BUILDING TRUST

PRODUCT DATA SHEET

Sika® Omega flanged waterbars

Elastomer based, Omega shaped flanged waterbars for use in clamped loose and / or fixed flange joint waterstopping systems in watertight concrete structures

PRODUCT-DESCRIPTION

The Sika Omega waterbars are elastomer based, flanged and Omega shaped to provide permanently elastic waterstopping solutions using clamped loose and / or fixed flanges, without any penetrations through the waterbar.

Type OK Elastomer based
Type OKB Elastomer based, fabric reinforced

DESIGNATION

Sika Omega OK flanged waterbars [nominal width in cm]
Sika Omega OKB flanged waterbars [nominal width in cm]

PRODUCT CHARACTERISTICS

- High permanent elasticity with high recoverability
- High strength with Omega OKB flanged waterbars the fabric reinforcement increases their stress
- absorption capabilities
- High deformation is possible
- Resistant to naturally occurring media that are aggressive to concrete
- Resistant to a broad spectrum of chemical agents (specific testing is always recommended for each situation and exposure level)
- Robust cross-sections for handling on site
- Vulcanized jointing is possible on site

APPLICATION PRINCIPLES

- Design and installation in accordance with DIN 18195-8-9
- Butt jointing system with vulcanization
- Vulcanizing must only be by Sika trained and certified people
- Assembly must only be by Sika trained and certified people

USES	Post-construction waterproofing of joints specifically designed for this system, including the refurbishment of existing Omega-shaped fixed flange joints and connections - Sika OK type Post-construction waterproofing of joints with high deformation and low water pressure - Sika OKB fabric reinforced type Post-construction waterproofing of joints with high deformation and high water pressure Typical structures and areas of use: Tunnels, Power plants, Docks, Locks and other hydraulic structures
STANDARDS / REGULATIONS	- DIN 18195-8-9 as relevant - Vulcanizing instructions - Operating instructions for vulcanizing machines - Sika Omega waterbars installation Method Statement
TESTING & APPROVALS	Factory QC & Compliance, other testing as required / agreed

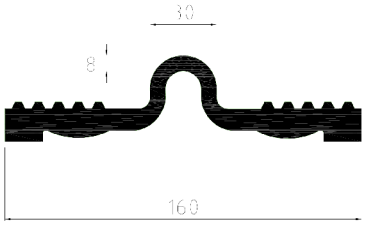
PRODUCT DATA

MATERIAL	Standard types: Elastomer based on SBR styrene-butadiene rubber Special types: Elastomer based on CR chloroprene (air side) and NR natural rubber (water side)
COLOUR	Black
PACKAGING	- 20 m rolls on Euro or disposable pallets - Prefabricated waterstopping system according to size on pallet
STORAGE CONDITIONS	▪ Store on the pallet or on a flat base ▪ Long-term storage ≥ 6 months in enclosed areas: according to the conditions in DIN 7716. The storage area should be cool, dry, low in dust and well ventilated. Keep Sika Omega waterbars away from direct heat and strong artificial light with a high UV content. ▪ Short-term storage > 6 weeks and < 6 months in enclosed areas: The required site conditions stated in DIN 7716 apply as relevant. On construction sites, in the open: - Cover to protect from direct sunlight, contamination, snow and ice - Keep away from materials, plant and equipment that might be damaging such as structural steel and fuel tanks - Keep away from site access / roads etc. - Dry ▪ Short term storage ≤ 6 weeks on construction sites, in the open: - Protect from contamination and damage - Cover to protect from strong sunlight (summer) or snow and ice (winter) ▪ Store vulcanizing materials and equipment in a cool, dry place away from dust and contamination. We recommend arranging these storage facilities for a period of about 6 weeks.

