

Stremaform[®]

Formwork elements

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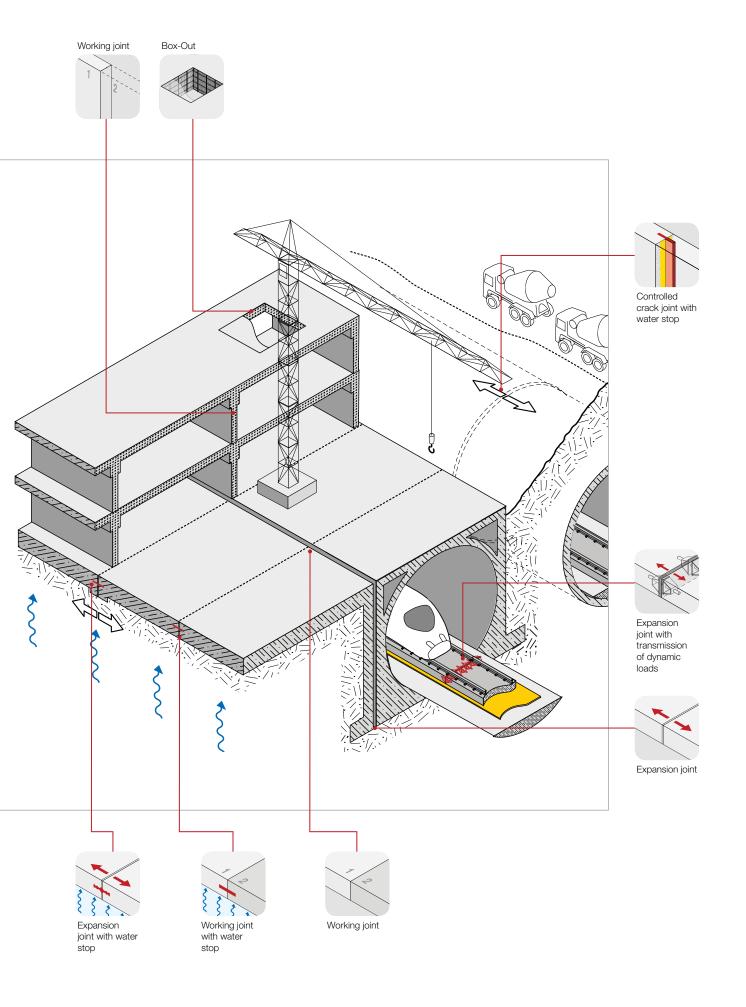




Formy	vork	elen	nents

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Working joints

Stremaform[®] formwork elements for working joints divide large structural components into concrete pours. Their positioning is planned in accordance with work flow requirements or as part of the structural design. Working joints can be sealed with water stops - such as rubber water bars or metal water stops. Transverse force dowels (Egcodubel) are used to transfer loads.



stop



Working joints with force transmission

Stremaform[®] is suited for all types of working joints.



Kicker form-

work

Stremaform®

"A-Bock" - free

standing



Box-Out

Controlled crack joint

Stremaform[®] controlled crack joints are used to produce intended cracks in working joints by deliberate weakening of the concrete cross section. The cross section is weakened by introducing a separation layer, which prevents the production of a concrete bond within one third of the concrete cross section.

Expansion joints

Expansion joints or movement joints separate structural elements made of concrete from each other. EPS or mineral wool inserts are used to form the required joint between the structural elements. Watertight expansion joints are produced by incorporating a waterstop.

Stremaform[®] elements are prefabricated in our factory, ready for installation on site. Stremaform® elements can be manufactured with or without a rubber water bar cage. The rubber water bar is installed in the cage at the construction site.

Expansion joints with force transmission

Stremaform® formwork elements for expansion joints can be fitted in our factory with dowels (Egcodubel) or with transverse force dowels (Egcodorn) for absorption of shear forces. For mass-spring-systems we use dowels which have also been approved for transmission of dynamic loads.



crack ioint

water stop



element

Controlled crack joint with

Splitboard® armoured joint

Stremaform®

Spacer



Formwork element with pvc/rubber water bar



(wall)

Sound joint



Sound joint with water bar (base slab)



Expansion joint with transverse force dowels (Egcodubel) for static loads

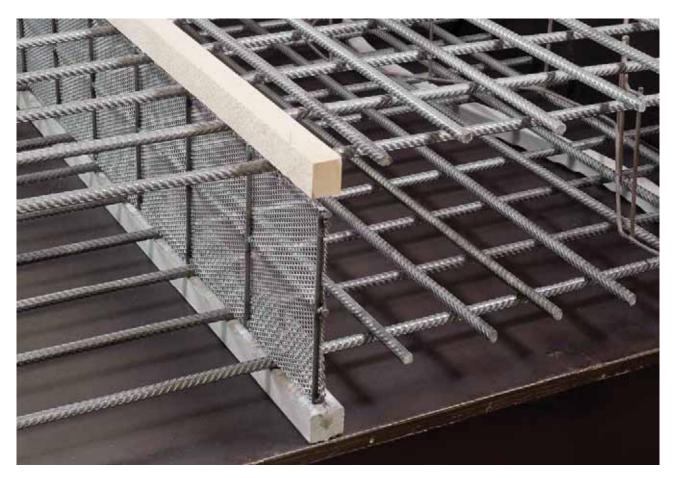


Expansion joint with transverse force dowels (Eacodorn) for static loads





Stremaform[®] formwork elements are used as lost formwork in floor slabs, ceilings and walls. The expanded metal that is welded between the bars of a specially designed reinforcing steel mesh gives rise to a rough surface The reinforcement can be continued without a break into the second concrete pour.







