BREYE user manual v3.x

Introduction

Congratulations! You have just acquired the portable Braille Dot Checker BREYE manufactured by PERET GmbH. This device is the optimum tool to control the manufacturing process of Braille. It measures the characteristics of Braille dots in a fast and intuitive manner. It measures Height, Base diameter and Space and automatically creates quality control reports.

Important: *This manual describes the current version of the BREYE hardware and software. Future enhancements or modifications are reserved.*

Safety Instructions

Warning

For safety reasons it is absolutely necessary to read through the user's guide and all of the instructions it contains.

General safety rules

If the safety recommendations and instructions in this User Guide are not complied with, measurement errors or data loss or physical injury or property damage may result

- BREYE is not intrinsically safe. Therefore the device cannot be used in an environment with explosive vapors where there is a risk of spark ignition.
- BREYE may not be used in an area with strong electromagnetic fields.
- Use the BREYE in ambient temperatures between 10°C (50° F) and 40°C (104°F), and do not expose the BREYE to direct sun light.
- Neither the BREYE Sensor nor the BREYE transmission light box should ever be opened as there are no user-serviceable parts. Doing so voids the guarantee. Contact your authorized dealer if repairs are necessary.
- To avoid incorrect handling, the BREYE should only be used by trained personnel
- The BREYE should only be used on dry measurement objects.
- The BREYE should be protected against chemicals, corrosive vapors, strong mechanical vibrations and impacts.
- Use original PERET spare parts and accessories only.
- Use the original packaging exclusively when transporting.
- The BREYE casing can be cleaned with a dry cloth.

Installation

Start your Computer and wait until all boot processes have terminated and your computer is ready to operate. **Do not plug the USB cables in at this time.**

Plug the BREYE USB Memory Stick into a free USB Port and wait until Windows has recognized and registered the USB Stick as a Mass storage Device.

Install the BREYE software

The USB Memory stick contains a setup utility **'setupBREYE.exe'**, which can be run to install the BREYE Software on your PC.

Before termination the video driver installer will automatically be started. Click INSTALL.

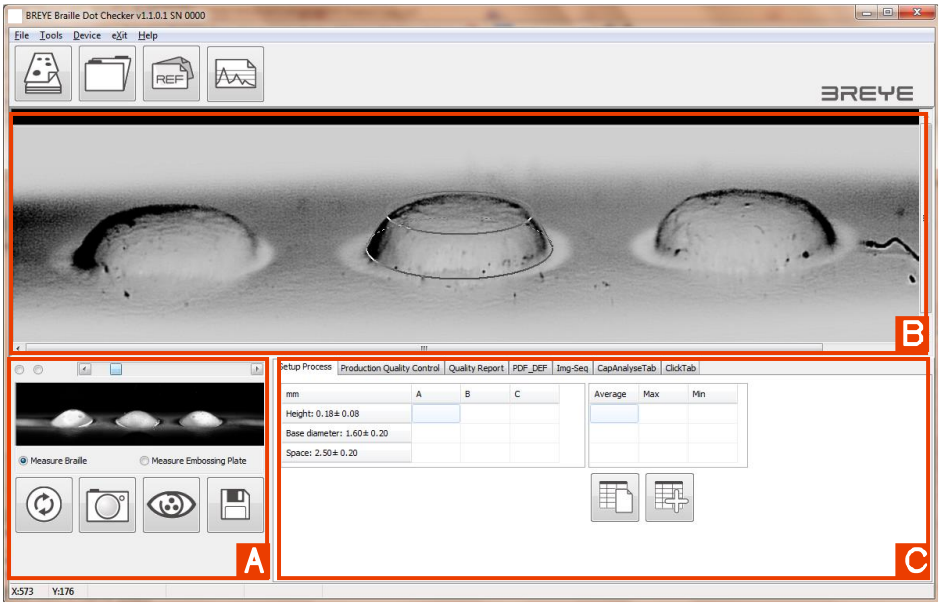
Wait until the installation of the driver is finished.

Now connect the USB cable to a free USB2.0 port. Windows will automatically detect the driver and assign it to the device.

Run the application

- Launch the BREYE.exe,
- Click the BREYE Icon on your desktop or,
- Run the BREYE from the Windows Start Menu

Main Window



A) Life image of camera
B) Captured image for analysis
C) Analysis types and results

Main Window Icons

 Measure a new box in production quality control

 Load Image

 Open Standards Database

 Open Statistics on quality reports

 Preview

 Capture

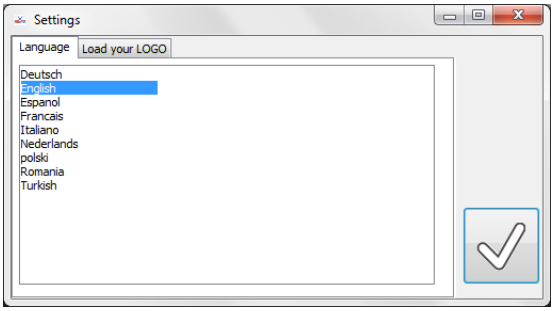
 Save image / Export data to txt, csv, xml

 Clear statistics

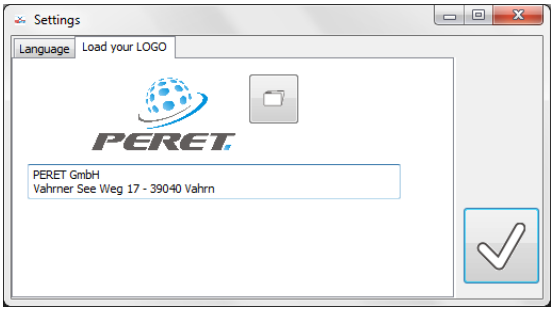
 Add measurement to statistics and re-calculate average, maximum and minimum

Select your language

Select File/Settings from the main menu to open the Settings window:

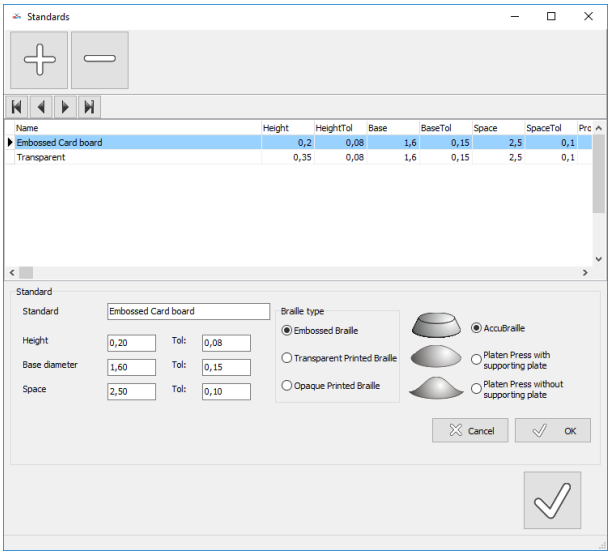


It is possible to print all reports with your company logo and details. Load the company logo in *.bmp format or *.jpg format into the settings window. Insert additional text information below. The logo and information is saved automatically and reloaded at the next program launch.



