Rite-X Asphalt Plug Joint System

SPECIFICATION

Backer Rod
The backer rod shall be a closed cell, foam expansion joint filler, capable of withstanding the elevated temperature of the polymeric binder. The backer rod shall have the following typical physical properties using a 2” specimen and test method ASTM D-545:

- Density: 2.0 Lbs/Cu.Ft, min
- Tensile Strength: 30 psi, min.
- Compression: 5 psi @ 25%, min
- Water Absorption: 0.03 g/cc by weight, min (1% Max)
- Temperature @ 410°F (210°C) No Melting

Bridging Plate
The bridging plate shall be a mild steel plate, ¼” thick by 8” wide, cut in 4’ to 5’ lengths. Spike holes shall be drilled on a longitudinal centerline at 1’ intervals.

Installation Crews
The Rite-X Joint System is to be installed only by factory trained and certified installation professionals.

Equipment
1. Small walk-behind dry cut saw.
2. Pneumatic compressor of 185 CFM capacity.
3. One Hot-Compressed Air Lance (HCA Lance), capable of delivering flame retarded air stream with a temperature of 3,000° F (1648° C), at a speed of 3,000 feet per second.
4. Rotating vented or un-vented drum type mixers with a Hot-Compressed Air Lance (HCA Lance), or a pressure – air injection torch (PAT torch).
5. Melter unit equipped with agitation and an automatic temperature control which can accurately maintain the material temperature from 100°F - 650° F (38°C - 343°C). A thermometer to monitor the material temperature must be provided. The burner system shall have a safety pilot capable of shutting off the gas supply in the event of a flame-out.
6. 100 lb. bottles of propane.
7. Vibratory roller or plate capable of compacting up to 1” in one pass.
8. Hand held calibrated digital temperature sensor.
9. Chop-saw with carbide blade, if needed.
10. Sandblasting equipment, required only for installation in a concrete overlay.
11. Safety clothing and equipment as required by OSHA.

INSTALLATION PROCEDURE

Note: Rite-X Joint System must be installed at a minimum depth of two inches (2") in order to perform correctly.

Marking Out: The Rite-X Joint System shall be located centrally over the deck expansion gap or fixed joint and marked out to the recommended width of 20”.

Excavation: The joint shall be excavated by the use of saws and pneumatic hand tools. Where possible, saws shall be set to cut the full required depth of the wearing surface and any membrane present. Variations in the depth of the wearing surface across the road should be considered to insure, where possible, that the deck is not damaged. All debris from the excavation channel shall be removed to allow the full volume of new joint to be.
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Cleaning: The entire channel must be thoroughly cleaned and dried. Small debris will be removed by using compressed air. A sandblaster will then be applied throughout the length of the channel, to clean any remaining debris on the vertical walls and adjacent deck area.

Repairs: Spalled and defective concrete should be repaired with an approved material as agreed upon by the Project Engineer.

Caulking: The gap shall be caulked with the backer rod, allowing for approximately 1” of binder in the gap on top of the rod. If the previous caulking is intact and will hold the binder, it may be used to take the place of the backer rod. A small amount of hot binder should be placed onto the caulking to insure that the gap is adequately plugged.

Tanking: Immediately after cleaning and caulking, the entire channel shall be coated with a thin layer of hot binder. If significant delay occurs, the channel shall be inspected to determine if re-cleaning is necessary.

Plating: The gap shall be bridged with the steel plates centered over the gap by placing locating pins in the centerline of the plate. There must be at least 2” between the edge of the steel plate and the wall of the channel. Once the locating pins are in place, the top of the plate shall be coated with a thin layer of hot binder.

Aggregate: The aggregate must be heated in a vented (preferred) or un-vented rotating drum mixer by the use of a hot compressed air lance (HCA Lance), or a pressure air injection torch (PAT torch). Once the aggregate has been heated to a temperature of 370° - 380° F (188° - 193° C), it is then coated with a small quantity of binder. One gallon of binder per 100lbs. of stone should be sufficient to coat the stone.

Binder: The binder shall be heated to the recommended pouring temperature, 370° - 385° F (188° - 196° C). At no time shall the recommended safe heating temperature of 400° F (204°C) be exceeded.

Material Installation: Layers of hot pre-coated aggregate not more than 2.5” thick shall be placed in the channel and immediately covered to the level of the coated aggregate. This will ensure that the 3:1 weight ratio of aggregate to binder has been achieved. Layers shall be raked to insure the aggregate is completely coated and that all air pockets are eliminated. This process shall cease approximately three-quarters of an inch (3/4”) from the top of the channel.

Surface Layer: The surface layer shall be applied as other layers except that the pre-coated aggregate is not flooded with binder. The pre-coated aggregate shall be transferred to the joint and leveled slightly higher than the adjacent road surface. On a standard 2” deep joint, the topcoat should be one quarter inch (1/4”) higher than the road surface. Deeper joints will require higher levels before tamping.

Compaction: Compaction should take place after the joint has cooled to approximately 225° F (107° C). The joint surface shall be made approximately level with the existing road surface by using the vibratory plate or roller.

Top Coating: After compaction, lines of 3” tape are placed one inch beyond the joint width on each side of the joint to insure evenness of appearance. The joint and at least one inch of the road surface shall be top-coated with the hot binder until the surface is smooth and absent of voids. 

Note: If it is impossible to topcoat the joint during the same working day/night, it is allowable that the topcoat step be completed on the next working day/night. However, the surface must be cleaned, dried, and heated with the HCA Lance.

Surface Dressing: Immediately after top-coating, an anti-skid material is spread evenly over.