

SECURING A ROOM (& PILLAR) UPGRADE





COVER STORY

Alan Beal, HBT Waratah Engineering PTY LTD, Australia, outlines the benefits of two key pieces of room and pillar mining technology added to HBT's product portfolio through its acquisition of Waratah Engineering.

In a strategic move to bolster its capabilities in the underground coal mining sector, HBT acquired Australian company Waratah Engineering. This acquisition added two of Waratah's flagship products for room and pillar operations – the Waracar shuttle car and Warabolter mobile bolter – to the HBT product portfolio.

HBT's acquisition of Waratah from Questas Group was finalised on 20 July 2023 through a share purchase agreement. Waratah has a long history dating back to 1923, having been saved from bankruptcy in 2009 when purchased by Polish firm Kopex, which later became part of Famur in 2017. Swanson Industries Australia then acquired Waratah from Kopex in 2016, before Swanson joined Questas in 2020.

This acquisition is a strategic step for HBT, aligning with its vision to increase distribution capabilities and broaden its product offerings. By diversifying into new markets, HBT solidifies its position as an industry leader and global single-solution provider.

Headquartered in Argenton near Newcastle, NSW, Waratah is renowned for overhauling and repairing longwall roof supports, continuous miners, and roadheaders, and manufacturing its own proprietary equipment – such as the Waracar shuttle car, Warabolter mobile bolter, and Warabreaker feeder breaker.

This acquisition is more than a mere expansion; it signifies HBT's commitment to maintaining Waratah's strong market position, while driving further innovation and growth. The integration of Waratah's products complements HBT's existing offerings, reinforcing its global capability as a comprehensive solution provider in the coal mining industry.

This article provides a detailed look at their key features.

HBT Waracar shuttle car

The Waracar shuttle car is the only batch haulage vehicle designed and manufactured in Australia, purpose-engineered to meet the unique demands of the underground mining industry. Since its inception in 2011, the Waracar has earned a reputation for reliability, ease of operation, and low total cost of ownership (TCO). The latest generation 18-3 wide-body variant delivers top productivity and sets the industry standard for cutting-edge design. The Waracar's continued refinement over the years, based on customer feedback, has cemented its status as a benchmark in the mining industry.

Ergonomic and safe operator cabin

At the heart of the Waracar is an ergonomic and safe operator cabin fully compliant with MDG 41 standards. It features two 160 kg rated

seats with adjustable height and spring suspension, ensuring drivers operate in comfort over long shifts. The high-visibility MDG 1 & 9 approved protection device and three-position adjustable mesh guarding provide a clear view while prioritising safety.

The cabin also incorporates hard piping throughout to reduce maintenance, an electronic interlocking door switch, warning bell, go/no-go lights, and a solenoid-operated boom valve for ease of operation. An emergency stop inside the cabin allows operators to immediately halt the shuttle car if needed, and the extra low voltage electrical system further reduces operator exposure.

Efficient outboard chain conveyor system

Enabling rapid payload discharge is the Waracar's efficient outboard chain conveyor system managed by HBT's intelligent control system. Whether the standard or wide-body version, the heavy-duty worm drive conveyor delivers maximum productivity. The conveyor's design allows for complete discharge of the payload in a matter of seconds.

Four-wheel drive and steering system

Contributing to the Waracar's agility and responsiveness is its four-wheel drive and steering system powered by two 37kW DC variable speed motors. This system is attached to traction reducer gearboxes to provide ample torque



Figure 1. HBT Waracar.



Figure 2. Waracar conveyor.

and traction force. As an added benefit, the Waracar has the unique ability to be steered while being towed with no power applied.

Hydraulic brake system

The hydraulic brake system includes dual brake circuits and separate reservoirs to maximise safety and reliability. This isolates the brake oil from the main hydraulic system, reducing oil contamination risk and preventing heat transfer that could overheat the main circuit. As a result, the brakes can operate at lower temperatures for consistent stopping performance.

Cable reel system

Durability is ensured by the proven cable reel system with proprietary overfill and run-out protection. This prevents cable damage from excessive unwinding or overlapping on the reel. The hydraulic tensioning system matches the reel speed to the shuttle car's speed, maintaining a consistent cable tension.

A built-in cable minder automatically lays the cable neatly onto the reel to prevent tangling. When the conveyor boom is raised, the cable reel covers automatically lift to decrease potential for snagging or abrasion damage to the cable. The cable reel's design combines multiple protective features to maximise cable life under the most extreme workloads.