Standards Database

The BREYE software offers a database with standards. Click the database icon to open the database interface.



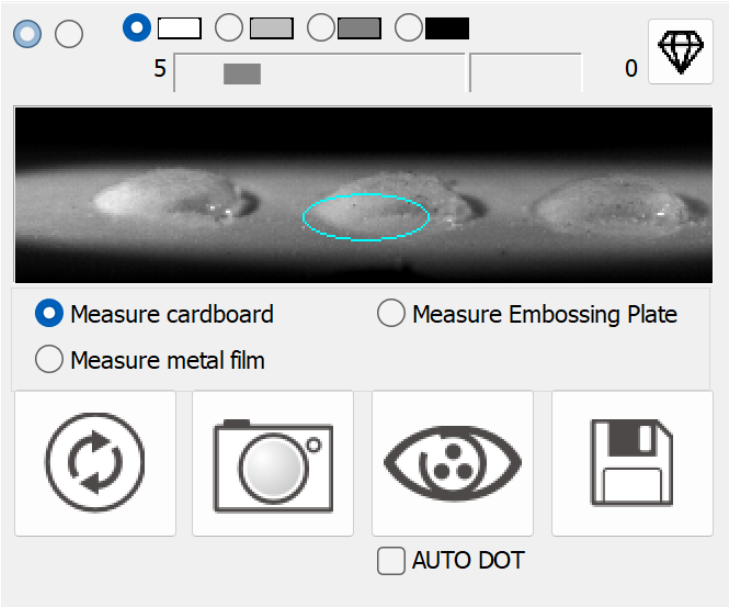
The BREYE default database offers a series of pre-defined standards. You can create your own database by adding or removing records from the database.

 Click the ADD Icon to add a new record. Compile the fields on the left bottom, select the Braille type and click OK.

 Select the record from the list that you would like to remove from the database. Click the delete icon to remove the record from the list.

Select the record from the list you would like to modify. Modify the data and click OK.

Select the sample type



Measure cardboard

Select the ‘Measure cardboard’ sample type to measure embossed braille dots on cardboard or to measure printed braille dots

Measure metal film

In packaging more and more metal film or metalized film is used. Due to the high reflectance a special setting is required to still get an image quality for measurement of braille dots.

Measure embossing plate

Use this setting to measure the dot height and shape on the male embossing tool plate

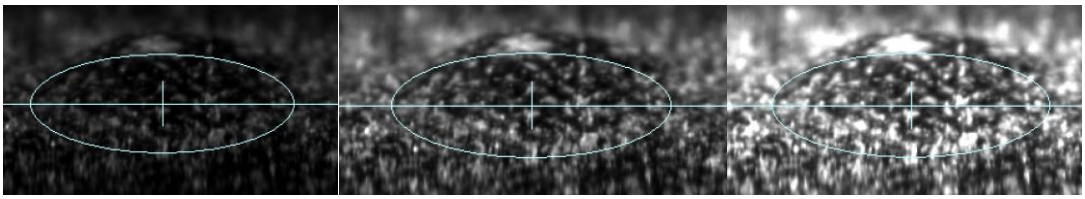
Configure the brightness of the sample

Click the preview Icon.

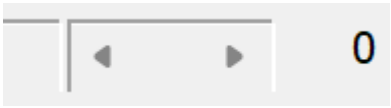
Select the illumination brightness that fits the brightness of the sample if the image is very dark.

Fine tune the brightness by changing the brightness ruler

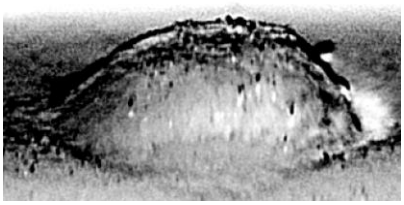
Example: dark dot



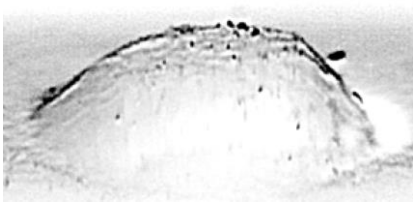
The capture process contrast can be adjusted using the ruler on the right side of the brightness ruler.



Example:



Default

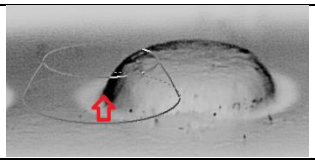
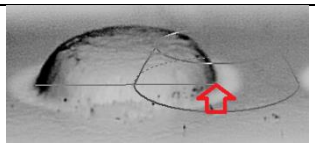


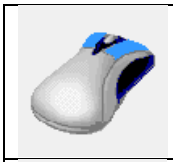
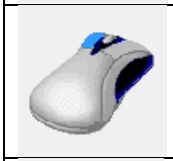
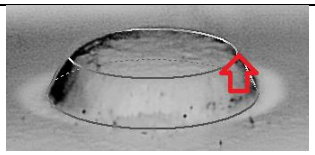
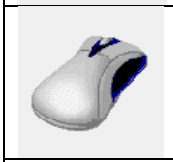
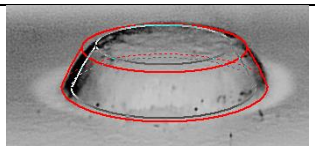
Contrast ruler set to +5

