



VORTOK INTERNATIONAL

CLEVER ENGINEERING

IMPROVING RAIL TRACK SAFETY

 **VORTOK**
INTERNATIONAL

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**FOR SOLUTIONS TO TRACK MOUNTING,
REMOTE MONITORING, RAIL STRESSING
AND SAFETY PROBLEMS VISIT
WWW.VORTOK.COM**

Let us solve your problem.

Call: +44 (0)1752 349200

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Thinking about the problem in a different way has enabled us to find original solutions to some of the most challenging problems facing the rail industry.





TRACK MOUNTING PRODUCTS

By minimizing installation time we reduce or even eliminate the need for track possession. We create products suitable for all environments regardless of sleeper type, rail fastening and whether they are being used on ballasted or slab track. Operational efficiency, flexibility and reliability are critical factors in the design of every product.

BALISE BEAM



Track location Belgium

Originally designed for the installation of TPWS (Train Protection & Warning System) in the UK, the Balise Mount System (BMS) comprises a GRP beam with stainless steel yokes that use the existing rail fastenings or the rail foot to hold the beam in track. The BMS allows for very quick installation and removal of devices from track, typically taking less than 2 minutes.

References: UK, Belgium, Switzerland, Austria, Poland, Mexico, Australia, Saudi Arabia, Spain, Greece, Italy, South Korea, New Zealand. Currently under trial in Germany and France.

PRODUCT BENEFITS

- Eliminates/reduces the need for track possession
- Removes the need to drill into concrete sleepers
- Can be installed onto any combination of sleeper type and rail fastening or directly to the rail foot
- Insulated and vibration resistant to EN50125-3
- High resistance to chemicals and climatic changes
- Reduces manpower requirement for installation and maintenance
- Does not require specialised tools to install or remove

Clamp Beam



RAPID FIT FRAMES

Utilising our extensive experience with mounting beams we have developed a range of rapid fit frames for use with our modular AWS magnets. The frames can be configured for single, double or triple magnet installations and are available to be easily installed on a wide range of rail fastening and sleeper designs.

References: UK (Projects) Thameslink.

PRODUCT BENEFITS

- Eliminates/reduces the need for track possession
- Removes the need to drill into concrete sleepers
- Can be installed on a wide range of sleeper types and rail fastenings
- Insulated and vibration resistant to EN50125-3
- High resistance to chemicals and climatic changes
- Reduces manpower requirement for installation and maintenance
- Does not require specialised tools to install or remove

Double rapid fit frame



Rapid fit frame with flux covers fitted



SIGNBOARD SUPPORTS



Robust, lightweight signboard supports that can be quickly and easily installed where there is a need to place an emergency or temporary speed restriction. The supports are available in standard (2m), short (1.2m) and third rail variants (1m) and can be used with our stabiliser spar for increased rigidity.

PRODUCT BENEFITS

- Quick and easy to install, one man operation, no tools required
- Durable and lightweight
- No ballast penetration, negating the need to scan for buried services
- Fits a wide range of rail profiles (including bullhead)
- Lockable

References: UK throughout network.

MAGNETS

MODULAR AWS MAGNETS



Modular AWS magnet in Rapid Fit Frame

The use of rare earth magnet technology has enabled a reduction in size, whilst improving performance compared to that of traditional magnets.

The modular “plug and play” feature uses MIL-DTL-5015 connectors, that reduce installation times and comply with the latest Network Rail requirements.

The magnets are sealed against water ingress, reducing the need for maintenance and repair.

The flexible range includes Suppressed, Electro and Permanent variants that can be supplied in standard strength (yellow) and extra strength (green) which can be powered with supplies ranging from 24V DC to 110V AC. Both standard and extra strength magnets can be supplied with flux shields/covers.

PRODUCT BENEFITS

- Can be installed in minutes when coupled with Vortok's rapid fit mounting system, reducing possession time significantly
- Modular “plug and play”, simplifying the installation process
- Flexible range: Suppressor, Electro and Permanent in either standard strength (yellow) or extra strength (green)
- Minimal maintenance required – fully sealed units
- Reduced size of the magnets eliminates the need for digging ballast or slab track

References: UK, Thameslink, Crewe-Shrewsbury, GNGE.



