

March 2025

Alphatek HYPERTRAXS® GR8 Wear Resistant Coating for S&C

Network Rail Delivery Unit Presentation

HYPERTRAXS® GR8 - PA05/06726 Issue 3:

- **What is it?**
 - Complex Carbide coating system
 - Applied to high wear, wheel contact areas of S&C
 - Functional matrix pattern
 - Allows coating to conform with rail surface
 - Retains friction modifiers
 - Limits damage
 - Sacrificial coating to extend component life
 - Component reverts to normal life cycle
- **What was it developed to do?**
 - Reduce side wear on S&C rail components
 - Extend component life & reduce whole life costs
 - Reduce overall maintenance time and costs
 - Reduce personnel time on track - “boots off ballast”
 - Meets Network Rail “Challenge Statements”
 - No negative safety implications



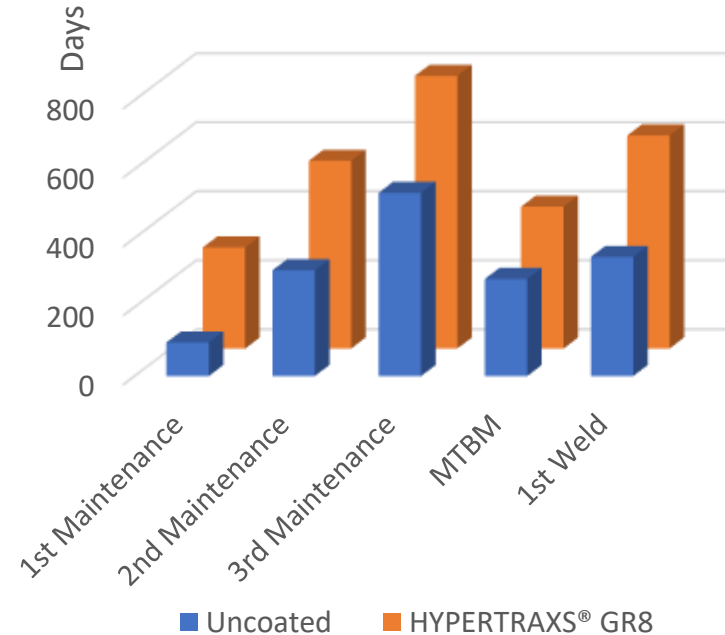
The Journey to Product Acceptance:

▪ Field Trials

- 8 varied S&C trial sites chosen by Network Rail
- Coated switch and stock rails installed

▪ Network Rail DFR Pathway undertaken

- Independent review of RDMS trial site data
- Extended time to first maintenance
- Increased the Mean Time Between Maintenance
- Extended time to first weld repair
- Confirmed no operational implications
- All documentation Technical Authority reviewed



Summary Chart of Performance Averages from
Network Rail RDMS Data

Certificate of Acceptance:

- **PA05/06726**
 - Issue 5
 - 29/11/24
 - Full acceptance
- **Scope of Acceptance**
 - Sites suffering from 502 & 504 type defects
 - Applicable to switch and stock rails
 - Monitoring in line with current inspection regimes
 - Identify relevant locations
 - Product improvements
 - Collaborative developments
 - Standardised coated area
 - Check & Wing Rails benefits being investigated



Certificate of Acceptance
PA05/06726

Manufacturer:
Alphatek Hyperformance Coatings Limited

Issue: 5
Valid From: 29/11/2024

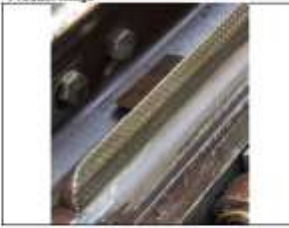
Hypertras G88

Product Description

Tungsten carbide coating for switch rails to reduce sidewear.

The coating is designed to provide an extension in switch life by reducing sidewear on switches susceptible to 502 (stock rail and switch blade both side worn) / 504 (switch blade damage) type defects compared to a standard grade switches.

Product Image



Scope of Acceptance

Full Acceptance

- The following switches can be coated:
 - NR56x as per RE/PW 1601-1605 (B-F)
 - NR63 as per RE/PW 2003-2004 (C-E)
 - NR63 Mk2 as per RE/PW 4001-4003 (C-E)
 - Full Depth Switches as per RE/PW 602 (A-D)
 - UNCS4B shallow depth switches (excluding those supplied by Trackwork)

Monitoring New Installations

- Initially monitoring is to be completed on all sites from date of new installation where there is a known history of sidewear (502 defects).
- Details for monitoring requirements are included in the monitoring criteria section.

Network Rail Acceptance Panel (NRAP) hereby authorises the product above for use and that use on railway infrastructure for which Network Rail is the Infrastructure Manager under the R005 regulations.

