The Engine and Powertrain Tester Professional

Disc Brake Dynamometer
Product Catalog

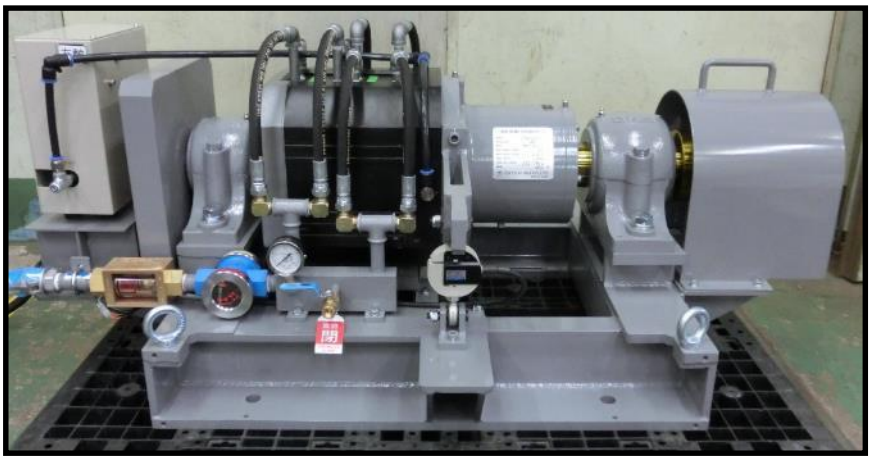
TOKYO PLANT Co., Ltd.
東京プラント株式会社

Last update on
2017/10/17

■ Overview

Our disc brake dynamometers are excellent in high accuracy and durability and introduced to many customers in domestic and internationally.

It is possible to conduct high load test from low speed and is suitable for performance and load durability tests for applications.



■ Product range

12.5kW to 340kW We have the widest range in Japan.

■ Major customers

Yanmar, Kubota, Kanzaki Kokyukoki MFG, Shinko Engineerings, Iseki, CAE

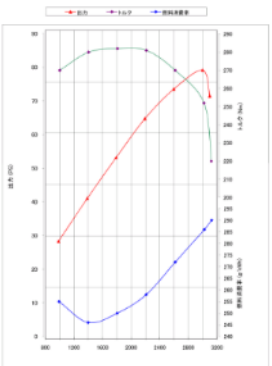
■ Applications

○ Targets

・Agricultural machine engine
・Construction vehicle engine
・Tractor
・Truck
・Generator
・Pump
・Gear box
・…

○ Tests

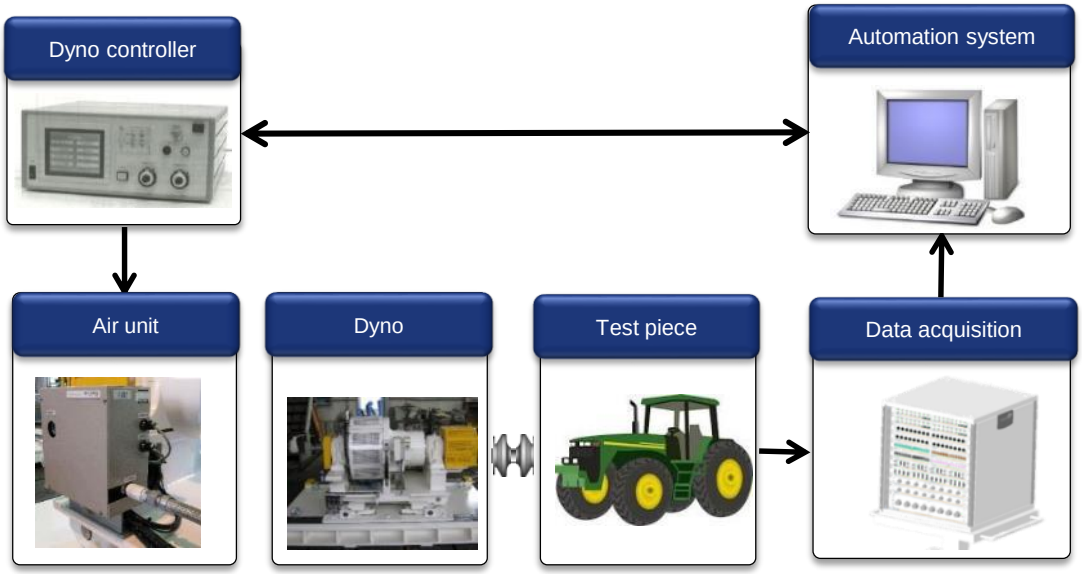
・Durability performance tes
・Partial load performance test
・Full-open performance test
・Axle performance evaluation
・PTO performance evaluation
・...



