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PRODUCT DATA SHEET

**MATRIX 501 ASPHALTIC PLUG
 BRIDGE JOINT SYSTEM**

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READ BEFORE USING THIS PRODUCT

GENERAL The Crafc Matrix 501 Asphaltic Plug Bridge Joint System is a pre-measured, pre-packaged hot-applied bridge expansion joint system primarily composed of uniquely formulated polymer modified asphalt binder combined in one box with the exact ratio of select aggregate. The Crafc Matrix 501 Joint eliminates field measuring, proportioning and mixing required with traditional plug joint systems and provides a watertight, smooth riding joint that can accommodate up to $\pm \frac{3}{4}$ inch (19mm) of annual joint movement. The factory blended material is heated and installed in blockouts that are from 2 to 8 inches (5 to 20 cm) deep and 20 to 24 inches (51 to 61cm) wide in either asphalt concrete or portland cement concrete bridge deck surfaces. Simply apply and level the material and then allow to cool. No compaction is required. The Crafc Matrix 501 Joint can be used for expansion, fixed end, and pressure relief joints, in both new construction or rehabilitation projects. The Crafc Matrix 501 Joint can be installed on skewes up to 45 degrees and can be used for joint gaps up to 6 inches (15 cm). Crafc Matrix 501 joints are low cost, quick, and easy to install and maintain compared to anchored joint systems and standard field blended plug joints. The Crafc Matrix 501 Joint meets the requirements of ASTM D6297, Standard Specification for Asphaltic Plug Joints for Bridges.

COMPONENTS The Matrix 501 Asphaltic Plug Bridge Joint System is composed of Matrix 501 Mastic, Matrix 501 Adhesive, D Surface Dressing aggregate, backer rod, bridging plates and locating pins. Details and specifications for these components follow.

MATRIX 501 MASTIC, Part No. 33345

Matrix 501 Mastic is a single component blend of a specially formulated polymer modified asphalt binder and aggregate. The mastic is designed to be workable at application temperatures and resistant to segregation and binder flow on bridge surfaces that are sloped, crowned or super elevated. Matrix 501 Mastic requires no compaction and will form a bonded, flexible, extensible, compressible and traffic resistant joint system. The polymer modified asphalt binder in Matrix 501 Mastic meets the requirements of Table 1 ASTM D6297 as follows:

<u>Test</u>	<u>ASTM D6297 Limits</u>
Softening Point (ASTM D36)	88°C (182 F) min
Tensile Adhesion (ASTM D5329)	700% min
Ductility, 77°F (25°C) (ASTM D113)	400 mm min
Cone Penetration, 77°F (25°C) (ASTM D5329)	7.5 mm max
Low Temperature Cone Penetration, 0°F (-18°C) 200g, 60s (ASTM D6297, sec 9.1).	1.0 mm min
Flow 140°F (60°C), 5 hr. (ASTM D5329)	3.0 mm max
Resilience, 77°F (25°C) (ASTM D5329)	40 – 70%
Asphalt Compatibility (ASTM D5329)	Pass
Recommended Installation Temperature	380°F (193°C)
Maximum Heating Temperature	400°F (204°C)
Bond, 100% extension, 12.5 mm, 3 cycles (ASTM D 5329)	-7°C (20 F)
Flexibility (ASTM D5329)	-28°C (-18 F)

Additional properties of the polymer modified binder are as follows.

<u>Test</u>	<u>Requirements</u>
Brookfield Viscosity, 400°F (204°C) (ASTM D4402)	4000 cp max.
Unit Weight at 60°F (15°C)	9.3 lbs/gal (1.12 kg/l)

Aggregate in Matrix 501 Mastic is a specially selected hard, durable igneous rock that is screened to a specific gradation. Aggregate is double washed, dried, and bagged, and then combined with binder in one container. Aggregate content of Matrix 501 Mastic is 73 +/- 5%. Gradation of the aggregate in Matrix 501 Mastic is as follows:

Screen Size	Percent Passing
½	100
3/8	90 – 100
No 4	2 – 30
No 8	0 – 2
No 16	0 – 1

Packaging consists of individual boxes of product which are palletized into shipping units. Boxes contain a non-adherent film which permits easy removal of the mastic. Each pallet contains 72 boxes which are stacked in six layers of 12 boxes per layer. The weight of product in each box is 40 ± 1 lbs (18 ± 0.5 kg). Product boxes are manufactured from double wall kraft board producing a minimum bursting test certification of 350 psi (241 N/cm^2) and using water resistant adhesives. Boxes use tape closure and do not contain any staples. Boxes are labeled with the product name, part number, lot number, specification conformance, application temperatures and safety instructions. Palletized units are protected from the weather using a three mil thick plastic bag, a weather and moisture resistant cap sheet and a minimum of two layers of six month u.v. protected stretch wrap. Pallets are labeled with the product part number, lot number and net weight.

MATRIX 501 ADHESIVE Part No. 33346

Matrix 501 Adhesive consists of the specially formulated polymer modified asphalt designed to coat the blockout area and provide adhesion. Matrix 501 Adhesive meets the properties of Table 1 in ASTM D 6297.

