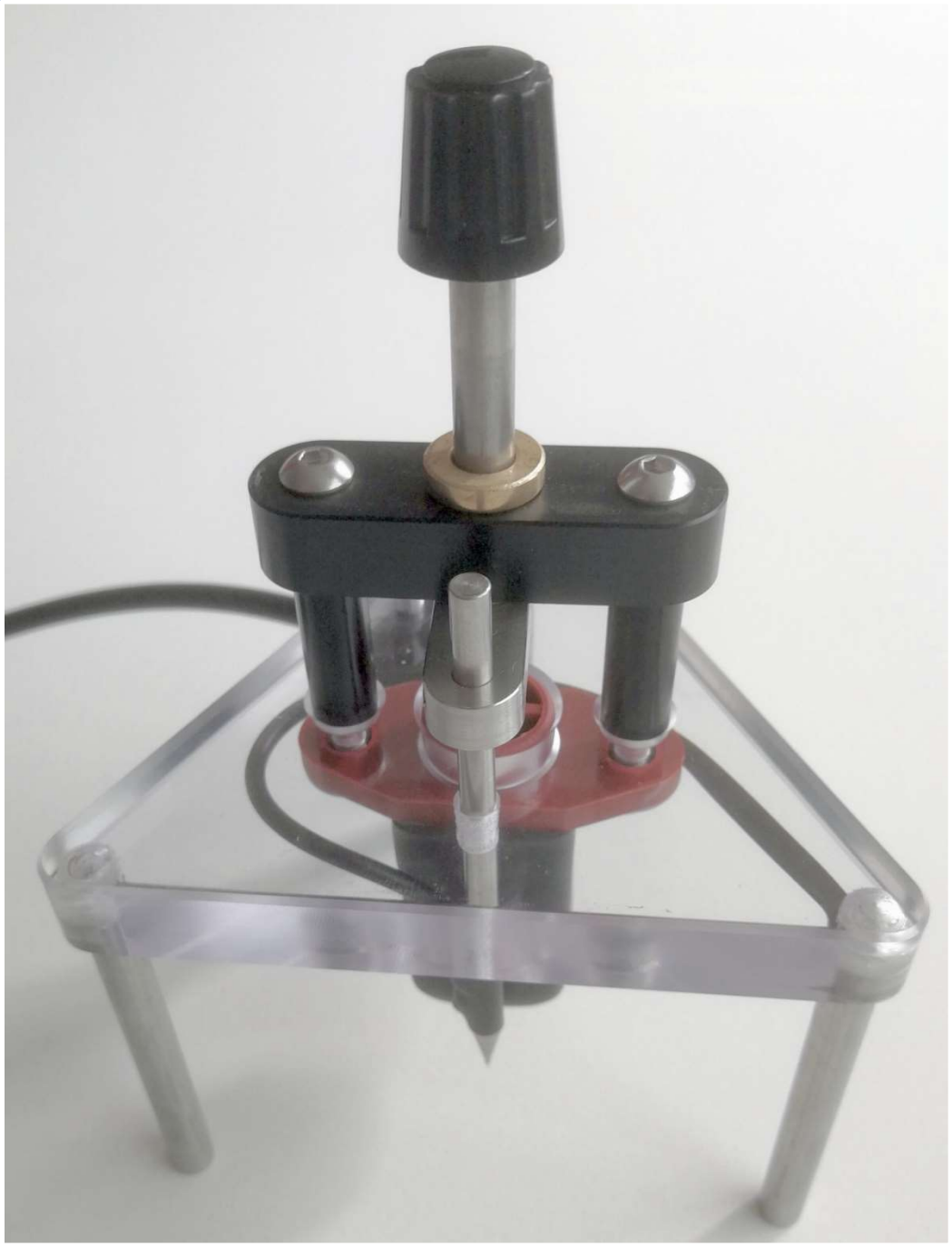
BRÖRING
INFORMATIONSTECHNOLOGIE



Manual
Bröring EggQuality
System 3.0

Table of contents

Last revisited on: December 18th, 2018

1 Hardware

Please take all standard safety precautions when operating the EggQuality-System. The measuring device is electrically connected to the housing of the PC. This PC has to be in perfect technical condition. A defective PC or AC outlet can potentially cause hazardous voltages at the measuring devices. If there are any doubts about the installation, please consult a qualified electrician.

The data generated by this system is only as accurate as the previously conducted calibration. Incorrect calibration may lead to significant errors in measurement. It is important to use the utmost precision when carrying out the described calibration. To perform a calibration please refer to chapter 2.5.2.

1.1 Connecting the Mini-Data-Processor

1: Serial port for the electronic scale

2: Port for Albumen-Height-Gauge

3: Mini-USB connection to PC

1.2 Installation System 3.0

First connect your PC to the Mini-Data-Processor using the detachable Mini-USB cable. In the Windows device manager the data collector will be listed as a virtual COM port.

Then connect the electronic scale to port 1. The last step is to connect the albumen-height-gauge to port 2 of the Mini-Data-Processor.

