



# Operating Instructions

## Runout Measurement Device

# RPV1300

Runout measurement device for heavy vehicle tyres

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GEB 001 128



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Burgwedel 11.12.17  
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# 1 General Safety Instructions

## 1.1 Operator's duty of care



The runout measurement device RPV1300 has been designed and built after thorough selection of applicable harmonised standards. It therefore corresponds to the current state of the art and offers the highest degree of safety during operation.

**The device may only be structurally modified with written authorisation by the manufacturer!**

Device safety can only be implemented during practical operation if all required applicable measures have been taken. The operator's duty of care includes planning such measures and checking their implementation.

In particular, the operator has to ensure that

- the device is only used for its intended purpose
- the device is only used in a fully functioning state and free from defects
- the complete operating instructions are permanently available in a readable condition at the operating location of the device
- only accordingly qualified and authorised personnel operate the device
- personnel are regularly instructed in all relevant health and safety issues and are familiar with the operating instructions, in particular with the safety instructions contained therein
- all safety and warning notices attached to the machine are not removed and are legible.

## 1.2 Basic safety precautions



The runout measurement device may only be used by accordingly qualified and authorised personnel who are familiar with these operating instructions and can work in accordance with these instructions!

Prior to each use of the device it has to be checked for visible damage and it must be ensured that the device is only operated when free from defects! Any defects that are identified must be reported to a superior immediately!



Laser product  
CLASS 2  
TYPE 1

Warning - laser radiation

This symbol indicates potential danger to persons. (risk of injury)

Some basic instructions must be followed for all lasers:

- **Never look directly into the beam!**
- Define beam paths precisely!
- Avoid dangerous reflections. Pay particular attention to reflective or shiny surfaces as these can cause reflections.
- Turn off the laser after work has finished!



The lasers used are Class 2 laser products. The laser radiation generated is not hazardous to the eyes for short periods of exposure (up to 0.25 s). If you accidentally look into the laser beam for a short period, the eye is protected by the blink reflex.

**NEVER INTENTIONALLY LOOK INTO THE LASER BEAM!**

If you have reason to believe that your eyes has been damaged by the laser beam, seek the advice of an eye specialist immediately.



Please refer to the accident prevention regulation (VGB 93 *Laser radiation*) for further safety instructions for working with lasers.



The user is independently responsible for proper operation and compliance with safety regulations.



The system must be protected against moisture at all times.

This applies in particular during transport and storage of the entire device case.

Ensure that the storage location is dry and free from dust and that the storage temperature does not fall below 0 °C.

## 2 Product Description

### Runout Measurement Device RPV1300

Item No. 900 008 214 (standard)



Technical modifications reserved.

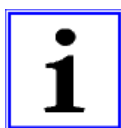
**Version 1.3**

Images: HAWEKA AG / D-30938 Burgwedel

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## 2.1 Authorised intended use

- The runout measurement device RPV1300 has been developed to allow optimisation of runout of large tractor wheels and other heavy vehicle wheels for agricultural and earthmoving machinery.
- It is exclusively intended for quickly measuring runout of the vehicle rim while simultaneously measuring runout of the vehicle tyre.
- Using the runout measurement device allows determination of the ideal positioning of the tyre on the rim through measuring.
- The wheel for testing has to be clamped well centred to the vehicle (tractor) or another suitable rotation device, e.g. a mounting machine (see page 18).
- The wheel for testing has to have a clear, countable number of tread lugs and be new or as new.



### Note

The operator of the runout measurement device rather than the manufacturer shall be liable for all personal injury and property damage caused by incorrect use!

## 2.2 Description of the area of application:

Tolerances caused by production often cause deviations in runout of rim and tyre. These deviations can have a negative effect on the runout of the wheel through accumulation of the tolerances, causing the vehicle to vibrate and even “bob”.



(Vehicle vibrations)

The runout of the individual wheel is also tested and – if necessary – optimised to be able to make a statement about this value. The laser sensors of the runout measurement device RPV1300 measure the rim on both sides, in the area of the hump (tyre seating on the rim) and the tyre over the tread lugs and evaluates it using the program.

The RPV1300 program uses the recorded measurement values to determine the best possible position of the tyre in relation to the rim.

Afterwards, the smallest runout between the two components can be achieved through targeted rotation of the tyre on the rim (matching).



## 2.3 Technical Data

### Functions of distance measuring

Distance measuring range 80 - 120 mm

Measuring tolerance +/- 0.01 mm

Power supply for laser sensors through USB slot of computer

Laser class 2 -> DIN EN 60825-1

Sampling rate 130 Hz

Protection rating IP 54

Temperature range 0 °C - +50 °C

## 2.4 PC system requirements for RPV1300

Required operating system: Windows XP, Windows 7, 8.1, 10

### Minimum hardware requirements:

Processor: Pentium IV – AMD Athlon 1 GHz

RAM: 512 MB (Windows XP) / 1024 MB (Windows 7, 8.1, 10)

100 MB available hard disk space

Graphics: 1024 x 768 pixel resolution / High Colour

Sound card

Port: USB 1.1

CD-ROM drive

### Recommended:

Processor: Intel or AMD with 1.6 Ghz or better

RAM: 1024 MB

Graphic card with 16 MB AMD (ATI) or NVIDIA chipset or better

1280 x 1024 pixel resolution / True Colour

Printer

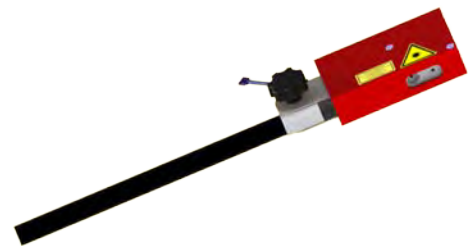
## 3 Equipment provided

### 3.1 Parts list for standard version RPV1300

- 2 Laser sensors including telescopic tube  
Item no. 900e008 334



- 1 Laser sensor including support tube  
Item no. 900e008 335



- 3 Tripods  
Item no. 900e008 340



- 2 Tripod heads including tube  
Item no. 900e008 332



- 1 4-port USB hub 2.0 hub  
Item no. Du-US75012034



- 1x USB-Stick  
Program  
RPV1300



- 1 operating manual  
Item no. GEB 001 127



- 1 transport case  
Item no. 900e008 336



Please contact your sales representative for additional accessories.

