the connectors with **MAGISWELL 101**.
3. Lay the horizontal slab of a thickness suitable to withstand the hydraulic counter-thrust.
4. Place the **WATERSTOP RX 103** in the horizontal-vertical connection.
5. Lay the vertical wall of a thickness suitable to withstand the hydraulic counter-thrust.

PRODUCTS USED:

VOLTEX
Self-clinching hydroactive bentonite waterproofing membrane
Page 92

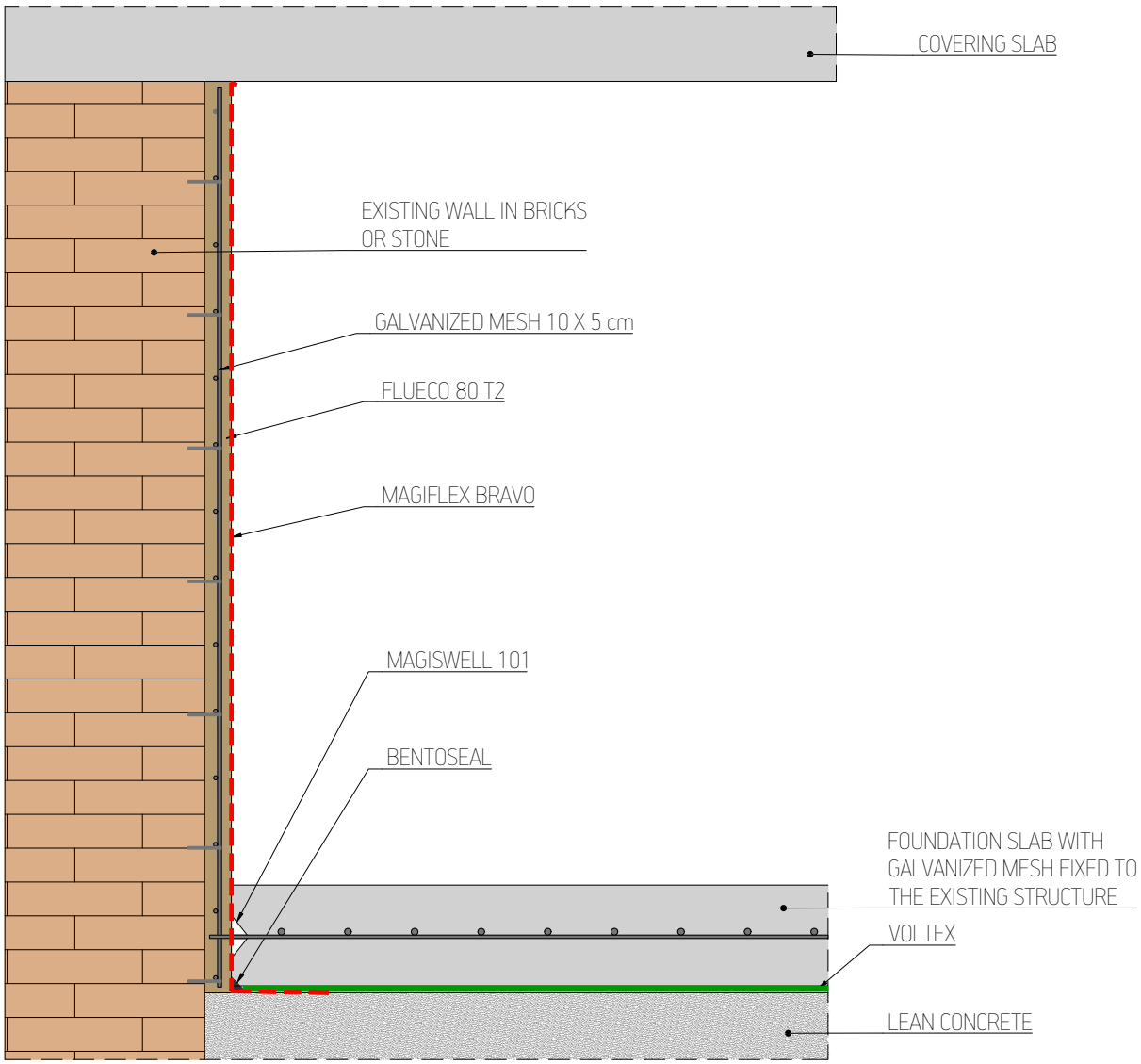
MAGISWELL 101
Water-expanding sealant (350%) for sealing joints and cracks
Page 106

WATERSTOP RX 103
Hydro-expansive bentonite waterstop for sealing joints and casting joints
Page 105

TECHNICAL DETAILS

CEMENTITIOUS WATERPROOFING OF MIXED STRUCTURE | INTERNAL RELINING OF EXISTING BASEMENT

Bentonite and cementitious waterproofing system ideal for the internal lining of existing basements with a mixed structure, ensuring the impermeability of the structure. It is extremely durable and easy to install.



Preparation of the laying surface

On the horizontal surface, apply a weak mix to create a uniform and regular work surface. Clean the brick or stone wall in order to obtain a clean, rough and water-saturated surface.

Application steps:

1. Application on the wall of **FLUECO 80 T2**, thixotropic fibre-reinforced mortar, using a trowel or spray. Laying of electro-welded mesh at half the thickness of the FLUECO mortar. Creation of a second layer of mortar to cover the electro-welded mesh for a minimum overall thickness of 3 cm.
2. Application of **MAGIFLEX BRAVO**, a flexible, waterproof, breathable, two-component cementitious coating for foundations and retaining structures, on the entire wall with an overlap of about 50 cm on the weak mix.
3. Laying of VOLTEX, a self-clinching hydroactive bentonite waterproofing membrane, on the horizontal plane.
4. Laying of WATERSTOP RX 103, a hydro-expansive bentonite waterstop, on the perimeter in the corner between the VOLTEX sheet and the vertical wall.
5. Drilling the lower part of the vertical wall to insert connectors with chemical anchors.
6. Application of MAGISWELL 101, a water-expanding sealant for sealing joints, cracks and passing elements, around metal connectors.
7. Casting of the foundation slab and laying of electro-welded mesh to be tied to the connectors previously prepared in the wall.

PRODUCTS USED:

VOLTEX
Self-clinching hydroactive bentonite waterproofing membrane
Page 92

WATERSTOP RX 103
Hydro-expansive bentonite waterstop for sealing joints and casting joints
Page 105

MAGIFLEX BRAVO
Flexible, waterproof, breathable, two-component cementitious coating for foundations and retaining structures
Page 94

FLUECO 80 T2
Structural thixotropic modified and fire-reinforced polymer mortar
Page 53

MAGISWELL 101
Water-expanding sealant (350%) for sealing joints and cracks
Page 106

VOLTEX

Bentonite waterproofing of concrete foundations and structures

PACKS
1.1 x 5 m roll = 5.5 m²
2.5 x 20 m roll = 50 m²
5 x 40 m roll = 200 m²

SELF-CLINCHING HYDROACTIVE BENTONITE WATERPROOFING MEMBRANE

VOLTEX® is a highly effective composite waterproofing system consisting of high-strength geotextiles and 5 kg/m² of sodium bentonite. Sodium bentonite, with low permeability and high expanding capacity, is encapsulated between two geotextiles, one woven and one non-woven. A patented needling process binds the geotextiles together to form an extremely strong composite that maintains the same distribution of bentonite and provides protection in case of adverse weather conditions and construction-related damage.

IDEAL FOR

- Horizontal surfaces of foundations and underground structures in general.
- Slabs and structural slabs, underground structures.
- Structures subject to continuous or intermittent hydrostatic pressure.

ADVANTAGES

- Self-healing capacity.
- Compactness and uniformity of the bentonite layer.
- Mechanical adhesion to the casting.

