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Concremote Software

User Manual

Please retain for future reference

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Introduction

General

Remarks on this booklet

- This manual describes the Concremote Web portal, its function and intended use.
- This booklet is aimed at all persons who will be working with the Doka product or system that it describes. It contains information on the standard design for setting up this system, and on correct, compliant utilisation of the system.
- All persons working with the product described herein must be familiar with the contents of this booklet and with all the safety instructions it contains.
- Persons who are incapable of reading and understanding this booklet, or who can do so only with difficulty, must be instructed and trained by the customer.
- The customer is to ensure that the information materials provided by Doka (e.g. User Information booklets, Instructions for Assembly and Use, Operating Instruction manuals, plans etc.) are up to date and available to all users, and that they have been made aware of them and have easy access to them at the usage location.

Manufacturer

- Concrefy B.V.
- Subject to change without notice in the course of technological development.

Support

Landline:	+31 77 850 7220
E-mail:	support@concremote.com

Symbols used

The following symbols are used in this document:

DANGER
This is a notifier drawing attention to an extremely dangerous situation in which non-compliance with this notifier will lead to death or severe, irreversible injury.

WARNING
This is a notifier drawing attention to a dangerous situation in which non-compliance with this notifier can lead to death or severe, irreversible injury.

CAUTION
This is a notifier drawing attention to a dangerous situation in which non-compliance with this notifier can lead to slight, reversible injury.

NOTICE
This is a notifier drawing attention to a situation in which non-compliance with this notifier can lead to malfunctions or damage to property.

Instruction
Indicates that actions have to be performed by the user.

Sight-check
Indicates that you need to do a sight-check to make sure that necessary actions have been carried out.

Tip
Points out useful practical tips.

Reference
Cross-references other documents.

The Doka Concremote service

Easy online access to the data

Via the user-optimised Concremote Web portal, users can access their measured data at any time.
Users can store data and unlock them for use by authorised persons.
Accurate documentation ensures both certainty for the building process and transparency.

Wireless data transmission and easy access from anywhere

Process scheme

Follow the directions in the 'Concremote' Operating Instructions!

Overview and introduction

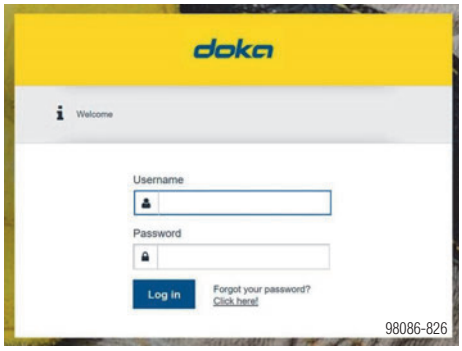
First-time access

How it works:

- You receive an automatically generated email from the system.
- Click on the link in this email to go to the Web portal, where you will be prompted to define a password in order to proceed.

Login

To log in enter the following web address into your browser
http://concremote.doka.com.

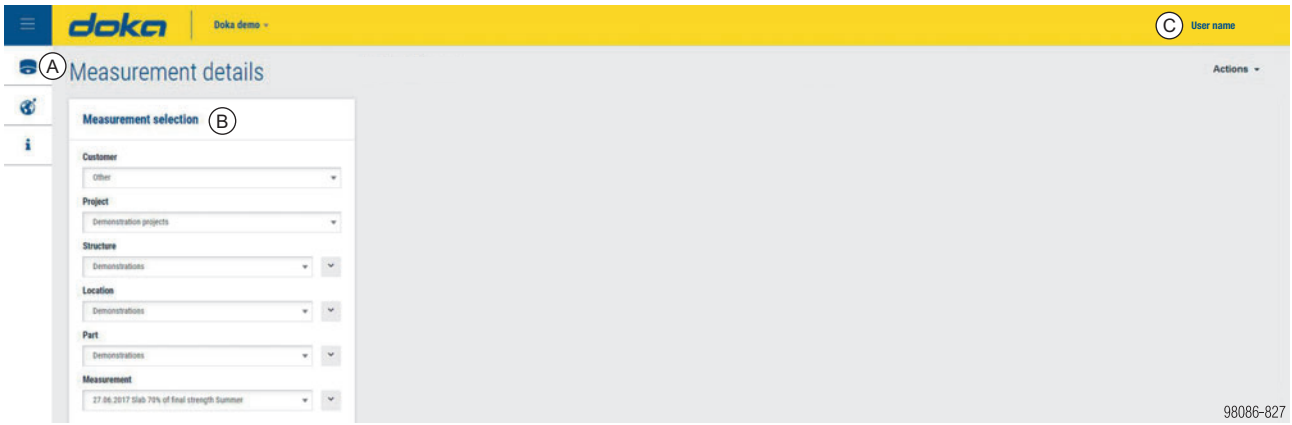


NOTICE

- We recommend using Google Chrome or Microsoft Edge as your browser.
- If, at some time, you find you have forgotten or mislaid your password, click on '**Forgotten your password?**' to reset the password.
- You can change your own password whenever you want. Just click on your user name at the top right of the start screen and select '**Change password**'.
- Do not pass on your login details to third parties.

Home page

After logging in you will be redirected to the home page. The home page gives you an overview of the existing projects.



A	Starting the Web portal (link to the graph page)
B	Overview of structures, measurements and sensor status
C	Personal data and contact details

NOTICE

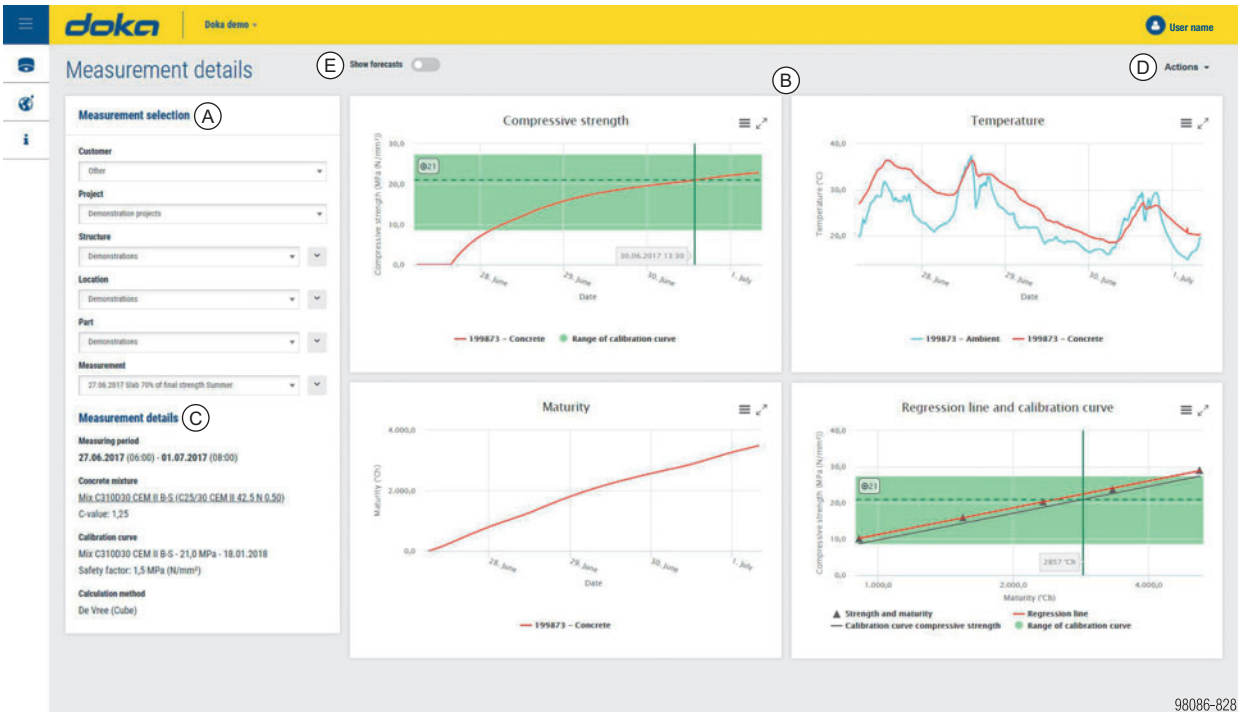
You can exit the Web portal securely at any time by clicking on your user name and then on the '**Logout**' button.

