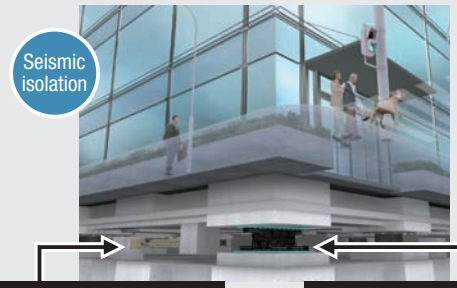
THK Seismic Isolation Systems

Providing the optimal system to protect valuable property

As Japan marks the twentieth year since the Great Hanshin-Awaji Earthquake, amid lingering apprehension about the ability to withstand such vast destruction, there is renewed interest in earthquake preparedness. In the interest of safeguarding lives and valuable property as well as to ensure business continuity, increasing attention is being paid to seismic isolation systems that protect office buildings, hospitals, dormitories, government buildings, public facilities, and private homes, as well as to seismic isolation devices that provide local protection for server computer, artwork, and measuring instruments and other high-precision devices. THK, determined to offer the most suitable and reliable product for each situation, is proud to help provide protection from menacing earthquakes. Below we offer a look at these types of THK products and their uses.

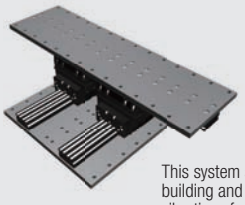
Seismic isolation and vibration control for buildings



RDT viscous damping system

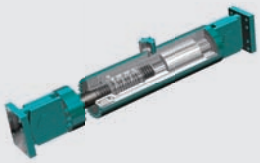
Deployed in combination with roller bearings, this device absorbs seismic energy.

CLB linear guide system



This system supports the building and dissipates seismic vibrations from any direction.

RDT viscous damping system used for vibration control



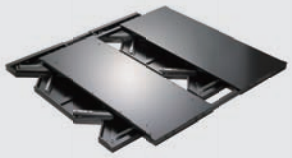
This device, which can be installed on the inside or outside of a building, absorbs seismic energy and suppresses building vibrations.

Seismic isolation for devices

TSG seismic isolation modules

The modules can be freely combined to accommodate a diverse range of loads and can also be used to isolate the floor itself.

TSD seismic isolation table



The seismic isolation table can simply be placed on the floor and requires no special installation.

Meiwa Hospital
Nishinomiya, Hyogo Prefecture

Attracted by reliable performance backed up by actual testing

Information technology has spread throughout the society we live in. In recent years the medical industry has rapidly incorporated electronic information systems. We now have electronic health records and other kinds of medical information systems that contain all sorts of information, from CT and MRI images and treatment plans for incoming patients to explanatory documents and consent forms for surgeries, and the enormous volumes of data collected are stored on server computers. If the servers were destroyed in a big earthquake or some other disaster, it's no exaggeration to say that virtually all medical activity would come to a halt. Not only that, the data in an electronic health record is important private information belonging to the patient, and we have a responsibility to properly protect it. Another point is that test results and images have to be provided to enable a patient to give informed consent for an operation, and if something were to go wrong the hospital could be ordered by a court to produce them. As a medical institution providing healthcare for this area, we have to do whatever is needed to protect our servers, for our patients' sake and to ensure sound management of the hospital's own operations.

Akinobu Kitagawa, Assistant Manager, Information Service Division.

Here in Nishinomiya we still have painful memories of the Great Hanshin-Awaji Earthquake, which occurred two years ago. Given the fact that a series of major earthquakes have followed, including the Chuetsu earthquake and the Great East Japan Earthquake, we really have to come to terms with the fact that major earthquakes are unavoidable.

We selected THK's seismic isolation system to protect our servers because they showed us the results of tests, performed using the same seismic waves as those recorded during the Great East Japan Earthquake, in which server computers were clearly protected. It took very little time from the signing of the contract to delivery, and the installation was done quite skillfully. Everything went smoothly, from the protective measures taken at the time of delivery and the pre-installation preparations to the installation work itself and the cleanup. We really appreciated the fact the work was done so well in the limited time available.

I used to jump every time the ground shook a little and ask everyone how big the tremor was. Now that I've seen the data proving that THK's seismic isolation system can protect against a quake as powerful as the Great East Japan Earthquake, I feel relieved.

