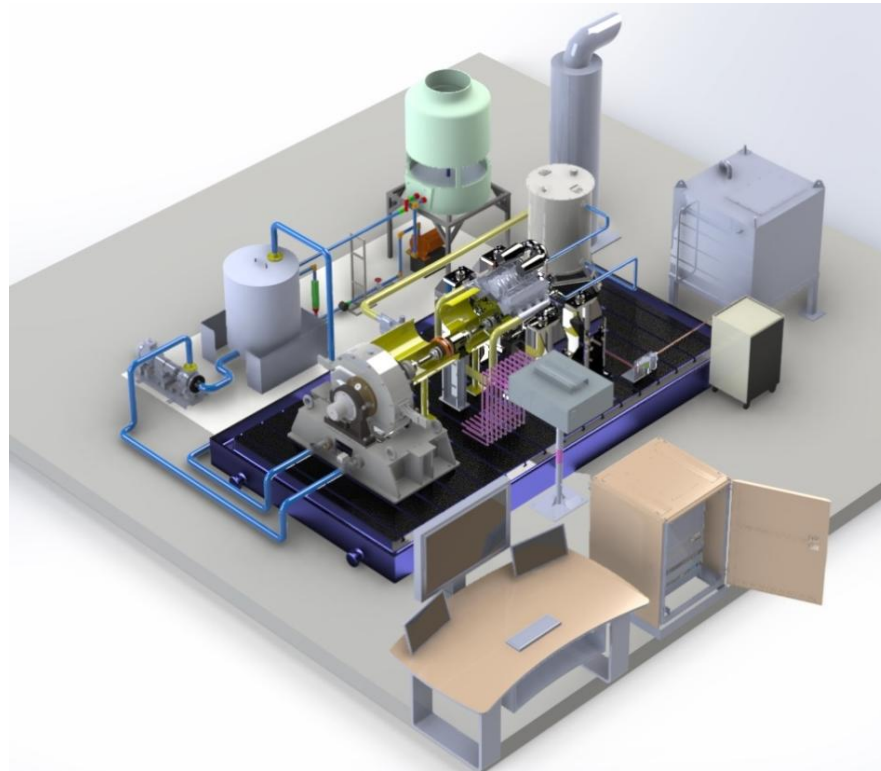




~Advanced Test System and Test Bench Engineering Professional~

Tokyo Plant Co., Ltd.



Engineering solutions

Update 2026.08.13

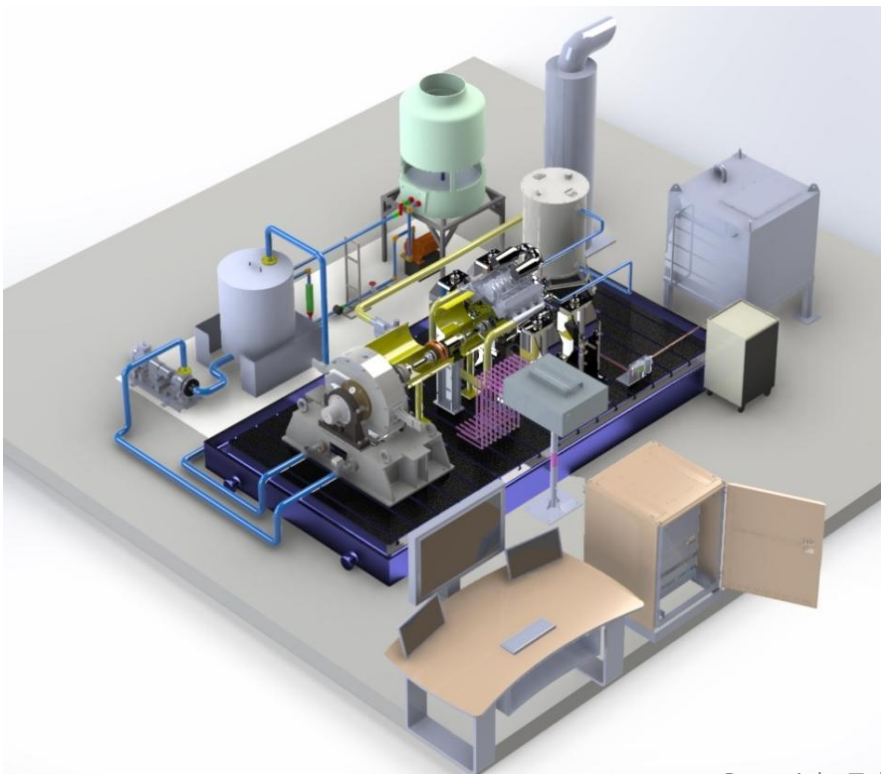
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» Outline