Selection options on the left-hand side:

- '**Menu**': Expand/collapse the menu options.
- '**Concremote**': Takes you to your measurements, the available devices (sensors), the available concrete mixtures, calibration curves and the 'Scenario comparison' feature.
- '**Your user name**' (in the window, top right):
  Here you will find
  - Contact details
  - Change password
  - Log-off

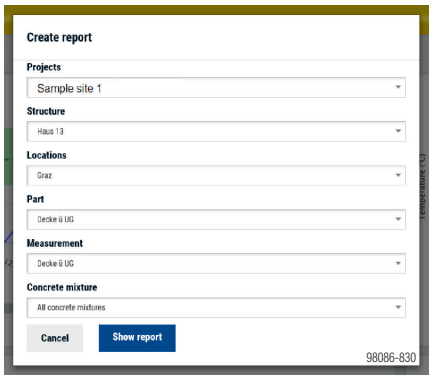
Graph page

You can open the graph page by going to '**Concremote**' and then selecting '**Measurements**'. Alternatively, you can select a measurement directly on the home page by selecting '**Measurement selection**'.



A	Measurement selection menu: You can select existing measurements here. Drop-down menu: The choices are: - New - Edit - Delete - Notification (measurement only) - Copy (measurement only) It is also possible to change the choice of 'Project', 'Structure', 'Location' or 'Part' of the measurement.
B	Visualisation of compressive strength, temperature, maturity and calibration curve (optional: Temperature difference, delta T)
C	Details of the measurement (measuring period, details of the concrete, calculation method, sensor status)
D	'Actions' button: for 'Create report', 'Measured data in tabular view', and 'Download'.
E	The 'Show forecasts' feature enables you to view a forecast of concrete compressive strength development

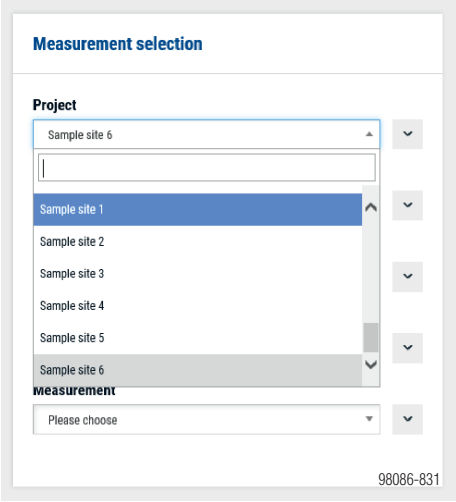
Buttons (D) at the top right-hand corner of the graph page:

	'Create report' or 'Download report' button ▪ Click on this button to open a window in which you can create a report for the selected measurement: 

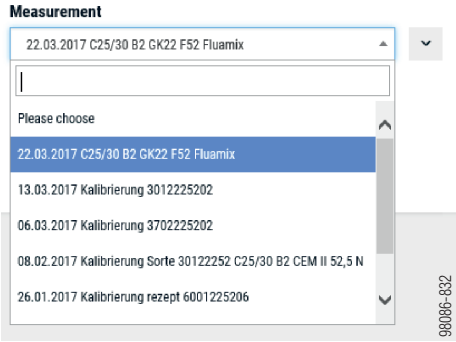
	'Open table' button ▪ Click on this button to view the detailed measured data.
	'**Graph page**' button ▪ Click on this button to view the graph page.
	'**Download table**' button for Excel file ▪ Click on this button to start automatic download of the detailed measured data as an Excel file.

Selecting a measurement

➤ Select the desired project, structure, location and part (from top to bottom) in the drop-down menu on the left-hand side .



➤ Then select a measurement from the drop-down list at the bottom of the menu.



Under '**Measurement details**' in the middle part of the drop-down menu you can see the parameters filed for the measurement.

What the graphs illustrate

There are four views, each showing detailed information; you can zoom these views:

- 'Compressive strength': in MPa (N/mm²) or psi.
- 'Temperature': in degrees Celsius or Fahrenheit.
- 'Maturity'. In degrees Celsius-hours (°Ch)
- 'Calibration curve'

  Optional 'Delta T': Shows the temperature difference between defined measuring points, in Kelvin (Celsius).

What the graphs show

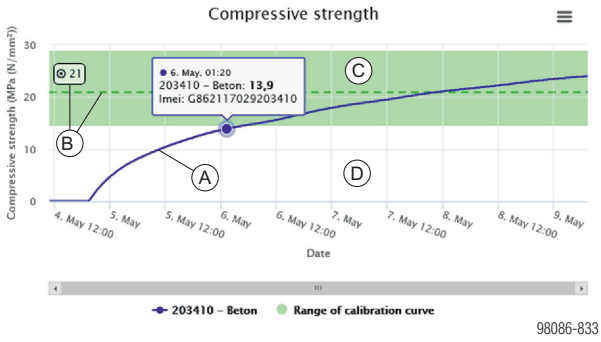
Compressive strength

In this graph you can monitor the compressive strength development.

Move the mouse pointer along the curve to view the measured values for each time stamp. The legend below the graph explains the use of the various colours.

WARNING

➤ Decisions based on non-calibrated data (outside the green area) can lead to injury.



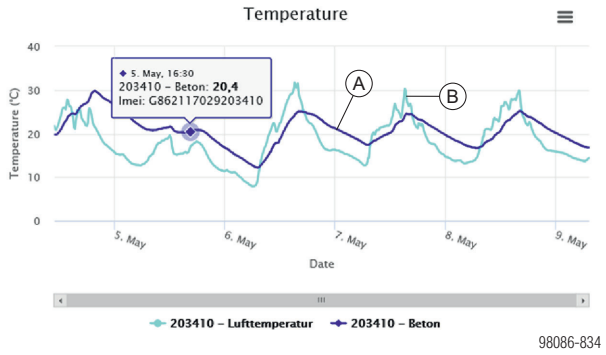
A	Compressive strength development
B	Target value and target-value line
C	Calibrated range
D	Non-calibrated range (white)

Temperature

This graph illustrates the temperature profile of the measurement as a function of time.

The concrete temperature and the ambient temperature recorded by the sensor are both displayed in one graph in different colours. Move the mouse pointer along the curve to view the measured values for each time stamp.

The legend below the graph explains the use of the various colours.



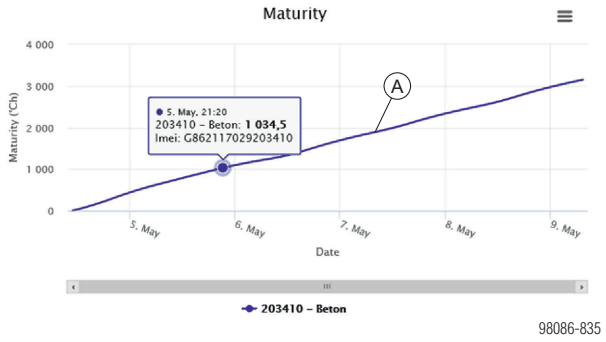
A Concrete temperature measured by the sensor

B Ambient temperature measured by the sensor

Maturity

The maturity curve is generated on the basis of the measured temperature, the time, as well as the concrete data on which the measurement is based.

Move the mouse pointer along the curve to view the measured values for each time stamp.

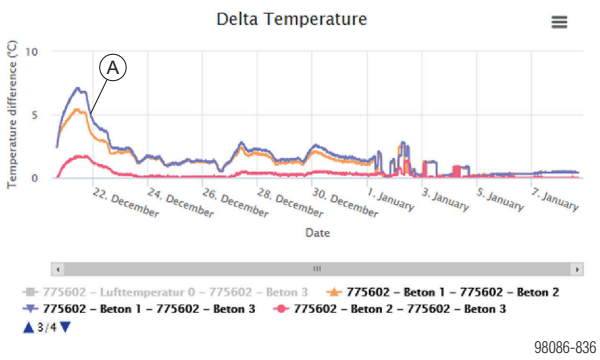


A Development of weighted maturity

Optional: Delta T (temperature difference)

The delta-T curve shows the difference in temperature between the defined measuring points. The difference in temperature, for example between concrete core and the surface of the concrete, should be as small as possible in order to avoid cracking; this applies in particular to mass-concrete structures.