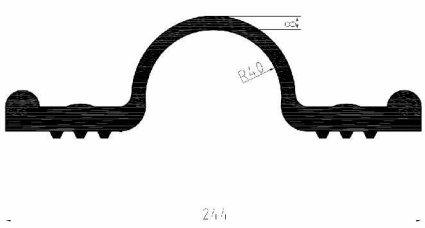
MECHANICAL PROPERTIES

SHORE-A HARDNESS	62 ± 5	DIN 53505
TEAR STRENGTH	≥ 10 MPa	DIN 53504
ELONGATION AT BREAK	≥ 380%	DIN 53504
COMPRESSION SET	168 h / 23°C ≤ 20% 24 h / 70°C ≤ 35%	DIN ISO 815
TEAR PROPAGATION RESISTANCE	≥ 8 N/mm	DIN ISO34-1: 2004-07
REACTION TO HEAT STORAGE	Shore-A hardness change ≤ + 8 Tear strength ≥ 9 MPa Elongation at break ≥ 300%	DIN 53508

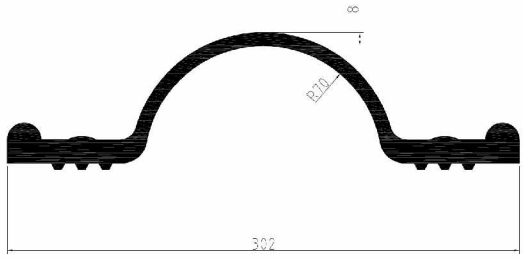
CROSS-SECTIONS



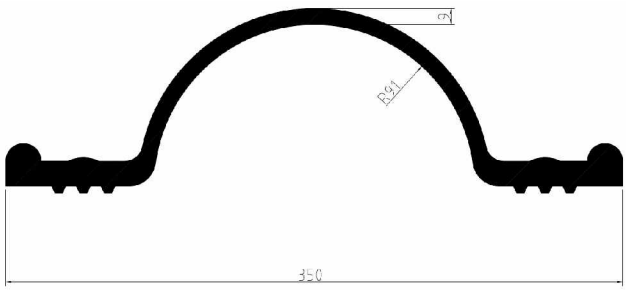
Sika OKB 16 fabric reinforced



Sika OK 24 / OKB 24 fabric reinforced



Sika OK 30 / OKB 30 fabric reinforced



Sika OK 35 / OKB 35 fabric reinforced

TYPES

OMEGA FLANGED WATERBARS

Sika Omega OK and OKB waterbars are not stock items, as they are all custom made for specific project dimensions and requirements.

CLAMPING ON BOTH SIDES

OK TYPE, ELASTOMER

OKB TYPE, FABRIC REINFORCED ELASTOMER

Art	Form	Gesamtbreite	Breite des Dehnteils	Dicke des Dehnteils	Breite der Schlaufe	Rollenlänge	Wasserdruck	Verforumung	
		a	b	c	s		p	v_x /v_y /v_z	v_r
								Single	
		[mm]	[mm]	[mm]	[mm]	[m]	[bar]	[mm]	[mm]
	OK 24	240	130	8	96	20	0,1	20/30/15	40
	OK 30	300	184	8	156	20	-- 1)	30/40/20	50
	OKB 16	160	70	8	31	20	3,0	15/20/5	20
	OKB 24	240	130	8	96	20	3,0	20/20/15	30
	OKB30	300	184	8	156	20	3,0	30/30/20	45
	OKB 35	350	230	9	200	20	3,0	40/40/30	55

[1]) Dependent on installation

[Translation of Table Headings as we cannot enter and amend: Type, Total width, Width of expansion part, Thickness of expansion part, Width of loop, Roll length, Water pressure, Deformation]

v_r Resultant deformation = $(v_x^2 + v_y^2 + v_z^2)$ [1])
v_x In the waterbar plane and transverse to it (expansion or compression)
v_y Perpendicular to the waterbar plane (shear transverse to the waterbar)
v_z In the waterbar plane and longitudinal to it (longitudinal shear)

Note: Water pressure and deformation affect each other and are dependent on the specific installation situation and the waterstopping system / waterbar design selected. The values in the above table apply to a typical situation. Different values may apply when the system design and details i.e. loose/fixed flange, exposure stresses etc., and its installation requirements are fully known

