

StructureExpert Weld-6

With SewSoft 4.0

Instruction Manual

Original Instructions



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1 About this manual

**CAUTION**

Struers equipment must only be used in connection with and as described in the Instruction Manual supplied with the equipment.

**Note**

Read the Instruction Manual carefully before use.

**Note**

If you want to view specific information in detail, see the online version of this manual.

2 About StructureExpert Weld-6

StructureExpert Weld is an imaging tool designed for weld bead analysis.

Features:

- inverted optical system
- built-in digital camera
- automatic lighting
- focus
- calibrated optical zoom steps
- software-controlled magnification adjustment
- internal light system with 4 ramps of LED that can be controlled simultaneously or individually
- Field of view from ~ 82 to 1.8 mm (~ 3.2" to ~ 0.07")
- Equivalent to ~ 2.5x - ~ 120x optical magnification

Included:

- StructureExpert USB key with SewSoft 4.00
- USB license dongle

Options (modules not included):

- DataView
- Report Generator
- QDas
- XML/JSON
- SewSoft AI 4.0
- Data Sharing and Visualization

3 Installation



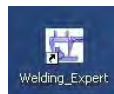
Hint

To install the hardware and software, see the separate Installation Manual that comes with the system for your machine.

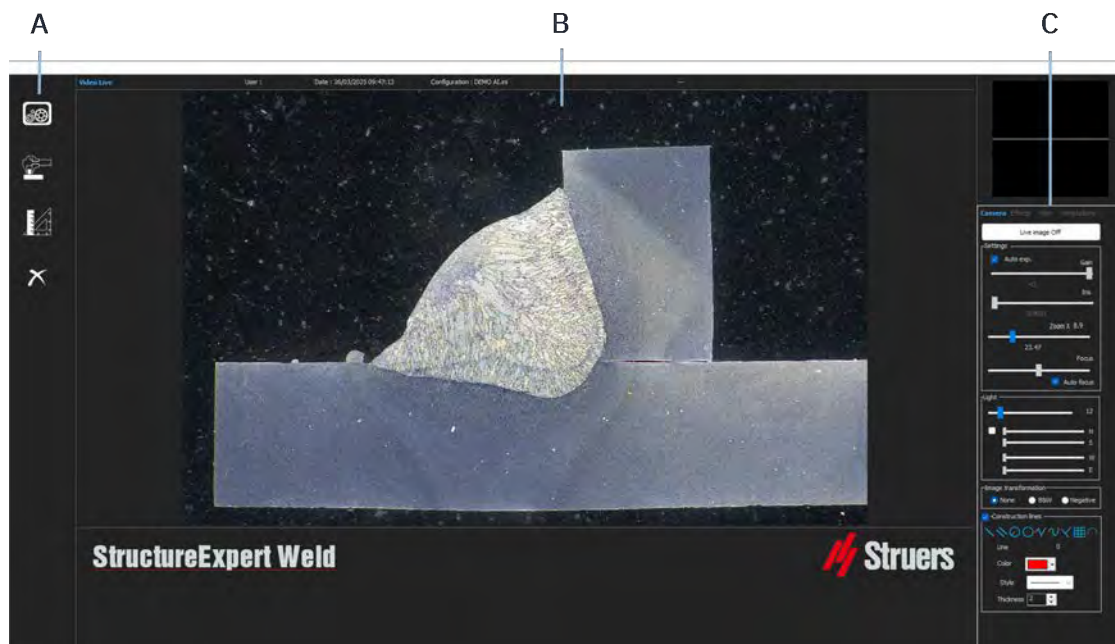
4 Get started – introduction

4.1 Launch the software

- Click the icon on the desktop.



4.2 Overview of the display

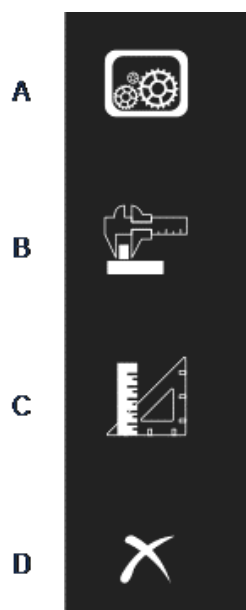


A Menu panel (▶9)

C Control panel (▶12)

B Main view (▶11)

4.3 Menu panel



A Administration menu (▶10)

C Measurement tools menu (▶39)

B Weld bead measurements menu (▶10)

D Exit

4.3.1 Administration menu

In the **Administration menu**, you can define passwords, create and manage operators and measurement tools.

1. Click the **Administration menu** icon in the **Menu panel**.
2. The default password to access this mode is "**admin**".



3. The following functions are available:



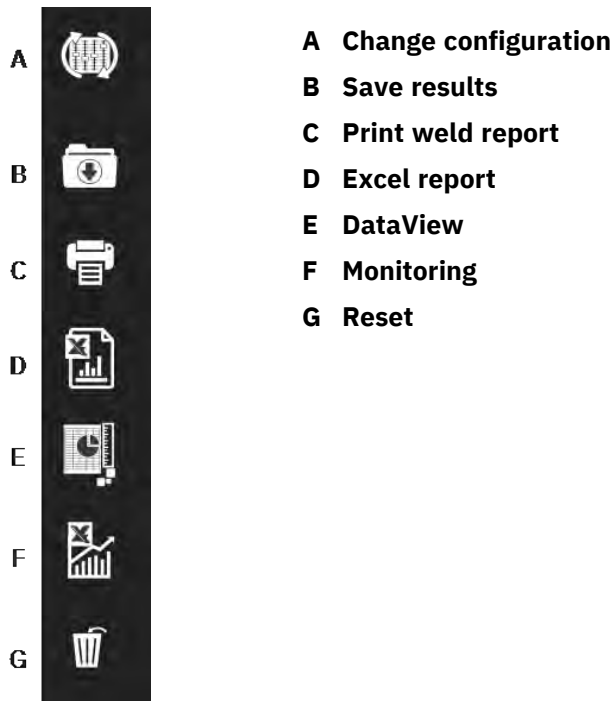
- A General description:** Define general settings of the software. Extra measurement definitions. Accuracy.
- B New part:** Completely define specific parts with all weld beads.
- C Modify part:** Modify any weld bead from a part.
- D New operator:** Create a new operator.
- E Operator management:**
 - Manage passwords (add, delete, modify).
 - Manage operators (add, delete, modify).
- F Calibrate:** Set up automatic calibration procedures.
- G Back:** Exit the **Administration menu**.
- H About:** View the serial number of the equipment, the software version, and the activated options.

4.3.2 Weld bead measurements menu

1. Click the **Weld bead measurements** icon.



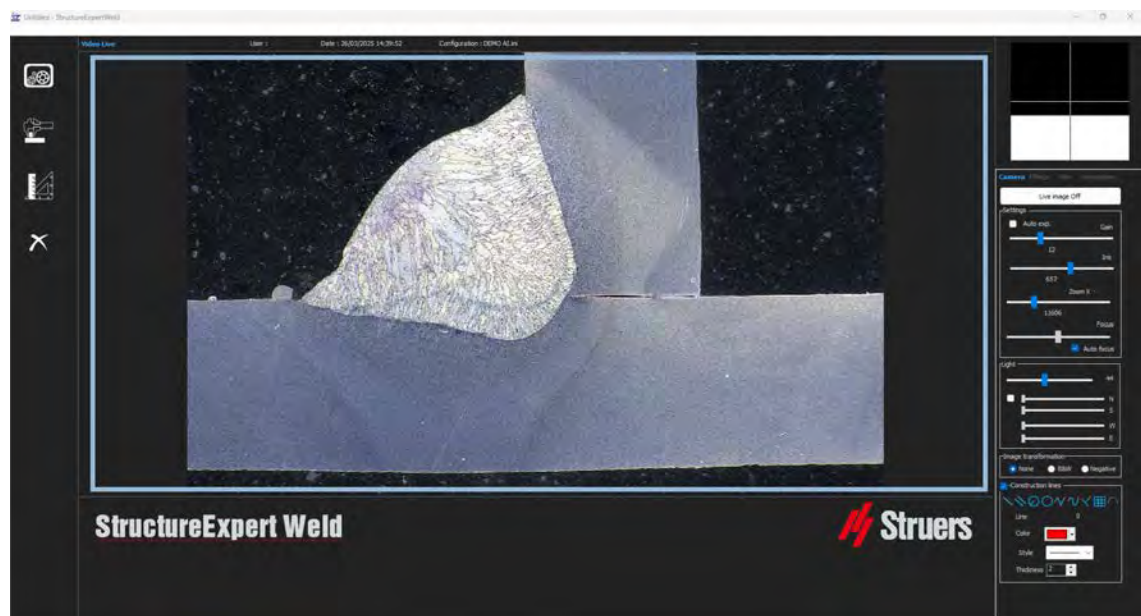
2. The following functions are available:



See also [Weld bead measurements ▶54](#).

4.4 Main view

The **Main view**, or 'the camera view', shows the image you wish to work with.



This is where you can see the effects of and work with the settings in the **Control panel**.

4.5 Control panel

Use the **Control panel** to manipulate the image you have taken.

4.5.1 Camera

Access the camera controls via the **Camera** tab.

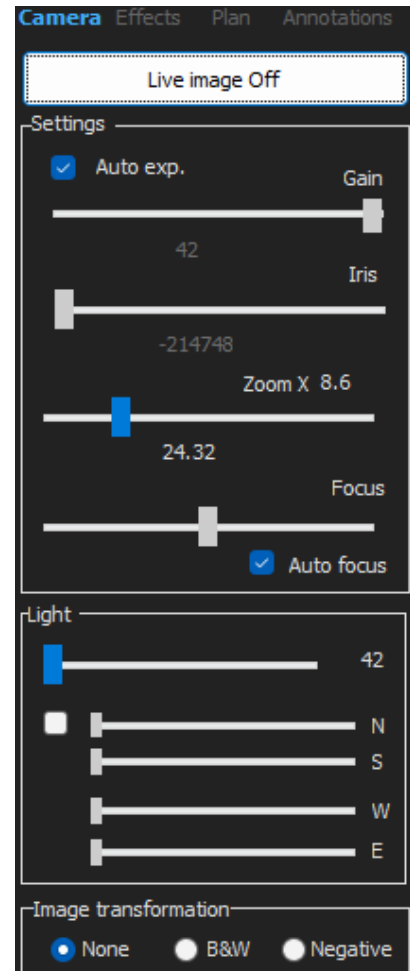
Live image Off/Live On toggle button

1. To display the image as live or frozen, click the **Live image Off/Live On** button.
2. The camera switches on in **Live On** mode, the **Control panel** becomes active, and you can now access the camera controls.

During live mode, the **Control panel** switches from shaded to active. You can only perform measurements when **Live image Off** is activated.

Settings

Auto exp.	Automatic camera brightness adjustment.
Gain	Electronic camera sensitivity.
Iris	Zoom aperture. Decrease the aperture to increase the depth of the field range.
Zoom	Global magnification.
Focus	Manual focusing of the image.
Auto focus	Automatic focusing of the image.



Light

The lighting system is controlled from the software.

Use the sliders to adjust the light intensity individually for each of the 4 segments, from 0 (no light) to full intensity.

Uncheck the checkbox to control the individual sliders.

The units denote the 4 main compass directions:

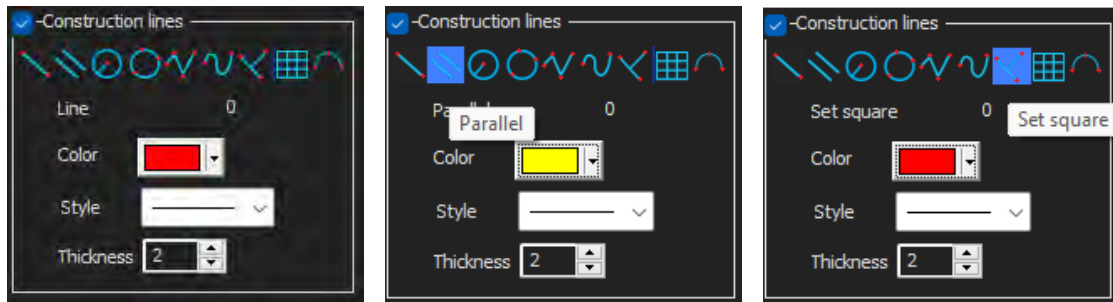
N(orth), S(outh), W(est), E(ast).

Image transformation

None	No color
B&W	Black and white image
Negative	Inverted contrast.

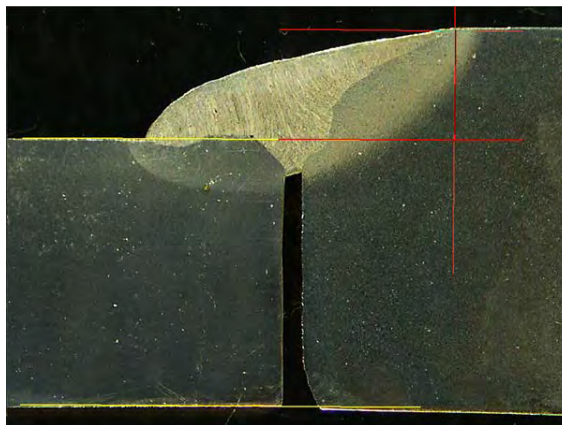
Construction lines

To assist the measurement process, you can add construction lines on the live image and on the captured image.



1. Select one of the construction lines and draw on the live or captured image.
2. You can set the properties of the drawings individually.

Click the icon you wish to adjust, and change the settings. If needed, repeat the process for all icons.



4.5.2 Effects

The **Effects** tab is only active if the camera is in **Live On** mode.

Color saturation

Use the slider to adjust the color intensity.

-64: No color

+ 64 : High intensity color

Sharpness

Use the slider to adjust the detail level in the image.

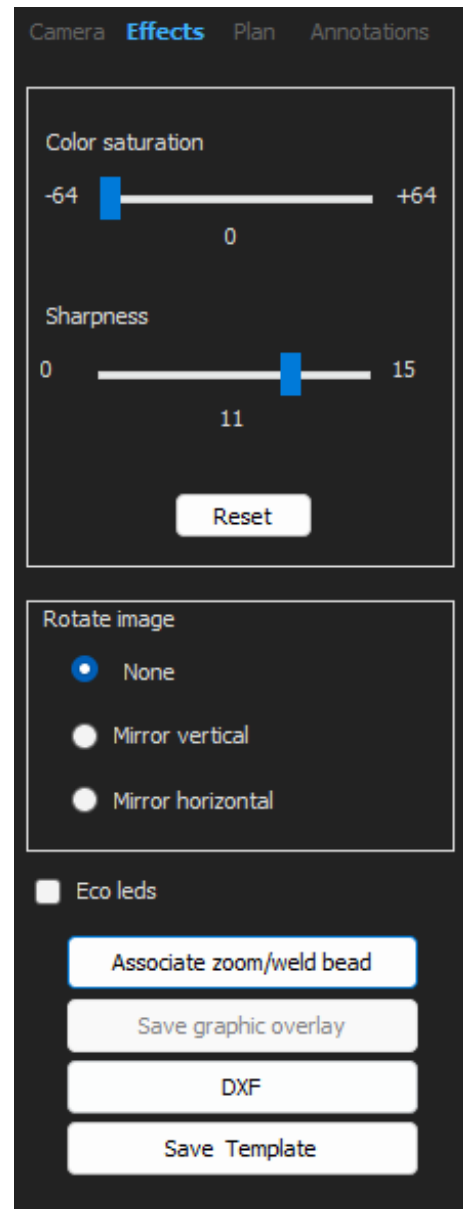
Default value: 7

Reset

Use the button to reset values to the default values.

Rotate image

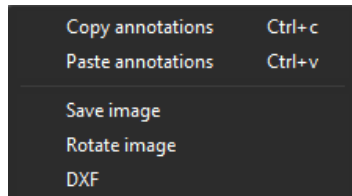
After image capture, you can mirror the image in order to have an image orientation similar to the real sample.



1. Right-click the image.



2. Select **Rotate image**.



3. Define the horizontal axis and release the mouse.
The image is now horizontal.



Eco leds

When the checkbox is...

- checked off, the light is switched off when an image is captured.
- not checked off, the light is always switched on.

Associate zoom/weld bead or Dissociate zoom/weld bead

You can associate an ideal zoom factor for each weld bead. Each time you select a weld bead, the camera zoom will move to the recorded position.

This setting requires system administrator rights.

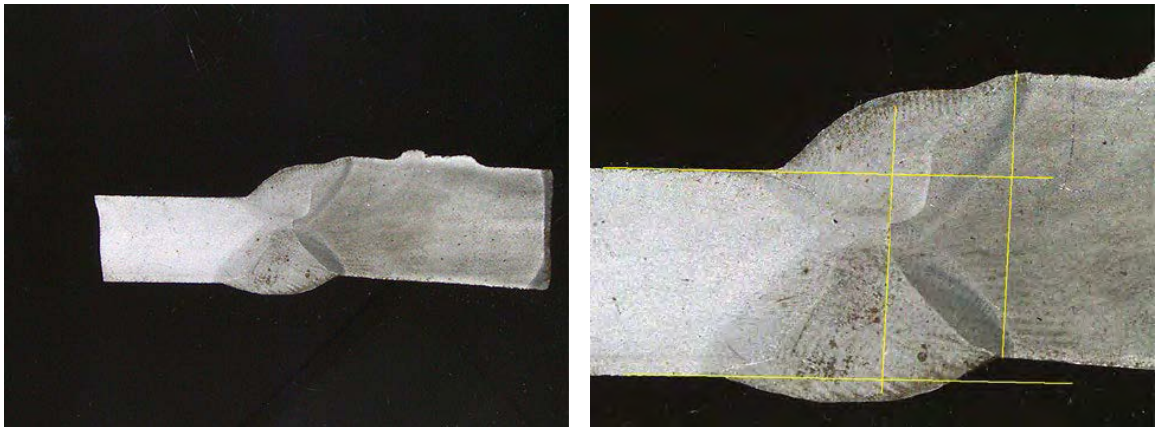
Associate graphic overlayor Dissociate graphic overlay

When a zoom is set for a weld bead, this button is active.

You can save the construction lines for a weld bead. When the weld bead is recalled for measurement, the zoom moves to the correct position and the saved construction line is displayed.

This setting requires system administrator rights.

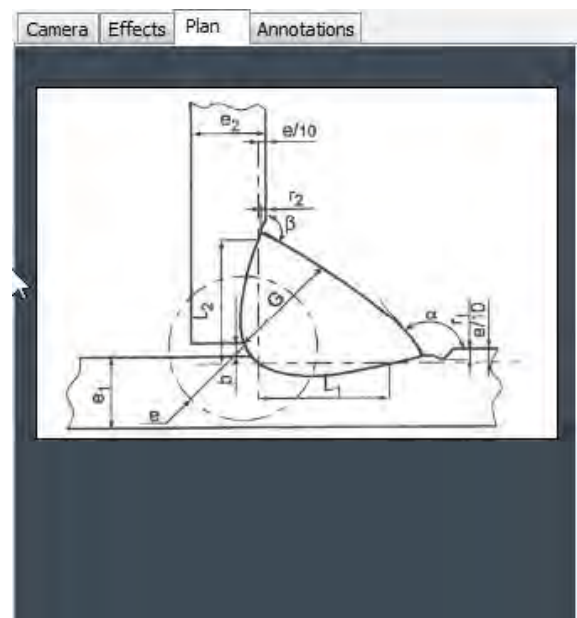
Defined zoom position with saved overlays:



4.5.3 Plan

In the **Plan** tab, you can see the drawing associated to the selected weld.

- Click once on the drawing to resize it.



