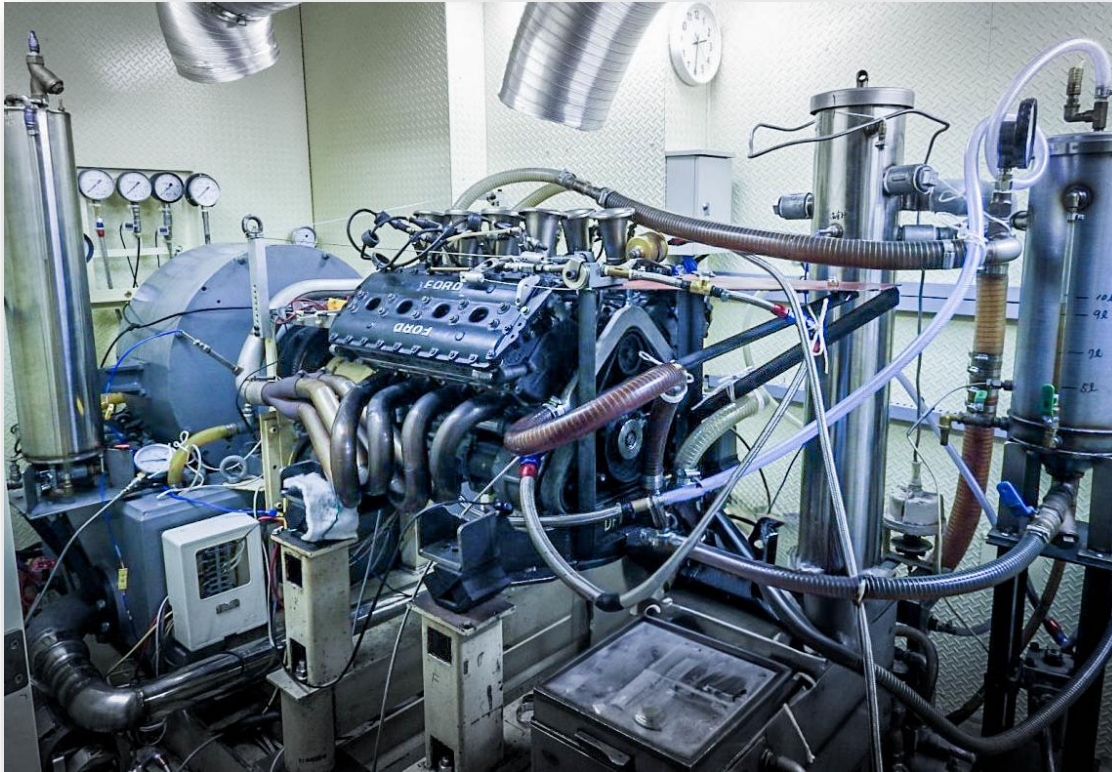




~Advanced Test System and Test Bench Engineering Professional~

Tokyo Plant Co., Ltd.



