SPECIFICATION Division 07900
ES-Series System [Urethane Wide Joint]

PART 1 GENERAL

1.01 Summary

A. Provide all labor, materials, equipment, and services; perform all operations required for complete installation of expansion control system and related work as indicated on the drawings and specified herein.

B. Work Included: The work shall consist of furnishing and installing expansion joints in accordance with the details shown on the plans and the requirements of the specifications. The joints utilize urethane molded seals, primers, bedding and nosing materials.

1.02 Quality Assurance

A. Materials and work will conform to the latest edition of reference specifications specified herein and to all applicable codes and requirements of local authorities having jurisdiction.

B. The manufacturer will have documented experience in expansion joint control covers and systems for parking structures.

C. Fire Barrier - Where indicated, provide expansion joint cover assemblies whose fire resistance and cycling capability has been determined per UL 2079 by Underwriter Laboratories, Inc. Fire rating not less than the rating of adjacent construction.

1.03 Submittals

A. Product Data - Submit copies of manufacturer's latest published literature for materials specified herein for approval. Data to clearly indicate movement capability of cover assemblies and suitability of material.

B. Certificates - Material test reports from qualified independent testing laboratory indicating and interpreting test results relative to compliance of fire-rated expansion joint assemblies with requirements indicated.

C. Shop Drawings - Submit shop drawings for work specified herein for approval. Shop drawings showing full extent of expansion joint cover assemblies. Include large-scale details indicating profiles of each type of expansion joint cover assembly, splice joints between sections, joinery with other types, special end conditions, anchorages, fasteners, and relationship to adjoining work and finishes.

D. Samples will include the following - Samples of each type of system to be used in work with color samples.

1.04 Delivery, Storage

A. Deliver products in manufacturers original, intact, labeled containers, pallets, and/or bundles and store in a dry environment with ambient temperatures above 40°F. Protect materials from general construction site activities.

PART 2 PRODUCTS

2.01 General

A. Provide watertight expansion joint sealing system that is capable of accommodating movement caused by thermal expansion and contraction of the substrate. The system shall be composed of a premolded, two-part urethane seal cured to standard dimensions under factor controlled climatic conditions, a one- or two-part urethane bedding material, an aluminum traffic plate and a two part, high durometer urethane nosing material.

The urethane seal shall be sized to accommodate the total range of movement as dictated by the specifier at each joint location. Sizing shall be done in such a way as to ensure that the premolded seal will never exceed its maximum movement capability.

2.02 Manufacturers

A. Expansion joint cover assemblies specified herein and indicated on the drawings shall be manufactured by EMS, Inc. 13311 Main Road, Akron, NY 14001.

2.03 Materials

A. Factory Molded Seal

Provide seal as specified and indicated on the contract drawings. Prior to shipment from the factory, the edges of the seal element must be abraded clean. Seal material shall meet the following physical properties indicated below:

PHYSICAL PROPERTIES – Factory Molded Seal

Property	ASTM Test Method	Results
Shore A Hardness	D-661	30 +/-5
Tensile Strength	D-412	250 psi
Ultimate Elongation	D-412	700%
Movement Capability	C-719	+/- 16%
Low Temperature D-1790 (Flexibility @ -40°F)		Pass
Service Temperature Range		-40°F to 150°F

B. Polymeric Nosing Material

PHYSICAL PROPERTIES – Polymeric Nosing

Property	ASTM Test Method	Results
Shore A Hardness	D-661	55 +/-5
Movement Capability	C-719	+/- 12.5%
Tensile Strength	D-412	1000 psi
Ultimate Elongation	D-412	200%
Weight Loss, Heat Aging	C-792	<5%
Peel Adhesion – Concrete	C-794	50 lbs
Cure Time @ 70^{o}F	C-920	24 hours
Low Temperature Flexibility	D-1790	Pass

C. Bedding Material

PHYSICAL PROPERTIES – Bedding Material

Property	ASTM Test Method	Results
Shore A Hardness	D-661	30 +/-5
Movement Capability	C-719	+/- 25%
Tensile Strength	D-412	300 psi
Ultimate Elongation	D-412	600%
Heat Aging	C-920	6%
Recovery	C-920	98%
Cure Time @ 70^{o}F	C-920	24 hours
Low Temperature Flexibility	D-1790	Pass

D. Primer – All concrete that will come in contact with the Bedding of the Polymeric Nosing must be primed with Primer #10.

E. Traffic Plate – All traffic plates must be made of 6061-T6 aluminum and be of sufficient width and thickness to accommodate anticipated traffic types and volumes at the widest joint opening dimension.

PART 3 - EXECUTION

3.01 General

All work shall be installed in strict accordance with the system manufacturer's recommendations employing trained installers utilizing proper tools and equipment, and working under the direct supervision of a technically competent and experienced supervisor.

3.02 Preparation

A. The contractor shall provide properly formed, solid blockouts with clean, sound concrete free of voids and honeycombs, and in accordance with the dimensions detailed in the drawings.

B. The contractor shall clean the concrete blockout of all contaminants by sandblasting immediately prior to the Primer #10 installation. Concrete form release agents, laitance, surface dirt and rust, old sealants and other surface treatments, as well as anything which would inhibit the bond of the 881 Bedding or the 980 Polymeric Nosing must be removed from the blockout surface prior to beginning the installation of the system.

C. Areas adjacent to the joint must be masked with tape to assure clean joint lines.

D. The blockout area must be completely dry for the application of the Primer, Bedding or Polymeric Nosing material. Concrete must be fully cured (28 days) prior to placement of the system. Blockouts requiring the use of patching compounds must be cured for 72 hours prior to placement of the ES-System.

E. The blockouts must be made to the dimensions and elevations shown on the standard system drawings. Deviations from these dimensions will not be allowed without the written consent of the manufacturer.

F. The premold seal element shall be unpackaged and laid in a relaxed position to relieve any temporary coiling from shipment packaging prior to placement; the edges of the gland element shall be lightly abraded with a hand grinder/wire wheel attachment then wiped with an acceptable non-petroleum solvent cleaner such as Xylol (Xylene).

G. Work shall not proceed under adverse weather conditions or when temperatures are outside the manufacturer's recommended ranges.

3.03 Installation

The installation of the expansion joint system shall be completed in strict accordance with the manufacturer's recommendations.

3.04 Clean and Protect

Protect the ES-Series Urethane Wide Joint Expansion Joint System during construction. Heavy construction vehicles will not be permitted to cross the joint without specific and written permission by the engineer. Subsequent damage to the expansion joint system shall be repaired at the contractor's expense.

END OF SECTION