The fastest welding for the fastest trains

Welding on railway car bodies at up to five times the speed of conventional welding methods

The installation and commissioning of a 30x4m gantry ‘Powerstir’ Friction Stir Welder (FSW) by UK-based PTG Heavy Industries – in a joint project with the China Friction Stir Welding Centre – didn’t just represent a first for China and for PTG. The Powerstir machine also played its part in a world first, being used in the manufacture of railway car bodies similar to those used in China’s record-breaking ‘Harmony’ high-speed train. In producing the railway car bodies, another record was also broken, with the PTG Powerstir machine producing the longest-ever single FSW railway panel weld in China, at over 15m in length.

In simple terms, Friction Stir Welding is a ‘solid state’ welding process that joins materials by plasticising and consolidating the material around the joint line. A rotating pin generates heat that creates a tubular shaft of plasticised material around the pin. Then pressure, provided by forward motion and the downward force of the pin generates heat that creates a tubular shaft of plasticised material around the pin. No melting takes place and the final result is a fine-grained, high-energy consumption, distortion requiring secondary operations, the requirement for two operators per weld head, no record of weld data, fume extraction and environmental hazards. The FSW process, by comparison, gives low distortion even in long welds and excellent mechanical properties. Most importantly, FSW produces vastly superior joint strength and weld appearance with no post-weld grinding.

Incorporating the brands of Binns and Berry, Crawford Swift, Holroyd and Precision Components, PTG has established itself at the forefront of high precision machine tool design, build and supply. Industrial sectors served range from aerospace, medical and mould tool and die to marine, power generation, mining, oil and gas, steel, high end and heavy automotive. The friction stir welding process is patented by TWI (The Welding Institute).

www.ptgltd.com

Robust wheel diameter gauge

Accurate wheel diameter measurement in under 30 seconds: the simple to use Riftek IDK is a robust tool for maintenance engineers. The three point measurement principle offers averaging of multiple readings to give one clear number. The design allows for ease of use either trackside or from a pit below. Offers excellent resolution to 0.01mm from the LED display, powered from integral rechargeable batteries and weights only 0.5kg.

The optional Bluetooth output for connection to the PDA and PC based software provides for data storage and wear tracking. Ixthus Instrumentation provides full technical support and calibration services for this and the other Riftek railway gauges – the IKP wheel profilier and IMR back to back gauge.

www.ixthus.co.uk

Protect axles from corrosion

Axle corrosion on rolling stock is a costly business. It is the main reason why up to 3,000 axles have to be replaced every year at a cost of £1,500 per unit. To address this problem Henkel has introduced its Loctite Axle Corrosion Protection System. The company has many decades of experience in protecting metals against corrosion and also in the specific requirements of the rail sector.

This new introduction comprises a suite of proven Loctite products, the first of which pre-treats the substrate to inhibit corrosion and promote adhesion. A flexible sealant is then applied to prevent corrosion at the axle transition and wheel overhang. This is topped by a fast-curing 2-part paint system that provides impact resistance and a very smooth surface finish.

The paint system products are from the Loctite Nordbak range which offers distinct advantages over traditional repair methods such as hard metal welding or flame spraying, both of which are difficult and costly to apply to large surfaces. In contrast the Loctite Nordbak 7255 and 7226 are easily applied on all surface sizes, do not introduce any heat stress and offer the extra benefit of further corrosion protection.

www.loctite.co.uk