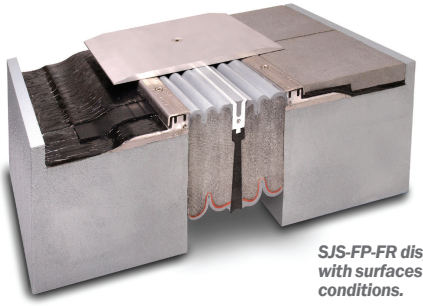
SJS-FP-FR

Fire-Rated, Watertight, Seismic and Large-Gap Deck Expansion Joint System for Split-Slabs, Plazas, Stadium Concourses, etc.

TECH DATA

US Patents: 8,813,450 C1 8,813,4549 C1 8,341,908 6,532,708 C2 Patent Pending



UL Systems
FF-D-1093 FF-D-1096
FF-D-2016 FF-D-2018
ULC Systems
JF143 JF148

SJS-FP-FR displayed in a typical substrate with surfaces exposed to illustrate various conditions.

Product Description

SJS-FP-FR provides a watertight, trafficable joint system with a built-in 2-hour fire-rating. It is built to accommodate large (2"-10" / 50mm-250mm) joint openings in decks of split-slab design. The system consists of two sub-assemblies: The structural-slab mounted supporting legs with integral waterproofing flashing sheets; and the fire-rated joint sealing and coverplate assembly.

The mounting leg assembly is delivered with opposing legs factory-set to the nominal joint size. It is installed into a wet-setting bed of epoxy mortar and bolted to the deck. The fire-rated joint sealing and bridging assembly consists of a central stiffening spline flanked by two watertight silicone bellows supported by precompressed, impregnated fire-retardant foam shock absorbers, and covered by a heavy duty coverplate.

The factory-assembled spline, bellows, and foam units are shipped with factory-attached, installation hanger-bars. Epoxy gel adhesive is applied to the faces of the previously installed mounting leg assembly. The fire-rated sealing assembly is lowered into the joint gap where it self-expands into wet epoxy adhesive.

Consecutive lengths are joined through the field-application of manufacturer-supplied, low-modulus, high-movement silicone to the intersecting bellows surfaces. Fire-retardant intumescent caulking is applied to the joined spline and foam faces. Friction fit alignment pins prevent the joins from moving during cure. A field-applied silicone sealant band is injected at the bellows to the FP rail interface to complete the waterproofing.

The deck waterproofing membrane is installed on the deck and brought up to the **SJS-FP-FR** system. With the **SJS-FP-FR** flashing sheets pulled out of the way, the deck membrane is installed over the top of, and up the **SJS-FP-FR** mounting legs. The side flashing sheets are lowered into the liquid membrane (or into the non-sag mastic component of a sheet-waterproofing system) and sandwiched with another layer of waterproofing. Concrete, pavers, asphalt, or other topping slab or wearing course material is installed up to the stainless steel retaining caps on the **SJS-FP-FR** mounting rails. The **SJS-FP-FR** joint-sealing assembly installation hanger bars are removed sequentially as coverplates are lowered over the joint and screwed to the center spline, completing the installation.

Features

Fire-Rated — Up to 2-Hours with the built-in Fire Rating — UL/ULC certified (UL 2079) expansion joint. It eliminates the need for additional fire blankets, mineral wools, liquid sealants, or other fire stopping materials.

Watertight — The tensionless silicone bellows are installed flush to the mounting height of system and just below the coverplate, ensuring that watertightness is achieved at the deck surface, and eliminating the need for moisture barriers and secondary gutter systems. Integration of the SJS-FP side flashing sheets into a sandwich with the deck waterproofing membrane ensures the deck-to-joint interface is watertight.

Non-Invasive Coverplate Anchoring — There are no hard metal-to-concrete connections in the coverplate system at all including embedded pins, anchors, screws, bolts or tracks, trays or rails. The coverplate assembly is locked to the FP rails by means of the backpressure of the foam and the epoxy adhesive.

Sound Attenuation — The flanking impregnated foam and silicone hybrid acts not only as the anchoring system, but also as a highly effective sound and shock dampener. In concrete topping slabs, optional sound attenuating polyurethane nosing material (EMCRETE) further dampens sound and provides a plate levelling mechanism. The result is a sound-attenuated, watertight coverplate system.

Self-Locating Coverplate Screws — the center spline is a continuous receptor for the coverplate screws that are self-tapped into the anchor channel. This feature dramatically reduces installation-related problems of locating self-centering, sliding ball devices and pantographs. The probability of screws being left out is eliminated by the ease of anchoring which also ensures proper plate alignment between sections.

Self-Locking Vibration-Dampened Screws — Vibration in alternative systems that rely on metal-to-metal connections and contact points is the primary cause of screw loosening. Vibration that might otherwise work to loosen screws in these technologies is, in the **SJS-FP-FR**, first dampened by the massive and continuous springs of impregnated foam along the entire length of the joint. In addition, 30 pounds of force is required to loosen the screws which translates into excellent resistance to loosening without the need for thread-lock compounds.