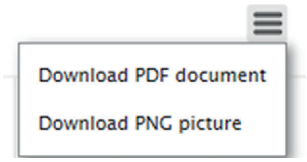
Move the mouse pointer along the curve to view the measured values for each time stamp. The legend below the graph explains the use of the various colours.

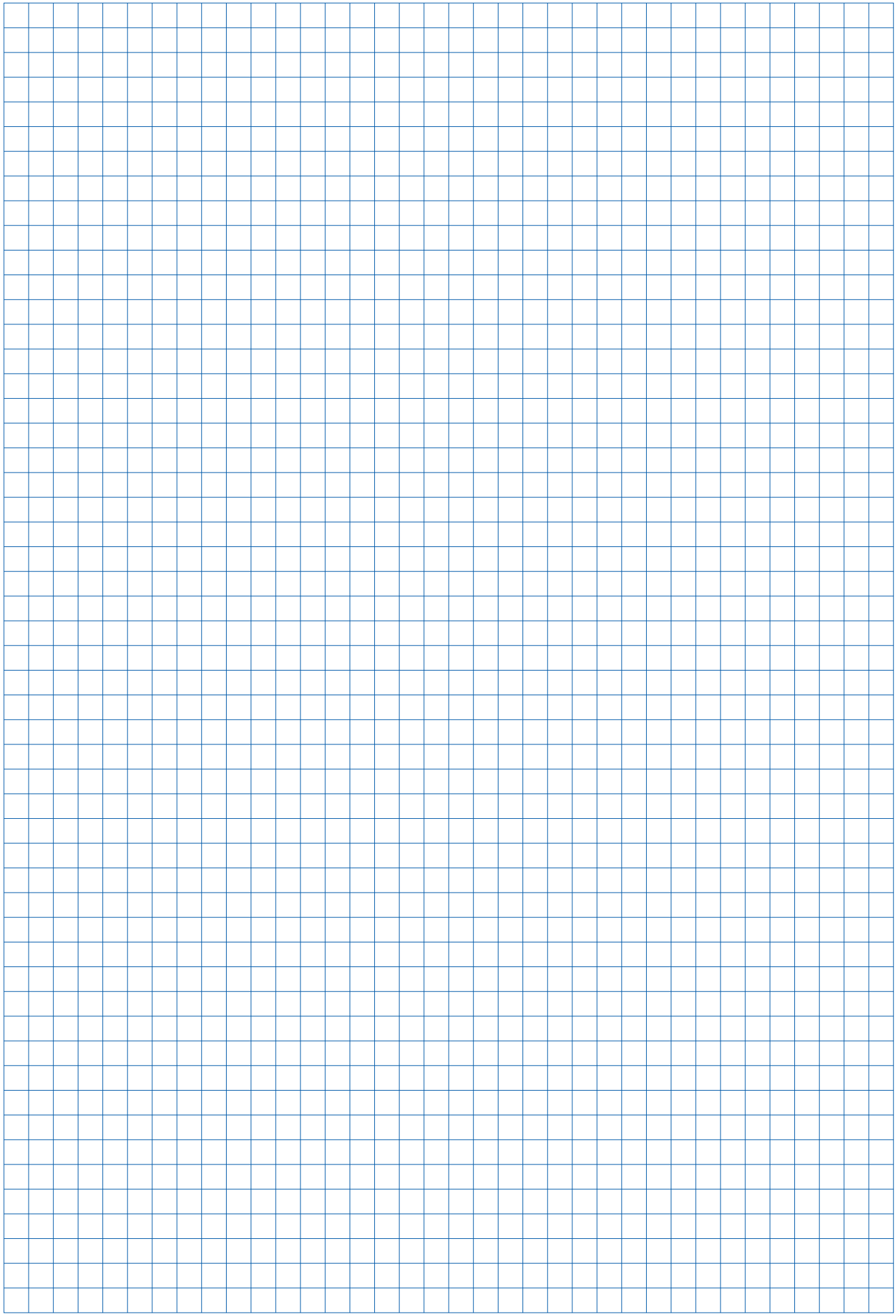


A Temperature difference between defined measuring points

Download graphic

You can download any graphic as a PDF or PNG file by clicking this button.





Application and usage

General

This section describes the most important ways in which the Concremote Web portal can be used. If you have any further questions or problems, please contact Concremote support or your Doka contact person.

General notes regarding the measured data:

- All of the data measured and transmitted by the sensors are stored in the computing centre for years.
- These data remain stored in the computing centre even if a measurement is deleted from the Concremote Web portal.
- So a measurement deleted in the Concremote Web portal can easily be restored and the measurement result displayed again on the basis of the data stored in the computing centre.

Active symbols

Drop-down button

Pop-up menu

Sensor status

OK

Warning
(no data transfer)

Error
(no data transfer)

No data received
(usually directly after creation of the measurement)

Click on the button for more details.

NOTICE

If no data transfer takes place, the sensor status in the Web portal changes to yellow or red, as applicable. In addition, the user receives notification (by email).

Function test

It is recommended to perform a function test each time before using Concremote in a structure.

➤ Add a measurement with all existing sensors.

➤ Insert the battery to activate a slab sensor and connect the cable to activate a cable sensor.

➤ Check the sensors in the overview given on the home page or on the graph page.

A function test is particularly important for projects where connectivity may be limited.

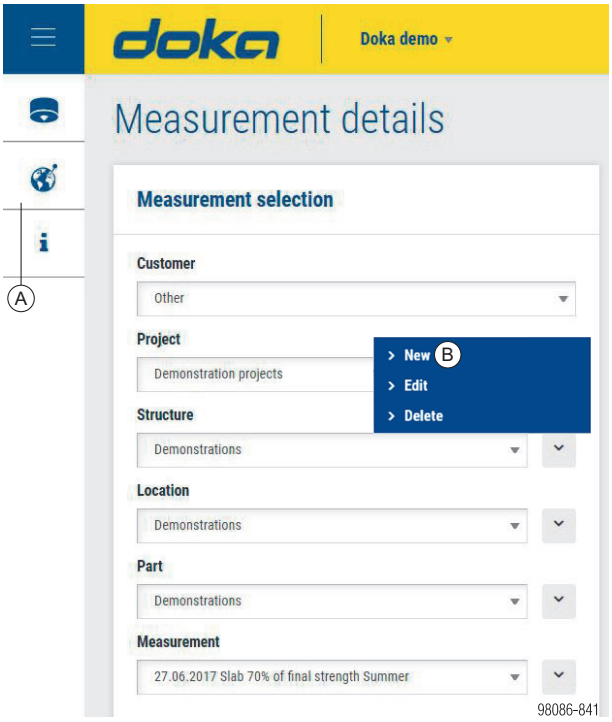
NOTICE

If a failure occurs, immediately inform Concremote support or your Doka contact person.

Create structure, location and part

➤ Click on '**Concremote**' **(A)** on the left-hand side and then select the project from '**Measurement selection**'.

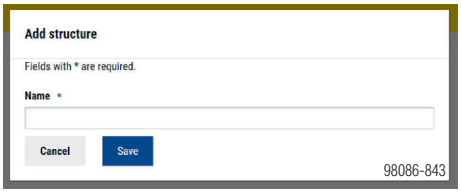
➤ Click on the drop-down button beside the structures list and select '**New**' **(B)** . You can also edit or delete an existing structure.



A 'Concremote' button

B 'New' menu item

➤ The 'Add structure' window opens and you can enter a name for the new structure.



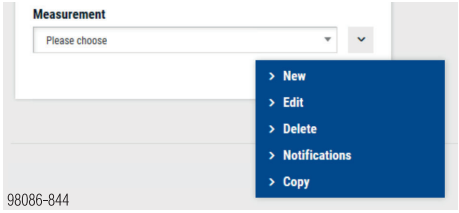
➤ After clicking on '**Save**' you can follow the same procedure again to add or edit a location and a structure member, as applicable.

Use meaningful descriptors, e.g. 'Structure member A', 'House 1', etc.

How to add a measurement

Start by selecting from the 'Measurement selection' section the project for which you want to create a new measurement.

➤ Click on the drop-down button and select '**New**'. You also have the option of editing existing measurements by clicking on '**Edit**'.



