



Hajime Kubo, president of Nitto Construction, holds the Concrete Test and Surveyor (CTS).
Photo: TAKASHI SASAKI

CONCRETE IMPROVEMENTS

A Hokkaido-based construction firm with an innovative concrete-testing product is expanding its operations overseas.

TAKASHI SASAKI

NITTO Construction, Inc. is a construction company with capital of 20 million yen and sixty employees. Its head office is in Omu (population: 4,500), a small town facing the Okhotsk Sea in the northern part of Hokkaido. Its

name is widely known overseas among people involved in the civil engineering industry due to the Concrete Test and Surveyor (CTS), a unique product developed by the company. We asked President Hajime Kubo how Nitto Construction developed

this groundbreaking product and expanded its sales channels in Japan and overseas.

“I thought of developing a concrete tester in 1999. That year, the Japanese construction industry was facing tough conditions due to a decline in public works projects. I felt that it would be difficult for a small company like us to survive if no steps were taken,” said Kubo. “At that time, a concrete block fell from the inner wall of a tunnel on the Sanyo Shinkansen line. I watched a news video about the accident and thought about the fact that the life cycle of the concrete used for a huge number of buildings and facilities built in the high growth period after the war would end in the near future and that equipment for diagnosing the state of degradation would be needed for repairs.”

In Japan, there was large-scale equipment for diagnosing the state of the inner portion of concrete structures. However, it was impossible in terms of time and cost to diagnose multiple structures using this expensive equipment. Meanwhile, a manufacturer in Europe sold portable testing equipment, but the accuracy of the measurement of the degradation of concrete using the equipment was inadequate. Moreover, the hammering test method, which is still widely used, requires high skill.

“I came up with the idea that a lower-priced, accurate concrete testing device that anyone can handle easily was needed,” said Kubo.

The Concrete Test and Surveyor (CTS) weighs just 940 grams and is portable.
Photo: TAKASHI SASAKI



Kubo asked researchers at the Department of Civil Engineering of Tokai University, his alma mater, for cooperation and began to develop new testing equipment. He focused on the “impact force waveform” generated when concrete is hit by a metal hammer. Although precise measurement was very difficult technically, he succeeded in completing a high-precision device that can automatically measure compressive strength, surface deterioration,

and surface delamination when the surface of concrete is tapped with a hammer.

This new testing device began to be sold in April 2005 as a concrete tester. The device consists of a hammer incorporating an acceleration sensor and a measuring instrument (body). When concrete is tapped, data is displayed on the body in a second. If data from different points that have been tapped are fed into the personal computer, the strength distribution of the measured structure can be displayed. The device was a breakthrough non-destructive concrete testing device. Its total weight is only 940 grams, and the device is portable.

“I initially thought of selling this device only in Japan. But when we created our English website in 2011, telephone inquiries from overseas increased rapidly, and we had a hard time responding to them all,” laughs Kubo. “After the increase in inquiries, we expanded our sales channels into foreign countries.”

That year, Nitto Construction was selected as a company to be supported in the promising export discovery program of the Japan External Trade

Organization (JETRO). With guidance and advice from expert advisors, Nitto Construction expanded its exports rapidly. In March 2014, Nitto Construction’s project for promoting and demonstrating a technique using a concrete tester for inspecting concrete structures incidental to roads in Nigeria was accepted as a Japan International Cooperation Agency (JICA) project. Nitto Construction dispatched three engineers to Nigeria for technical assistance. The company has established a department dedicated to overseas operations and is working to improve employees’ foreign language skills. It is strengthening its internal system for global operations and has distributors in eight foreign countries.

“I would like to demonstrate that even small companies in rural towns can conduct business in the international arena, and I want to revitalize the construction industry in Japan,” said Kubo. “We aim to make contributions to infrastructure maintenance in local communities and worldwide through sales of concrete testers.”



Nitto Construction employees demonstrate how to use the CTS system in Nigeria.
Courtesy of NITTO CONSTRUCTION