Triple AWS magnet assembly



TEMPORARY AWS MAGNETS



Robust, lightweight Temporary AWS magnets that can be quickly and easily installed where there is a need to place an emergency or temporary speed restriction. The magnets are available in standard strength (yellow) and extra strength (green for third rail applications).

Supplied with magnet shipping tube for safe transport and storage. Complete unit weighs approximately 20kg.

References: UK, throughout network

PRODUCT BENEFITS

- Quick and easy to install, one man operation, no tools required
- Durable and lightweight
- No ballast penetration, negating the need to scan for buried services
- Fits a wide range of rail profiles (including bullhead)
- Lockable

APC MAGNET



Automatic Pantograph Control Magnet

DECISION SUPPORT SYSTEMS

One of the most exciting innovations in today's rail industry, we have designed and produced a range of remote monitoring products that provide real time information and allow you to take action where and when it is needed.

SFT MONITOR



The Rail Stress Monitor extends Vortok's capability using the new Measure & Detect Sensor which integrates stress and temperature measurement into a single compact and rugged device. The Rail Stress Monitor provides continuous real-time measurement and logging of rail stress and temperature providing railway operators with information and alarms which facilitate the management of rail stress.

References: Australia - Queensland Rail (Antil Plains), Lynton Surveys
- (Douglas Park NSW). USA - BNSF - Kansas City (Argentine Hump Yard).

PRODUCT BENEFITS

- Rapid Installation
- Continuous measurement of stress and core temperature
- Remote data and alarms accessed via SMS, Email and FTP
- Rail is not disturbed during installation, therefore can be used in switches, tight curves, bridges etc.



AXLE DETECTOR

Vortok's axle detector uses weight measurement to detect axles.

The Axle Detector CPU is a small unit which can be mounted in a balise beam or on a line side post. It has its own GPS and 3G wireless connections and provides axle count data via the Vortok M&D server.

References: Australia - Queensland Rail - (Antil Plains). USA - BNSF - Kansas City (Argentine Hump yard)



PRODUCT BENEFITS

- Rapid installation
- Immune to EMC
- Operates from 0 to 250 km/h
- Low profile
- Lightweight

WHEEL FLAT DETECTOR

The Vortok Wheelflat Monitor is a simple scalable system which starts with one bay of MultiSensors. The monitor uses strain gauges for measurement accuracy when a wheel is over the bay but also includes two-axis accelerometers to detect wheel damage within 10m of the measurement area. This allows the monitor to offer both a high probability of detection and a high quality of measurement while providing fast, low-cost installation with minimal space requirements. Installation of the hardware can use the Vortok Balise Mounting System or a small CPU mounted by the trackside.

References: UK (Quorn test track). USA - BNSF - Kansas City (Argentine Hump Yard)



PRODUCT BENEFITS

- Rapid installation
- Scalable, distributed system
- Operates from 0 to 250 km/h
- High probability of detection
- High Accuracy

RAIL STRESSING PRODUCTS

Rather than accepting that a problem is inevitable or that a process is set in stone, our designers apply radical thinking to the management of rail stressing. As a result we've developed a number of internationally acclaimed products that have made us the undisputed leaders in this field.



Fastclip Stressing Rollers



VORTOK STRESSING ROLLERS



Vortok Stressing Rollers (VSR) were designed for Network Rail in the UK. The product won the Queen's Award for Enterprise and is used all over the world.

VSR's have been designed to improve the accuracy and efficiency of the rail stressing operation. Previously a rail jack, under rollers and side rollers were necessary when stressing the rail. The VSR's integrate all of these functions into one product offering significant improvements.

VSR's are available in different variants to suit many rail fastening and rail profile combinations.

References: UK, throughout network.
Winner of the National Rail Awards Innovation of the Year Award.

PRODUCT BENEFITS

- Increases passenger safety through more even stress distribution
- Increases track work safety by eliminating the danger of trapped fingers under the rail
- Quick operation
- Simplifies the process
- A product that lasts considerably longer than conventional under rollers.
- Supplied in stackable lightweight crates, making handling faster and safer whilst lowering equipment losses

VERSE



References: UK, USA, Canada, Sweden, Brazil, Australia.