## 4 Commissioning

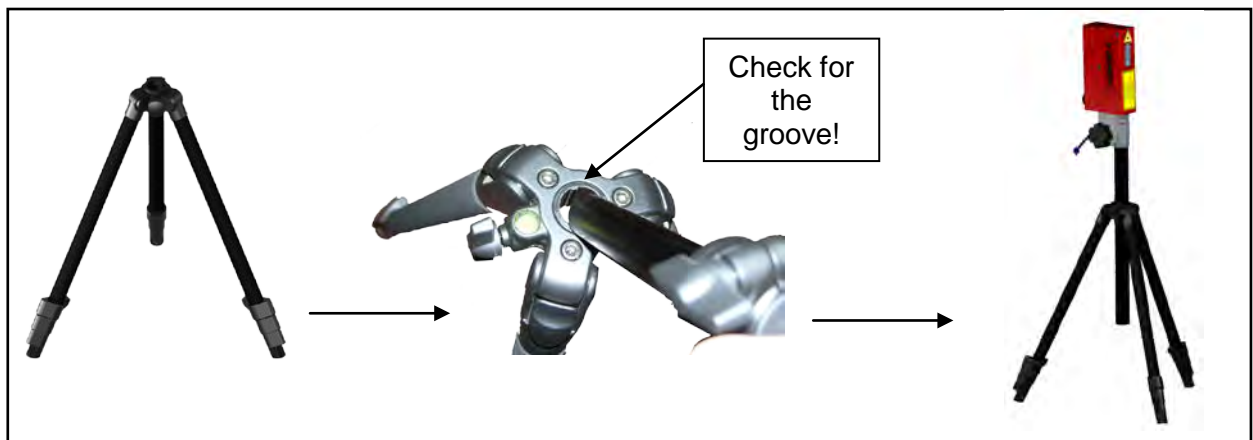
The following tasks are required for first use of the runout measurement device:

- 1 Mounting the laser tripods
- 2 Installing the software in Windows
- 3 Setting up the RPV1300 software.

### 4.1 Mounting the laser tripods

#### 1 tripod for tyre measurement:

Insert the laser sensor incl. support tube into the tripod and screw in. (Fig. 1)



(Fig. 1)

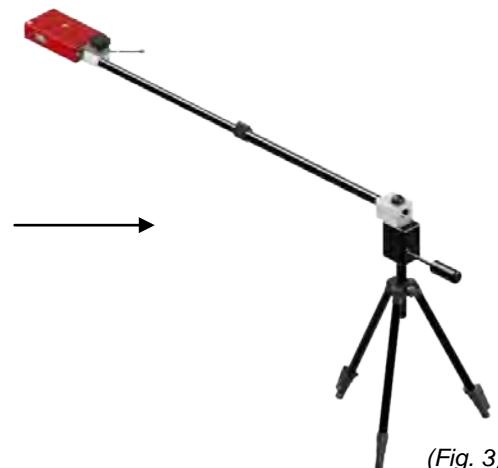
#### 2 tripods for rim measurement

Insert tripod head including tube into the tripod and screw in. (Fig. 2)



(Fig. 2)

Insert the laser sensor including the telescopic tube into the snap-in fixture on the tripod head. (Fig. 3)



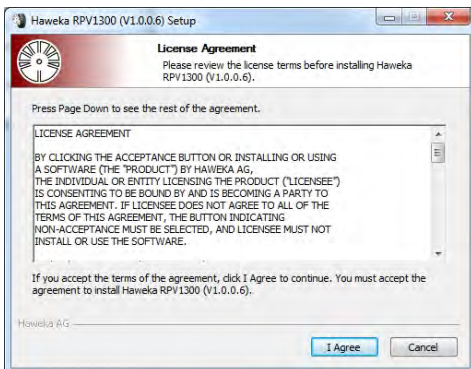
(Fig. 3)

## 4.2 Installing the software in Windows



(Fig. 4)

- Close all open applications on the computer.
- Insert the USB-Stick (Fig. 4) into the PC.  
If the installation wizard does not start automatically, click **Start** on the Windows task bar and then click **Run**. Enter `D:\rpv1300setup_1.04.004.exe`, where **D** is the drive letter of the USB-Stick.



- Confirm the Windows security warning if necessary and click **Run**.
- Read the licence agreement and follow the instructions of the installation wizard on screen. (Fig. 5)
- When the installation procedure has completed, the RPV1300 software and the driver for the laser sensors have been installed on the computer.
- Remove the *USB-Stick* from the PC after installation.

## 4.3 Installing the laser driver



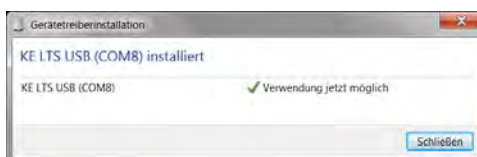
(Fig. 6)

The driver for the laser sensor is automatically added to the PC system during installation of the RPV1300 program



(Fig. 7)

- A Windows security information is displayed during installation of the driver.  
In this window, select “*Install this driver software anyway*” (Fig. 7)



(Fig. 8)

- When one or more laser sensors are connected to the free USB ports on the USB hub of the PC after installation, the new hardware is recognised and added to the system. (Fig. 8)

## 5 The RPV1300 Program

We have taken great care to ensure that the entire program is straightforward and clear so that the user can monitor and operate the device at all times with ease.

You will learn how to use this program to determine the rim and tyre geometry of a vehicle wheel in a very short time.

In just a few steps, help texts and graphical illustrations guide you through the different parts of the program and provide sufficient information about the program at all times.

Before you begin with your first measurement, however, the most important program parameters have to be set up for individual use.

### 5.1 Setting up the software

- Start the program.  
Click on the RPV1300 icon on the desktop or in Windows select:  
*START - ALL PROGRAMS - HAWEKA – RPV1300 / RPV1300.*



(Fig. 9)

After program start select the option “**Settings**” for the first basic setting.

