



**Test stations  
selected references**

# 1937–1996

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

More than 2,000 test stations of various design; i.e. asynchronous, direct current, based on eddy current principle, delivered to production facilities, defence industry facilities, as well as to research institutes.

The tradition of test technology in Vsetín dates back to 1937 with the supply of dynamometers derived from control commutator motors. After 1945 a series of deliveries of dynamometers (400 kW/ 4,000 min<sup>-1</sup>) followed. Then, in 1953, further complete machine sets, the KS line, i.e. test stations with three-phase, control commutator dynamometers that consisted of a dynamometer, induction controller, compensation transformer, lifting table, and a control panel. In the 60s, a new line of test stations with DC dynamometers and Ward-Leonard control, both in the low- and high-speed layout, MS, DS, and 1DS lines was introduced. The station consisted of the DC dynamometer itself with an automatic scale, a regenerative machine unit (motor generator), a switchboard with an SCR excitation unit and controllers, a control panel, and instruments for digital measurement, and a recording unit. More than 1,200 orders, just for units these test stations alone, were filled.

After 1985 the company developed a new model of test stations with eddy current dynamometers operating up to 8,000 min<sup>-1</sup>.

Thus, TES continues a tradition of more than 70 years in test-station technology manufactured under the MEZ Vsetín, MEZSERVIS Vsetín, and TES Vsetín brandnames.

## COUNTRY

Czech Republic, Germany, Russia, China, Cuba, Poland and others.



# 1996

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

Universal testing station for petroleum and diesel engines with a CMS control and measurement system and a W150 eddy current dynamometer.

Test site for up to 500 kW, for testing of diesel engines after overhauls with a CMS measurement system and a V500 eddy current dynamometer.

Modernization of 1DS541 DC dynamometer for strain gauge torque measurement.

## SEGMENT | TESTED | COUNTRY

Automotive  
petroleum and diesel engines  
Czech Republic

Heavy road transport  
diesel engines  
Czech Republic

Automotive  
combustion engines  
Czech Republic





# 1997

CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)	SEGMENT   TESTED   COUNTRY
Dynamic vehicle test station, 2VDUD120, for dynamic testing of brakes and performance of vehicles up to 200 km/h and 120 kW per axis.	Automotive brakes Czech Republic
Test site for up to 500 kW, for testing of LIAZ diesel engines after overhauls a with CMSA16VA measuring system and a V500 eddy current dynamometer.	Heavy road transport diesel engines Czech Republic
Test site for up to 200 kW for special testing of engines with CMSA48VD control and measurement system and a V250 eddy current dynamometer.	Automotive combustion engines Czech Republic
Test bench for endurance testing of gear units, 5,000 min <sup>-1</sup> /250 Nm - input; 2 x 2,000 min <sup>-1</sup> /1,200 Nm - output with a BRGEAR control and visualization system.	Automotive gearboxes Czech Republic

# 1998

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

## SEGMENT | TESTED | COUNTRY

MO-01 device for measuring exhaust gases volumes working together with Hori-ba analysers.

Automotive  
exhaust gases analysis  
Czech Republic

Delivery of DS546-V DC dynamometer for strain gauge torque measurement and power supply from thyristor converter.

Defence industry  
diesel engines  
Czech Republic

300 kW test sites for full technology testing of diesel engines with SDS250M61 dynamometers and CMSA32EA control systems.

Defence industry  
diesel engines  
Belarus

Delivery of a test site for the measurement of gearbox noise levels - modernization of drives, workplace control and noise dampening, visualization using BRGEAR control system.

Automotive  
gearboxes  
Czech Republic



1999

CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

SEGMENT | TESTED | COUNTRY

Dynamometer, 2DS546, with a new power supply with Mentor converter.

Research institute  
electric motors  
Czech Republic

Dynamometer, SDS132L601, 50 kW; 5,000 min<sup>-1</sup>.

Rail transport  
electric motors  
Czech Republic





# 2000

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

## SEGMENT | TESTED | COUNTRY

Exhaust gas flow measurement, FL550.

Automotive  
exhaust gas measurement  
Czech Republic

Vehicle test sites for the testing of passenger cars and commercial vehicles; 2x 240 kW, 200 km/h, and for the testing of tractors, 270 + 120 kW, 16 km/h.

Heavy road transport  
tractors, vehicles  
Czech Republic

Delivery of engine test station with a V500 dynamometer for testing of diesel engines using the BrEng system.