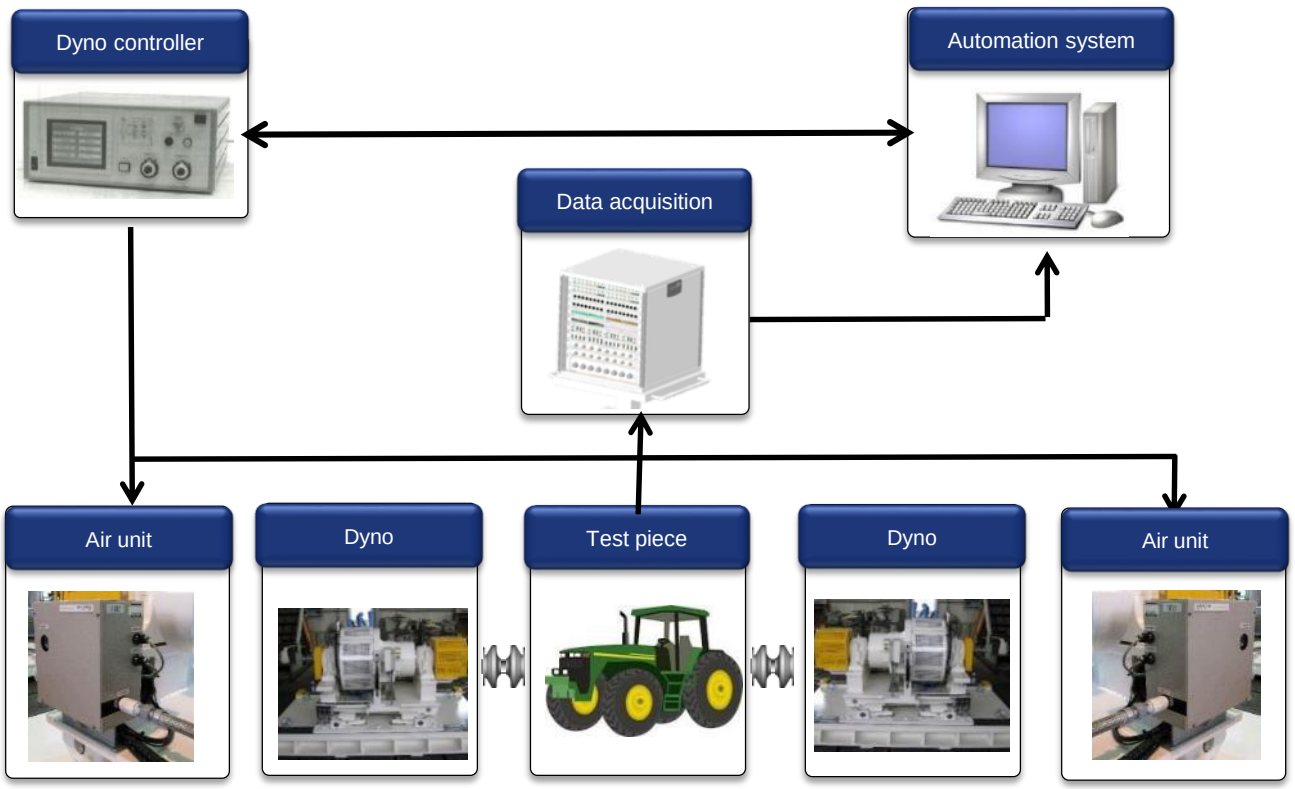
■ Characteristics

High performance	• Suitable for the performance and load durability tests for agricultural and construction machines. • Possible to perform the high load test from the low, which is difficult for usual dynos. • The lining material is of non-asbestos type • Free from the pollution caused by dust • Possible to perform long stable continuous load tests thanks to the flat friction coefficient due to temperature. • Wide control range due to the stable load absorbing characteristic. • Easy maintenance and long lifetime. • Long lifetime lining compared to usual friction brake by using special friction material. • High torque absorbing characteristics from low speed. • Possible to measure stall and torque by the friction brake of air pressure control. • High repeatability tests can be realized with similar values to actual engines and vehicles due to low inertia. • Controls of speed, torque and current are standard features. • Wide range of product from small to large, high speed and high torque. • Alarm signal generates when overspeed and oil failure. Relay contact can be set.
Easy operation	• Speed and torque employs digital indicator as standard. • Outputs analog voltages of speed and torque. • Connector is employed to prevent cable disconnection.
Options (Chargeable)	• Automatic control system can conduct constant speed, constant torque and programmed operation control. • Center height variation as requested • Location of anchor bolts for a stand can be manufactured according to customer's request.