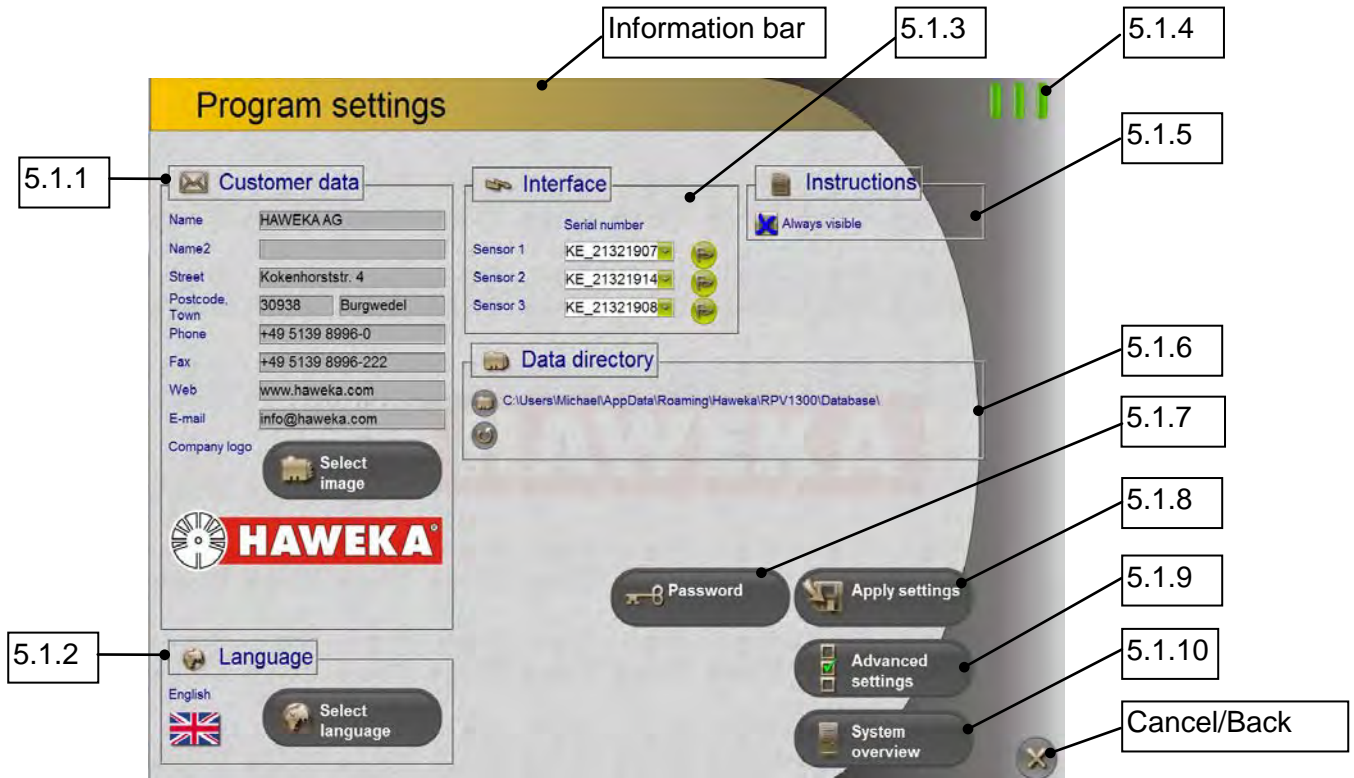


#### Note

The “**Start measurement**” button only becomes active when at least 2 laser sensors are connected to the PC.



Overview of the program settings page



(Fig. 10)

5.1.1 Customer data:

Enter your company name on the applicable lines so that the name can be included and printed on the measurement protocol. (Fig. 10)

**Select image** button:

A company logo can be saved to be displayed on the log.

Supported file types: BMP, JPG, GIF, PNG

The image size is scaled.



**Note**

Image files that are too small are enlarged, reducing their quality. The smallest format should be 400 x 200 pixels at 72 dpi.

5.1.2 Language:

Click on the **Select Language** button to display menus and all instructions in a different language. (Fig. 11)



(Fig. 11)

5.1.3 Interface for laser sensor:

After successful installation, new virtual COM interfaces are added to the system, depending on the number of connected laser sensors.



**Note**

The entry with the new COM interface can be verified in Windows device manager.

Each laser sensor requires one free USB port.

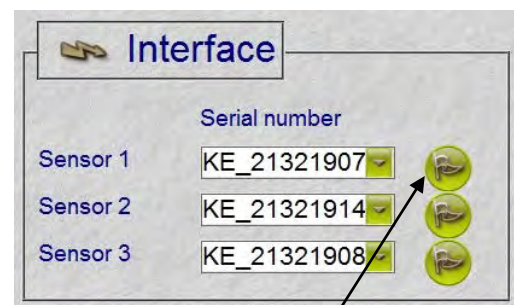
The supplied USB hub (Fig. 12) is connected to a USB port on the PC, allowing connection of the individual laser sensors.



(Fig. 12)

The program can control up to three laser sensors.  
(Fig. 13)

When the program has detected a laser sensor it will display the corresponding serial number.



(Fig. 13)

Description of symbols:

Display is grey. No laser sensor detected.

Display is green. Laser sensor was connected and detected.

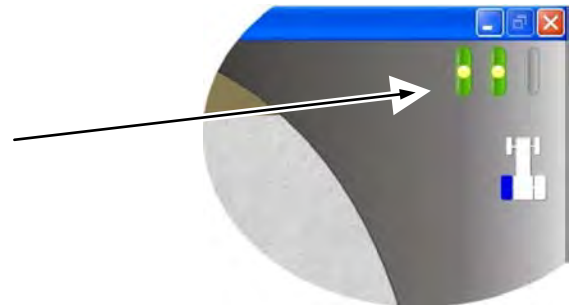
Display is red: Flash test on the laser sensor.



5.1.4 Laser symbol information:

During the entire program execution the connection to the laser sensors and the measurement procedures is verified and displayed at the top right.

(Fig. 14)



(Fig. 14)

Description of symbols:

Display is grey. The laser sensor is not connected to the system. Unknown state. (Fig. 15)



(Fig. 15)

The display flashes yellow and red alternately. The program is attempting to establish a connection with the lasers. (Fig. 16)



(Fig. 16)

Display is green. Connection to laser established. (Fig. 17)



(Fig. 17)

Display is green with a red centre: The connection is established but no measuring points were found, or flashing during setup of laser sensor (Fig. 18)



(Fig. 18)

Display is green with a yellow centre: Connection is established and wheel was detected. Ready to for measurement recording (Fig. 19)



(Fig. 19)

Display is striped grey/yellow. Laser was removed from the interface. (Fig. 20)



(Fig. 20)

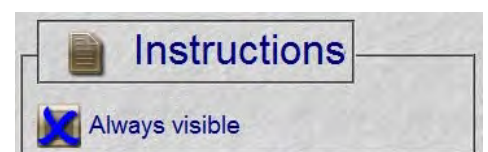
Display is red. Error in of measurement recording. (Fig. 21)



(Fig. 21)

5.1.5 Instructions

Specifying the default for displaying/hiding operating instructions during measurements. (Fig. 22)



(Fig. 22)



The instructions window can be displayed/hidden at any point in the program. Click on the **Instructions** button on the program page.





### 5.1.6 Data directory

All vehicle measurements are saved in a log file. The preset file path is:

*My\_Documents\UserName\AppData\HaweKa\RPV1300\Database\* (Fig. 23)



(Fig. 23)

To change the file location, click on “**Folder**”:



To reset the default path, click on “**Reset**”:



### 5.1.7 Password

**This function is used only by our service personnel to carry out system diagnostics.**

This option allows our service personnel to implement program-specific changes. (Fig. 24)



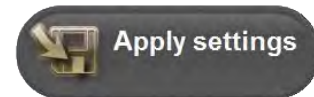
(Fig. 24)

### 5.1.8 Saving program settings



All settings must be confirmed by clicking “**Apply settings**”.

**Note**



### 5.1.9 Advanced settings

Under advanced settings, the user has the option of personalising the program. (Fig. 25)

To customise settings, select the applicable parameter in the table and change the value.

The modified entries must be confirmed by clicking “**Accept values**” (Fig. 26).



