

## NHRI Geotechnical Centrifuge Centre

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Owner: Nanjing Hydraulic Research Institute (NHRI)

Location: Nanjing, China

### Introduction

The NHRI Geotechnical Centrifuge Centre is one of the earliest centres performing centrifuge modelling tests in China. In 1983, the collapse mechanism of Shenzhen Wu-Wan Wharf was revealed by centrifugal model test utilizing 50gt centrifuge presented below for the first time in China. The results were accepted by the Conference in 1988 in Paris, and received much attention from the peer experts.

After decades of testing, the centre has served over 200 national projects and completed over 1000 models. Our projects mainly focus on hydraulic engineering, ocean engineering and transportation engineering.

The NHRI Geotechnical Centrifuge Centre is equipped with 4 geotechnical beam centrifuges, whose capacities are 400 gton, 60 gton, 50 gton and 5 gton. Also, we have a shaking table, a 4-axis robot, a dam-breach simulation system, a variety of actuators and sensors.

### Key Technical Specifications

400gt Centrifuge	
Year established	1991 (Upgraded in 2017)
Radius to base of soil container	5.5 m
Capacity	400 gton (2 tons @200g, max G-level: 200g)
Bucket area	1.4 m x 1.2 m
Major equipment	Shaking table 4-axis robot Dam-breach system

50gt Centrifuge	
Year established	1983
Radius to base of soil container	2.25 m
Capacity	50 gton (0.2 tons @250g, max G-level: 250g)
Bucket area	1.0 m x 0.7 m

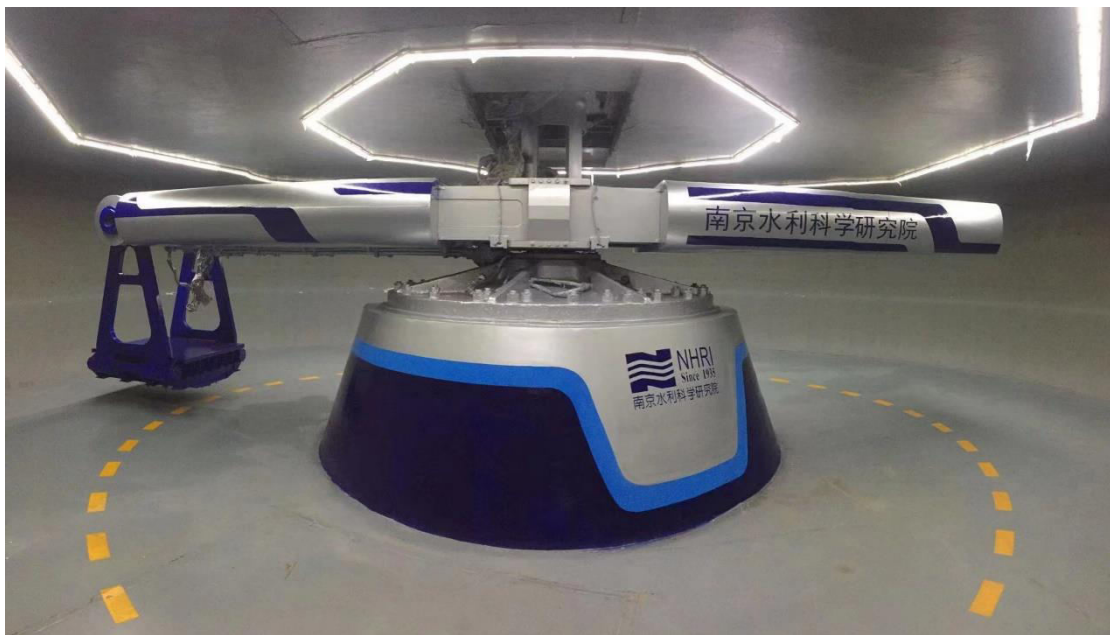
60gt Centrifuge	
Year established	2010
Radius to base of soil container	2.5 m
Capacity	60 gton (0.3 tons @200g, 0.6 tons @100g, max G-level: 200g)
Bucket area	1.1 m x 0.9 m

5gt Centrifuge	
Year established	1980 (Upgraded in 2010)
Radius to base of soil container	0.5 m

Capacity	5 gton (0.02 tons @250g, max G-level: 250g)
Bucket area	0.2 m x 0.2 m

Shaking Table	
Year established	2002 (Upgraded in 2017)
Maximum centrifugal acceleration	80 g
Payload	500 kg
Earthquake Direction	Horizontgal
Wave	Sinusoidal, seismic and random
Peak seismic acceleration	20 g



