



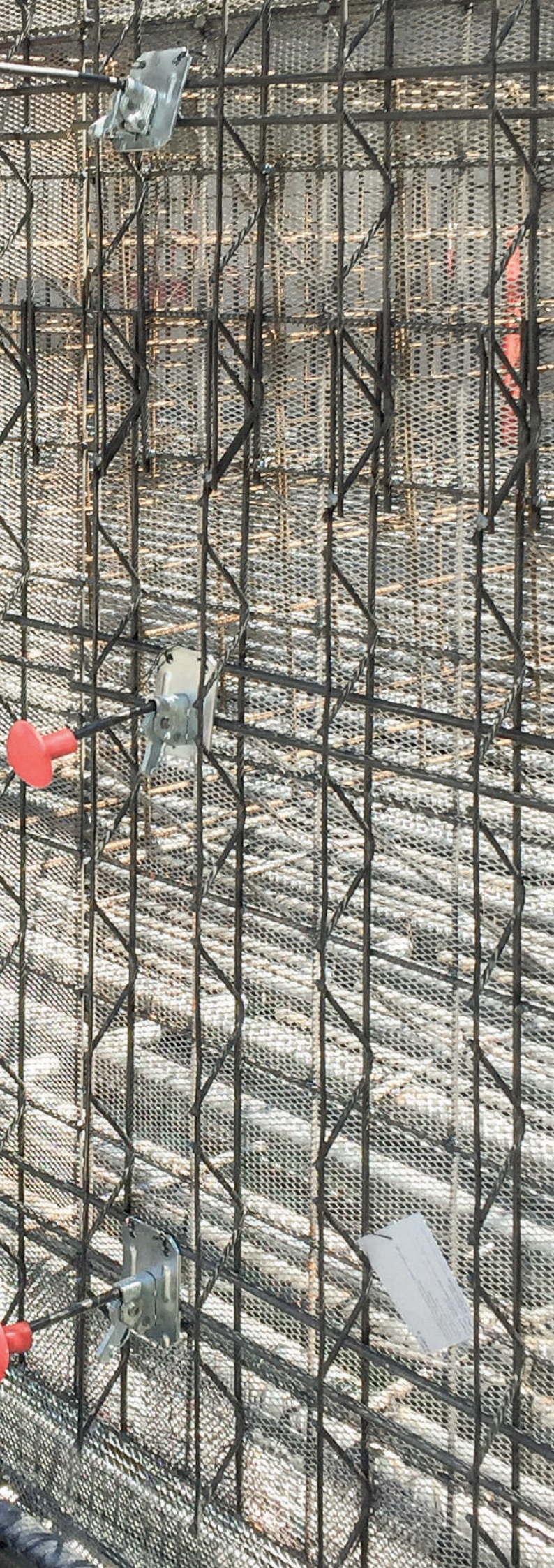
BUILDING
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Stremaform[®] formwork for working joints

Stay-in-place self-supporting
formwork for concrete pours





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Stremaform® formwork for working joints

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The expanded metal

is welded into the steel mesh mat and serves as a formwork during concreting, preventing the concrete from flowing through. Thanks to its special surface, it ensures optimum surface roughness between the two concreting sections.

The steel mesh mat

is mechanically welded to the expanded metal, whereby the Stremaform® material forms a stable and reliable formwork for concreting.

What is Stremaform®?

Stremaform® is an expanded metal that is stabilized with a steel mesh mat. It is used for shuttering construction joints in concrete construction. But what exactly is behind this product and what is it used for?

Shuttering element for construction joints

The special feature of Stremaform® is that the formwork remains in the concrete and there is no need for time-consuming demolding between the reinforcement layers. This significantly reduces the time and effort required. In addition, the concreting sections are optimally connected due to the surface roughness. This flexible formwork material makes it possible to prepare a new concrete section while a previous section has not yet been concreted or is still hardening. If the concreting of a construction section is delayed, the next section can still be processed without any problems, which speeds up construction progress.

Components and properties

The construction joint created with Stremaform® is characterized by optimum surface roughness, which ensures a force-transmitting connection of the concreting sections.

Sealing variants

Stremaform® can be fitted with a joint seal to prevent water ingress in the joint. Various sealing systems are available for this purpose: Proven options such as the Fradiflex® metal waterstop, black plate or a waterstop cage for commercially available waterstops. These seals ensure watertight construction joints in demanding building projects.

The Stremaform® Service

Our Stremaform® service offering is made up of several stages.

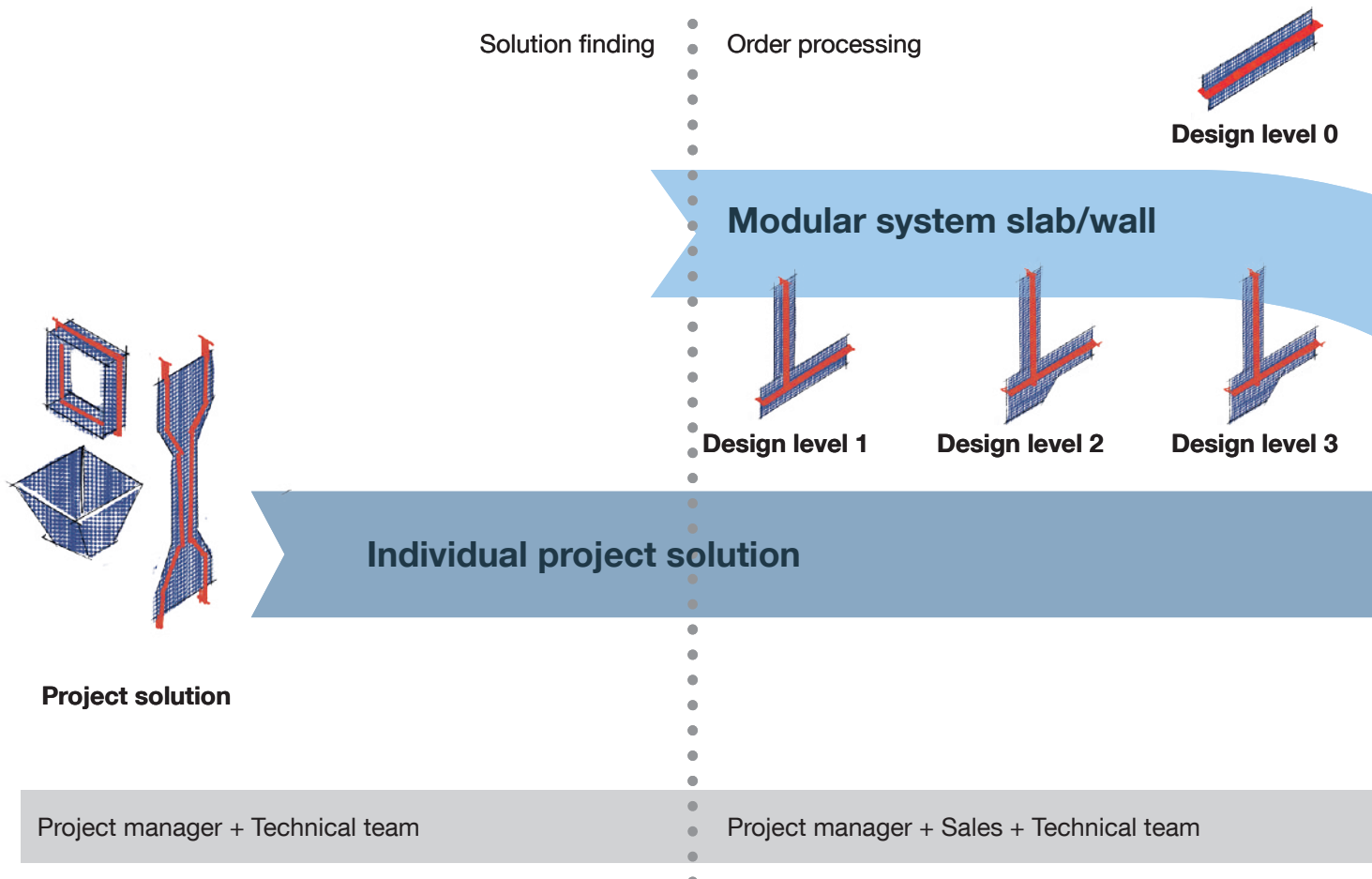
Our colleagues in Sales will be happy to advise you on all aspects of the product. Our customers also have access to our technical team, which can answer technical questions and develop individual project solutions.

The close exchange between customers and our technical team is important and valuable for both standardized and individual project solutions. Every project-related elaboration of the Stremaform® construction joint shutters is checked and approved in collaboration with the customer.

The fast and direct contact with our own production offers a flexible and fast implementation of the required construction joint formwork and guarantees installation reliability, short delivery times and high quality.

We are also flexible when it comes to shipping and, if required, we can pack the Stremaform® construction joint formers in concrete sections, i.e. "joint by joint", and deliver them in line with the construction site process.

With our range of services, we therefore offer our customers a smooth overall process.



Stremaform® Design levels

Every building project places specific demands on joint solutions - whether due to geometric conditions, functional requirements or structural conditions. Our design stages offer a flexible system to realize the optimum solution for your project.

Design level 0:

Standardized straight elements

Straight elements in standard lengths:

- 2.40 m for floor and ceiling panels
- 2.40 m / 3.60 m for walls

Ideal for simple, linear joints without changes in direction.

Design level 1:

Standard elements for directional changes, supplemented by molded parts for flexible joints

- Transitions into the wall
- Corner molding
- T-molded part
- Cross molding
- Height offsets

Allows more design freedom through on-site adjustments.