4.5.4 Annotations

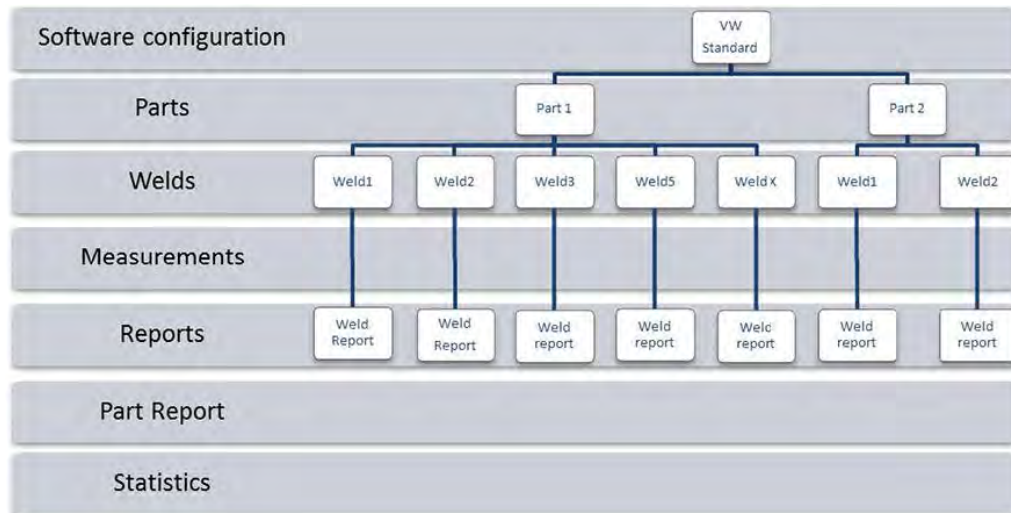
Click the **Annotations** tab to add texts and arrows to the image.

See [Add text and arrows ►60](#).

5 Configure the software

The first step in configuring the software is to create one or several software configurations according to the required specifications.

For instance, one configuration must be in compliance with the standards of one customer, another configuration must be in compliance with the standards of another customer, etc.



5.1 Create a new software configuration

The default software configuration is: **Welding_config**.

Define free fields

The screenshot shows the "Define free fields" interface. It features a table with 7 columns, each representing a free field. The columns are labeled as follows:

- INFO_1
- INFO_2
- INFO_3
- INFO_4
- INFO_5
- INFO_6
- INFO_7

Each column has a corresponding input field for defining the field's title. The input fields are labeled as follows:

- Operation
- Designation
- Material 2
- Info2
- Part class
- Material 1
- Info1

7 free fields are available. The title of each free field must be defined.

These free fields will be used later to add information about each weld.

Define measurements

The screenshot shows the "Define measurements" interface. It features a table with 12 columns, each representing a measurement. The columns are labeled as follows:

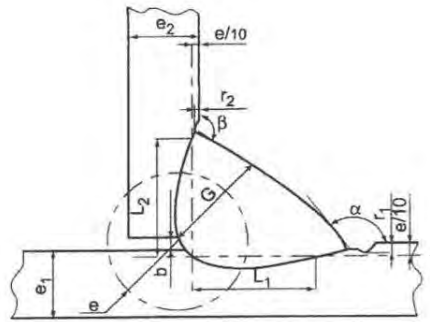
- Thickness sheet metal 1
- Throat
- Joining angle 1
- Min penetration sheet 1
- Weld Bead penetration width 1
- Penetration sheet metal 1
- Thickness sheet metal 2
- Gap
- Joining angle 2
- Min penetration sheet 2
- Weld Bead penetration width 2
- Penetration sheet metal 2

Each column has a corresponding input field for defining the measurement's title. The input fields are labeled as follows:

- T1
- Throat
- Alpha
- MinP1
- Leg1
- Penet1
- T2
- Gap
- Beta
- MinP2
- Leg2
- Penet2

There are 12 default measurements in the software. These represent the most common weld measurements. See [Measurements ►19](#) below.

You can change each measurement title in the **Measurements glossary** area in order to be in compliance with the required standards.

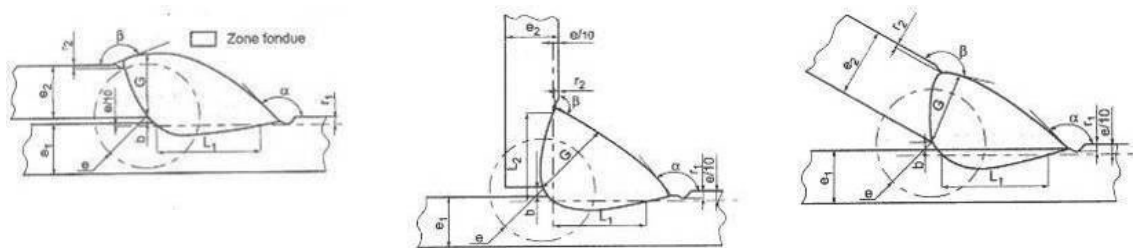


Extra measurements

You can create extra measurements in the **Enter extra measurement number** area.

The goal is to create all the measurements that will make it possible to process all the samples.

For instance, enough measurements have been created so that the following samples can be processed.



You can add an unlimited number of extra measurements.

Each new measurement can be defined as follows:

Measurements	Title	Description
Parallel	Parallel	The distance between 2 lines
Line	Line	The length of a straight line
Angle	Angle	In degrees
Region (Area)	Region (Area)	Surface
Circle (Diameter)	Circle (Diameter)	Of a 3-points formed circle
Circle (center)	Radius	Of a circle formed from its center (the circle is removed after the mouse is released)
Triangle	Triangle	The height of a triangle
Set Square	Set square	The height of a set square
Checkbox	Checkbox	For creating a checkbox
keyboard input	Keyboard input	For creating a keyboard input in the measurement table
Porosity	Porosity	For evaluating the porosity in % inside a weld
Formula	Formula	For creating a measurement which is the result of a calculation between two or several measurements
Line Free	Line free	The length of a manually drawn line
PolyLine	Polyline	The length of a broken line
Arc length	Arc length	The length of an arc circle
Leg length	Leg length	The measurement between 2 points
Circle (radius)	Circle (radius)	Of a circle formed from its center (the circle is shown after the mouse is released)
AIS	AIS	Not implemented (Automatic Image Segmentation)

For more information about measurements, see [Measurement tools ►39](#).

- Add the number of the extra measurement.

The screenshot shows a software interface for configuring measurements. It includes a 'Validate' button, a 'Unit' dropdown set to 'millimetry', and an 'Accuracy' dropdown set to '0.01'. There are two sets of dropdown menus for selecting measurement types: 'Understart' (with options 'Parallel' and 'Line') and 'Understart2' (with options 'Circle' and 'Circle (radius)').

Optional comments

In the **Optional comments** area you can add information about the weld in 3 **Title** fields. E.g. serial number, fabrication date, etc.

Optional comments: Title 1 Batch_number Mandatory Title 2 Field1 Mandatory Title 3 Field1 Mandatory

These 3 fields are very important if you wish to sort results after the measurement process, for instance according to data sorting, report creation, statistics, etc.

Each **Title** field creates an information area to be filled in during the measurement process.

The first comment field, often defined as the batch number is a sorting key, enabling to create a report using for instance this batch number.

If you wish to set a field as mandatory, check off the **Mandatory** checkbox. During the measurement process, results cannot be saved until the field is filled in.

Machine description list

In this area, you can enter the name of each welding machine, or each welding fixture, etc.

You can use this area used as a sorting key when you create a report.

If you wish to set a field as mandatory, check off the **Mandatory** checkbox. During the measurement process, results cannot be saved until the field is filled in.

Machine description list (1 machine by line)

☐ Mandatory

Welding Machine1
Welding Machine2
Welding Machine3
Welding Machine4

Checkboxes for visual defects

In the **Enter extra check box number** area, you can specify weld bead quality by making a visual check of the samples.

You can define an unlimited number of defects which must be verified during the measurement process: Porosity, cracks, etc...

Enter extra check boxes number:

Porosities
Cracks
Other

During the measurement process if a visual defect is activated, automatically the associated weld will be considered as NON CONFORM in the software, reports, etc.

If you wish to set a field as mandatory, check off the **Mandatory** checkbox. During the measurement process, results cannot be saved until the field is filled in.

Measurements type

The measurement type is an important sorting key for report editing.

You can identify each measurement series: Shift 1, Shift 2, Series 1, Series 2, Prototype, Production start, etc.

If you wish to set a field as mandatory, check off the **Mandatory** checkbox. During the measurement process, results cannot be saved until the field is filled in.

Save a configuration



Note

Do not copy/paste data from one configuration to another, as it will create a range of software issues.



Note

A saved configuration cannot be modified. It must be saved under a different name.

When you have defined the new configuration:

1. Click the **Save Config** button to save the configuration.
2. Use the drop-down list to select the desired configuration.

Modify a configuration

You can modify the configuration in the areas shown.

For checkboxes, only the titles can be modified, not the number of checkboxes.

1. Make the required changes.
2. Click **Modify additional information**.

6 Create parts and welds

Create a part

1. Click the **New part** icon.



2. Enter the part name in the **Enter new part identification** field.
3. Click **Validate**.

Create or modify a weld bead

Usually, for a complex part with many welds there are "x master" welds which are repeated x times on the part. We therefore recommend that you create these master welds and change their names to create other welds having the same characteristics.

When the part is created, a configuration table is shown.

Weld data associated with weld bead			
INFO_1	Operation	INFO_2	Part class
INFO_3	Designation	INFO_4	Material 1
INFO_5	Material 2	INFO_6	Info1
INFO_7	Info2		

1. Identify the weld bead and, if needed, the free fields attached to the weld bead.
The only mandatory field is **Weld bead identification**, where figures and letters are allowed.
Other fields are optional fields.



Note

The weld name must not start with 0 (0 is automatically removed by the software if used as first character).

The classification of weld names is done alphanumerically, so in order to prevent sorting issues in the software as well as in the reports, we recommend that you prefix the weld names with the following system of digits.

_001
_002
_003
_012
_111
_223
_.....

2. Select all the measurements required for the weld bead.

Line	T1	T2	Throat	Gap	Alpha	Beta	MiniP1	MiniP2	Leg1	Leg2	Pene1	Pene2
Sel.	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
Mandatory	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

- Check off the **Mandatory** checkboxes, as needed.
- Select drawing options **Thickness 1**, **Thickness 2**, **Throat Measurement**. These 3 are mandatory when you create an AI template, all others are optional. For manual measurements, nothing is mandatory.

Thickness 1 ☒ Lines measurements ☐ Circular measurements ☐ Full shape	Thickness 2 ☒ Lines measurements ☐ Circular measurements ☐ Full shape	Throat Measurement ☐ Radius ☒ Triangle	Minimum penetration 1 ☒ Relative 20 (5%) ☐ Fixed 1 ☐ dependent 50 % of	Minimum penetration 2 ☒ Relative 20 (5%) ☐ Fixed 1 ☐ dependent 50 % of
--	--	--	---	---

☐ Ask to make all measurements ☐ Thinnest penetration

- Enter the acceptance criteria, if needed.

Line	T1	T2	Throat	Gap	Alpha	Beta	MiniP1	MiniP2	Leg1	Leg2	Pene1	Pene2
Sel.	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
Mandatory	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Min.	2	2	$=0.7 \cdot \min(T1, T2)$	0.00	0.00	0.00	0.00	0.00	$=T1$	$=T2$	0.2	0.2
Max.	3	3	$=0.5 \cdot \max(T1, T2)$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

- If the option “Min & Max Action Limit” module has been purchased with the system, you also have access to the Action Limit Minimum and Action Limit Maximum fields, **Act. Lim Min** and **Act. Lim Max**.

Act. Lim Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Act. Lim Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

- Click **Add weld bead**.

Part identification:		Tweld					Add weld bead					Modify weld bead				Delete weld bead		
id		T1	T2	Throat	Gap	Alpha	Beta	MiniP1	MiniP2	Leg1	Leg2	Pene1	Pene2	Undercut1	Undercut2	Weld length		
14	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0		
15	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0		
16	1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0		

Or...

Select an existing weld bead in the list. Modify it as requested. Apply a new name. Click **Add weld bead**. A new weld bead is defined.

Or...

Select an existing weld bead in the list. Modify this as requested. Click **Modify weld bead**.

Delete a weld bead

- To delete a weld bead, select an existing weld bead in the list. Click **Delete weld bead**.

The minimum penetration depth feature

The following measurement names are used as an example:

- R1/R2**: Minimum penetration line
- L1/L2**: Metal sheet thickness
- PS1/PS2**: Penetration of the weld into the metal sheet

R1 and **R2** lines are automatically drawn while drawing **L1** and **L2**.

Value relative to plate thickness

- **R1** and **R2** are defined as a fraction of metal sheet thickness.
- **R1** and **R2** are defined by L/n of L1 and L2 (usually 1/7th or 1/10th).
- **R1** and **R2** can also be defined as the smallest computed value between the two metal sheets thickness.

When you use this feature, measure **L1** and **PS1**, and immediately afterwards **L2** and **PS2**. Finally, click the **Min** icon to display a penetration depth equal to the thinner value. Complete the job for the other measurements (penetration width, angles, etc.)

- Check off the checkbox **Thinnest penetration**.

Minimum penetration 1		Minimum penetration 2	
☐ Relative	20 (5%)	☐ Relative	20 (5%)
☐ Fixed	1.2	☐ Fixed	1.5
☐ dependent	50 % of	☐ dependent	50 % of
☒ Thinnest penetration			



Hint

The minimum penetration is always defined by the thinnest metal plate. If you have 2 plates, e.g. a 10 mm plate and a 1 mm plate, the minimum penetration is 10% of 1 mm on both plates.

Fixed value

R1 and **R2** can also be defined by a fixed value.

Minimum penetration 1		Minimum penetration 2	
☐ Relative	20 (5%)	☐ Relative	20 (5%)
☒ Fixed	1	☒ Fixed	1
☐ dependent	50 % of	☐ dependent	50 % of

Dependent value for penetration with effective width

For flat metal sheets or circular metal sheets.

**Procedure – while creating a weld**

1. For minimum penetration, enable the item **dependent**, and select from the drop-down menu for extra measurements. In our example below called **LEG1**.
2. Measure **LEG1**.
3. Draw the **L1** line and adjust the **PS1** line.
4. The software will automatically draw the **R1** line with a length of 50% of the **LEG1** measurement.
5. Move the **R1** line inside the weld as deep as possible.
6. The **R1** measurement result is the distance between the **R1** line and the surface.

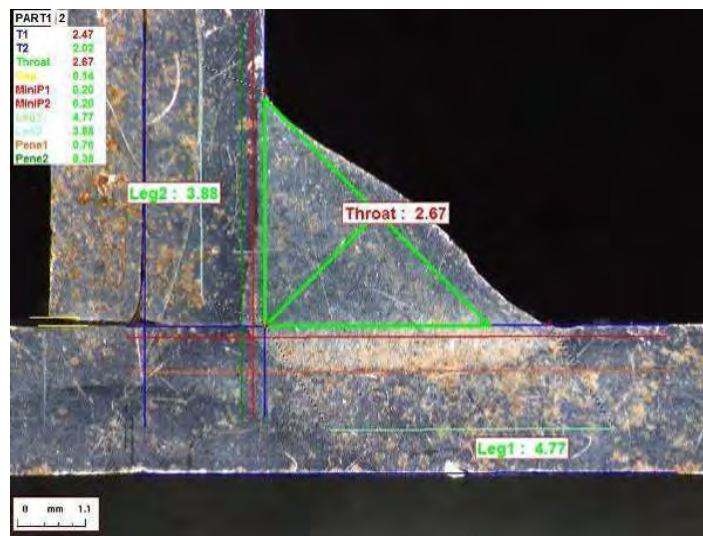
In the graphic, the main measurement is shown as **Rmin1**.

**Metal sheet thickness**

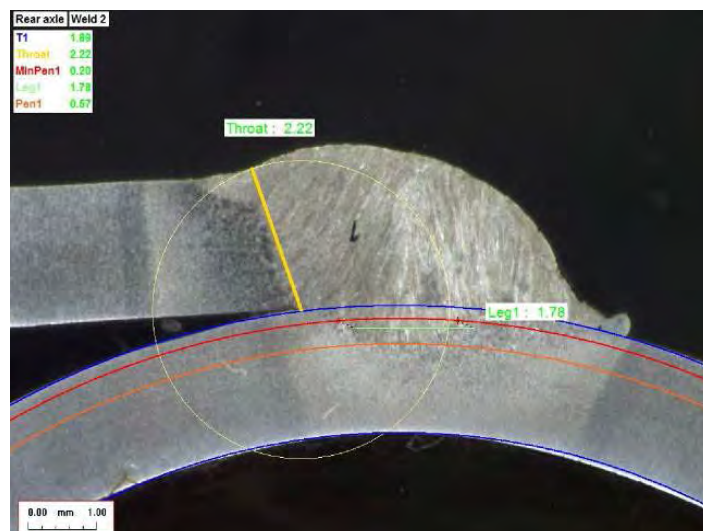
3 options are available for thickness measurement:

- Line measurements
- Circular measurements
- Circular measurements with full shape

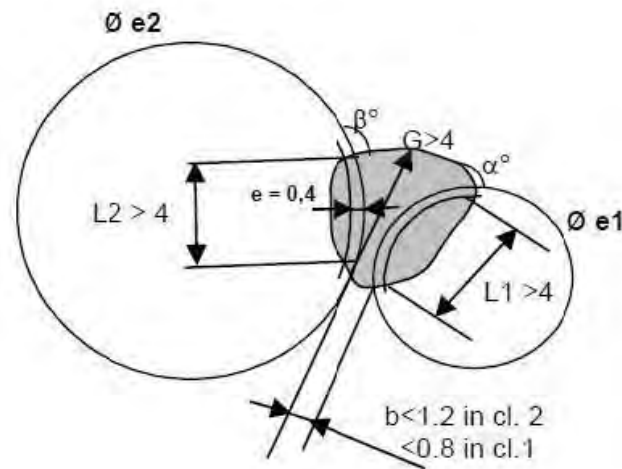
Line measurements: When the metal sheets are flat.



Circular measurements: When the metal sheets are circular.



Circular measurements with full shape: Metal sheet and a full rod.



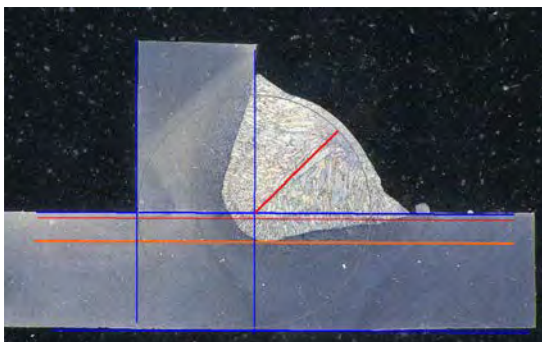
When you define the measurements of the rod, do the following:

1. Enable **Circular measurements**.
2. Check off the checkbox **Full shape** (below thickness 1 or 2).
3. Enable **Fixed** (below penetration 1 or 2).
4. Define the penetration in mm.

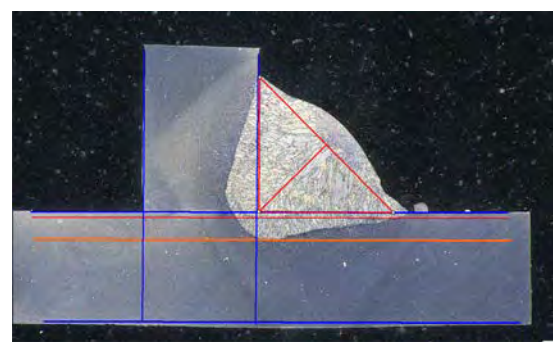
When you measure the part, the rod edge must be defined with 3 points (perimeter). The software automatically draws up to 3 concentric circles (the edge, the minimum penetration and the real penetration which has to be adjusted). The 3 circles have the same center.

Throat measurement

2 options are available for throat measurement. For more details, see [Line \(in fact circle\) ►43](#) and [Triangle \(isosceles rectangular triangle\) ►44](#).



Radius measurement



Triangle measurement

Acceptance criteria

In the software you can control measurements according to acceptance criteria.

Measurements results will appear in:

Green – Inside the acceptance criteria /without acceptance criteria

Red – Outside the acceptance criteria

Acceptance criteria can be defined with a maximum or minimum value or both.

Fixed acceptance criteria

When you create a new weld, you can enter your acceptance criteria in **Min.** or **Max..**

You can enter a minimum and a maximum value, or only a minimum or a maximum value.

If you do not enter acceptance criteria, measurement values will always be shown in green.

Act. Lim Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Act. Lim Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Acceptance criteria with formulas

Acceptance criteria can also be defined through formulas.



Note

Failure to follow these instructions may cause errors in processing results in the backup files as well as in Excel reports and statistics.

Formulas must start with the character '=' (equal to).

Allowed arithmetic operators:

+

-

*

/

Mathematical factors:

Example: Use a decimal point (.), not comma (,) as in 0.7

Allowed mathematical functions:

Min (minimum of 2 values) – see table below.

Max (maximum of 2 values) – see table below.

