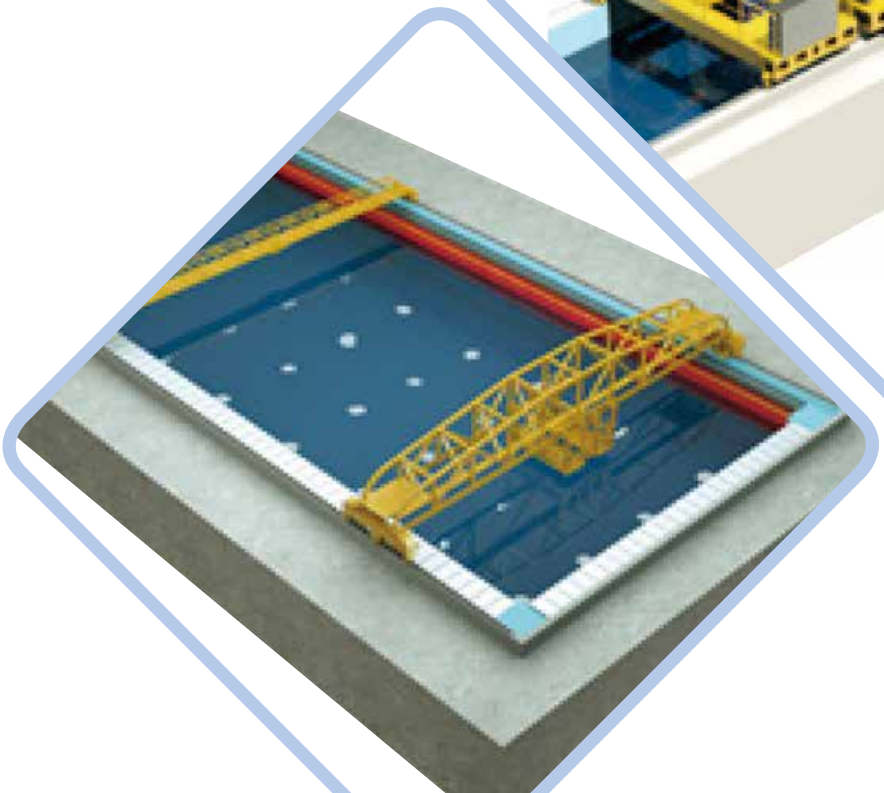
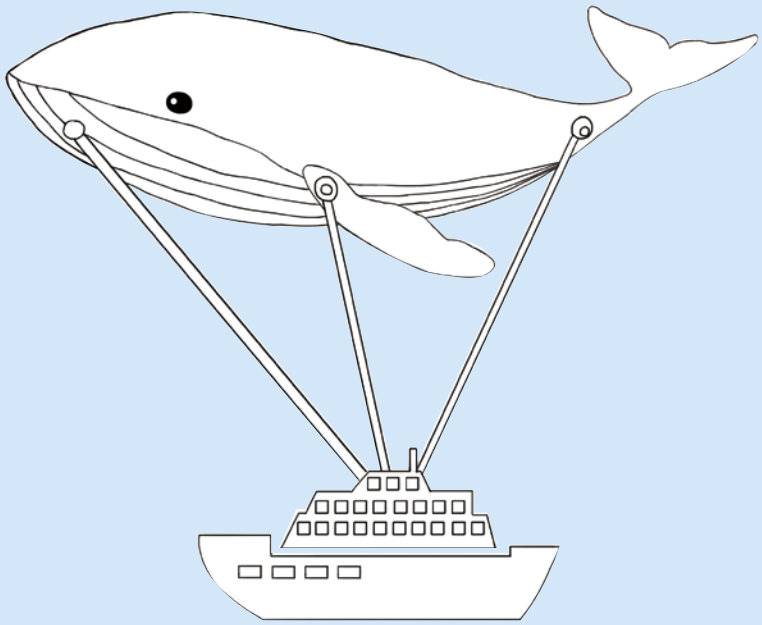
ciiz

System Engineering

Hydrodynamic Test Facilities & Measuring Equipment
Renewable Energy System (Wave Energy Converter System)
Industrial Vacuum Robot System
Offshore Aquaculture Farm System



www.ciiz-se.com



Challenge to be an Ideal International group with Zest !

Greetings from ciiz Co., Ltd.

ciiz Co., Ltd. (hereinafter referred to as 'ciiz') aims to become a global system engineering company that plays a leading role recognized by all in various engineering fields including 'Test Facilities' in the future.

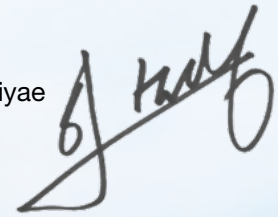
ciiz's experts provide comprehensive engineering services that design, manufacture, supply, and install various test facilities based on our long experience and expertise.

ciiz continues to collaborate with experts in various fields to lead the future engineering industries, such as "Test Facilities with Measuring Equipment", "Renewable Wave Energy System", "Industrial Vacuum Robot System", and "Offshore Aquaculture Farm System".

And ciiz will continue to further expand its engineering expertise to become a reliable partner for domestic and foreign engineers.

Please remember ciiz and contact us whenever you need a sincere R&D partner.

Thank you.

CEO Lee Miyae 

About Company

Objectives and Core Values

Management Objectives

1. To create an innovative R&D space for the marine industries
2. To be a trustworthy R&D partner in the marine industries
3. To become a global leader in marine engineering research solutions.

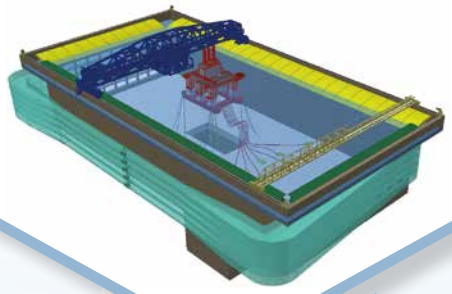
Core Values

1. Knowledge-based Company
2. High Technology
3. Customization

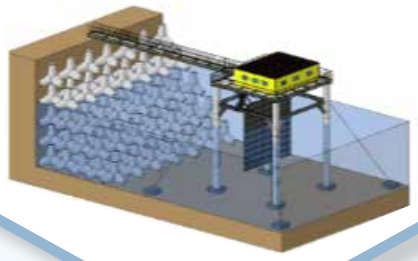
Business Area

System Engineering

Hydrodynamic Test Facilities
& Measuring Equipment



Renewable Energy System
(Wave Energy Converter System)

