# Asphalt removal in record-breaking time: New runway for Sardinia

**Three Wirtgen cold milling machines – two of type W 210 and one of type   
W 200i – and two Wirtgen soil stabilizers of type WR 2000 demonstrate their productivity and reliability at Alghero-Fertilia Airport in Sardinia.**

Located roughly 8 km northwest of the city of Alghero, Alghero-Fertilia Airport (IATA: AHO, ICAO: LIEA) is one of three commercial airports on the Italian island, along with Cagliari Elmas and Olbia.

Built as a military airport in the late 1930s, Alghero-Fertilia still occasionally serves this purpose today. The airport serves the provinces Sassari and Oristano. It is also a major hub for various low-cost carriers. With an annual passenger volume of 1.7 m, the summer months are the busiest. The operating company SO.GE.A.AL (Società di Gestione Aeroporto di Alghero) consequently decided to use the off-season period in early November to carry out necessary maintenance work.

**Tight schedule imposes high demands on men and machines**

The maintenance schedule called for rehabilitation of the runway surface course over a length of 2.1 km and a width of up to 19 m. In addition, the underlying courses had to be stabilized over a further stretch 600 m long and 19 m wide at the end of runway 20. The ground there is subjected to heavier loads due to aircraft landing. This has already led to a reduction in load-bearing capacity resulting from both material fatigue and the composition of the soil.

The size of the area to be milled, the standards which applied to the stabilization work and the short time frame allowed for the project all called for a service provider with the necessary experience and the right equipment. The contract was ultimately awarded to the company Italfrese srl from San Damiano d’Asti, south of Turin. The stabilization work was carried out by another Turin company, the subcontractor Consolida srl.

Italfrese is a renowned Italian provider of milling services with a large fleet of machines comprising ten Wirtgen cold milling machines, a Wirtgen soil stabilizer of type WR 2000 and a binding agent spreader of type SW 10 TC from Streumaster.

**Logistics and machinery equally important**

The logistics was indisputably the biggest challenge for both companies. All the required machinery – two Wirtgen cold milling machines W 210 and a W 200i, two soil stabilizers of type WR 2000, two Streumaster binder spreaders of type SW 10 TC, two road sweepers and three service vans – first had to be shipped to the island.

Semi-trailers brought the construction machines to the port of Genoa. From there, they were loaded onto a ferry for the 12-hour night crossing to Porto Torres in the northwest of the island, roughly 25 km from Alghero-Fertilia Airport. They then proceeded straight to the airport, where work started the next morning as soon as the airport was closed.

According to the carefully planned schedule, only two days and nights were allowed for the milling work so that the asphalt could be paved without delay. In order not to lose any time during the work, Italfrese therefore set up an efficient system for supplying water and refueling the cold milling machines and other equipment before the milling work started. Contracts were signed with local haulage contractors to ensure that a sufficient number of trucks were always available to transport the reclaimed asphalt pavement without delay.

**Premium products from Wirtgen live up to their reputation**

The work started at the end of runway 20. Before the soil was stabilized by the two WR 2000 machines from Wirtgen, the market leader's cold milling machines removed the complete 30 cm-thick pavement over an area of 11,400 m² – working in several passes and advancing in a staggered formation at high feed rates.

Designed for precisely such requirements, the cold milling machines also thrilled Attilio Demuro, a milling machine operator for Italfrese: "In my view, the easy-to-understand display is one of the main strong points of these machines. It enables us operators to concentrate on our work and have everything under control at all times – despite the complexity of the mechanical, hydraulic and electronic systems. This is where the LEVEL PRO leveling system and the hydraulic sensors for measuring the milling depth offer genuine added value." In addition, he finds that the abundant lighting ensures excellent visibility – even in the dark – as demonstrated in Alghero, too.

Ernesto Franco, CEO of Italfrese who runs the company together with his brother Emanuele, monitored the complete milling project on site: "Naturally, this is not our first airport project, but every such job site is a different ball game. Just because we have the experience, highly qualified machine operators and a good logistics and organizational structure, that does not mean that we can afford to lose sight of the imponderables associated with such a job."

**Cost-efficient and reliable milling and stabilization**

With their 2 m-wide milling drum, the high-performance milling machines W 210 and W 200 can reclaim asphalt up to a maximum depth of 33 cm. Depending on the requirements, the milling drum speed can be set directly from the operator's platform to 1,600 rpm, 1,800 rpm or 2,000 rpm via a selector switch. While the low speed of 1,600 rpm – as used for the removal of complete road pavements in Alghero – is ideal for achieving a maximum milling output and lower fuel consumption per cubic meter of reclaimed material with low wear on the cutting tools, the middle rate of 1,800 rpm is perfect for standard milling jobs, such as the removal of surface courses. It also delivers RAP in appropriate particle sizes. The top speed of 2,000 rpm is used to remove thin pavements at maximum feed rates while producing a good milled result at the same time.