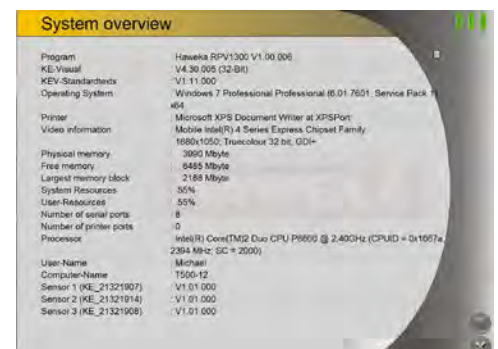
(Fig. 25)

### 5.1.10 System overview

The system overview provides a list of the components used, the PC, the sensor and the program versions. This information is used by the service technician to gain an overview of the system in the event of errors. (Fig. 27)



(Fig. 26)



(Fig. 27)

## 6 Preparing for measurement recording

Different preconditions have to be met on the vehicle wheel for correct measurement.

- Drive the tyre for approx. 15 min. to warm it up and prevent flat spots
- Check that the vehicle has rims and tires of the same size
- Check that the tire pressure is correct
- Remove any dirt from wheel and tyre and clean these.
- Check wheel for sufficient tread depth (tread lugs have to be clearly visible)

### 6.1 Preparatory measures

#### Variant 1

##### Jacking up the car

(Fig. 28)

- Secure vehicle against rolling away.
- Lift the vehicle at the axle to be measured using a suitable lifting device until the wheel can be rotated freely.
- Prevent vehicle from inadvertent lowering. (e.g. support stands)



(Fig. 28)

#### Variant 2

##### Vehicle wheel on tyre mounting machine

(Fig. 29)

- Clamp the vehicle wheel using a suitable\* lorry tyre mounting machine, following instructions and ensuring exact centring.
- The wheel has to rotate freely.



**Note**

- \* Observe the rotational speed of the tyre mounting machine. See table on page 24.

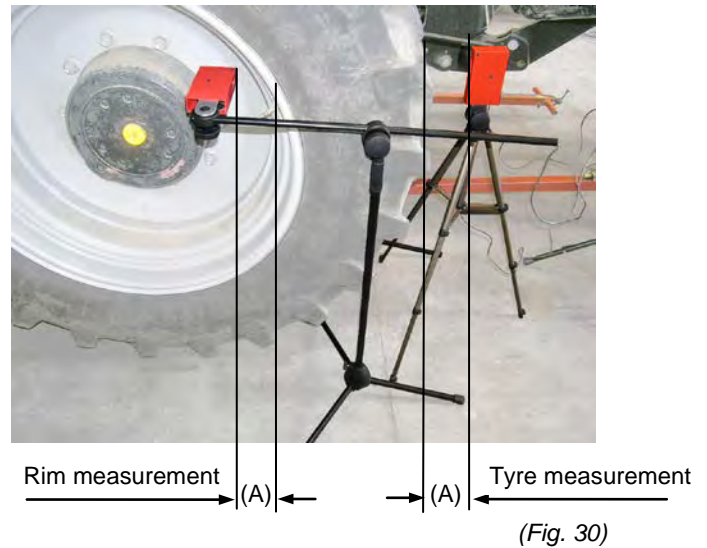


(Fig. 29)

6.1.1 Setup of measuring device on vehicle wheel

Depending on the version, 2 or 3 sensors are placed at the vehicle wheel.

The positions of the laser sensors on the wheel are determined to create a distance (A) between sensor and measuring point in the range of 80 to 120 mm.  
(Fig. 30)



Laser sensor for tyre

The laser sensor is placed approx. 50 mm away from the centre (to the left or right) of the tread so that it faces a tread lug. (Fig. 31)



When setting up the laser sensors ensure that all laser sensors are aligned on a level passing through the vehicle axle.

Measuring level

The measuring points have to be on a level with the vehicle axle, with a tolerance of  $\pm 1$  cm (Fig. 32).

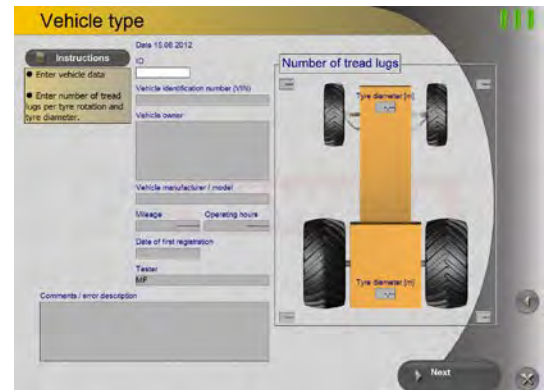


# 7 Measurement recording

## 7.1 Entering vehicle, wheel and rim data in the program

At least two laser sensors are connected to the PC and the PC is switched on. The program *rpv1300* is running and is set to the start page.

- Click on “**Start measurement**”.
- Enter vehicle data. (Fig. 33)

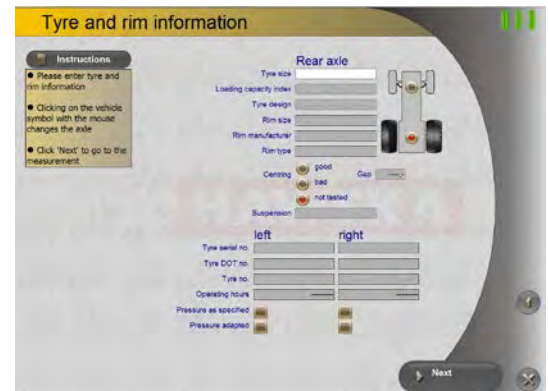


(Fig. 33)

**Entering the correct wheel geometry with number of tread lugs and wheel diameter is absolutely required for evaluation.**

**Note**

- Click “**Next**” to finish vehicle entry and continue to the next program page. (Fig. 34)
- Select front or rear axle on the model on the right.
- Enter tyre and rim information in the corresponding fields.



(Fig. 34)

### Information about centring:

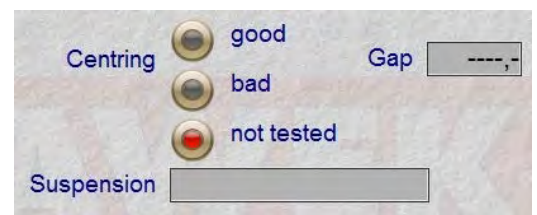
How well is the wheel mounted on the hub? (Fig. 35)

**GOOD:** The distance between inside rim opening and wheel hub is the same for the entire circumference.

**BAD:** The wheel is not fixed centrally on the wheel hub, the gap is not the same all around.

**NOT TESTED:** No information about concentric fit between wheel and hub.

**GAP VALUE:** You can enter a value (mm) for the gap measurement here. This information will later appear as a note on the log.



(Fig. 35)

The gap value has NO influence on the result of the evaluated measuring points!