Execute a measurement

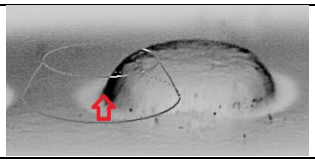
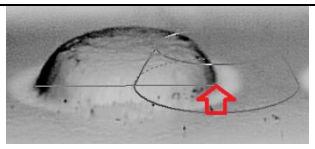
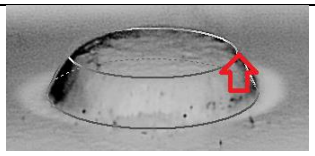
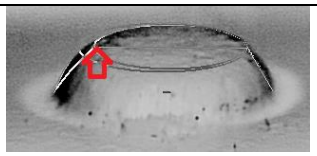
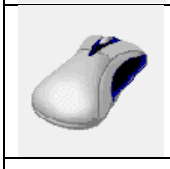
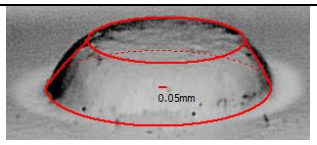
- Click Preview in case actually no life image is displayed inside the preview window [A]
- Position the aperture of the device such as the centered dot bottom matches the blue ellipse displayed in the preview window
- Press the button of the device and keep the device in position until the captured image appears in the Analysis Window [B]

Manual measure dots

		Move the mouse pointer to the left extend of the base of the Braille dot
		Press the left mouse button down and keep it depressed
		Move the mouse pointer to the right extend of the base .

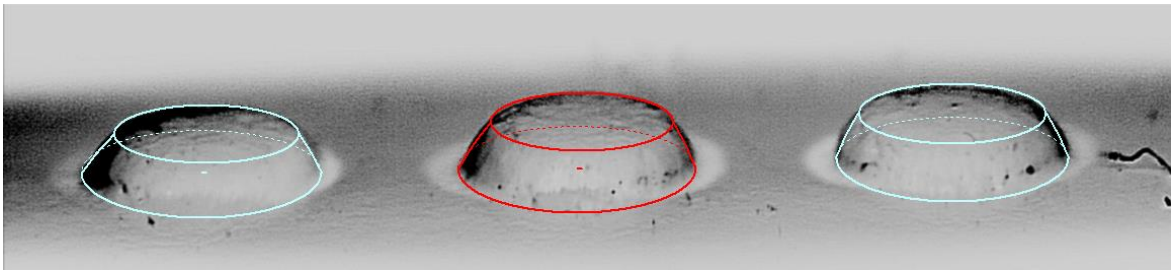
		Click the right mouse button while the left mouse button is still depressed
		Move the mouse pointer to the top of the dot. The shape of the Braille dot is displayed in real time
		Release the left mouse button when the drawn shape matches the real dot shape.
		The measured values are copied to the result table.

Manual measure asymmetric dots

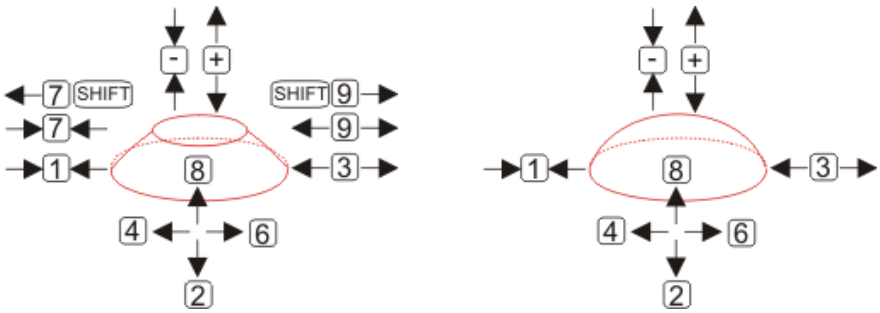
		Move the mouse pointer to the left extend of the base of the Braille dot
		Press the left mouse button down and keep it depressed
		Move the mouse pointer to the right extend of the base .
		Click the right mouse button while the left mouse button is still depressed
		Move the mouse pointer to the right top of the dot. The shape of the Braille dot is displayed in real time
		Click the right mouse button while the left mouse button is still depressed
		Move the mouse pointer to the left top of the dot. The shape of the Braille dot is displayed in real time.
		Release the left mouse button when the drawn shape matches the real dot shape. The correction required is displayed in 0.01mm units
		The measured values are copied to the result table.

Fine tune the measurement with the keys of your num pad

The actual dot is outlined in red while the previously measured dots are outlined in blue color.
Click inside a dot to make it becoming the actual one.



In order to adjust size and position of the actual dot press the proper key on your num pad or click the numerical icon on your screen with the left mouse button.

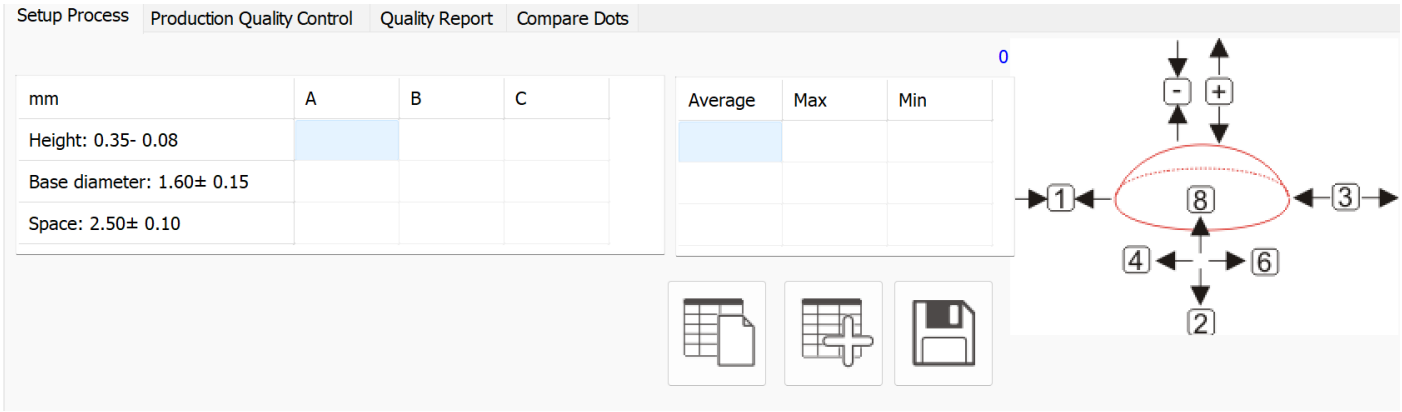


Remove a measurement

- Move the mouse button on top of the dot
- Click the left mouse button to remove a measurement

Setup Process

Setup your embosser by measuring sets of 3 individual dots all over the sheet as described above. Use the software to calculate the statistics.



