

Operating manual



EASYCAL™ 5

Calibration software

Legal notice

BRAND GMBH + CO KG
Otto-Schott-Str. 25
97877 Wertheim (Germany)
T +49 9342 808 0
F +49 9342 808 98000
info@brand.de
www.brand.de

More operating manuals and translations?

Please refer to <http://www.brand.de/om> or use the following Quick Response Code:



The original operating manual is in German. Other languages are translations of the original operating manual.

Subject to technical changes, errors, and misprints.

Table of contents

1	Instructions for use	6
1.1	Software version described	6
1.2	Who are these instructions meant for?	6
1.3	Layout	6
1.4	Glossary.....	6
1.5	Using the integrated help.....	6
2	Installation.....	8
2.1	Installation procedure.....	8
2.2	Information about your software	10
2.3	Transfer licenses (use on another computer)	11
2.4	End user license agreement.....	12
2.5	Convert demo license to standalone license	17
3	Function and application	18
4	Tutorial.....	21
4.1	Set up balance as test equipment	21
4.2	Creating order.....	21
4.3	Determine test equipment.....	26
4.4	Performing the test	26
4.5	Complete test	34
5	General operation	40
6	System Information	42
7	Orders and calibration certificates	43
7.1	Create order.....	44
7.2	Select test equipment for the test.....	48
7.3	Performing tests	49
7.4	Complete test	53
7.5	Order in detail.....	53
7.6	Print/save certificate	56
7.7	Erroneous measurements in the test	56
8	Device administration	58
8.1	Create new device	58
8.2	Search for devices	59
8.3	Create new reminder.....	60
9	Administration	61
9.1	User	61

9.1.1	Test types (user authorizations).....	61
9.1.2	Notify user	61
9.1.3	Manage user groups.....	62
9.1.4	Configure user	66
9.1.5	Manage users.....	70
9.2	Master data maintenance	71
9.2.1	Article data	72
9.2.2	Extended article data.....	80
9.2.3	Random sample scheduling.....	85
9.2.4	Test equipment	89
9.2.5	General	96
9.3	Create company	98
9.4	Certificate templates.....	99
9.4.1	Master layout.....	100
9.4.2	Content structure.....	102
9.4.3	Content elements.....	103
9.4.4	Certificate template assignment.....	112
9.5	Test planning	114
9.5.1	Test plan overview	114
9.5.2	Test plan assignments	126
9.6	Data import and export.....	129
9.7	Business partner administration	129
10	Settings	131
10.1	Workstation settings	131
10.1.1	Test equipment	132
10.1.2	Paths for certificate export.....	133
10.1.3	Standard printer.....	134
10.2	Language.....	135
10.3	Global settings.....	135
10.3.1	Parameters and limits.....	136
10.3.2	SMTP settings	138
10.3.3	Automatic reminder	139
10.3.4	Active users.....	140
10.3.5	Blockages	141
10.3.6	Printer configuration	142
10.3.7	Database backup (standalone/demo license only).....	142
10.3.8	Calibration intervals.....	143
10.3.9	Updates	143
11	Reminder service	145
11.1	Registered reminder.....	145
11.2	Reminders due.....	146

Keyword Index.....	148
Glossary	150

1 Instructions for use

1.1 Software version described

This user manual describes EASYCAL™ 5 to software version:

V.5.0.19.xxx

1.2 Who are these instructions meant for?

Readers implement specific testing processes in the software EASYCAL™ 5. You have administrator access rights and can create work instructions for the testing personnel after the testing process has been implemented.

1.3 Layout

Layout	Meaning	Layout	Meaning
1. Task	Indicates a task.	✓	Indicates a condition.
1., 2., 3, ...	Indicates the individual steps of a task.	→	Indicates a result.

1.4 Glossary

Entries in the glossary are indicated with chevrons (>> <<).


In the user manual integrated in the software: Hover the mouse pointer over the entry, and it will be displayed as a tool tip. Click on the entry, and jump to the glossary.

In PDF user manuals: Click on the entry, and jump to the glossary.

Example:

[>>Error limit<<](#)

1.5 Using the integrated help

Help is integrated in EASYCAL™ 5. You open it by clicking on the button . You can operate the integrated help as follows:

Navigate backwards

- a. Right-click in the “Help”, and select “Back”.

Navigate forward

- a. Right-click in the “Help” and select “Forward”.

Print help

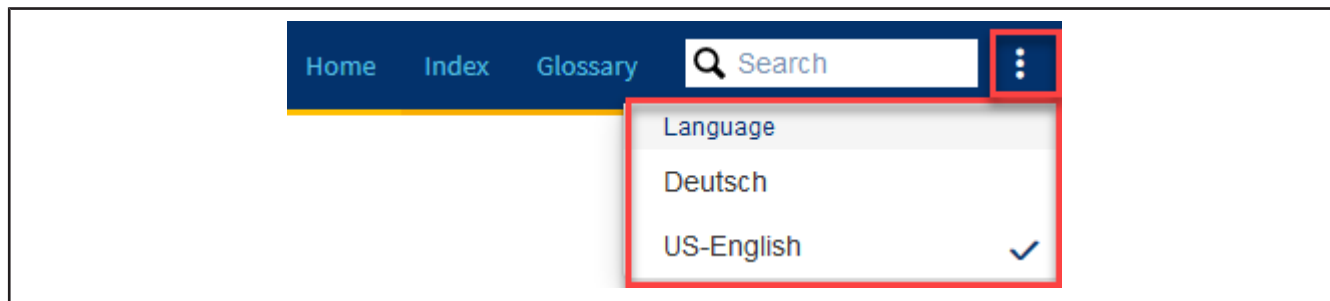
- a. Right-click in the “Help” and select “Print...”.

Paths to menu items

Paths to menu items are displayed as follows:

>> Main menu > Sub-menu > Sub-menu

Change language



a. Click on the items menu.

b. Click on the desired language.

↪ The view is changed to the desired language.

Search contents



a. Enter the term you are looking for.

↪ The search finds “C value” as well as “values” when “value” is entered.

Keyword Index

Use the index to jump directly to the content via the keywords.

Glossary

Use the glossary to find explanations of terms.

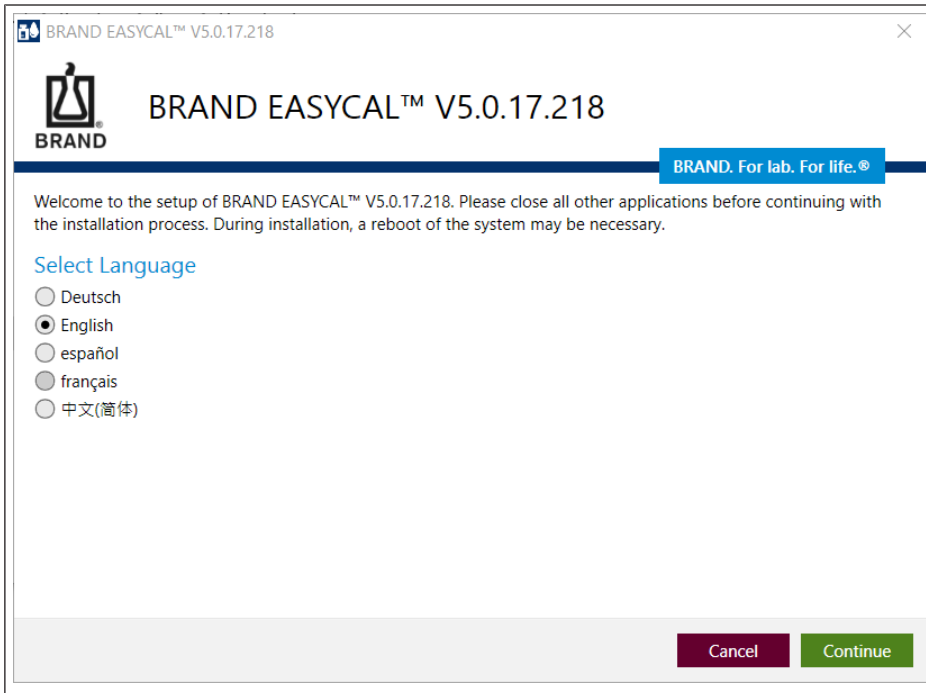
2 Installation

2.1 Installation procedure

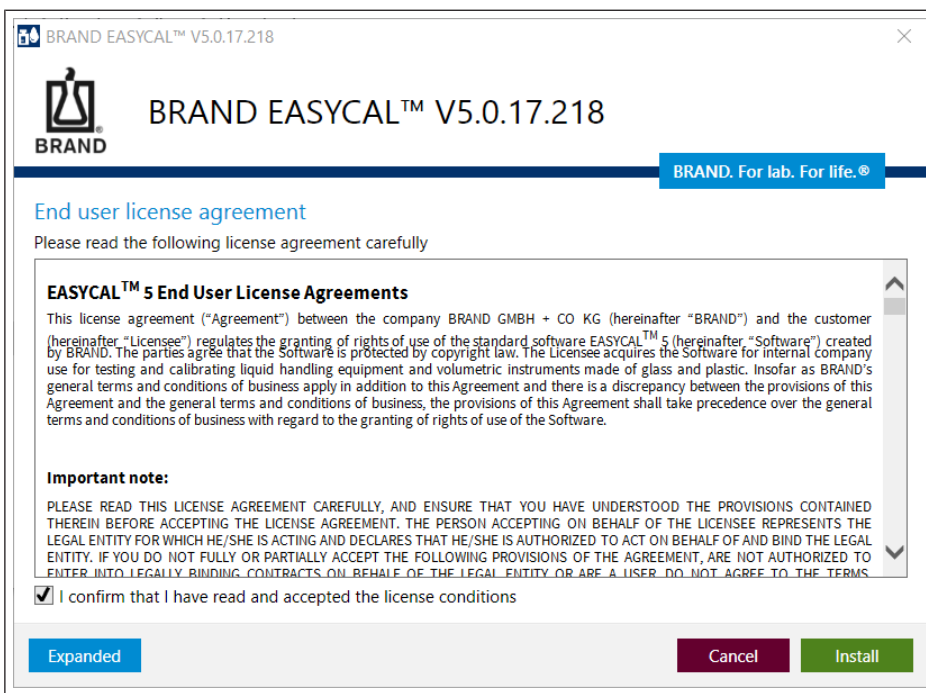
a. Download the installation file:

<https://www.brand.de/service-support/software>

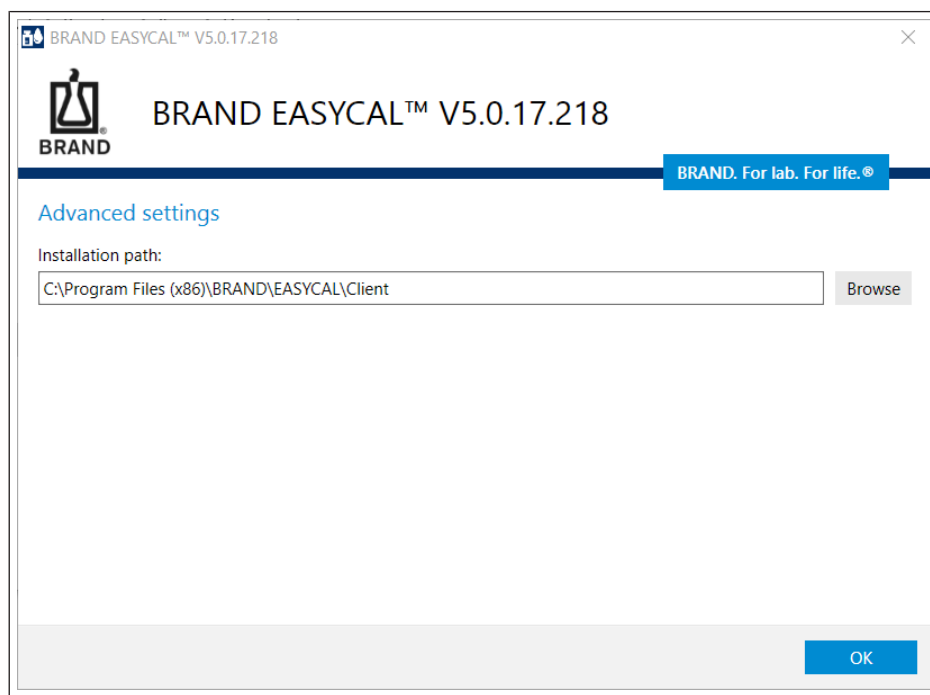
b. Select the installation language. You can change the language of the software interface later.



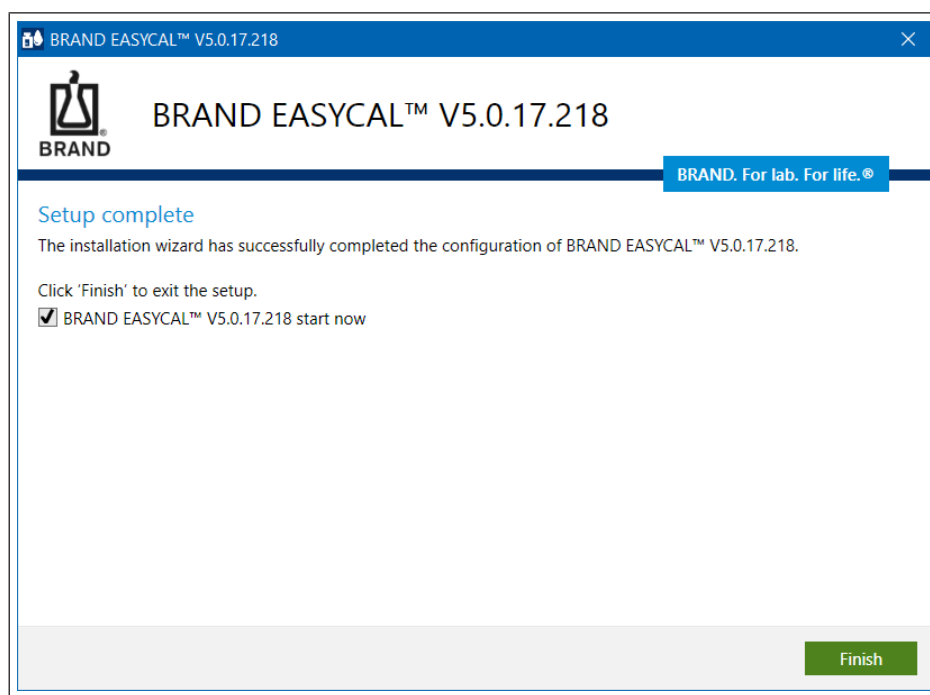
c. Confirm the license agreement.



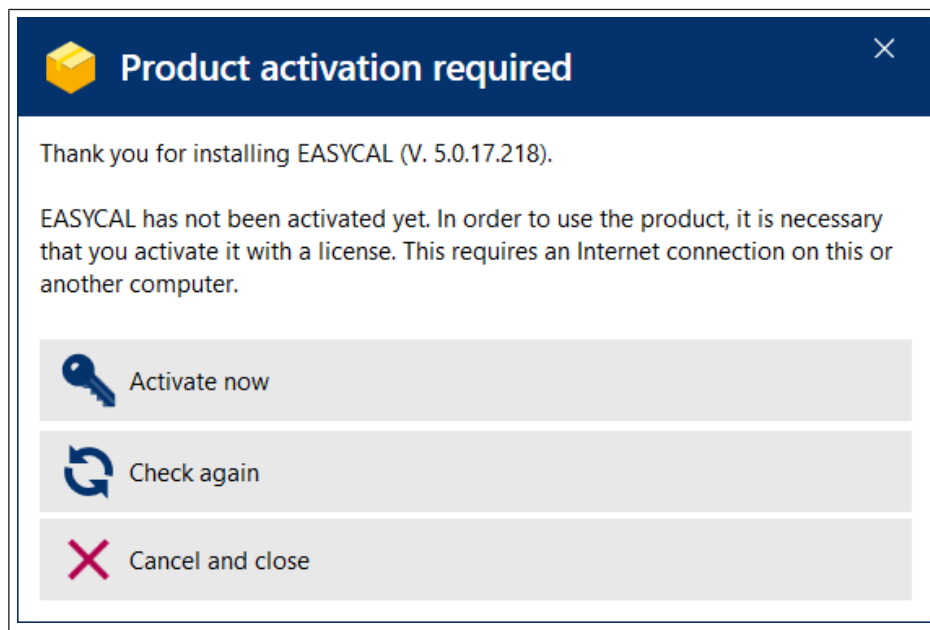
- d. Select the installation path via Advanced settings.



- e. The installation is being carried out. Complete the installation.



- f. Activate EASYCAL 5. To do this, follow the instructions on the web page that opens <https://license.brand.de>.



2.2 Information about your software

Compatibility

Compatibility	Note
EASYCAL™ 3 EASYCAL™ 4	Because EASYCAL™ 5 is a new development, it is not possible to transfer data from older versions.
Data transfer from the demo version	Standalone license: Data from the demo version can be reused on this workstation. Server license: Data from the demo version <u>cannot be</u> used for productive work with the server license.
Merge installations	EASYCAL™ 5 standalone installations or server installations cannot be merged into a single installation.

System requirements

	Standalone	Server
Operating system	PC operating system from Windows 10	Operating system from Windows 10 or Windows Server 2016
Database	Local storage	Local storage If a server operating system is used, the databases can also be stored locally on this operating system without having to use an SQL server. Alternatively: SQL Server from Microsoft SQL Server 2016

	Standalone	Server
Working memory	16 GB RAM	16 GB RAM

License model

Licenses	Explanation
Standalone installation	One standalone license per computer is required. Multiple users can log on to this computer.
Client–server systems	Consisting of at least one client and the server. The server manages the client licenses and allocates them according to availability (as floating licenses).

System requirements for EASYCAL™ 5 standalone

	Standalone
Operating system	PC operating system from Windows 10
Database	Local storage
Working memory	16 GB RAM

System requirements for EASYCAL™ 5 as server

	System requirements
CPU:	Processor with at least 1 GHz clock rate
Memory	At least 16 GB RAM
Network	Local network infrastructure
Operating system	from Windows 10 or Windows Server 2016
Database	Local storage If a server operating system is used, the databases can also be stored locally on this operating system without having to use an SQL server. Alternatively: SQL Server as of MicrosoftSQL Server 2016
Internet	A permanent broadband Internet connection is highly recommended

2.3 Transfer licenses (use on another computer)

NOTICE

Transfer the license

Transferring the demo license is not possible.

Client licensing is tied to the hardware of the particular computer on which EASYCAL™ 5 was installed. If this computer is replaced or if EASYCAL™ 5 is to be used on another computer, you can “transfer” the license. When transferring licenses, they are first deactivated and can then be reactivated on another computer.

- a.** Export all data via the “Import/export center”; see Data import and export, p. 129.
- b.** Go to <http://license.brand.de>.
- c.** Enter the ticket number you received on your order confirmation.
- d.** Click “Deactivate/transfer licenses” and follow the instructions shown.
- e.** Reinstall EASYCAL™ 5.
- f.** Re-activate the license.
- g.** Import all data via the “Import/export center”; see Data import and export, p. 129.

2.4 End user license agreement

See also

→ EULA (p. 13)

EASYCAL™ 5 End User License Agreements

This license agreement (“Agreement”) between the company BRAND GMBH + CO KG (hereinafter “BRAND”) and the customer (hereinafter “Licensee”) regulates the granting of rights to use the standard software EASYCAL™ 5 (hereinafter “Software”) created by BRAND. The parties agree that the Software is protected by copyright law. The Licensee acquires the Software for internal company use for testing and calibrating liquid handling equipment and volumetric instruments made of glass and plastic. Insofar as BRAND’s general terms and conditions of business apply in addition to this Agreement and there is a discrepancy between the provisions of this Agreement and the general terms and conditions of business, the provisions of this Agreement shall take precedence over the general terms and conditions of business with regard to the granting of rights to use the Software.

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1. Subject matter of the Agreement

- 1.1. The subject matter of this Agreement is the provision of Software in object code, the granting of rights to use the Software and the maintenance of the Software.
- 1.2. BRAND supplies the Software to the Licensee by way of download and provides the user documentation in electronic format. The Software is protected by means of a license key, which the Licensee receives via e-mail. The Licensee receives the license key exclusively for using the Software in accordance with this Agreement.
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- 1.4. The Software contains the open source software programs listed under Section 11th. The open source license agreements for these open source software programs apply independently from the regulations of this License Agreement, taking priority over it.

2. Intended purpose of use

- 2.1. To fulfill the intended purpose of use of the Software, BRAND offers different license types and models, which are described below.
- 2.2. BRAND offers the following license types for the Software:

2.2.1 Standalone application / standalone license

The standalone license authorizes the Licensee to execute and use the Software on a single end device in accordance with the conditions of this Agreement. In this case, the Software may be used by an unlimited number of persons on the assigned end device, provided it is ensured that the Software is only used on one operating computer by one device at a time. Virtualization of the assigned device or using other mechanisms to allow use by multiple operating computers is not permitted. Using the Software through a remote connection or automated use by compile servers, build servers or similar server types is not permitted.

2.2.2 Server application

2.2.2.1 Server license

The server license authorizes the Licensee to execute and use the Software on an assigned server in accordance with the conditions of this Agreement. A server license must be used in conjunction with at least one client license, which is purchased separately.

2.2.2.2 Client license

The client license authorizes the Licensee to execute and use the Software on an unlimited number of devices within a server system in accordance with the conditions of this Agreement and the number of purchased client licenses. A client license must be used in conjunction with a server license, which is purchased separately.

2.3. BRAND offers the following license models for the Software:

2.3.1 Demo license

Subject to compliance with the terms and conditions of this Agreement, the demo license authorizes the Licensee to use the Software free of charge over a defined period (hereinafter "Test Period") for the purposes of evaluating or testing the Software with respect to its suitability for the Licensee. Upon expiration of the Test Period, the license automatically becomes invalid and further use of the Software is prohibited.

2.3.2 Permanent license

A permanent license refers to a specific major version of the Software as well as the updates to this major version provided by BRAND and grants the right to use the Software for an unlimited period of time.

3. Granting a license

- 3.1. BRAND grants the Licensee the geographically unrestricted, simple (non-exclusive), non-transferable right to use, duplicate, edit and decompile the Software in accordance with this Agreement (see Section 3.2 to Section 3.4) and in accordance with the purchased license type and model. The permitted use comprises the installation of the Software as well as the intended use by the Licensee. The license is granted under the condition precedent that the license fee has been paid in full by the Licensee or a license fee is not required (demo license).
- 3.2. The right to duplicate is limited to the installation of the Software on a computer system owned directly by the Licensee for the fulfillment of the intended purpose of use, and to duplication that is necessary for loading, displaying, running, transferring and saving the Software as well as the right to produce a backup copy of the Software.
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- 3.6. In case of a violation of the terms of use of this Agreement, BRAND shall reserve all rights to prohibit or stop unlicensed use of the Software, including in particular the right to injunctions and compensation for damage. Unauthorized access may carry criminal law consequences in accordance with relevant laws. The provisions of this section in relation to duplication and publication shall also apply to the user handbooks and other documents related to the Software provided by BRAND.

4. Software maintenance

- 4.1. BRAND further develops the Software to ensure it is of high quality and up to date, adapts it to changing requirements, fixes errors to maintain the quality promised in this Agreement and provides the Licensee with any resulting software patches, bug fixes and updates in accordance with section 4.2. Software maintenance is provided in accordance with the respective state of the art and in such a way that it is oriented towards the interests of all software users. The services are provided only with respect to the last supplied Software version. BRAND can provide patches, bug fixes and updates in accordance with the regulations for the initial provision of the Software. In the event of changes to the state of the art, BRAND reserves the right to change delivery.
- 4.2. Software maintenance includes the following services (hereinafter "Software Maintenance"):
 - Provision of patches and bug fixes to correct program errors (see Section 7.2 Sentence 4);
 - Provision of service packs;
 - Provision of updates in a minor release (e.g. from Version 1.0 to Version 1.1);
 - Provision of updated software documentation in electronic format.

The installation of software, patches, service packs and updates as well as configurations, parameterizations or software adjustments and backups are not included in Software Maintenance.

5. Fees

- 5.1. The license fees for a permanent license are due for payment upon transmission of the license key.
- 5.2. Subject to an express provision to the contrary, all fees are understood as net fees, i.e. plus statutory sales tax. BRAND shall separately disclose the tax rate and the amount of sale tax on the invoice.

6. Copyright law

EASYCAL™ 5 is a software product developed and produced by BRAND, while the open source software mentioned in Section 11 is a third-party software. The Software is subject to international and national copyright law protection. BRAND holds and retains all rights to, ownership in, and all claims relating to the Software, including all copyrights, patents, operating and company secrets, brands, and other intellectual property.

With this License Agreement, the Licensee does not acquire any ownership of the Software; the Licensee only acquires the Software rights listed in Section 3rd.

7. Warranty

- 7.1. The parties agree that software cannot be created without technical limitations. BRAND assumes the warranty only for the software components created by or commissioned by BRAND and declares in this respect that for the warranty period the Software is essentially capable of performing the functions described in the documentation (hereinafter the "Agreed Functions"). In the case of updates, the warranty claims are limited to new features compared to the previous software version. Minor deviations from the agreed functions shall not be grounds for a warranty claim. Program malfunctions caused by an inappropriate installation of the Software not conforming to the operating manual, accidents, misuse or improper application shall be excepted from the warranty. In particular, no warranty shall be granted that the Software provided is compatible with the data processing environment the Licensee is using.
- 7.2. Insofar as the Software is found to contain a defect, BRAND shall guarantee the opportunity to provide supplementary performance within an appropriate time period. BRAND shall be entitled to a right to select from among types of supplementary performance. Should the reasonable period expire without result or should a reasonable number of attempts at supplementary performance fail, the Licensee may, under the statutory requirements, at his/her discretion withdraw from the Agreement, reduce the price and claim damages or reimbursement of expenses. If the defect does not adversely affect the functionality or only to a negligible degree, BRAND is entitled under exclusion of further warranty rights to repair the defect by supplying a new minor version of the Software or a patch, bug fix or update within the scope of its planning for further development of the Software.
- 7.3. The period of limitation for warranty claims is 12 months and begins with delivery of the license key. In the case of delivery of patches, bug fixes and updates, the period begins with provision of the patch, bug fix and update.

8. Obligations of the Licensee

- 8.1. Establishing a functional software environment for the Software shall be the sole responsibility of the Licensee. The same applies to regular backups.
- 8.2. The Licensee undertakes to install the Software within ten (10) business days after receipt of the license key and to inspect basic program functions for functionality. Defects determined during this inspection or which may be determined, must be disclosed to BRAND by email at easycal@brand.de within an additional ten (10) business days. Claims for defects not determinable during the framework of the regular inspection must be announced to BRAND by email at easycal@brand.de within 10 business days after their discovery. In case of a violation of this inspection and notice obligation, the delivered Software shall be deemed accepted with regards to the defect in question.
- 8.3. The Licensee shall be responsible for securing the data in accordance with the state of the art and normal data processing operations and shall take reasonable precautions in the event that the Software used by him/her does not work properly in whole or in part, e.g. by performing regular backups, diagnosing faults and/or regularly checking the results. Disadvantages and additional costs due to a violation of these obligations shall be borne by the Licensee.

9. Confidentiality

- 9.1. The parties undertake to treat all sensitive information of which they become aware during the performance of this contract as confidential and to use it only for contractually agreed purposes. Sensitive information within the meaning of this provision includes information, documents, specifications and data that are indicated as such or are to be regarded as sensitive by their nature. If sensitive information as defined above is requested by a public body from one party, the other party shall be informed immediately and even before the information is released to the public body.
- 9.2. The aforementioned obligations shall not be affected by any termination of this Agreement. Upon termination of this Agreement, both parties undertake to return or destroy sensitive information at their discretion, provided that this has not been properly used.

10. Liability

10.1. BRAND shall be liable under this Agreement only in accordance with the following provisions:

- without limitation for damages caused intentionally or by gross negligence by BRAND, its legal representatives or executive employees as well as for damages caused intentionally by other vicarious agents; for gross negligence of other vicarious agents, the liability shall be determined according to the regulations for minor negligence;
- without limitation for damages resulting from injury to life, limb or health which have been caused by BRAND, its legal representatives or vicarious agents;
- for damages due to missing warranted features up to an amount which was covered by the purpose of the warranty and which was recognizable for BRAND at the time the warranty was given;
- for product liability damages according to the provisions of the Product Liability Act, and
- for damages resulting from the violation of cardinal obligations by BRAND, its legal representatives or vicarious agents. Cardinal obligations are essential obligations that form the basis of the Agreement, were vital for conclusion of the Agreement and the fulfillment of which the Licensee may rely on. If BRAND fails to meet these cardinal obligations due to minor negligence, liability on the part of BRAND shall be limited to the amount which was foreseeable for BRAND at the time of the respective performance.

10.2. BRAND shall be liable for the due diligence customary in the industry. A determination of whether BRAND is at fault in a matter must take into account the fact that software cannot be manufactured without technical limitations.

10.3. BRAND shall not be liable for the loss of data and/or programs to the extent to which such damages result from the failure on the part of the Licensee to complete data backups and thereby ensure that lost data can be restored with a reasonable amount of effort.

10.4. Any further liability of BRAND is excluded on these grounds.

11. Additional applicable regulations

The Software includes open source software programs. The open source license agreements for these open source software programs also apply, taking priority over this License Agreement. You can find the specific open source software programs and valid license agreements in the Software's version information.

12. Final provisions

12.1. The assignment of claims shall only be permitted following prior written approval from the other respective contractual party. This approval may not be refused unfairly. This shall not affect the regulations of Sec. 354 a HGB (Commercial Code).

12.2. A right of retention may only be asserted due to counterclaims from the respective contractual relationship.

12.3. The contractual parties may only make offsets with claims that have been legally determined or that are uncontested.

12.4. There shall be no ancillary agreements to this Agreement. Amendments and supplements to this Agreement shall require the written form. This written form requirement may only be waived following written agreement. The written form requirement shall be considered satisfied if the notices, changes or amendments are sent by email to and received by the email address used in the transmission of the license keys.

12.5. The law of the Federal Republic of Germany shall apply without restriction, under exclusion of the conflict-of-law rules of international private law, as well as the United Nations Convention on Contracts for the International Sale of Goods (CISG).

12.6. The place of fulfillment is Wertheim. The exclusive place of jurisdiction for all legal disputes arising from or in conjunction with this Agreement is Frankfurt am Main. BRAND shall, however, also be entitled to lodge complaints at the Licensee's general place of jurisdiction.

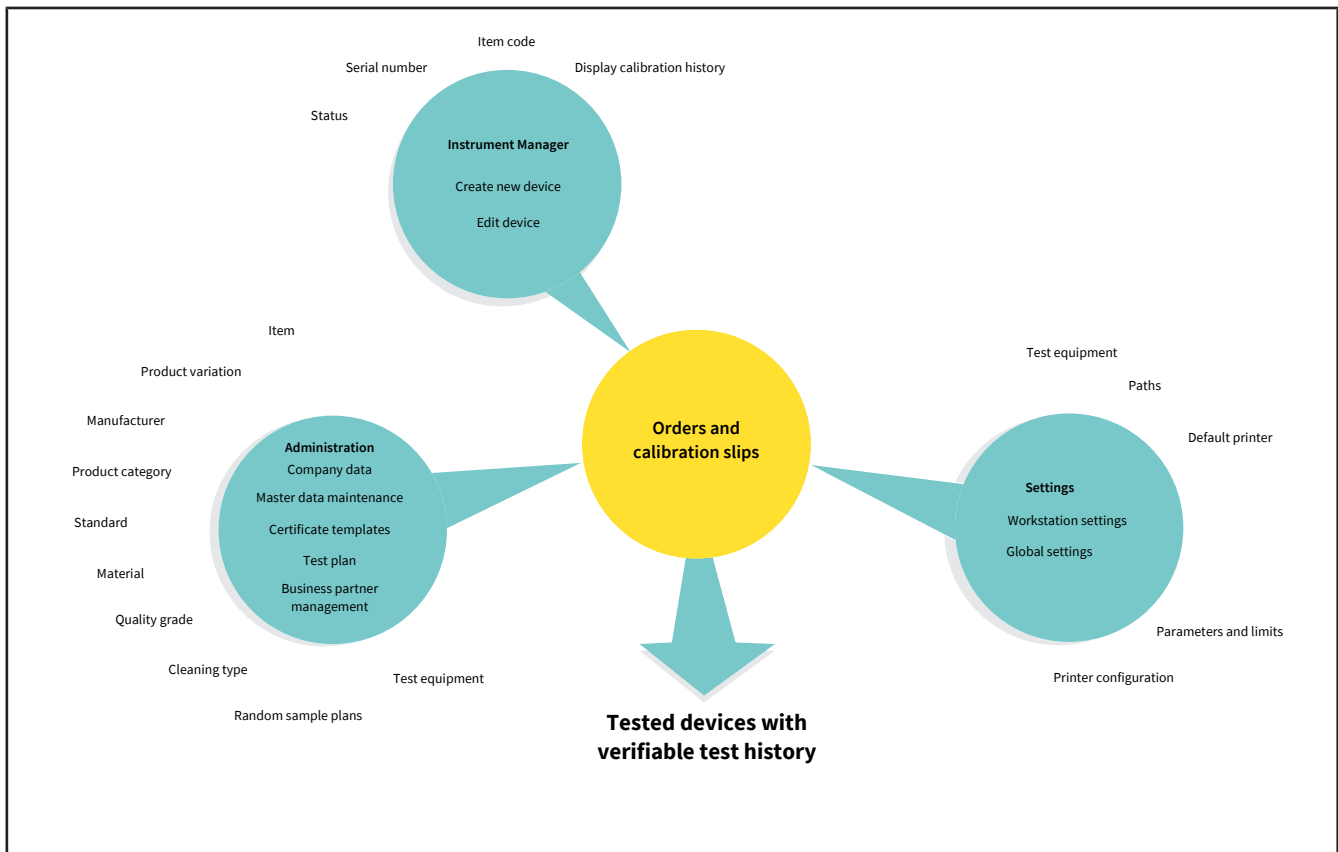
12.7. If individual provisions of this Agreement shall be or become invalid in whole or in part, this shall not affect the validity of the remaining provisions. If the invalid provisions is replaced by a valid one, the Parties hereby already agree to enact a provision coming as close as possible to the economic purpose of the invalid one. The same shall be true of any contractual gaps.

2.5 Convert demo license to standalone license

- a.** Go to <https://license.brand.de>.
- b.** Enter the license code of the standalone license; see Client (standalone) or server installation
↳ You will find this code in your order documents.
- c.** Follow the instructions shown at <https://license.brand.de>.

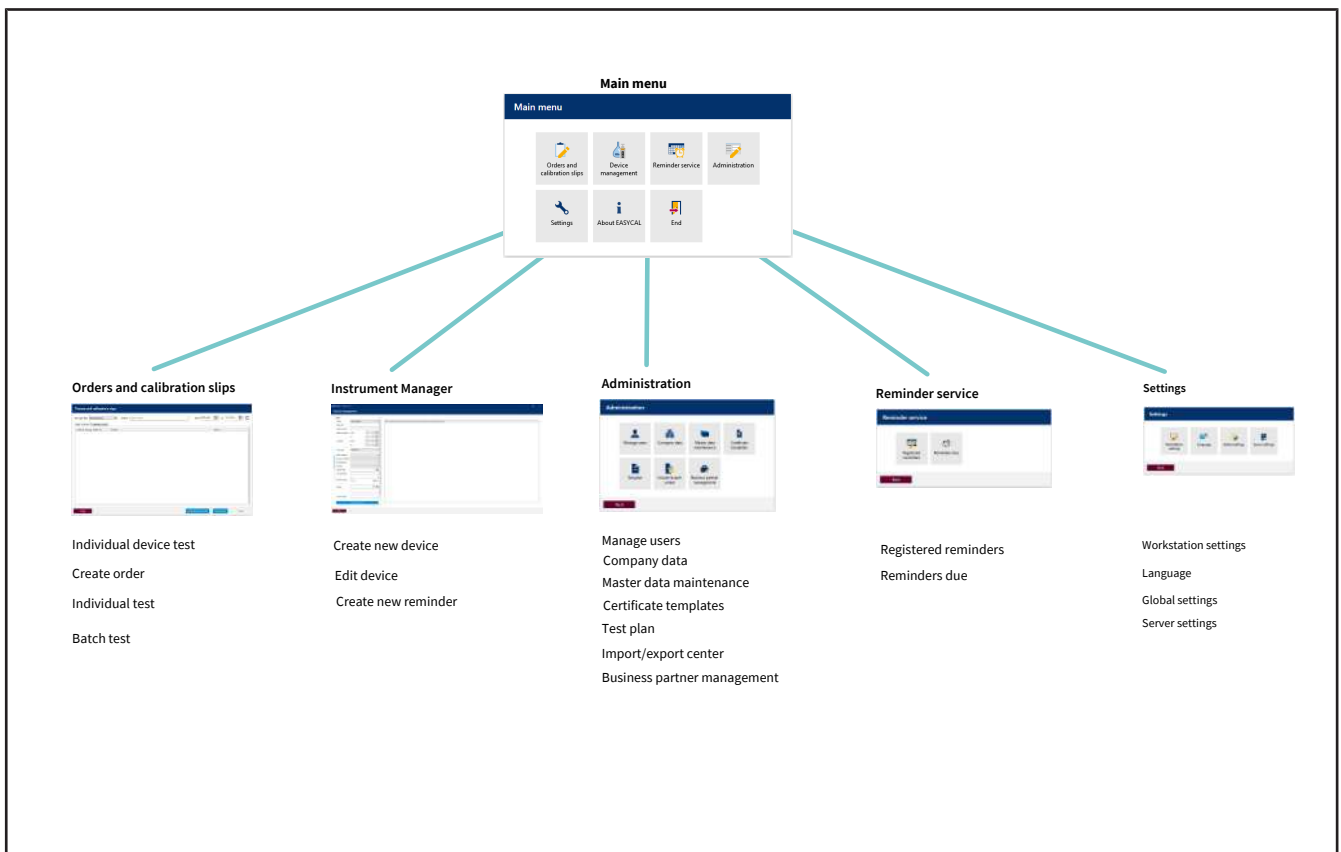
3 Function and application

EASYCAL™ 5 is a software for managing and testing liquid handling devices and volumetric instruments. In order to perform device tests, the software obtains information from various areas. The device test thus requires that these data are available; otherwise, the device test cannot be started. Relevant for this are device data, master data, test plans, and certificate templates. The following illustration shows the rough information flows within the software.



Menu distribution

The following figure shows the main menu distribution. The main menu takes you to the operational level of the software. All data that you create or change in Instrument Manager, Administration and Settings affect order processing in Orders and calibration slips. A recurring principle of the software are menu items that have the text “Assignment” in their name. In this menu you assign one or more data sets to each other (e.g., in the “Print template assignments” menu, you assign a master layout to a certificate template).



User

Via the user administration, you create new users and user groups via an initial default user (see User, p. 61).

NOTICE

Change default user

After completing the configuration work, change the default user (user: admin | password: start) in order to prevent unauthorized access to the system.

Data creation

The following description assumes that no other data has been created in EASYCAL™ 5.

1. Create test equipment

Create the existing or necessary test equipment that is available at the respective workstation and is required for device tests; see Master data maintenance, p. 71 and Test equipment, p. 89.

You have thus defined the workstation where a test can take place.

2. Define basic settings

Define relevant basic settings of the device test. These are:

- Workstation settings; see Workstation settings, p. 131
- Global settings; see Global settings, p. 135

The software thus knows which ambient conditions apply at the workstation.

3. Create master data

Via the master data, you create the underlying data (e.g., an article). An article can describe several identical devices (see Master data maintenance, p. 71 and Article, p. 72).

You can also perform a device test without having created the corresponding article in the master data. If you create an order, the device is created with the serial number entered there at the latest when you create and save the calibration certificate. The device can then also be found in the device management and reused for future tests.

4. Create test plan

Create a test plan. A test plan contains all the characteristics to be tested. You also assign a test type to this test plan. This depicts something like a predefined test procedure; see Test planning, p. 114 and Test plan overview, p. 114 as well as Test types (user authorizations), p. 61.

5. Create certificate

Before you can start the test, you still need the test certificate with which you can verify the test. You create this in the certificate templates menu; see Certificate templates, p. 99.

6. Performing the test

Via the “Orders and calibration certificate” menu, you now start testing the device; see Orders and calibration certificates, p. 43.

4 Tutorial

This example shows the process of a test – from the creation of an order to the test to the printing of the certificate. The section refers to master data available in the demo license and serves as a first introduction to the program.

Login

If the program EASYCAL™ 5 is started, a log-in dialog appears. Here, the user logs in with user name and password.

4.1 Set up balance as test equipment

In order set up a balance as a piece of test equipment, proceed as follows. The set-up is always done in the order: Set up test equipment in the master data, set up test equipment at the workstation, and select test equipment for the orders.

Prerequisite:

- ✓ You have connected a balance to the workstation.
 - ✓ You know the connection parameters of the balance.
 - ✓ You know to which COM port the balance is connected at the workstation.
- a. Name balance (see Administration > Master data maintenance > Test equipment > Test equipment, p. 90).
 - b. Set up location for test equipment (if not already done).
 - c. Configure the balance as a test equipment (see Test equipment device type, p. 93). In doing so, you specify both the function and the connection of the balance to the workstation (see Measuring function, p. 94, Communication, p. 95).

Exit this menu. Change to the Settings menu.

