

AHS ■ DYNAMIK TEC

Power testing for cars and trucks: We don't guess, we measure!

New!

HIGH-TECH-PRODUCTS
MADE IN GERMANY

The image shows a green sports car on a dynamometer. A control panel is visible, featuring two large analog gauges: a speedometer (0-250 km/h) and a power gauge (0-300 kW). Below the gauges are several indicator lights and buttons labeled 'RPM', 'OFF', 'READY', 'ON', 'bar', 'P', 'C-V', 'C-F', 'Zyklus', and '°C'. The text 'AHS PRÜFTECHNIK' is printed at the bottom of the panel. To the left of the car, a graph displays three performance curves: a pink curve with 'x' markers, a green curve with 'o' markers, and a yellow curve with 'x' markers. The car is positioned on a red dynamometer platform. In the bottom right corner, there is a logo for 'tüv CERT' with the text 'QM-System nach DIN EN ISO 9001' and the company name 'AHS ■ PRÜFTECHNIK' with the website 'www.ahs-prueftechnik.de' and email 'info@ahs-prueftechnik.de'.



Dynamometer
ELP 300 for
cars



Dynamometer
ELP 500 for
cars and trucks

GOOD REASONS FOR A PROFESSIONAL POWER TEST IN A MODERN WORKSHOP

AHS DYNAMIK - much more than only a dynamometer! The AHS DYNAMIK expands significantly the range of articles of a workshop. Offer your customers a professional

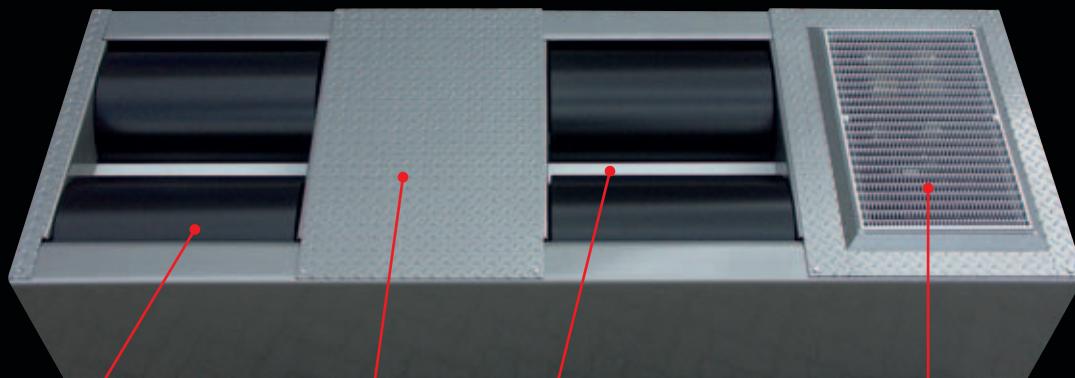
- ... identification of defects of the road performance
- ... identification of technical reasons for failures of the exhaust gas recirculation system or combustion system
- ... identification of reasons for a too high fuel consumption
- ... understandable documentation of repair results via before-after-comparison
- ... documentation of the success of a chip-tuning via before-after-comparison
- ... adjustment of LPG or CNG driven vehicles

AHS DYNAMIK - the expert for diagnostics: Complaints about engine and gear are increasing and require a troubleshooting expert. In many cases, it is not possible to simulate the relevant driving conditions in normal road traffic, not to mention the need of frequent repeatability. Another argument for a test drive in a workshop: When the defect occurs, troubleshooting can start right away and necessary adjustments can be done.

AHS DYNAMIK - Technology of today: The "right way" of power testing is one of the major topics of many discussions. AHS uses the modern retarder system. Compared to the flywheel mass system, the retarder excites an electrical regulated counterforce and allows the simulation of different driving resistances.

AHS DYNAMIK

for the power testing of cars (ELP 300 or ELP 700 High-Speed) or for the testing of cars and trucks (ELP 500)



Precisely
balanced rollers
(\varnothing 318,5 or
 \varnothing 452 mm)

Connection
of front load
rollers and
pneumatic
lifting device

ELP 700:
Up to 700 kW
and 350 km/h

Air-cooled
retarder - two
retarders pos-
sible on demand
(ELP 500)



AHS DYNAMIK:
The tool for
professionals

We don't guess,
we measure!

Repeatable
results due to
AHS precision!

Unique: The
patented Active
Loss Power
Measuring!