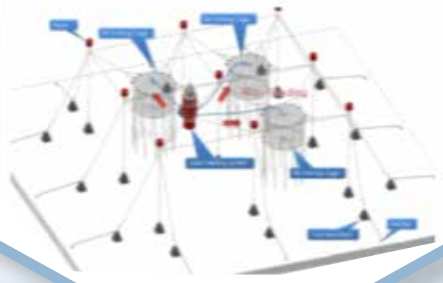


ciiz

challenge to be an ideal international group with zest

Industrial Vacuum
Robot System

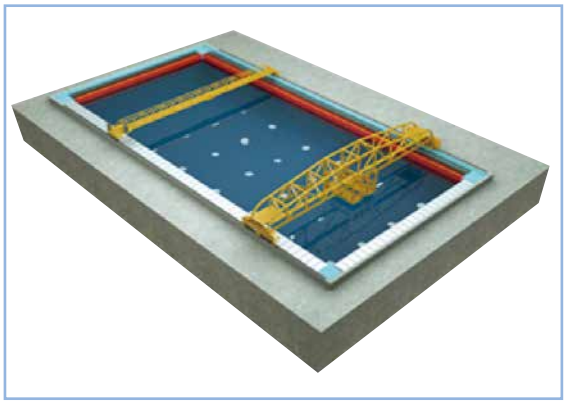
Offshore Aquaculture
Farm System

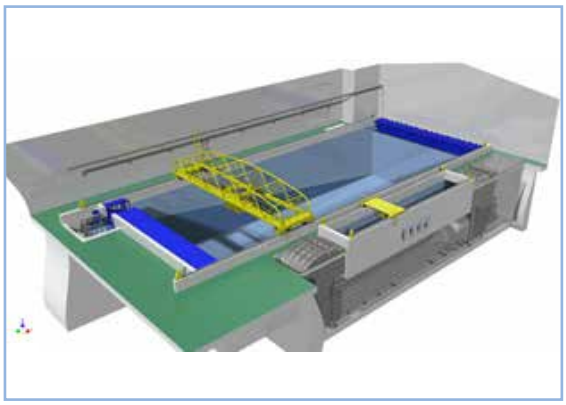


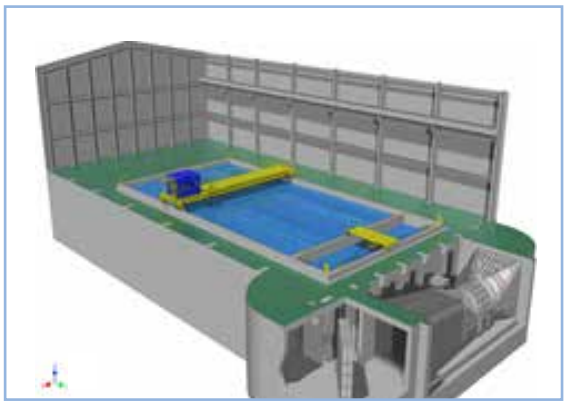
Test Facilities

Towing Tank & 3D Wave Basin

Towing Tanks & 3D Wave Basins are generally used to evaluate the hydrodynamic performance of ships and marine structures. Basically, Towing Tanks & 3D Wave Basins are equipped with several subordinate systems designed to simulate the features of ocean environment, including wave, current, wind, etc. ciiz designs and develops effective utilities according to the customer's requirements



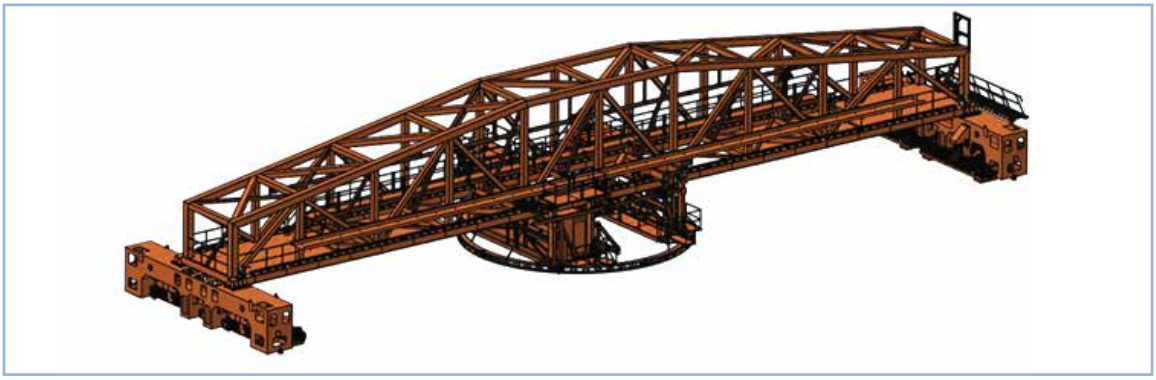




Test Facilities

Towing Carriage & Rail System

The Towing Carriage & Rail System enables the movement and position control of test models such as ship models and marine structures to play a key role in studying the behavior of test models under various wave and water flow conditions.
ciiz provides the Towing Carriage System with various specifications and performance capacities based on the customer's requirements, including an exclusively designed Rail System, a multi-axis servo motor control system, and various types of measuring equipment.

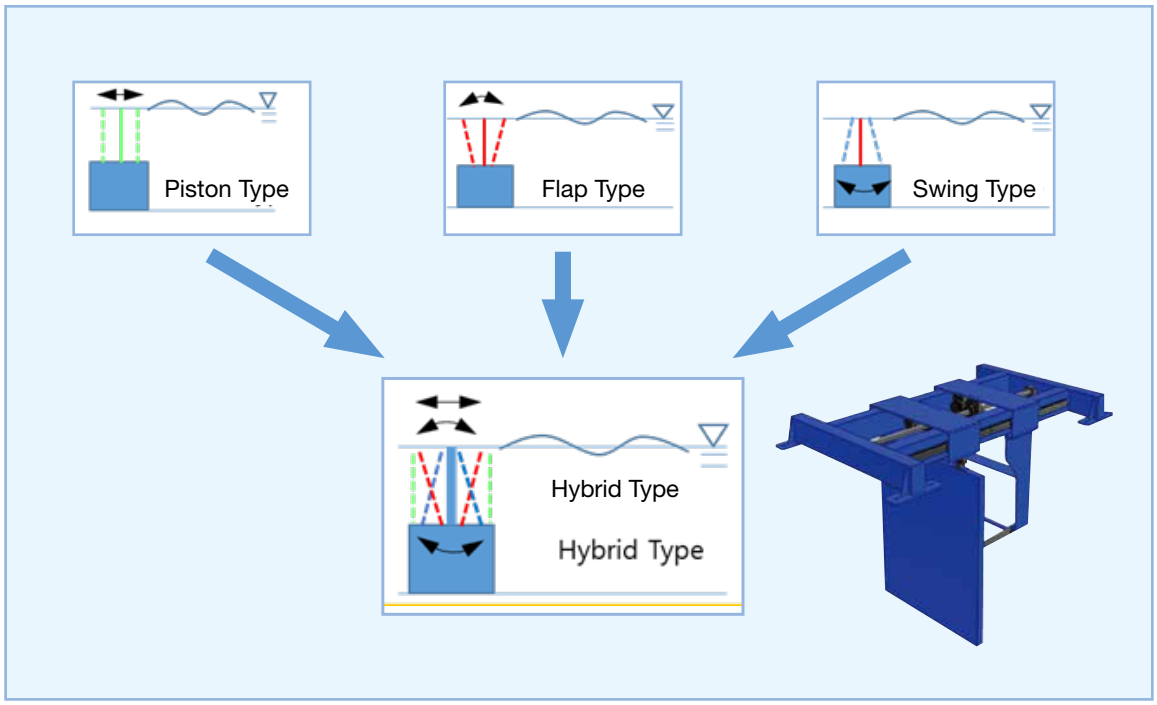


Patent Registration (Patent No. 10-2410208)
"two-point type rail support using spring clamp"

Test Facilities

Wave Generating System

The Wave Generation System is an essential facility for assessing the behavior and performance of various objects exposed to waves and is used to study the behavior and interactions of various objects exposed to waves by reproducing physical phenomena that generate and move waves.
ciiz provides many types of wave makers, including the Piston, Flap, Plunger types and Hybrid type according to the customer's requirements.