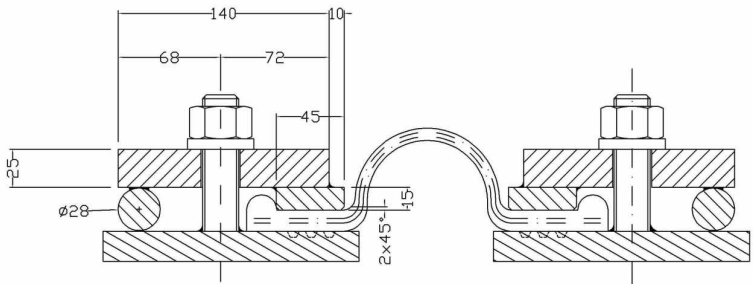
SYSTEM DATA

GENERAL

Structures requiring loose to fixed flange joints or connections create very difficult waterproofing problems, which should only be carried out by fully trained and experienced personnel. They require high precision design and workmanship.
Butt joints in these waterbars are the only site produced joints allowed for Sika Omega flanged waterbars. Al other profiles and section requirements must be factory prefabricated.
The fact that these special waterbars are manufactured to order is also used to reduce the number of these butt joints required on site to a minimum.

CONSTRUCTION

Example of an Sika Omega loose/fixed flange joint design

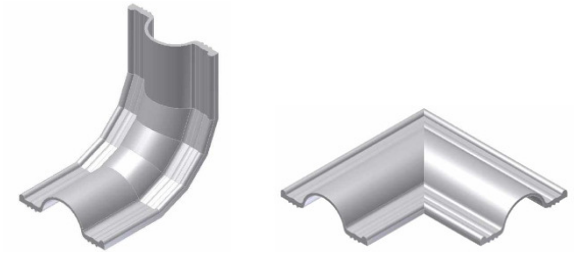


The drawing shows a typical design layout for these joints and connections. The joint and the joint waterproofing system must always be designed and installed as specified to suit the specific project requirements.
The design tightening torque for the Sika Omega waterbars must only be applied with a torque wrench and adjusted twice in the specified time as detailed in the Installation Method Statement, which is also available on request.

PROFILES / SYSTEMS

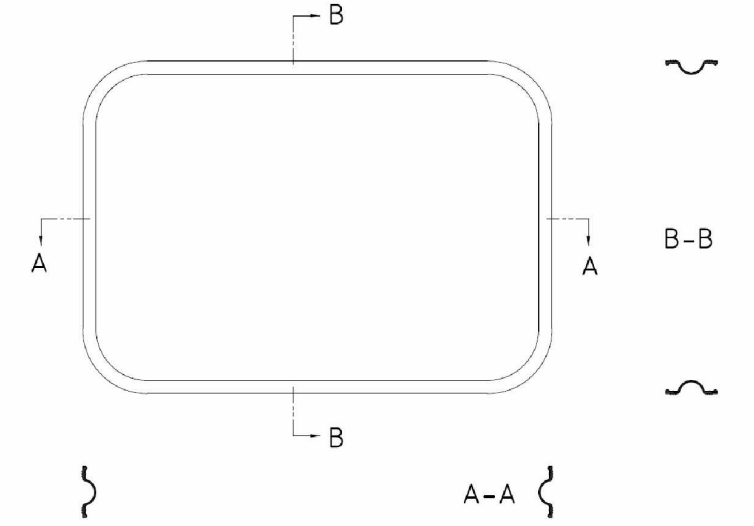
FACTORY JOINTS

Prefabricated parts and sections, for integration in specific project water-stopping system solutions. The length of these prefabricated sections can be up to ca. 20 m Standard types include:



Curved sections, (e.g. R = 400 mm) Flat L-sections

Typical layout: Sika Omega clamped flange waterbar installation frame



DOCUMENTATION

- Certificate of design compliance, plus other testing as agreed
- Details and drawings of the sub-structure
- Joint waterproofing system design and detailing
- Project Specific Installation Method Statement