 Clear statistics

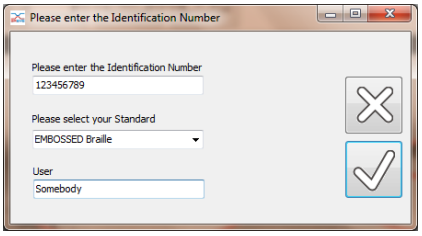
 Add measurement to statistics and re-calculate average, maximum and minimum

 Export all collected measurement values to a text file txt or csv, or output the data to an XML file.

Daily production quality control

 Start the measurement of a new box in production quality control by clicking the new job icon.

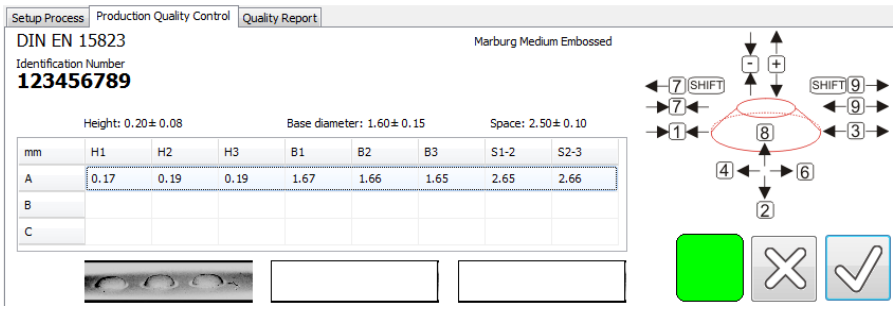
Enter the Job Identification number, select the standard you want to work with, and enter the name of the operator.



 Click the OK Icon to continue

 Click the CANCEL Icon to abort

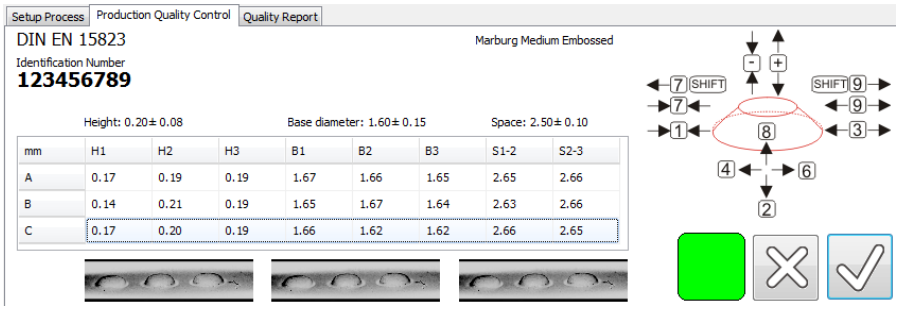
Execute a measurement as described above. The measurement data will be copied to the first line of the quality report table



The colored square in above sample displayes the summary of the actual measured dots of the box.

- A green square is displayed if every dot shows its minimum height, a base diameter in tolerance and the space between dots is in tolerance
- A red square is displayed, if at least one dot height of the actual measurement is out of tolerance. The height is the most critical parameter for the readability of the Braille script,
- An orange square is displayed, if the base diameter of at least one dot is out of tolerance.
- A yellow square is displayed, if at least one space between two dots is out of tolerance.

Select the next row by clicking onto the row.
Measure the next 3 dots of a different location of the same box
Finally select the last row by clicking onto the row.
Measure 3 dots at the 3rd location of the same box.



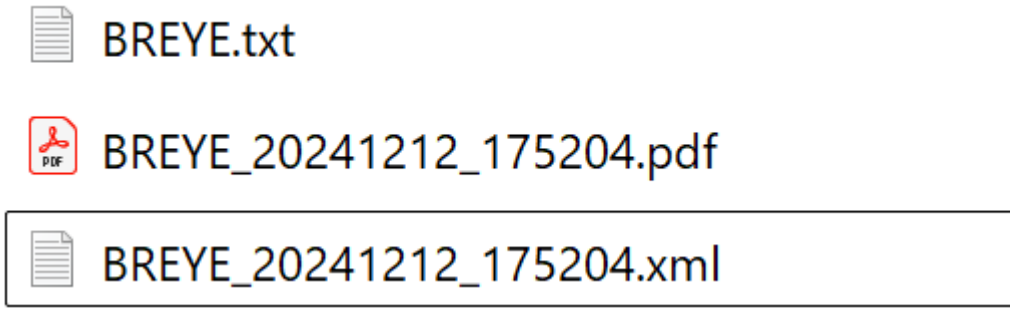
 Click the OK Icon to auto create and save a Quality Report in PDF format. The report is automatically displayed and can be printed.

The PDF file is saved in a subdirectory of the PERET\BREYE\Reports directory with the identification code as the directory name. Example:

If 1234567 was entered as the identification code, you will find the PDF file in the directory

PERET\BREYE\Reports\1234567\

The PDF file has the name BREYE followed by the date and time the report was created. Example: If the report was created on December 12, 2024 at 5:52:04 p.m., you will find the following files in the directory.



In addition to the report in PDF format, the measurement data is output in an XML file with the same name.

The measurement data is also added in a new line to the text file BREYE.txt.

