



# Test Report

## STIHL MS 650

**OWNER OF THE TEST CERTIFICATE:**

**Manufacturer and applicant:**

Andreas Stihl AG & Co KG

Badstrasse 115

D-71336 Waiblingen

[www.stihl.de](http://www.stihl.de)



# Test Results and Evaluation



## STIHL MS 650 Chainsaw with 50 cm cutting length

Andreas Stihl AG & Co. KG, Badstraße 115, D-71336 Waiblingen

| Test item  | Test results  |                    |                           |           | Evaluation |
|--|---|--------------------|---------------------------|-----------|------------|
| Function   | Chain saw in the power class over 4 kW;<br>for professional use |                    |                           |           |            |
| <b>Engine power</b>  |   |                    |                           |           |            |
| Power  | Engine speed  | Torque             | Spec. fuel consumption    | NE        |            |
| max. 4.8 kW  | 9500 min <sup>-1</sup>  | 4.8 Nm             | 56.5 kW/l                 |           |            |
| 3.7 kW   | 6500 min <sup>-1</sup>  | max. 5.4 Nm        | 43.5 kW/l                 |           |            |
| <b>Fuel consumption</b>  |   |                    |                           |           |            |
|  | max. power  |                    | max. torque               |           |            |
| absolute / specific  | 3.3 l/h   | 512 g/kWh          | 2.8 l/h                   | 575 g/kWh | O          |
| <b>Exhaust emission complies with level 1 of the standard 2002/88 EG</b>                   |   |                    |                           |           |            |
| <b>Chain lubrication</b>   |   |                    |                           |           |            |
| Oil consumption  | at 5000 min <sup>-1</sup>                                       |                    | at 9000 min <sup>-1</sup> |           | .          |
| min / max  | 6ml/min   | 9 ml/min           | 11 ml/min                 | 18 ml/min | O          |
| <b>Sound pressure level</b>  |   |                    |                           |           |            |
|  | idling speed  |                    | full load speed           |           |            |
| at ear of the operator   | 85 dB(A)  |                    | 103 dB(A)                 |           | O          |
| Equivalent sound pressure level, total value 100 dB(A) (average of idle and loaded levels) |   |                    |                           |           |            |
| Acoustic power 118 dB(A) according to the standard 2000/14/EG                              |   |                    |                           |           |            |
| <b>Vibrations</b>  |   |                    |                           |           |            |
|  | idling speed  |                    | full load speed           |           |            |
| front handle   | 7.4 m <sup>2</sup>  |                    | 6.0 m/s <sup>2</sup>      |           | O          |
| rear handle  | 7.3 m/s <sup>2</sup>  |                    | 6.1 m/s <sup>2</sup>      |           |            |
| Total equivalent vibration front/rear 6.8 / 6.8 m/s <sup>2</sup>                           |   |                    |                           |           |            |
| <b>Chain brake</b>   |   |                    |                           |           |            |
| Handguard activation   | Actuating force   | aver. braking time | max. braking time         |           | NE         |
|  | 30 N  | 0.07 s             | 0.08 s                    |           |            |
| Inertia activation   | horizontal acceleration   |                    | vertical acceleration     |           | NE         |
|  | 335 m/s <sup>2</sup>  |                    | 610 m/s <sup>2</sup>      |           |            |
| <b>Kickback</b>  |   |                    |                           |           |            |
| Cutting equipment 50 cm, 3/8"  | Kickback angle with brake                                       |                    | Chain stop angle          |           | NE         |
| Full chisel tooth  | Measurement not required  |                    | Measurement not required  |           |            |

## Stihl MS 650

|                                 |  |                           |   |
|---------------------------------|--|---------------------------|---|
| <b>Mass</b>                     |  |                           |   |
| Weight per unit power           | With cutting equipment   | Without cutting equipment | + |
|                                 | 1.9 kg/kW  | 1.5 kg/kW                 |   |
| <b>Operability / handling</b>   |  |                           |   |
| Control elements                | Easy to reach and use  |                           | + |
| Chain oil flow adjuster         | Operation impeded (position, dirt)                                     |                           | - |
| Primer                          | Decompression valve  |                           | + |
| Chain assembly                  | easy, drive sprocket easily accessible                                 |                           | 0 |
| Chain tensioning                | simple, on the side  |                           | 0 |
| Heated handle                   | not available  |                           | - |
| <b>Maintenance</b>              |  |                           |   |
| Air filter and spark plug cover | Removable without tools  |                           | + |
| Casing                          | Requires tools   |                           | 0 |
| Air filter                      | cleaning   | No tools required         | + |
|                                 | soiling  | normal                    | 0 |
| Special features                | Compensator for optimal fuel/air mixture when air filter is clogged-up |                           | + |
| <b>Reliability</b>              |  |                           |   |
|                                 | No defects during the test   |                           | + |
| <b>Operating manual</b>         |  |                           |   |
|                                 | clear, well illustrated  |                           | + |
| <b>Operator safety</b>          |  |                           |   |
| EG-type examination test        | (DPLF) Test certificate No. K-EG 2004/3925                             |                           |   |
| GS-Test                         | (DPLF) Test certificate No. K-GS-2004/3926                             |                           |   |