■ System Configuration (1-axle spec.)



■ System Configuration (2-axle spec.)



We can offer the most suitable testbed engineering to customers.
Please contact us for further details about automation system, data acquisition sensors, testbed layout and shaft couplings.

We can offer the suitable proposal for your budget and request.

■ Product range

○ PCD type

Best product range for testing small to middle test pieces.

Model	Max. braking power *kW*	Max. braking torque *Nm*	Max. speed *min^{-1}*	Constant torque range *min^{-1}*	Inertia *kg.m^2*	Cooling water (necessary water flow) *L/min*
PCD-123C	12.5	380	3150	0~306	*	7
PCD-223C	25	760	3150	0~302		13
PCD-131C	25	1050	2250	1~218		13
PCD-231C	50	2100	2250	0~220		26
PCD-231C-M5	50	525	2250	0~875		26
PCD-231C-M10	50	1050	2250	0~437		26
PCD-145C	50	3300	1590	0~140		26
PCD-245C	100	6600	1590	0~141		52
PCD-245C-M5	100	1650	1590	0~563		52
PCD-245C-M10	100	3300	1590	0~281		52

○ PKD type

Best product range for testing middle to large test pieces.

Model	Max. braking power *kW*	Max. braking torque *Nm*	Max. speed *min^{-1}*	Constant torque range *min^{-1}*	Inertia *kg.m^2*	Cooling water (necessary water flow) *L/min*
PKD-218B	120	8480	1300	0~133	*	62
PKD-124HB	143	11270	960	0~118		74
PKD-130B	172	18060	760	0~90		89
PKD-224HB	285	22540	960	0~118		148
PKD-230B	345	36100	760	0~90		179

* Inertia to be discussed separately.

* Specification is subject to change due to product modification.

■ Option

○ Slide rail

(Overview)
Possible to dock with a test piece easily by sliding and fixing the dyno position according to the position of a test piece shaft.
Detail to be discussed separately.

○ Fastening wire

(Overview)
Prevents a test piece (tractor, combine...) from moving and rolling over due to vibration during test by fastening a test piece.

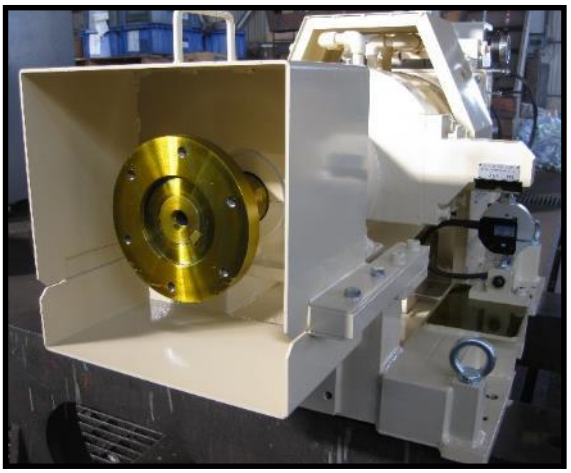
* Make sure to use fastening wires to secure personnel during test.

○ Data acquisition system (MIO module)

(Overview)
High robustness and wide range I/O modules are expected in engine and drivetrain bench tests. Out data acquisition system can combine modules and I/O signal types (temp., pressure, analog, digital, contact...) according to customers' needs.

■ Option

○ Coupling flange on the dyno side

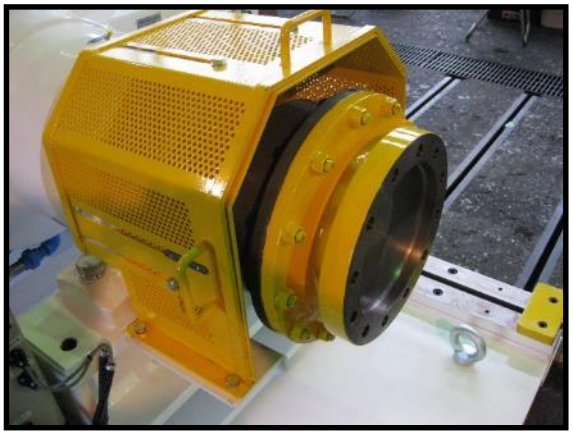


(Overview)
Mounted on the dyno main shaft.
Detail to be discussed separately.