YIELD: see technical data sheet

VOLTEX CR

Bentonite waterproofing of contaminant-resistant concrete foundations and structures

PACKS
1.1 x 5 m roll = 5.5 m²
2.5 x 20 m roll = 50 m²
5 x 40 m roll = 200 m²

SELF-CLINCHING HYDROACTIVE BENTONITE WATERPROOFING MEMBRANE

Ideal version in the presence of highly saline or polluted water

VOLTEX® CR (Chemical Resistant) is a highly effective composite waterproofing system consisting of high-strength geotextiles and 5 kg/m² of sodium bentonite. Sodium bentonite, with low permeability and high expanding capacity, is encapsulated between two geotextiles, one woven and one non-woven. VOLTEX® CR contains contaminant-resistant sodium bentonite that makes it ideal in the case of groundwater contamination.

IDEAL FOR

- Horizontal surfaces of foundations and underground structures in general.
- Slabs and structural slabs, underground structures.
- Structures subject to continuous or intermittent hydrostatic pressure.

ADVANTAGES

- Self-healing capacity.
- Compactness and uniformity of the bentonite layer.
- Mechanical adhesion to the casting.

YIELD: see technical data sheet

VOLTEX DS

Bentonite waterproofing of concrete foundations and structures for work with high hydraulic head

PACKS
1.1 x 5 m roll = 5.5 m²
2.5 x 20 m roll = 50 m²
5 x 40 m roll = 200 m²

SELF-CLINCHING WATER-REACTIVE BENTONITE WATERPROOFING MEMBRANE

Version coupled with PE membrane: double waterproofing for work with high hydraulic head

VOLTEX® DS is a highly effective composite waterproofing system consisting of high-strength geotextiles and 5 kg/m² of sodium bentonite. Sodium bentonite, with low permeability and high expanding capacity, is encapsulated between two geotextiles, one woven and one non-woven. A patented needling process binds the geotextiles together to form an extremely strong composite that maintains the same distribution of bentonite and provides protection in case of adverse weather conditions and construction-related damage.

IDEAL FOR

- Surfaces of foundations and underground structures, both horizontal and vertical, subject to continuous or intermittent hydrostatic pressure.
- Slabs and structural slabs, underground structures.
- Concrete walls with backfill, tunnels, retaining walls, shotcrete retaining walls and reinforced earth walls.

ADVANTAGES

- Self-healing capacity.
- Compactness and uniformity of the bentonite layer.
- Mechanical adhesion to the casting.

YIELD: see technical data sheet

VOLTEX DSCR

Bentonite waterproofing of contaminant-resistant concrete foundations and structures for work with high hydraulic head

PACKS
1.1 x 5 m roll = 5.5 m²
2.5 x 20 m roll = 50 m²
5 x 40 m roll = 200 m²

SELF-CLINCHING HYDROACTIVE BENTONITE WATERPROOFING MEMBRANE

Version coupled with PE membrane: double waterproofing for work with high hydraulic head. Ideal in the presence of highly saline or polluted water

VOLTEX® DSCR (Chemical Resistant) is a highly effective composite waterproofing system consisting of high-strength geotextiles, 5 kg/m² of sodium bentonite, encapsulated within two geotextiles, bonded together with a patented needling process, which guarantees protection in case of adverse weather conditions and construction-related damage. VOLTEX® DSCR contains sodium bentonite that is resistant to groundwater contaminants.

IDEAL FOR

- Surfaces of foundations and underground structures, both horizontal and vertical, subject to continuous or intermittent hydrostatic pressure.
- Slabs and structural slabs, underground structures.
- Concrete walls with backfill, tunnels, retaining walls, shotcrete retaining walls and reinforced earth walls.

ADVANTAGES

- Self-healing capacity.
- Compactness and uniformity of the bentonite layer.
- Mechanical adhesion to the casting.

YIELD: see technical data sheet

ULTRASEAL XL

Waterproofing of concrete foundations and structures with contaminant-resistant polymer-based XL technology

PACKS
1.55 x 12.9 m roll = 20 m²

HYDROACTIVE POLYMER WATERPROOFING MEMBRANE

Ideal in the presence of highly saline or polluted water

ULTRASEAL XL features XL technology, the latest innovation in active waterproofing. This advanced polymer technology offers outstanding performance in the face of a wide range of soil contaminants, including high salinity conditions. Unlike passive membranes, when used alone, the self sealing capacity of the active XL technology allows the waterproofing membrane ULTRASEAL XL to seal small cuts or defects created in the membrane. In particular, its effectiveness has been proven in both hydrostatic and non-hydrostatic conditions.

IDEAL FOR

- Structural concrete surfaces under continuous or intermittent hydrostatic pressure, including polluted or high salinity situations.
- Foundation walls, underground structures, sub-slabs and tunnels.
- Walls on the property boundary with backfill and cast-in-place concrete, such as contiguous/secant piles and steel sheet piling.

ADVANTAGES

- Self-healing capacity.
- Waterproof monolithic barrier.
- High chemical stability.

YIELD: see technical data sheet

MAGIFLEX BRAVO

Flexible cement-based waterproofing coating for tanks and swimming pools

PACKS
25-kg bag + 10-kg canister = (A+B) **35 kg**

FLEXIBLE, WATERPROOF, BREATHABLE, TWO-COMPONENT CEMENTITIOUS COATING FOR FOUNDATIONS AND RETAINING STRUCTURES. SUITABLE FOR COUNTER-THRUST AND RESISTANT TO CHEMICAL AGGRESSION

MAGIFLEX BRAVO is a cementitious waterproofing coating based on selected aggregates, hydraulic binders, admixtures and polymers (component A) to be mixed with elastomeric resin (component B). MAGIFLEX BRAVO is quick and practical to apply and stands out for its high flexibility, tensile strength and adhesion to the substrate. MAGIFLEX BRAVO makes it possible to apply waterproofing coatings with thicknesses of 1.5-3 mm to surfaces that are generally also subject to microcracking.

IDEAL FOR

- Retaining walls, dams, tanks and swimming pools.
- Surfaces subject to settling and cracking (up to 0.8 mm).
- Counter-thrust applications (max 0.5 atm).

ADVANTAGES

- High chemical resistance.
- Waterproof and breathable.
- Flexible and resistant.

YIELD: approx. 1.6 kg/m² per mm of thickness
approx. 3,2 kg/m² (minimum recommended)

ACCESSORIES FOR LAYING VOLTEX AND ULTRASEAL XL

BENTOSEAL

SODIUM BENTONITE PUTTY PASTE

BENTOSEAL is a water-expanding sealant paste based on sodium bentonite and butyl rubber and designed for multiple types of surface preparation and waterproofing finishes with DRACO waterproofing membranes. BENTOSEAL expands in contact with water, creating a seal that prevents water from seeping in.

TERMINATION BAR

GALVANIZED METAL FLASHING

TERMINATION BAR is a galvanized metal coil to be applied as a flashing on the termination of geotextiles of waterproofing systems. Ideal as a general on-site substrate. It can be cut, bent and shaped with ease for all types of light fixing, using nails, screws or bolts.

SEAL-X XP

SEALANT BASED ON ACTIVE POLYMERS

SEAL-X XP is a trowelable sealant to be used in combination with the hydroactive waterproofing membranes VOLTEX DS CR and ULTRASEAL XL, as a complementary product for laying for the preparation, regularization of surfaces and surface finishing.

CETBIT 300

SELF-ADHESIVE WATERPROOFING MEMBRANE

CETBIT 300 is a self-adhesive waterproofing membrane consisting of a 1.4 mm layer of rubberised bitumen, firmly bonded to a 0.1 mm high-density laminated polyethylene protective film layer.

