BUILDING TRUST

PRODUCT DATA SHEET

Emshield® DFR/WFR CE

CE Marked, EN 1366-4 Certified Watertight Movement Joint

US Patents: 9,670,666 9,644,368 9,637,915 9,528,262 9,068,297 8,739,495 C1 Patent Pending

CE 0679-CPR-1251

Emshield® samples shown here displayed in substrate mock-up

Product Description

Emshield® DFR CE and WFR CE are CE-marked, ETA-certified, 4-hour fire-rated double-sided silicone-faced movement joints. They provide a watertight seal with 100% movement capability, thermal insulation, UV stability, and colour coordination within vertical or horizontal substrates. Each product is built with water-repellant silicone sealing surfaces adhered to a fire-retardant impregnated foam backing. The symmetrical design allows either side to face out from an exterior or interior wall or floor/deck and maintain a 1, 2, 3 or 4 hour fire resistance. When either faces have a field-applied band of silicone that face is watertight from that side.

Each system is installed into epoxy adhesive field-applied to the joint faces. Joins between each unit are executed using a field-applied silicone sealant at the bellows' edges of the join and field-applied intumescent sealant on the adjoining faces to the silicone

Watertight, 1, 2, 3 or 4-Hour Fire Resistant Sound Attenuating Energy-Efficient Wall and Deck/Floor Movement Joints

Emshield DFR CE and WFR CE are fire resistant, watertight, sound-attenuating, energy-efficient primary seals for both retrofit and new structural expansion joints.

Emshield DFR CE and WFR CE eliminate the need for additional fire blankets, mineral wools, liquid sealants, cover plates, or other fire stopping materials.

The products continue the Emshield comprehensive line of breakthrough, multifunction, structural expansion joint materials from Sika Emseal. Independent European laboratory tested to 4-hour fire resistance, each can work in conjunction with the opposite plane Emshield vertical or horizontal fire-rated movement joints.

Fire-retardant-impregnated foam is factory pre-coated on both facing sides with a coat of waterproof silicone. The resulting composite is then factory compressed to less than its nominal size for installation into structural or other openings.

Each of these products builds on Sika Emseal's track record of over 30 years of innovation in sealing structural movement joints with impregnated foam sealants.

Uses

Emshield WFR CE is designed to be used in movement joints in exterior and interior walls where a combination of watertightness, fire-rating, sound attenuation and thermal-efficiency are required. Emshield DFR CE is used in floors and decks. In deck and roadway usage it can be manufactured with a traffic-grade silicone surface and can be used alone or under any other movement joint cover, plate or filler where depth of substrate allows.

Features

Watertight – Emshield DFR CE and WFR CE are manufactured with tensionless silicone bellows, which when installed with an optional silicone bead on the weather face, maintains a watertight seal in accordance with NF 12154 testing.

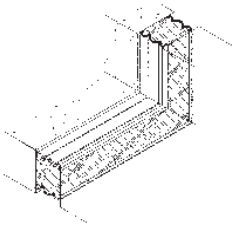
Fire Resistance – The fire-retardant-impregnated foam, when properly installed, ensures a 1, 2, 3 or 4-hour fire protection in accordance with EN 1366-4 testing.

Sound Attenuation – Emshield DFR CE and WFR CE minimize sound transfer which often occurs at the expansion gap.
The Rs.w (C ; Ctr) : is greater than or equal to 54 (-1 ; -3)
in accordance with NF EN 10140-2 (2013) and NF EN 12999-1 (2014)

Non-Invasive Anchoring – There are no hard metal-to-substrate connections with either Emshield DFR CE or WFR CE. The systems are fastened to the joint faces by means of the 1) backpressure of the foam; 2) the epoxy adhesive, and 3) the injected sealant bands at the joint face.

Joint Size – For joints from 12mm (1/2-inch) up to 100mm (4-inch) where +50% and -50% (total 100%) of nominal material size joint movement in accordance with ASTM E1399, UL 2079 and EN1366-4.

Factory-Fabricated Transitions – as in all Sika Emseal expansion joint systems, continuity of seal through changes in plane and direction is an essential performance differentiator.



