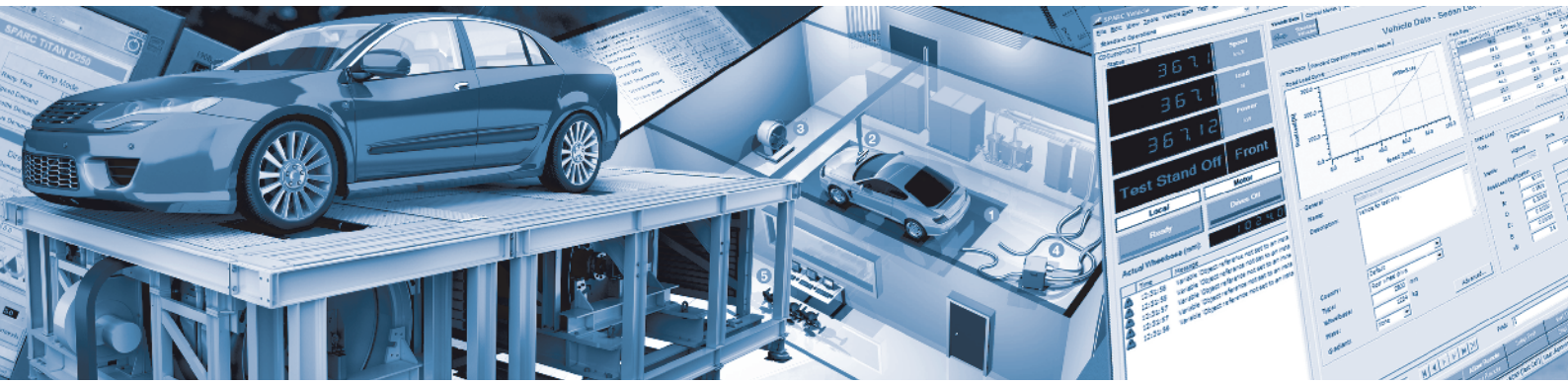
HORIBA
Automotive Test Systems



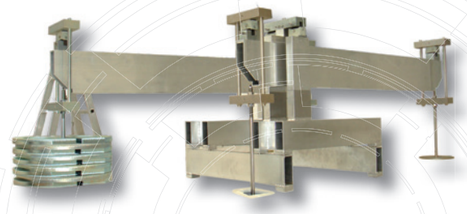
VULCAN

Chassis Dynamometer

Evolution of Design

HORIBA continues to accumulate substantial knowledge in designing and manufacturing high-quality chassis dynamometers for the automotive industry in compliance with existing and forthcoming emission standards. Continuous optimization and improvement of the tried-and-tested design have led to the latest generation of VULCAN dynamometers. While creating this new range of chassis dynamometers, the HORIBA team reexamined fundamental design elements that are crucial to the performande demanded by our users. The digital force and speed measurement designs are characterized by their high accuracy and repeatability. Automated quality checks and product diagnostics additionally contribute to the performance of the overall system.

To advance the quality of the measurement results, HORIBA has improved calibration and measurement accuracy as well as the roller dimensions, enabling it to comply with current and future vehicle demands. A standard calibration device using a two arm design for full force calibration through the zero point assures easy and reliable calibration.



Benefits

- Highly accurate force and speed measurement (force repeatability typ. ± 0.005 % f.s.)
- Extended speed range up to 270 km/h available
- Zero warm-up time
- Convenient packaging allows easy retro-fitting into existing sites and future upgrades
- Remote maintenance for advanced system diagnostics
- Unique, easy-to-use two arm design calibration tool for full force calibration through the zero point
- Wheelbase range extendable to up to 4,400 mm
- Increased system and measurement reliability thanks to routine and preventative maintenance programs and built-in quality checks
- Wide range of optional features available

HORIBA VULCAN

Key Features of Latest Generation

Specifications		
	Standard	**Options**
Inertia Power	1,150 kg 155 kW / 170 kW (Overload)	1,360 kg 155 kW / 260 kW (Overload) 220 kW / 410 kW (Overload)
Inner Roll Dimensions	800 mm	
Outer Roll Dimensions	2,330 mm	
Wheelbase	1,800 mm – 3,400 mm	1,800 mm – 4,400 mm
Required Pit Depth	2WD: 1,320 mm 4WD: 1,610 mm	

SPARC VEHICLE Controller

The VULCAN system is equipped with the HORIBA SPARC VEHICLE Controller, including standard interfaces for emission host systems such as HORIBA's market leading VETS system. In addition, HORIBA has made a number of improvements to this controller, which now offers various new features.

