

# Read the heat

A program matching a tyre management system with a forward looking infrared-camera driven autonomous tyre inspection system is to be deployed at a Western Australian mine site. By **Noel Dyson**

*Kal Tire could soon be deploying with Pitcrew ai at a WA mine site.*



**I**t uses Kal Tire's Tyre & Operations Management System along with Pitcrew AI's FLIR technology. As a haul truck drives past its tyres are automatically scanned for faults and mine management can be alerted if necessary.

The system has already been trialled in WA's hot weather and a cold weather version designed to withstand temperatures of -45C was put to the test in Canada.

It has been operating elsewhere for about 12 months.

Kal Tire Mining Tyre Group managing director Australia Miles Rigney said the technology could pick up faults such as cuts or separations.

"When it identifies something that's not to spec in that regard it can link it to that specific location on that tyre on that truck," he said.

"Every time the truck goes by it recognises it and updates the information on that fault.

"The repetitive nature of that inspection is very powerful. It's not just assessing the damage or the injury to the tyre, it's also judging how quickly it is varying.

"We've been keenly interested in watching some of our other regions to see which way the integrations with Pitcrew AI technology and our TOMS system goes.

"There've been more than 1 million tyres scanned in that time. We've been able to learn a lot from that experience.

"We're close to rolling out our first autonomous tyre monitoring kit with TOMS in Australia in the next month or so."

That roll out is going to be at a WA mine.

Rigney said TOMS let Kal Tire set up some business rules with each customer covering things such as what sort of tyre damage they were interested in.

That way tyre repairs or replacements can be prioritised based on the customers' business rules.

The TOMS can also raise work orders.

"It lets us align with the work that needs to be done to the vehicle and makes sure we carry out that work at the right time and in a planned way," Rigney said.

"From a mining industry user perspective they get a higher level of confidence that their equipment is operating in a tyre-safe way."

Being tyre-safe is important because the demand for large mining tyres is high.

It may not be quite to the levels of the first decade of the 2000s when some miners were



A thermal image of a haul truck.

forced to start exhuming old tyre carcasses just to keep their trucks going but concerns are rising. Or when miners were spending \$100,000 for a single bias ply tyre because those were all that were available.

Rigney said Kal Tire had been fielding some calls from customers asking if there were any tyres available now.

To give an idea of how high the demand is, he said by the end of June Kal Tire had already received orders for the first half of 2023. Those orders normally only start to arrive between September and November.

“I would suggest that will only continue to ramp up over the coming months,” Rigney said.

Rigney said the contracted price of tyres from the major manufacturers had gone up about 10-12%. Normally it is about 5%.

The magnitude of the increase shows how much input cost pain those major mining tyre makers are experiencing.

It is not just the cost of the rubber and steel that goes into the tyres, it is also the cost to move them around.

Australia does not make any mining tyres. They all have to arrive here on a ship and shipping costs have risen.

Then comes the cost of moving them around. After all, each of these tyres weighs about 5.5t and they have to be put in open top containers, which add to the cost.

This also raises the question: what becomes of the broken tyres?

Kal Tire has a tyre recycling plant set up in Antofagasta, Chile that reduces the old mining tyres to carbon black, oil and steel.

That plant has two reactors that can each hold 20t, which is equivalent to about five ultra-class truck tyres.

The reactors operate side by side with one working while the other is cooling.

Rigney said Kal Tire still held an ambition of bringing that tyre recycling technology to Australia.

“We’re continuing to engage with our customers who have a high level of interest in this project and potential end users for products from the plant,” he said.

“We know it is about establishing who are the customers who want to go on this journey with us. Where is the best place to put it?”

By having a plant already up and running Kal Tire is ahead of the game compared to some of the other proponents of similar tyre recycling options.

One of the issues other companies have faced in Australia is being able to demonstrate to environmental authorities exactly how their technology will operate.

Kal Tire has actual evidence of how its plant will work because it already has one up and running.

Rigney said Kal Tire had no interest in owning the tyre recycling space.

“It’s a big problem and will need lots of parts to help solve it and bring it under control,” he said.

In another bonus for miners, the plant may also be able to handle old conveyor belts, which are also made up of rubber and steel.