

Hychem™ PNS System

Polymer Nosing and Joint System

Description

The Hychem™ PNS System is for the rehabilitation of small movement joints primarily used on bridges. The system consists of a polymer nosing repair mortar and a low modulus silicone sealant. The system is designed for a fast return to service, suitable for high level of traffic movements and easy to apply even in extreme environments.

Technical Summary

- Designed for bridge deck and pavement joints in high traffic environments for new works and rehabilitation projects
- Rapid curing system enabling early return to service and reduced traffic disruption.
- Durable polymer nosing provides high strength, impact and chemical resistance for long-term performance.
- Flexible low modulus silicone highway sealant accommodates joint movement while maintaining a watertight seal.

Application Summary

- Suitable for use in concrete and asphalt substrates across road, airfield and parking structures.
- Simple installation process supports staged construction and lane-by-lane application.
- Compatible with standard surface preparation and application methods

Typical Applications

- Bridge Deck Joints
- Airport Runway and Taxiway Joints
- Parking Deck Joints
- Header Repairs
- Concrete Hardstand Repairs

System Structure

The Hychem™ PNS System structure:

Polymer nosing system mortar: FasTrac CE715 PNS

High movement silicone highway sealant for:

Horizontal joints: Spectrem 900 SL (self levelling) or Spectrem 800

Vertical joints: Spectrem 800 (non-sag).

Advantages

- Fast return to service minimises lane closure times and traffic disruption.
- High durability system resistant to mechanical loading, weathering and chemical exposure.
- Flexible sealing system maintains performance under thermal and traffic-induced movement.
- Efficient installation using commonly available equipment and standard construction practices.
- System can be locally repaired, reducing lifecycle maintenance costs.
- Suitable for a wide range of climates and infrastructure applications.

Design Criteria

The Hychem™ PNS System is designed for small movement joints typically in the range of 25–75 mm wide and is intended for use in concrete and asphalt bridge deck and pavement applications. The system relies on a combination of a high-strength polymer nosing mortar to provide structural edge protection and a low modulus silicone sealant to accommodate joint movement and maintain a watertight seal.

Final design parameters, including joint dimensions and movement capacity, should be confirmed based on project-specific requirements and applicable specifications.

Compatible Materials

Substrate: Concrete, asphalt, steel

Overlays: FasTrac CE715 PNS can be overlaid with bitumen and asphalt. The Spectrem 900SL and /or Spectrem 800 are not suitable to be overlaid with other materials.

Applicator Materials List

Nosing mortar: FasTrac CE715 PNS polymer joint nosing mortar Component A (Resin), Component B (Hardener) and Component C (Aggregate)

Joint sealing: Spectrem 900SL and/or Spectrem 800, closed cell backing rod.



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Technical Data

This document provides system-level guidance only. Refer to the Technical Data Sheet for each component of the Hychem™ PNS System for technical and performance data.

Application Data

Property	Property Value
Application temperature range	10°C and rising
Typical Joint width range	25 – 75mm
Substrate Temperature	+24° C
WAITING TIME	
Joint sealant application (after the nosing mortar installation)	2 – 3 hours
Open to traffic (after joint sealant application)	Once sealant has skinned over approx. 60 minutes

The actual time shall be based on site conditions and dimensions of the repair area.

Application Guidelines

Refer to the Technical Data Sheets of individual system components for specific information regarding the application.

SUBSTRATE & SURFACE PREPARATION

Asphalt

The asphalt deck overlay is to be cut and removed on either side of the joint to be rehabilitated. The asphalt is to be cut at the full depth and completely removed to fully expose the concrete deck. All residue is to be removed.

Concrete

Roughen concrete surfaces to a Concrete Surface Profile (CSP) of 5 or greater in accordance with ICRI Technical Guideline 310.2R. Blow out all dust, debris, and loose material. Surfaces may be damp but the best performance is achieved when dry. Steel surfaces should be sandblasted to an SSPC – SP6 finish. No primer is required.

Joint Formation

Place a suitable void former to block out the area where the joint is to be formed. The void former is to be the same as the required joint width. The material used in the void former shall be selected for ease of removal. The void former acts as a temporary form and it should be held firmly in place during the application of the polymer nosing mortar.

NOSING MORTAR

Mixing

The three components of the polymer nosing mortar are to be mixed in accordance with the instructions on the FasTrac CE715 PNS Technical Data Sheet.

Application

Pour mixed material into the repair area on each side of the void former and ensure complete filling of the prepared area. The polymer nosing mortar should be fully compacted

with no gaps in the material. Surface resin bleed should be visible, indicating full compaction.

Finishing

Using a trowel, level or screed as necessary to ensure that the polymer nosing mortar is flush with either side of the joint.

Curing

No additional curing is required. Protect from freezing temperatures, rain and traffic until minimum strength requirements are achieved.

JOINT SEALANT

The joint sealant is to be applied in accordance with the instructions with the Spectrem 900SL and/ or Spectrem 800 Technical Data Sheets.

Preparation

After the polymer nosing mortar has hardened remove the void former. Refer to the above waiting time guidance table. The vertical faces of the joint are to be prepared to receive the subsequent sealant. The top edges of the joint are to be ground back to provide a chamfer of approximately 6mm. All surfaces within the joint are to be clean, dry and free of dust and debris. No priming is required.

It is good practice to mask the sides of the joint to allow for easy removal of excess sealant and for a neat appearance.

Prior to the installation of the joint sealant a backing rod or tape is to be placed into the joint to prevent three-sided adhesion and free movement of the joint sealant.

Installation

Spectrem 900SL and/ or Spectrem 800 are applied with conventional caulking or air powered highway sealing pump equipment. Apply sealant with gun nozzle into the joint so that the joint reservoir is filled to the designed level in one pass, from the bottom in order to avoid trapping air beneath the sealant.





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Finishing

Spectrem 900SL does generally not require tooling. Sealant should be recessed 6mm to 9mm below pavement surface to avoid direct contact with wheels rolling over the joint.

Quality Control

The execution of the work shall be carried out in accordance with the project quality plan.

Clean Up

All surfaces, tools and equipment may be cleaned with a solvent based cleaner prior to material setting.

Limitations

The project engineer shall nominate the final joint geometry, nosing dimensions, joint gap, sealant configuration and detailing requirements.

Do not apply in temperatures less than 10°C. Cure rate, working time and trafficability are temperature dependent. Lower temperatures will extend cure times, while elevated temperatures will reduce working time and accelerate curing.

Estimating & Packaging

Refer to the individual Hychem™ Infrastructure Technical Data Sheets for the following:

Nosing Mortar: FasTrac CE715 PNS.

Joint Sealant: Spectrem 800 and/ or Spectrem 900 SL.

Safety

In an emergency, contact 000, the Poisons Information Centre (13 11 26 within Australia) or a doctor for advice. Please refer to the current SDS (Safety Data Sheet) and follow the prescribed safety precautions and handling procedures for the product.

Warranties and Disclaimers

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