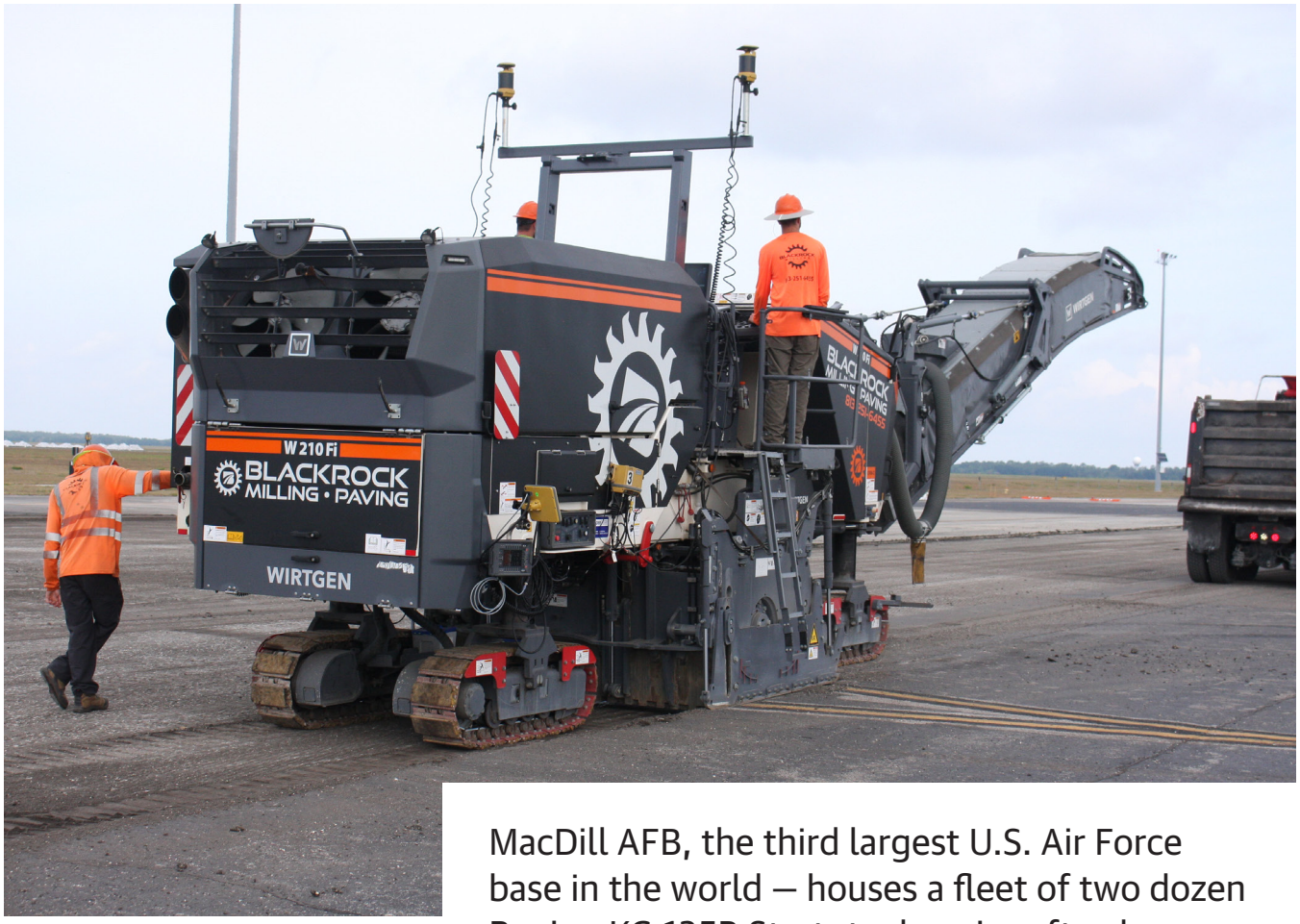
Tight on the Taxiway

Florida paving specialist meets tough specs with a millimeter solution



Company
Ajax Paving Industries
Fort Meyers, Florida

Project
Milling/resurfacing aprons on the third largest air base in the world.
Tampa, Florida

Topcon Solutions
Millimeter GPS

Topcon Dealer
Dobbs Equipment

MacDill AFB, the third largest U.S. Air Force base in the world — houses a fleet of two dozen Boeing KC-135R Stratotanker aircraft, a long-range aerial tanker capable of refueling a variety of other aircraft in mid-air, anywhere in the world and under any weather conditions. When a section of one of the major aprons used to stage those aircraft on a daily basis was identified as deficient and slated for repair, the milling and resurfacing project was awarded to Ajax Paving. According to Ben Harlan, Ajax's field technology manager, it was a perfect fit for the company's GPS capabilities.

