

MINING & QUARRY WORLD



New V-Plow Design Delivers Lighter Weight, Safer Handling



The global leader in bulk handling conveyor accessories has redesigned one of its most popular tail protection devices to be a lighter weight, modular unit delivered in a compact package for improved safety and convenience. The re-engineered Martin® V-Plow HD achieves the gains with no compromise in performance. “The heaviest section of the previous design was about 21 pounds (9.5 kg), while the new modular unit’s heaviest component is just 13 pounds (5.9 kg), a reduction of about 48%,” explained Conveyor Products Manager Dave Mueller. While the previous welded design’s largest dimensions were 17.5 wide x 38 inches long (445 x 965 mm), the new modular design’s widest component is less than 8 inches (203 mm) and the longest is approximately 31 inches (788 mm).

“The result is a package that fits most local delivery trucks and can be easily carried by workers to sites that may have accessibility issues, with the components assembled as they are installed to reduce the risk of injury,” Mueller said.

“Tail pulley protection is essential to efficient conveyor operation, but because of their size, the components can be cumbersome to ship and install,” Mueller

continued. “In most designs, the wide V-shaped unit is typically delivered with mounting equipment in a large box that can pose a logistical problem to both air and ground transport, due to the weight and size. This can lead to frustrating delays during tight installation schedules.”

Mueller further pointed out that, once the previous design was delivered, getting it to the installation point could be a challenge with potential safety issues. Often workers needed to carry the oddly-shaped box by hand up several flights of stairs, through corridors, or to areas with limited accessibility. According to OSHA (U.S. Occupational Safety and Health Administration), workplace injuries caused by lifting, carrying and falling/dropped debris are among the most prevalent.

The Martin V-Plow HD prevents tail pulleys from becoming fouled and damaged by spillage traveling on the return side of the conveyor belt. Fugitive material commonly migrates from the cargo side during normal operation. If this spillage reaches the tail pulley, two things can happen. One is lumps getting caught between the pulley and the belt, gouging and damaging both the belt and pulley face. The other is spillage being crushed by the pressure between the pulley and the belt, adhering to the pulley face and the return side of the belt, causing pulley slippage and fouling of idlers along the system.

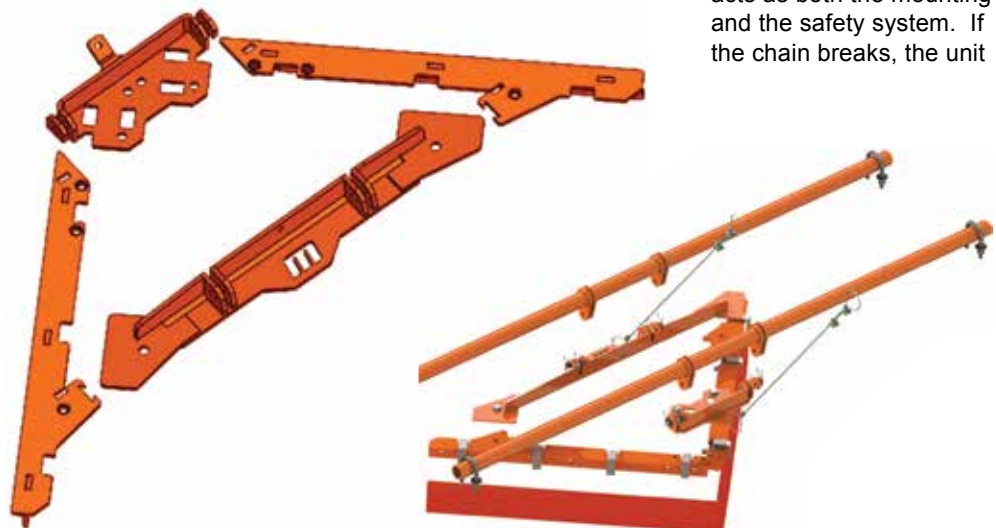
Engineered for belts as wide as 120 in. (3048 mm) with speeds up to 900 fpm (4.6 m/sec), the Martin V-Plow HD redesign has made the equipment modular, segmented into a few pieces that are arranged in a box that fits almost any form of delivery transport. This also makes the equipment easier and safer to carry to the installation area.

With easy-to-understand instructions for the tongue and groove assembly, the rugged painted steel parts can be snapped and securely bolted together in minutes, creating a strong

structure. The time saved on delivery to the facility and the work area more than makes up for the few minutes of assembly time.

Mounted to hanger bars by clamps or welding, the unit glides on the return side of the conveyor belt using hinge system, deflecting any fugitive debris off of the belt. The assembly holds an easily replaceable 4 in. (100 mm) wide, 1 in. (25 mm) thick blade, which provides 2 in. (50 mm) of wear life. Blades are available in 60 Shore A durometer nitrile rubber or long-wearing 90 Shore A durometer urethane and can be ordered with specialized blades that are chemical resistant or designed for high temperature applications.