Defence industry  
diesel engines  
Czech Republic

Upgrade of 2 test pits for the AUDITING of engines, with the WT190 dynamometer supplied by Schenck, and the CMSW control and measurement system with the measuring of consumption, AVL 733S and BLOW-BY 442.

Automotive  
engine audit testing  
Czech Republic

# 2001

CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)	SEGMENT   TESTED   COUNTRY
Integration of measurement of exhaust gas volumes in test pits 7 and 8 with new AVL PUMA6 systems.	Automotive internal combustion engines Czech Republic
Fitting of a new test pit for the ANALYSING of engines with a WT190 dynamometer supplied by Schenck and a control and measurement system with the measuring of consumption, including the connection of IHR devices for the measurement of emissions.	Automotive internal combustion engines Czech Republic
Electrical engine equipment for testing using AUDIT and ANALYSIS brake test bench for 16 types of engines.	Automotive internal combustion engines Czech republic
Test bench for PRAGA gearboxes with a CMSW control system and a SDS180 dynamometer for automatic running-in and testing of hydrodynamic gear boxes including report processing.	Rail transport gearboxes Czech Republic
Test sites for the testing of internal combustion engines with a 2DS926V dynamometer and Siemens control. Test programming, visualization and subsequent processing of data measured by the CMSW system.	Automotive internal combustion engines Russia
Test sites with the DC dynamometer, SDS250L61, with Siemens control system, for the measuring of basic and auxiliary values in the running-in of overhauled combustion engines.	Oil & Gas combustion engines Russia
Test sites with a DC dynamometer, SDS160S61, with a Siemens control system, for the measurement of basic and auxiliary values in the testing of gear boxes.	Heavy road transport gearboxes Belarus



# 2002

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

## SEGMENT | TESTED | COUNTRY

SDS112 dynamometer with a Siemens control and digital measurement of torque and speed; 6,000 min<sup>-1</sup>, 50 Nm, with a Staiger-Mohilo specific flange.

Research Institute  
hydraulic machines  
Czech Republic

Dynamometer, 2DS1036kV, with Siemens control and display. Ready for extension by CMSW system.

Research institute  
internal combustion engines  
Czech Republic

Test sites for testing of internal combustion engines with a 2DS926V dynamometer and Siemens control system. Test programming, visualization and subsequent processing of data measured by the CMSW system.

Automotive  
internal combustion engines  
Russia

Test sites for testing of internal combustion engines with a W150 brake by Schenck and Siemens control system. Test programming, visualization and subsequent processing of data measured by the CMSW system.

Automotive  
internal combustion engines  
Czech Republic

Upgrade of a test site - renovation of a DC dynamometer, DS 742-4/N for strain gauge torque measurement, complementation of Siemens control and display system.

Electrical engineering  
electric motors, generators  
Czech Republic

Test site with a V125 dynamometer and CMSW control and measurement system, including connection of IHR devices for emission measurement.

Research institute  
internal combustion engines  
Czech Republic

Delivery of drive for a brake bench with SDS200S601 dynamometer including the  $M = A + B \cdot v + C \cdot v^2$  regime.

Research institute  
passenger cars  
Czech republic

# 2003

CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)	SEGMENT   TESTED   COUNTRY
Test bench for the testing of brake materials and execution of running-in tests, endurance tests and tests of the brake material characteristics, with processing of measured data.	Automotive brakes Czech Republic
Roller bench for testing of bus performance, enabling the measurement of performance of bus engines on their driving axle using a pair of rollers driven by SDS250L602 dynamometers.	Heavy road transport bus engines Czech Republic
Test sites with an ASD005 asynchronous electrical dynamometer for the testing of asynchronous engines with the visualization of measurement, mode selection and entering parameters on a control panel.	Research institute asynchronous motors Czech Republic
Container-type testing device for testing of petroleum and diesel engines up to 130 kW, with a CMSW control and measurement system featuring air conditioning and fire extinguishing equipment.	Automotive combustion engines India
Test sites for testing of internal combustion engines, with a 2DS926V dynamometer and Siemens control system. Test programming, visualization and subsequent processing of data measured by the CMSW system.	Automotive internal combustion engines Russia
Test site with a SDS200L601 dynamometer for technology running-in and handover testing of diesel engines. Including a control and measurement system, AVL system for the testing of smoke emission and HORIBA system for the analysis of exhaust gases.	Defence industry diesel engines Belarus



# 2004

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

## SEGMENT | TESTED | COUNTRY

Test station for the HOT testing of 1.4 l/55 kW TDI engines with a control, measurement and diagnostic system installed in a soundproof box with HVAC ducts for air supply, ventilation of the box, and gas exhaust.

