Meiden Dynamometer System

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MEIDEN

Meiden Dynamometer Systems

For Motorcycle

Technologies to Measure the Future

Empower for new days

Meiden Dynamometer System provides high accurate and high reliable test for Motorcycle.

High Accuracy

Hydraulic frame floating

It minimizes cradle resistance and brings high accuracy torque measuring. Mechanical loss of bearings can be detected by load cell, and be managed with appling Mechanical Loss compensation function.
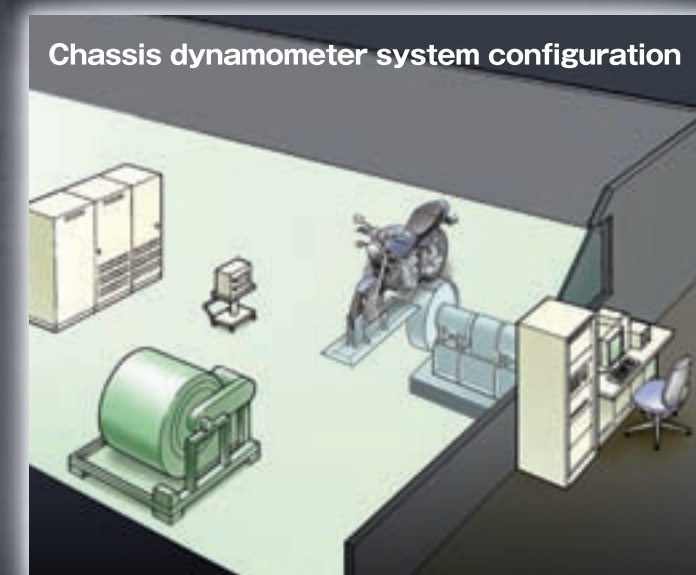
High Reproducibility

Load reproducibility

Highly reliable measurement is assured for emission test by high-accuracy and good reproducible load.

Various Product Lineups

Meidensha can offer engine test system and/or chassis dynamometer system based on customer's target.

DYNAMO METER SYSTEM

Chassis dynamometer system configuration

Engine Dynamometers

Meiden Dynamometer System supports customer's development and quality assurance for engine test that includes fuel economy exhaust gass, any performance and durability test.

Main components

AC servo throttle actuator for engine control

Throttle actuator operats the engine throttle valve to control speed or intake manifold pressure.

AC drive for dynamometer

High speed IGBT inverter with regenerative converter.
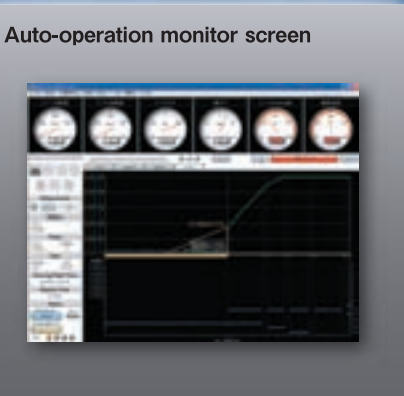
AC dynamometer (FREC dynamometer)

AC dynamometer absorbs engine power and measurs speed & torque at the same time in high accuracy.

Main Dynamometer Specifications

		30kW	55kW	75kW	110kW
Absorption	Capacity	30kW	55kW	75kW	110kW
	Torque	44 N·m	131 N·m	179 N·m	262 N·m
	Capacity at max. speed	30 kW	55 kW	75 kW	110 kW
	Torque at max. speed	29 N·m	52 N·m	71 N·m	105 N·m
Driving	Capacity	22 kW	40 kW	55 kW	80 kW
	Torque	32 N·m	95 N·m	131 N·m	191 N·m
	Capacity at max. speed	22 kW	40 kW	55 kW	80 kW
	Torque at max. speed	21 N·m	38 N·m	52 N·m	76 N·m
Basic speed		6,500 min^{-1}	4,000 min^{-1}	4,000 min^{-1}	4,000 min^{-1}
Maximum speed		10,000 min^{-1}	10,000 min^{-1}	10,000 min^{-1}	10,000 min^{-1}

Measurement control system (MDOD)