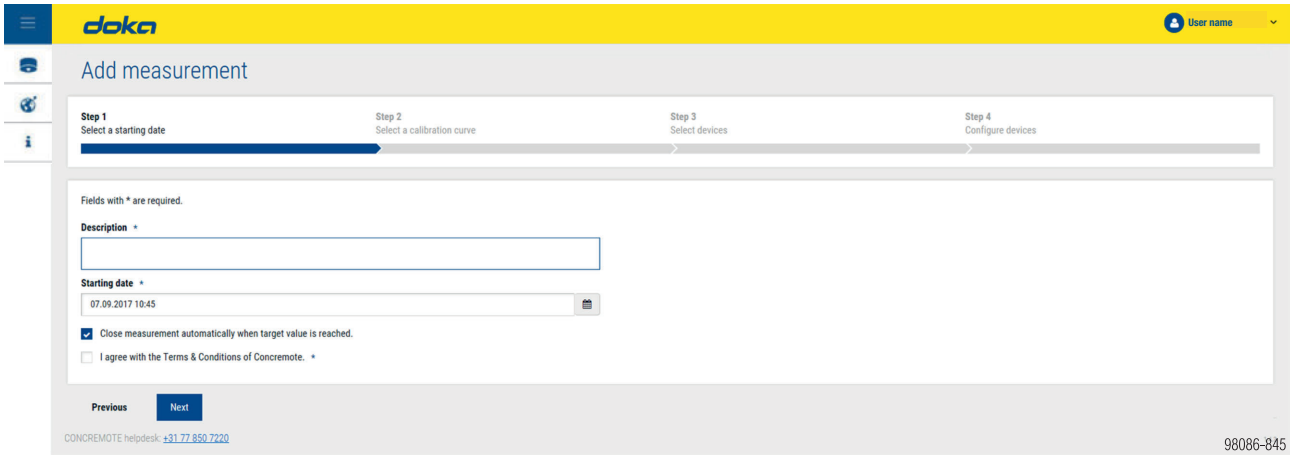
Step 1

➤ Add a description and a starting date to the measurement.

➤ The 'Close measurement automatically when target value is reached' checkbox is activated by default, meaning that measurement stops automatically as soon as the target value is reached.
You can deactivate the checkbox if you do not want this to happen.

➤ Confirm that you have read and accepted the general terms and conditions of use by activating the '**I agree to the Terms & Conditions of Concremote**' checkbox.

➤ Click on '**Continue**' to proceed to the next step.



Step 2

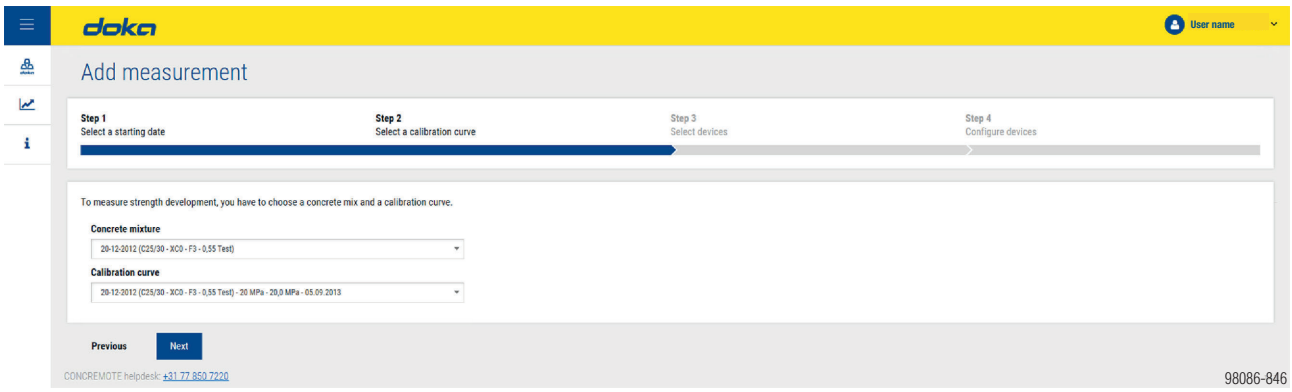
➤ Select the correct concrete mixture and calibration curve for this measurement.

NOTICE

➤ You can leave both these fields blank if you merely want to have the temperature logged.

➤ You have to confirm your choice of concrete mixture before you can proceed to step 3 by clicking on '**Next**'. Make sure that the concrete mixture you selected corresponds to that actually used for the structure.

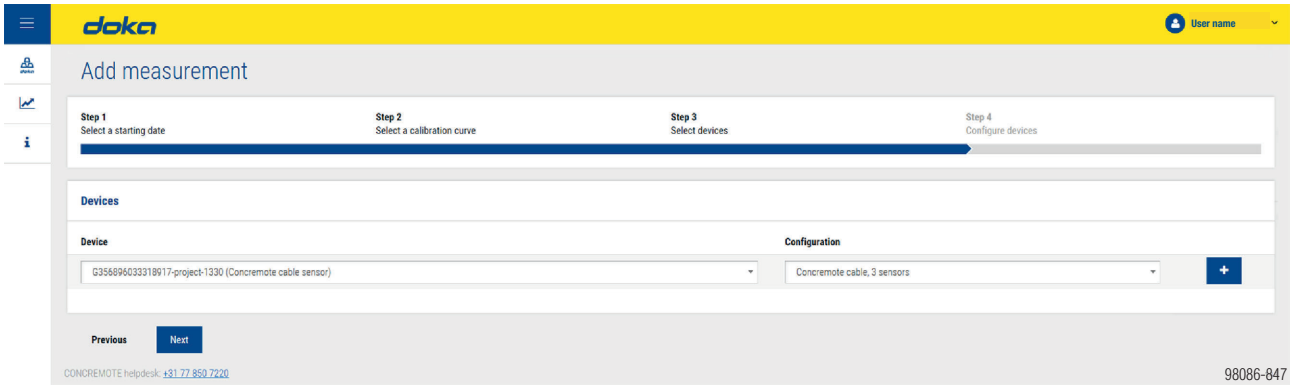
➤ Click on '**Next**' to proceed to the next step.



Step 3

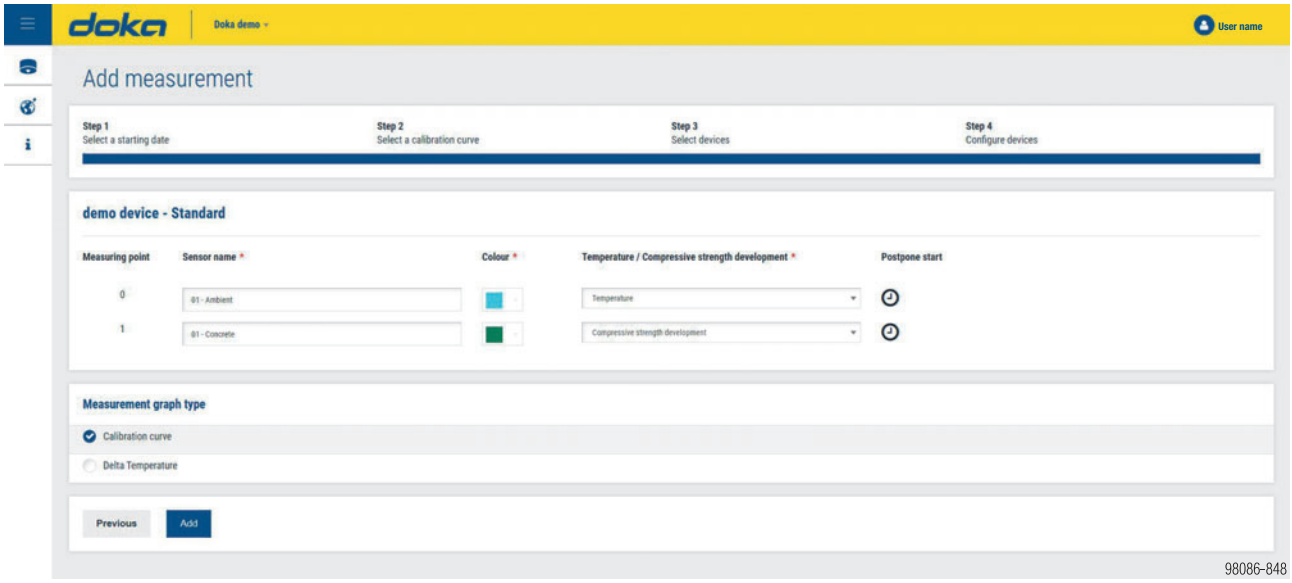
➤ Click on the drop-down buttons and select the devices (sensors) and the configuration of the sensors. If you need to add devices, click on the plus sign ('+').