○ Shaft coupling and damper

(Overview)
Conneced with test piece and dynamometer to reduce torsional vibration.
We also select the most suitable shaft couplings.

○ Shaft guard



(Overview)
Safety cover for the coupling flange on the dyno side.

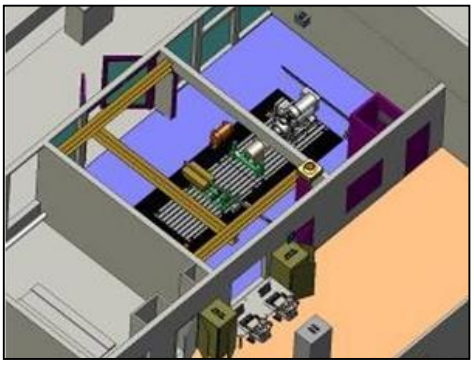
Detail to be discussed separately.

■ Turnkey Project

We have a partnership with architect offices and engineering companies. We can deal with the following requests.

We can collaborate with you from the planning phase. Please do not hesitate to contact us.

Design and construction work for laboratory buildings



Samples:
Test cell for gasoline engines
Test cell for diesel engines
Firing Bench of mass production line

Design and construction work for test cells

Samples:
Test cell for gasoline engines
Test cell for diesel engines
Firing Bench of mass production line

Test cell auxiliary facilities

Samples:
Cooling tower, incoming panel, air-conditioning system
T-slot bedplate, custom silencer
supply and exhaust, fuel supply system...

Civil works

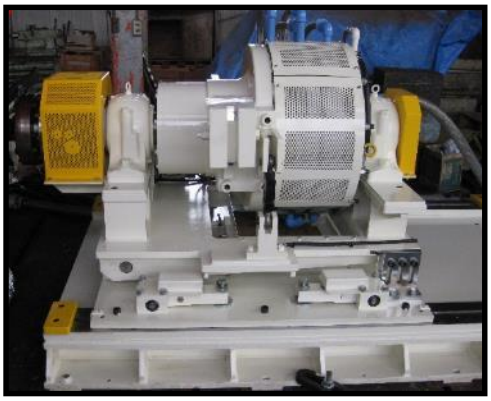
Workable items:
Delivery, installation, adjusting alignment,
piping, wiring and etc.

■ Maintenance

Even a health enthusiast can roughly judge his/her body condition on the day. However, complete health condition cannot be known without medical help.
For the testing devices, each component gets worn little by little as tests are repeated. And oil, used to prevent wear as little as possible, also gets worn and deteriorated according to frequency of use and elapsed time.

Since the testing machines don't have self-healing power, knowing the machine condition by regular maintenance can maintain the best condition.

In order to have accurate data acquisition with testing devices, periodic maintenance is necessary.



■ Periodic maintenance prevents malfunctions.

Especially in case of harsh condition, continuous durability test, or etc., since bearing and sealings are damaged quickly, periodic replacement of these are required. After the maintenance, we in detail confirm the condition of products such as calibration inspection, running inspection, and etc before delivery. The testing devices which pass the rigid company criteria can be delivered to customers again.

■ Recommendation of periodic maintenance

In order to collect accurate measurement data at test bench, we recommend periodic inspection every 6 months to 1 year, aside from maintenance. Our engineers can go to your site domestically and internationally.
* Periodic maintenance and inspection are charged.

■ Spare parts and calibration work

Dyno spare parts and sensors such as load cell and speed detector can be delivered.
And also we calibrate load cells and indicators.
Please contact us for further information. (On-site work must be appointed.)

■ Flow of Inquiry

Please do not hesitate to contact our sales by phone, email or web.

○ FAQ

Planning	Please tell us your planning about launching test cell or test bed and updating facilities.
Request for Quotation	Please tell us about application of dyno, test contents, engine specification, measurement items, test patterns and etc.
Request for Repair and Inspection	Please tell us product model and manufacturing number.
Technical Questions	Please tell us if you are concerned about our product structure and principle. Our sales will contact you.
Questions about product handling	Please tell us if you are concerned about our product usage. Our sales will contact you.
Others	Please tell us if you have requests, opinions and concerns. Our sales will contact you.

We are responsible for handling customer information and inquiry contents as confidential.

【Contact】
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Since 1948