Before starting a power test, several environmental factors have to be eliminated. This is the only way to make the measurement comparable and appropriate to DIN 70020. Connected to a PC, the AHS weather sensor box is the easiest way to detect climate data like humidity, air pressure and temperature and to enter the data in the testing software PICARO DYNAMIK. In addition, vehicle specific data like the combustion system, the charging, the gear and engine system is needed. The revolutions per minute (RPM) are collected by the OBD outlet or by selection.

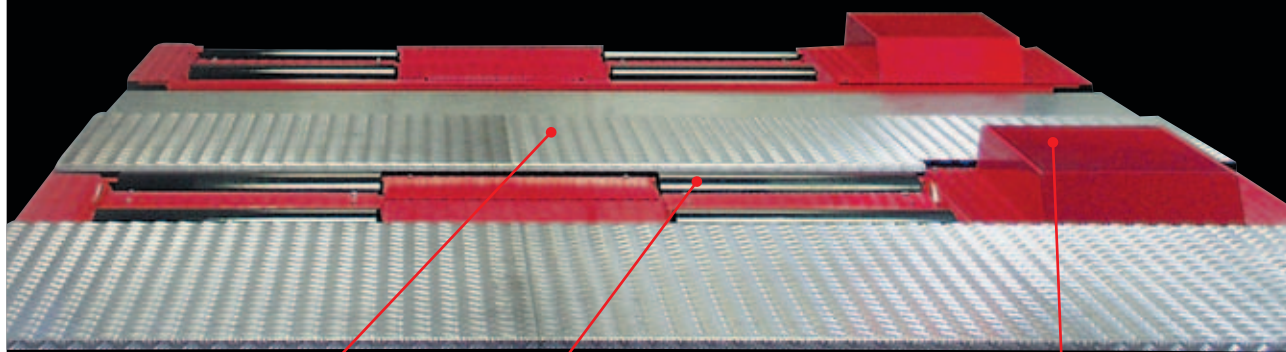
In the next step, the measurement starts and the wheel power is measured. However, this is not the motor power. Losses due to friction in the gear, the axle drive, the drive shaft as well as rotating parts of the dynamometer have to be taken into account. In practice, there are different procedures to detect loss power. Unfortunately, many of them ignore environmental factors and problems occur.

For this reason, AHS uses the unique and patented Active Loss Power Measuring. It is assumed that the losses on the dynamometer are almost constant at a given speed, no matter if the drive train is driven by the motor of the vehicle or an external motor. After measuring the wheel power for diverse speeds, the dynamometer is driven by an e-motor. Now, the losses are detected for the preliminarily set speeds. The PC system adds this collected data point-by-point to the wheel power. The actual motor power is the result.

The AHS measuring principle is characterized by a high repeatability and precision. The loss power can be measured for pre-set speeds. The accuracy of the measurement is not influenced by mass inertia. It only depends on the power sensors, because the measurement takes place at constant speed. In addition, the influence of the dynamometer itself, which absorbs a part of the applied power during the measurement, is eliminated. Flywheel masses of the vehicle or dynamometer have no influence. Finally, the losses of the not-driven axles can be detected without any problems.

AHS DYNAMIK 4-WHEEL

4-wheel dynamometer ELP 300 D or 700 D HighSpeed -
for the testing of all cars, especially 4-wheel driven cars

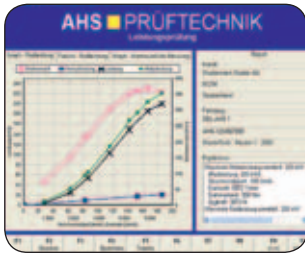


Moveable
covers between
roller sets via
E-motor

Precisely
balanced rollers
(\varnothing 318,5 or
 \varnothing 452 mm)

Roller sets can
be used indivi-
dually - up to
700 kW and
350 km/h (ELP
700)

Two air-cooled
retarders



20 inch TFT-monitor
(standard equipment for screen-version)



Clearly represented testing procedure

PICARO DYNAMIK USER-FRIENDLY AND INNOVATIVE

Especially for power testing, PC-controlled machines are essential. The user-friendly testing software leads quickly to significant results.

PICARO DYNAMIK is based on a SQL-database and offers all convenience of a modern, future-oriented PC-system. Network-compatibility is implemented. Diverse storage and editing possibilities reflect the high user-friendliness. Naturally, several testing cycles are integrated. The measurement of wheel power, testing speed and acceleration as well as the graphical and digital display of wheel-, loss- and motor power via RPM or speed with torque progression are standard. Furthermore, there are software modules for fuel consumption, way distance measuring and tachograph testing integrated. Diverse testing programs and stop-watch function complete the package.