Design level 2:

Factory-cut elements, in addition to the standard molded parts

- Factory-cut straight elements
- Dimensionally accurate transitions and height offsets
- For precise installation

Design level 3:

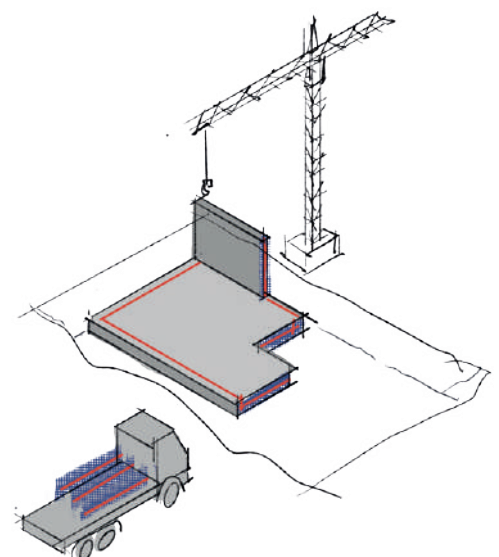
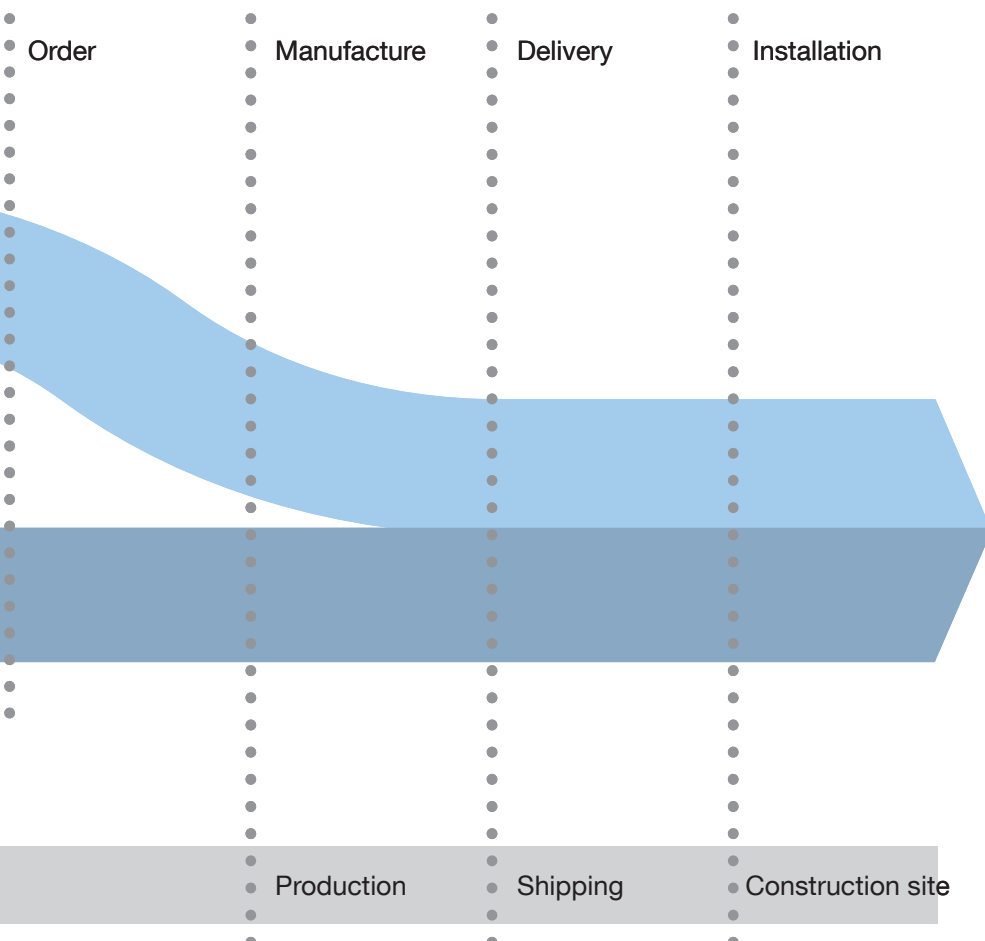
Project-specific joint solution

Completely prefabricated in the factory:

- Individual cross-section shapes
- Precise joint profiles made to measure

Project solution

For projects with Stremaform® that are not covered by our design levels, we develop customized solutions in close cooperation with planners and contractors.





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Stremaform[®] stay-in-place formwork for working joints



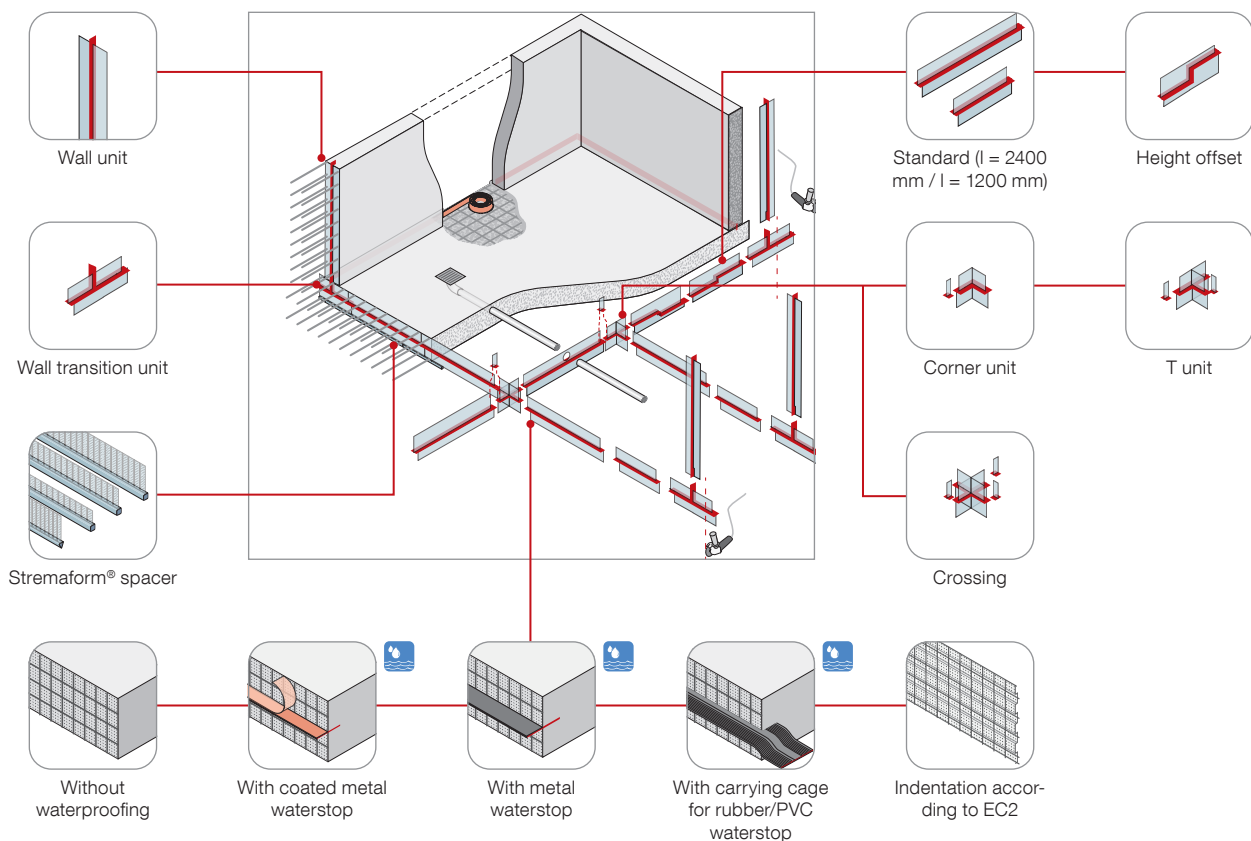
Stremaform® stay-in-place formwork for working joints

Stay-in-place self-supporting formwork for concrete pours

The Stremaform® modular system offers a standardized product range for almost any joint configuration. For complex geometries, our service team offers individual and project-specific designs. All Stremaform® joint solutions can be combined with integrated waterstop, in particular with the Fradiflex® metal waterstop.