(Features Continued on Back)

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Features *(continued)*

Continuity of Seal — as in all EMSEAL expansion joint systems, continuity of seal through changes in plane and direction is an essential performance differentiator. Factory-fabricated transitions at curbs, sidewalks, parapets, tees, and crosses are available with the **SJS FP-FR SYSTEM**. In addition, details for watertight, field-fabricated transitions between the different EMSEAL product systems are available.

Performance

Capable of movements of +50%, -50% (100% total) of nominal material size.

Standard sizes from 2" (50mm) to 10" (250mm).

Depth of Seal for all sizes = 6" (150mm).

Coverplates:

- Standard coverplate is 3/8-inch (10mm) shot-blasted aluminum or stainless steel. Other custom metals and thicknesses are available--consult EMSEAL.
- Coverplate edge-chamfer available in standard or optional low-slope configurations--consult EMSEAL.

Figure 1: System Components

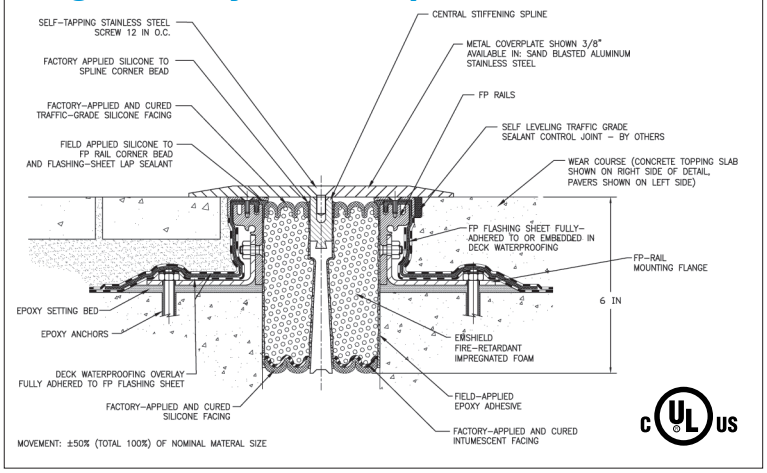

Table 1: Typical Physical Properties

Property	Value	Test Method
Fire Rating	2-Hour Fire Rated	UL/ULC 2079 ASTM 1966
	2-Hour Fire Rated Movement Cycling	ASTM E119 ASTM E1399
Base Foam Material	Fire-retardant-impregnated	N/A
Wax Content	Wax Content 0%	Certified FTIR Certified DSC
Compression Set	Material recovers to +50% of nominal size within 24 hours after compression to -50% and simultaneous heating to 180°F (85°C) for 3 hours	
Coverplate Composition	Stainless Steel Grade 304	ASTM A240 ASTM A666
	Aluminum 6061-T6 Alloy	ASTM B221-95a
Coverplate Static Coefficient of Friction	Dry 1.176 Wet .0936	ASTM C1028
Coverplate FEA Safety Factors **Lateral Displacement**	Traffic Plate 5 Screws 11 Spline Pins 10 Center Spline 7 < 3/4-inch (19mm) under 4,000 lbs skid pressure	Certified Finite Element Analysis (FEA)
Mounting Legs Composition	Galvanized Steel	ASTM A240 ASTM A666
	Aluminum 6063 Alloy	DIN EN 573-1
Capping Strip Composition	Stainless Steel Grade 304	ASTM A240

Testing and Standards

SJS-FP-FR has been tested and certified under UL 2079 and meets the requirements of ASTM E1966, ASTM E119 and ASTM E1399.

UL 2079, like ASTM E1966, was developed to encompass the fire testing of ASTM E119 and movement cycling regime of ASTM E1399.

CAD Details and Guide Specs

Guide Specifications and CAD details are available at www.emseal.com or by contacting EMSEAL.

Availability & Price

SJS-FP-FR is available for shipment internationally. Prices are available from local representatives or directly from the manufacturer. The product range is continually being updated, and accordingly EMSEAL® reserves the right to modify or withdraw any product without prior notice

Design/System/Construction/Assembly

This material has been tested to UL/ULC 2079 and is manufactured under UL's Follow-Up Service. The material is being supplied as a fire-rated component of a flooring assembly. It has been tested to UL 2079 in assemblies as depicted in EMSEAL's various listings in the UL Online Certifications Directory. Use of this material in assembly configurations other than depicted in the named UL listings will not encumber or lower the resistance of the assembly but is done so at the designers' discretion and responsibility for designing substrates as part of a fire rated assembly that meet applicable standards for the project. Similarly, the published information in the UL Listings cannot always address every construction nuance encountered in the field. Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Listed or Classified products or materials. Authorities Having Jurisdiction should be consulted before and during construction to ensure that specific adjacent substrates and assemblies are detailed and constructed to meet local fire-rating requirements.

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