

NEW EQUIPMENT & SYSTEM APPROVAL PROFORMA

Ref: 08-08-11-115

Note: the prompts given below are only a guide to the information required for approval. Dependent on the type of equipment or system that requires approval delete any section that is not applicable or include additional information if necessary. **Mandatory** fields are marked with an asterisk (*).

1	Equipment or System to be approved * Epflex Railseal
2	Originator * Name: Matthew Hart Company: ARTC
3	Introduction * Epflex Railseal provides an interface between roadway surface and rail through level crossings. It reduces cracking of asphalt on the field side of rail, which makes the crossing less permeable to water.
4	Determination of Need * The system is designed to improve the performance of the road/rail interface, particularly for bitumen applications. This area often deteriorates at a far greater speed than the remainder of the crossing, resulting in shorter maintenance intervals and more rapid deterioration of the crossing as a whole (due to water/mud ingress). From Polycorp "The flexible rubber Flangeway deflects out of the way if any solid object is present when a train passes. The object is absorbed into the rubber so the upward force it could apply to the wheel flange is limited, greatly reducing any chance of derailment. If the situation is caused by compaction of foreign material in the Flangeway, again the flexible nature of the rubber deflects under the weight. This means the compacted material cannot find any support from beneath, so the wheel flange actually brakes up the foreign material while the motion of the wheels cleans it out. The sealing properties of the rubber deflect surface run off and keep the ballast clean and dry, allowing it to maintain the level of original support for a longer period of time. This enhances the structural integrity of the crossing, reduces settling of the rail and minimizes surface defects in the asphalt blanket. Reducing surface defects gives the vehicle operators the confidence to concentrate on looking for oncoming trains instead of just trying to negotiate the smoothest path across the track. Pre triggering of signals is also reduced by surrounding the rail with electrically resistive rubber. Any foreign material will be in the rubber Flangeway opening, reducing the ability of the signal current to shunt over the rubber to the opposite rail. Reducing this activity also increases confidence in the warning system by the motoring public, further reducing the urge to go around a "possibly" malfunctioning signal. Pedestrians and bicyclists are big fans of the uniform dimensioned Flangeway openings. They are the minimum allowed, and rubber walled, so the effect on narrow wheeled vehicles, such as wheel chairs, is greatly reduced. (Rubber wheels on rubber flangeway get better traction to "pull out" if required.)"
5	Significant Change or Not (as determined by the Manager Standards) * This change in equipment or system is assessed as not significant.
6	Review Panel (as determined by the Manager Standards) * <ul style="list-style-type: none"> • John Furness - Manager Standards • Steve Cooper • Matthew Hart • Tim Calver
7	Safety Both AS 1742.7 and ARTC standards (Section 16 of ARTC Code of Practice and associated manuals/instructions) requiring compliance are centred around flangeway clearances through level crossings. These have been complied with through the design of the extruded rubber sections to provide minimum flangeway clearance.
8	Performance and Suitability EpFlex Railseal has flangeways 60 mm wide and 40 mm deep, complying with the relevant Australian and ARTC standards as above. Upfront cost is lower than installing level crossing panels, but more expensive than asphalt-only crossings. However, this cost is considered acceptable as the product extends the life of the level crossing by so much. This will mean that less maintenance will be required. Changes to current level crossing construction methods are minor. The product has performed well in North American railways for a number of years. Design, installation and maintenance information from Polycorp is attached.
(i)	Use in other rail networks "Polycorp currently sells to virtually every Railroad in North America. Norfolk Southern Railroad has Epflex Railseal as their grade crossing standard and we are in the 5 th year of a 6 year supply contract. They are installing some 90,000 Track feet (27,000 Track Meters) per year and are now seeing the benefit of reusing the same rubber for further crossing projects. Canadian Pacific Railroad, CSX Transportation and Kansas City Southern de Mexico have Railseal as a component of their standard and Polycorp has multi year contracts in place with them as well. Canadian National Railway, Via Rail Canada, Amtrak, Union Pacific, to name but a few, all regularly use Epflex Railseal as part of their crossing maintenance programs.