Engine test services

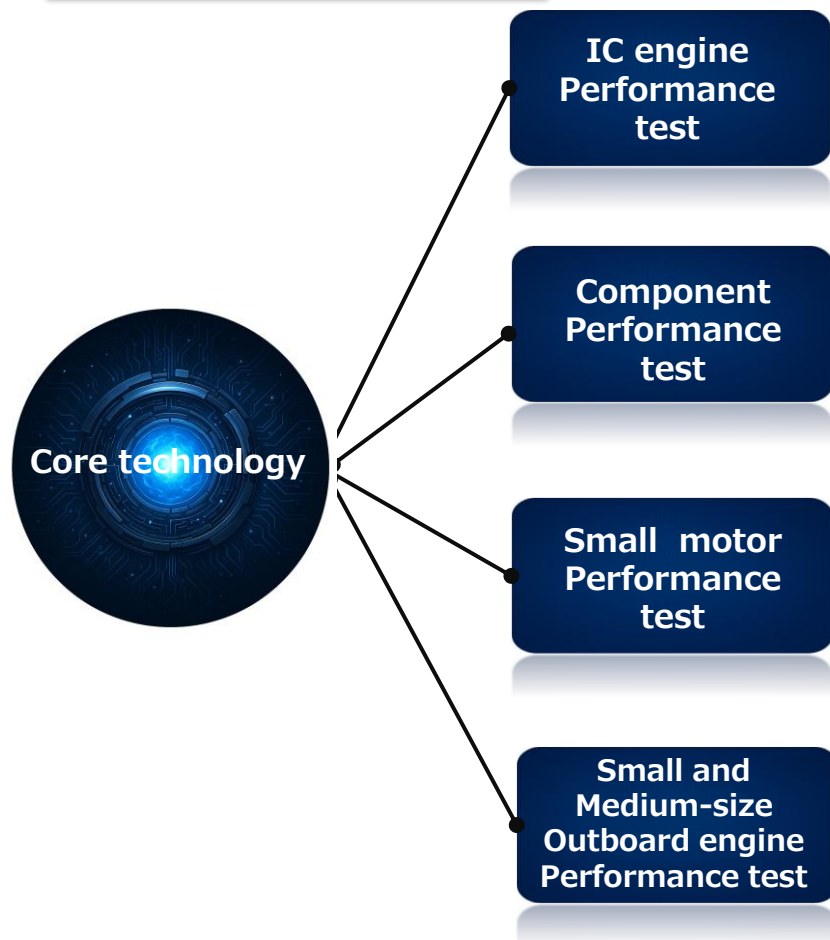
Update 2026.08.13

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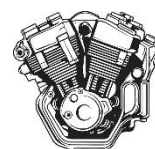
» Outline

We support our customers' research and development through contract testing and contract development services. We provide careful and thorough support from requirement definition to full project execution. Our services cover four primary technical domains.

Test service menu



Unit under test



ICE



Engine parts



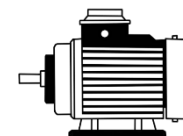
Clutch



Turbo charger



Outboard engine



Electric motor



VTOL/Drone

Fuel types



Gasoline, Diesel, Hydrogen gas, a part of biofuel, Electricity

» Outline

We support a wide range of activities as a trusted partner in our customers' research and development.

Our engineers participate in the project from the customer's planning phase.

From defining project requirements to acquiring and analyzing test data, we ensure smooth and efficient execution.

We build the optimal test environment based on the customer's test specimen and technical requirements.

Planning



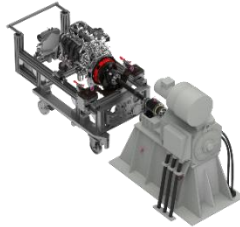
Please share your requirements, requests, and expectations with us. We can provide a wide range of proposals tailored to your budget and testing needs. By aligning with your project goals, we will support you throughout the process to ensure successful outcomes.

Contract



Once the requirements and project cost have been finalized, we proceed with the contract procedures. We will advance the project with careful coordination, fully aligned with the schedule requested by the customer.

Bench up



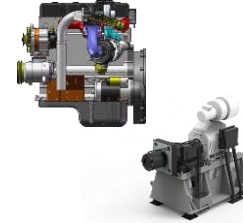
We manufacture the necessary test fixtures. We receive the customer's unit under test and build an optimized test environment for the evaluation. A pre-test is conducted in advance to ensure smooth and reliable execution.

Execution



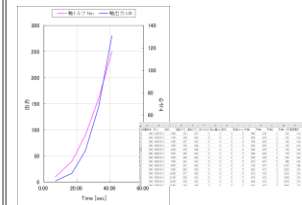
We conduct testing in accordance with the customer's defined requirements. The test operation can be performed either by the customer's own operator or by our operator, depending on your preference.

