

— MICHE CASE STUDY

The gold factory



FOCUS ON



Osawa is the brand of Sorma S.p.A. that provides the metal cutting industry with a complete range of high-level solid tools for drilling and milling, ensuring the best performances even in the most critical applications. Sorma is a long-term business partner of FAC-Michelin, a company based in San Vendemiano (TV) that produces high-quality components for the cycling industry.

The surname Michelin has been linked to the Italian cycling tradition for more than a century: the company started producing bicycles with the brand Ciclo Piave in 1919 first, and then as Stella Veneta (1936) before moving on to the production of motorbikes and bike components. Today, in the San Vendemiano factory near Treviso, the focus on innovation and a high-efficient production process go together with the accurate management of the custo-





■ MICHE Pistard AIR crankset with forged body.

mer. This approach enables the production of high-quality products loved by cyclists all over the world, both pros and amateurs.

MICHE brand embraces the cycling in all its variants: from groupsets, wheels and components for road bikes to those for gravel, through track bikes and e-bikes; an industry, the latter, that in recent years has been expanding rapidly and is set to become an increasingly important segment in the market.

MICHE is the technical partner of many racing teams (road, MTB, e-bike, and track). Among the

successes of the year, it is mandatory to mention the wonderful Olympic gold medal at Tokyo 2020 and the gold medal at Roubaix Track Cycling World championships of Italy men's team pursuit squad. The bikes used by the four pistards mount MICHE parts made with Sorma tools: we went visiting San Vendemiano headquarters to take a closer look at how the components are fabricated.

THE DETAIL MAKES THE DIFFERENCE

The production process invol-

ves the accurate preliminary study of each component and the design with sophisticated CAD programs. The sketch then takes shape with 3D printers and after a careful inspection sent for production on CNC machines. Once made, the products must pass many tests in the toughest conditions of use, optimizing the parts to guarantee their quality and reliability before they are sold worldwide.

Track bikes are fixed-gear bicycles and there is no freewheel mechanism. Manufacturing these parts is quite simple, but

it requires the maximum production quality and tolerances (centesimal order of magnitude are allowed) to avoid any imperfections. With Renato Sperandio, Production Manager, we get further into production details:

“The “Olympic bike” - explains Sperandio - mounts the MICHE Pistard AIR crankset composed of a forged crank, a 63-teeth gear (while the rear gear has 14 teeth), and an axle with interference fit. All parts are CNC-manufactured. Gears are machined from plates on a CNC machining center using **Osawa MDCSA2** uncoated micrograin mills”. The cutting geometry, with two 45° helix cutting edges (D=5 and 6 mm) has been especially developed for non-ferrous machining. Lapped cutting edges and ad-hoc profile of the chip pocket generate low cutting forces and ensure outstanding finishing quality. MDCSA2 carbide mills have also been used for the cran-

kset body, to create the gear housing and the face milling on the lower surface of the arm that holds the housing of screw heads. With the same end mills the company also produces the hole and internal pockets for the interference mounting of the axle.

FULLY MACHINED SPROCKETS

Solid threaded sprockets are made of alloyed steel and machined from solid. They are roughed with Kyocera **GMM6020-040MW** PVD coated carbide inserts for grooving (Sorma distributes the brand in the Triveneto region) and threaded using carbide inserts **16IR100ISO-TF** (Kyocera). The continuous micro-honed cutting edge promotes high-quality sharpening and geometry of the thread.

In this case, teeth are machined using Osawa G2CS4 four flutes carbide general-purpose

mills (D=5 mm), that feature cutting geometry and innovative coatings specific for ensuring outstanding performances.

■ Threaded solid sprockets, in alloyed steel, machined from solid.





■ “Sei giorni” gears are machined from plates on a CN machining center using the MDCSA2 uncoated micrograin solid mill.

AN INNOVATIVE MTB SPROCKET

Moving from track to trail, within the MTB’s product selection the machining of the single sprocket of the last three positions (36-42-51) is also of interest. The part, made of Al 7075-T6 that undergoes HT (hard treatment) anodization, is machined in a single placement in a CNC machining center starting from a disc previously cut from a bar (diameter of 220 mm). The company uses MDCSA2 mills with diameters 5, 6, 8, and 12 to accomplish the job. “Machining this part required a deep study of both the tool path and the placement because the raw material tends to move in space while its weight reduces during the process”, highlights Sperandio. By deeply investigating the production process, MICHE successfully set up a production cycle that guarantees the absolute planarity of the part. ■

Osawa: 20 years of excellence.

Osawa is a trademark owned by Sorma S.p.a., which is on a mission to provide the cutting tool market with high performance solid tools for milling and drilling. Based on Sorma well-established know how, and Japanese and European best manufacturing technologies, the brand Osawa was

launched in 2001.

To keep up with the evolution of production systems and costs, Sorma S.p.a. increased its investments and technology cooperation with its partners, always putting quality and reliability first.

Such structure makes Osawa able

to meet a very wide spectrum of customers’ requests, even on most critical applications. Its production flexibility together with the highly qualified direction of Sorma gives Osawa the possibility to offer customers with high performance solutions for any applications and materials.



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MICHE'S BRAND**



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