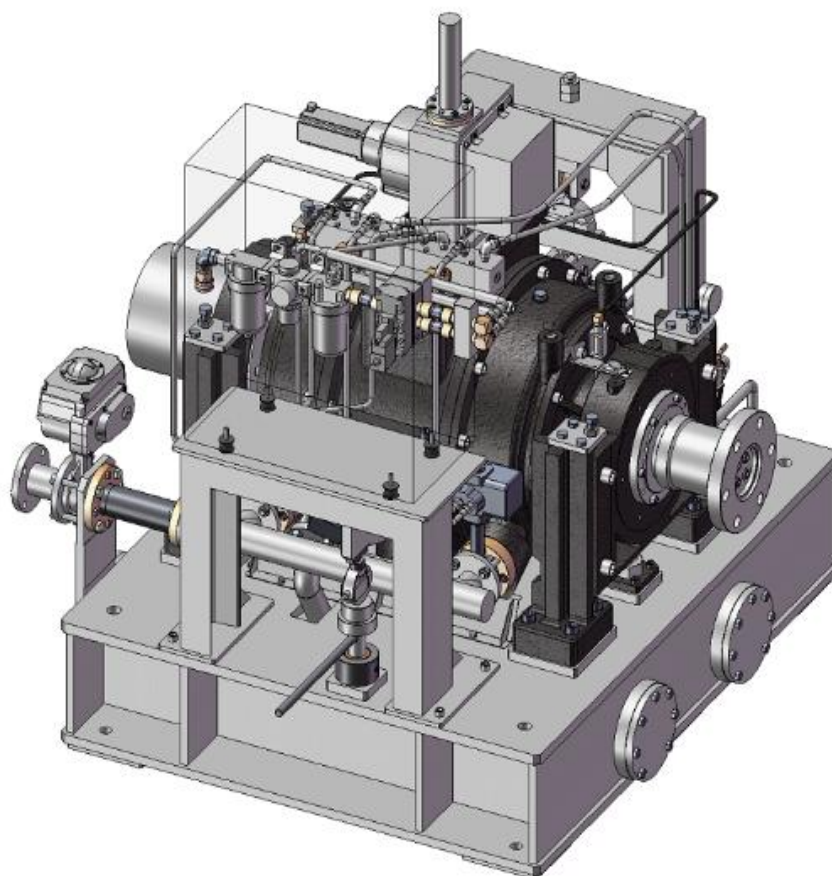


~Advanced Test System and Test Bench Engineering Professional~

Tokyo Plant Co., Ltd.

Product catalog



Hydraulic Dynamometer

 TOKYO PLANT Co., Ltd.
東京プラント株式会社

Last update 2026/9/28

Copyright © Tokyo Plant Co., Ltd.

■ Overview

The Tanaka's Hydraulic dynamometer is one of the world's leading dynamometers. It has been featured in numerous technical publications, including the Automotive engineering handbook. With its outstanding durability, high accuracy, fast response, and low inertia, it has been adopted by many customers both in Japan and overseas.



■ Technical capabilities

Awards: Purple Ribbon Medal (1972),
Tokyo Governor's Award (1969) Patents: Japan, United Kingdom, United States

■ Track Record

History: Over 50 years (the first unit was delivered in 1964)
Initial units were supplied to Komatsu and Hino Motors. Total
Units Delivered: More than 2,000 units (No.1 market share in Japan)
Delivery Destinations: Japan and more than 40 countries worldwide

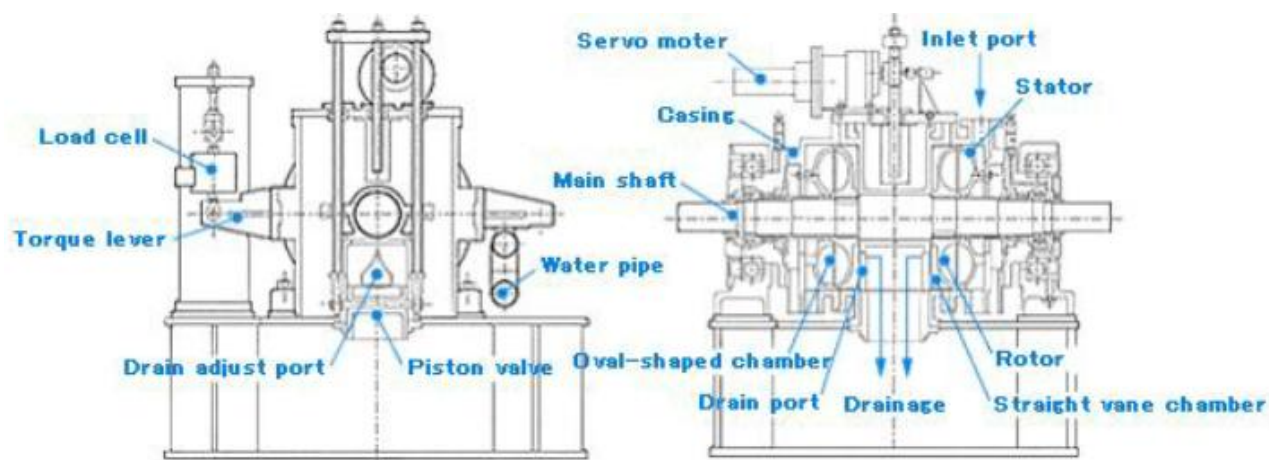
■ Major Customers (in no particular order)

Yanmar, IHI, Niigata Power Systems, Komatsu, IPA, Daihatsu Infiniars, Mitsubishi Heavy Industries, Hitachi, Ebara, Kubota, Shinko Engineering, Kanzaki Kokyukoki, Tokiwa Works, Komatsu Construction Equipment Sales, Tominaga Bussan, Mitsubishi Heavy Industries Engine & Turbocharger Sales, Mitsubishi Fuso Truck and Bus, Mitsui Zosen Machinery & Service, Okinawa Machinery Maintenance, Otsuka Diesel, Osaka Gas, Akasaka Diesels, Kyowa Kogyo, Toyo Internal Combustion Engine Works, Daito Kogyo, Maruma Technica, Isuzu Marine Manufacturing, Tokai Transportation Machinery, Nissan Motor, Yamaha Motor, NGK Spark Plug, Mitsuboshi Belting, Ishibashi Works, Nakada Engine, Ogura Clutch, Japan Hydro, universities, technical colleges, domestic and international research institutes, Japan Ground Self-Defense Force, Japan Maritime Self-Defense Force Technical School, U.S. Navy Atsugi Base, etc. (More than 500 companies in total.)

■ Key features

High performance	- Stable load adjustment can be achieved within a short period of time. - The structure is designed to minimize cavitation-induced erosion. - Push-button operation is available for automatic speed control and automatic torque control. - From the automation system, speed control and torque control can be performed through programmed operation. - Alarm signals are output in the event of overspeed or lubrication-oil supply failure, and relay contacts can also be provided.
Compact, Light weight	- The required installation footprint is very small. - The weight of the same model has been reduced by 30% compared with the previous generation.
Easy operation	- Because the unit uses oil lubrication, it is capable of continuous long-duration operation. - Rotational speed and torque are displayed digitally as standard. - Analog voltage outputs for speed and torque are also provided. - To prevent incorrect cable connections, all interfaces use connector-type connections.
A wide range of optional features (paid option)	- Marine-engine characteristic control can be performed - By opening and closing the water supply and discharge using solenoid valves, rapid load-variation testing can be conducted. - A main-shaft locking device and disc-brake unit can be installed. - The center height can be modified according to customer requirements. - The anchor-bolt positions of the dynamometer base can be manufactured to match the customer's installation layout.

■ Principle of operation and product structure



When the main shaft rotates, the water inside the elliptical rotor chamber generates braking force on the rotating runner through friction, while imparting rotational force to the stationary runner, which is transmitted to the load cell.

To increase or decrease the absorbed power, the water volume in the straight-blade chamber located behind the rotating runner is adjusted. The water pressure generated by the straight blades is controlled by changing the radial water level at the drain port using a piston valve.

■ Main application of the products

Engine Performance Testing

Evaluation of output, torque, efficiency, and overall performance characteristics of various engines.

Durability and Endurance Testing

Long-duration operation to assess wear, reliability, and lifecycle performance.

Emission and Environmental Testing

Measurement and analysis of exhaust emissions under controlled load conditions.

Research and Development

Use in OEM and academic R&D facilities for prototype evaluation, calibration, and advanced engineering studies.

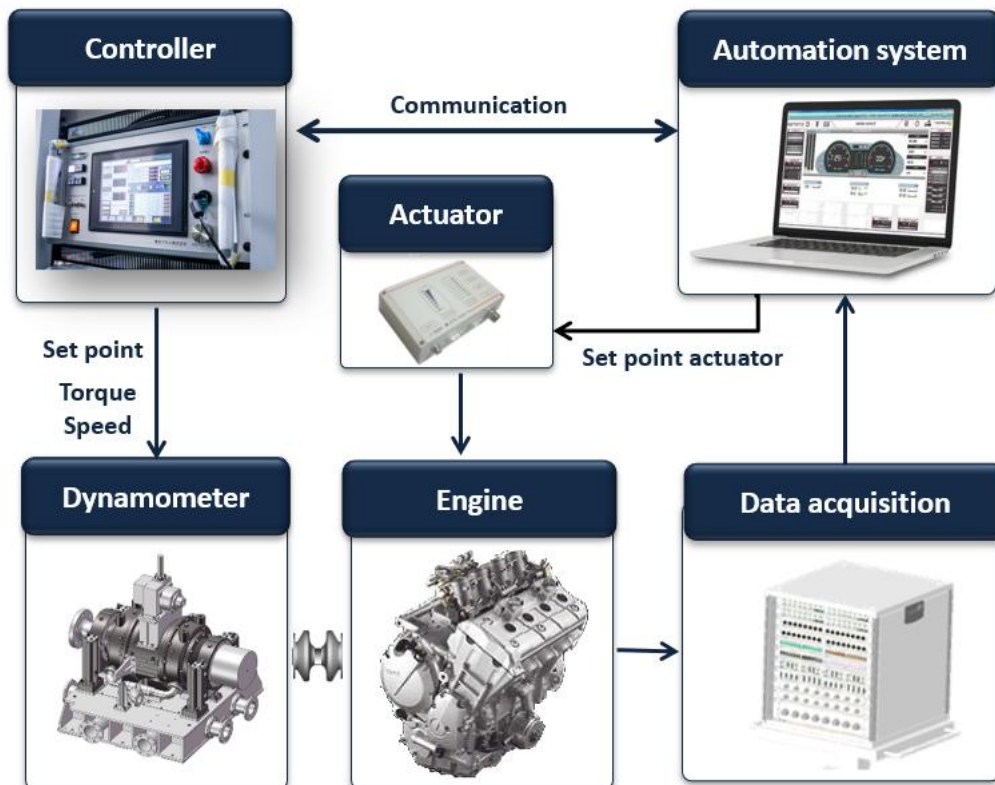
Quality Assurance and Production Line Testing

Verification of engine performance during manufacturing and final inspection.

Maintenance and Overhaul Facilities

Performance checks and diagnostics for large engines after overhaul or repair.