Item	Main functions
Display functions	Real-time monitoring functions (Analog meter, digital meter, bar graph, trends, road load monitoring)
Automated operation functions	・Number of operation steps: 5,000/pattern ・Operation pattern: Max. 9,999 repetitions per pattern. Graphic display of operation pattern setup. Step changeover conditions. ・Operation parameter setup: Speed changeover timing, clutch operation timing, shift operation timing
Control functions	・Dynamometer control: Speed, torque ・Throttle control: Intake manifold pressure, speed, torque
Measurement start trigger	START button
Measurement stop trigger	STOP button
Measurement items	Analog input, digital input, culculation, fuel consumption meter
Measurement frequency	0.1～1 (s)
Max. measurement capacity	50,000 measurings
Number of data files	99 cycles/test
Others	Time (s), interlocked with end of fuel consumption measurement, Number of measurement items: 93 items max.
Upper/lower limits of monitoring	・Monitoring items: Measurement/operation, ・Monitoring direction: Extreme upper, upper, lower, extreme lower limits ・Monitoring timer setup, Monitor ON/OFF
Correlation monitoring	・Monitoring pattern (within 10 pattern combinations) ・Monitoring direction: Upper and lower limits ・Monitoring timer setup, Monitor ON/OFF
Spool measuring for fault analysis	・Measurement frequency: 0.1s ・Number of measurements after fault: 2,000 times ・Measurement items: All monitoring data
Data tabulating	MS-EXCEL®
Options	High-speed 1ms monitoring, external CPU interface: RS-232C, LAN, full power performance curve drawing.

Measurement & Control System

Digital display screen

Auto-operation monitor screen

Chassis Dynamometers

Meiden Chassis Dynamometer System supports customer's development and quality assurance for motorcycle test that includes fuel economy exhaust gass, any performance and durability test.

Main Components

Roller over-hung type dynamometer

This type of dynamometer has a compact configuration where the roller is hung on the dynamometer shaft.

Driver's aid

Driver's aid instructs motorcycle speed based on speed profile of each test mode.

Actuator

Speed, throttle opening, intake air pressure are controlled through throttle operation.

Typical Specifications

		Specification	
Spec. of test motorcycle	Weight	100～400kg	100～600kg
	Max. axle load	300kg	300kg
	Max. speed	200km/h	300km/h
Rated capacity Absobing / motoring		55/40kW	110/80kW
Traction force at roller surface		1,980N	3,960N
Roller	Diameter	1,061mm	
	Width	300mm	
	Material	Iron or aluminum	
	Surface shape	Smooth, Knurling , or non-slip coating	
Inertia simulation system		Electrical, mechanical inertia (max. 5 adjustable flywheel)	
Vehicle cooling fan		Depend on customer requirements.	
Actuator		Variable controls of throttle, clutch, and shift by AC servo.	

Measurement & Control System（MEIDACS DY6200P）

Item	Main functions		
Road load setup	JPN, USA, Euro systems ・Road load correction & verification functions, mechanical loss measuring functions, road load data & mechanical loss data storage and printing		
Display functions	Real-time monitoring functions		
Automated vehicle operation function	・Operation pattern : Max. 999,999 repetitions/pattern. ・Number of mode : Max. 200 modes/pattern. ・Number of step : Max. 500 steps/mode.		
Measuring condition setup	Averaged measurement	High-speed measurement	Continuous measurement
Measurement start trigger	START button	START button, measurement items (upper/lower threshold values, upper/lower pass)	
Measurement stop trigger	STOP button	STOP button, measurement items (upper/lower threshold values, upper/lower pass)	
Measurement items	Analog input, digital input, calculation, special measurement items	Time (s) 100 items max. from analog input, digital input, calculation items	Time (h) Analog input, digital input, calculation, measurement items
Measurement frequency	0.1s	0.001～0.999 s	0.1～99.9 s
Max. measurement capacity	8,000,000 times / Number of measurement items However, the maximum measurement capacity per measuring item is limited to 50,000 times.	400,000 times / Number of measurement items	50,000 times
Number of data files	1 cycle/test	999 cycles/test	1 cycle/test
Others	・Measurement frequency (with times) ・Time (s), interlocked with end of fuel consumption measurement ・Number of measurement items: 250 items max.		
Upper/lower limits of monitoring	・Monitoring items: Analog input, digital input, calculation ・2Upper stages 2Lower stages with timer.		
Correlation monitoring	・Monitoring patterns (combinations): Within 10 patterns ・2Upper stages 2Lower stages with timer.		
Spool monitoring for fault analysis	For high speed	Measurement frequency: 0.01～ 0.09s ・Number of measurements after fault: 3,000 times max. ・Measurement items: 50 items max.	
	For low speed	Measurement frequency: 0.1 ～ 99.9 s ・Number of measurements after fault: 3,000 times max. ・Measurement items: 20 items max.	
Data tabulating	Listing data type: Averaged measuring data, high-speed measuring data, continuous measuring data. Listing is displayed and printed by MS-EXCEL®		
External CPU interface	LAN , CAN , GPIB , RS-232C		
Security level	3-stage security level setup on user side. Operation range setup at each security level		
Options	Slope pattern command functions		

MEIDACS DY 6200P

Road load screen

Monitor screen