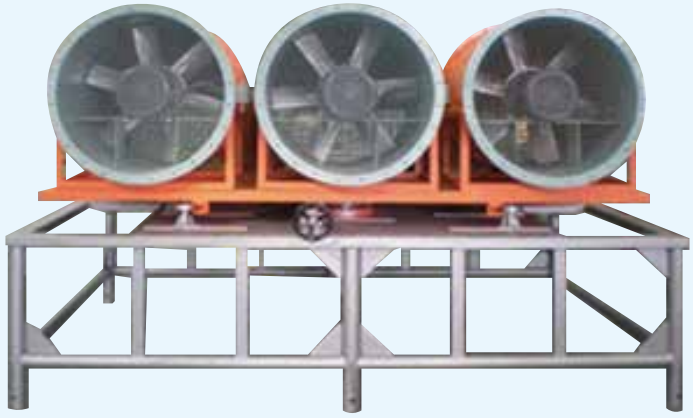


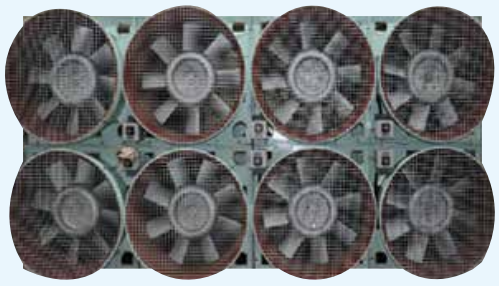
Patent Registration (Patent No. 10-2529646)
"Hybrid wave generator with independent wave plate movement at virtual hinge point"

Test Facilities

Wind Generating System

The Wind Generating System, used in 3D Wave Basin, simulates the interaction of waves and water currents in various fields of research to assess the performance of various test models and to analyze their behavior in various environments.





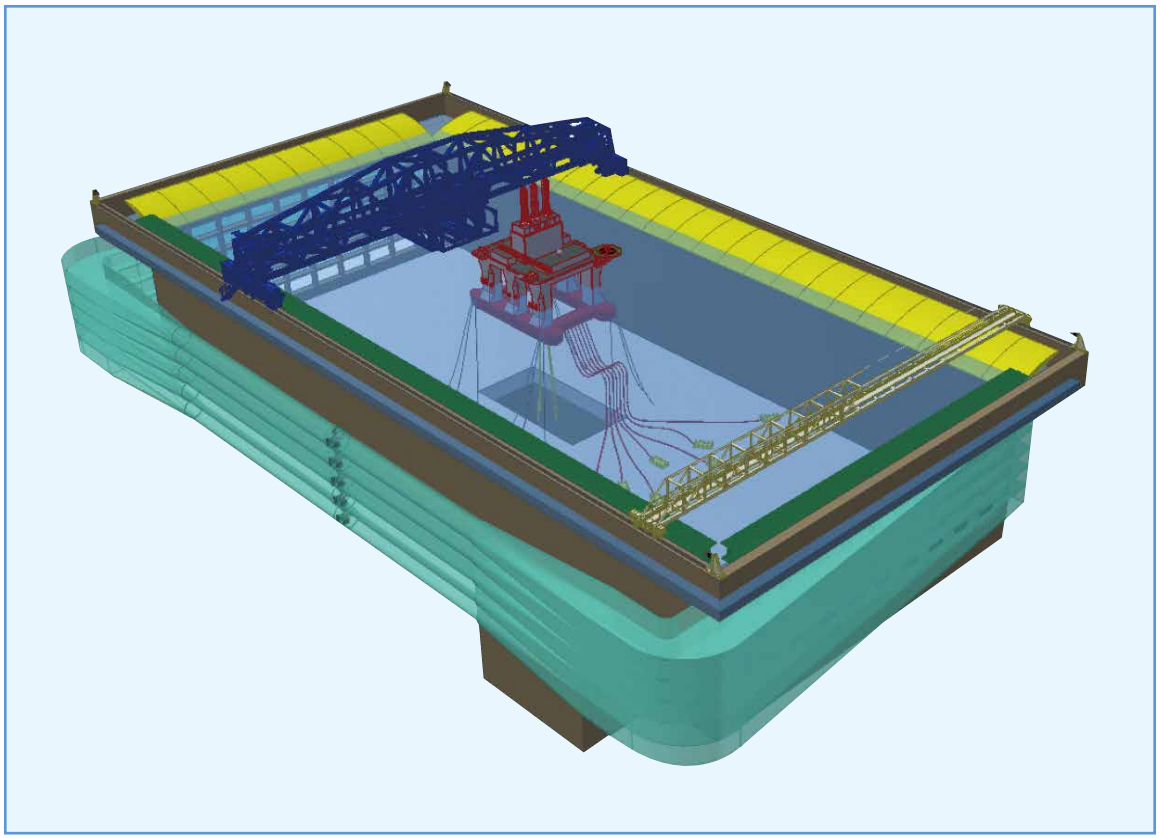
Test Facilities

Current Generating System

The Current Generating System, used in 3D Wave Basin, simulates the interaction of waves and water currents in various fields of research to assess the performance of various test models and to analyze their behavior in various environments.

False Bottom

The False Bottom, used in 3D Wave Basin, is a key component of wave experiments, which plays an important role in simulating various wave conditions and studying the interaction between objects and waves.
By using False Bottom to adjust the depth of the test, it helps to improve the accuracy of the study by providing conditions similar to the actual situation in which waves occur at the bottom of the object.