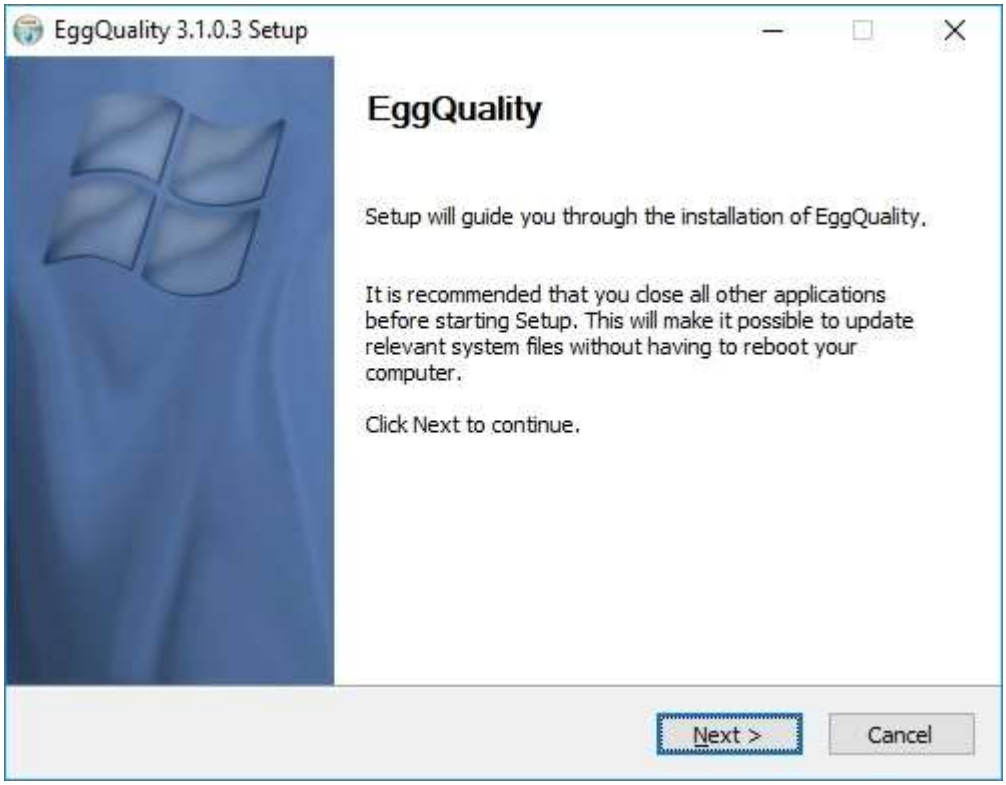
Additional devices such as the Egg-Shell-Tester FEST or the colorimeter BCOR can be connected to the PC using USB or serial interface.

2 Software

This chapter describes the installation and use of the EggQuality-Measuring-System.

2.1 Installation

Insert the CD into the CD-drive of your PC and start the “EggQuality_Setup.exe”. A window will appear and an installation wizard will guide you through the EggQuality installation. First select a language for the installation wizard.



Click "Next >" and follow the instructions on the display.

It is recommended to use the default installation path. The default installation path is “Broering\EggQuality” located at your system drive, e.g. drive C.

When the installation process is completed successfully, the program is ready to be started. If there are any problems during the installation, please contact the support.

The devices in the software are preconfigured and do not need to be adjusted.

But it is crucial to adjust the COM Port of the Mini-Data-Processor or other measuring devices connected directly to the PC. After that you have to calibrate all devices before use.

The adjusting of the COM Port is described in chapter 2.4.2.

If there are any questions during the installation or operation of the program, please contact:

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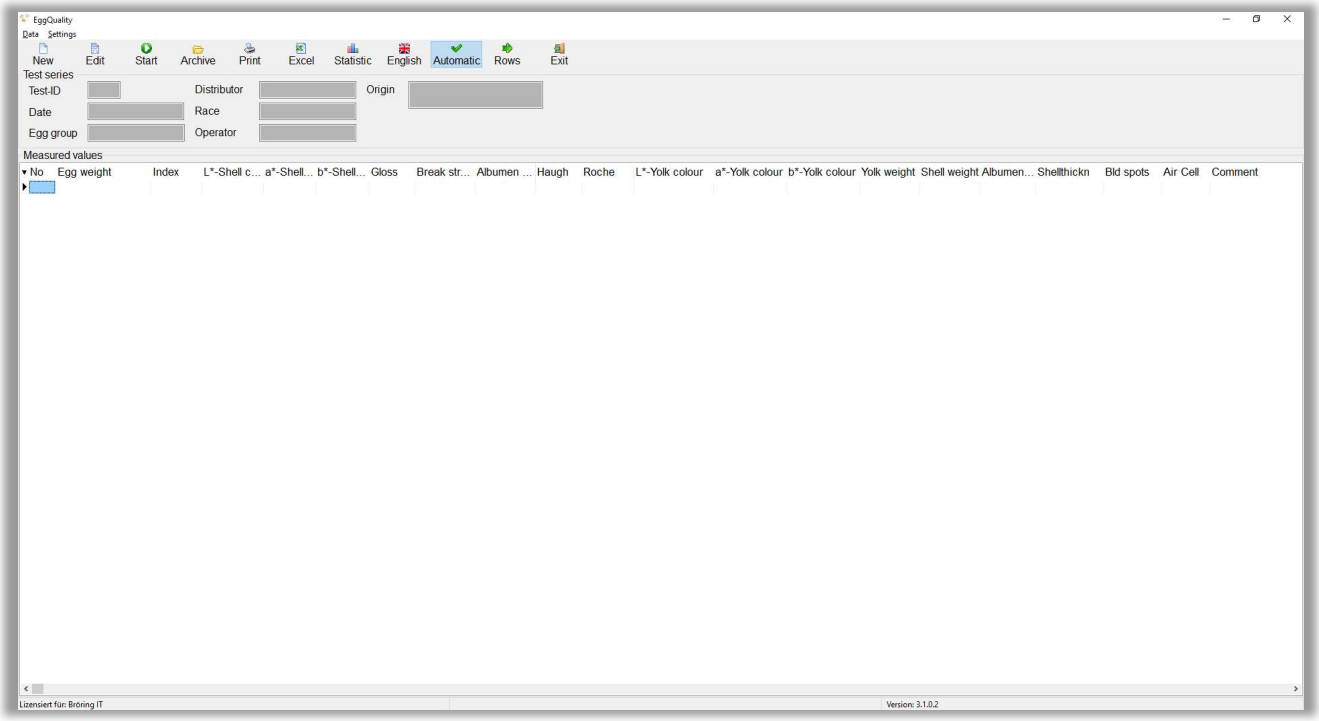
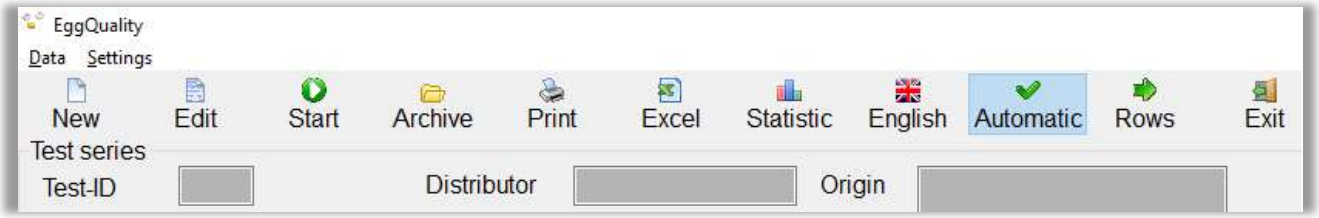
2.2 Starting the program

