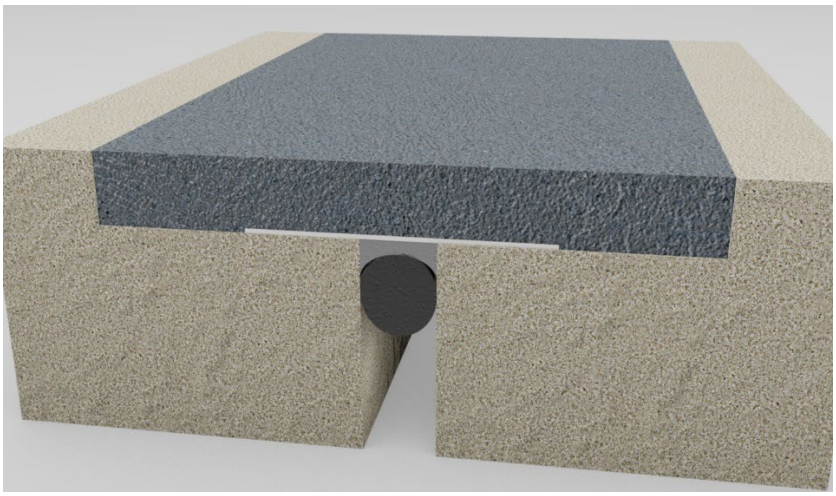
Installation Procedure

Last Updated: June 2024



Wabo®Expandex

Asphaltic Plug Joint System for Bridge & Highway Applications

The following installation procedure is very important and must be fully understood prior to beginning any work. To ensure proper installation and performance of expansion joint system the following actions must be completed by the installing contractor. Failure to do so will affect product warranty.

1) Carefully read and understand installation procedure. Contact WBA's Technical Service Department at (800) 677-4922 for product assistance.
2) Inspect all shipments and materials for missing or damaged components and hardware. Contact Customer Service at (800) 677-4922 with WBA's order number and invoice for prompt assistance.
3) Inspect substrate or adjacent construction for acceptance before beginning work. Report unacceptable construction to the project manager for scheduled repair work.
4) Review WBA shop drawings for project specific detailed information if Engineering services were purchased at time of order.

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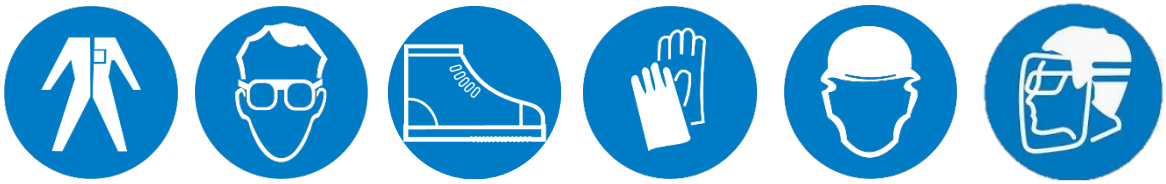
Health & Safety

During the installation of any Watson Bowman Acme product, appropriate personal protective items should be worn at all times, including but not limited to the following:

- Proper work clothing/ long sleeves
- Safety glasses
- Safety boots
- Gloves
- Hard hat
- Faceshield



Local rules and regulations regarding safe work environments and health should be followed.

Pre-Installation Notes

The work shall consist of furnishing and installing a Wabo®Expandex joint system in accordance with the details shown on the plans and the requirements of the specifications. Placement of the Wabo®Expandex joint system shall consist of proper surface preparations, material and application of materials.

The Wabo®Expandex joint system is shipped by length and volume of joint. The steel traffic wearing plates are cut and shipped in 8" (203 mm) wide by 72" (1829 mm) lengths (special lengths can be made if required). The elastomeric binder and granite aggregate are calculated on a volume basis and shipped by weight. One kit of Wabo®Expandex is comprised of 30 lb. (13.6 kg) elastomeric binder, 40 lb. (18 kg) bag of "Type B" granite aggregate and 40 lb. (18 kg) bag of Type "C" granite aggregate.

Joint Preparation

- The blockout shall be constructed to the dimensions on the drawings. The blockout base shall be of sound material with no vertical misalignment and parallel with the plane of the roadway. Should repairs be required to the blockout, an agency-approved repair material shall be used.