Test Facilities

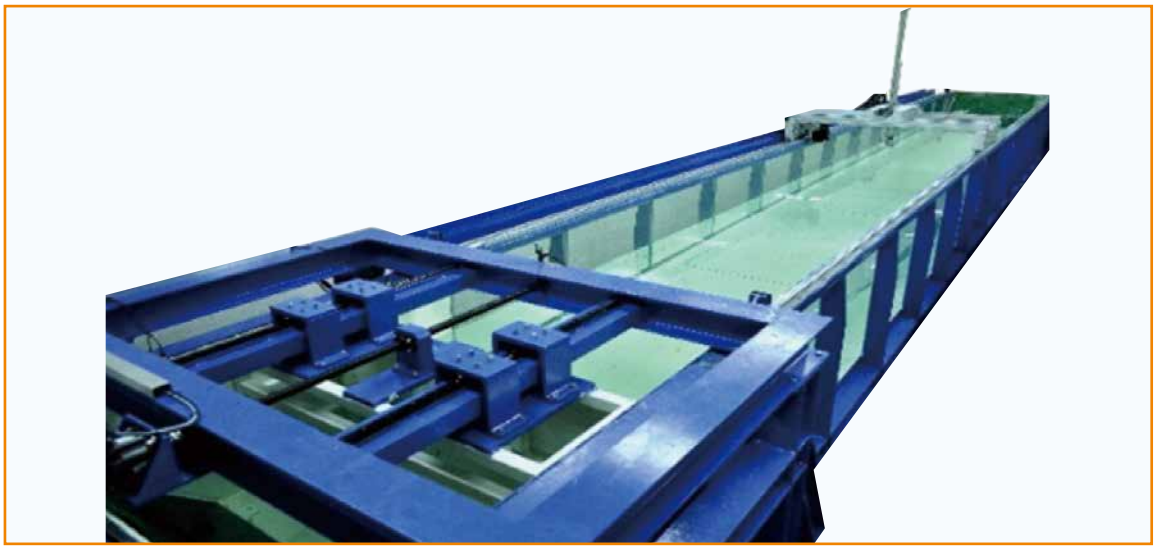
Wind Tunnel

The Wind Tunnel is a test facility that studies the characteristics and performance of various test models by simulating air flow. It is mainly used in various fields such as shipbuilding, aviation, space, automobile, and architecture, and can simulate the movements of test models under special conditions such as high speed, high temperature, and low pressure.
Wind Tunnel is useful when it is difficult to test the performance of objects under real conditions and is recognized as an important research facility in engineering and science.

Test Facilities

2D Wave Flume

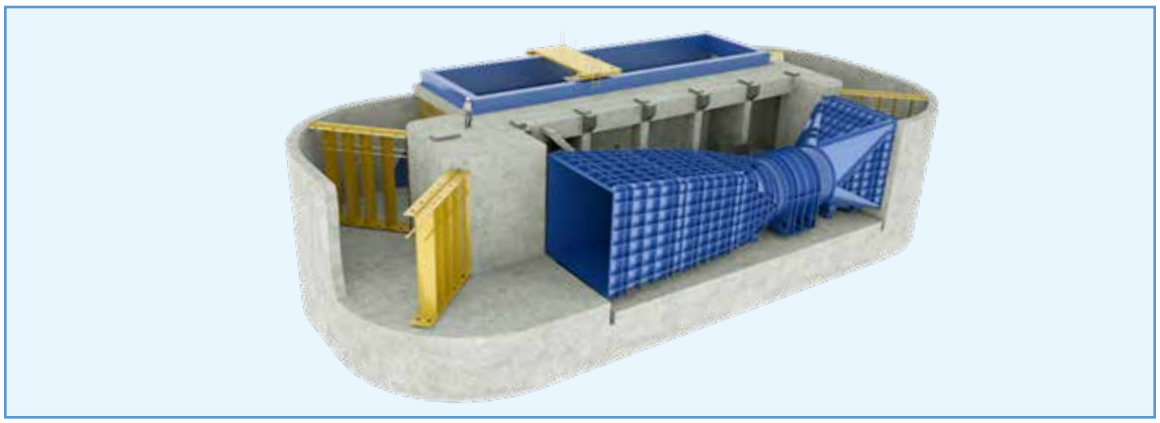
The 2D Wave Flume is an experimental facility designed for two-dimensional wave simulation. Used to study and understand wave phenomena in physical two-dimensional environments. These facilities are useful for investigating the properties of waves and for simulating the motion and interaction of waves under various conditions.
The 2D Wave Flume is used as an important test facility in various fields of research related to wave phenomena and is useful for obtaining practical data that is difficult to obtain with mathematical modeling or computer simulation.

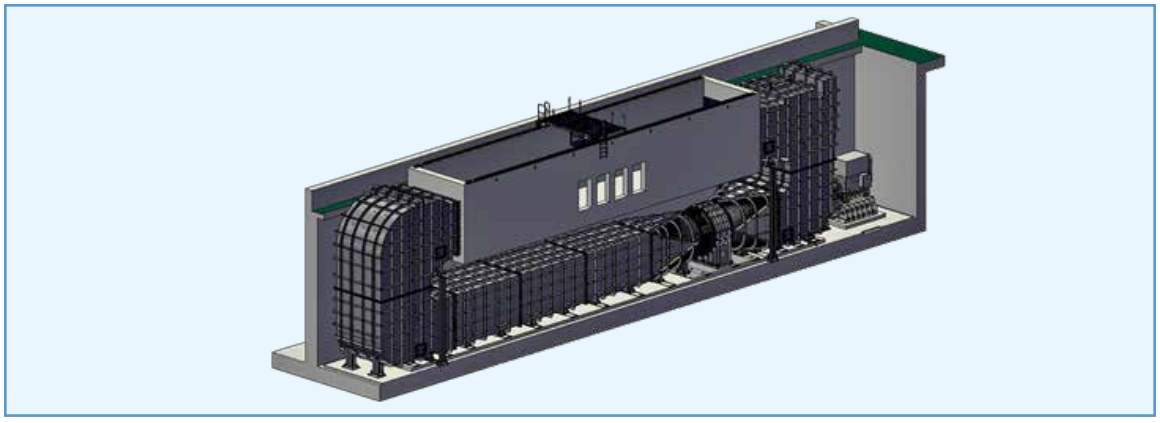


Test Facilities

Circulating Water Channel (CWC)

The Circulating Water Channel is used to evaluate the hydrodynamic behavior of floating models or submerged bodies in flowing water. With the CWC, the flow of water around models can be visualized easily without time constraints during model testing. ciiz has a track record of supplying horizontal CWCs with the world's largest test section specifications (L20 x B5 x D5, m).

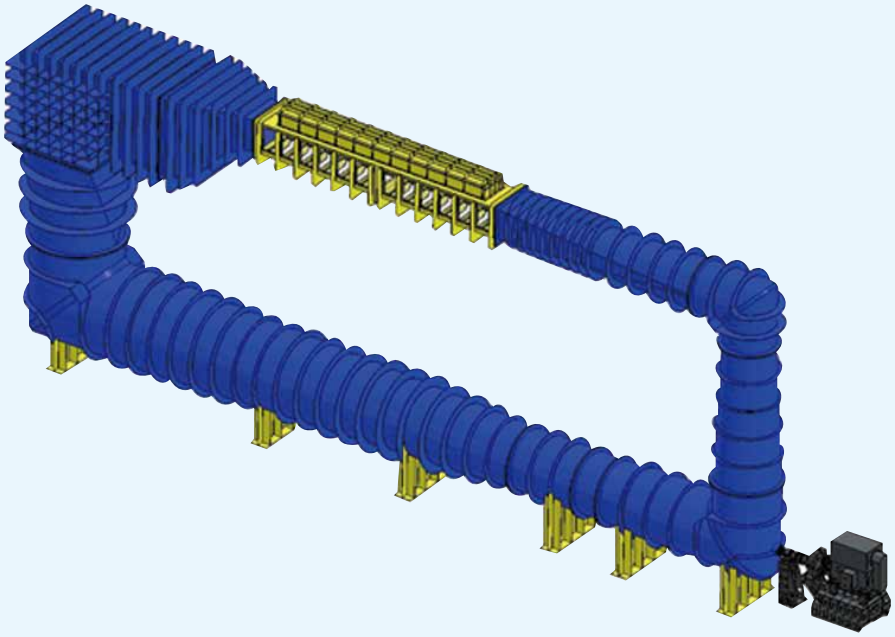


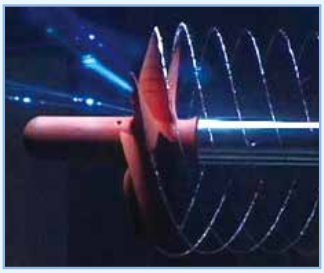


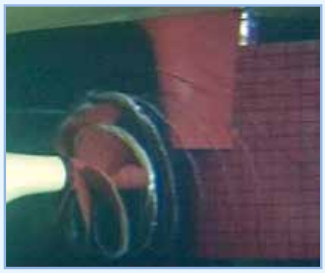
Test Facilities

Large Cavitation Tunnel (LCT)

The LCT (Large Cavitation Tunnel) is a completely enclosed structure that can pressurize internal test water or depressurize to vacuum pressure. In LCT, test water with uniform flow characteristics can be circulated at the desired flow rate, creating a test environment that is easy to generate cavitation on the surface of test models such as propellers and underwater models.