SEAMTAPE

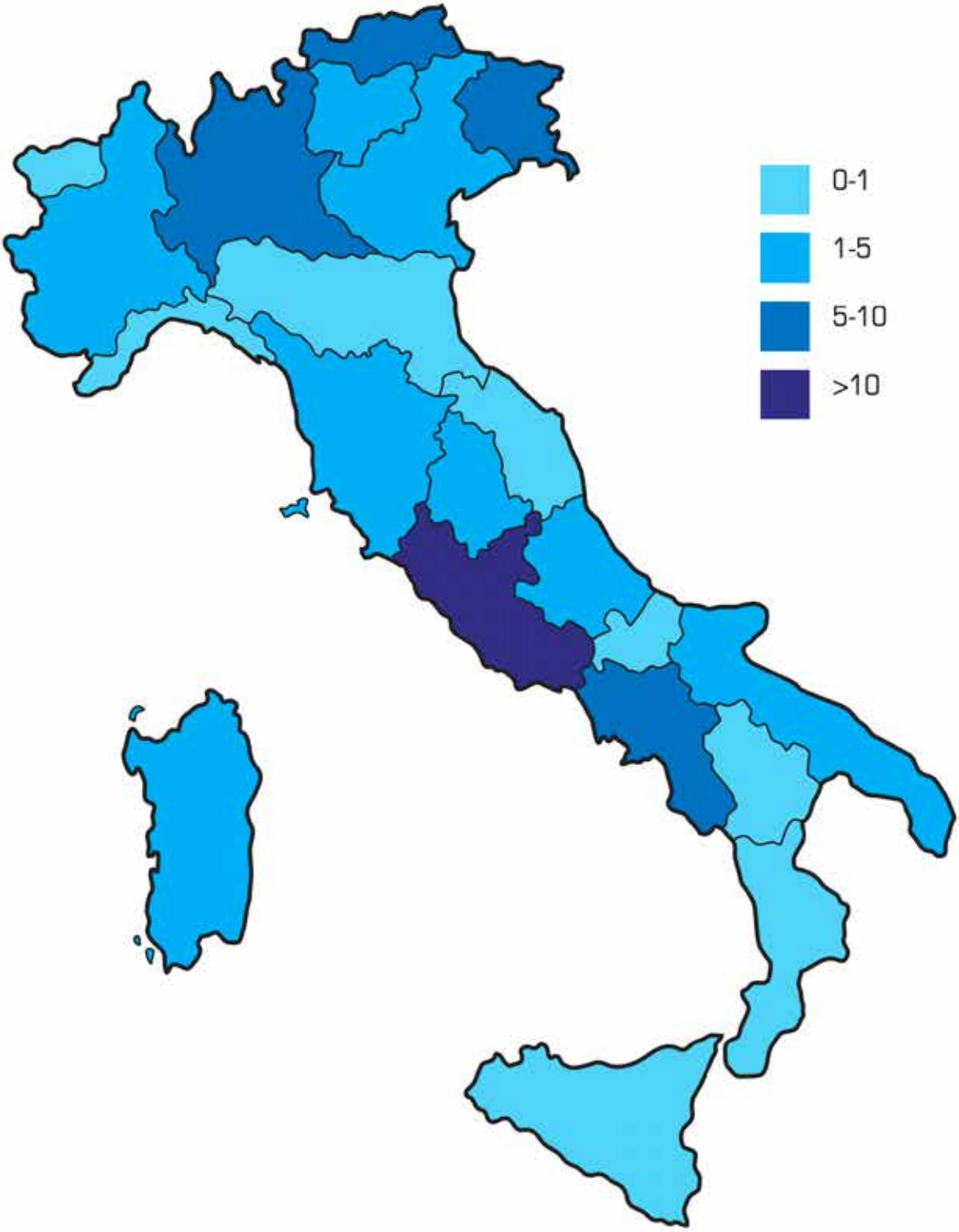
HIGH-TACK BUTYL TAPE

SEAMTAPE is a butyl rubber tape coupled with a laminated polyester film, used to join and seal waterproofing membranes at the points of overlaps.

BENTOTAPE

FIBREGLASS SEALING TAPE

Fibreglass tape to seal overlaps.



RADON GAS IN ITALY

% of dwellings with radon concentration > 200 Bq/m^3 (four ranges considered: from less than 1% to more than 10%).

RADON GAS PROOFING

Colourless, odourless, tasteless and not perceptible to the senses, and yet widely used in Italy, radon has been included by the World Health Organisation (WHO) in group 1 of the most dangerous and carcinogenic agents for humans. In 2021, the WHO estimated that radon is the leading cause of lung cancer, second only to cigarette smoking, and that its dangerousness increases in combination with cigarette smoke, exposing people who consume or have consumed tobacco to a high risk of lung cancer.

Radon is a noble gas that derives from the radioactive decay of uranium and radium, and is therefore mainly found in volcanic rocks (tuffs, basalts, granites, etc.) all around Italy. The presence of fractures and faults allows radon in the subsoil to migrate faster to the earth's surface, generating high concentrations of this gas in the soil, while in the air and water it disperses rapidly. For this reason, its concentration never reaches high levels outdoors, while indoors it is considered the most dangerous radioactive contaminant.

Among closed environments, those most at risk are basement or underground rooms and ground floors, while on the upper floors the gas disperses, forming non-dangerous concentrations. Italian legislation currently defines maximum permitted levels for workplaces and schools (Legislative Decree 241 of 2000) but not for private homes. In addition, the European Community Recommendation (90/143 Euratom) establishes maximum limits for existing buildings (400 becquerels/m^3) and for new buildings (200 becquerels/m^3).

To reduce the concentration of radon in an existing building, it is possible to adopt mitigation techniques, which consist of measures that promote its dispersion:

- the improvement of indoor ventilation (difficult in winter and not always effective for high concentrations);
- the blocking and sealing of cracks or other access routes for radon;
- the increasing of natural ventilation of the crawl space, where present.

To prevent the presence of radon in new buildings, it is necessary to install gas-resistant barriers under the foundation and on the retaining walls.

SYSTEM DATA SHEET

VOLTEX GB500

HIGH-PERFORMANCE GAS AND VAPOUR WATERPROOFING MEMBRANE FOR UNDERGROUND STRUCTURES

VOLTEX GB-500 is a composite membrane consisting of a polyethylene film with a thickness of 500 microns in 7 layers, an EVOH barrier layer, and a waterproofing and absorbent geotextile membrane with integrated bentonite. Along the two edges of the roll, the two layers are not fully joined for 150 mm to allow easier sealing or taping of the overlapping parts of the PE/EVOH geomembrane and the subsequent overlapping of the geotextile layer component.

VOLTEX GB-500 has been designed as a gas and vapour barrier that prevents radon, methane, carbon dioxide and water from landfills and natural sources from seeping into buildings. **VOLTEX GB-500** is fully compliant with the latest gas and water standards published by bodies such as BRE, CIRIA and BSI (BS 8485:2015+A1:2019; BS8102: 2009), and is suitable for use as a gas and water protection system for sites with the characteristics of the NHBC AMBER 1 and AMBER 2 categories.

PRODUCTS USED

· VOLTEX GB500 · SEAMTAPE DS 80 · SEAMTAPE SS 80 ·

ADVANTAGES

- ✓ Impermeability to gases (Methane, Radon, Carbon Dioxide, Water Vapour).
- ✓ High puncture resistance (2.5 kN).
- ✓ High tensile strength (13.0 kN/m).
- ✓ Active waterproofing – self-sealing/self-healing properties.
- ✓ Laying under all weather conditions and under all conditions on site (wet/dry/dusty).
- ✓ Quick application.
- ✓ Adhesion to concrete by peeling: no primers/adhesives required.
- ✓ It does not contain volatile organic compounds (VOCs).
- ✓ No protective concrete cover (under-slab) is required.