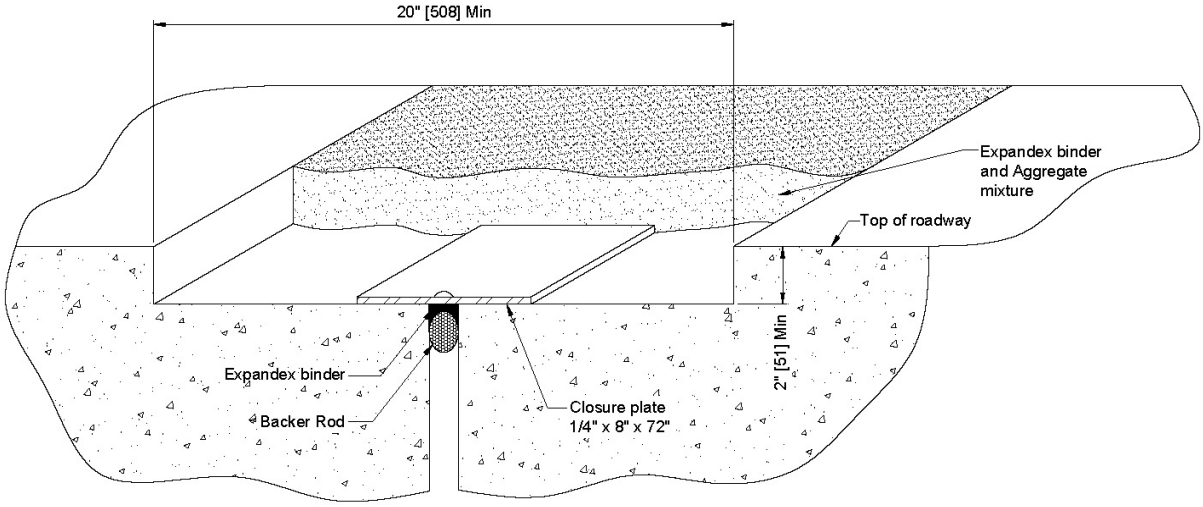
- Minimum blockout width is to be 20" (500 mm) but not exceeding 24" (610 mm). Minimum blockout depth is to be 2" (50 mm), max 4" (100 mm). Contact WBA for larger depths.

- Before installation of the Wabo®Expandex material, all blockout surfaces shall be dry, then abrasive-blasted to remove contaminants and loose aggregate. Blockout should then be heated and cleaned using a hot compressed air lance capable of producing 3000°F (1648°C) and a directional velocity of 90,000 cps (3000 fps) to ensure the removal of any residue from the abrasive-blast operation. Care should be taken to ensure that the abrasive blast and compressed air cleaning does not contaminate the blockout.

- Note: Installation of the Wabo®Expandex should not be done unless the deck temperature is a minimum of 40°F (5°C) and rising.

Backer Rod Placement

1a Once the joint opening and blockout have been properly prepared, the backer rod is placed in the joint opening to a depth of approximately 1” (25mm). A closed-cell, high temperature, expanded polyethylene foam rod is recommended. The size of the backer rod should be 25% greater than the joint opening to be sealed.



*Note: for wider openings (2”+), it is recommended to use pre compressed foam seal (such as Wabo®FS Bridge Seal) in place of heat treated backer rod.
*Note: Pay close attention to the appropriate step to follow in Step 2 and 3 depending on if you are using backer rod or Wabo FS Bridge

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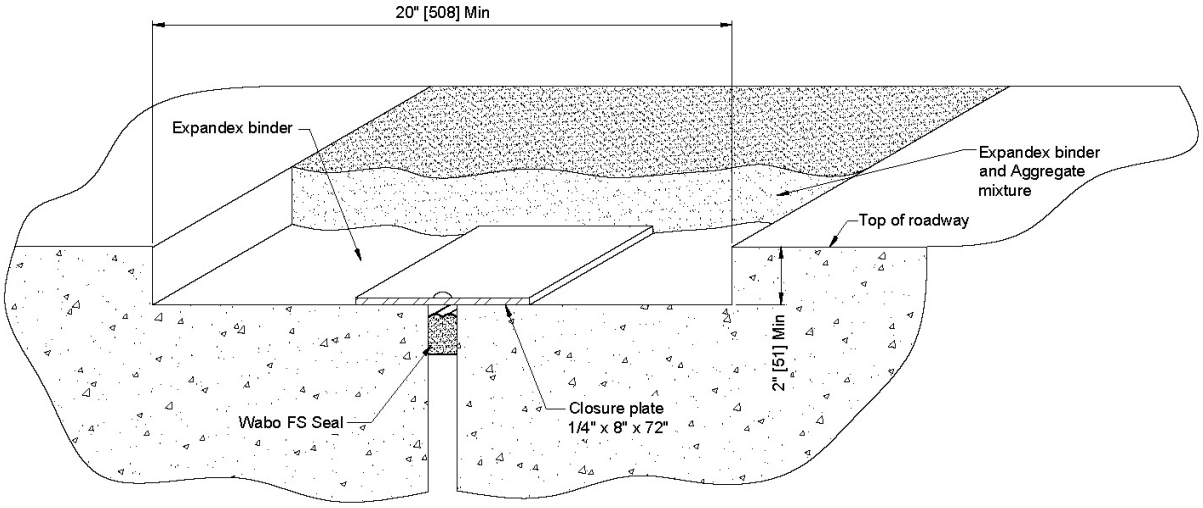
FS Bridge Seal