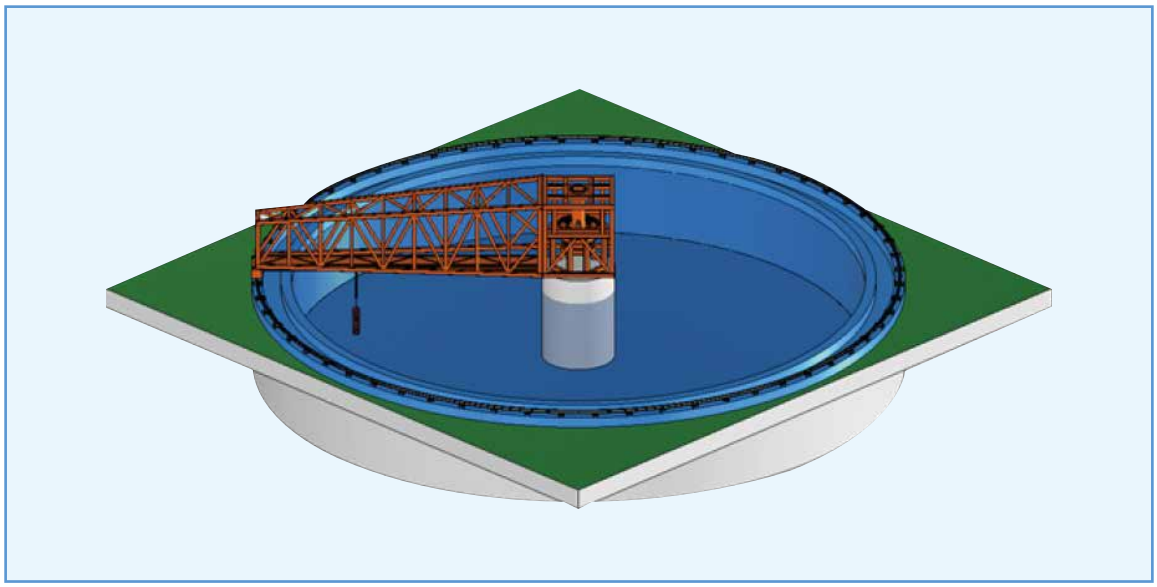


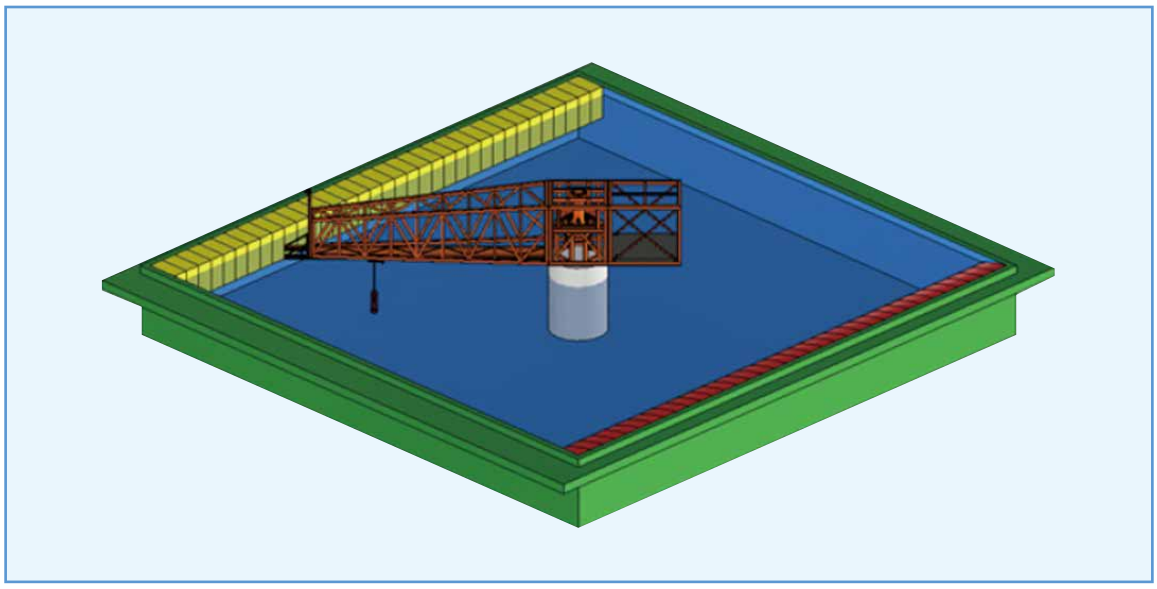


Test Facilities

Rotating Arm Facility (R/A)

The Rotating Arm system is a special test facility that can study the stability, resistance, and dynamic characteristics of underwater vehicles and simulate their actual behavior.
This R/A is designed to attach an underwater vehicle to a rotating arm at various angles and directions and then measure the movement, force, and moment of the underwater vehicle through measurement equipment.
The circular rail supporting the rotating arm is an optional item and can be designed installed or not installed depending on customer requirements.





Marine System

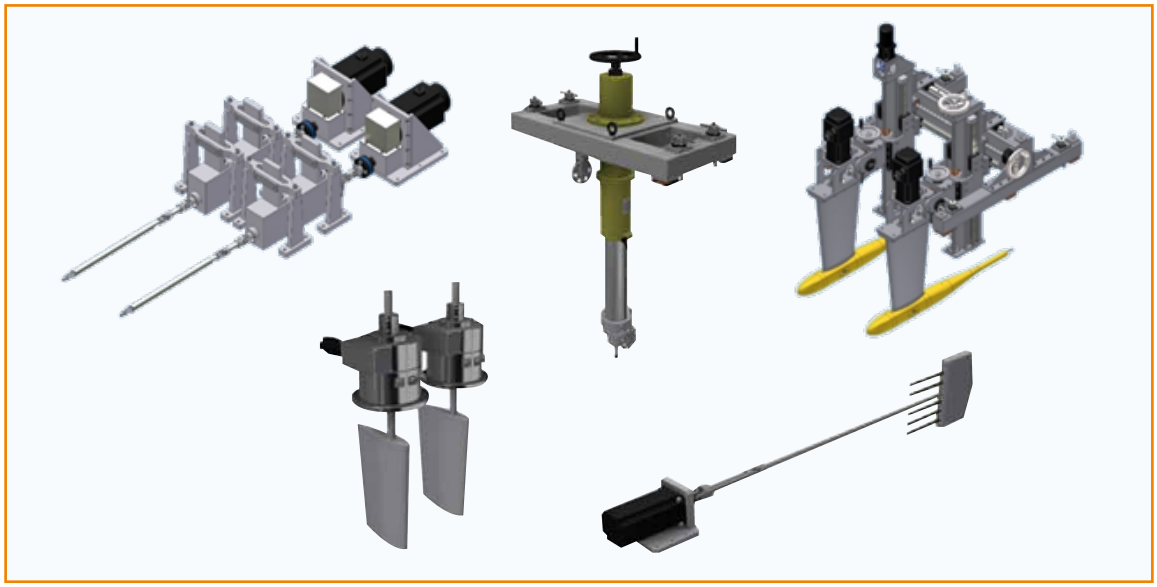
Training Facilities and Water Leisure Facilities.