Sqrt (square root), labelled as =sqrt(l1)

Calc (calculation), =0.7*calc(t1+t2+t3)

Pow (power of), labelled as =pow(x,y) Example =pow(l1,2) to define the square of L1

Cos (cosinus of)

Sin (sinus of)

Formulas must refer to the name of the measurements.



Note

Do not use spaces and special characters in measurements names.

Example: =0.7*min(L1,L2).

Min (minimum of 2 values)

- Calculation of min value between L1 and L2
- Calculated min value is multiplied by 0.7 (70%)

The 2 measurements to be compared must be separated with , (comma)

Parentheses must enclose values of the function if there is more than one measurement to be compared. When there is just one measurement, do not use parentheses Example: $0.5 * L1$



Note

Failure to follow these instructions may cause errors in processing results in the backup files as well as in Excel reports and statistics.

VW STANDARD	StructureExpert Weld FORMULA	
$A \geq 0.7 T_{min}$	A Min Value	$=0.7 * \min(T1, T2)$
$B \geq T_{min}$	B Min Value	$=\min(T1, T2)$
$H \geq T_{min}$	H Min Value	$=0.25 * \min(T1, T2)$
$H \leq 0.5 T_{min}$	H Max Value	$=0.5 * \max(T1, T2)$
$B \leq 0.3 T1$	B Max Value	$=0.3 * T1$
$B \leq 0.3 T2$	B Max Value	$=0.3 * T2$

FIAT STANDARD	StructureExpert Weld FORMULA	
$LP1 \geq 60\% T1$	LP1 Min Value	$=0.6 * T1$
$PS1 \geq 15\% T1$	PS1 Min Value	$=0.15 * T1$

Line	T1	T2	Throat	Gap	Alpha	Beta	MiniP1	MiniP2	Leg1	Leg2	Penet1	Penet2
Sel.	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
Mandatory	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Min.	2	2	$=0.7 * \min(T1, T2)$	0.00	0.00	0.00	0.00	0.00	$=T1$	$=T2$	0.2	0.2
Max.	3	3	$=0.5 * \max(T1, T2)$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Any subsequent modifications in the acceptance criteria will have implications on the use of Excel files for statistical purposes.

We recommend 2 solutions:

1. Modify the whole Excel file for a dedicated part/weld bead couple, so that the new statistics include the modifications .

Or...

2. Copy the whole part/weld bead file into a new empty configuration file. The modifications will be applied only to future measurements.

Min & Max Action Limit

If the Min & Max Action Limit module has been purchased with the system, additional settings are available.

Act. Lim Min

Act. Lim Max.

6 Create parts and welds

Line	T1	T2	Throat	Gap	Alpha	Beta	MiniP1	MiniP2	Leg1	Leg2	Pene1	Pene2
Sel.	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
Mandatory	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Min.	2	2	=0.7*min(T1,T2)	0.00	0.00	0.00	0.00	0.00	=T1	=T2	0.2	0.2
Max.	3	3	=0.5*max(T1,T2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Act. Lim Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Act. Lim Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

The same rules apply for the definition of values: Fixed values, formulas etc....see previous section.

With minimum and maximum acceptance criteria, measurement results will appear in:

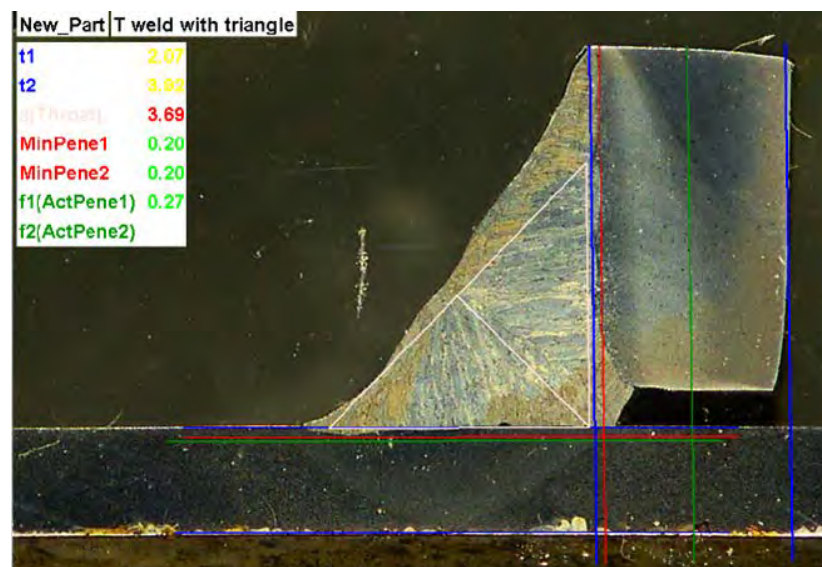
Green – Inside the acceptance criteria /without acceptance criteria

Red – Outside the acceptance criteria

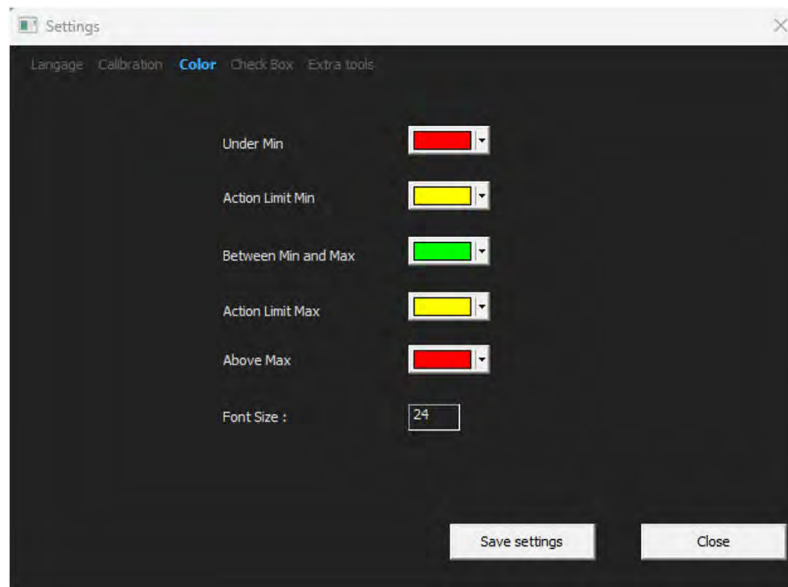
With the Min & Max Action Limit module measurements results will appear in yellow if they are between:

- **Min. value/Act. Lim Min**
- **Max. value/Act. Lim Max**

Part selection	Weld bead selection	Part selection	Part selection	Part selection	Part selection	Part selection	Part selection	Part selection	Part selection	Part selection
Class	t1	t2	h (Throat)	h (Gap)	MinPene1	MinPene2	b1 (PeneVth1)	b2 (PeneVth2)	t1 (ActPene1)	t2 (ActPene2)
Measurements	2.07	3.62	3.69	0.20	0.20	0.20	0.20	0.20	0.27	0.27
Min.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Batch Number										



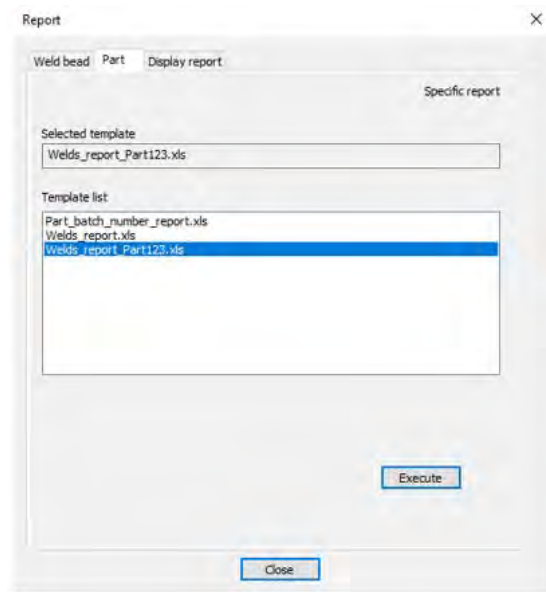
To change these colors, use the file Settings.exe in the installation folder of the software.



With the Min & Max Action Limit module, additional reports are available in the software:

- Part_batch_number_report.xls
- Welds_report.xls

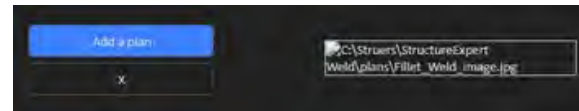
These are 2 specific reports where yellow is taken into account. If other reports are used, only red and green are taken into account.



Associate a plan to a weld bead

You can add a schematic with each weld bead to a measurement. The image must be in the .jpg format, preferably with a width of 200-pixels.

In the measurement part, this image will be shown under the **Plan** tab.



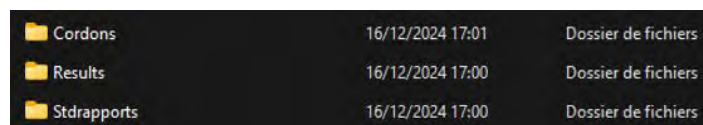
7 Modify parts and welds

Remove a part from your configuration

1. Close the software.
2. Go to the software folder in the Microsoft Windows File Explorer, for instance "C:\Struers\StructureExpert Weld-6 v3 30".
3. Go to the folder by the same name as your configuration, for example "C:\Struers\StructureExpert Weld-6 v3 30\Your_own_config".



4. Open the directory, and you will find 3 folders:



5. Open **Cordons** to see all the parts.



6. To delete one of the parts, tick off the part to delete and right-click **Remove to trash**.



If you are not sure, it is better to use **Cut** and move the file to another folder. If you move it back to the **Cordons** folder, you can use the part in the future.

Add a new part

1. Click the **New part** icon.



The screenshot shows the 'Add new part' configuration window in StructureExpert Weld-6. The window is divided into several sections:

- Selection:** A dropdown menu set to 'Weld'.
- Weld bead identification:** Fields for 'Part class', 'Material 1', 'Info1', 'Operation', 'Designation', 'Material 2', and 'Info2'. There is an 'Add a plan' button and a 'Duplicate part' button.
- Line Set:** A table with columns for various parameters (T1, T2, Throat, Gap, Alpha, Delta, Minor1, Minor2, Leg1, Leg2, Penet1, Penet2, Undercut1, Undercut2, Weld length) and rows for 'Mandatory', 'Min.', 'Max.', 'Act. Lim Min', and 'Act. Lim Max'.
- Formula:** Sections for 'Thickness 1', 'Thickness 2', 'Throat Measurement', 'Minimum penetration 1', and 'Minimum penetration 2'. Each section has radio buttons for 'Lines measurements', 'Circular measurements', and 'Full shape'.
- Part identification:** A table with columns for 'Part identification', 'Weld', and various parameters (T1, T2, Throat, Gap, Alpha, Delta, Minor1, Minor2, Leg1, Leg2, Penet1, Penet2, Undercut1, Undercut2, Weld length).

Add a weld bead

See the procedure for creating a weld bead.

Modify a weld bead

1. Select an existing weld bead in the above table
2. Make the changes.
3. Click the **Modify part** icon.



The changes in minimum and maximum acceptance criteria for weld bead that already have a results file will have consequences for statistics. The software will prompt you to change the minimum and maximum in the results file or not, and in this case recommends creating a new configuration.

Delete a weld bead

Select an existing Weld bead in the above table and click **Delete weld bead**.

8 Duplicate a part

1. To duplicate a part, select the part to duplicate.
2. Click **Duplicate part**.
3. Enter the name of the new part.



Note

Only the part is renamed, not the weld beads.

9 Create and manage operators

Each operator needs a log-in and a password to have access to the measurement part.

Create an operator

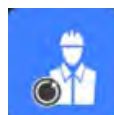
1. Click the **New operator** icon.



2. Enter the name of the operator in the **Name** field.
3. Enter the password of the operator in the **Enter new password** field.
4. Confirm the password in the **Confirm new password** field.
5. If you wish to grant the operator access to remove measurements and redo measurements in the DataView module, check off the checkbox **User to have permission to change the results files**.
See also [DataView \(option\) ►86](#)

Modify an operator's access rights

1. Click the **Operator management** icon.

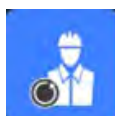


2. Select the operator from the **Operator list** (drop-down).
3. Click **Modify**.

4. To change the operator's password, enter the current password of the operator in the **Enter password** field.
5. Enter the new password of the operator in the **New password** field.
6. Confirm the password in the **Confirm new password** field.
7. If there is a checkmark in the **User have permission to change the results files** box, the operator is authorized to remove measurements and to redo measurements in the DataView module. See [DataView \(option\) ►86](#).

Delete an operator

1. Click the **Operator Management** icon.



2. Select the operator from the **Operator list** (drop-down).
3. Click **Delete**.

10 Calibration

The system includes a step-by-step motorized optical zoom. This optic is controlled by the software.

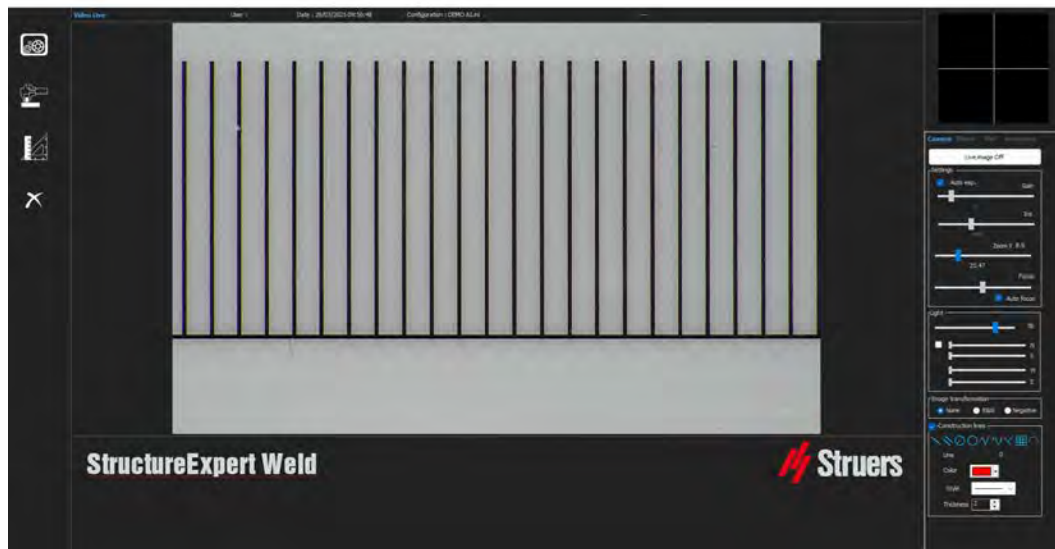
The calibration stage provided with the system

50 mm long with 1 mm divisions

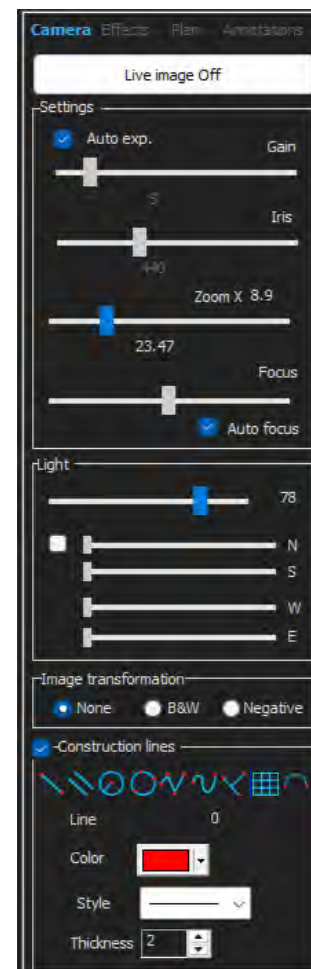
Automatic calculation of the calibration for each zoom position

Zoom range covers a field of view (FOV) from 82 mm to 1.8 mm

The software must be calibrated by the administrator after installation of the hardware and software.



1. Adjust the camera zoom to its highest magnification.
2. Place the calibration stage in order to have the drawings in the vertical direction.
3. Adjust light and camera settings to have a good contrast between the micrometer background and black lines, or activate the auto exposure feature.
 To ease the automatic calibration, adjust the light almost at the maximum and select the setting **Auto exp.**
 If you turn on the light at 2/3 of the maximum, the iris turn closed and the depth of view increases.
4. Make sure that the focus is correct. When you have done so, uncheck the autofocus feature.
5. Adjust the camera zoom to its lowest magnification.



6. Click the **Calibrate** icon.



7. Select **OK**.

FOV (Field Of View)

Detection of vertical black bars and drawing of green lines along the detected black lines are carried out automatically. The software automatically repeats the calibration process on all zoom ranges.

If the automatic detection is not correct (each full vertical bar must be detected) a message is shown.

Modify the camera settings and/or the light conditions to ensure a better contrast, and return to the icon **Calibrate** (the bars must appear as dark black without clearer edges or holes).

B&W conditions are recommended. See [Control panel ►12](#).

10.1 Calibration reports and calibration

The **CalibrationHistory.exe** tool is located in the installation folder of the software.

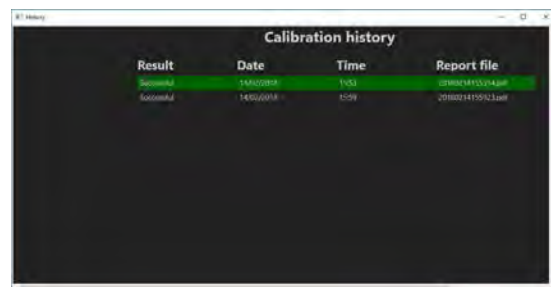
To view calibration reports:

1. Execute the file **CalibrationHistory.exe**.

All the calibrations attempts (successful or failed) can be reviewed.



2. Open a calibration report.



- Double-click on the line to open the calibration report

StructureExpert



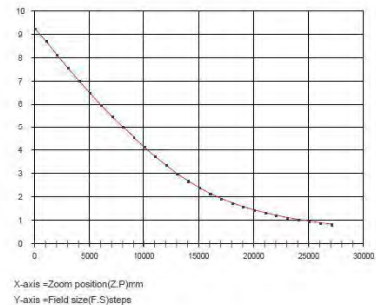
Report of calibration

Calibration date	02/14/2018
Calibration time	15:53
Calibration plate serial number	
Calibration certification number	
Date of issue	14/02/2018
Date of next calibration	14/02/2018

Calibration points

F.S(mm)	Z.P(steps)
6.267	0
6.741	1000
6.15	2000
7.577	3000
7.034	4000
6.504	5000
6.981	6000
5.5	7000
6.036	8000
4.533	9000
4.187	10000
3.748	11000
3.368	12000
3.011	13000
2.694	14000
2.406	15000
2.155	16000
1.938	17000
1.75	18000
1.584	19000
1.442	20000
1.322	21000
1.214	22000
1.119	23000
1.036	24000
0.981	25000
0.894	26000
0.830	27000

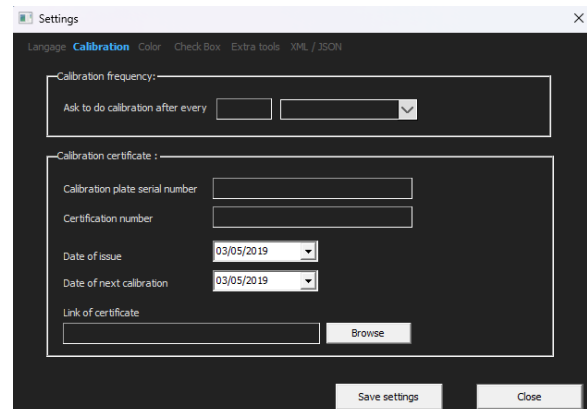
Calibration curve



Add additional information to the calibration report

You can add additional information to the calibration report (e.g. calibration plate, certificate number, etc.).

- In the installation folder of the system, launch **Settings.exe**.
- Click the **Calibration** tab to add information.



Calibration frequency

If needed, set the calibration frequency in the fields **Calibration frequency**.

If the calibration has expired, you will be prompted to recalibrate the system.

Exit the Administrator menu

- Click the **Back** icon to exit the **Administration menu**.



11 Measurement tools

1. To get access to the many measurement tools available, click the **Measurement tools menu** icon.



2. Select the measurement tool you wish to use.



Hint

To draw a perfect horizontal or vertical line, press Shift on the keyboard when you draw the line.



Hint

Measurements can be modified using the white handles of drawings.



Hint

A click outside of the measurement area allows selection of another measurement tool.