**Note**

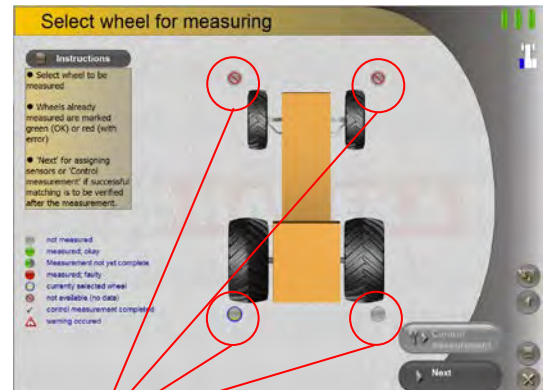
**SUSPENSION:** This note field can be used for entering details about the actual situation of the axle suspension on the vehicle. This information will be displayed on the log.



# Measurement recording

## 7.2 Selecting the wheel to be measured

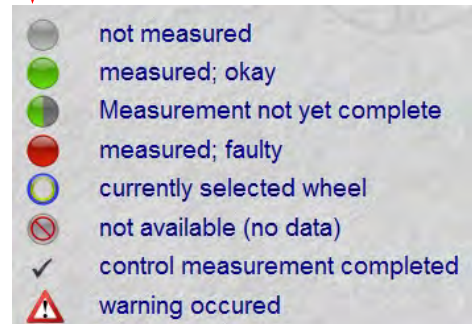
Depending on the number of previously entered tyres and the rim data a selection of the wheels to be measured is now available.



(Fig. 36)

The circle symbol on each vehicle wheel indicates the current status. (Fig. 36)

- All possible wheel statuses between the individual measuring procedures are graphically displayed in the circle and described in the program. (Fig. 37)
- Select by clicking on the circle on the vehicle model.
- Then click “**Next**”



(Fig. 37)

A symbol for the wheel selection appears at the top right. (Fig. 38)



(Fig. 38)



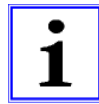
Note

When measuring of one wheel has completed the program returns to this selection page so a new wheel can be selected and a new measurement started.

Click on “**Save**” (Fig. 39) to save the entire measurement process after completing the task.



(Fig. 39)



Note

The measurement can later only be retrieved and continued via the log.

The “**Print**” button (Fig. 40) allows the recorded data to be printed on an installed printer as an individual log or as an overview.



(Fig. 40)

The control measurement can be used to measure the same wheel again after matching (rotating the wheel on the rim).



Note

See item 8.1 Control measurement on page 27.



(Fig. 41)

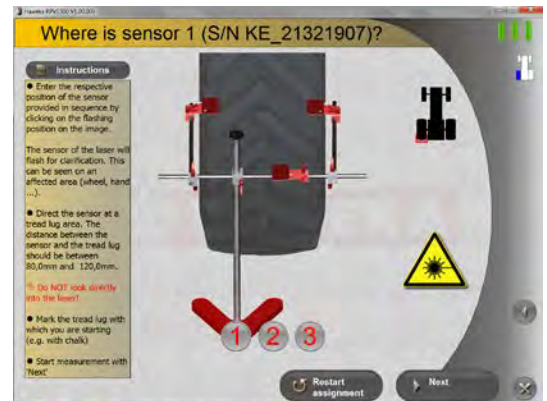
# Measurement recording

## 7.3 Assigning the laser sensors

After selecting the wheel for measuring click **Next** to go to the next program page (Fig. 42).

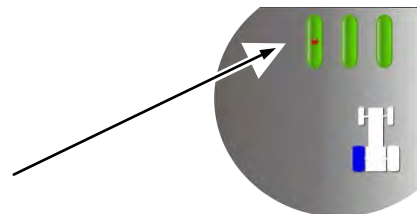


The positions of the individual laser sensors have to be assigned to the program.



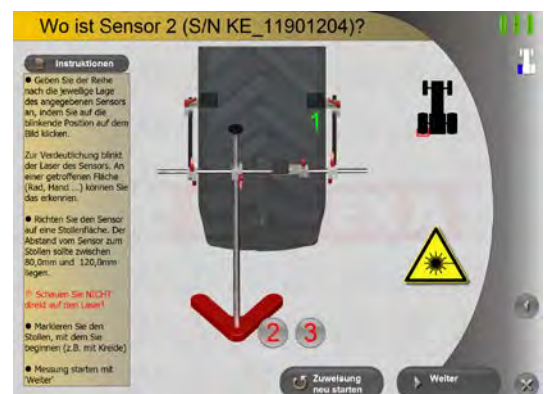
(Fig. 42)

- The top right section of the screen (Fig. 43) shows that a laser sensor is active.



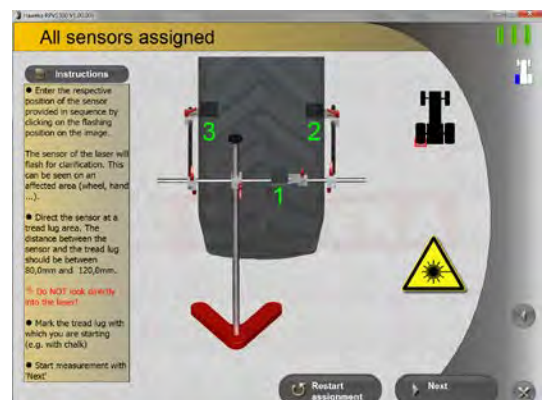
(Fig. 43)

- Now find the actively flashing laser sensor on the measuring device.
- Confirm the actual position of the laser sensor by selecting it in the flashing image.
- The position of the first laser sensor was assigned. (Fig. 44)



(Fig. 44)

- Repeat the process for all other laser sensors.
- When all laser sensors have been assigned click **Next** (Fig. 45).

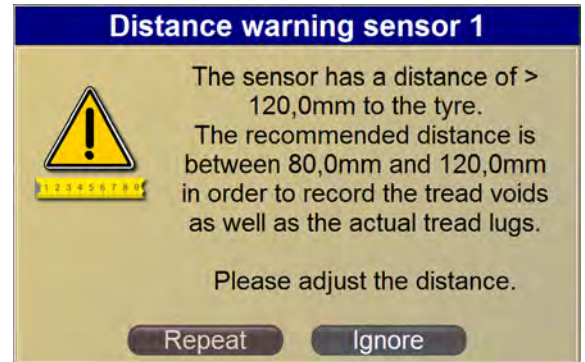


(Fig. 45)



Note

If a distance warning appears while assigning the laser sensors, adjust the distance to rim or tyre and repeat the process. (Fig. 46)



(Fig. 46)

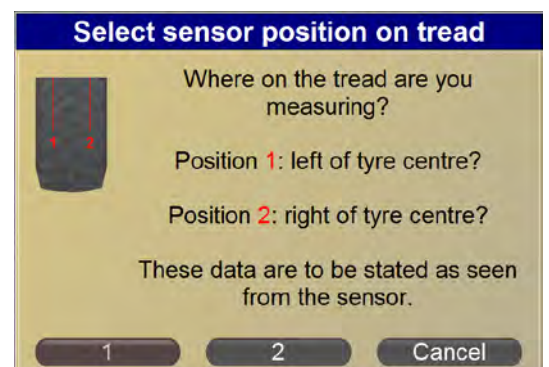
The exact position has to be determined because the position of the laser sensor for the tyre tread can be at any point outside the wheel centre. (Fig. 47)



(Fig. 47)

- Select the laser sensor position as described in figure 48.

