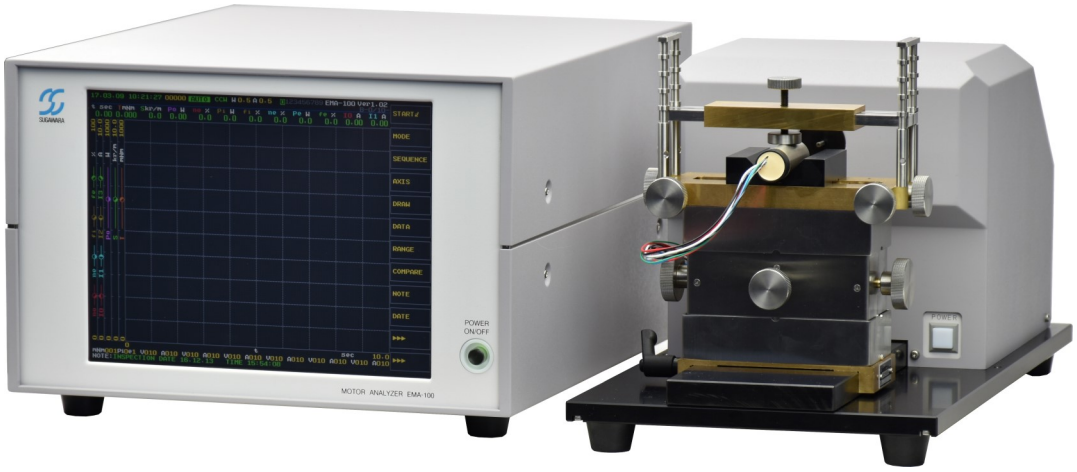
# Ultrahigh-Speed Dynamometer

SUGAWARA

**Measures high speed motors up to 120,000 rpm using a hysteresis brake**

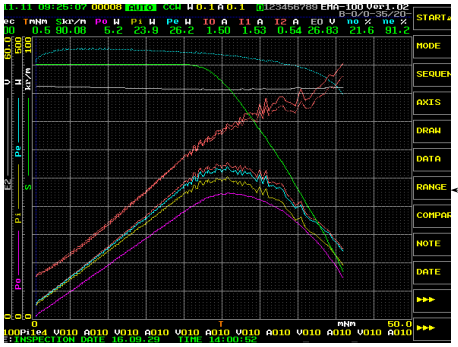
The demand for small-sized, high-output, and energy-efficient motors is increasing. Sugawara's ultrahigh-speed dynamometer system EMA-100/EMM-100M is an essential item for development of automotive motors, vacuum cleaner motors, and dental motors, and for QC of products using ultrahigh-speed motors.



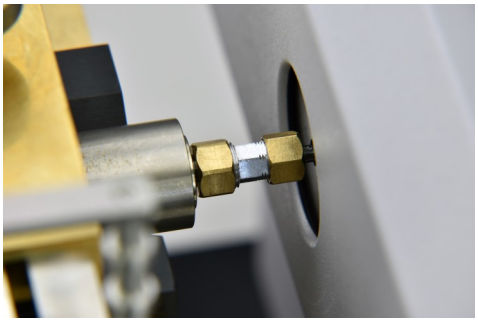
EMA-100 EMM-100M

■ Main features

- Maximum speed 120,000 rpm, maximum torque 100 mN·m
- Stable load control from motor standstill to ultrahigh-speed using newly developed hysteresis brakes
- Extremely small brake-rotor inertia enables measurement of motors with small starting torque.
- Safe and simple measurement using a highly accurate motor fixture and novel coupling (patented)
- Connected to the power meter WT1800E, it displays 22 measurement items including torque, speed, voltage, and current in real time.
- A variety of torque control modes, including point measurement, sweep measurement, and load simulation

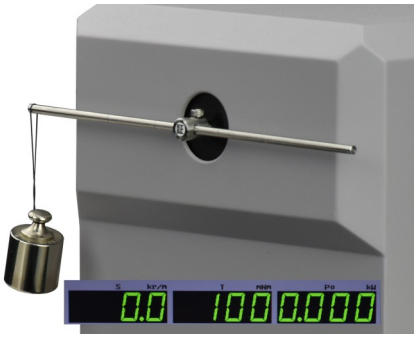


Motor Analyzer EMA-100 analyzes multifaceted motor characteristics and displays the result as numerical values and by graphs.



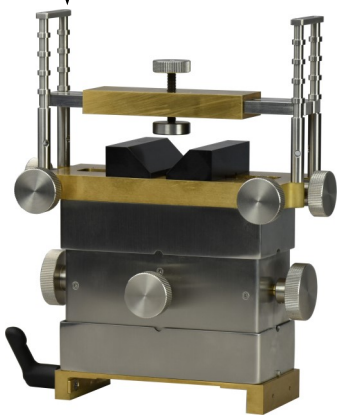
A novel coupling (patented) based on new technology enables stable fixing of ultrahigh-speed rotating shafts.

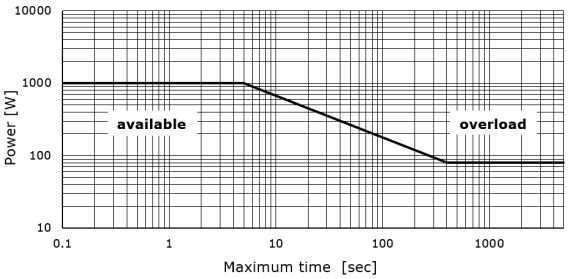




The hysteresis brake enables easy and reliable torque calibration in an actual measurement state using calibration bars and weights.

The motor fixture can adjust XYZ positioning in micrometer units, enabling precise alignment essential to ultrahigh-speed measurements.






Power absorption curve

Adoption of a hysteresis brake enables a maximum torque of 100 mN·m at any speed from 0 to 120,000 rpm.

## ■Specifications

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|---|---|
| Torque rating | 100 mN·m |
| Torque accuracy | ±0.5% of full scale |
| Maximum speed | 120,000 rpm |
| Braking system | Hysteresis brake |
| Brake support methods | Ball bearings |
| Moment of inertia of brake rotor | $1.5\times10^{-6}$ kg·m$^2$ |
| Power absorption | Continuous: 80 W<br>Within 10 s: 600 W / Within 5 s: 1000 W |
| Measurable motor shaft diameter | 3–5 mm |
| Power supply | 100–240 VAC, 50/60 Hz |
| Dimensions (W×H×D), weight | EMA-100: 315×218×400 mm, 14 kg<br>EMM-100M: 230×250×400 mm, 16.5 kg |

**DANGER** Damage and scattering of the coupling during measurement may cause injury. Always use the safety cover.

*Data measurement services using Sugawara Laboratories' torque dynamometers are available. Please visit the Sugawara Laboratories website for more information.

Specifications are subject to change without prior notice for improvement.

**Products: Xenon Flash, Torque Dynamometers, Bearing Inspection Systems, etc.**

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