

BEJS by Sika Emseal

Watertight Joint System for Bridges and Roads

Features	Benefits
<ul style="list-style-type: none"> • Watertight 	The tensionless silicone bellows are installed just below the deck surface.
<ul style="list-style-type: none"> • Non-Invasive Anchoring 	There are no hard metal-to-concrete connections with BEJS System. This includes embedded pins, anchors, screws, bolts, tracks, trays or rails. The system is locked to the joint faces by means of the backpressure of the foam; the epoxy adhesive; and the injected silicone sealant band at the joint face to foam and silicone bellows interface.
<ul style="list-style-type: none"> • Efficient 	Fast mixing and installation help minimize labor costs



(rapid opening and closing of joints during large temperature swings). These applications include jointface adhered installations on bridge decks, wing walls, abutments, jersey barriers, precast panels, etc.

RECOMMENDED FOR:

- Watertight, traffic durable, joint-face-adhered, precompressed, primary seal for retrofit and new expansion joints in road bridges, wing walls, abutments, jersey barriers, longitudinal joints, precast panels, etc.
- Ideal for new construction and retrofit bridge preservation of old or failed joint systems in concrete or rebuilt joint edges. Use in embedded metal angles where demolition or removal of the metal angles is not feasible and where existing joint opening is suited to the movement capability of BEJS.
- Ideal for lasting replacement of failed caulk joints.

MOVEMENT CAPABILITY:

+/- 60% (Total 120%) of nominal material size

AESTHETICS & VERSATILITY:

Standard color is black. Uniform bellows appearance, fuel resistance, and an enhanced ability to handle variations in joint size are among other system features.

DESCRIPTION:

The BEJS System is comprised of a precompressed, silicone-and foam hybrid installed into field-applied epoxy adhesive on the joint faces; with the silicone bellows locked to the joint faces with a silicone sealant band (see Fig. 1).

The BEJS System features an innovation in sealant technology in the form of a microsphere-modified, 100% acrylic impregnation infused into the cellular foam base material.

The material is odorless, clean handling, UV stable, non-staining, and features low temperature flexibility not previously available in other products.

The result is extension of the usability of the product to applications where other products did not work well under conditions of thermal shock

Fig.1: BEJS System in Typical Installation — New or Retrofit

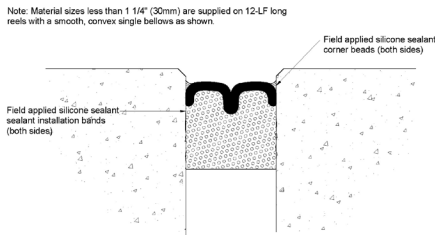


Fig.2: BEJS-ON-A-REEL for Joints 1/2" – 1 1/4"