IDEAL FOR

- ✓ It can be laid on a well-compacted concrete attic/substrate.
- ✓ VOLTEX GB-500 has been designed as a gas and vapour barrier that prevents radon, methane, carbon dioxide and water from landfills and natural sources from seeping into buildings.
- ✓ VOLTEX GB-500 can be laid at sites where passive or active ventilation measures are required, and used together with the GEOVENT ventilation composite and its vent fittings, depending on the case.
- ✓ VOLTEX GB-500 can be used in both hydrostatic and non-hydrostatic conditions, when protection against gas and water is required.

STEP 1

PREPARING THE SUBSTRATE

The substrate should be smooth, clean, uniform in consistency, free of voids and sharp protrusions, dry, and free of standing water or ice. Vertical surfaces in masonry and blocks should be dry and plastered or with flush joints to provide a smooth surface without significant changes in level.

VOLTEX GB-500 should be applied to the substrate with the geotextile side facing the installer towards the concrete to be gas protected/waterproofed, and with the green side of the PE/EVOH film facing the substrate/backfill. The VOLTEX GB-500 must be laid by skilled and qualified personnel.

STEP 2

LAYING AND SEALING OF OVERLAPS

The overlaps of the **VOLTEX GB-500** membrane and the overlaps with the accessory products must be sealed with tape, and the sides and ends of the VOLTEX GB-500 rolls must be overlapped by at least 150 mm. Overlapping parts joined to accessory products with tape must also be at least 150 mm. The overlapping parts of the VOLTEX GB-500 membrane to be taped must be dry, clean, flat, and free of wrinkles or defects (**Fig. 1**).

Perform all taping operations at an ambient and surface temperature of +4 °C or higher. Apply a continuous line of **DS-80** tape centred between the two overlapping parts by 150 mm, using the longest possible segments of **DS-80** tape and overlapping the ends of the segments by at least 50 mm.

With the edges of the geotextile layer still folded back, apply the **SS80** tape centred on the exposed top side of the PE/EVOH lining of the overlapping edge of the VOLTEX GB-500. Apply the SS80 tape continuously along all the overlaps of the PE/EVOH lining with the ends of the segments of the SS80 tape overlapping by at least 50 mm. The edges of the geotextile layer of the membrane must then be folded and overlapped again (**Fig. 2**).

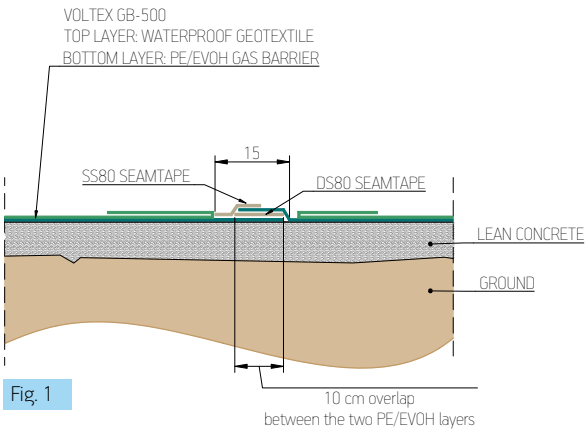


Fig. 1

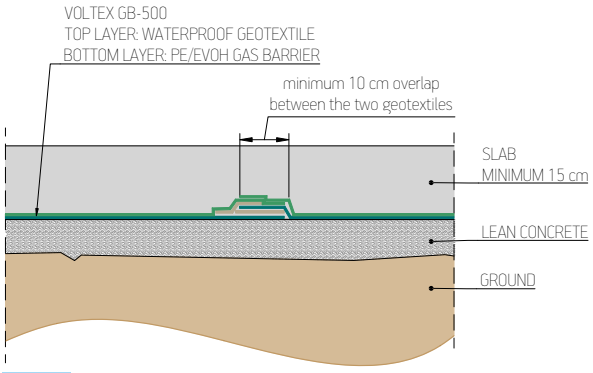


Fig. 2

PRODUCTS USED:

VOLTEX GB-500
High-performance gas and vapour waterproofing membrane for underground structures
Page 100

DS-80 SEAMTAPE
Double-sided tape for overlaps
Page 101

SS-80 SEAMTAPE
Adhesive tape to seal overlaps
Page 101

VOLTEX GB-500

Radon gas proofing

PACKS
1.66 x 10.0 m roll = 16.6 m²

HIGH-PERFORMANCE GAS AND VAPOUR WATERPROOFING MEMBRANE FOR UNDERGROUND STRUCTURES

Ideal for foundations and buildings to be protected against gases

VOLTEX GB-500 is a composite membrane consisting of a polyethylene film with a thickness of 500 microns in 7 layers, an EVOH barrier layer, and a waterproofing and absorbent geotextile membrane with integrated bentonite. Along the two edges of the roll, the two layers are not fully joined for 150 mm to allow easier sealing or taping of the overlapping parts of the PE/EVOH geomembrane and the subsequent overlapping of the geotextile layer component.

IDEAL FOR

- Roofing systems, flat roofs, green roofs and roof gardens.
- Treadable flooring, flooring with double plate.
- Cast-in-place concrete foundation walls with backfill, foundation walls with masonry blocks.

ADVANTAGES

- Self-healing capacity.
- Monolithic impermeable barrier, resistant to gases (Methane, Radon, Carbon Dioxide, Water Vapour) and water coming from landfills and natural sources.
- High puncture resistance.

YIELD: see technical data sheet

LAYING ACCESSORIES FOR VOLTEX GB-500

DS-80 SEAMTAPE

DOUBLE-SIDED TAPE FOR OVERLAPS

80 mm wide double-sided tape used to seal the overlapping edges of the polyethylene film of the VOLTEX GB-500 composite waterproofing membrane.

BLACKSEAL TG

WATERPROOFING PUTTY TO SEAL DETAILS

Quality putty applied with a trowel to seal details, such as passing bodies, corner transitions and terminations.

SS-80 SEAMTAPE

ADHESIVE TAPE TO SEAL OVERLAPS

80 mm wide tape used to seal the overlapping edges of the polyethylene film of the VOLTEX GB-500 composite waterproofing membrane.