First check if all the equipment is supplied with electricity and turned on, then start the program. After starting the program, you will see the following screen:





The top part of the window contains two menu bars. The upper menu bar contains the following elements:

File:	New test series, Data backup, Print or Exit program
Settings:	Setup devices or select language

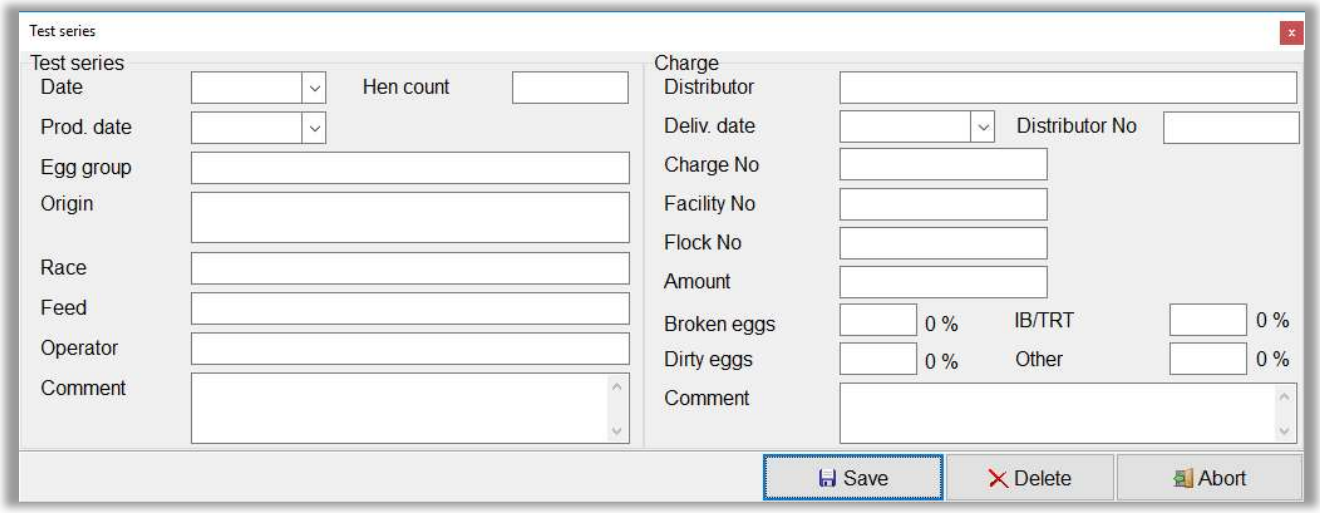
The lower menu bar contains the following elements:

New:	Create a new test series
Edit:	Edit the active test series
Start:	Start measuring cycle
Archive:	Open existing/archived test series
Print:	Print the current test series
Excel:	Export data into an CSV file
Statistic:	Display statistics
English:	Set program language to English
Automatic:	Start/end automatic mode
Rows/Columns:	Switch between row- and column-measurement
Exit:	Exit the program

2.3 Program operations

2.3.1 Create or edit a new test series

To create a new test series, click on "New" in the menu bar or press the "F5" Key. This opens the following window:



After the necessary information has been entered, it can be saved by clicking the "Save" button and the measurements for the new tests series can be started.

Clicking the "Delete" button will erase all values and new values can be entered.

The "Abort" button closes the window without saving the changes.

2.3.2 Types of measurement

Two different types of measurement can be selected.

The **automatic mode** controls how and when the individual measurements are performed. If the automatic mode is active, the readings from the devices are automatically accepted. For example, if an egg is placed on the electronic scale, the system will read the weight without further confirmation by the user. If the automatic mode is disabled, the user has to press the "Measure" button to trigger the measuring of the weight.

In addition, there are two types of measurement sequences. The system distinguishes between **row measurement and column measurement.**

When **row measurement** is active, the system will switch from device to device and measure a single egg at all measurement devices before proceeding with the next egg. This is the standard setting.

If **column measurement** is selected the measurement proceeds vertically, meaning that at first all measurements of the selected device are performed. After the device recorded the value of an egg, the next egg can be measured in the same device. To start a column measurement, the column of the device has to be selected first.

2.3.3 Starting a measurement

The measurement is started by clicking on the "Start" button. This requires either a new test series to be created (see Section 2.3.1) or an already started test series to be loaded from the archive and continued (see Section 2.3.5). The measurement is performed using the previously set options (see 2.3.2 Types of measurement). The order in which the devices are addressed depends on the settings of the devices (see 2.5.1).