D SURFACE DRESSING AGGREGATE, Part No. 33030

Specially selected igneous aggregate that is screened to a specific gradation, double washed, dried and packaged in 50 lb (22.7 kg) bags. D Surface Dressing aggregate is a fine gradation used to surface the completed joint. Gradation requirements are as follows.

D AGGREGATE	
<u>Screen Size</u>	<u>% Passing</u>
3/16	100
No 6	90 – 100
No 8	25 – 40
No 10	0 – 10

BRIDGING PLATES

Steel Bridging Plates are used to span the expansion gap, to function as a bond breaker and to support traffic loads. Bridging plates for expansion gaps up to 3 inches (7.6 cm) wide are ¼ inch (6.4mm) thick, 8 inches (20 cm) wide and between 36 and 60 inches (0.9 to 1.5 m) long. For expansion gaps from 3 to 6 inches (7.6 to 15 cm) wide, plates that are 3/8 inch (10 mm) thick, 12 inches (30 cm) wide and between 36 and 60 inches (0.9 to 1.5m) long shall be used. Plates are to have 3/16 inch (4.8mm) diameter holes along the centerline spaced at 1 ft (30cm) intervals for placing locating pins to aid in centering the plate over the joint gap. Plates are cut during installation to required lengths to cover the entire length of the joint gap.

LOCATING PINS

16D galvanized common nails are placed through the holes in the bridging plates and down into the expansion gap opening to center the plate in the joint.

BACKER ROD, Part No. 34609

A closed cell heat resistant backer rod used to provide back up in the expansion gap. Backer rod is 2 inch (5cm) diameter, supplied in 6 ft (1.8m) lengths and meets requirements of ASTM D5249, “Standard Specification for Backer Material for Use with Cold and Hot Applied Joint Sealants in Portland Cement Concrete and Asphalt Joints, Type 1”. If required for narrow or wide expansion gaps, other diameters can be used.

TYPICAL INSTALLATION Figure 1 shows a typical installation of the Matrix 501 Asphaltic Plug Bridge Joint System. Locations for each of the components are shown.

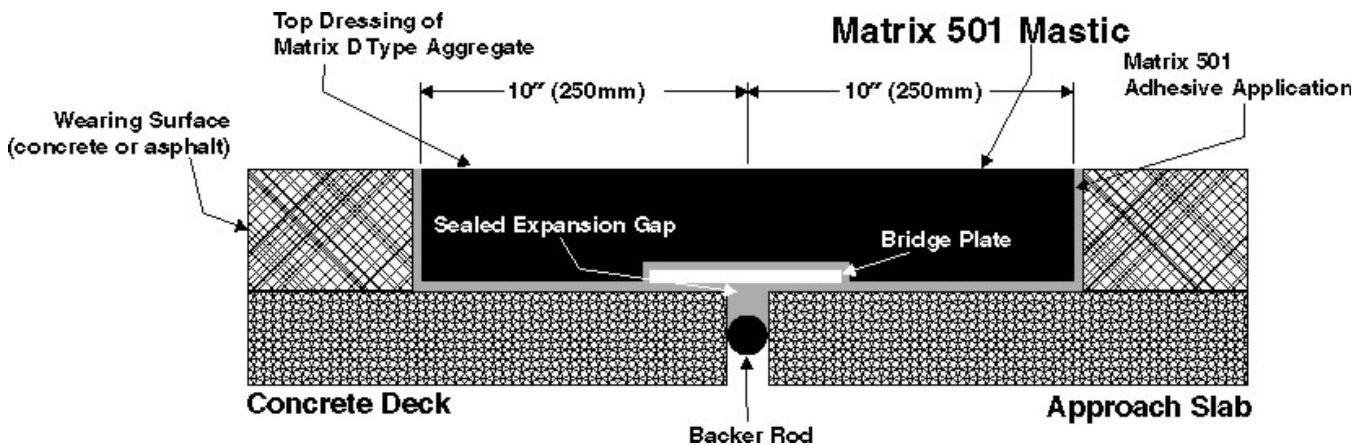


Figure 1. Typical Matrix 501 Asphaltic Plug Bridge Joint System Installation

For complete detailed installation procedures, refer to the “Installation Instructions for Matrix 501 Asphaltic Plug Bridge Joint System”.

WARRANTY CRAFCO, Inc. warrants that CRAFCO products meet applicable ASTM, AASHTO, Federal or State specifications at time of shipment. Techniques used for the preparation an installation are beyond our control as are the use and application of the products; therefore, Crafcoc shall not be responsible for improperly applied or misused products. Remedies against Crafcoc, Inc., as agreed to by Crafcoc, are limited to replacing nonconforming product or refund (full or partial) of purchase price from Crafcoc, Inc. All claims for breach of this warranty must be made within three (3) months of the date of use or twelve (12) months from the date of delivery by Crafcoc, Inc. whichever is earlier. There shall be no other warranties expressed or implied. **For optimum performance, follow Crafcoc recommendations for product installation.**