This solution is ideal for customers who are pressed for time due to daily research and development activities, or whose development teams require significant manpower resources, resulting in a high workload for test-facility personnel and a strong need for outsourcing various tasks.

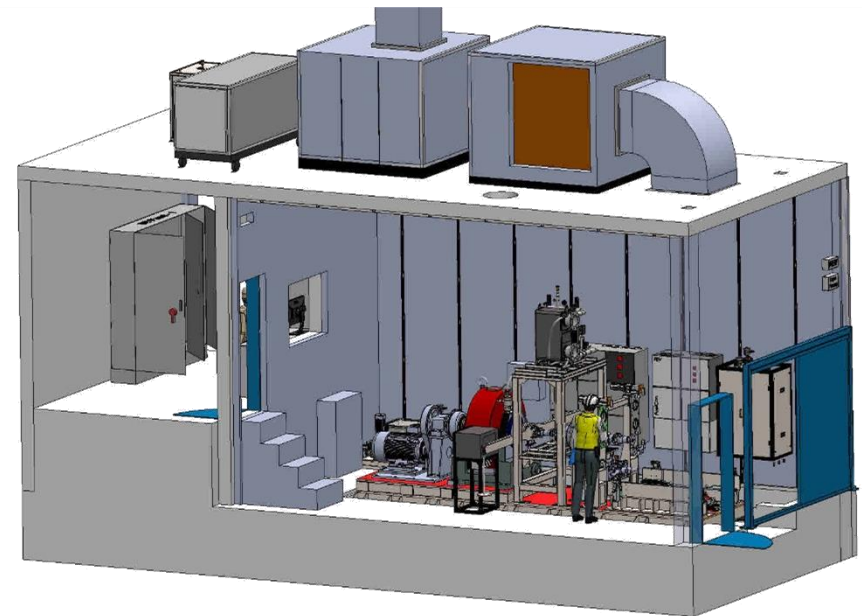
Semi · Turn-key Solution

We participate from the customer's planning stage and are able to propose full optimization of the entire test bench.