 Click the CANCEL Icon to abort

Statistics

 Open Statistics on quality reports

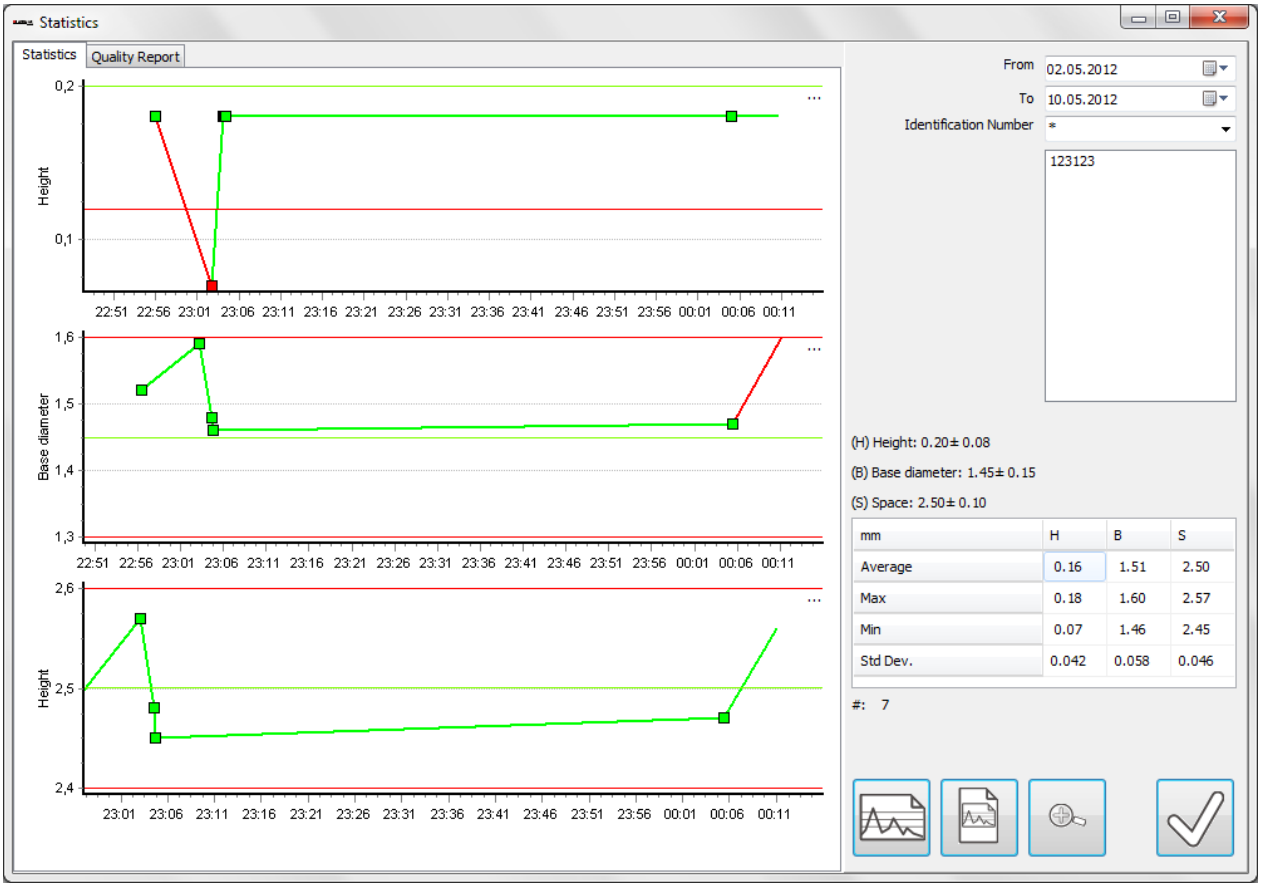
Select the time frame by selecting the FROM date and the TO date properly.

Select the Job Identification number. You can select a specific job identification number to calculate a statistics over all measurements of this job. You can also use wild cards like '*' to select similar job numbers.

 Click the Statistics Icon to calculate the statistics. All selected jobs will be listed. The overall Average, maximum and minimum are calculated and displayed in a table. The measurement results of the selected quality reports will be displayed graphically.

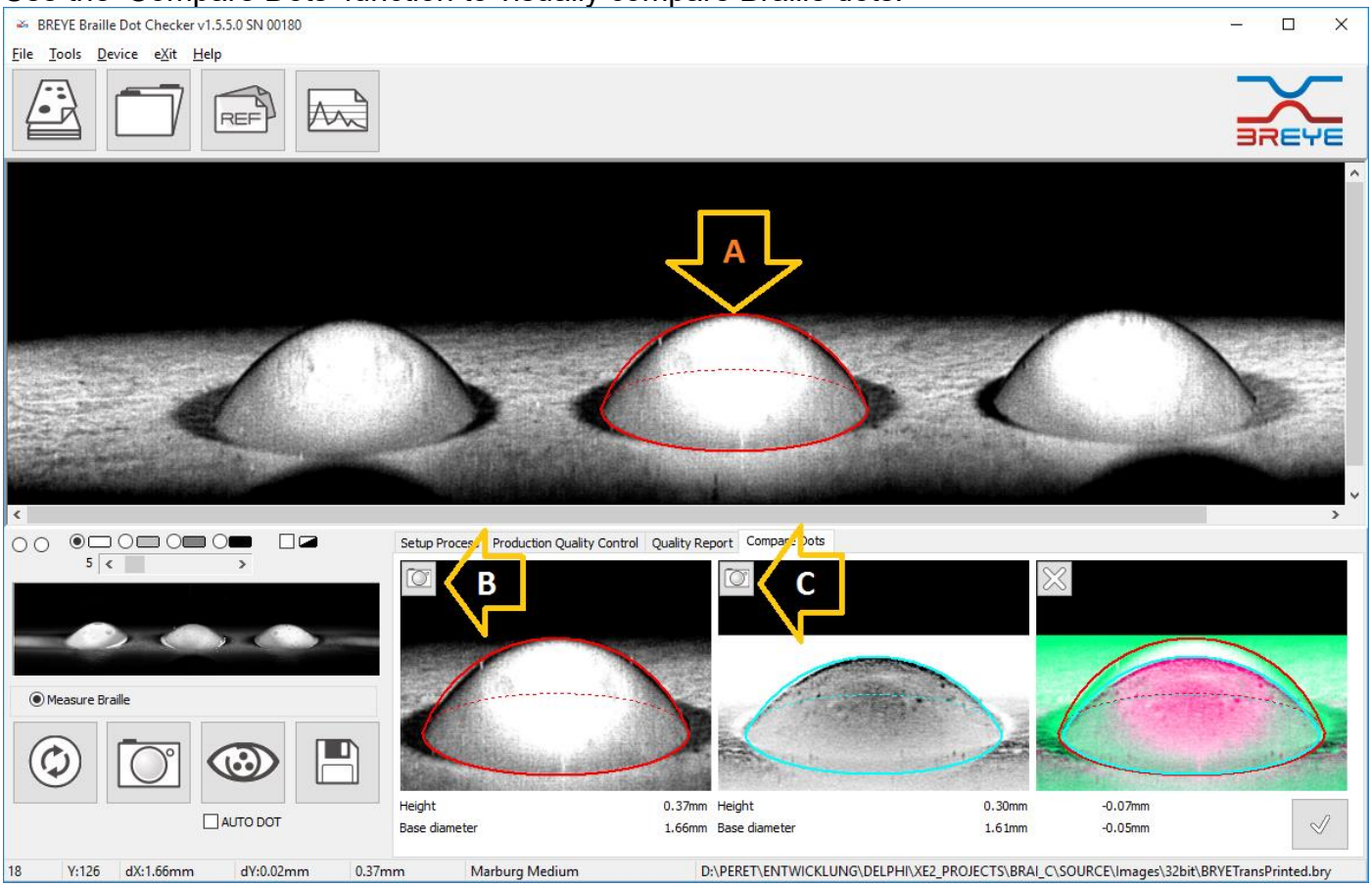
Select and display a report

Move the mouse pointer on one of the squares of one of the curves.
Click the left mouse button.
The associated report will be displayed automatically and can be printed.



