Advanced Test System and Test Bed Engineering Professional
Engine Testing Service

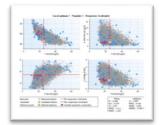
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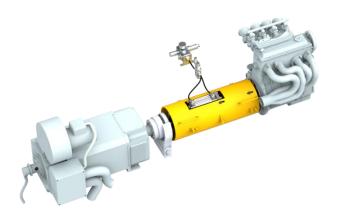
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# **Introducing Engine Performance Testing Service**

We offer engine performance testing service by business collaboration with TYK CORPORATION and F.E.T. Powercraft. As a test system supplier, we, together with business partners, build optimum test bed including engine testing items discussion and test requirement definition based on customer needs.







Engine testing technique, high reliable test systems, and testbed engineering know-how are available to engine test.

# O Main testing services

- Engine performance evaluation
- Engine durability performance evaluation
- Catalyst (TWC) durability performance evaluation
- Catalyst (TWC) performance evaluation
- Catalyst degradation evaluation
- DPF sedimentation testing
- DFP performance evaluation
- Running simulations

\* To be discussed separately.



#### Partner: F.E.T Powercraft

Test cell address:

855-1 Suganuma, Oyama-cho, Sunto-gun, Shizuoka-pref.



#### **Facilities**

O No. of test cell: 5

## O Engine

NISSAN FE-6 Engine 7L...

## O Engine Test bed

- Eddy-current dynamometer: 220 to 750kW
- \* 2.2 to 750 kW also available according to customer's request.
- DC Dynamometer x 1
- HORIBA MEXA1500D
- AVL micro tunnel x 2
- AVL weighing chamber x 1

## O Fuel

- Regular gasoline
- diesel fuel

# O Chassis dynamometer test cell x 2

- For 2WD
- For 4WD (Bosch simplified type)
- Hydraulic car lift

# Workshop



#### **Facilities**

#### O Machining work

- 5-axis control machining center x 2
- 6-axis control horizontal boring and milling machine operating range: 2000 x 1500 x 1400
- Crankshaft balancer and general purpose lathe
- Pipe bender x 5 (φ80 to φ38)
- Shearing cutting capability x 2 (13t x 1200)
- Plate bending press-brake x 2

...



### O Other facilities

- Engine assembly/disassembly room
- Welder, plasma cutting and argon welder
- Hardness measurement, surface roughness, roundness and digital projection display
- Tool measuring instrument and electron microscope
- Fuel combustion tester by heater

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## Partner: TYK CORPORATION

#### Test cell address:

3-1 Obata-cho, Tajimi-city, Gifu pref.



#### **Facilities**

O No. of test cell: 1

# O Engine

- Nissan QD32 diesel
- Total engine displacement: 3.153 L
- Type, No. of cylinders: OHV water cooled in-line 4-cylinder
- Max. output: 72kW (98PS) 3600min<sup>-1</sup>
- Max. torque: 216Nm (22.0kgm) 2000min<sup>-1</sup>
- · Fuel supply device: Bosch fuel injection pump

## O Engine Test bed

- Eddy-current dynamometer: 150kW
- PM number concentration distribution measuring device (EEPS)

## O Analyzer

- Grain size distribution measuring device (micro track)
- Crystal identifying device (powder X-ray diffraction)
- Composition analyzer (fluorescence X-ray)
- Specific surface area measurement (N2-BET)
- Electron microscope (SEM)
- Thermal expansion meter
- Differential thermal analyzer (TG-DTA)
- Thin hole distribution measuring device (mercury porosimeter)...

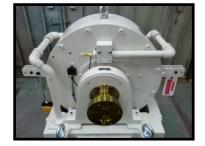
# O Dynamometer

We, as a dynamometer manufacturer, provide a wide range of dynamometers of 2.2 to 750kW range, high torque and high speed to testing service test cell according to customers test requirements.



Tanaka's hydraulic dynamometer

- · For large diesel engine
- Durability test and steady state performance test



#### **Eddie Current Dynamometer**

- For off-road engine
- Durability test, steady state performance test and NRTC test...
- For off-road engine production line

# O Drive shaft for testing

Able to manage output range, high torque, and high speed specification and reduce vibration.

# ■ Inquiry to Contract

STEP1	STEP2	STEP3	STEP4	STEP5
Requested test content	Requested test content	Quotation Requirement definition	Confirmation of condition	Contract
<ul><li>Engine specification</li><li>Test condition</li><li>Test data</li><li>Delivery time</li></ul>	<ul><li>Conclusion NDA</li><li>Test condition</li><li>Test system</li><li>Schedule</li><li>Deliverables</li></ul>	<ul> <li>Testing service quotation</li> <li>Requirement definition document</li> <li>Testbed specification</li> <li>A few times of meeting</li> </ul>	<ul> <li>Finalize price</li> <li>Test specification definition</li> <li>Finalize testbed specification</li> <li>Finalize scope of</li> </ul>	<ul><li>Contract document</li><li>Order sheet</li></ul>
		is required.	supplies • Finalize schedule	

# ■ Placing order to project completion

STEP1	STEP2	STEP3	STEP4	STEP5
Test preparation	Setting up testbed	Commencing test	Test report	Project completion
<ul><li>Preparing test system</li><li>Making utilities</li><li>Making test jigs</li></ul>	<ul> <li>Setting up bench</li> <li>Receiving test piece</li> <li>Pre-commissioning</li> <li>Pre-test</li> </ul>	<ul><li>Data acquisition</li><li>Data confirmation</li><li>Additional tests</li></ul>	<ul> <li>Unloading bench</li> <li>CSV data</li> <li>Requested format</li> <li>Confirm test data</li> <li>Additional tests</li> </ul>	Acceptance inspection

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

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Inquiry

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**Since 1948**