- d. Register the balance as test equipment at the workstation (see Settings > Workstation settings > Test equipment, p. 132).
- e. Select balance and the connection for the workstation. You can also test the connection to the balance.

Exit this menu. Change to the Orders and calibration slips menu.

- f. You can select the connected balance in the order when selecting the test equipment. In the tutorial (see Determine test equipment, p. 26), in the user manual under Select test equipment for the test, p. 48.

4.2 Creating order

- a. Navigate from Main menu to Orders and calibration slips.

Orders and calibration slips

Test type filter: Not specified | Search: | from 1/11/2022 to 1/26/2022

Order overview | Calibration slips

Order I	Test typ	Order number	Article	Status
2	SPEC	2022-01-25-15-2	EC-12484 - Burette BLAUBRAND®, straight stopcock, Schilling, class AS; 0.02 - 10 ml	Created
1	STD	123456	EC-704106 - Transferpette® Fixed volume; 5 µl	Finished

Buttons: Back | Individual device test | Create order | Open

b. Click on Create order.

Select order type

Batch test

Use when testing random samples (of any size). Batch certificates are issued.

Individual test

Use for 100% test or test of a single device.


Each device receives its own certificate.

Buttons: Back

c. Click on Individual test.

- d. For Test type, select the value STD – Standard values.

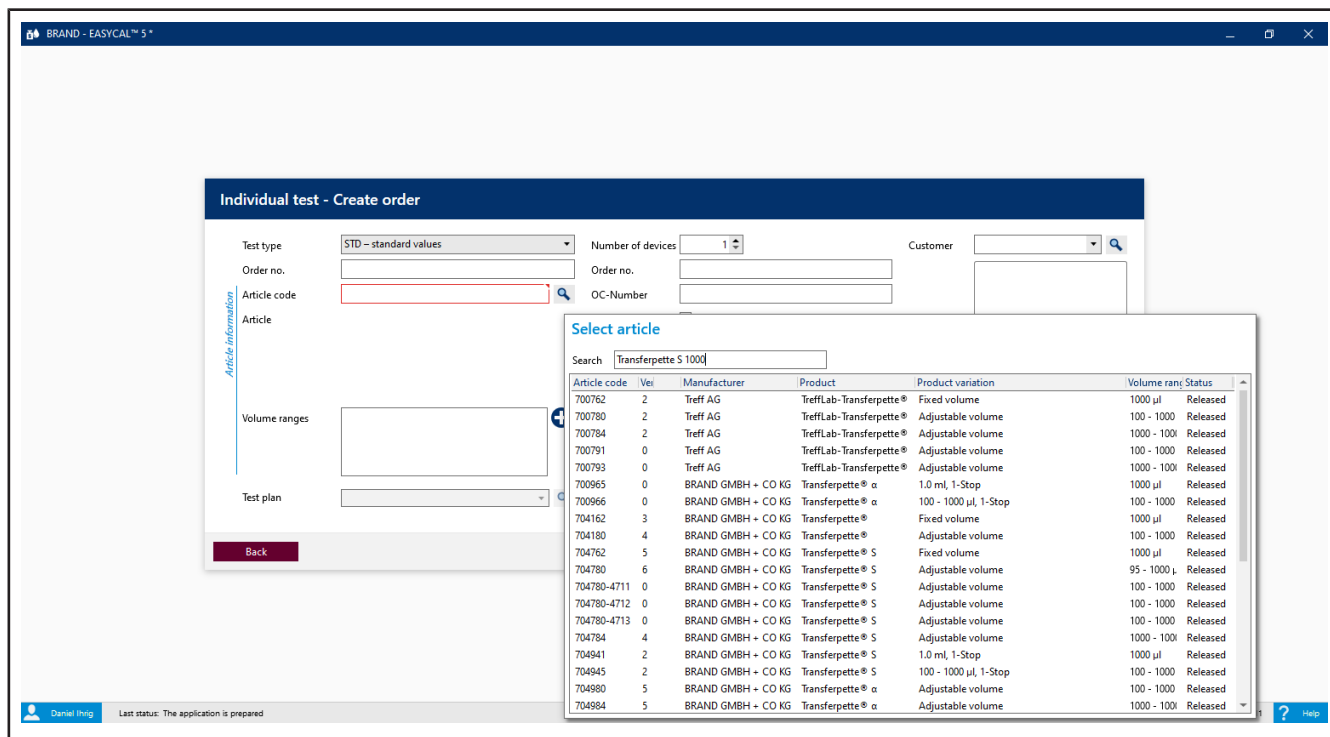
Test types organize your test procedures. You cannot create additional test types; instead, you must choose from the test types already stored. The test plans are linked to the test type as well as the certificate templates. In the user administration, the user must be given the respective access right for the corresponding test type. Because you are currently logged in as Global Admin, you have access to all data.

- e. Click on the button  at Item code in order to display already created articles.

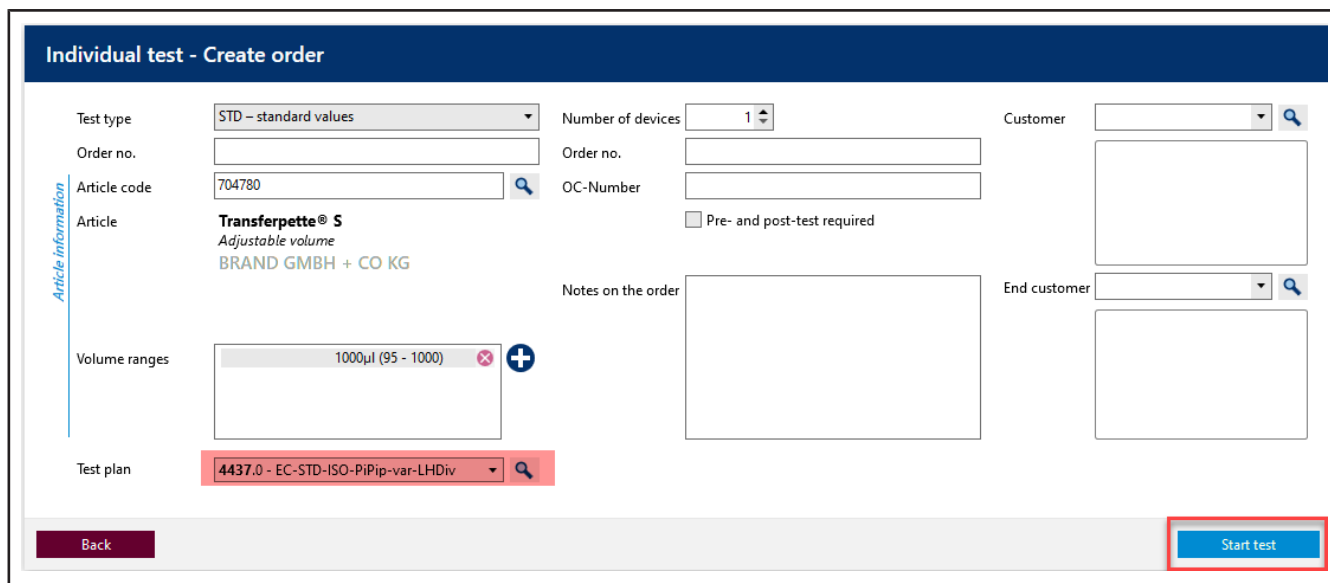
Article code	Vei	Manufacturer	Product	Product variation	Volume range	Status
10_copy	1	BRAND GMBH + CO KG	Dispensette® S Organic	Fixed volume, Special fixed volume	0.05 - 5 ml	Released
10002	0	BRAND GMBH + CO KG	Burette	SILBERBRAND, ohne Hahn, class B, Economy	0.1 - 25 ml	Released
10012	0	BRAND GMBH + CO KG	Compact Burette	SILBERBRAND, class B, Economy	0.1 - 25 ml	Released
100210	6	Eppendorf AG	Research® plus	Fixed volume, medium grey	10 µl	Released
100211	7	Eppendorf AG	Research® plus	Fixed volume, light grey	20 µl	Released
100211_copy	0	Eppendorf AG	Research® plus	Fixed volume, light grey	20 µl	Released
100212	6	Eppendorf AG	Research® plus	Fixed volume, yellow	10 µl	Released
100212_copy	0	Eppendorf AG	Research® plus	Fixed volume, yellow	10 µl	Released
100213	6	Eppendorf AG	Research® plus	Fixed volume, yellow	20 µl	Released
100214	7	Eppendorf AG	Comforpette®	Fixed volume	20 µl	Released
100215	6	Eppendorf AG	Research® plus	Fixed volume, yellow	50 µl	Released
100216	6	Eppendorf AG	Research® plus	Fixed volume, yellow	100 µl	Released
100217	6	Eppendorf AG	Research® plus	Fixed volume, yellow	200 µl	Released
100218	6	Eppendorf AG	Research® plus	Fixed volume, blue	200 µl	Released
100219	6	Eppendorf AG	Research® plus	Fixed volume, blue	250 µl	Released
100220	6	Eppendorf AG	Research® plus	Fixed volume, blue	500 µl	Released
100221	6	Eppendorf AG	Research® plus	Fixed volume, blue	1000 µl	Released
100310	6	Eppendorf AG	Research® plus	Adjustable volume, dark grey	0.1 - 2.5 µl	Released
100311	8	Eppendorf AG	Research® plus	Adjustable volume, dark grey	0.5 - 10 µl	Released

- f. Enter Transferpette® S 1000 in the search field. As you type, you will see the article selection change. This behavior is the same in all search fields of EASYCAL™ 5. We recommend always using the search function first because EASYCAL™ 5 comes with an extensive master database.

The prefix EC- indicates that it is a prefabricated and unchangeable data set. If you would like to change these records, copy the record, and edit and save it under a different name. For more information, see “Help” in EASYCAL™ 5.



- g. Select the article code EC-704780. Confirm your selection with a double click.
- h. For Test plan, select the appropriate test plan. As a rule, you will find 1–2 entries here.
- i. The general conditions for the test as well as the defect limits of the assigned article are stored in the test plan.



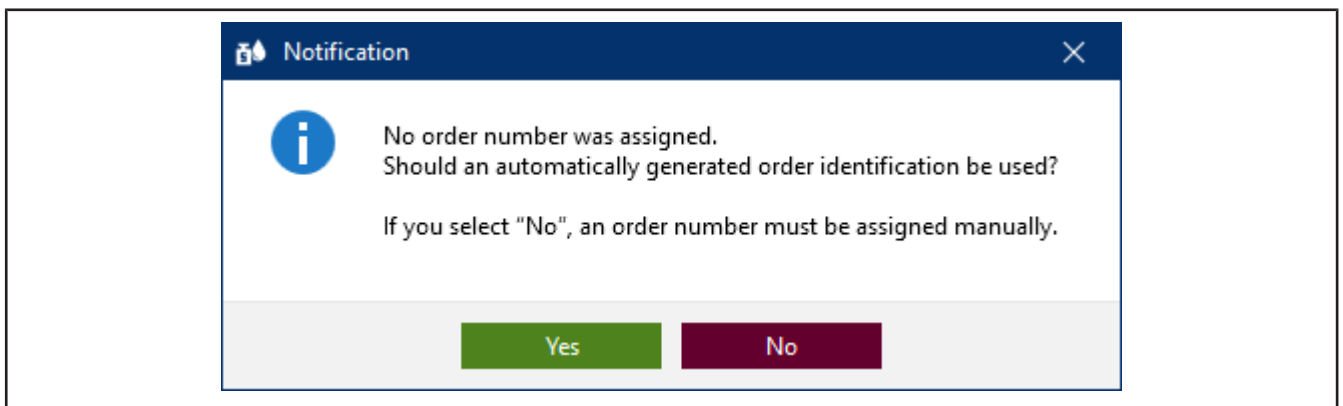
- j. Click on Start test.

A notification that no order number has been assigned appears.

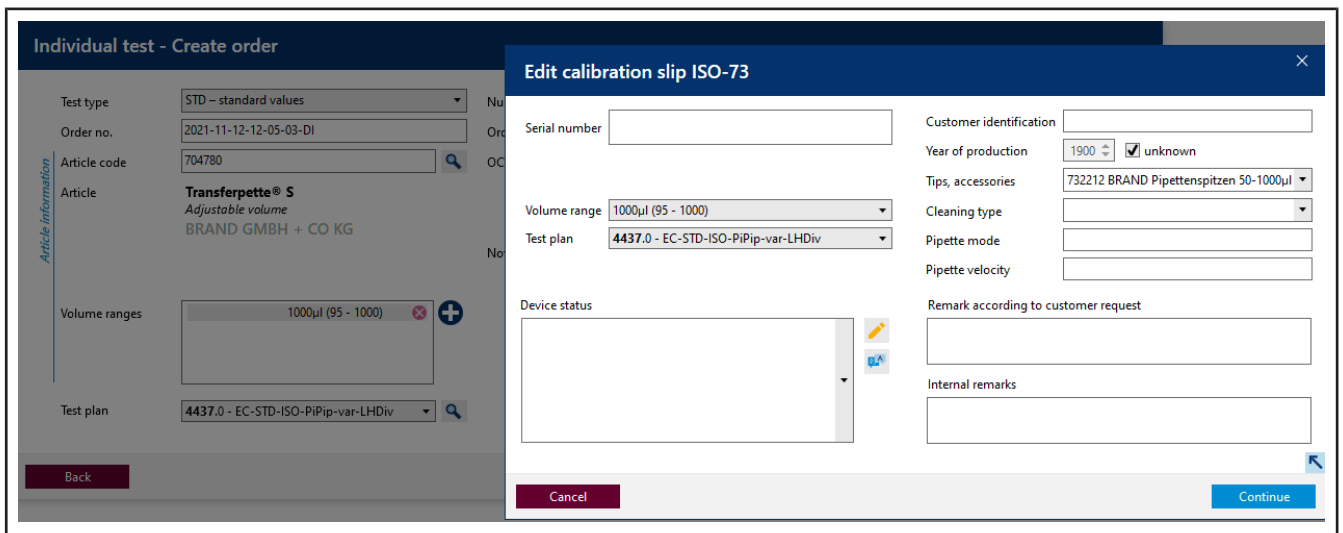
If there are specifications in your company/quality management process for organizing tests, select no, and assign an order number.

If there are no specifications for organizing tests, select Yes and EASYCAL™ 5 will assign a unique order number

We recommend deciding on a uniform approach at an early stage.



- k. Continue the tutorial by clicking on Yes. The job number is created based on the current time stamp.



- l. You can enter a serial number for the identification of the device. This is necessary for real tests. However, it is not necessary for the tutorial.

- m. Click on Continue. The test order has been created.

The window for starting the actual test will open.

4.3 Determine test equipment

BRAND - EASYCAL™ 5

2021-11-12-12-05-03-DI / ISO-73 - - 704780 BRAND GMBH + CO KG Transferpette® S Adjustable volume 95 - 1000µl

Test equipment > 2. TV >> 1. TV >> NV

✓ / ✗ A / B / C Measurement +

Air temperature	Thermometer		351000-71
Temperature of the medium	Thermometer		351000-71
Relative humidity	Hygrometer		600029-10
Air pressure	Barometer		600029-10
Weight	Single-channel balance	Calibrate now	20210708-RZ-01
Weight	Single-channel balance	Calibrate now	20210708-RZ-01
Weight	Single-channel balance	Calibrate now	20210708-RZ-01

Back

← Previous device ← Previous characteristic Next characteristic → Additional device +

Device evaluation Complete test Print preview

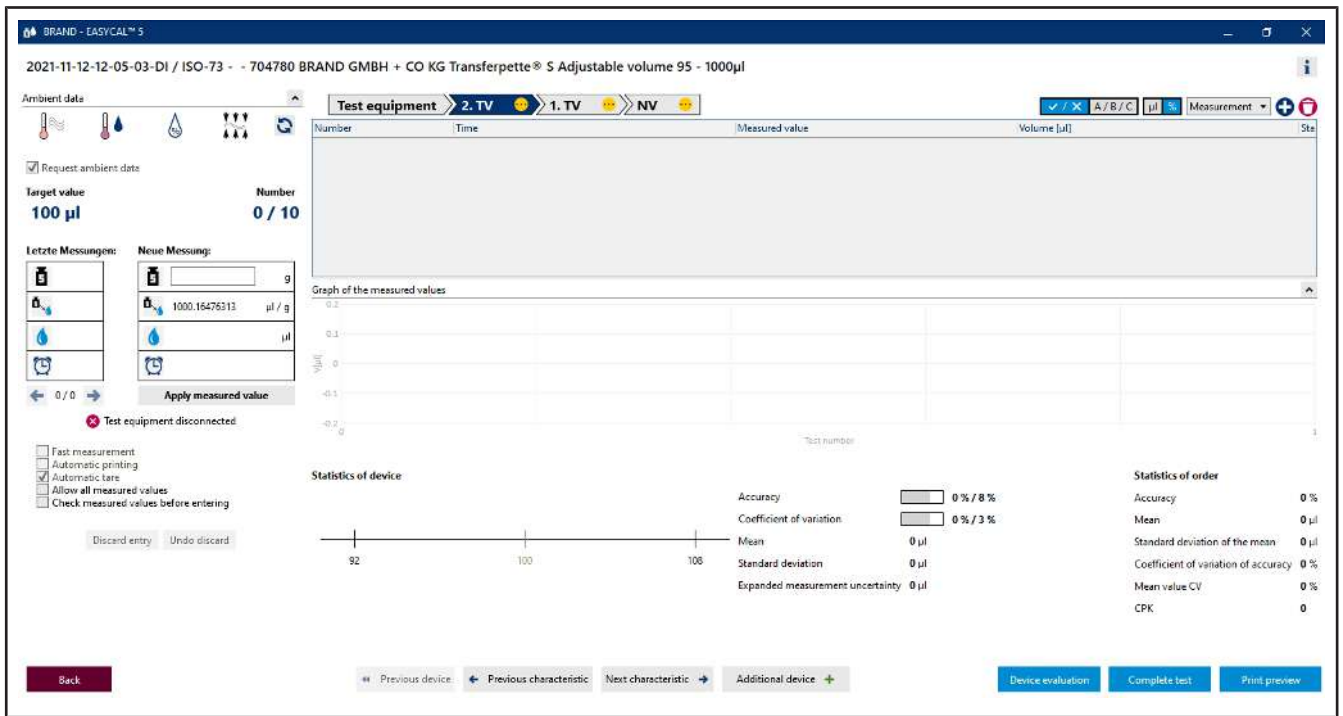
Prerequisite:

- ✓ The order is created.
- a. The necessary parameters as well as the test equipment type and the test equipment (test equipment number) are preselected for the test equipment. Because only one piece of test equipment is created, we leave it at this selection.

4.4 Performing the test

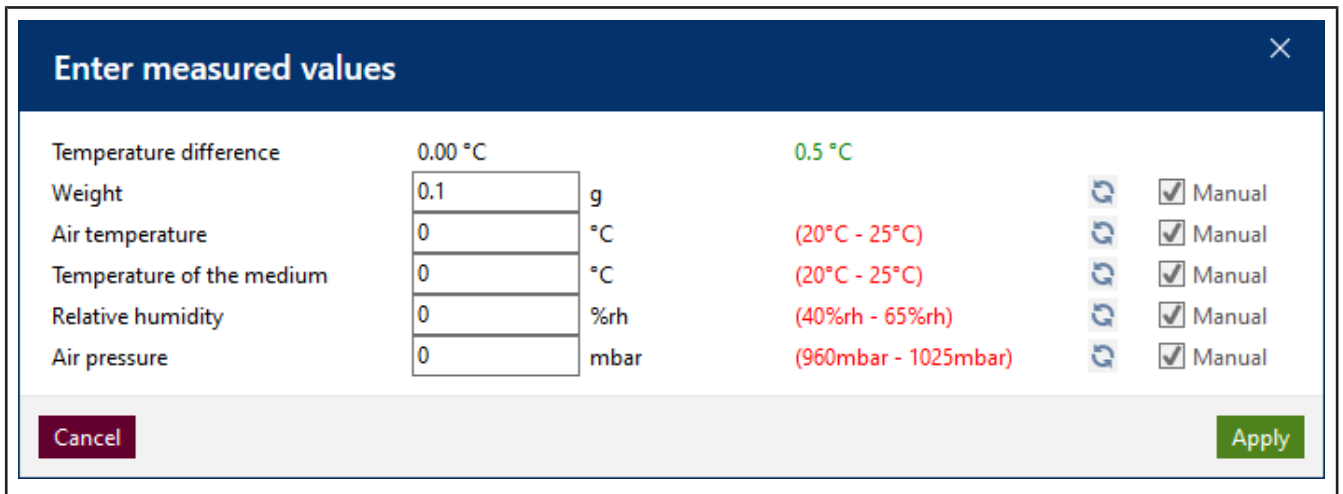
- a. Continue by clicking on Next characteristic.

You see the central input screen of the measurement functionality of EASYCAL™ 5.



b. Enter fictitious weight values for Neue Messung. Start with 0, 1, and click on “Apply measured value”. A window in which you must enter or complete the measured values appears.

The selection of the separator (comma or dot) is done via the language selection in the software.



c. Enter fictitious values for the environment parameters as follows:

Enter measured values ✕

Temperature difference	0.00 °C		0.5 °C		
Weight	<input type="text" value="0.1"/>	g		<input type="button" value="↺"/>	<input checked="" type="checkbox"/> Manual
Air temperature	<input type="text" value="21"/>	°C	(20°C - 25°C)	<input type="button" value="↺"/>	<input checked="" type="checkbox"/> Manual
Temperature of the medium	<input type="text" value="21"/>	°C	(20°C - 25°C)	<input type="button" value="↺"/>	<input checked="" type="checkbox"/> Manual
Relative humidity	<input type="text" value="40"/>	%rh	(40%rh - 65%rh)	<input type="button" value="↺"/>	<input checked="" type="checkbox"/> Manual
Air pressure	<input type="text" value="961"/>	mbar	(960mbar - 1025mbar)	<input type="button" value="↺"/>	<input checked="" type="checkbox"/> Manual

Cancel
Apply

d. Click on Apply. The first measurement is hereby completed. The measured value and the volume calculated from it appear in the table.

Test equipment > 2. TV > 1. TV > NV

Number	Time	Measured value	Volume [µl]	Sta
1	11/12/2021 2:06:42 PM	0.10000 g	100.3	✓

e. Now enter the value 0.1 g as the measured value eight times in the same way. The table is filled up.

BRAND - EASYCAL™ 5
2021-11-12-14-10-58-DI / ISO-74 - - 704780 BRAND GMBH + CO KG Transferpette® S Adjustable volume 95 - 1000µl

Ambient data

21 °C 21 °C 40 %RH 961 mbar

Request ambient data

Target value: 100 µl

Number: 9 / 10

Letzte Messungen: 0.1 g, 1003.01211312 µl/g, 100.3 µl, 2:13:39 PM

Neue Messung: g, µl/g, µl,

Test equipment disconnected

Fast measurement
 Automatic printing
 Automatic tare
 Allow all measured values
 Check measured values before entering

Test equipment > 2. TV > 1. TV > NV

Number	Time	Measured value	Volume [µl]	Sta
2	11/12/2021 2:13:27 PM	0.10000 g	100.3	✓
3	11/12/2021 2:13:29 PM	0.10000 g	100.3	✓
4	11/12/2021 2:13:30 PM	0.10000 g	100.3	✓
5	11/12/2021 2:13:32 PM	0.10000 g	100.3	✓
6	11/12/2021 2:13:34 PM	0.10000 g	100.3	✓
7	11/12/2021 2:13:35 PM	0.10000 g	100.3	✓
8	11/12/2021 2:13:37 PM	0.10000 g	100.3	✓
9	11/12/2021 2:13:39 PM	0.10000 g	100.3	✓

Graph of the measured values

Statistics of device

100.3 ± 0

Accuracy: 0% / 8% ✓

Coefficient of variation: 0% / 3% ✓

Mean: 100.3 µl

Standard deviation: 0 µl

Expanded measurement uncertainty: 0 µl

Statistics of order

Accuracy: 0%

Mean: 100.3 µl

Standard deviation of the mean: 0 µl

Coefficient of variation of accuracy: 0%

Mean value CV: 0%

CPK: 0

f. The light blue color in the section above the table shows that the order is being processed. Click the icon in order show and hide the extended certificate information.

g. Enter 0.1 again as the measured value, and pay attention to the progression display above the measured value table.

BRAND - EASYCAL™ 5

2021-11-12-14-10-58-DI / ISO-74 - - 704780 BRAND GMBH + CO KG Transferpette® S Adjustable volume 95 - 1000µl

Ambient data
 21 °C 21 °C 40 %rH 961 mbar
 Request ambient data

Test equipment: **2. TV** ✓ 1. TV ⚠ NV ⚠

Target value: **100 µl**

Number: **10 / 10**

Letzte Messungen: Neue Messung:
 0.1 g
 1003.01211312 µl/g
 100.3 µl
 2:17:42 PM
 g
 1003.01211312 µl/g
 µl
 PM
 g
 1003.01211312 µl/g
 µl
 PM

Apply measured value

⊗ Test equipment disconnected

Fast measurement
 Automatic printing
 Automatic tare
 Allow all measured values
 Check measured values before entering

Discard entry Undo discard

Graph of the measured values

Statistics of device

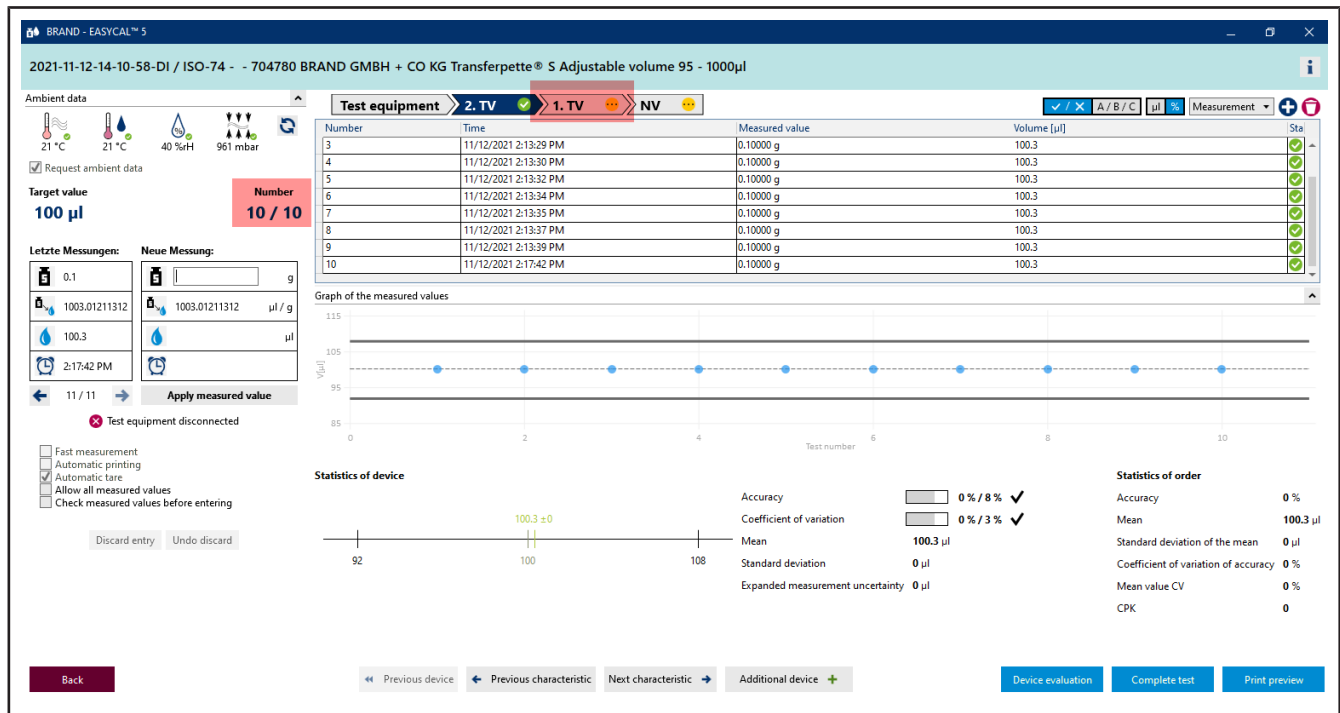
100.3 ± 0

92 100 108

Back

Previous device Previous characteristic Next characteristic A

h. With input of the 10th measured value, all required measurements for characteristic 2 . TV have been performed. The characteristic gets a green check. You can enter further measured values; however, this is not required.



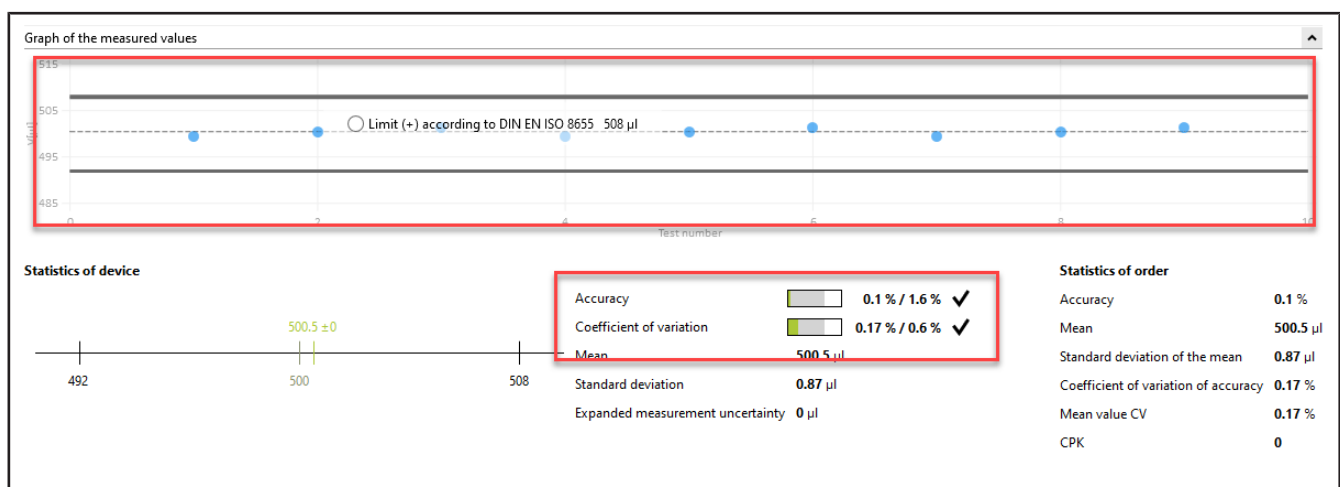
i. Click on 1 . TV in the progress bar in order to jump to the next characteristic.

j. For Neue Messung, enter the following values in sequence:

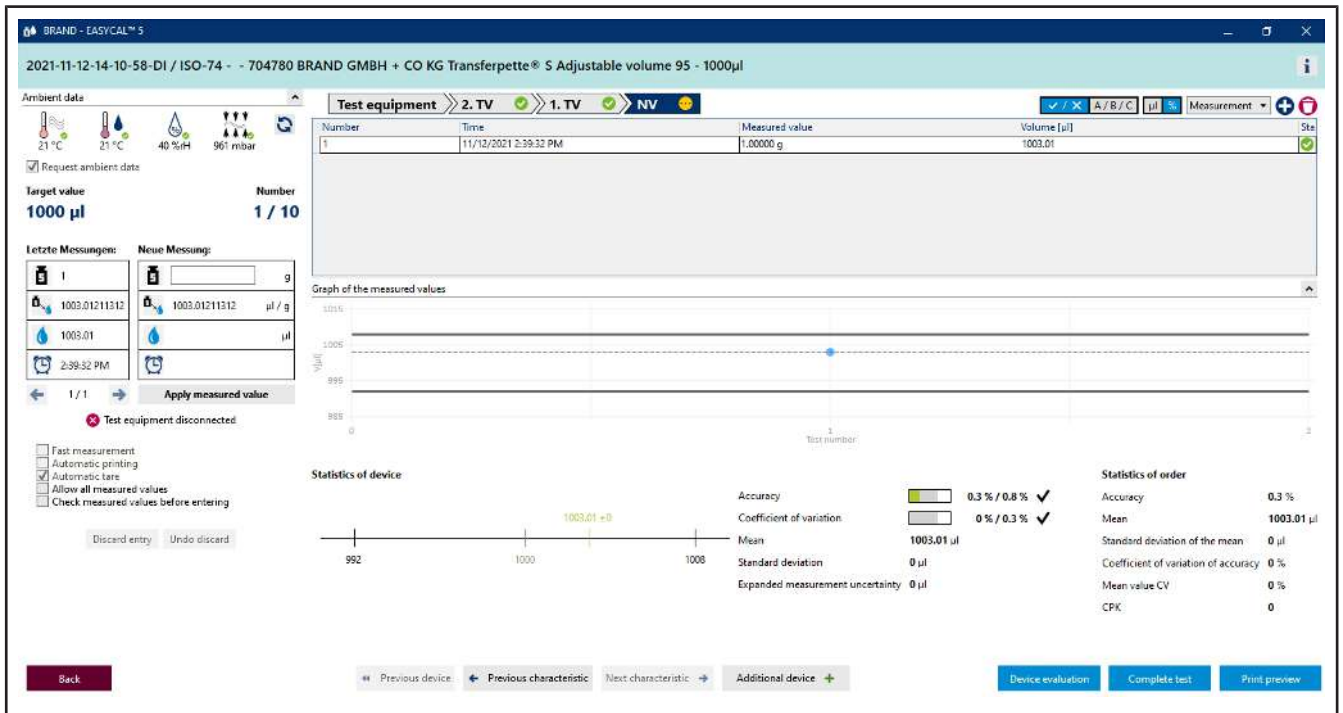
- 0 . 4 9 8
- 0 . 4 9 9
- 0 . 5 0 0

Repeat twice.

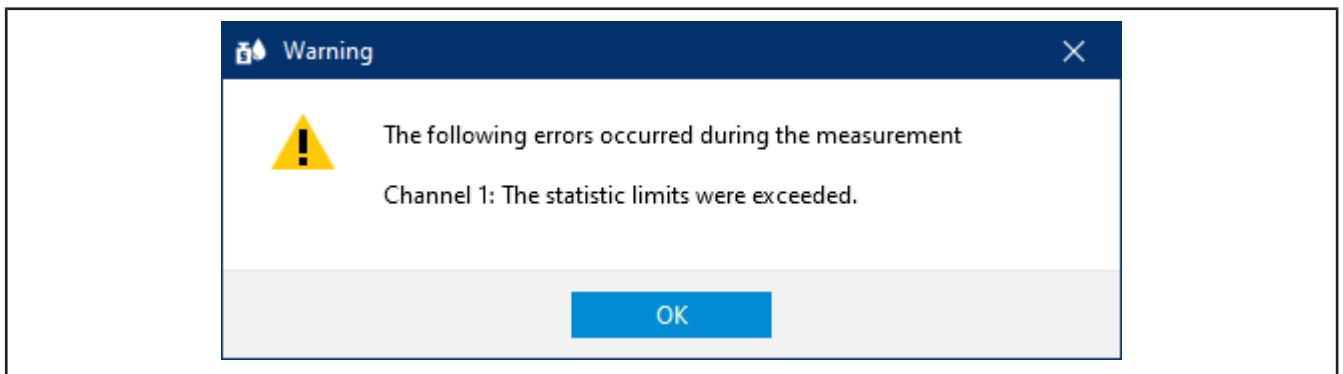
➔ You can see the position of the individual measured values in relation to defined error limits (solid lines) and the calculated mean value in the display Graph of the measured values. Under Statistics of device, you can see the calculated actual values for accuracy and coefficient of variation compared with the defined limits.



- k. Enter 0.498 again as the measured value, confirm the environmental parameters, and click NV in the progress display. Then enter 1 as the measured value.

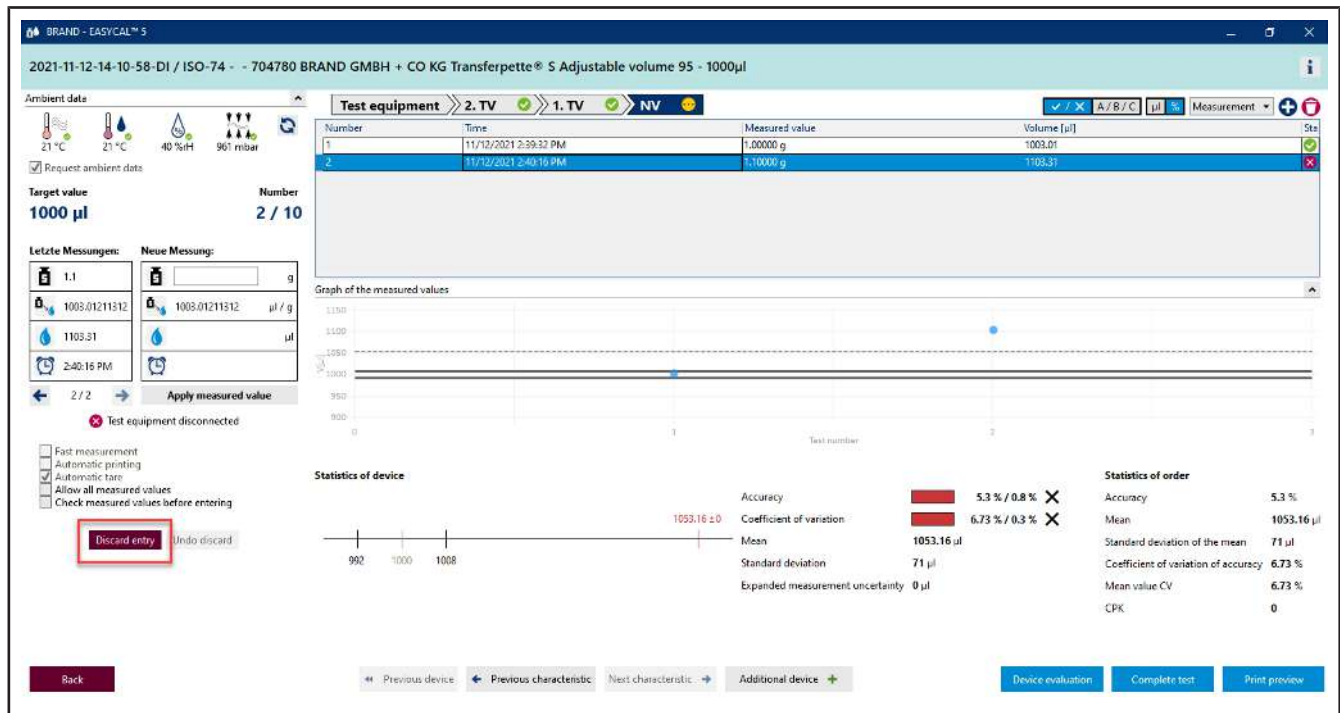


- l. We assume that you have made a typing error. To do this, enter 1.1 as the measured value, and confirm the environmental parameters. The following warning appears:



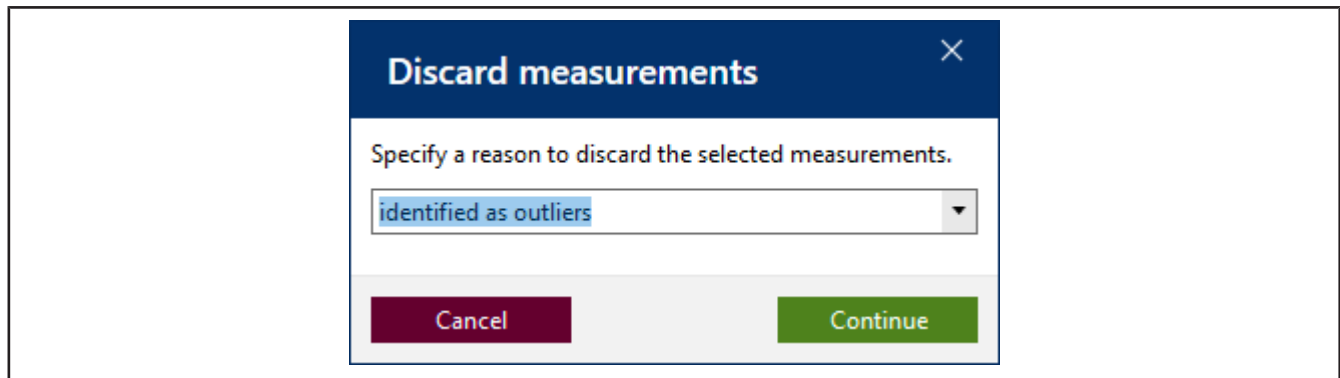
- m. Acknowledge this warning by clicking OK.

You can see that the different areas of the input screen react according to the new measured value. You cannot delete this measured value; however, you can discard it. The value remains visible but is no longer used for statistics.

