

# Shock Absorber and Suspension Tester

for passenger cars and commercial vehicles  
**SA 2 / FWT 1 series**

Recommended by



- ▶ Fast and easy testing of suspension system
- ▶ Fully automatic test procedure
- ▶ Resonance test method (after Boge)
- ▶ Database with limit value table
- ▶ Noise detection option

Premium Workshop  
Equipment

# Shock absorber / Suspension tester for cars and vans

## SA 2 / FWT 1 series

### Driving safety - an important issue!

Proper suspension and shock performance assures better vehicle control and contributes to overall driving safety. Shock absorbers, axle joints and rubber mountings are subject to a slow wear and aging process that often goes unnoticed. MAHA's SA 2 / FWT 1 testers identify defective components and suspension problems before they lead to driving irregularities or dangerous situations.



### MAHA shock absorber and suspension testers

Shock absorber and suspension testers by MAHA ensure fully automatic, fast and convenient testing of the suspension system.

The test stands employ the resonance principle (measurement of maximum oscillation amplitude). This test method, approved by most vehicle manufacturers, provides extremely accurate results under variable marginal conditions such as weight, tire pressure or vehicle positioning.

The detailed printout for the customer includes measurement values, date, time, and company address. In addition, the clear graphical representation of the oscillation amplitudes by the EUROSYSYSTEM software makes test evaluation very easy. Comparison tests with former measurements or measurements of identical vehicles are also possible.

#### Further advantages for auto service workshops:

- ▶ Image-building by professional suspension service
- ▶ Increased capacity utilization and parts turnover by resulting repair orders

#### Test stand features:

- ▶ Fully automatic testing procedure
- ▶ Automatic test stand start-up once both test plates are loaded
- ▶ Plates activated to high resonance (16 Hz) by motor. During coast-down period maximum amplitude is measured by inductive electronic displacement sensor
- ▶ Evaluation available in three versions:
  - 1) Amplitude measurement in Mm
  - 2) Percentage evaluation
  - 3) Test result interpretation
- ▶ Screen display with measured values in Mm and percentage, left/right difference and graphical representation (EUROSYSYSTEM)
- ▶ Automatic storage of measured values until next vehicle drives onto test plates
- ▶ Automatic measurement of axle and total weight
- ▶ Manual control for noise detection (option)
- ▶ Printout including date, time, company address and graphic (option)
- ▶ Expansion to complete test lane possible

## The standalone version: SA 2 D / FWT 1 D...

Standard delivery includes the display unit in combination with either floor assembly SA 2 or FWT 1. The digital indicators and the test stand control are integrated in the display unit. The measured values can be displayed in Mm (Mahameter) or in percentage and can be easily compared with a MAHA critical limit value table. An operational signal lamp stays lit during the entire test phase preventing premature exiting of the test stand.

Display unit with pedestal



Floor assembly SA 2

Floor assembly FWT 1

Printer on display unit is optionally available.



Tape printer printout (scaled down)

```

Fa. MUSTERMANN
Hauptstr. 9
12345 Großstadt

11:04      01.09.03

Suspension

Front axle
Axle load : 643 kg
Load left : 313 kg
Load right : 330 kg

Action in %
left difference right
65 %   9 %   71 %

Action in Mm
left difference right
27 Mm  15 %  23 Mm

No neg. result

Rear axle
Axle load : 583 kg
Load left : 299 kg
Load right : 284 kg

Action in %
left difference right
88 %   3 %   82 %

Action in Mm
left difference right
17 Mm  12 %  15 Mm

No neg. result

License plate:
.....

Inspector:
.....

Odometer reading:
.....
    
```

Printout documents the test results for the customer

### Comparison of the floor assemblies

MAHA developed two different types of floor assembly to suit customers' requirements:

The **shock absorber tester SA 2** and the **suspension tester FWT 1**.

The floor assemblies differ from each other in their mechanical construction. The test plates of the SA 2 series have "parallelogram guidance" and are remarkable for their compact and flat design. This test stand is especially suitable for usage in test lanes with high vehicle throughput.

The test stands of the FWT 1 series are of equally rugged design. The trough-shaped form of the test plates assists in positioning the vehicle wheels correctly.





Simultaneous analog display (option)

EUROSYSTEM communication desk

SA2 floor assembly integrated into EUROSYSTEM test lane

## ...and the test lane version: SA 2-/FWT 1-EUROSYSTEM

The floor assemblies SA 2 and FWT 1 have modular design and can be easily combined with the EUROSYSTEM communication desk.

The measured values are clearly displayed on the screen in graphical or digital representation.

In addition, the measured values are compared with the vehicle manufacturers' limit values before being stored in the database.

The stored values can then be called up and printed out as required.



### Program menu

Easy operation with user-friendly Windows® desktop.