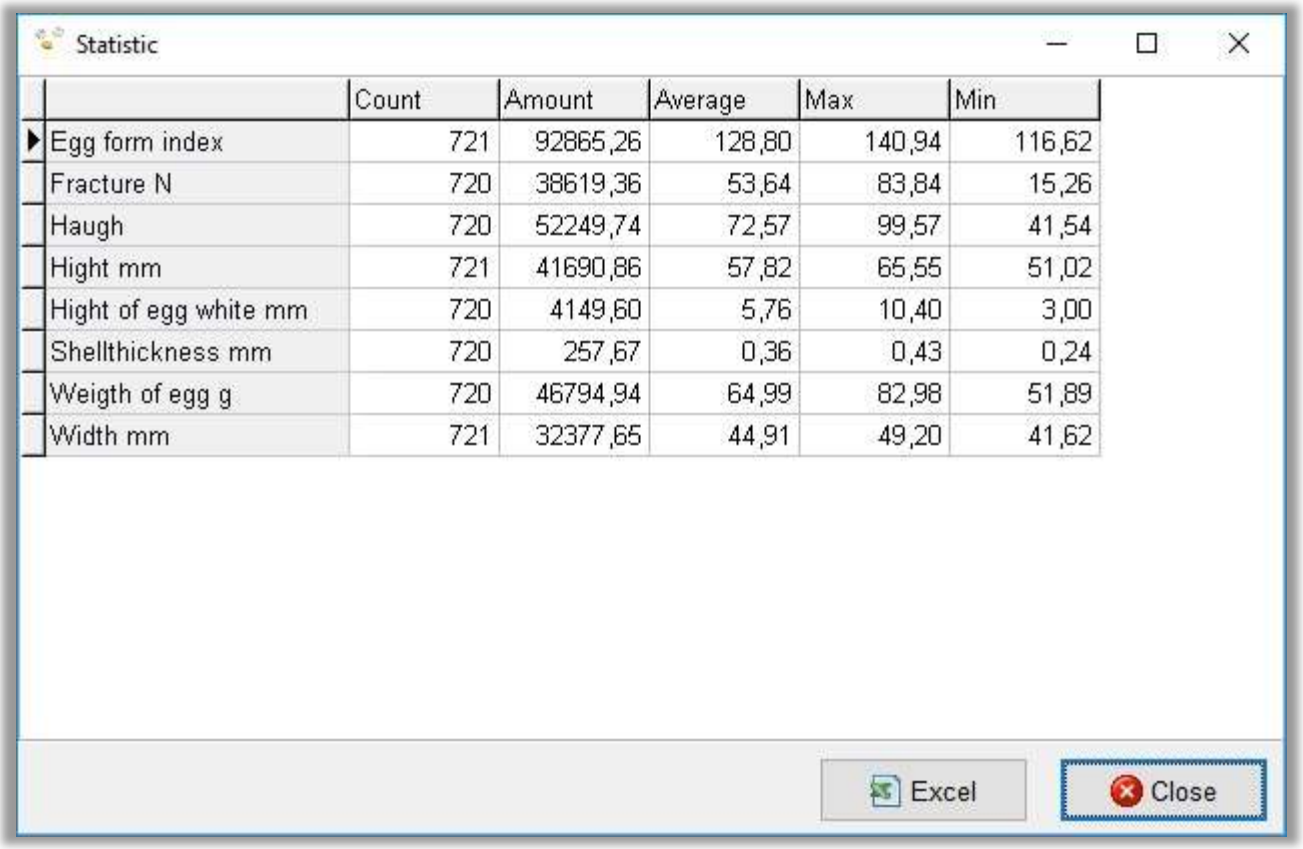
During the measuring process the following section (for example the albumen-height-gauge) appears in the bottom of the screen:

- **Number:** If number entry is enabled (refer to 2.4.1), a cage number can be entered, which is displayed here
- **Egg number:** Number of the egg, which is being measured at the moment. It is based on the on the hen count (can be entered while creating a new test series)
- **Value:** The current measurement value is displayed in this white field
- **"Measure":** Automatic mode enabled: the button is disabled. The value is triggered automatically

  automatic mode disabled: the button is enabled. The value has to be triggered by clicking on the button
- **"Abort":** Aborts the measurement
- **"Skip":** The pending measurement will be skipped to be possibly executed later

2.3.4 Statistic

The following graphic shows an example of the **statistical analysis** of the current series of measurements:



Statistic

	Count	Amount	Average	Max	Min
Egg form index	721	92865,26	128,80	140,94	116,62
Fracture N	720	38619,36	53,64	83,84	15,26
Haugh	720	52249,74	72,57	99,57	41,54
Hight mm	721	41690,86	57,82	65,55	51,02
Hight of egg white mm	720	4149,60	5,76	10,40	3,00
Shellthickness mm	720	257,67	0,36	0,43	0,24
Weigth of egg g	720	46794,94	64,99	82,98	51,89
Width mm	721	32377,65	44,91	49,20	41,62

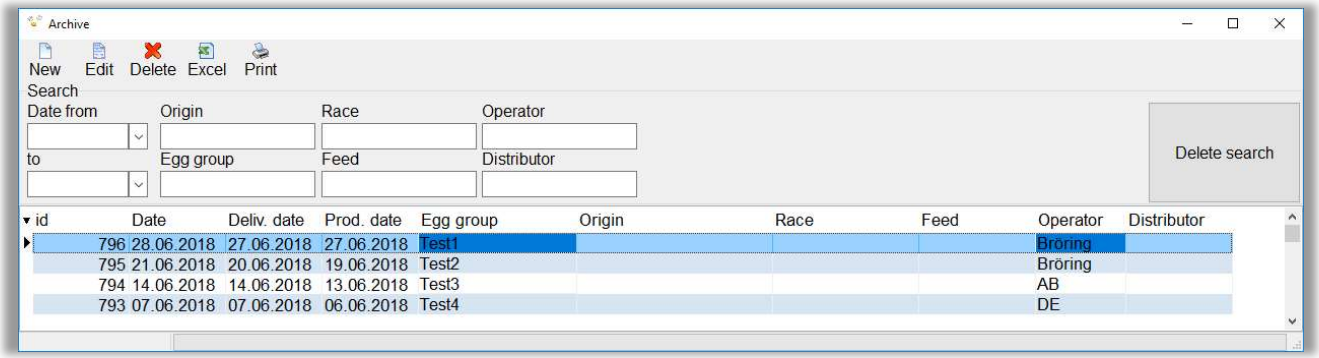
Excel Close

The statistics and their corresponding values are displayed for every type of measurement in the column on the left-hand side. The number of measurement categories can vary.

By clicking the “Excel” button it is possible to save the displayed data into an **CSV file** in order to process it further. This file is generated by the EggQuality Software, no Microsoft Excel® or similar software needs to be installed on your PC. Additional software is only needed to open the Excel file later.

2.3.5 Archive

The archive can be opened from the main window by clicking on the "Archive" button. This will open the following window:



The Archive window lists all available test series. These can be processed by the icons in the title bar.

The button "New" creates a new test series as described in section 2.3.1.

In addition, test series can be edited, deleted, exported or printed.

All data from the archive can be exported to an CSV file, using the "Excel" button.

You can also select several test series by pressing CTRL while left clicking the desired test series and export, print or delete them with the right mouse button.

The white input boxes in the "Search" area can be used to filter the archive according to various criteria.

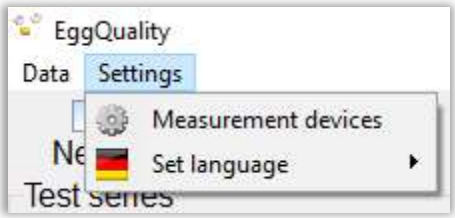
By double-clicking on the desired test series, a test series from the archive can be resumed to perform further measurements. The archive window is then closed and the data is transferred to the main window.

2.3.6 Print

The “Print” function prints the currently selected test series with all its data. A window opens after pressing the “Print” button showing a preview of the page and options to select and to configure a printer.