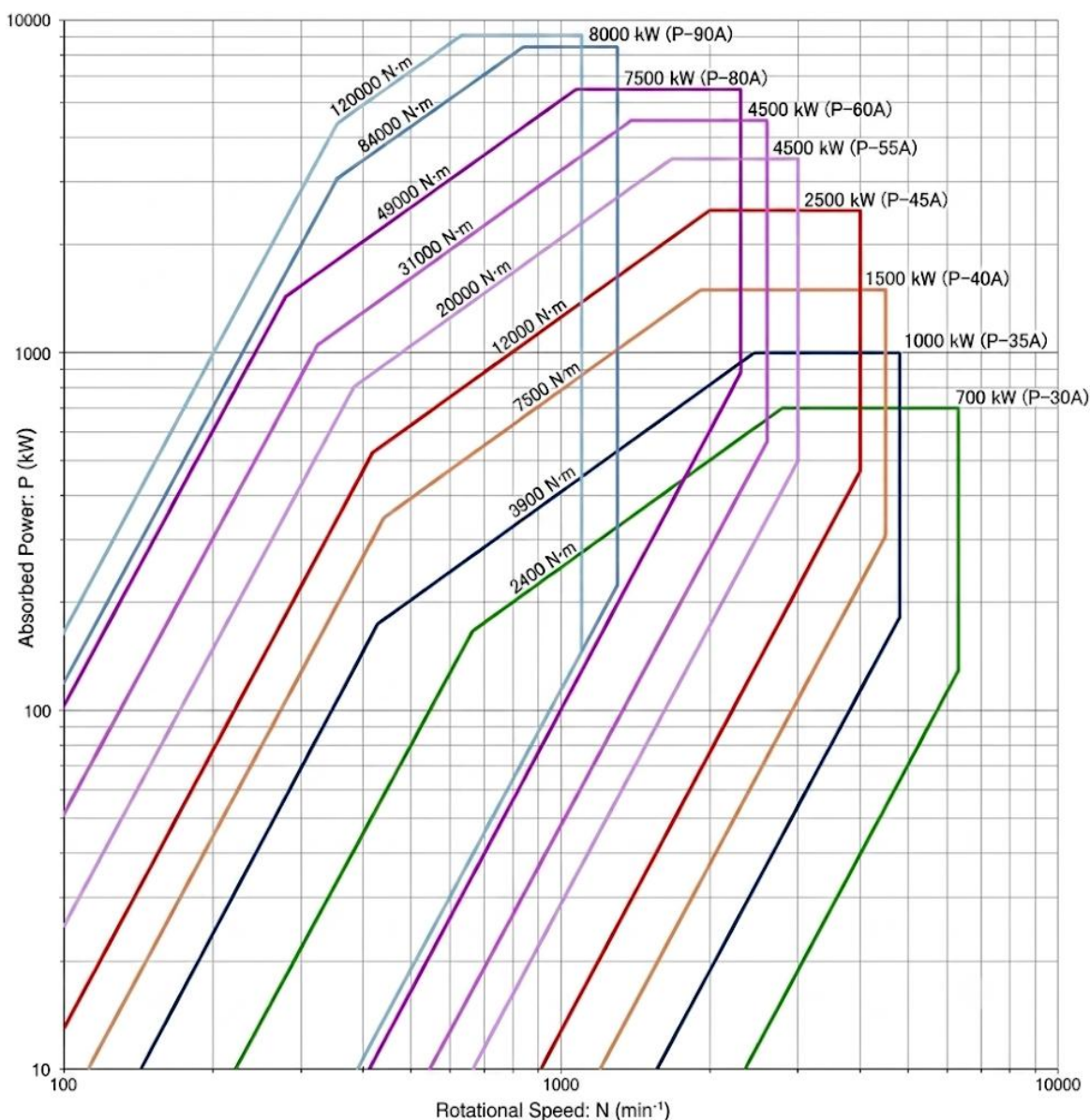
■ Typical system configuration



We are able to propose the optimal dynamometer, measurement system, and auxiliary equipment tailored to each customer's needs. If required, we can also support the selection of automation systems, data-acquisition sensors, test bench layout, shafts, and dampers. Please feel free to contact our Sales Department with your requirements. We will provide the most suitable proposal that aligns with your budget and technical expectations.

■ Product lineup

- P-A type / Non-reversible: the controllable rotation direction is limited to one direction.
This product lineup is ideal for testing medium- to large-sized diesel engines.



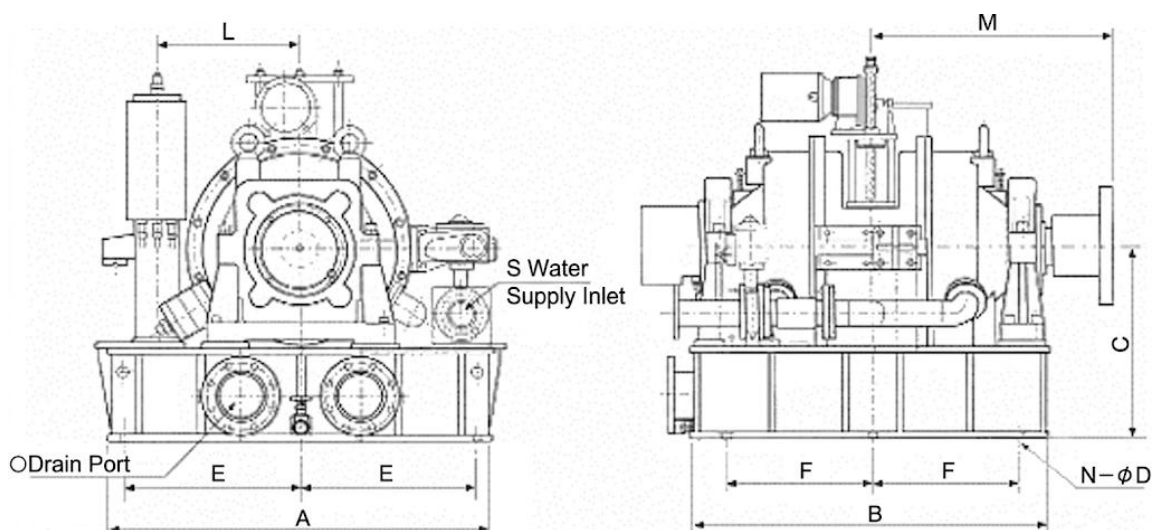
Model	Max power kW	Max torque Nm	Max speed min ⁻¹	Constant Torque range N.m	Moment of inertia kg.m ²	Required Water volume L/min
P-30A	700	2,400	5,300	656~2,785	0.437	400
P-35A	1,000	3,900	4,800	429~2,448	0.975	570
P-40A	1,500	7,500	4,500	438~1,909	1.88	860
P-45A	2,500	12,000	4,000	415~1,989	2.85	1,430
P-55A	3,500	20,000	3,000	380~1,671	8.165	2,000
P-60A	4,500	31,000	2,600	320~1,386	15.275	2,580
P-70A	5,500	49,000	2,300	319~1,071	31.225	3,150
P-80A	7,500	84,000	1,300	352~852	41.483	4,300
P-90A	8,000	120,000	1,200	355~636	78	4,580

※Cooling Water Flow: Theoretical water supply volume calculated at a supply temperature of 30 °C and a discharge temperature of 60 °C.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

■ Product lineup

○P-A type : Dry weight and principal dimensions



Model	Weight kg	Principal dimensions									
		A	B	C	E	F	N-φD	L	M	S(A)	O(A)
P-30A	1,100	950	820	600	420	320	4-24	358.1	500	50	125
P-35A	1,550	1,100	940	650	500	350	4-24	400	600	50	150
P-40A	1,600	1,100	970	650	500	350	4-24	375	635	50	150
P-45A	2,100	1,100	1,060	750	500	425	6-24	430	680	65	150
P-55A	3,500	1,400	1,200	750	650	500	6-24	500	835	80	150
P-60A	4,700	1,700	1,300	950	815	600	6-24	680	970	80	200
P-70A	7,500	1,980	1,750	1,100				800	1,085	100	200
P-80A	11,000	2,000	2,200	1,200				800	1,230	125	200
P-90A	17,000	2,000	2,550	1,200				800	1,345	150	300

※Weight: Determined according to the base-frame specifications.

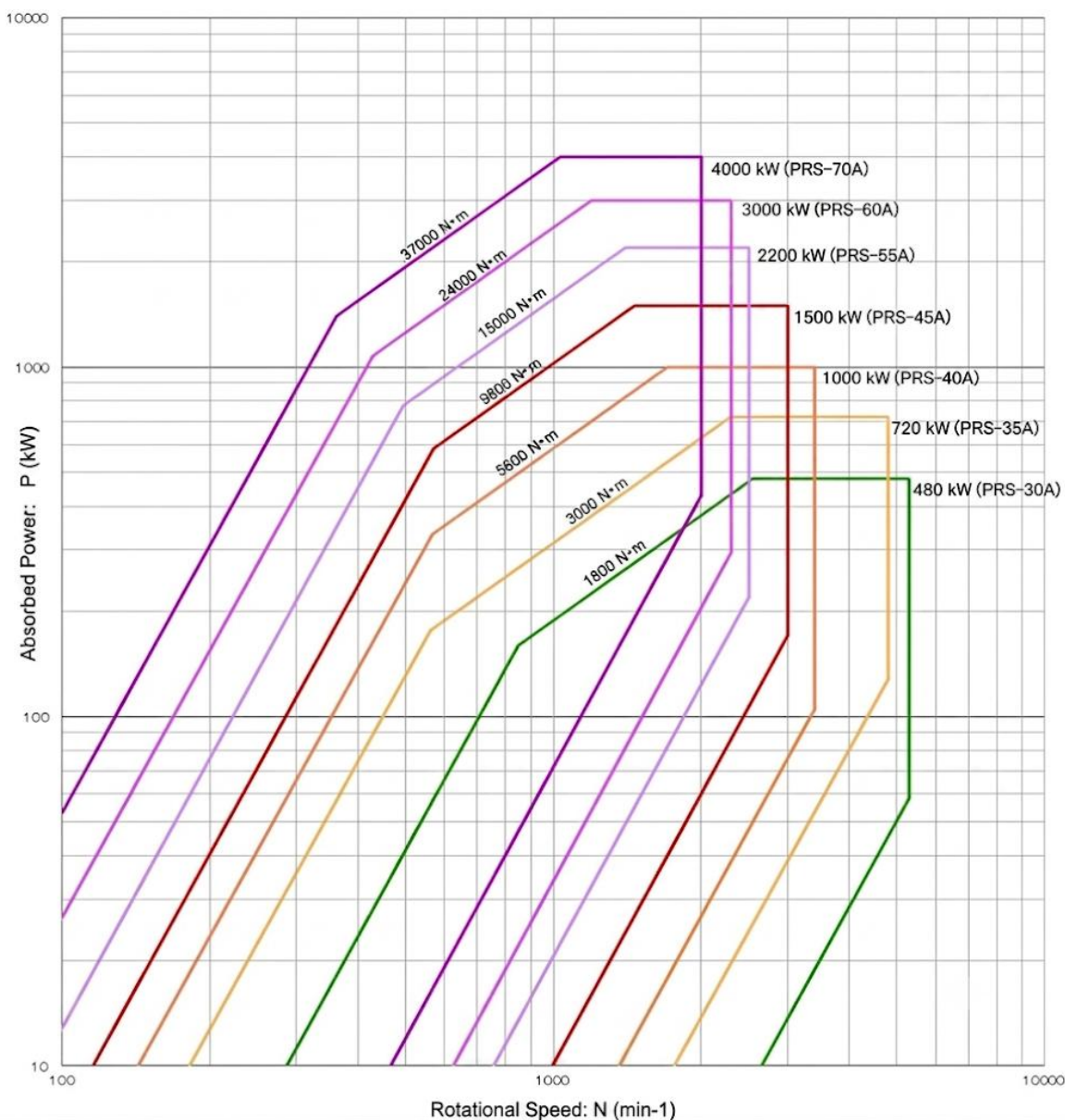
※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

Standard Accessories	• Dynamometer main unit, base frame, and load-control remote controller • Bearing temperature sensor • Cooling-water inlet temperature sensor • Discharge-water temperature sensor
Paid options	• Dynamo controller (manual or automatic control system) • Coupling flange on the dynamometer side • Calibration tools (equipment required for dynamometer calibration) • Bearing height adjustment device (facilitates height adjustment and alignment of the bearing) • Alignment base plate (allows X/Y/Z-direction adjustment to simplify alignment work) • Rapid load-variation device (optimal option for rapid load-variation testing) • Flow meter for cooling water • Water supply valve • Drain valve

■ Product lineup

○PRS-A type / Reversible: two rotation directions can be controlled .