When all laser sensors for the program have been clearly defined the program can begin measurement recording on the wheel.



(Fig. 48)

# Measurement recording

## 7.4 Markings on the wheel

**i** Before starting the measurement you should always apply markings to wheel and rim. (e.g. using chalk).

Note

- The first marking is the starting point on the 1<sup>st</sup> tread lug. Information for start and end of measurement
- Also mark the 2<sup>nd</sup> tread lug. This information helps you to repeat the selected direction of rotation of the wheel during measurement. (Fig. 49)
- A marking on the rim is also important for knowing the exact position of the rim in relation to the tyre before and after measurement in case of a possible matching procedure. (Fig. 50)



(Fig. 49)

## 7.5 Rotational speed during measurement recording

Wheel diameter (m)	max. speed (1/min)	min. speed (1/min)
1	3.17	0.64
1.1	2.88	0.58
1.2	2.64	0.53
1.3	2.44	0.49
1.4	2.26	0.45
1.5	2.11	0.42
1.6	1.98	0.40
1.7	1.86	0.37
1.8	1.76	0.35
1.9	1.67	0.34
2	1.59	0.32
2.1	1.51	0.30
2.2	1.44	0.29
2.3	1.38	0.28
2.4	1.32	0.27
2.5	1.27	0.25
2.6	1.22	0.24
2.7	1.17	0.24
2.8	1.13	0.23
2.9	1.09	0.22
3	1.06	0.21



(Fig. 50)

(Fig. 51)



# Measurement recording

## 7.6 Start wheel measurement

When:

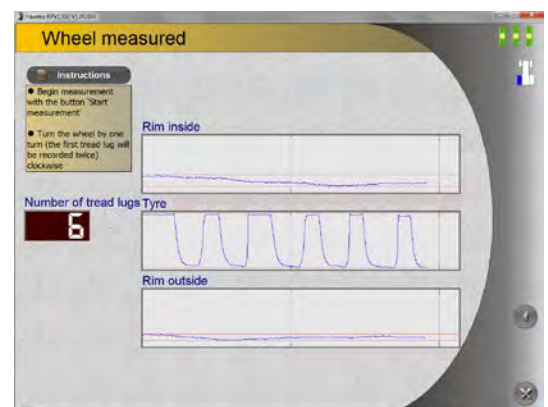
- ✓ all wheel data have been entered,
  - ✓ the laser sensors have been positioned correctly and assigned to the program,
  - ✓ the wheel to be measured has been marked on rim and tyre
  - ✓ and the wheel can be rotated freely
- the wheel measurement can be started.



(Fig. 52)

- Click on “**Start measurement**” and start by rotating the wheel evenly. (Fig. 52)

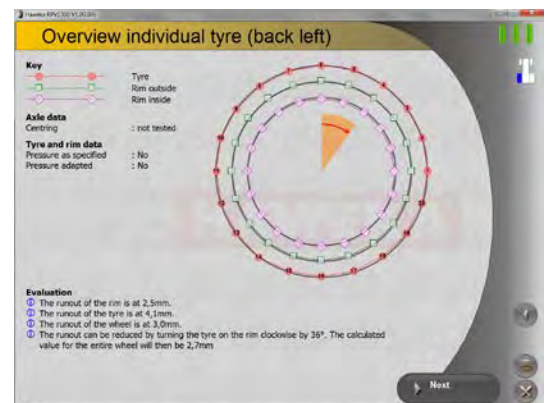
The screen shows the number of measured tread lugs and displays the measured values graphically. (Fig. 53)



(Fig. 53)

- When the wheel has been moved by one full rotation until the first tread lug was recorded a second time, a signal can be heard and the measurement is completed.

After the measurement the program automatically changes to the circle diagram where the measured values are displayed and a sector of the circle shows how far the tyre has to be turned clockwise on the rim in order to minimise runout in the wheel. (Fig. 54)



(Fig. 54)

Information about the evaluation is displayed under the point **Evaluation** on the screen.



Turning the tyre on the rim is called **matching**.

Note

Example for an evaluation (Fig. 55)

### Evaluation

- ① The runout of the rim is at 2,5mm.
- ① The runout of the tyre is at 4,1mm.
- ① The runout of the wheel is at 3,0mm.
- ① The runout can be reduced by turning the tyre on the rim clockwise by 36°. The calculated value for the entire wheel will then be 2,7mm

(Fig. 55)

# Measurement recording

## 7.7 Error during wheel measurement

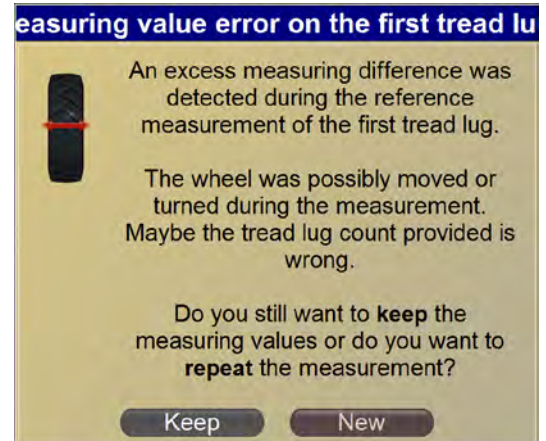
- Shifting of the laser sensors on the wheel

If the message - **Measuring value error on the first tread lug!** - appears during measurement, the program has detected an inaccuracy to the control point from the first tread lug.

This message can appear when one or more laser sensors have changed their aligned position to the wheel during measurement.

(Fig. 56)

- When measuring steered wheels the steering has to be blocked.
- Check the position of the laser sensors. It is recommended to repeat the measurement.



(Fig. 56)

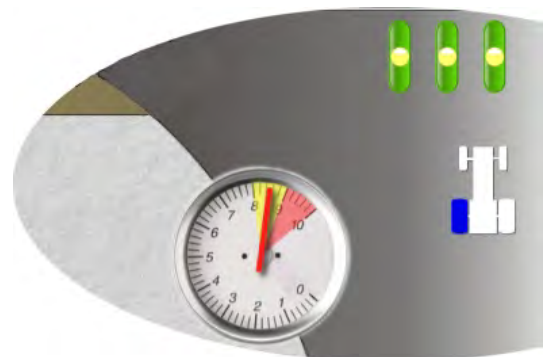
- Excessive rotational speed of the wheel

If the rotational speed is exceeded only briefly during measurement a speedometer symbol is displayed on the right edge of the screen. (Fig. 57)

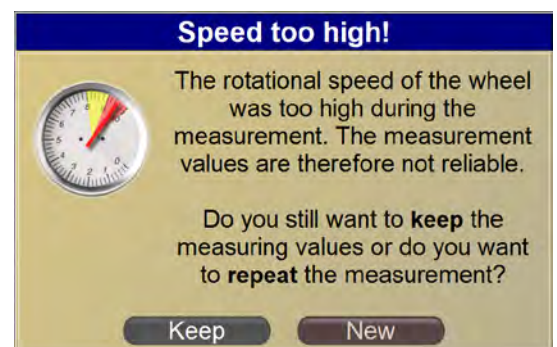
The measurement can be continued.