Modular Design

The latest generation of HORIBA VULCAN Chassis Dynamometers is characterized by a robust, modular design that offers improved performance, as well as increased flexibility and serviceability. The system is comprised of three pre-assembled and aligned main modules, a design which significantly reduces installation and maintenance costs. Numerous built-in functions in the area of diagnostics, calibration, handling, and vehicle parameterization are standard. Different AC power and roller inertias enable testing on a wide range of vehicles and applications, while the base-independent pit decking design ensures simple adaptation to various pit dimensions. In addition, VULCAN is easily upgraded from 2WD to 4WD applications.

Main improvements of SPARC VEHICLE Controller

- Road load simulation via polynomial and multipoint functions
- Excellent friction loss compensation
- Parasitic loss measurement with coast down, ramping method and constant speed method
- Multiple user levels
- Operation response time measurement
- Support for three additional, vehicle-independent airstream blower sets
- Possible extensions, such as augmented braking, operating hour counter, etc.

Extended Scope of Supply

HORIBA offers a number of optional packages for the new VULCAN system. To meet the requirements of various international legislation, roller surfaces with different coatings and roughness as well as different roller inertias are available. Extended temperature range packages provide functionality for testing in a temperature scope from -40 °C to +45 °C. Furthermore, HORIBA offers a large variety of driver's aid systems, including test cycle definitions and an autopilot system.

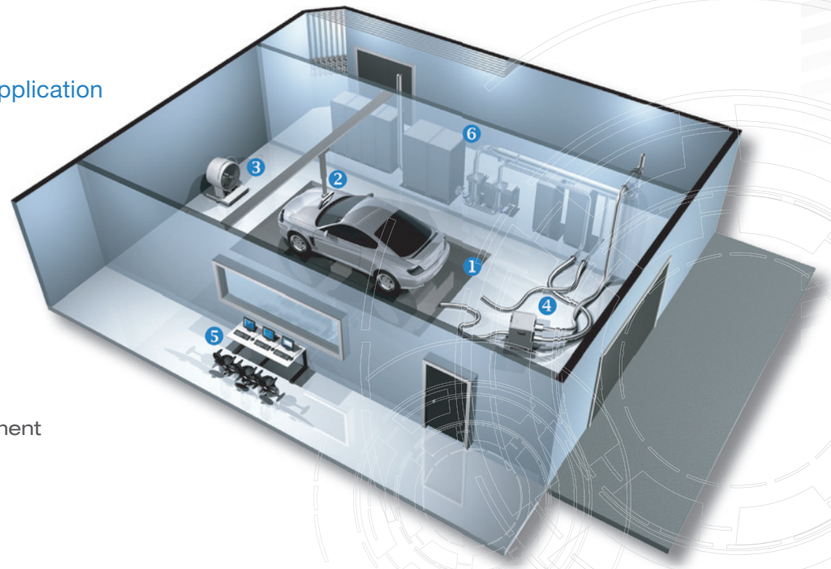
Options

Easy-to-use and time-saving wheel hub system

Options

- Extended temperature range (-20 °C … +45 °C / -40 °C … +45 °C)
- Different roller surfaces and inertias to meet legislation requirements
- Extended speed range up to 270 km/h
- Centering device with lifting function
- Wheelbase range extendable to up to 4,400 mm
- Tire cooling and/or pit blowers
- Easy-to-use and time-saving wheel hub system
- Driver's aid system including test cycle definition
- Autopilot system

Chassis Dynamometer - Emission Measurement Application



1. 4WD chassis dyno
2. Drivers aid monitor
3. Air speed fan
4. Remote mix-T, RMT
5. Control room with VETS
6. Emission analysis equipment

HORIBA continues contributing to the preservation of the global environment through analysis and measuring technology.