➤ Click on '**Next**' to proceed to the next step.

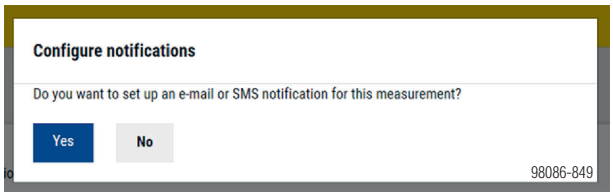


Step 4

- ➤ Optional: Configure the device by selecting a colour and naming the measuring points in the first column.
- ➤ At '**Temperature/compressive-strength development**', select the parameters you want to have graphed in measurement. The preconditions for 'Compressive-strength development' are prior calibration of the concrete mixture(s) and selection of the calibration curve in step 2.



- ➤ By selecting '**Add**' you include an additional step in which you configure notification.



- ➤ Click on '**Yes**' to acknowledge the prompt and create a notification (see the section headed 'Configure notification', 'Step 1')
- ➤ Click on '**No**' in response to the prompt if you prefer to configure confirmation at a later point in time.

Measuring points of the devices

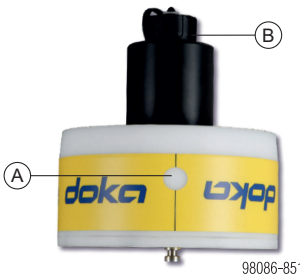
- **0**: Ambient temperature (measurement of the air temperature in the Concremote device)
- **1-3**: Measurement of the temperature in the concrete by the probe in the sensor or cable

Concremote slab sensor

A Measuring point 0: Measurement of the ambient temperature in the sensor housing

B Measuring point 1: Concrete temperature

Concremote cable sensor



A Measuring point 0: Measurement of the ambient temperature in the sensor housing

B Connection for wall sensing unit or (lost) cable

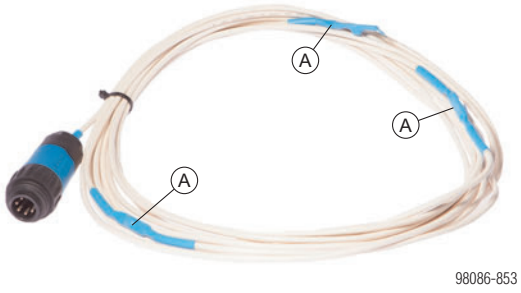
Option with sensing element wall

Has to be connected to the cable sensor.

A Measuring point 1: Sensor for concrete temperature

Option for (lost) cable with 1 or 3 sensors

Has to be connected to the cable sensor.

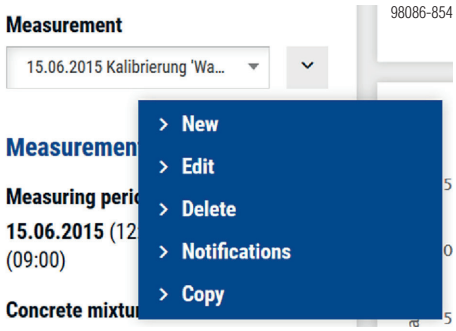


A Measuring point 1(-3): Sensor(s) for concrete temperature

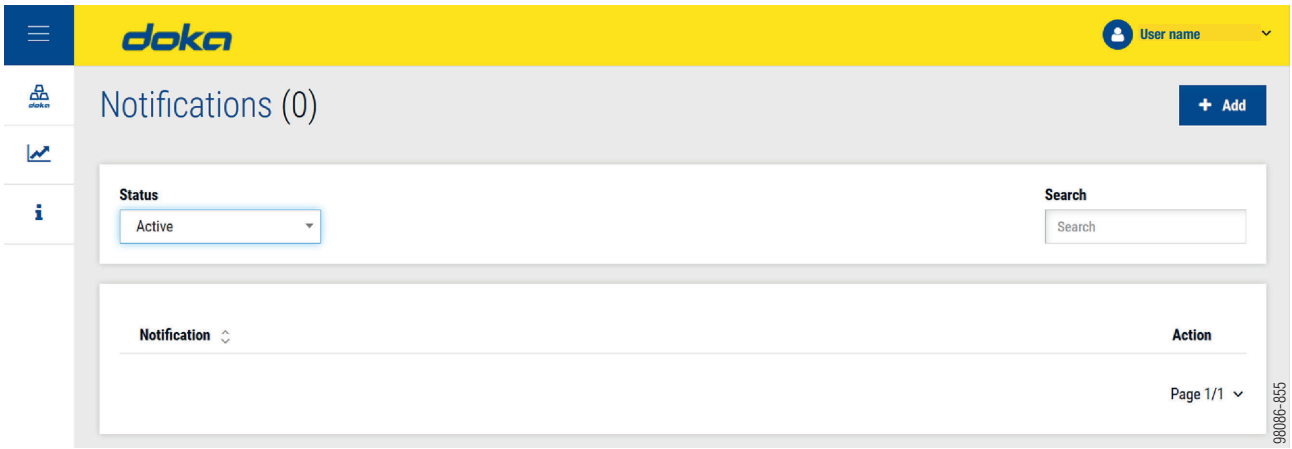
Note:
In cables with 3 measuring points, position 1 is the first measuring point after the screw connection.

Configure notification (text message or email)

➤ You can configure text-message (SMS) or email notification either when you are creating a sensor or afterwards, by clicking on the drop-down button beside a selected measurement and selecting '**Notifications**'.



➤ Clicking on the '**Notifications**' button opens the notification menu, where you can view existing notifications and delete or add notifications.



➤ Click on the '**Add**' button to create a new notification.

Step 1

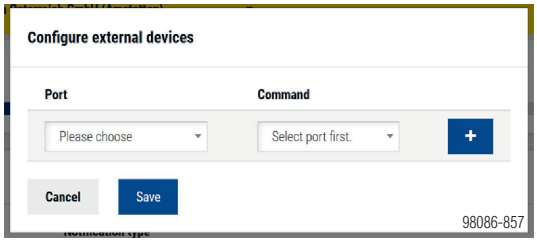
- Enter a descriptive text for the notification (e.g. 'Target value achieved' and select a notification type from the drop-down menu. You can choose between 'When reaching a defined value' and 'At a fixed time'.
- Then add the recipient(s) of the notification by clicking on the drop-down button in the bottom part of the screen. Select notification by text message (SMS) or email by ticking the checkboxes as appropriate and selecting the correct values.
- You can add recipients by clicking on the plus sign ('+') on the right.
- Click on '**Continue**' to proceed to the next step.

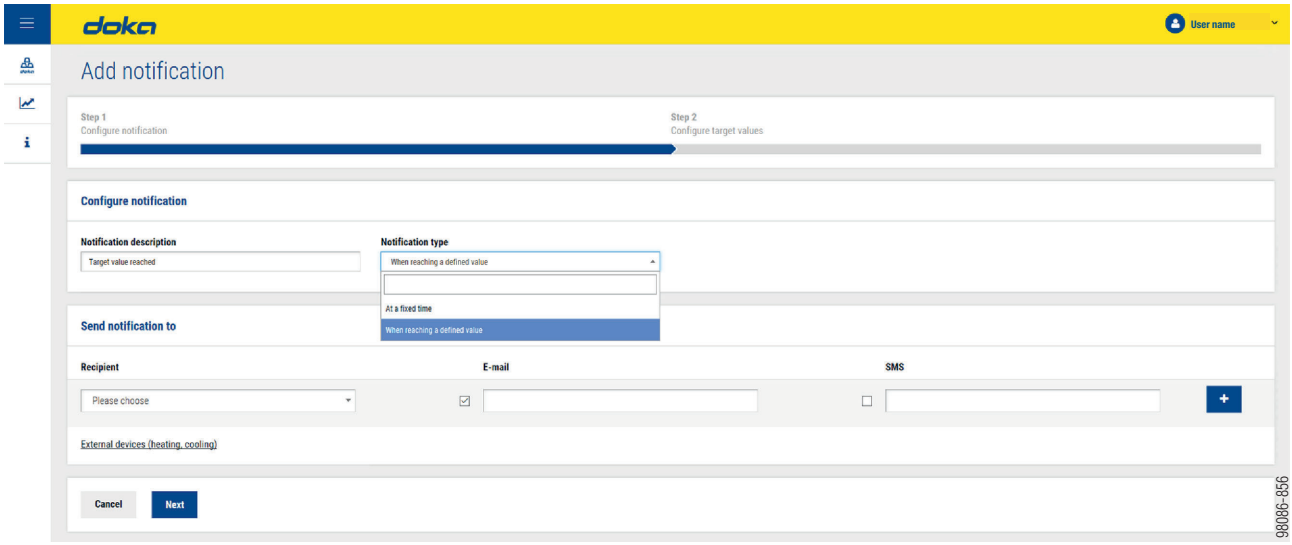
NOTICE

If a person to be notified is missing from the list, inform Concremote support or your designated Doka contact person accordingly.