Compare Dots

Use the ‘Compare Dots’ function to visually compare Braille dots.



- Select the Compare Dots Page to get access to the function
- Capture an Image of the first dot
- Measure the dot in the center of the image (A)
- Click the  Camera Icon of the first reference space to copy the current measurement result (B)
- Capture an Image of the second dot
- Measure the dot in the center of the image (A)
- Click the  Camera Icon of the second reference space to copy the current measurement result (C)
- The dots will be overlayed and displayed and the differences will be calculated and displayed.
- Click the delete Icon to delete the current overlay image  .

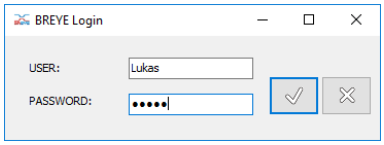
FDA 21 CFR Part 11 Option only features

Secure and traceable access to the system

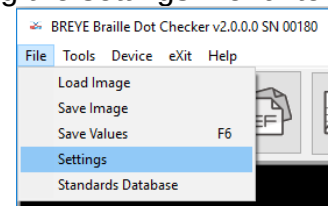
The FDA 21 CFR Part 11 software module offers additional functions to make the entire system FDA 21 CFT Part 11 compliant. The module can be activated by purchasing a license code and entering the license code in the help menu of the license manager.

Database with users.

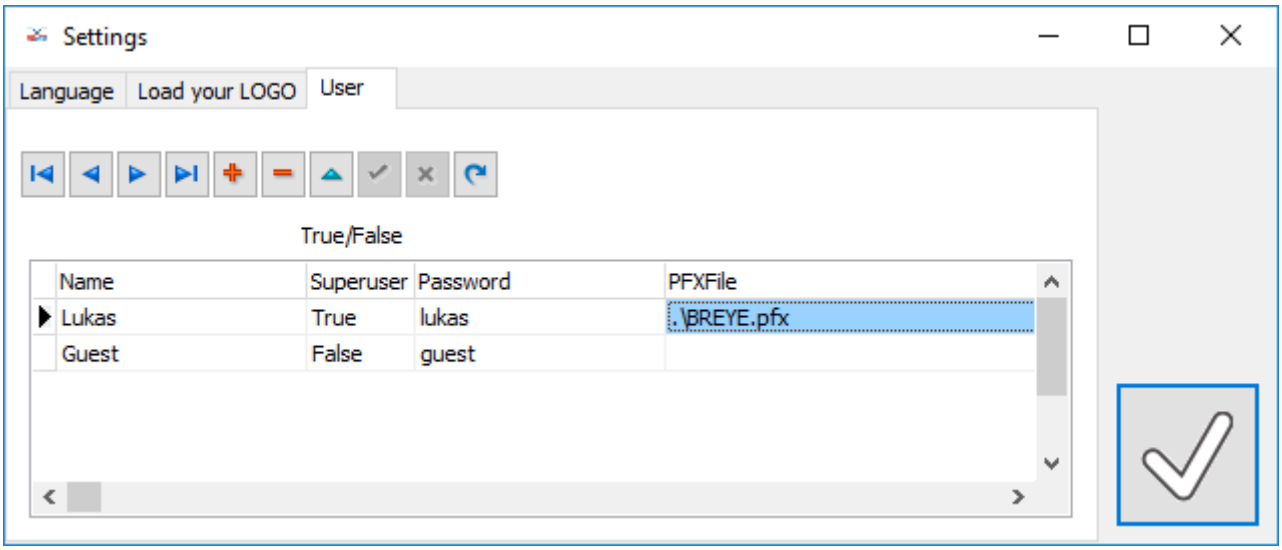
Users with full or partial access can be created in a database. Once users have been created, the program asks for the user and password when it starts.



Only registered users can login and use the device. After installation the list of registered users is empty and the login is performed automatically with superuser rights. The BREYE2.x now should be set up to work with registered users only.
Open the settings window by selecting the settings menu item from the main menu.



Select the USER Page of the settings window and insert the list of registered users into the database. Any user has to be qualified as superuser (True) or standard user (False) in the second column.



There can be registered as many users as required. Register a separate user for any operator, that should have access to the system.

In order to register a new user, change or delete a password, or to change the user qualification, the current user needs to have superuser qualification TRUE.

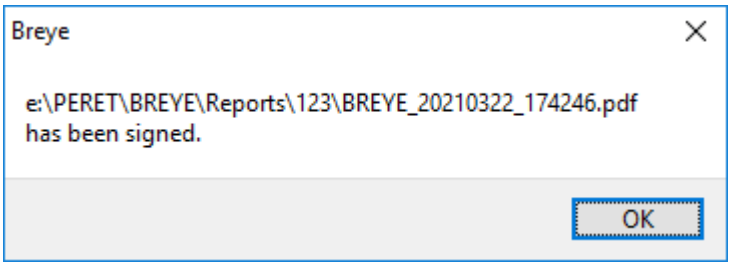
The following functions are reserved to the superuser

- Register new users, change or delete passwords, change user rights
- Add, delete or modify references and tolerances
- Perform a system validation

Digital Signature on PDF reports

The path and file name of a valid signature certificate can be entered in the PFXFile column. If this entry is valid, the PDF is digitally signed after generating a PDF report by clicking the OK symbol.