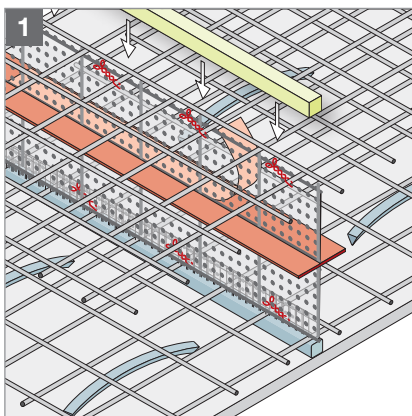
★ Advantages

- Faster and more cost-effective formwork compared to timber formwork
- Reliable and functional formwork element
- Proven quality: Engineered in Germany for over 35 years
- No dismantling or disposal of formwork material
- Development of tailored project solutions possible



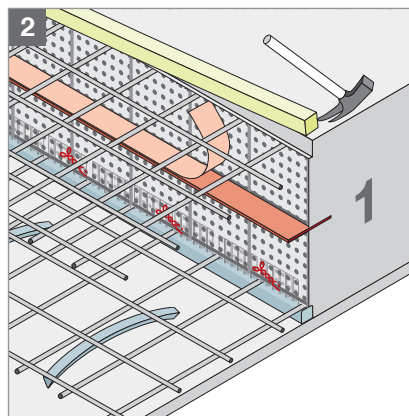


Application principles: Slabs



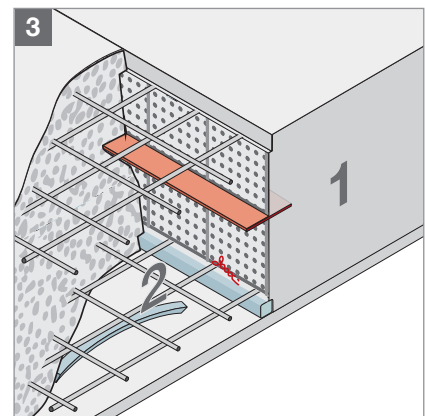
Laying the Stremaform® panel elements

First, the Stremaform® system spacers are laid on the blinding layer along the construction joint and the lower reinforcement layer is installed on top. The Stremaform® elements are then installed. To close the construction joint continuously, the system spacer and the Stremaform® element overlap (≥ 20 mm), with the spacer in the first concreting section. The upper reinforcement layers are laid directly above the Stremaform® element. A timber batten is fixed along the joint to ensure the upper concrete cover.



Preparation of the concreting sections

Before concreting the first concreting section, make sure that the Stremaform® elements are sufficiently fixed to the upper and lower reinforcement. This is carried out with a tie wire or welding at a distance of ≤ 150 mm. If sealing is carried out with the coated Fradiflex® metal waterstop, the covering foil must be removed shortly before the respective concreting of the sections. Concreting of the first construction section can now begin.



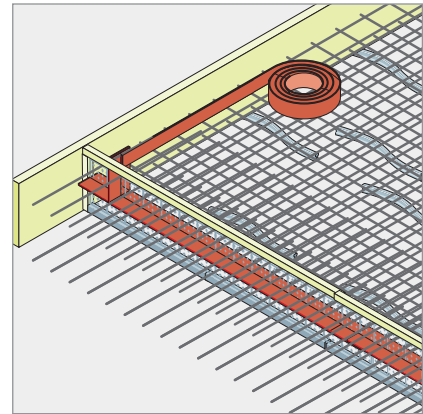
Concreting the second concreting section

The reinforcement work in the second section can be continued regardless of the first concreting section. Only the upper top cover timber battens need to be removed from the hardened concrete of the first section in order to then pour the second concreting section.

Technical information: Slabs

Stremaform® formwork with integrated construction joint sealing

The Stremaform elements with integrated joint sealing, in combination with the Stremaform® modular system, offer a high degree of execution reliability for the sealing concept. Elements such as transitions from floor slab to wall or the connecting elements corner, T and cross shaped parts are available.



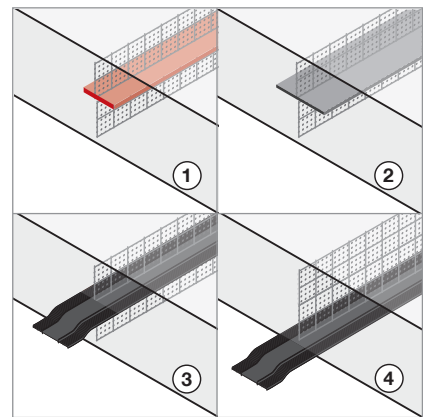
Stremaform® Sealing variants

The Stremaform® standard elements and the moulded parts are supplied with different sealing variants depending on the requirements of the sealing concept.

The following variants are available:

1. Coated metal waterstop Fradiflex®
2. Black sheet metal
3. Carry cage for PVC/rubber waterstops*
4. External waterstop*

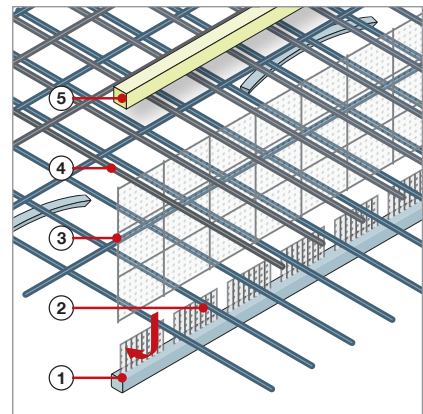
*waterstops are provided by the customer



Stremaform® Assembly sequence

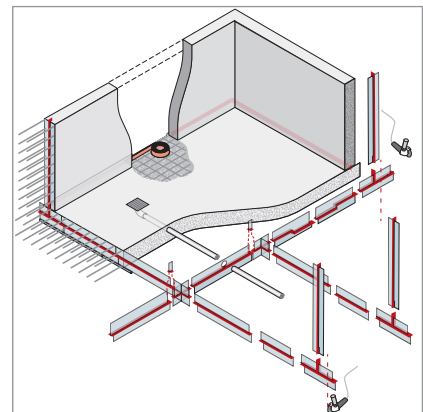
Installation steps in detail:

1. Placing the Stremaform® system spacer over the blinding layer along the joint
2. Insert the lower reinforcement layer
3. Set up and fix the Stremaform® to the system spacer
4. Installing the upper reinforcement and fixing the Stremaform® element
5. Positioning and fixing the timber batten for the upper concrete cover



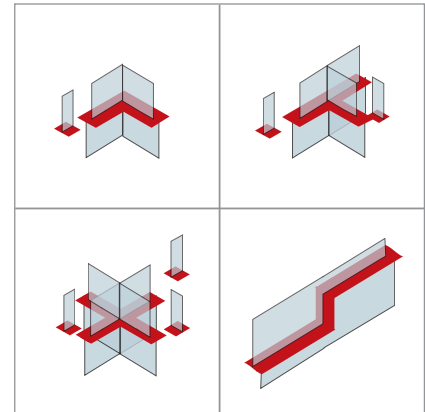
Stremaform® modular system

Stremaform® construction joint elements for slabs and walls are designed, manufactured and supplied as a modular system in standardized elements for a wide range of applications and design options. Standardized moulded parts enable height changes, wall transitions and changes in the direction of the seal and the course of the joint. Depending on the design level (0, 1, 2, 3), we supply elements adapted in length and shape that are prefabricated to the specific type.



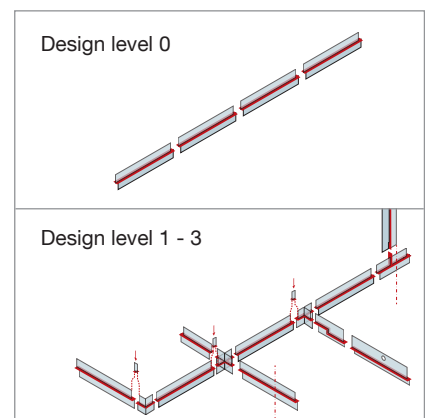
Stremaform® Construction joint formwork

Stremaform® moulded parts complete the modular system. They offer the option of combining straight standard elements and wall transition elements with sealing systems in such a way that height offsets in the sealing level and connections between construction joints across corners are possible.



Stremaform® Design level 0

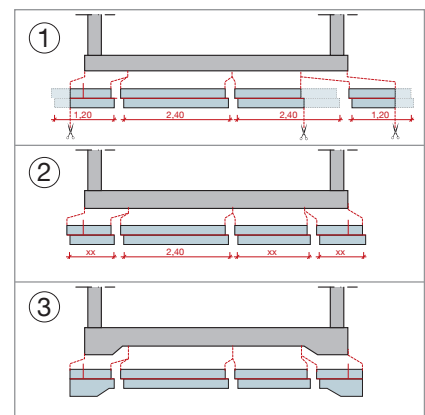
Stremaform® is available as a sophisticated system that includes all the necessary moulded parts - such as corners and wall connections. Design level 0 offers a more cost-effective alternative: here, Stremaform® elements are supplied in standard lengths, adapted to the slab thickness (installation dimension EBM), while connections and transitions are carried out on site. As design stage 0 involves more work overall, we recommend a solution based on design levels 1-3. These optimized variants save time and reduce errors on the construction site.



Stremaform® Design levels 1-3

In addition to design level 0, the elements of the Stremaform® modular system can be ordered and installed in further design levels:

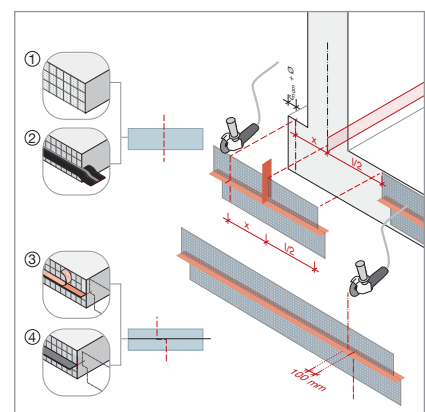
- Level 1: In addition to level 0, standard moulded parts for directional changes in the joint are included (transition in wall, corner moulded part, T moulded part, cross moulded part, height offset).
- Level 2: In addition to level 1, the factory cutting of the straight standard elements, transitions in the wall and height changes to the desired length is included.
- Level 3: This is a custom-fit joint solution in which all cross-section shapes and joint courses are prefabricated at the factory.