Hint

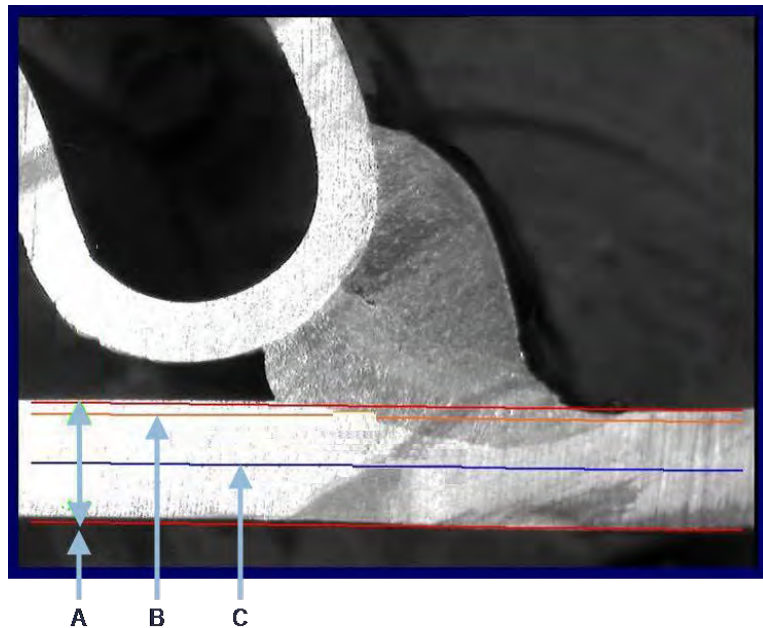
The label of a measurement appears near the first "point" we choose on the image. You do not have to move the labels on the screen but it is possible to move them as you wish.

11.1 Parallel lines with multiple measurements

1. Click the **L1** title in the datasheet (Metal sheet thickness 1).
2. In the image:
 - Click on the first point.
 - Move the mouse to the other extremity of the metal sheet.
 - Release the mouse: The line is drawn.

Depending on the selected measurement type, several lines are drawn (from 2 to 4).

The most shifted line must be moved to measure the thickness of the metal sheet.



A Thickness

C Minimum penetration depth

B Penetration depth

If a value for **Minimum penetration depth** has been selected in the weld bead setting, the line is shown automatically (from 1/10th to 1/2 of the metal sheet thickness). This line cannot be moved by the user.

If the penetration depth has been selected, the line is shown automatically. The line must be moved by the user to measure the real penetration into the metal sheet. The lines to measure metal thickness cannot be moved.

Redoing a measurement

To redo a measurement, click the measurement title in the table. All the measurements lines and results are removed.

11.2 Single parallel lines

Measurement of the gap (b) and additional measurements

1. Click the first point.
2. Move the mouse to the other extremity.
3. Release the mouse: The line is drawing just as the opposite line.
4. Move the lines to make the correct measurement (space adjustment).

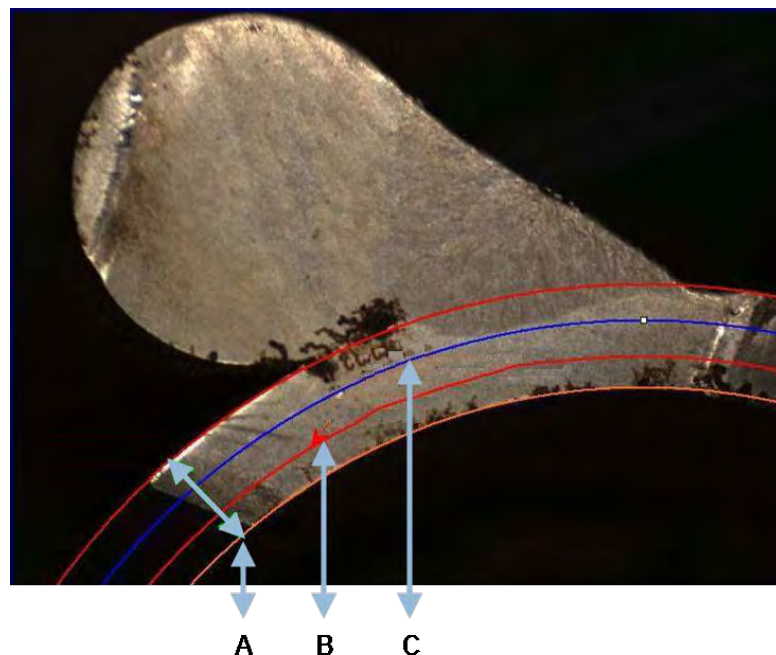
11.3 Single line

Measurement of the throat and additional measurements

1. Click the first point.
2. Move the mouse to the other extremity.
3. Release the mouse.

11.4 Concentric circles

1. Click the **L1** title in the datasheet (Metal sheet thickness 1).
2. In the image:
 - Click 3 points around the external perimeter of the metal sheet: The first circle is drawn. Depending on the setting, a set of 2 to 4 circles is drawn.
 - Select the white handle and move the circle to define the metal sheet thickness.
 - Select the white handle and move the circle to define the real penetration.



A Thickness

C Minimum penetration

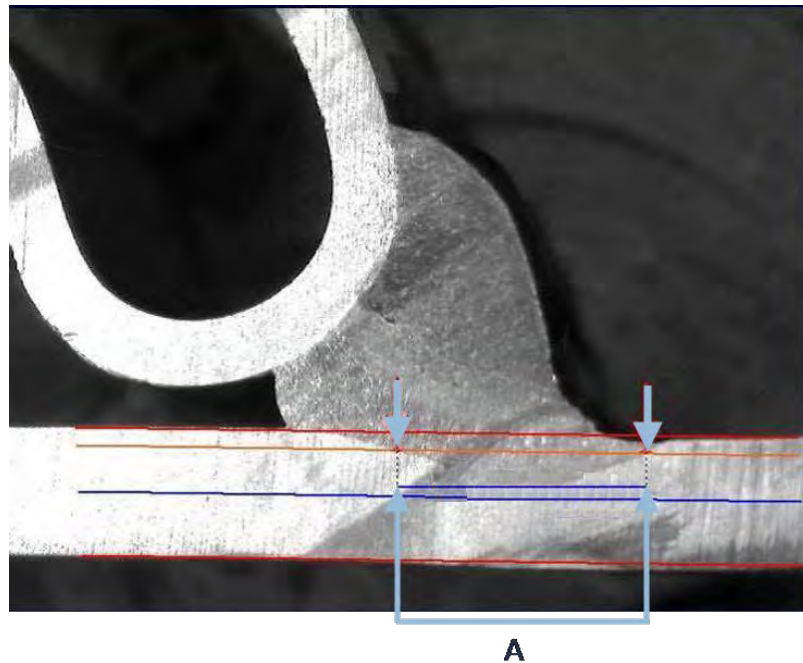
B Penetration

If a value for **Minimum penetration depth** has been selected in the weld bead setting, the corresponding circle is shown automatically (from 1/10th to 1/2 of the metal sheet thickness). This circle cannot be moved by the user.

If a value for **Penetration measurement** has been selected, the circle is shown automatically. The circle must be moved by the user to measure the real penetration into the metal sheet. The circle for measuring metal thickness cannot be moved.

11.5 Penetration width

1. Click the **L1** title in the data sheet. The penetration width is generally measured at the level of the minimum penetration depth.
2. In the image:
 - Successively click 2 points marking the intersection between the line of minimum penetration depth and penetration area. A line is shown. The measurement is shown immediately.
 - Click the line and move it to obtain a better presentation.



A Penetration width

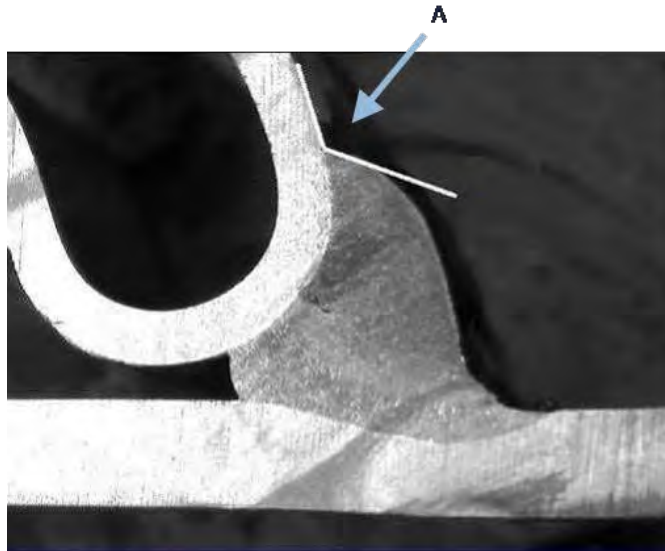
11.6 Penetration – effective width

For detailed information, see [Dependent value for penetration with effective width ▶25](#).

11.7 Joining angle

1. Click the **Alpha** or **Beta** title in the data sheet to select the measurement.
2. In the image:
 - Click the vertex of the angle.
 - Move the mouse to draw the first side and mouse-click.

- Move the mouse to the other side and mouse-click. 3 white handles are shown on the drawing.
- If needed, adjust the angle.



A 127.15°

11.8 Throat (inscribed circle)

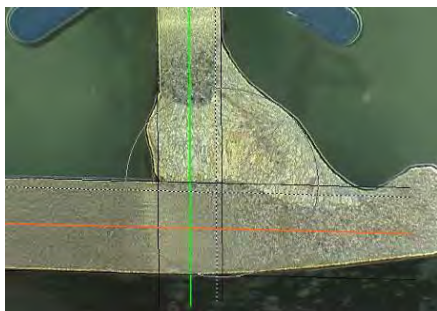
This is usually denoted as **G**.

1. In the **Administration menu**, select the drawing type from the weld bead definition page.
2. Enable either **Radius** or **Triangle**.

11.9 Line (in fact circle)

The measurement is the maximum radius of the inscribed circle inside the weld.

1. Click the intersection point between the two plates.
2. Extend the circle radius to get the full inscribed circle.
3. Release the mouse.
4. In the final drawing the throat is indicated by a straight line.

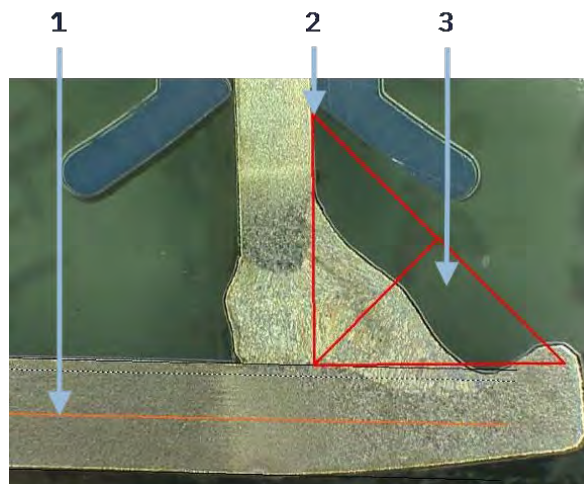


11.10 Triangle (isosceles rectangular triangle)

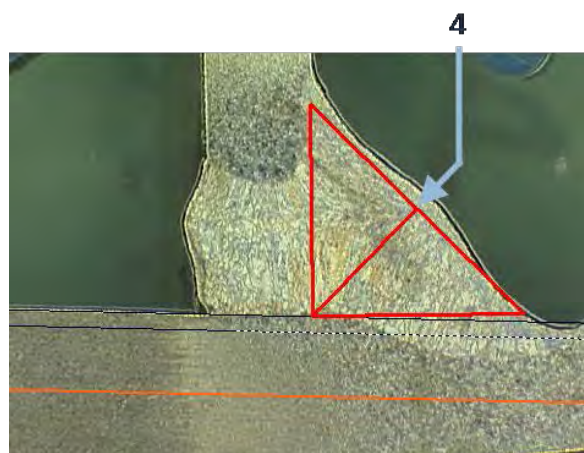
The measurement consists of the height of the maximum inscribed isosceles rectangular triangle.

We recommend that you follow the steps (1, 2 and 3) as shown in the following.

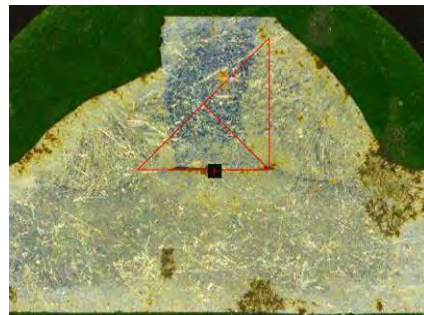
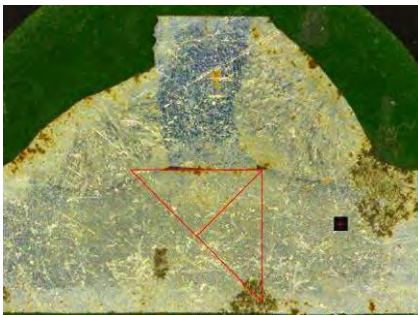
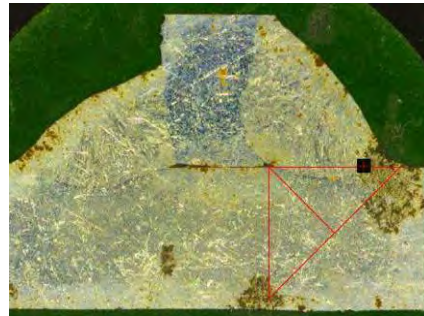
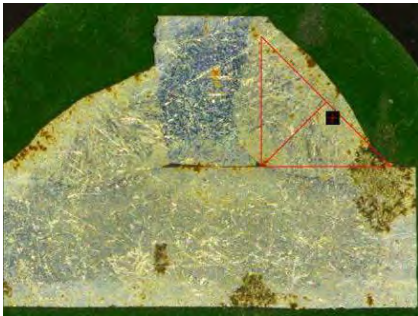
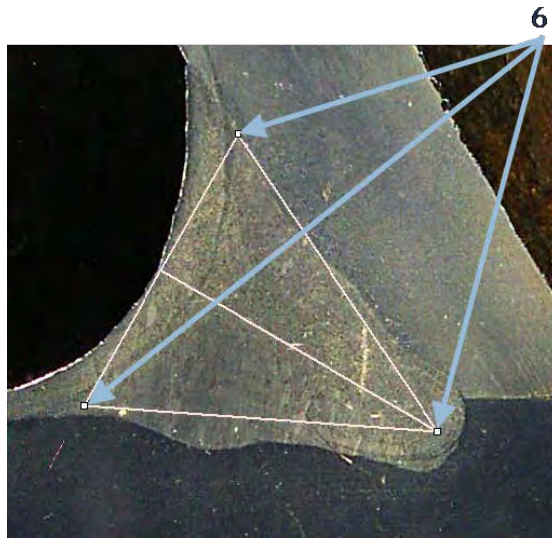
1. Draw the edge of this piece.
2. Draw the triangle by starting with the upper point. Extend the point to the edge and finally release the mouse at the top.
3. Adjust the height to inscribe the triangle to the throat.



4. Adjust the triangle height. The measurement consists of the height of the triangle.
5. Select the bottom line to adjust the height.



6. If needed, use the 3 white handles to orientate the triangle when metal sheets are not 90°.
7. Use the Tab key to turn the triangle left/right/up/down.

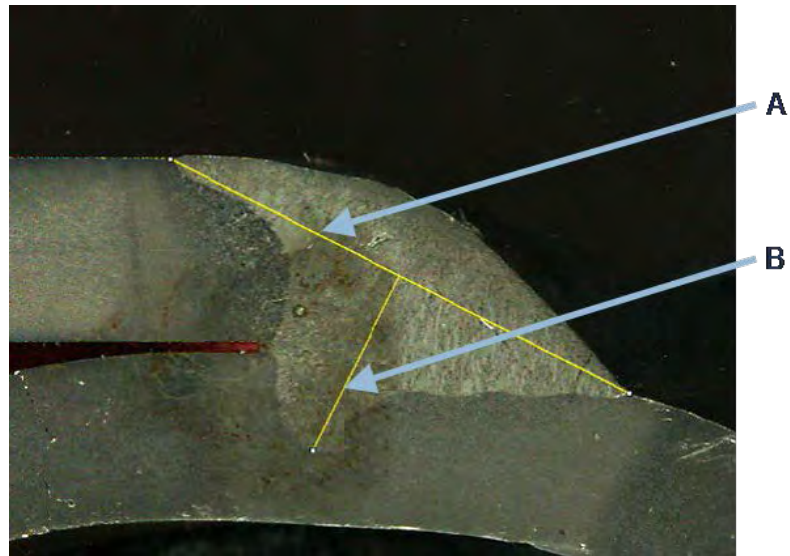


11.11 Set square

To measure the length of a line perpendicular to a reference line, do as follows.

1. Select the measurement.

2. Click and hold the mouse in the image to draw the reference line.



-
- A** Reference line
B Measurement line
-

3. Release the mouse to display the reference line.
4. Double-click to draw the measurement line.

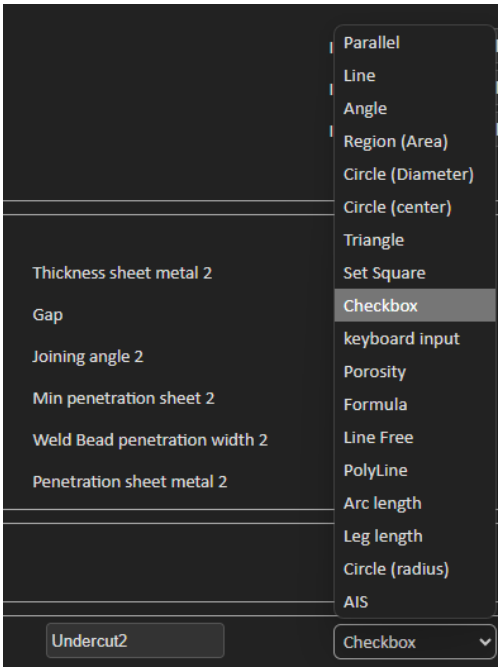
11.12 Check-box

Visual check of weld bead

Some welding standards do not require geometrical evaluation of the weld but only a visual inspection to see if the weld is correct or incorrect.

To facilitate this kind of inspection, a tool is implemented into the software.

When a new software configuration is created, the new tool, **Checkbox**, is available from the drop-down list.



To evaluate a weld, create one checkbox.

- If the checkbox is unchecked, the weld is incorrect – the result is shown in RED.
- If the checkbox is checked, the weld is correct – the result is shown in GREEN.

Change the colors of the text

If needed, you can change the displayed text, which appears when welds are correct or incorrect, by using **Settings.exe** in the installation folder of the software.

f2 (ActPene2)	Conformity	Undercut2
☒	☒	☐
0.20	CHK OK	0.00
0.00	CHK NCK	0.00
0.00	0.00	0.00
0.00	0.00	0.00

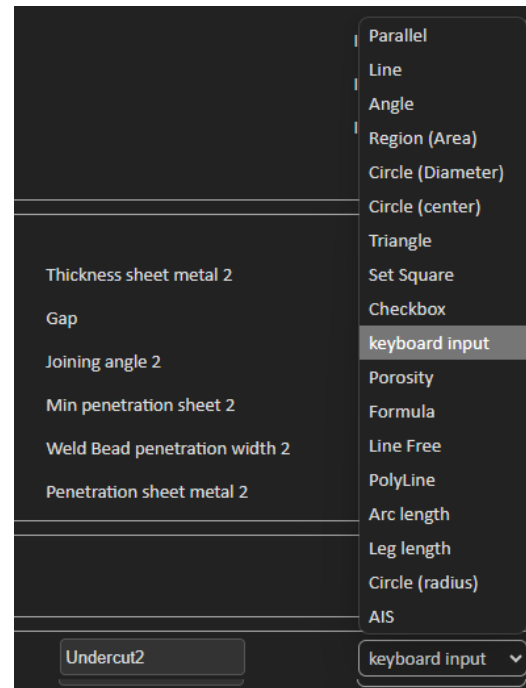
f2 (ActPene2)	Conformity
-	☐ NOK
0.20/ 0.00	0.00/ 0.00
-/-	-/-

f2 (ActPene2)	Conformity
-	☒ OK
0.20/ 0.00	0.00/ 0.00
-/-	-/-

11.13 Keyboard input

You can use the keyboard to enter numerical values inside the measurement table.