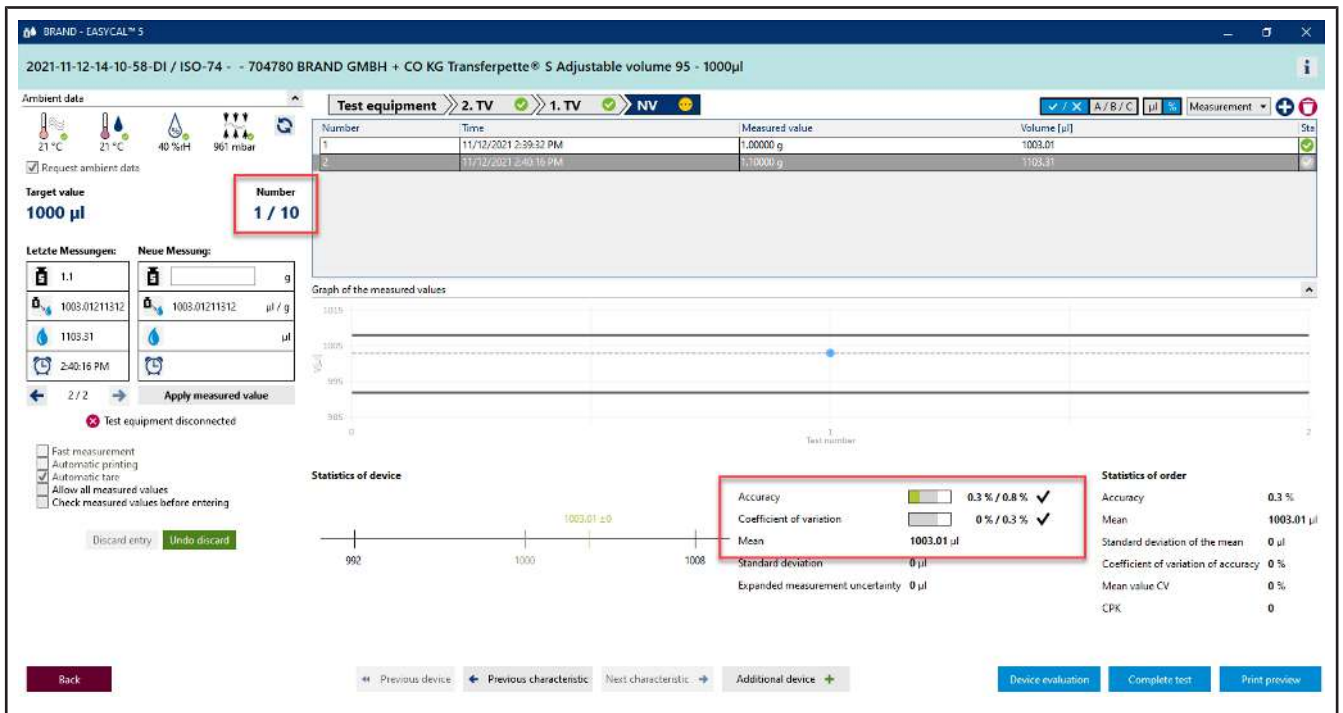


n. Click on the number of the measurement in the table, and then click on “Discard entry”.

A message appears.

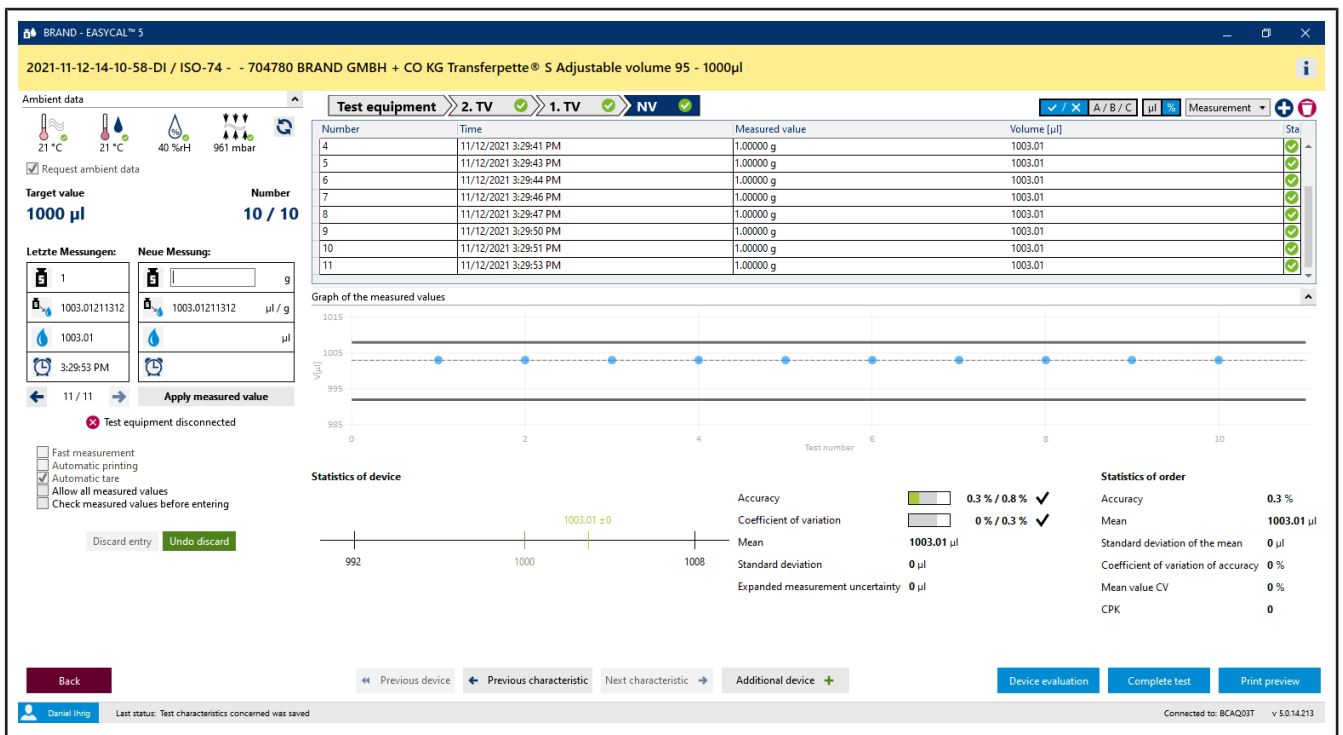


o. Specify a reason (e.g., Identified as outliers.). You can also select a reason from the drop-down menu. These texts can be maintained in the master data. Confirm your selection by clicking on Continue.



p. The measured value 1 . 1 is not considered further in the evaluation.

q. Continue entering measured values until 10/10 is displayed for “Number”. When the last required measured value is entered, the color in the section above the table changes from light blue to yellow. This signals to you that the order is complete.



Furthermore, all characteristics in the progress bar are marked with a green check. The discarded measured value is highlighted in pink.

4.5 Complete test

BRAND - EASYCAL™ 5
2021-11-12-14-10-58-DI / ISO-74 - - 704780 BRAND GMBH + CO KG Transferpette® S Adjustable volume 95 - 1000µl

Ambient data: 21 °C, 21 °C, 40 %rH, 961 mbar

Request ambient data:

Target value: **1000 µl** Number: **10 / 10**

Test equipment: 2. TV ✓ 1. TV ✓ NV ✓

Number	Time	Measured value	Volume [µl]	Sta
1	11/12/2021 2:39:32 PM	1.00000 g	1003.01	✓
2	11/12/2021 2:40:16 PM	1.10000 g	1103.31	✓
3	11/12/2021 3:29:39 PM	1.00000 g	1003.01	✓
4	11/12/2021 3:29:41 PM	1.00000 g	1003.01	✓
5	11/12/2021 3:29:43 PM	1.00000 g	1003.01	✓
6	11/12/2021 3:29:44 PM	1.00000 g	1003.01	✓
7	11/12/2021 3:29:46 PM	1.00000 g	1003.01	✓
8	11/12/2021 3:29:47 PM	1.00000 g	1003.01	✓
9	11/12/2021 3:29:50 PM	1.00000 g	1003.01	✓
10	11/12/2021 3:29:50 PM	1.00000 g	1003.01	✓

Graph of the measured values:

Statistics of device: Accuracy 0.3 % / 0.8 % ✓, Coefficient of variation 0 % / 0.3 % ✓, Mean 1003.01 µl, Standard deviation 0 µl, Expanded measurement uncertainty 0 µl.

Statistics of order: Accuracy 0.3 %, Mean 1003.01 µl, Standard deviation of the mean 0 µl, Coefficient of variation of accuracy 0 %, Mean value CV 0 %, CPK 0.

Buttons: Back, Previous device, Previous characteristic, Next characteristic, Additional device, Device evaluation, **Complete test**, Print preview.

a. Click on Complete test.

BRAND - EASYCAL™ 5
Order 2021-11-12-14-10-58-DI

Test type: STD - standard values Article: 704780 - Transferpette® S Adjustable volume: 95 - 1000 µl

Order no.: 2021-11-12-14-10-58-DI Test plan: 4437.0 - EC-STD-ISO-PIpip-var-LHDiv

Order type: Individual test Tester: D. Ihrig

Lot size: 1

Random sample size: 1 / 1

Status: Finished

Order no.: [] Customer: []

OC-Number: [] End customer: []

Notes on the order: []

Communication with the customer: []

Test characteristic	Description	Target va	Mean	Tol target:	Tol OK	Standard devi	A% target	A%	A% OK	CV% targ	CV%	CV% OK	QS	CPK	Min CPK	CPK OK
1	2. TV	100µl	1003.31 µl	OK	0 µl	8 %	0 %	OK	3 %	0 %	0 %	OK	0	0	OK	
2	1. TV	500µl	500.4 µl	OK	0.88 µl	1.6 %	0.1 %	OK	0.6 %	0.18 %	0.18 %	OK	0	0	OK	
3	NV	1000µl	1003.01 µl	OK	0 µl	0.8 %	0.3 %	OK	0.3 %	0 %	0 %	OK	0	0	OK	

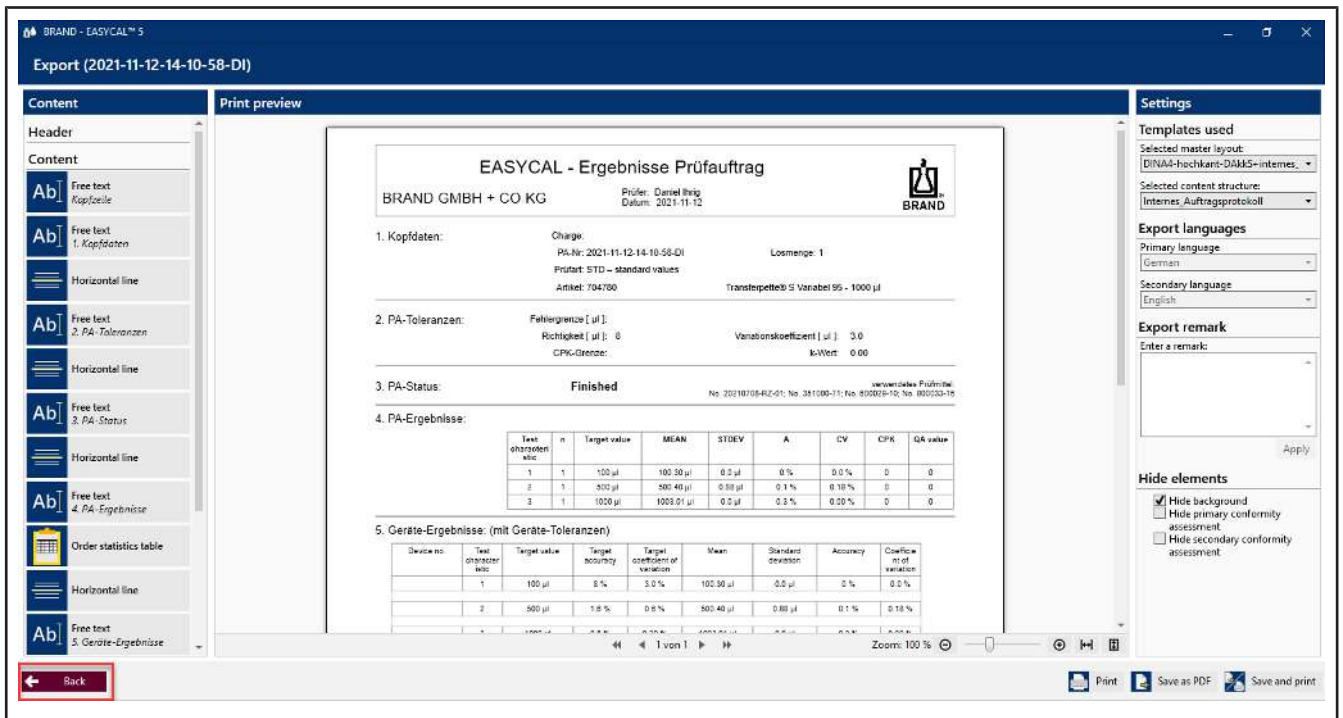
Device/calibration slip overview

Calibration slip type	Internal no.	Calibration slip no.	Serial number	Article code	Conducted tests	Status	Device status	Tester	Linked calibration slip
Individual test	13014	ISO-74		704780	30	Finished		D. Ihrig	

Buttons: Evaluation/release, **Print internal log**, Print certificates, New calibration slip

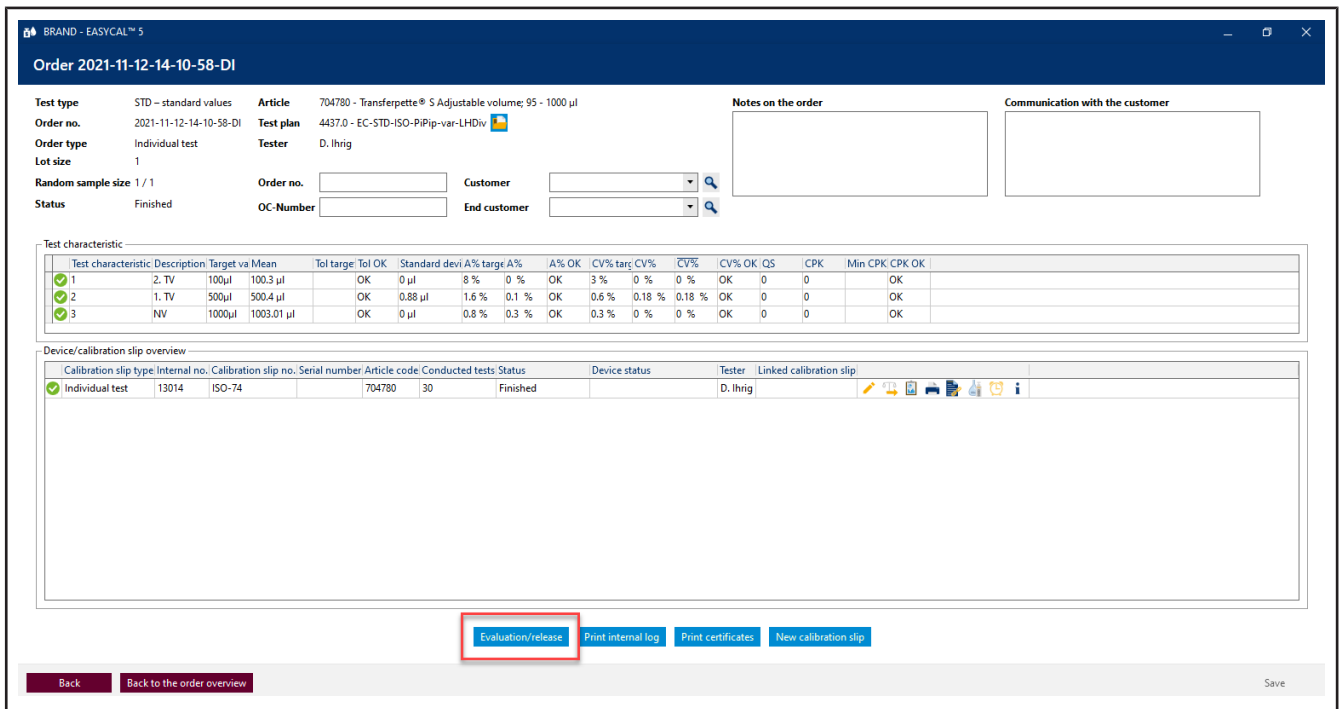
Back, Back to the order overview, Save

b. You will now see the order with a summary of the measurements for the respective test characteristics. Click on Print internal log.



c. You will see the certificate editor in view mode. Here you can print or export the stored report.

d. Exit the certificate editor by clicking Back.



e. Click on Evaluation/release.

Evaluation/release
✕

Current status Finished

New status Released ▼

Remarks

Apply to all

Cancel

Save

f. In the window that opens, select Released, and confirm the entry with Saving...

BRAND - EASYCAL™ 5
✕

Order 2021-11-12-14-10-58-DI

Test type	STD – standard values	Article	704780 - Transferpette® S Adjustable volume; 95 - 1000 µl	Notes on the order		Communication with the customer	
Order no.	2021-11-12-14-10-58-DI	Test plan	4437.0 - EC-STD-ISO-Pip-var-LHDIV				
Order type	Individual test	Tester	D. Ihrig				
Lot size	1	Order no.	<input type="text"/>	Customer	<input type="text"/>		
Random sample size	1 / 1	OC-Number	<input type="text"/>	End customer	<input type="text"/>		
Status	Released						

Test characteristic

Test characteristic	Description	Target	va	Mean	Tol target	Tol OK	Standard devi	A% target	A%	A% OK	CV% targ	CV%	CV% OK	QS	CPK	Min CPK	CPK OK
1	2. TV	100µl		100.3 µl		OK	0 µl	8 %	0 %	OK	3 %	0 %	0 %	OK	0	0	OK
2	1. TV	500µl		500.4 µl		OK	0.88 µl	1.6 %	0.1 %	OK	0.6 %	0.18 %	0.18 %	OK	0	0	OK
3	NV	1000µl		1003.01 µl		OK	0 µl	0.8 %	0.3 %	OK	0.3 %	0 %	0 %	OK	0	0	OK

Device/calibration slip overview

Calibration slip type	Internal no.	Calibration slip no.	Serial number	Article code	Conducted tests	Status	Device status	Tester	Linked calibration slip
Individual test	13014	ISO-74		704780	30	Released		D. Ihrig	

Back

Back to the order overview

Evaluation/release

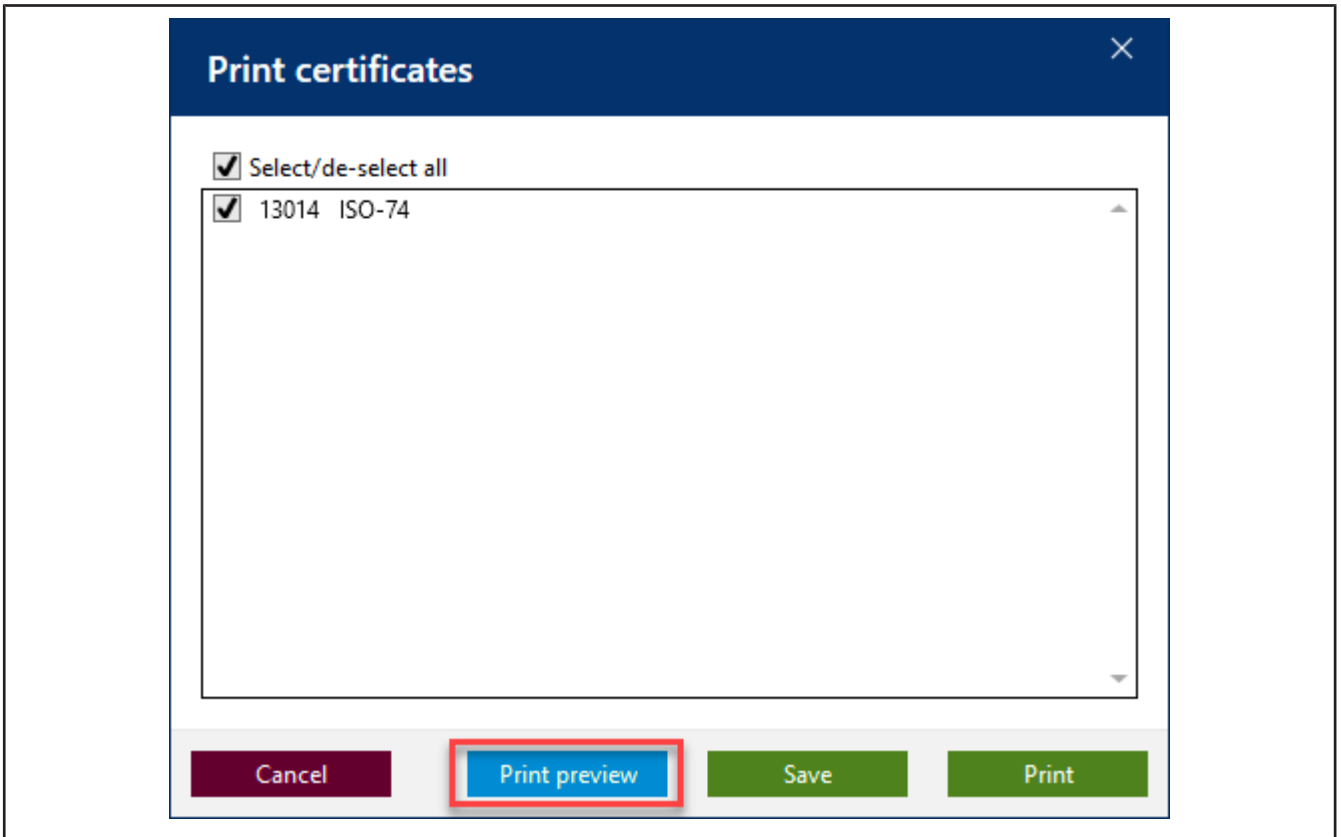
Print internal log

Print certificates

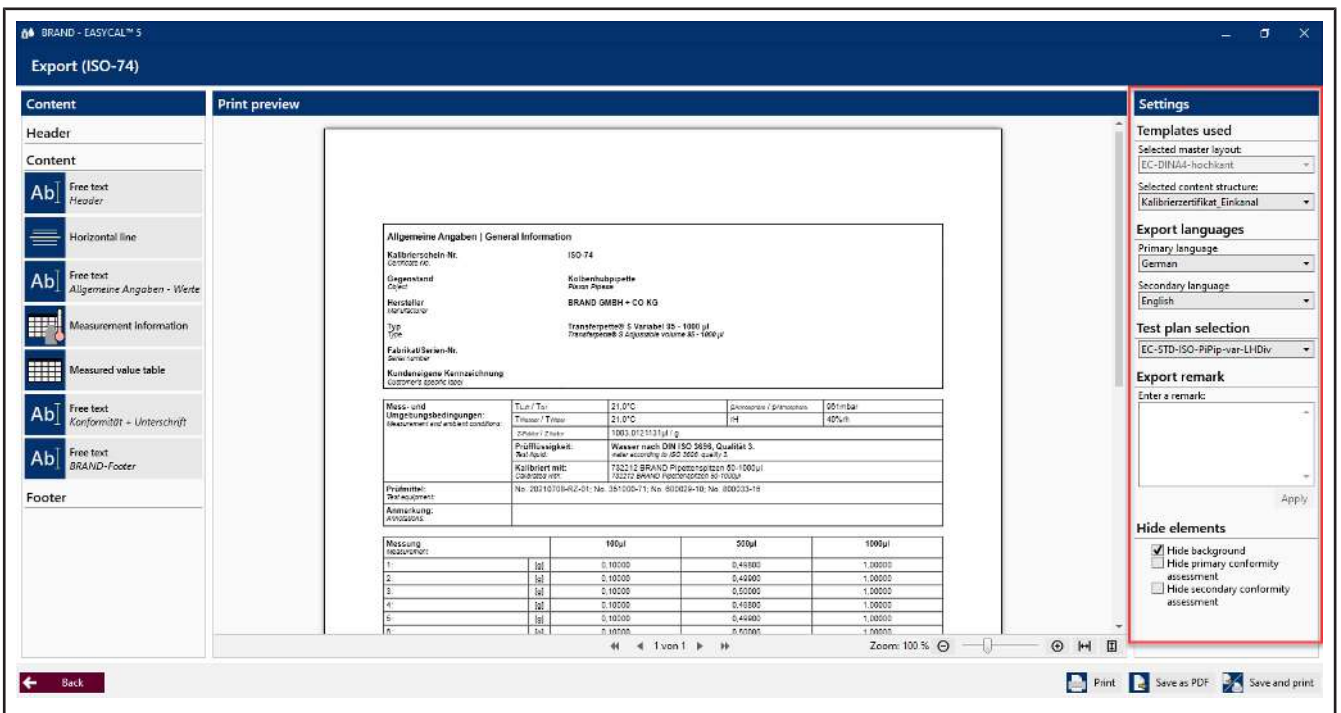
New calibration slip

Save

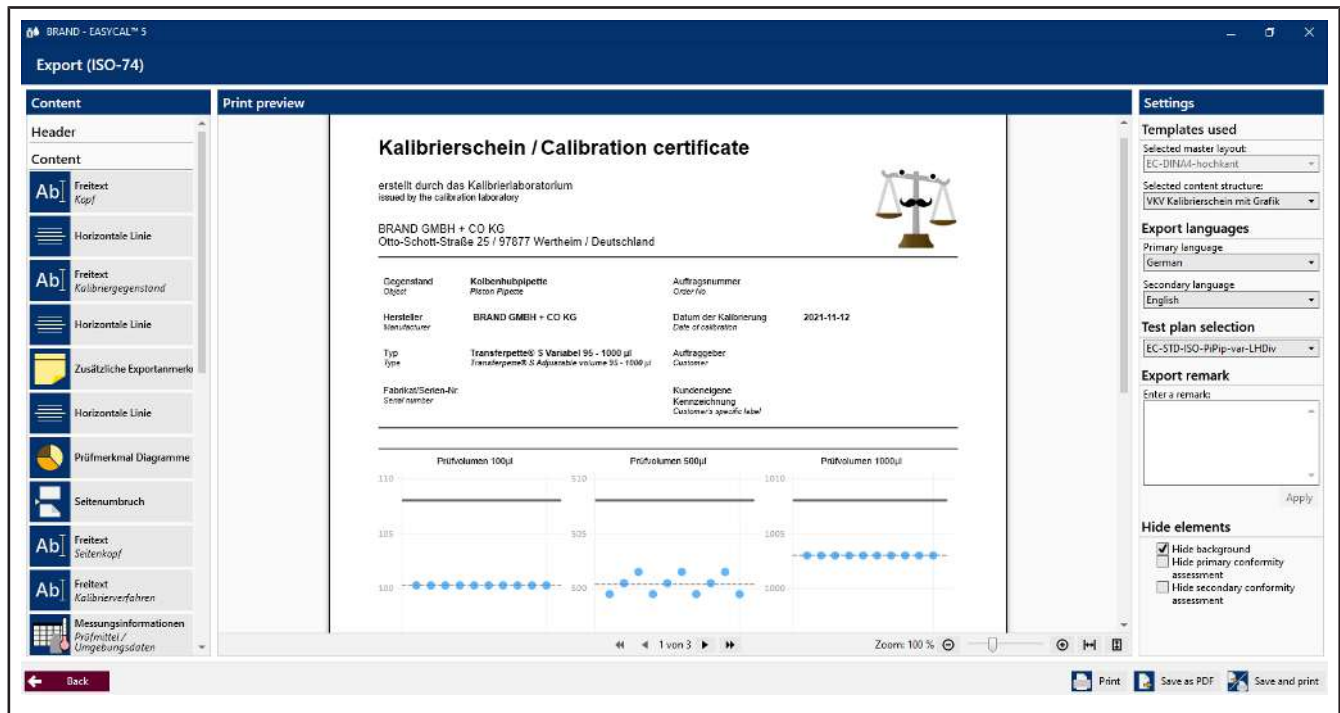
g. Click on Print certificates.



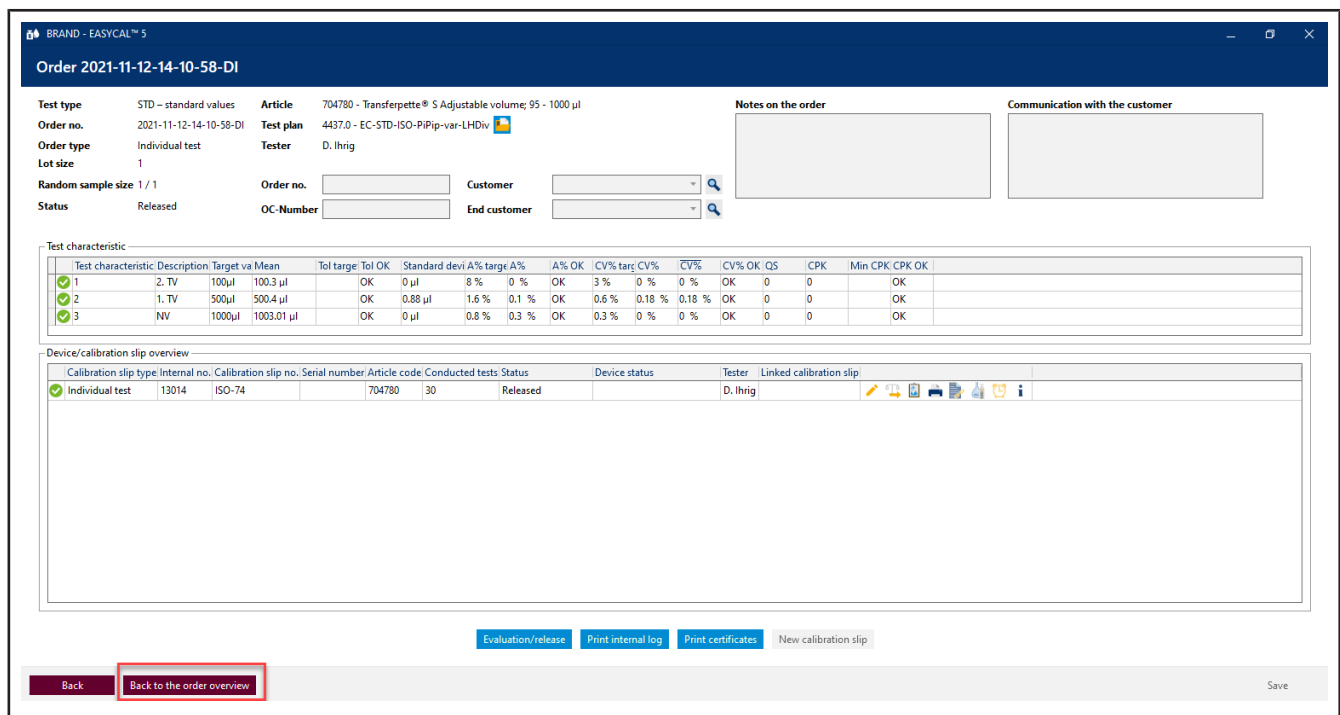
h. Click the check-box, and then click Print preview.



➤ The certificate editor opens in Print preview mode. You can still make settings in the right section and enter export annotations depending on the selected content structure.

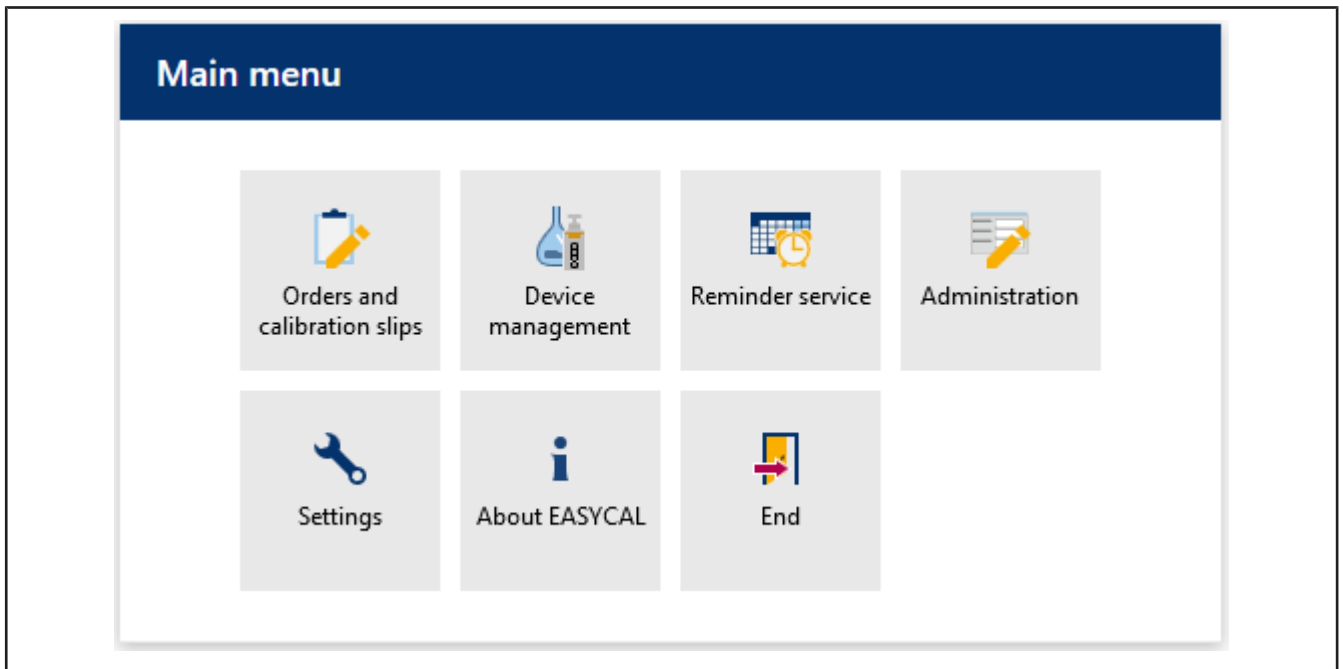


- i. Here you can also export the certificate as a PDF or print a hard copy. By clicking on Back, you leave the Print preview.



- j. Click on Back to the order overview

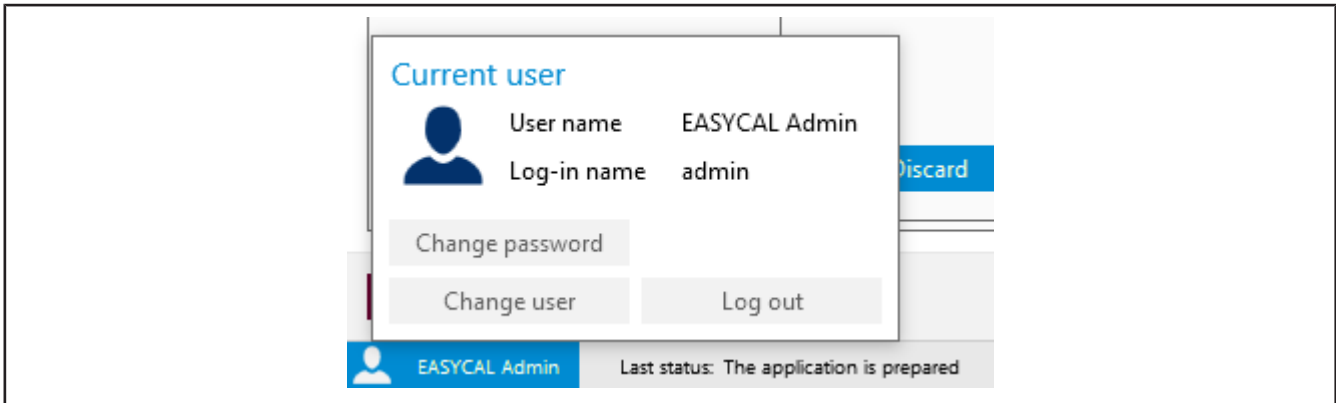
- k. From here you can create additional jobs and start tests. By clicking on Back, you can return to the main menu.



➤ This is where this tutorial ends.

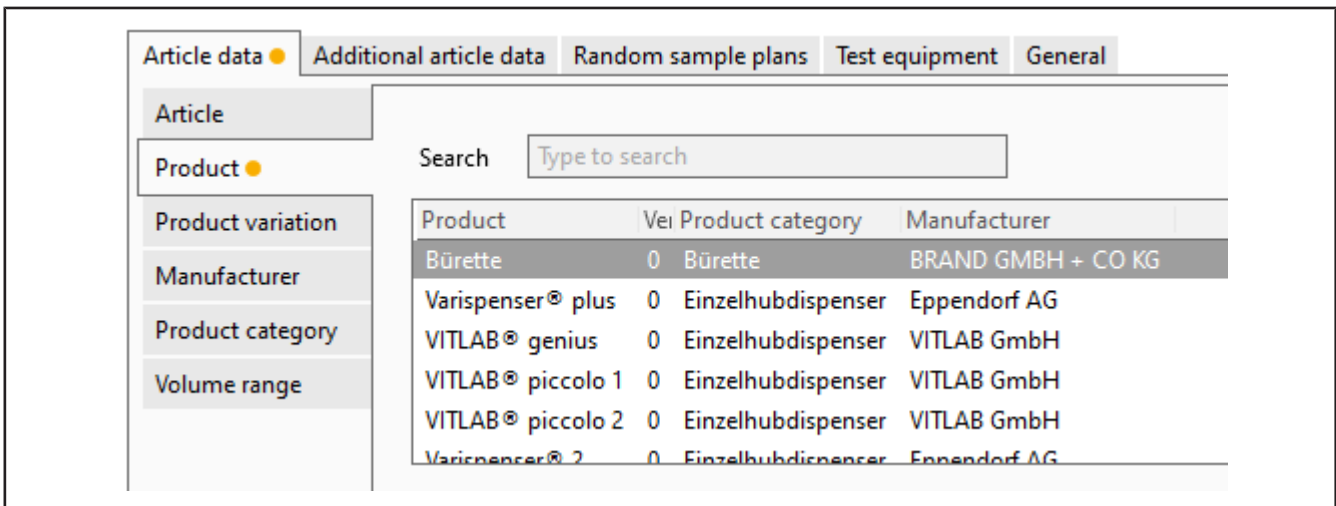
5 General operation

Log in, log out, and change the user



Click on the user name at the bottom left of the screen. You can change this user, log out, or change the password; see also User, p. 61.

Yellow dot on menu items and tabs



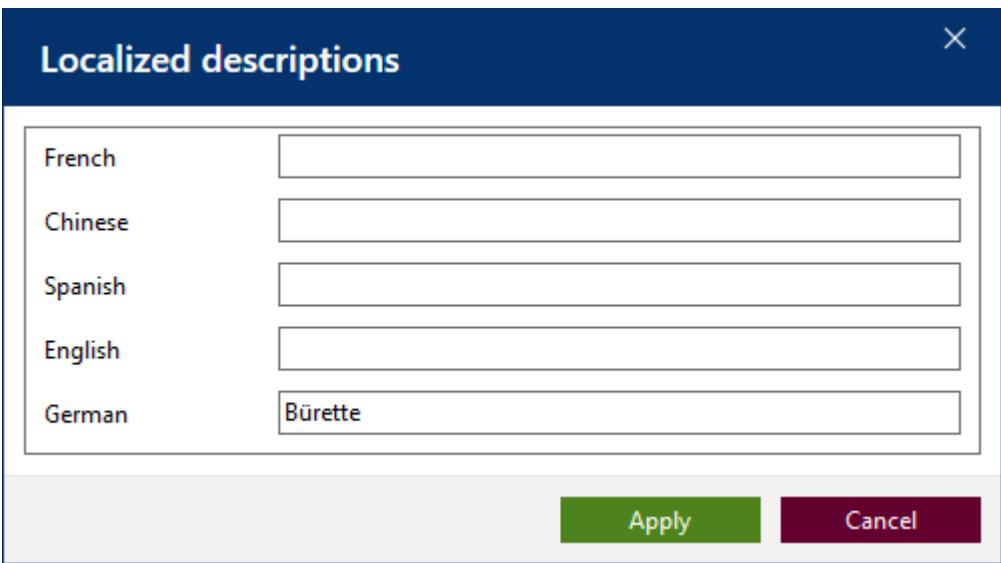
A yellow dot marks unsaved changes.

Fields with red borders/mandatory fields




Fields with red borders indicate missing entries or mandatory fields. If you move the mouse over the edge, "Tool tips" will be displayed.

Localized description



Localized descriptions	
French	<input type="text"/>
Chinese	<input type="text"/>
Spanish	<input type="text"/>
English	<input type="text"/>
German	<input type="text" value="Bürette"/>

Apply Cancel

You can use the  button to localize descriptions or fields. These texts can then be used for output on certificates.

Warning triangle



If a warning triangle is displayed, this indicates missing information (e.g., that a piece of test equipment has not been set for the test).


Search fields


As soon as you type characters into the search box, the options are narrowed based on what you type. Use this option, especially when choosing the variety of articles.


6 System Information

>> Main menu > Via EASYCAL

About EASYCAL




EASYCAL™
BRAND GMBH + CO KG
Version 5.0.17.218  Code signing






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accu-jet®, BIO-CERT®, BLAUBRAND®, BRAND®, BRAND. For lab. For life.®, BRANDplates®, cell-culture™, cellGrade™, Dispensette®, EASYCAL™, HandyStep®, hydroGrade™, immunoGrade™, inertGrade™, lipoGrade™, nano-cap™, pureGrade™, QuikSip™, SafetyPrime™, seripettor®, Titrette®, Transferpette®, as well as the BRAND figurative mark are registered trademarks or trademarks of BRAND GMBH + CO KG, Germany.
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 You are currently using a demo version.
To activate your full single client license, use the following link: <https://license.brand.de>.

 **EASYCAL basic functions**  

License: 11002 - Easycal 5 Demo License (30 days) (SNR: 130-3184513782)
Usage period: 22 / 30 days remain

Close

Available functions

This tab shows which program functions have been installed. Version information is also shown. Under “License”, you can see with which type of license you are operating. Behind the abbreviation “SNR:”, you will find the serial number of the license container. Provide this number when communicating with BRAND.

Open Source licenses

This tab provides an overview of the licenses used in the development of .