This product lineup is ideal for testing medium- to large-sized diesel engines.



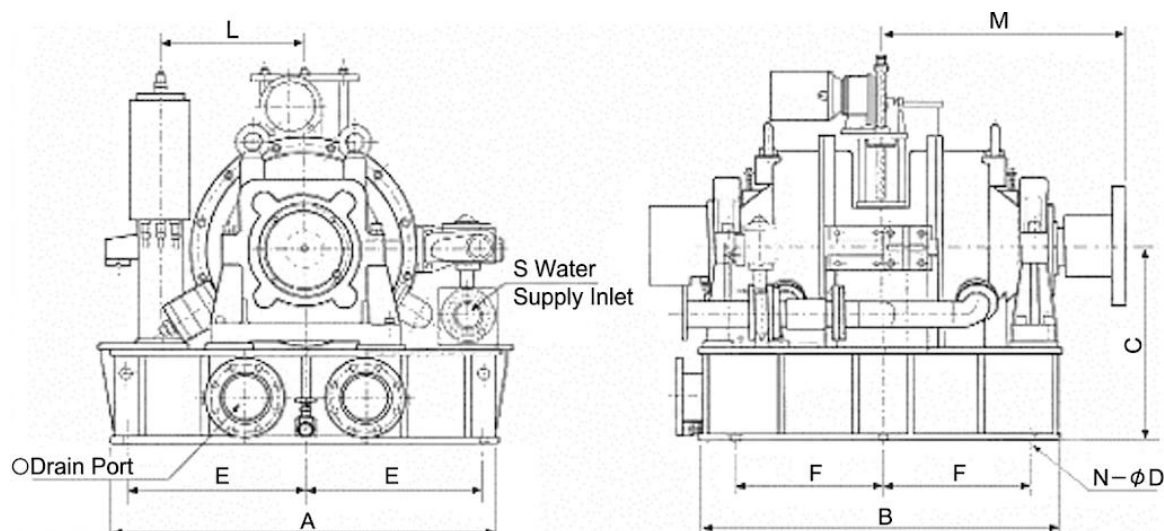
Model	Max power kW	Max torque Nm	Max speed min ⁻¹	Constant Torque range N.m	Moment of inertia kg.m ²	Required Water volume L/min
PRS-30A	480	1,800	5,300	834~2,546	0.437	275
PRS-35A	720	3,000	4,800	552~2,291	0.975	420
PRS-40A	1,000	5,600	3,400	553~1,705	1.88	570
PRS-45A	1,500	9,800	3,000	557~1,461	2.85	860
PRS-55A	2,200	15,000	2,500	487~1,400	8.165	1,260
PRS-60A	3,000	24,000	2,300	417~1,193	15.275	1,720
PRS-70A	4,000	37,000	2,000	354~1,032	31.225	2,290

※Cooling Water Flow: Theoretical water supply volume calculated at a supply temperature of 30 °C and a discharge temperature of 60 °C.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

■ Product lineup

○PRS-A type : Dry weight and principal dimensions



Model	Weight kg	Principle dimensions									
		A	B	C	E	F	N-φD	L	M	S(A)	O(A)
PRS-30A	1,100	950	820	600	420	320	4-24	358.1	500	50	125
PRS-35A	1,550	1,100	940	650	500	350	4-24	400	600	50	150
PRS-40A	1,600	1,100	970	650	500	350	4-24	375	635	50	150
PRS-45A	2,100	1,100	1,060	750	500	425	6-24	430	680	65	150
PRS-55A	3,500	1,400	1,200	750	650	500	6-24	500	835	80	150
PRS-60A	4,700	1,700	1,300	950	815	600	6-24	680	970	80	200
PRS-70A	7,500	1,980	1,750	1,100				800	1,085	100	200

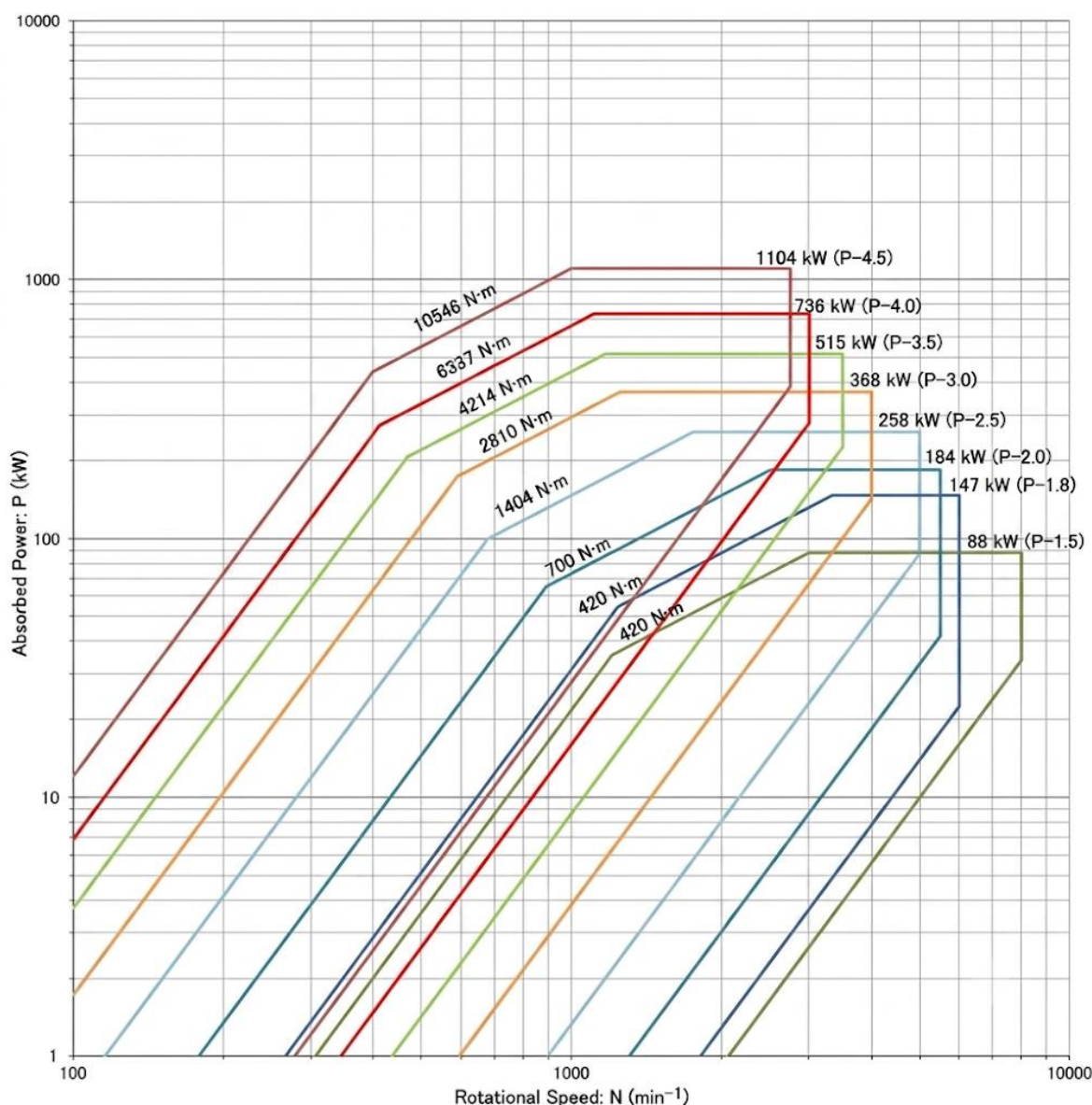
※Weight: Determined according to the base-frame specifications.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

Standard Accessories	• Dynamometer main unit, base frame, and load-control remote controller • Bearing temperature sensor • Cooling-water inlet temperature sensor • Discharge-water temperature sensor
Paid options	• Dynamo controller (manual or automatic control system) • Coupling flange on the dynamometer side • Calibration tools (equipment required for dynamometer calibration) • Bearing height adjustment device (facilitates height adjustment and alignment of the bearing) • Alignment base plate (allows X/Y/Z-direction adjustment to simplify alignment work) • Rapid load-variation device (optimal option for rapid load-variation testing) • Flow meter for cooling water • Water supply valve • Drain valve

■ Product lineup

- P type / Non-reversible: the controllable rotation direction is limited to one direction.
This product lineup is ideal for testing small to medium-sized gasoline or diesel engines.



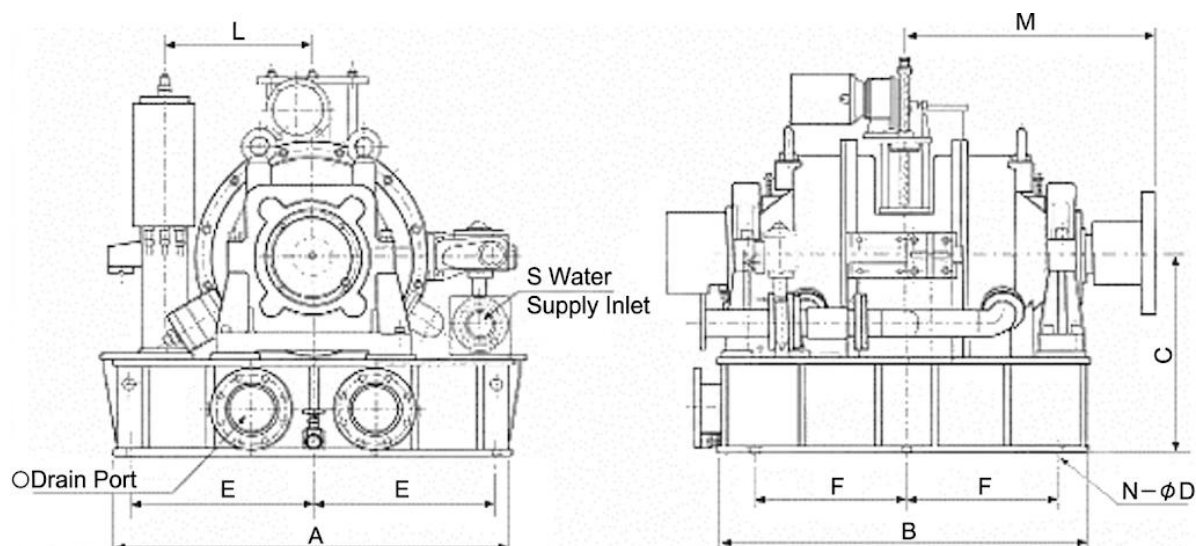
Model	Max power kW	Max torque Nm	Max speed min ⁻¹	Constant Torque range N.m	Moment of inertia kg.m ²	Required Water volume L/min
P-1.5	88	281	8,000	1,206~2,990	0.017	50
P-1.8	147	420	6,000	1,238~3,342	0.03	80
P-2.0	184	700	5,500	922~2,510	0.062	105
P-2.5	258	1,403	5,000	679~1,755	0.187	150
P-3.0	368	2,810	4,000	588~1,250	0.437	210
P-3.5	515	4,214	3,500	468~1,166	0.975	300
P-4.0	736	6,337	3,000	411~1,109	1.88	420
P-4.5	1,104	10,546	2,750	398~999	2.85	630

※Cooling Water Flow: Theoretical water supply volume calculated at a supply temperature of 30 °C and a discharge temperature of 60 °C.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

■ Product lineup

○P type : Dry weight and principal dimensions



Model	Weight Kg	Principle dimensions									
		A	B	C	E	F	N-φD	L	M	S(B)	O(B)
P-1.5	150	505	396	260	325	140	4-17	239	248	¾	1¼
P-1.8	250	535	440	280	330	155	4-17	239	271	1	2
P-2.0	340	640	600	320	370	215	4-17	287	330	1	2
P-2.5	420	740	630	370	460	230	4-17	358	378	1	2
P-3.0	750	870	700	460	400	400	4-21	358	430	1½	3
P-3.5	1,350	1,010	860	550	620	330	4-21	478	550	1½	3
P-4.0	1,800	1,120	1,000	590	630	430	4-21	478	619	2	3
P-4.5	2,200	1,190	1,140	590	625	515	6-20	478	676	2	3½

※Weight: Determined according to the base-frame specifications.