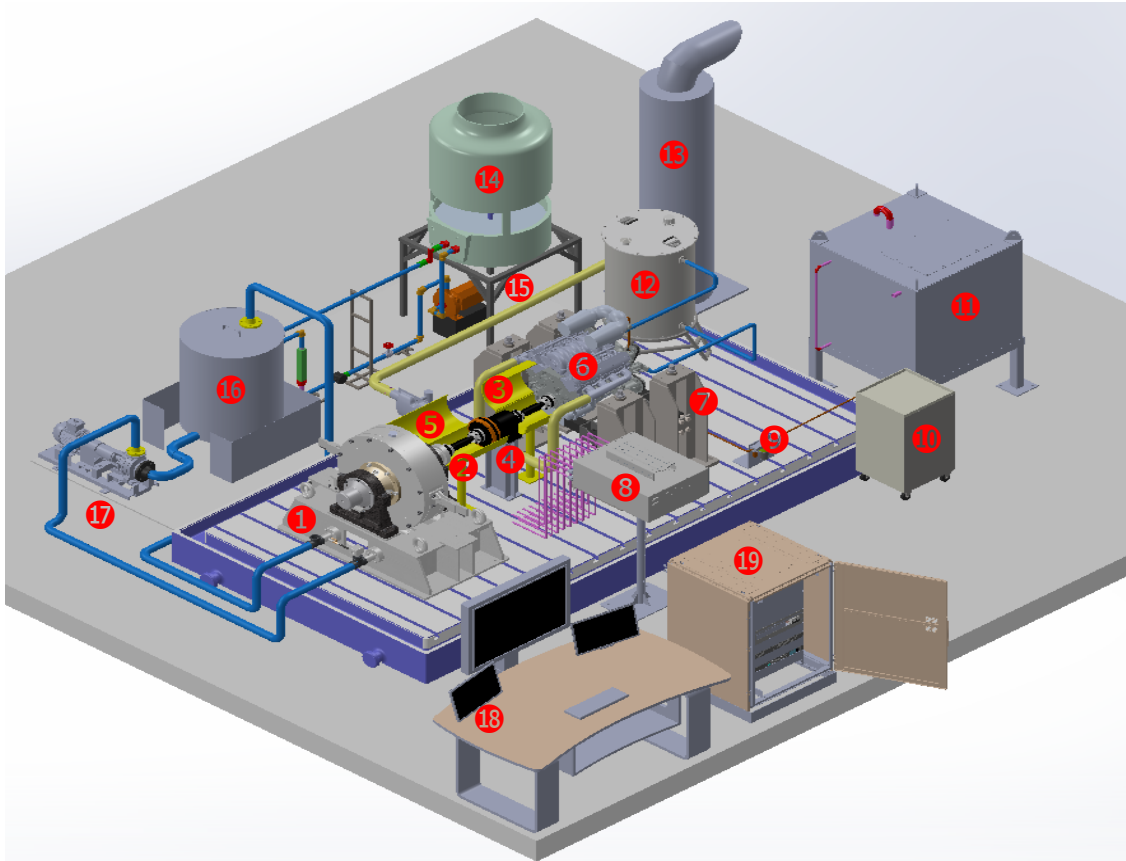


Full · Turn-Key Solution

We participate from the customer's planning stage and, in collaboration with third-party partners, are able to propose full optimization of the entire test facility.



» Examples of complete engine test-bench systems



Engine Test Bench Configuration Overview

- ①. Dynamometer
- ②. CV-Joint shaft
- ③. Dumper
- ④. Intermediate bearing system
- ⑤. Shaft guard
- ⑥. Engine(Unit under test)
- ⑦. Engine stand
- ⑧. Sensor terminal box
- ⑨. Fuel flow meter
- ⑩. Smoke meter
- ⑪. Fuel tank
- ⑫. Engine cooling water tank
- ⑬. Exhaust system
- ⑭. Cooling tower
- ⑮. Circulation pump
- ⑯. Dynamometer cooling water tank
- ⑰. Supply water pump
- ⑱. PC desk
- ⑲. Cabinet

Individual component-level orders—such as replacements for aging equipment—are also available, not only full engine test-bench systems.

However, depending on the condition of the existing facility, we may not be able to accept the contract.

» Hydrogen Engine Test Bench



» Scope of the project

- ✓Automation system MORPHEE
- ✓Hydraulic dynamometer
- ✓Combustion analysis system
- ✓Fuel flow meter
- ✓Gas analyzer
- ✓Dumper, shaft
- ✓Cooling tower
- ✓Oil-Water Separator tank
- ✓Silencer system
- ✓Intake and Exhaust System
- etc

» Project structure

Design
company

Construction
Company

Tokyo Plant
(Test system)