Rating: ++ / + / 0 / - / --./.(0 = Standard / NE= no evaluation, complies with tolerance value)

Tolerance values and evaluation criteria are described in the "Informationen zur Gebrauchswertprüfung" ("Information about the type examination test"). This publication is available from the DLG and the KWF.

## Description and Technical Data (measured values)

## Stihl MS 650

### Engine

- Air-cooled single-cylinder two-stroke engine;
- engine displacement 84.9 cm<sup>3</sup>; bore 52 mm; stroke 40 mm;
- Fuel: minimum octane number 90 ROZ; mixed lubrication, 2T-special fuel with "KWF-TEST" or normal unleaded gasoline;
- Spark plug Bosch WSR-6F or NGK BPMR 7A.
- Idling speed 2500 min<sup>-1</sup>; max. speed 12600 min<sup>-1</sup>
- Membrane carburettor Walbro.

### Cutting equipment

- Clutch drum with external chain sprocket;
- Guide bar with sprocket nose, type Rollomatic E;
- full chisel tooth, 3/8" pitch.

### Additional equipment (not tested)

- Guide bars for 40, 45, 63, 75, 80 and 90 cm cutting lengths;
- Heated handle not available

### Main dimensions and weights

|               |                                |        |
|---------------|--------------------------------|--------|
| Length,       | incl. cutting equipment 50 cm  | 940 mm |
|               | engine unit with spiked bumper | 470 mm |
| Width,        | engine unit                    | 205 mm |
|               | incl. handle                   | 267 mm |
| Height,       | engine unit                    | 221 mm |
|               | with front hand guard          | 320 mm |
| Stump height, | chain sprocket cover           | 23 mm  |
|               | handle                         | 33 mm  |
| Tank volume,  | fuel                           | 0.82 l |
|               | chain oil                      | 0.36 l |
| Weight,       | incl. cutting equipment 50 cm  | 9.0 kg |
|               | without cutting equipment      | 7.3 kg |

## Test

### Test carried out by:

Kuratorium für Waldarbeit und Forsttechnik Groß-Umstadt  
DLG-Testzentrum Technik & Betriebsmittel Groß-Umstadt

### Field test

Waldwirtschaftsverband Schweiz, Solothurn  
Forstliches Bildungszentrum Königsbronn  
Landesanstalt für Ökologie, Bodenordnung und Forsten, Arnshausen

### Authors

Harald Krämer, DLG, Groß-Umstadt  
Dietmar Ruppert, KWF, Groß-Umstadt

### FPA/DLG Testing commission

“Geräte und Werkzeuge“ (“Equipment and tools”) with 16 members  
Chairman: Josef Berthold

### FPA / DLG-Acceptance:

May 2005  
FPA-Index: 1.01.4024  
DLG-Test Report: 5493

The applicant is entitled to display the test mark on machines of this type according to the test regulations and to use the certification for advertising purposes.

### DLG-Testzentrum Technik & Betriebsmittel Groß-Umstadt

Max-Eyth-Weg 1  
D-64823 Groß-Umstadt

Telephone: 06078/96 35-0  
Fax: 06078/9635-90  
E-mail: [H.Kraemer@dlg.org](mailto:H.Kraemer@dlg.org)  
Internet: [www://dlg-test.de](http://www.dlg-test.de)

### Kuratorium für Waldarbeit und Forsttechnik e.V. (KWF)

#### Forsttechnischer Prüfungsausschuss (FPA)

Spremler Straße 1  
D-64823 Groß-Umstadt

Telephone: 06078/785-0  
Fax: 06078/785 50  
E-mail: [Dietmar.Ruppert@kwf-online.de](mailto:Dietmar.Ruppert@kwf-online.de)  
[www.kwf-online.de](http://www.kwf-online.de)

## Stihl MS 650



**ENTAM** European Network for Testing of Agricultural Machines, is a cooperation between European test stations. ENTAM aims to distribute test results for agricultural and forestry equipment throughout Europe.

For more information about the network visit [www.entam.com](http://www.entam.com) or contact ENTAM at the following e-mail address: [info@entam.com](mailto:info@entam.com)