Bench down



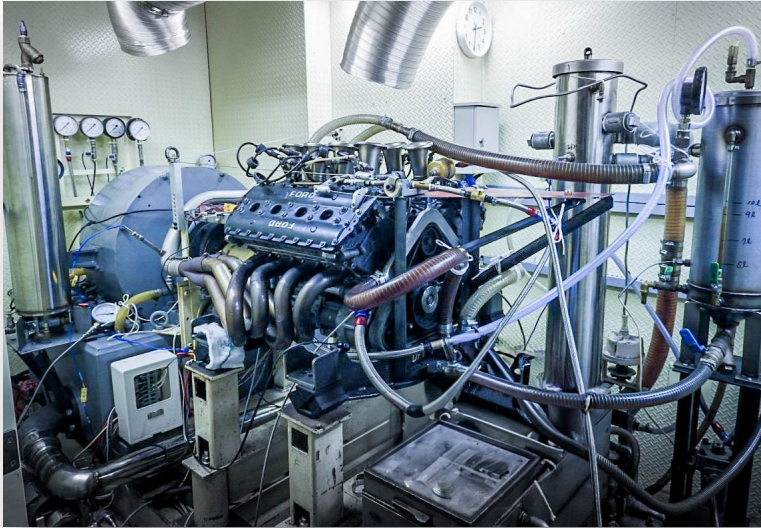
We return all unit under test, harnesses, fixtures, and related items entrusted to us by the customer. At the same time, we carry out the teardown and removal of the test bench.

Test data Acceptance



Unless otherwise instructed, we provide the deliverables in CSV format. After the customer's review, the results will proceed to final acceptance.

» Our Solution



» Contract Testing Capabilities

- ✓Performance testing of gasoline engines
- ✓Performance testing of diesel engines
- ✓Evaluation testing of various components
- ✓Performance evaluation of small outboard engine
- ✓Performance testing of hydrogen engines

» Available Services

- ✓Bench-up and bench-down
- ✓Operations test execution and data acquisition
- ✓Engine removal from vehicle
- ✓Engine storage
- ✓Fuel storage
- ✓Engine installation
(including alignment adjustment)
- ✓Fixture fabrication
(e.g., engine mounts)
- ✓Coupling and damper setup
- ✓Design, fabrication, and installation of cooling and fuel lines
- ✓One-off muffler fabrication
- ✓Sensor installation
- ✓Harness installation
- ✓Engine overhaul
- ✓CAN communication protocol analysis