CETBIT 300

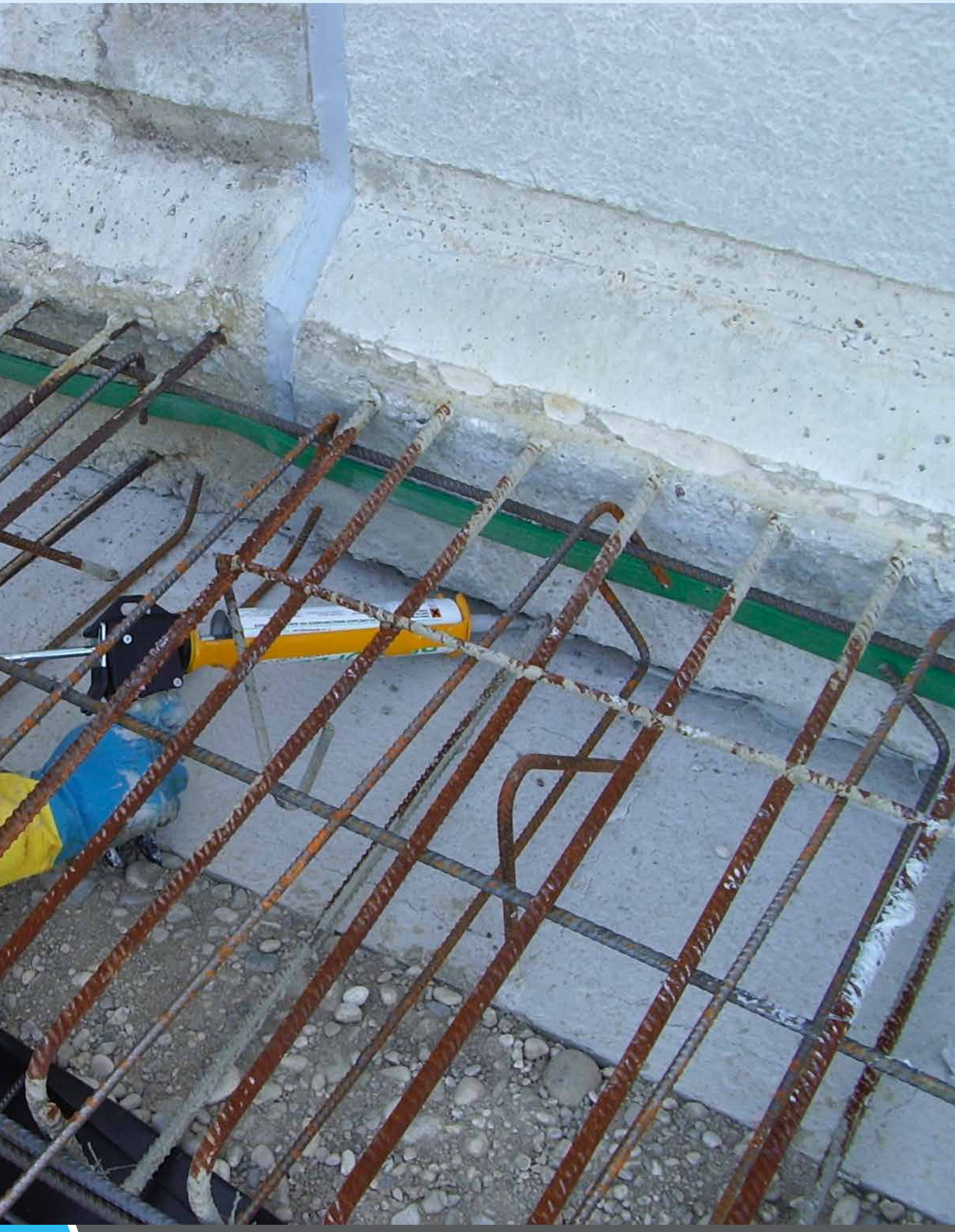
ADHESIVE FOR BONDING TO DIFFERENT SUBSTRATES

High-quality self-adhesive rubberized bituminous waterproofing membrane used for level flashings.

GB-500

MOULDED WATERPROOFING COMPONENT FOR PROTRUDING ELEMENTS

500 micron 7-layer polyethylene/evoh co-extruded film used as an accessory product.



WATERPROOFING AND HYDRAULIC SEALING OF JOINTS AND CASTING JOINTS

The technical requirements of laying concrete envisage the execution of castings at different times, and the casting joints constitute the main element of discontinuity of the concrete itself. It is therefore advisable to guarantee their hydraulic sealing to prevent them from becoming preferential passages for the penetration of water.

In the case of underground structures under groundwater, it is good practice to plan the casting phases with care in order to define the exact positions and therefore also the methods of protection. This can help to prevent infiltration, protecting the critical points between the slab and vertical walls and between adjacent walls, through the use of hydro-expansive joints capable of creating watertight seals.

If structural joints are used for the underground structure, these must be protected with elastic strips or BENTONITE based joints or PVC joints, in order to create bands that can withstand the movements of the structure while also ensuring its waterproofing.

SEALJOINT

Hydro-expansive waterstop based on butyl rubber

PACKS
Rectangular cross-section 11x27 mm
48 m box (6 rolls of 8 m)
Square cross-section 20x20 mm
30 m box (6 rolls of 5 m)

RUBBER-BASED WATER-EXPANDABLE HYDRAULIC SEALING GASKET

Rectangular section 11x27 mm - Square section 20x20 mm

SEALJOINT is a water-expanding hydraulic sealing joint with a retardant effect. SEALJOINT profiles contain water-expandable synthetic resins which, by reacting in contact with water or humidity, increase their volume until they saturate the empty spaces under pressure.

IDEAL FOR

- Construction joints with prefabricated and/or cast-in-place elements.
- Sealing joints for prefabricated elements (ashlars) for tunnels, ducts and pipes.

ADVANTAGES

- Controlled expansion.
- Dimensional stability after expansion.
- Impossibility of washout even in critical operating conditions.

YIELD: see technical data sheet

DRACOJOINT

Hydro-expansive butyl rubber-based waterstop for joints and casting joints

PACKS
30 m box (6 rolls of 5 m)

WATER-EXPANDING BENTONITE AND BUTYL RUBBER-BASED JOINT FOR SEALING CASTING JOINTS AND CONSTRUCTION JOINTS

Rectangular cross-section 20x25 mm

DRACOJOINT is a water-expanding waterstop with a natural sodium bentonite watertight seal for joints and casting joints of concrete structures in permanent contact with water, even under pressure. DRACOJOINT betonite joints contain water-expandable synthetic resins which, by reacting in contact with water or humidity, increase their volume until they saturate the empty spaces under pressure.

IDEAL FOR

- Vertical and horizontal casting joints in foundation structures.
- Waterproof connection between concrete and PVC or passing elements in PVC or steel.
- Sealing joints for prefabricated elements and ashlars for tunnels, ducts and pipes.

ADVANTAGES

- High expansion capacity.
- Controlled expansion.
- Dimensional stability after expansion.

YIELD: see technical data sheet

WATERSTOP RX 101

Hydro-expansive waterstop based on pre-hydrated bentonite for joints and casting joints

PACKS
30 m box (6 rolls of 5 m)

HYDRO-EXPANSIVE BENTONITE WATERSTOP FOR SEALING JOINTS AND CASTING JOINTS

Rectangular cross-section: 20x25 mm

WATERSTOP-RX® 101 is a hydro-expansive waterstop designed to prevent the infiltration of water into casting joints in cast-in-place concrete that expands in contact with water and creates an airtight seal by bonding to the concrete. The key to the effectiveness of WATERSTOP-RX® 101 is its high expansive capacity, thanks to which it seals and fills gaps and cracks in concrete.

IDEAL FOR

- Casting joints on horizontal slabs and vertical walls, also reinforced.
- Joints between new and existing concrete, uneven surfaces and bodies passing through the wall, hydraulic components and service pipes.
- Sealing of passing bodies, concrete piles and IPE profiles that pass through the slab.

ADVANTAGES

- It expands up to 6 times its original size.
- It withstands shocks and stresses due to the execution of castings.
- Certainty of expansion under all conditions on site.

YIELD: see technical data sheet

WATERSTOP RX 103

Hydro-expansive waterstop based on pre-hydrated bentonite for joints and casting joints

PACKS
48-m box (8 rolls of 6 m)

HYDRO-EXPANSIVE BENTONITE WATERSTOP FOR SEALING JOINTS AND CASTING JOINTS

Rectangular cross-section: 10x15 mm

WATERSTOP-RX® 103 is a hydro-expansive waterstop designed to prevent the infiltration of water into casting joints in cast-in-place concrete that expands in contact with water and creates an airtight seal by bonding to the concrete. The key to the effectiveness of WATERSTOP-RX® 103 is its high expansive capacity, thanks to which it seals and fills gaps and cracks in concrete.