7 Orders and calibration certificates

>> Main menu > Orders and calibration slips

Orders and calibration slips

Test type filter: Not specified | Search: Type to search | from: 1/11/2022 to: 1/26/2022

Order overview | Calibration slips

Order I	Test typ	Order number	Article	Status
2	SPEC	2022-01-25-15-2	EC-12484 - Burette BLAUBRAND®, straight stopcock, Schilling, class AS; 0.02 - 10 ml	Created
1	STD	123456	EC-704106 - Transferpette® Fixed volume; 5 µl	Finished

Buttons: Back, Individual device test, Create order, Open

Use this menu to manage all orders and calibration certificates for the tested devices. These tests are therefore traceable. Together with the devices created, you can thus trace the test history for each device.

You will find a list of all orders created and calibration certificates generated in the “Order overview” and “Calibration certificates” tabs. You can filter the views by test type, search for texts or the order number, and limit the time period in which the order was created.

Via this button, you can display all calibration certificates created for the order so far.

Button	Meaning
Individual device test	Start a single device test.
Create order	Create an order. In the following selection, you can start a single test (analog single device test) or a batch test.
Open	Open a selected order.

7.1 Create order

Select order type

Select the desired order type Batch test or Individual test

Create order

Single test

Ill. 1: Single test – Create order

In a single test, one or more devices of the same article are tested, and a certificate is issued to each device. The [test type](#), the article code, and the [test plan](#) must be selected. Depending on which test type is selected, only some of the test plans are offered for selection under “Test plan”.

Batch test

Batch test - Create order

Test type: Lot size:

Order number: Random sample size:

Article code: Batch:

Article: **Burette**
BLAUBRAND®, straight stopcock, Schilling, class AS
BRAND GMBH + CO KG

Volume ranges:

Test plan:

Notes on the order:

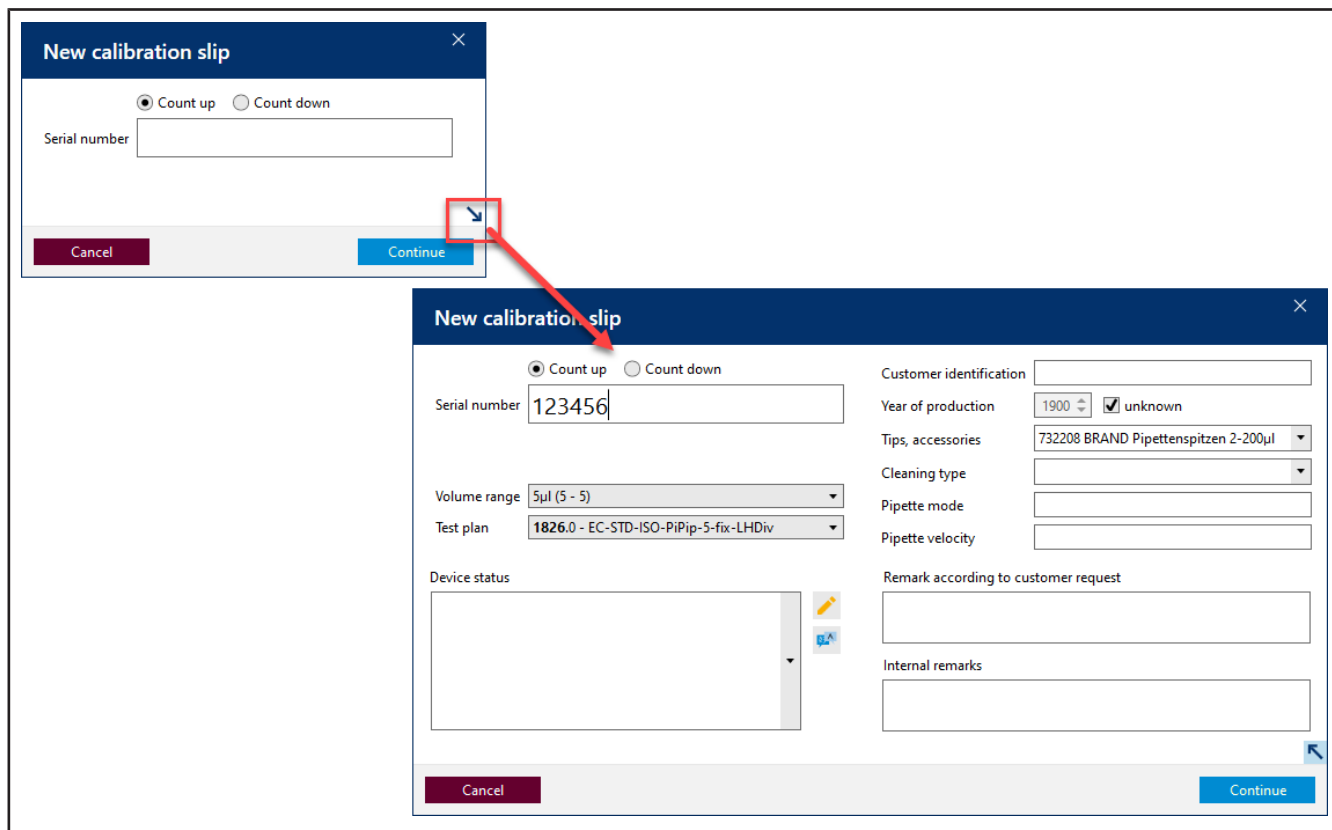
Ill. 2: Batch test – Create order

In a batch test, a random sample is taken from a batch of equipment, and the random sample device is tested. One certificate is issued per device. Depending on the result of the random sample test, it can be assessed whether the lot meets the corresponding quality requirements. The [test type](#), the article code, and the [test plan](#) must be selected. In the case of a batch test, the identification of the batch and the size of a [lot](#) must also be specified. Depending on which test plan and random sample test (absolute or relative) is selected, the size of the random sample changes. In this example, the absolute random sample test with AQL 0.4 is assumed. This level requires 5 devices each as a random sample for a lot size of 1 ... 500.

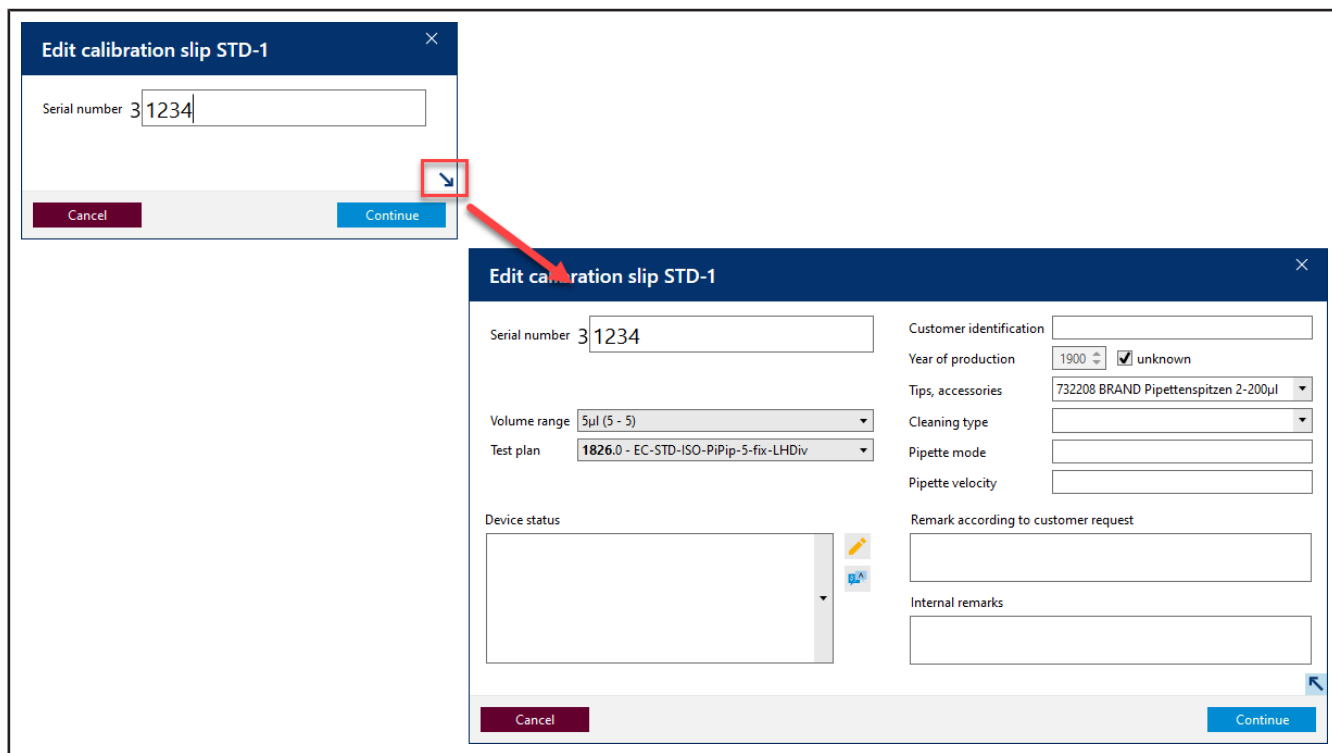
Create calibration certificate

You can also enter further data about the order such as which customer the device comes from, who the end customer is, or even which order and purchase order numbers are required.

If the Prepare calibration slips check-box is clicked and the test is started by clicking on Start test, the following window will be displayed. Enter the serial number of the device to be checked here. You can also expand the view by clicking on the arrow to enter further data relevant for the calibration certificate.


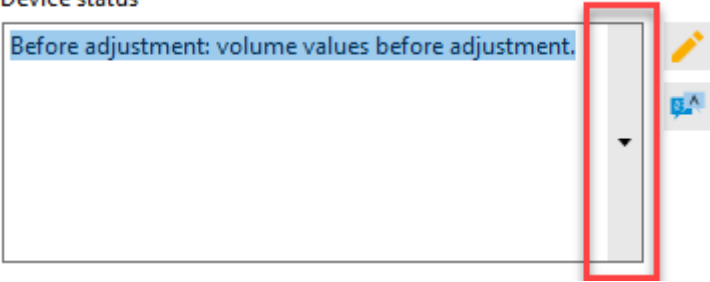


Ill. 3: Single device test



Ill. 4: Batch test

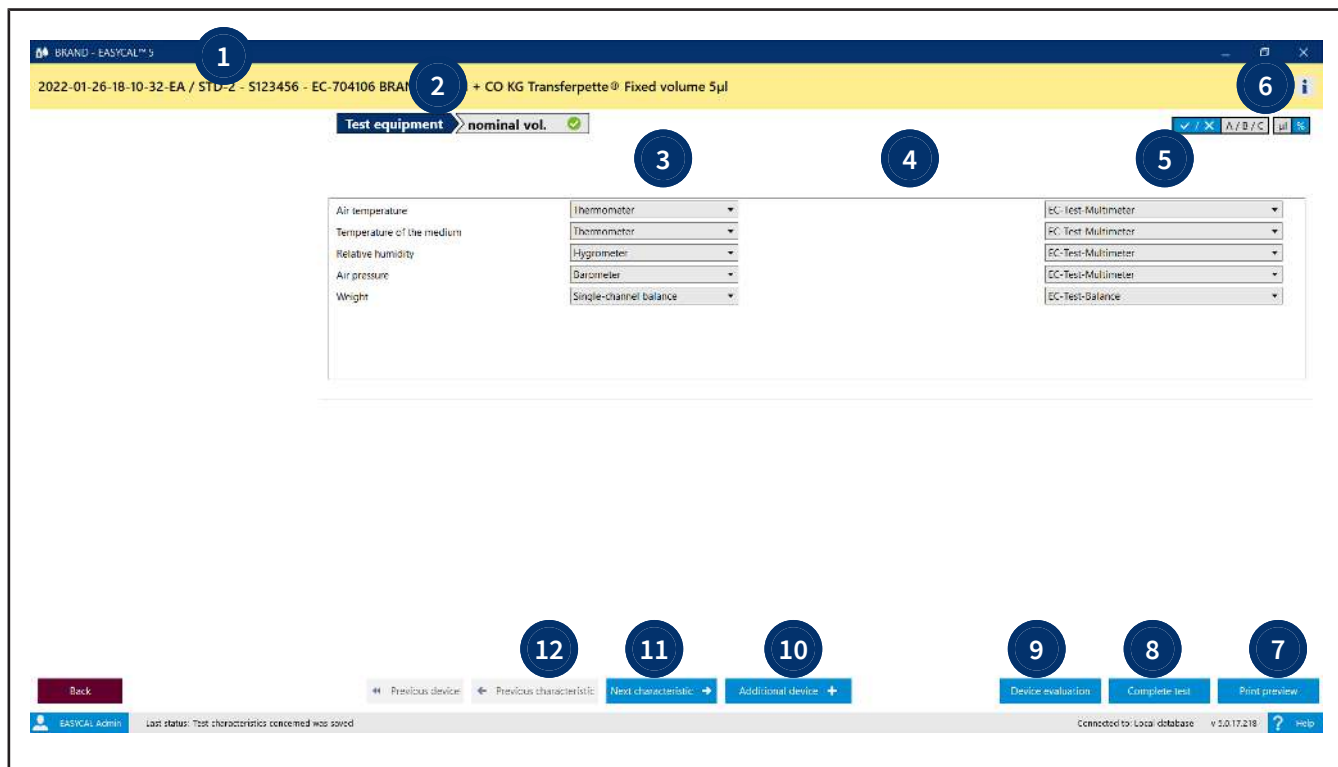
Field in expanded view	Explanation
Check-box Count up Count down	Count up/down the number of the calibration certificate

Field in expanded view	Explanation
Serial number	Enter the serial number of the device to be checked here.
Volume range	The dialog adopts the previously selected volume range. You can adjust this again here.
Test plan	The dialog applies the previously selected test plan. You can adjust this again here.
Device status	<p>Select a text describing the status of the device from predefined texts here. You can also use individual word blocks  to describe the device status. You can also enter a free text here. You translate this in this window as well.</p> <p>Device status</p>  <p>You can create text modules and ready-made texts in master data maintenance under General; see Selection text</p>
Customer identification	Assign a customer identifier
Year of production	Enter the year of production of the device
Tips, accessories	If a device is tested with different tips than the customer uses, this information must be output. You can select the tips or the accessories used for this purpose.
Cleaning type	Select the cleaning type used for cleaning before the test.
Pip mode	Specify the pipetting mode in which the pipette was tested.
Speed	Specify the speed settings used during the test.
Remark according to customer request	Free text field; enter the appropriate remarks.
Internal remarks	

See also

- Business partner administration (p. 129)
- Master data maintenance (p. 71)
- Test planning (p. 114)

7.2 Select test equipment for the test



- 1 Example identifier of the check
- 2 Sequence of test characteristics. You switch through the test characteristics with the buttons at the bottom of the screen (Previous characteristic | Next characteristic)
- 3 The required test equipment types are specified here; these result from the test characteristics. A selection may also have to be made here. For multichannel pipettes, for example, it is necessary to distinguish between “single channel balance” and “multichannel balance”.
- 4 This column displays notes about the test equipment such as the pending calibration of a balance or the pending measurement function test dictated by the location of the test; see Location for test equipment, p. 91.
- 5 Here you select the test equipment by its test equipment number.
- 6 Use the “Info” button to display more information about your order. You can hide them again via the button.
- 7 Show print preview. You will be shown a preview that shows the previous test results. You can assign the certificates to the articles via the certificate assignments; see Certificate template assignment, p. 112.
- 8 Complete test. Ends the test.
- 9 The device evaluation shows the evaluation of the test; see .
- 10 Add another device that you want to test.
- 11 Switch back and forth between the test characteristics.
- 12 Switch to the test of the previous device.

7.3 Performing tests

In this dialog, you perform the measurements yourself. The measurement happens on the basis of the test characteristics created in the test plan. Tolerances and limit values against which the device is tested during measurements are also entered there.

The screenshot displays the EASYCAL™ 5 software interface for a test plan. The main window shows the test plan details for a 5 µl fixed volume pipette. The test type is STD - standard values, and the status is In progress. The test plan is EC-STD-ISO-PIPg-5-fix - V 0. The test equipment is nominal vol. The measured values table shows four measurements with a mean of 5.01 µl. The statistics section shows an accuracy of 0.3% / 2.5% and a coefficient of variation of 0% / 1.5%. The interface also includes a sidebar for ambient data and target values, and a graph of the measured values.

Prerequisite:

- ✓ The test equipment was selected.

a. Enter the measured weight value [g] at *New measurement*:. Example: 0.01 g

↳ By means of a Conversion factor, the volume [here µl] is converted from the weight [g], taking into account various physical parameters (see DIN EN ISO 8655-6 – correction factor Z).

b. Click “Apply measurement” to create a new entry in the table of measured values.

↳ If the test equipment is to be entered manually, the Enter measured values

The screenshot shows the "Enter measured values" dialog box. It contains the following parameters and values:

Parameter	Value	Unit	Range	Manual
Temperature difference	0.00	°C	0.5 °C	<input type="checkbox"/>
Weight	5	g		<input checked="" type="checkbox"/>
Air temperature	20	°C	(20°C - 25°C)	<input checked="" type="checkbox"/>
Temperature of the medium	20	°C	(20°C - 25°C)	<input checked="" type="checkbox"/>
Relative humidity	40	%rh	(40%rh - 60%rh)	<input checked="" type="checkbox"/>
Air pressure	960	mbar	(960mbar - 1025mbar)	<input checked="" type="checkbox"/>

Buttons: Cancel, Apply

dialog opens. You can adjust the test equipment values manually here.. The value is marked in red if it is not in the allowed range.

- c. Enter the required number of measured values one after the other.
- d. After you have completed the measurement series, click on Next characteristic and work through the test characteristics one after the other.

The measurement in detail

The screenshot shows the EASYCAL™ 5 software interface. At the top, there is a header with order information: "2022-01-26-18-10-32-EA / STD-2 - S123456 - EC-704106 BRAND GMBH + CO KG Transferpette® Fixed volume 5µl". Below this, there are fields for PO number, Serial number, Certificate no., Test type, Device, Test plan, Status, Calibration object, and Volume range. A left sidebar contains "Client data", "Request ambient data", "Target value" (5 µl), and "Letzte Messungen". The main area features a "Test equipment" section with a table of measurements, a "Graph of the measured values", and "Statistics of device". A "Statistics of order" section is also present. At the bottom, there are navigation buttons like "Back", "Previous device", "Previous characteristic", "Next characteristic", "Additional device", "Device evaluation", "Complete test", and "Print preview".

Number	Time	Measured value	Volume (µl)	Sta
1	1/29/2022 6:16:59 PM	0.005000 g	5.014	
2	1/29/2022 6:17:10 PM	0.005000 g	5.014	
3	1/29/2022 6:17:19 PM	0.005000 g	5.014	
4	1/29/2022 6:17:26 PM	0.005000 g	5.014	

- 1 Via the “Info sign”, you expand the view and now see order-specific information. The button Display test plan (read-only) shows you the test plan.
- 2 Overview of the test characteristics from the test plan. You can select these individually in order to jump to the relevant section of the test. If a test characteristic has been successfully tested, a green checkmark ✓ is displayed on the test characteristic. The yellow circle indicates pending tests.



- 3 Here you can change views at the error limits:
 - Pass/fail
 - Evaluation criterion A/B/C
 - Display of A and CV in absolute values or relative values.
- 4 Overview of the measurements made so far. The success/non-success of the measurement is displayed in the “Status” column. Discarded measurement series are also displayed in this view.
 - ✓: The measurement was successful. The measured values are within the permitted deviation.
 - ⊖: The measurement series was discarded.
 - ✗: The measurement was not successful. The measured values are outside the permitted deviation.

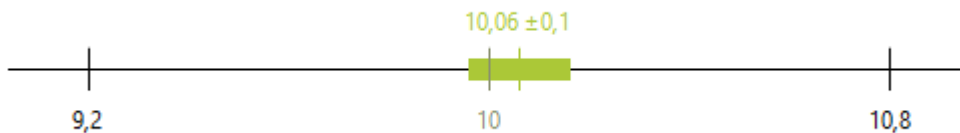
- 5 The graph shows the scatter of the measured values around the calculated mean value of the measured values. The mean value can be seen as a thin dashed line. The measured values are displayed as blue dots and indicate whether they are within the error limits. The error limits can be seen as a solid line in the graph. The bold dashed line indicates the measurement uncertainty of test procedure – it is visible only if the user specifies a value in the “Measurement uncertainty” section in Test plan > Test characteristic.



- 6 In the “Order statistics” section, you will find mean values for the previous test. For accuracy and coefficient of variation, the previous values are compared to the permissible error limits.

		Statistics of order	
Accuracy	<input type="checkbox"/> 0 % / 10 %	Accuracy	0 %
Coefficient of variation	<input type="checkbox"/> 0 % / 4 %	Mean	0 µl
Mean	0 µl	Standard deviation of the mean	0 µl
Standard deviation	0 µl	Coefficient of variation of accuracy	0 %
Expanded measurement uncertainty	0 µl	Mean value CV	0 %

- 7 In the “Statistics device” section, you can see in which area the measuring points are distributed. In this example, the required target value is more likely to be exceeded than not reached.



The green vertical line shows the mean value of all measurements made so far.
 The green bar shows the measurement uncertainty of the test method in relation to the mean value.

8 In this section, you can set some parameters for the measurement or also discard the current measured value in the table of measured values. The discarded measured values are not deleted from the table but rather grayed out.

- Fast measurement
- Automatic printing
- Automatic tare
- Allow all measured values
- Check measured values before entering

Discard reason identified as outlier. ▾

Discard entry Undo discard

Fast measurement:

(This is available only if the balance is connected via interface)

Automatic change of the test characteristic as soon as the number of required valid measurements is reached. Measurements that would invalidate the result are automatically discarded. If all characteristics have been completely checked, the system automatically switches to the next device/calibration certificate. It is thereby offered to create a new certificate

Automatic printing:

In conjunction with fast measurement, printing of the associated certificate is triggered automatically when the device is completed.

Automatic tare:

If a balance is connected to the computer, the balance is automatically tared.





Check measured values before entering:

The check-mark “Check measured values before entering” causes the dialog “Enter measured values” to appear during a test with a balance and completely automatic transfer of ambient data.

Users can then check their entries again manually and make changes. A particular application is the testing of volumetric flasks. First, the volume or weight value is determined. Then, the temperature of the medium inside is measured.

9 In this section, you can start the individual measurements. You enter your weighing result in the weight field. This value is then converted into a volume via the conversion factor (correction factor Z, relevant parameters). In addition, the time of the measurement itself is also recorded.

If a balance is connected, the weighing result is entered automatically with each new weighing.

	<input style="width: 100%;" type="text" value="0,0002"/> g
	1002.80182104 μl / g
	2005.6 μl
	
← 0 / 0 →	Apply measured value

10 This section displays the target value and the required number of tests.

- 11 The ambient data is displayed. If the test equipment is connected to the computer, you can update the values via the button. If the test equipment is within the permitted value range, it is marked green.

See also

→ Erroneous measurements in the test (p. 56)

7.4 Complete test

The screenshot displays the EASYCAL™ 5 software interface for a test completion screen. The header shows order details: 2022-01-26-18-10-32-EA / STD-2 - S123456 - EC-704106 BRAND GMBH + CO KG Transferpette® Fixed volume 5µl. Below this, there are fields for PO number, Serial number, Certificate no., Test type, Device, Test characteristic, Calibration object, Volume range, Test plan, and Accessories. The main area is divided into several sections: 'Test equipment' with a 'nominal vol.' indicator, a table of test results, a 'Graph of the measured values', and 'Statistics of device' and 'Statistics of order'. The 'Statistics of device' section shows Accuracy (0.3% / 2.5%), Coefficient of variation (0% / 1.5%), Mean (5.01 µl), Standard deviation (0 µl), and Measurement uncertainty (0 µl). The 'Statistics of order' section shows Accuracy (0.3%), Mean (5.01 µl), Standard deviation of the mean (0 µl), Coefficient of variation of accuracy (0%), and Mean value CV (0%). Four numbered callouts (1, 2, 3, 4) highlight specific features: 1. Test equipment status (nominal vol.), 2. Device evaluation statistics, 3. Navigation buttons (Previous device, Next characteristic, Additional device), and 4. Complete test button.

- 1 The section always bears the color of the respective status (same colors as in the job overview). When all test characteristics are completed, the status is set to “Completed” and the color changes.
- 2 In the device evaluation, you can look at the test details in order to view the individual target value deviations.
- 3 If you are testing in a batch test or several devices in an individual test, switch to testing the other devices in the next step using the Next device button.
- 4 Complete the test: The open order appears. The device/calibration certificate overview shows the tests that are still open or have already been completed (see Order in detail, p. 53).

7.5 Order in detail

>> Main menu > Orders and calibration slips > Select order

Order 2021-10-08-12-39-47-EA

Test type: STD – standard values Article: EC-704172 - Transferpette® Variabel; 5 - 50 µl
 Order no.: 2021-10-08-12-39-47-EA Test plan: 1848.0 - EC-STD-ISO-Pip-30µl-Var-LHD
 Order type: Individual test Tester: **9**
 Lot size: 1
 Random sample size: 1 / 1 Order no.: Customer:
 Status: Created OC-Number: End customer:

Notes on the order:
 Communication with the customer:

Test characteristic	Description	Target	va	Mean	Tol target	Tol OK	A% target	A%	A% OK	CV% target	CV%	CV% OK
1	2. TV	5µl	µl	10			10 %	%		4 %	%	%
2	1. TV	25µl	µl				2 %	%		0.8 %	%	%
3	NV	50µl	µl				1 %	%		0.4 %	%	%

Device/calibration slip overview

Calibration slip type	Internal no.	Calibration slip no.	Serial number	Article code	Conducted tests	Status	Device status	Tester	Linked calibration slip
Individual test	3	STD-3		EC-704172	0	Created			11 1 2 3 4 5 6 7 8

Buttons: Evaluation/release, Print internal log, Print certificates, New calibration slip, Back, Back to the order overview, Save

- 1 Edit calibration slip: The dialog to edit the calibration certificate opens (see Create order, p. 44).
- 2 View/continue test: Continue or view the test (see Performing tests, p. 49).
- 3 Individual evaluation: Open the individual evaluation.
- 4 Export certificate: The print preview will be opened. Print the certificate or save it.
- 5 Add new linked calibration slip: You create a linked calibration certificate. This appears in the device/calibration certificate overview.
- 6 Call up the device history: If the device has been tested at least once, call up the device history. Otherwise, the button remains inactive.
- 7 Create new reminder: The device will be added to the list of reminders. An e-mail can be sent automatically to a business partner; see Business partner administration, p. 129.

8 

Calibration slip – details: Details of the calibration certificate are output.

Example:

Calibration slip – details ✕

Internal no.	3
Calibration slip no.	STD-3
Article code	EC-704172
Serial number	
Date of calibration	1/1/0001
Calibration mark date	0001-01
Client version	5.0.13.210
Server version	5.0.13.130

Close

9 

Display test plan (read-only): Displays the test plan in read-only view. To edit the test plan, see Test plan overview, p. 114

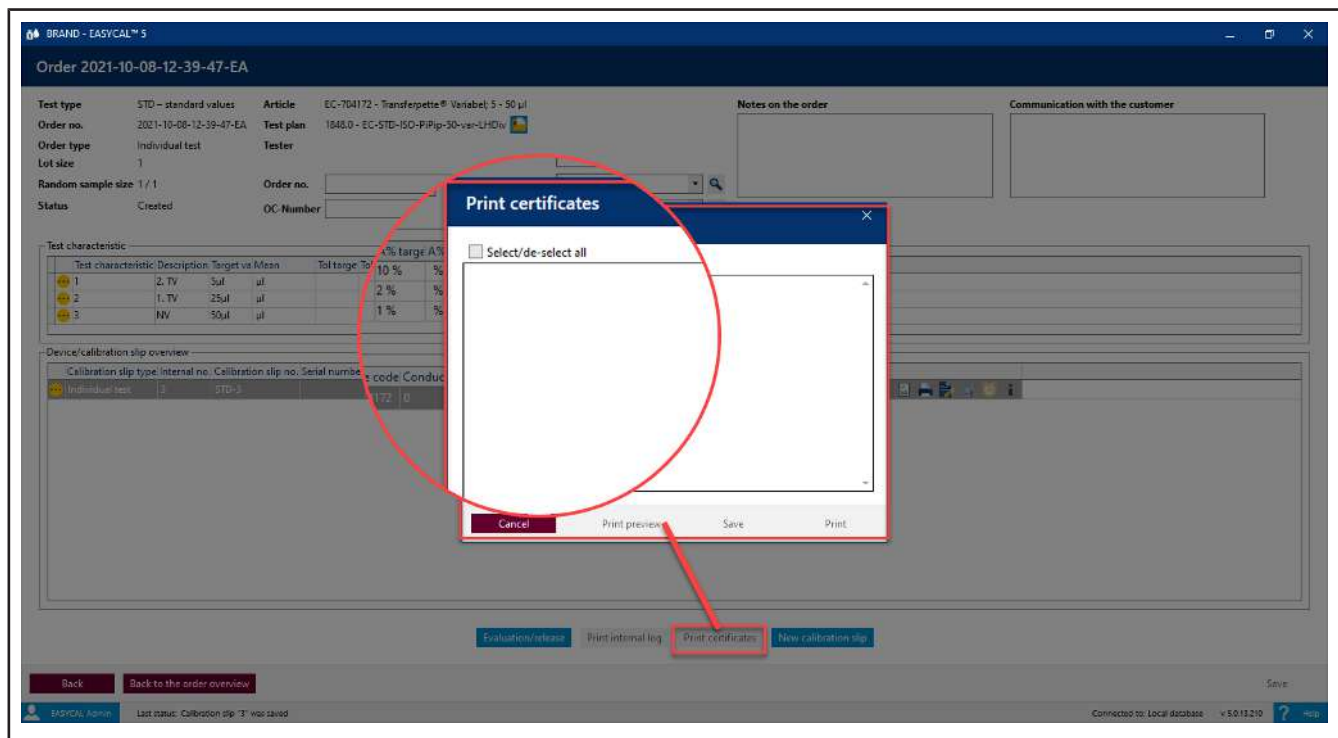
10 Test characteristic: This section displays the statistical evaluation of the test characteristics over the entire order and shows the respective evaluation of the values.

11 Device/calibration slip overview: The devices to be tested in this order are listed. Here, a device is assigned to one calibration certificate at a time.

In the case of a batch test, the further random samples are located here. In the course of the further test, a calibration certificate is also issued to each device of the random samples.

Device/calibration slip overview									
Calibration slip type	Internal no.	Calibration slip no.	Serial number	Article code	Conducted tests	Status	Device status	Tester	Linked calibration slip
Individual test	3	STD-3		EC-704172	0	Created			

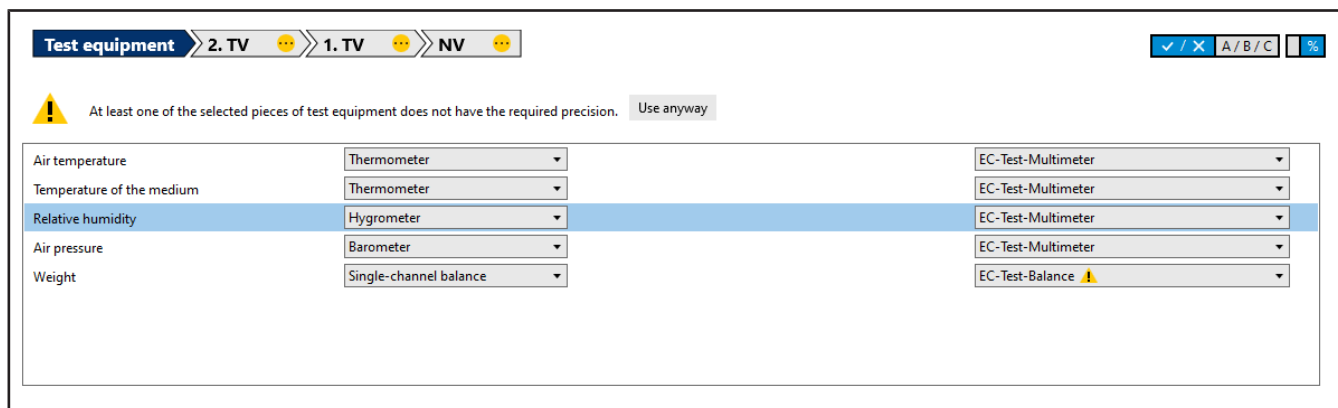
7.6 Print/save certificate



- Print or save one or more certificates by checking the required certificates.
- Select print preview. Decide on the following options in the print preview. Print certificate; save only as PDF as well as save and print.

7.7 Erroneous measurements in the test

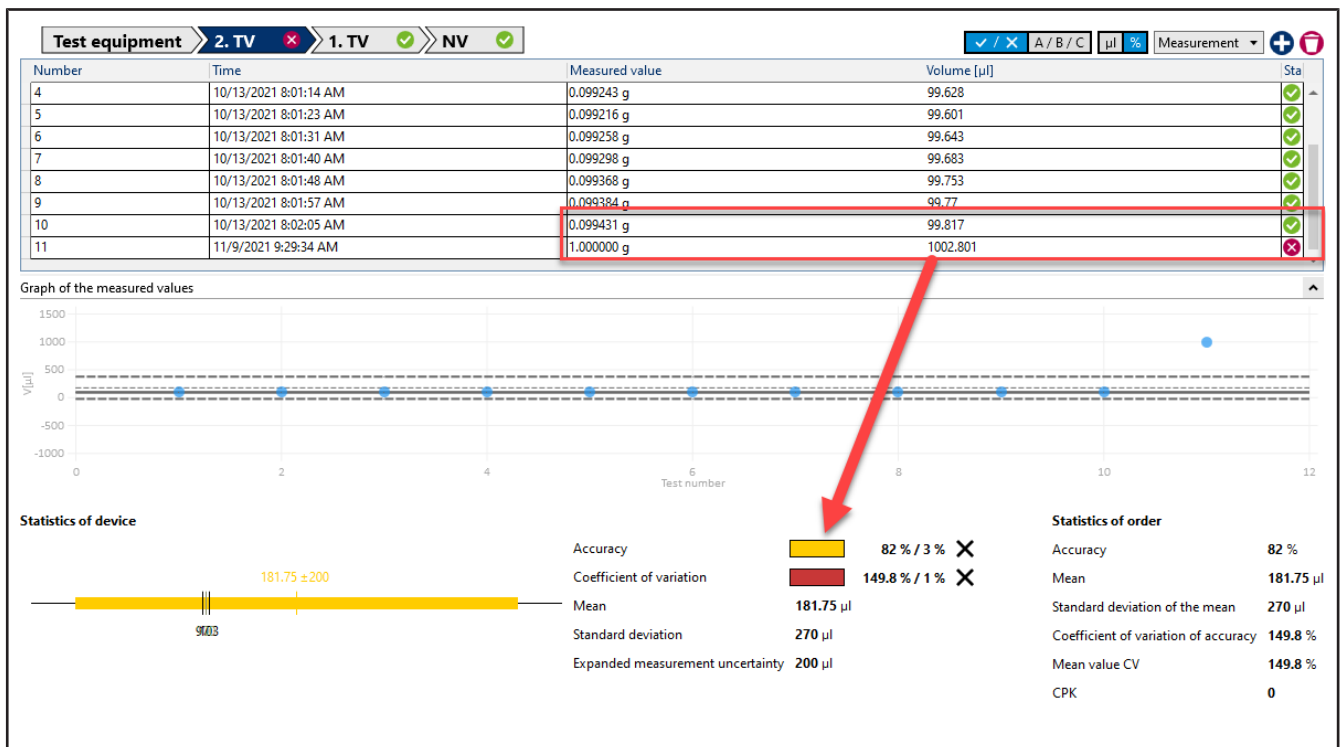
Test equipment imprecise



If test equipment that does not have the required precision is used, the warning triangle is displayed. Use different test equipment.

Statistical deviation

If a measured value exceeds or falls below a statistical limit, the entire measurement can no longer be successful.



Example:

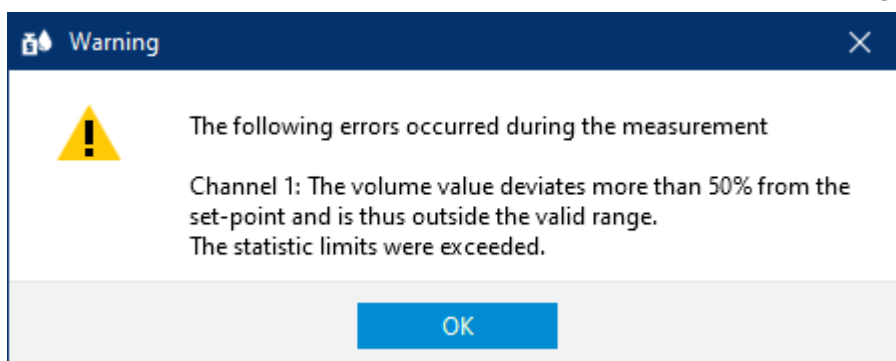
With a target value of 100 μ l, the coefficient of variation is 0.3 μ l [0.3%], and the accuracy is 0.8 μ l [0.8%]. A measurement now gives a result of 99.3 μ l (i.e., a large target value deviation of the measuring point in relation to the other measuring points). The required coefficient of variation can thus no longer be achieved. Because the coefficient of variation makes a statement about how far the individual measuring points scatter, the required precision (i.e., the repeatability of the dosages) can no longer be fulfilled despite a good accuracy.

Solution:

Discard the measurement in question as a possible outlier, and repeat.

High percentage deviation from the target value

A large deviation from the target value occurred. The measured value also exceeds the maximum target value limit (see Parameters and limits, p. 136) Max. Zielwert-Abweichung



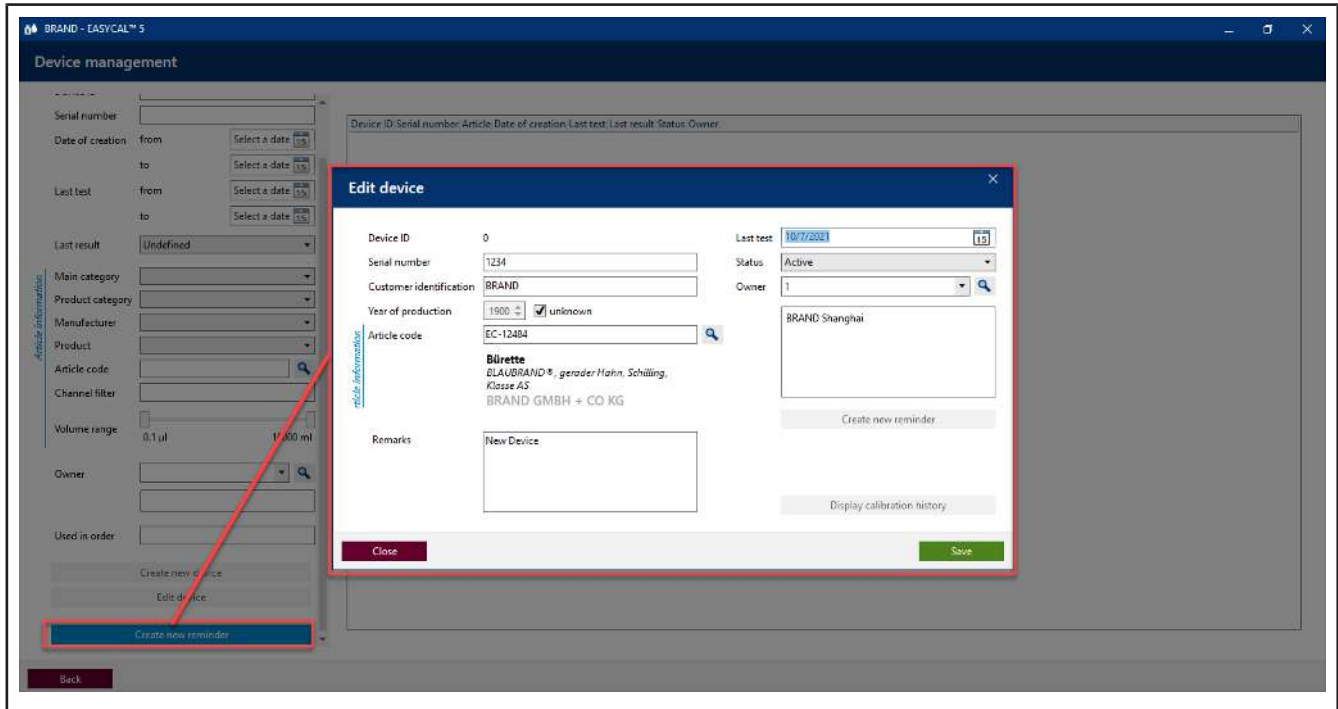
Solution:

Discard the measurement in question as a possible outlier, and repeat.

8 Device administration

>> Main menu > Instrument Manager

8.1 Create new device



In this dialog, you can create a new device data set, assign it to an article, and specify who owns the device.

