

## **Marangoni: a new retread solution for the OTR tyre segment**

By introducing the new MTXL retread, the Italian-based specialist proves once again their customer-centric approach.

*Rovereto, Italy* – The latest product development in the OTR tyre segment allow Marangoni to demonstrate their technological prowess and flexibility by adapting quickly and following up with retread solutions suitable for the latest developed tyres.

In this regard, the new MTXL retread represents indeed an exemplary case, according to Ayhan Haliloglou, OTR tyre Area Manager at Marangoni. *“Recently, a customer from Finland contacted us to request if we could design a new retread solution for the tyres mounted as original equipment on their Kiruna slag pot carriers,”* he says. *“These new premium tyres of the size 29.5R29 had a newly designed casing, with higher load capacity and a completely new tread design.”*

### ***A specific need for the end-user, a new challenge for Marangoni***

The end-user was looking for a way to use these casings for a second life with a tread design similar to the original and fit for their specific needs: traction and cut/tear resistance - two fundamental features for the mining industry. Following this request, Marangoni started evaluating the development of a new product, keeping a constant, productive and meaningful dialogue with its distributor - Lujakumi Oy - and their customer - Valtasiirto Oy.

Lujakumi, whose headquarters are situated on Finland’s west coast, are one of the most experienced tyre retread companies in Europe. The company was founded in 1954 and, since 2017, they’ve been using RINGTREAD System, Marangoni’s leading-edge technology for the retreading of truck and bus tyres. In 2018, they added Marangoni OTR retreads to their commercial offer, by signing a distribution agreement with the Italian firm.

Valtasiirto is a company specialised in delivering comprehensive solutions for industrial indoor and outdoor logistics, with business offices located in all the largest Finnish industrial parks. The firm was established in 1999 and, since then, they offered a large variety of services, among which the management of the raw material stock for its customers operating in the mining industry.

### ***The beginning of a synergic cooperation***

Markku Mäkipää, OTR Specialist at Lujakumi, claims that it became immediately clear that the end-user was looking for more than only a partner to just fulfilling their traditional tyre needs. *“Besides retreading their standard wheel loader and articulated dumper tyres, Valtasiirto were also looking for an economical and ecological solution for their specialized pot carrier vehicles,”* says Mäkipää. *“Having successfully cooperated with Marangoni for several years, we knew that everything was in place to satisfy this request,”* he adds.

After starting the collaboration, the end-user experienced the Marangoni's industry-leading tyre retreading technology by making a fact-finding visit to Italy, according to Jori Huhtaniemi, Director of Maintenance at Valtasiirto. *"After getting an in-depth tour of the Rovereto's plant, we were really impressed by the high technology content implemented by Marangoni in their production process. This visit proved a great opportunity to gain a much greater knowledge of how premium quality retreading takes place,"* he says.

As the specific operation of the tyres equipped on the front axle of their Kiruna slag pot carriers is very severe, and safety is the main priority, Marangoni proposed a rigorous casing inspection regime before committing to the development of a new product.

### ***Retreading: a process more sophisticated than many may expect***

*"This tyre size of 29.5R29 had never been retreaded by Marangoni, so the initial analysis was critical,"* says Haliloglou. *"After retrieving the customer's casings, our operators checked the different parts of the tyres, to ensure that the quality and casing integrity was acceptable for the retreading process."*

The next step was to remove the old tyre material by a process known as buffing to precise dimensions. The casing was measured after buffing until the minimum required amount of base rubber remained.

Further casing inspection took place by the Marangoni operators. These tyres have been used in very demanding and arduous conditions and several small damaged areas were detected. However, thanks to Marangoni's extensive experience in tyre repairing, this posed no threat to the retreadability.

After studying the application and machine schematics, Marangoni's engineering and production departments proposed a tread depth, a pattern design and a tread compound that would fit this specific operation and be suitable to produce on this casing model. Once the exact specifications were determined, the production process continued.

*"The building process is quite more advanced than most people think,"* says Haliloglou. *"Some people assume that a pre-cured tread is applied to the casing, but this is definitely not the case. In fact, the OTR tyre is rebuilt from the casing on as if it was a new tyre. The casing is mounted on the building machine and starts to spin, while an extruder arm applies three different layers of compound – base, intermediate and tread – evenly from shoulder to shoulder,"* the area manager adds.

### ***Recaflex System: the solution that made the difference***

During the inspection/measurement phase of the casing, it became apparent that this specific type of casing was not within the dimensional parameters of an L4 casing. Therefore, it wasn't feasible to process the casing in a conventional hot-cure mould: an alternative method was needed. Marangoni opted to cure the built tyre in their autoclave. The different curing facilities – moulds and autoclave – Marangoni has in its factory in Rovereto, enable the company to retread almost any OTR tyre available.

Marangoni's Recaflex system allows the company to groove tread patterns in almost any way possible. *"But before we could do that,"* says Haliloglou *"we had to program our software with a new design, optimised to meet the end user's specific requirements."* After the computer programming, the tyre was mounted on the Recaflex machine and the equipment grooved the tyre accordingly.

Finally, Marangoni's specialists inspected the product for any defects and imperfections. After the visual inspection, each tyre was inspected using a shearography machine. Shearography (interferometry) allows inspection of the inner structure of the tyre. *"Marangoni is one of the few retreaders in Europe who use a shearography device for OTR tyres,"* says Haliloglou. *"Due to this machine, we are able to commit to the highest quality demands, which are always required in heavy-duty mining and industrial operations,"* he adds.

### ***Back to work, ready for a new lifecycle***

The tyres have been recently shipped back to Finland, where they have been further inspected and mounted on one of the Valtasiirto's slag pot carriers. Currently, the MTXL retreads are in operation and are being closely monitored by Lujakumi's technical specialists, to prove that Marangoni OTR retreads are suitable for the toughest conditions of this severe industrial application.

Marangoni continues to further develop their offering, so that all segments within the quarrying and mining industries can lower their total cost of ownership and improve the ecological footprint, by adopting a tyre policy which allows premium, well managed OTR tyres to be retreaded.

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