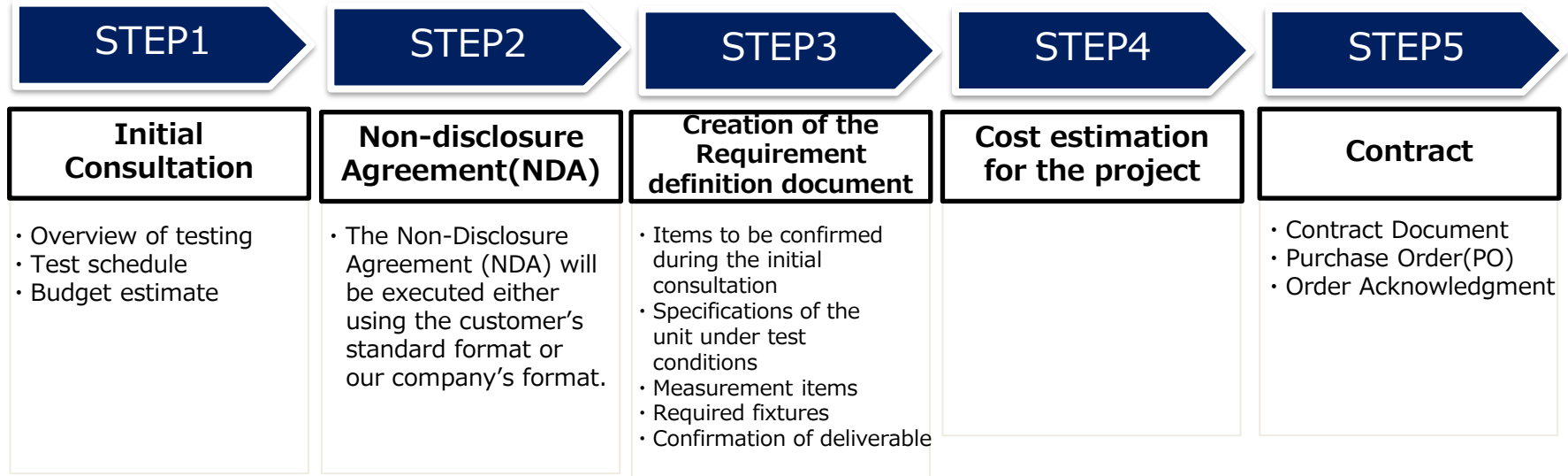
» Customer Benefits

- ✓Reduced cost for introducing test benches
- ✓Reduced running cost of test benches
- ✓Securing resources for core activities
(personnel, budget, etc.)
- ✓Reduced overall development and testing costs

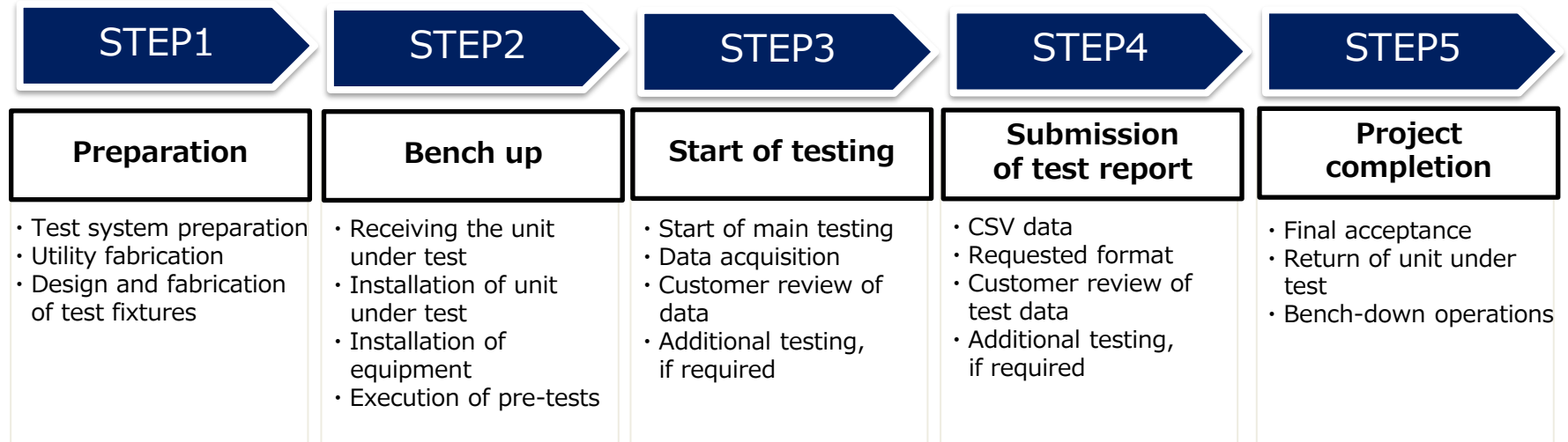


REDUCED WORK HOURS

» Process from initial inquiry to contract finalization



» Process from project initiation to completion



» Equipment overview

Our testing environment is customized based on the customer's requirements and unit under test's specifications.



» Owned Test Systems

We flexibly build and configure the test bench according to the customer's testing requirements and the specifications of the unit under test.

- ✓ Various Dynamometers
- ✓ Automation Systems
- ✓ Measurement Systems
- ✓ Test Fixtures and Auxiliary Equipment

Performance Testing Facilities for Hydrogen Engines Contributing to Carbon Neutrality

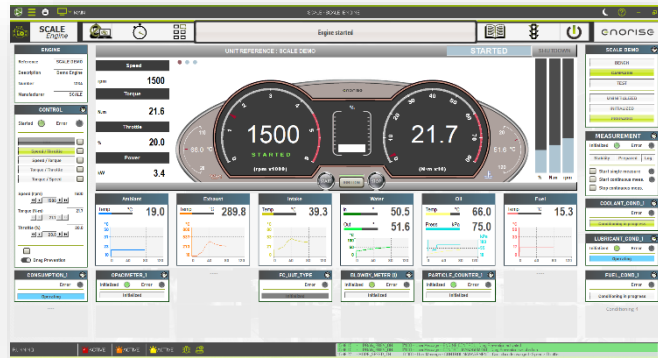


» Hydrogen Gas Supply

- ✓ Installation of a hydrogen trailer with a maximum capacity of approximately 3,000 m³
- ✓ Supply pressure from the trailer to the test bench: 19.6 MPa
- ✓ Supply pressure to the engine: up to 10 MPa (Pressure is not variable and must be adjusted each time.)
- ✓ Safety assurance through explosion-proof test specifications