Stremaform® Length adjustment

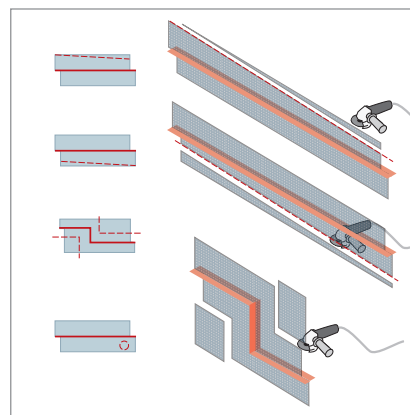
For wall transitions, the elements are shortened in the area of the floor slab in accordance with the floor slab overhang. When adapting standard elements, differentiate according to the sealing variant:

- Without sealing, waterstop cage: Vertical cut
- Coated metal waterstop, metal waterstop (black): Cut offset (100 mm)



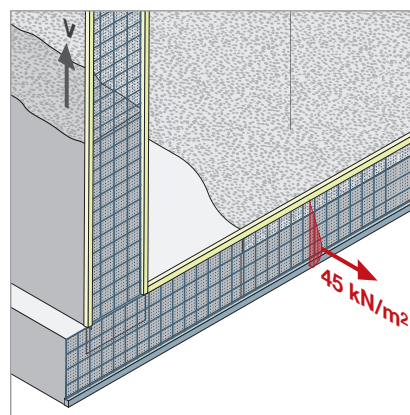
Stremaform® Height adjustment

Cut to size is possible at any time. The standard elements for sloping floor slabs can be cut to size on the top or bottom. If there are offsets in the floor slab, the Stremaform® height adjustment elements can be used and adapted to the slab geometry.



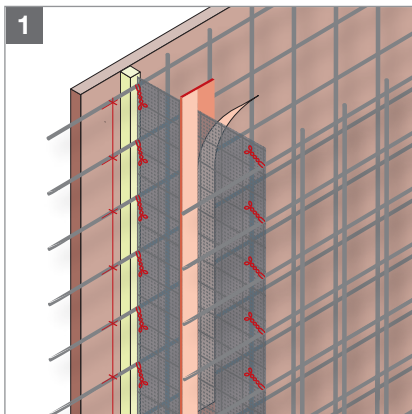
Concreting pressure slab

The installation and fixing recommendations and the Stremaform® variants are designed for a maximum concreting pressure of 45 kN/m² up to a component height of 2 m. For component heights over 2 m, the maximum concreting pressure is 32.7 kN/m². The maximum concreting speed results from the maximum concreting pressure and can be determined using the usual standards.



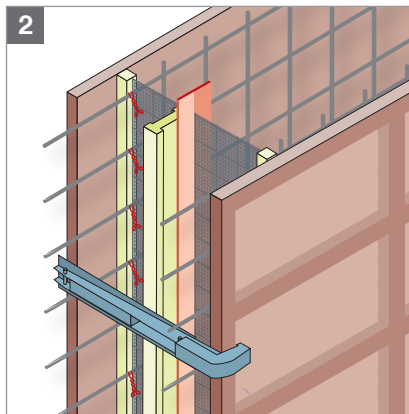


Application principles: Walls



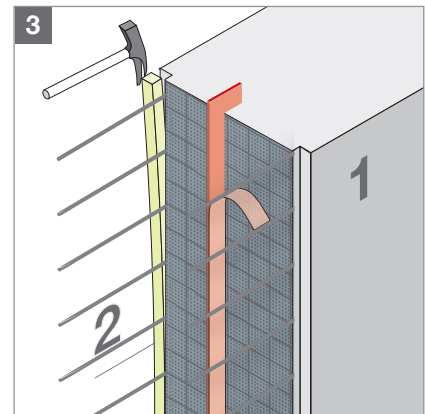
Fixed Stremaform® wall elements in the 1st concreting section

The prefabricated Stremaform® wall element is installed between the reinforcement. Ensure that the elements are fixed at a distance of less than 15 cm using a tie wire in order to position them correctly.



Targeted support against concreting pressure

The Stremaform® wall elements are designed according to the installation width so that they can absorb the concrete pressure with additional vertical beams and horizontal crossbars. Details of the necessary measures are described in the installation instructions below in order to safely absorb a concreting pressure of up to 60 kN/m².



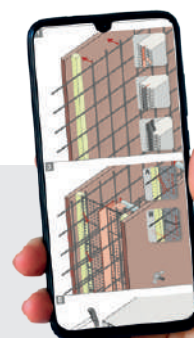
Preparation of the 2nd concreting section

After concreting and curing the first concreting section, the support and the outer timber battens for the concrete cover area are removed. If Fradiflex® metal waterstops are used, the protective film is also removed and the second concreting section can be poured after the frame formwork has been set.

Further information can be found in the installation instructions.



Simply scan the QR code!



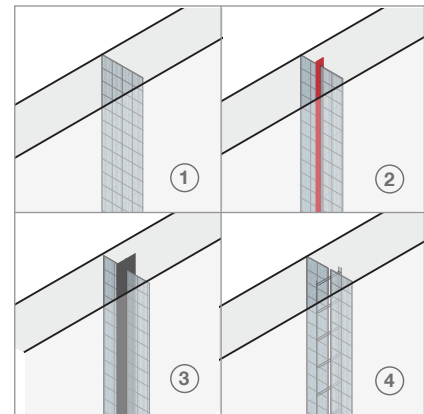
Technical information: Walls

Stremaform® wall panels - variants

Stremaform® wall elements are available in standard lengths of 1200 mm, 2400 mm and 3600 mm. The following versions are available:

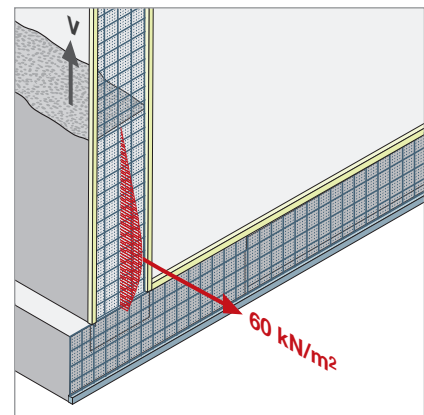
1. Flat material
2. With Fradiflex metal waterstop®
3. With black sheet metal
4. With carry cage to accommodate PVC/rubber waterstops

These variants offer flexible solutions for different sealing and joint requirements.



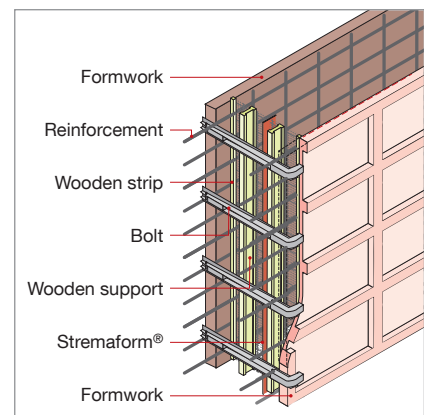
Concreting pressure - wall

The designs of the Stremaform® variants in conjunction with the installation recommendations cover a concreting pressure of 60 kN/m². This concreting pressure is also the basis for determining the maximum concreting speed. The maximum concreting speed results from the maximum concreting pressure and can be determined using the usual standards.



On-site bracing - additional elements

A grid construction of vertical timber beams and horizontal ledgers is required to transfer the horizontal forces (resulting from the concreting pressure) to the formwork. The number depends on the wall width and height. The information in the installation instructions must be observed for safe positioning.



Stremaform® Installation instructions

With the help of our installation instructions and commercially available concrete pressure calculators, you can easily calculate the optimum concreting speed for the respective installation dimension of your wall element. This means more safety, less material required and a more efficient construction method - ideal for demanding projects. The installation instructions and other documents are available to download at www.maxfrank.com/stremaform.