Optional: Control external devices (e.g. heating or cooling systems):

You can also select the port via which notification will be received. You can also select the command (ON or OFF) that will trigger notification.

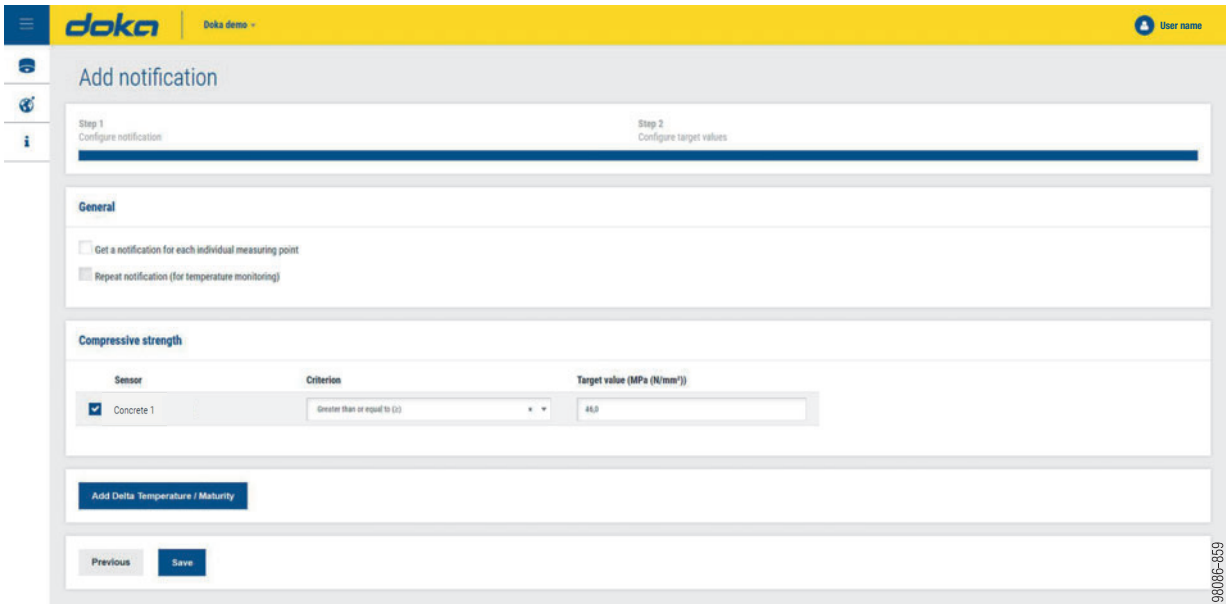




Depending on the choice made in step 1, the next step in the procedure is either 2a or 2b.

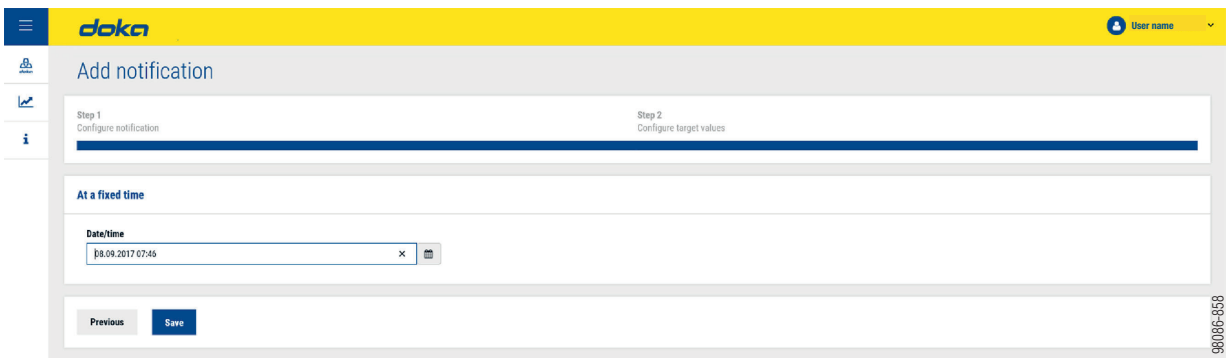
Step 2a (When reaching a defined value)

- If you selected '**When reaching a defined value**', the next step is to decide whether you want to activate the '**Receive separate notification for each measuring point**' checkbox.
  If you do not activate this checkbox notification is issued as soon as all the selected measuring points have reached the target value.
- The '**Compressive strength**' part of the screen is where you select the sensor values, the preferred criteria and the target value. You can click on '**Add delta, temperature/maturity**' if you want to add more criteria.
- Click on '**Save**' to save the notification settings and return to the notification menu.



Step 2b (At a fixed time)

- If you selected '**At a fixed time**', you can now enter the date and the time when you want notification sent.
- Click on '**Save**' to save the notification settings and return to the notification menu.

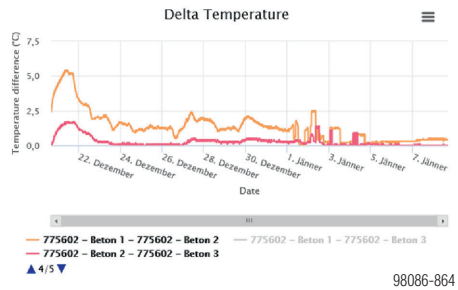


Reading the data

After entering all the data, you can monitor the measurement on the graph page. The recorded data are displayed with a one-hour delay.

Note:

- If only the temperature is shown, without the compressive strength, no calibration curve is on file for this measurement or you did not select a calibration curve.
- Note that compressive strength is not displayed until a certain maturity level has been reached. If ambient temperatures are low, for example, it might take a while before the compressive-strength cure appears.
- You can hide and show individual curves in the graph. You do this by clicking on the corresponding elements in the legend underneath the graph. A greyed text indicates a hidden curve.

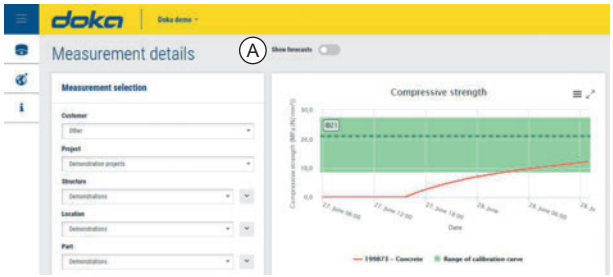


Forecast of strength development

The 'Forecast' feature lets you view a forecast of strength development while measurement is in progress. As the result, the estimated time at which the target value will be reached is shown in the compressive strength diagram.

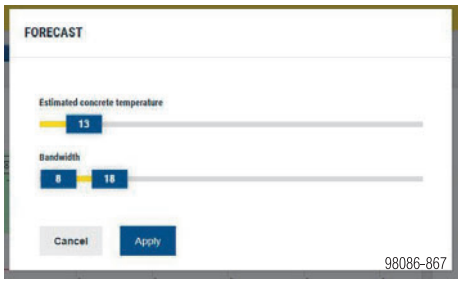
➤ Select measurement in progress.

➤ Activate the forecast feature.

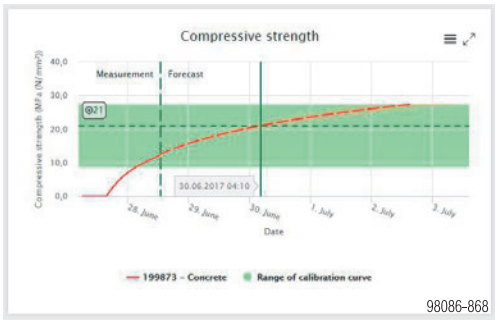


A Forecast feature

➤ In the pop-up, set the estimated concrete temperature and the bandwidth.