Once the cold milling machines had removed the pavement at the end of the runway in less time than was originally scheduled, excavators removed the base to a depth of 80 cm – as specified – in just one night shift plus the following morning. They were followed by two Wirtgen soil stabilizers of type WR 2000. Over the next few days, these mobile machines stabilized the first 30 cm with 2.5% lime and 2.5% cement, as required on account of the clayey soil. The remaining 50 cm of soil were also homogenized by the two WR 2000 machines, this time adding 3% cement.

*Features of the Wirtgen W 210 boost overall efficiency*

At the same time, the two W 210 cold milling machines tackled the 2.1 km-long runway from which the surface course had to be removed to a depth of 5 cm. The challenge here lay in the size of the area to be milled, rather than in the milling depth. All in all, a total area of 37,800 m² had to be milled, yielding an RAP volume of roughly 1,900 m³. The two W 210 machines performed outstandingly here, with their enormous feed rate and medium milling drum speed, much to the satisfaction of Attilio Demuro: "Despite the large area, the W6-G/20X cutting tools showed little sign of wear when the work was complete. This shows just how productive and profitable original cutting tools from Wirtgen are."

In addition to the low degree of wear – which is attributable to the carefully coordinated interaction between cold milling machine and point-attack tools as well as the use of low milling drum speeds – the dual-engine concept of the W 210 also proved to be particularly economical. Depending on the power required, this concept allows the milling machine to operate with one or two engines.

The two diesel engines are connected to one another by a power belt. Only the first engine was in operation whenever the performance level required to achieve the specified results was low. It served as the power unit for all functional groups. The second engine was activated for milling at full power. The advantages are obvious: Noise levels, vibrations and exhaust emissions are lower when the second engine is deactivated. At the same time, diesel consumption was also significantly lower.

Since the dual-engine concept and the three milling drum speeds were optimally adapted to meet the requirements of the job site, milling work on the airfield was able to proceed quickly and cost-efficiently. But that was not all. Soil stabilization by the two WR 2000 machines also proceeded within the agreed time frame.

**Results speak for themselves**

In this way, the fleet of Wirtgen machines successfully laid the ground for the asphalt paving work and all subsequent process steps. There was consequently nothing to prevent Alghero-Fertilia Airport on Sardinia reopening on schedule.

Ernesto Franco was also visibly pleased with the result: "Our strength has always been that we have used Wirtgen milling machines ever since our father founded the company more than 20 years ago. You could say that I grew up on these machines and know their potential. And we also know that Wirtgen continuously invests in product quality. I think the results speak for themselves."

Photos:

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|  | B\_Wirtgen\_08050 Construction machines from Wirtgen kicked off the rehabilitation work on the runway at Alghero-Fertilia Airport on Sardinia. Two cold milling machines of type W 210 removed the 5 cm-thick asphalt pavement with great precision when rehabilitating the surface course of a 2.1 km-long section. |

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|  | B\_Wirtgen\_08072 The base courses additionally had to be stabilized at the end of runway 20. In the first stage, the complete pavement – some 3,420 m³ of material – was reclaimed by a team of three Wirtgen machines: two W 210 machines and a W 200i. |
|  | B\_Wirtgen\_08076 Two Wirtgen soil stabilizers of type WR 2000 then homogenized the first 30 cm of the clayey soil with 2.5% lime and 2.5% cement, before adding 3% cement to the remaining 50 cm in order to obtain the required load-bearing capacity. The two WR machines did their job reliably, stabilizing 1,600 m³ of material. |

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|  | B\_Wirtgen\_08056 The real challenge, however, started long before the Wirtgen cold milling machines and soil stabilizers started work. The entire equipment had to be shipped to the island by ferry. Loading and unloading the machines was precision work. |

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|  | B\_Wirtgen\_08061 The practical solutions offered by cold milling machines from Wirtgen are appreciated by the machine operators. Simple, clearly arranged operating elements allow the operators to focus completely on their job and always have everything under control. The LEVEL PRO leveling system is just one of many highlights. It makes life easier for operators while improving the quality of the milled result. |

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|  | B\_Wirtgen\_08082 Italfrese's CEO Ernesto Franco (3rd from the right) is proud of his team which completed the Sardinian airport project on schedule despite the short time frame allowed. For over 20 years, the company, which he and his brother took over from their father, has relied on machines from Wirtgen. And the results produced at Alghero-Fertilia Airport show why. |

*Note: These photographs are only intended as a preview. For printing in publications, please use the photographs in 300 dpi resolution that are available for download from the Wirtgen GmbH / Wirtgen Group websites.*

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