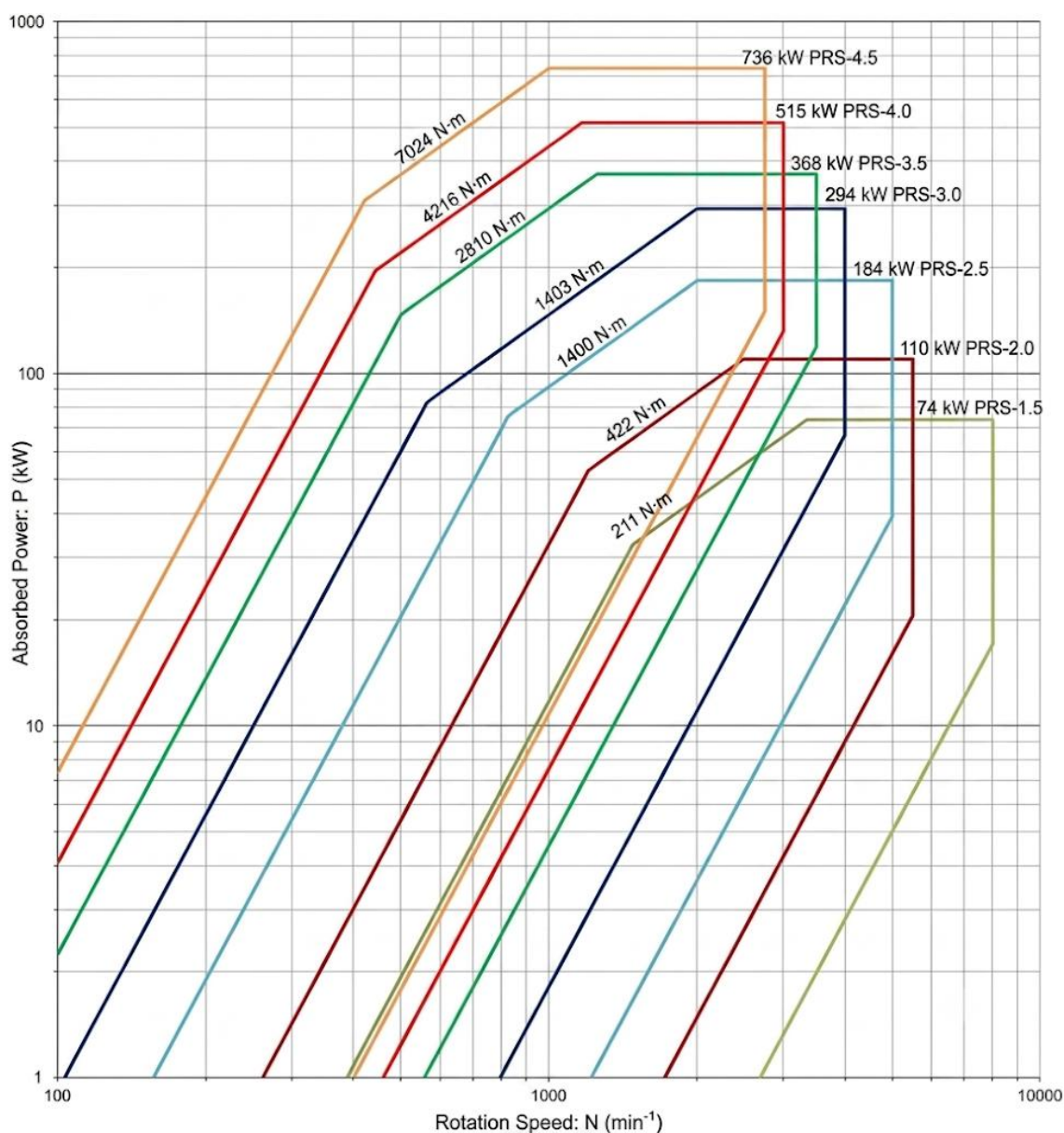
※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

Standard Accessories	- Dynamometer main unit, base frame, and load-control remote controller - Bearing temperature sensor - Cooling-water inlet temperature sensor - Discharge-water temperature sensor
Paid options	- Dynamo controller (manual or automatic control system) - Coupling flange on the dynamometer side - Calibration tools (equipment required for dynamometer calibration) - Bearing height adjustment device (facilitates height adjustment and alignment of the bearing) - Alignment base plate (allows X/Y/Z-direction adjustment to simplify alignment work) - Flow meter for cooling water - Water supply valve - Drain valve

■ Product lineup

○PRS type / Reversible: two rotation directions can be controlled .

This product lineup is ideal for testing small to medium-sized gasoline or diesel engines.



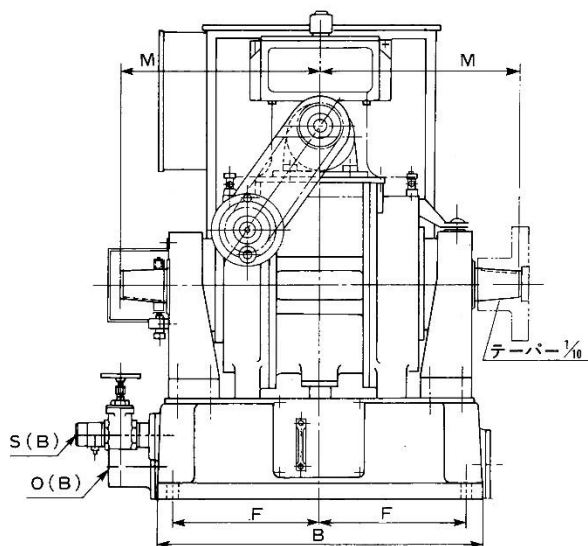
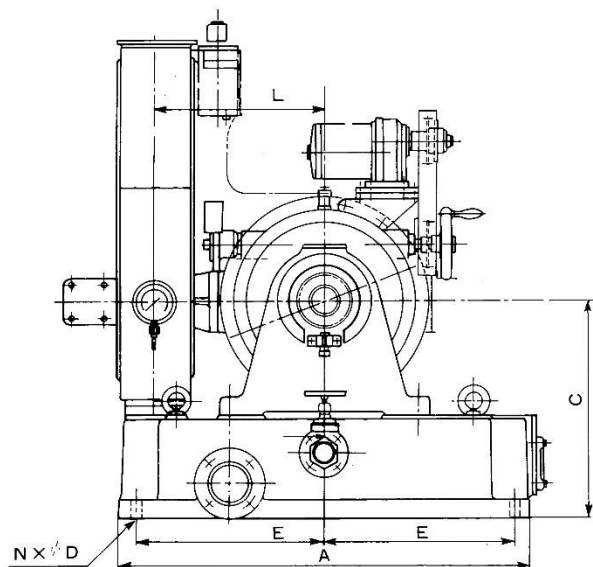
Model	Max power kW	Max torque Nm	Max speed min ⁻¹	Constant Torque range N.m	Moment of inertia kg.m ²	Required Water volume L/min
PRS-1.5	74	211	8,000	1,482~3,348	0.017	40
PRS-2.0	110	422	5,500	1,204~2,489	0.062	60
PRS-2.5	184	876	5,000	826~2,005	0.187	105
PRS-3.0	294	1,403	4,000	564~2,001	0.437	170
PRS-3.5	368	2,810	3,500	500~1,250	0.975	210
PRS-4.0	515	4,216	3,000	443~1,166	1.88	295
PRS-4.5	736	7,024	2,750	421~1,000	2.85	420

※Cooling Water Flow: Theoretical water supply volume calculated at a supply temperature of 30 °C and a discharge temperature of 60 °C.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

■ Product lineup

○PRS type : Dry weight and principal dimensions



Model	Weight Kg	Principle dimensions									
		A	B	C	E	F	N-ΦD	L	M	S(B)	O(B)
PRS-1.5	150	505	396	260	325	140	4-17	239	248	¾	1¼
PRS-2.0	340	640	600	320	370	215	4-17	287	330	1	2
PRS-2.5	520	740	630	370	460	230	4-17	358	378	1	2
PRS-3.0	750	870	700	460	400	400	4-21	358	430	1½	3
PRS-3.5	1,350	1,010	860	550	620	330	4-21	478	550	1½	3
PRS-4.0	1,800	1,120	1,000	590	630	430	4-21	478	619	2	3
PRS-4.5	2,200	1,190	1,140	590	625	515	6-20	478	676	2	3½

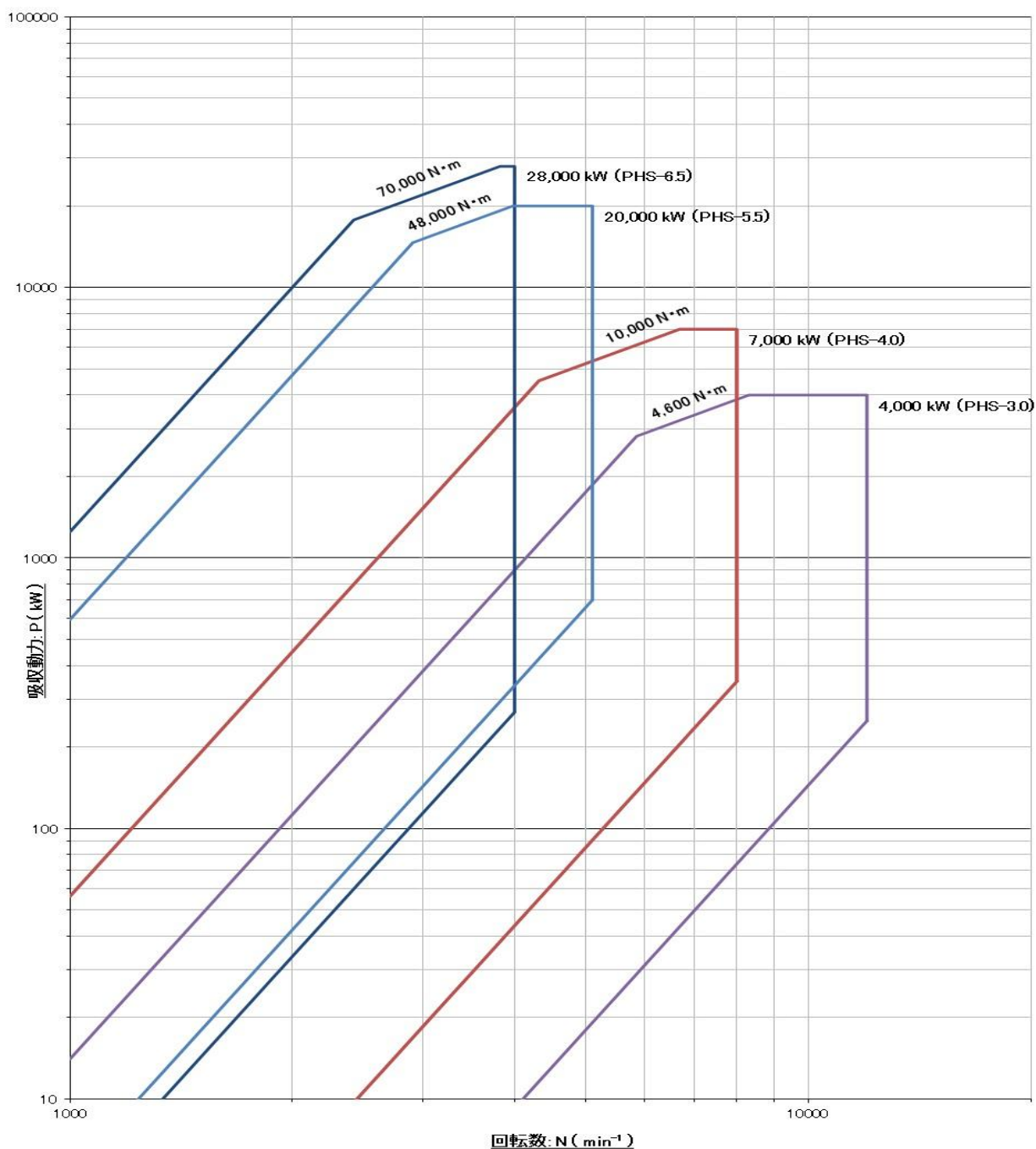
※Weight: Determined according to the base-frame specifications.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

Standard Accessories	• Dynamometer main unit, base frame, and load-control remote controller • Bearing temperature sensor • Cooling-water inlet temperature sensor • Discharge-water temperature sensor
Paid options	• Dynamo controller (manual or automatic control system) • Coupling flange on the dynamometer side • Calibration tools (equipment required for dynamometer calibration) • Bearing height adjustment device (facilitates height adjustment and alignment of the bearing) • Alignment base plate (allows X/Y/Z-direction adjustment to simplify alignment work) • Flow meter for cooling water • Water supply valve • Drain valve

■ Product lineup

- PHS type / Non-reversible: the controllable rotation direction is limited to one direction.
This product lineup is ideal for testing high speed turbine.