Stremaform[®] flat is used for medium-sized structural components, installed between the upper and lower reinforcement layers.

Stremaform[®] in the concrete gives a rough surface that satisfies the requirements of an indented joint according to DIN 1045-1 and/or Eurocode 2 and does not need scabbling.

A metal water stop or a pvc/rubber waterbar support cage can be integrated in our factory if required.

Delivery is made precisely in accordance with your layout specifications.

Stremaform[®] for self compacting concrete (SCC)

Stremaform[®] SCC flat material features a fine-mesh expanded metal with flow-resistant characteristics for use with self-compacting concrete. It can be combined with a factory-fitted integrated metal waterstop, integrated waterbar cage or factory-fitted stiffening. It is installed between the upper and lower reinforcement layers. Delivery is made precisely in accordance with your layout specifications.

Stremaform[®] Strong

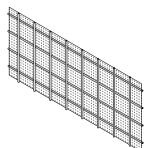
Stremaform[®] Strong with factory-fitted stiffening made of lattice beams is intended for larger structural components. Here, too, a water stop or waterbar cage can be integrated at the factory if required. Delivery is made precisely in accordance with your layout specifications.

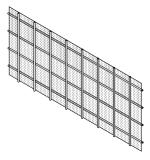
Stremaboard

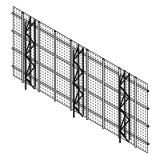
Stremaboard consists of a profi led, lightweight expanded metal: The profile satisfies requirements to DIN EN 1992-1-1, so that working joints produced with Stremaboard are classified as indented joints.

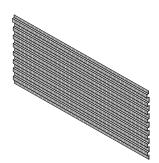
The following documents are kept available on our website for you to download:

Stremaform [®] elements in working joints version to DIN EN 1992-1-1	Experts report issued by Prof. DrIng. Harald Sipple
Users' declaration for the "Stremaform [®] system – formwork ele- ments for working joints" in walls, base slabs, permanent edging formwork DB Netz AG, Frankfurt"	DB Netz AG, Frankfurt
Stremaflex $^{\ensuremath{\mathbb{B}}}$ – General approval according to the guidelines of the construction supervising authorities	Issued by the Material Testing Institute at the Technical University of Munich





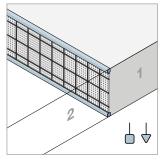






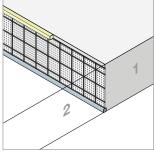


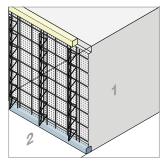
Complete formwork element for limited structural element height



Stremaform[®] formwork element with integrated spacers

Formwork Element Types

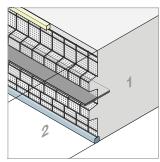




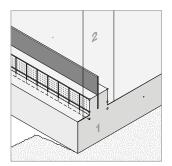
Stremaform® flat material

Stremaform® Strong

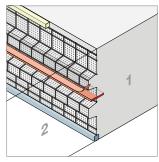
Formwork elements for working joints with water stop



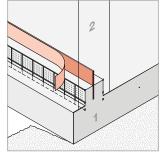
Formwork element with metal water stop



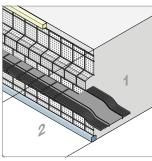
Kickers base slab/wall with metal water stop



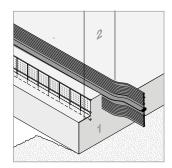
Stremaflex[®] formwork element with coated metal water stop



Kickers base slab/wall with coated metal water stop



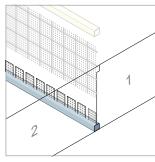
Formwork element with pvc/rubber water bar cage



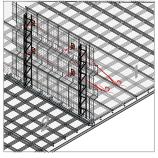
Kickers base slab/wall with pvc/rubber water bar



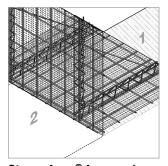
Other designs and types of assembly



Stremaform[®] Spacer with fibre concrete rail

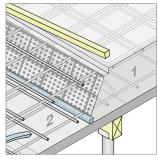


Stremafix® fixing anchor

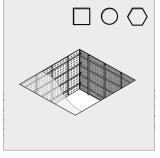


Stremaform[®] formwork element for underwater base slabs

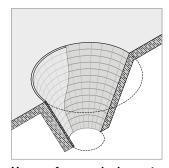
Different types of working joints



Stremaform[®] "A-Bock" free standing formwork element

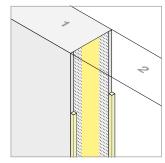


Box-Out

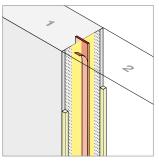


Hopper formwork elements

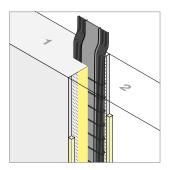
Formwork element for controlled crack joints



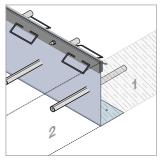
Formwork element for controlled crack joints