Field	Explanation
Device ID	The Device ID is ID automatically assigned when you click “Save”.
Serial number	Enter the serial number printed on the device.
Customer identification	Enter the designation with which you describe the device (e.g., Lab 1, Pipette 3).
Year of production	Enter the year of production or check “unknown” if you cannot determine it.
Volume range	If only one volume range is possible, this is selected directly. If there are several possible volume ranges, the selection remains empty. You then select the correct volume range for the device to be tested.
Remarks	Enter remarks, possibly describing the optical condition or discolorations in the case of an older device.
Last test	Enter the date when the device was last tested.
Status	Enter the status of the device. You can use it to track device usage. The following statuses are available to you Not specified Active Defective Sorted out
Owner	Select the owner of the device. See Business partner administration, p. 129

8.2 Search for devices

Filter

Status

Device ID

Serial number

Date of creation from

to

Last test from

to

Last result

Main category

Product category

Manufacturer

Product

Article code

Channel filter

Volume range 0.1 µl 10000 ml

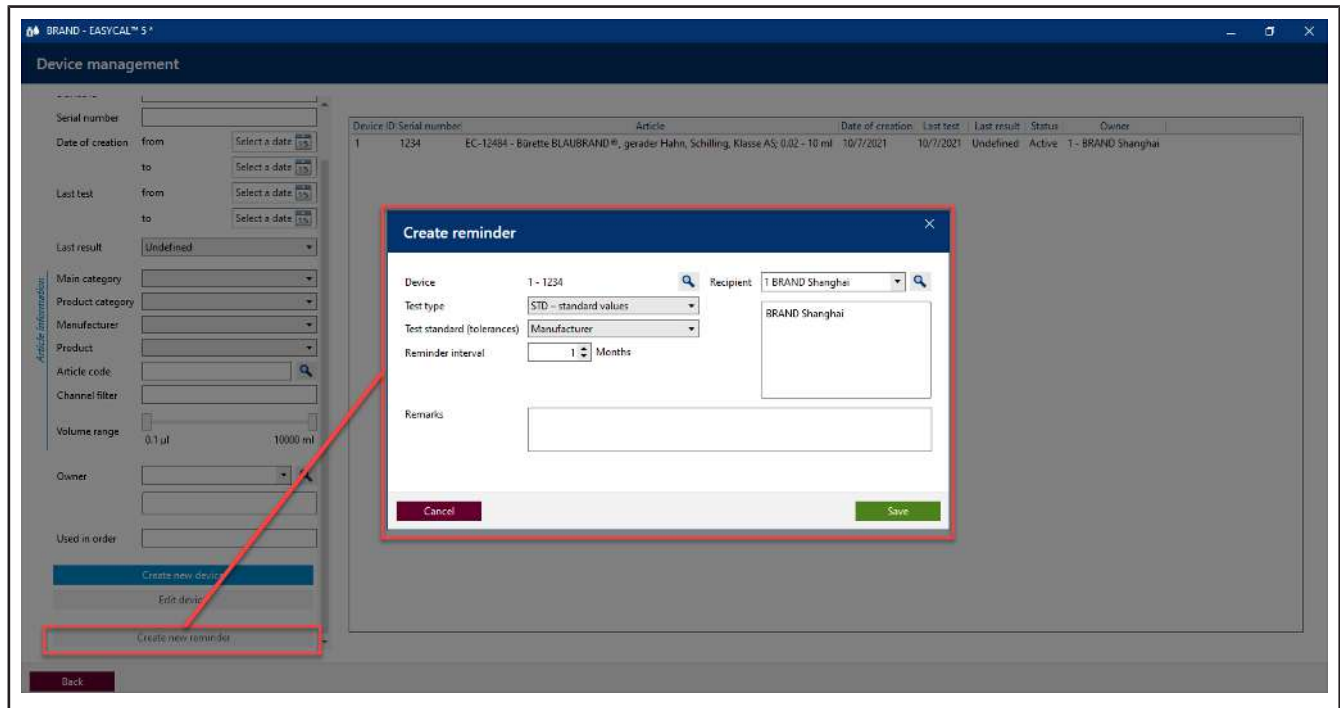
Owner

Used in order

Article information

Search for devices using the “Filter” section. There you can search by device ID, serial numbers, time periods, product categories, channels, or volume ranges. The search results list is further narrowed for each criterion entered.

8.3 Create new reminder



In this menu, you also create a new test reminder. If you have marked a device in the list, the device number is automatically taken over. You then define the test type, test standard, reminder interval, and recipient. See Reminder service, p. 145 and the settings under Automatic reminder, p. 139.

9 Administration

>> Main menu > Administration

In this menu, you manage the basically information:

- User
- Master data maintenance
- Create company
- Certificate templates
- Test planning
- Data import and export
- Business partner administration

9.1 User

>> Administration > Manage users

In this menu, you create users and user groups and manage the access rights of the users.

9.1.1 Test types (user authorizations)

A test type describes which requirements are placed on a test. Test types are intended to assist in the organization of test plans and certificate templates.

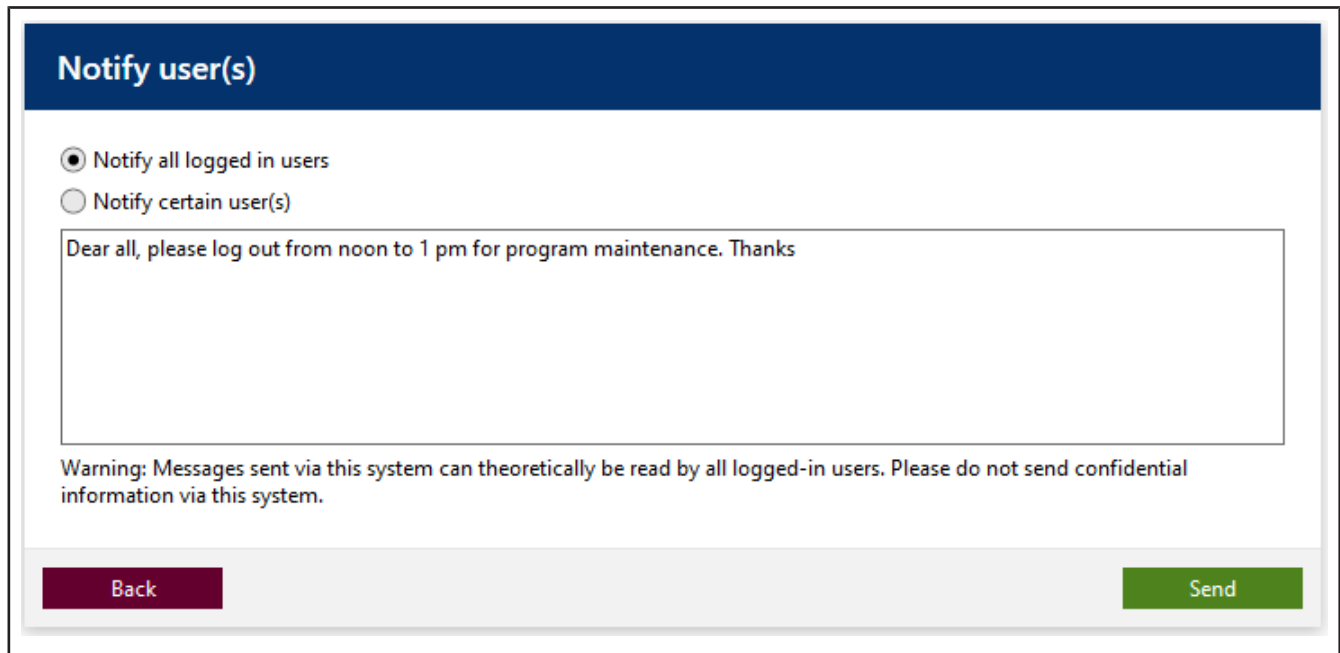
Via the test type and user administration, a user can be allowed or forbidden access to certain test types.

The list of test types cannot be changed.

Test type	Meaning
Standard values (STD)	This test type applies to test plans with values as specified in the standard of the corresponding article (e.g., ISO or USP).
Manufacturer values (MANU)	This test type applies to test plans with values as specified by the device manufacturer (insofar as they deviate from the standard).
Customer-specific	This test type applies to test plans that do not follow any particular logic. No corresponding test plans are supplied. The EASYCAL™ 5 software often provides both a test plan based on standard values and manufacturer values for liquid handling equipment. The user must decide in this case.

9.1.2 Notify user

(Only in server installations)



Notify user(s)

Notify all logged in users
 Notify certain user(s)

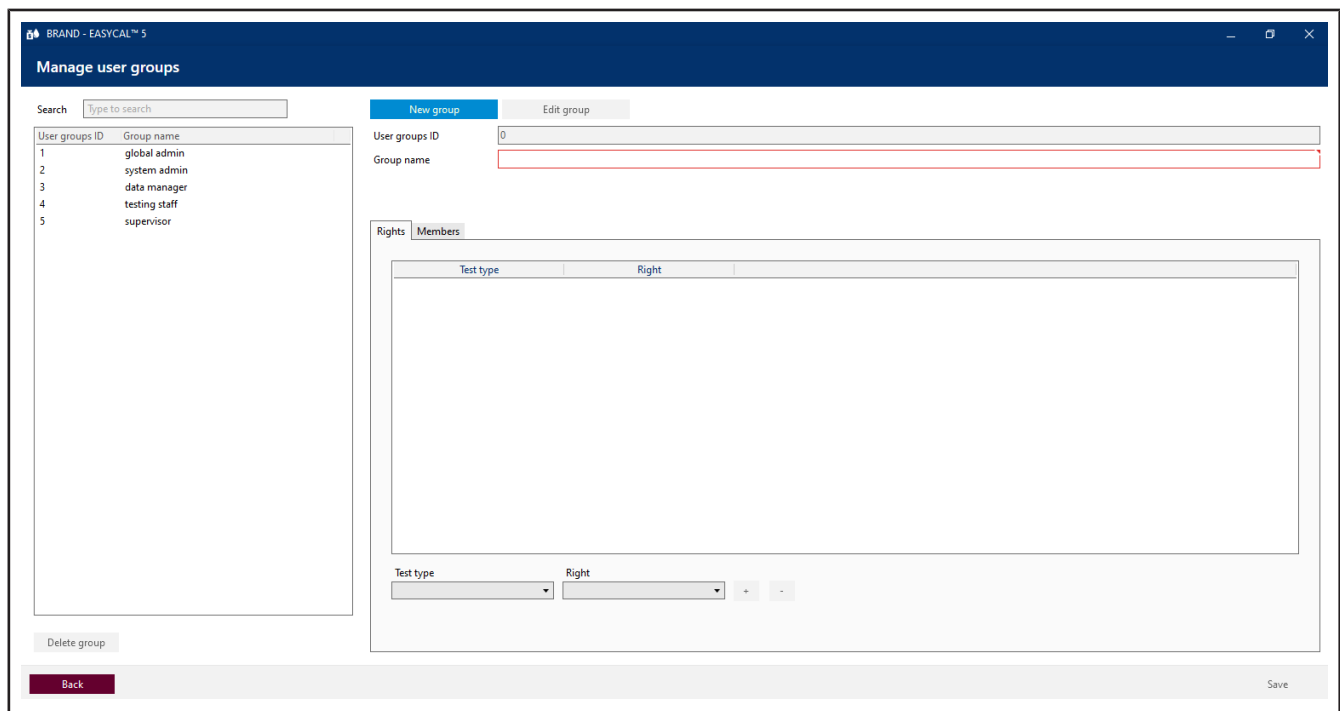
Dear all, please log out from noon to 1 pm for program maintenance. Thanks

Warning: Messages sent via this system can theoretically be read by all logged-in users. Please do not send confidential information via this system.

Back Send

You can send messages to individual or all logged-in users; this is intended mainly for administrative purposes. These messages appear in a window. The recipient cannot answer the message directly.

9.1.3 Manage user groups



BRAND - EASYCAL™ 5

Manage user groups

Search

User groups ID	Group name
1	global admin
2	system admin
3	data manager
4	testing staff
5	supervisor

Delete group

Back

New group Edit group

User groups ID

Group name

Rights Members

Test type	Right
<input type="text"/>	<input type="text"/>

Test type Right + -

Save

In this menu, you can create, edit, and delete user groups. You define which access rights are assigned to the test types and which members belong to the user groups.

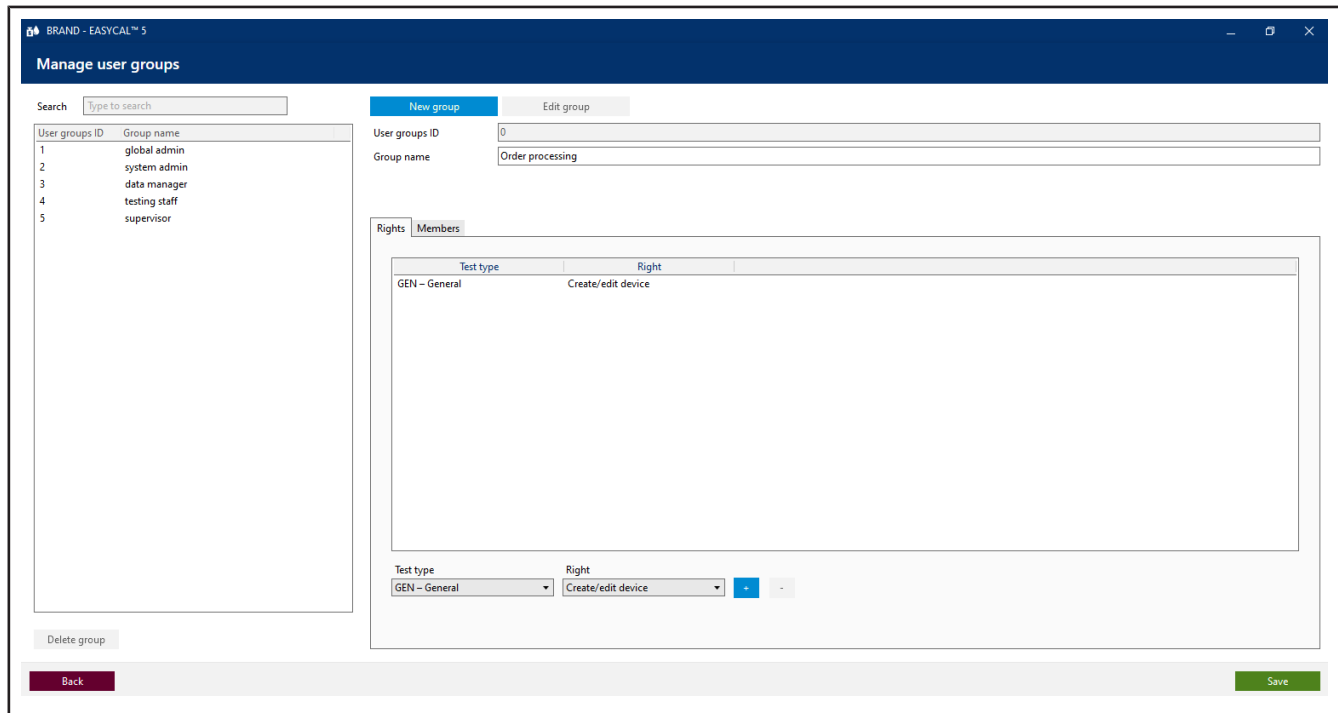
9.1.3.1 Create user groups

The screenshot shows the 'Manage user groups' window in EASYCAL™ 5. At the top, there are buttons for 'New group' and 'Edit group'. Below these, there is a search bar and a list of existing groups with columns for 'User groups ID' and 'Group name'. The list contains five entries: 1 (global admin), 2 (system admin), 3 (data manager), 4 (testing staff), and 5 (supervisor). To the right of the list, there is a form for creating a new group with fields for 'User groups ID' (containing '0') and 'Group name'. Below the form, there is a section for assigning rights, with tabs for 'Rights' and 'Members'. The 'Rights' tab is active, showing a table with columns for 'Test type' and 'Right'. Below the table, there are two dropdown menus for 'Test type' and 'Right', and a '+' sign to add more rights. At the bottom of the window, there are 'Delete group', 'Back', and 'Save' buttons.

In this menu, you create user groups. After you create the group and assign access rights to it, assign users to the group. Users can be assigned to multiple groups.

- a. Click on New group.
- b. Assign a group name. The User groups ID ID is filled in automatically.
- c. Select the desired test type from the Test type list and the desired access right from the Authorization list.
- d. By clicking on the “+” sign, you add the pair of test type and access right. According to this scheme – select Test type and Authorization – add more access rights.

9.1.3.2 Assign access rights to users



In this menu, you assign additional members to the user group using the “+” sign. In the “Members” list, all users assigned to the selected user group are listed. All users in this group have the same access rights. A user can also be assigned to several groups.

9.1.3.3 Suggestions for user groups

The software suggests various user groups. Of course, you can also create your own user groups or modify the existing ones. An explanation of these suggestions can be found below.

User group suggestion	Explanation
Global Admin	Users of this group modify or configure all parameters of this program. Accordingly, only the employees of an IT department should be given this access right because they are responsible for setting up the infrastructure.
System Admin	Users of this group can modify and configure parameters of this program that are needed in operational mode. Example: Create certificate templates that are used by everyone.
Data Manager	Users of this group are responsible for data maintenance. Example: Create customer data or supplier data. Create device data.
Supervisor	Users of this group release tests and calibration certificates.
Test Staff	Users in this group perform the actual tests.

9.1.3.4 Access rights available

The following access rights are available for each test type. The access rights are not cascading (i.e., a user with the access right to release article master data does not automatically have the access right to create it). Therefore, exactly the required access rights must be selected.

Access right	Explanation
Create/edit device	Users can add new devices in the device management or edit existing data sets with this access right. See Device administration, p. 58.
Create/edit item master data	Users can add new articles in the article master data or edit existing data sets with this access right. This also affects the extended article master data. See Master data maintenance, p. 71.
Release item master data	Users can release article master data with this access right. See Master data maintenance, p. 71.
Create/edit users	Users can create or edit new users with this access right. This concerns then the assignment of passwords or the assignment of access rights. See Manage users, p. 70.
Create/edit user group	Users can create new user groups or edit existing user groups with this access right. See Manage user groups, p. 62.
Create/edit customer	Users can create new customers or edit existing data sets with this access right. See Business partner administration, p. 129.
Create/edit supplier	Users can create new suppliers or edit existing data sets with this access right. See Business partner administration, p. 129.
Create/edit test equipment	Users can create new test equipment or edit existing data sets with this access right. See Test equipment, p. 90.
Edit workstation settings	Users can edit their own workstation settings or those of other employees with this access right. See Workstation settings, p. 131.
Create/edit company data	Users can edit the company data with this access right. See Create company, p. 98.
Create/edit reminders	Users can create new reminders or edit existing data sets with this access right. See Reminder service, p. 145.
Create/edit common data	Users can create Master data equipment or edit existing data sets with this access right. See Master data maintenance, p. 71.

Access right	Explanation
Import/export of data	Users can use this access right to import or export data from the “Master data”, “Orders”, and “Certificates” groups. See Data import and export, p. 129.
Benutzer benachrichtigen	Users can send messages to other users with this access right. Example: Administrator asks other users to log off because of an update. See Notify user, p. 61.
Edit global settings	Users can make global settings for all users with this access right. Example: Adjust limit values. See Global settings, p. 135.

9.1.4 Configure user

9.1.4.1 Initial password

When creating a new user, you assign an initial password for each user; users can then change this themselves. The user with which you create the other users is called the default user.

NOTICE

Change default user

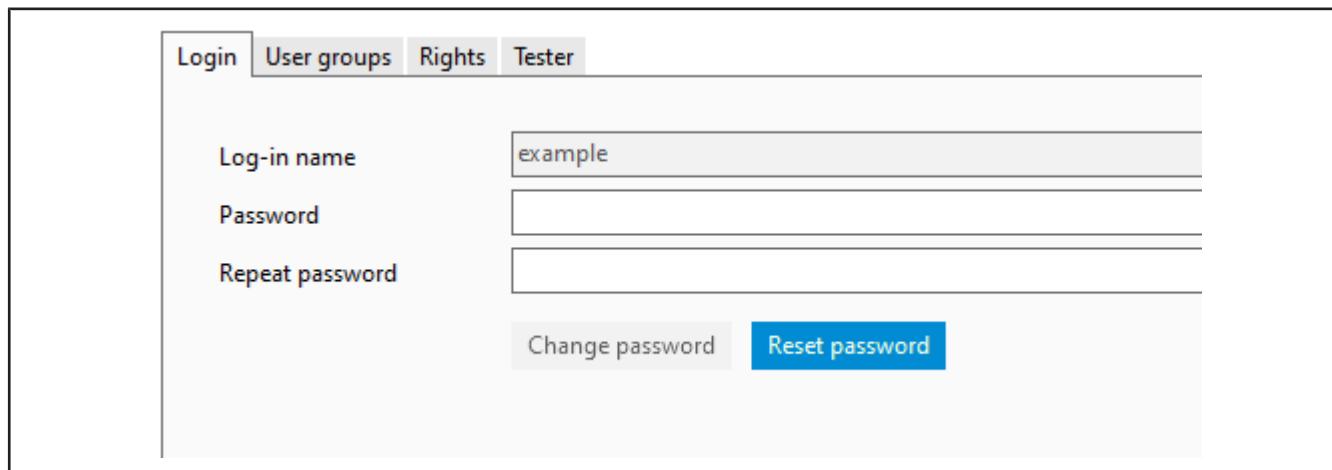
After completing the configuration work, change the default user (user: admin | password: start) in order to prevent unauthorized access to the system.

9.1.4.2 Login

Login

If the program EASYCAL™ 5 is started, a log-in dialog appears. Here, the user logs in with user name and password.

Reassign password



The screenshot shows a dialog box titled "Reassign password". At the top, there are four tabs: "Login", "User groups", "Rights", and "Tester". The "Login" tab is selected. Below the tabs, there are three input fields: "Log-in name" (containing "example"), "Password", and "Repeat password". At the bottom, there are two buttons: "Change password" (disabled) and "Reset password" (active).

- a. Select user from the search list.
- b. When creating a new user: assign Log-in name. Otherwise, this is formed from first and last name in the scheme `last name-first name`.
- c. Enter Password, and repeat password.

Reset password:

Reset the password of a user via this dialog.

- a. Select user from the search list.
- b. Click on Edit user.
- c. Click "Reset password".
- d. If you have assigned a new password, share the password with the user. This person logs in with the password and gives themselves a new password.

9.1.4.3 User groups



Add the selected user to a user group by selecting a group under “User groups” and adding it using the “+” button. You can remove the user from a group by selecting the group from the list and removing it using the “-” button.

To create a user group, see [Manage user groups](#), p. 62.

9.1.4.4 Access rights

Inherited group rights

Test type	Right	Inherited from
SPEC - Customer specific	Create/edit certificate template	global admin

Specific rights

Test type	Right

Test type: GEN - General
 Right: Edit workstation settings
 + -

Inherited group access rights are displayed in the upper section. If multiple groups are assigned to the user, this overview shows all access rights of all groups.

Specific access rights are displayed in the lower section. These can be given to the user via the “+” key or withdrawn via the “-” key.

9.1.4.5 Validator

Tester

Inspector identification

File path for signature file

Enter here the verifier identifier (any characters) and the path to the signature file (in .jpg, .bmp, .png, .gif format). This can be inserted on certificates.

NOTICE

Paths to files.

If the file (e.g. signature file or logo) is to be available to several users, it is better to store it in a network drive. Because the files are linked only by paths, a locally stored file may then not be usable by all users.

9.1.5 Manage users

BRAND - EASYCAL™ 5

Manage users

Search

User ID	Last name	First name
1	Admin	EASYCAL

New user Edit user

User ID

Title

First name

Last name

E-mail

Login User groups Rights Tester

Log-in name

Password

Repeat password

The user administration allows one to create individual users, edit their data, and assign access rights to the users. This area is divided into the user overview, an input screen to enter basic data, and a section that allows further configuration.

9.1.5.1 Search for user

BRAND - EASYCAL™ 5

Manage users

Search

User ID	Last name	First name
1	Admin	EASYCAL

a. Enter the ID or part of the name in the search screen.

↪ The search result changes immediately after the input.

9.1.5.2 Create user

New user	Edit user
User ID	0
Title	
First name	
Last name	
E-mail	

- Click on New user.
- Enter the data of the user. The User ID is assigned automatically. Fields marked with an asterisk (*) must be filled in.
- Assign a Log-in name and password.
- Click on Save in the lower right corner.
- Make further settings.

9.1.5.3 Edit user

New user	Edit user
User ID	2
Title	
First name	Karl
Last name	Example
E-mail	

- Select the user you want to edit from the search area.
- Click on Edit user
- Edit the user, their password, and other data.
- Click on Save in the lower right corner.
- Make further settings.

9.2 Master data maintenance

>> Main menu > Administration > Master data maintenance

In the broadest sense, the [>>master data<<](#) describes articles and associated device data as well as general master data such as management functions in the laboratory. The aim of master data maintenance and its implementation is also to define uniform terms and minimize redundant data sets.



Master data ranges	Explanation
Item data (Relevant for tests)	In the article data, you describe the master data of an article, whereby an article can also always stand for a series of similar devices.
Expanded item data (Relevant for tests)	In this section, you can define article data that defines how to handle the article during the test. Here you can define the required accessories, requirements from standards, materials, or how to clean the articles.
Random sample plans (Relevant for tests)	In this section, you can define the parameters for the relative or absolute random sample test. They describe test procedures and specify temperature differences.
Test equipment (Relevant for tests)	In this section, you can define the test equipment available. Test equipment is a tool used to calibrate a device such as a micropipette. Example: Thermometers, balances, measuring devices.
General (Possibly relevant for tests)	In this section, you can make general settings in the master data, including positions within a company.

9.2.1 Article data

In this section, both new article data sets and product data sets can be created and existing ones can be edited. The data sets are, on one hand, articles. These describe the products to be tested. On the other hand, products can also be created without being assigned to an article. These product data sets can then be used for subsequent articles.

9.2.1.1 Article

An article data record describes several, identical products. Create new articles here.

Field	Description
Basis-Artikel	By clicking on the  button, select a Modell on which you would like to base the article.
Item code	 <p>You can either enter the article number manually or generate an article code using the Generate item code key.</p> <p>Article with the prefix “EC-” cannot be changed. However, you can copy these articles and then edit the article under new article code.</p> <p>The article code must be unique. If this is not unique (if, as in this example, the number 10 occurs more than once), the field is marked red.</p> <p>A version number is displayed at the right edge of the field; unsaved new articles have version number 0, and all further versions are incremented by 1.</p>
Main category	The main categories describe the principle technology. These are fixed. Selection: Liquid handling Temperature and density measurement Volumetric instruments
Product category	The “Product categories” selection field describes groups of products. These can be created in the “Product categories” tab.
Manufacturer	Manufacturer of the >>instrument<<
Modell	Designation of the instrument
Available variations	Select specific characteristics to distinguish from other >>instruments<< . These can be created in the “Variations” tab and selected here from the selection box.
Adjustment type	Select adjustment type Selection: >>EX<< >>IN<< For volumetric instruments, a basic distinction is made between adjustment to “In” and to “Ex”.
Material	Selection of the material if relevant for the test.
Volume range	Specify volume range to be tested. With the “+” sign, you can open a menu. You can narrow down the selection in the opened menu using the slider bar and select volume ranges from the list.
Design standard	Which standard to apply for the design.
Alternative item code	Add one or more article codes to the article. With the “+” sign, you can open a menu. Use the “Meaning” selection field to classify the article code and add it.

Field	Description
Supplier	Enter the supplier of the article (e.g., if the test is carried out for an external company)
Channels	Enter the number of channels for multichannel piston-stroke pipettes.
Default accessories	Enter specific accessories here (e.g., the pipette tips recommended by the manufacturer). The information can be displayed in the certificate.
Date modified	Date of the last change as well as the name of the person who made the change.

Create new article

a. Click on New item.

↳ The input form is emptied.

b. Using drop-down menus and “+” buttons, you can define the article.

c. If you need a unique article identifier, you can generate it using the “Generate article code” button.

d. Click on Save.

Copy article

a. Select an article from the search list in the upper section.

b. Click on Copy item.

c. Edit the article as desired.

d. Click on Save.

9.2.1.2 Product

🔍 BRAND - EASYCAL™ 5

Master data maintenance

Article data

Additional article data

Random sample plans

Test equipment

General

Article

Product

Product variation

Manufacturer

Product category

Volume range

Search

Product	Vol	Product category	Manufacturer
Bürette	0	Bürette	BRAND GMBH + CO KG
Varispenser® plus	0	Einzelhubdispenser	Eppendorf AG
VITLAB® genius	0	Einzelhubdispenser	VITLAB GmbH
VITLAB® piccolo 1	0	Einzelhubdispenser	VITLAB GmbH
VITLAB® piccolo 2	0	Einzelhubdispenser	VITLAB GmbH
Varispenser® 2	0	Einzelhubdispenser	Eppendorf AG

New product

Edit

Product category

Manufacturer

Product designation

Product variations

A product describes a laboratory device. Use this dialog to create new devices or edit devices that have already been created.

Field	Description
Find method	Enter part of the name you are looking for. The selection list is reduced. Example an This search finds Transferpette, HandyStep etc.
Search list	Overview of all models.
Product category	Select the appropriate product category.
Manufacturer	Select the manufacturer of the model.
Product designation	Enter a product name. By clicking on the “Language” button you can enter the localized product name.

Field	Description
Variations	Select characteristics of the model.

Create new model

a. Click on Neues Modell.

↳ The input form will be opened for editing.

b. You can define the model using the drop-down menus.

c. Click on Save.

Edit model

a. Click Modell in the search list.

↳ Click on Edit.

b. Edit the data set.

c. Click on Save.

9.2.1.3 Product variation

BRAND - EASYCAL™ 5

Master data maintenance

Article data | Additional article data | Random sample plans | Test equipment | General

Article

Product

Product variation

Manufacturer

Product category

Volume range

Search

Product variation	Ver
inkl. Ladeständer	0
braun	0
Schilling:Klasse AS	0
seitlicher Hahn	0
12-Channel	0
Ersatzbürette	0

New product variation | Edit

Product variation name

A product variation is a characteristic that can be used to distinguish product variants from one another (e.g., variable or fixed volume of a Transferpette® S). The product variation entered can then be selected in the Item tab.

9.2.1.4 Manufacturer

BRAND - EASYCAL™ 5

Master data maintenance

Article data | Additional article data | Random sample plans | Test equipment | General

Article
Product
Product variation
Manufacturer
Product category
Volume range

Search

Manufacturer	Vol
BRAND GMBH + CO KG	0
Th. Geyer GmbH & Co. KG.	0
Human Gesellschaft für Biochemica und Diagnostica mbH	0
Eppendorf AG	0
STARLAB International GmbH	0
Human GmbH	0

Manufacturer name

Add a new manufacturer to the article selection.

9.2.1.5 Product category

🏠 BRAND - EASYCAL™ 5

Master data maintenance

Article data
Additional article data
Random sample plans
Test equipment
General

Article

Product

Product variation

Manufacturer

Product category

Volume range

Search

Main category	Product category	Vel
Liquid handling	Mikroliterspritze	0
Volumetric instruments	Bürette	0
Temperature and density measurement	ASTM-Zentrifugenglas	0
Volumetric instruments	Kippautomat	0
Volumetric instruments	Mischzylinder	0
Volumetric instruments	Ersatzbürettenrohr	0

New category
Edit

Description

Main category

Create a new product category or edit an existing one. Next, use the Main category field to specify the parent group to which this product category should belong.

9.2.1.6 Volume range

🏠 BRAND - EASYCAL™ 5

Master data maintenance

Article data

Additional article data

Random sample plans

Test equipment

General

Article

Product

Product variation

Manufacturer

Product category

Volume range

Search

0.1 µl
10000 ml

Volume range	Ver
1µl (0.1 - 1)	0
1µl (1 - 1)	0
2µl (2 - 2)	0
2µl (0.1 - 2)	0

New volume range

Edit

Nominal volume

Min. volume

Max. volume

Use the Volume range tab to add additional volume ranges that you can select for the article. You can narrow your search using the slider bar and define the volume range using Nominal volume, Min. volume and Max. volume. The selected unit then applies to all volume ranges.

9.2.2 Extended article data

In this section, you can define article data that defines how to handle the article during the test. Here you can define the required accessories, requirements from standards, materials, or how to clean the articles.

9.2.2.1 Standard

🔍 BRAND - EASYCAL™ 5

Master data maintenance

Article data
Additional article data
Random sample plans
Test equipment
General

Standard

Material

Quality grade

Cleaning type

Accessories

Search

Type to search

Standard
ASTM E 287
ASTM E 288
ASTM E 969
Customer specification
DIN 12681
DIN 12680

New standard

Edit

Description ASTM E 969

Section

Title

Enter or edit the name, section, and title of a standard relevant to the test.

9.2.2.2 Material

🔍 BRAND - EASYCAL™ 5

Master data maintenance

Article data

Additional article data

Random sample plans

Test equipment

General

Standard

Material

Quality grade

Cleaning type

Accessories

Search

Material	Ver
AR-Glas®	0
Boro 3.3	0
Liquid handling	0
Manufacturer's specification	0
Perfluoroalkoxy polymers (PFA)	0
Polymethylpentene (PMP)	0

New material

Edit

Description

Short designation

Thermal expansion coeffici

Specify a material that is relevant to the test. Enter the long name of the material in “Designation”, a possibly more familiar designation of the material in “Short designation” and the thermal, cubic coefficient of expansion. The coefficient of expansion enters the calculation of the volume via the correction factor.

Example

Designation	Borosilicate glass 3.3
Short designation	Boro 3.3
Coefficient of expansion	0.0000099

9.2.2.3 Grades

BRAND - EASYCAL™ 5

Master data maintenance

Article data | Additional article data | Random sample plans | Test equipment | General

Standard

Material

Quality grade

Cleaning type

Accessories

Search

Quality gra

Klasse A

Klasse AS

Klasse B

New grade Edit

Class name

Enter grades as quality distinguishing characteristics.

9.2.2.4 Cleaning type

BRAND - EASYCAL™ 5

Master data maintenance

Article data | Additional article data | Random sample plans | Test equipment | General

Standard

Material

Quality grade

Cleaning type

Accessories

Search

Cleaning type

- Autoclave at 2 bar, 121°C
- Clean in ultrasonic bath
- Cleaning in immersion bath with potassium permanganate
- Cleaning in the dishwasher
- Manual cleaning with brush, water, and surfactant
- Rinse with 2-propanol

Name of cleaning type

Here you can specify a standard cleaning to be performed during the test.

9.2.2.5 Accessories

🏠 BRAND - EASYCAL™ 5

Master data maintenance

Article data

Additional article data

Random sample plans

Test equipment

General

Standard

Material

Quality grade

Cleaning type

Accessories

Search

Accessories
149794 VITLAB® Pipettenspitzen 0,5-20µl
149994 VITLAB® Pipettenspitzen 2-200µl
150194 VITLAB® Pipettenspitzen 50-1000µl
150294 VITLAB® Pipettenspitzen 0,5-5ml
150394 VITLAB® Pipettenspitzen 1-10ml
702605 BRAND Pipettenspitzen 0,5-5ml

New accessory

Edit

Name of accessory

Name accessories to the article. The accessories can be selected during order processing and printed on the calibration certificate.

Select accessories in order processing (see Create order, p. 44, “Create calibration certificate”).

Output on the calibration certificate (see Use value fields, p. 104 Calibration certificate data category > Accessories used).

9.2.3 Random sample scheduling

In this section, you can define the parameters for the relative or absolute random sample test. They describe test procedures and specify temperature differences.

9.2.3.1 Plan for absolute sample

BRAND - EASYCAL™ 5

Master data maintenance

Article data | Additional article data | Random sample plans | Test equipment | General

Plan for absolute random sample
Plan for relative random sample
Test method
Temperature difference

Search

Plan for absolute random sample
ISO 2859 - Level G I - AQL 0.4
ISO 2859 - Level G II - AQL 0.4

New plan Edit

Plan designation ISO 2859 - Level G I - AQL 0.4

Start	End	Number	C value
2	8	32	0
9	15	32	0
16	25	32	0
26	50	32	0
51	90	32	0
91	150	32	0
151	280	32	0
281	500	32	0
501	1200	32	0
1201	3200	32	0
3201	10000	125	1
10001	35000	125	1
35001	150000	200	2
150001	500000	315	3
500001	999999	500	5

Back

EASYCAL Admin Last status: User group "Order processing" was saved Connected to: Local database v 5.0.13.210 Help

Field	Description
New plan	Create a new plan for the absolute >>random sample<< .
Edit	Edit an existing plan. Additionally, a new row will be opened at the bottom of the table. Values can be entered here.
Plan designation	Name the plan.
Absolute random sample ranges	You define the random sample areas. Depending on the size of the area, more or less devices are required as a random sample to be tested. Start: Start of the range End: End of range. Amount: Corresponds to the random sample size related to the defined range from start and end. >>C value<< : Corresponds to the number of defective parts allowed in the random sample.

9.2.3.2 Plan for relative sampling planning

The screenshot shows the 'Master data maintenance' window in EASYCAL™ 5. The 'Random sample plans' tab is selected. On the left, there are options for 'Plan for absolute random sample', 'Plan for relative random sample', 'Test method', and 'Temperature difference'. The main area displays a search bar and a list of plans, with '100% test' highlighted. Below the list are 'New plan' and 'Edit' buttons. The 'Edit' form shows 'Plan designation' as '100% test' and 'N value' as '100'. At the bottom, there are 'Discard' and 'Save' buttons. The status bar at the bottom indicates the user is 'EASYCAL Admin', the last status was 'User group "Order processing" was saved', and the software is connected to a local database, version 5.0.13.210.

Field	Description
New plan	Create a new plan for the relative random sample .
Edit	Edit an existing plan.
Plan designation	Name the plan.
N value	Indicates the random sample size in percent. The number 100 means that all devices in the sample are tested.

9.2.3.3 Test procedures

BRAND - EASYCAL™ 5

Master data maintenance

Article data | Additional article data | Random sample plans | Test equipment | General

Plan for absolute random sample

Plan for relative random sample

Test method

Temperature difference

Search

Test method

The calibration was performed according to the gravimetric procedure according to DIN EN ISO 4787:2011.

The calibration was performed according to the gravimetric procedure according to DIN EN ISO 8655-6:2002.

The calibration was performed according to the gravimetric procedure according to DKD-R 8-1:2011 (taking into consideration the relevant sections of DIN EN ISO 8655-6:2002).

The calibration was performed according to the gravimetric procedure according to SOP 1087:2017.

Calibration was performed by the gravimetric method using the immersion method under isothermal conditions according to SOP 1088:2017.

The calibration was performed according to the gravimetric procedure according to SOP 1086:2017.

New procedure Edit

Description

Discard Save

Back

EASYCAL Admin Last status: User group "Order processing" was saved Connected to: Local database v 5.0.13.210 Help

Briefly describe a new test method in one line. The texts are used in the test plan (see Create test plan).

9.2.3.4 Temperature difference

The screenshot shows the 'Master data maintenance' interface for 'BRAND - EASYCAL™ 5'. The 'Temperature difference' tab is selected in the left sidebar. The main area displays a search bar with the placeholder 'Type to search'. Below the search bar is a table with the following data:

Tem
0.3
0.5

At the bottom of the main area, there are two buttons: 'New difference category' and 'Edit'. Below these buttons is a 'Delta' label and a spinner control set to '0.3'.

The value Delta refers to the maximum allowable temperature difference between the temperature of the test medium (usually deionized water “quality 3” according to ISO 3696) and the ambient air.

Example:

For DAkkS tests, this value may be only 0.3°C; for other tests, it may be 0.5°C.

The value Delta is selected during test planning; this is to be used for the corresponding test plan.

9.2.4 Test equipment

The software EASYCAL™ 5 requires that the test equipment must be entered before the test; otherwise, the test cannot be performed. In this section, you can define the test equipment available. Test equipment tested is a tool used to calibrate or test a device such as a micropipette.

Example:

Thermometers, balances, measuring devices.

9.2.4.1 Test equipment

🔍 BRAND - EASYCAL™ 5

Master data maintenance

Article data
Additional article data
Random sample plans
Test equipment
General

Test equipment

Location for test equipment

Test equipment device type

Manufacturer

Search

Test equipment	Manufactu	Test equipment devic
EC-Test-Balance	EASYCAL	EC-Test-Balance
EC-Test-Multimeter	EASYCAL	EC-Test-Multimeter

New test equipment
Edit

Test equipment device type

Test equipment number

Serial number

Linked test equipment

Location for test equipment

Can be used for calibration

Out of order


Discard

Field	Description
Test equipment device type	Select the test equipment device type. You can define this in the Test equipment device type tab.
Test equipment	Select an internal test equipment number with which you identify the test equipment in your quality management system.

Field	Description
Serial number	Enter the serial number of the test equipment as assigned by the manufacturer of the test equipment.
Location for test equipment	Select the test equipment location. You can name this in the “Location” tab for test equipment.
Can be used for calibration	Specify whether the test equipment may be used to calibrate other test equipment. If selected, assign the target value for the calibration in % or another unit. The selection is determined by the Test equipment device type.
Out of order	Check if the test equipment is no longer used or is currently not to be used.

9.2.4.2 Location for test equipment

This section describes the characteristics of a room in which tests are performed (i.e., a measuring room). These properties must be tested once per interval and per measurement room (e.g., providing deionized water to the measurement room, where the conductivity of the water must be tested daily against a limit). For Value to be measured, select one of the properties you are looking for, and specify it in the menu.

Field	Explanation
New location	Define a measuring room. If you click on the “New location” button, the dialog opens for input.
Edit	Edit a location that has already been created
Test equipment device type	Click the  button to add a new measurement function to the location.
Test equipment that can be used for calibration	In order to calibrate the measuring room yourself, you can define test equipment to be used for calibration.