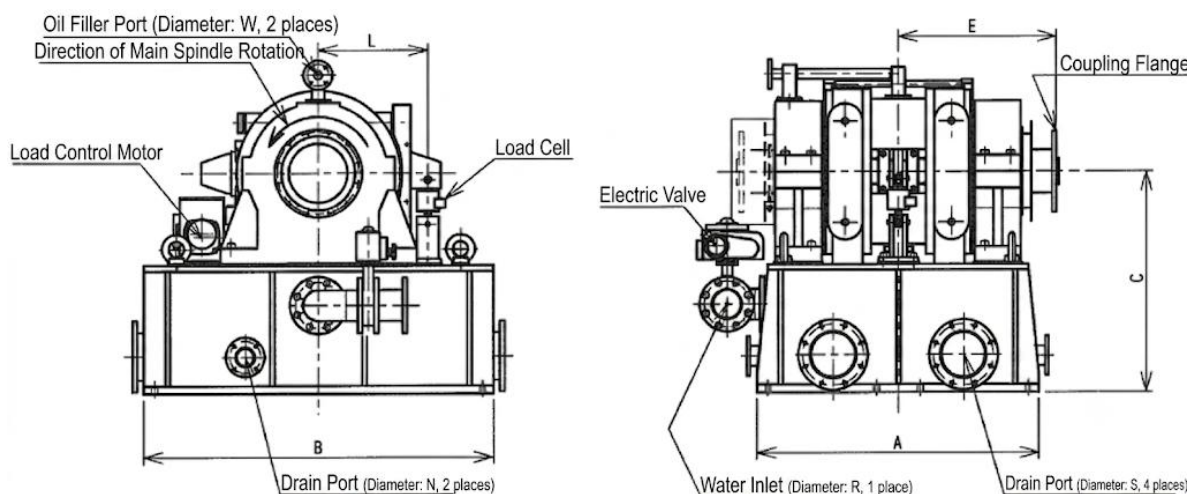


	kW	Nm	回転数: N (min ⁻¹)	N.m	kg.m ²	L/min
PHS-3.0	4,000	4,600	12,000	※	※	2,000
PHS-4.0	7,000	10,000	8,000	※	※	2,850
PHS-5.5	20,000	48,000	5,100	※	※	9,500
PHS-6.5	28,000	70,000	4,700	※	※	13,300

- ※Constant Torque Range: An item to be determined based on the customer's requirements.
 ※Moment of Inertia: An item to be determined based on the customer's requirements.
 ※Cooling Water Flow: Theoretical water supply volume calculated at a supply temperature of 30 °C and a discharge temperature of 60 °C.
 ※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

■ Product lineup

○PHS type : Dry weight and principal dimensions



Model	Weight Kg	Principle dimensions								
		A	B	C	E	L	M	N	R	S
PHS-3.0	3,200	1,100	1,200	860	525	500	25A	50A	100A	200A
PHS-4.0	7,000	1,300	1,600	1,000	730	500	25A	80A	100A	200A
PHS-5.5	16,000	2,500	2,680	1,400	1,268	1,000	40A	80A	250A	300A
PHS-6.5	26,000	2,600	2,680	1,460	1,300	1,000	40A	80A	300A	300A

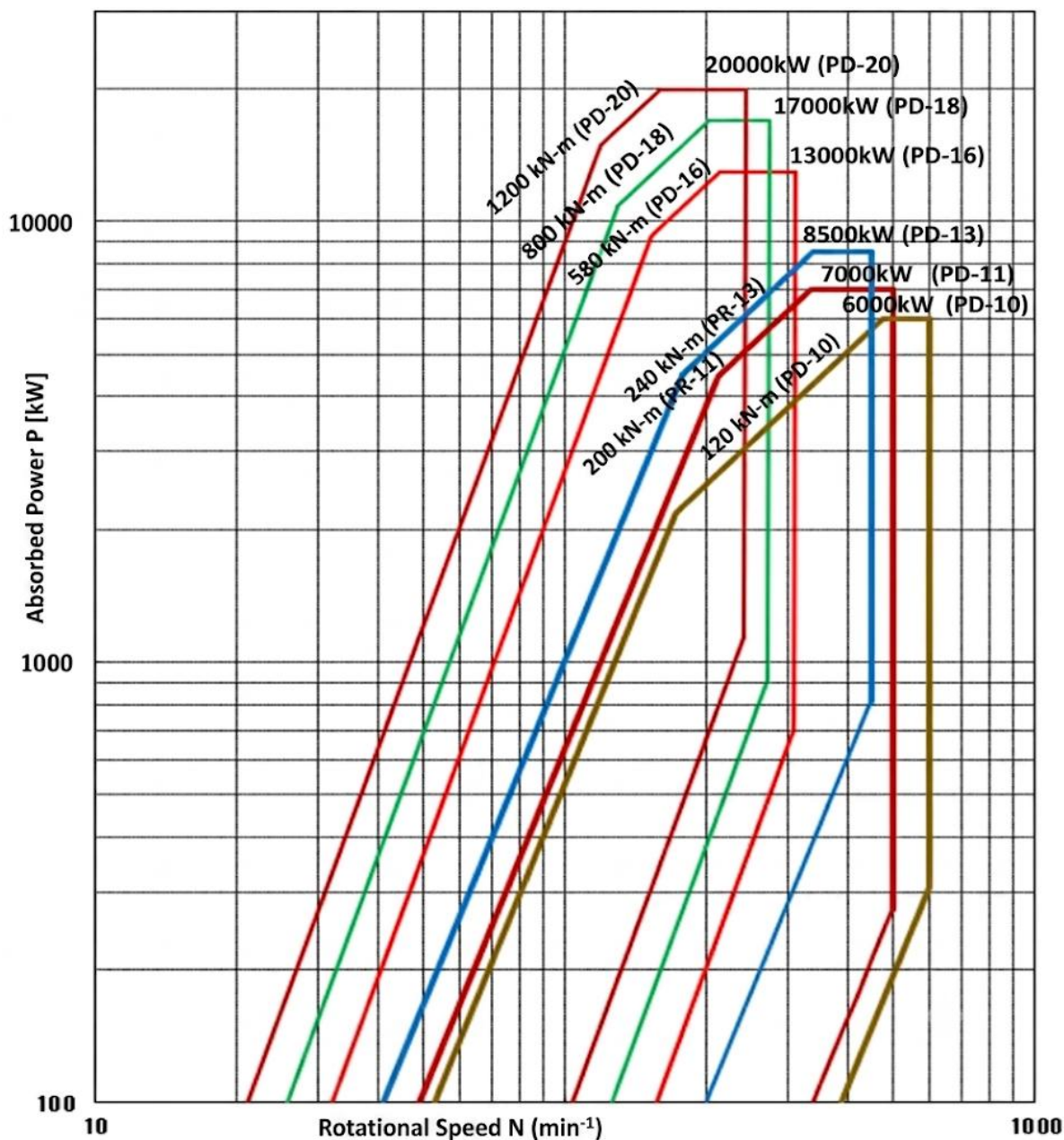
※Weight: Determined according to the base-frame specifications.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

Standard Accessories	- Dynamometer main unit, base frame, and load-control remote controller - Bearing temperature sensor - Cooling-water inlet temperature sensor - Discharge-water temperature sensor
Paid options	- Dynamo controller (manual or automatic control system) - Coupling flange on the dynamometer side - Calibration tools (equipment required for dynamometer calibration) - Bearing height adjustment device (facilitates height adjustment and alignment of the bearing) - Alignment base plate (allows X/Y/Z-direction adjustment to simplify alignment work) - Flow meter for cooling water - Water supply valve - Drain valve

■ Product lineup

- PD type / Non-reversible: the controllable rotation direction is limited to one direction.
This product lineup is ideal for testing large-sized marine engines.



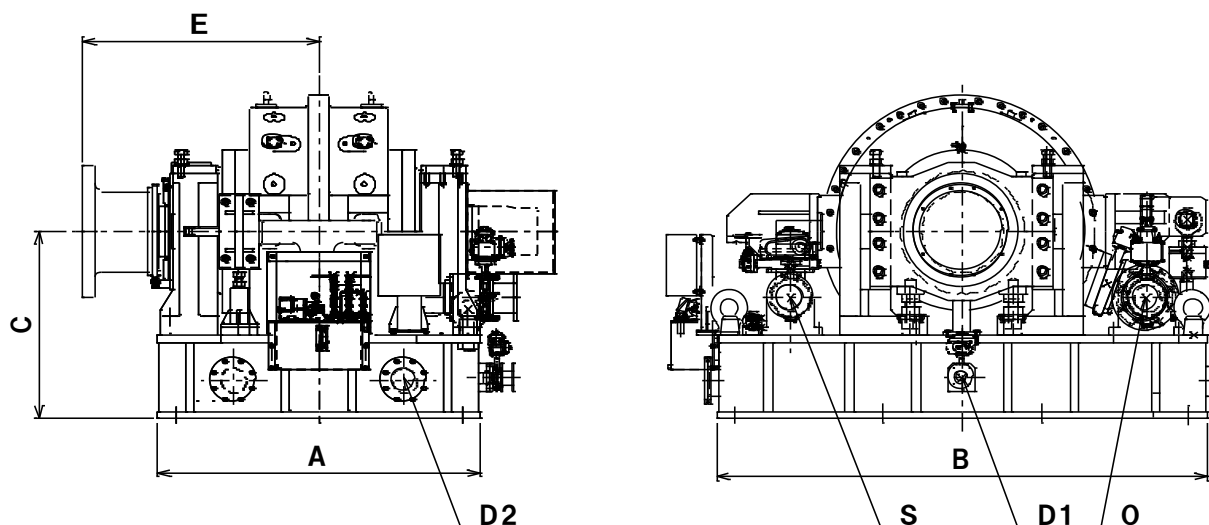
Model	Max power kW	Max torque kNm	Max speed min ⁻¹	Constant Torque range N.m	Moment of inertia kg.m ²	Required Water volume L/min
PR-10	6,000	120	600	173~477	120	3,440
PD-11	7,000	200	500	212~334	260	4,000
PD-13	8,000	240	450	178~338	450	4,870
PD-16	13,000	580	310	153~214	1,200	7,450
PD-18	17,000	800	270	130~203	2,100	9,750
PD-20	20,000	1,200	240	119~159	3,400	11,500

※Cooling Water Flow: Theoretical water supply volume calculated at a supply temperature of 30 °C and a discharge temperature of 55 °C.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