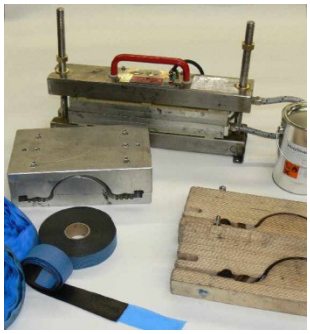
HANDLING OF SIKA

- Handle with care and as recommended on site

OMEGA OK / OKB WATERBARS	▪ Only install the waterbars when the materials temperature is ≥ 0°C ▪ Protect the joint during installation and until all construction work is completed ▪ Clean the waterbar surfaces before installation, especially the clamping areas
INSTALLATION	▪ Sika Omega clamped flange waterbars are installed using an assembly and installation system specifically developed for this system. ▪ The installed joint is tensioned and re-tensioned in a defined time schedule. ▪ Sika Clamped flange waterbar systems are installed by skilled Company, or by other personnel trained by Sika Germany GmbH.
CONNECTIONS ON SITE	The Sika Omega clamped flange waterbars are joined by vulcanizing. This involves applying heat and pressure in a site vulcanizing press between profiled die-cast plates and then holding the join clamped for specific parameters (time and temperature). Vulcanizing materials without heat exposure or by using adhesives is not permitted (in accordance with DIN V 18197). All site produced joints must be formed in accordance with the systems detailed vulcanizing instructions and all relevant health and safety regulations and safety must be complied with. These site joints must only be made by trained and certified personnel. Their training certificates must not be more than 2 years old. The requirements of DIN V 18197 and DIN 7865 are applicable. The steps for site joints are described in detail in the vulcanizing instructions. **The steps for site joints under the vulcanizing instructions are:** - Cut the waterbar ends straight and square and then: For the Sika Omega clamped flange OK type waterbars, without fabric reinforcement: ▪ Roughen the waterbar ends on the face, top and bottom ▪ Apply the heating solution ▪ Apply the adhesive film to the faces ▪ Bring the waterbar ends together and position the clamping equipment ▪ Wrap the cover strip round For the Sika Omega clamped flange OKB type waterbars, with fabric reinforcement: ▪ Pull down the elastomer pads ▪ Roughen the waterbar ends at the top and bottom ▪ Bring the waterbar ends together and position the clamping equipment ▪ Apply the heating solution ▪ Bring up the fabric inserts ▪ Wrap the cover strip round - Spread talcum release agent over the wrapped joint - Place the prepared joint in the preheated vulcanizing machine with the right die-cast plates for the waterbar - Heat and vulcanize the joint for about 35 minutes - Remove from the vulcanizing machine - Cool at air temperature, do not use coolant - After cooling for about 30 minutes, the joint is finished and resilient. Note: It takes about 2 - 4 hours per joint to produce each of these site joints, dependent on the Sika Omega waterbar type and size, as well as the

working conditions, therefore the process must be programmed and completed correctly before any follow-on works.

VULCANIZING MACHINES (AVAILABLE TO HIRE)



- Vulcanizing machine VG 450 with long clamping pins/eye bolts
- Die-cast plates – waterbar profile specific
- Clamping tools for longitudinal clamping

As an electrically operated device, the vulcanizing machine is subject to the regular safety inspection under German Regulation BGV A 3, the timing and prompt completion of which must be monitored by the hirer (use replacement machines).
Always use the vulcanizing machine only for its intended purpose and in accordance with the operating instructions.

TOOLS, EQUIPMENT, PROTECTIVE CLOTHING

Cutting	Tape measure, metre rule, angle, marker pen, rubber blade
Roughening	Goggles, protective gloves, hand drill, spiked roller/ carbide ring wheel / drill attachment
Removing dust	Brush, paint brush, vacuum
Heating solution	Long bristle round paint brush
Adhesive film	Scissors, 4 mm roller
Cover strip	Scissors, 4 mm and 12 mm rollers
For fabric reinforced waterbars to pull off the rubber covers	Combination pliers or pincers
Fabric cutting	Scissors
Tensioning the vulcanizing machine	Torque Wrench SW 32 Heat protected gloves
De-moulding	Screwdriver

VULCANIZING MATERIALS

Heating solution		Can of ca. 1 kg
Adhesive film	35 x 0.6 mm	Roll ca. 33 m

Cover strip 0	35 x 2 mm	Roll ca. 26 m
Cover strip 1	50 x 2.5 mm	Roll ca. 27 m
Cover strip	70 x 2 mm	Roll ca. 8,70 m
Talcum		PE bottle ca. 100 g

Plus for the OKB fabric reinforced:
Rubberized fabric cut to size [m²]

The vulcanizing material s are supplied as part of the initial order with the vulcanising equipment.
Additional vulcanizing materials are also supplied to order, the quantity to be arranged for minimum 6 weeks requirements.
The main vulcanizing material is natural rubber and so must be stored in a cool, dark place and away from dust. This also applies to the rubberized fabric material.

IMPORTANT INFORMATION

VALUE BASE

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

HEALTH AND SAFETY INFORMATION

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

LEGAL NOTES

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