MIX
Paper from responsible sources
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http://www.horiba.com e-mail: info@horiba.co.jp

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

● **HORIBA (China) Trading Co., Ltd.**
Shanghai Office
Unit D, 1F, Building A,
Synnex International Park,
1068 West Tianshan Road,
Shanghai, 200335, China
Phone: 86 (21) 6289-6060
Fax: 86 (21) 6289-5553

Beijing Office
Room 1801, SK Tower,
Tower 1 No.6Jia,
Jianguomenwai Ave.,
Chaoyang District, Beijing,
100022 China
Phone: 86 (10) 8567-9966
Fax: 86 (10) 8567-9066

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

● **HORIBA Instruments (Singapore) Pte. Ltd.**
10 Ubi Crescent
Lobby B #05-11/12, Ubi
Techpark Singapore 408564
Phone: 65 6745-8300
Fax: 65 6745-8155

● **HORIBA India Private Limited**
Delhi Office
246, Okhla Industrial Estate,
Phase 3 New Delhi -
110 020, India
Phone: 91 (11) 4646-5000
Fax: 91 (11) 4646-5020

Pune Office
502, Purushottam Plaza,
Baner Road, Baner,
Pune - 411045 India
Phone: 91 (20) 4076-6000
Fax: 91 (20) 4076-6010

● **HORIBA Instruments Incorporated**
Irvine North Office
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 48033
U.S.A.
Phone: 1 (248) 689-9000
Fax: 1 (248) 689-8578

● **HORIBA Canada Inc.**
Unit 102, 5555 North
Service Road, Burlington,
Ontario L7L 5H7,
Canada
Phone: 1 (905) 335-0234
Fax: 1 (905) 331-2362

● **TCA-HORIBA Sistemas de Testes Automotivos Ltda.**
Rua Goiás 191 Villa Oriental,
Diadema, São Paulo, Brazil
CEP 09941-690
Phone: 55 (11) 4224-0200
Fax: 55 (11) 4227-3133

● **HORIBA UK Limited**
Northampton Office
Kyoto Close
Summerhouse Road
Moulton Park, Northampton
NN3 6FL, UK
Phone: 44 (1604) 542-500
Fax: 44 (1604) 542-699

● **HORIBA Europe Automation Division GmbH**
Zabergaeu-Str. 3, D-73765
Neuhausen, Germany
Phone: (49) 7158-933-300
Fax: (49) 7158-933-399

● **HORIBA Europe GmbH**
Head Office
Hans-Mess-Str.6
D-61440 Oberursel,
Germany
Phone: 49 (6172) 1396-0
Fax: 49 (6172) 1373-85

Darmstadt Office
Landwehrstrasse 55
D-64293 Darmstadt,
Germany
Phone: 49 (6151) 5000-0
Fax: 49 (6151) 5000-3865

HORIBA Sweden
Sydhamnsvägen 55-57,
SE-15138 Södertälje,
Sweden
Phone: 46 (8) 550-80701
Fax: 46 (8) 550-80567

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

Torino Office
Europalace
Corso Torino 43/45
10043 Orbassano,Torino,
Italy
Phone: 39 (11) 904-0601
Fax: 39 (11) 900-0448

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

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

HORIBA Czech
Organizachi slozka Praha
Petrohradska 13
CZ-10100 Praha 10,
Czech Republic
Phone: 420 (2) 7174-6480
Fax: 420 (2) 7174-7064

Tulln Sucursala Pitesti
B-dul REPUBLICII, Nr. 38,
Bloc 2 IRTA, Scara A, Etaj 3,
Ap. 11, PITESTI, 110011,
Judetul Arges ROMANIA
Phone: 40 (348) 807117
Fax: 40 (348) 807118

● **HORIBA OOO**
Head Office
Build 5, h.13, Altuf'evskoe
shosse, Moscow, 127106,
Russia
Phone: 7 (495) 221-87-71
Fax: 7 (495) 221-87-68

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