IDEAL FOR

- Casting joints on horizontal slabs and vertical walls, also reinforced.
- Joints between new and existing concrete, uneven surfaces and bodies passing through the wall, hydraulic components and service pipes.
- Sealing of passing bodies, concrete piles and IPE profiles that pass through the slab.

ADVANTAGES

- It expands up to 6 times its original size.
- It withstands shocks and stresses due to the execution of castings.
- Certainty of expansion under all conditions on site.

YIELD: see technical data sheet

WATERSTOP XP

Hydro-expansive waterstop with active polymers and XP technology for joints and casting joints

PACKS
48-m box (8 rolls of 6 m)

HYDRO-EXPANSIVE WATERSTOP WITH ACTIVE POLYMERS (XP TECHNOLOGY) FOR SEALING JOINTS AND CASTING JOINTS

Rectangular cross-section: 10x15 mm

WATERSTOP® XP is a hydro-expansive waterstop joint with active polymers and XP technology that has proven effective in a wide variety of contaminated environments. The active polymer of WATERSTOP® XP was designed to create a continuous hermetic seal on concrete surfaces under conditions of both fresh and highly saline groundwater. WATERSTOP® XP is effective under both continuous and intermittent hydrostatic conditions. The expansion and flexibility of WATERSTOP® XP make it effective in sealing cracks and filling cavities.

IDEAL FOR

- Casting joints on horizontal slabs and vertical walls, also reinforced.
- Hydraulic insulation of emerging pipes.
- Joints between new and existing concrete, uneven surfaces and bodies passing through the wall, hydraulic components and service pipes.

ADVANTAGES

- It expands up to 6 times its original size.
- It withstands shocks and stresses due to the execution of castings.
- Certainty of expansion under all conditions on site.

YIELD: see technical data sheet

MAGISWELL 101

Sealant for joints and cracks

PACKS
300 ml cartridge (12 pcs. per box)

WATER-EXPANDING SEALANT (350%) FOR SEALING JOINTS AND CRACKS

MAGISWELL 101 is used as a sealant for concretes subject to water infiltration, both in the preventive and curative phases, and for joints, including dynamic ones. MAGISWELL 101 is able to adhere perfectly to materials of different compositions (concrete, glass, iron, plastics in general, etc.).

IDEAL FOR

- Sealing of concretes subject to water infiltration.
- Sealing of passing elements for restoration with water ingress.
- Joints of tanks, purifiers, swimming pools and water pipes also for potable water.

ADVANTAGES

- Expansive capacity.
- Excellent adhesion.
- Solvent-free.

YIELD: 3 ml/cm² with one cartridge (1x1 cm section)

CETSEAL

Adhesive sealant for fixing WATERSTOP RX

PACKS
12 x 290 ml cartridges per pack

SPECIFIC ADHESIVE SEALANT FOR FIXING WATERSTOP RX 101 - 103

CETSEAL is a single-component, multi-purpose polyether-based sealant/adhesive against moisture. CETSEAL is an anti-shrinkage, low-VOC product with excellent UV resistance specifically designed for fixing WATERSTOP-RX 101 and WATERSTOP-RX 103 joints.

IDEAL FOR

- Sealing of terminations at ground level.
- Sealant for membrane overlaps.
- Waterproofing adhesive for fixing WATERSTOP RX 101 - 103.

ADVANTAGES

- Safety at critical points.
- Chemical stability.
- Easy to apply.

YIELD: approx. 6 ml/cm^2 with a cartridge (section 1x1 cm)

REVOFIX

Metal mesh profile for fixing WATERSTOP RX and XP

PACKS
25 mm x 1 m bars in packs of 30 pcs 15 mm x 1 m bars in packs of 48 pcs

FOAM METAL MESH PROFILE

REVOFIX is a foam metal mesh profile designed for the mechanical fixing of WATERSTOP-RX® and WATERSTOP-XP® on cast-in-place concrete surfaces. REVOFIX can be used as an alternative method to CETSEAL for fixing WATERSTOP-RX® or WATERSTOP-XP.®

IDEAL FOR

- It can be used as an alternative method to CETSEAL for fixing WATERSTOP-RX.

YIELD: see technical data sheet

TAPPOSMART

Plug for sealing the holes of formwork spacers

PACKS
ø 21 mm in bag of 50 pcs
ø 24 mm in bag of 50 pcs
ø 26 mm in bag of 100 pcs

WATER-EXPANDABLE PLUG FOR SEALING FORMWORK SPACERS

Water-expandable corrugated plug for sealing the holes of PVC tubular spacers for formwork. TAPPOSMART is composed of a rigid plastic core and a corrugated cap made of hydro-expansive rubber.

IDEAL FOR

- Preventing the infiltration of water from formwork spacers in basement rooms such as cellars, garages, etc.
- Concrete works in general in direct contact with the ground.
- Maintenance work in water canals, pipelines and basins.

ADVANTAGES

- High adhesion to concrete and other materials.
- Extreme flexibility.
- Maximum effectiveness of waterproofing in critical situations.

YIELD: 1 - 2 pieces/m^2 (recommended: 1 piece/m^2)

MAGISTAR FLEX TUBE

Preventive sealing system for joints and casting joints

PACKS
30-m kit

PREVENTIVE WATERPROOFING SYSTEM FOR CONSTRUCTION JOINTS AND CASTING JOINTS

Injectable seal for joints

MAGISTAR FLEX TUBE is a preventive sealing system for castings and construction joints which, with a simple injection of the flexible MAGISTAR through the end elements already prepared in the cast, guarantees the restoration of the watertightness with fast and cost-effective execution times.

IDEAL FOR

- Horizontal and vertical casting joints.
- Horizontal and vertical construction joints.
- Prepare for watertightness restoration at critical points with a practical and fast system.

ADVANTAGES

- It ensures perfect diffusion in concrete and creates a flexible and durable sealing joint.

YIELD: see technical data sheet

FLEXIJOINT

TPE Tape for waterproofing construction joints

PACKS
25-m roll (1 mm thick)
Available widths: 150 - 200 - 300 - 400 mm

FLEXIBLE TPE TAPE FOR WATERPROOF SEALING OF CRACKS AND EXPANSION, CONSTRUCTION AND MOVEMENT JOINTS

FLEXIJOINT is a flexible and waterproof TPE (thermoplastic elastomer) tape for the waterproofing of construction-expansion joints that are also subject to movement. FLEXIJOINT is laid by sealing (FLEXIJOINT SYSTEM) with the two-component structural epoxy adhesive EP FIX HP, and is also suitable for waterproofing cracks and fissures in concrete structures in contact with water such as tanks, canals, dams, walls of purification plants, etc.

IDEAL FOR

- Waterproofing and elastic sealing of new or existing structures of critical points.
- Sealing joints of hydraulic works such as canals, purifiers, pipelines, sewer collectors, etc.
- Joints for road pavements, swimming pools or expansion joints in flat roofs.

ADVANTAGES

- High adhesion to concrete and other materials.
- Extreme flexibility.
- Maximum effectiveness of waterproofing in critical situations.

YIELD: see technical data sheet

EP FIX HP

Epoxy adhesive for waterproofing joints with TPE tape

PACKS
5-kg tub + 2.5-kg tub = (A+B) **7.5 kg**

TWO-COMPONENT EPOXY PASTE ADHESIVE WITH IMPROVED ADHESION FOR STRUCTURAL BONDING

Ideal for bonding FLEXIJOINT flexible TPE tapes

EP FIX HP is a two-component filler based on epoxy resins for structural bonding, monolithic repair of cracks, reconstruction of sections, and bonding of prefabricated concrete elements, including load-bearing elements, and metal structural components and structural reinforcements (beton-plaqué). Due to its high adhesion capacity and the absence of shrinkage, EP FIX HP is particularly suitable for the waterproof sealing of cracks and expansion, construction and movement joints, in combination with FLEXIJOINT flexible TPE tape.