The most widely accepted Non-Destructive method of measuring the stress free temperature/neutral temperature (SFT) of continuously welded rail (CWR).

Verse has been thoroughly validated for accuracy by independent bodies such as: The Transportation Technology Centre Inc (TTCI), Pueblo, Colorado, USA and The Railway Research Institute in Prague, Czech Republic.

Verse is used in over 18 countries throughout the world.

PRODUCT BENEFITS

- No need to cut the rail to measure stress
- Calculates SFT without needing to know any residual stress history of the rail
- Suitable for all rail profiles
- Easy measurement and instant results on the handheld computer
- Files from the handheld computer can be downloaded into a PC database to produce a record of your whole rail network
- Verse is supplied in a case which will fit into a small van or estate car





VORTOK SAFETY BARRIER

The Vortok Safety Barrier is the UK industry standard for worker protection. Our standard telescopic safety barrier can be used with adjacent running line speeds of up to 125mph.

Also available in a ballast shoulder clearance variant that is fixed at 1.25m (4ft).

References: UK, throughout network. Australia, Brazil.
Winner of the Alstom Award for Innovation and Safety.

PRODUCT BENEFITS

- Quick and simple to install, simply clamps to the foot of the rail, no tools required
- A worker caught the wrong side of the barrier can easily re-enter the safe zone
- Fits to flat bottom and bull head rail, it is also fully insulated for use in 3rd rail areas
- No ballast penetration, negating the need to scan for buried services



- All components are re-usable and are supplied in their own storage stillages
- Achieves significant cost savings by enabling higher train running speeds on adjacent lines.
- A full range of integrated accessories can be supplied including access gates, lightmast supports and lockable stillage lids

VORTOK 3RD RAIL WORK COVER

The Vortok 3rd Rail Work Cover protects worker safety by fully enclosing the conductor rail. Rubber flaps close off the underside of the rail and interlock to avoid gaps.

References: UK, throughout network.

PRODUCT BENEFITS

- Quick and easy installation and removal, no tools required
- Enhanced worker safety



OTHER PRODUCTS

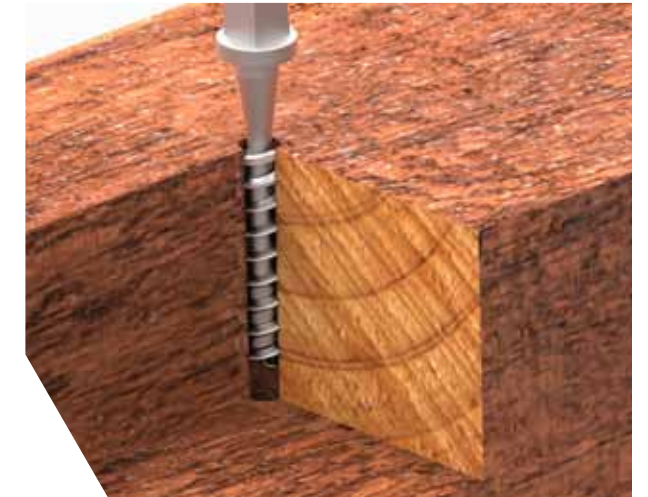
VORTOK COIL

The internationally proven and preferred method of repair for loose screwspikes in wooden railway sleepers or dowels.

References: UK, throughout network. France, Germany, Portugal, Spain, Italy, Switzerland, Brazil, USA.

PRODUCT BENEFITS

- Quick and easy installation
- No possession required
- Existing screwspikes and fastenings can be re-used
- No need to remove existing baseplate



- Delays sleeper replacement
- Restores original pull-out strength and screw torque
- Improves track structure and gauge retention
- Unaffected by climatic or environmental conditions

VORTOK CLIP-ON INSULATOR AND CABLEGUARD

“Fit and forget” products that have been tested and proven. Track circuit failures are prevented by the creation of an insulating layer beneath the rail.

PRODUCT BENEFITS

- Installs in seconds without tools
- Network reliability is improved through the reduction of service disruption and delays
- Maintenance costs are reduced
- Made from a flexible insulating polymer
- Available in custom lengths to suit your requirement



References: UK (Quorn test track). USA – BNSF – Kansas City (Argentine Hump Yard).

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