1. In the **Enter extra measurements number**, select **Keyboard input**.



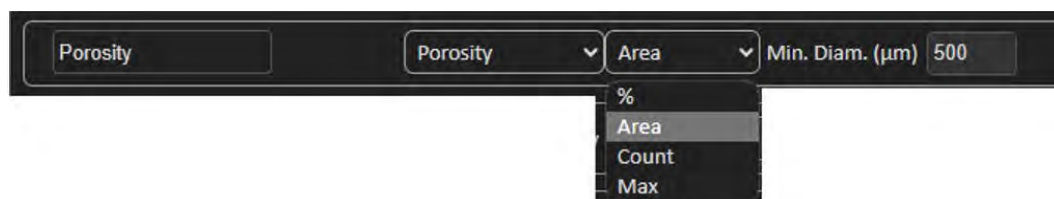
2. When you are making a measurement, you can now enter numeric values.
Use a decimal point (.) - not a comma (,).



11.14 Porosity

With the **Porosity** measurement tool, you can do the following measurements:

- % of porosities in the weld (in %)
- **Area** of porosities in the weld (in mm²)
- **Count**, i.e. number of porosities in the weld
- **Max**, i.e. size of the biggest pore in the weld (in mm)



You can also use a size filter to only consider the pores up to a certain size.

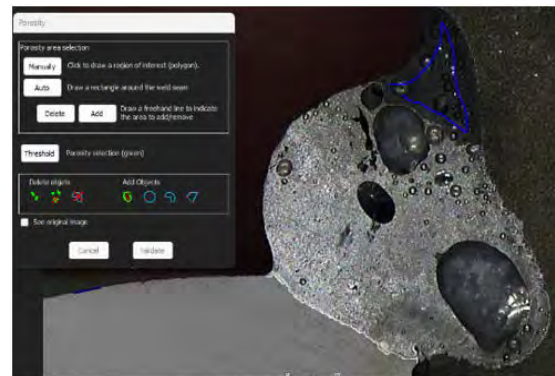
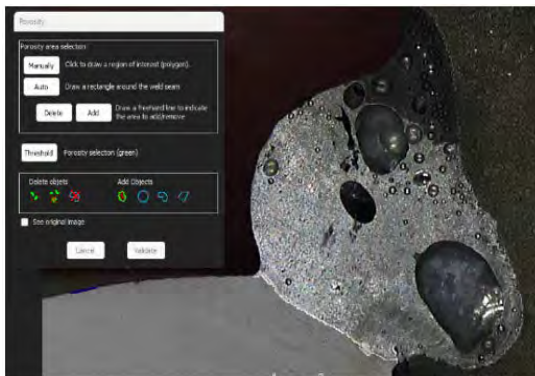
11.14.1 Step-by-step porosity measurement



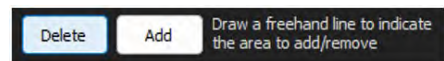
Manually

Do manual corrections to detect the entire weld bead if the contrast between the weld and the base material is too low.

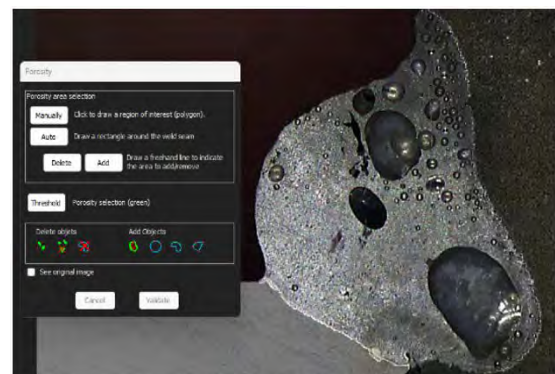
1. Draw the weld contour manually.



2. The **Delete** and **Add** buttons allow you to manually adjust the weld bead detection.



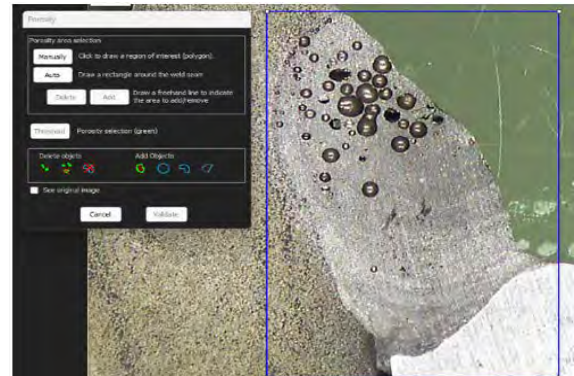
3. Double click to close the polygon.



Auto

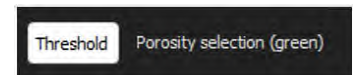
Detect the weld bead automatically if the contrast between the weld bead and the base material is good.

- Draw a rectangle around the weld bead.



Threshold – porosity selection

1. Click the **Threshold** button.
2. Manually adjust the detection slider to colorize the porosities in green.



3. When the thresholding levels are set, click the **Validate** button.



Manual corrections – porosity

The menu Delete objects

- Apply minimum filter size: Delete all pores lower to a certain diameter according to configuration settings.
- Manual cleaning: Click the icon, and click the object to delete.
- Area: Delete all objects inside a traced area.

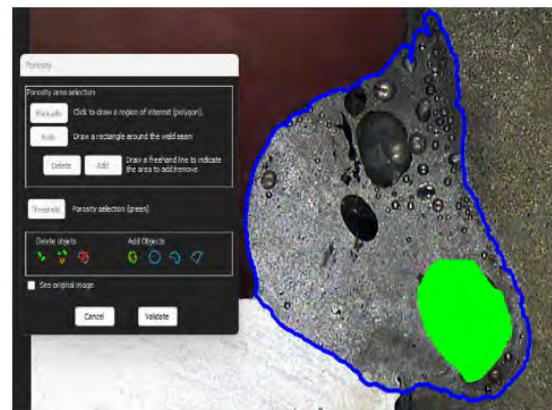
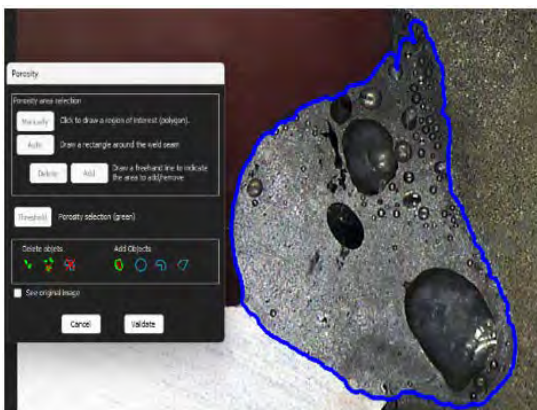


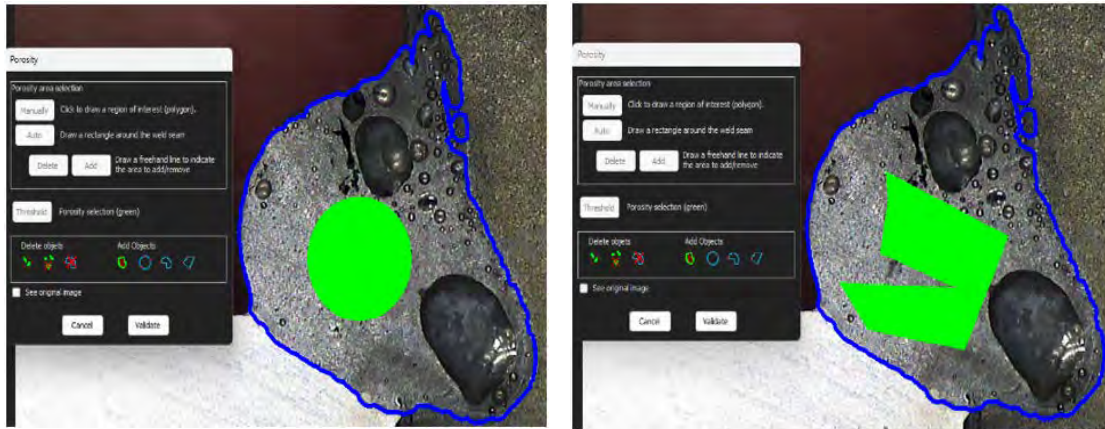
The menu Add Objects

- Fill holes: Fill the holes in all unopened objects, if an object is open, the hole is not filled.



- 3 points circle/Freeline/Polygon: To manually create an object (pore) inside the weld bead area.





11.15 Formula

Use a formula to create a new “measurement” which is the result of a calculation between 2 or several other measurements.

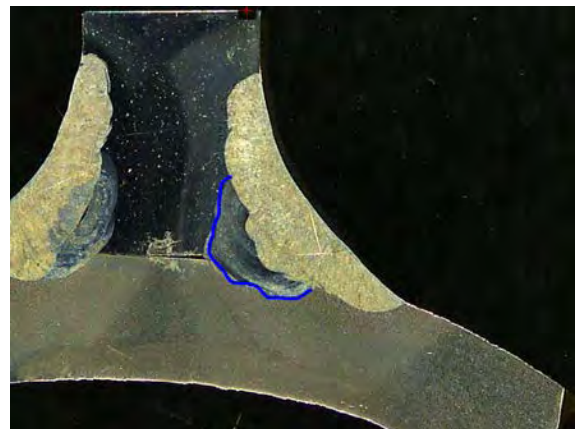
Example:



For more information about the use of formulas, see Acceptance criteria with formulas in section [Create parts and welds ►22](#).

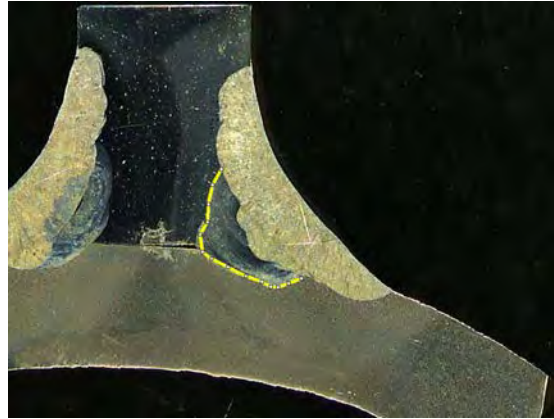
11.16 Line free

- Draw a free line on the image to measure the length of the line.



11.17 PolyLine

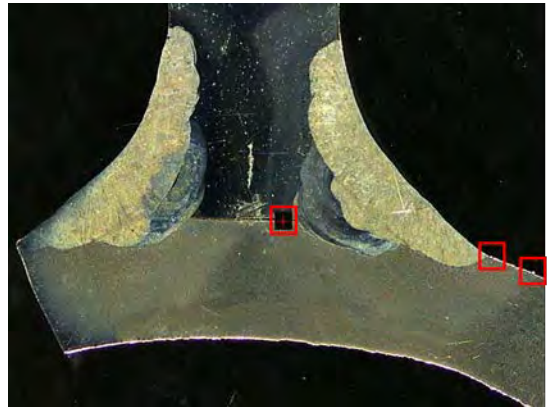
1. Draw a poly line on the image to measure the length of the line.
2. Click the mouse to change the shape of the line.



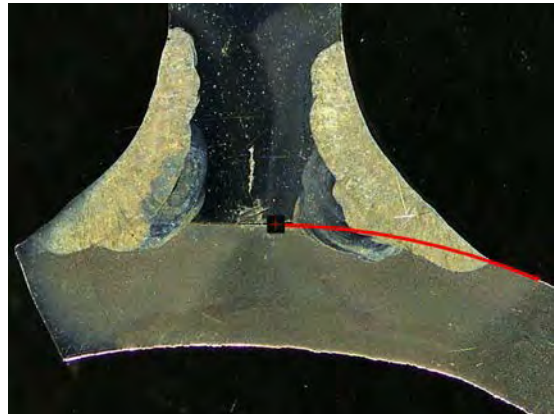
11.18 Arc length

You can measure the length of an arc.

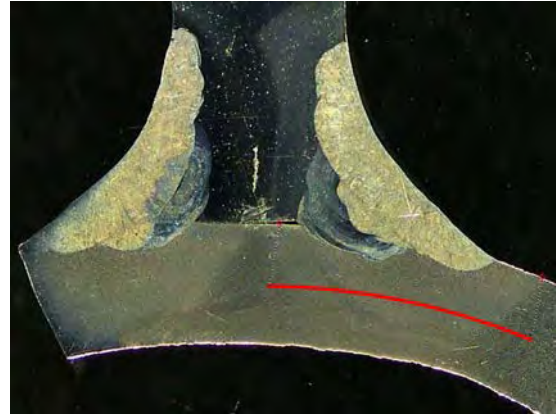
1. Click 3 points to define the circle arc.



The arc is drawn when you set the last point.



2. If needed, move the line.



11.19 Leg length

See [Penetration width ▶42](#).

11.20 Circle radius

The measurement of a circle radius is shown with the circle after the measurement.



12 Weld bead measurements

Weld bead measurements is the main mode. Authorized users can measure the parts based on the settings defined by the administrator, in order to compare the results with the acceptance criteria.

Only the defined measurements are shown for a selected part and weld bead.

1. Select the **Weld bead measurements menu** icon.



2. In the **Operator** field, select an operator.
3. In the **Password** field, enter the password.

Measurement order

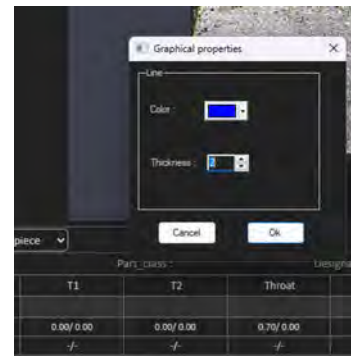
Except for special cases, measurements must be done in a logical order:

- L1, PS1
- L2, PS2
- LP1, LP2
- Alpha and Beta...

12.1 Drawing properties

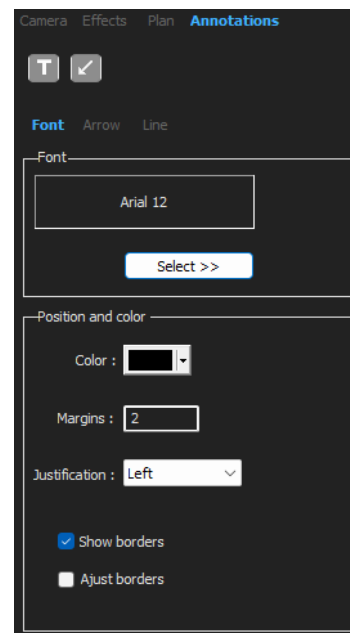
Change the color and thickness of each drawing tool

1. Right-click the name of the measurement label tool, for instance **T2**.
2. The **Graphical properties** window is shown.

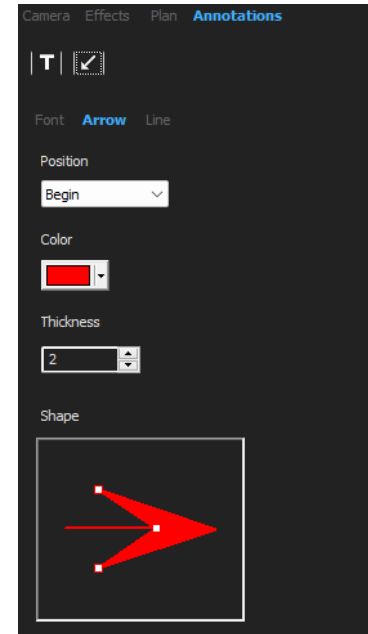


Change the size of the label and graphical modification

1. Go to the **Annotations** tab.
2. To change the font, choose Font and make your adjustments.



3. To change the arrow, choose **Arrow** and make your adjustments.



4. To change the line, choose **Line** and make your adjustments.



13 Step-by-step measurement

Make sure that the correct configuration is selected:

- [Select a part ▶57](#)
- [Select a weld bead ▶57](#)

- [Select a machine ▶58](#)
- [Select the measurement type ▶58\(option\)](#)
- [Capture an image ▶58](#)
- [Camera and light settings ▶59 \(option\)](#)
- [Image size ▶59](#)
- [Weld bead measurement with predefined template ▶59](#)
- [Additional information ▶60](#)
- [Add comments and checkboxes ▶60](#)
- [Add text and arrows ▶60](#)
- [Add measurement results to the image ▶62.](#)
- [Save the results ▶64](#)

Measurement order

Except for special cases, measurements must be done in a logical order:

L1, PS1

L2, PS2

LP1

LP2

Alpha 1 and 2

Throat, etc.

Gap, undercut, etc.

13.1 Select a part

- Select the part from the drop-down menu.



13.2 Select a weld bead

- Select the weld bead you wish to measure from the drop-down menu.



The data related to the selected weld bead is shown at the bottom of the screen.

 A screenshot of the software interface showing a data table at the bottom. The table has columns for 'Measurements', 'Part class', 'Designation', 'Material 1', 'Material 2', 'Info1', 'Info2', and 'Weld length'. The 'Measurements' column has rows for 'Min.' and 'Max.' values. The 'Part class' column has a value of 'T2'. The 'Designation' column has a value of 'T2'. The 'Material 1' column has a value of 'Throat'. The 'Material 2' column has a value of 'MinPI'. The 'Info1' column has a value of 'Leg1'. The 'Info2' column has a value of 'Bevel'. The 'Weld length' column has a value of '0.00/0.00'.

Measurements	Part class	Designation	Material 1	Material 2	Info1	Info2	Weld length
Min.	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00
Max.	-/-	-/-	-/-	-/-	-/-	-/-	-/-

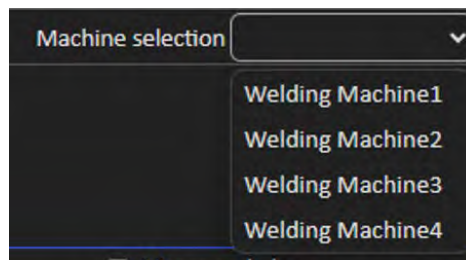
13.3 Select a machine

Selecting the welding machine is important for tracking data.

1. Select the welding machine from the drop-down menu.



2. If several welding machines are available, you can assign a machine to a weld bead: Click the drop-down menu and select the right name of the machine.

**Hint**

You can rename the machine in your configuration.

**Note**

The Excel report can present data sorted according to the selected welding machine.

13.4 Select the measurement type

Selecting the measurement type is important for tracking data.

1. Select the measurement type from the drop-down menu.



The different types of measurement are defined with the general description setting. They enable you to sort the data depending of the type (ex. production, development, audit).

**Note**

The Excel report can present data sorted according to the selected welding machine.

13.5 Capture an image

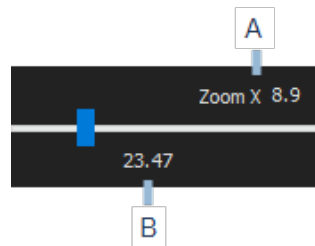
1. Click **Live On**.

This activates the live image, and the camera settings become available.

2. Click **Live image Off** to capture the image.
3. When you switch to **Live On**, you are prompted to save the results.
If you save the results, the result table is cleared.

13.6 Camera and light settings

- Adjust the camera or light settings to have a clear and contrasted image of the weld bead.



A Magnification value calculated on a 23" screen with a resolution of 1920*1080. A tolerance should be considered.

B Field Of View (mm or inches).

13.7 Image size

Use function key F2 to toggle between **Fit to window** or **100% resolution image**.

This software includes a mega pixel resolution. Most PC/LCD screens do not offer sufficient resolution to display such a resolution.

When you are using **Fit to window**, we recommend that you use the zoom area in order to obtain a more accurate measurement.



Note

Use function key F5 to save an image outside the results folder of this software. Click the image and press F5.
If we do this after having clicked on **Save result**, the saved image is saved with all the measurements merged on this image.

13.8 Weld bead measurement with predefined template

Measurements must be done in a specific, hierarchical order: thickness measurement (space between two lines or circles), penetration, etc.

- Measurement results are shown in the table
- Out-of-range measurements are shown in red in the table
- Use the Shift key to draw a straight line

13.9 Additional information

The administrator can create a maximum of 3 areas of additional information that must be filled in, for instance:

- Batch number
- Serial number of the part
- Manufacturing date
- Etc.

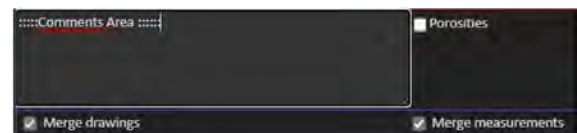
For reporting, these 3 areas are important if you wish to sort results after the measurement process, for instance according to data sorting, report creation, statistics, etc.

13.10 Add comments and checkboxes

Before you save the results, you can add comments about the weld bead.

You can also use checkboxes, as defined by the administrator, to characterize a default on the weld bead:

- **Porosities**
- **Cracks**
- Etc.



