

SPECIFICATION  
Sections 07 90 00 / 07 95 00

SJS—SEISMIC JOINT SYSTEM by EMSEAL

Preformed, Pre-Compressed, Self-Expanding, Seismic Joint System  
Watertight, Traffic Durable, Primary Seal for Seismic and Large-Gap Horizontal Joints

PART 1 – GENERAL

1.01 Work Included

- A. The work shall consist of furnishing and installing waterproof expansion joints in accordance with the details shown on the plans and the requirements of the specifications. Expansion joint shall be comprised of a sealing assembly made up of two horizontal joints made of silicone-coated, precompressed foam pre-assembled in parallel adjacent to a heavy-duty extruded aluminum spline. The spline shall act as a receptor for attaching a surface-mounted traffic plate.
- B. Related Work
  - Division 3 - Cast-in-Place Concrete
  - Division 7 - Thermal & Moisture Protection
  - Division 7 - Sealants, Caulking and Waterproofing

1.02 Submittals

- A. General – Submit the following according to Division 1 Specification Section.
- B. Standard Submittal Package – Submit typical expansion joint drawing(s) indicating pertinent dimensions, general construction, expansion joint opening dimensions and product information.
- C. Alloys where used:
  - 1) Plates: Aluminum 6061-T6 alloy meeting ASTM B221-95a
  - 2) Plates: Stainless Steel Grade 304 meeting ASTM A240 and A666
- D. Sample of material is required at time of submittal.
- E. All products must be certified by independent laboratory test report to be free in composition of any waxes or wax compounds using FTIR and DSC testing.
- F. All products shall be certified in writing to be: a) capable of withstanding 150°F (65°C) for 3 hours while compressed down to the minimum of movement capability dimension of the basis of design product (-50% of nominal material size) without evidence of any bleeding of impregnation medium from the material; and b) that the same material after the heat stability test and after first being cooled to room temperature will subsequently self-expand to the maximum of movement capability dimension of the basis-of-design product (+50% of nominal material size) within 24 hours at room temperature 68°F (20°C).
- G. An FEA Report by a certified engineer must be submitted providing engineering information stating lateral and non-linear displacement and safety factors on key system components under conditions simulating a 4000 lb vehicle skidding across the joint system inducing an 800 lb tangential load. Product must demonstrate FEA Safety Factors: Traffic Plate – 5; Screws – 11; Spline Pins - 10; Center Spline – 7.

- H. All products must be certified by independent laboratory test report to be tested to meet or exceed ASTM C1028 the standard method for determining Static Coefficient of Friction (SCOF).

#### 1.03 Product Delivery, Storage and Handling

- A. Deliver products to site in Manufacturer's original, intact, labeled containers. Handle and protect as necessary to prevent damage or deterioration during shipment, handling and storage. Store in accordance with manufacturer's installation instructions.

#### 1.04 Basis-of-Design

- A. All joints shall be designed to meet the specified performance criteria of the project as manufactured by: (USA & International) EMSEAL JOINT SYSTEMS, LTD 25 Bridle Lane, Westborough, MA 01581-2603, Toll Free: 800-526-8365. (Canada) EMSEAL, LLC 120 Carrier Drive, Toronto, Ontario, Canada M9W 5R1 Toll Free: 800-526-8365. [www.emseal.com](http://www.emseal.com)
- B. Alternate manufacturers must demonstrate that their products meet or exceed the design criteria and must submit certified performance test reports performed by nationally recognized independent laboratories as called for in section 1.02 Submittals. Submittal of alternates must be made three weeks prior to bid opening to allow proper evaluation time.

#### 1.05 Quality Assurance

- A. The General Contractor will conduct a pre-construction meeting with all parties and trades involved in the treatment of work at and around expansion joints including, but not limited to, concrete, mechanical, electrical, HVAC, landscaping, masonry, curtain wall, waterproofing, fire-stopping, caulking, flooring and other finish trade subcontractors. All superintendents and foremen with responsibility for oversight and setting of the joint gap must attend this meeting. The General Contractor is responsible to coordinate and schedule all trades and ensure that all subcontractors understand their responsibilities in relation to expansion joints and that their work cannot impede anticipated structural movement at the expansion joints, or compromise the achievement of watertightness or life safety at expansion joints in any way.
- B. Warranty – Manufacturer's standard warranty shall apply.
- C. LEED Building Performance Requirements: The VOC of the silicone must not exceed 50 grams/liter.