As far as Australia, we have sold one other Railseal crossing to Mainco in Melbourne."

(ii) **Use in the ARTC network**

Barretts Road, Clapham, installed 25/11/08 under a waiver.
Eastern Parade,
Blakiston Road, Mt Barker 5/05/09

(iii) **Issues arising from usage of the equipment/system**

Attempts to install between dual gauge rails have been unsuccessful due to the rigidity of the material.

(iv) **Changes required to infrastructure or systems for use of the equipment**

Requires changes to Contractor JSA'a and Method Statements (although minor in nature).

9 **Reliability**

Has been in use in North America for some time.

10 **Maintainability**

Once installed, requires no additional maintenance. If proves to be as successful as manufacturer claims, maintenance requirements will decrease.

11 **Approval ***

EpFlex RailSeal Interface field and gauge side rubber fillers for use with various fastenings and rail sizes in single gauge installations only.

EpLock installation clips for use on canted and uncanted rail with various fastenings.

Locking tool

Approval to be ARTC network wide.

12 **Conditions of Approval ***

Must not be used with jointed rail. Rail must be welded.

Use in single gauge installations only.

Where possible, PolyCorp representatives to be present at first installations in any district to provide technical support.

Installation to be carried out according to manufacturer's instructions.

Type of filler and clip used must be appropriate to size of rail and type of fasteners used – for instance there are different products for use with Pandrol e-clips and fastclips, and different products for each rail size.

Both gauge and field side troughs must be clear to drain water. – DO NOT COVER ENDS WITH BITUMEN.

13 **Does the Originator accept the additional Conditions of Approval as set by the Review Panel:**

Yes ☐ No ☐ N/A ☐

14 **Sign off**

ARTC office use only

Review Panel:

John Furness




Date: 14-05-2009.

Steve Cooper



Date:

Matthew Hart



Date: 14/5/09.

Tim Calver



Date: 14/5/09

Attachments:

1. Letter of endorsement from J.A. McCracken, Assistant V.P. of Norfolk Southern Railways in U.S.A.
2. Promotional material containing testimonials and installation and maintenance information.
3. Photographs of installation Blakiston Rd, Mt Barker

EPFLEX Railseal Paving Guidelines

Some Guides

Selection of the asphalt will ultimately affect the durability of the crossing surface. Factors such as aggregate shape, cement quality, temperature and residual moisture content can effect the lay down and compaction process. The materials supplied to the lay down crew should be consistent with NAPA specifications. **Polycorp recommends that Quality Hot Mix Asphalt be laid in two or three separate lifts, dependent on the rail height.**

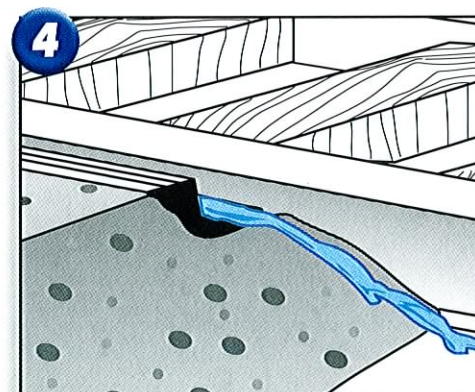
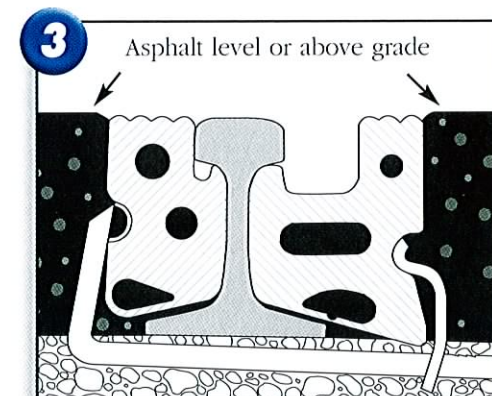
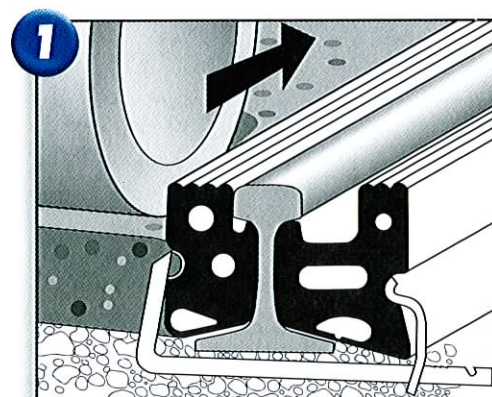
The suggested form is to have larger aggregate base layers with a sealing top coat. Asphaltting should be co-ordinated for the same day as Railseal is installed. No motor vehicles should touch the installed Railseal until the asphalt is up to grade and has had a chance to set.