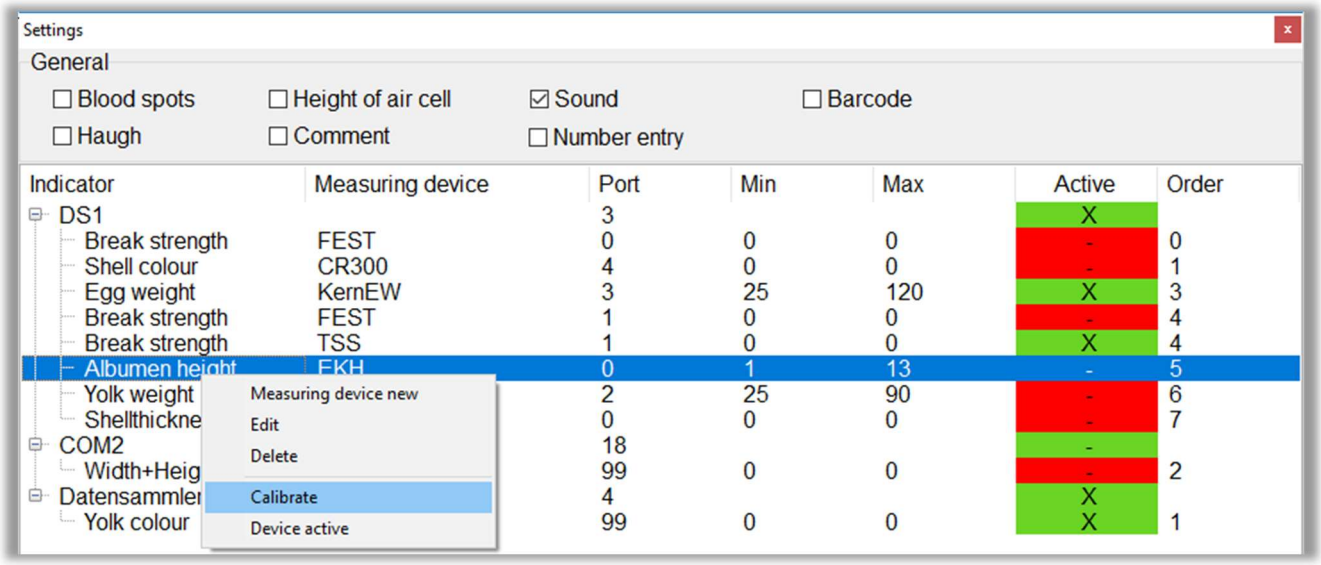
2.4 Settings

The settings are accessed via the top menu item "Settings". The individual options (measuring devices and language) are explained below.



2.4.1 Measurement device settings

The following window opens when selecting the item "Measuring devices" in the settings menu:



This is where basic settings are made for the operation of the system. Settings not related to a specific device can be configured within the “General” area:

- **Blood Spots:** Allows to manually enter the number of blood spots
- **Height of air cell:** Allows to manually enter the air cell height
- **Sound:** Allows to disable the sound function after each measurement
- **Barcode:** Allows to scan barcodes on an egg with a barcode scanner. Without a barcode scanner information can be entered manually.
- **Haugh:** Allows to turn the automatic Haugh Unit calculation on or off. Values are entered automatically into the table while on.
- **Comment:** Allows to manually enter a comment
- **Number entry:** Is open for your need and describes the number of something like a cage. Only positive whole numbers can be entered.

Right-clicking on the device list opens a menu, in which the available functions are listed. Individual devices can be edited, deleted or calibrated and new devices can be added. The procedures are described in chapter 2.5.

2.4.2 Change COM Port of the data processor

The COM port to which the data processor is connected can be changed in the settings window of the measuring instruments (2.4.1). To do this, click with the right mouse button on the entry of the data processor and select "Edit". A new window opens in which the COM Port of the data processor can be entered.
Change these settings only if you know the serial ports of your PC, after looking up the COM ports of your computer in the device manager or after contacting support.

2.4.3 Select language

The language used in the software can be changed here. All available languages are displayed in a new menu by clicking on "Set language".

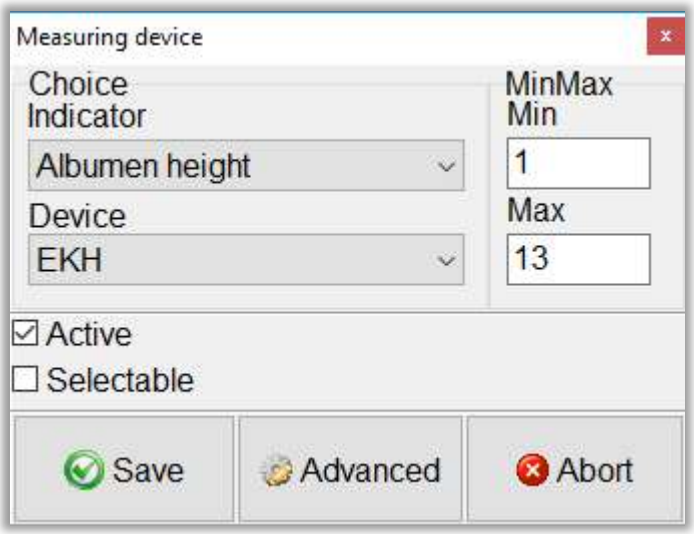
To quickly switch the programs language to English, press the "English" button in the menu bar of the main window.

2.5 Measurement devices

The EggQuality software can work with different combinations of measurement devices. These may need to be configured in the program. This will be described below.