Kyoudou Densan Center

Hachinohe, Aomori Prefecture

Strong protection, simple setup

Our company develops logistics systems and manages operations for hardware stores and supermarkets. In logistics systems, rapid response is extremely important. When products are sorted, for instance, split-second timing is required. Cloud-computing is all the rage nowadays, but it's very hard to achieve a rapid response with cloud-computing alone. Server computers, the mainstay of our business, are therefore absolutely crucial.

During the 1994 offshore Sanriku earthquake, a major seismic event, our servers survived but had to endure considerable displacement, and we were worried about LAN cables being severed and power cords being unplugged. That earthquake motivated us to start considering seismic isolation, and when we upgraded our servers we decided to incorporate it—not the THK seismic isolation system, another company's products.

After the Great East Japan Earthquake struck we brought in backup servers, and this time we decided to use THK's seismic isolation devices. At that time we had an employee who was familiar with THK and sang their praises, assuring us that their products were unquestionably reliable. He had attended an exhibition where he observed the THK device in action and saw for himself that it was effective even against severe temblors of the type that occurred during the Great East Japan Earthquake. There was nothing but a bowl on first seismic isolation device we used, which didn't look as though it would stand up to strong shaking. In addition, THK's device came in a variety of sizes and could be freely combined. The fact that we could easily set it up ourselves was a big reason for adopting the THK system.

In mid-February there was a level-four earthquake off the coast of northeastern Japan that registered 6.9 at its epicenter, but it caused no problems for us whatsoever. I've never experienced an earthquake more powerful than that one, but I'm not worried at all. In mid-May, after a strong early-morning earthquake, we got a call from THK asking if we had experienced any problems with our servers. I appreciated that. We have no plans to install more servers any time soon, but when the time comes I'll get in touch with THK, because I know we can count on them.

Tsuyoshi Matsumura, Manager.

Fujitsu Numazu Plant
Numazu, Shizuoka Prefecture

Inspired by a compelling presentation

The Numazu Plant, a key production facility that also plays a major role in the development of software for Fujitsu's large-scale computers and server products, has a computer center where development data and other information is stored. Precious intellectual assets belonging to the Fujitsu group are there, including some from overseas. We have to maintain conditions there to ensure secure, reliable, and stable daily operations.

The Suruga Bay area, where the Numazu Plant is located, is part of the region that has been at risk from a major Tokai earthquake or Tonankai earthquake since long before the Great East Japan Earthquake. Based on the realization that it would be extremely difficult to recover if our development assets and data were lost, we installed seismic isolation systems at group companies in 2008 to help ensure business continuity and a higher level of reliability.

The Cloud Services Department has customer service engineers available at all times at the center to rapidly respond to the various needs that arise. One of them told us about THK's unprecedented seismic isolation technology. This happened at a time when the topic of business continuity was getting a lot of attention, and we were also engaged in facility planning, so we invited people from THK to come to the plant and explain their products.

The presentation was very convincing. They didn't put the focus on paperwork. After a brief introduction they asked about our situation, and after watching a video they determined the actual motion that would occur, using a miniature model made of clear plastic. We could see that our existing equipment would not be adequate if an unexpectedly intense inland earthquake were to strike. We were convinced because we could see it and even feel it, which doesn't happen very often.

(From left) Toru Takahashi, Team Leader, and Naoki Gunji, Manager, both of the Software Development Cloud Service Department, Software Development Technologies Division, Software Technologies Unit.

Visitors to the Fujitsu Numazu Plant's Cloud Service Department can see THK's seismic isolation system at work by moving the rack and observing the way the system responds (reservation required).

At the time it didn't feel at all as though THK was trying to sell us something, although we still deal with the same people. They simply explained the technology that THK used for seismic isolation, with no mention of any rival products. They just said that if we accepted their proposal they would take care of us. We had high hopes for their system and really wanted to try it.

Of course, after that our bosses had to be convinced. We explained that THK's system would perform better and be more reliable that our existing seismic isolation arrangement. The miniature model that THK had loaned us was very persuasive.

If our servers were damaged or destroyed in a disaster it would still be possible to restore conditions using backup computers, but in the worst case, if our development data were lost, all such efforts would be in vain. For the sake of business continuity we have a comprehensive system in place, including backup computers at separate locations. Even so, by installing THK's seismic isolation devices, I would like to think we have taken sufficient action to safeguard a very important facility.