IDEAL FOR

- Bonding of FLEXIJOINT TPE flexible tapes for waterproof sealing of joints.
- Bonding of concrete, metal and building materials in general also in combination with each other.
- Reconstruction of edges, joints, grouting and repairs, including overheads.

ADVANTAGES

- High chemical resistance.
- High mechanical resistance.
- It creates a structural bond without shrinkage.

YIELD: approx. 1.4 kg/m² per mm of thickness

WATERSTOP IN PVC

PVC waterproofing for joints and casting joints

PACKS
See table below

PVC WATERSTOP FOR CASTING JOINTS AND EXPANSION JOINTS

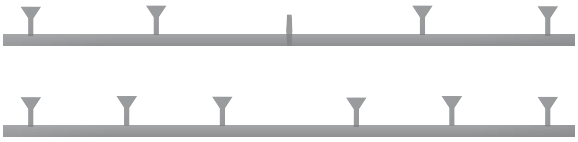
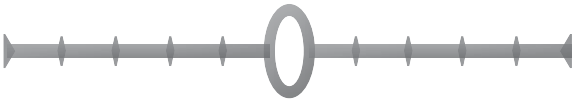
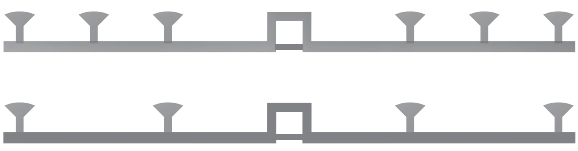
DRACO PVC WATERSTOPS are highly elastic waterproof profiles that are used in casting joints, expansion joints and concrete structures, ensuring perfect watertightness and the ability to absorb mechanical and natural stresses. Composed of high quality thermoplastic vinyl resins, DRACO PVC WATERSTOPS have high resistance to the aggressive action of acid-alkaline solutions, ageing and brackish water, with performance characteristics superior to those of similar elements. Resistant to degradation caused by the sun, ozone and other atmospheric or chemical agents normally present in the air and groundwater, they are highly flexible even at low temperatures and their mechanical characteristics remain unaltered over time.

IDEAL FOR

- Construction joints on concrete pavements.
- Expansion joints on concrete floors, panels and walls.
- Roofs, bulkheads, diaphragms, terraces, purification plants.

YIELD: see table below

TYPE OF JOINT	WIDTH (mm)	PACKS:	ON-SITE JOINT
RG FLAT FOR CASTING JOINTS 	200	50/25 m	
RGP FLAT FOR CASTING JOINTS 	150 200 250 300	50/25 m 50/25 m 30 m 30 m	
CP FLAT FOR CASTING JOINTS (HIGH-STRENGTH) 	100 210 350	25 m 20 m 15 m	

TYPE OF JOINT	WIDTH (mm)	PACKS:	ON-SITE JOINT
4TV FLAT FOR CASTING JOINTS (EXTERNAL APPLICATION) 	200 250	20/25 m 20/25 m	
RGF WITH BULB FOR EXPANSION AND CONTRACTION JOINTS 	150 200 220 250 300 320 360 440	25 m 25 m 25 m 25 m 20 m 20 m 15 m 15 m	
CPB WITH BULB FOR EXPANSION AND CONTRACTION JOINTS (HIGH-STRENGTH) 	100 250 350	30 m 20 m 15 m	
RGA WITH BULB 	360 250	15 m 20 m	
4T WITH BULB FOR EXPANSION AND CONTRACTION JOINTS (EXTERNAL APPLICATION) 	200 250 320 350	25 m 25 m 15 m 15 m	

Venerocolo Dam, Adamello, Brescia

Consolidation and repair of the walls of the dam using injections of the DRACOGEL GT2 flexible, water-activated acrylic resin with adjustable gel time

SOLUTIONS FOR BLOCKING THE INGRESS OF WATER

Problems related to water infiltration are very common in concrete structures, but they can be avoided or solved by injecting highly expanding resins and sealants capable of blocking the ingress of water at certain critical points.
Injection refers to the introduction, at a certain pressure, of a mixture into cavities in the ground or concrete, with the aim of saturating and waterproofing gaps, cracks and pores, or consolidating the matrix of the mass to be treated.
These injections are also used in the consolidation of rock masses, using state-of-the-art techniques and materials that can be adapted in relation to the reaction time, in order to overcome certain critical issues due to water infiltration during excavation or the presence of an unstable excavation face. For further information on this topic, please refer to the guide to DRACO systems for soil consolidation, special foundations and tunnelling.
This kind of solution can be used in many contexts, such as tunnels and underpasses, garages and cellars, maritime works, bridges and dams, purification plants, sewers and water tanks in general.

The following mixtures are of different nature:
- ultra-fast expansive binders;
- hydro-expansive acrylic resins;
- hydro-expansive polyurethane resins.

MAGISTAR

Polyurethane-based expanding resin for waterproofing and consolidating injections

PACKS

25-kg tub + 2.5-kg accelerating tank = (A+B) **27.5 kg**

1000-kg cistern +
100-kg accelerating drum = (A+B) **1100 kg**

SINGLE-COMPONENT FLEXIBLE HYDRO-EXPANSIVE POLYURETHANE RESIN FOR INJECTION

Ideal for sealing joints and cracks in structures subject to movement and in the presence of water

MAGISTAR is a compound based on synthetic water-expanding polymers resistant to the aggressive actions of the environment. The system consists of a polyurethane resin and an accelerator that reduces setting times allowing, through its dosage, effective regulation of the reaction times of the mixture. MAGISTAR injected into the joint swells in the presence of water and permanently seals the structure, creating a flexible and waterproof seal.

IDEAL FOR

- Treatment of cracks and joints in elements subject to movement in underground car parks, structures below the water table, etc.
- Sealing of casting joints with permeation of water.
- Screen injections beyond the ashlars in a tunnel.

ADVANTAGES

- High adhesion and fluidity.
- Durable and long-lasting.
- Hydro-expansive resin with a high consolidating effect.

YIELD: see technical data sheet

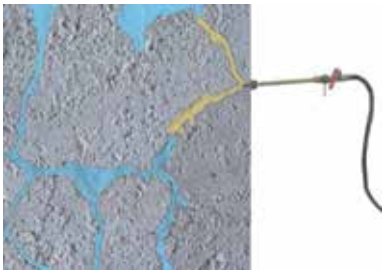
PERMANENT INJECTION SEALING TECHNOLOGY FOR JOINTS AND CRACKS EVEN IN MOVEMENT AND IN THE PRESENCE OF WATER

Concrete structures are often subject to seepage due to inadequate, degraded or poorly executed waterproofing solutions. The answer is MAGISTAR, a low-viscosity, hydro-expansive injection system with adjustable water reaction time that penetrates cavities and permanently seals joints and cracks, blocking the ingress of water even under pressure. Once the reaction has taken place, MAGISTAR forms a flexible seal with high adhesion and resistant to chemical aggression.

HOW IT WORKS

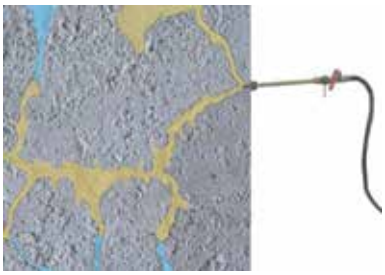
STEP 1: EXPANDS

When MAGISTAR comes into contact with water and moisture, it develops an expansive foam with a closed-cell structure. The reaction also produces an inert gas that generates additional pressure that increases the diffusion of the product in the structure.