➤ As the result, the estimated time when the target value will be reached is shown in the compressive strength diagram.



NOTICE

- If you want another forecast, change the 'Concrete temperature' by clicking on the 'Actions' button and selecting 'Forecast settings'.

- A forecast that has been activated and performed is visible to all users in the Web portal. If this is not wanted, deactivate the forecast feature again.

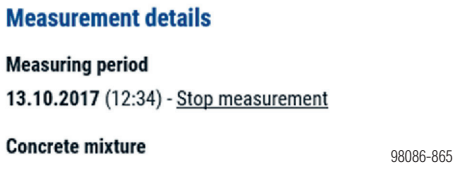
CAUTION

Injury to persons and/or damage to property.

➤ It is not permissible to base decisions - such as stripping the formwork or similar - on the forecasts generated by the 'Forecast' feature.

Optional: Manual conclusion of a measurement

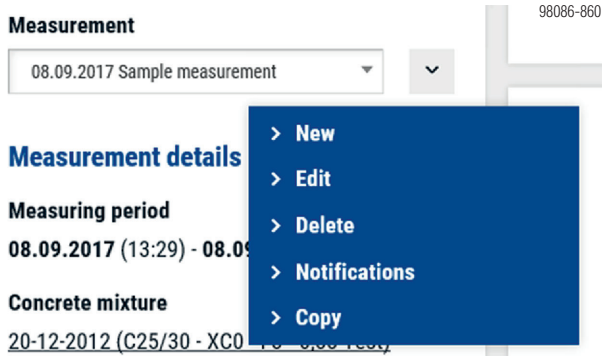
You can conclude a measurement in progress at any time by clicking on '**Stop measurement**'.



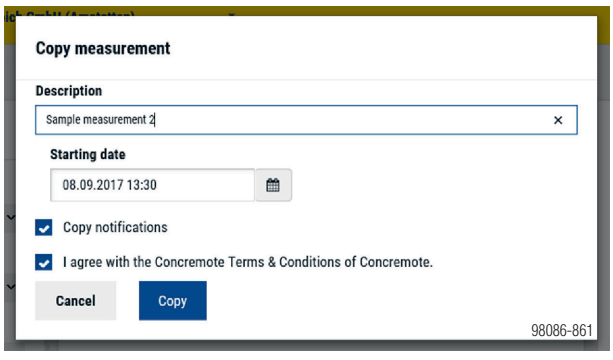
Copying a measurement

When a measurement is copied, all settings (concrete mixture, devices) and also the notification setting are used for the new measurement.

➤ To copy a measurement, just select the measurement you want to copy and click on its drop-down button. Click on '**Copy**'.



➤ A pop-up window opens and you can enter a name, the starting date and also the starting time for the measurement. Here too, you have to confirm that you accept the 'General terms and conditions' and then click on '**Copy**' again.



Scenarios comparison

The 'Scenarios comparison' feature enables calibrated concrete mixtures to be compared with each other. As the result, the fastest and the most cost-effective concrete mixture is shown.

The feature consists of two steps:

- Comparison: Enter the scenario parameters
- Results: Comparative display of the defined scenarios

CAUTION

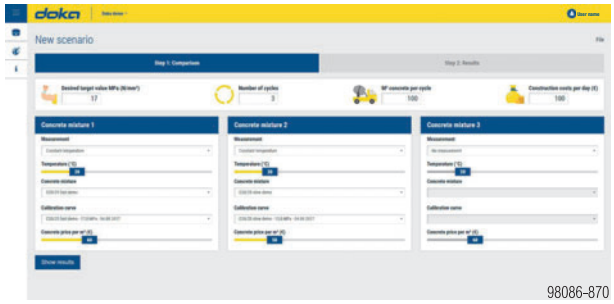
Injury to persons and/or damage to property.

➤ It is not permissible to base decisions - such as stripping the formwork or similar - on the comparisons generated by the 'Scenarios comparison' feature.

Step 1: Comparison

The first step is to define the parameters of the individual scenarios:

- Target value
- Number of concreting cycles (repeats)
- Cubic meters of concrete placed per cycle
- Construction costs per day
- Comparison of different scenarios (concrete, temperature)



NOTICE

Begin by defining the target value and the other parameters of the scenarios. The corresponding concrete mixtures can then be selected.

The possibilities for the definitions in the 'Concrete mixture' scenario boxes are as follows:

- Measurement, temperature profile:
  - Adjust the slide control to set a constant temperature
  - Select existing temperature profile from previous measurement
- Concrete mixture, calibration curve:
  - Only calibrated concrete mixtures can be selected.
- Concrete price:
  - Price per unit (m^3) is taken into account in the comparison of costs

NOTICE

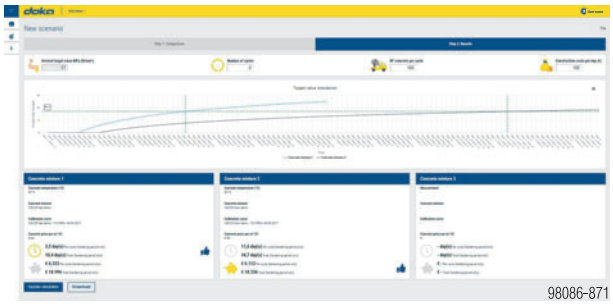
- The comparison of costs takes both the concrete costs and the construction costs during the setting time into account.
- When the number of cycles is selected the total costs for all cycles are shown in the next step (concrete costs, construction costs).

Step 2: Results

In step 2 the results - based on the definitions selected in step 1 - are shown.

The results consist of:

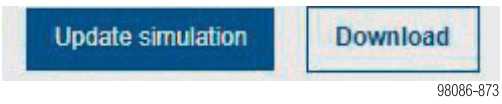
- Target-value simulation (graph)
- Comparison of the various scenarios (costs, time)



The **thumb-up** icon indicates the fastest and the most cost-effective concrete mixture.

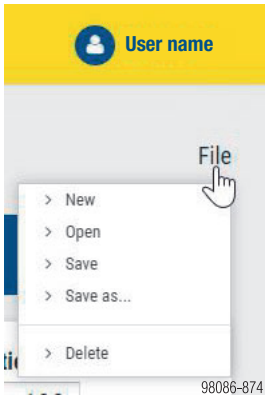
The 'Number of cycles', 'Concrete per cycle' and 'Construction costs per day' parameters can also be changed in this view, and the results updated by clicking on the 'Update simulation' button.

The scenarios you create can be saved as PDF files by clicking on the 'Download' button.



Clicking on the 'File' button - top right - opens a menu with the following options:

- New: Create a new scenarios comparison
- Open: Re-open a scenario saved beforehand
- Save: Save the current comparison (in a session that has already been saved
- Save as: Save the current comparison
- Delete: Delete the current scenarios comparison

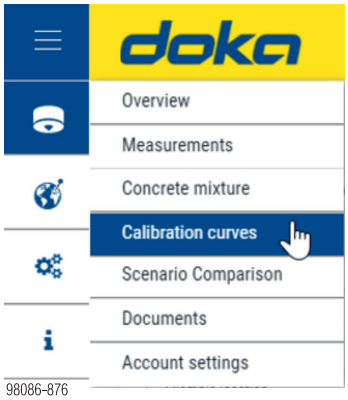


Note:
Scenarios saved by the user are not visible to other users.

Validation manager

Follow the directions in the section headed 'Validation of calibration curves' in the 'Concremote' Operating Instructions.

1) Select **Calibration curves** from the menu.



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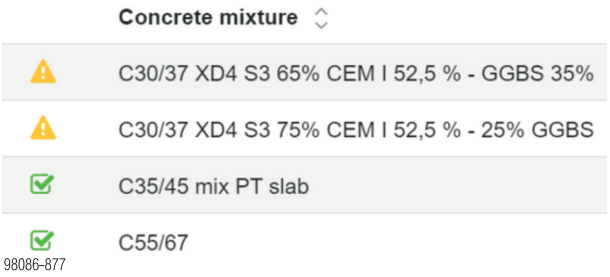
2) The overview shows the calibration curves. The individual entries in the list include an indicator showing whether validation is necessary.