Formwork element for controlled crack joints with coated metal water stop



Formwork element for controlled crack joints with pvc/rubber water bar cage



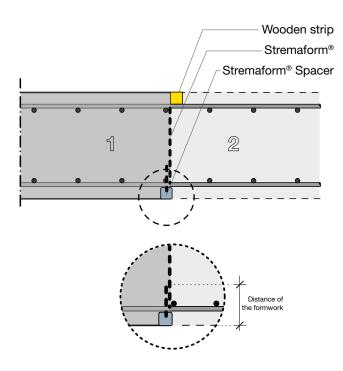
Splitboard[®] armoured joint for floor slabs



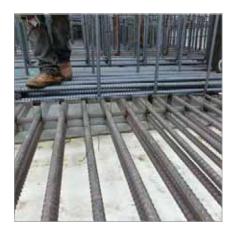
Stremaform[®] Spacer – The combined spacer

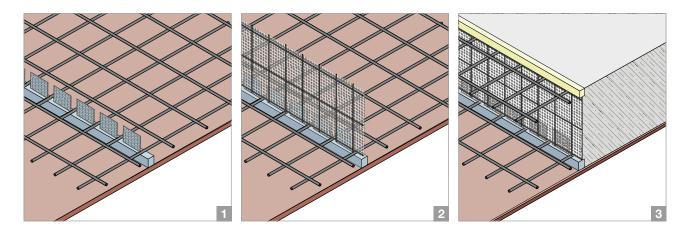
Stremaform[®] Spacers are used to maintain the concrete cover and to seal the gap beneath the bottom layer of continuous reinforcement. The Spacers thus prevent leakage of cement paste and avoid the need for laborious cleaning and reworking. During production at our factory, the correct spacer for the cover is used and the spacing and widths of the Stremaform combs are chosen to suit the reinforcement layout. The height of Stremaform combs can also be altered to suit multiple layers of reinforcement.

- Fibre reinforced concrete rails are available in square or triangular
- A large range of concrete covers are available
- Suitable for slabs with very heavy reinforcement









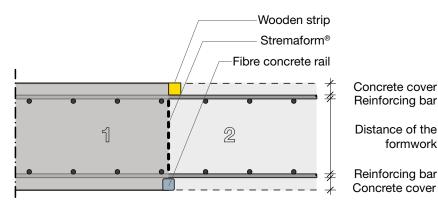
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Stremaform® Flat material

Stremaform[®] flat material is used as lost formwork for working joints in floor slabs, ceilings and walls. The expanded metal that is welded between the specially designed steel reinforcement mesh produces a rough surface that avoids the need for subsequent scabbling of the concrete surface prior to a second pour. This surface forms an indented structure with the second concrete pour so that shear forces are transmitted across the working joint just as though it were a monolithic construction (proven by tests carried out at the IBMB Brunswick).

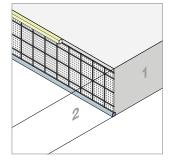
- Optimal static bonding of the joint
- Maximizing off-site prefabrication minimizes work on the construction site and guarantees fast progress of the project
- No need for formwork removal or any other finishing work



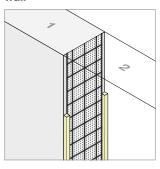




Stremaform[®] formwork element slab/ceiling



Stremaform[®] formwork element wall





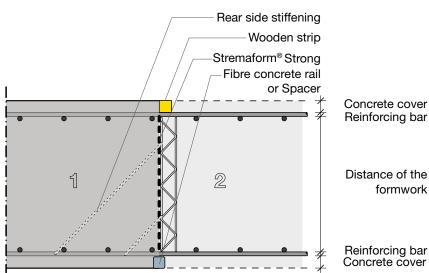
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Stremaform[®] Strong

Stremaform® Strong formwork elements are of similar construction as Stremaform® flat material but with added reinforcement girders. The size and positioning of girders can be arranged to accommodate any wall thickness or slab depth. The use of back bracing means that these formwork elements are self-supporting when installed in accordance with our Guidelines.

- Ideal for large structural components
- Rear anchoring in the first concrete pour hence no additional formwork elements are required for the second concrete pour
- Installed Stremaform[®] formwork elements remain in the concrete and reinforcement layout is unaffected

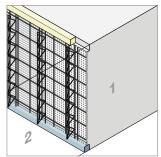




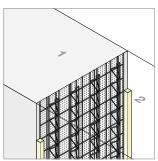


Reinforcing bar Concrete cover

Stremaform® Strong formwork element slab/ceiling



Stremaform[®] Strong formwork element wall



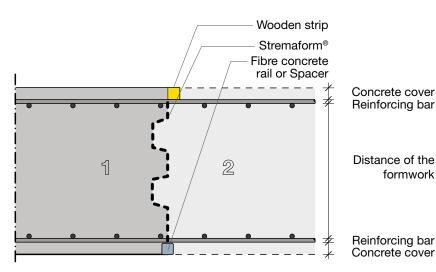


Stremaform[®] formwork element with indented joint

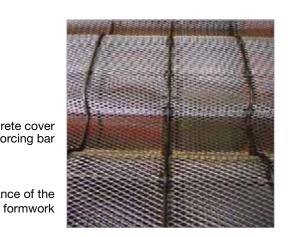
All Stremaform® formwork elements can be manufactured with one or more indented joints.

The standard indented joint meets the requirements of DIN EN 1992-1-1.