If the rotational speed is exceeded for a longer period of time the program cannot record the measured values correctly any longer and a warning message is displayed. (Fig. 58)

The measurement should be restarted.



(Fig. 57)



(Fig. 58)

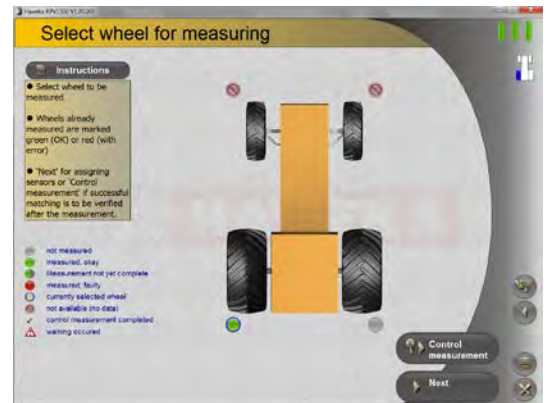
# 8 Control measurement after matching

## 8.1 Control measurement

When the runout on the wheel has been corrected by the matching procedure the program can be used to carry out a corrective measurement for this wheel.

For this, the measuring device has to be aligned on the corrected wheel.

- Select the “**Control measurement**” button (Fig. 59)



(Fig. 59)

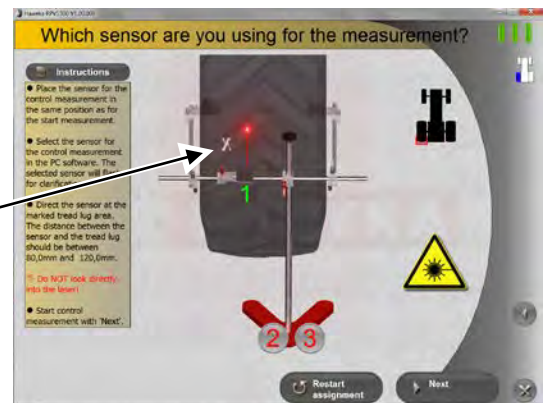
The laser sensor for tyre measurement has to be re-assigned to the program.

- Select the required laser sensor on the diagram on the monitor. (Fig. 60)



The “X” on the tyre in the diagram indicates the first measured tread lug from the initial measurement.

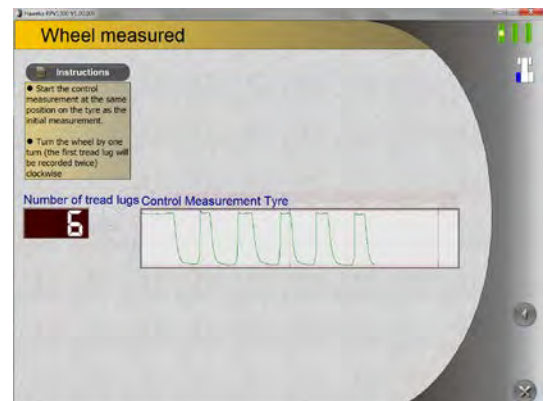
- The wheel has to be turned into position far enough so the measurement can be started on this first tread lug again. (Fig. 60)
- Click on “**Next**” and start by rotating the wheel evenly.



(Fig. 60)

The screen shows the number of measured tread lugs and displays the measured values graphically. (Fig. 61)

- When the wheel has been moved by one full rotation until the first tread lug was recorded a second time, a signal can be heard and the measurement is completed.



(Fig. 61)

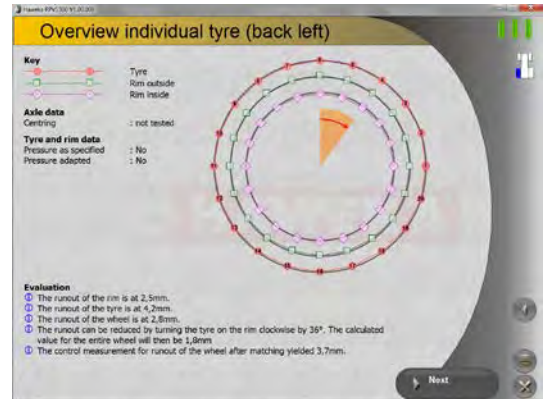


# Control measurement

After the measurement the program automatically changes to the result with the circle diagram.

The individual results are displayed under the heading Evaluation (Fig. 62).

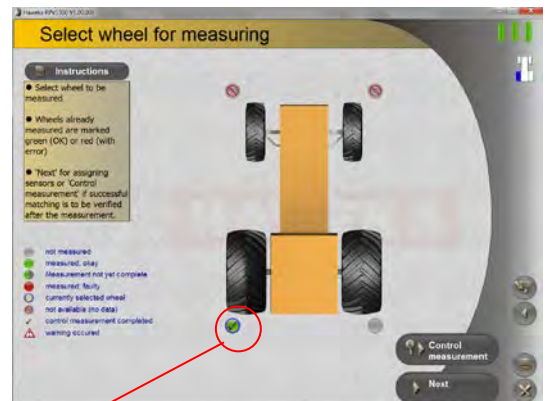
- Click on “Next”.



(Fig. 62)

This completes measuring of the individual wheel and the program shows the overview page for the entire vehicle (Fig. 63)

- Select a different wheel to carry out another measurement.
- For new measurements repeat the steps from 7.3 **Assigning the laser sensors**



(Fig. 63)

Control measurement completed

## 9 Show log

Click the “**Show log**” button on the start page to reopen a saved measurement session at any time. (Fig. 64)



(Fig. 64)

A list of all saved measurement sessions with a preview is displayed when selecting “**Show log**”. (Fig. 65)



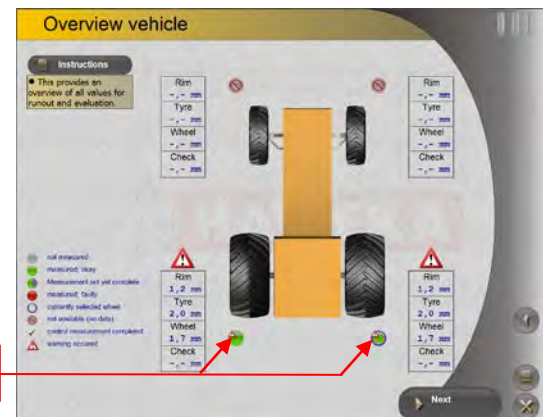
**Note**

When the dataset for a measurement session has been saved further measurements can later be carried out on this vehicle.  
Select “**Next**” to do this.