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System components



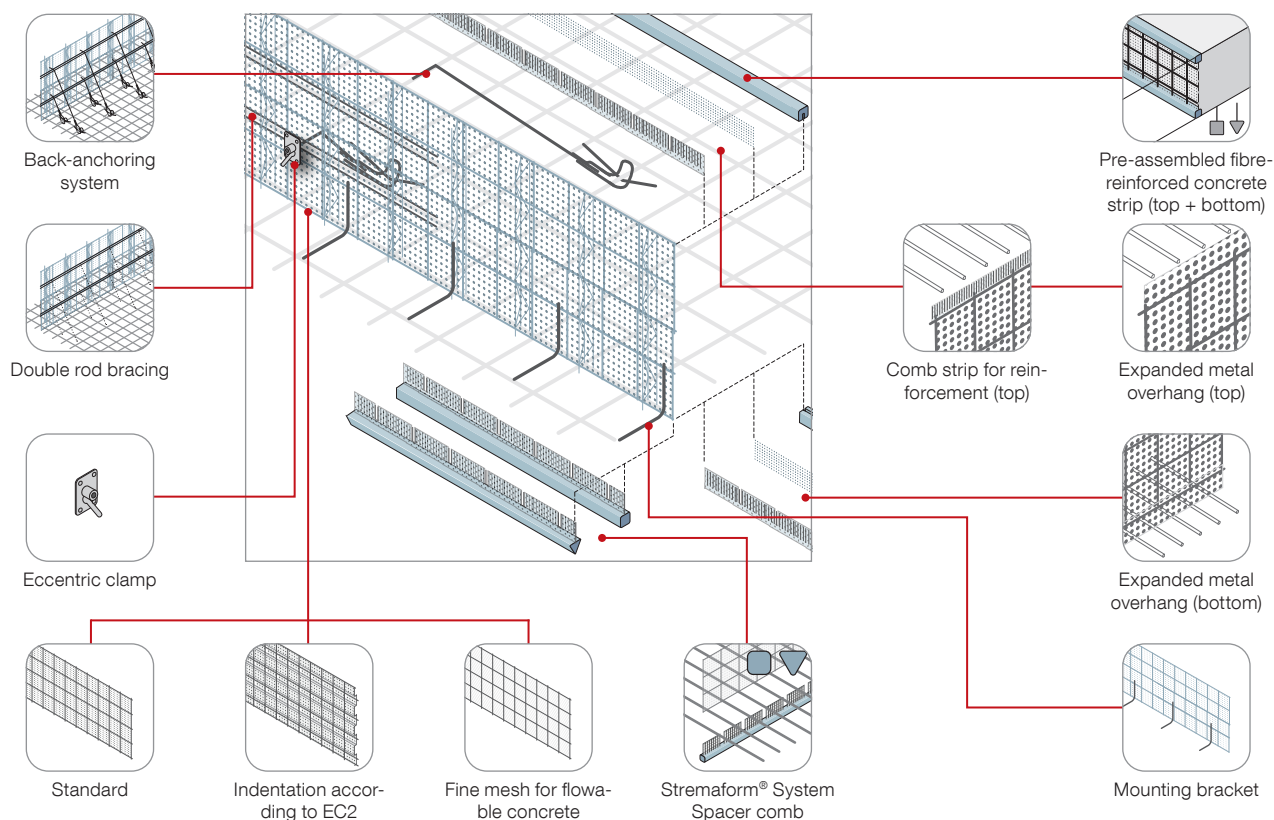
Stremaform® System components

For panel and wall versions

In addition to the various Stremaform® design variants for panels and walls, a comprehensive range of system components is also available. This makes working on site easier and meets additional requirements for construction joints.

★ Advantages

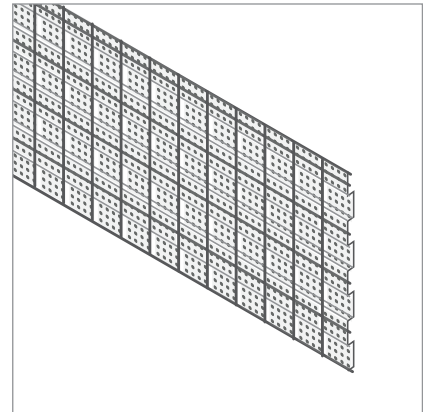
- Technically matched system components for Stremaform® construction joint setting
- High flexibility for different requirements on the construction site
- Saving time on the construction site



System components

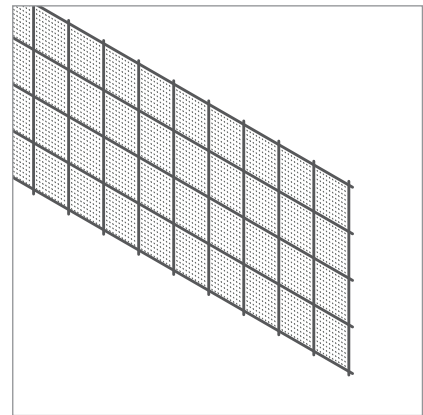
Option Stremaform® with indentation

Stremaform® formwork for working joints can be executed with an optional indented surface to Eurocode 2 (EN 1992-1-1).



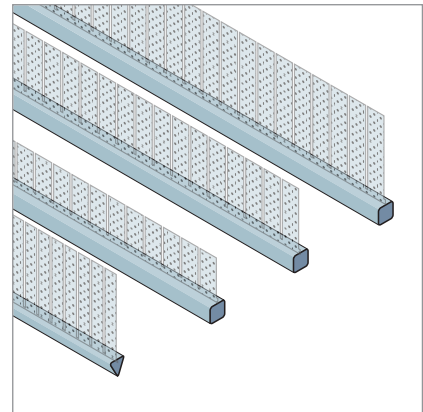
Option Stremaform® for concrete of high fluidity

The expanded metal surface of the fine-mesh Stremaform® has an open surface that is approx. 25% smaller than our standard surface and is suitable for flowable concrete.



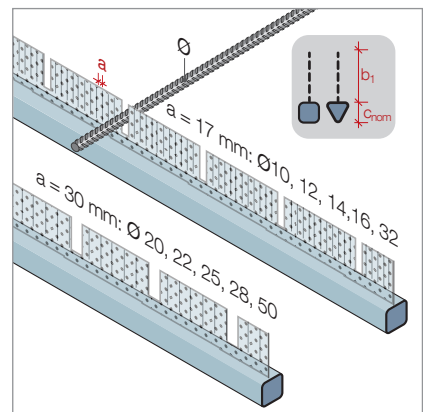
Stremaform® System-Spacer with square or triangular fibre-reinforced concrete strip

The Stremaform® System-Spacer serves as a spacer and sealing strip and prevents time-consuming cleaning work. Furthermore, the two comb patterns and three comb heights offer full flexibility regarding reinforcement diameters, spacings and layers.



Stremaform® System Spacer comb, grid 17 or 30 mm

The different pitches cover the various reinforcement diameters from Ø10-Ø50mm. The standard comb heights (b_1) can be selected between 80, 120, 160 mm. The various fibre-reinforced concrete strips cover the required concrete covers (c_{nom}). An overlap of at least 20 mm between the comb and the Stremaform® construction joint spacer connects the spacer to the formwork element and prevents concrete from flowing through during concreting.

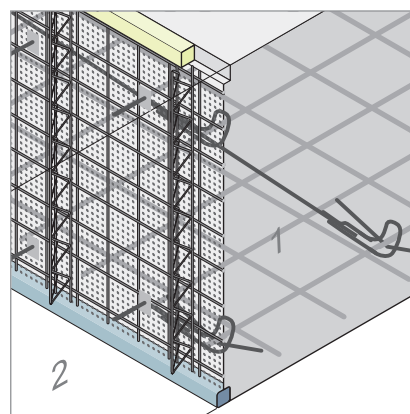


Stremaform® bracing for slabs

The Stremaform® back-anchoring system is used to secure the Stremaform® formwork elements, from an installation dimension of > 800 mm, during the installation phase and to absorb the concreting pressure. We offer two variants:

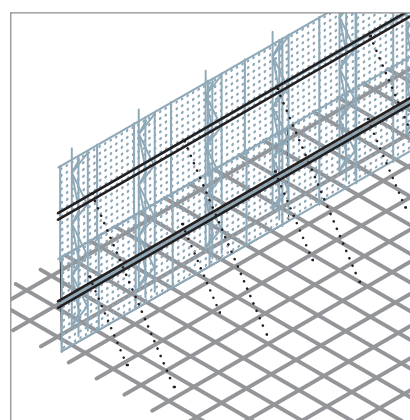
Variant 1: Stremaform® with double rod bracing to support the diagonally welded tension rods on site.

Variant 2: Stremaform® back-anchoring system (double bar reinforcement + back-anchoring system) for weld-free construction.



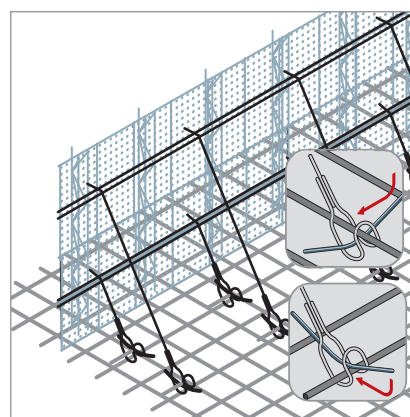
Variant 1: Stremaform® Back-anchoring system for tension rods welded on site

Stremaform® elements can also be supplied with double-bar stiffening if the construction site provides the back anchoring. The double rods, assembled in the factory, define the layers of the back anchoring levels. The diagonal braces, which are provided and welded on site, should be at least $\varnothing 12$ mm and executed in accordance with the installation instructions.



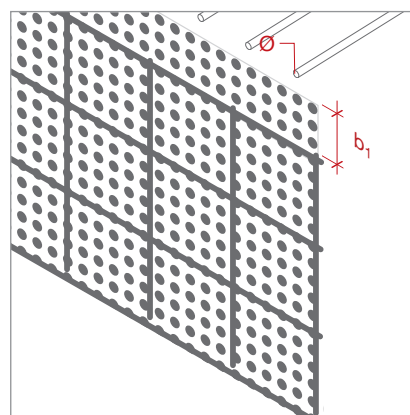
Variant 2: Stremaform® Back-anchoring system for weld-free design

In the weld-free version of the Stremaform® back-anchoring system, the Stremaform® construction joint supports are supplied with a double rod reinforcement. These double bars define the position of the tie-back levels on the formwork panel. The components of the tie-back system consist of a tension rod with hook loop, safety rod and eccentric clamp. The tension rods are anchored to the Stremaform® panel and in the reinforcement in accordance with our installation instructions.



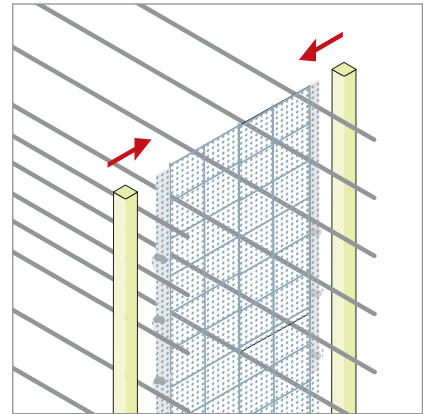
Edge detailing - Expanded metal overhang

The edge design with an expanded metal overhang on the top can be ordered in three different standard heights. The expanded metal overhang is suitable for one to two reinforcement layers. Inserting the upper reinforcement creates a slight deformation, which keeps the gaps between the penetrating reinforcement closed.