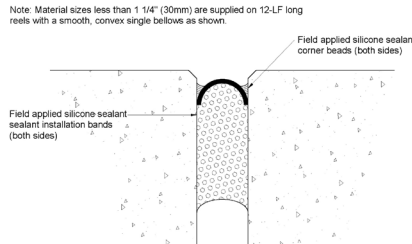


Fig.3: BEJS System in Existing Steel Angles – Retrofit

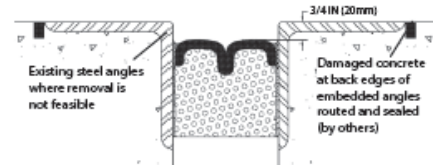


Fig.4: BEJS System in Existing Strip-Seal Retrofit

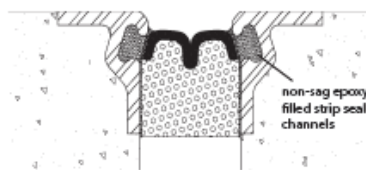
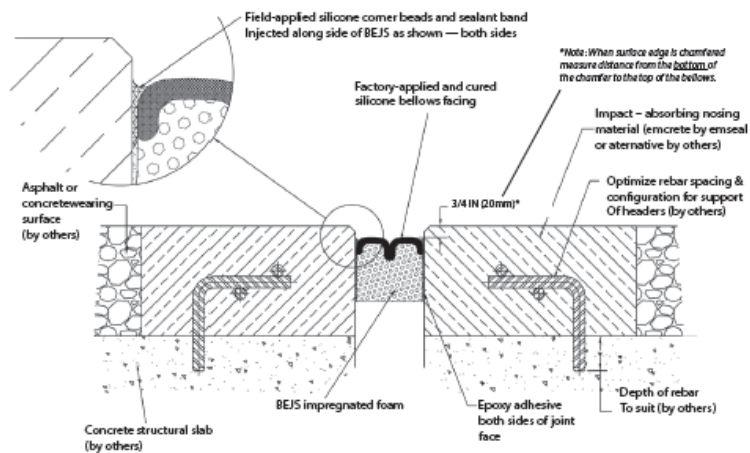


Fig.5: BEJS System in New or Rebuilt Joint Edges with Nosing Material



COMPOSITION:

- BEJS is produced by coating an impregnated cellular foam with highway-grade silicone.
- The silicone external facing is factory applied to the foam at a width greater than maximum joint extension and is cured before final compression.
- Silicone application and curing takes place in a factory-controlled environment. In contrast to field applied liquid sealant and backer rod installations, no movement takes place during curing that can cause deformation or stresses in the material.
- When compressed, a bellows is created in the coating. As joint movement occurs the bellows simply folds and unfolds free of tension on the bondline, and virtually free of tensile stresses in the silicone material.
- The foam provides a resilient backing to the silicone coating, making the System capable of resisting reasonable transient point loads.
- BEJS System is precompressed to less than the joint size for easy insertion. After removal from the shrink-wrap and hard board restraining packaging, it expands gradually.

INSTALLATION KITS:

BEJS Installation Kit

- 20oz sausage caulk gun
- (3x) reusable cone nozzles
- 8-inch chef knife
- (2x) caulk knives
- (2x) margin trowels
- Spiral epoxy mixer



BOR Installation Kit

- 20oz sausage caulk gun
- (3x) reusable cone nozzles
- Caulk knife



INSTALLATION:

IMPORTANT: The following instructions are a summary. Refer to “BEJS System Install Data” and job-specific instructions for complete procedures.

- Store indoors at room temperature (65-75° F). Expansion is quicker when warm, slower when cold.
- Properly prepare substrates.
- Ensure material nominal size matches joint size.
- Manufacturer recommended minimum installation temperature: 40° F and rising
- Mix epoxy and trowel a thin layer onto the joint faces to at least the depth of the BEJS foam
- Precondition material to around 70 degrees F. In cooler conditions (40-60 degrees), remove from packaging (shrink-wrap and hardboard) prior to install. In warmer temperatures (above 60 degrees) keep in packaging until ready to install. Insert material into joint with a 3/4” recess. For reels recess 1/2”.
- Join lengths by pushing silicone coated ends firmly together.
- Wipe silicone facing using clean, lint-free rag made damp with solvent.
- Before the epoxy cures, force the tip of the sealant tube between the foam and the substrate and inject a silicone sealant band. Tool overflow sealant into a cove bead between the top of the silicone bellows and the substrate. Tool silicone between joined lengths so that bellows is not restrained by excess silicone.