■ Product lineup

○PD type : Dry weight and principal dimensions



Model	Weight Kg	Principle dimensions							
		A	B	C	E	S	O	D1	D2
PD-10	9,000	1,500	2,200	900	1,100	125A	200A	50A	125A
PD-11	15,000	1,800	2,700	1,050	1,300	125A	200A	50A	125A
PD-13	20,000	2,000	2,900	1,200	1,400	150A	250A	65A	150A
PD-16	34,000	2,400	3,600	1,400	1,800	150A	250A	65A	150A
PD-18	50,000	2,800	4,000	1,600	2,050	200A	300A	80A	200A
PD-20	70,000	3,200	4,600	1,850	2,300	200A	300A	80A	200A

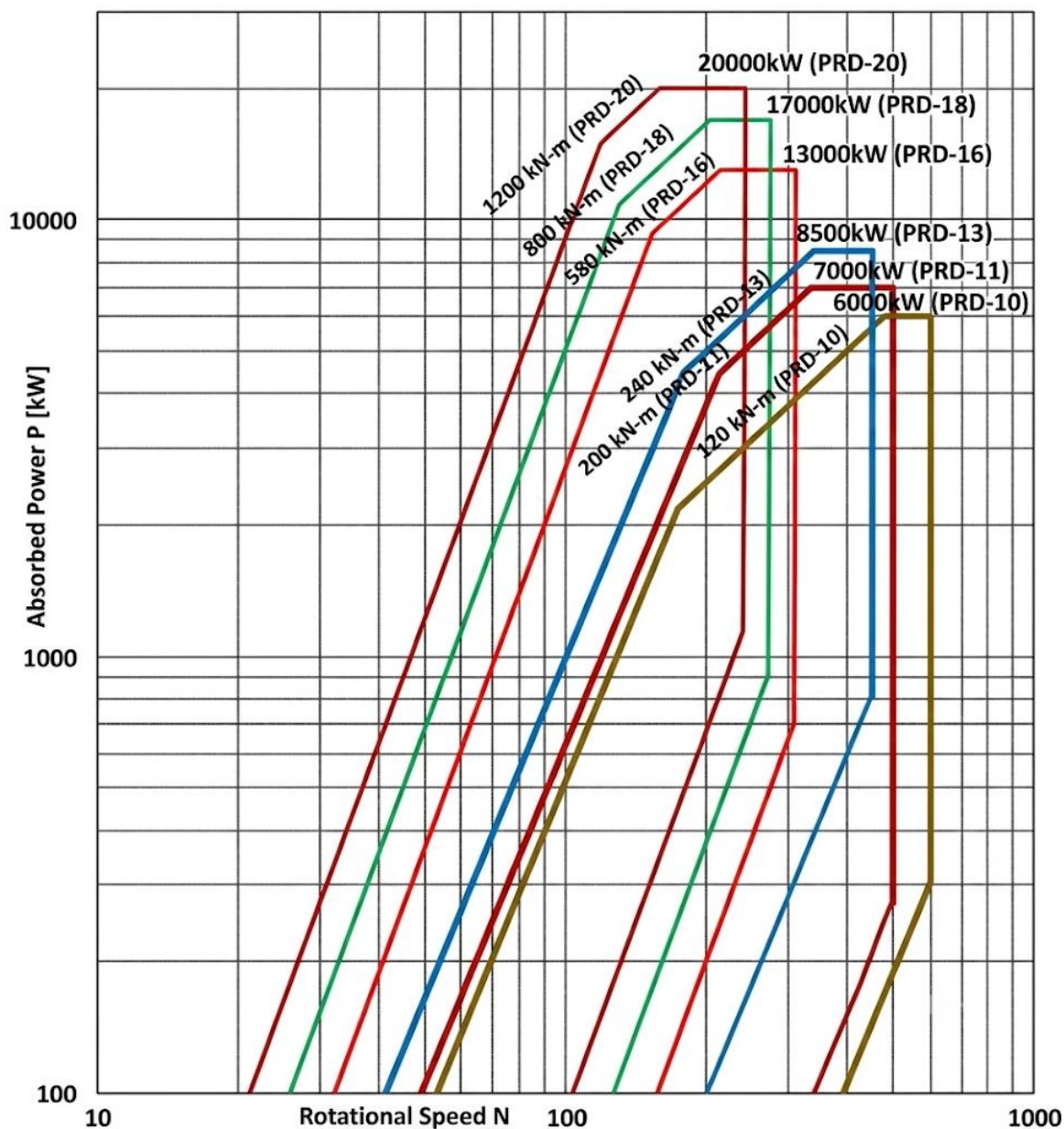
※Weight: Determined according to the base-frame specifications.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

Standard Accessories	- Dynamometer main unit, base frame, and load-control remote controller - Bearing temperature sensor - Cooling-water inlet temperature sensor - Discharge-water temperature sensor
Paid options	- Dynamo controller (manual or automatic control system) - Coupling flange on the dynamometer side - Calibration tools (equipment required for dynamometer calibration) - Bearing height adjustment device (facilitates height adjustment and alignment of the bearing) - Alignment base plate (allows X/Y/Z-direction adjustment to simplify alignment work) - Flow meter for cooling water - Water supply valve - Drain valve

■ Product lineup

- PRD type / Reversible: two rotation directions can be controlled .
- This product lineup is ideal for testing large-sized marine engines.



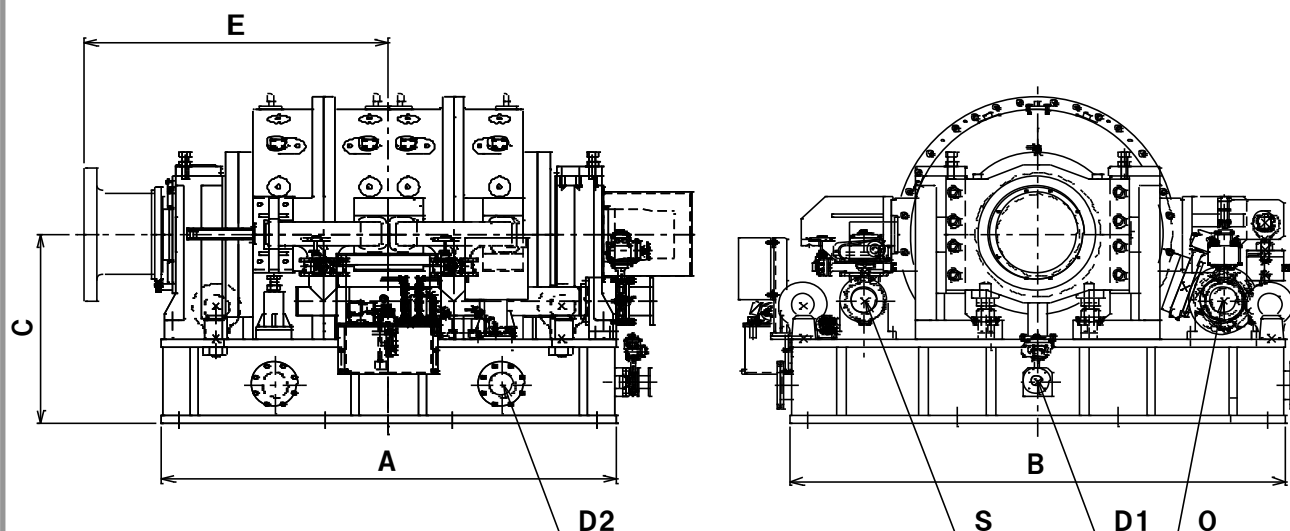
Model	Max power kW	Max torque kNm	Max speed min ⁻¹	Constant Torque range N.m	Moment of inertia kg.m ²	Required Water volume L/min
PRD-10	6,000	120	600	173~477	237	3,440
PRD-11	7,000	200	500	212~334	484	4,000
PRD-13	8,500	240	450	178~338	770	4,870
PRD-16	13,000	580	310	153~214	2,400	7,450
PRD-18	17,000	800	270	130~203	4,100	9,750
PRD-20	20,000	1,200	240	119~159	6,200	11,500

※Cooling Water Flow: Theoretical water supply volume calculated at a supply temperature of 30 °C and a discharge temperature of 55 °C.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

■ Product lineup

○PRD type : Dry weight and principal dimensions



Model	Weight Kg	Principle dimensions							
		A	B	C	E	S	O	D1	D2
PRD-10	13,000	2,100	2,200	900	1,400	125A	200A	50A	125A
PRD-11	23,000	2,500	2,700	1,050	1,600	125A	200A	50A	125A
PRD-13	30,000	2,800	2,900	1,200	1,800	150A	250A	65A	150A
PRD-16	50,000	3,400	3,600	1,400	2,300	150A	250A	65A	150A
PRD-18	70,000	3,800	4,000	1,600	2,500	200A	300A	80A	200A
PrD-20	100,000	4,400	4,600	1,850	2,800	200A	300A	80A	200A

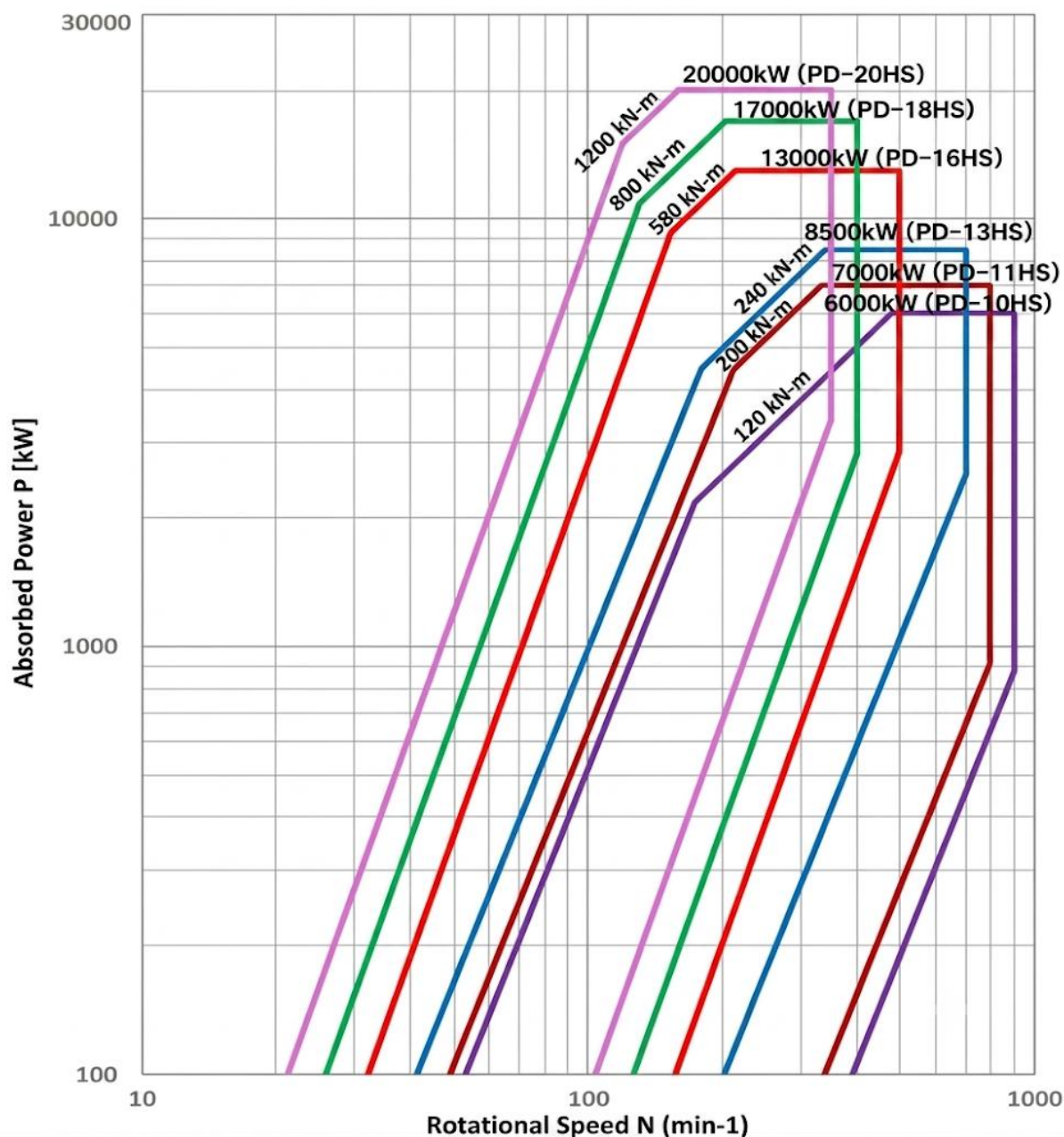
※Weight: Determined according to the base-frame specifications.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

Standard Accessories	• Dynamometer main unit, base frame, and load-control remote controller • Bearing temperature sensor • Cooling-water inlet temperature sensor • Discharge-water temperature sensor
Paid options	• Dynamo controller (manual or automatic control system) • Coupling flange on the dynamometer side • Calibration tools (equipment required for dynamometer calibration) • Bearing height adjustment device (facilitates height adjustment and alignment of the bearing) • Alignment base plate (allows X/Y/Z-direction adjustment to simplify alignment work) • Flow meter for cooling water • Water supply valve • Drain valve

■ Product lineup

○PD-HS type / Non-reversible: the controllable rotation direction is limited to one direction.
This product lineup is ideal for testing large-sized marine engines.