2.5.1 Create and edit

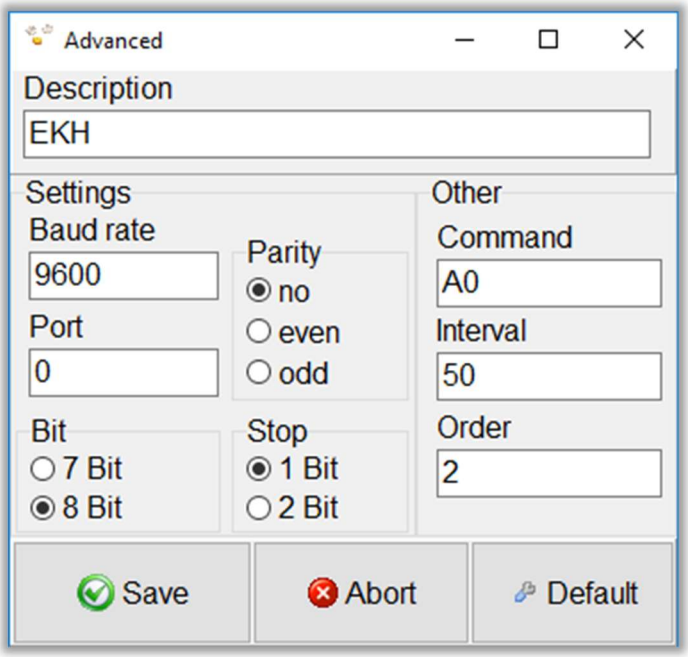
A new measurement device can be created in the "Settings" window. Click with the right mouse button into the blank space of the white table and select the item "New measuring device" in the menu. This opens the following window:



- **Indicator:** E.g. albumen height, egg weight, egg shell strength etc.
- **Device:** Selection of the device, which will be used to measure the indicator
- **Min:** Minimal value, which will be accepted during measurement
- **Max:** Maximal value, which will be accepted during measurement
- **Active:** If the checkmark is set, the device will be used immediately in the next test series
- **Selectable:** If the checkmark is set, the device can be enabled or disabled in the main window at top right field

The advanced settings are opened via the "Advanced" button.

Here the settings for the communication between a measuring device and the data collector can be configured. These values are preset. Change these settings only after contacting the support.



2.5.2 Calibration

For precise measurement, some equipment must be calibrated prior to use. This process is explained in the following chapters. To start the calibration mode of the devices, click on "Settings" in the title bar and then on "Measuring devices". Then right-click on the device to be calibrated and select the sub-item "Calibrate".

At our YouTube channel "Broering IT" are videos showing the calibration of the measuring devices.

url: https://www.youtube.com/user/BroeringIT/

2.5.2.1 Albumen height gauge

The albumen height gauge transfers an electrical voltage to the data processor. This value is transferred to the PC and the program.

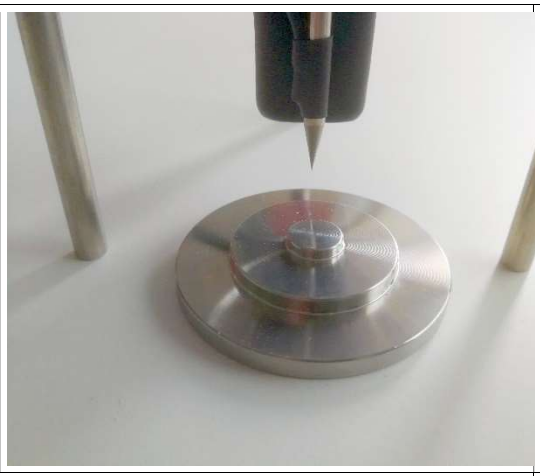
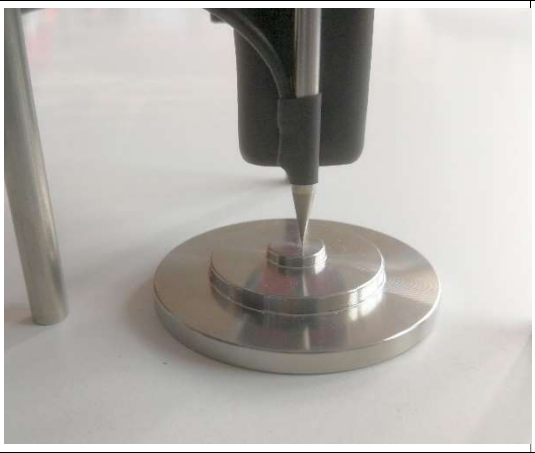
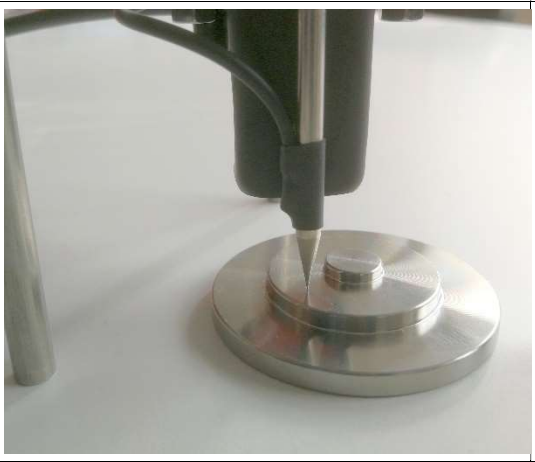
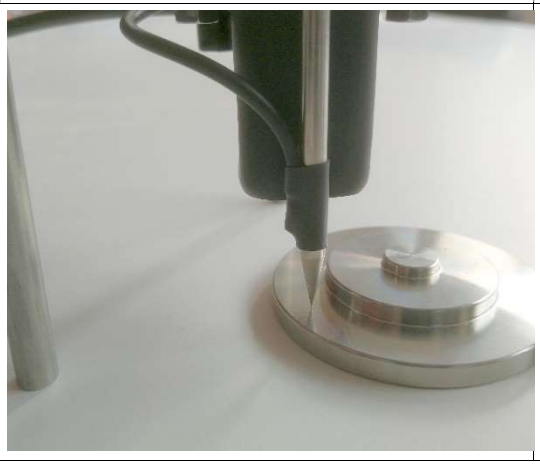
To determine the correct albumen height, the albumen height gauge must be calibrated. The calibration should be done periodically, e.g. every 2 months. In addition, a calibration should be performed after every relocation, every transport, software reinstallation, repair, cleaning etc.

Needed for the calibration of the albumen height gauge:

- The albumen height gauge
- The data collector A
- The calibration plate (4 mm, 7 mm, 9 mm steps)
- A flat work surface (e.g. the worktable)
- PC with the fully installed EggQuality software

First clean all the equipment used (especially the worktable, the albumen height gauge and the calibration plate), if necessary.

Place the calibration plate on the work table and place the albumen height gauge over it.

