Steelflex® Strip Seal Expansion Joint Systems

For decades, cast-in-place Steelflex® Strip Seal Expansion Joint Systems have provided superior watertight performance and longevity over bolt-down, segmental bonded and pourable expansion joint systems. Steelflex® Strip Seal Expansion Joint Systems have become the overwhelming choice of owners and specifying engineers around the world for accommodating up to 4 inches (102mm) of total structural movement in the direction of travel per AASHTO guidelines. A variety of glands are available for applications with wider movement ranges, debris reducing, seismic and other extreme events. Consult D.S. Brown for design considerations.

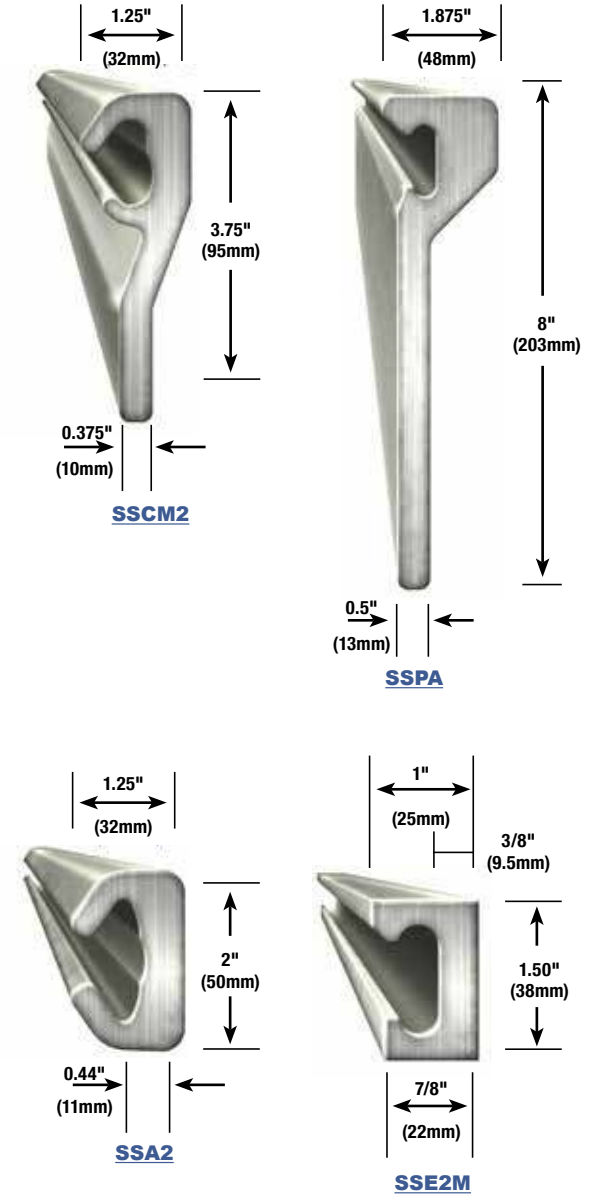
System Components

Cast-in-place Steelflex® Strip Seal Expansion Joint Systems consist of two proprietary components: steel rail profiles and a matching polychloroprene sealing element.

Steel Rail Profile

Steelflex® rail profiles are one-piece construction, manufactured using innovative hot rolled/non-machined and hot rolled/machined technology. SSA2, SSCM2, and SSPA steel rails are available in ASTM A36 or ASTM A588 steel grades. SSE2M rail profile is only available in ASTM A36 grade.

Steelflex® SSPA Strip Seal Expansion Joint System



Recent design improvements have eliminated all horizontal “legs” on the steel rail profiles to facilitate proper concrete placement during installation. Independent field and laboratory testing has demonstrated that improperly consolidated concrete around the steel rail, anchorage, and/or reinforcement could lead to performance issues. Anchorage of the steel rail profile into the deck concrete is the primary load carrying mechanism and, therefore, is critical to ensure long-term performance. Research has confirmed that properly sized and spaced shot-on studs provide an economical, field-proven anchorage method.

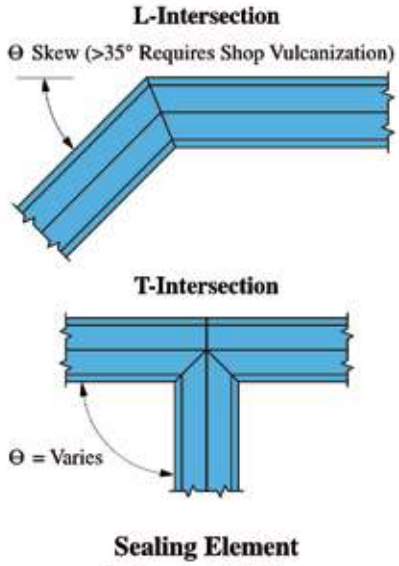
Because it is field-proven, the Steelflex® SSCM2 rail profile has become widely accepted worldwide as an economical standard in the industry. Other steel profiles (SSCM and SSA) are also available to satisfy your specific project need.