Automotive  
engine hot test  
Czech Republic

Test site with DC dynamometer, SDS200 (5 pcs), SDG225 (2 pcs) and SDG250KM-5DYN, for the running-in and handover testing of diesel engines. Including a control and meas. system, testing of exhaust emission, fuel consumption and analysis of exhaust gases.

Defence industry  
diesel engines  
Belarus

Test sites with the ASD235M250 as. dynamometer with a measuring flange, SIMOVERT power source, SIMATIC control, regulation and visualization on OP27 panel. Completed with the measurement of temperatures and pressure levels of the tested internal combustion engines.

Research institute  
internal combustion engines  
Czech Republic

Test site with the DC dynamometer, SDG225KM5, power supply with a SIMOREG thyristor converter and SIMATIC control, with visualization and manual control from OP27 panel.

Research institute  
internal combustion engines  
Czech Republic





# 2005

CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)	SEGMENT   TESTED   COUNTRY
Test site for endurance testing of valve timing mechanisms with the SIMATIC control system and monitoring of the operation on the OP27 panel.	Automotive timing mechanisms Czech Republic
Upgrade of test bench for endurance testing of gearboxes. Refurbishment of mechanical parts and engines, new drives with SIMOREG converters with regulation, visualization and programming of automated tests.	Automotive gearboxes Czech Republic
Test site with the dynamometer, SDG250M602, power supply with a SIMOREG thyristor converter and SIMATIC control with visualization and manual control from the OP270 panel.	Heavy road transport internal combustion engines Belarus
Test site with a DC dynamometer, SDG225L5 (1 pc), SDG280KS6 (1 pc), and SDG280KS6DYN (1 pc), for the technology running-in and handover testing of diesel engines. Including a control and measurement system, system for testing of exhaust emission and fuel consumption.	Defence industry diesel engines Belarus

A detailed, close-up photograph of a car engine, showing various components like hoses, belts, and metal parts. The image is slightly blurred, focusing attention on the text overlay.

# 2006

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

## SEGMENT | TESTED | COUNTRY

Test site for testing of overhauled electric motors. The site features a control panel with a SIEMENS thyristor converter and a panel for the control and measurement of the basic characteristics of the tested motors.

Automotive  
electric motors  
Czech Republic

Upgrade of a test site with a WT190 power brake by Schenck for audited tests of internal combustion engines and completion of electrical equipment for testing of new engines.

Automotive  
audit test of engines  
Czech Republic

Test sites with a 012SDSi100 DC dynamometer for vertical operation with digital measurement of speed and torque.

Research Institute  
water turbines  
Czech Republic





# 2007

CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)	SEGMENT   TESTED   COUNTRY
Upgrade of test site and replacement of the original V500 dynamometer with a new DYNABAR DT900-1 hydraulic dynamometer with a CMSW measurement and control system. The site is intended for testing of motors up to 900 kW.	Defence industry diesel engines Czech Republic
Delivery of the control and regulation of engine running-in station and completion of el. equipment for testing of new engines. The refurbished system enables hottestests of engines, secures fitting, filling, checks, automatic testing, recording of values and exhaust of media. The drive and regulation control by PLC SIMATIC.	Defence industry hot test of engines Czech Republic
Test sites with DC dynamometers, 039SDSi132, controlled by a OP270 panel. Test sites with asynchronous dynamometers, 163ASD250, controlled by a OP270 panel. The test sites are intended for testing of electric drives.	Research institute electric drives Russia
Upgrade of a test site with an eddy current dynamometer for testing of engines. Completed with a torque measuring converter and increment speed transmitter. New control system, with pressure and temperature measurement box. Completed with servo control of tested engine throttle.	Research institute tractor motors Czech Republic



# 2008

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

## SEGMENT | TESTED | COUNTRY

Upgrade of the DS1206-6kV dynamometer used in the test station for testing el. rotating machines. Adjusted to provide for the strain gauge measurement of torque and speed using an increment sensor. New control switchboard, control panel, and HV cabinet.

Electrical engineering  
generators and el. motors  
Czech Republic

Test site with a DC dynamometer, type 357SDSi250DYN, with an OP270 control panel. Completed with interface for co-action with the ALFA measurement and control system. The test site is designated for testing diesel engines.

