



Total Solution from HORIBA's Hybrid Team



Comprehensive Test Stand Solution for Electric Motor Development, Validation, and Durability Testing

Electric Motor Test Stand TITAN-EMTS

Versatile Application Support

Electric Motor Test Stand (EMTS) series is a complete development and testing solution for electric motors (E-motor) and components related to PHV, HV and extended range EV. Optimized to E-motor specifications and test cycles, the system offers broad application support for:

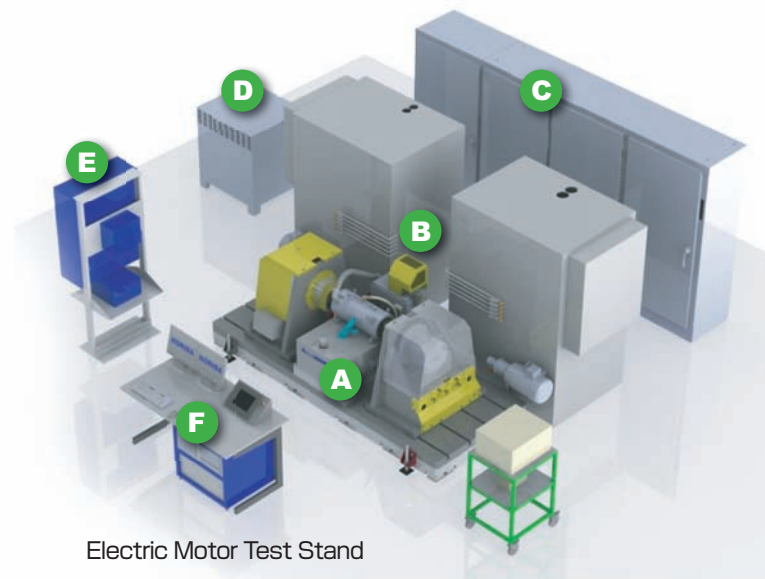
- Evaluation and Development of Thermal Management Systems
- Power and Efficiency Measurements
- Torque Analysis
- Accelerated Life Cycle Testing
- E-Component Validation
- Vehicle Range Studies
- Optimization of Energy Management System Controls

Rugged Mechanical Design

The central feature of EMTS is a high-speed, low-inertia, liquid-cooled dynamometer engineered specifically for E-motors. Available in single-ended and double-ended configurations, this proven dynamometer has a very stiff shaft, provides 200% overload, and maintains full torque at zero speed. The E-motor housing is custom designed to duplicate in-vehicle geometry. E-motor lubrication and forced cooling/heating are integral features of the housing.

Temperature Extremes for Endurance Testing

Internally and externally sealed, the E-motor housing supports hot and cold temperature cycles from -40°C to +120°C for accelerated life cycle (endurance) testing. Condensate and corrosion mitigation reduce maintenance. The optional Fluid Conditioning Units are capable of handling multiple fluids (ethylene glycol and ATF) depending on customer requirements.



Electric Motor Test Stand

- A** AC Dynamometer, Headstock, Bedplate
- B** Fluid Conditioning Units (Optional)
- C** SPARC Controller, AC Motor Inverter, Battery Simulator
- D** Drive Isolation Transformer
- E** Interface & Lockout Enclosure with Power Quality Analyzer for TPIM
- F** STARS Test Automation System

Advanced Simulation & Measurement

EMTS incorporates HORIBA's Virtual Battery Solution, allowing E-motors to be tested with accurate simulation of in-vehicle battery performance. A fully integrated power analyzer precisely measures electric motor efficiency and torque-speed characteristics. Stored data can be used to generate efficiency maps of the E-motor specimen.

HybridTeam

Electric Motor Test Stand with Environmental Housing and Battery Simulation

Proven Dynamometer Design

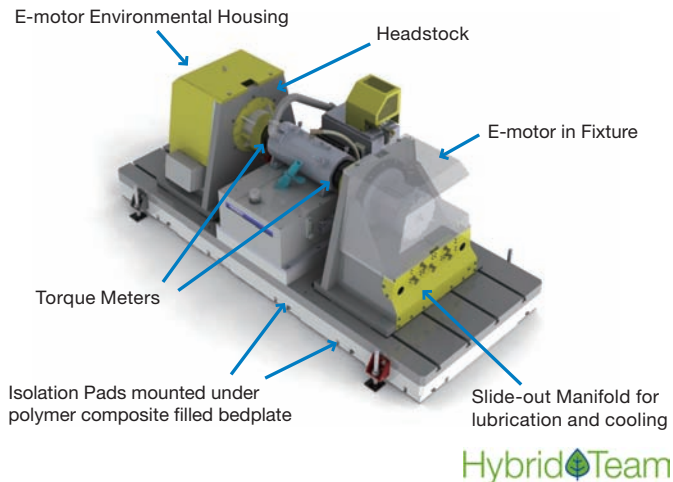
- Single- or double-ended configuration
- High-speed, low-inertia design specifically for E-motors
 - Speed: up to 18000 rpm single-ended; up to 12500 rpm double-ended
 - Inertia: 0.1 kg/m² or less
- Excellent torque density and extremely quiet operating levels
- Extremely rigid steel base and stiff shaft