Feature: We are one of the few companies capable of conducting hydrogen engine testing.

» Equipment overview



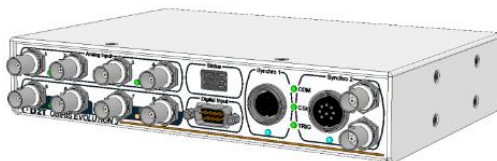
» Automation system ENORISE MORPHEE

- ✓ Real-time data acquisition
- ✓ Execution of programmed operations
- ✓ Execution of real-time models
- ✓ Data editing

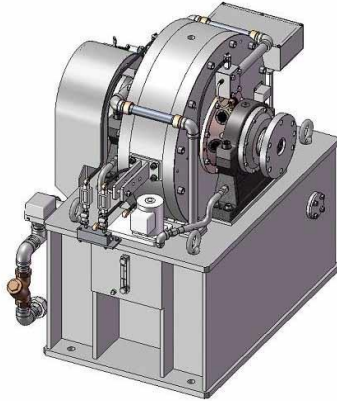


» Combustion analysis system ENORISE OSIRIS

- ✓ Real-time combustion analysis



» Equipment overview



» Dynamometers

✓ Eddy current dynamometer
• 22kW~440kW

✓ AC dynamometer
• 300kW/8000rpm

✓ DC dynamometer
• 300kW/8000rpm

» tLEA (gear box dummy)

✓ The customer's engine is positioned and adjusted to vehicle-equivalent dimensions (length and height).



» Equipment overview



» Shafts and Dampers

- ✓ Shaft and damper selection is performed with full consideration of the customer's technical requirements and torsional dynamics.

» Clutch

- ✓ The clutch system enables simulated engine start and stop operations.



» Equipment overview



» Fuel flow meter ONO SOKKI FM2500

Fuel consumption rates for gasoline and diesel are measured with high accuracy.



» Laminar Flow Meter SOKKEN LFC-300

The intake air flow rate of the engine is measured with high accuracy.

» Equipment overview



» Emission gas analyzer

HORIBA MEXA-ONE EGR
HORIBA MEXA 1500D EGR
HORIBA MEXA 1500D
HORIBA MEXA 1600D
HORIBA MEXA 1260 EGR
HORIBA MEXA 1230PM
AVL SPC472 smart sampler
AVL smoke meter 415S

» Sensor terminal box ENORISE MIO



Main measurement items)

- ✓Temperature
- ✓Pressure
- ✓AI
- ✓AO
- ✓DI
- ✓DO

» Equipment overview



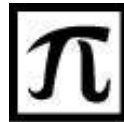
» Machining Equipment

- ✓5-Axis Machining Centers — 2 units
- ✓6-Axis Horizontal Boring & Milling Machine
Operating range: 2000 × 1500 × 1400mm
- ✓Crankshaft Balancer
- ✓General-Purpose Lathe
- ✓Pipe Benders (Φ80–Φ38) — 5 units
- ✓Shearing Machine
Cutting capacity: 13 t × 1200 mm — 2 units
- ✓Press Brake — 2 units
- ✓Additional machining tools and fabrication equipment

» Other Major Equipment

Engine Disassembly and Assembly Room
Welding Machines: plasma cutter, argon welding machine
Hardness, Surface Roughness, and Roundness Measurement Instruments
Digital Profile Projector
Tool Measuring Instruments & Electron Microscope
Fuel Combustion Test Equipment with Heating System
Additional measurement and fabrication equipment





Since 1948



Contact Information

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