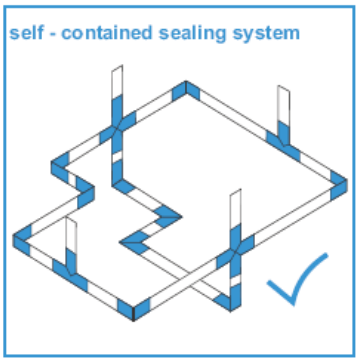
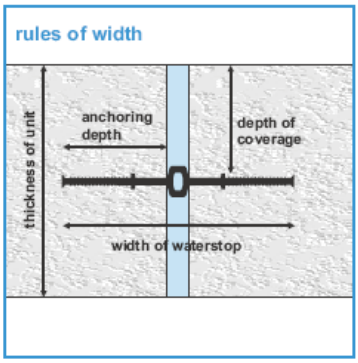
# General application instructions




## Basic principles of planning

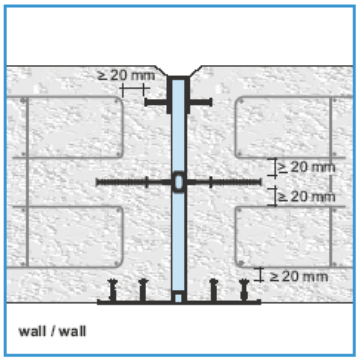
Waterstops have to result in a self - contained sealing system inside of watertight concrete structures. Crossover of joints among each other as well as crossover with angles and grooves of concrete structure should be preferably perpendicular.




The thickness of units in the area of the waterstop should be in accordance with the width of the waterstop. For 320 mm wide thermoplastic waterstops (type A, AA, D and AD) a thickness of unit about 300 mm is enough. **For construction joints exceptions such as special coated steel plate waterstop are allowed.**

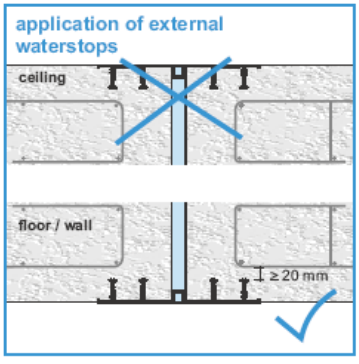
The choice of waterstops should happen against operational demands (movement, distribution pressure, compatibility against medium etc.)

In case of turnarounds vertical to longitudinal axis of waterstops (floor / wall), they can be installed with a radius under adherence of allowable bending radii according to DIN 18197.




The allover depth of coverage with concrete between waterstop and reinforcement have to be minimum 20 mm all side.

**For horizontal and low inclined units like floor levels and ceilings, internal waterstops with vee upward - looking side blades with an angle of approx. 10° have to be installed, to enable an embedding of the blades of the waterstop without cavities.**




External waterstops mustn´t concreted on the upside of horizontal and low inclined units.

Under construction or using, the expectant deformation of the joint width didn´t have to amount more than 10 mm.

To protect the joint from pollution, for earth side external waterstops and downstream waterstops for capping joints should be used.

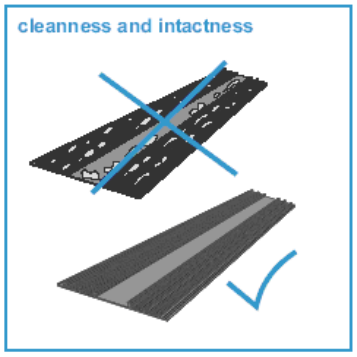
# General application instructions


## Storage

The delivered waterstop has to discharged with consideration and to be tested for completeness and intactness immediately.

Up to the date of installation waterstops have to be stored on wooden pallets or other rigid boards on a sheltered position and to be protected against pollution and damage.

Thermoplastic waterstops should be stored preferably in a stack and should be stored in hot rooms at least one day before processing.

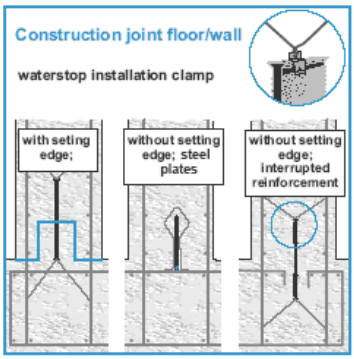



## Installation and fastening

Thermoplastic waterstops may only be installed if they didn´t show any deformations or damaging, which could alloy their function.

