DYNAMIC SERVO
SAGInoMIYA

Single-axis Road Simulator

ABH SERIES
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Reliability
Highly accurate waveform reproduce.

Durability
Extremely durable.

User-friendly
Easy for anybody to use and understand.

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Features

Vertical input when travelling is accurately reproduced on the unit bench.

Excellent waveform reproduce

The simulation software, RFC EVO, includes advanced functions such as non-linear correction, non-square matrix and *SVD evaluation, allowing highly accurate waveform reproduce.

Reliable Hydrostatic Bearing Type Compact Actuator

Developed for load simulator, this hydrostatic bearing actuator can withstand high offset loads and lateral loads and displays excellent durability in harsh driving conditions.

Wide Expandability

This simulator can be combined with a wide range of environment equipment such as temperature and humidity chambers and sunlight equipment.

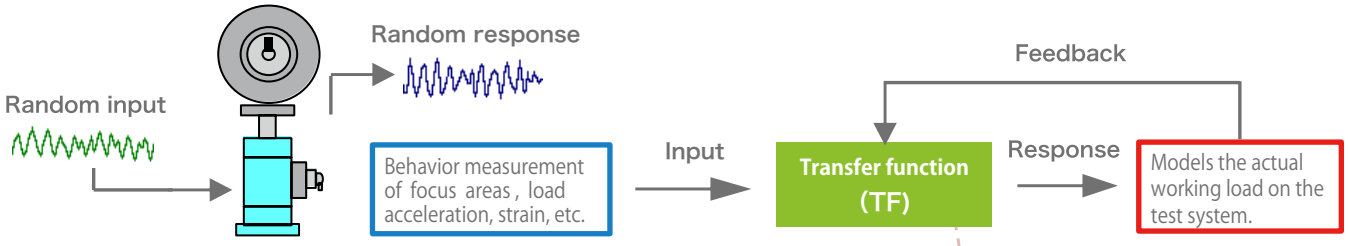
Total Support for Your Experience

A wide range of support is provided, from consultations on introduction of the load simulator to training and technical support after introduction.

Overview of Operations

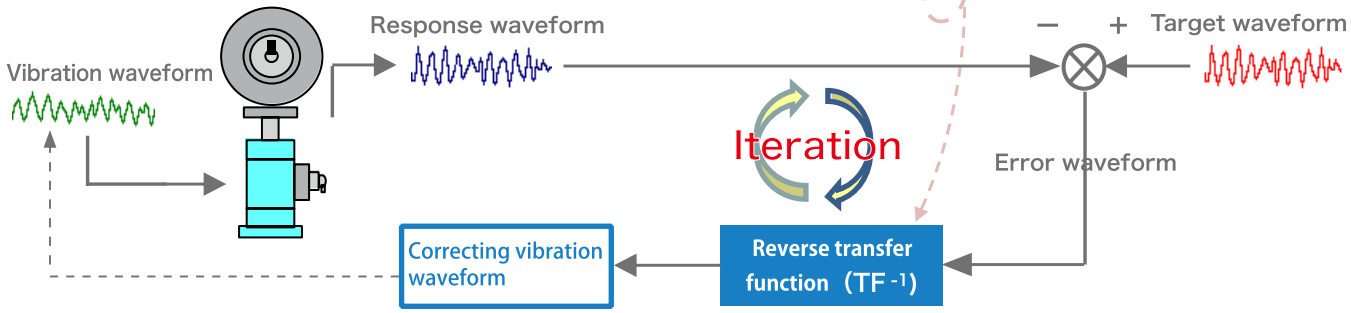
Transfer Function Measurement

Calculates the system input/output relationship (transfer function) from random vibration responses.



Iteration

Creates a vibration waveform from the transfer function and aligns it with the target wave through repeated corrections.



RFC EVO RFC=Remote Factor Control

RFC EVO Actual Working Load Reproduce Software is a total simulation tool for reproducing the running state of a vehicle on a test system such as a load simulator.

Reliable!

- Determines whether a transfer function is possible before iteration, reducing the need for repeated iteration (coherence evaluation, *SVD evaluation).
- Allows control of multiple sensors and highly accurate waveform reproduce even on strongly nonlinear test pieces (non-square matrix, iteration for non-linear models).

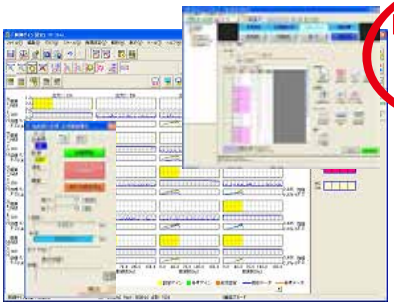
Easy for everyone !

- The waveform reproduce process is easy to learn (operational support by navigation).
- Can be used intuitively even when using for the first time (Windows compatible GUI).

Efficient!