Comments and checkboxes are shown in the report and in the Excel spreadsheet.

13.11 Add text and arrows

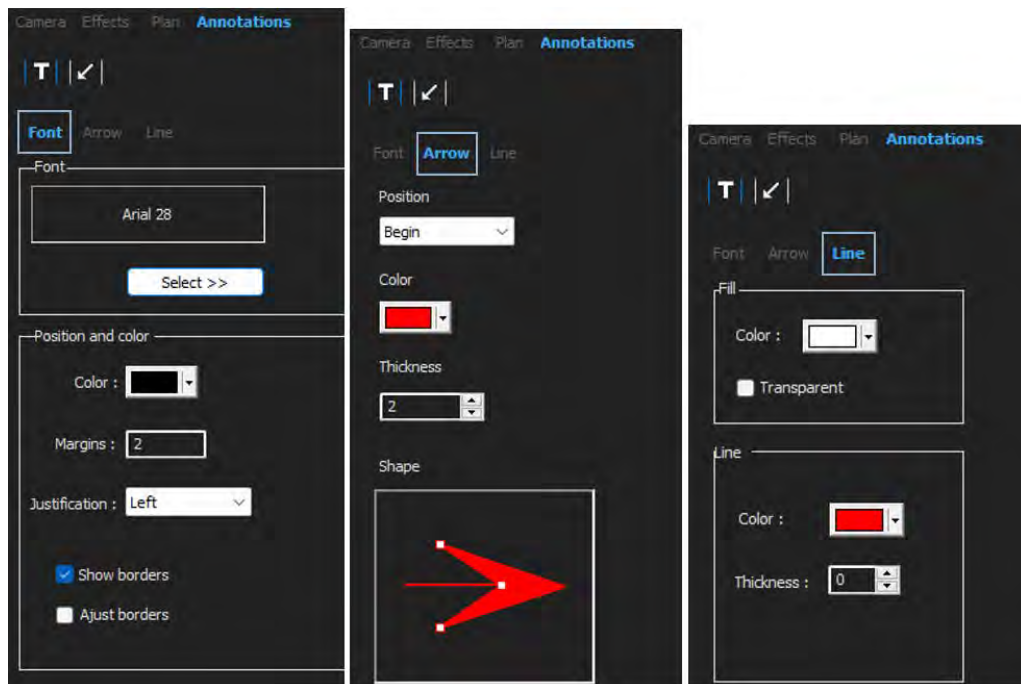
The panel on the right side of the screen displays the **Camera** tab as well as the **Annotations** tab.

You can always move, change, or delete a graphical overlay.

Before annotation you must configure colors and font size.

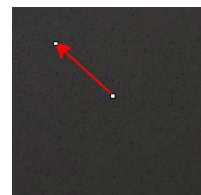
1. Select the **Annotations** tab.

- To configure font, arrows and line definitions, select the Font tab, the **Arrow** tab, and the **Line** tab.



Arrows

- To insert an arrow, click the arrow icon.
- Then click the image.
- To change or move an arrow, use the handles.



Text

- To insert a text, click the text icon.
The text will be placed in a text frame.
- To position the text frame, click in the image at the desired position and hold the left mouse key, while you move the mouse to draw a rectangle.
- When you release the mouse, you can write the text at the position of the blinking cursor.
- To move a text area, select it and drop it in the desired position.
- To change a text, press Ctrl on the keyboard, and click in the text frame.



These properties also apply to measurement labels on the images. See also [Add measurement results to the image](#) ➤62 It also applies to measurement labels that you can modify their size.

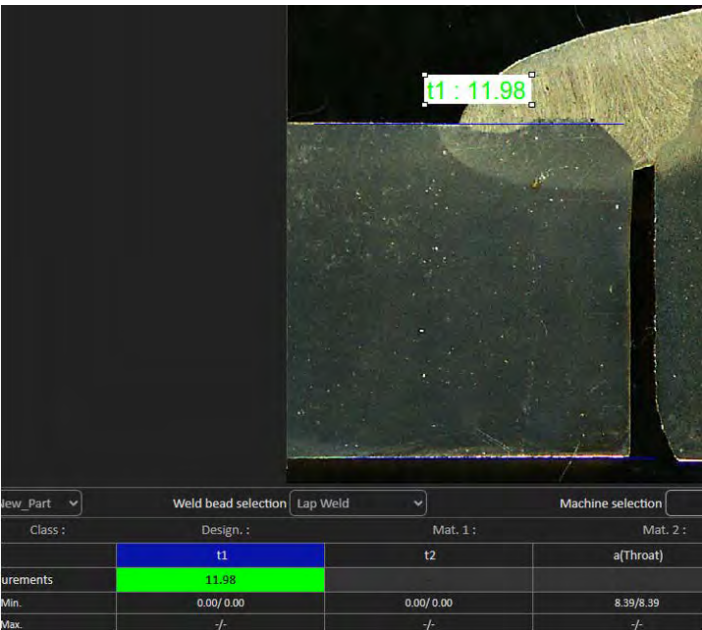
13.12 Add measurement results to the image

You can manually add a selected measurement exactly where it is required in the image. Click the measurement result, and a label will be displayed in the image with the measurement result.

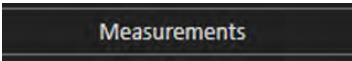
The text color depends on the acceptance criteria (red or green).

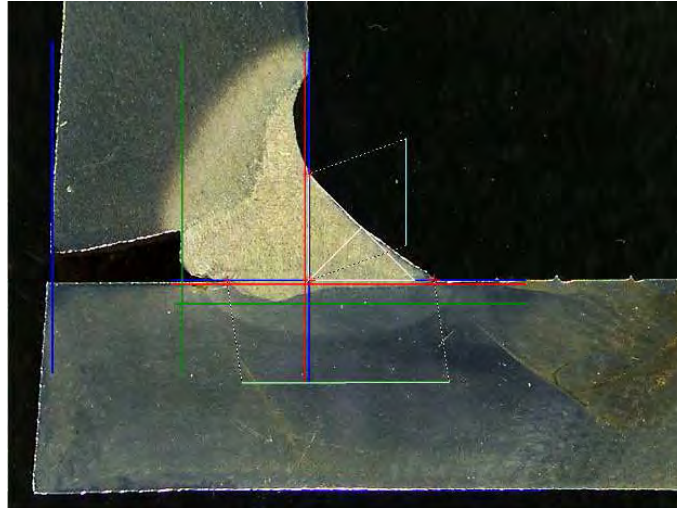
The background color depends on the general setting.

1. When you move the cursor of the mouse over the results section, it changes from a standard cursor to a closed hand. At this point, you can read the measurement and its header in the image by clicking the corresponding measurement field.

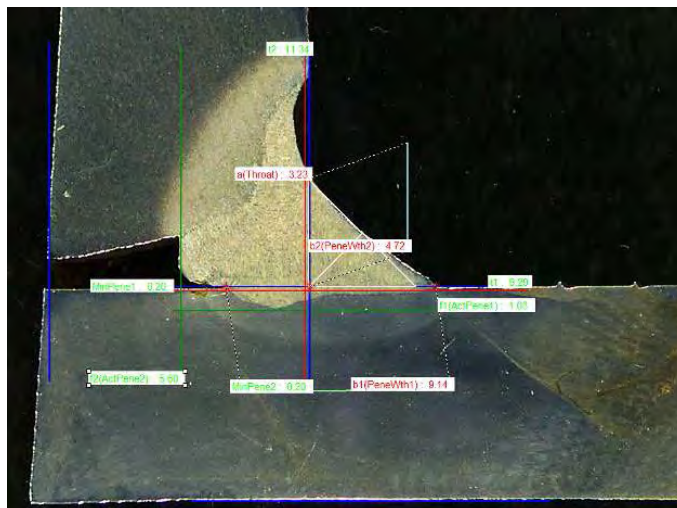


2. Adjust the position by dragging and dropping the item.
3. You can add all measurements automatically on the image by clicking the **Measurements** button.



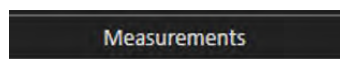


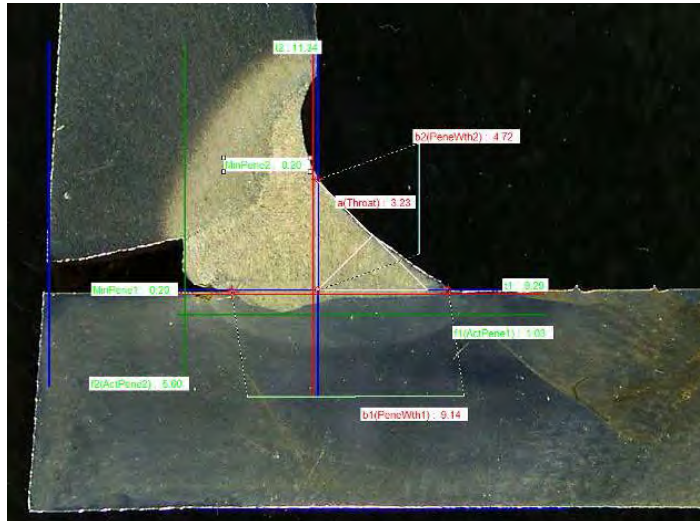
4. All the measurement labels are shown on the image (the default position is the first clicked point).



5. You can automatically add all measurement labels on the image by clicking the button **Measurements**.

The label is placed where the user starts to draw the tool (parrallel, line...).

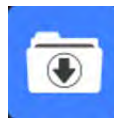




13.13 Save the results

When you have completed the measurements, save the measurement results. The data will be available for use for statistics.

- Select the **Save results** icon.



Before saving the results, these options can be selected:

- **Merge drawings**
- **Merge measurements**
- **Merge scale bar**
- **Merge construction lines and texts**

Merge drawings

All the measurements drawings will be merged in the image.

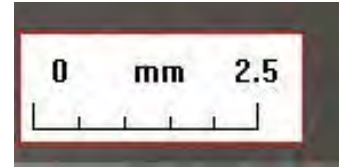
Merge measurements

A measurement table is shown in the upper left corner of the image as well as the part name and the weld name.

Ford C344 MCA Wagon		Naht 3_2
SE	2.11	
X	2.71	
d	0.23	
b1	6.49	
b2	0.61	
b4	3.07	

Merge scale bar

A scale is merged automatically in the bottom left corner of the image. Scale bar length and graphical properties cannot be adjusted.



Merge construction lines and texts

When you merge the measurements, each measurement titles is shown in the same color as those defined for the drawings. In addition, measurement values will be colored according to the acceptance criteria:

Green: Inside range

Red: Out of range

14 Result files

All measurements results and images are saved in a dedicated folder.

For each software configuration, a result folder is created including:

- Part settings
- Weld bead settings
- Result files
- Images
- Etc.

Per default these result folders are created in the **C:\Struers\StructureExpert Weld-6** or **C:\Struers\StructureExpert Weld-12** folder.

If you wish to change the default saving path, see [Appendix 1: Change network saving path ► 143](#)

Software configuration

Configuration : Ford MCA 18_01_2011.ini

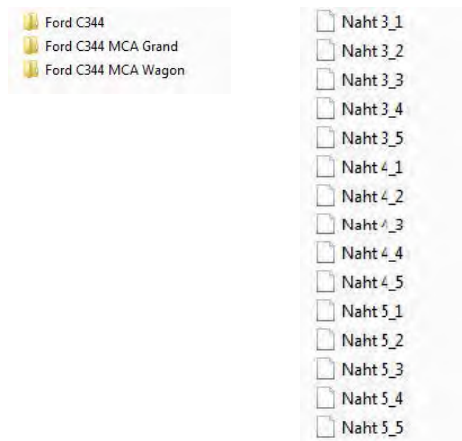
The installation folder

cci	29/04/2013 10:5
Configurations	30/04/2013 16:3
Doc	29/04/2013 10:5
Ford MCA 18_01_2011	29/04/2013 10:5
Icones	29/04/2013 10:5
log	29/04/2013 10:5
plans	29/04/2013 10:5

The configuration folder



The **Cordons** folder contains all the settings for parts and welds.



The Results folder



The **Results** folder contains all the measurement results and images.

- For each weld a folder is created where all the images will be saved.
- For each weld an Excel file is created where all the results will be saved.

Each folder and file is identified as follows: Part name_Weld name



Note

Manual changes are not allowed in the images folder or the Excel files results. Changes which are done incorrectly can prevent creation of the report.

To access results files changes, see [DataView \(option\)](#) ►86.

15 Reports

15.1 Generate an HTML report

Use this function to print the results to an HTML page.

- To access this function, click the **Print weld report** icon.



The HTML template is fixed and cannot be changed.

If a PDF generator is available on the PC, you can save the report as a .PDF file.

Change the logo in an HTML report

To add your own logo to the HTML report:

1. Go to ... \Welding\Reports\En\Xml\HTMLBead (En = the language folder).
2. Replace the logo.jpg file with your own logo file using the same name.

15.2 Generate an Excel report

Use this function to print the results to an Excel file.

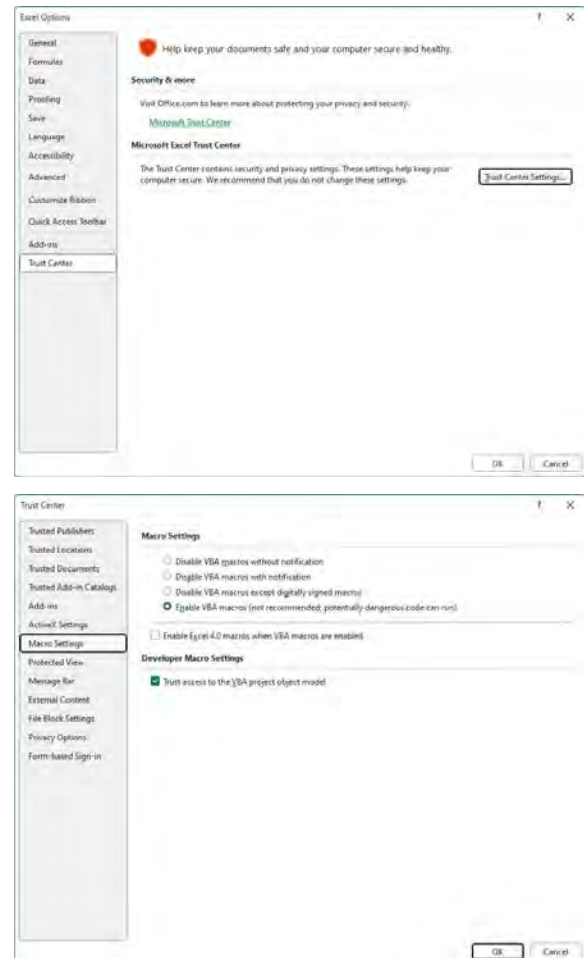
1. To access this function, click the **Excel report** icon.



Authorizing Excel macros

To be able to use Excel reports, you must change an Excel option.

1. Select **File > Options > Trust Center**.
2. Select **Trust Center Settings**.
3. Select **Macro Settings**.
4. Check off the checkbox **Trust access to the VBA project object model**.

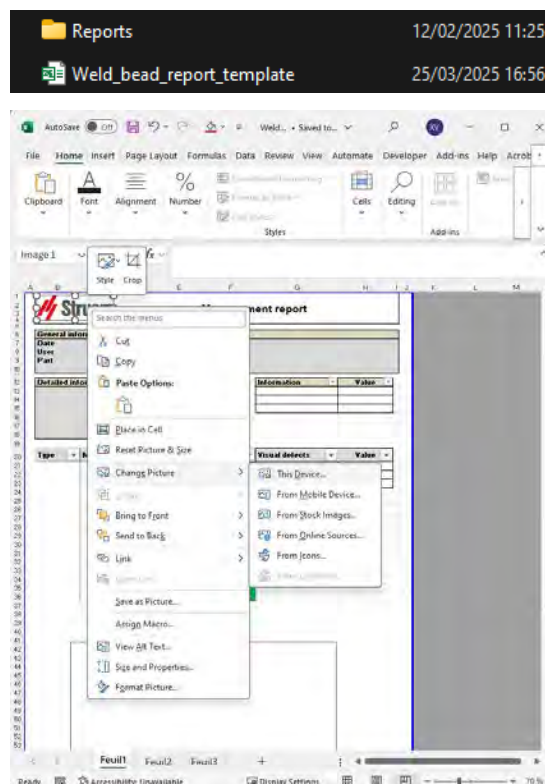


Change the logo in an Excel report

To add your own logo to the Excel report:

1. Go to C:\Struers\StructureExpert Weld\Welding\Reports\En\Xml\ExcelBead (**En** = the language folder).

2. Open the file **Weld_bead_report_template**.
3. Right-click the Struers logo, then select **Change Picture**, choose **This Device**, and finally open your own logo from your computer.
4. Record this new file under the same name, and your next report will be with your own logo.



15.3 Generate a weld bead report

Use this function to generate a weld bead report.

1. To access this function, click the **Excel report** icon.



2. Click the **Weld bead** tab to print the results of the active weld bead.
This feature requires Excel 2003 Professional Edition or better.
3. Select the template you wish to use.
4. Click **OK**.

All the results are automatically updated in the selected template.

Struers Measurement report

General informations			
Date	03/2018 11h32m	Machine	
User		Type	
Part	New_Part	Weld bead	T weld with triangle

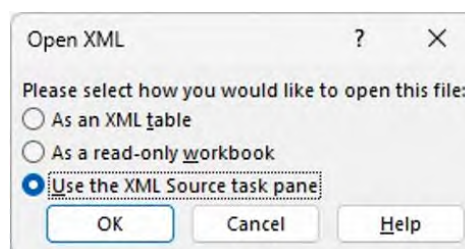
Detailed informations		Information	Value
OP		Batch Number	
Class			
Design			
Mat. 1			
Mat. 2			
Width 1			

Type	Min	Max	Measure	Results	Visual defects	Value
t1	0	-	2,05	PASS	Porosities	0
t2	0	-	3,94	PASS	Cracks	0
a(throat)	1,43	-	3,61	PASS	Other visual defects	0
h(gap)	0	2,00	-	PASS		
minpene1	0	-	0,2	PASS		
minpene2	0	-	0,2	PASS		
b1(penewth1)	2,05	-	-	PASS		
h2(penewth2)	3,94	-	-	PASS		
f1(actpene1)	0,2	-	0,24	PASS		
f2(actpene2)	0,2	-	0,86	PASS		

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15.4 Work with Excel and weld bead report templates

1. Launch Excel.

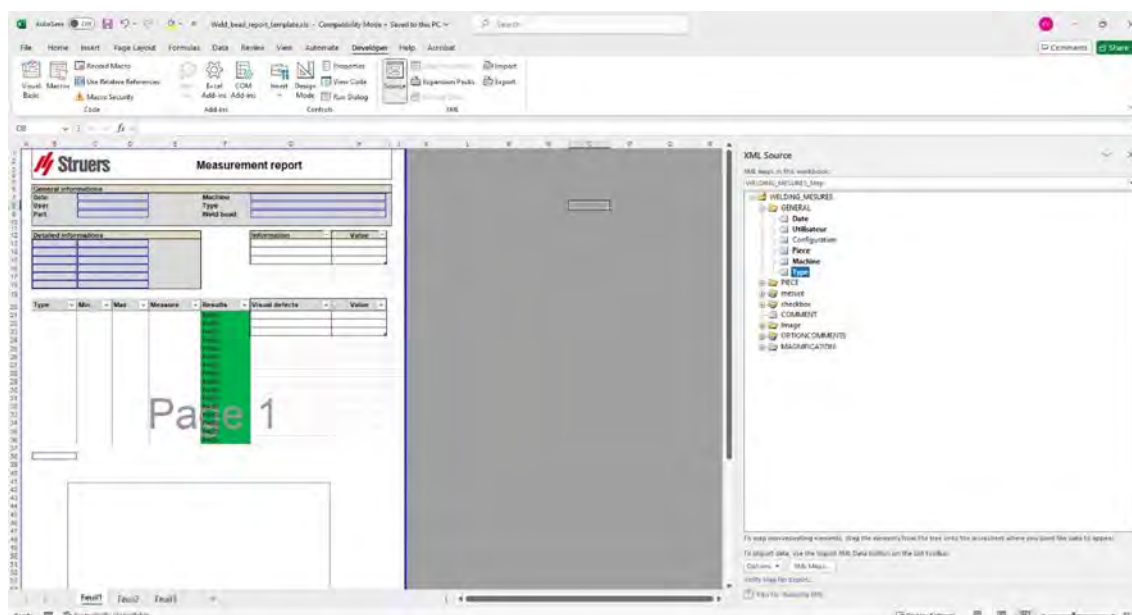
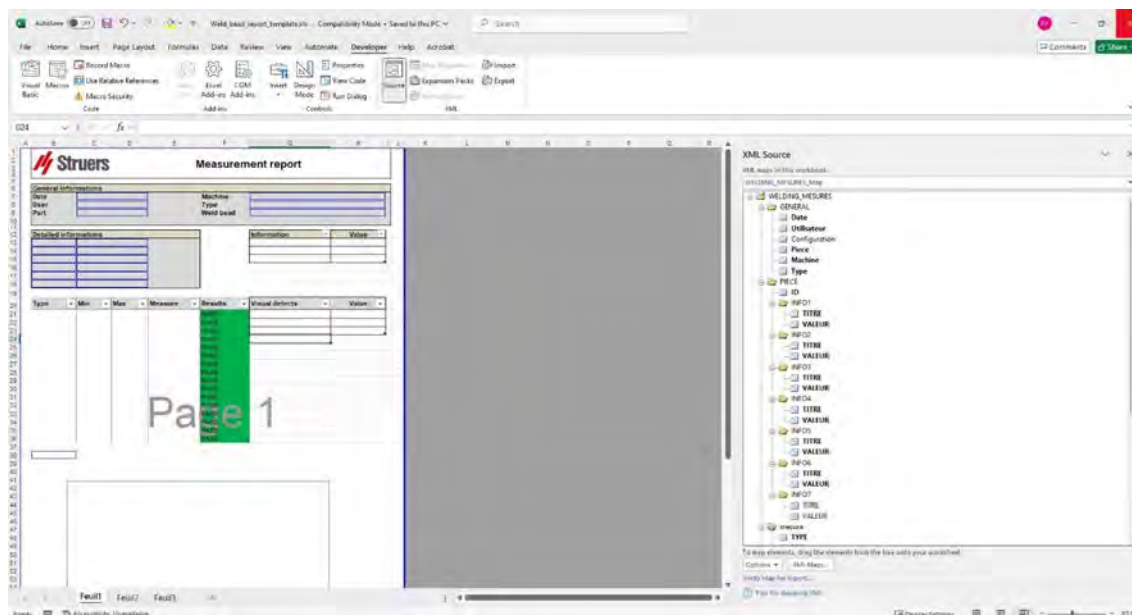


2. Click the **Developer** tab to access the XML source.
3. In Excel, select **File > Option > Customize the ribbon > Check Developer**.
4. Click the source.