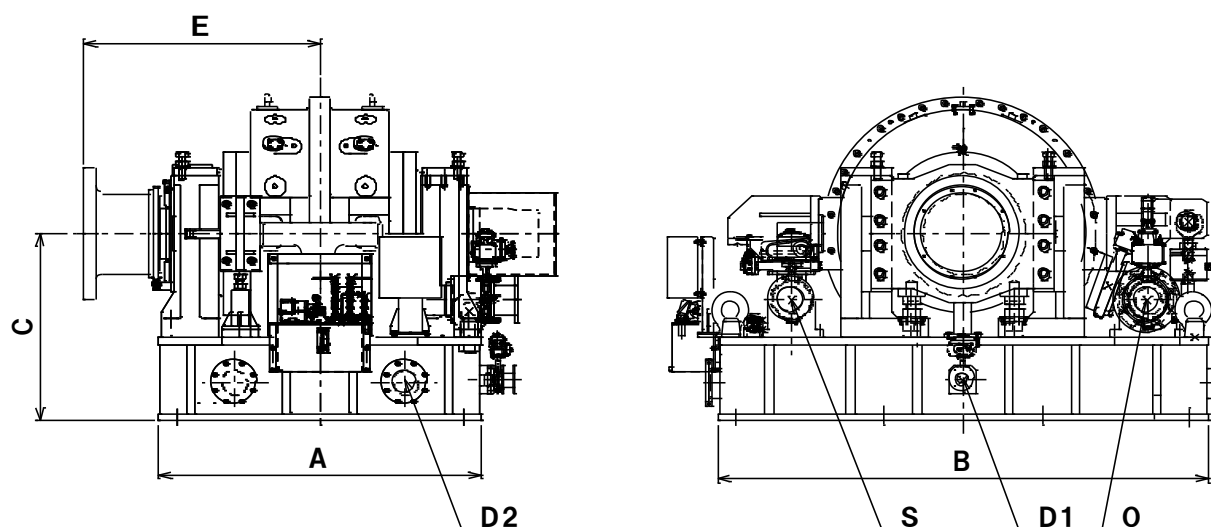
Model	Max power kW	Max torque kNm	Max speed min ⁻¹	Constant Torque range N.M	Moment of inertia kg.m ²	Required Water volume L/min
PD-10HS	6,000	120	900	173~477	120	3,440
PD-11HS	7,000	200	800	212~334	260	4,000
PD-13HS	8,500	240	700	178~338	450	4,870
PD-16HS	13,000	580	600	153~214	1,200	7,450
PD-18HS	17,000	800	500	130~203	2,100	9,750
PD-20HS	20,000	1,200	450	119~159	3,400	11,500

※Cooling Water Flow: Theoretical water supply volume calculated at a supply temperature of 30 °C and a discharge temperature of 55 °C.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

■ Product lineup

○PD-HS type : Dry weight and principal dimensions



Model	Weight Kg	Principle dimensions							
		A	B	C	E	S	O	D1	D2
PD-10HS	9,000	1,500	2,200	900	1,100	125A	200A	50A	125A
PD-11HS	15,000	1,800	2,700	1,050	1,300	125A	200A	50A	125A
PD-13HS	20,000	2,000	2,900	1,200	1,400	150A	250A	65A	150A
PD-16HS	34,000	2,400	3,600	1,400	1,800	150A	250A	65A	150A
PD-18HS	50,000	2,800	4,000	1,600	2,050	200A	300A	80A	200A
PD-20HS	70,000	3,200	4,600	1,850	2,300	200A	300A	80A	200A

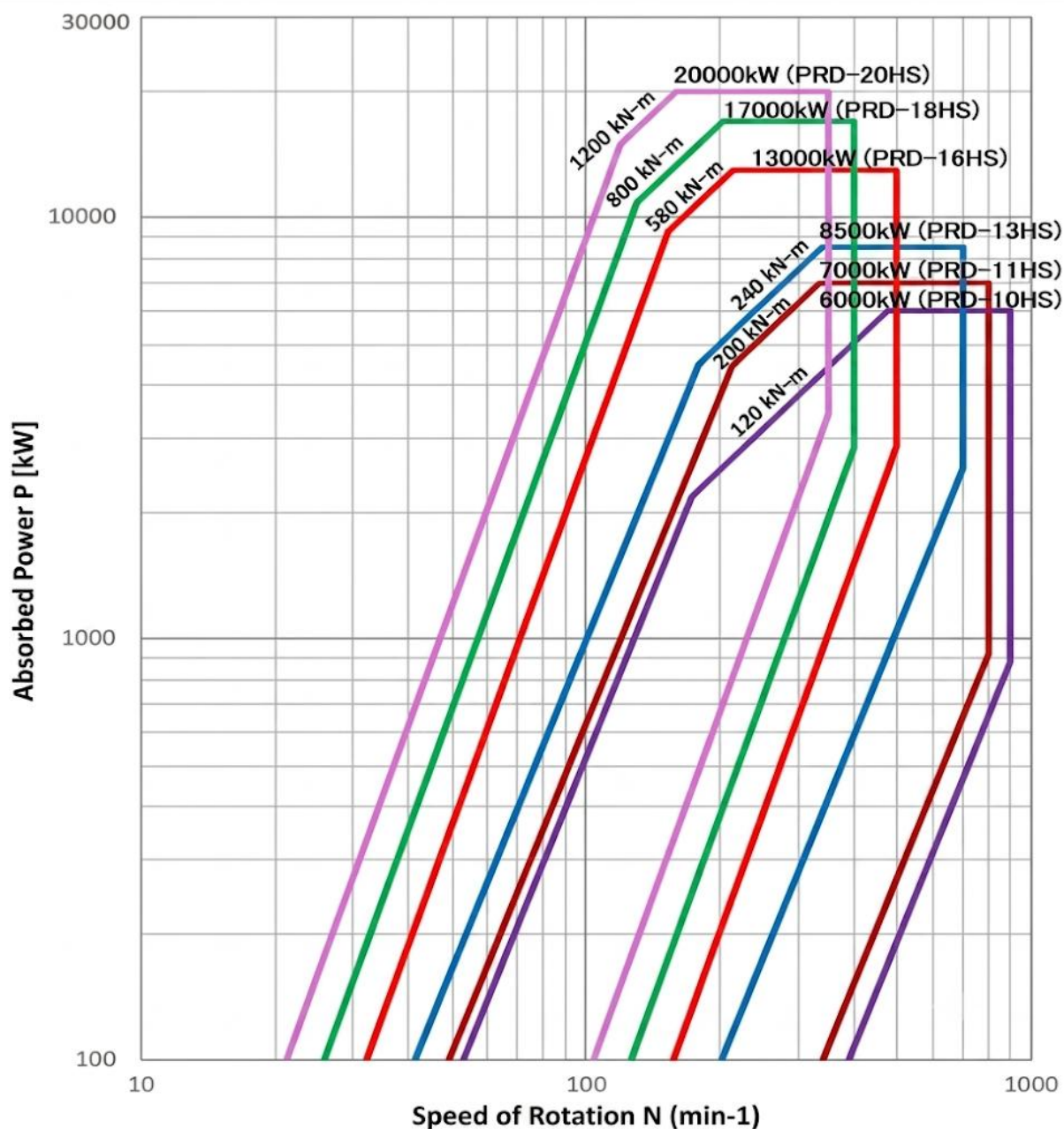
※Weight: Determined according to the base-frame specifications.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

Standard Accessories	• Dynamometer main unit, base frame, and load-control remote controller • Bearing temperature sensor • Cooling-water inlet temperature sensor • Discharge-water temperature sensor
Paid options	• Dynamo controller (manual or automatic control system) • Coupling flange on the dynamometer side • Calibration tools (equipment required for dynamometer calibration) • Bearing height adjustment device (facilitates height adjustment and alignment of the bearing) • Alignment base plate (allows X/Y/Z-direction adjustment to simplify alignment work) • Flow meter for cooling water • Water supply valve • Drain valve

■ Product lineup

- PRD type / Reversible: two rotation directions can be controlled .
- This product lineup is ideal for testing large-sized marine engines.



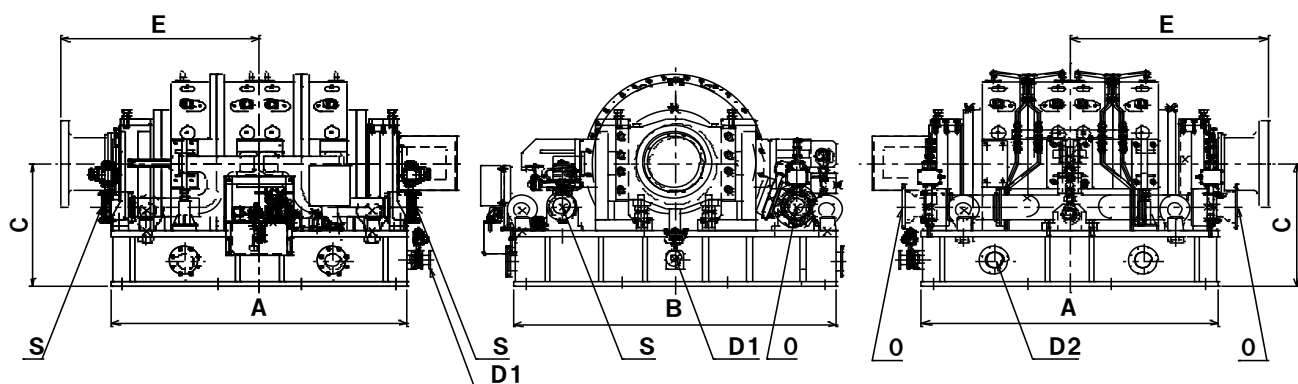
Model	Max power kW	Max torque kNm	Max speed min ⁻¹	Constant Torque range N.m	Moment of inertia kg.m ²	Required Water volume L/min
PRD-10HS	6,000	120	900	173~477	237	3,440
PRD-11HS	7,000	200	800	212~334	484	4,000
PRD-13HS	8,500	240	700	178~338	770	4,870
PRD-16HS	13,000	580	600	153~214	2,400	7,450
PRD-18HS	17,000	800	500	130~203	4,100	9,750
PRD-20HS	20,000	1,200	450	119~159	6,200	11,500

※Cooling Water Flow: Theoretical water supply volume calculated at a supply temperature of 30 °C and a discharge temperature of 55°C.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

■ Product lineup

○PRD-HS type : Dry weight and principal dimensions



Model	Weight Kg	Principle dimensions							
		A	B	C	E	S	O	D1	D2
PRD-10HS	14,000	2,200	2,200	900	1,400	125A	200A	50A	125A
PRD-11HS	24,500	2,600	2,700	1,050	1,600	125A	200A	50A	125A
PRD-13HS	32,000	2,900	2,900	1,200	1,800	150A	250A	65A	150A
PRD-16HS	53,000	3,500	3,600	1,400	2,300	150A	250A	65A	150A
PRD-18HS	75,000	4,000	4,000	1,600	2,500	200A	300A	80A	200A
PRD-20HS	110,000	4,600	4,600	1,850	2,800	200A	300A	80A	200A

※Weight: Determined according to the base-frame specifications.