Heavy road transport  
internal combustion engines  
Russia

Upgrade of V500 dynamometer. Equipped with a new torque measurement, an IRC speed sensor, a temperature and cooling water flow sensor. A new drive control, CMSW control, a visualization system, the measurement of phys. values and a drive to control the engine throttle.

Power generation  
co-generation units  
Czech Republic

Upgrade of a test site with a DS1446-6kV dynamometer. Adjusted for torque measurement strain gauge and speed readings using an increment sensor; complemented with sensors of locked status for the release of full machine power. A new switchboard for control, control and measurement panels. The W-L set is controlled using Simoreg converters with a modified structure of regulators.

Electrical engineering  
generators and el. motors  
Czech Republic

Upgrade of a test site with a DS546-4V dynamometer. Adjusted for the torque measurement strain gauge and speed sensing using an increment sensor. New switchboard for control, control boxes and a control PC. The W-L control system replaced with a Simoreg converter, with a modified structure of regulators.

Heavy road transport  
internal combustion engines  
Czech Republic



# 2008

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

Upgrade of the 1DS1326kV dynamometer. Adjusted to provide for the torque measurement strain gauge and speed sensing using an increment sensor. Complemented with a new HV cabinet, switchboard for control, and a control panel. The W-L set control is replaced with Simoreg converters with a modified structure of regulators.

Test site for testing of turbochargers. The dynamometer is equipped with a torque measurement and with increment sensor for speed. Connection of PLC Simatic via a Profibus communication line for the transmission of measured data to the control panel screen. Supplemented with 8 analogue inputs for measurement of auxiliary values.

## SEGMENT | TESTED | COUNTRY

Electrical engineering  
generators and el. motors  
Czech Republic

Research institute  
turbochargers  
Czech Republic



# 2009

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

## SEGMENT | TESTED | COUNTRY

Upgrade of 2DS1036kV test site. The dynamometer is equipped with a torque measurement strain gauge and increment speed sensor. New switchboard for control with Simoreg converter and PLC Simatic, manual control desk and OP control panel for the display of the measured values.

Research institute  
turbines  
Czech Republic

Test site with an asynchronous dynamometer for audit testing of engines of up to 6,500 min<sup>-1</sup> and 150 kW. Mounted on a suspended plate in a soundproof box equipped with air conditioning and a fire extinguishing. Operating staff control, regulate and evaluate tests from a cabin separated from the test area by a safety glass.

Automotive  
internal combustion engines  
Ukraine

Test site with a dynamometer and a control system in a Russian version. Equipped with a measuring flange to measure torque, the regulation of the tested engine, measurement of phys. values and the system for dynamic measurement of fuel consumption. Intended for the running-in and testing of combustion and allows the testing acc. to ECE 24 and ECE 49 - "ESC" and "ELR" for the collection and visualization of the data measured during the test.

Heavy road transport  
internal combustion engines  
Belarus





# 2010

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

## SEGMENT | TESTED | COUNTRY

Test site with a dynamometer, equipped with sensors for torque and digital speed measurement. Speed and torque are controlled by a Siemens frequency converter with vector control. Working modes  $n = \text{const.}$ ,  $M = \text{const.}$  Measured data are sent to the control computer display. Modes and set points are entered on the operator panel keyboard or on the control PC.

Power generation  
co-generation units  
Czech Republic

Upgrade of test site with a 2DS1446-6kV dynamometer. Adjusted to provide for the torque measurement strain gauge and speed sensing using an increment sensor. Complemented with a new HV cabinet, switchboard for control and a control panel. The W-L set control replaced with Simoreg converters with a modified structure of regulators.

Electrical engineering  
generators and el. motors  
Czech Republic



# 2011

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

Test site with an as. dynamometer for audit testing of engines of up to 7,500 min<sup>-1</sup> and 150 kW. Mounted on a suspension base plate and installed in a soundproof box. Operating staff control, measure and process measured data with the CMSW system in a box comprising the technology separated from the area by a soundproof wall and protective glass to enable viewing of the site and its regulation.

Automatic test site for the final inspection of internal combustion engines. It can be operated in a soundproof box or can easily be moved to another room. The engine is controlled by standard control units for cars (ECU), allowing for easy modifications in changes of control data. The state-of-the-art diagnostics enable the use of required data volumes from the engine control unit and allow the quality control staff to determine cause of defects more rapidly and accurately. The standardised modular design allows eight types of engines to be tested.