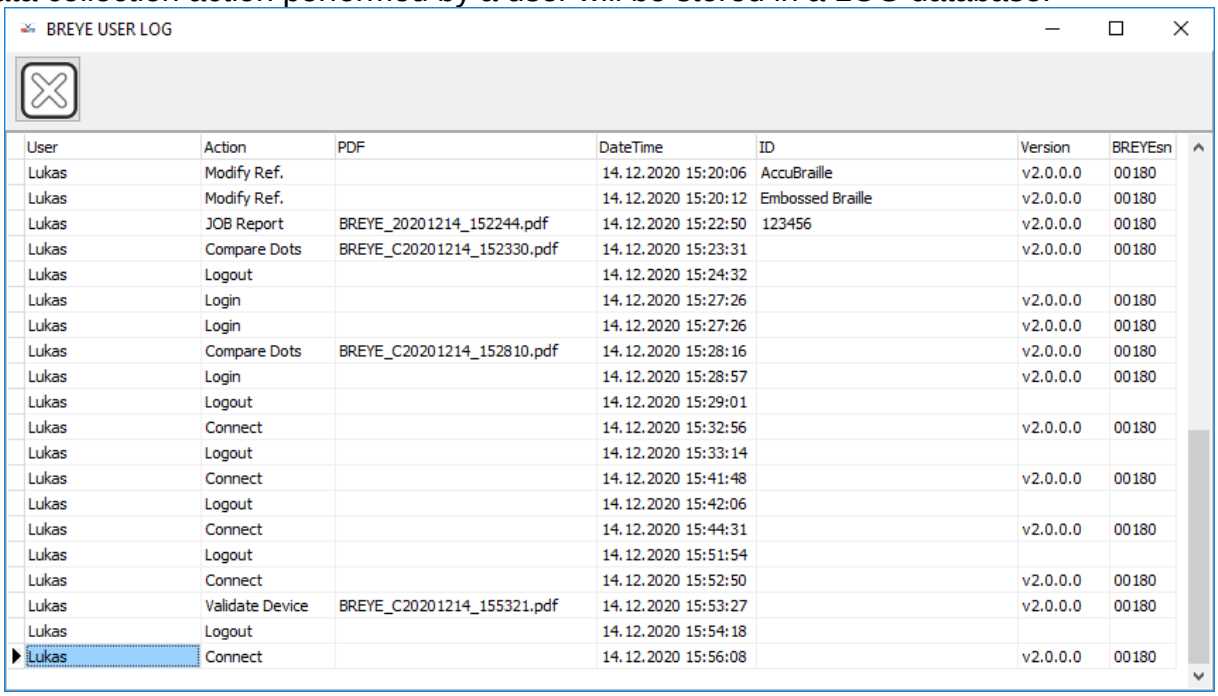
A PFX certificate is typically password protected. The software asks the user for the password. If a valid password is entered, the PDF is signed and saved with the suffix <signed>.



A successful signature is confirmed by means of a message or, if the signature is unsuccessful, notified by means of an error.

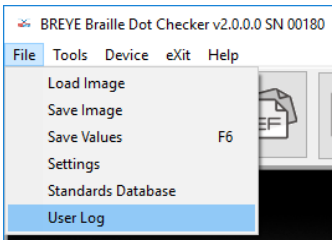
Access and Data collection Log by user

Any data collection action performed by a user will be stored in a LOG database.



User	Action	PDF	DateTime	ID	Version	BREYEsn
Lukas	Modify Ref.		14.12.2020 15:20:06	AccuBraille	v2.0.0.0	00180
Lukas	Modify Ref.		14.12.2020 15:20:12	Embossed Braille	v2.0.0.0	00180
Lukas	JOB Report	BREYE_20201214_152244.pdf	14.12.2020 15:22:50	123456	v2.0.0.0	00180
Lukas	Compare Dots	BREYE_C20201214_152330.pdf	14.12.2020 15:23:31		v2.0.0.0	00180
Lukas	Logout		14.12.2020 15:24:32			
Lukas	Login		14.12.2020 15:27:26		v2.0.0.0	00180
Lukas	Login		14.12.2020 15:27:26		v2.0.0.0	00180
Lukas	Compare Dots	BREYE_C20201214_152810.pdf	14.12.2020 15:28:16		v2.0.0.0	00180
Lukas	Login		14.12.2020 15:28:57		v2.0.0.0	00180
Lukas	Logout		14.12.2020 15:29:01			
Lukas	Connect		14.12.2020 15:32:56		v2.0.0.0	00180
Lukas	Logout		14.12.2020 15:33:14			
Lukas	Connect		14.12.2020 15:41:48		v2.0.0.0	00180
Lukas	Logout		14.12.2020 15:42:06			
Lukas	Connect		14.12.2020 15:44:31		v2.0.0.0	00180
Lukas	Logout		14.12.2020 15:51:54			
Lukas	Connect		14.12.2020 15:52:50		v2.0.0.0	00180
Lukas	Validate Device	BREYE_C20201214_155321.pdf	14.12.2020 15:53:27		v2.0.0.0	00180
Lukas	Logout		14.12.2020 15:54:18			
Lukas	Connect		14.12.2020 15:56:08		v2.0.0.0	00180

The LOG is displayed clicking the Menu Item File/User Log



The following actions are added to the Log database:

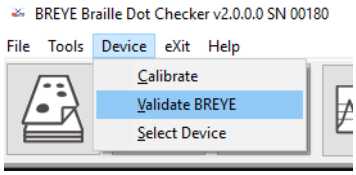
- Login
- Logout
- Modification of users that are allowed to login
- Modification of References
- Creation of a Job Report (Production Quality Report)
- Creation of a Dot Compare Report
- Connecting another BREYE Braille Dot Analyzer with a different serial number
- Validation of the BREYE Dot Analyzer

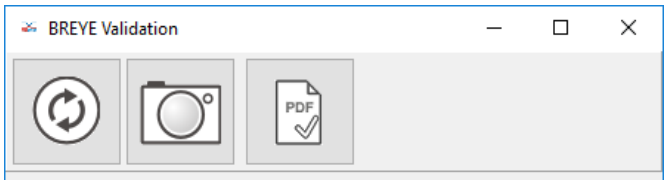
Whenever it makes sense there is stored information in addition to the user's name, time stamp, Software version and BREYE serial number:

- PDF File name when a PDF Report is created (Validation, Job Report, Dot Compare report)
- JOB ID number if available
- Reference name in case a reference has been added or changed.

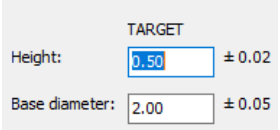
Validation to ensure accuracy, reliability, consistent intended performance

The BREYE can be validated using the BREYE TARGET reference. The BREYE TARGET reference is mechanically stable and can be used for at least 2 years.
The BREYE2.x Software features a Validation procedure that can be accessed from the main menu

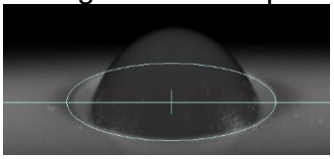




Insert the target height and base diameter as printed on the BREYE TARGET.