Hydrogen gas
Supply company

Auxiliary equipment
company

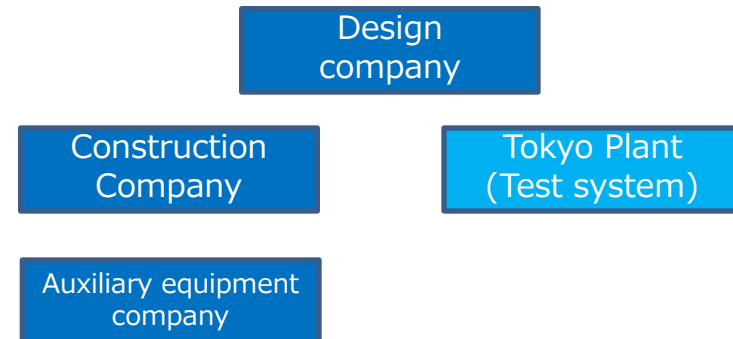
» Gasoline Engine Test Building



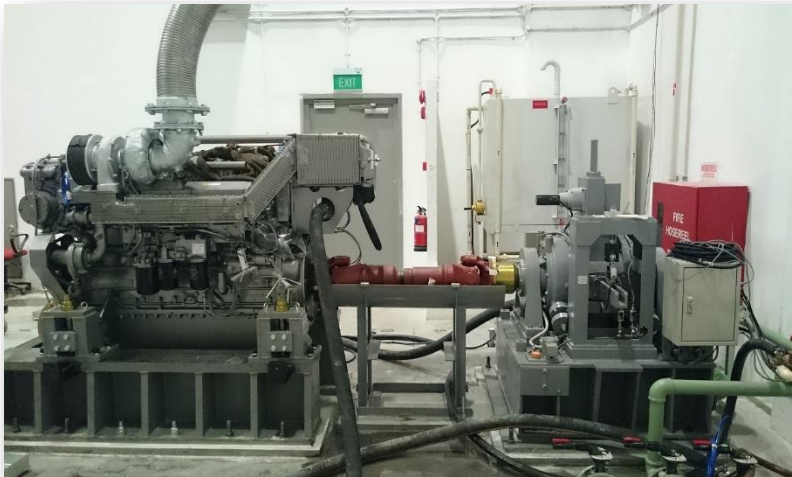
» Scope of the project

- ✓ Design of test buildings and test benches
- ✓ Construction of test buildings
- ✓ Installation of test benches
- ✓ Cooling tower
- ✓ Oil-water separation tanks
- ✓ Rail-mounted base plates
- ✓ Power receiving panels
- ✓ Dynamometer
- ✓ Customer test equipment
- ✓ Fuel flow meter
- etc

» Project structure

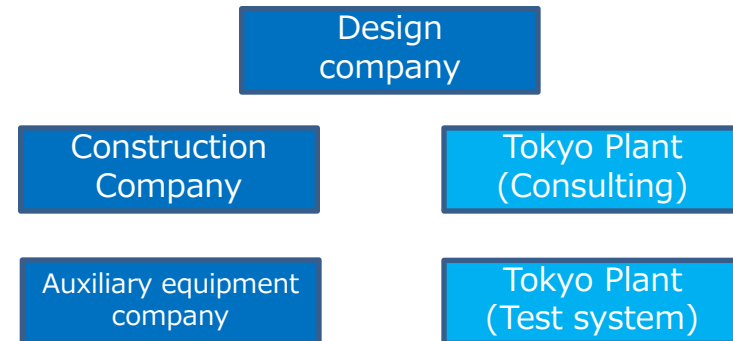


» Diesel engine Production and Maintenance Plant



- » Scope of the project
 - ✓Support for the design of test buildings and engine test benches
 - ✓Proposal for Auxiliary Equipment
 - ✓Automation system MORPHEE
 - ✓Hydraulic dynamometer
 - ✓Engine throttle system
 - ✓Fuel flow meter
 - ✓Smoker meter
 - ✓Shaft
etc

» Project structure



» Auxiliary Equipment



Our group collaborates with third-party partners to provide proposals for various auxiliary equipment related to your test-bench facilities.