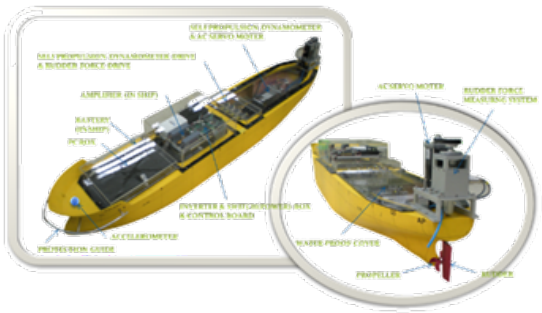
Based on the abundant experience we have accumulated in the field of test facility engineering over the years, ciiz has expanded the scope of its business to include the supply of training facilities for both the marine industry and the water leisure industry.

Measuring Equipment

ciiz has designed and manufactured various types of measuring equipment that can be used to measure key elements in its customers' research, such as forces, moments, pressures, velocity, and motion.

1. DAAS (Data Acquisition and Analysis System)
2. Multi-Component Load Cells with Calibration Device
3. Multi-Component Motion Measuring Device
4. Forced Oscillating Device
5. Planar Motion Mechanism
   - Vertical Planar Motion Mechanism (VPMM)
   - Horizontal Planar Motion Mechanism (HPMM)
6. Dynamometers
   - Resistance Dynamometer
   - Self-Propulsion Dynamometer
   - Propeller Open Water Dynamometer
7. Tension Meters



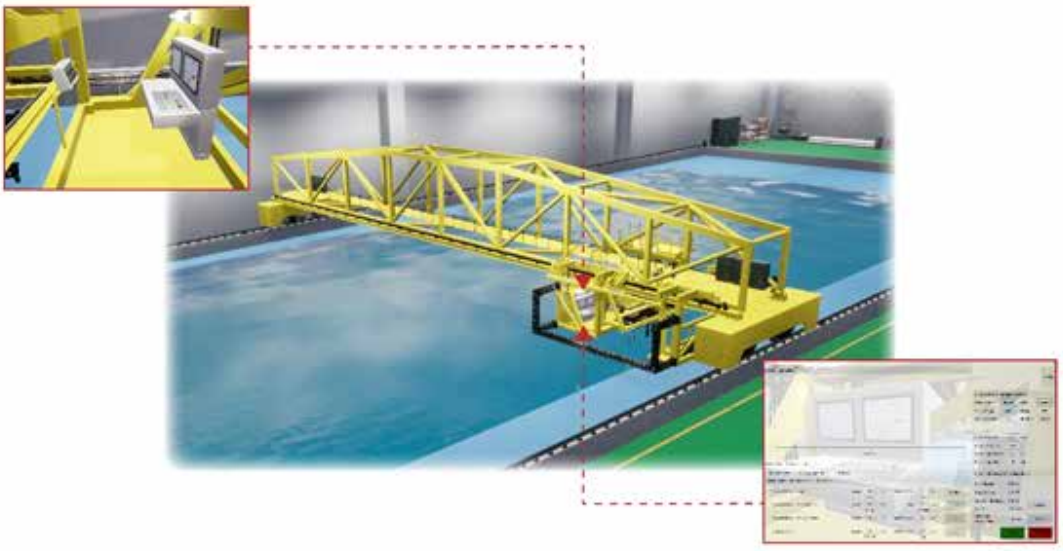


Patent Registration (Patent No. 2021-0135738)
"Waterproof type multi-component load cell for tank test"

Virtual Reality (VR) Training & Education System

ciiz provides training systems through digital twin technology and virtual reality. It provides the same operating interface as the equipment installed and comes with a training curriculum to train the operation of the equipment in virtual reality created by digital twin technology, which is designed to work the same as real equipment

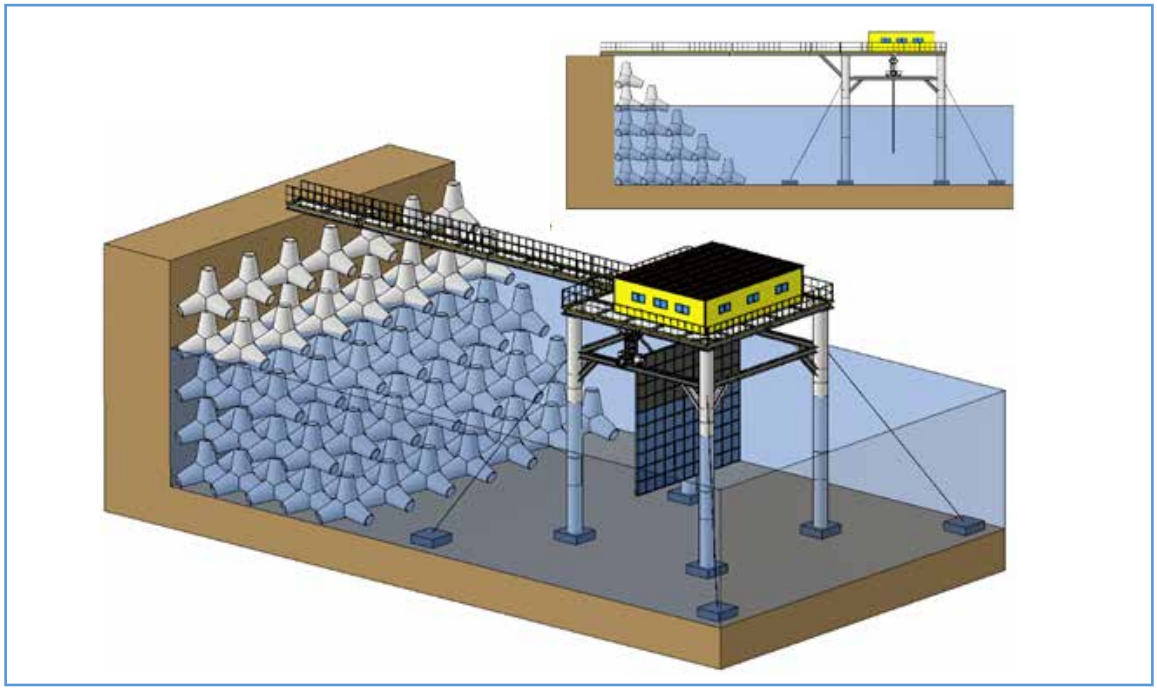
1. Description of key parts of the test facilities
2. Basic operation of test facilities (Towing Carriage and Sub Carriage)
3. How to manipulate sequence mode
4. Installing and setting the test model
5. Sensor Installation and Calibration
6. Test Methods for Model tests
7. Maintenance Procedure
8. Other necessary education