1b Install FS Bridge Seal according to the Installation Procedure **(Skip for backer rod)**

- Recess 1/4”
- Skip 2a and 2b



Modified Elastomeric Binder Placement

2 Melt the elastomeric binder in a double-jacketed kettle and heat to a minimum of 380°F (193°C), but DO NOT exceed 400°F (204°C). Pour the heated binder over the backer rod in the joint opening to seal the gap. This binder shall be poured level with the base of the blockout. Apply the heated binder over the entire blockout (base and sidewalls) to form a monolithic membrane approximately 1/16” (1.5 mm) to 1/8” (3 mm) thick.

2a Backrod Installation:
Pour the heated binder over the backer rod in the joint opening to seal the gap. This binder shall be poured level with the base of the blockout. **(Skip for FS Installation)**
Apply the heated binder over the entire blockout (base and sidewalls) to form a monolithic membrane approximately 1/16” (1.5 mm) to 1/8” (3 mm) thick. **(Skip for FS Installation)**

2b FS Installation:

- Place binder at base of blockout and side wall
  - Do not get binder on FS material
- Immediately center steel plates over joint opening
- This must be done while material is still tacky **(Skip for backer rod)**

Traffic Wearing Plate Placement

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3a **Backrod installation:** The steel traffic wearing plates are centered over the joint opening, end-to-end along the joint, with no overlapping. Centering pins (16D common nail is recommended) are installed in the pre-drilled holes and inserted directly into the modified elastomeric binder plug. These pins are designed to hold the plates in place. The heated binder shall be poured over the closure plate to encapsulate it. **(Skip for FS Installation)**

3b **FS installation:** Cover steel plate with binder material ensuring plate is fully encapsulated **(Skip for backer rod)**

Binder and Granite Aggregate Placement

4 Follow Steps 4 through 8 no matter the expansion joint type installed
Pre-measured granite aggregate, one 40 lb (18 kg) bag B and one pre-measured granite aggregate 40 lb. (18 kg) bag C, is placed in a rotating drum mixer and heated to a minimum of 350°F (179°C), not exceeding 375°F (190°C). 2.5 to 3 gallons (9.5 Liters) of heated Wabo®Expandex binder -- 380°F (193°C) not exceeding 400°F (204°C) -- is added to this heated granite aggregate.

5 This blend of elastomeric binder and granite aggregate is mixed for approximately 3 minutes or until all granite aggregate is coated and there are no "dry pockets" of aggregate. A hot air lance may be used to maintain the mix temperature on cooler days. Do not let the mix temperature exceed 400°F (204°C) if applying heat. Never apply direct flame to the liquid binder. The mixture is ready for placement in the blockout. Pour the Wabo®Expandex into the blockout to the road surface and level with rakes. If material is placed in lifts, addition neat binder (thin coat) should be placed in between material lifts.

6 Once the blockout is filled, the Wabo®Expandex is to be compacted perpendicular to the joint at curb line. Roadway areas shall be compacted parallel to the joint with a minimum of three passes. First pass shall compact half the joint with the second pass compacting adjacent half of joint. The final pass shall span entire joint width. A minimum two-ton, water cooled drum roller is acceptable for this work. Care shall be taken to ensure that the compaction process does not transfer material to the roller. Water can be used to prevent this should material transfer occur. The application of water should be kept to a minimum. Do not allow the material mixture to cool prior to beginning the compacting operation. This step should be ongoing during the installation process.

Final Treatment

7 After compacting, the Wabo®Expandex is ready for final treatment. The top surface shall be heated with a hot air lance until the surface becomes tacky. Duct tape should be placed 1” (25 mm) away from the joint edges and parallel to the joint. Pour and spread (using a squeegee) heated elastomeric binder over the top surface to form a thin membrane.

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8 Broadcast “Black Beauty” to eliminate possible tackiness (do not use silica sand). The installed Wabo®Expandex joint will be ready to accept traffic once the joint has cooled to the touch. Minimum cooling time 1 hour.

Do not install under following conditions

- Wet conditions exist or are expected prior to completion of work.
- Joint movement greater than +/- ¾”
- No vertical misalignment of blockout base
- Joint locations where dynamic intermittent vertical displacements exceed 1/4”
- Not recommended on skews greater than 45°
- Refer to Best Results on data sheet

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