※Specification Changes: Specifications are subject to change without prior notice due to improvements or updates.

Standard Accessories	• Dynamometer main unit, base frame, and load-control remote controller • Bearing temperature sensor • Cooling-water inlet temperature sensor • Discharge-water temperature sensor
Paid options	• Dynamo controller (manual or automatic control system) • Coupling flange on the dynamometer side • Calibration tools (equipment required for dynamometer calibration) • Bearing height adjustment device (facilitates height adjustment and alignment of the bearing) • Alignment base plate (allows X/Y/Z-direction adjustment to simplify alignment work) • Flow meter for cooling water • Water supply valve • Drain valve

■ Lineup of Optional Products

○Dynamometer controller(Automatic type)



This controller is a dedicated controller for hydraulic dynamometers. It is a measurement and feedback-control system that performs testing of the specimen using a hydraulic dynamometer. It is equipped with rotation-speed and torque measurement functions, control functions for manual or automatic control of the unit under test's rotation speed and torque, and alarm functions that detect and handle system abnormalities.

○Main specifications

Model	HDYC-1000
Control mode	Manual Control —The load-valve opening of the water dynamometer is adjusted according to the encoder dial setting operated manually, thereby regulating the engine torque and speed. Constant-Speed Control —Feedback control is executed to maintain the specified rotational speed. Constant-Torque Control —Feedback control is executed to maintain the specified torque. Marine-Characteristic Control —Load is calculated from the torque coefficient proportional to the square of the rotational speed, and cubic-characteristic control is performed. External Control —Programmed operation and measurement are performed from an external upper-level control system.
Accuracy	Depending on the condition of the engine and dynamometer, the PID tuning settings, and the influence of cooling-water pressure, the control accuracy may not fall within the specified range.
Alarm set and monitor	Emergency Stop —When an abnormal condition occurs, pressing the emergency button stops the control operation. Overspeed Protection —Monitors the upper limit of the dynamometer's maximum rotational speed. Overload Protection —Monitors the upper limit of the dynamometer's maximum torque. Cooling-Water Inlet Temperature Monitoring —Monitors the cooling-water temperature of the dynamometer (35 °C). Discharge-Water Temperature Monitoring —Monitors the discharge-water temperature of the dynamometer (60 °C). Bearing Temperature Monitoring —Monitors the bearing temperature of the dynamometer (80 °C). External Alarm Input —Monitors externally connected equipment via contact-signal input.
Input/Output	Analog voltage input/output (0–10 V), analog current output (4–20 mA), and Form-A contact.
Power supply	Three-phase AC 200 V, 50/60 Hz, 15 A
Main	Main Unit: W480 × H249 × D430 mm When Stored in Rack: W520 × H543 × D600 mm
Weight	Approximately 50 kg including the main unit, storage rack, and power panel

■ Lineup of Optional Products

○Dynamometer controller(Manual control type)



This controller is a measurement and manual-control system designed for testing specimens using a hydraulic dynamometer. It is equipped with rotation-speed and torque measurement functions, manual control functions for regulating the unit under test's speed and torque, and alarm functions that detect and process system abnormalities. The system allows for easy and intuitive operation.

○Main specifications

Model	TP-1000A
Control mode	Manual Load Control By pressing the operation buttons, the load-control motor drives the load valve to open or close, thereby increasing or decreasing the absorbed torque.
Accuracy	Speed Measurement Display —Complies with the specifications of the display manufacturer. Torque Display Accuracy —Complies with the specifications of the display manufacturer. Note: Depending on the condition of the engine and dynamometer, as well as the influence of cooling-water pressure, the measurement accuracy may not fall within the specified range.
Alarm set and monitor	Dynamometer Oil Lubrication —The oil flow rate is monitored by a flow indicator. Alarm Response Procedure When an alarm occurs, return the engine to idle and keep pressing the load-decrease button to reduce the load to its lower limit.
Input/Output	Analog voltage input/output (0–10 V) and contact-signal input
Power supply	Three-phase AC 200 V, 50/60 Hz, 15 A
Main	Main Unit: W480 × H249 × D430 mm When Stored in Rack: W520 × H543 × D600 mm
Weight	Main Unit: approximately 20 kg (approximately 50 kg when including the storage rack and power panel)

■ Paid Optional Products

○Automation system MORPHEE



MOPRHEE main screen (Reference)

Product Overview

This system provides essential functions for test benches, including data acquisition, programmed operation, and test-sequence configuration. In addition to these core capabilities, it implements a comprehensive set of advanced features such as automation, integration with ECU calibration workflows, and real-time model execution on the test bench.

These functions enhance the reliability of testing on the bench and contribute to reducing workload in bench testing, vehicle testing, and calibration processes.

MORPHEE is developed and distributed by ENORISE.

○Sensor terminal box (MIO)



Product Overview

In engine and drivetrain bench testing, highly robust and scalable I/O modules are essential.

The sensor relay box allows flexible configuration of modules and signal types—such as temperature, pressure, analog, digital, and contact signals—based on the customer's specific requirements.

○Product Overview

We provide various utilities required for test benches according to customer requirements.

To reduce engine torsional vibration, we also perform optimal selection of shafts and dampers.



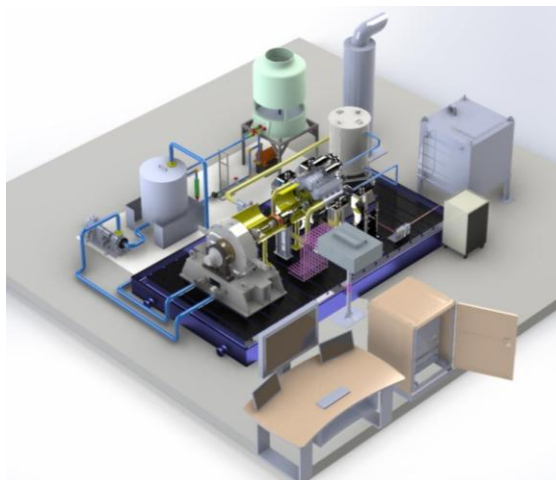
Engine Mounts and Mobile Universal Base



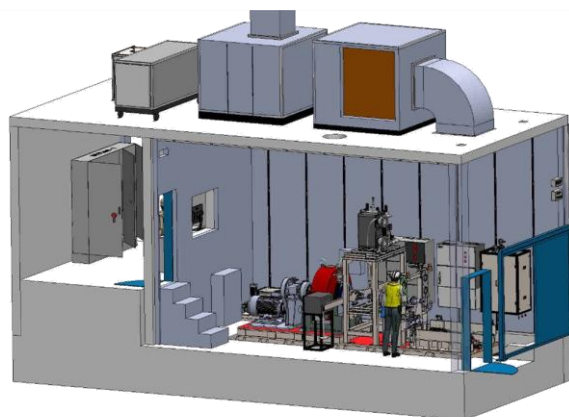
Shafts, Dampers, Custom Adapters, and Safety Covers for Shafts

■ Turn-key project

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, resulting in a high workload for facility engineers and a greater need for outsourcing various tasks. We participate from the customer's planning stage to support the entire process.



- ✓Startup of entire engine test facility
- ✓Test cell renovation
- ✓Startup of engine production line



Upgrade or Installation of auxiliary equipment
Cooling tower, power-receiving panel, air-conditioning system, T-slot surface plate, custom silencer, intake/exhaust system, fuel-supply system, and more.



Hydrogen engine technical center

■ Maintenance and after-sales service

Even people who pay close attention to their daily health can only make a rough judgment about how they feel on a given day; without the support of a specialist, it is impossible to accurately understand the internal condition of the body.

Similarly, test equipment experiences slight wear on numerous components each time a test is performed. The oil used to minimize this wear also deteriorates and is consumed over time and with repeated operation. Because test equipment does not possess the natural ability to regenerate, its condition must be checked through regular maintenance. By performing the necessary servicing, the equipment can be kept in optimal condition.

Regular maintenance is essential to ensure accurate data measurement on test equipment.



Regular maintenance prevents failures before they occur.

Especially in continuous endurance testing or other harsh operating conditions, bearings and various seals wear out more quickly and therefore require periodic replacement. After maintenance is completed, we perform detailed inspections—such as calibration checks and operational tests—before shipment to ensure the equipment's condition. Only test systems that meet our strict quality standards are delivered back to the customer.

Recommendation for Regular Inspections

To ensure continuous and accurate data acquisition on test benches, we recommend performing regular inspections once every six months to one year, in addition to routine maintenance. Our engineers can provide on-site service anywhere in Japan and worldwide. (Regular maintenance and periodic inspections are offered as paid services.)

■ Spare Parts and Calibration Services

We can supply individual spare parts for dynamometers, including load cells, rotation detectors, and other sensors. We also provide calibration services for load cells and display units, with pickup and return handling. Please contact us when calibration is required according to your internal maintenance schedule. (Advance reservation is necessary.)



■ Related products

○ Potable type hydraulic dynamometer

Our company is the only manufacturer in Japan that develops, designs, produces, and sells portable water-type dynamometers. We offer a product lineup ranging from 10 kW to 370 kW. Thanks to their high portability and low operating cost, these dynamometers enable efficient engine load-performance testing and are highly regarded by customers. They have been adopted by many users both in Japan and overseas.



For further details, please refer to the product catalog for our portable type hydraulic dynamometers.

■ Rental and Refurbished hydraulic dynamometers

Reducing Initial Costs

To meet customer needs, we offer rental services and refurbished (rebuilt) dynamometers.

Typical Customer Requirements

Sudden testing schedules requiring immediate access to a dynamometer.

Insufficient budget allocation.

Preference to expense the cost rather than capitalize the asset.

Rental

Maximum rental period: 2 years

Inventory is limited; please contact us for availability each time.

Refurbished Units

Fully overhauled products (nearly equivalent to new condition)

One-year warranty included

Note: Coupling flanges and mounting bases (height adjustment) must be newly manufactured.

Calibration Certificate

A calibration certificate for the dynamometer—required for ISO compliance and similar standards—will be provided.

Inquiry Process

Please feel free to contact our sales representatives by phone, email, or through our website.

○Frequently Asked Inquiries

Planning

Please share your plans for test cell and test bench commissioning, equipment upgrades, or modifications.

Quotation

Please provide information on the intended use of the dynamometer, test contents, engine specifications, measurement items, test patterns, and schedule.

Repair inspection

Please provide the model and serial number of the product you are using, as well as your preferred date and time for the requested service.

Technical questions

If you have any questions regarding the product's structure or operating principles, please let us know.
We will connect you with our technical specialists.

Products Handling

If you have any questions regarding product operation or usage, please let us know.
We will connect you with the product specialist.

Other inquiries

If you have any requests, comments, or questions, please let us know. We will connect you with the appropriate product specialist.

Any information you provide during inquiries or discussions will be handled with strict confidentiality. We take full responsibility for ensuring that all such information is securely managed within our company.



Contact Information

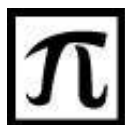
Tokyo Plant Co., Ltd. – Sales Department

515-5 Miyazawa-cho, Akishima, Tokyo 196-0024, Japan

TEL: +81-42-546-6500 FAX : +81-42-546-6600

URL : www.tokyo-plant.co.jp

E-mail: sales@tokyo-plant.co.jp



Since 1948