Main auxiliary systems and equipment we can propose include:

- ✓ Cooling systems (cooling towers, water tanks)
- ✓ Oil-water separation tanks
- ✓ Silencer systems
- ✓ Base plates
- ✓ Temperature-control units
- ✓ Radiators
- ✓ Other related auxiliary equipment

» Cooling system



» Scope of the project

- ✓ Selection of cooling system
- ✓ Selection of underground water tanks
- ✓ Heat load calculation

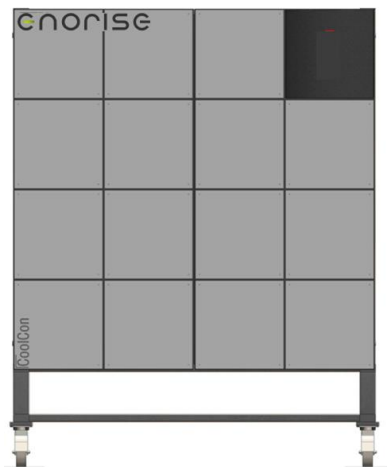
» Base plate



» Scope of the project

- ✓ Installation of the dynamometer on the base plate
- ✓ Alignment adjustment between the dynamometer and the base plate

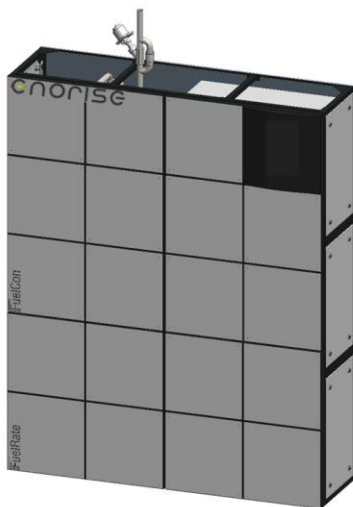
» Coolant temperature-control unit



» Main specifications

Engine power	2200kW
Cooling Capacity	2200kW
Rated Control Range	50℃～110℃
Cooling-Water Flow Rate	162m³/h
Max pressure	6.0bar
Interface	EtherCAT
Dimension (WHD)	3500×2500×1000mm

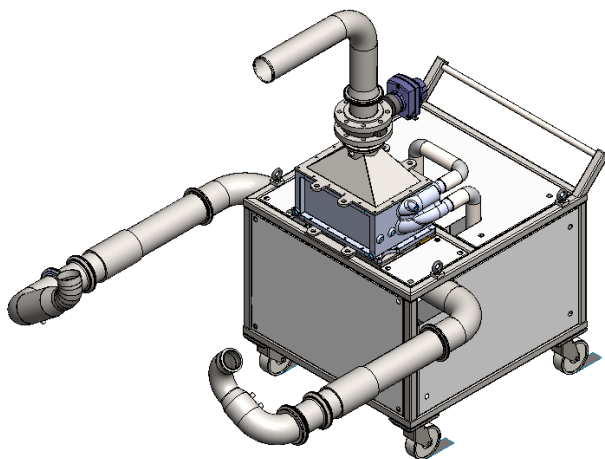
» Fuel temperature-control unit



» Main specifications

Engine power	4300kW
Fuel	Diesel
Cooling Capacity	35kW
Rated Control Range	60℃
Fuel Flow Rate	30L/min (6bar)
Control Accuracy	±0.3℃
Interface	EtherCAT
Supply Temperature Range	20℃～30℃
Dimension (WHD)	1800×2250×450mm

» Charge -air intercooler



» Main specifications

Heat dissipation	270kW
Air / Flow rate	5600kg/h
Charge-Air Temperature Downstream of the Compressor	260℃
Charge-Air Temperature Upstream of the Engine Intake (Control Temperature)	50℃ (Max 65℃)
Control Accuracy	±2℃
Maximum Cooling-Water Flow Rate	30m ³ /h
Max pressure	6bar

» Civil work



Our group provides various ancillary construction and installation services related to test benches to ensure smooth preparation for our customers' test execution.