XML Mapping

1. Click **Add**.

2. Browse to go to ...\\Welding\\Reports\\En\\Xml\\HTMLBead\\data.xml, where En denotes the English language folder.
3. Click **OK**.
4. Drag and drop the XML information from the list into the Excel spread sheet in order to build the desired template.



5. When the template is ready, save it in the following folder:

... \\Welding\\Report\\En\\XML\\Excel bead/ xxxx

The new template is now shown in the selection window with its own name.

15.5 Generate a part report

A complete part report generator is included in the software. The template has been designed to cover most requirements. The template cannot be changed.

2 templates are provided:

- **Part_batch_number_report.xls**
- **Weld_report.xls**

1. To access this function, click the **Excel Report** icon.



2. Click the **Part** tab to access this feature.
This feature requires Excel 2003 Professional Edition or better.
3. Select the template you wish to use.
4. Click **Execute**.

Additional templates

If the Min & Max Action Limit Module is included in the software, 2 additional templates are available:

- **Part_batch_number_report_ActL.xls**
- **Welds_report_ActL.xls**

Operation

**Note**

The **Report Generator** module is required to create customized reports.

1. Select your part and the filters.

2. Click **OK**.

The report is separated in 2 sections (tabs):

- First section** Synopsis of all the measured values and checkboxes
- Second section** Images of all the measured weld beads with measures and comments


Struers

Measurement report

General informations

Date	25/07/2024 16h58m48s	Machine
User	admin	Type
Part	New_Part	Weld bead

Detailed informations

Information	Value
OP	

Type	Min	Act Min	Act Max	Max	Measure	Results	Visual defec	Value
t1	0	-	-	-	6.16	FAIL		
t2	0	-	-	-	6.09	FAIL		
a(throat)	4.24	-	-	-	-	PASS		
h(gap)	0	-	-	2.00	-	PASS		
min1	0	-	-	-	1.25	FAIL		
minpene2	0	-	-	-	0.00	FAIL		
b1(penewth1)	8.76	-	-	-	-	PASS		
b2(penewth2)	6.05	-	-	-	-	PASS		
f1	1.75	-	-	-	1.67	FAIL		
f2(actpene2)	0.2	-	-	-	-	PASS		

New_Part1 weld

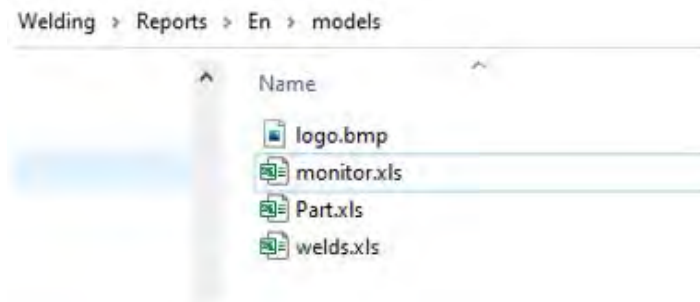
t1	6.16
t2	6.09
min1	1.25
minPene2	0.00
f1	1.67



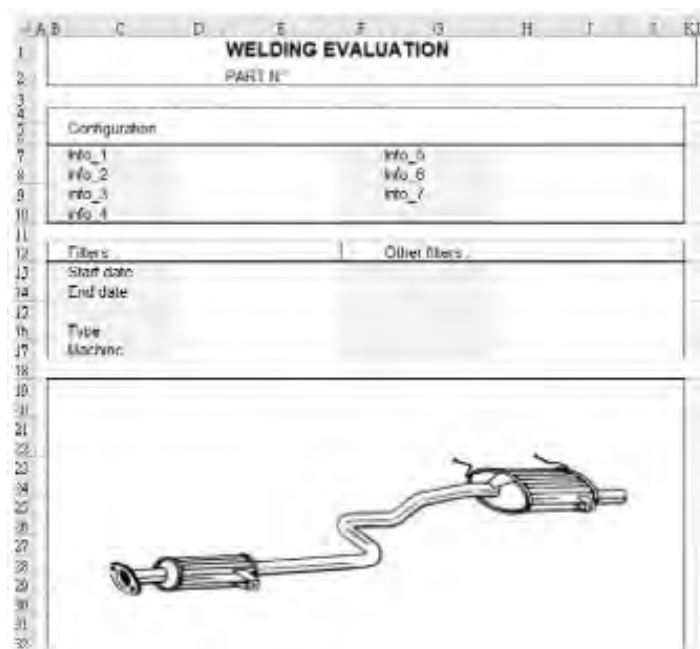
15.6 Modify a weld bead report

Note that this section is not about the part report that includes several beads.

- Depending on your selected language, open the XLS file in the language folder. **En** is for English, **Sp** is for Spanish, and **Fr** is for French.
Open "welds.xls" located in \Welding\Reports\En\models.



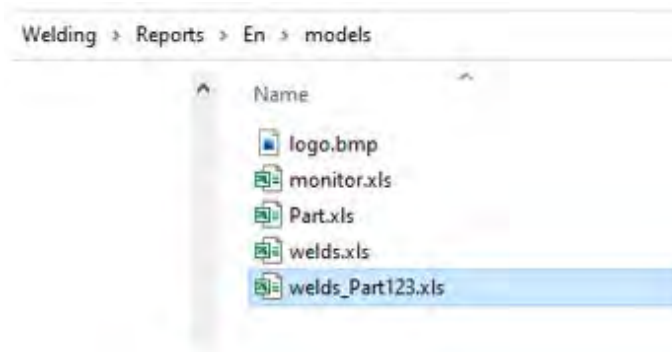
- Import the image you want on the first page.



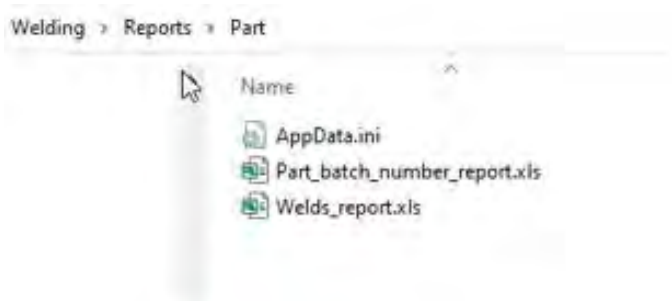
Note

Do not modify anything else on the report.

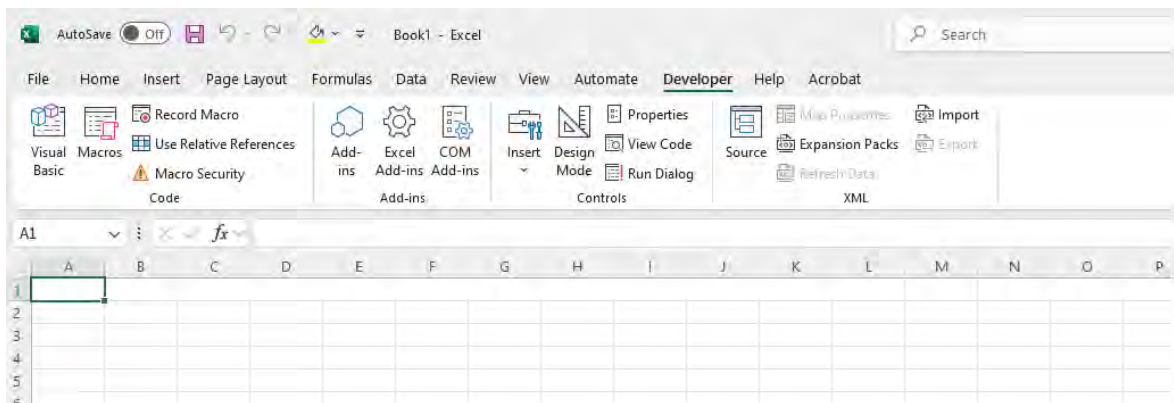
3. Save the file in the same path with a new name, in this example "welds_Part123.xls".



4. Open the report.

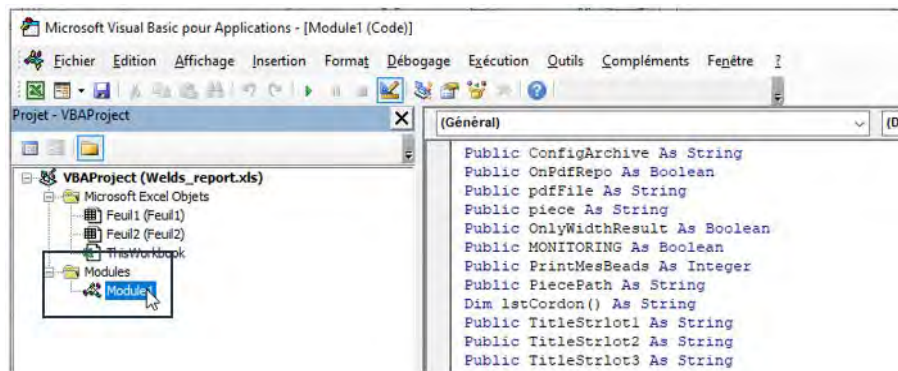


5. Go to the **Developer** tab. (Make sure that it is activated in your Excel settings).

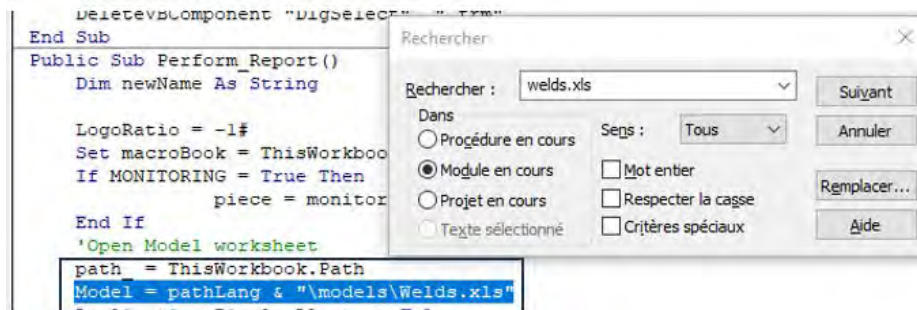


6. Click **Visual Basic**.

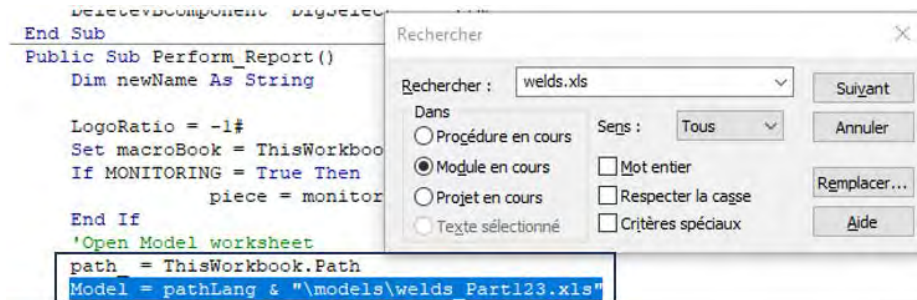
7. Click **Module 1**.



8. Click Ctrl + F to find "welds.xls".

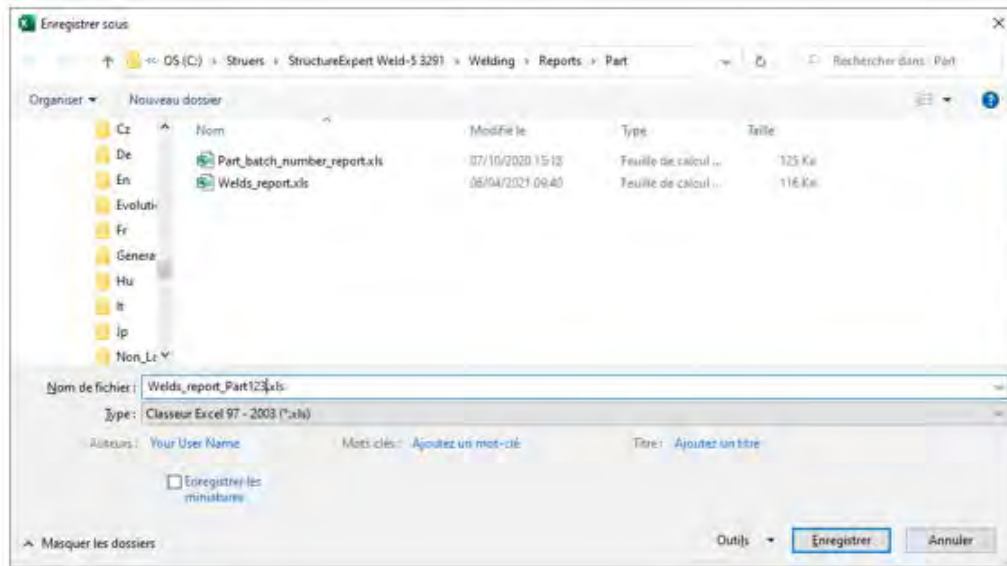


9. Rename the file "Welds.xls" to the name you defined previously.

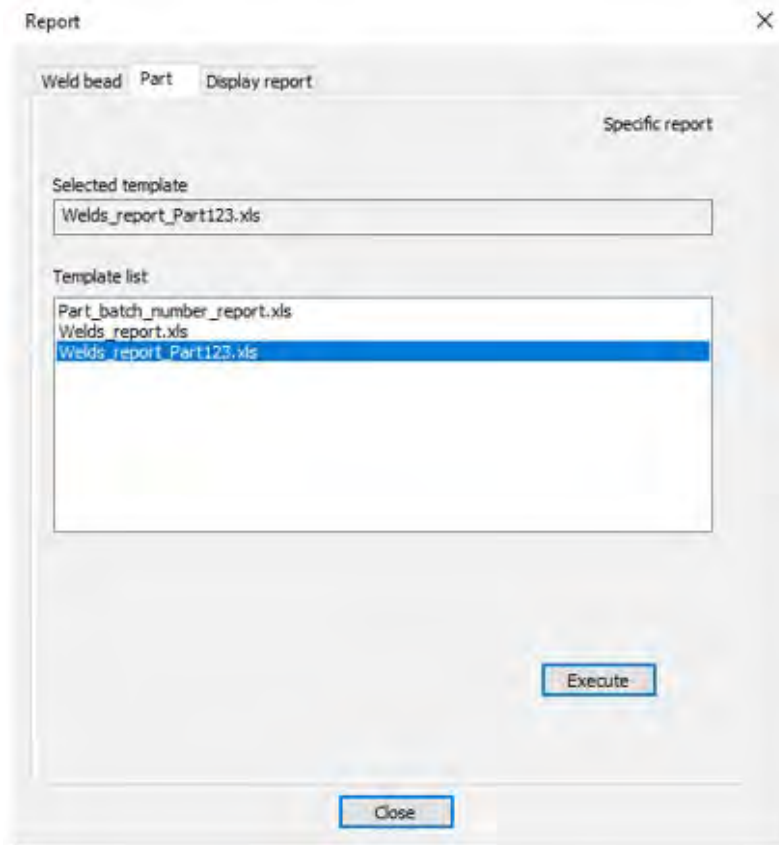


10. Close the window **Visual Basic**.

11. Save the Excel file in a new name, e.g. "Welds_report_Part123.xls".



12. The new report is now available in the software interface.



13. Run the report as normal.

15.7 View a part report

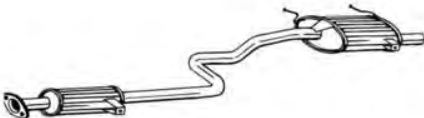
1. To access this function, click **Excel report** icon.



2. Click **Display report** to access this feature.

To view a particular report, you can sort it according to **Date**, **Type**, **Part**, and **Machine**.

3. Click **Reports list** to select a report.
4. Click **Open report**.

B		C		D		E		F		G		H		I		J		K		L	
		Struers		WELDING EVALUATION																	
Configuration										Welding_config											
Cordon				Weld1								Material 1									
Operation												Material 2									
Part_class												Info1									
Designation												Info2									
Filters										Other filters											
Start date				06-Apr-21								Comment_0									
End date				06-Apr-21																	
Type				All																	
Machine				All																	
																					

15.8 Monitor and track the process

Monitoring and process tracking is an optional feature.

Use this option to follow the progress of measurements on one or several weld beads during a period of time.

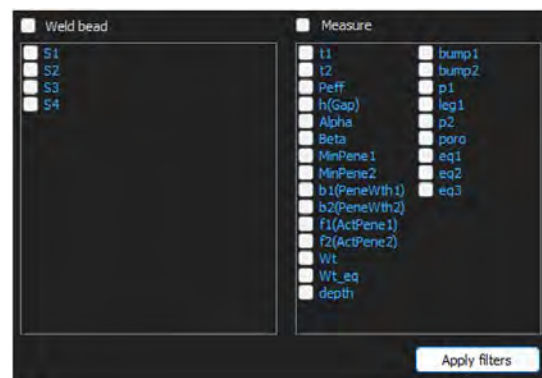
1. To access this function, click the **Monitoring** icon.



You can use all filters to sort your results.