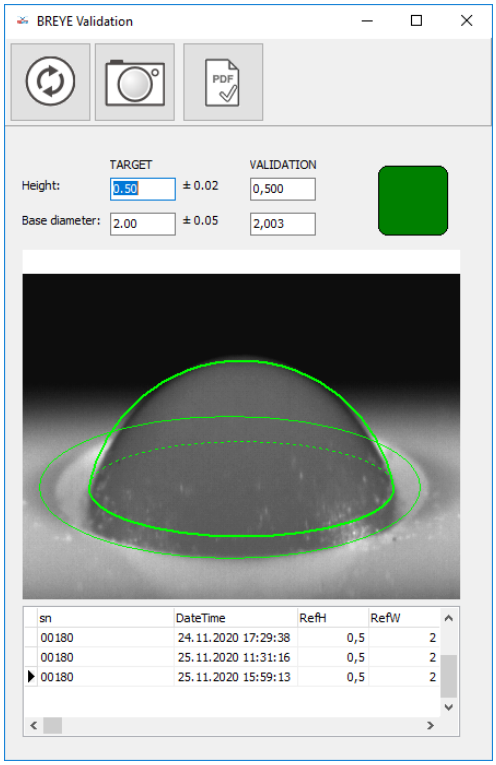
 Click the Preview button to set the device parameters for validation and run a live image in the main window. Position the BREYE using the blue ellipse as reference

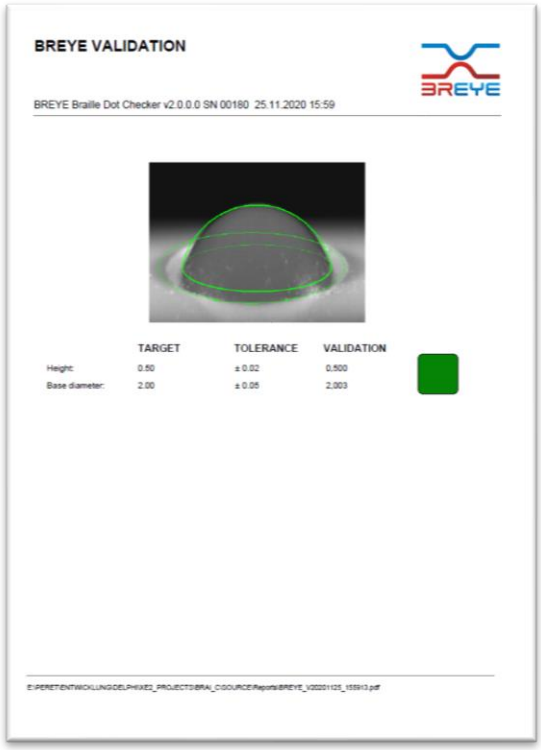


 Click the capture button to capture an image and to calculate the dimensions of the BREYE TARGET reference.

The VALIDATION dimensions are calculated automatically. The VALIDATION numbers are compared with the reference target numbers and if in tolerance, there will be displayed a green flag.
If slightly out of tolerance, such as the mis-calibration is very small, the operator gets prompt to recalibrate the device. If the VALIDATION is totally out of tolerance, the calibration at the manufacturing location or service center is recommended.

 Click the PDF Icon to create a Validation report. The validation result and date will be added to permanently to the validation database. The regularity of validation can be traced. The PDF report is automatically saved and can be printed.





Traceability of critical actions

System validation

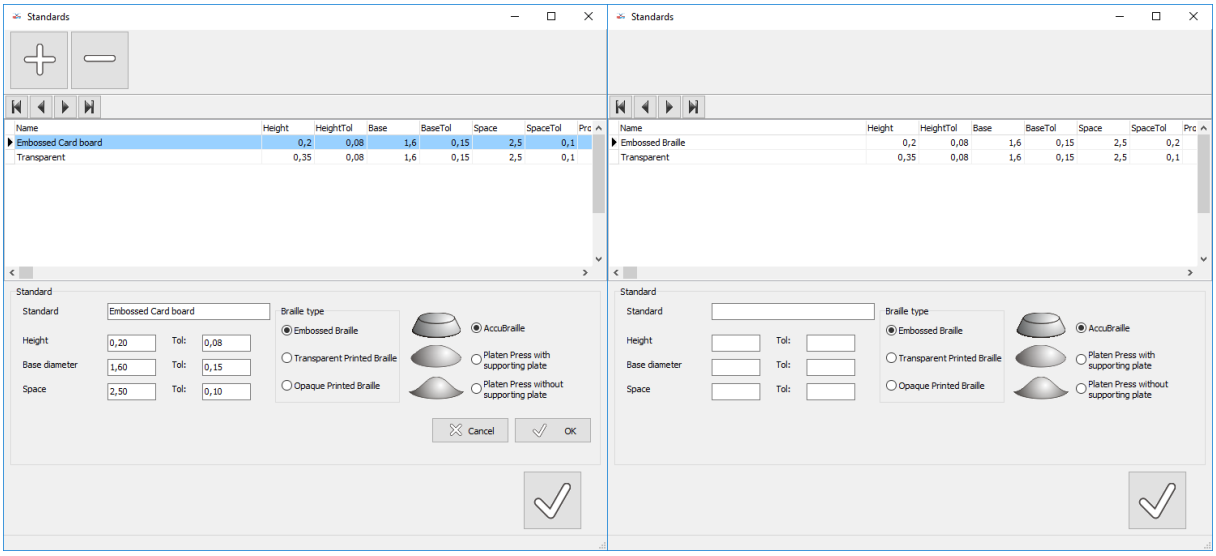
Whenever the system is validated the following data is stored in addition to the validation measurement values and references:

- date and time
- the BREYE2.x user
- the computer Identification
- the Windows Login name
- the BREYE2.x software version

If a calibration has been performed, the validation / calibration process is registered.

Reference database

All references are stored in an encrypted database. The only possibility to add, delete or modify references and tolerances is by means of the BREYE2.x software with superuser login.



Superuser standard user

Any reference will contain in addition to target and tolerances also the following information:

- date and time of creation or last modification
- the BREYE2.x user
- the computer Identification
- the Windows Login name