BEJS System Sizing (see "Performance" for movement capabilities & limitations)			
Nominal Material Size (Joint Size at Mean T°F)	Depth of Seal	Min. Joint (closes to)	Max Joint (opens to)
The following sizes are supplied on 12-LF reels. See BEJS-ON-A-REEL information sheet.			
½"	1 ¾"	¼"	¾"
¾"	1 ¾"	5/16"	1 ¼"
1"	1 ¾"	3/8"	1 ½"
1 ¼"	1 ¾"	½"	2"
The following sizes are supplied in shrink-wrapped sticks of 6.56 ft			
1 ½"	2 ¼"	5/8"	2 ½"
1 ¾"	2 ¼"	1-1/16"	3"
2"	2 ½"	¾"	3-3/8"
2 ¼"	2 ½"	7/8"	3 ½"
2 ½"	2 ½"	1"	4"
2 ¾"	2 ¾"	1-1/8"	4 ½"
3"	2 ¾"	1 ¼"	4-7/8"
3 ¼"	3 ½"	1-3/8"	5 ¼"
3 ½"	3 ½"	1-7/16"	5-5/8"
3 ¾"	3 ½"	1 ½"	6"
4"	3 ½"	1-5/8"	6-3/8"
For joint sizes larger than 4-inches consult Watson Bowman Acme			

Typical Physical Properties of Preformed, Precompressed, Foam Supported Silicone Expansion Joint System		
The base material is an odorless, clean handling, UV stable, non-staining polyurethane open cell foam with 100% acrylic, microsphere-modified, water based impregnation infused into the cellular foam base material. Continuity of seal can be achieved using field or factory fabricated transitions.		
Property	Value	Test Method
Thermal Movement	500 cycles at -60%, +60% Movement, Pass	ASTM E1399
Thermal Movement	500 cycles at -60%, +60% Movement, Pass	ASTM E1399
Acrylic Impregnation	100%, Microsphere Modified, Water-based	
Base Material	Min 5.65 kg/m ³ Cellular, High Density, Polyurethane Foam	ASTM D3574
Density	Min. 6 lbs/cu ft	ASTM D545
Tensile Strength	Min. 18 psi	ASTM D3574
Elongation	Min. 150%	ASTM D3574
UV / Moisture Resistance	No Changes - 2000 hours, Pass	ASTM G155-00A
Compression Set	Max 3%	ASTM D3574
Temperature Service Range	-40°F to 185°F	ASTM C711

Note: All testing conducted with a minimum silicone coating, at center line of the joint seal (between silicone coating bellows), of 1.5mm

Typical Physical Properties of Silicone Coating & Sealant Bands		
The highway grade silicone coating is cured in a factory environment and installed in the field with the SAME fuel resistant, UV resistant, highway grade silicone. Continuity of seal is achieved using ONLY a single component to join and seal the Preformed Pre-Compressed, Silicone Coated, Self-Expanding Sealant System When sized correctly silicone is NEVER in tension.		
Property	Value	Test Method
Single Component Coating	Sikasil® WS-295	Coatings, Joints, and Bands
Shore A Hardness	Min. 25	ASTM C661
Movement Capability	+50%, -50% (Total 100%)	ASTM C719
Tensile Strength	Min. 175psi	ASTM D412
Elongation at Break	Min. 600%	ASTM D412

Typical Physical Properties of Epoxy Adhesive		
The 2-component, 100% solids, solvent free, moisture tolerant, high strength, structural epoxy adhesive applied to the substrate at the approximate depth of the joint seal at a paper thin ($\approx 1/16''$) thickness.		
Property	Value	Test Method
Tensile Strength	Min. 2900 psi	ASTM D638
Elongation at Break	0.20%	ASTM D638
Shear Strength	Min. 2700 psi	ASTM D732
Bond Strength	Hardened Concrete, Min. 3100 psi Steel, Min. 3260 psi	ASTM C882
Compressive Strength	Min. 9000 psi	ASTM D695
Pot Life	60 minutes (at 72°F)	
Tack Free Time	1.5 to 2.5 hours	30 mils

FOR BEST RESULTS:

- Periodically inspect the applied material and repair localized areas as needed. Consult a Watson Bowman Acme representative for additional information.
- Make certain the most current version of the product data sheet is being used. Please consult the website (www.watsonbowmanacme.com) or contact a customer service representative.

RELATED DOCUMENTS:

- Material Safety Data Sheets
- BEJS Installation Procedure