

1510 - STRIP SEAL ASSEMBLY

SECTION 1510

STRIP SEAL ASSEMBLY

1510.1 DESCRIPTION

This specification covers materials for a bridge expansion joint system using a strip seal assembly as shown in the Contract Documents.

1510.2 REQUIREMENTS

a. Type I.

(1) Provide a Type I Strip Seal assembly that consists of a single continuous neoprene strip or diaphragm seal element inserted into two wedge grips of extruded or rolled steel that are anchored to the bridge. The Engineer will consider other configurations of locking devices or grips to retain the diaphragm in place if the Contractor provides detailed information on the alternate device.

(2) Unless shown otherwise in the Contract Documents, provide grips that comply with the requirements of ASTM A 36 or A 242. The anchoring system for the grips must comply with the details shown in the Contract Documents.

(3) Provide a Polychloroprene (Neoprene) diaphragm that complies with the requirements of ASTM D 2628 (except for recovery requirements), or alternately, ASTM D 2000 3BC 615 A14 B14 C12 F17 (250% minimum ultimate elongation). In the preceding "line call-out", the "15" in 615 refers to minimum tensile strength in hundreds of psi.

(4) Provide a sealant for bonding the neoprene diaphragm to the steel grips that complies with the recommendations of the manufacturer of the assembly.

b. Type II

(1) Provide a Type II assembly that consists of separate units of elastomer and metal or integrally molded components cast under heat and pressure, and anchored to the bridge by bolts or studs.

(2) The assembly must contain a flexible convolution or diaphragm, with or without fabric reinforcement, which links the pads and spans the expansion joint. The diaphragm must be a continuous strip, molded in an upstanding arch, which will retain its shape during the expansion cycle and must permit horizontal, vertical, and skewed movements while still maintaining a watertight seal.

(3) Provide an elastomer manufactured from neoprene that complies with **TABLE 1510-1**.

| TABLE 1510-1: TYPE II ELASTOMER | | |
|-----------------------------------------------------------------------------------------|------------------|---------------------------|
| Property | ASTM Test Method | Requirement |
| Tensile Strength | D 412 | 1500 psi, minimum |
| Elongation at Break | D 412 | 200% minimum |
| Hardness | D 2240 | 45±10 points, Durometer A |
| Compression Set, 22 hrs @ 70°C | D 395, Method B | 35% maximum |
| Low Temperature | D 746 or D 2137 | Not Brittle @ -40°C |
| Ozone Resistance, exposure @ 100 PPHM ozone for 70 hrs. @ 40°C, sample under 20% strain | D 1149 | No Cracks |
| Oil Deterioration, volume increase after immersion in IRM 903 Oil for 70 hrs. @ 100°C | D 471 | 120% maximum |

PPHM = Parts Per Hundred Million

(4) Provide a sealant that complies with the recommendations of the manufacturer of the assembly.

(5) Fasten the assembly to the bridge with bolts or studs that complies with details in the Contract Documents and are of a length recommended by the assembly manufacturer.

(6) Provide internal reinforcement plates that comply with the requirements of ASTM A 1011 SS Grade 36, A 36 or similar structural steel.

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c. Type III

(1) Provide a Type III assembly that consists of a continuous cellular or strip type neoprene seal, geometrically designed to fasten to or be clamped by the extruded aluminum frames anchored to the bridge by bolts or cast-in-place anchors.

(2) Provide aluminum frame components that comply with the requirements of ASTM B 221 (Alloy 6061-T6).

(3) Fasten the assembly to the bridge with bolts or studs that complies with details in the Contract Documents and are of a length recommended by the assembly manufacturer.

(4) Provide an elastomer manufactured from preformed neoprene that complies with **TABLE 1510-2**.

| TABLE 1510-2: TYPE III ELASTOMER | | |
|-----------------------------------------------------------------------------------------|-------------------------|---------------------------|
| Property | ASTM Test Method | Requirement * |
| Tensile Strength | D 412 | 2000 psi, minimum |
| Elongation at Break | D 412 | 175% minimum |
| Hardness | D 2240 | 70±10 points, Durometer A |
| Compression Set, 22 hrs @ 70°C | D 395, Method B | 25% maximum |
| Low Temperature | D 746 | Not Brittle @ -40°C |
| Ozone Resistance, exposure @ 300 PPHM ozone for 70 hrs. @ 40°C, sample under 20% strain | D 1149 | No Cracks |
| Oil Deterioration, volume increase after immersion in IRM 903 Oil for 70 hrs. @ 100°C | D 471 | 80% maximum |

* All test sections taken for the extruded section.

PPHM = Parts Per Hundred Million

1510.3 TEST METHODS

Test the materials in accordance with the ASTM standards referenced above.

1510.4 PREQUALIFICATION

None required.

1510.5 BASIS OF ACCEPTANCE

Receipt and approval of a Type D Certification as specified in **DIVISION 2600**.

Visual inspection for condition at the point of usage.