

Decelerometer Model: VZM 300

For acquisition of acceleration and deceleration forces



- ▶ Lightweight, handy, mains power independent
- ▶ Menu controlled user interface
- ▶ Integrated pitch angle compensation
- ▶ Documentation through built-in printer
- ▶ For PC connection
- ▶ Determination of mean full deceleration (Guideline 71/320/EWG)

Premium Workshop
Equipment

Decelerometer for acquisition of acceleration and deceleration forces

Model: VZM 300

The decelerometer VZM 300 was developed specially for the measurement of brake decelerations during effectiveness tests on brake systems of vehicles and trailers in agreement with statutory requirements. It convinces through a number of useful functions and an attractive price. In addition, it offers the possibility, through the connection of different external sensors (brake pressure, pedal force etc.), to simultaneously display further parameters in order to assess the respective measurement.



For the measurement, the VZM 300 decelerometer is simply laid down on the floor in the vehicle.



Simple and clearly arranged user interface through menus displayed on the LCD display.



Additional recording of measured values through the pedal force sensor during brake testing.

Integrated Pitch Angle Compensation

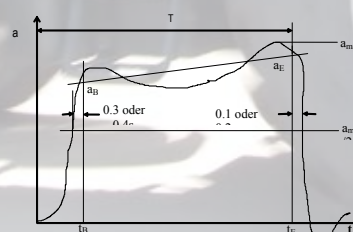
Owing to the pitching behaviour of the vehicle during the deceleration process, the deceleration values which are to be measured are influenced in an angle-dependent manner. In order to compensate this influence, the pitch angle is measured simultaneously with the deceleration value and saved. Subsequently the instrument will correct the measured deceleration values in order to compensate for the systematic error caused by the pitching effect.

Determination of Mean Full Deceleration

The calculation of **mean full deceleration** demanded by the **EC Directive 71/320/EWG** is displayed directly by the VZM 300 after the measurement. Thus a separate calculation run will no longer be required.

Mean Full Deceleration according to Guideline 71/320/EWG

$$a_{msN} = \frac{\frac{1}{2} \left(\sum_{i=B+1}^E \frac{a_{i-1} + a_i}{2} \times \Delta t \right)^2}{(t_E - t_B) \times \sum_{i=B+1}^E \frac{a_{i-1} + a_i}{2} \times \Delta t - \sum_{i=B+1}^E \sum_{j=B+1}^i \frac{a_{j-1} + a_j}{2} \times \Delta t^2 + \sum_{i=B+1}^E \frac{a_{i-1} + a_i}{4} \times \Delta t^2}$$



VZM 300

Brake testing, mobile and quick

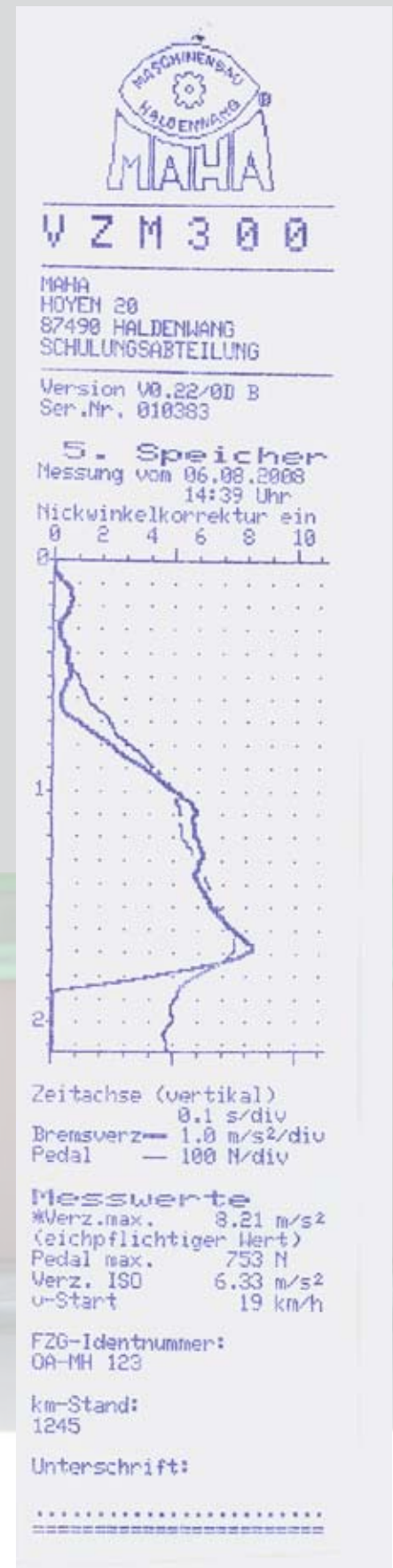
The Operating Steps

- ▶ Place the decelerometer horizontally in the vehicle.
- ▶ Accelerate the vehicle to test speed.
- ▶ Declutch and decelerate the vehicle down to standstill.
- ▶ Read off or print out the displayed measured values. Done!