### PART 2 – PRODUCT

#### 2.01 General

- A. Provide traffic durable, watertight, sound dampened, seismic, large-gap, and high-movement expansion joint by EMSEAL JOINT SYSTEMS. Typical locations include, but are not limited to the following: applications over occupied space, stadiums, floors, and parking decks. System shall perform waterproofing, traffic bearing and movement-accommodation functions as the result of a single installation and without the addition of gutters, vapor barriers, bladders, or other devices suspended beneath or within the system in any way.
- B. Provide SJS as manufactured by EMSEAL JOINT SYSTEMS LTD and as indicated on drawings for horizontal expansion joint locations.

- C. Sealant system shall be comprised of the following components: 1.) cellular foam infused with a hydrophobic, modified-acrylic dispersion, 2.) pre-coated with a watertight silicone outer coating, 3.) heavy-duty extruded aluminum center spline, 4.) interlocking spline connectors and heavy duty cover plates, 5.) field-applied epoxy adhesive primer, 6.) field-injected silicone sealant bands.
- D. Material shall be capable of movements of +50%, -50% (100% total) of nominal material size. Standard sizes from 4" (100 mm) and greater. Depth of seal as recommended by manufacturer.
- E. Silicone coating to be highway-grade, low-modulus, jet-fuel resistant silicone applied to the impregnated foam sealant at a width greater than maximum allowable joint extension and which when cured and compressed will form a bellows.
- F. SJS to be installed directly over a leveling-bed of elastomeric nosing material to be supplied by manufacturer. Elastomeric nosing material to have an aggregate of fine, washed sand not to exceed 30 mesh and chopped strand fiberglass AND aggregate to resin ratio not to exceed 2:1 by weight.
- G. SJS to be installed into manufacturer's standard field-applied epoxy adhesive.
- H. The foam seal is to be installed slightly recessed from the surface such that when the field-applied injection band of silicone is installed between the substrates and the foam-and-silicone-bellows, the system will be essentially flush with the substrate surface.
- I. Tool-steel, connector pins shall be located in center spline for end to end connections. Heavy duty cover plate to be held in place by stainless-steel, self-tapping screws installed into the continuous anchor channel of the heavy-duty extruded spline. No mechanical self-centering bars, springs, or sliding ball components shall be employed in maintaining coverplate attachment and centering.
- J. Select the sealant system model appropriate to the movement and design requirements at each joint location that meet the project specification or as defined by the structural engineer of record.
- K. Manufacturer's Checklist must be completed by expansion joint subcontractor and returned to manufacturer at time of ordering material.

## 2.02 Fabrication

- A. SJS by EMSEAL must be supplied pre-assembled and precompressed to less than the joint size, packaged in shrink-wrapped lengths (sticks).
- B. Directional changes and terminations into vertical plane surfaces (walls, parapets, ends of decks, etc) as well as to transition the material through curbs, treads and risers or other in-slab plane changes to be provided by factory-manufactured single units or through field fabrication in strict accordance with published installation instructions.

## PART 3 – EXECUTION

### 3.01 Installation

- A. Preparation of the Work Area
  - 1. The contractor shall provide properly formed and prepared expansion joint openings constructed to the exact dimensions and elevations shown on manufacturer's standard system drawings or as shown on the contract drawings.

Deviations from these dimensions will not be allowed without the written consent of the engineer of record.

2. The contractor shall clean the joint opening of all contaminants immediately prior to installation of expansion joint system. Repair spalled, irregular or unsound joint surfaces using accepted industry practices for repair of the substrates in question. Remove protruding roughness to ensure joint sides are smooth. Ensure that there is sufficient depth to receive the full depth of the size of the SJS being installed. Refer to Manufacturers Installation Guide for detailed step-by-step instructions.
3. No drilling, or screwing, or fasteners of any type are permitted to anchor the system into the substrate.
4. System to be installed by qualified sub-contractors only according to detailed published installation procedures and/or in accordance with job-specific installation instructions of manufacturer's field technician. Bids must include for presence of paid-for manufacturer's field technician to be present during initial preparation, inspection, and material installation.

### 3.02 Clean and Protect

- A. Protect the system and its components during construction. Subsequent damage to the expansion joint system will be repaired at the general contractor's expense. After work is complete, clean exposed surfaces with a suitable cleaner that will not harm or attack the finish.

END OF SECTION