



# WORLD FERTILIZER®

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# A passion for problem solving

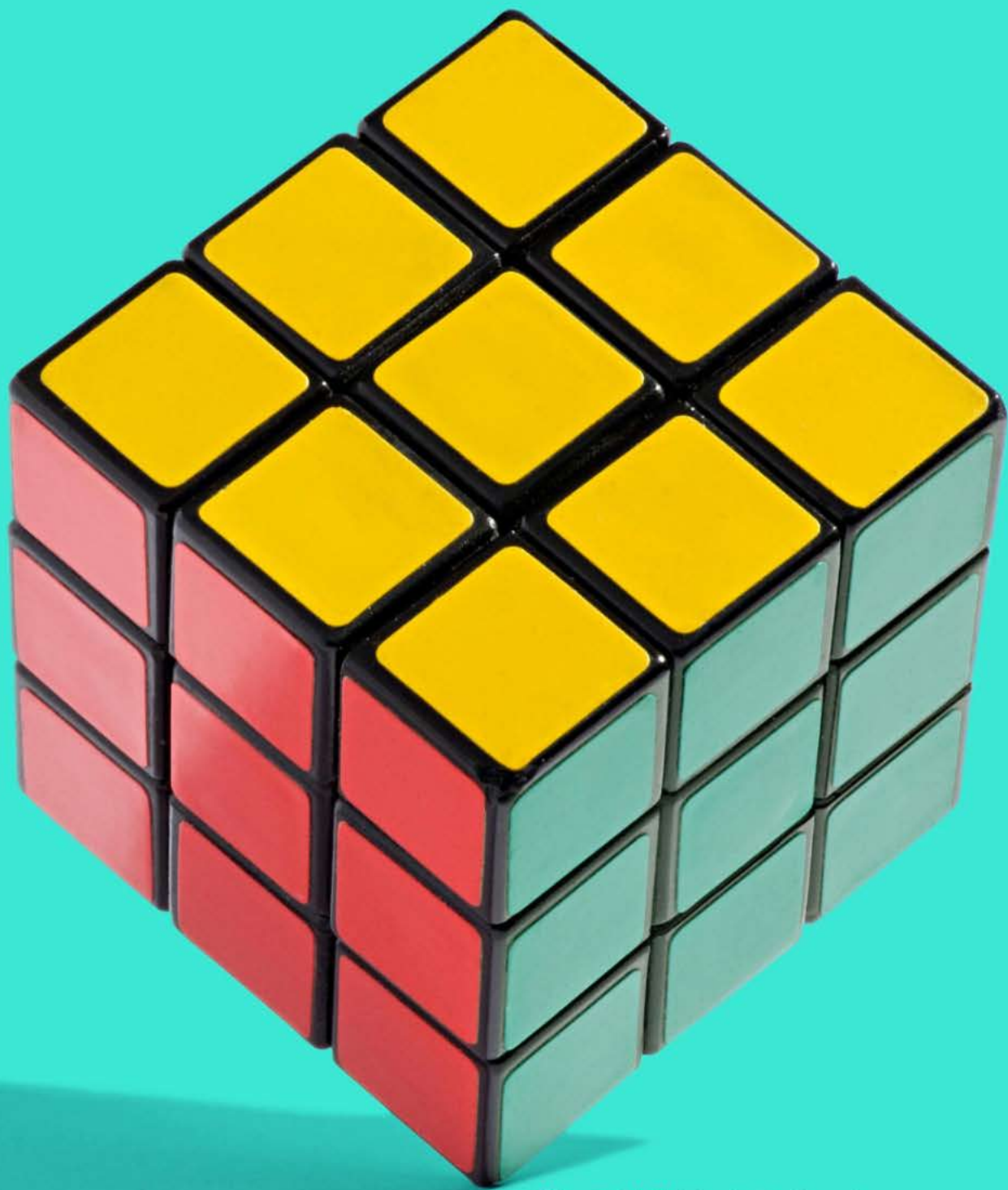
**D**ry fertilizer equipment specialists, Doyle Equipment Manufacturing, and bulk material handling experts, Martin Engineering, recently collaborated on a customised vibrator.