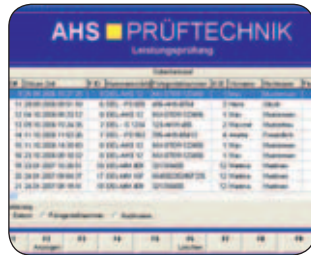
AHS RECOMMENDS:

AHS recommends the use of a powerful cooling fan for each power test. The only way to avoid an overheating of the motor and to ensure a correct power test is having enough airflow. Without any cooling, high induction air temperatures occur that lead to bad measurement results!

AHS offers height adjustable fans up to 50.000 m³/h as well as special fans like for example a turbo fan, in order to cope with each situation.



Modern data storage and editing!



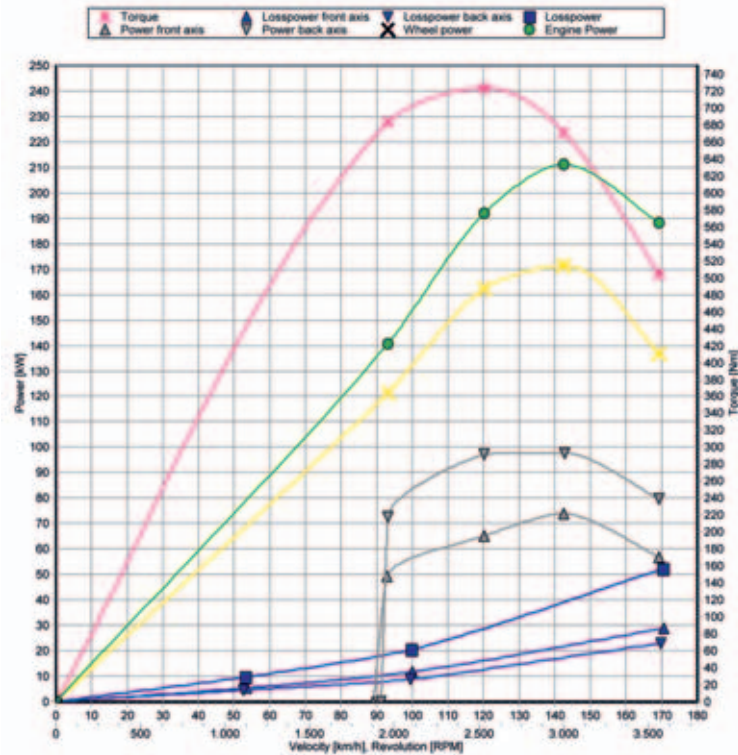
All test results at one glance!

AHS PRÜFTECHNIK

Richtstraße 32 - 27753 Delmenhorst - Germany - Tel.: 0049-(0)4221-9182-0

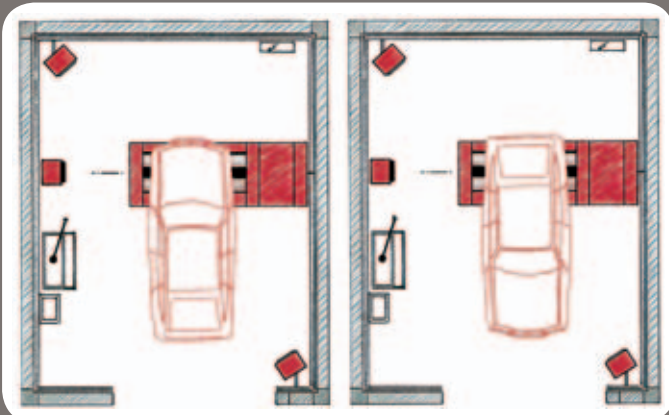
Customer: AHS-Prüftechnik **Producer:** Daimler **Top speed:** 230 km/h
Licence plate: DEL-HS 90 **Type:** GL 420 CDI **Max. power:** 225 kW
Milage: 00000 **Year of manufacture:** 2007 **at Revolution:** 3600 RPM

Power test - maximum power at:
Wheel power: 171 kW (~233 hp) **Traction force:** 4330 N **Velocity:** 142 km/h
Power loss: 39 kW (~53 hp) **Thrust:** 5070 N **Revolution:** 3003 RPM
Engine power: 211 kW (~286 hp) **Air Temperature:** 30,9 °C **Used Gear:** 5
Standard power: 221 kW (~300 hp) **Air pressure:** 979 hPa **Max. torque:** 723 Nm
 > EU 80/1269 (valid: 2000) **Humidity:** 50 % **Max. standard torque:** 758 Nm



Measurement done on 21.07.2008 um 15:10:17 Uhr
 Signature _____
 F040700003 v0.9/20 AHS Prüftechnik Richtstraße 32 - D-27753 Delmenhorst Page 1
 Tel.: 0049-(0)4221-9182-0

Modern solutions for the storage of the PC-system: desk or workshop-righteous cabinet (fig.)