"This company has immersed itself in GPS technology for easily more than a dozen years now," he said. "We have machine control on most of our dozers

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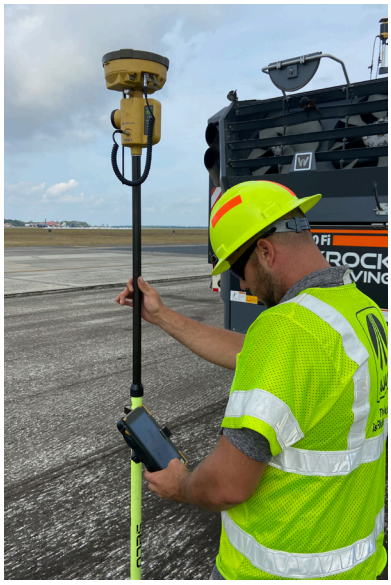

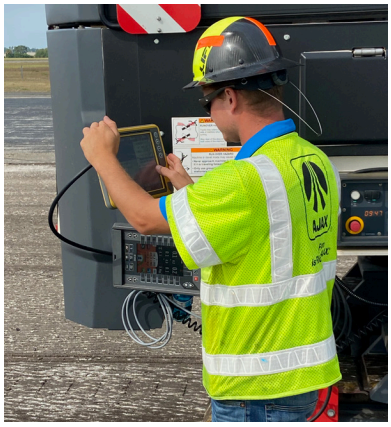

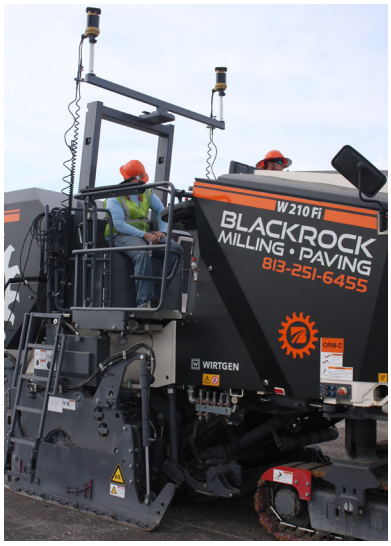

and graders and some of our excavators, so it was a natural progression for us to bring it into the paving part of the operation, which we did several years ago. Our management team recognizes the benefits the technology brings in terms of accuracy and productivity and knew those — and more — would come into play at MacDill."

More than 150,000 square feet of apron, deemed to be sorely in need of both restoration and resurfacing, was rehabbed at MacDill. According to Harlan, while the accuracies demanded were tight at ± .02' for finished grade, the decision to bypass traditional milling and paving methods was in the works long before they came on site.

"This was a case in which millimeter-grade GPS milling was specifically called out in the specs," he said. "Again, that played directly to our strengths as one of the leaders in Florida for using that technology. To begin the process, we had a survey team topo the area in 25-foot grids then, from those shots, we created a surface model which was used in both the milling and paving parts of the job."

For the MacDill project, the Ajax team worked with Tampa-based milling subcontractor BlackRock Milling which supplied a Wirtgen W210-Fi to tackle the milling. Harlan said that, because the 210-Fi is one of the company's more advanced units, equipping it with the Topcon Millimeter GPS system was a snap.

The Ajax team used a total of four Topcon LZT-5 transmitters — spaced at 250' intervals — to create an area of data which, when accessed by receivers on the milling unit, ensures an accurate elevation is maintained. When combined with the horizontal accuracies GNSS provides, true millimeter grade milling and paving is made possible.