The Martin V-Plow HD mounting system and security cable assembly is safer, longer-lasting and less damaging to the belt than competing units. The return side of conveyor belts is generally more prone to damage and wear than the cargo side. Most plows on the market are attached to the stringer by a chain and ride the return side of the belt using the weight of the unit to apply pressure. Beyond severe bounce and instability issues, which can allow debris to pass, the chain acts as both the mounting and the safety system. If the chain breaks, the unit

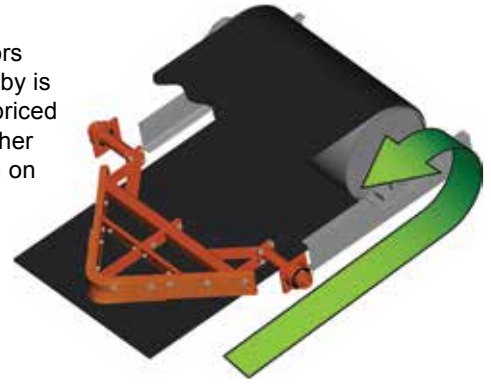


will detach and rattle indiscriminately, damaging the belt and potentially injuring workers. If the Martin V-Plow HD detaches from one mount, the other mount and safety cables keep it in place, protecting the belt and workers until the system

can be stopped and the unit can be repaired.

“What makes the Martin VPlow H-D a popular choice is the safety and performance, but the ease of installation and maintenance are an added benefit,” Mueller concluded. “I think one

of the traits operators are most surprised by is how competitively priced they are, which further improves the return on investment.”



Coal could become carbon neutral with new tech

The Allam-Fetvedt Cycle technology could provide a net-zero avenue for coal by producing saleable hydrogen as a by-product, while capturing the emitted CO₂.

A feasibility study, commissioned by Low Emission Technology Australia (LETA), found that Australia’s annual energy export revenues could increase by 71% to \$35 billion using the Allam Cycle.

LETA explained that the Allam Cycle is a zero emissions technology that uses CO₂ instead of steam to drive a turbine, while eliminating air pollution and capturing the CO₂.

LETA chief executive officer Mark McCallum said the benefits of the Allam Cycle benefitted the environmental and Australian economy.

“This feasibility study makes a compelling case for continuing to develop low emission technologies which are critical to a net-zero carbon emissions future, energy reliability and Australia’s prosperity,” McCallum said.

“This technology’s use at scale would introduce on demand and near-zero emission hydrocarbon and biomass power for Australia — complementing renewables’ increasing role in the energy mix — and can also produce clean hydrogen and ammonia.”

The technology does, however, depend on the development of carbon capture use and storage (CCUS) technology which remains a debated method of reducing carbon emissions.

The Allam Cycle has been identified by the



Federal Government’s Low Emissions Technology Statement as a potential key to improving the country’s emissions reductions credentials.

Hydrogen can be produced using the Allam Cycle at or less than \$2 per kilogram, with a potential export value of \$35 billion, according to the study.

McCallum added that the use of this technology could bolster foreign relations.

“What our feasibility study shows, is that aside from the domestic application,

the Allam Cycle can unlock lucrative new, clean industries and assist our regional trading partners — for example, Korea, Japan and Singapore — meet their own emissions reduction aspirations and energy needs,” McCallum said.

“Now that we know there is a strong business case for the Allam Cycle as a producer of hydrogen, hydrogen as ammonia, or electricity on its own, potentially there could be a baseline plant-scaled facility operational this decade.”

Vulcan inks another offtake in Europe

ASX-listed Vulcan Energy Resources has signed a binding lithium hydroxide offtake agreement with NYSE-listed Stellantis.

Starting in 2026, Vulcan will supply between 81 000 t and 99 000 t of battery grade lithium hydroxide over the duration of the initial five-year agreement.

Consistent with Vulcan’s strategy to decarbonise the battery metals supply chain, the Stellantis electrification strategy

includes ensuring a sustainable supply of lithium, which it has identified as a critical battery raw material with regard to availability.

By 2030, more than 70% of Stellantis’ European sales and more than 40% of its US sales will be low emission vehicles (LEVs). Stellantis’ plans call for a total of five battery cell manufacturing plants in Europe, including Germany, and the US, with a total

capacity of 260 GWh.

The battery grade lithium hydroxide will be used by the three Stellantis battery production facilities in Europe, which combined will produce at least 120 GWh hours of cell capacity by 2030.

“The definitive offtake agreement with Stellantis aligns with our mission to decarbonise the lithium-ion battery and electric vehicle supply chain. The Vulcan Zero Carbon lithium project

also intends to reduce the transport distance of lithium chemicals into Europe, and our location in Germany, proximal to Stellantis’ European gigafactories, is consistent with this strategy,” said Vulcan MD Dr Francis Wedin.

“We look forward to a long and productive relationship between Vulcan and Stellantis, as we work to achieve our shared sustainability and decarbonisation ambitions.”