Field	Explanation
Set-point for calibration	Enter the value to be checked during calibration here. Because no units are output, if air pressure is selected, the air pressure target value would apply.
Comparison type	<p>Select how you would like to compare target value and measured value.</p> <p>Selection:</p> <ul style="list-style-type: none"> Measured value is smaller than the target value Measured value is less than or equal to the target value Measured value is greater than the target value Measured value is greater than or equal to the target value Measured value is target value \pm tolerance
Tolerance for calibration	<p>Enter the allowed tolerance for the calibration of the test equipment type.</p> <p>Example:</p> <p>target value for calibration: 20°C</p> <p>Comparison type: Measured value is target value \pm tolerance</p> <p>Tolerance 1°C</p> <p>If the measured value is 19.5°C, the calibration was successful.</p>

9.2.4.3 Test equipment device type

BRAND - EASYCAL™ 5

Master data maintenance

Article data Additional article data Random sample plans Test equipment General

Test equipment

Location for test equipment

Test equipment device type

Manufacturer

Search

Test equipment d

1712 004

20210616-RZ-01

20210616-RZ-02

20210616-RZ-03

20210616-RZ-04

20210708-RZ-01

New device type

Edit

Copy device type

Manufacturer
 Type name

Measurement functions Communication data

✦ Type of test equipment

🗑 Value to be measured

Measurement unit

Precision/measuring range

Number of decimal places

Measuring channel

Calibration required

Tolerance for calibration

Number of channels

Test equipment that can be used for calibration

Back

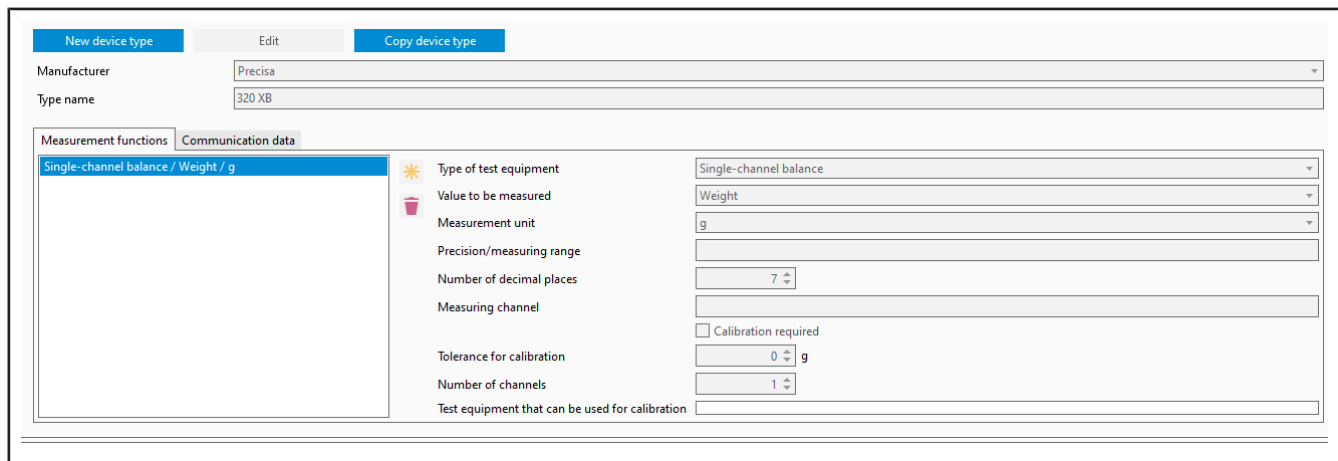
In this section, you can define a test equipment device type. The device type can be any device (e.g., a balance) or a calibration weight. In the “Measurement functions” tab, you define the data that are relevant for the measurement. In the “Communication data” tab, that necessary for the communication of the test equipment with the computer.

EASYCAL™ 5 708410 V5

Operating manual English

93

9.2.4.3.1 Measuring function



Ill. 5:

Field	Description
Testing instrument type	Select the test equipment to be configured from the list (e.g., balance, hygrometer, or barometer).
Value to be measured	Select the value to be measured from the drop-down menu. Example: Air pressure:
Measurement unit	Select the unit of measurement. Example: hPa, l, °C
Precision/measuring range	Enter the precision or the required measuring range. The data has no program impact and are informative only.
Number of decimal places	Enter the number of decimal places with which the measured value is output by the test equipment. Note that the test plans marked with the prefix “EC-” assume that the weight values are output in the unit grams and that the number of decimal places refers to this unit.
Messkanal	There are measuring devices with several channels to which different sensors are connected (e.g., channel for temperature, pressure, or humidity). Enter the designations of the available measuring channels here.
Calibration required	Check the check-box if the measurement function needs to be calibrated.
Tolerance for calibration	Enter the required calibration tolerance.
Test equipment that can be used for calibration	Enter which test equipment can be used to calibrate the test equipment.

New device type

- Click on New device type.
- Via the Manufacturer selection field and the Type name field, you create the device.

- c. Click on *.
- d. Configure device, setting at least Testing instrument type, Value to be measured and Measurement unit.

9.2.4.3.2 Communication

Measurement functions	Communication data
Bytes to read	Baud rate: 9600
Timeout in second	Data bits: 7
Configuration command	Stop bits: 1
Path to file	Parity: None
Net ID	Tare command: ZERO[CR][LF]
Port	Print command: P1[CR][LF]
Base URL	
Print command (REST)	
Tare command (REST)	
Configuration command (RE!	
Command for reading	
Command for stopping	
Command for starting	
Command for reset	

Use the Communication data tab to configure the communication of the test equipment with the computer.

- a. Click the New device type or Edit Edit button.

↪ The values can be edited.

- b. Drag a point from the field on the left to the field on the right.
- c. Enter the appropriate values (without units) required by the application of the test equipment.

In order to remove a point from the field on the right, drag it to the field on the left.

9.2.4.4 Manufacturer

BRAND - EASYCAL™ 5

Master data maintenance

Article data | Additional article data | Random sample plans | **Test equipment** | General

Test equipment

Location for test equipment

Test equipment device type

Manufacturer

Search

Manufacturer |

A&D

Ahlborn

Amarell

EASYCAL

Kern

Mettler Toledo

Manufacturer *

Enter a new manufacturer for test equipment, or edit an existing record.

9.2.5 General

In this section, you can make general settings in the master data, including positions within a company.

9.2.5.1 Functional designations

BRAND - EASYCAL™ 5

Master data maintenance

Article data | Additional article data | Random sample plans | Test equipment | **General**

Function designation

Selection text

Search

Function designation |
Head of department
 Deputy

New function **Edit**

Function designation

Enter new function names. You can use it to map a department hierarchy, among other things.

9.2.5.2 Selection texts

BRAND - EASYCAL™ 5

Master data maintenance

Article data | Additional article data | Random sample plans | Test equipment | **General**

Function designation

Selection text

Search

Selection text	Area of use
Value superfluous. Deleted at the beginning or end of the measurement series.	Discard measurement or measurement series
Value deleted, measurement series repeated.	Discard measurement or measurement series
Identified as outlier.	Discard measurement or measurement series
Device adjusted, values deleted.	Discard measurement or measurement series
New tin or device has been used. Value deleted.	Discard measurement or measurement series

New selection text **Edit**

Selection text

Area of use

Enter a selection text, or edit existing texts. The selection text can be used during the test and is used to justify occurrences during the test.

You also still enter the area of use where the selection text should be used.

Range of application	Description
Selection text	Enter the text you want to use in the tests.
Range of application	<p>Discard measurement or measurement series:</p> <p>Texts assigned here are used as justification in the test.</p> <p>Bemerkungen zum Gerätezustand:</p> <p>Texts assigned here are used in the test order or calibration certificate.</p> <p>Text block:</p> <p>The text modules are used for the descriptions of the device states in order to use standardized descriptions there. See Create order, p. 44 ></p>

9.3 Create company

>> Administration > Company data

Company data


Company name

Address

Country ▼

Zip code/City ▼

Company logo



Remove logo

Departments

+
-
✎

Back
Save

In the company data, you enter your address data and as well as the data of departments involved in the testing process. This information as well as the company logo can be printed on certificates.

Create company

- a. Enter address data.
- b. Insert logo by clicking on the graphic under company logo (.bmp, .jpg, .gif, .png, .svg).

NOTICE

Paths to files.

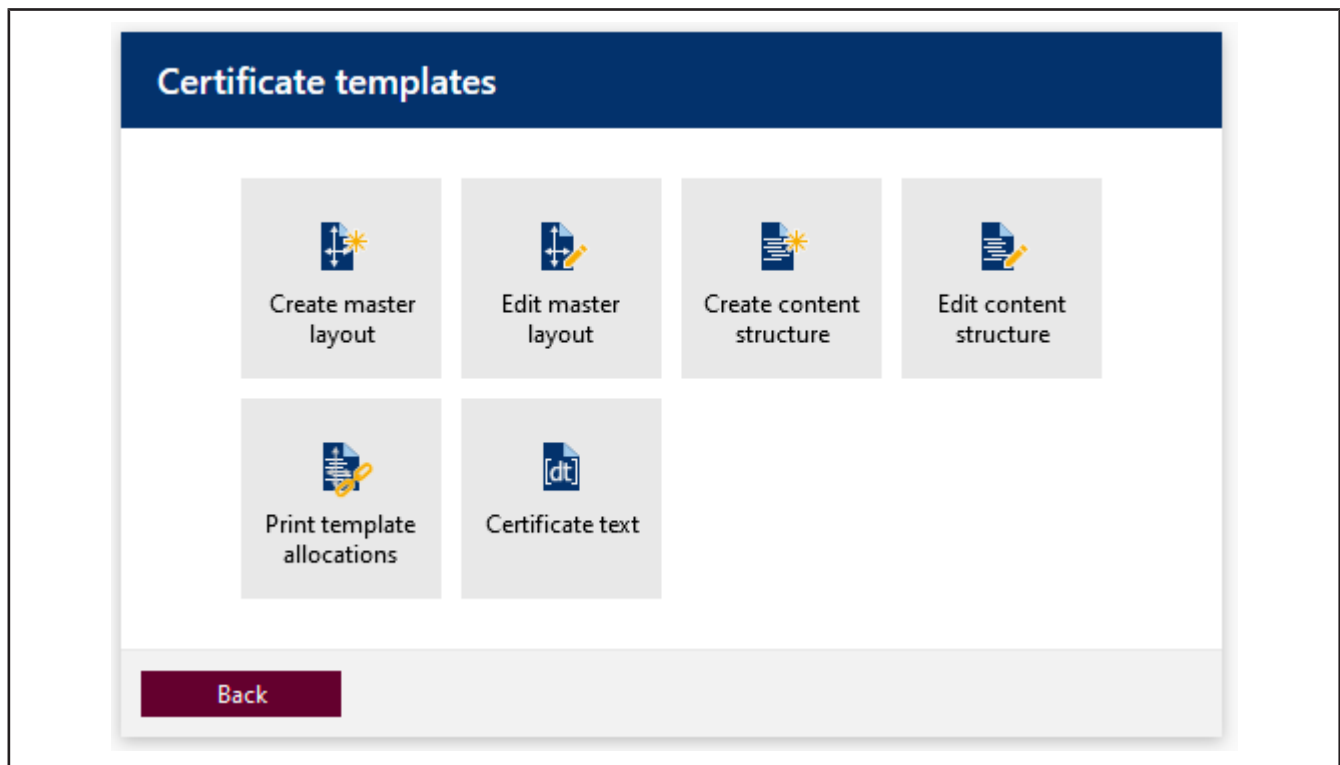
If the file (e.g. signature file or logo) is to be available to several users, it is better to store it in a network drive. Because the files are linked only by paths, a locally stored file may then not be usable by all users.

Create departments

- a. In the Company data window, click on the “+” sign. With the “-” key, remove a department or with the “Pencil” key, edit the department.
- ↳ The Create department window opens.
- b. Select one or more responsible persons from the drop-down menu. Each selected person can have only one role.
 - c. In addition, assign a registration number (e.g., identification number of the DAkkS laboratory).
 - d. To exit and save, press the OK key.

9.4 Certificate templates

>> Administration > Certificate templates



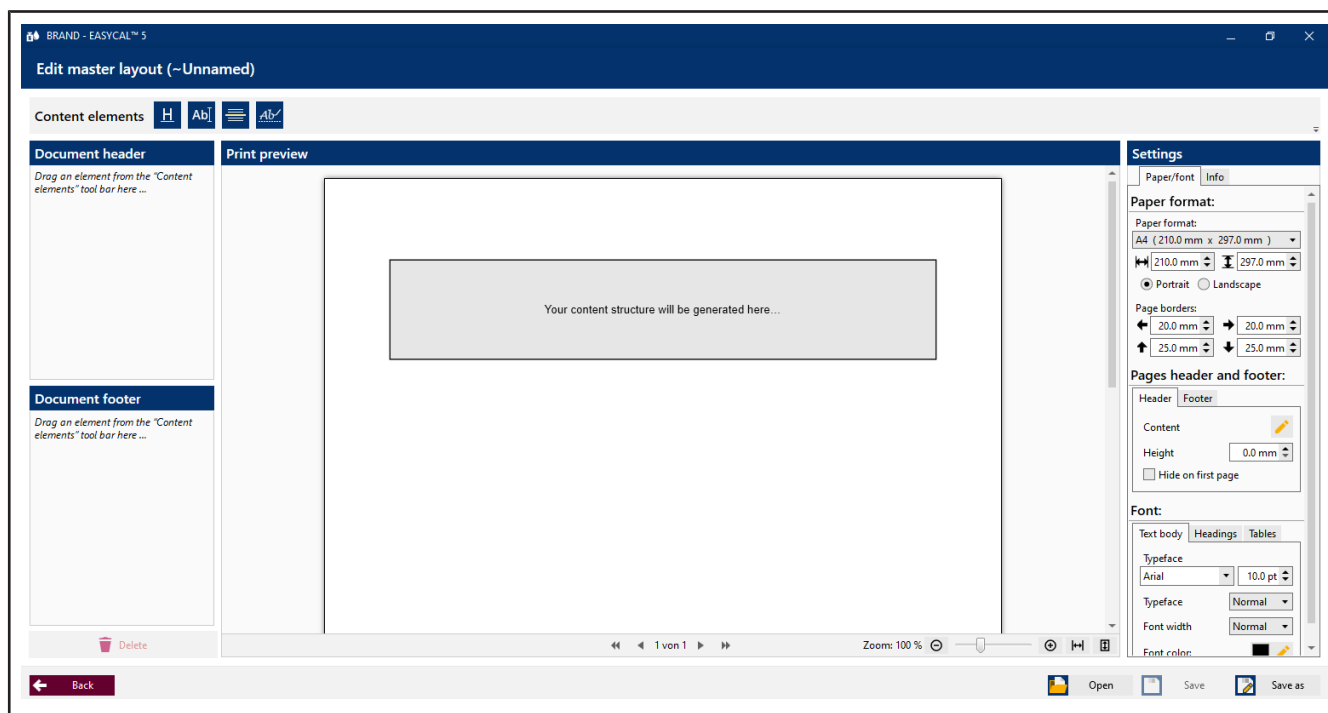
Use this menu to create and manage layouts and templates from which certificates are generated and certificate creation is triggered.

Menu	Meaning
Create master layout	Create a new master layout.
Edit master layout	Here you can edit an existing Master Layout.
Create content structure	Create a new content structure
Print template allocations	Assign a master layout of the content structure to one or more articles. Both the master layout and the content structure must be released for this purpose.
Certificate text	Create and edit text modules. You can reuse them for all content structures.

A distinction is made between master layout and content structure. The two areas can be customized. The master layout is subdivided into the certificate header and footer as well as general settings for the page layout (e.g., page margins, font size, and font style). The content structure comprises all the elements between the report header and footer (i.e., the actual content of the report). If you wish to adapt the layout to a company-specific format, it is recommended to do this using the master layout.

9.4.1 Master layout

The [>>master layout<<](#) defines the section in which certificate contents can be output.




Print preview

The gray section in the center indicates where the content structure will be inserted. This is variable, which means that the master layout can be used for different content structures. Above and below this, content elements are inserted via the Document header and Document footer sections.

Content elements

Use the content elements Free text, Heading, Horizontal line, and Signature line in order to customize the contents of the document footer and document header.

Drag the content elements to the “Document” footer or “Document” header areas, and adjust them using the settings.

Within these areas, you can drag and drop the content elements or remove them from the areas by clicking on .

See also Content elements, p. 103.

Settings

Paper/font tab

Set all the basic settings about the format, margins, and formatting using this section. Click on the pencil to open more dialogs.

In the “Tables” tab, you can customize the table formatting and also visually adjust the display of errors.

Info tab

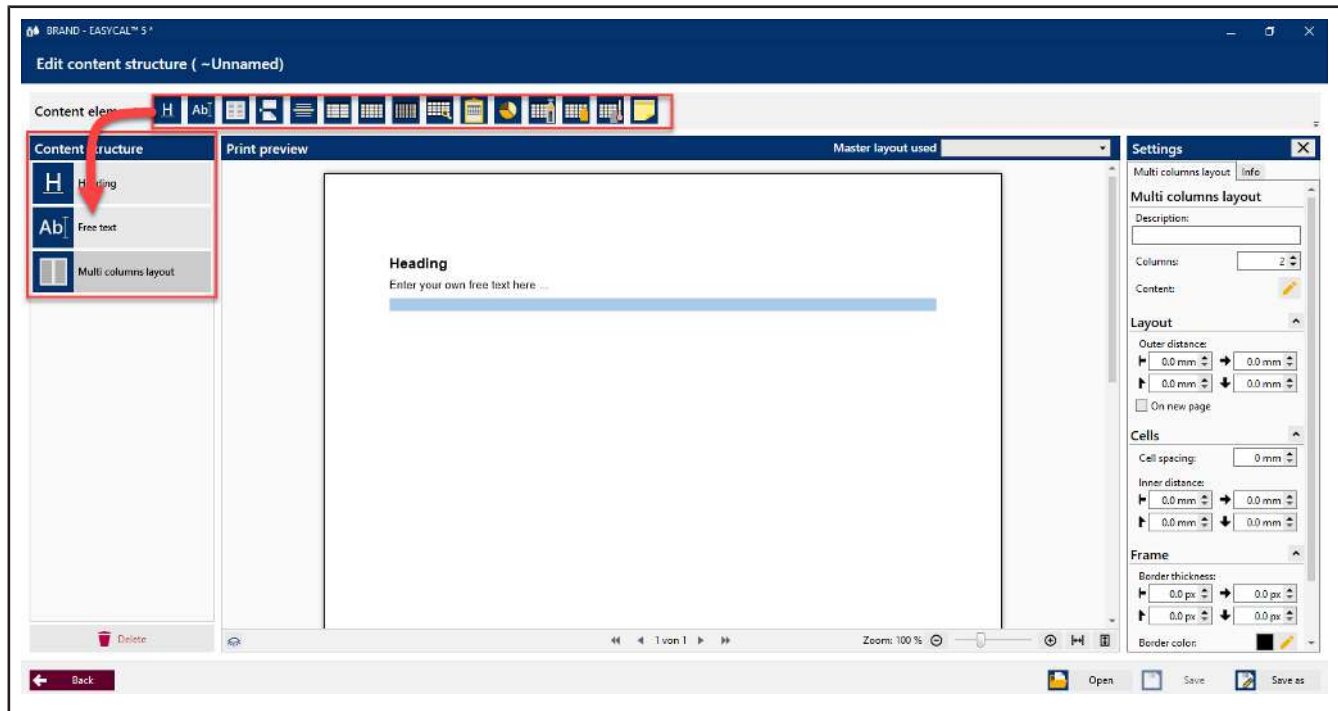
Release

Change the release status. You can assign content structures and master layouts to articles only if they have been released beforehand. You change this status in this tab. As with the release of other program elements, the following applies: If the dual-control principle has been activated, the creator of the layout cannot release it himself.

Test export

Trigger a test export in order to view the master layout with real data. You can save and print the test export as a PDF.

9.4.2 Content structure




Print preview

The selected content elements are displayed in the print preview. From the “Master layout used” drop-down menu, you can select a different master layout. You can thus apply the same content structure to multiple master layouts via “Save as”

Content elements

Use the content elements “Multi-Column Layout”, Free text, Heading, Horizontal line, “Page Break”, and the following in order to determine the content of the content structure. These are tables of measured values, diagrams, and tables of devices and articles.

Drag the content elements to the “Content structure” section, and customize it using the settings.

Within these areas, you can drag and drop the content elements or remove them from the areas by clicking on .

See also Content elements, p. 103.

Settings

Info tab

Use this tab to release the content structure after you have saved it.

You can also trigger a test export to view your certificate template (see also Master layout, p. 100, Test export)

Tab with content element name

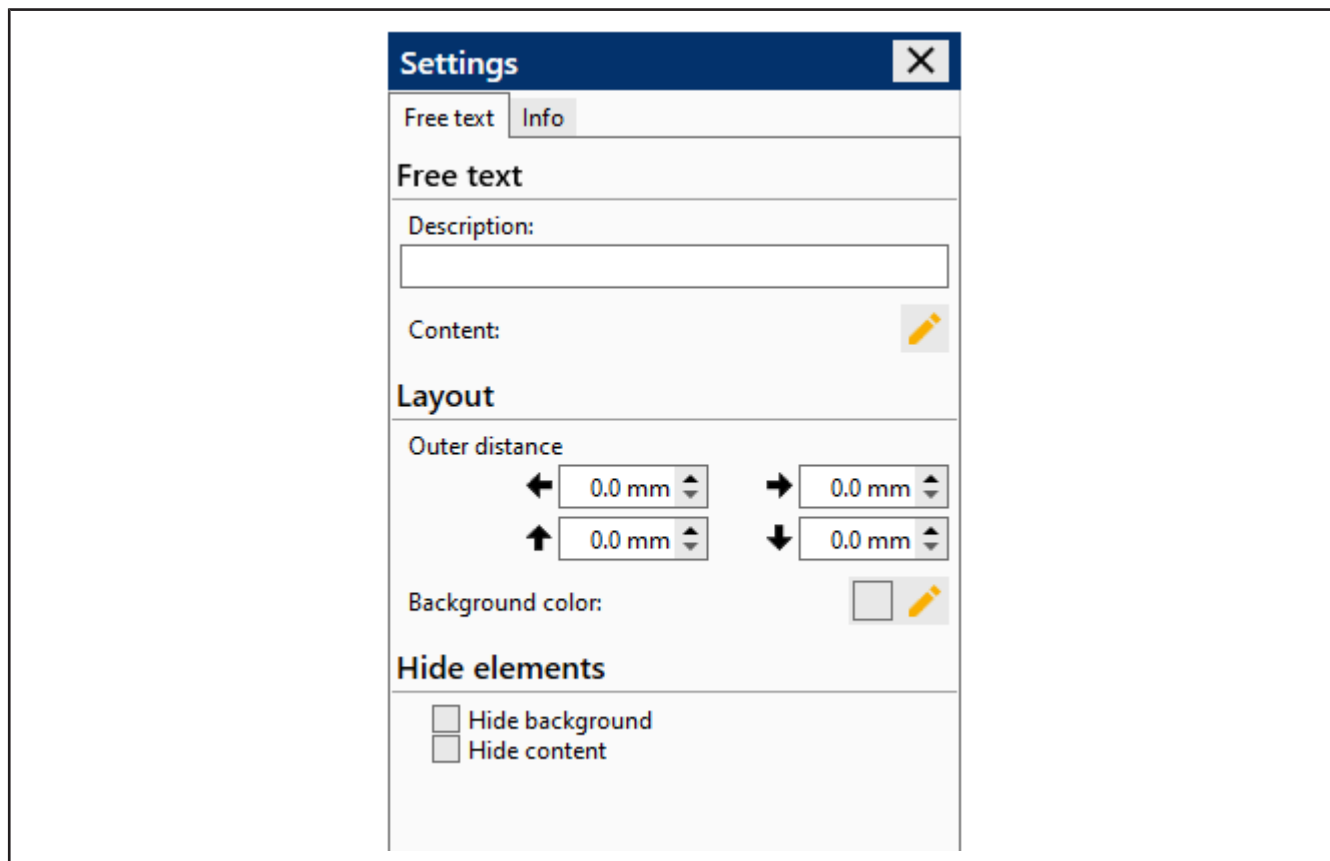
Configure the display using the menu items provided (see the following sections).


9.4.3 Content elements

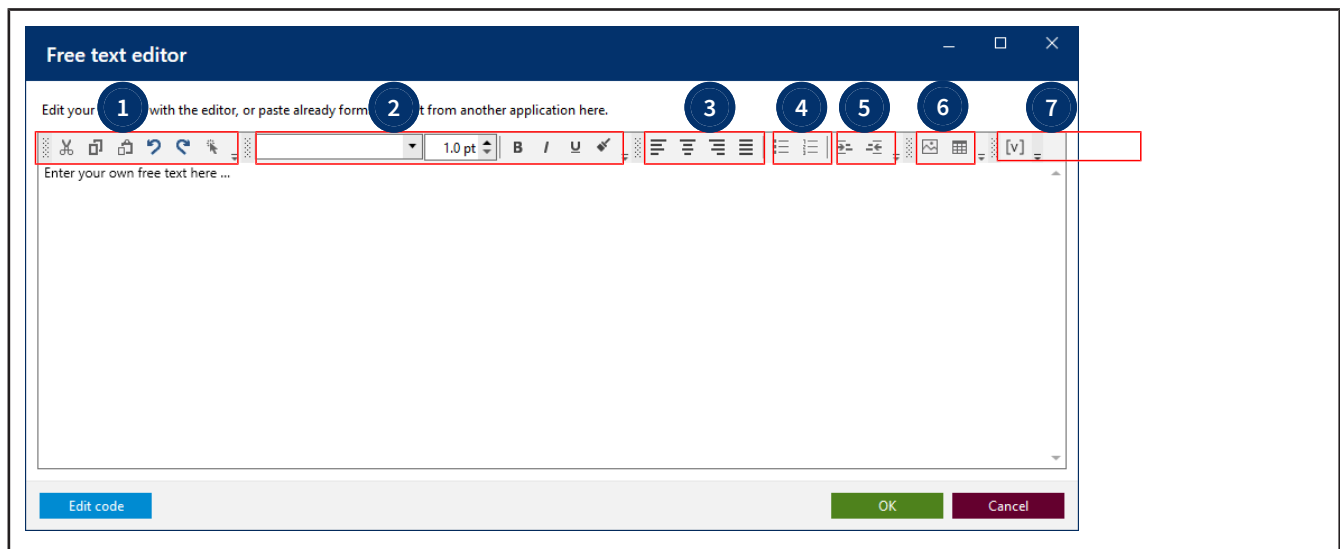
9.4.3.1 free text

Inserts a text field in which you can enter a free text or a figure (e.g. company logo) via a text editor.

Drag the content element to the “Content structure” section.



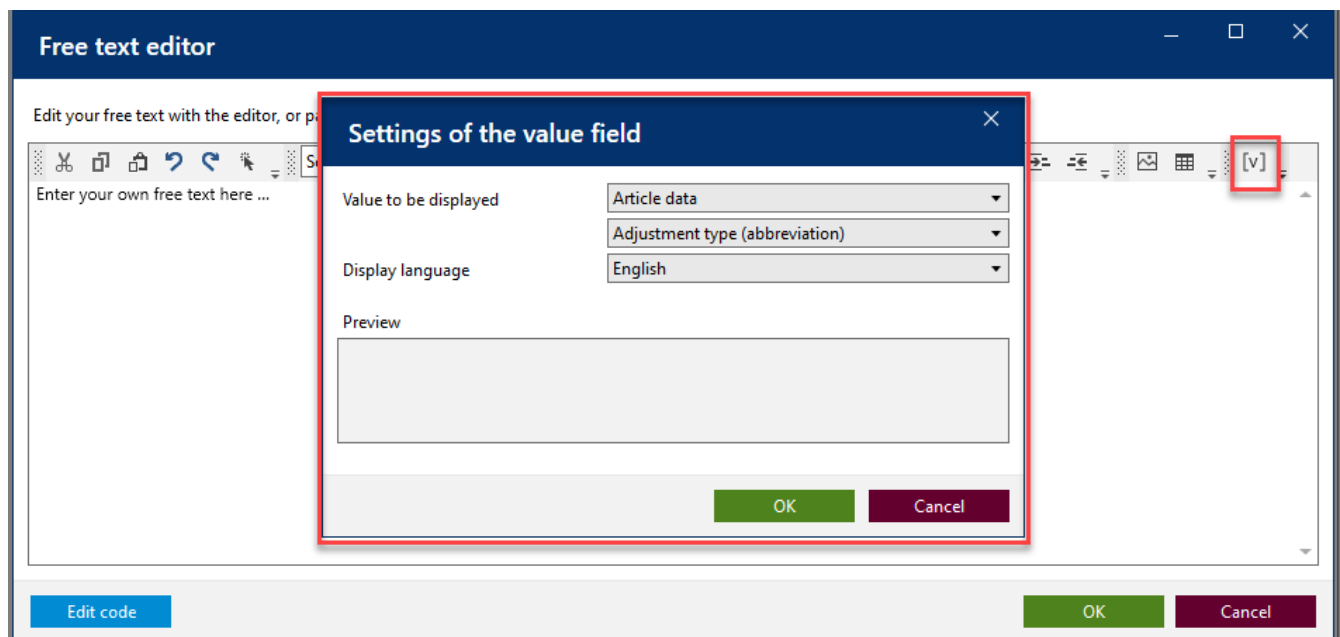
Click  to go to the text editor. In the text editor, you can insert a free text or figure and format it. The following actions are available in the text editor for formatting a text:



- | | |
|---|---|
| <p>1 Functions such as cut, copy, and paste text or elements.</p> <p>3 Paragraph alignments</p> <p>5 Indentations</p> <p>7 Illustration, signature and value fields (text modules); see also Use value fields, p. 104</p> | <p>2 Font and formatting</p> <p>4 List formatting</p> <p>6 Create figures and tables. These can be filled either with free text or also by modules (illustrations, value fields (text modules)).</p> <p>— —</p> |
|---|---|

Optional: In the “Settings”, make settings for the description and the layout of the text field.

9.4.3.1.1 Use value fields



Value fields are used to insert variable data and measured values into the certificates. Example: the measured air temperature, the status of a job (completed, released), or the serial number of the device tested.

a. Click on [v].

↳ The dialog settings of the value field opens.

b. You can select the desired value from the drop-down lists.

c. Click on OK.

↳ This value field is inserted at the corresponding cursor position in the free text field (e.g., also in tables).

Example:

AdTypeShort-Item:1-en
AdTypeLong-Item:1-en
CAddressB-en
ChargNo-en

Value fields can be static or dynamic.

Static value fields contain text, the statement of which is always the same depending on the test; however, translations into other languages can also be stored. These static texts are created and managed in the “Certificate texts” section.

Dynamic value fields cannot be created by the user; they can only be selected. An example of a dynamic value field is the order number; this is printed in the certificate but is assigned during the creation of the test order. Dynamic value fields are placeholders for values that may differ from test to test.

9.4.3.2 Heading

Drag the content element to the “Content structure” section.

Enter a head line text into the *Text:* field.

Optional: make settings for description and position.

9.4.3.3 Horizontal line

Inserts a horizontal line into the content structure (e.g., as a separator).

Drag the content element to the “Content structure” section.

- a. Optional: In the “Settings”, make settings for the description, line thickness, and line color.

9.4.3.4 Page break

Inserts a page break.

Drag the content element to the “Content structure” section.

9.4.3.5 Value tables

The tables described below are predefined and cannot be changed. If you need your own tables, they can be created via the Free text field > Tables element and filled with value fields.

The values of the tables are populated when the content structure and master layout are associated with an article and the certificate is issued. But you can preview the output beforehand under “Properties > Preview”

Simple table of measured values

Inserts a simple (because reduced) table of measured values.

Prüfvolumen Test volume Volumen de control Volume de contrôle	10%	50%	100%
Richtigkeit (R) Accuracy (A) Exactitud (E) Exactitude (E)	0%	0.09500%	0.02100%
Variationskoeffizient (VK) Coefficient of variation (CV) Coeficiente de variación (CV) Coefficient de variation (CV)	0%	0%	0%

Table of measured values

Inserts a table of measured values.

Messung Measurement		100µl	500µl	1000µl
1:		0	0	0
2:		0	0	0
3:		0	0	0
4:		0	0	0
5:		0	0	0
6:		0	0	0
7:		0	0	0
8:		0	0	0
9:		0	0	0
10:		0	0	0
Messergebnis Result obtained	[µl]	99,95	500,48	1000,21
Richtigkeit (R) Accuracy (A)	[µl]	0,00	0,00	0,00
Toleranz (R) Tolerance (A)	[µl]	0,8 ✓	0,45 ✓	0,020 ✓
Variationskoeffizient (VK) Coefficient of variation (CV)	[µl]	0	0	0
Toleranz (VK) Tolerance (CV)	[µl]	0,30 ✓	0,13 ✓	0,43 ✓

Extended table of measured values

Inserts an extended table of measured values. This table extends the information from the measured table of measured values with information from the test plan.

Result of calibration		Test volume 100µl	Test volume 500µl	Test volume 1000µl
1:	[g]	0	0	0
2:	[g]	0	0	0
3:	[g]	0	0	0
4:	[g]	0	0	0
5:	[g]	0	0	0
6:	[g]	0	0	0
7:	[g]	0	0	0
8:	[g]	0	0	0
9:	[g]	0	0	0
10:	[g]	0	0	0
Result obtained*:	[µl]	99.95	500.48	1000.21
Reference temperature:	[°C]	20.0	20.0	20.0
Measurement uncertainty <i>U</i> :	[µl]	0.71	1.66	1.50
Accuracy/Trueness <i>A</i> (related to the test volume):	[%]	0	0.09500	0.02100
Systematic error (absolute volume):	[µl]	0.00	0.00	0.00
Maximum permissible systematic error ± according to DIN EN ISO 8655:	[µl]	0.8	0.45	0.020
Conformity assessment:		A	A	A
Coefficient of variation CV (related to test volume):	[%]	0	0	0
Random error (absolute volume):	[µl]	0	0	0
Maximum permissible random error according to DIN EN ISO 8655:	[µl]	0.30	0.13	0.43
Conformity assessment beyond scope of accreditation (<i>U_{cv}</i> = 0µl):		A	A	A

Detailed table of measured values

Inserts a detailed table of measured values. This table breaks down the measurement results per device.

Device no.	Test characteristic	Target value	Target accuracy	Target coefficient of variation	Mean	Standard deviation	Accuracy	Coefficient of variation
17A704780	1	100 µl	0,8 %	0,30 %	0 µl	0 µl	0 %	0 %
17A704780	2	500 µl	0,45 %	0,13 %	0 µl	0 µl	0,09500 %	0 %
17A704780	3	1000 µl	0,020 %	0,43 %	0 µl	0 µl	0,02100 %	0 %

Order statistics

Inserts a detailed order statistics table. This table breaks down the measurement results per device.

Test characteristic	n	Target value	MEAN	STDEV	A	CV
---------------------	---	--------------	------	-------	---	----

Test characteristic diagram

Inserts a diagram showing the distribution of the test characteristics.

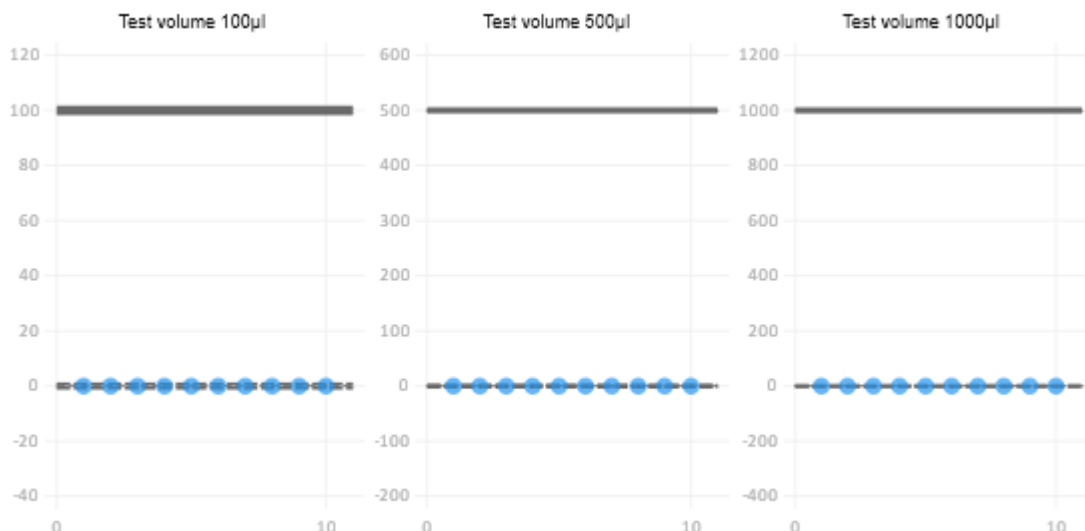


Table of devices

Inserts a table of devices. This table provides information about the devices used in the test and the identification.

Manufacturer/model	Nominal volume	Device no.	Your labeling	Maturity date
BRAND	1000 µl	17A704780	LAB 1000 - 1CH	October 2022
BRAND	300 µl	17A703732	LAB 300 - 12CH	October 2022
BRAND	1000 µl	21B704782	LAB 1000 - 1CH - Kali	October 2022

Table of test equipment

Inserts a table of test equipment. This table provides information on test equipment used. The test equipment is identified by its test equipment number and output in the empty column.

Waage Balance	Nr. "Wägewert-1", 1 - 3 / 0.001
Gewichte Weights	Nr. "Richtigkeit der Waage-6", 1 - 3 / 0.001
Thermometer Thermometer	Nr. "Temperatur des Mediums-3", 1 - 3 / 0.001

Measurement information

Inserts a table with information about the measurement.

Mess- und Umgebungsbedingungen: <i>Measurement and ambient conditions:</i>	T _{Luft} / T _{air}	23,1°C - 23,3°C	p _{Atmosphäre} / p _{Atmosphere}	996mbar - 1003mbar
	T _{Wasser} / T _{Water}	23,2°C - 23,4°C	rH	45%rh - 49%rh
	Z-Faktor / Z factor	1,0035452 / - 1,0037452	T _{Referenz} / T _{Reference}	20°C
	Prüfflüssigkeit: <i>Test liquid:</i>	Wasser nach DIN ISO 3696, Qualität 3. <i>water according to ISO 3696, quality 3.</i>		
Kalibriert mit: <i>Calibrated with:</i>	BRAND Pipettenspitzen 50 - 1000µl (732212) BRAND Pipettenspitzen 50 - 1000µl (732212)			
Prüfmittel: <i>Test equipment:</i>	Nr. "-0"			
Anmerkung: <i>Annotations:</i>				

Insert content element

In the example, the settings show the settings of simple table of measured values. Other settings behave similarly.

Drag the content element to the “Content structure” section.



The screenshot shows a 'Settings' dialog box with a close button (X) in the top right corner. The dialog is titled 'Simple measurement table' and has an 'Info' tab selected. The settings are organized into several sections:

- Description:** A text input field.
- Output:** A dropdown menu for 'Output texts in (language):' set to 'English'.
- Layout:**
 - Outer distance:** Four spinners for adjusting distances: left (0.0 mm), right (0.0 mm), up (0.0 mm), and down (0.0 mm).
 - Background color:** A color selection area with a square and a pencil icon.
- Hide elements:** Two checkboxes: 'Hide background' and 'Hide content', both currently unchecked.
- Preview:**
 - Radio buttons for 'Multi-channel' (unchecked) and 'Single channel' (checked).
 - A 'Preview:' dropdown menu set to 'Liquid handling'.

Description

Describe the values shown in the table

Edition

Select the language in which the content item will be output. For example, if you select “English” for the export language, the text will always be output in English – a later change in the printing process is not possible. Use the   keys to sort the arrangement of language-dependent texts in the table.

If “Placeholder” is selected, you can select the language in the certificate printing process. The default language is the one that is stored in the customer management.

Layout

Select distances to other content elements or background color of the table of measured values and the content element.

Preview

Specify how the table should be displayed in the print preview. Depending on which section is selected, the display of this table changes.

Hidden content

Specify which contents should be displayed in the print preview.

9.4.3.6 Additional export notes

Inserts a Additional export notes text field that you can use to specify additional information or notes. You can use only one Additional export notes text field per content structure. This text field appears only if a text has been entered under “Settings”.

Drag the content element to the “Content structure” section.

The screenshot shows a 'Settings' dialog box with a close button (X) in the top right corner. The dialog is divided into several sections:

- Additional export remarks**: This section contains two tabs: 'Additional export remarks' (selected) and 'Info'. Below the tabs, there is a 'Description:' label followed by a single-line text input field. Below that is a 'Default text:' label followed by a multi-line text area with scrollbars.
- Layout**: This section contains 'Outer distance:' settings. It features four spinners: left (←), right (→), up (↑), and down (↓), each set to '0.0 mm'. Below these are two checkboxes: 'Hide empty element' (checked) and 'Hide title' (unchecked).
- Hide elements**: This section contains two checkboxes: 'Hide background' (unchecked) and 'Hide content' (unchecked).

Note

Insert the desired information. After that, the Additional export notes becomes visible.