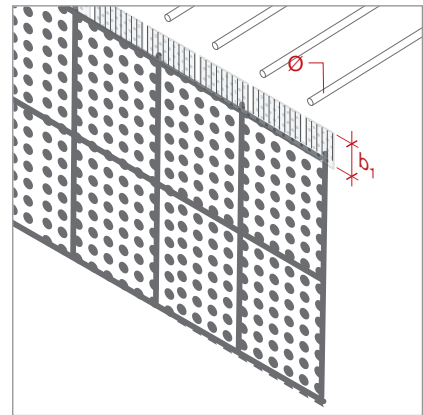
Edge formation - expanded metal overhang on both sides

As with the previous expanded metal overhang, this can also be supplied on both sides for floor slab or wall applications. The gaps between the reinforcement are closed by the on-site positioning of the reinforcement.



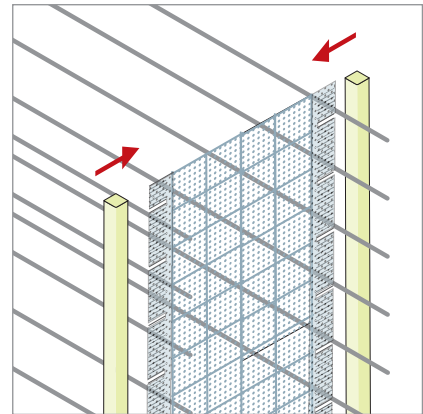
Edge detailing - Comb strip

The 17 and 30 mm grids cover all reinforcements from $\varnothing$ 10 - 50 mm. The comb strips are available in three standard heights. Laying the reinforcement layers at different reinforcement spacings is easy to implement.



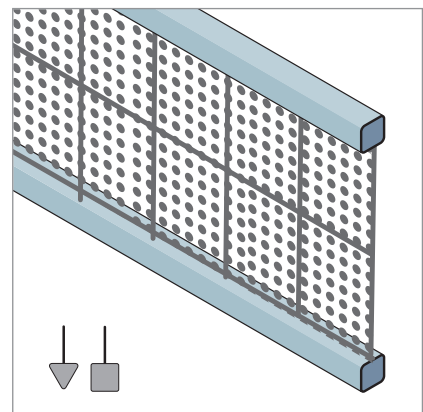
Edge formation - comb strip on both sides

As with the previous comb strip, this can also be supplied on both sides for floor slab or wall applications. The spaces between the reinforcement remain closed by the on-site positioning of the reinforcement.



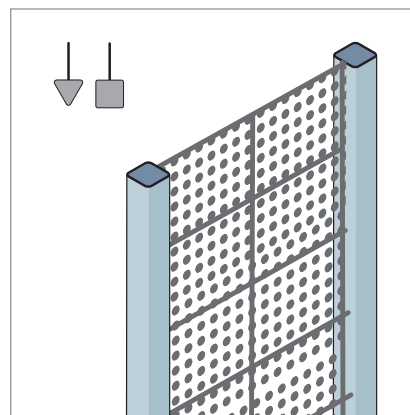
Edge formation - fibre-reinforced concrete strip slab

The pre-assembled fibre concrete bar can be ordered in various dimensions according to the required concrete cover. The fibre concrete bars are available as square bars and can be changed to a triangular bar in the visible area. When using the pre-assembled fibre concrete bar, the reinforcement is inserted through the expanded metal on site.



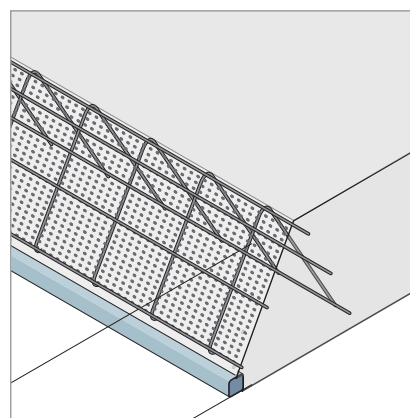
Edge formation - fibre concrete strip wall

As with the upper fibre-reinforced concrete strip, the Stremaform® elements can be designed with a strip on one or both sides. They can be installed as floor panels, ceiling panels or wall shelves.



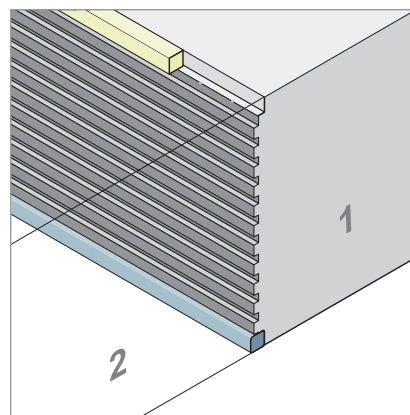
Stremaform® A-Bock, free-standing

Self-supporting, stay-in-place Stremaform® formwork is available for slabs in different heights.



Stremaboard

Stremaboard consists of a profiled, lightweight expanded metal. The material and the simple cutting to size by the customer are ideal for individual adaptation to working joints on site. The profile satisfies the requirements of Eurocode 2 so that working joints produced are to be classified as indented joints.





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Stremaform® Kickers



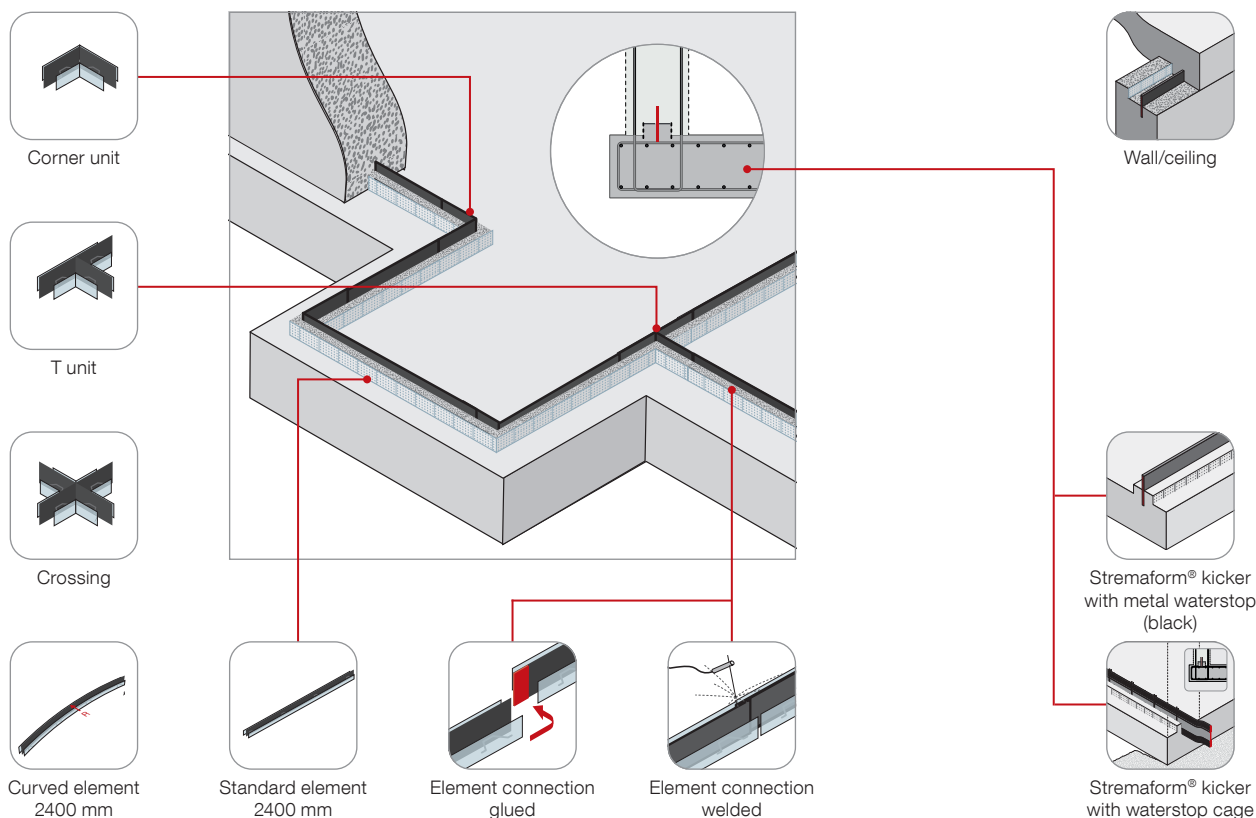
Stremaform® Kickers

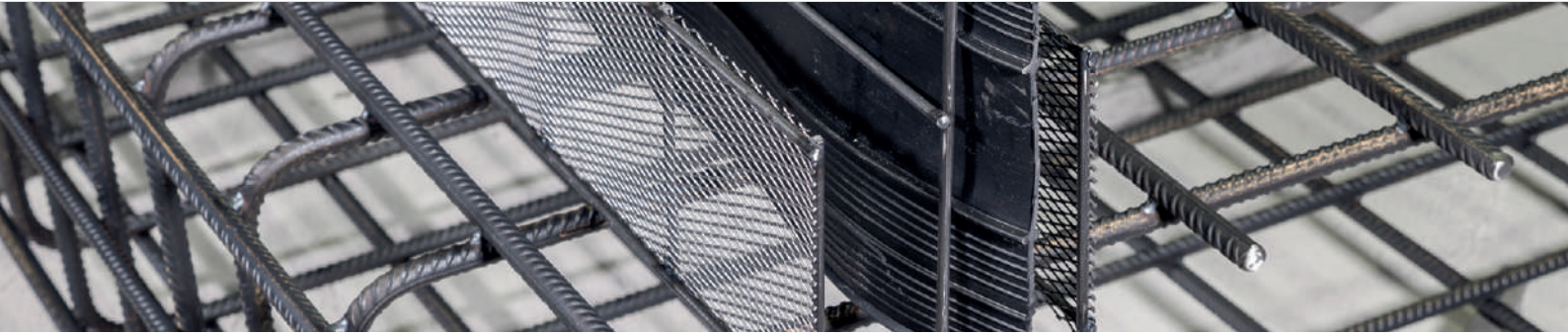
For sealing construction joints between floor slab and wall or wall and ceiling

Stremaform® kickers offer an economical and simple solution for horizontal construction joints between the panel and wall or wall and ceiling that need to be sealed. The flexible application is made possible by an integrated waterstop. Thanks to the standardized modular system with standard and connecting elements, the joint layout can be planned flexibly and installed on site. The Stremaform® kicker with integrated metal waterstop made of black steel or with integrated waterstop cage to accommodate a PVC/rubber waterstop is used, where a coated metal waterstop cannot be used due to regulations.

