

Business Case – Vortok Balise Mounting System (BMS)

Description

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 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.

Key Benefits and Business Case

When comparing the BMS to other mounting systems it could be easy to assume it to be expensive. To do this ignores huge cost savings both for the installer and the owner of the equipment during its lifetime.

The following document lists both the key benefits of the system and describes the significant cost savings, often hidden, that will be gained from using the system at the point of installation, during the verification process as well as the ongoing cost of ownership.

Installation savings

- **Very quick installation time**
 - 1-2 minutes compared to an average of 2 hours per location when comparing to competing technologies.
 - 5 minutes per location compared to 2 hours per location
 - Only one person necessary
- **Can be installed between traffic – No possessions required**
 - What is the cost to a network operator of a 2 hour possession?
 - What are the additional manpower savings if installations can take place during the day rather than at night when possessions are more common?
- **Attaches to existing rail fastenings**
 - Proven secure fastening method
 - No special tools required
- **No drilling of concrete sleepers**

A minimum time period of approximately 2 hours per location is dictated by the need to cure the resin used to fasten the bolts. Drilling concrete sleepers is a last resort by most networks, if steel reinforcement bars are damaged during drilling the sleeper will need to be replaced.

 - BMS = 5 minutes per location compared to 2 hours per location
 - What is the cost of both a new sleeper and its installation?
 - What are the additional possession costs if a sleeper needs replacing?
- **No need to dig ballast – No tamping required with Vortok BMS**

The steel band system requires a large amount of ballast to be removed from under the sleeper to enable it to be attached. The removal of ballast is time consuming work, almost impossible if frozen, and so much ballast is moved to get the straps under the sleeper that re-tamping is required.

 - BMS = 5 minutes per location compared to 2 hours per location
 - What is the cost of running a tamper machine after installation?
 - What is the cost of the extra possession required to run the Tamper train?

Post installation and ownership savings

The cost comparison between BMS and other methods should be calculated including both the costs of installation and lifetime ownership. Vortok cannot determine what the costs for each man hour or hour of possession are, however these costs are very real, and are significantly reduced when installing using the Vortok BMS.

When the costs of re-positioning the Balise as a result of verification trials and future maintenance over many years are also accounted, then the BMS actually offers significant savings year after year.

- **Track verification**

After installation a track verification train passes over all installed Balise, many will need to be moved by 1 or 2 sleeper positions.

- BMS allows for rapid re-positioning within 2 minutes per Balise.
- Steel band system will take at least 1hr per Balise.
- Drilling will require 2 hours per location.
- What is the cost of the extra labour and track possession?
- What is the cost of yet another re-tamping if the steel band system is used

- **Reduced life cycle costs - Drilling**

This method is prone to water ingress, that when frozen can lead to premature failure of the Balise fastening or sleeper.

- What are the costs of both a new sleeper and its installation?
- Subsequent re-installation of the Balise alone will be up to 2 hours per location.

- **Reduced life cycle costs – Steel bands**

It is commonly accepted that this method has several drawbacks; the constant vibrations to both the sleeper and the steel bands themselves weaken the integrity of the mounting. At best they need frequent adjustment to ensure the correct alignment of the Balise and at worst the abrasive effect of vibrating ballast can wear through the bands completely. It has also been found that this system can damage the sleeper to such an extent that it needs to be replaced.

- Steel band system will take at least 1hr per Balise to re-install or adjust
- What is the cost of the extra labour and track possession?
- What is the cost of yet another re-tamping?
- What is the cost of running a tamper machine after installation?
- What is the cost of the extra possession required to run the Tamper train?
- If the damage caused to a sleeper is severe then there will be the costs of both a new sleeper and its installation?

- **Reduced life cycle costs – General maintenance**

The Vortok BMS is all about time savings, should maintenance require the removal of Balise from track then the BMS is simply the quickest and most efficient method, the drawbacks of competing technologies are already mentioned above.