Note

When compacting the gauge area, the roller **MUST** enter/exit from either end. A roller width of 40 inches or less is required for compaction.

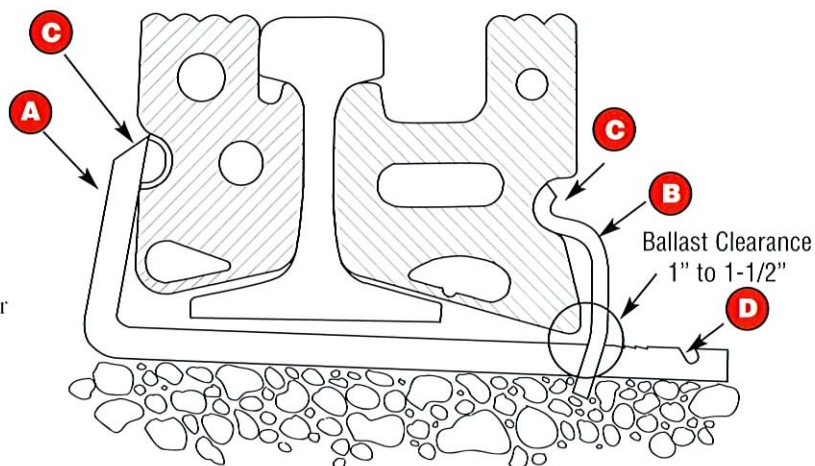
Steps to a successful Asphalt installation

- 1** Compact or roll in the direction of the rails.
- 2** Keep roller off fasteners until completely covered. On final pass, run the Railseal/Asphalt line toward railseal to insure compaction of the asphalt.
- 3** Insure compacted asphalt is at or slightly above grade level.
- 4** It is important that field and gauge troughs be clear to drain water. The entrance and exit of the crossing must be graded accordingly.
- 5** Opening the crossing before the asphalt has FULLY Hardened and Set will reduce crossing life.

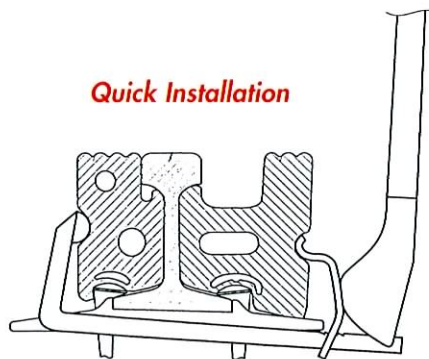


EPFLEX & EPLOCK Installation Guidelines

- 1** Clean base, web, and under the head of rails.
- 2** Seat all rail hold-down spikes securely.
Place a length of Railseal into the web of the rail.
- 3** Drive male part "A" (L shaped piece) under rail/rubber from field side, centered between ties. (Angle slightly downward on its way through to move some ballast.)
- 4** Slide female part "B" (small piece) over male end and push together hand tight until both curved contact areas "C" are in preset grooves in rubber. (1" to 1-1/2" of clearance is required under gauge side rubber to ease joining of clip halves and ensure proper positioning.)
- 5** Drop locking tool into slot "D" with cam lobe facing clip and push forward. You will feel the clip lock into position. (To speed up installation a number of EPLOCK clips can be installed hand tight before locking.)
- 6** To remove, simply reverse the tool. Position claws to pull on the bottom of the female part "B" and push forward. (same motion as applying)



Quick Installation



Quick Removal

