

Product Data Sheet
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Sika Waterbar® – PVC-P

Sika® Waterbar PVC-P

According German Standard DIN 18541 part 1

Standard range of PVC-P based flexible waterstops for movement (expansion) and construction joint sealing

Construction

Product Description

Sika Waterbar® made from PVC-P can be used as flexible waterstops and are designed for the sealing of movement (expansion) and construction joints in new watertight concrete structures.

Sika Waterbar® are available in a range of different types, shapes and sizes to suit different types of structures and joint sealing applications.

Uses

Watertight joint sealing in new concrete structures, including solutions for both movement (expansion) and construction joints.

Typical structures include:

- Residential building basements
- Commercial building basements
- Underground car parks
- Water retaining structures and water treatment plants

Characteristics / Advantages

- High tensile strength and elongation
- Permanent flexibility
- Suitable for low to medium levels of hydrostatic water pressure
- Resistant to all natural mediums in soil and groundwater
- Resistant to a broad spectrum of chemicals
- Robust products designed for handling and installation on site
- Suitable for thermal welding in shop and on site

Sustainability

- Free from DOP plasticizer
- Free from lead

Tests

Standards / Directives

German Standard DIN 18541 part 1
German Standard DIN 18197
German WU Directive DAfStb.

Test Certificate / Approvals

Manufacturer's test certificate (mechanical/physical properties)



Product Data

Form

Chemical Base Thermoplastic Plasticized Polyvinyl Chloride (PVC-P)

Colours Yellow

Packaging Standard rolls of 15 and 30 m length packed on Euro or disposable pallets
Factory produced, pre-fabricated Sika Waterbar[®] water-stopping systems are supplied in coils, on Euro or disposable pallets dependent on their size

Service Temperature The service temperature of Sika Waterbar[®] PVC-P is:

for pressurised water: -20°C to +40°C,
for non-pressurised water: -20°C to +60°C.

Storage

Storage Conditions / Shelf-Life Up to 60 months from date of production if stored in enclosed areas on the pallets as supplied and on a sound, flat base and at temperatures not exceeding +30°C.
The storage area must be covered, cool, dry, free from dust and moderately ventilated. Sika Waterbar[®] PVC-P must be protected from heat and UV light.

Short-term storage < 6 months

On construction sites, outdoors:

- In dry conditions, protected from UV light, snow and ice, and any kind of contamination or mechanical damage
 - Store separately from any potentially harmful or damaging materials, plant or equipment such as structural steel, steel reinforcement, fuel or vehicles, etc.
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Mechanical / Physical Properties

Shore-A Hardness	75 ± 5	DIN 53505
Tensile Strength	≥ 12 MPa	EN ISO 527-2
Elongation at Break	≥ 320%	EN ISO 527-2
Tear Propagation Resistance	≥ 12 N/mm	ISO34-1

Resistance

Reaction in Fire
EN 13501-1

Class E

EN ISO 11925-2

EN 13501-1

Movement Capability and Water Pressure

The limits of water pressure and stress given in the tables below apply to standard uses without any specific additional testing being required. Different values may apply under different circumstances.

Types

For expansion joints

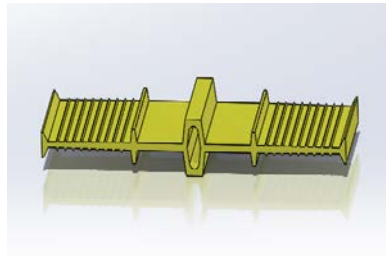
Type	Sika Waterbar® for expansion joints	Total width a	Width of movement part b	Thickness of movement part c	Width of sealing parts s	Roll length	Maximum Water pressure	Maximum Resulting movement v_r
		[mm]	[mm]	[mm]	[mm]	[m]	[m]	Expansion /Shear [mm]
Internal	D-19	190	75	3.5	57.5	15	5	10
	D-24	240	85	4.0	77.5	15	10	10
	D-32	320	110	5.0	105	15	15	10
External	Sealing Ribs							
					N x f			
					[1] x [mm]			
	DF-24	240	90	4.0	4 x 25	15	10	10
	DF-32	320	100	4.0	6 x 25	15	15	10