- Routine work is automated to save time and labor (editing macro function).
- Existing settings can be used for easy configuration of control settings.
- Minimal required setting items allow tests to be conducted in a short period of time.
- Detailed settings can be configured for the sensor and actuator for difficult waveform reproduce.
- Trial and error of iteration is made visible, allowing efficient discovery of optimum settings.

Configuration



Hardware operations
- Actuator control
- AD monitor

Waveform analysis and editing
- Waveform display, editing and creation
- PSD and incidence analysis
- Damage evaluation (optional)
- Frequency analysis (optional)

Waveform reproduce
- Test manager
- Transfer function manager
- Iteration
- Vibration testing

＊SVD (Singular Value Decomposition) evaluation: Evaluation by singular value decomposition. This method is used to detect frequency bands that are thought to be difficult to control according to error in reverse transfer functions.

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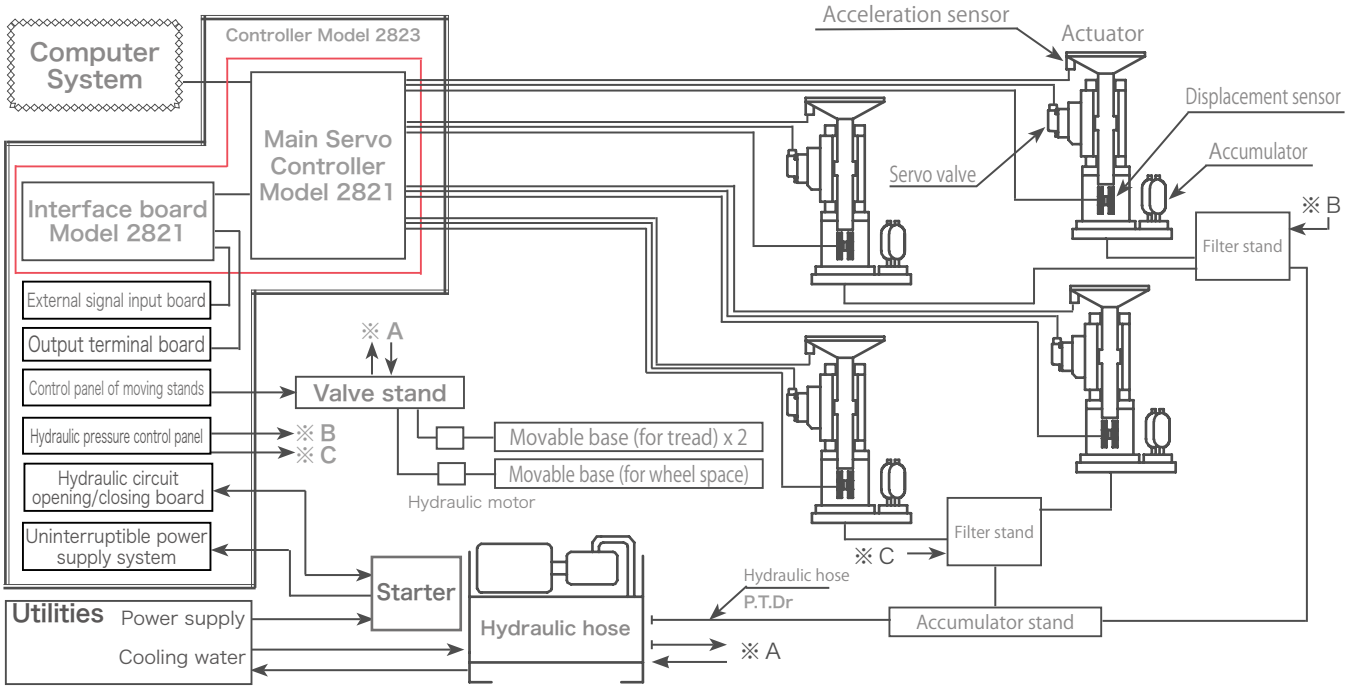
System Configuration



Specifications

Main control board

Model	M2823 (RFC EVO specifications)
Control method	Full digital control
Control mode	Displacement, load
Control range	Automatic range
Waveform	Sine wave, triangle wave, square wave, sweep wave
AGC/AMC Function	Amplitude/mean value, maximum/minimum, fundamental wave/mean value
External signal input	External input for control: 4 ports (±10V) Trigger input: 4 ports (0 - +5V)
Monitor output	Up to 16 ports (BNC terminals) ± 10V full scale
A/D	Up to 128ch
D/A	Up to 32ch
Limiter function	Over limiter
Power supply	AC100V 50/60Hz 0.5kVA (※Supports 200V.AC)
Installation method	Rack mount type

Software RFC EVO

Waveform reproduce/test conduction	
Number of vibration axes	Up to 32 channels
Measurement monitor	Up to 128 channels
Sampling	Minimum 1ms for 64ch measurement, Minimum 1ms for 128ch measurement
Actuator control	Static movement, F/B switching, easy acceleration
Transfer function measurement	Measurement by burst random vibration (maximum vibration 32 x measurement channels 128)
Iteration	Display of waveform reproduce, error convergence graph and waveform graph based on transfer function
Vibration testing	Repeated vibration and interval measurement by number of times/time/driving distance
Limiter settings	Upper and lower limiter, waveform limiter, incidence limiter, temperature interlock
Waveform analysis and editing	
Display method	Temporal axis waveform display, PS graph display, incidence graph display
Waveform editing	Waveform cutting, drift cutting, filter processing, smoothing, channel information editing, etc.
Frequency analysis (optional)	Transfer function creation, output wave creation, SVD evaluation, coherence evaluation
Waveform creation	Sine wave, triangle wave, square wave, random wave, error waveform, coordinate transformation waveform
File format	RFC, CSV, etc.