STEP 2: WATERPROOFS AND CONSOLIDATES

Once expanded, MAGISTAR solidifies to waterproof and consolidate the structure. MAGISTAR is available in different versions of specific flexibility to suit the nature of the work in hand.



WATER LEAKS CAN BE SEALED PERMANENTLY IN A QUICK AND PRACTICAL MANNER WITH THE SPECIAL STARJET INJECTORS

STARJET AC

Steel injectors for injection into concrete with MAGISTAR. Diameter Ø 16 mm. Specific for high pressures (>3bar).

STARJET PC

Special plastic injectors for injections into concrete with MAGISTAR. Diameter Ø 18 mm.

MAGISTAR 2K

Highly reactive polyurethane-based expanding resin for waterproofing and consolidating injections

PACKS

25-kg tub + 25-kg tub = (A+B) **50 kg**

1000-kg cistern + 1000-kg cistern = (A+B) **2000 kg**

HIGHLY REACTIVE TWO-COMPONENT EXPANSIVE POLYURETHANE RESIN FOR INJECTION

MAGISTAR 2K is a two-component resin characterized by excellent chemical stability, mechanical resistance and adhesion to the rock material to be stabilized with the filling of cavities. The two components (A+B) react very quickly with an expansion factor of approx. 1:6. The mechanical strength resulting from the injections of MAGISTAR 2K depends on the degree of compactness of the soil and the volume to be filled, as well as on the injection pressure. The presence of water can also considerably vary the expansion factor and, at the same time, the mechanical strength of the foam that is formed. The foam produced with MAGISTAR 2K is not toxic or polluting for the environment.

IDEAL FOR

- Filling cracks and fractures.
- Consolidation of soil.
- Filling joints and cracks in cement and concrete walls.

ADVANTAGES

- High adhesion.
- Durable and long-lasting.
- Hydro-expansive resin.

YIELD: see technical data sheet

HYDROPLUG

Ultra-fast binder for instantly blocking the ingress of water

PACKS

5 - 10 - 25-kg tub

SPECIAL ULTRA-FAST PRE-MIXED BINDER FOR INSTANTLY BLOCKING THE INGRESS OF WATER

HYDROPLUG is a special premixed cementitious binder, formulated to instantly block the ingress of water from concrete and masonry structures. HYDROPLUG mixed with water forms a thixotropic paste that can be easily applied either manually or with a trowel. The hydraulic binders react quickly and expand to stop pressurized water from passing through holes, cracks and porous surfaces.

IDEAL FOR

- Quick blocking of the ingress of water at medium and high pressure.
- Sealing of holes and cracks with leakage of water.

ADVANTAGES

- Fast setting times.
- Effective even in the presence of pressurized water.
- High mechanical resistance even after short curing.

YIELD: approx. 1.25 kg per 1l of mortar

DRACOGEL GT2

Acrylic-based resin for waterproofing and consolidating injections

PACKS

20-kg canister + 2-kg tub + 2-kg tub = (A+B+C) **24 kg**

200-kg drum + 20-kg tub + 20-kg tub = (A+B+C) **240 kg**

NON-TOXIC THREE-COMPONENT ACRYLIC GEL FOR WATERPROOFING INJECTION AND STOPPING OF WATER INRUSH IN SOILS AND CONCRETE

DRACOGEL GT2 is an elastic hydro-expansive acrylic resin with adjustable gel time (4 seconds to 1 hour). Using water as a permeation vehicle and being monophasic, it has a very high capacity for penetration of soils, including those of a silty texture, and concrete. DRACOGEL GT2 solidifies into a consistent gel that prevents the passage of water and consolidates the structure.

IDEAL FOR

- Quick blocking of the ingress of water at medium and high pressure.
- Sealing and repairs for garages, tunnels, dams, tunnels and underground pipelines.
- Consolidation and blocking of the ingress of water even for compact and microporous structures.

ADVANTAGES

- High adhesion to walls.
- Totally non-toxic and eco-friendly.
- Flexible and self-repairing gel.

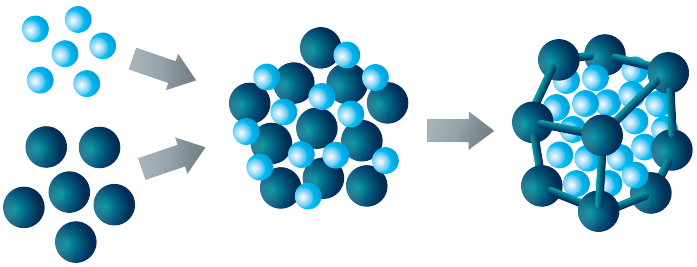
YIELD: see technical data sheet

IN THE SOLID GEL STATE, DRACOGEL GT2 IS:

- **ADHESIVE:** being a polymer, it adheres like a glue to the texture of the permeated element.
- **ELASTIC:** the gel has an elasto-plastic structure, so it guarantees a hydraulic seal even in the event of structural settlement.
- **WATER VAPOUR BREATHABLE:** the gel is acrylic in nature and promotes the reduction of moisture in the treated structure.
- **HYDROEXPANSIVE:** the elastic structure of DRACOGEL is hydrophilic, a characteristic that allows it, in case of different osmotic pressures, to acquire water molecules in its polymer lattice which lead to an increase in the volume of the gel.

In its solid gel state, DRACOGEL GT2 remains elastic, adapting easily to any movements of the structure.

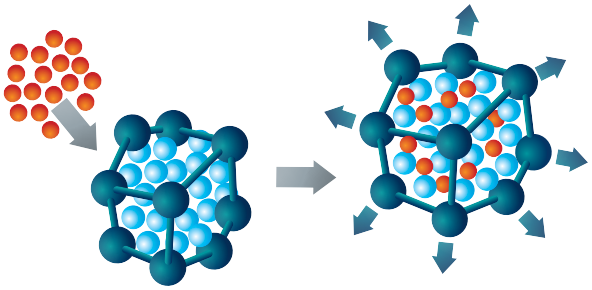
IN ACTION



Injection in the liquid state in the areas affected by the ingress of water.

Diffusion of the hydrophilic polymers of DRACOGEL in the infiltrated water.

Immobilization of water molecules entering the lattice of DRACOGEL with the forming of a solid gel with a consolidating action.



WATER MOLECULE

DRACOGEL MONOMER

WATER RESULTING FROM SUBSEQUENT INFILTRATION

ALPHABETICAL INDEX OF PRODUCTS

ALPHABETICAL INDEX OF PRODUCTS

Version 2/24 | EN

DISCOVER ALL OUR SOLUTIONS FOR THE CONSTRUCTION INDUSTRY:

- CONCRETE **LINE**
  ADMIXTURES AND SYSTEMS FOR CONCRETE
- FLOORING **LINE**
  RESINS AND PRODUCTS FOR INDUSTRIAL FLOORING
- WATERPROOFING **LINE**
  STRUCTURAL WATERPROOFING SOLUTIONS
- RESTORATION AND PROTECTION **LINE**
  MORTARS AND SYSTEMS FOR THE RESTORATION OF STRUCTURES
- UNDERGROUND AND TUNNELING **LINE**
  CHEMICAL SOLUTIONS FOR SPECIAL FOUNDATIONS AND TUNNELS
- RENOVATION AND GREEN BUILDING **LINE**
  DEHUMIDIFICATION AND RENOVATION OF MASONRY BUILDINGS

www.draco-edilizia.it

DRACO

QUALITY YOU CAN BUILD ON

DRACO Italiana S.p.A.
Via Monte Grappa 11 D-E
20067 Tribiano (MI)
Tel. +39 02 90632917
Fax +39 02 90631976
info@draco-edilizia.it