Reviewed by:



Aamer Malik
Product Acceptance Coordinator

Authorised by:



Stephen Franklin
Network Technical Head of SAC

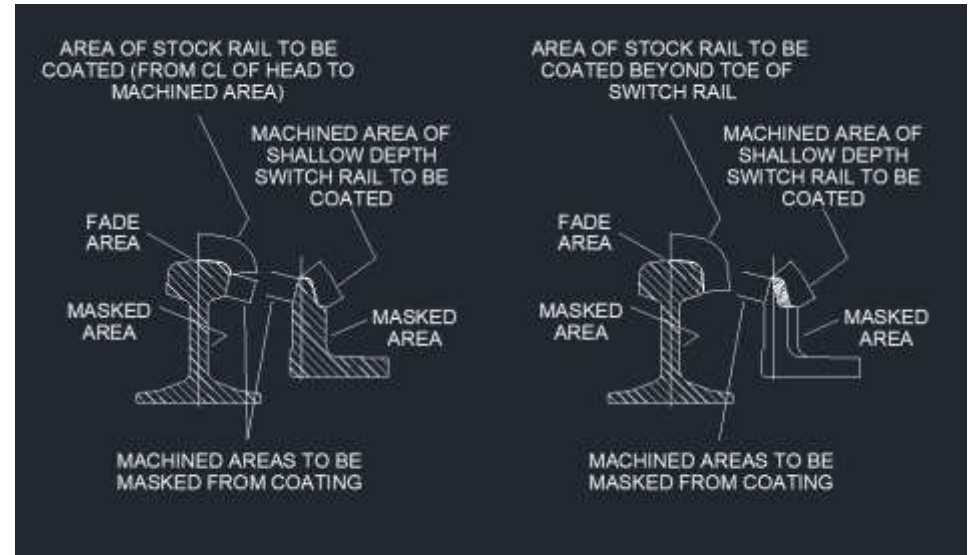
HYPERTRAXS® GR8 Coated Area:

▪ Switch Blade

- 2.9m back from Toe end
- Extends min. 25mm down the face
- “Inside” machined face masked

▪ Stock Blade

- 2.9m total length
- Starts 1m in front of Switch Blade datum / Toe
- “Inside” machined face masked
- Extends min. 25mm down the face in front of Switch Blade



Maintenance:

▪ Lubrication

- All current lubricants and application techniques can be used
- Further enhancement of the low friction surface

▪ Inspection

- Coating will wear – this is normal for rail conformity
- Coating at wear scar edges prolongs life of rail
- Inspect coated switch and stock rails to normal standards
- Coating does NOT mask RCF or other surface cracks



Maintenance:

▪ Grinding

- Manual grinding undertaken at trial sites
- Removal of lipping, and preparation for welding as per normal
- Use standard equipment with abrasive suitable for carbides
- Grinding by rail grinder train not recommended

▪ Welding

- Undertaken at trial sites using all standard techniques - no issues
- Full removal of coating required by grinding within the affected zone



HYPERTRAXS® GR8 Availability:

▪ Network Rail Route Services (SCO)

- Order as per standard S&C via NROL
- In comment box/field add “Coated Blade and Stock Rails Required”
- Coating can be specified on any new S&C
- Delivery schedules not impacted

▪ Contact

- Alphatek Hyperperformance Coatings Ltd.
 - <https://www.alphatek.co.uk/rail-coatings-detail/hypertraxs/>
 - Head Office - +44 (0)1706 821021
 - Email - rail@alphatek.co.uk
- Lead Contact:
 - Steve Nicklen - +44 (0)7734 706150
 - Email - steve.nicklen@alphatek.co.uk
- Collaborative product support offered



HYPERTRAXS® GR8 Testimonials & PA Expansion:

- **Adam Jackson, ATME Stafford & Stoke**

"Stafford DU would support your proposal to include other S&C components for Hypertraxs GR8 coating as we have seen a big benefit in the switch we have installed at Doxey with it on"

- **Phil Quinn, Senior Asset Engineer Support (Track), RAM Track - Scotland's Railway**

"We already trialled Hypertrax coating on switch and stock rail area so I do support expanding to other S&C components where asset life is short"

- **Oliver Speakman, Principal Technical Officer, Manchester South (North West & Central)**

"We would support the expansion of the PA to include other S&C components for Hypertraxs GR8 coating for wing rails and check rails as the life extension would be very useful to the resilience of the S&C we have for future installations"

- **Craig Hocking Infrastructure Maintenance Engineer, Exeter, Western West DU**

"As discussed, we can see wider benefits and opportunity if we were to utilise the coating on other components such as wing rails and check rails so if you need any supporting looking at options, we would be more than happy to support wider applications of the product. On a final note, I reviewed the monitoring requirements with the Engineers post the meeting and do not see any issues with meeting this criteria as per the attached certificate."