AHS DUO-VERSION

The DUO-version is especially suited for cramped spaces.

Only one testing box is needed for the testing of front- and rear-driven vehicles.



Auto Technik
Zentrum Rieck,
Braunschweig,
Germany



Danisch
Technological
Center, Ahaus,
Denmark

AHS DYNAMOMETERS MORE THAN 40 YEARS OF SUCCESS

Some selected references:

Auto Technik Zentrum Rieck, Braunschweig, Germany Rieck Motorsport uses an AHS ELP 300 D (4 x 4) in order to serve their chip-tuning customers as good as possible.

VW Milan, Italy The VW workshop in Milan works with an AHS ELP 300 D (4 x 4), in order to fulfill the needs of their customers as good as possible. There is no way to do troubleshooting or diagnostics without a dynamometer.

Danish Technological Center, Ahaus, Denmark In this center, there is an AHS ELP 500 (special version) in use. The retarder-based dynamometer was completed with a flywheel mass for research purposes.

ASL Loeben, Berlin-Wildau, Germany ASL offers a remarkable service to its customers. With an AHS ELP 300 D (4 x 4 special version), especially chip-tuner can check the success of their work.

SKN Tuning, Benstorf, Germany SKN has decided for an ELP 300 D (4 x 4) and uses it for chip-tuning and adjustment of LPG or CNG driven vehicles.

The College of Higher Education Wilhelmshaven, Germany The FH Wilhelmshaven teaches and does research on an AHS DYNAMIK ELP 300. Numerous other institutions like the vocational schools in Ahrensburg and Kassel, the Regens-Wagner-School in Neuburg or the Motorcar Guild in Hamburg trust in AHS technology.

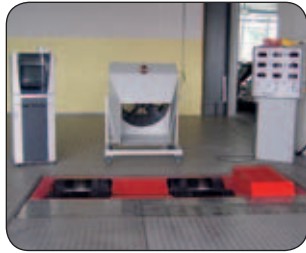
Padborg Elektro A/S, Denmark Padborg offers a power test on an AHS DYNAMIK ELP 300 D (4 x 4) as well as on an ELP 500 to its customers. The before-after-comparison is essential when it comes to chip-tuning.

YOU WANT ANALOGUE SCALES?

The big and clearly designed display- and control cabinet with digital displays for pressure, RPM, traction force and temperature delivers all results at one glance.



VW Milan, Italy



ASL Auto-Service-Loeben, Berlin-Wildau, Germany

MANIFOLD OPTIONS:

- √ Workshop-righteous, modern PC-cabinet
- √ Metal coated rollers
- √ Second retarder for steady **measurement of wheel power** between 400 - 700 kW (ELP 500)
- √ Cooling fans (up to 50.000 m³ airflow per hour)
- √ Boogie (run free) roller set for use with double axle (ELP 500)
- √ **Active Loss Power Measuring** consisting of 1 frequency transformer (installed in steel-made cabinet) with E-Motor (infinitely variable) and mounting kit (bearings, clutch, torque lever, strain gauge sensor etc.) as well as **software for determination of loss and motor power**
- √ Sensor box for temperature and air pressure measurement (required for calculation of DIN power!)
- √ Contactless revolution detection (RPM) for petrol and diesel engines
- √ Detection of charge pressure, oil temperature, emission temperature
- √ **Fuel consumption meter** with software module
- √ Load simulator consisting of 2 hydraulic cylinders, 1 hydraulic aggregate, tightening belts, operation unit

