

## KOCED Geotechnical Centrifuge Testing Center

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Location: Daejeon, South Korea

### Introduction

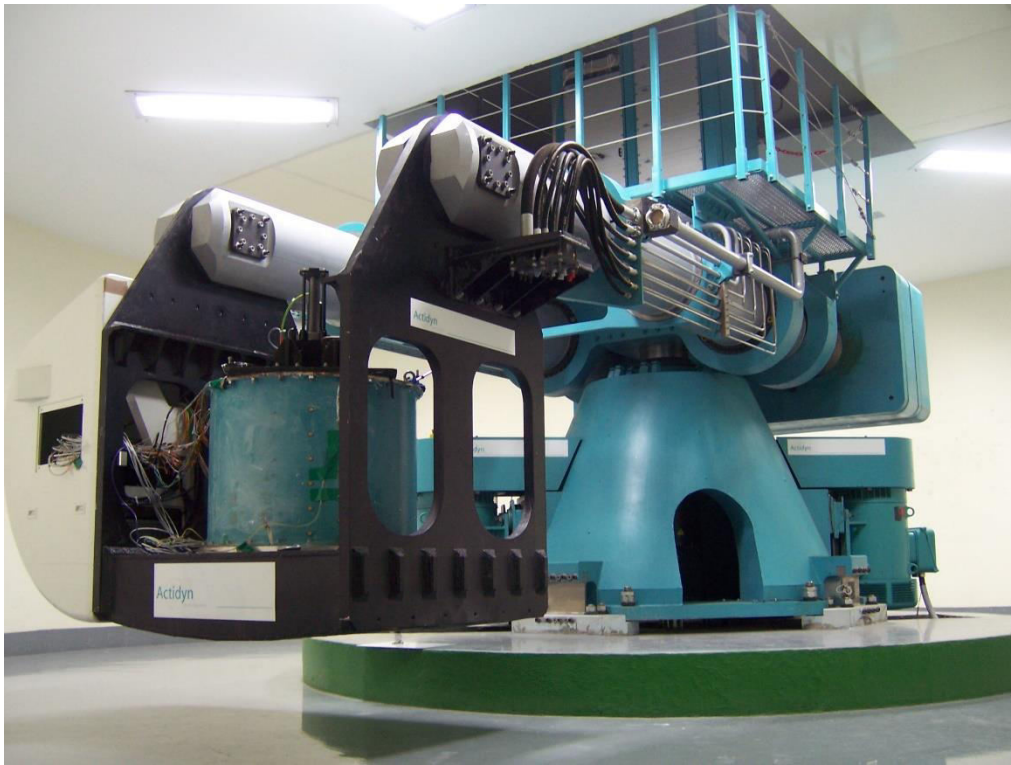
The KOCED Geotechnical Centrifuge Testing Center includes a 5 m diameter (240gton capacity) beam centrifuge, earthquake simulator, a four degree-of-freedom in-flight robot, a number of actuators (2D, 1D), fluid saturation system, sensors, and general modeling equipment. Our experimental infrastructure is predominantly used for research purposes. We also provide consulting services, experimental and analytical services for users according to user demand.

### Key Technical Specifications

Beam Centrifuge	
Manufacturer	ACTIDYN
Year established	2009
Radius to base of soil container	5.0 m
Capacity	240 gton (2.4 tons @100g, max G-level: 130g)
Bucket area	1.2 m x 1.2 m x 1.2 m
Major equipment	Earthquake simulator (capacity 0.7 tons @80g) 4-DoF In-flight robot Automatic sand rainer Consolidation system 2D, 1D loading actuator

### Beam Centrifuge

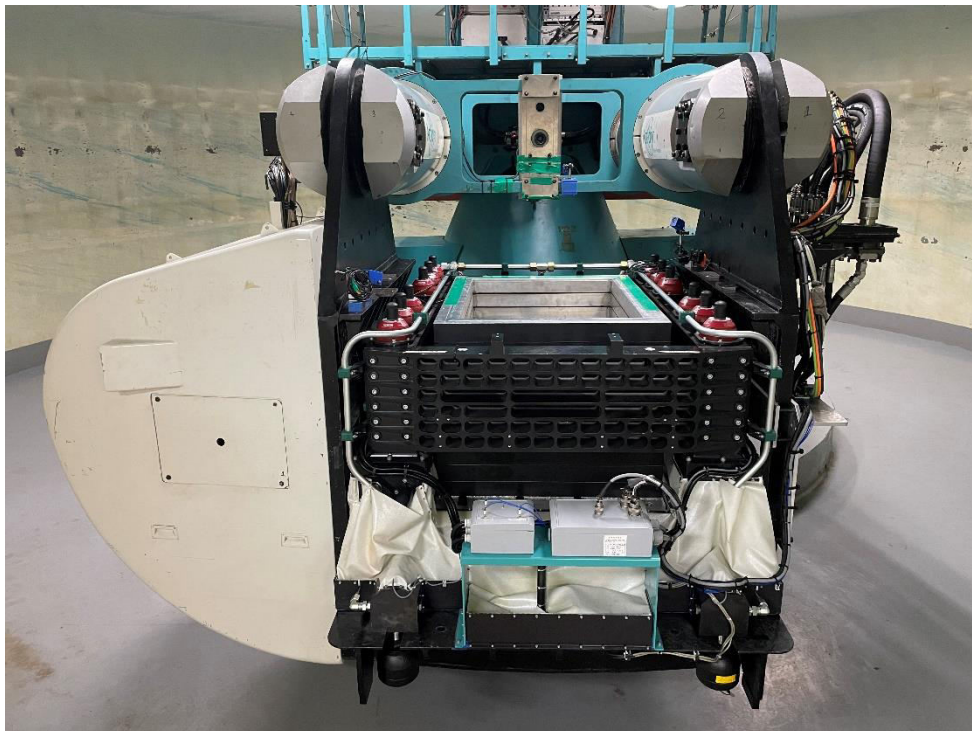
The centrifuge model is C72-2 manufactured by ACTIDYN and its installation was completed in 2008. It has been under operation for over 14 years. The centrifuge can be accelerated up to 100g carrying a payload of 2.4 tons(240 gtons). The centrifuge has single platform and is balanced by a massive counterweight at the opposite side of the testing model. The position of the counterweight is automatically adjusted according to the weight of the test model. The platform dimensions are 1.2 m (L) x 1.2 m (W) x 1.2 m (H).



KOCED geotechnical centrifuge installed at KAIST.

### Earthquake Simulator

An earthquake simulator was also installed along with the centrifuge and it was under operation for the past 12 years. A new earthquake simulator manufactured by Actidyn was recently installed in 2021. The Actidyn QS72-1 can input both real earthquake and sinusoidal motions up to 0.4 g peak ground acceleration with payload of up to 700 kg at a maximum centrifugal acceleration of 80g. The Q72-1 is designed to be easily mountable on the centrifuge platform. The platform dimensions are 1.0 m (L) x 0.8 m (W) x 0.65 m (H). The earthquake simulator is controlled with a SignalStar MATRIX digital controller from Data Physics Corp, installed on the axis of the centrifuge.



Earthquake simulator of KOCED geotechnical centrifuge