Emshield DFR CE and WFR CE are manufactured in straight-run sticks which can be joined in the field to custom, factory-fabricated transition pieces, or to Sika Emseal's patented "Universal-90" or Transitions. These are factory-fabricated single-piece 90° units which are coated on both sides with silicone coating allowing them to be installed as an upturn or downturn transition. Each has a 150mm (6-inch) long horizontal leg and a 300mm (12-inch) vertical leg. Transitions end in an uncoated 90° cut to be adhered to another transition piece as used in walls-to-decks, treads and risers, parapets, curbs and other applications.

Colors

The silicone faces of Emshield DFR CE and WFR CE can be manufactured in a variety of different colors to blend with their adjacent surfaces. They are available in a complete line of industry-standard colors.

Performance

Capable movements of:

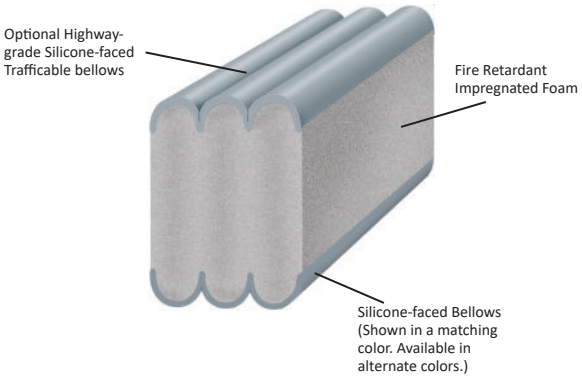
+50% / -50% (100% total) of nominal size.
Standard sizes from 12mm (1/2") to 100mm (4")

Design/System/Construction/Assembly

This material has been tested in independent laboratory testing (consult Sika Emseal). The material is being supplied as a fire-resistant component of a wall or floor/deck assembly.

EMSHIELD WFR CE (Vertical Installation)

EMSHIELD DFR CE (Horizontal Installation)



EMSHIELD DFR / WFR CE Sizing

Supplied Stick Length	Nominal Material Size (Joint Size @ Mean Temp.)		Depth of Seal
2M (6.56 ft)	(12mm)	1/2 "	100mm (4 inches)
	(20mm)	3/4"	
	(25mm)	1 "	
	(30mm)	1 1/4"	
	(40mm)	1 1/2"	
	(45mm)	1 3/4"	
	(50mm)	2 "	
	(55mm)	2 1/4"	
	(65mm)	2 1/2"	
	(70mm)	2 3/4"	
	(75mm)	3 "	
	(85mm)	3 1/4"	
	(90mm)	3 1/2"	
	(95mm)	3 3/4"	
	(100mm)	4 "	

EMSHIELD DFR / WFR CE TEST RESULTS

Feature	Test Result	Standard
Resistance to Fire	1, 2, 3, 4-hour	EN 1366-4
Reaction to Fire	Class B - s2, d0	EN 13501-1
Movement	100% Seismic Movement (+/- 50%) of nominal supplied size	EN 1366-4
Water and Air Permeability	No leakage up to 1200 Pa of pressure	NF EN 12154 (Oct. 2001) NF EN 12155 (Oct. 2001)
Acoustic	Rs.w (C ; Ctr): ≥ 54 (-1 ; -3)	NF EN 10140-2 (2013) NF EN 12999-1 (2014)
Thermal Insulation	Thermal conductivity value 0.0623 (W/m.K)	NF EN 1602 NF EN 12085

Testing and Standards

Emshield DFR CE and WFR CE have been certified in accordance with EN 1366-4 testing as well as NF EN 12154 and NF EN 12155 with no leakage with up to 1200 Pa of pressure. It also meets the requirements of ASTM E1966, ASTM E119 and ASTM E1399.

Warranty

Standard or project-specific warranties are available from Sika Emseal on request. This product can only perform its designed function if it, and the joint-gap into which it is installed, is sized to suit anticipated joint movements in consideration of the movement capability of the product and in consideration of the temperature at time of installation, and if it is installed in strict accordance with Sika Emseal's installation instructions.

Availability & Price

A CE marked movement joint, Emshield DFR CE and WFR CE are available to European and other markets requiring CE marking. Product range is continually being updated, and accordingly Sika Emseal reserves the right to modify or withdraw any product without prior notice.

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Product Data Sheet
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