# AT WORK

TOPCON

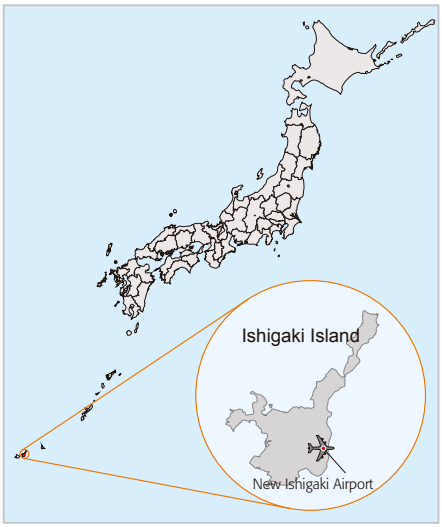
New Ishigaki Airport in Okinawa Prefecture

# Topcon 3D-MC system yields outstanding productivity in runway paving at Ishigaki Airport

## Runway paving project completed in just five months, normally a 12-month job

The new Ishigaki Airport, opened on March 7, 2013 in the east part of Ishigaki Island of Okinawa prefecture, was designed to land the modern airplanes on its 2,000m runway.
The old Ishigaki Airport, with 1,500m runway, could not accommodate the midsize airplanes that are necessary to link with capital regions with an increased number of passengers.
The new airport enabled direct flight from Tokyo areas with shortened flight time by one hour.

The Ishigaki-district Asphalt Business Association, in charge of the construction projects, consists of four local paving and grading contractors -- Toyo Kogyo, Nansei Doken, Yaejima Kogyo and Sakihara Construction. The four companies employed Topcon's 3D machine control system LPS-900 on their graders, pavers and asphalt paver. The new Ishigaki Airport Runway Project included surface preparation work and paving a 2,000m runway and taxiways with a construction area of 187,500m$^2$.




With the 3D-MC system, QS, Topcon's auto-tracking total station searches the 360° prism mounted on the earthmoving machinery and locates the precise position of the machine in real time. The system automatically controls the blade height of grader or paver by verifying the position data transmitted from the total station



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It's time.

and 3D design data, resulting in accurate grading or paving according to the 3D design data.
Seiken Haemori, president of Nansei Doken said, "The paving plan for the new airport was first announced in 2009 and at that time we began discussing among local contractors about the project."
"In the same year at a Continuing Professional Development System (CPDS) seminar, we got introduction of the machine control concept and thought that it would fit well with this project."
Yoichi Shii-uezato, president of Toyo Kogyo said, "We went to a construction site in Nagano to see a demonstration with the Topcon 3D-MC system and we realized immediately it was the perfect solution. It was apparent that no batter board was used in the roadbed work, so they could do work at the rate of 6,000m$^2$ per day. This was about four times the speed of the conventional method."
Regarding the asphalt paver fitted with machine control system, Shii-uezato said, "Though the accepted range of accuracy for ordinary paving is ±15mm, target accuracy for this particular project was ±5mm, we could, however, reach the targeted accuracy perfectly."
Satoshi Taira, president of Yaejima Kogyo, said, "We successfully hit all the designed grades along with the runway, the lowest at the middle of runway (1,000m from one end) , 0.8% to north end and 0.7% to south end.
"With the cooperation of four local companies and utilizing Topcon's 3D-MC system, we were able to accomplish the paving in just five months, less than half of the expected 12 months a project of this magnitude would normally take."
The contractors received the highest evaluation points after the project completion from governmental authorities.
Hirotaka Sakihara, a member of the senior staff of Sakihara Construction, said, "We will utilize the auto-tracking total stations not only for projects requiring 3D machine control, but also for general surveying tasks. We will also apply the instrument in the projects requiring as-built checks."

The four companies employed Topcon's 3D machine control system LPS-900; the members are Satoshi Taira, president of Yaejima Kogyo, Yoichi Shii-uezato, president of Toyo Kogyo, Seiken Haemori, president of Nansei Doken, and Hirotaka Sakihara, the senior staff of Sakihara Construction. (from left to right)