Technical Information

	ELP 300	ELP 700 Highspeed	ELP 300 D 4-wheel	ELP 700 D 4-wheel/ Highspeed	ELP 500
Max. allowable drive-over load in kg	4000	4000	4000	4000	4000
Testing width min./max. in mm	750/ 2.150	750/ 2.150	750/ 2.150	750/ 2.150	500/ 2.850
Roller diameter in mm	318,5	452	318,5	452	318,5
Roller length in mm	700	700	700	700	990
Smallest testable wheel diameter in inch	10	10	10	10	13
Brake power per roller set with one retarder in kW	300	700	300	700	350
Brake power per roller set with two retarders in kW	-	-	-	-	500
Speed max. in km/h per roller set	250	350	250	350	200
Wheel power max. in kW per roller set	300	700	300	700	500
Traction force	0-6	0-8	0-6	0-8	0-20
Electrical connection in V/A without Active Loss Power Measuring	230/ 50/25	230/ 50/25	230/ 50/25	230/ 50/25	230/ 50/35
Electrical connection in V/A with Active Loss Power Measuring	400/ 50/63	400/ 50/63	400/ 50/63	400/ 50/63	400/ 50/125
Width roller set with one retarder in mm	3.050	3.050	3.050	3.050	4.070
Width roller set with two retarders in mm	-	-	-	-	4.960
Length roller set with one retarder in mm	1.000	1.090	1.000	1.000	1.200
Length roller set with two retarders (DUO) in mm	1.090	-	-	-	-
Height roller set in mm	400	600	400	600	500

AHS ■ DYNAMIK TEC

Power testing for cars and trucks: We don't guess, we measure!

New!

Standard Equipment roller bed	ELP 300	ELP 700 Highspeed	ELP 300 D 4-wheel	ELP 700 D 4-wheel/ Highspeed	ELP 500
Single piece roller bed for the testing of	cars	cars	-	-	cars/ trucks
Two roller beds, each one single-piece (can be used separately) for the testing of	-	-	cars	cars	-
Moveable covers between roller sets via E-motor	-	-	√	√	-
Precisely balanced rollers Ø in mm	318,5	452	318,5	452	318,5
Rollers at same level	√	√	√	√	√
Testing width min./ max. in mm	750/ 2150	750/ 2150	750/ 2150	750/ 2150	500/ 2850
Connection of front load rollers	√	√	√	√	√
Pneumatic lifting device	√	√	√	√	√
Air-cooled retarder, piece(s)	1	1	2	2	1
Modern, strain gauge sensors	√	√	√	√	√
Speed sensors	√	√	√	√	√
Standard equipment analogue version with display and control cabinet	ELP 300	ELP 700 Highspeed	ELP 300 D 4-wheel	ELP 700 D 4-wheel/ Highspeed	ELP 500
2 big analogue scales for power and speed	√	√	-	-	√
Digital displays for power, speed and traction force	√	√	-	-	√
Preparation for the integration of digital displays for temperature, RPM and charge pressure	√	√	-	-	√
Visual control via traffic-light system	√	√	-	-	√
Indicator lights for the pneumatic lifting device & the cooling fan	√	√	-	-	√
Remote control with regulator and function keys for lifting device, cooling fan, PC-system as well as switch for active loss power measuring	√	√	-	-	√
Special locks and silicon sealing	√	√	-	-	√
PC-interface	√	√	-	-	√
Lockable main switch	√	√	-	-	√
Standard Equipment screen version with PC-system	ELP 300	ELP 700 Highspeed	ELP 300 D 4-wheel	ELP 700 D 4-wheel/ Highspeed	ELP 500
Integration of electronics in separate cabinet (E-box)	√	√	√	√	√
Maintenance-friendly PC-desk with special locks (lockable main switch) and silicon sealing for the storage of the PC-system	√	√	√	√	√
PC-system incl. PC, DVD/CD drive, network interface card, 20 inch TFT-monitor, DIN A4 color ink jet printer, mouse, keyboard, Windows operating system*, testing software PICARO DYNAMIK**	√	√	√	√	√
Display of wheel power and optional loss- and motor power, speed, traction force, preparation of wheel temperature, oil temperature and RPM	√	√	√	√	√
Way distance measurement	√	√	√	√	√
Acceleration measurement with stop-watch function	√	√	√	√	√
Remote control with regulator and function keys for lifting device, cooling fan, PC-system as well as switch for active loss power measuring	√	√	√	√	√

Please order our foundation drawing. Please check all measurements on the premises.

*Attention: The equipment of the PC system is according to the standard of technology, deviations e. g. due to a new operating system are possible

**Testing software PICARO DYNAMIK with simple operation, dynamic presentation of measurement curves, reference measurements, customers data base, data editing etc.

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