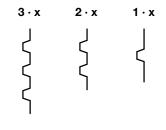
- Geometry of the indented joint can be tailored to your layout specifications
- Indented joint and factory stiffening (Stremaform[®] Strong) can be combined
- All elements can be supplied with an integrated metal water stop or rubber waterbar cage



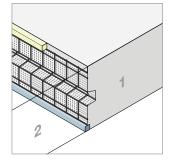




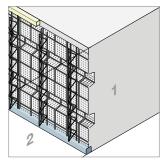
Reinforcing bar Concrete cover n·х



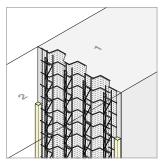
Stremaform® with indented joint floor slab/ceiling



Stremaform[®] Strong with indented joint floor slab/ceiling



Stremaform[®] Strong with indented joint wall

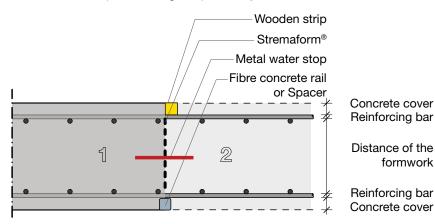




Stremaform[®] formwork element with metal waterstop

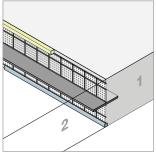
All Stremaform[®] formwork elements can be supplied with a metal water stop. The jointing plate is available in standard widths of 250 mm or 300 mm or according to your specifications.

To prevent void formation under the metal waterstop during concrete placement, the waterstop can be angled upwards by 15° on both sides.

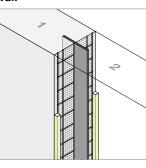








Stremaform[®] with metal water stop wall



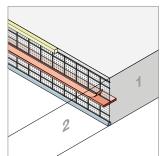
Stremaflex[®] formwork element with coated metal water stop

The Stremaflex® formwork elements already have a coated metal water stop integrated to function as a water bar.

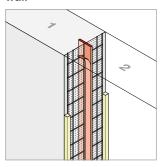
metal water stop: 1.5 mm thick, 150 mm wide

One-sided coating 2 x 50 mm or double-sided coating can be supplied on request

Stremaflex[®] with coated metal water stop slab/ceiling



Stremaflex[®] with coated metal water stop wall





Stremaflex [®] with general test certificate according to the guidelines of the construction supervising authorities – issued by MPA

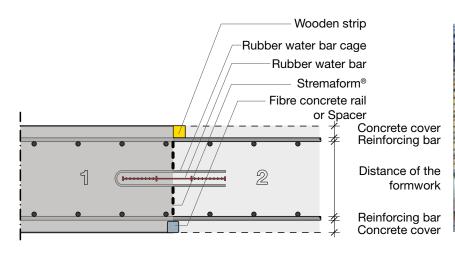


Stremaform[®] formwork element with pvc/rubber water bar cage

All Stremaform[®] formwork elements can be supplied with a rubber water bar cage for on-site installation of a rubber water bar. The rubber water bar cage is available in standard widths of 200 mm, 250 mm and 320 mm. Other dimensions are possible.

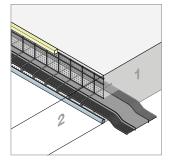
To prevent void formation, a rubber water bar cage with both sides angled upwards by 15° can be supplied.



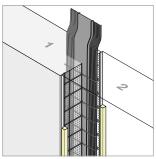




Stremaform[®] formwork element with pvc/rubber water bar cage slab/ceiling



Stremaform® formwork element with pvc/rubber water bar cage wall

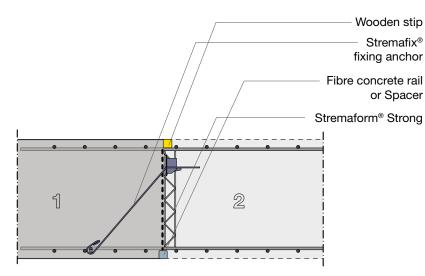




Stremafix® fixing anchor

Stremafix® fixing anchors are used to maintain the positioning of Stremaform® formwork elements in working joints when on-site welding is not feasible or prohibited. Their use ensures tensile and pressure resistant anchoring of the formwork during the installation and concreting phases. The fixing anchor consists of a loop hook with safety bolt for hanging into the lower reinforcement, a tension rebar and a spring clamp. Stremafix fixing anchors are recommended for slab widths > 1.0 metre.

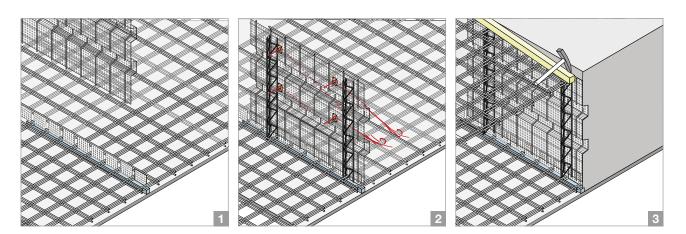
- Quick assembly due to high degree of prefabrication
- No welding is required on site for fixing the Stremaform[®] formwork element in place
- The spring clamp is reusable











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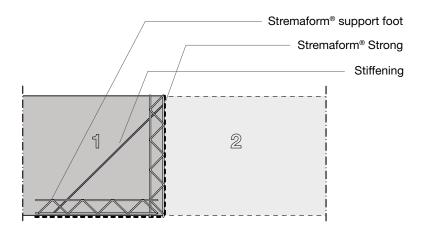


Stremaform® for underwater elements

Stremaform[®] formwork elements for underwater base slabs are factory-made formwork elements that are delivered to site unassembled. On dry land at the site, the vertical and horizontal components are erected and supported by the diagonal bracing. Components can be screwed/welded together.