Steelflex® Strip Seal Expansion Joint Systems

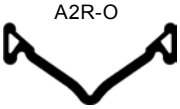
Continued

Polychloroprene Sealing Elements

Selection of a polychloroprene strip seal sealing element is based on the maximum movement either perpendicular (MR_L) or parallel (MR_T) to the Steelflex® Strip Seal Joint Assembly. To assist in your selection, the following table provides movement ranges for each sealing element type and the corresponding proprietary steel rail profile. Information is also provided on the range of joint opening dimensions. The preferred joint opening dimensions for sealing element installation is approximately 2.0 inches (51mm). However, the preferred joint opening dimension for A2R-O and L2R-O seals is approximately 3.0 inches (76mm). Polychloroprene strip seal sealing elements are installed in a continuous piece, without vulcanization, up to a 35 degree angle. All D.S. Brown polychloroprene sealing elements are in-house designed and tested to provide a watertight seal at the connection to the Steelflex® rail profile. Factory molded polychloroprene sealing element splices can also be produced to accommodate your specific project needs.



Sealing Element
Vulcanized Splices

Sealing Element Cross-Section	Sealing Element	Movement Range MR_L	Movement Range MR_T	Joint Opening	Corresponding Steelflex Rail
 A2R	A2R-400	**4.0** (102)	**±2.0** (51)	**0.5 - 4.5** (13) (114)	SSCM2 SSA2
	A2R-XTRA	**5.0** (127)	**±2.0** (51)	**0.5 - 7.5** (13) (191)	
 A2R-O	A2R-0	**4.0** (102)	**±0.5** (13)	**1.0 - 5.0** (25) (127)	
 E2M-Seal	E2M-Seal	**4.0** (102)	**±2.0** (51)	**05 - 4.5** (13) (114)	SSE2M
 L2	L2-400	**4.0** (102)	**±2.0** (51)	**0 - 4.0** (0) (102)	SSA SSPA SSCM
 L2-O	L2-500	**5.0** (127)	**±2.0** (51)	**0 - 5.0** (0) (127)	
	L2-0	**4.0** (102)	**±0.5** (13)	**1.0 - 5.0** (25) (127)	

Bold numbers represent inches; metric (mm) in parentheses.
Cold weather natural strip seal glands are available upon request.
D.S. Brown manufactures strip seal glands capable of opening up to 7"; for safety reasons, AASHTO stipulates 4" as the maximum gap in the direction of travel.

Steelflex® Strip Seal Expansion Joint Systems

Continued

Design Considerations

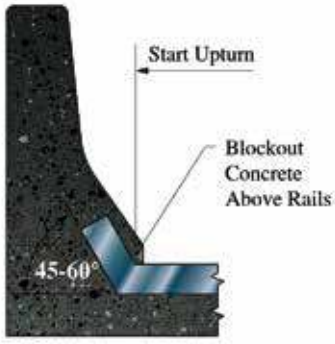
Anchorage: Anchorage type, size and spacing for the Steelflex® SSCM2 joint system is illustrated. Anchorage details for other Steelflex® rail profiles are available upon request.

Upturn Details: A watertight joint system is maintained through a simple upturn detail into the concrete barrier. The upturn angle varies depending on the barrier detail, joint skew and Steelflex® rail profile.

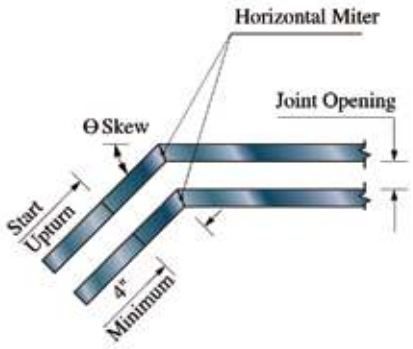
Horizontal Miter Details: Highly skewed structures often require fabrication of a horizontal break in the joint system to orient the steel rail 90 degrees to the face of the concrete barrier.

Leonard P. Zakim Bridge, Boston, MA, USA

Anchorage Illustration



Typical Upturn Detail



Typical Horizontal Miter Detail