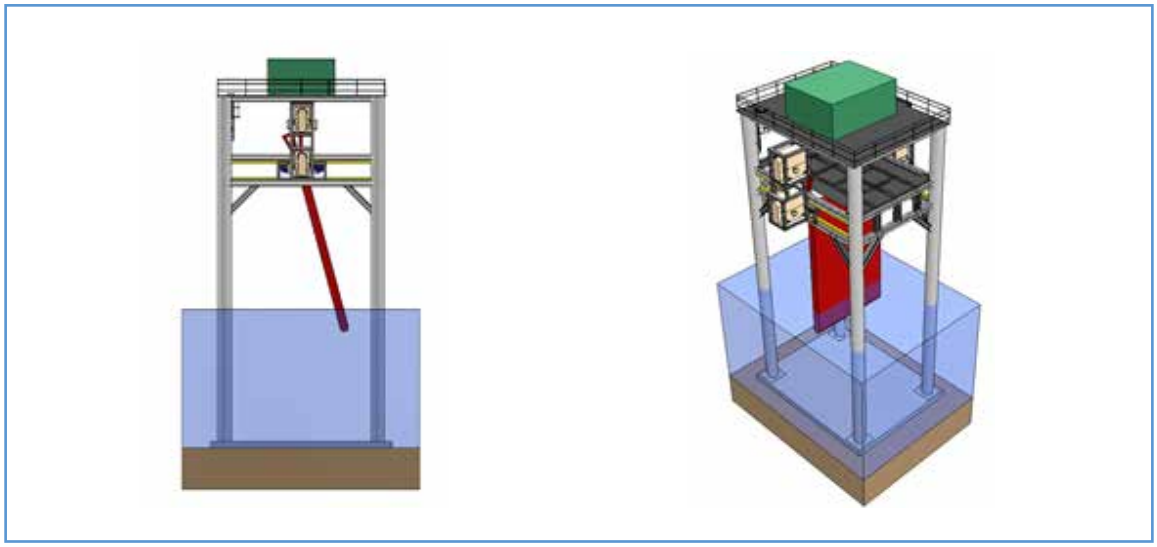


Renewable Wave Energy System

Wave Energy Converter System

Wave Energy Converter (WEC) technology refers to a variety of devices and systems designed to take the energy of waves and convert it into a useful form of energy, usually electricity.
By applying the design technology of our hybrid wave maker in reverse, we developed a WEC system that captures the kinetic and potential energy of waves and converts them into a usable and sustainable electric power source.

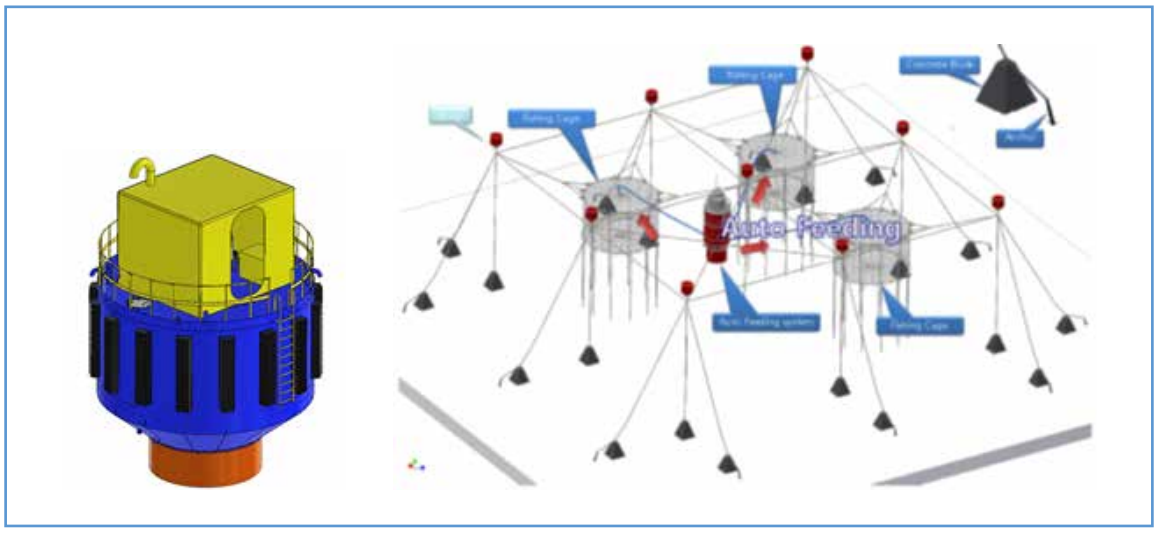


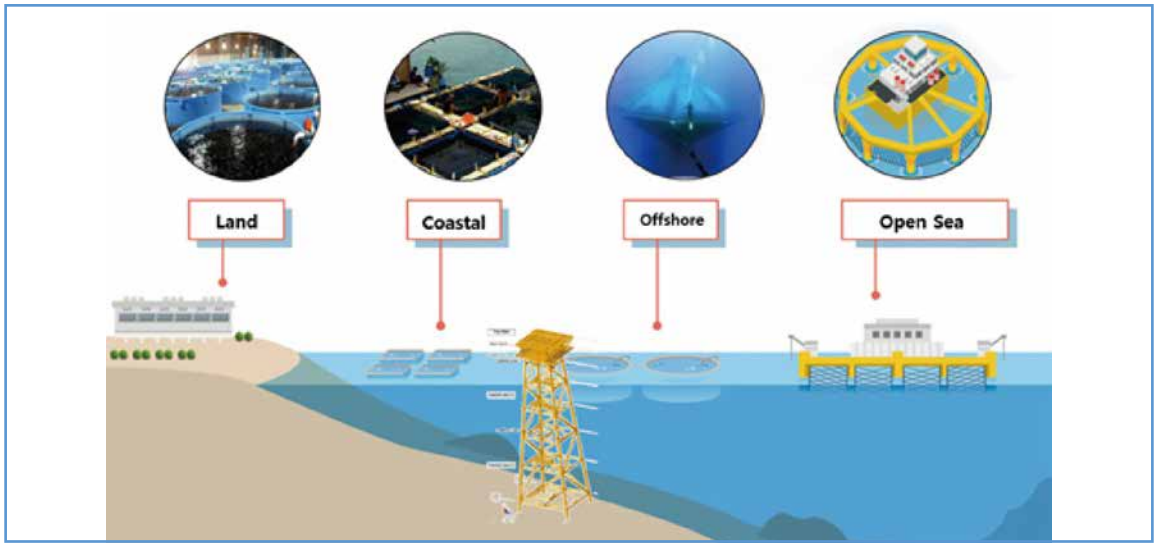


Offshore Aquaculture Farm System

Auto-Feeding System

Auto-feeding system for offshore aquaculture refer to technologically advanced systems designed to automate the process of feeding fish or other aquatic organisms in offshore fish farming or aquaculture operations.
Auto-feeding system offer several benefits, including improved feeding efficiency, reduced labor costs and better management of feeding schedules, which can lead to healthier and more sustainable fish production.
Auto-feeding system must be designed considering the specific requirements of the aquaculture operation, the species being farmed and the prevailing environmental conditions at the offshore site.