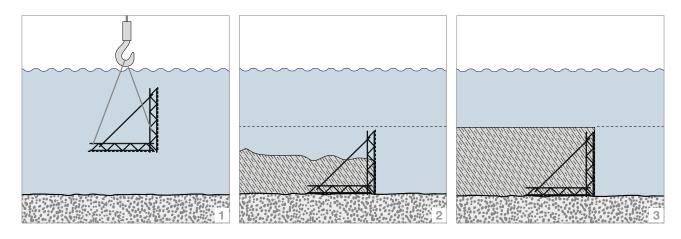
The assembled units are then lowered into the water and positioned with the units remaining dimensionally stable under water.

Concrete should commence from the rear towards the face and evenly over the horizontal part and raised evenly to prevent undue pressure on the vertical section of the element. The weight of concrete stabilises and secures the Stremaform[®] formwork element during concreting.







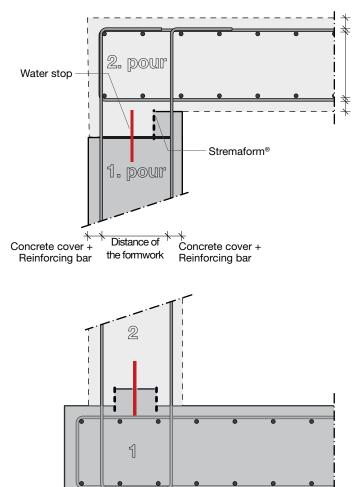




Stremaform[®] Kicker formwork

Kicker formwork between floor slab and wall, or between wall and ceiling, can optionally be manufactured with a metal water stop (with or without coating) or with a rubber water bar cage ready for on-site installation of a working rubber water bar.

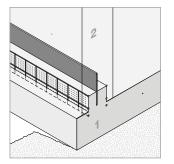
Moulded elements such as cross pieces, T-pieces and angled elements as well as pre-curved elements are available and facilitate installation at the construction site.



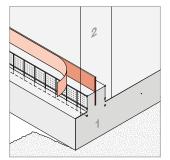




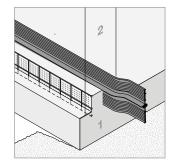
Stremaform[®] kicker formwork with metal water stop



Stremaflex[®] kicker formwork with coated metal water stop



Stremaform[®] formwork element with pvc/rubber water bar cage

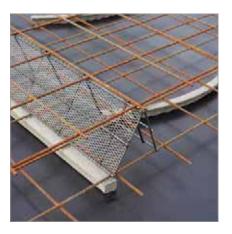


Stremaform[®] "A-Bock" – free standing formwork elements

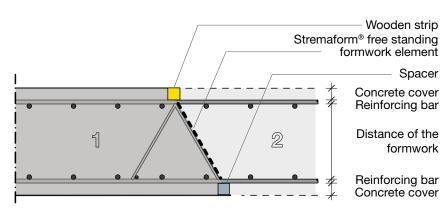
The free-standing formwork elements are positioned on top of the lower reinforcement layer. The construction also serves as a support frame between the lower and upper reinforcement. Monolithic bonding of the slab is guaranteed.

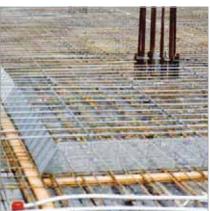
The free-standing elements for floor slabs and ceilings are available in various heights from an installation dimension of 80 mm.

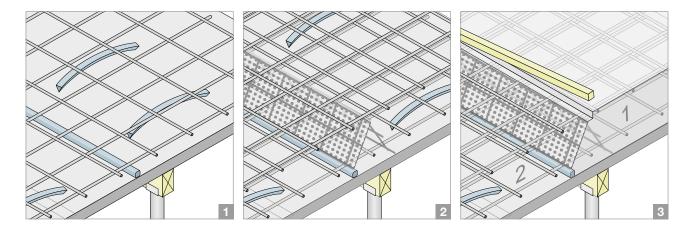
- Economically priced formwork elements with quick installation, offer all benefits of Stremaform[®]
- Easy installation of upper reinforcement by simple positioning



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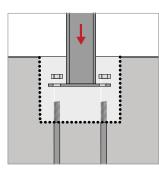


ΙΔΧ ΕΡΔΝ

Stremaform® formwork elements are used to form box-outs in foundations that are used as a recess for subsequent production of supports and columns. After completion of the foundation slab or individual foundations, steel or reinforced concrete columns can be positioned exactly according to the layout.

The internal surface of the box-out produced by Stremaform® formwork elements is perfectly indented. Between the column and base slab there is a positive connection after pouring of the infill concrete.