Doyle Equipment Manufacturing was looking to get more value out of the company's supply chain without compromising on product quality. Martin Engineering's product offering already included the vibrator, the Cougar® MDC (Medium-size DC voltage), however a customised version was required for Doyle Equipment Manufacturing to be able to use it on the company's tenders.

Martin Engineering's vibrator is geared towards markets such as aggregates and concrete to prevent material hang-ups. As a service-free, self-contained unit, it improves

the speed and efficiency of unloading wet, sticky and frozen materials from trucks and mobile plants. The characteristics of dry fertilizer are however more complex, being not only sticky but highly corrosive, and the lightweight aluminium that the standard vibrator is made from was not the appropriate choice.

Martin Engineering set about creating a version of the MDC vibrator made from ductile iron, a graphite-rich cast iron that has excellent impact, fatigue and corrosion resistance. At the same time, the bolt-fixing pattern was redesigned so the new vibrator would fit straight onto Doyle's tender equipment without changing their existing configuration – two bolts rather than four on the standard Martin vibrator. This also meant that it could be retrofitted to



**Allen Twidell, Martin Engineering, USA,** describes a new collaboration with Doyle Equipment Manufacturing to ensure continuous dry fertilizer flow.





**Figure 1.** Doyle's 24 ft trailer tender has a modular design that allows it to be customised to meet customer needs. Copyright©Doyle Equipment Manufacturing Co 2023.



**Figure 2.** Doyle's facility in Palmyra, Missouri, USA. Copyright©Doyle Equipment Manufacturing Co 2023.

older Doyle equipment, being maintained or upgraded for their customers.

The MDC vibrator was also redesigned to operate with lower amperage so it would pull less power, allowing smaller cables to be used, and the performance was adjusted to better suit the material properties of fertilizers by increasing the vibration amplitude using equal force.

After almost a year of research and development, extensive trials of the custom vibrator were conducted at Doyle's Palmyra factory in Missouri, USA. Soon afterwards, the new version of the vibrator named the 'MDCV' went into production at Martin's global manufacturing facility in Neponset, Illinois, USA, on a production cycle to match the demands of the seasonal agricultural calendar.

The MDC unit redesigned by Martin enabled Doyle Equipment Manufacturing to cut costs substantially and gain performance.

The company's customers also benefitted from the new device, as it uses less energy in operation than the previous supplier's unit.

As a result of their exacting requirements, integrated supply chain and partnership approach, Doyle now fits its tenders with Martin's MDCV vibrator, with the power cord made to the desired length with a special plug. This ensures that fitting is labour free for the team at Doyle and for their customers.

Many of Doyle's customers are now choosing to have the MDCV fitted as an optional extra. To date, more than 2500 Martin vibrator units have been fitted to Doyle's new fertilizer tenders and the company's technicians are increasingly retrofitting the MDCV to mobile equipment already in use in the field. Doyle is realising its growth ambitions, with a year-on-year increase in sales of around 20% in 2022 and a further 30% growth anticipated by the end of 2023.

Looking ahead, both companies are committed to further innovations that add value for end users, from major investments in technology to simple ideas that improve the customer experience. One example is the labelling on the vibrators. The MDCV is now Doyle-branded so that customers are assured that the company backs the components put on their products.

What started out as a drive for a more cost-effective solution has been a journey of discovery for both parties that has delivered a higher quality, reliable product, stronger future prospects and a better end result for all.

Martin Engineering and Doyle Equipment Manufacturing have established a strong relationship based on the fact the companies have similar roots and share similar values, as well as a mindset that realises the value in well-engineered, well-built products that solve problems for customers. **WF**