SECTION 516-0002 – BRIDGE EXPANSION JOINT, STRIP SEAL

516-0002.01  DESCRIPTION. This work shall consist of furnishing and installing expansion devices, including the seals and anchorage systems, as shown on the Plans, in accordance with Section 506, Section 516, these specifications, and the manufacturer’s recommendations.

516-0002.02  MATERIALS. Materials shall meet the requirements of the following subsections:

Structural Steel 714.02

High Strength Structural Bolts and Assemblies, 120 ksi 714.05

Welded Stud Shear Connectors 714.10

Galvanizing 726.06

Steel extrusions shall meet the requirements of *ASTM A36*. A Type D Certification shall be furnished for the steel extrusions.

Lubricant-adhesive shall be a one part, moisture curing, polyurethane and aromatic hydrocarbon solvent mixture and shall have the physical properties listed in Table 516-0002.02A. Each lot of lubricant- adhesive shall be delivered in sealed containers plainly marked with the manufacturer’s name or trademark and the date of manufacture. Maximum shelf life shall not exceed 6 months.

TABLE 516-0002.02A – LUBRICANT-ADHESIVE PHYSICAL PROPERTIES

|  |  |
| --- | --- |
| Property | Requirement |
| Solids content | 60% – 80% by weight |
| Service range | 5°F to 120°F min. |
| Film strength (*ASTM D412*) | 1,200 psi min. |
| Elongation at break | 250% min. |

Strip seals shall be single membrane extruded or molded shapes made of elastomeric polychloroprene (neoprene) conforming to the requirements of *AASHTO M 297*.

Bridge Expansion Device, Strip Seals shall be of the general configuration as shown on the Plans and shall be one of the following, or an approved equal:

Wabo StripSeal - Bridge, SE-400 Watson Bowman Acme Corp.

95 Pineview Drive

Amherst, NY 14228

(800) 677-4922

Steelflex Strip Seal EJS, A2R-400

The D.S. Brown Company

300 East Cherry Street

North Baltimore, OH 45872

(419) 257-3561

516-0002.03  FABRICATION DRAWINGS. The Contractor shall submit detailed fabrication drawings for the expansion devices in accordance with Subsection 105.06 and Section 506.

516-0002.04 FABRICATION. All work shall conform to the applicable provisions of Section 506.

As received from the supplier of the seal, seals may contain one splice for each continuous length of 50 feet or greater. Sections under 50 feet long shall not have any splices. Splices at abrupt angular changes in horizontal alignment will be allowed. Splices shall be shop vulcanized by the seal supplier. The seals shall be marked on the top surface with the manufacturer’s name or trademark, the lot number, and the size designation at intervals of 5 feet or less.

Steel portions of the expansion device shall be galvanized. Galvanizing on the metal surfaces in direct contact with strip seals shall be lightly sandblasted to a dull gray appearance in order to promote a high strength bond between the seal and the mating surface, and for smoothness for installation purposes. Alternately, this galvanized surface may be prepared to the manufacturer’s published recommendations for installation and bonding of seals.

516-0002.05  DELIVERY. Unless otherwise specified on the Plans, expansion devices shall be shipped fully assembled and shall be installed as a unit. The unit shall be equipped with shipping and temperature adjustment devices approved by the Construction Engineer, and shall be pre-adjusted, in the fabrication facility, to the opening required at 45°F.

516-0002.06  INSTALLATION. Expansion devices shall be installed following placement of the approach slab. The devices shall be lowered into place, adjusted for the temperature in accordance with the Plans and fabrication drawings, set to the proper height, and fastened in place. Once the expansion devices are set in their final positions, all shipping and temperature adjustment apparatuses shall be removed and the concrete for the approach slab shall be placed.

Seal elements shall be installed in accordance with the manufacturer’s recommendations, using equipment manufactured specifically for the purpose of installing the seal elements. The equipment shall not cause structural damage to either the seal or the joint armor and shall not twist, distort, or cause other deformations in the installed seal element. Any perforation or tearing of a seal element due to installation procedures or construction activities will be cause for rejection of the installed seal element, requiring replacement by the Contractor at no cost to the Agency.

Immediately prior to the installation of the seal element, the metal contact surfaces of the joint armor shall be clean, dry, and free of oil, rust, paint, or foreign material. Unless otherwise recommended by the seal manufacturer, the contact surfaces of the seal element shall be cleaned with normal butyl-acetate, using clean rags or mops, immediately prior to application of the lubricant-adhesive or sealant. The lubricant-adhesive or sealant shall be applied to the seal element and joint armor contact surfaces at the rate recommended by the seal manufacturer.

516-0002.07  METHOD OF MEASUREMENT. The quantity of Bridge Expansion Joint, Strip Seal to be measured for payment will be the number of linear feet installed in the complete and accepted work. Measurement will be made along the centerline of the expansion device.

516-0002.08  BASIS OF PAYMENT. The accepted quantity of Bridge Expansion Joint, Strip Seal will be paid for at the Contract unit price per linear foot. Payment will be full compensation for detailing, furnishing, handling, transporting, and placing the material specified, including the anchorage system, nondestructive testing of welds, surface preparation, protective coating, and for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item Pay Unit

516.XXXXXXX  Bridge Expansion Joint, Strip Seal Linear Foot