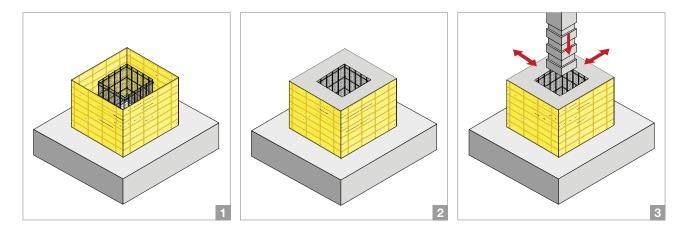


Stremaform® Foundation box-outs

Using a Pecafil® external formwork in combination with Stremaform® internal formwork, individual column foundations can be easily and economically produced.

Pecafil® formwork elements can be reused for several identical foundations. They can be easily moved to a new position manually without the need for lifting equipment.





Working joints

Stremaform[®] formwork elements

Stremaform[®] formwork elements for box-outs are used for wall or slab openings. These openings for e.g. large diameter pipe leadthroughs, are subsequently filled with concrete. Stremaform[®] formwork elements for recesses are available in various designs and sizes. Many options are available, such as elements with stiffening, concrete cover rails, chutes, with seals and wooden covers used as drop or fall arrest protection.



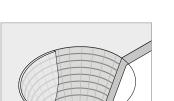
Stremaform[®] formwork element

 $\Box \cap \cap$

Hopper formwork elements are used to produce conical concrete structures (e.g. for wastewater treatment plants or silos) where they form the upper formwork. The surface is subsequently covered with a screed to the required concrete cover. Fixing at the bottom via anchors / lift protectors prevents the risk of flotation.

Stremaform[®] hopper formwork elements can also be supplied complete with factory-made bracing.

Stremaform[®] hopper formwork









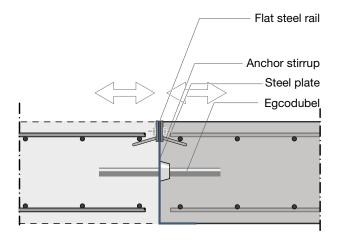






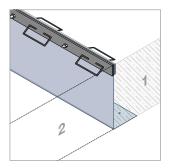
Splitboard[®] is a armoured separation joint element for industrial floors and roadway slabs made of concrete.

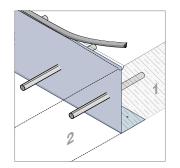
Splitboard[®] is an armoured separation joint element for industrial floors and roadway slabs made of concrete. It is used as formwork element and also provides edge protection of the adjacent structural elements. Several types of separation joint elements are available, which are produced precisely according to your requirements.

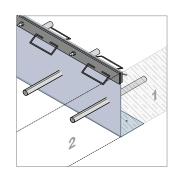












Splitboard[®] separation joint element can be supplied with:

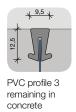
- PVC profile removable for later pours
- PVC-profile remains in the concrete
- Edge protecting profiles
- Egcodubel dowles for shear force transmission



PVC profile 1 removable







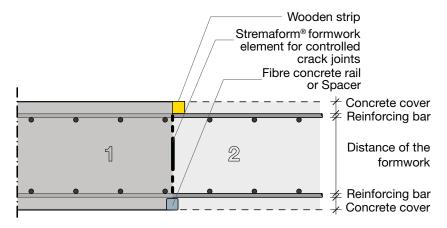


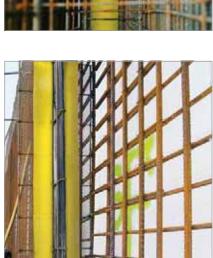
Stremaform[®] formwork elements for controlled crack joints

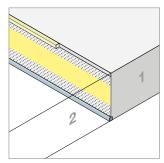
Stremaform[®] formwork elements for controlled crack joints prevent a connection between concreted sections over at least 1/3 of the structural element thickness, in order to produce a controlled crack.

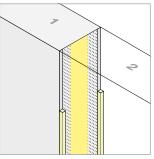
Depending upon their individual design, Stremaform[®] elements for controlled crack joints can be used to produce intended cracks

- for formwork
- for monolithic concrete structures

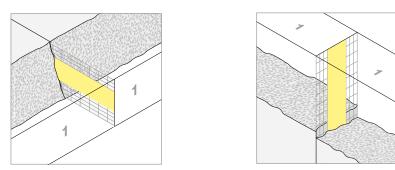








Stremaform® controlled crack joint element for formwork



Stremaform® controlled crack joint element for continuous concreting

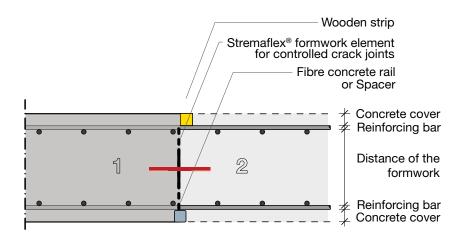


Stremaflex[®] formwork elements for controlled crack joints with with coated metal water stop

with a width of one third of the component cross section.

Stremaform[®] formwork elements for controlled crack joints prevent a connection between concreted sections over at least 1/3 of the structural element thickness, in order to produce a controlled crack. Weakening of the cross section is achieved by integrating a separation layer



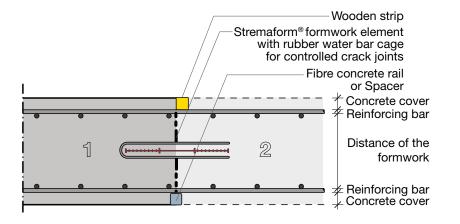


Stremaform[®] formwork elements for controlled crack joints with pvc/rubber water bar cage

The rubber water bar cage is intended for on-site installation of a working rubber water bar. It is available in widths of 200 mm, 250 mm and 320 mm or can be manufactured to your specifications.