## SEGMENT | TESTED | COUNTRY

Automotive  
audit test of engines  
Czech Republic

Automotive  
engine hot test  
Czech Republic





# 2012

CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)	SEGMENT   TESTED   COUNTRY
<p>POWERTRAIN test station.</p> <p>The facility consists of 4 dynamometers separately controlled in the drive/brake mode. The rare and unique layout enables the automobile test station to simulate the mode of travel through curves.</p>	<p>Research institute powertrain Czech Republic</p>
<p>Test site for testing of diesel engines up to 120 kW with a 120ADS180MP asynchronous dynamometer, converters for the measurement of physical values and the CMS test system. It is equipped with a torque measurement strain gauge flange and increment speed sensor.</p>	<p>Research institute internal combustion engines Russia</p>
<p>Asynchronous dynamometer, 500ADG289LP. The device is intended for loading and testing asynchronous railroad drives.</p>	<p>Railroad transport asynchronous drives Russia</p>
<p>Asynchronous dynamometer, 385ADG280LP for testing turbines; provided with a torque measurement strain gauge flange and a speed increment sensor. The device is intended for development, periodic, as well as inspection testing of gas turbines.</p>	<p>Air industry gas turbines Russia</p>
<p>Upgrade of a test site with a type W150 dynamometer including the supply of a control and measurement system for development tests of internal combustion engines.</p>	<p>Automotive development tests Czech Republic</p>





# 2013

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

## SEGMENT | TESTED | COUNTRY

Upgrade of a test site with a type E180 dynamometer including the supply of a control and measurement system for development tests of internal combustion engines.

Automotive  
development tests  
Czech Republic

Modification of a 2VDE test station; reconstruction of the roller test station for busses. Included in the reconstruction two dynamometers were repaired, which had been previously delivered by TES Vsetín, and the control HW and SW was modified.

Heavy road transport  
buses  
Czech Republic

Test station for audit tests. Result of the installation is the employment of a new CMS control system, delivery of a new asynchronous dynamometer, 250ADG280LP, installation of cooling circuits of internal combustion engines, and air insulators.

Automotive  
audit tests of motors  
Czech Republic



# 2014

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

## SEGMENT | TESTED | COUNTRY

Modification of a HOT test for a new 1.2 TSI / 81 kW engine.  
The modification of a test bench included in the SW upgrade and manufacture of two exchange blocks with the engine control unit.

Automotive  
Hot test of engines  
Czech Republic

Modification of the audit test of the 1.2 TSI / 81 kW engine. Respective test box was modified so that the new automobile motor could be tested. The modification involves new wiring, cooling control, control system modification, and scheme of new tests.

Automotive  
engine audit test  
Czech Republic

5 new test benches for testing valve gears of internal combustion engines.  
A fixing table with an as. drive and a console to fix a motor maquette, pneumatic dampers to prevent vibrations, a ventilation unit, and a new operator panel. Performing the valve gear testing, both functionality and long-term, of various modes as to temperature, revolutions, timing angle, measurement of vibrations, noise, pressures, force, resistances, etc.

Automotive  
valve gear  
Czech Republic



# 2014

## CHARACTERISTICS OF TEST EQUIPMENT (PROJECT DESCRIPTION)

Test station for testing of motorcycle engines.

A dynamometer, the measurement of emissions, consumption, temperatures, pressures, the torque and engine output - for the development of engines and innovations. Equipped with a control system to enable cyclic tests and measurement as well as test progress repeatability.

Test station for turbines and pumps.

An aspect of the technology delivery was a dynamometer for 101 kW engine output with a torque measurement flange, calibration accessories, a power supply switchboard and an operator control panel.

Modernization of a test box for large output diesel engines.

With an eddy current dynamometer, cooling system, HVAC, block for the measurement of phys. values, throttle actuator, and installation of the operator station with CMS software. Additionally, the wall covering of the test station was reconstructed, and oil and water facilities and the start system for starting engines using compressed air were installed.

## SEGMENT | TESTED | COUNTRY

Automotive  
motorcycle engines  
Czech Republic

Defence industry  
turbines and pumps  
Russia

Defence industry  
high-capacity engines  
Czech Republic



## The history of our trademark

**1919-1945**

Electrical Engineering  
Factory Josef Soušedík



**1945-1995**

MEZ Vsetín



**1995-2011**

TES Vsetín  
and Mezservis



**since 2012**

TES Vsetín



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