

Donseal HT Asphalt Plug

Hot-applied polymer modified asphaltic plug joint



Description

Donseal HT Asphalt Plug is a polymer modified hot-applied asphaltic binder. In combination with a carefully graded aggregate, Donseal HT Asphalt Plug provides an easy to apply flexible asphaltic plug to accommodate slight structural movement in bridges expansion joints. The "HT" designation refers to a stiffer formulation with elevated Softening Point.

Applications

- » Provides a reliable modified asphaltic joint plug for in-situ constructed expansion joints in bridges with movement accommodation up to ± 20 mm.
- » Acts as a flexible and smooth transition strip between the approach pavement and the bridge deck.
- » Can be used as a repairing and patching system for localized defective areas in roads and pavements.

Note: The actual movement accommodation of Donseal HT Asphalt Plug depends on the blockout width and thickness, for further information, please consult DCP's Technical Department.

Advantages

- » Highly workable.
- » Excellent asphalt compatibility.
- » Highly durable.
- » Maintains good flexibility at low temperature.
- » Excellent bond properties.
- » Low maintenance requirements.
- » Minimum traffic downtime.

Standards

Donseal HT Asphalt Plug complies with the requirements of Standard Specification for Asphaltic Plug Joints for Bridges, ASTM D6297 (see technical properties table).

Aggregate Properties

A low absorbent hard wearing aggregate of 10 - 25 mm size should be used, consult with DCP's technical department for more details about the suitability of other types and sizes of aggregates.

Technical Properties:

Softening point: ASTM D36	$\geq 90^{\circ}\text{C}$
Tensile adhesion: ASTM D5329	$\geq 700\%$ (pass)
Ductility @ 25°C: ASTM D113	≥ 400 mm (pass)
Penetration @ 25°C: ASTM D5329 (Ball)	< 7.5 mm (pass)
Penetration @ -18°C: ASTM D5329 (Ball)	> 1.00 mm (pass)
Flow @ 60°C, 5 hr: ASTM D5329	< 3.0 mm (pass)
Resilience @ 25°C: ASTM D5329	40 - 70% (pass)
Asphalt compatibility: ASTM D5329	Pass
Bond strength, 3 cycles, 100% extension @ 25°C: ASTM D5329	Pass
Flexibility @ -7°C: ASTM D5329	Pass
Cone penetration:	20 ± 5 mm

**Technical properties as per the requirement of ASTM D6297 for Donseal HT Asphalt Plug binder.*

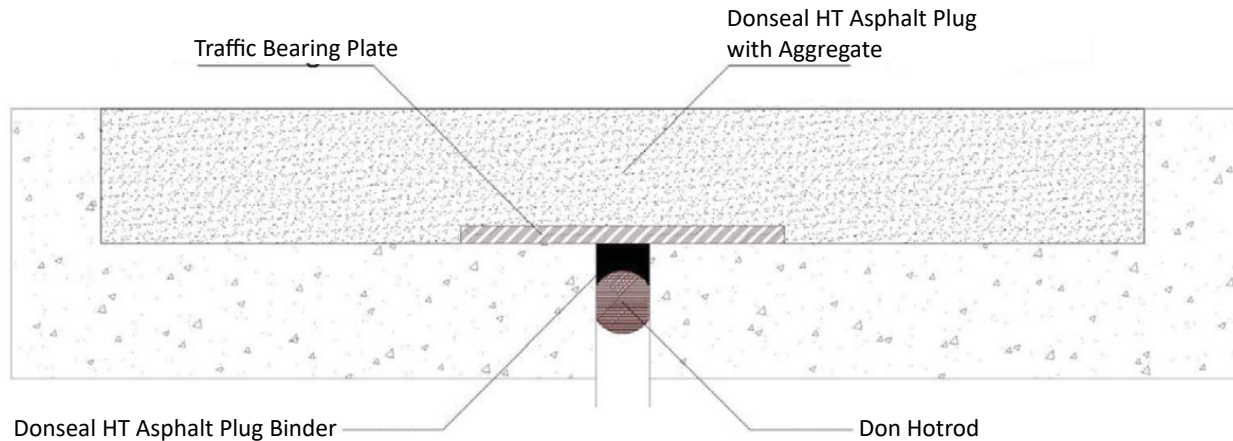
The mixing ratio for the binder part with the aggregate is highly dependent on the aggregate size and type, method of installation and other site conditions, a recommended start-up mix ratio is as follows:
1 part binder: 3 parts aggregate (by weight)