9.4.4 Certificate template assignment

BRAND - EASYCAL™ 5

Certificate template allocations

Filter

Test type: Not specified

Release status: Not specified

Certificate type: any

Main category: [Empty]

Manufacturer: [Empty]

Article code: [Empty]

Master layout: [Empty]

Content structure: [Empty]

Article information

ID	Test type	Certificate type	Main category	Manufacturer	Article code	Channel filter	Master layout	Content structure	Status	Lock
1	STD	Individual certificate				=1	DINA4-hochkant	EC-Kalibrierzertifikat_Ein Kanal	Released	🔒
2	STD	Individual certificate				>1	DINA4-hochkant	EC-Kalibrierzertifikat_Mehrkanal	Released	🔒
3	STD	Individual certificate					DINA4-hochkant	EC-Kalibrierschein mit Grafik	Released	🔒
4	ST	Batch certificate					DINA4-hochkant	EC-Internes_Chargenzertifikat	Released	🔒
5	ST	Individual certificate					DINA4-hochkant	EC-Kurzprüfung	Released	🔒
6	GEN	Reminder letter					DINA4-hochkant	EC-Erinnerungsservice	Released	🔒
7	GEN	Internal log					DINA4-hochkant	EC-Internes_Auftragsprotokoll	Released	🔒

New allocation

Edit

Release

Delete

Back

Use this menu to associate certificate templates and articles so that they can be used in the order verification. Existing assignments can be found via the Filter section. Use the buttons to create new assignments, edit them, release them, or delete them.

9.4.4.1 Create new assignment

In this menu, you assign certificate templates (master layout, content structure) to individual articles.

New certificate template allocation ✕

ID Not specified

Certificate type Individual certificate ▾

Test type GEN – General ▾

Article information

Main category Liquid handling ▾

Manufacturer BRAND GMBH + CO KG ▾

Article code filter

Channel filter

Master layout DINA4-hochkant ▾

Content structure -Kalibrierzertifikat_Einkanal ▾

Required form

Release status Created/edited ▾

Articles concerned

EC-4600100 - Dispensette® S Analog, ohne Rückdosierventil; 0,1

EC-4600101 - Dispensette® S Analog, mit Rückdosierventil; 0,1

EC-4600120 - Dispensette® S Analog, ohne Rückdosierventil; 0,2

EC-4600121 - Dispensette® S Analog, mit Rückdosierventil; 0,2

EC-4600130 - Dispensette® S Analog, ohne Rückdosierventil; 0,3

EC-4600131 - Dispensette® S Analog, mit Rückdosierventil; 0,3

EC-4600140 - Dispensette® S Analog, ohne Rückdosierventil; 1

EC-4600141 - Dispensette® S Analog, mit Rückdosierventil; 1

EC-4600150 - Dispensette® S Analog, ohne Rückdosierventil; 2

EC-4600151 - Dispensette® S Analog, mit Rückdosierventil; 2,5

EC-4600160 - Dispensette® S Analog, ohne Rückdosierventil; 5

EC-4600161 - Dispensette® S Analog, mit Rückdosierventil; 5

EC-4600170 - Dispensette® S Analog, ohne Rückdosierventil; 10

EC-4600171 - Dispensette® S Analog, mit Rückdosierventil; 10

EC-4600210 - Dispensette® S Fix, ohne Rückdosierventil; 1 ml

EC-4600211 - Dispensette® S Fix, mit Rückdosierventil; 1 ml

EC-4600220 - Dispensette® S Fix, ohne Rückdosierventil; 2 ml

Last change: n.n.

Cancel
Save

Field	Explanation
ID	Is generated automatically
Certificate type	Select the certificate type (e.g., single certificate).
Test type	Select the test type.
Main category	Select the main category in order to roughly filter the articles.
Manufacturer	Select the manufacturer of the article.
Item code filter	Enter an article code.
Channel filter	Filter by channel (for micropipettes).
Create master layout	Select the master layout.
Create content structure	Select the content structure to be used.
Required form	Specify here whether a particular stationery should be used for printing.

Create new assignment

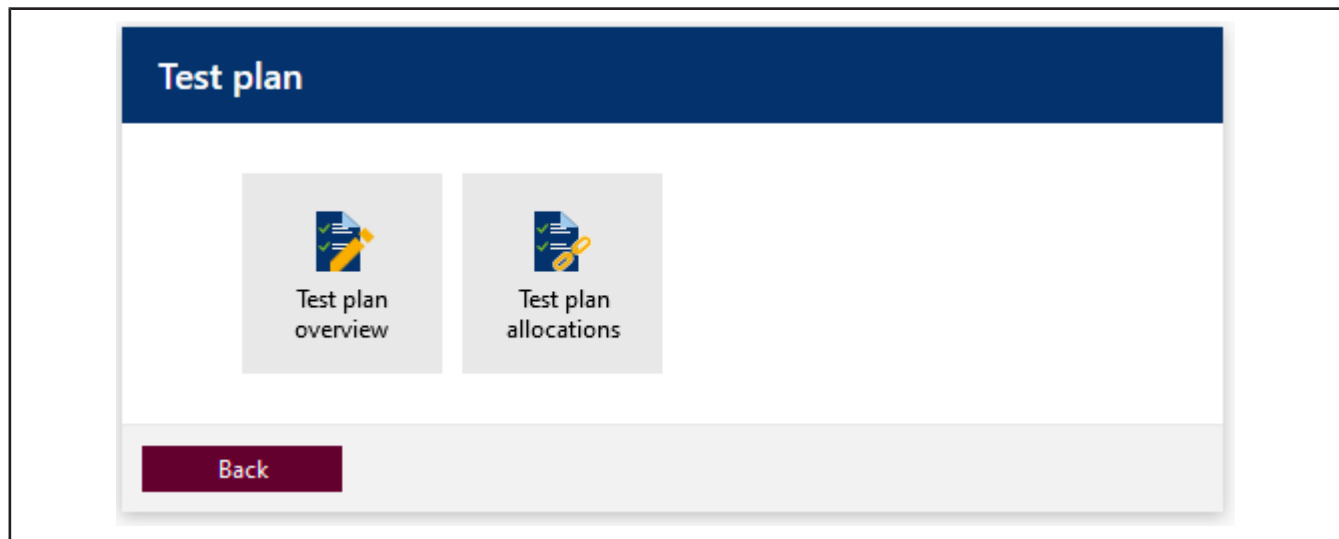
- a. Select master layout, content structure, and articles.

b. Click save.

↪ The assignment is created.

9.5 Test planning

>> Main menu > Administration > Test plan



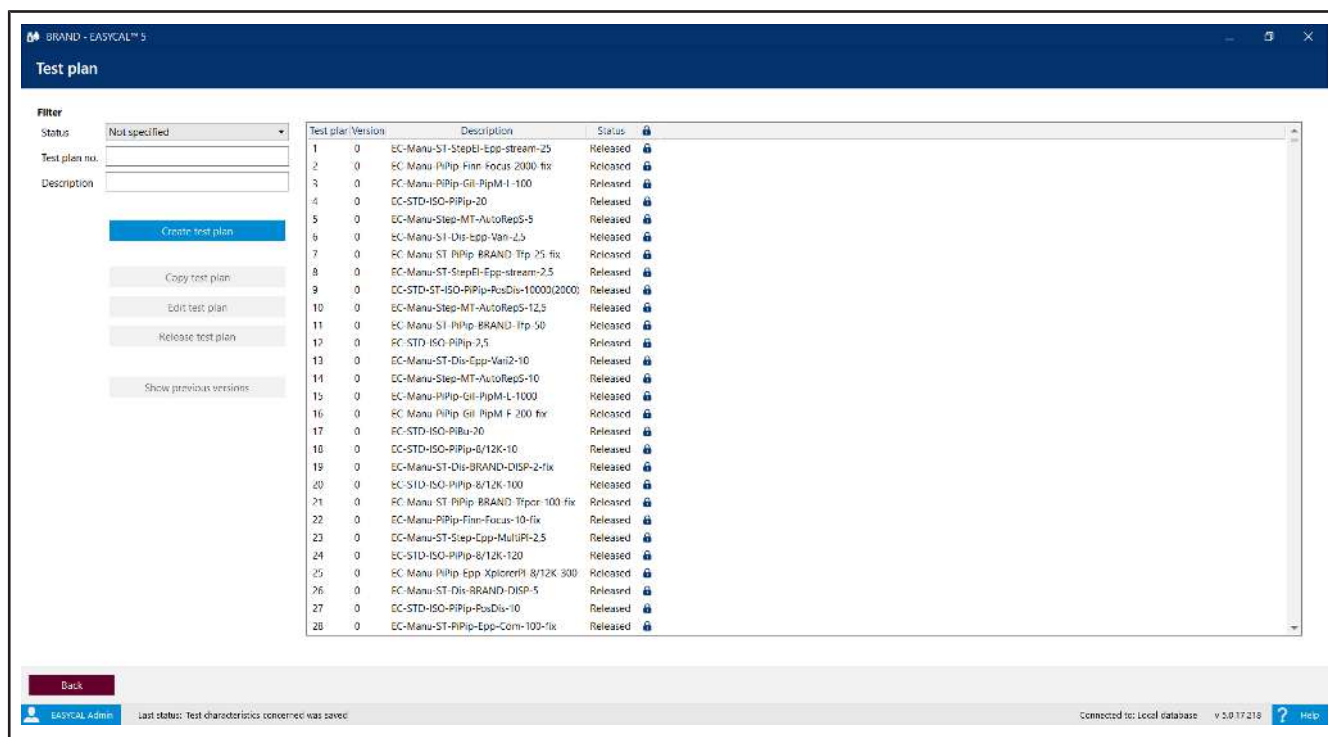
In test planning, you create individual test plans. You assign individual characteristics to be inspected to these test plans. Characteristics are, for example, the nominal volume of an article.

Volume target values and defect limits of articles are not stored in the master data of the articles but rather organized via test plans. This makes it possible to use one test plan (e.g., with standard values) for many different articles. Test plans and articles are linked via the Test plan allocations section

9.5.1 Test plan overview

>> Administration > Test plan

In this menu, you create test plans that can be used for device testing.



You filter the test plans using the selection field Status and the search fields Test plan no. and Designation. The search result decreases because of the inputs. If you search for a character string in the Designation field (e.g., “100”), the search will find exactly the character string in the entered order within the designation. When you select a test plan, activate the buttons under the “Create test plan” button.

Abbreviations in the test plan designation

EC	Test plan was delivered with EASYCAL™ 5
STD	Test plan based on standard values (standard)
Manu	This test plan is a test plan based on manufacturer defect limits (manufacturer)
CT	Short test with reduced test scope
BC	Batch check plan
ISO	Test plan based on the ISO error limits
ASTM	Test plan based on the ASTM error limits
G/P	Volumetric glass/plastic instruments
BP	Bulb pipettes
grP	Graduated pipette
Bur	Burette
vF	Volumetric flask
grC	Graduated cylinder
PYK	Pycnometers

Dis	Bottle top dispenser
PiBu	Bottle-top burette (piston burette)
Step	Repetitive pipette (stepper)
PiPip	Piston pipette

Furthermore, an abbreviation of the manufacturer, an abbreviation of the model series, the nominal volume, and abbreviations for model variants may follow.

If test plans of one manufacturer are also applicable to other manufacturers (same defect limits), the test plan plans entered first are used for all matching articles.

9.5.1.1 Create test plan

Create test plan ✕

Status ?

Main category

Description 0.0 ?

Test method

Test standard (tolerances) No error limits

Reference temperature Not specified °C

Testing instructions

Temperature difference °C

Limits for ambient data

Specific	Min	Max
<input type="checkbox"/> Water temp.	20 °C	25 °C
<input type="checkbox"/> Air temp.	20 °C	25 °C
<input type="checkbox"/> Relative humidity	40 %rh	65 %rh
<input type="checkbox"/> Air pressure	960 mbar	1,025 mbar

Random sample plan absolute relative

Number of measurement 1

Test characteristic No test characteristic selected

Item	Description	Type	Nominal value	Number of tests	Ma

Remarks for test planer

Last change n.n.

Cancel
Discard
Save

Field/range	Explanation
Status	The status is grayed out. Depending on the access right, the user can change the status here.
Main category	Select the main category to which you want to assign the test plan.

Field/range	Explanation
Designation	Assign a test plan designation that is as unique as possible.
Test method	Select the test method to be used.
Test standard (tolerances)	If there are standard-based tolerances, select the appropriate standard.
Reference temperature	Specify a temperature value to which a recalculation to this reference temperature is to be made. This is usually done only with glass volumetric instruments or the BRAND bottle-top burette Titrette®. Here, the temperature value is included in the calculation of the Z factor together with the volume expansion coefficient). The resulting volume values are thus recalculated to a set temperature of 20°C, for example. 20°C for temperate climates. 27°C for warmer climates. If this is not needed or if there is no volume expansion coefficient for the articles in question, select Not specified
Testing instructions	Click on the “+” sign in order to add a test plan. Note: The test instruction is only linked. If you select a file on your desktop, another user may not be able to open this test plan. Instead, use network paths or a URL in order to make the test instructions available to users.
Temperatur-Differenz	Enter the permitted temperature deviation between air and test medium temperature (usually deionized water).
Limits for ambient data	Enter the limit in which a measurement is permissible. This helps you to comply with the common standards during the measurements. An entry is necessary only if the values differ from the ambient data defined in the Global Settings.
Random sample plan	Select whether you want to perform relative or absolute sampling. In the selection field, you then choose the desired scope.
Test characteristic	Click on the “+” sign in order to add one or more test characteristics, see Test characteristics, p. 117. ⬆️⬆️: sort test characteristics
Remarks for test planer	Point out any special features.
Last change	Information about the last change.

9.5.1.2 Test characteristics

Test characteristics are criteria that you want to have processed in the test plan. On one hand, they can be determined by target values to be achieved or by a range of values. They can also name a characteristic for testing as an attribute.

Field/range	Explanation
Test characteristic type	Target value: Test for target values.

Field/range	Explanation
	Value range: Test for value ranges. attributive: Test for specific attributes of the test object.
Testing instructions	Here you have the possibility to link the test characteristic with further test instructions.
Remarks for tester	Text field for further comments on the test characteristic.
Parameters for variable characteristics	Range that is displayed for the test characteristic type “target value” and “value range”.

Test characteristic type “target value”

Create test characteristic
✕

Test characteristic type Target value Value range Attribute

Description

Testing instructions

Remarks for tester

Settings for variable characteristics

Number of tests

Value to be measured

Type of test equipment

Barometer
 Conductivity measuring device
 Hygrometer
 Leak tester
 Multi-channel balance

Number of decimal places

Ambient data query after each measurement

Check measured values before entering

Parameters for variable characteristics

Nominal value

Nominal value

▼

Limit values

Limit value type: A / CV Error limit

Measurement unit

▼

	SOP value	Test area	Test value
+	<input style="width: 50px;" type="text" value="0"/>		--
Error limit	<input checked="" type="checkbox"/> =	<input style="width: 50px;" type="text" value="100"/> %	
-	<input style="width: 50px;" type="text" value="0"/>		--

Measurement uncertainty

Use measurement uncertainty

Simplified values Expanded values

Measurement uncertainty ±

Cancel
Save

Test characteristic type “set point”	Explanation
Nominal value	Enter the nominal value of the characteristic to be inspected and select the unit.
Limit values section	

Test characteristic type “set point”	Explanation
Grenzwert-Typ:	Check-box A / CV: The >>limit value<< is determined by the accuracy and the coefficient of variation; see Standard Operating Procedure (SOP) of the device being tested. Check-box Error limit: The limit value is determined by the entered error limits.
Measurement unit	Select unit.
Accuracy	The >>accuracy<< in terms of statistical quality control corresponds to the mean deviation.
Coefficient of variation	The >>coefficient of variation<< shows the dispersion of the individual measured values in relation to the mean value of the measured values.
Measurement uncertainty	The measurement uncertainty is the uncertainty of the measurement procedure as used by you in your laboratory. If the check-box is not filled in (factory setting), this has no effect on the measurement result. If you want to include the measurement uncertainty in your measurements, choose between the check-boxes Simplified values and Expanded values Incorrect evaluation of the calibration Be sure to understand the calculation and interpretation of measurement uncertainty. No or wrong values for the measurement uncertainty can lead to errors in the evaluation of the calibration. See measurement uncertainty, p. 120
Settings for variable characteristics	Explanation
Number of tests	Specify how often the characteristic should be tested.
Value to be measured	Select the value to be measured from the list (e.g., temperature of the air, conductivity, or air pressure)
Test equipment	Select the type of test equipment to be used (e.g., thermometer).
Number of decimal places	Select the required decimal places and thus how accurate the result must be.
Ambient data query after each measurement	If the check-box is checked, the ambient data will also be queried after each measurement.
Check measured values before entering.	If the check-box is checked, the measured values are checked directly against the target value before saving.

Test characteristic type value range

Parameters for variable characteristics	Explanation
Max. value Min. value	Define the range of values that you want to test using the test characteristic. Max. value and min. value each have the same unit.

Test characteristic attribute



Describe the characteristic to be tested (e.g., an expected color change as a result of chemical exposure, labels with appropriate statements, warning signs).

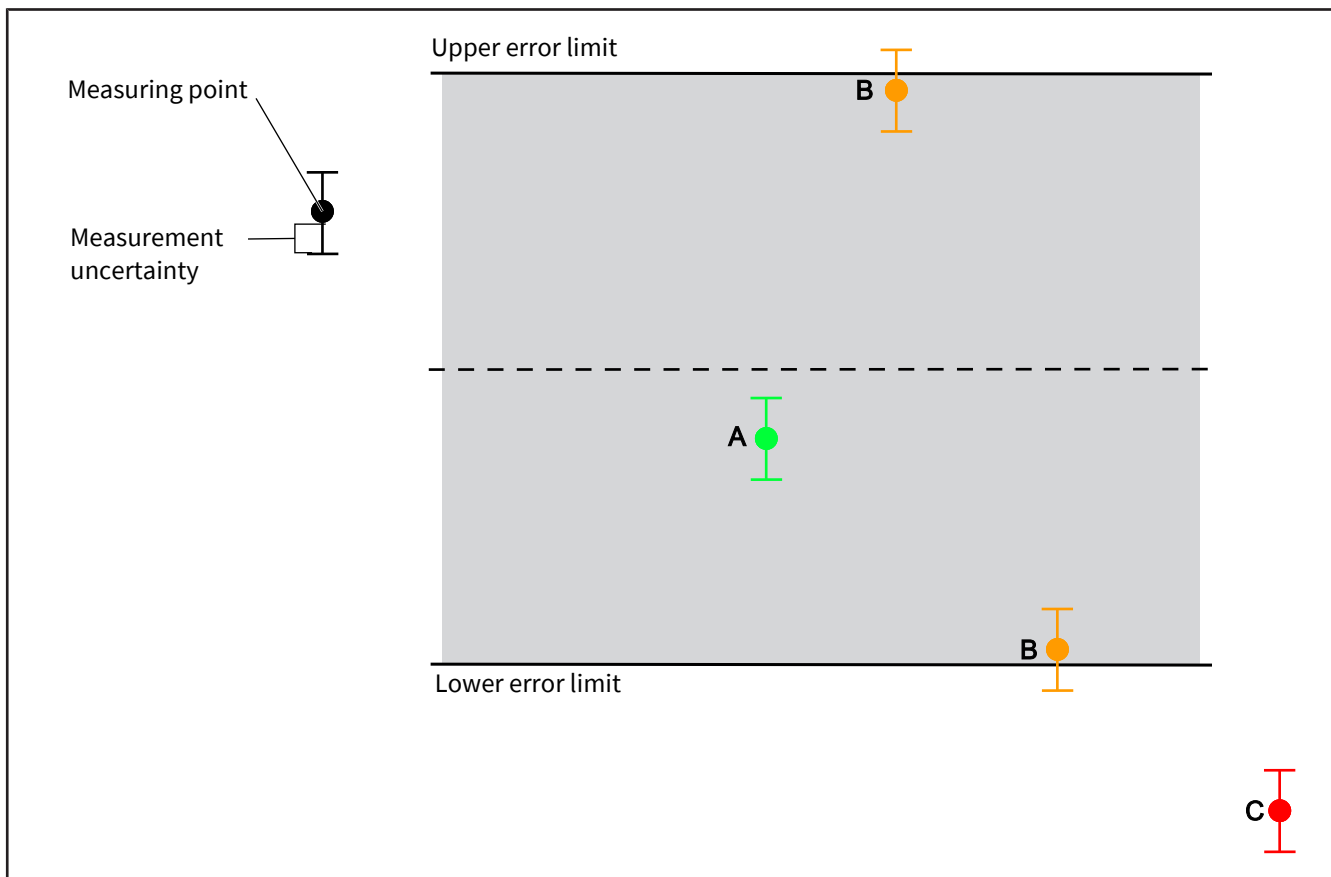
9.5.1.2.1 Measurement uncertainty in general

The following section deals with the test characteristic measurement uncertainty:

- Measurement uncertainty in general (see Measurement uncertainty, p. 120)
- Measurement uncertainty and how EASYCAL 5 deals with it (see Measurement uncertainty in EASYCAL 5, p. 121)

9.5.1.2.1.1 Measurement uncertainty

The mean value of the measured volume is evaluated by including the entered measurement uncertainty.



Case	condition
A	The determined mean value of the volume is within the error limits/manufacturer's tolerances.
B	There is a lack of sufficient certainty as to whether the average volume value determined is either within the MPE/manufacturer's tolerances.
C	The determined mean value of the volume is not within the error limits/manufacturer's tolerances.

9.5.1.2.1.2 Measurement uncertainty in EASYCAL 5

The program EASYCAL™ 5 includes the measurement uncertainty in the measurement as follows:

Measurement uncertainty

Use measurement uncertainty

Simplified values Expanded values

Measurement uncertainty ±

Measurement uncertainty	Behavior
No measurement uncertainty	Leave the check-box Use measurement uncertainty unchecked if you do not want to include the measurement uncertainty in the calculation. Note that for many in-

Measurement uncertainty	Behavior
	strument tests, the measurement uncertainty must be issued on certificates in order to be valid.
Simplified measurement uncertainty	Activate the check-box Use measurement uncertainty in order to include the measurement uncertainty. Activate check-box Simplified values: Adds a fixed value for the measurement uncertainty to the mean value of the volume determined during the measurement.
Expanded measurement uncertainty:	Activate check-box Expanded values: Adds a systematic standard measurement uncertainty measurement uncertainty to the mean value of the volume determined during the measurement.

Simplified values check-box

If you are not familiar with the calculation of measurement uncertainty and still want to specify a value, a commonly accepted value is $\frac{1}{3}$ of the specified error limit of the respective article. The program EASYCAL™ 5 uses the value you enter in order to add a static uncertainty range to the mean value of the volume determined in the measurement.

Advanced values check-box

If you select this option, EASYCAL™ 5 calculates the expanded measurement uncertainty U with the expansion factor $k = 2$ based on the systematic standard measurement uncertainty u_{sys} . The expanded measurement uncertainty U obtained in this way is used in conformity assessment. Observe the following aspects for a correct calculation of the expanded measurement uncertainty U :

- The expanded measurement uncertainty is applicable only for calibration of liquid handling devices in accordance with DIN EN ISO 8655. Volumetric instruments made of glass or plastic are not covered by the expanded measurement uncertainty.
- In order for the expanded measurement uncertainty to be calculated correctly, at least 10 measurements per volume must be performed.

- The systematic standard measurement uncertainty u_{syst} must be specified with the expansion factor $k = 1$.
- The entered value of the systematic standard measurement uncertainty u_{syst} may not include the value of the random measurement uncertainty (repeatability) – EASYCAL™ 5 calculates this itself; see the following formula for U:

$$U = k \times \sqrt{u_{\text{syst}}^2 + \frac{s^2}{n}}$$

Legend

u_{syst}	systematic standard measurement uncertainty; to be entered when creating the test characteristic or test plan
k	Expansion factor; value cannot be changed and is set to 2
s	Standard deviation of the mean value of the measurement series; calculated from the weight values by EASYCAL™ 5
n	Number of measurements per volume; to be specified via the test plan in the test characteristic “Number of tests” field; value must be ≥ 10 .

$u_{\text{syst}} = 0$

If the user sets the value of $u_{\text{syst}} = 0$, only the random measurement uncertainty is attributed to the measured value. This can lead to incorrect, reduced measurement uncertainties in the calculation of U because, in practice, the systematic measurement uncertainty exceeds the random measurement uncertainty several times over (see DKD R 8-1 ... 8-3). Information on determining the measurement uncertainty in general and the systematic standard measurement uncertainty (u_{syst}) in particular can be found in the following sources:

DKD R 8-1 Kalibrierung von Kolbenhubpipetten mit Luftpolster

DKD R 8-2 Kalibrierung von Mehrfachdispensern

DKD R 8-3 Kalibrierung von Einzelhubdispensern und Kolbenbüretten

ISO/TR 20461 First edition 2000-11-01: „Determination of uncertainty for volume measurements made using the gravimetric method“.

ISO 8655 – 6

EA-4/02 M: 2013 Evaluation of the Uncertainty of Measurement In Calibration

ILAC-P14:09/2020 ILAC Policy for Measurement Uncertainty in Calibration

Guide to the Expression of Uncertainty in Measurement (GUM)

9.5.1.3 Release test plan

Test plan (release)

Status: Released

Test standard (tolerances): Manufacturer

Item	Description	Type	Nominal value	Number of
1				
2				
3				

Limits for ambient data

Buttons: Cancel, Discard, Save

Prerequisite:

- ✓ Depending on access rights, you can release test plans. In particular, if the dual control principle is activated, the person who created the test plan themselves cannot release it (see Parameters and limits, p. 136, Options section)

Example:

An employee assigned to the authorization group laboratory creates the test plan; another employee releases it.

- a. Click on the Release test plan button in the Test plan.
- The Test plan (release) window opens.
- b. Select the value Released from the “Status” selection box.
 - c. Click “Save” to release the test plan or “Discard” if you do not want to release the test plan after all. The moment you select Released, the other values become read-only.

Available status of the test plan

Created/edited	A test plan has been created or is in progress. Example: A laboratory employee designs the test plan.
Released	A test plan is released and can be used. Example: The laboratory manager releases the drafted plan.
Locked/resubmission	A test plan must be corrected.
Discarded	A test plan is obsolete.

9.5.1.4 Display previous versions of a test plan

The screenshot shows a 'Show previous versions' dialog box. It is divided into two columns for 'Test plan 1' and 'Test plan 2'. Each column has a 'Version 0' dropdown and a 'Withdraw release' button. Below these are details for each test plan, including description, version, test method, test standard, remarks, and various environmental parameters like temperature, humidity, and pressure. At the bottom of each panel, there are tabs for '2. TV - V 0', '1. TV - V 0', and 'NV - V 0', and a table with 'Type' and 'Target value' columns.

In the “Test plan” window, select the desired test plan in the list, and click Show previous versions.

In the drop-down lists, you can select different versions. Differences between the versions are highlighted.

Example:

Version 1: 0.3°C to version 0: 0.5°C

9.5.2 Test plan assignments

🏠 BRAND - EASYCAL™ 5

Test plan allocations

Filter

Test type:

Release status:

ID:

Article information

Main category:

Product category:

Manufacturer:

Product:

Article code: 🔍

Volume range: 0.1 µl 10000 ml

Test plan no.:

Test plan Description:

Create allocation

Edit allocation

Allocation as default

Release

View Existing allocations Test plans without allocation

ID	Test type	Article codes
1	STD – standard values	EC-29501
2	STD – standard values	EC-36943;EC-36973;EC-37462;EC-37482
3	STD – standard values	EC-36945;EC-36975;EC-37463;EC-37483
4	STD – standard values	EC-37464;EC-37484;EC-36977;EC-36947
5	STD – standard values	EC-36949;EC-36979;EC-37467;EC-37487
6	STD – standard values	EC-36950;EC-36980;EC-37468;EC-37488
7	STD – standard values	EC-36951;EC-36981;EC-37469;EC-37489
8	STD – standard values	EC-36952;EC-36982;EC-37470;EC-37490
9	STD – standard values	EC-37481;EC-37461;EC-36968;EC-36938
10	STD – standard values	EC-36953;EC-36983;EC-37471;EC-37491
11	STD – standard values	EC-38204
12	STD – standard values	EC-38206
13	STD – standard values	EC-38208
14	STD – standard values	EC-38210
15	STD – standard values	EC-36170
16	STD – standard values	EC-36172
17	STD – standard values	EC-36174
18	STD – standard values	EC-36954;EC-36984
19	STD – standard values	EC-36176
20	STD – standard values	EC-37266;EC-37255
21	STD – standard values	EC-36854;EC-37254;EC-37265
22	STD – standard values	EC-36407
23	STD – standard values	EC-36408
24	STD – standard values	EC-36838;EC-37238;EC-37256;EC-37401;EC-37438
25	STD – standard values	EC-36404;EC-36843;EC-37045;EC-37243;EC-37267;EC-37402;EC-37
26	STD – standard values	EC-37446;EC-37403;EC-37257;EC-36406;EC-36845;EC-37046;EC-37
27	STD – standard values	EC-36946;EC-36976;EC-37465;EC-37485

Back

Use this menu to link the articles to the test plans. Please note that the error limits of an article or device are not stored in the article master data but rather in the test plans. Only in the test plan assignment are the permissible tolerances assigned to the article within which the test is considered successful. This organization of data makes it possible to assign the same test plan with standard values to all piston-stroke pipettes of a particular design. If the standard changes, only the corresponding test plan needs to be adjusted and not each individual article.

View


You can influence the general view using the following fields:

Field	Explanation
Existing allocations	Filter by test plan assignments to which articles have already been assigned.

Field	Explanation
Test plans without allocation	Filter by the test plans to which no articles have been assigned.

Filter

Filter the test plans using the following fields:

Field	Explanation
Test type	Select the appropriate test type. The search results list is reduced accordingly.
Approval status	Search for a specific status Created/edited, Released, Locked/resubmission, Discarded.
ID	Search for a test plan assignment (ID). You can also enter parts of ID; searching for "1" will thus find ID 1, 10, 11, 100, and so on. Alternatively, you can scroll all the way down because the last test plan assignment you created has been added to the bottom of the list.
Main category	Search all products of a main category. In order reset the filter, select No selection from the drop-down menu. After that, you can filter again for more categories.
Product category	Search all products in a product category. In order reset the filter, select No selection from the drop-down menu. After that, you can filter again for more categories.
Manufacturer	Search for a specific manufacturer.
Product	Search for a product name you know.
Item code	You can either enter the article code directly here or search in a new window using the  button. You can also enter parts of the article code; a search for "1" will thus find the article code 1, 10, 11, 100, and so on
Volume range	Use both sliders to narrow the volume range.
Test plan no.	Search for the Test plan no..
Test plan designation	Search for the test plan designation.

Test types

Test type	Meaning
Standard values (STD)	This test type applies to test plans with values as specified in the standard of the corresponding article (e.g., ISO or USP).
Manufacturer values (MANU)	This test type applies to test plans with values as specified by the device manufacturer (insofar as they deviate from the standard).
Customer-specific	This test type applies to test plans that do not follow any particular logic. No corresponding test plans are supplied. The EASYCAL™ 5 software often provides both a test plan based on standard values and manufacturer values for liquid handling equipment. The user must decide in this case.

Button

Button	Explanation
Create allocation	See Create new assignment, p. 128
Edit allocation	The same dialog opens as under “Create assignment”. You can now release the test plan assignment.
Allocation as default	The assignment is marked with a check mark
Release	Select a test plan assignment in the overview, and release the test plan via the dialog that opens, or withdraw the release,

9.5.2.1 Create new assignment

In this menu, you assign test plans to individual articles. You can use the filters on the left to find the appropriate articles and then add them to a test plan using the Assigned items and Items available sections.

New allocation of a test plan

Settings

ID: Not specified

Test type: SPEC – Customer specific

Test plan: [Empty]

Release status: Created/edited

Release

Article filter

Main category: [Empty]

Product category: [Empty]

Manufacturer: [Empty]

Product: [Empty]

Article code: [Empty]

Channel filter: [Empty]

Product variations: [Empty]

Volume ranges: [Empty]

Assigned articles

Select/de-select all | ↑ | ↓ | De-select all

Specific volume range: [Empty]

Articles available


- EC-10002 - Bürette SILBERBRAND, ohne Hahn, Klasse B, Economy; 0.1 - 25 ml
- EC-10004 - Bürette SILBERBRAND, ohne Hahn, Klasse B, Economy; 0.1 - 50 ml
- EC-10012 - Kompakt-Bürette SILBERBRAND, Klasse B, Economy; 0.1 - 25 ml
- EC-10014 - Kompakt-Bürette SILBERBRAND, Klasse B, Economy; 0.1 - 50 ml
- EC-100210 - Research® plus Fix; 10 µl
- EC-100211 - Research® plus Fix; 20 µl
- EC-100212 - Research® plus Fix; 10 µl
- EC-100213 - Research® plus Fix; 20 µl
- EC-100214 - Research® plus Fix; 25 µl

Last change: n.n.

Cancel | Save

Settings

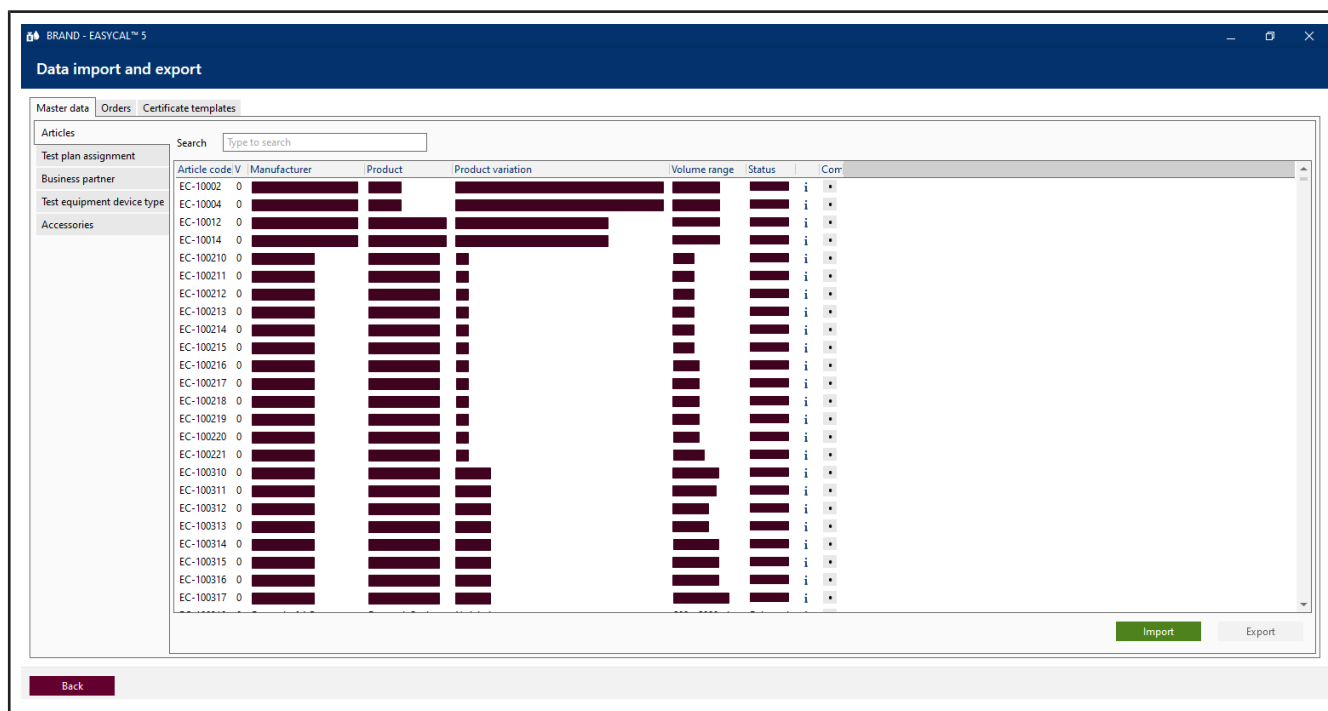
In this section, you can define the test plan assignment. This element has its own ID consisting of the information on the test type, the test plan, and the status of the test plan assignment.

Field	Explanation
ID	ID of the test plan assignment. The ID does not correspond to an article number or a test plan ID.
Test type	Select the appropriate test type.
Test plan	Select the desired test plan. You can either select it from the drop-down menu or search for it using the  button.

Field	Explanation
Release status	Filter the test plans by release status.

9.6 Data import and export

>> Main menu > Administration > Data import and export



Import and export master data, orders, and certificate templates via .XML, .CSV, and .JSON file formats.

- Master data: Articles, test plan assignment, business partners, test equipment device types
- Orders
- Certificate templates

Compare data sets

In the Compare column, select two data sets. These are opened in a pop-up window for comparison.

9.7 Business partner administration

>> Main menu > Administration > Business partner management

Business partner management

Search

Partner no.	Name
1	BRAND Shanghai

New partner
Edit partner

Customer Supplier

Partner no.

Name

Address 1

Address 2

Address 3

Country

ZIP CODE, Location

Telephone

Fax

E-mail

Reminder via e-mail

Export languages Primary language: Secondary language:

Contact person

Last name	First name

Remarks

Back
Discard
Save

In the business partner management, you can manage the contacts to your customers and suppliers. You can also define other characteristics about your customers or suppliers (e.g., which languages are spoken).

Field	Description
Check-box Customer Supplier	Specify whether the contact is a customer or a supplier.
Partner no.	Assign a number or alphanumeric combination in order to identify the supplier or customer.
Name	Assign a name for the customer or supplier.

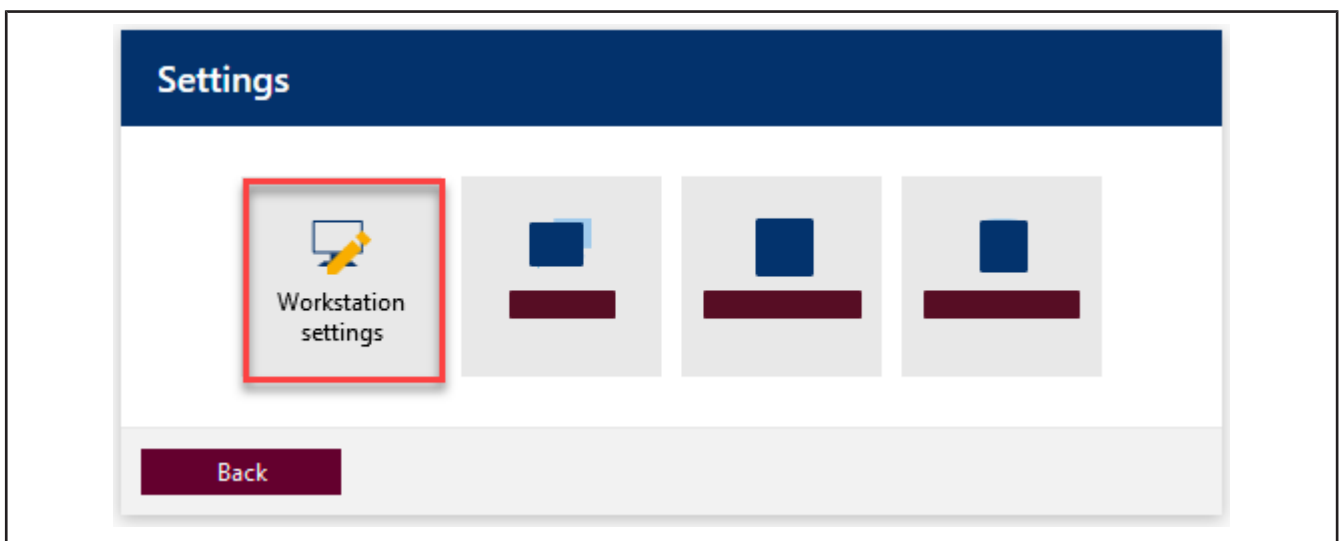
10 Settings

>> Main menu > Settings

Use the Settings to make basic program settings. You can configure the language, workstation, and server and make global program settings.

10.1 Workstation settings

>> Main menu > Settings > Workstation settings



Under this menu item, you make specific settings for each workstation (e.g., which printers or test equipment are available at this workstation).

10.1.1 Test equipment

Réglages du poste de travail

Désignation du poste de travail

Équipement de contrôle Chemins d'accès Imprimante standard

Équipement de contrôle sur le poste de travail (dernière utilisation)

N° d'équipement de con	Nom d'équipement de cont	Liaison	Adresse	Test

N° d'équipement de contrôle

+
-

Retour
Enregistrer






Determine the [>>test equipment<<](#) available to you at this workstation.

The test equipment is defined via the test equipment no.; see test equipment number.

- a.** Select the test equipment from the list under “Test equipment no.”
 - b.** Click on the “+” sign to apply the test equipment. Click on the “-” sign to remove the test equipment.
- ↪ The test equipment is listed.
- c.** If this is electronic or network-capable test equipment, configure the connection to the test equipment.
 - d.** Test the connection by clicking on the icons in the “Test” column after configuration.

Drop-down menu from “Con- nection” column	Explanation
No selection	—
COM	Communication via COM interface. Select the corresponding COM port 1 ... 9 from the “Addressing” column.
File server	Enter the path to a directory containing files describing the test equipment.

Drop-down menu from “Connection” column	Explanation
TCP/IP	Communication via TCP/IP. Enter the corresponding addressing in the “Addressing” column. Example: 192.168.0.1

Icons from “Test” column	Explanation
	Connection not yet configured
	Check connection:
	Connection is established.
	Connection exists.
	Error


10.1.2 Paths for certificate export

Workstation settings

Workstation designation

Test equipment | **Paths** | Default printer

Default paths for certificate export. Use <year> as a specification in the path to automatically insert the year of certificate creation.