1		First, you will be asked to bring the albumen height gauge to rest. The measuring tip is in the uppermost position and not touched. Then confirm by pressing "Measure" in the EggQuality software. If you receive an error message at this point, the communication between the PC and the data collector may not work properly.
2		You will then be prompted to move the probe tip to the top position of the calibration plate. Place the probe accordingly and press the probe tip to the topmost position of the calibration plate. Confirm by pressing "Measure" in the EggQuality software while the tip touches the plate.
3		Next, you will be prompted to place the probe tip on the middle stage of the calibration plate. Proceed in the same way as in Pos. 2.
4		Then repeat the process with the lowest level. The albumen height gauge is calibrated now. You can now control proper function and calibration by measuring each step. Compare the displayed values with the step heights of the probe or another comparison measure: • top level: 9.00 mm • middle level: 7.00 mm • lowest level: 4.00 mm The deviations should be less than ± 0.02 mm.

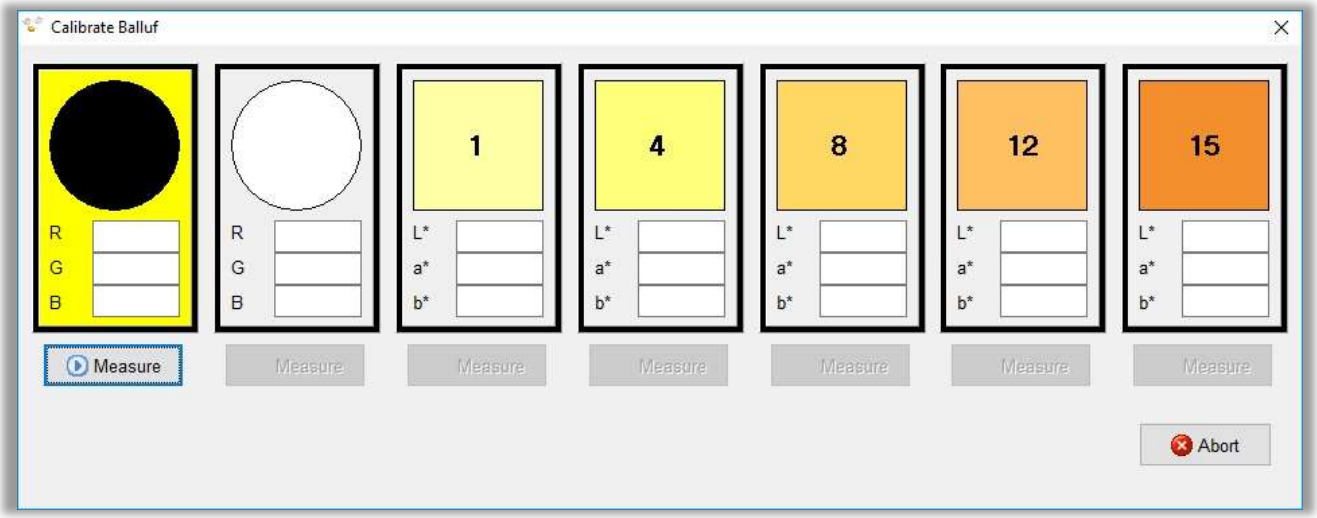
2.5.2.2 Colour sensor

To determine the correct yolk colour, the colorimeter has to be calibrated. The calibration should be repeated every day. In addition, the calibration should be performed after each relocation, every shipment, software reinstallation, repair, etc.

Needed for the calibration of the colorimeter:

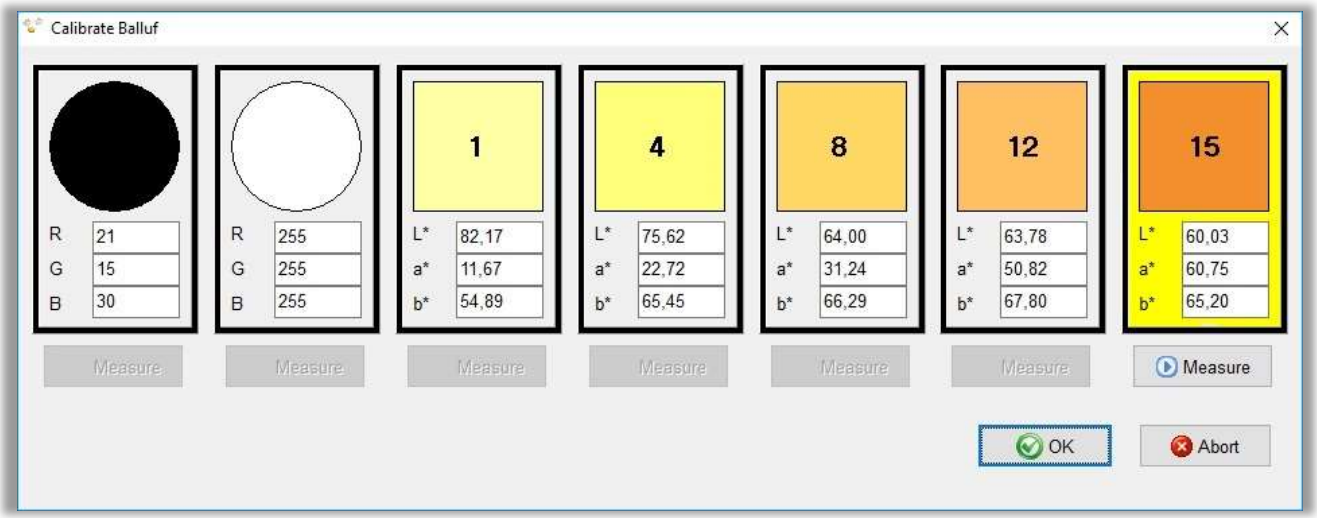
- The colorimeter
- The yolk colour fan
- The data processor
- The black / white calibration plate

First put the black and white calibration plate with the black side down over the colour sensor and click on "Measure".



The measured colour values (red, green and blue) are displayed and the page is highlighting the white side now. Repeat the previous steps for the white side and then with the colour samples 1, 4, 8, 12 and 15.

As soon as all steps have been completed and all values have been measured. A button appears with the text "OK".



Now close the calibration with a click on "OK", at this a point confirmation will be given that the calibration was successful.