400gt centrifuge



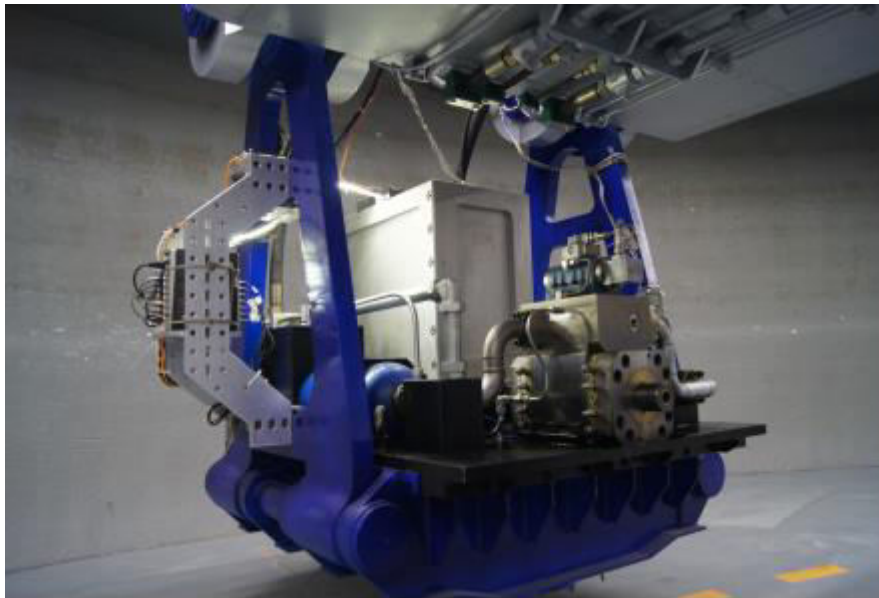
50gt centrifuge



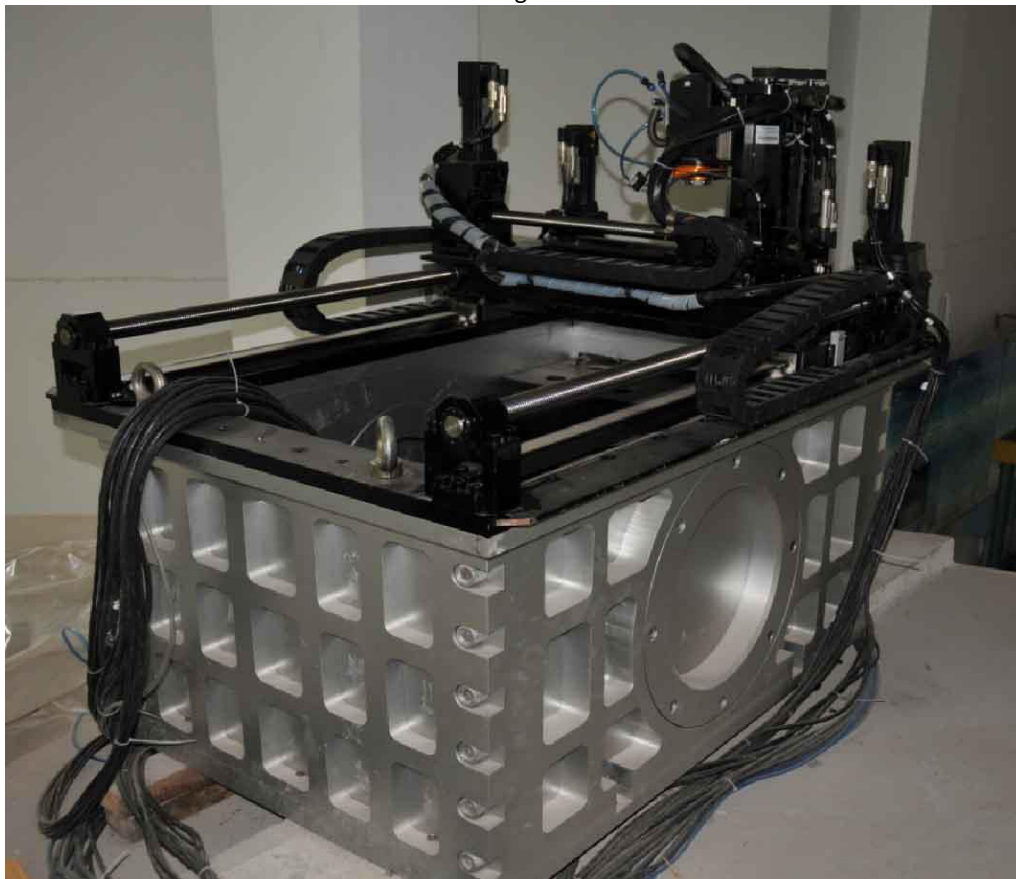
60gt centrifuge



5gt centrifuge



Shaking table



4-axis robot