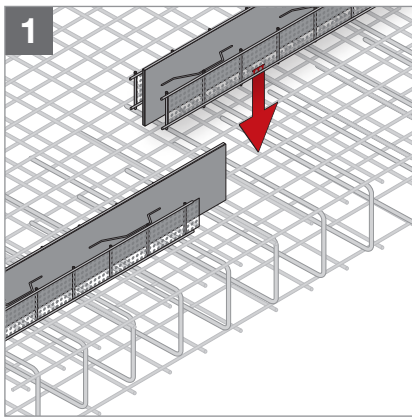
★ Advantages

- Cost-efficient and uncomplicated solution for horizontal construction joints between panel and wall and between wall and ceiling
- Versatile application thanks to integrated waterstops
- Flexible design of the joint layout is possible
- Can be installed directly on site



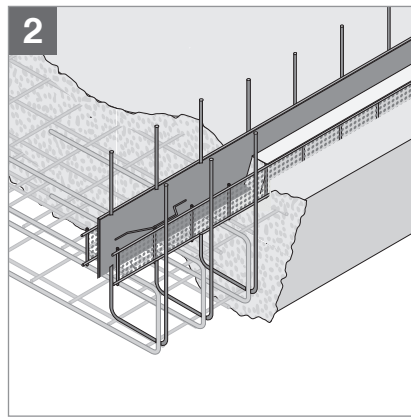


Principles of application



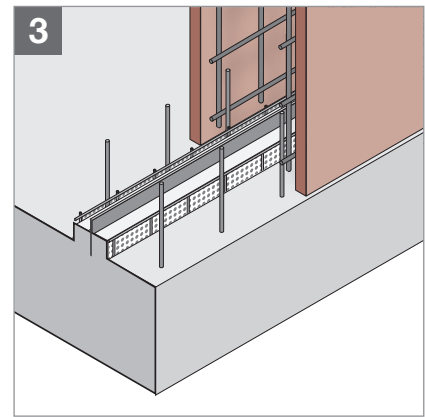
Installation of the kickers

The kicker elements are supplied in accordance with the specifications of the construction site and laid on the upper reinforcement layer of the floor slab along the construction joint. The standard length of the straight Stremaform® kicker elements is 2400 mm. These are only cut to length. The connecting elements provided, such as corner molded part, T-molded part or cross-molded part, enable any joint layout. The elements are fixed to the reinforcement of the floor slab with a wire to prevent them from shifting during concreting.



Concreting the floor slab

The concreting of the floor slab and the kicker must be carried out in a single operation. This guarantees that half of the sealing element is embedded in the concreting section of the floor slab. Care must be taken to avoid soiling in the area of the second concreting section of the wall.



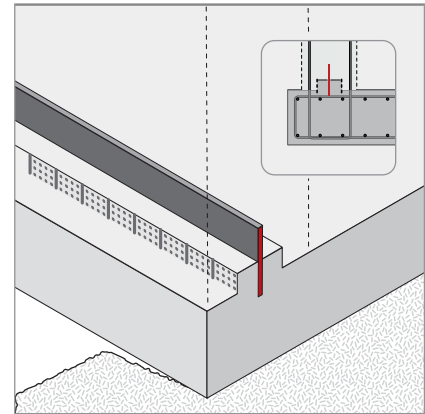
Concreting the wall

Once the formwork is in place, the wall can be concreted in the kicker area. With continuous joint sealing, this ensures reliable sealing of the construction joint between the floor slab and the wall, particularly where higher sealing requirements apply.

Technical information

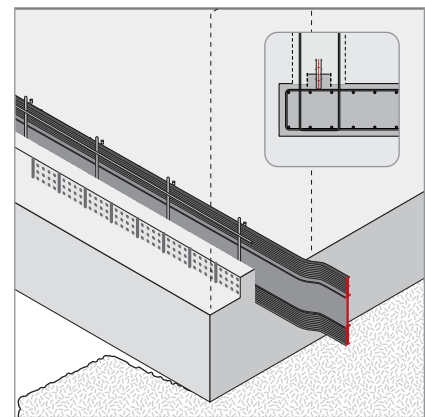
Stremaform® kicker with metal waterstop (black)

Stremaform® kickers with welded-in metal waterstops are available with either 250 mm or 300 mm wide metal waterstops. The joint between the metal waterstops in the overlap area is welded on four sides as standard. To make installation on site even more efficient, the overlap of the metal waterstop can be provided with a joint coating. The protective film of the joint coating is removed during installation and the individual elements are bonded together. The overlapping area of the metal waterstop is secured with butt clamps.



Stremaform® kicker with waterstop cage

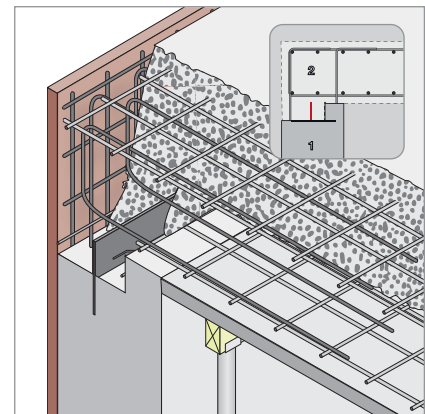
The Stremaform® kicker with waterstop carrying cage enables the installation and secure positioning of the required waterstops. The size of the waterstop cage depends on the dimensions of the required PVC/rubber waterstop. The construction is adjusted in the factory according to site requirements. The elements are laid along the course of the joint and structurally fastened to the reinforcement. The waterstop is then inserted into the waterstop cage and fixed in place.



Stremaform® kicker for walls and ceilings

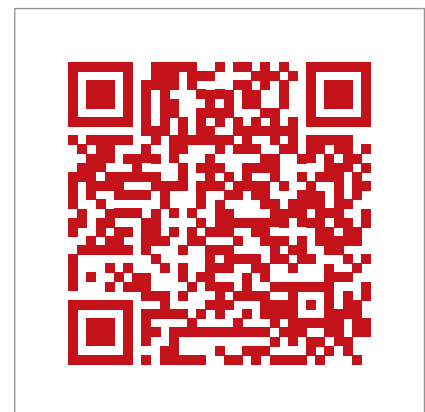
If sealing of the construction joint between the wall and ceiling is required, Stremaform® offers an efficient solution.

The Stremaform® wall/ceiling kicker is also available in two sealing versions: There is a choice of sealing with black sheet metal and the use of a waterstop cage to accommodate a PVC/rubber waterstop.



Stremaform® Kicker application video

You can see detailed and practical information on the product application of the Stremaform® kicker in the video. Simply scan the QR code and off you go.