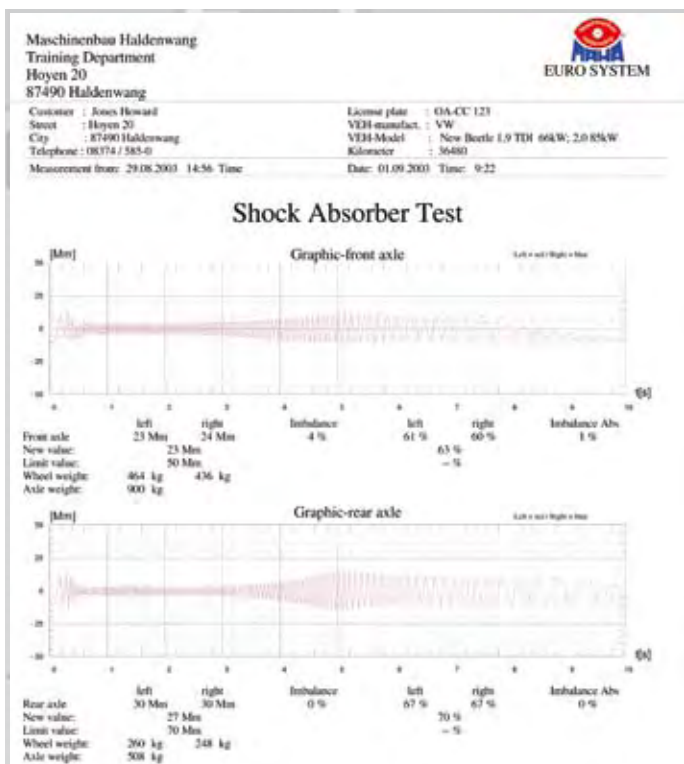


### Shock absorber test

Clear display of measured values in graphical or digital representation. Test evaluation possible by using limit value table included in EUROSYSTEM software.



Sample printout (scaled down)



## Table of new and limit values:

A table of new and limit values is available for all MAHA shock absorber testers. This table is included in the EUROSYSTEM software package. In addition, the user can store new values or change existing ones.

## Noise detection option for the SA 2 / FWT 1 series

Recent developments in vehicle technology have led to a considerable noise reduction in the interior of modern passenger cars. Consequently, customers are much more sensitive to disturbing noises occurring in the passenger compartment. Noise simulation on public roads is often time-consuming and unreliable. Therefore, MAHA introduced a new test method:

**The noise detection option for the shock absorber and suspension tester series SA 2 and FWT1.**



### Noise detection

The main component of the noise detection option is a frequency converter, which is used for regulating the test stand in a frequency range from 5 to 50 Hz. In this way the frequency ranges where noises have occurred can be manually adjusted and maintained until the source has been localized.



The test plates can be used in **single** or **simultaneous** operation.

Disturbing noises can be easily detected and localized thanks to the silent running of the test stand .

After the noise problem has been remedied, a recheck can be done on the shock absorber tester to make sure the noise has been thoroughly eliminated.



Activation and frequency setting are displayed on the EUROSYSTEM screen. The functions of the noise detection option can also be selected via an optionally available remote control.

- ▶ **MAHA supplies workshops with an effective aid module to assist in searching for and eliminating disturbing noise sources in vehicles.**
- ▶ **Quick noise recognition is possible thanks to an adjustable frequency range covering all possible noise sources.**
- ▶ **Time and personnel intensive noise simulation on public roads become a thing of the past.**
- ▶ **All SA 2 and FWT test stands can be equipped or retro-fitted with the noise detection module**
- ▶ **The installation on site is kept to a minimum thanks to a separate control cabinet.**



## Specifications

Floor assembly	SA 2	FWT 1
Track width max.	2200 mm	
Track width min.	800 mm	
Vibration amplitude	9 mm	7.5 mm
Vibration frequency	approx. 16 Hz at 50 Hz rated frequency approx. 20 Hz at 60 Hz rated frequency	
Measurement range	max. 100 mm	
Display accuracy	1 % of end value	
Axle load, test (normal / reinforced)	1100 kg / 2000 kg	
Axle load, drive-through	2500 kg / 13000 kg (option)	
Power supply	3~ 230 V / 400 V, 50/60 Hz	
Fuse protection	16 A	
Motor power	2 x 1.1 kW	
Total weight	approx. 500 kg	
Floor ass. dimensions (L x W x H)	2320 x 800 x 280 mm	
Packaging dimensions (L x W x H)	2400 x 1000 x 700 mm	
Test stand start-up	automatic, with 60 kg load (adjustable)	

## Display / Control

### SA 2 D / FWT 1 D "Standalone"

Display unit	digital
Control	fully automatic via microprocessor
Dimensions incl. pedestal (H x W x D)	1400 x 400 x 250 mm
Printout options	Mm / % / difference / interpretation / axle weight

### Combination with EUROSISTEM

Display unit	digital and/or analog
Control	fully automatic via communication desk
Dimensions of communication desk (H x W x D)	1400 x 800 x 670 mm
Display options	Mm / % / difference / interpretation / axle weight

## 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



**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](http://www.maha.de) · eMail: [sales@maha.de](mailto:sales@maha.de)

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