Main tasks we can support include:

- ✓ Equipment delivery, including protective handling
- ✓ Equipment installation and alignment with the mounting surface
- ✓ Connection between the engine and the dynamometer
(Note: Supported engine sizes are limited.)
- ✓ Piping work for equipment and auxiliary systems
- ✓ Wiring work for equipment and control systems

» On-site equipment delivery



» On site equipment installation



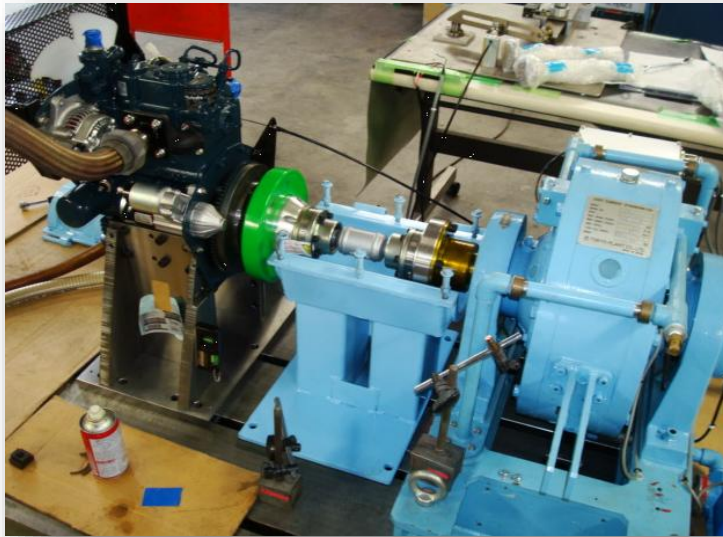
» Scope of the project

- ✓Unloading from the Truck
- ✓Protective Preparation of the Delivery Pathway
- ✓Bringing-in work

» Scope of the project

- ✓Installing the Dynamometer on the Base Plate
- ✓Alignment adjustment between the dynamometer and the base plate

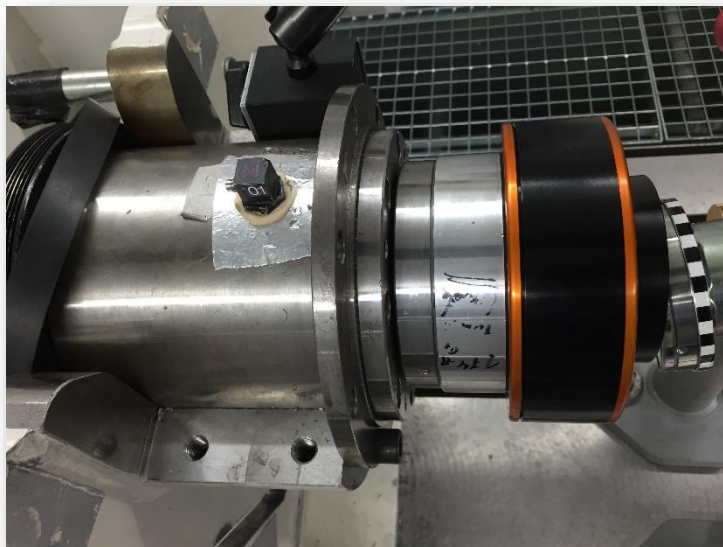
» Connection engine and dynamometer



» Scope of the project

- ✓ Connection between the shaft coupling and the Engine Flywheel
- ✓ Alignment adjustment between the engine and the dynamometer

» Installation of the damper



» Scope of the project

- ✓ Installing a damper to reduce torsional vibration
- ✓ Installation onto the intermediate bearing system

» Piping



» Scope of the project

- ✓Connection between the dynamometer flange and the facility-side piping
- ✓Installation of the flow meter
- ✓Installation of the pressure gauge

» Wiring



» Scope of the project

- ✓Secondary wiring between the dynamometer and the control panel
- ✓Primary wiring between the control panel and the power distribution panel
- ✓Wiring for various measurement systems and interfaces

We will participate in your project from the planning phase onward.