HBT Waracar models

Available in two models, the Waracar platform includes the standard WC18 model and WC18B wide body shuttle car, purpose-engineered to meet seam-specific requirements. The wide-body's increased width provides greater stability and payload for improved productivity and efficiency.

HBT Warabolter

The Warabolter mobile bolting machine is built for high-level productivity in underground mining operations. Designed and manufactured in Australia, the Warabolter is built to withstand tough conditions and deliver reliable performance, ensuring continuous operation in the most challenging environments. Its rugged bisalloy steel chassis houses six integrated roof bolting modules, capable of simultaneously installing six bolts in a single cycle.

As an Australian-made product, the Warabolter meets all relevant mining industry standards using locally sourced components from the country's long-established mining supply chain. HBT backs this with 24/7 aftermarket support, a readily available inventory of spare parts, and a team of factory-trained technicians deployable at a moment's notice. This comprehensive aftersales service minimises downtime and ensures the HBT Warabolter operates at peak performance.

Chassis sizes

Two chassis sizes – standard and wide-body – offer flexible configuration options to suit any underground mine's needs for single pass bolting at the required coverage,

bolt size, and density. The modular bolt rigs have fully automatic control over all critical functions like drilling feed and positioning, water flow, and mast extension/retraction during the entire bolting cycle.

Ergonomic design

Operator feedback and safety insights from the Australian underground mining community directly influenced the Warabolter's intelligent ergonomic design focused on reducing fatigue and optimising productivity. Simple controls and intuitive machine operation combine with the machine's compact footprint to enable easy manoeuvrability and precise positioning in even the most confined underground roadways and headings.

The robust chassis construction utilises bisalloy wear-resistant steel, which has a yield strength over three times higher than regular carbon steel. This allows for reliable operation in harsh conditions. Additional durability is built in through wider machine platforms incorporating rib protection, strengthened track frames, and upgraded heavy tonne traction planetary drive units.

Onboard materials

A large onboard materials handling and storage pod provides ready access to all necessary roof bolt consumables like plates, resin, mesh, and tray buttons. This ensures the bolting process can continue uninterrupted at full productivity, with operators remaining on the safety of the platform instead of leaving to fetch more supplies.



Figure 3. Waracar responsive drive brake steering system.



Figure 4. HBT Warabolter.

Versatile mesh handling system

The HBT Warabolter incorporates a versatile mesh handling system to promote faster and safer installation of roof mesh panels. Through intuitive controls, the integrated handler can swiftly manipulate and position mesh sections into place on the roof without manual labour from the operators. This reduces physical strain, fatigue, and lost time associated with this process. The mesh handler can also be customised to meet individual customer requirements for increased flexibility.

Cable reel system

Like the Waracar, the Warabolter utilises a proprietary cable reel system designed for the most demanding applications. This system has intelligent hydraulic tensioning circuits that automatically adjust the reel's hydraulic motor speed and torque to ensure a consistent cable tension matching the machine's movement. This prevents cable overloading or sagging.

In addition to the hydraulic tensioner, the reel also features a built-in cable minder that neatly lays the cable to prevent tangling or overlap on the reel, minimising maintenance. As a final protective measure, the reel's cable cover guards fully enclose the cable to shield against impacts, abrasions, and pinch points that can cause costly downtime.

High-quality mining equipment

By adding two of Australia's most innovative and productive room and pillar products to its portfolio, HBT has further solidified its position as a full-service solution provider to the underground coal sector.

The Waracar shuttle car, with its ergonomic design, efficient conveyor system, responsive drive and brake systems, durable cable reel system, and model variants, sets a high standard for batch haulage vehicles in underground mining operations. Similarly, the Warabolter mobile bolter – with its robust construction, customisable configurations, ergonomic design, large materials pod, efficient mesh handler, and reliable cable reel system – delivers productivity in the toughest mining conditions.

The Waracar shuttle car and Warabolter mobile bolter epitomise HBT and Waratah's shared focus on increasing mining productivity, lowering operating costs, and safeguarding the well-being of miners through intelligent equipment design. With optimal efficiency, simplicity, and durability integrated into every aspect, these two products have been engineered from the ground up, in order to withstand relentless duty cycles in the most extreme underground environments, while delivering best-in-class performance.

With Waratah Engineering now part of the HBT Group, this opens up opportunities for more innovation and growth, and strengthens HBT's position as a single-solution provider of high-quality mining equipment worldwide. 