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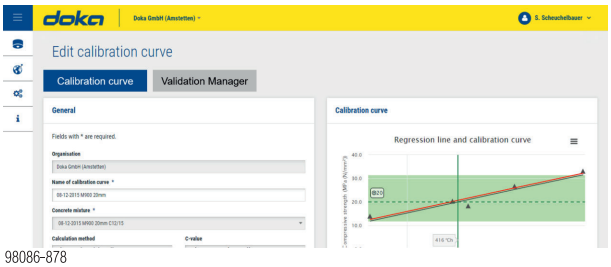
Yellow symbol ... Validation necessary
Green symbol ... Calibration curve has been validated
Red symbol ... Validation failed, re-validation / re-calibration necessary

3) Click on a calibration curve to select it for validation

4) Then switch to the **Validation manager** tab.



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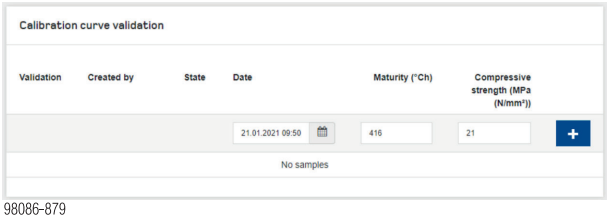
5) In the **bottom input panel**, enter the following data:
- Date and time of validation (testing of the sample)
- Maturity at that point in time
- Compressive strength of the sample

Click on the **"+" button** to confirm.



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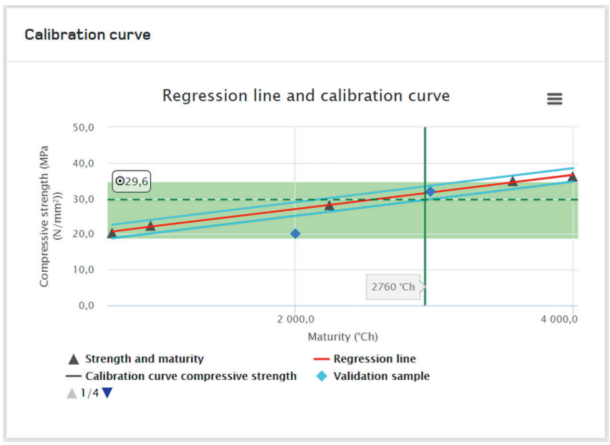
6) As the result, the sample's data are shown in the graph.



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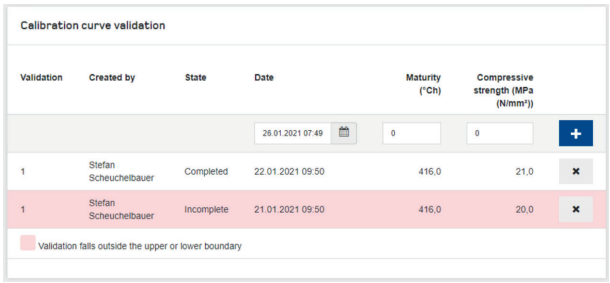
If the sample is within the permissible limits (blue lines), 'Completed' appears in the row as the entry in the 'State' column. The calibration curve can continue to be used.

If the sample is outside the permissible limits, the row in the table is highlighted red and 'Incomplete' appears as the entry in the 'State' column. Validation or calibration has to be repeated.



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7) Click on the Save button to conclude the operation.

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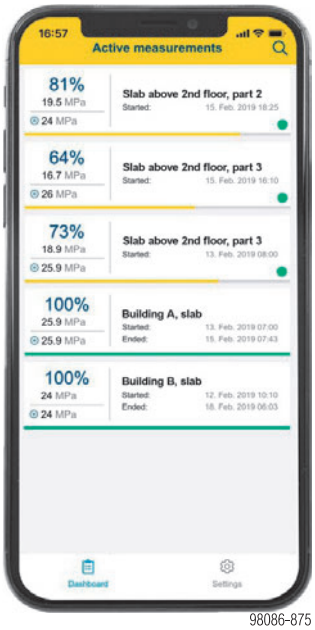
Concremote app

Available for iOS and Android smartphones. Download from the Apple App Store or Google Play Store.

Functions (excerpt from the full list):

- Overview of last measurements
- Sensor status in the current measurement
- Push notification
- Export data by Bluetooth BLE; supported by Concremote 2.0 devices



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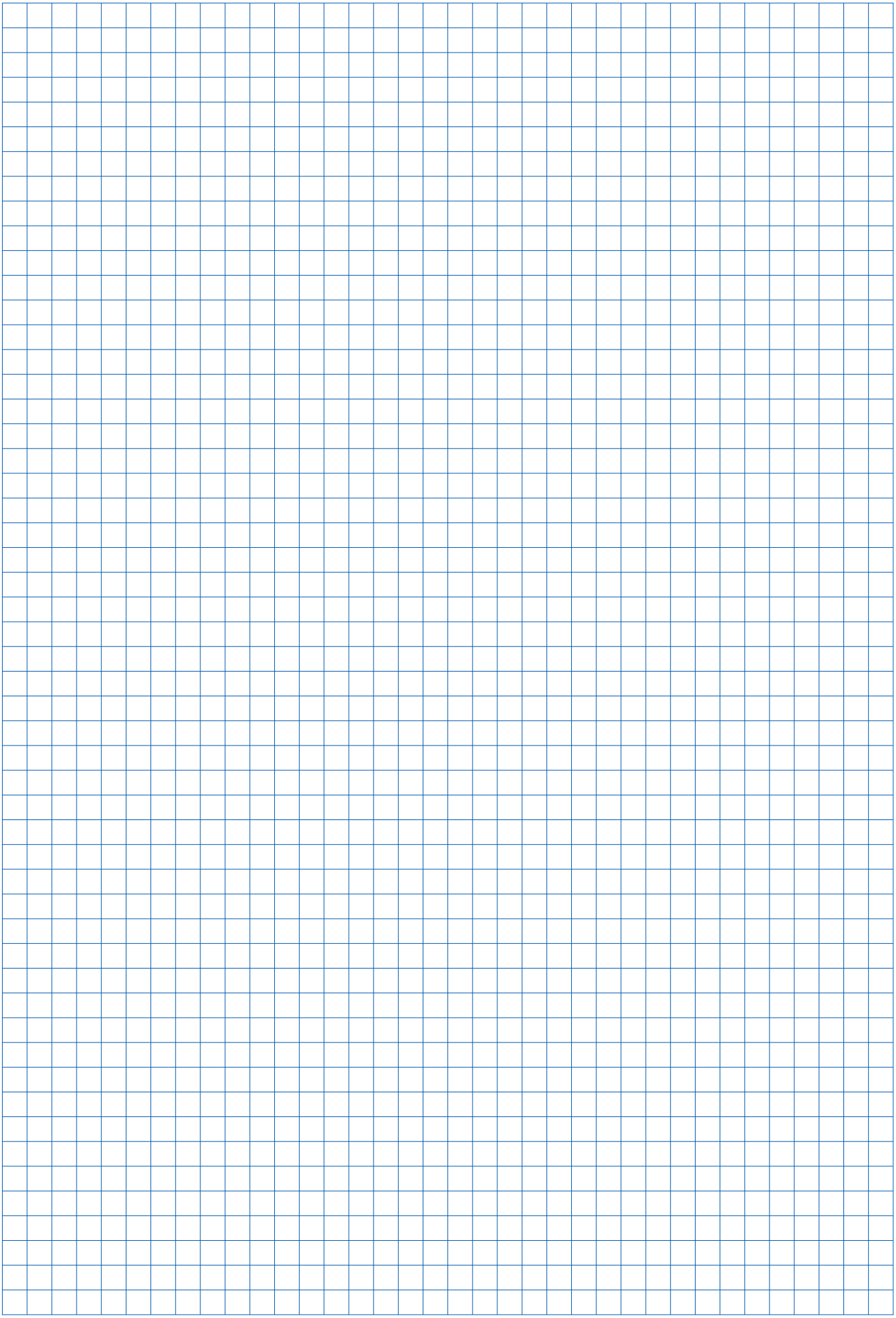

Formwork & Scaffolding.
We make it work.

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