We provide seamless support throughout every stage — from creating requirement specifications and design documents, to product design, manufacturing, commissioning, and delivery. Rest assured, we also provide prompt and reliable after-sales service following delivery.

Planning



Please let us know your requirements, specifications, and requests. We can provide a variety of proposals based on your budget and testing needs.

We will also align with the customer's project goals to ensure successful achievement. A non-disclosure agreement will be concluded if necessary.

Contract



After the product manufacturing specifications, service requirements, definitions, and project amount are finalized, the contracting process will begin.

We will work closely with the customer to ensure that the project is executed in accordance with the agreed schedule.

Design, production



We will proceed with product manufacturing under strict delivery and safety control, ensuring compliance with the customer's defined requirements, functionality, and quality standards.

Also, conducting Pre-commissioning at our test bench.

Delivery Civil work



After packing, we deliver the products with the utmost care to ensure that they remain secure and intact during transportation.

We also carry out civil engineering work such as installation, piping, and wiring as requested by the customer.

Commissioning Acceptance



System configuration is carried out, followed by reproducible testing and final adjustments at the customer's test bench.

After service

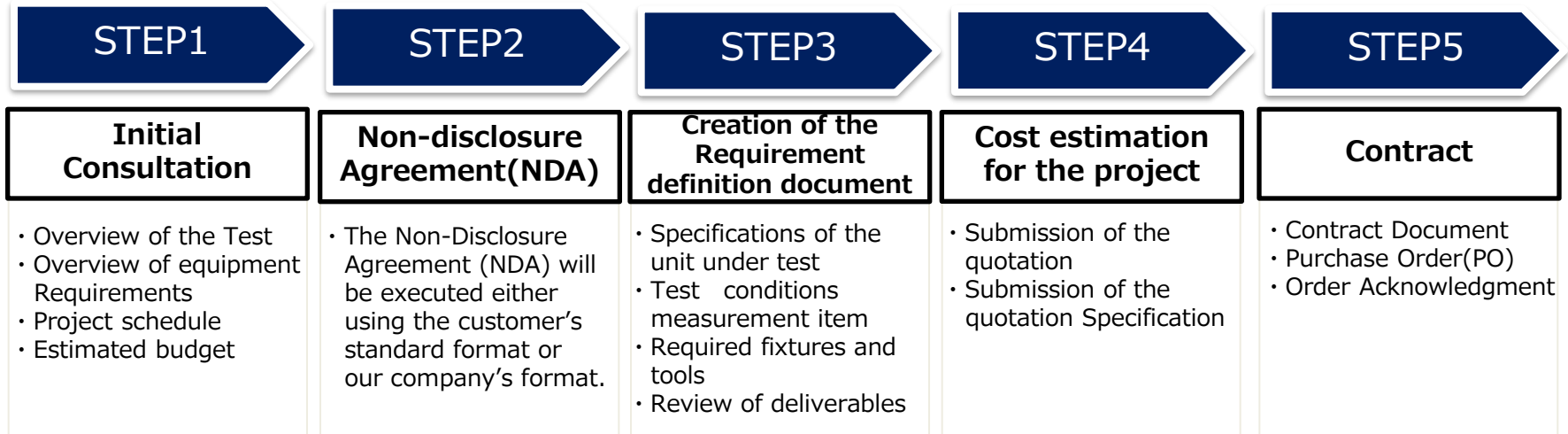


We provide long-term support even after product delivery.