(Fig. 66)

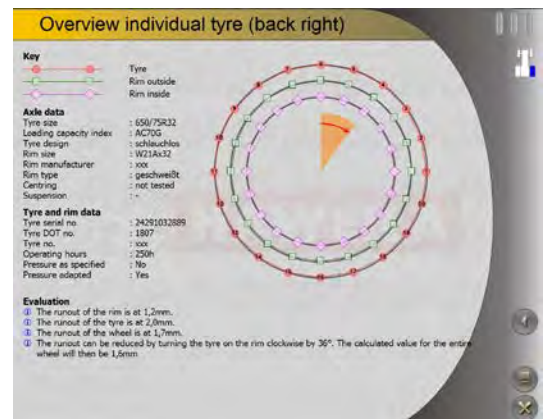
Use the “**Display**” button to display the selected dataset of a measurement session with all values. (Fig. 66)



Evaluation symbol

(Fig. 65)

Clicking on the respective evaluation symbol on the overview page of the tyre measurement displays the individual wheel view. (Fig. 67)



(Fig. 67)

Click on “**Finish**” (Fig. 68) to close the log view.



(Fig. 68)

## 10 Servicing

To ensure flawless measuring on tyre and rim the laser sensors have to be kept free from dirt at all times.



Note

**The measuring device must be used and maintained with great care at all times.**



Attention

**Clean the protective screen for the laser sensors with a dry, soft cloth if necessary. Never use alcohol or other liquids!**

## 11 Error description

Operators may only redress errors that are clearly the result of operating or maintenance errors!

Description	Possible causes	Troubleshooting
There is no connection to the laser sensors after program start	No USB driver installed on the operating system for the laser sensor	Install the USB driver from the CD provided. Check whether the correct driver is installed in the device manager of the operating system.
The laser sensors detect no signal from the wheel/tyre	The laser sensors are too far away from the object  The laser sensors are badly damaged or dirty.	Position the laser sensors closer to the object  Clean the laser sensors. Swap the laser sensors in their positions. If the error always occurs on the same laser sensor replace it with a new one.
Measurement results are not realistic	Error during measurement recording  Wheel dirty or rim corroded.	Repeat the measurement, ensuring stable setup and watching the rotational speed of the wheel. See table on page 24  Clean the tyre tread and the rim in the area of the measurement recording.


# 12 Appendix

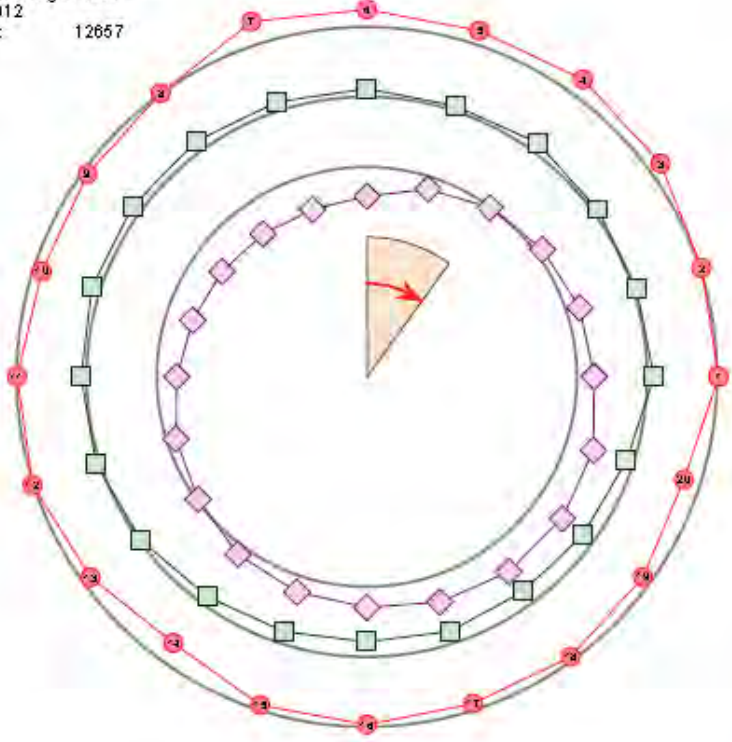
## 12.1 Measurement log for individual wheel

**HAWEKA AG**  
 Kokenhorststr. 4  
 30938 Burgwedel  
 Phone +49 5139 8996-0 — Fax +49 5139 8996-222  
 Web www.haweke.com — E-mail info@haweke.com

Mechanic: .....  
 (Westphalen)


Date: 27.06.2012, 12:09      Vehicle owner: Halter GmbH  
 ID: H-KL 342  
 Vehicle model: Fahrzeug 1  
 Date of first registration: 10.03.2012  
 Mileage: 12657





**Evaluation**

- ① The runout of the rim is at 2,7mm.
- ① The runout of the tyre is at 3,1mm.
- ① The runout of the wheel is at 2,8mm.
- ① The runout can be reduced by turning the tyre on the rim clockwise by 36°. The calculated value for the entire wheel will then be 1,8mm
- ① The control measurement for runout of the wheel after matching yielded 2,6mm.



<b>Rim</b>	2,7 mm
<b>Tyre</b>	3,1 mm
<b>Wheel</b>	2,8 mm
<b>Check</b>	2,6 mm

**Key**

- — ● Tyre
- — ■ Rim outside
- ◆ — ◆ Rim inside

**Axle data**

Tyre size : 650/75 R32  
 Tyre design : Conti AC70G  
 Centring : good

**Tyre and rim data**

Pressure as specified : Yes  
 Pressure adapted : Yes

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<http://www.haweke.com>

E-Mail: [info@haweke.com](mailto:info@haweke.com)







## 13 EC Declaration of Conformity

The manufacturer: **HAWEKA AG**  
**Kokenhorststraße 4**  
**D-30938 Burgwedel**

hereby declares that the system described in the following: **Runout measurement device for heavy vehicle tyres of utility vehicles**  
**Type: RPV 1300**

conforms to the following guidelines and standards. **EMV directive** **2004/108/EEC**

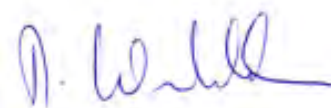
*Applicable European standards:*

Electrical equipment for measurement, control and laboratory use - EMV requirements	EN 61326-1
Safety of laser products	EN 60825-1

**Structural modifications which affect the technical data provided in the Operating Instructions and the intended use invalidate this Declaration of Conformity!**

Chairman of the Board  
 Dirk Warkotsch

Burgwedel, 30/08/2012

(Signature)







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