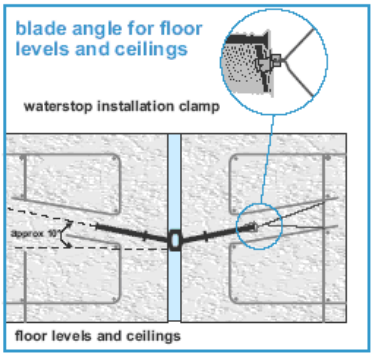
Waterstops have to be exempt from pollution and ice - formation during concreting.

Waterstops have to installed free of creases and warping. Deformations caused by storage or during shipment at waterstops consisting of thermoplastic materials have to remedy by stretch forming or heat treatment.




Waterstops have to be installed symmetrically to the axis of joints and fastened so that their position cannot be displaced during concreting.

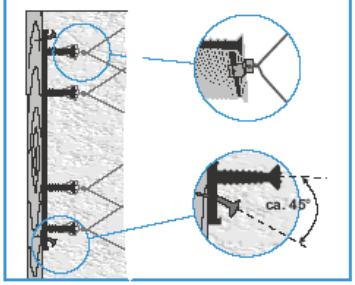
Internal construction joint waterstops in the area floor / wall can be installed with or without setting edge. In case of installation without setting edge, the upper reinforcement have to be interrupted. **By using coated steel plate waterstop (for cold joint only!) setting edge and interruption of reinforcement is not necessary.**




Internal waterstops have to be anchored at reinforcement. The fastening of waterstops (at least every 25 cm) take place at margin anchoring ribs with waterstop installation clamps. To prevent cavities, internal waterstops inside of floor levels and ceilings have to be installed with vee upward - looking side blades with an angle of approx. 10°.

# General application instructions

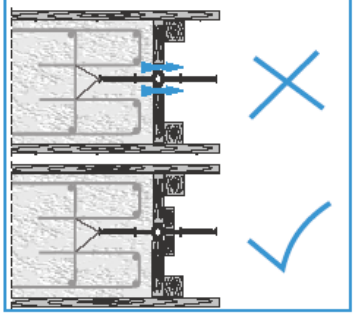
fastening of external waterstops




External waterstops for walls have to be fastened in margin area with nails at the formwork. The anchoring ribs have to be fixed at the reinforcement, holding steady in position by using waterstop installation clamps. In case of horizontal installation, external waterstops have to be fixed on the sub - grade course.

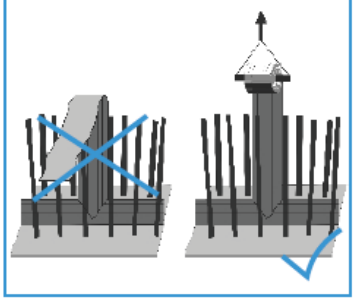
The distance between two join patches should be bigger than 0,50 m. In case of turnarounds or crossings of joints, factory - made intersection pieces or systems in accordance to the run of joints should be used.

leak proof bulkhead formwork



During setting up the falsework for the waterstop it has to pay special attention on the leak tightness and steady holding in position of the bulkhead formwork. The stop end of formwork have to attach close to the waterstop.

safekeeping of waterstops



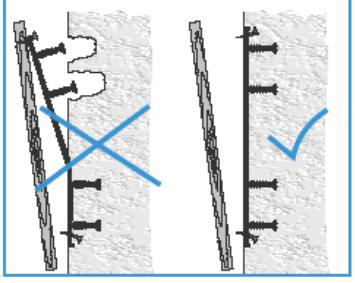
- **Concreting**

Before concreting waterstops have to be cleaned up from pollution. Waterstops have to be setted in concrete complete embedded and without cavities. Only then the sealing function can be taken for granted.

The waterstops have to be protected against damage e.g. by free ends of reinforcement or following workings up to the date of complete setting in concrete.

During compression of the unset concrete the waterstop and it´s fastening mustn´t be touched with the internal compacter. In case of external waterstops possibly external compactors have to be used.

stripping the formwork



- **Stripping the forms**

For external waterstops during stripping the forms, it has to pay special attention that the waterstop won`t be untightened. Maybe the time limit of stripping the forms has to be extended.

After stripping the formwork, the visible areas of waterstops have to be researched for damages. Noticed failings have to remedy immediately.

The application of waterstops on building site as well as their processing and installation have to be controlled and documented.

**As a basic principle the DIN V 18197 is valid for planning, dimensioning, conditioning, processing and installation of waterstops.**

# General indications

**Inforamtion applications**

All details contained in this brochure are product descriptions. They are general recommendations based on extensive research and practical experience but do not consider the actual application work. No indemnities may be claimed from the given information.