Test type	Target path	
GEN – General	<input type="text" value="C:\Users\User\Documents"/>	

Test type
 + -


Back
Save

Set default paths for certificate export.

Prerequisite:

- ✓ The directory must already exist.

✓ The user who stores the certificates needs write permissions to the directory.

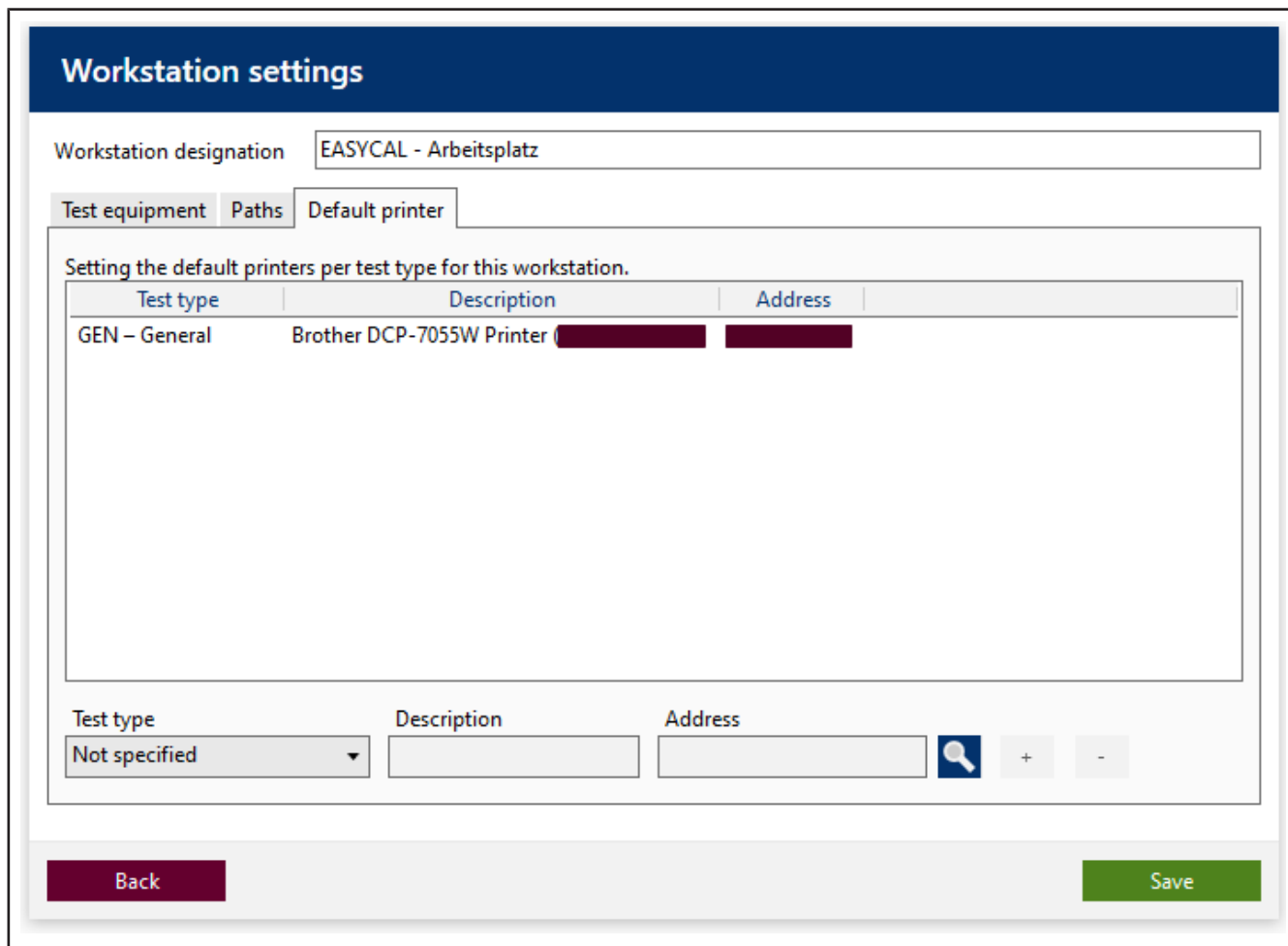
- a. Select Test type.
 - b. Clicking on the “+” sign opens an input line.
 - c. Click on . Select folder.
- ➔ The path appears in the input line.

Use <year> to insert a year into the file name.

Example:

C:\Users\Name\Desktop\<year>

10.1.3 Standard printer




Set the default printers to be used for this workstation.

Field	Value
Test type	Select the appropriate test type. For test types, see Test types (user authorizations), p. 61
Designation	The original designation is adopted.

Field	Value
Adress	Shows the network address of the printer.

Prerequisite:

- ✓ The desired printer must be set up at the workstation.

- a. Click on  . Select printer from the list.
 - b. Click on Apply.
- ↪ The printer appears in the fields.
- c. Click on the “+” sign to apply the printer for this workstation. Click on the “-” sign to remove the printer for this workstation.

To set up the printer, see Printer configuration, p. 142.

10.2 Language

>> Main menu > Settings > Language

Select the desired interface language.

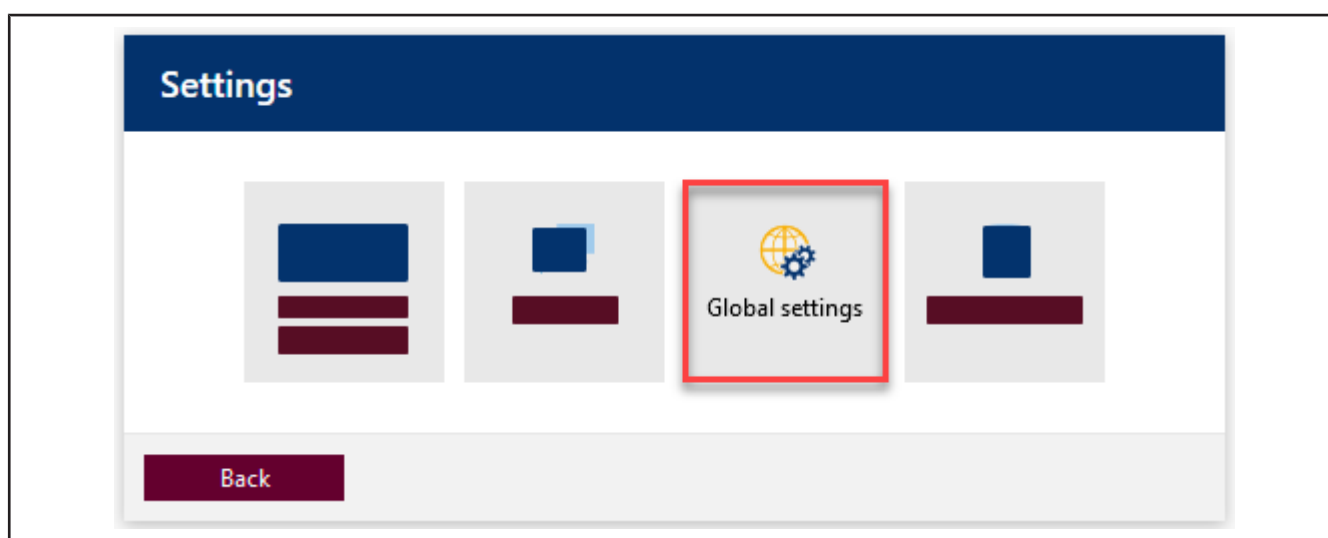
The following languages are available:

German, English, Spanish, French, and Chinese

The interface language is independent of which language is output on the certificates.

10.3 Global settings

>> Main menu > Settings > Global settings



The global settings apply to all EASYCAL™ 5 clients on the network or only to the individual standalone installation.

Example:

Set ambient conditions, SMTP, and printer settings

10.3.1 Parameters and limits

Ambient data

Set the ambient data in which a test typically occurs. These limits define a validity range between minimum and maximum value. The ambient data must lie in this for a measurement to be valid. The standard values must then be adjusted if the ambient conditions or specified limit values (e.g., in accordance with accreditation) deviate.

Example:

Laboratory is located at high altitude in humid, warm, or cold areas.

The global limits can be overridden by specific limits defined in the test plan; see Test planning, p. 114.

Parameter	Default value
Air temperature (max.)	35.00 °C
Air temperature (min.)	20.00°C
Air pressure (max.)	1,025 mbar
Air pressure (min.)	960 mbar
Water temperature (max.)	25.00°C
Water temperature (min.)	20.00°C
Rel. Relative humidity (max.)	65.00%
Rel. Relative humidity (min.)	40.00%

Measurement

Set the range parameters that directly affect the measurement.

Max. Zielwert-Abweichung is the maximum deviation from the target value. If the value from Max. Zielwert-Abweichung is exceeded, a message is output, and the measurement is marked as invalid. This value therefore represents the maximum target value deviation.

Parameter	Default value
Max. Zielwert-Abweichung	50.00%

General values

Set parameters of the order processing. Length of the order preview specifies the time span of the entries displayed in the menu item Orders and calibration slips.

Parameter	Default value
Length of the order preview	10 T

Options

Option	Default value
Activate continuous reading	Trigger a measurement when you press the “Print” key on your balance. This setting applies to all scales connected to the EASYCAL™ 5 software (if EASYCAL™ 5 is operated as a server application) or to the individual workstation.
Remember test equipment last used	Test equipment that was used during the measurement (even if it was not defined as a connected device in the working configuration) is saved and automatically selected again for the next calibration certificate.
Request manual entry of climate data only once per device	When activated and if the climate or ambient data have to be entered manually, they are requested only during the first measurement. For all other measurements, the values from the first measurement are applied.
Disable dual control principle for release process	Disables the requirement for another user to approve articles, test plans, test plan assignments, certificate templates, and assignments. The release can thus also be carried out by the creator or processor.
Single user mode	This option is active for standalone installation. When enabled, user management is disabled, and log on is always via a default user.

10.3.2 SMTP settings

The screenshot shows the 'Global settings' interface for 'BRAND - EASYCAL™ 5'. A sidebar on the left contains a list of settings categories: Parameters and limits, SMTP settings (highlighted), Auto-reminder, Active users, Blockades, Printer configuration, Database backup, Calibration intervals, and Updates. The main content area displays the SMTP settings with the following fields:

- E-mail address of the sender:
- User name of the sender:
- Password:
- Server name/address:
- SMTP port:

Enter the address settings of your SMTP server. You receive this information from your IT administrator.

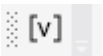
Field	Value
Email adress of server	Enter the e-mail address to be specified as the sender in the e-mail. This can be an alias e-mail address. Example: <code>noreply.easycal@firma.domain</code>
User name of the sender	Enter user name for sending e-mail. This user must be configured on the e-mail server outside of EASYCAL™ 5. Example: <code>easycal</code>
Password	Password for sending e-mails of the created user.
Server name/address	Enter the name or IP address of the SMTP server.
SMTP port	Enter the port number of the SMTP server.

10.3.3 Automatic reminder

The screenshot shows the 'Global settings' window for EASYCAL™ 5. The 'Auto-reminder' section is active, showing options to 'Activate auto-reminder' (unchecked), 'Test interval' (0 Weeks), 'Test range' (0 Weeks), and 'Include overdue devices' (unchecked). The 'E-mail settings' section includes fields for 'Cc', 'Bcc', and 'Subject', and a rich text editor for 'Content'. A 'Test and remind now' button is visible. The window title is 'BRAND - EASYCAL™ 5' and the page number '145' is visible in the bottom right corner.

Set the automatic reminder e-mail here. The e-mail recipient is addressed when you create a new reminder via the reminder service; see Reminder service, p. 145.

Field	Description
Activate auto-reminder	If this check-box is set, a reminder is sent for each newly tested device after the test interval and the test range have elapsed.
Test interval	This specification determines how often EASYCAL checks the device list for reminders due. The interval must be specified in whole weeks. Specification “1 week” means: EASYCAL checks the device list weekly for reminders due.
Test range	This specification determines how far EASYCAL looks into the future when checking the device list for reminders due. The range is entered in whole weeks. Indication 1 week means: EASYCAL checks which devices are due for testing in the coming week. Indication 4 weeks means: EASYCAL checks which devices are due for testing in the next 4 weeks (i.e., in the next month).
Include overdue devices	This specification determines whether devices for which the due date is in the past and have not appeared for testing since then should also be included in the results list. It is important that the SMTP settings for sending the reminders have been set correctly.

The reminder can contain any text. In addition, the following information can be inserted automatically via the placeholder .

Place holder	Scope
Device list (reduced)	Serial number/customer-specific marking
Device list (complete)	Serial number/customer specific marking/article code/manufacturer name.

10.3.4 Active users

BRAND - EASYCAL™ 5

Global settings

- Parameters and limits
- SMTP settings
- Auto-reminder
- Active users**
- Blockades
- Printer configuration
- Database backup
- Calibration intervals
- Updates

All users can log in **Allow only administrators**

Active users

Name	Workstations
EASYCAL Admin	-

Field	Explanation
Allow only administrator	If you click on the button, only users of the “Administrators” group will be able to log in (maintenance function).
Aktive Users	All active users are displayed in the list. By clicking on the column headers, they can be sorted in either ascending or descending order.

10.3.5 Blockages

🏠 BRAND - EASYCAL™ 5

Global settings

- Parameters and limits
- SMTP settings
- Auto-reminder
- Active users
- Blockades
- Printer configuration
- Database backup
- Calibration intervals
- Updates

Sessions with active locks

User name	Session token	Action

Locked orders

User name	ID	Order no.	Action

Locked calibration slips

User name	ID	Serial number	Action

Back

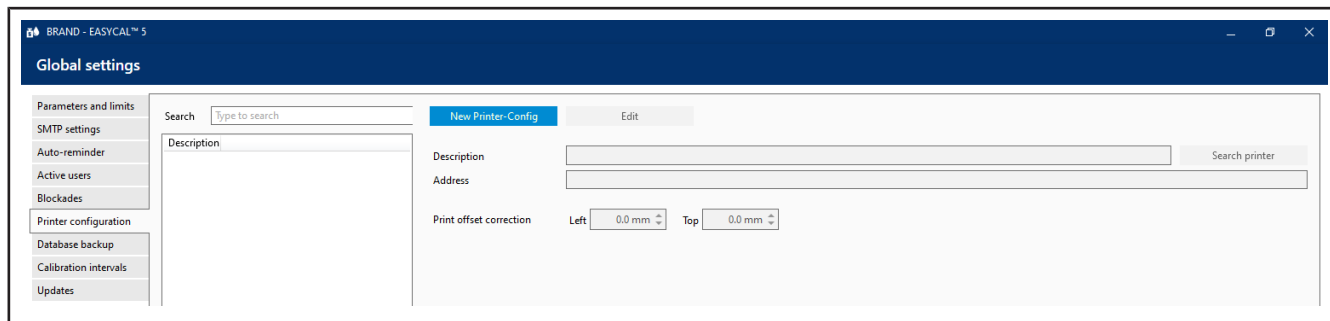
EASYCAL Admin

Last status: Test plan "1.0 - EC-Manu-PiPip-HTLDisCom-5000-var" was updated

In order to avoid simultaneous processing of the same order or calibration certificate, it is blocked for further processing. In this view, the currently blocked orders or calibration certificates are displayed. These blocks

can be removed if they remained in place during a program or computer crash. The blocks of the complete user can be removed here or only the locking of an order or calibration certificate.

10.3.6 Printer configuration



Create new printers or edit already created ones. Offset correction needs to be performed only if preprinted paper is used.

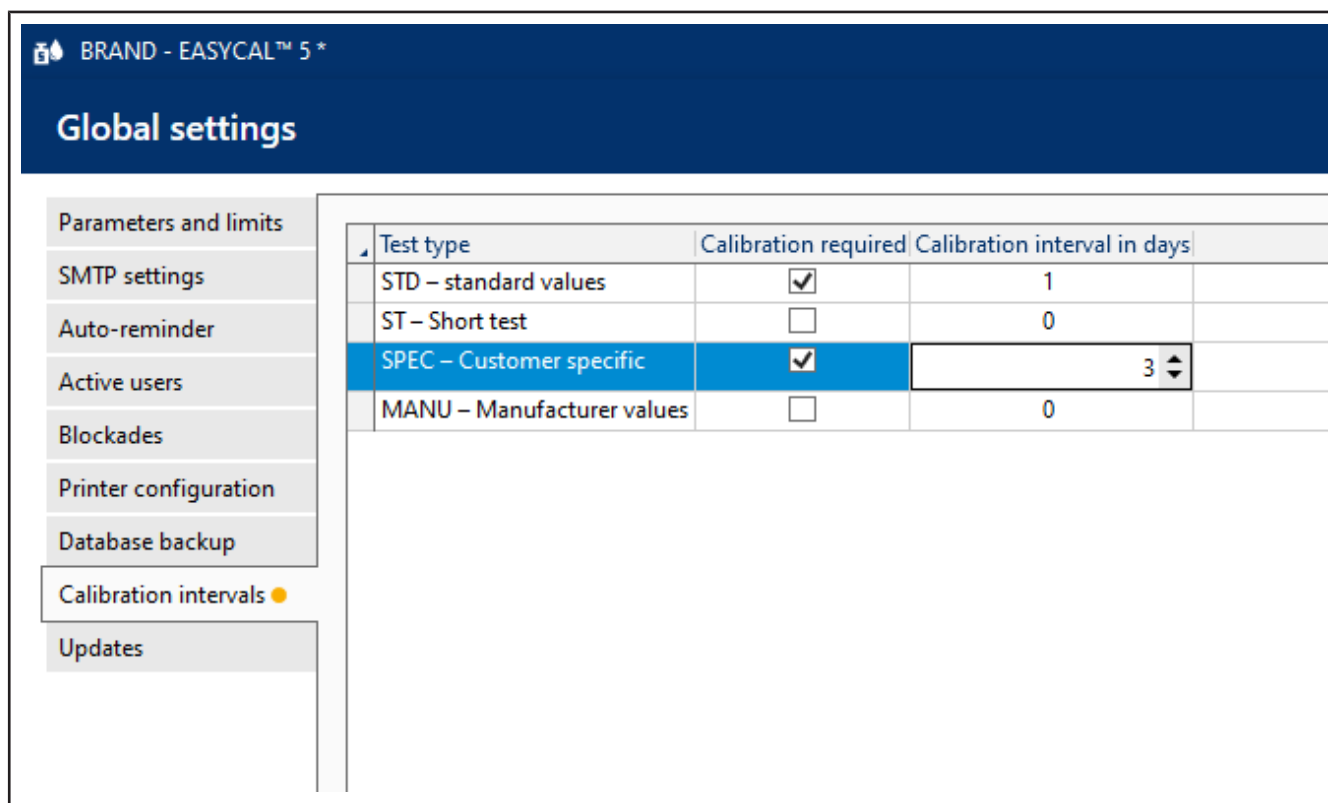
Prerequisite:

- ✓ Set up the printer on the computer beforehand. Otherwise, the printer cannot be selected.
- a. Select a new printer via Search printer. This printer is then available for all users.
 - b. Define an offset via Printer offset correction (e.g., 3 mm from the left page margin and 3 mm from the top page margin). This determines where on the paper in the upper left corner the certificate printing starts. Other page options are set in the certificate editor; see Certificate templates, p. 99.

10.3.7 Database backup (standalone/demo license only)

This menu allows you to make a backup of the database and restore the data from the database. You thus overwrite changes made to the database after the backup.

10.3.8 Calibration intervals



BRAND - EASYCAL™ 5 *

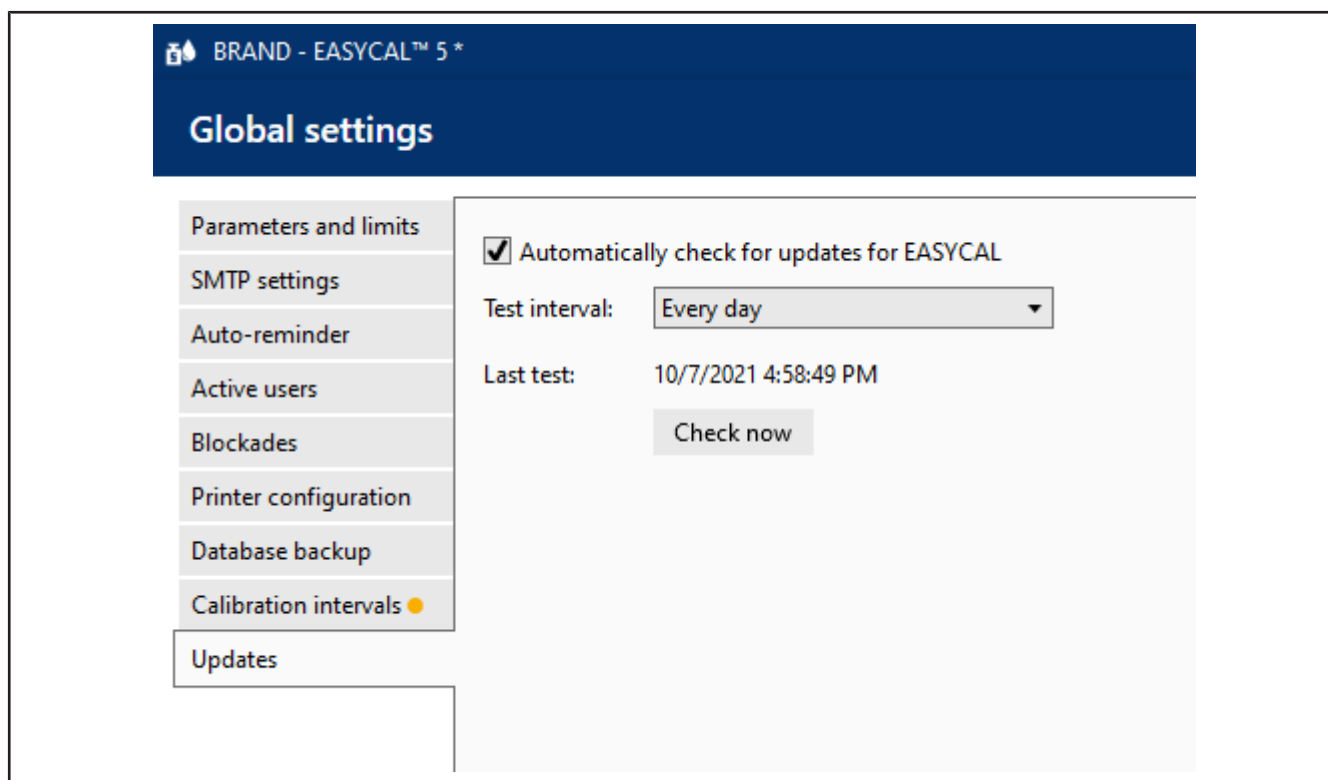
Global settings

- Parameters and limits
- SMTP settings
- Auto-reminder
- Active users
- Blockades
- Printer configuration
- Database backup
- Calibration intervals ●
- Updates

Test type	Calibration required	Calibration interval in days
STD – standard values	<input checked="" type="checkbox"/>	1
ST – Short test	<input type="checkbox"/>	0
SPEC – Customer specific	<input checked="" type="checkbox"/>	3
MANU – Manufacturer values	<input type="checkbox"/>	0

Determine whether calibration of test equipment is required for the Test type and specify calibration intervals.

10.3.9 Updates



BRAND - EASYCAL™ 5 *

Global settings

- Parameters and limits
- SMTP settings
- Auto-reminder
- Active users
- Blockades
- Printer configuration
- Database backup
- Calibration intervals ●
- Updates

Automatically check for updates for EASYCAL

Test interval:

Last test: 10/7/2021 4:58:49 PM

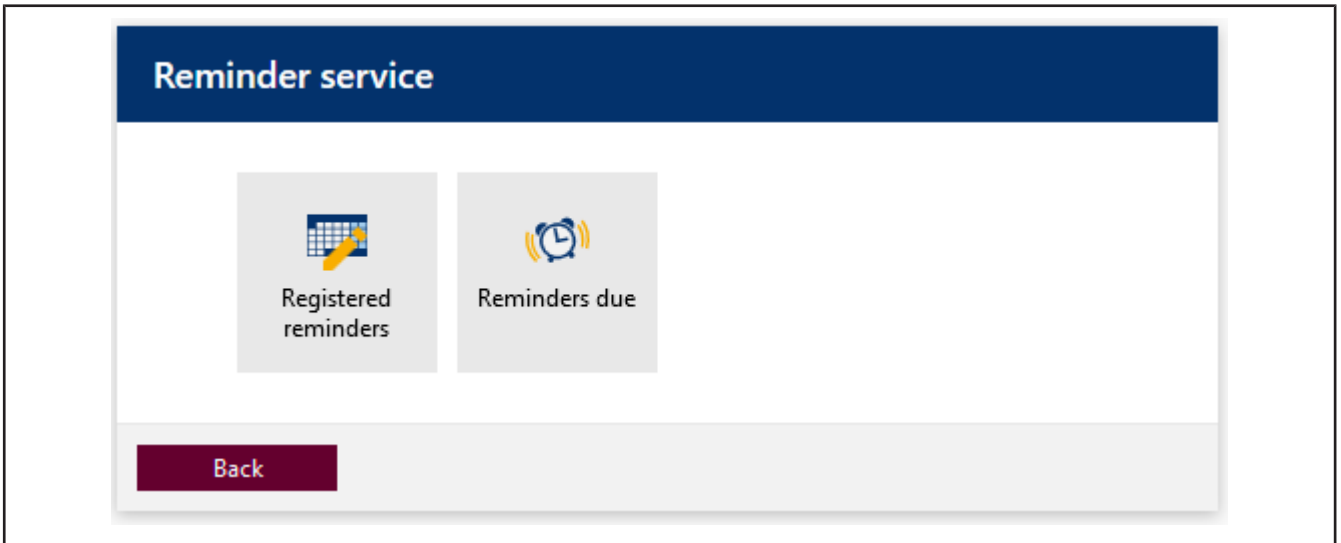
In this section, set whether EASYCAL™ 5 should automatically check for available updates and the interval at which this should happen. Bug fixes are provided to each customer free of charge.

Update available



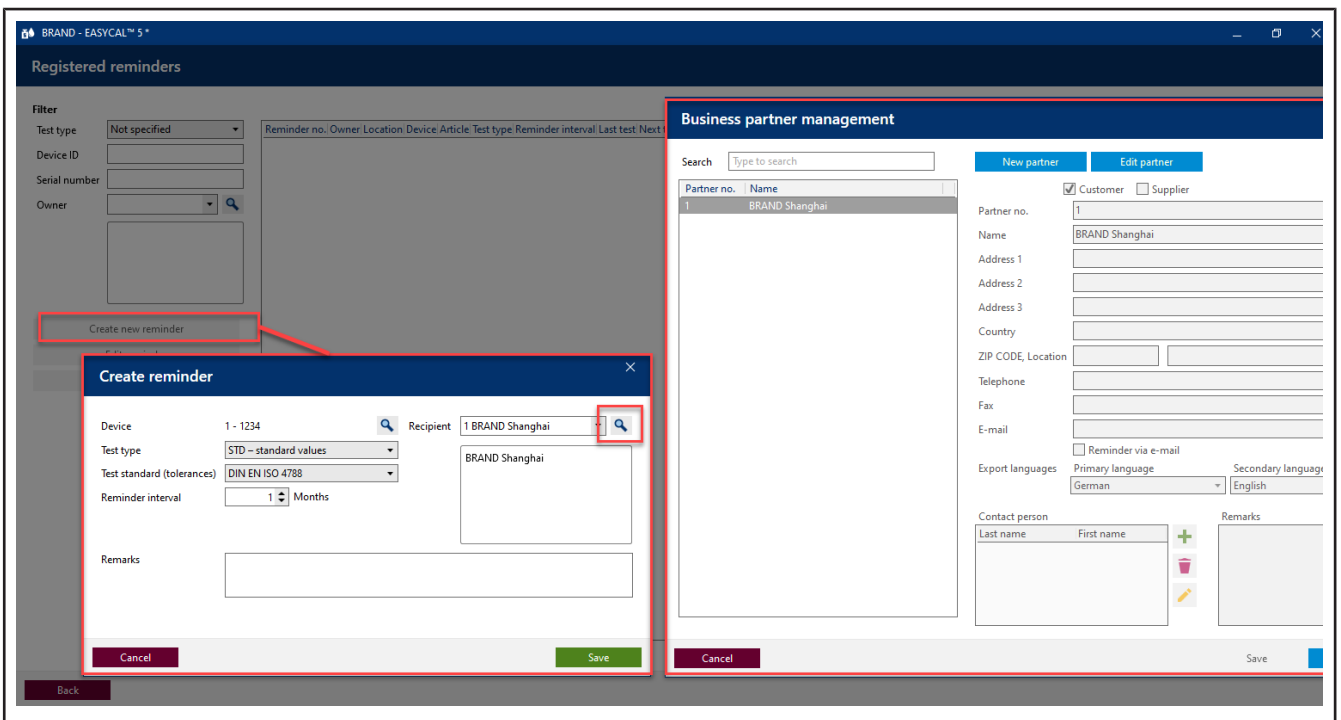
If an update is detected, the icon appears in the bar at the bottom. You can download and install the update [here](#).

11 Reminder service



In this section, you can define reminders to remind laboratory customers or laboratory suppliers to test devices.

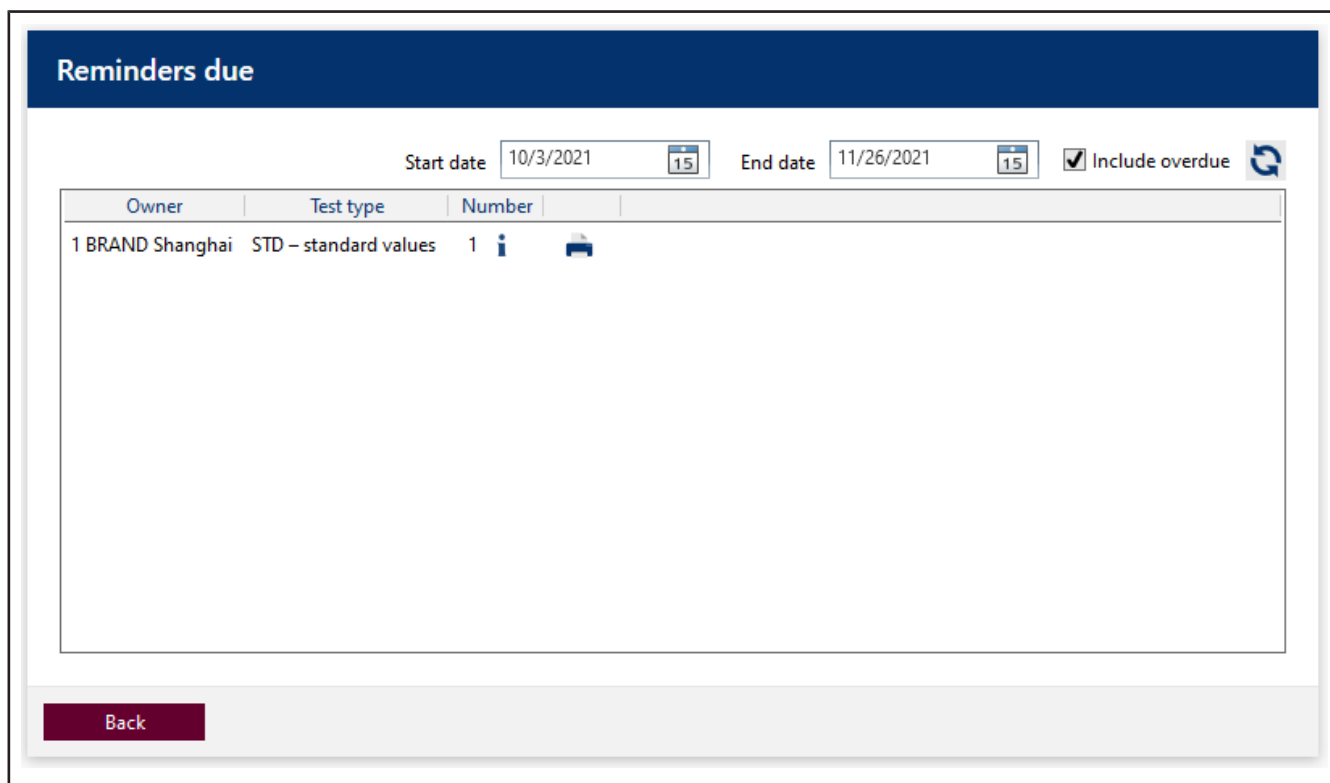
11.1 Registered reminder



Search for existing reminders or create new ones.

In order for an automatic reminder to work, the reminder interval must be entered in the Create reminder window, and the E-mail and Reminder via e-mail field must be filled in in the “Business Partner Management” window. In addition, the Activate auto-reminder function must be activated in the Global settings (see Automatic reminder, p. 139).

11.2 Reminders due



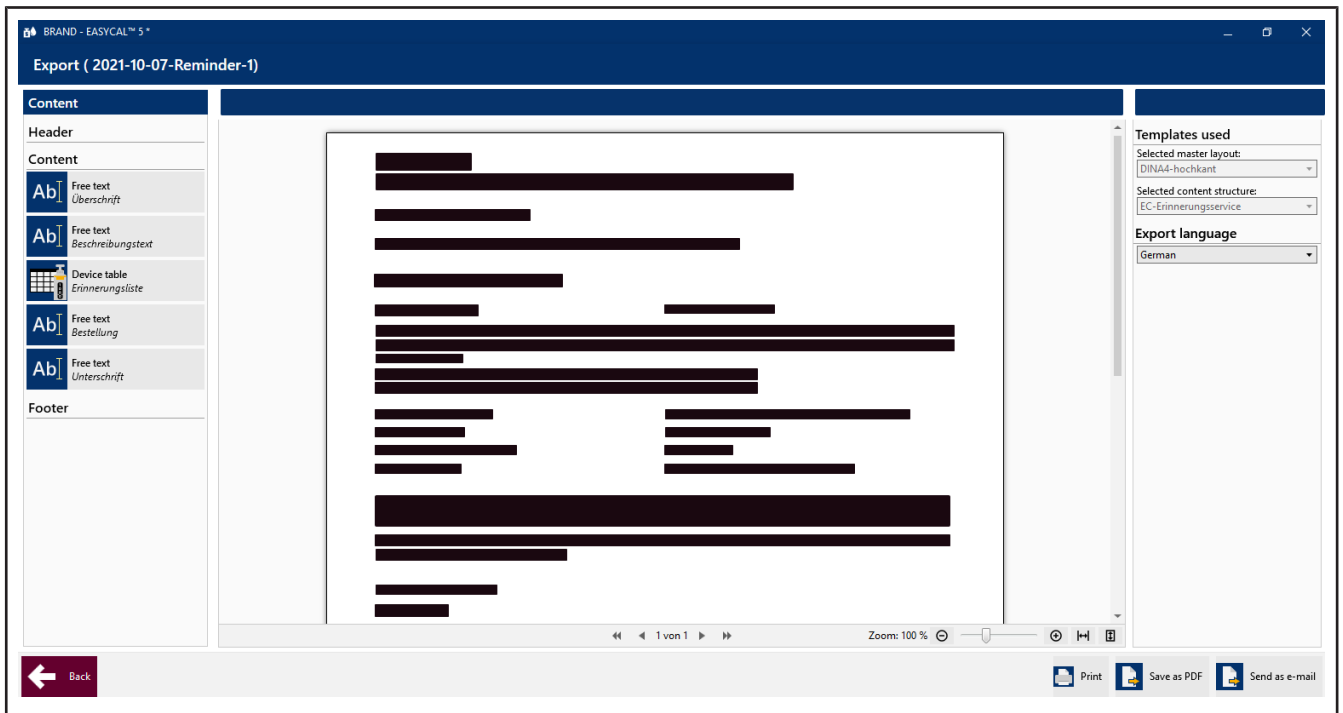
Look for reminders that are due and send reminders by mail or e-mail.

Field	Explanation
Include overdue	Include overdue reminders in the search.
	Refresh the list of results.
	The devices due for reminder are listed and displayed; the number of these is summed up directly in front of them.
	Opens the print preview and allows to send individual reminders by e-mail.

The reminder letter (sample application)

You can also create reminder letters with the certificate templates in addition to the automatic reminder by e-mail (see Registered reminder). You can print this, save it as a PDF, or send it as an attachment by e-mail (your e-mail client will open). If no e-mail has been stored in the customer data, you will be asked beforehand whether you still want to send an e-mail.

Example:



Keyword Index

A		Global settings	131
Accepted quality level (AQL).....	45		
Account.....	61	H	
Ambient data.....	136	Help language	7
B		I	
Batch test.....	43	Individual evaluation.....	54
— Creating order	45	Interface language	135
Blockage		L	
— Calibration certificate	142	Language.....	131
— Order	142	Layout.....	6
— User	142	License.....	11
Blocks		Localization function	41
— Calibration certificate	142	Log in	40
— Order	142	Log out.....	40
— User	142		
Business partner administration.....	61	M	
C		Master data	
Calibration certificate		— Article	72
— Edit	54	— Article data	72
Calibration certificates	43	— Expanded article data such as standard, material, grade, accessories, and cleaning type	72
Certificate		— General data	72
— PDF	56	— Manufacturer	72
— Printing	56	— Product	72
Certificate templates	61	— Product category	72
Change password.....	40	— Product variation	72
Cleaning type.....	47	— Random sample scheduling	72
Continue test.....	54	— Test equipment	72
D		— Volume range	72
Data import and export	61	Master data maintenance	61
Data Manager	64	Master layout	
Device status	47	— Release	100
F		— Test export	102
Fields with red borders	40	Master layout: error display	101
Forgot your password?	66	Measurement uncertainty	
G		— - general	120
General		— - in EASYCAL 5	120
— Fields with red borders	40	— - select	119
— Localization function	41	— - Sources (norms/standards) of systematic standard measurement uncertainty	123
— Yellow dot	40	— - systematic standard measurement uncertainty	122
Global Admin.....	64	— u_syst	122
		— Expanded measurement uncertainty:	122
		— Simplified measurement uncertainty	122

N		T	
Navigate backwards.....	6	Target group	6
Navigate forward.....	6	Test characteristic	
O		— Attributes	120
Open Source licenses.....	42	— Measurement uncertainty	119
Order overview	43	— target value	118
Orders	43	— Test equipment	119
Orders and calibration certificates		— Test instructions	118
— Continue test	54	— Type	118
— Single test	45, 45	— Value range	120
P		— Variable characteristics	120
Password, initial.....	66	Test history.....	43
Pipetting mode.....	47	Test plan.....	47
Prefixes		— Create	125
— EC	73	— Discard	125
Print help	6	— Lock	125
Print preview	54	— Release	125
Program structure.....	18	Test plan assignment	
R		— Cancel release	128
Release		— Release	128
— Master layout	101	Test planning	61
Reminder		Test Staff	64
— Automatic reminder	145	Test type.....	61
— Reminder letter (letter/e-mail)	146	U	
S		Updates	
Search fields.....	41	— Troubleshooting	144
Search help.....	7	User.....	61
Serial number.....	47	— Configure	66
Settings		— Create	71
— Certificate export	133	— Edit	71
— Language	135	— Reset password:	67
— Print certificates	135	— Search	70
— Test equipment	132	V	
Single device test	43	Version info	42
Single test		Volume range	47
— Complete order	53	W	
— Continue test	54	Warning triangle	41
— Creating order	45	Y	
— Perform measurement	49	Yellow dot.....	40
Speed setting.....	47		
Structure.....	18		
Supervisor	64		
System Admin	64		
System requirements.....	10, 11		

Glossary

“Ex” adjustment

The volume of liquid dispensed corresponds to the volume specification printed on it. The liquid residue remaining in the measuring device as a result of wetting was taken into account during adjustment. These measuring devices include graduated pipettes, volumetric pipettes, and burettes.

“In” adjustment

The amount of liquid taken up corresponds to the volume specification printed on the device. These measuring devices include graduated cylinders, volumetric flasks, and capillary pipettes up to 200 µl.

Accuracy

The accuracy indicates how close the mean value is to the target value (i.e., the systematic measurement deviation). The accu-

racy is calculated as the difference between the mean value and the target value, related to the nominal value in %.

C value

Corresponds to the number of defective parts allowed in the random sample.

Coefficient of variation:

The coefficient of variation (CV) indicates how close the individual measured values are to each other (i.e., random measurement deviation). The coefficient of variation is defined as the standard deviation in % relative to the mean value.

Error limit

The error limit specified in the relevant standards indicates the maximum permissible deviation of the device from the target value.

Instrument

In the sense of EASYCAL 5, an instrument is an object that has not yet been described (e.g., the test item). See also: device

Lot

A lot is a compiled, fixed quantity of units. A test lot may consist of several batches or parts of batches (ISO 2859-1).

Master data

Master data is a designation for data containing basic information about objects and is necessary for ongoing processing.

Master layout

Template for a certificate page

Sample, absolute

Specifies the exact number of devices belonging to the sample.

Test equipment

Test equipment is any measuring device used to verify

warranted product characteristics.

Test plan

The test plan specifies which test criteria must be met by the device to be tested. The device is then tested against the test plan and its test characteristics.

Test type

A test type describes the circumstances of the test. What are the basic measures that must be observed. The test type is a sorting criterion for grouping similar tests.



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