"This project differed from many in that it called for variable-depth milling," said Harlan. "In a uniform depth milling effort, the side gates on the miller want to just follow the existing contour, essentially keeping any low spots. Variable depth milling, which is based on the 3D surface model we created, averages low and high spots and evens it all out. The result is a smoother surface without any of the old flaws; the Millimeter GPS system made it work beautifully."

The production gains at MacDill were substantial. The milling aspect of the project, which, done traditionally, would have been both labor- and time-intensive, was completed in just three days.

"That particular Wirtgen unit has a 7'-wide mill, and we made 18 passes at 1,200' each," said Harlan. "So, that facet of the job was done quickly, followed by an additional day and a half of miscellaneous work. Done using traditional means, layout alone would have been a week and a half to two weeks of additional work."

During the course of the milling operation, nearly 4,000 tons of asphalt was removed and hauled to one of Ajax's area asphalt plants for use as recycled asphalt product (RAP). Although it was assumed that the mill would be making a minimum 4" cut, such was not always the case, said Harlan.

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"Once we switched the machine around from Millimeter GPS to the slope sensor, things changed," he said. "The job limits on the apron were 20 feet away from the crown line, and even though we were supposed to be cutting 4-inches, between the topo shots we gathered and how bad the asphalt was, there were areas in which we only milled half an inch. So, we calculated the distance from the catch basins to the job limits and cut the appropriate slope to allow the water to drain into the basins. It really worked out well."

The MacDill project was just one of five airport-related projects Ajax tackled that year.

"The Topcon millimeter solution was a great fit at MacDill and checked all the boxes for what we need to continue improving both our milling and paving operations — we definitely see it continuing to play a role in future work for us."

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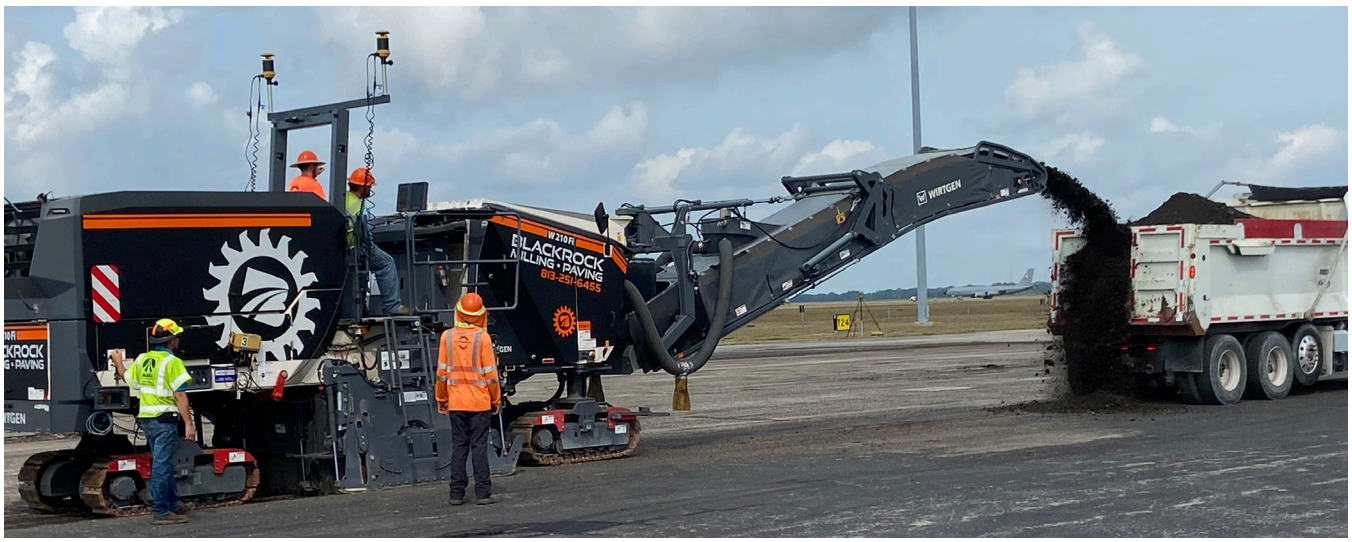

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