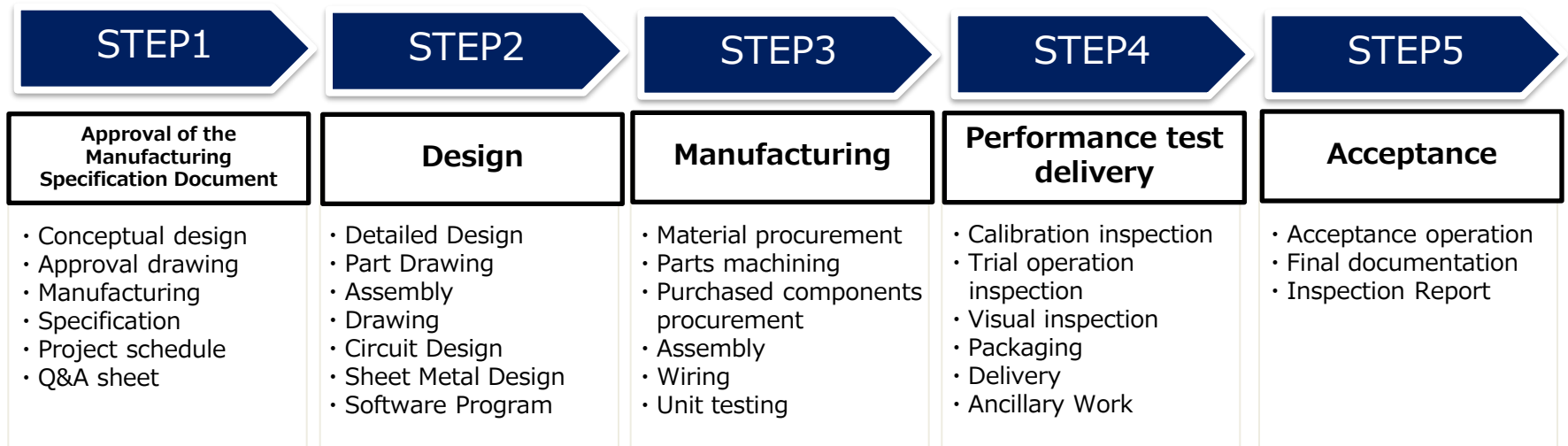
We offer prompt assistance anywhere as needed.

In addition, we propose product upgrades and maintenance planning to ensure continued optimal performance.

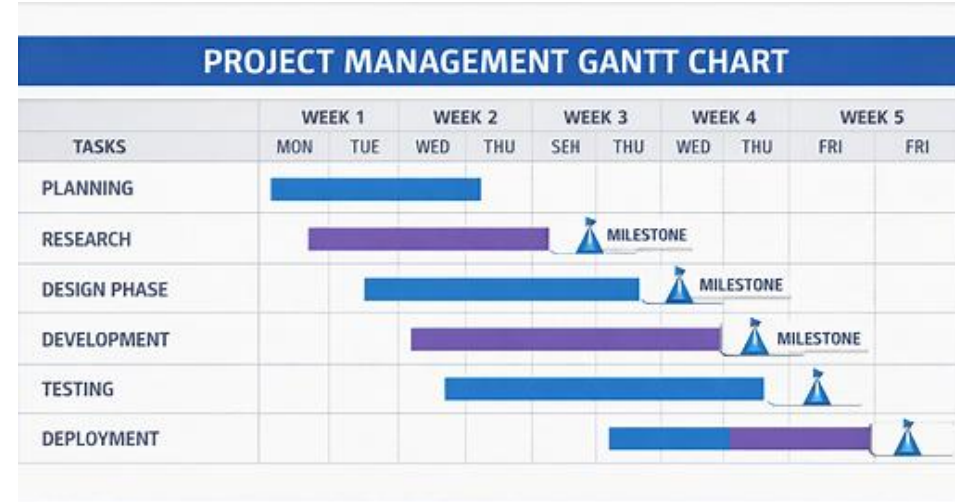
» Process from initial inquiry to contract finalization



» Process from project initiation to completion



» Project execution framework



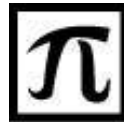
✓Project Leader and Assigned Members

We assign a Project Leader (responsible person) and project members according to the project's scale and type—whether it is a new installation, repair work, or on-site inspection.

✓Project Management

With clearly defined requirements and a firm commitment to achieving QCD (Quality, Cost, Delivery), we approach every project with the same passion as our customers and work sincerely toward its success.





Since 1948



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