

## Strong Shake Generator

### Background

In order to improve the earthquake resistance of nuclear power plants (NPP), it is necessary to confirm the seismic safety of important structure, system and components under intense vibration. In particular, important active components for the protection of NPP safety function, such as the main steam safety-relief valve and various motor-operated valves, must be confirmed under ultimate seismic conditions by shaking

table tests. However there are limitations of conventional shaking table capacity, for which maximum acceleration is less than 10 G (G: gravitational acceleration). Therefore a new shaking table system with a capability exceeding that of a conventional shaking table must be introduced to evaluate the earthquake resistance of important components.

### Outline

The Strong Shake Generator (SSG) is a new shaking table facility amplifying vibration using a resonance phenomenon. The main characteristic of this facility, a shaking test of the world maximum acceleration 20 G is possible. This high acceleration shaking test could be

realized by a double spring structure where the base of the resonance table is set outside the primary shaking table. Two sets of Semi-Active Mass Damper (SAMD) are also introduced to provide a vibration countermeasure method for the facility foundation.

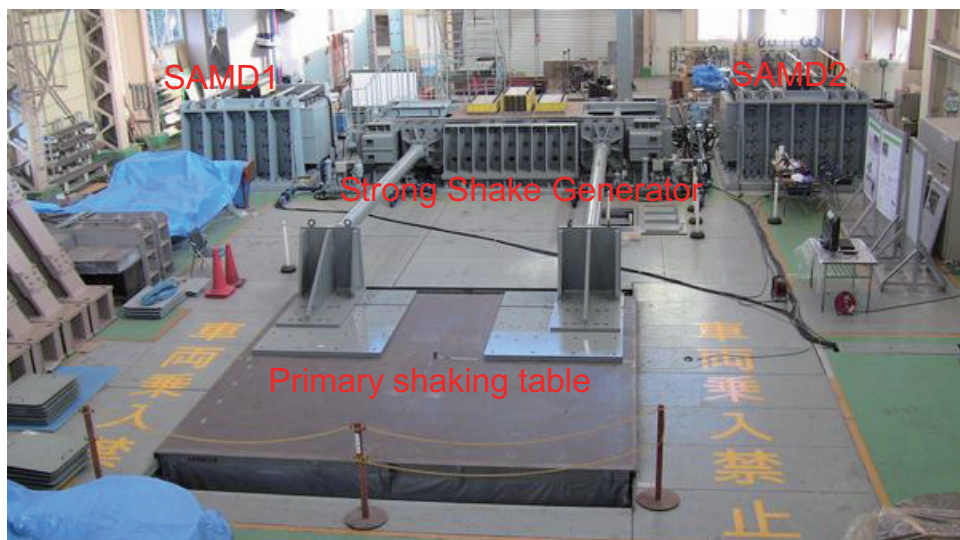
### Specifications

**Table 1: Specification of Strong Shake Generator in comparison with the existing shaking table**

Dimension	SSG	Existing shaking table
Operating Freq.	10Hz	DC~50Hz
Max. Acc.	20G	2G
Max. Load	10t	60t
Table size	2m × 2m	5m × 5m
Load direction	One horizontal axis	One horizontal axis

### [Location and date of installation]

Abiko area / February 2015



**Fig. 1: Photo of Strong Shake Generator**