Method of Use

Substrate Preparation

The substrate must be clean, dry, even, dense and free from oil, grease, dust and other contaminants. A clean surface ensures maximum adhesion between the substrate and the system.

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Blockout should be prepared by removing any loose material, latencies and contamination which can affect the adhesion of Donseal HT Asphalt Plug. Blockout should have a minimum depth of around 50 mm and a width of 300 up to 700 mm.

Consult with DCP's technical department for more details about the suitability of other blockout dimensions.

Priming

A backing rod (Don Hotrod) should be placed in the deck gap to eliminate the loss of binder when applied. After placing the backing rod, pour a suitable quantity of the heated Donseal HT Asphalt Plug binder filling the joint gap, afterwards, use the heated binder to coat the inside surfaces of the blockout, the binder will act as a primer.

Mixing and Placement

Place a bridging plate of suitable size with thickness not less than 6.0 mm, the plate should extend to a minimum width of 35 mm to either side of the deck gap. After fixing the plate, use the heated Donseal HT Asphalt Plug binder to coat the surfaces of the plate.

Place the packed aggregate into a rotating drum mixer and heat using a heating lance to a temperature of around 185 - 200°C.

Meanwhile, place Donseal HT Asphalt Plug binder packs in an agitated melter. Heat Donseal HT Asphalt Plug binder to a temperature between 185°C - 200°C, the material should be continuously agitated to distribute the heat evenly.

Once the binder reaches the needed temperature, pour the recommended amount of the heated binder into a container of known volume and add it to the heated aggregate. Mix the aggregate with the binder until it is fully coated with the binder. Make sure that the mixture temperature does not fall below 185°C.

Lay the heated mixture into the blockout and level it using a compactor, continue the procedure mentioned above until Donseal HT Asphalt Plug mixture is level with the surrounding surface.

Once the material is levelled, the surface should be sealed using a heated Donseal HT Asphalt Plug binder. If needed, while the binder is still hot, it can be broadcasted with fine silica sand.

Alternatively, the material can be applied by laying the heated aggregates into the primed blockout. The heated binder should be poured directly over the hot aggregate and spread using a suitable tool until the aggregate is fully coated. Perform the compaction and finishing as stated above.

Note: Follow the same procedure for heating the binder when it is used for filling the joint gap and coat the insides of the blockout and the bridging plate.

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Remarks

For joints above 100 mm in-depth, it is recommended to apply Donseal HT Asphalt Plug as layers, each layer should be left slightly to cool, and then it is coated with a thin layer of the heated binder before applying the next layer.

Cleaning

All equipment should be cleaned immediately after finishing using xylene, acetone or other suitable solvents.

Packaging

Donseal HT Asphalt Plug binder is available in 15 kg blocks, one block per carton.

Storage

Donseal HT Asphalt Plug has a shelf life of 24 months from the date of manufacture if stored in its original packs in dry and shaded areas.

If these conditions are exceeded, contact DCP Technical Department for advice.

Cautions

Health and Safety

Avoid inhalation of vapours and ensure adequate ventilation. Avoid contact with skin and eye. Gloves, overalls and goggles should be worn and the use of barrier cream is highly recommended.

Fire

Ensure adequate ventilation. Do not use near a naked flame and do not smoke during use.

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Note:

We endeavour to ensure that any information, advice or recommendation we may give in product literature is accurate and correct. However, because we have no control over where and how products are applied, we cannot accept any liability arising from the use of the products.

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