If necessary, please contact our technical department for more information. If required for specific applications, additional tests can be conducted in our laboratory as supplement to the standard tests and the normal material compatibility information.

**Technical changes**

We reserve the right to alter either the form of the profiles or the material properties in case of new technical developments.

**Recommendations for use technical indications**

These general information and recommendations have to be considered.

**Measurements Tolerances**

All dimensions are quoted in mm. Differences in the dimensions are in accordance to DIN 16941,table 3A + 3B.
For waterstops according to DIN 18541, the quoted dimensions are minimum sizes.

**Expansion joint**

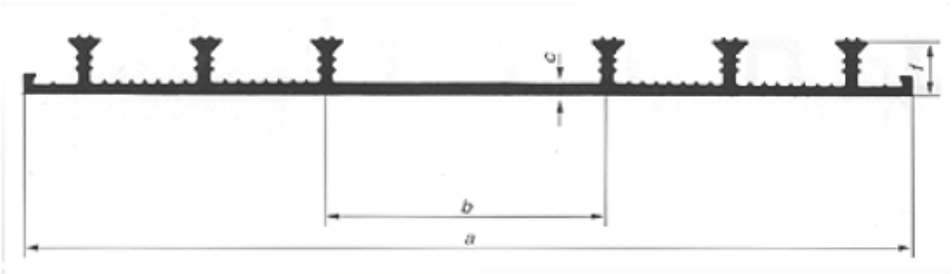
**normal use: PVC waterstop (internal and external)**

**Cold joint**

**normal use:** Bentonite waterstop tapes, coated steel plate waterstops,

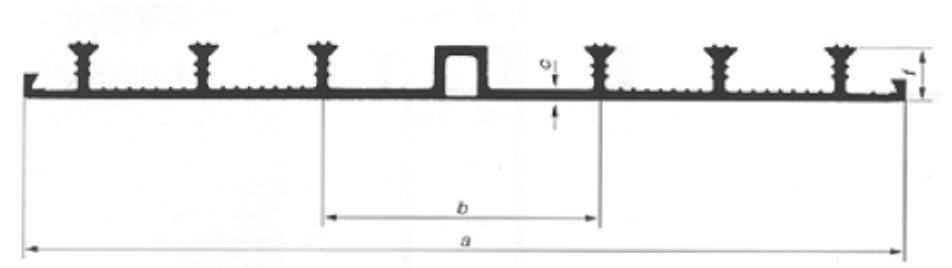
injection hose systems and sealing tapes. These above mentioned systems can be a real alternate solution to the traditional PVC waterstops.

## AA PVC-P / External waterstop for cold joint




| Typ | Breite / **width** | | Dicke / **thickness** | Sperranker / **anchor** | |
|---|---|---|---|---|---|
| | Gesamtbreite | Breite des Dehnteils | Dicke des Dehnteils | Höhe | Anzahl Gesamt |
| | **a** | **b** | **c** | **f** | N |
| AA 19 | 190 | 66 | 4 | 15 | 4 |
| AA 24 | 240 | 90 | 4 | 20 | 4 |
| AAS 24 | 240 | 90 | 4 | 24 | 4 |
| AA 24/3/4 | 250 | 115 | 5 | 35 | 4 |
| AA 32 | 330 | 105 | 4 | 20 | 6 |
| AAS 32 | 330 | 105 | 4 | 25 | 6 |

## AD PVC-P External waterstop for expansion joint




| Typ | Breite / **width** | | Dicke / **thickness** | Sperranker / **anchor** | |
|---|---|---|---|---|---|
| | Gesamtbreite | Breite des Dehnteils | Dicke des Dehnteils | Höhe | Anzahl Gesamt |
| | **a** | **b** | **c** | **f** | N |
| AD 19 | 190 | 92 | 4 | 17 | 4 |
| AD 24 | 240 | 90 | 4 | 20 | 4 |
| ADS 24 | 240 | 90 | 4 | 24 | 4 |
| AD 24/3/4 | 250 | 115 | 5 | 35 | 4 |
| AD 32 | 330 | 105 | 4 | 20 | 6 |
| ADS 32 | 330 | 105 | 4 | 25 | 6 |
| AD 32/3/6 | 330 | 105 | 5 | 35 | 6 |

AA 32

AA 32

AD 32
The external waterstop shall be cleaned before concreting the next section.

90 degree corner
This solution is **not** the **correct** one!
External expansion waterstop AD 32

90 degree corner
This solution is the **correct** one!
External expansion waterstop AD 24