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Project solutions



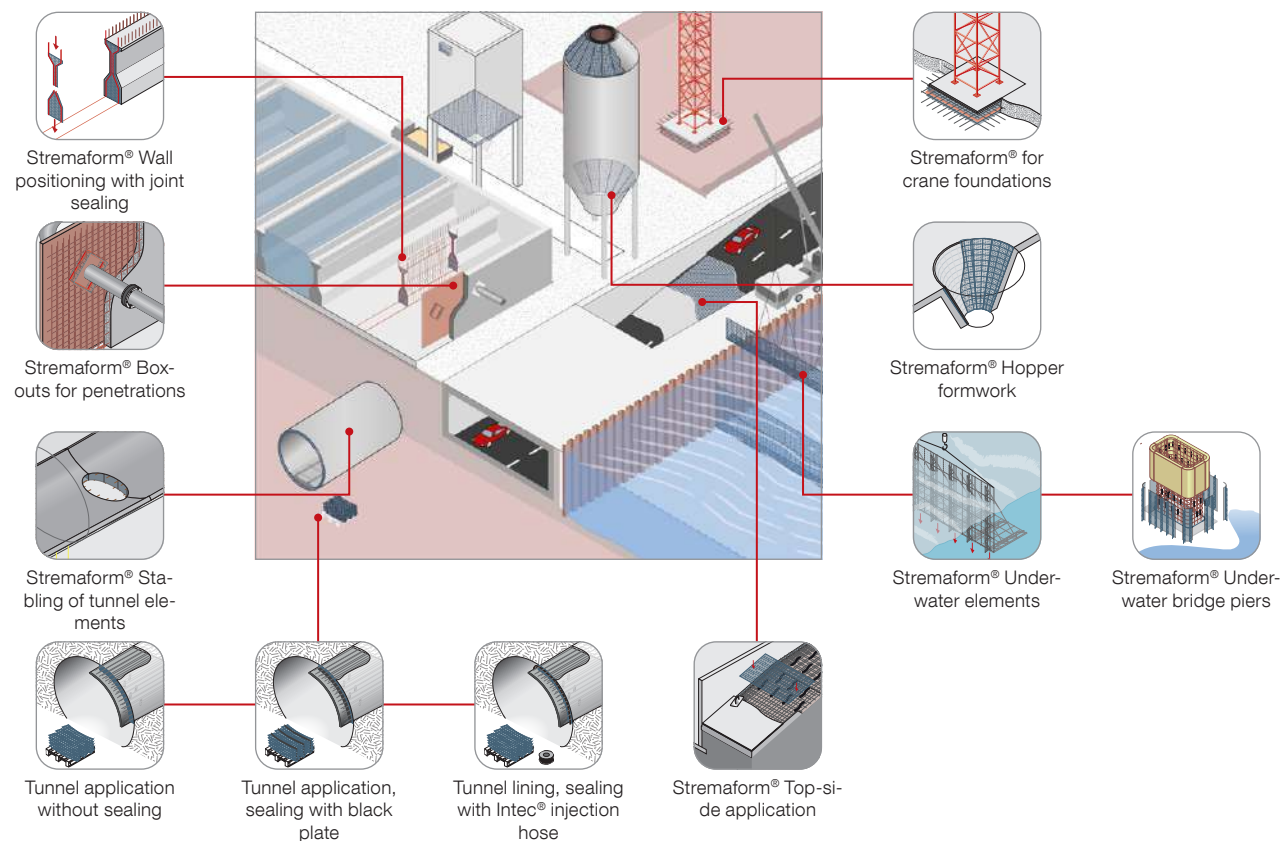
Stremaform® Project solutions

Project-specific adaptation of the construction joint setting

In addition to our tried and tested Stremaform® standard elements for joints in slabs and walls, we can also produce customized project solutions. Every construction project is unique and places different demands on the construction joint formwork. Whether it's special component geometries, top-side setting-off on inclined surfaces, the combination with integrated sealing or special three-dimensional shapes of the Stremaform® construction joint setting-off - we offer a solution.

★ Advantages

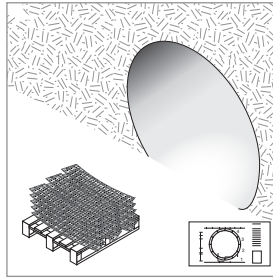
- Individual and project-specific customization options for the Stremaform® construction joint elements
- Product combination with integrated joint sealing possible
- Tailored advice and planning from our dedicated Stremaform® Technical team
- Construction site support from our technical sales department



Project solutions

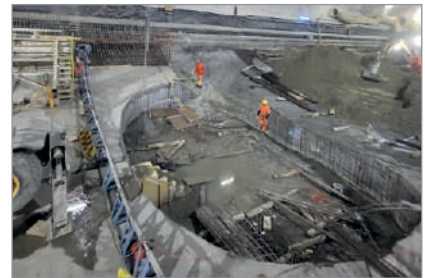
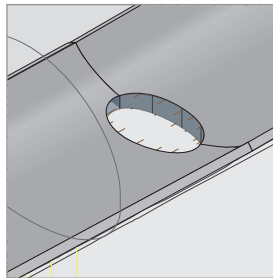
Stremaform® Tunnel elements

Stremaform® elements can also be used for tunnel tubes made of in-situ concrete. These segments can optionally be supplied with water barriers made of coated metal waterstop, black plate or a water-stop cage.



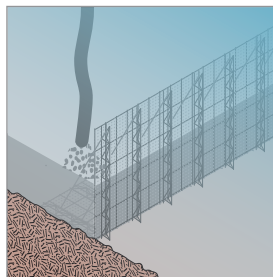
Stremaform® Stabling of tunnel elements

Once the tunnel had been bored, the base slab was concreted in several stages. Prefabricated elliptical Stremaform® elements were used to create a pumping basin within a tunnel tube.



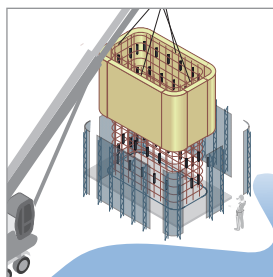
Stremaform® Underwater elements

For underwater applications with Stremaform®, the construction joint formwork is lifted to the desired position by crane and concreting is carried out underwater. If required, Stremaform® and concrete can be placed in layers in order to create high clearances.



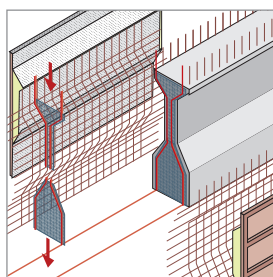
Stremaform® Underwater bridge piers

Stremaform® was used underwater for the construction of a bridge pier in Norway. The prefabricated elements were assembled on site on land, then placed on a foundation on the seabed by crane and finally concreted.



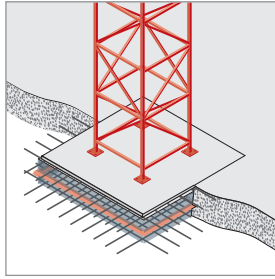
Stremaform® Wall positioning with joint sealing

Stremaform® makes installation easier for complex wall cross-sections. The elements are manufactured to fit the wall geometry and thus form the support for the outer reinforcement layers. Joint sealing, for example with the coated metal waterstop Fradiflex®, can be included if required.



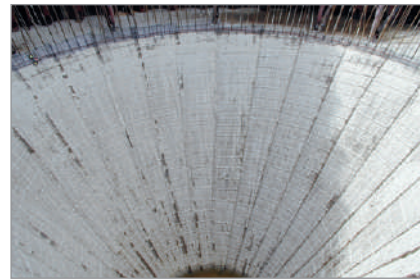
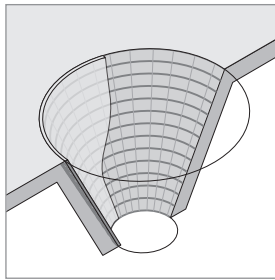
Stremaform® for crane foundations

Stremaform® is the ideal solution for integrating crane foundations into the floor slab. The elements with integrated metal waterstop ensure reliable structural waterproofing. The design of the waterproofing and the required installation dimensions can be created in accordance with the construction site specifications.



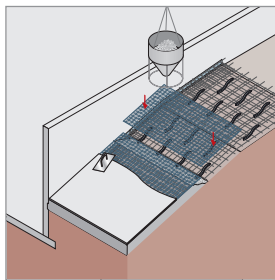
Stremaform® Hopper formwork

Our Stremaform® hopper formwork can be supplied as a complete element or in segments. The top side of the formwork is covered with concrete, after concreting, to achieve the desired surface finish.



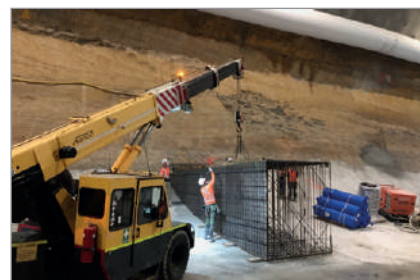
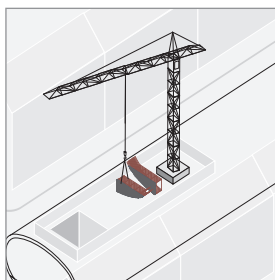
Stremaform® Top-side application

For inclined or curved surfaces, top-side construction joint supports are often required. They hold the concrete in place. A subsequent layer of concrete provides the necessary concrete cover.



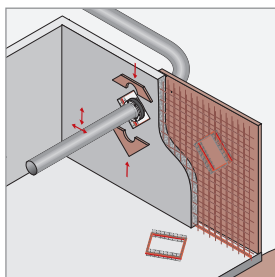
Stremaform® in prefabricated reinforcement cages

Stremaform® can also be applied to prefabricated reinforcement cages. Stremaform® is adapted exactly to the shape of the cross-section to be formed, prefabricated and stiffened according to the heights for the respective concrete pressure.



Stremaform® Box-outs for penetrations

Wall recesses made from Stremaform® enable the precise positioning of elements such as pipe penetrations after concreting and the subsequent filling of the remaining cavity. Sealing, for example with the coated metal waterstop Fradiflex®, is integrated prefabricated at the factory.





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PRODUCT PAGE

On our Stremaform® product page www.maxfrank.com/stremaform you will find general information on the areas of application, extensive image and video material, current topics and helpful product documentation.



DOWNLOADS

In the download area of the Stremaform® product page you will find documents such as ordering aids, installation instructions, tender texts and environmental declarations.



PRACTICAL VIDEOS

We have carried out various applications ourselves with the stay-in-place formwork for working joints and recorded them for you as videos. These show the product application in practice and on the construction site.



ONLINE CATALOGUE

Refer to our online catalog with practical features such as product comparison or watch list for your Stremaform® selection.



Joint Designer

The joint designer shows the range of connection joints in concrete structures according to the classification of construction joints, crack control joints, expansion joints, structural acoustic joints and settlement joints.



ing for crack
nducing joint

Indentation accor-
ding to EC2



We are here for you!

Our aim is to support you through every phase of your project - from planning through to completion.

Find your local contact at:

www.maxfrank.com/contact



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