Space-Efficient Bedplate

- Provides excellent vibration dampening with polymer composite material filling
- Isolation pads reduce the vibration amplitude and decouple the system from the test cell floor
- Leveling features assure easy and proper installation
- Can be mounted on industrial flooring
- Precision T-Slot allows the headstock to translate axially without having to realign the system

Headstock Engineered for Ease of Use

- Easy setup with specially designed piloted inserts for E-motor fixtures
- Simplified maintenance with slide-out lubrication and cooling unit
- Separate circuits for E-motor lubrication and for thermal cycling provide maximum flexibility, ease of E-motor installation, and thermal transfer
- Axial translation allows easy access to both ends of the dynamometer for E-motor/shafting changes and torque calibration



Please read the operation manual before using this product to assure safe and proper handling of the product.

<http://www.horiba.com> e-mail: info@horiba.co.jp

● **HORIBA, Ltd.**
Head Office
Miyano Higashi, Kisshoin
Minami-ku, Kyoto Japan
Phone: 81 (75) 313-8123
Fax: 81 (75) 321-5725

● **Tokyo Sales Office**
1-7-8 Higashi-Kanda
Chiyoda-ku, Tokyo, Japan
Phone: 81 (3) 3861-8231
Fax: 81 (3) 3861-8259

● **TAIWAN Representative Office**
3F, NO.18 Lane 676, Chung
Hua Rd, Chupei City,
Hsinchu Hsien, 302, Taiwan
Phone: 886 (3) 656-1012
Fax: 886 (3) 656-8231

● **HORIBA TRADING (SHANGHAI) CO., Ltd.**
Shanghai Office
Room 1701, United Plaza,
1468 Nanjing Rd. West,
Shanghai, 200040, China
Phone: 21-6289-6060
Fax: 21-6289-5553

● **HORIBA KOREA Ltd.**
112-6 Sogong-Dong
Choong-ku, Seoul, Korea
Phone: 82 (2) 753-7911
Fax: 82 (2) 756-4972

● **HORIBA INSTRUMENTS Pte. LTD.**
10 Ubi Crescent
#05-11/12, Ubi Techpark
Singapore 408564
Phone: 65 6745-8300
Fax: 65 6745-8155

● **HORIBA India Private Limited Delhi Office**
1212A, Hemkunt Tower,
95 Nehru Place,
New Delhi - 110019 INDIA
Phone: +91 11-4669-5001/5002
Fax: 1 (949) 250-0924

● **HORIBA INSTRUMENTS INCORPORATED Irvine Facility**
17671 Armstrong Avenue
Irvine, CA 92614, U.S.A.
Phone: 1 (949) 250-4811
Fax: 1 (949) 250-0924

● **Ann Arbor Facility**
5900 Hines Drive
Ann Arbor, MI 48108
U.S.A.
Phone: 1 (734) 213-6555
Fax: 1 (734) 213-6525

● **Troy Facility**
2890 John R. Road
Troy, MI 48063
U.S.A.
Phone: 001 (248) 6899000
Fax: 001 (248) 6898578

● **HORIBA INSTRUMENTS LIMITED**
Kyoto Close
Summerhouse Road
Moulton Park, Northampton
NN3 6FL, U.K.
Phone: 44 (1604) 542500
Fax: 44 (1604) 542699

● **HORIBA GmbH**
Kaplanstrasse 5
A-3430 Tulln,
Austria
Phone: 43 (2272) 65225
Fax: 43 (2272) 65230

● **HORIBA CZECHIA**
Organizaci slozka Praha
Petroltradska 13
CZ-101 00 Praha 10,
Czech Republic
Phone: 420 (2) 717-464-8
Fax: 420 (2) 717-470-64

● **HORIBA EUROPE GmbH Head Office**
Hans-Mess-Str.6
D-61440 Oberursel/Ts.
Germany
Phone: 49 (6172) 1396-0
Fax: 49 (6172) 137385

● **Darmstadt Office**
Landwehrstrasse 55
64293 Darmstadt
Germany
Phone: 49 (6151) 32-3098
Fax: 49 (6151) 32-3865

● **Leichlingen Facility**
Julius-kronenberg Strasse
D-42799 Leichlingen
Germany
Phone: 49 (2175) 8978-0
Fax: 49 (2175) 8978-50

● **HORIBA SWEDEN**
Sydhamsnsvägen 55-57,
SE-151 38 Södertälje,
Sweden
Phone: 46 (8) 550-80701
Fax: 46 (8) 550-80567

● **Netherlands Office HORIBA Benelux**
Science Park Eindhoven 5080
(Industrial park "Ekkersrijt")
5692 EA, Son, Netherlands
Phone: 31 (0) 40-2900-240
Fax: 31 (0) 40-2900-624

● **HORIBA FRANCE**
12, Avenue des Tropiques
91955 LES ULIS
France
Phone: 33 (1) 69-29-96-23
Fax: 33 (1) 69-29-95-77

● **HORIBA Jobin Yvon SRL Torino Office**
Europalace
Corso Torino 43/45
10043 Orbassano, Torino
Italy
Phone: 39 (011) 9040601
Fax: 39 (011) 9000448