The Functions

- ▶ Time referenced measurement and documentation of vehicle deceleration
- ▶ Fully automatic and manual operation is possible
- ▶ Menu controlled user interface
- ▶ Clearly arranged controls
- ▶ Alphanumerical keypad for entering the vehicle data
- ▶ Integrated dot matrix printer for logging the measurement data
- ▶ Indication of vehicle speed and stopping distance
- ▶ Pitch angle compensation
- ▶ Calculation of mean deceleration
- ▶ Calculation of mean full deceleration
- ▶ Calculation of trailer deceleration
- ▶ 6 measurements can be saved
- ▶ Up to five sensors can be connected simultaneously (pressure sensor pneumatic/hydraulic, pedal force, traction force)
- ▶ Precise indication through horizontal instrument position at the digital display
- ▶ Digital display of the measured values
- ▶ Rechargeable battery capacity for approximately 50 measurements (connection to a 12/24 V cigarette lighter is possible)
- ▶ Can be connected through the RS-232 or IrDA interface to a PC, with interfacing for standard spreadsheet software, e.g. MS-Excel, Lotus
- ▶ PTB approved 18.05
02.02



Accessories



- ▶ Pedal force sensor
 - ▶ Traction force sensor
 - ▶ Pneumatic pressure sensor
 - ▶ Hydraulic pressure sensor
 - ▶ Adapter for 12V power supply from the vehicle power through the cigarette lighter
 - ▶ Mechanical manually operated initiator
 - ▶ Additional analog display
 - ▶ Hand lever adapter for pedal force sensor
 - ▶ Multiple sensor connector for simultaneous connection of pedal/traction force sensors and three compressive force sensors
 - ▶ RS 232 interface cable including PC data transfer program with spreadsheet program interfacing
 - ▶ Plug-in charger (included with the VZM 300)
 - ▶ Plastic carrying case (included with the VZM 300)
- ▶ The closing pressure measuring device SKM 1 can be operated in connection with the pneumatic pressure converter with the VZM 300 decelerometer. The thus recorded measurement results can then be acquired and documented accordingly.

Technical Data

Measurement ranges

Brake deceleration	0 - 20 m/s ²
Pedal force measurement	0 - 1000 N
Pneumatic pressure sensor	0 - 20 bar
Hydraulic pressure sensor	0 - 300 bar
Traction force sensor	0 - 20 KN
Autoranging	1 / 2 / 3 / 4 / 10 / 20 / 30 / 50
Measured data storage	7 for 1000 meas. points / 14 for 500 meas. points

Power supply

Rechargeable battery	6 V / 1.8 Ah
Plug-in power supply	230 V / 15 V AC
Vehicle power connection	12 / 24 V
Current consumption	700 mA max.

Dimensions (L x W x H)

Dimensions (L x W x H)	260 x 124 x 60 mm
------------------------	-------------------

Weight

Weight	1 kg approx.
--------	--------------

Production Program:

Testing Technology for Cars, Trucks, Motorcycles, Tractors, Forklifts, Aircraft · Roller Brake Testers · Platform Brake Testers · Shock Absorber and Suspension Testers · Side-Slip Testers · Play Detectors · Roller Dynamometers for Performance and Function Testing · Speedometer Testers · Tachograph and Taximeter Testers · Axle and Wheel Load Scales · Scissors Lifts · Two- and Four-Post Lifts · In-Ground Lifts · Pit Jacks · Axle and Transmission Jacks · Mobile Column Lifts · Headlight Testers · Diesel Smoke Meters · Emission Testers for Petrol and Gas Engines · Sound Level Meters · Air Conditioning Service Equipment · Decelerometers · Closing Force Meters · Brake Fluid Testers · Complete Test Lanes for Cars and Trucks · Mobile Test Containers · Wheel Alignment Analysers · Wheel Balancers · Tyre Changers.

Additional Services: Workshop Design and Planning · Training Seminars for Users and Service Technicians

Visit our new MAHA-Online-Shop at www.maha-shop.de



MAHA Maschinenbau Haldenwang GmbH & Co. KG.

Hoyen 20 · 87490 Haldenwang · Germany

Tel.: +49 (0)8374-585-0 · Fax: +49 (0)8374-585-497

Internet: www.maha.de · eMail: sales@maha.de

- ▶ MAHA USA · Charleston SC · États-Unis
- ▶ MAHA U.K. Ltd. · Wisbech · Royaume Uni
- ▶ MAHA Ireland Ltd. · Dublin · Irlande
- ▶ MAHA Italy SRL · Parma · Italie
- ▶ MAHA Espana · Girona · Espagne
- ▶ MAHA Polska · Tarnowskie Góry · Pologne
- ▶ MAHA Russia · St. Petersburg · Russie

- ▶ MAHA LITA Bj. · Vilnius · Lituanie
- ▶ MAHA China · Pékin · R.P.C.
- ▶ MAHA Japan · Katakayūshū · Japon
- ▶ MAHA Consulting s.r.o. · Prague · République Tchèque
- ▶ MAHA Nederland B.V. · Vianen · Pays-Bas
- ▶ MAHA France Distrib. · Strasbourg · France
- ▶ MAHA South Africa · Northcliff · Afrique du Sud