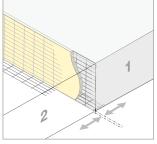
An integrated separation layer with a width of one third of the component cross section provides weakening of the cross section.

A water bar cage that is angled upwards by 15° on both sides can be chosen for void-free concreting.

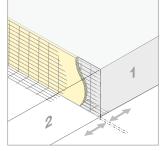




Formwork elements for expansion joints



Stremaform[®] expansion joint with polysterene

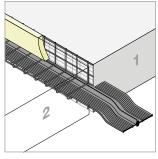


Stremaform[®] expansion joint with mineral wool (fire protection)

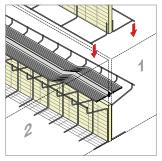


Stremaform[®] sound joint

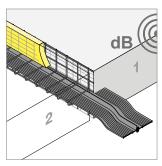
Formwork elements for expansion joints with water stop



Stremaform[®] expansion joint with one-sided rubber water bar cage

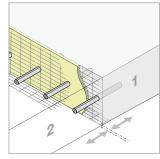


Stremaform[®] expansion joint with two part rubber water bar cage

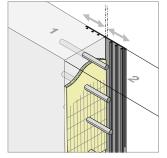


Stremaform[®] sound joint with rubber water bar cage

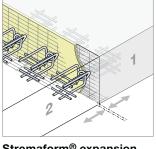
Formwork element for expansion joints with transverse force transmission



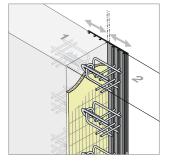
Stremaform[®] expansion joint with transverse force dowels (Egcodubel)



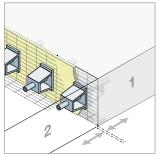
Stremaform[®] expansion joint with transverse force dowel (Egcodubel) and rubber water bar



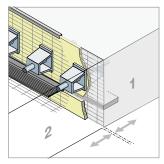
Stremaform[®] expansion joint with transverse force dowels (Egcodorn WN/WQ)



Stremaform[®] formwork element with transverse force dowel (Egcodorn WN/WQ) and rubber water bar



Stremaform[®] expansion joint with transverse force dowel for dynamic loads (Egcodorn DND)



Stremaform[®] expansion joint with transverse force dowel for dynamic loads (Egcodorn DND) and rubber water bar

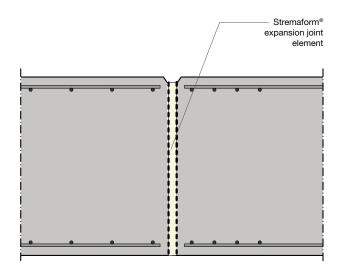




Stremaform[®] formwork elements for expansion joints

Stremaform[®] formwork elements can also be used for separation of structural elements for expansion joints. These elements consist of a filler material sandwiched between a metal support structure. The filler material used for the expansion joint can be polystyrene or heat resistant mineral wool. Stremaform[®] formwork elements remain as part of the finished structure and there is no need for formwork stripping.







Select the expansion joint insert according to your needs:

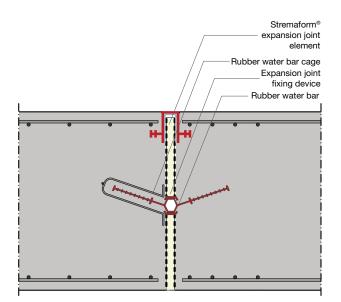
Styrodur	Mineral fibre	Galvanised / stainless steel
0	for high fire protection requirements (heat resistant to 1000 °C)	for high requirements with regard to corrosion protection

All expansion joints listed on the following pages are available in these designs.



Stremaform[®] formwork elements with rubber water bar cage for expansion joints

Stremaform[®] formwork elements can be fitted with a rubber water bar cage for subsequent installation of a rubber water bar at the construction site. The integrated Stremaform[®] fixing devices ensure that the central bulb of the rubber water bar is maintained centrally in the joint before and after the concrete pour.



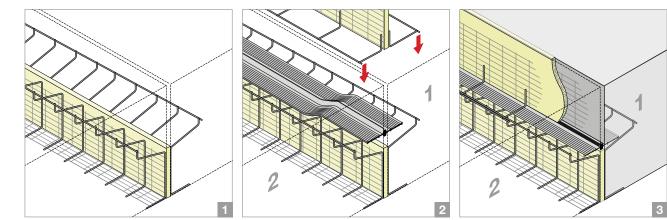




Stremaform[®] formwork element with two part rubber water bar cage for expansion joints

For ease of installation of the rubber water bar, we recommend the use of formwork elements with 2 part rubber water bar cages. After installing the lower part the rubber water bar is simply unrolled and then the upper part is installed.







Stremaform[®] formwork elements with integrated transverse force dowels for expansion joints

All Stremaform[®] formwork elements for expansion joints can be supplied with integrated transverse force dowels (Egcodubel or Egcodorn). Transverse force dowels (Egcodorn and Egcodubel) permit movement in both directions in the plane of the slab.

The use of transverse force dowels (Egcodubel) is restricted to ancillary components such as industrial floors or structural connections. The transmittable loads are lower than for transverse force dowels (Egcodorn).