v_r Resulting movement = $(v_x^2 + v_y^2 + v_z^2)^{1/2}$

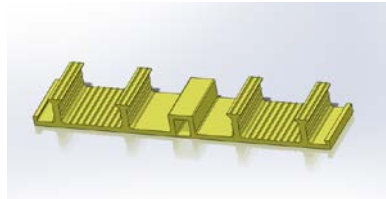
N No. of sealing ribs with DF

f Height of sealing ribs including base plate

Sika Waterbar® D-19, D-24 and D-32



Sika Waterbar® DF-24 and DF-32

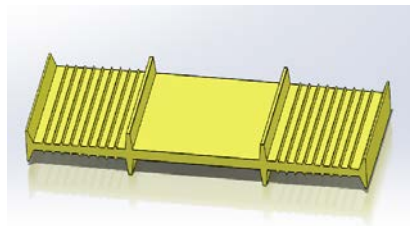


For construction joints

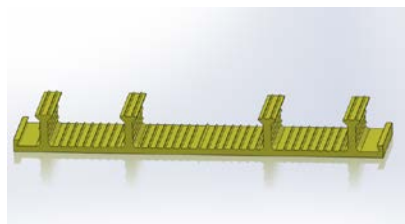
Type	Sika Waterbar® for construction joints	Total width a	Width of movement part b	Thickness of movement part c	Width of sealing part s	Roll length	Maximum Water pressure	Maximum Resulting movement v_r
	Form	[mm]	[mm]	[mm]	[mm]	[m]	[m]	Expansion /Shear [mm]
Internal	A-19	190	75	3.5	57.5	30	5	no
	A-24	240	85	3.5	77.5	30	10	
	A-32	320	110	4.5	105	15	15	
External				Sealing Ribs				
					N x f			
					[1] x [mm]			
	AF-24	240	90	4.0	4 x 25	15	10	no
	AF-32	320	100	4.0	6 x 25	15	15	

- v_r Resulting movement = no anticipated movement
- N No. of sealing ribs for AF
- f Height of sealing ribs including base plate

Sika Waterbar® A-19, A-24 and A-32



Sika Waterbar® AF-24 and AF-32



Application Instructions

Application Method / Tools

Water Pressure / Cover Depth / Stress

The data in the above tables on water pressure and the resultant stress provides the general application range in which the Sika Waterbar® can be used without additional testing.

Shear strains in the 'y' direction (i.e. transverse and longitudinal to the waterstop) are limited to the dimensions of the nominal joint width w_{nom} without additional measures being taken.

If the water pressure and/or resultant strain value is to be exceeded, the values applicable to the Sika Waterbar® shall be specified on the basis of specific references, calculations or tests with suitable allowances for all of the actual influences and stresses anticipated on the specific project and application.

Nominal Joint Widths

The nominal joint width is:

Internal movement (expansion) joint waterstops $w_{nom} = 20$ or 30 mm
External movement (expansion) joint waterstops $w_{nom} = 20$ mm

For a greater nominal joint width or compression joints subject to shear stress, internal expansion waterstops with encased centre bulbs must be used.

Joining on Site: Site Joints

The thermoplastic Sika Waterbar® and the detailing / jointing pieces are connected with a Sika Waterbar® Splicing Iron. The welding edges are melted in the process and fused permanently together whilst in the plastic state.

Joining the Sika Waterbar® together with adhesives is not permitted.

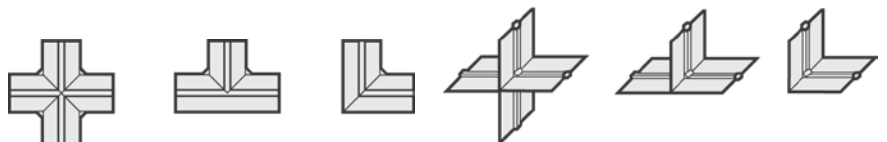
All on-site welded joints must be formed as stated in the Sika Waterbar® welding instructions/ Method Statement.

Environmental Requirements: A minimum ambient temperature of $+5^{\circ}\text{C}$ and dry weather conditions are required for welding on-site.

Factory Produced Jointing Pieces

Only transverse butt joints shall be formed by welding on site with Sika Waterbar®. All of the other junctions and joints shall be produced with prefabricated sections. These are available in many different configurations and detailing sections, in order to reduce the number of joints required to be formed on each site to a minimum.

The special factory-produced sections and systems can be prefabricated for specific projects. The standard joint detailing sections for Internal and External Sika Waterbar® include the following:



Cross piece
flat

T-piece
flat

L-piece flat

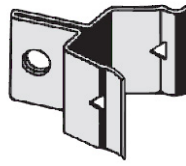
Cross piece
vertical

T-piece
vertical

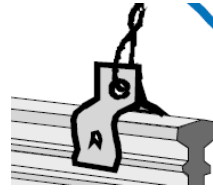
L-piece vertical

Accessories

Waterbar fixing clips



Clip Type 1



The waterbar fixings shall be installed at maximum 20 cm centres and fixed to the steel reinforcement.

Exposure to Different Temperatures and Chemical Agents

For any additional stresses or exposure to different temperatures and/or chemical mediums outside the substances or situations specifically defined in German Standard DIN 4033, specific additional testing is always required.

Note: Sika Waterbar® products are not bitumen resistant according to DIN 18541 and must not be used in contact with, or with potential exposure to any bitumen based materials

Notes on Application / Limits

External Sika Waterbar® PVC-P waterstops are installed flush with the external face of the concrete. Do not install this type of waterbar on the top surface of horizontal or only slightly sloping concrete.

In situations with negative water pressure external waterbars cannot be used.

Handling

As specified in German Standard DIN 18197, all waterbars require:

- Careful transport and handling on site
- Installation at ambient and material temperatures $\geq 0^{\circ}\text{C}$
- Protection until the water-stopping system is fully cast in the concrete
- Special care to be taken of free waterstop ends
- To be cleaned before being cast in concrete

Local Restrictions

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

Legal Notes

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.



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