Actuator

Vibration specifications		ABH−**				
Max. dynamic force	kN	30	40	50	50	100
Expected weight kg	Above spring	350	500	700	700	2400
	Below spring	40	60	100	100	150
Max. stroke	mm	100	125	125	125	125
Max. speed	m/s	2.5	2.5	3.0	6.4	3.0
Max. acceleration (at no load)	m/s^2	200	250	200	500	500
Frequency	Hz	100				
Motor capacity	kW	45×2	55×2	55×3	75×5	55×6
Rated pressure	MPa	20.5	20.5	20.5	20.5	20.5
Rated flow	L/min	200	267	400	853	800
Electrical consumption kVA 200V.AC, 50/60Hz, 3 phase		116	138	207	465	414
Vehicle size (reference)		Small	Medium	Large		Bus

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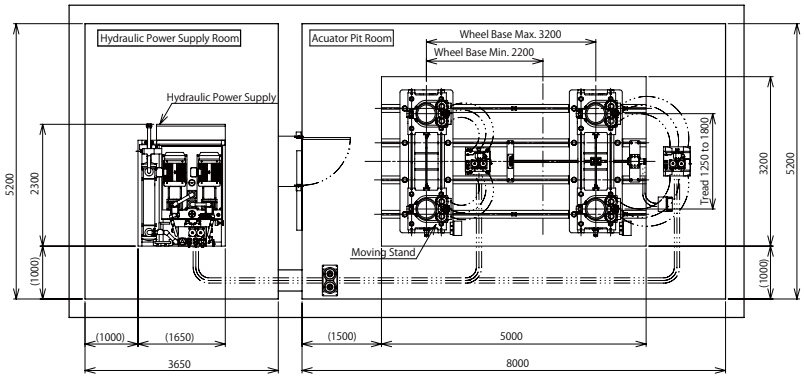
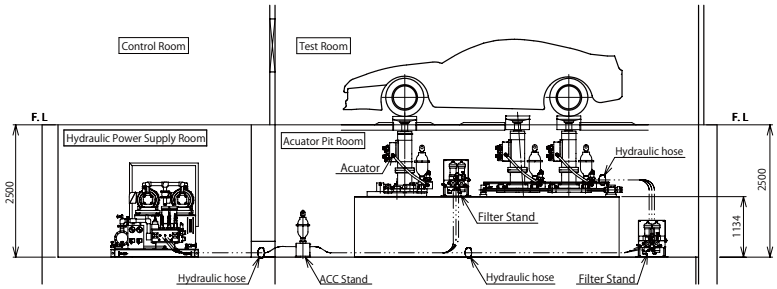
Layout



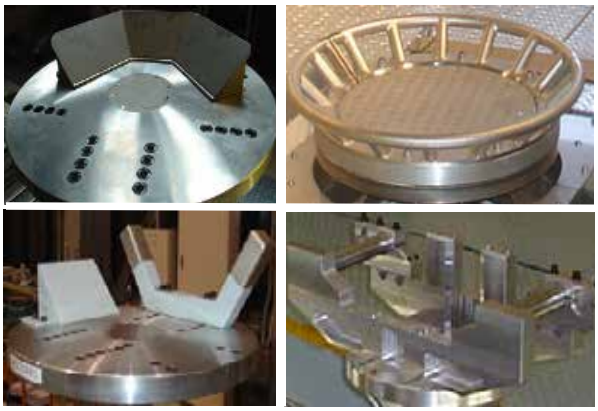


※Detailed dimensions vary according to specifications.

Options

Tire Restraint Tool

Various tools are available to suit various purposes.



Moving Mechanism

Remote Control Vibration Program

Effective for measuring characteristics, evaluating abnormal noises and evaluating driving comfort.
A remote control can be used to select waveform data, conduct or stop a test or measure waveform data easily from inside the vehicle.
To ensure safety, the remote control constantly checks its communication status and stops the system if communication is cut off.

Chambers

Testing in chambers is supported. Moving floors and vibration accelerators compatible with chambers are available.

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⚠ NOTES FOR SAFETY

Failure to read and follow all instruction carefully before installing or operating the product could cause personal injury and / or property damage.

Specifications are subject to change without notice.

2016.10