Industrial Vacuum Robot System

Blasting Robot

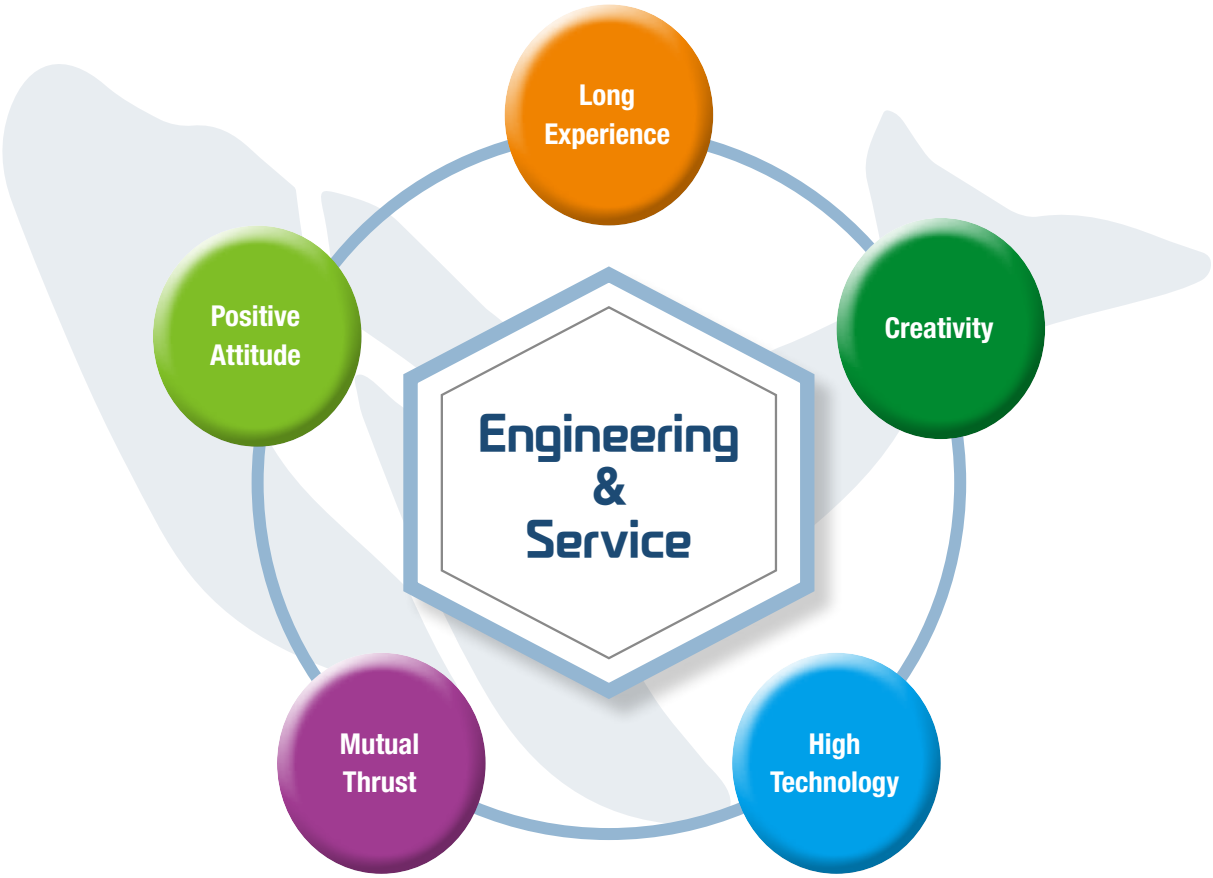
An industrial vacuum robot is a type of robotic system designed to use vacuum suction to perform cleaning, material removal, or other tasks.
The robot is equipped with a special vacuum mechanism that efficiently collects and transports debris, dust or other materials from various surfaces and has the following advantages:
- Work by adhering & driving vacuum on flat and curved surfaces regardless of the surface material
- Full quantity from hazardous work environment by remote control
- Surface treatment with anchor pattern (Higher than SA 2.5 grade)
- Removal of rust and aging coating by spraying abrasives (S/Grit, C/Slug, Garnet, Sand)
- Eco-friendly system that automatically collects working dust and reuses abrasives

Grinding Robot

This vacuum suction grinding robot is an industrial vacuum cleaning robot specially designed to perform surface finishing operations. It is configured to clean the surface by detachably attaching abrasive paper to the vacuum suction pad of this robot and rotating it.

ciiz Co., Ltd.

ciiz is a professional system engineering company that is ready and willing to cooperate fully with its customers on the development of new test facilities no matter how challenging the requirements.
We pledge to provide reliable products and services based on our creativity, high technology, positive attitude, and mutual trust.



Main Business Association

국방과학연구소 Agency for Defense Development	ADD	한국해양대학교 KOREA MARITIME & OCEAN UNIVERSITY	KMOU	BUET	BUET BANGLADESHI
KIOST 한국해양과학기술원	KIOST	서울대학교 SEOUL NATIONAL UNIVERSITY	SNU		GMD INDIA
KRISO 선박해양플랜트연구소	KRISO	KAIST	KAIST	NAMR	NAMR TAIWAN
한국조선해양기자재연구원 Korea Marine Equipment Research Institute	KOMERI	부산대학교 PUSAN NATIONAL UNIVERSITY	PNU	BEYOND KONCEPT	BK PAKISTAN
RIMS 중소조선연구원	RIMS	국립창원대학교 CHANGWON NATIONAL UNIVERSITY	CNU	vti Vázquez y Torres Ingeniería SL.	VTI SPAIN
KITECH 한국생산기술연구원	KITECH	동명대학교 TONGMYONG UNIVERSITY	TU	VSE	VSE NETHERLANDS
HD HYUNDAI HEAVY INDUSTRIES	HHI	CNU 충남대학교 CHUNGNAM NATIONAL UNIVERSITY	CNU		GTS MALAYSIA
한화오션 Hanwha Ocean	HW OCEAN	National Institute of Fisheries Science	NIFS	UniKL UNIVERSITI KUALA LUMPUR	UNIVERSITI KUALA LUMPUR
SAMSUNG 삼성중공업	SHI	STO COOPERATIVE	STO	한국수중·수상로봇기술연구회 KMRTS Korean Marine Robot Technology Society	KMRTS
DAEYANG	대양전기	SonarTech	소나테크	ITM	ITM

STO COOPERATIVE is a cooperative composed of experienced and knowledgeable experts in the fields of Shipbuilding and Ocean Engineering in Korea, providing professional technical advice to ciiz.

Challenge to be an Ideal International group with Zest !

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