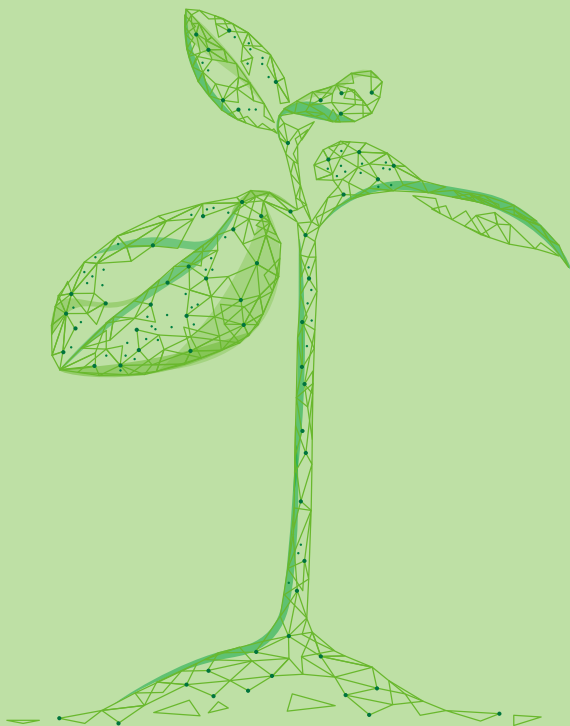


Kokusai



CARBON NEUTRAL



TESTING SOLUTIONS
Automobile Industry

CARBON NEUTRAL

FULL-ELECTRIC SERVO MOTOR DRIVE



Kokusai



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ELECTRIC SERVO-MOTOR DRIVEN DEVICES SOLUTIONS FOR THE AUTOMOTIVE INDUSTRY

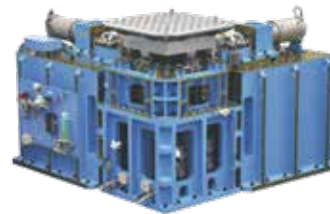
CONCEPT:

KOKUSAI CO., LTD. provides a wide range of testing solutions for all kinds of automotive components using purpose-made servo-motors with low inertia and high torque as actuators. We create testing devices with high efficiency through high precision for automobile developers facing major technological innovations like the introduction of ADAS, drive by wire and others.



Higher Performance Lower CO²

WIDE 	SAFETY 	ECO 	SPACE
LONG 	LOW 	LOW 	EASY



3-Axis Simultaneous Vibration Tester

VEHICLE

Simulating real Conditions for all kinds of Components with 3-Axis Simultaneous Vibration Testing

ADVANTAGES OF SERVO MOTORS

- Wide Frequency Range
- Large Displacement
- High Rigidity
- Low Noise Level
- Low Waste Heat
- Energy-saving
- Space-saving
- High Safety
- Clean Operating Environment (No Oil!)
- Low Maintenance Costs



3-Axis Simultaneous Vibration Testerw/Sus-column

SUSPENSION

Simulation of a preloaded Suspension System



Tension and Compression Tester

STEERING

Simulation of Functional Safety/Operational Feeling in Combination with HILS



HILS Steering Tester

VEHICLE

Simulation of REAL Travelling Conditions



4-poster 3-Axis Simultaneous Vibration Tester

ENGINE

Fatigue/Endurance Test with applied Torsion Load



Torsion Tester

SERVO DRIVEN TESTER

REAL CONDITIONS SIMULATION

FOR AUTOMOBILE INDUSTRY

EV/PHV BATTERY

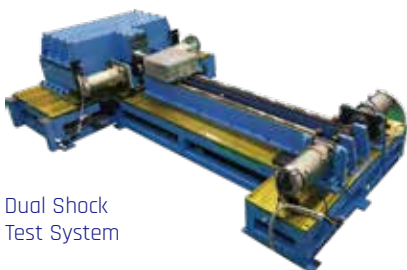
Certification Tests for Batteries according to ECE-R100



Horizontal Shock Tester

SEAT/INTERIOR

Simulation of Automatic Breaking (ADAS) & Minor Collisions



Dual Shock Test System

TRANSMISSION

Simulation of minute Engine Vibrations



Spinning Torsion Tester with Power Recycling System

CONCEPT:

To increase the continuous travel distance, which is a major challenge for the EV / PHV sector, and out of environmental deliberations, the demand for lighter and sturdier parts is now even stronger than before. Not the inappropriate testing on a single axis, but a test realistically reproducing the vibrations actually occurring in a real car in 3 dimensions simultaneously, is what will increase the speed of R&D and make the efficient development of suitable parts possible. Kokusai 3D vibration testers have been developed for single to multi axis vibration testing. It can also be used for vibration testing of large EV batteries, which is a particular market requirement these days. It is also highly scalable and can be upgraded to meet future market testing trends.



