

Intelligence is Crucial Element in Wheel Flange Lubrication Concludes Double Metrolink Trial

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To test the best way to reduce wheel flange and track wear on urban tramways, as well as noise an 18 month long-term trial has been undertaken by Manchester tram company Metrolink. The findings of the double trial is that Intelligent Wheel Flange Lubrication (iWFL) (<http://www.rowehankins.com/wheel-flange-lubrication.php>) produced by rail systems engineers, Rowe Hankins, works substantially better than an alternative solid lubricant based system.

David Rowe, the senior engineer at Rowe Hankins (<http://www.rowehankins.com>) supervising the trial presented these conclusions to the North West branch of the Institution of Mechanical Engineers in March.

A white paper from the company discussing the trial is now available. The 17 page white paper extends to 3000 words and will be of interest to track engineers, asset managers and rail consultants – it is available from the company on +44 (0)161 765 3000.

The paper explains how track and wheel flange damage occurs in detail and how this is effectively reduced by lubrication. Issues of noise from the wheel track interface are also examined along with the practical aspects of system deployment. In addition to extending uptime and the return on investment for vehicles and track, iWFL also saves energy as the rolling resistance of stock is reduced.

The two stage trial assessing iWFL against a solid based lubrication system was undertaken using a double-carriage T68 tram. Both stages of the trial showed that the Rowe Hankins iWFL system extended by 50 per cent, from 55,000 to around 87,000Km, the distance that tram could cover before re-profiling of the wheel flanges.

The iWFL system applies measured quantities of grease to wheel flanges precisely where needed. This is achieved by combining distance measurement, curve radius detection and GPS technology to map the points on the network where problems occur. Measured pulses of lubrication are applied to the flange of the wheels on the leading axle just ahead of the curve. Lubrication is variable according to curve severity and duration. Traces of this lubrication are conveyed from the lead wheel set to other wheels in the same bogey and are sufficient to reduce friction and wear without affecting traction or braking.

Proportionately more lubrication is applied on the high rail, outer radius, of the curve because the intelligence in the system recognises the greater potential for wear due to greater traction forces. The iWFL system will also recognise the tram direction and switch lubrication to the leading wheel set when the tram reverses. With the lubricant used there is no persistent residue or environmental impact.

More Information

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High resolution images are on the web at www.ainsmag.co.uk/rh109/4712rh1a-metrolink-iwfl.htm

Additional Information

Rowe Hankins is a rail systems engineering company that provides electrical and mechanical equipment for greater train and tram safety, reliability and performance. These are installed as original equipment in new trains or retro fitted to existing rolling stock during in-service upgrades. Rowe Hankins products include high integrity circuit breakers, on-train monitoring and recording devices, speed and distances sensing devices and services for the mid-life overhaul and refurbishment of circuit breakers, contactors and other crucial electro mechanical equipment.