

NEW DEVELOPMENT

MAHA Shock Tester MST 3000 For easy and accurate testing of shock absorbers and suspensions

Indirect Shock Testing based on the new THETA principle

Shock absorbers as safety relevant component.

Safe driving with intact shock absorbers.

Shock absorbers represent an essential safety-relevant component in motor vehicles: a rule of thumb is that the longer they are in use, the aging process makes damping less effective and negatively effects other damping elements, such as rubber mountings.

Unsafe driving

Poor steering control due to insufficient tire ground contact at braking or "buckling" in the curve are characteristics of reduced shock absorber performance. Another point is that the functionality of electronic safety systems such as vehicle brake ABS systems are negatively effected. Extreme difference in the shock effectiveness of the right and left-hand wheel of an axle lead to substantial driving instability. To minimize or eliminate these danger sources, these qualities need to be clearly qualified - and this can only be done with a physical unit .

A "unit" clearly qualifies the shock absorber quality .

The new MAHA-Shock-Tester MST 3000 was developed based on the generally applicable physical-mathematical correlation of the resonance principle:

The Lehrsche damping measurement δ or the damping degree δ .

Advantage: the test result is a physical variable.

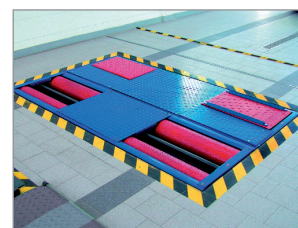
As an explanation:

The axle damping is dependent upon several damping components in the axle system- in particular from the installed shock absorbers- and from the axle bearing. Shock absorbers can only be tested indirectly in an installed condition. For this reason the entire axle damping quality is measured and from this measurement the quality of the damping components, in particular the shock absorbers, can be ascertained.

Using the basic principle for easy and accurate testing of motor vehicle axle damping, it is possible to compare the results of various test methods with one another, assuming the test stands measure the same physical variables. The concepts and systems on the market to date have not fulfilled these requirements because they all work with different principles. It was possible to show the quantitative test results, however, only with principle-based, manufacturer-specific variables. An evaluation of the axle damping quality was only possible if one and the same principle was used for the test!

Press Release
from 3rd July 2008
2 pictures

Topic:
Shock Absorber Tester
MST 3000



The new DELTA-principle from MAHA is used to establish a clearly defined value identifying exactly when the time has come to exchange various damping components.

MAHA's new DELTATHETA principle represents substantial progress.

It is all about offering a definite statement of quality for the tested axle's damping components. MAHA's new basic principle has made this a reality.

Advantages:

- Clear measurement results thanks to a measurable physical unit.
- Easy and accurate test.
- Comparability of all measurements results attained using this principle.
- A clearly defined value is the basis for deciding when to exchange worn damping components.

In this way, ideal prerequisites have been created should axle damping/ shock absorber inspection become obligatory for motor vehicles- this would of course require a uniform test principle. CITA Brüssel (umbrella organization for controllers) has, for a long time now, advocated the introduction of obligatory testing.

The requirements are already met: a procedure to show the quality of axle damping in a measurable unit (Lehrsches damping measurement or damping degree) has been created by MAHA, along with the suitable test device for accurate, easy testing of damping components in an installed condition providing the measurement values needed to evaluate quality; the MAHA-Shock-Tester 3000. An essential safety factor is the establishment of damping measurement limit values for damping components which are no longer fully functional.

MAHA Shock-Tester MST 3000 - Function and Performance

The MST 3000 essentially consists of 3 elements: the floor assembly with two test plates (parallelogram guided) – for the oscillation excitement in vertical direction. Both wheels of an axle to be tested are positioned on the plates. The plates can be operated together or individually. They are driven with electro-motors, which provide the excitement frequency via controllable RPM's. The floor assembly is installed inground in the workshop floor - it can also be integrated in a test lane. Graphical and digital display and documentation of measurement values appear on a screen. The measurement values can be called up and printed out at any time again. An alternative is the electro-cabinet (stand-up console) with control and display elements. Test results are shown on two well-structured pointer indicators in addition to a control for the fully automatic test procedure. To evaluate the damping measurement, they can be compared to new and limit values tables.

Optional: Printer for documentation of the measurement results.

Description of Features:

- Fully automatic test procedure
- Automatic test stand start after loading both test plates.
- Plate excitement via electro-motors up to 10 Hz.
- Coast down to standstill of maximum oscillation amplitude via inductive electronic displacement sensor.
- Evaluation of measurement results as units in THETA. (Lehrsches damping measurement or damping degree)
- Automatic measurement of axle and total weight.



MAHA's innovation.

Two relevant innovations have been introduced with the development of the new MAHA-Shock-Tester MST 3000 :

First of all, the proven applicability and sensible usage of the testing principle "Lehrsch Damping Measurement δ " and secondly, the optimum technical version of the MST 3000. Numerous trials and test series have shown that the testing principle in conjunction with the MST 3000 from MAHA is ideally suited for providing safe and informative values about the quality of shock absorbers. Just one of the many innovations developed and realized by MAHA reacting to market needs and protecting the lives of people.

MAHA as an important manufacturer: approximately 40% worldwide market share

When it comes to competency, performance and innovative drive in the production of all kinds of vehicle test stands and other measurement devices as well as complete systems to measure, control and adjust vehicle components, MAHA has been the market leader for many years now (founded in 1969). The production program is rounded out with vehicle lifts in various models. Subsidiaries and dealerships in over 130 countries worldwide is sure proof of successful business activities -not only as manufacturer and supplier, but also as service partner for customers as varied as automotive testing organizations, workshops and manufacturers. To underscore this, MAHA can show a 40% market share worldwide for the named products. Over 1000 employees work for MAHA worldwide.

MAHA Scope of Products: One-Stop Shopping

Test Equipment for Cars, Trucks, Motorcycles, Tractors, Forklifts, Airplanes

e.g. for brakes, performance, shock absorbers, side-slip, various functions, tachometers, tachographs, axle and wheel loads, headlights etc.

Lifting equipment in numerous models for all types of vehicles.

Measurement devices for: emission, in particular for diesel emission particles, noise level, vehicle air conditioning, deceleration, closing force, brake fluid, axle play .

For tires: equipment for mounting and balancing

Workshop planning, training for service technicians and users.

Technical information - custom tailored to your individual needs- can be requested:

MAHA-Homepage under www.maha.de,
using the "Contact" box or send your request to

MAHA Maschinenbau Haldenwang GmbH & Co. KG.

Mr. Hans-Peter Gorbach
Hoyen 20, 87490 Haldenwang, Germany
Tel: +49 (0)8374/585-0
Fax: +49 (0)8374/585-497
Internet: <http://www.maha.de>
E-Mail: hans-peter.gorbach@maha.de