2.5.2.3 Egg-Shell-Tester and other devices

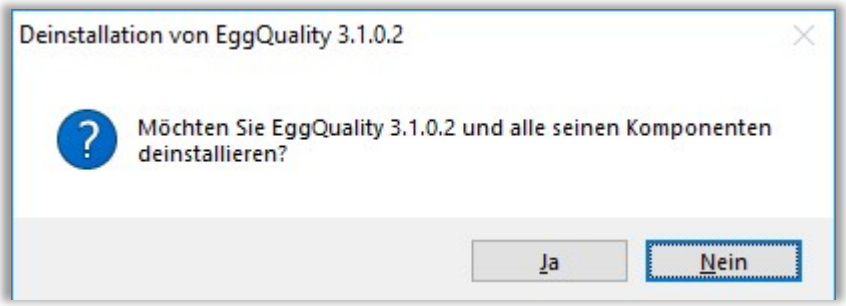
For information on the Egg Shell Tester (FEST) and other devices, please refer to the corresponding manuals.

2.6 Uninstall

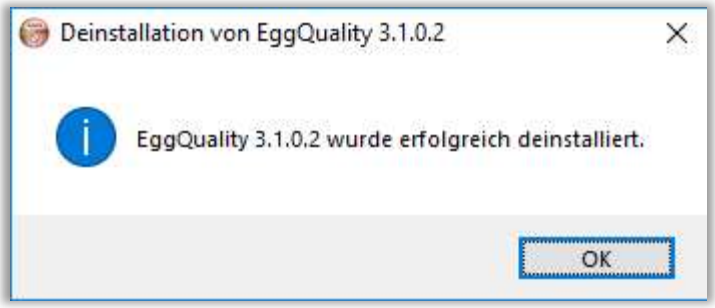
To uninstall the EggQuality software, select "Uninstall" from "EggQuality" in the Windows start menu.

Alternatively, you can uninstall the EggQuality software, using the Windows "Apps & Features" feature (or "Programs & Features").

Please confirm the following security question with "Yes":



When the uninstallation is complete, the following window appears:



Now the program is uninstalled from the computer.

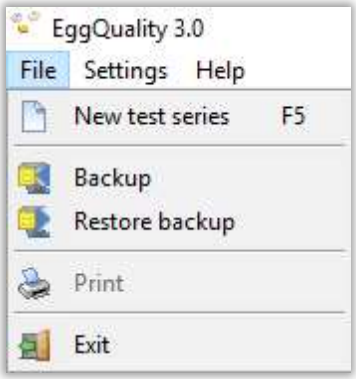
2.6.1 Uninstall Firebird

The EggQuality Software installs Firebird as data base.

Firebird is not deleted automatically, because the uninstaller cannot make sure that Firebird is used by any other programs.

If you are sure that you do not need the Firebird software for any other programs, uninstall it through the Windows menu point “Apps & features”.

2.7 Backup

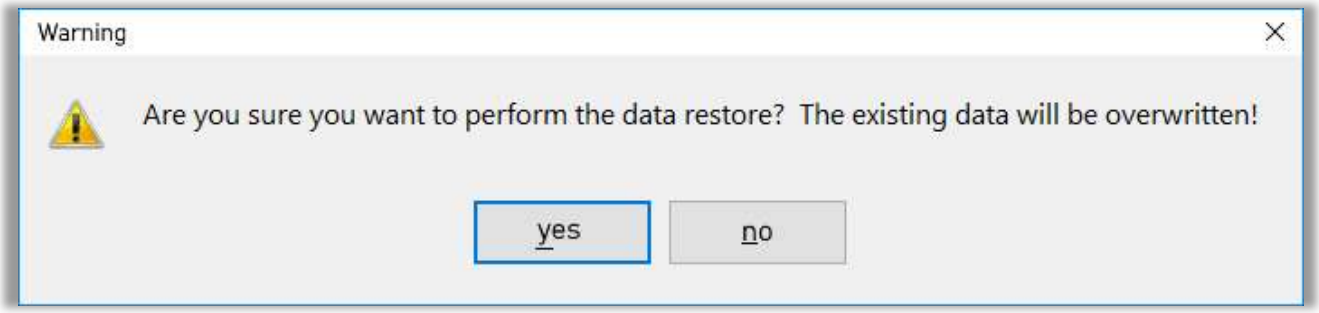


To **create a backup**, select “File” from the top menu and then select “Backup”. A new window opens where you can select the location for the backup file.

IMPORTANT: it is recommended to save the backup on an external data storage medium, like an USB flash drive.

Once a location is selected, click on “Save” and a backup file is created in that location. If the process was completed properly, a confirmation window appears.

To **restore a backup**, select the option “Restore backup” within the “File” menu. The following security question will appear:



Confirm the warning with “Yes” to restore a backup of the old data.

WARNING: The operation cannot be undone.

If the operation is continued, a new window appears, where a backup file can be selected to be restored.

3 Errors

While the program is operating, errors are caught and error messages for troubleshooting are displayed.

If there are problems you cannot solve on your own, please note the error message and contact the support.

4 Mode of Operation

The Data is transferred via a serial interface (USB or RS-232) to a PC. For this a standard Mini-USB connector is used. The system can be operated on any USB port.

The albumen height gauge consists of a position sensor which works like a linear-potentiometer. This potentiometer is connected to an AD-Converter with 12-bit resolution.

The data from the scale is transmitted via a serial interface. The system is designed for operation with a standard PC system without any modification.

5 System requirements

- Currently supported operating systems are Microsoft Windows 7, 8 and 10
- Minimum display resolution of 1024x768

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BRÖRING
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Declaration of Conformity

Konformitätserklärung für Geräte mit CE-Zeichen
Declaration of Conformity for devices with CE sign
Déclaration de conformité pour appareils portant la marque CE
Declaración de conformidad para aparatos con marca CE
Dichiarazione di conformità per apparecchi contrassegnati con la marcatura CE

Declaration of conformity: We hereby declare that the product to which this declaration refers conforms with the following standards.

Konformitätserklärung: Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.

Declaración de conformidad: Manifestamos en l a presente que el producto al que s e refiere esta declaración está de acuerdo con las normas siguientes

Déclaration de conformité: Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.

Dichiarazione di conformità: Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.

Digital measuring system: EggQuality

EMV-guideline: 2004/108/EG EN 55022:2010 EN 61000-3-2:2006+A1:2009+A2:2009 EN 61000-3-3:2008 EN 55024:2010

Lohne, Jan 1st, 2018