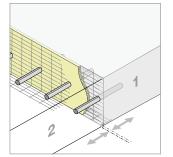
Thanks to their anchor bodies, transverse force dowels (Egcodorn) are able to transmit very high loads, even with minimal component thicknesses. The transverse force dowels (Egcodorn) are integrated into the working joint elements at the factory, thus minimising the assembly time and demands on the workforce at the construction site.

Rubber water bar cages for sealing the joints can be integrated into the formwork elements.

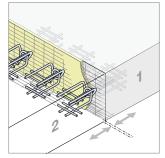




Stremaform[®] formwork elements for expansion joints with transverse force dowels (Egcodubel)



Stremaform[®] formwork elements for expansion joints with transverse force dowels (Egcodorn WN/WQ)

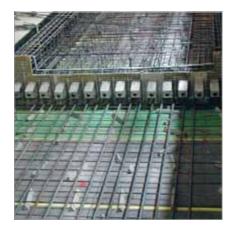




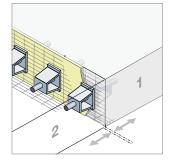
Stremaform[®] formwork element with integrated dynamic transverse force dowels for expansion joints

Mass-spring systems are used to prevent the transfer of vibrations and for railways this means resting concrete bases on a resilient material. This creates strains and at expansion joints it is necessary to transfer dynamic forces across the joint. These dynamic forces can be transferred via the use of special dynamic transverse force dowels (Egcodorn type DND). To speed up work cycles at the construction site we manufacture and deliver prefabricated units consisting of the Egcodorn dowels integrated into Stremaform[®] formwork element for expansion joints. These units are simply dropped into position and tied into the main reinforcement. This type of construction ensures fast and accurate placement of the dowels and expansion joint material and ensures uninterrupted work progress, thus speeding up completion of concrete structures, i.e. a major benefit especially for tunnel construction.

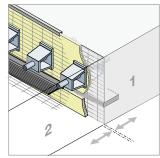




Stremaform[®] formwork elements for expansion joints with transverse force dowels (Egcodorn DND)



Stremaform® formwork elements for expansion joints with transverse force dowels (Egcodorn DND) and pvc/rubber water bar





Stremaform[®] sound joint for acoustic separation between concrete components

Stremaform[®] sound joints create an acoustic separation between concrete components. The pre-assembled acoustic isolation element is installed between the individual units in semi-detached and terraced houses.

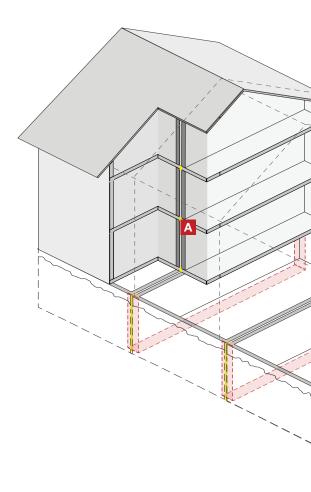
As these elements remain in place, subsequent stripping work is avoided and reinforcement erection can be continued without regard for the concreting work. Stremaform[®] sound joints can be supplied as either simple formwork elements for concrete components or with an integrated waterbar cage for areas of potential water ingress (waterproof areas). Supply of the waterbar is the responsibility of the customer.

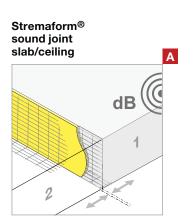
A sound-absorbing mineral fibre material of varying thickness to suit all joint widths is used in the Stremaform[®] sound joint.

Benefits:

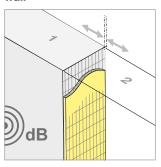
- Prevents transmission of sound from neighbouring apartments
- One-piece construction for simple and rapid assembly
- Ready-to-install element tailored to the requirements specific to the construction site







Stremaform[®] sound joint wall



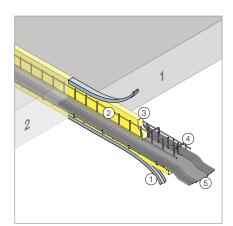


The Stremaform[®] sound insulation joint with rubber water bar cage is fabricated with an installation structure for rubber water bars to be fitted on site. Taken into account here are not only acoustic insulation but also the requirements on the site with regard to the guideline for watertight structures. The elements are additionally fitted with a rubber water bar cage for this application. The rubber water bar is installed at the construction site. These formwork components are used in floor slabs, walls and element walls. The Stremaform[®] sound insulation joint with rubber water bar cage is supplied as a onepiece construction component, thus ensuring simple and rapid installation at the construction site.

Requirements specific to the construction site are also taken into account in the fabrication of the relevant elements:

- Component dimensions
- Position of the rubber water bar
- Continuation of the rubber water bar into adjoining concrete pours
- Custom solutions

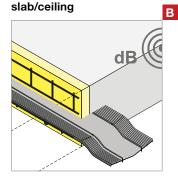
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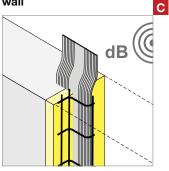
AY EDAI

- 1 Transport protection
- ② Support mat
- ③ Joint insert made of mineral fibre
- ④ Waterbar cage
- ⁽⁵⁾ Waterbar (to be provided by the customer)

Stremaform[®] sound joint with pvc/rubber water bar



Stremaform® sound joint with pvc/rubber water bar wall





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