Super low Power consumption
Electrical servomotor drive

High expandability

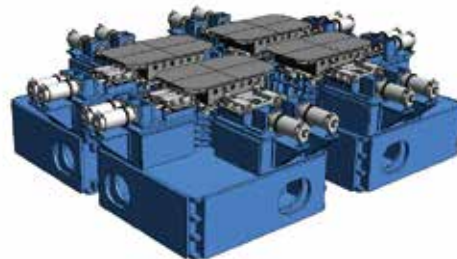
3D-1X TABLE



3D-2X TABLE



3D-4X TABLE



BAT
E

High Test Efficiency



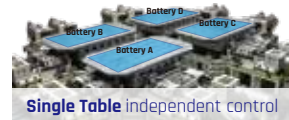
Specifications :

Frequency Range : 3-200Hz
Table Size : 1000mm x 1500mm x 4 *outer size 2.5x3.5m
Max. Payload : 800kg
Max. Acceleration : Z-10G, XY-8G

Large Battery



Small Battery (multiple)



3 different controls are available

- Analysing** Stiffness Distortion
- Capable for** Small to Large DUT



HORIZONTAL SHOCK TESTER

SOLUTIONS FOR THE LARGE EV BATTERY TESTING

CONCEPT:

A fully electric servomotor driven horizontal shock tester designed for ECE-R100 and UN38.3 impact testing. Pneumatic and hydraulic systems take time to fill and idle before the pressure stabilises. However, with KOKUSAI's horizontal shock testers, the test can be started immediately after pressing the power button, significantly reducing the test time. There is no need for filling slots or hydraulics, making it very compact and easy to install.



For further development purposes, we also offer sled type horizontal shock testers. This is a new type of horizontal shock tester with servomotor and belt drive, which is capable of reproducing a real wave in just a few metres, instead of the tens of metres required.

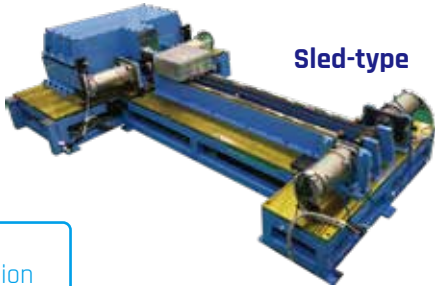
BATTERY

V

Reproducing Real Environment

Time Efficiency Quick Start

ECO Low Consumption



Sled-type



Small size Battery



Middle size Battery



Large size Battery with Bulk-head

100% e-POWER INDOOR TEST SYSTEM

More accurate **More ecology**



TIRE TREADWEAR TESTER

Featuring Power-In-Loop technology coupled with On Demand Torque Generation this machine is capable of acceleration and braking torque while applying changing load, camber and slip angles.



FLATROAD

Shortening the development term of vehicles is an endless challenge for manufacturers and simulation technology has been progressing immensely. Bridging the gap between simulation and real vehicle test is an additional challenge. By connecting the high-speed carrier unit and the high-response torque generator with the Power-in-Loop system, it is possible to simulate the force of vehicle on the tire as well as the influence of the road surface.



HIGH SPEED UNIFORMITY

It is necessary to measure at highway speeds and at vehicles natural frequency. Values change significantly from what most other uniformity machines measure - typically only at 5 mph.



NEW Technical Center in Japan

For taking your test to the next stage

2021

In the previous consolidated fiscal year, we received the highest record as the order for various types of electric servomotor type tester for research and development especially for automobile industry. These testers are very unique and new technology, so we build the center so that everyone in the world can understand and touch them before consideration of purchase. Various state-of-the-art testing machines such as a 3-axis simultaneous vibration tester, an indoor tire tread-wear tester, and an indoor tire grip performance tester, which are installed. These unique testers are bring your testing to the next stage we hope.



Location: Koga-shi, Ibaraki
 100km from Central Tokyo Intl Airport
Site area: 3,413 m²
Total floor area: 1,200 m²
Investment amount: 300 million yen
Opening: Q4 2021

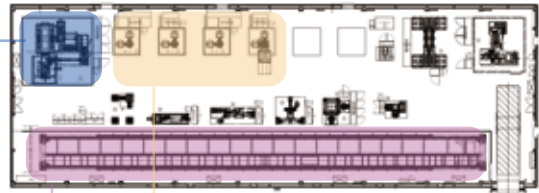
FREE FIRST TRIAL!

TIRE TREADWEAR TESTER




For PCR Tire
 Drum size 3000 mm
 Fz 25000 N
 Velocity 120 kph
 Fx torque 2000 Nm





FLATROAD



Total Length of tester 50mL

Fz load 1 ton
 Slip angle 6 deg
 Camber angle 5 deg
 Torque ~ 6000 N
 *Depend on tire
 Velocity ~ 35 kph

Test pattern sample
 - Mu vs Slip simulation
 - Mu jump
 - ABS simulation
 - ATC simulation

3D Simultaneous Vibration Tester

60kN, 50kN, 30kN

Frequency range : 5~ 2000Hz
 Table size : 500mm
 Displacement : 50mm p-p
 Acceleration : 15G
 Sine, Random, Time History