Part selection

1. In the field **Part selection**, select the part you wish to monitor.
2. Select weld beads and weld beads measurements.
3. Click **Apply filters**



Date selection

1. Select the time period you wish to cover in the fields **Start date** and **End date**.
2. Click **Apply filters**.

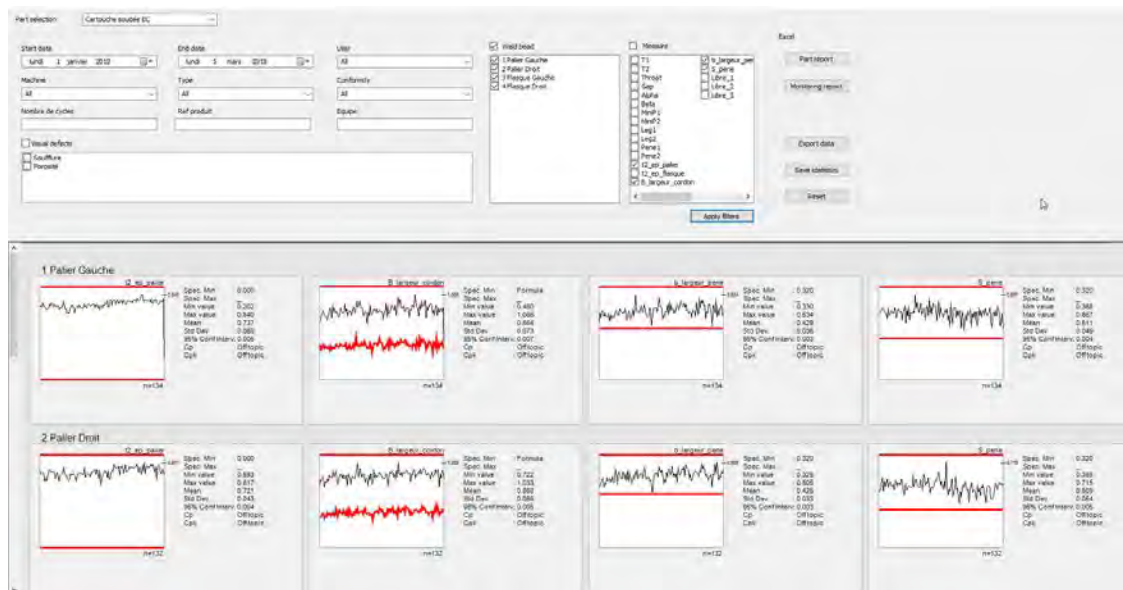


Filter selection

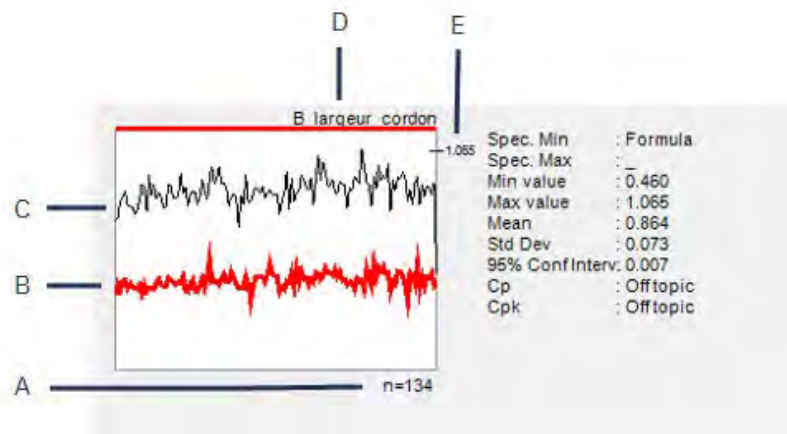
1. Select the filters you wish to use:
 - **Machine**
 - **Type**
 - **Conformity**
 - **Number of cycles**
 - **Ref. product**
 - **Equipment**
 - **Visual defects**
2. Click **Apply filters**.



When the data is processed (this may take a while if there is a lot of data to be processed), evolution charts and statistical values are shown.



Statistical information



- | | |
|--|---|
| A Number of measurements filtered | D Weld bead name |
| B Defined minimum value (if set) | E Defined maximum value (if set) |
| C Measurement evolution | |

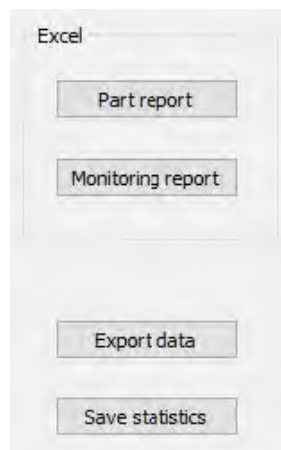
Value	Description
Spec. Min	Defined minimum value (if set)
Spec. Max	Defined maximum value (if set)
Min value	Minimum measured value
Max value	Maximum measured value

Value	Description
Mean	Mean value
Std Dev	Standard deviation
95% Conf Interv.	95% confidence interval
Cp	Cp value
Cpk	Cpk value
CpU	CpU value (if only maximum value is defined)
CpL	CpL value (if only minimum value is defined)
Formula	A formula is used to calculate the Min and/or Max.
Off topic	The value cannot be calculated. For Cp and Cpk the values cannot be calculated if formulas are used for Min & Max.

15.9 Save results and reports

Create a complete part report

1. To create a complete part report with all filtered data, click **Part report**.

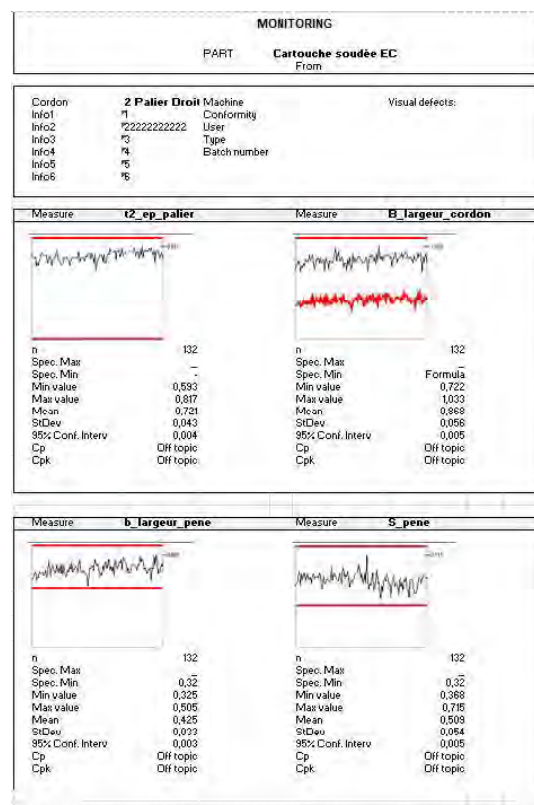
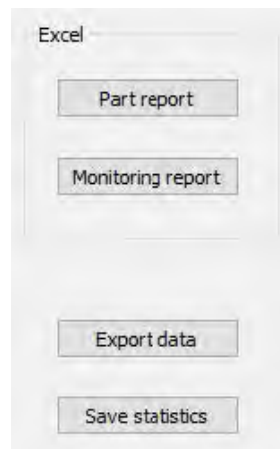


StructureExpert Weld-6

[illegible]

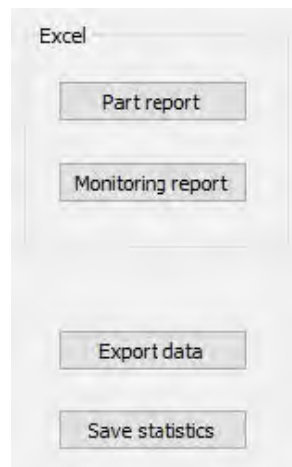
Create a complete monitoring report

1. To create a complete monitoring report with all filtered data, click **Monitoring report**.



Export data

- To export raw data as .csv files, click **Export data**.



All the images are saved in separate folders.

	Cartouche soudée EC_1 Palier Gauche	05/03/2018 12:11
	Cartouche soudée EC_2 Palier Droit	05/03/2018 12:11
	Cartouche soudée EC_3 Flasque Gauche	05/03/2018 12:11
	Cartouche soudée EC_4 Flasque Droit	05/03/2018 12:11
	Cartouche soudée EC_1 Palier Gauche.csv	05/03/2018 12:11
	Cartouche soudée EC_2 Palier Droit.csv	05/03/2018 12:11
	Cartouche soudée EC_3 Flasque Gauche.csv	05/03/2018 12:11
	Cartouche soudée EC_4 Flasque Droit.csv	05/03/2018 12:11
	Cartouche_EC_Cartouche soudée EC_All_Mes.csv	05/03/2018 12:11

A .csv file is created for each selected weld.

Carton	Int1	Int2	Int3	Int4	Int5	Int6	Int7	Int8	Int9	Int10	Int11	Int12	Int13	Int14	Int15	Int16	Int17	Int18	Int19	Int20	Int21	Int22	Int23	Int24	Int25	Int26	Int27	Int28	Int29	Int30	Int31	Int32	Int33	Int34	Int35	Int36	Int37	Int38	Int39	Int40	Int41	Int42	Int43	Int44	Int45	Int46	Int47	Int48	Int49	Int50	Int51	Int52	Int53	Int54	Int55	Int56	Int57	Int58	Int59	Int60	Int61	Int62	Int63	Int64	Int65	Int66	Int67	Int68	Int69	Int70	Int71	Int72	Int73	Int74	Int75	Int76	Int77	Int78	Int79	Int80	Int81	Int82	Int83	Int84	Int85	Int86	Int87	Int88	Int89	Int90	Int91	Int92	Int93	Int94	Int95	Int96	Int97	Int98	Int99	Int100	Int101	Int102	Int103	Int104	Int105	Int106	Int107	Int108	Int109	Int110	Int111	Int112	Int113	Int114	Int115	Int116	Int117	Int118	Int119	Int120	Int121	Int122	Int123	Int124	Int125	Int126	Int127	Int128	Int129	Int130	Int131	Int132	Int133	Int134	Int135	Int136	Int137	Int138	Int139	Int140	Int141	Int142	Int143	Int144	Int145	Int146	Int147	Int148	Int149	Int150	Int151	Int152	Int153	Int154	Int155	Int156	Int157	Int158	Int159	Int160	Int161	Int162	Int163	Int164	Int165	Int166	Int167	Int168	Int169	Int170	Int171	Int172	Int173	Int174	Int175	Int176	Int177	Int178	Int179	Int180	Int181	Int182	Int183	Int184	Int185	Int186	Int187	Int188	Int189	Int190	Int191	Int192	Int193	Int194	Int195	Int196	Int197	Int198	Int199	Int200	Int201	Int202	Int203	Int204	Int205	Int206	Int207	Int208	Int209	Int210	Int211	Int212	Int213	Int214	Int215	Int216	Int217	Int218	Int219	Int220	Int221	Int222	Int223	Int224	Int225	Int226	Int227	Int228	Int229	Int230	Int231	Int232	Int233	Int234	Int235	Int236	Int237	Int238	Int239	Int240	Int241	Int242	Int243	Int244	Int245	Int246	Int247	Int248	Int249	Int250	Int251	Int252	Int253	Int254	Int255	Int256	Int257	Int258	Int259	Int260	Int261	Int262	Int263	Int264	Int265	Int266	Int267	Int268	Int269	Int270	Int271	Int272	Int273	Int274	Int275	Int276	Int277	Int278	Int279	Int280	Int281	Int282	Int283	Int284	Int285	Int286	Int287	Int288	Int289	Int290	Int291	Int292	Int293	Int294	Int295	Int296	Int297	Int298	Int299	Int300	Int301	Int302	Int303	Int304	Int305	Int306	Int307	Int308	Int309	Int310	Int311	Int312	Int313	Int314	Int315	Int316	Int317	Int318	Int319	Int320	Int321	Int322	Int323	Int324	Int325	Int326	Int327	Int328	Int329	Int330	Int331	Int332	Int333	Int334	Int335	Int336	Int337	Int338	Int339	Int340	Int341	Int342	Int343	Int344	Int345	Int346	Int347	Int348	Int349	Int350	Int351	Int352	Int353	Int354	Int355	Int356	Int357	Int358	Int359	Int360	Int361	Int362	Int363	Int364	Int365	Int366	Int367	Int368	Int369	Int370	Int371	Int372	Int373	Int374	Int375	Int376	Int377	Int378	Int379	Int380	Int381	Int382	Int383	Int384	Int385	Int386	Int387	Int388	Int389	Int390	Int391	Int392	Int393	Int394	Int395	Int396	Int397	Int398	Int399	Int400	Int401	Int402	Int403	Int404	Int405	Int406	Int407	Int408	Int409	Int410	Int411	Int412	Int413	Int414	Int415	Int416	Int417	Int418	Int419	Int420	Int421	Int422	Int423	Int424	Int425	Int426	Int427	Int428	Int429	Int430	Int431	Int432	Int433	Int434	Int435	Int436	Int437	Int438	Int439	Int440	Int441	Int442	Int443	Int444	Int445	Int446	Int447	Int448	Int449	Int450	Int451	Int452	Int453	Int454	Int455	Int456	Int457	Int458	Int459	Int460	Int461	Int462	Int463	Int464	Int465	Int466	Int467	Int468	Int469	Int470	Int471	Int472	Int473	Int474	Int475	Int476	Int477	Int478	Int479	Int480	Int481	Int482	Int483	Int484	Int485	Int486	Int487	Int488	Int489	Int490	Int491	Int492	Int493	Int494	Int495	Int496	Int497	Int498	Int499	Int500	Int501	Int502	Int503	Int504	Int505	Int506	Int507	Int508	Int509	Int510	Int511	Int512	Int513	Int514	Int515	Int516	Int517	Int518	Int519	Int520	Int521	Int522	Int523	Int524	Int525	Int526	Int527	Int528	Int529	Int530	Int531	Int532	Int533	Int534	Int535	Int536	Int537	Int538	Int539	Int540	Int541	Int542	Int543	Int544	Int545	Int546	Int547	Int548	Int549	Int550	Int551	Int552	Int553	Int554	Int555	Int556	Int557	Int558	Int559	Int560	Int561	Int562	Int563	Int564	Int565	Int566	Int567	Int568	Int569	Int570	Int571	Int572	Int573	Int574	Int575	Int576	Int577	Int578	Int579	Int580	Int581	Int582	Int583	Int584	Int585	Int586	Int587	Int588	Int589	Int590	Int591	Int592	Int593	Int594	Int595	Int596	Int597	Int598	Int599	Int600	Int601	Int602	Int603	Int604	Int605	Int606	Int607	Int608	Int609	Int610	Int611	Int612	Int613	Int614	Int615	Int616	Int617	Int618	Int619	Int620	Int621	Int622	Int623	Int624	Int625	Int626	Int627	Int628	Int629	Int630	Int631	Int632	Int633	Int634	Int635	Int636	Int637	Int638	Int639	Int640	Int641	Int642	Int643	Int644	Int645	Int646	Int647	Int648	Int649	Int650	Int651	Int652	Int653	Int654	Int655	Int656	Int657	Int658	Int659	Int660	Int661	Int662	Int663	Int664	Int665	Int666	Int667	Int668	Int669	Int670	Int671	Int672	Int673	Int674	Int675	Int676	Int677	Int678	Int679	Int680	Int681	Int682	Int683	Int684	Int685	Int686	Int687	Int688	Int689	Int690	Int691	Int692	Int693	Int694	Int695	Int696	Int697	Int698	Int699	Int700	Int701	Int702	Int703	Int704	Int705	Int706	Int707	Int708	Int709	Int710	Int711	Int712	Int713	Int714	Int715	Int716	Int717	Int718	Int719	Int720	Int721	Int722	Int723	Int724	Int725	Int726	Int727	Int728	Int729	Int730	Int731	Int732	Int733	Int734	Int735	Int736	Int737	Int738	Int739	Int740	Int741	Int742	Int743	Int744	Int745	Int746	Int747	Int748	Int749	Int750	Int751	Int752	Int753	Int754	Int755	Int756	Int757	Int758	Int759	Int760	Int761	Int762	Int763	Int764	Int765	Int766	Int767	Int768	Int769	Int770	Int771	Int772	Int773	Int774	Int775	Int776	Int777	Int778	Int779	Int780	Int781	Int782	Int783	Int784	Int785	Int786	Int787	Int788	Int789	Int790	Int791	Int792	Int793	Int794	Int795	Int796	Int797	Int798	Int799	Int800	Int801	Int802	Int803	Int804	Int805	Int806	Int807	Int808	Int809	Int810	Int811	Int812	Int813	Int814	Int815	Int816	Int817	Int818	Int819	Int820	Int821	Int822	Int823	Int824	Int825	Int826	Int827	Int828	Int829	Int830	Int831	Int832	Int833	Int834	Int835	Int836	Int837	Int838	Int839	Int840	Int841	Int842	Int843	Int844	Int845	Int846	Int847	Int848	Int849	Int850	Int851	Int852	Int853	Int854	Int855	Int856	Int857	Int858	Int859	Int860	Int861	Int862	Int863	Int864	Int865	Int866	Int867	Int868	Int869	Int870	Int871	Int872	Int873	Int874	Int875	Int876	Int877	Int878	Int879	Int880	Int881	Int882	Int883	Int884	Int885	Int886	Int887	Int888	Int889	Int890	Int891	Int892	Int893	Int894	Int895	Int896	Int897	Int898	Int899	Int900	Int901	Int902	Int903	Int904	Int905	Int906	Int907	Int908	Int909	Int910	Int911	Int912	Int913	Int914	Int915	Int916	Int917	Int918	Int919	Int920	Int921	Int922	Int923	Int924	Int925	Int926	Int927	Int928	Int929	Int930	Int931	Int932	Int933	Int934	Int935	Int936	Int937	Int938	Int939	Int940	Int941	Int942	Int943	Int944	Int945	Int946	Int947	Int948	Int949	Int950	Int951	Int952	Int953	Int954	Int955	Int956	Int957	Int958	Int959	Int960	Int961	Int962	Int963	Int964	Int965	Int966	Int967	Int968	Int969	Int970	Int971	Int972	Int973	Int974	Int975	Int976	Int977	Int978	Int979	Int980	Int981	Int982	Int983	Int984	Int985	Int986	Int987	Int988	Int989	Int990	Int991	Int992	Int993	Int994	Int995	Int996	Int997	Int998	Int999	Int1000	Int1001	Int1002	Int1003	Int1004	Int1005	Int1006	Int1007	Int1008	Int1009	Int1010	Int1011	Int1012	Int1013	Int1014	Int1015	Int1016	Int1017	Int1018	Int1019	Int1020	Int1021	Int1022	Int1023	Int1024	Int1025	Int1026	Int1027	Int1028	Int1029	Int1030	Int1031	Int1032	Int1033	Int1034	Int1035	Int1036	Int1037	Int1038	Int1039	Int1040	Int1041	Int1042	Int1043	Int1044	Int1045	Int1046	Int1047	Int1048	Int1049	Int1050	Int1051	Int1052	Int1053	Int1054	Int1055	Int1056	Int1057	Int1058	Int1059	Int1060	Int1061	Int1062	Int1063	Int1064	Int1065	Int1066	Int1067	Int1068	Int1069	Int1070	Int1071	Int1072	Int1073	Int1074	Int1075	Int1076	Int1077	Int1078	Int1079	Int1080	Int1081	Int1082	Int1083	Int1084	Int1085	Int1086	Int1087	Int1088	Int1089	Int1090	Int1091	Int1092	Int1093	Int1094	Int1095	Int1096	Int1097	Int1098	Int1099	Int1100	Int1101	Int1102	Int1103	Int1104	Int1105	Int1106	Int1107	Int1108	Int1109	Int1110	Int1111	Int1112	Int1113	Int1114	Int1115	Int1116	Int1117	Int1118	Int1119	Int1120	Int1121	Int1122	Int1123	Int1124	Int1125	Int1126	Int1127	Int1128	Int1129	Int1130	Int1131	Int1132	Int1133	Int1134	Int1135	Int1136	Int1137	Int1138	Int1139	Int1140	Int1141	Int1142	Int1143	Int1144	Int1145	Int1146	Int1147	Int1148	Int1149	Int1150	Int1151	Int1152	Int1153	Int1154	Int1155	Int1156	Int1157	Int1158	Int1159	Int1160	Int1161	Int1162	Int1163	Int1164	Int1165	Int1166	Int1167	Int1168	Int1169	Int1170	Int1171	Int1172	Int1173	Int1174	Int1175	Int1176	Int1177	Int1178	Int1179	Int1180	Int1181	Int1182	Int1183	Int1184	Int1185	Int1186	Int1187	Int1188	Int1189	Int1190	Int1191	Int1192	Int1193	Int1194	Int1195	Int1196	Int1197	Int1198	Int1199	Int1200	Int1201	Int1202	Int1203	Int1204	Int1205	Int1206	Int1207	Int1208	Int1209	Int1210	Int1211	Int1212	Int1213	Int1214	Int1215	Int1216	Int1217	Int1218	Int1219	Int1220	Int1221	Int1222	Int1223	Int1224	Int1225	Int1226	Int1227	Int1228	Int1229	Int1230	Int1231	Int1232	Int1233	Int1234	Int1235	Int1236	Int1237	Int1238	Int1239	Int1240	Int1241	Int1242	Int1243	Int1244	Int1245	Int1246	Int1247	Int1248	Int1249	Int1250	Int1251	Int1252	Int1253	Int1254	Int1255	Int1256	Int1257	Int1258	Int1259	Int1260	Int1261	Int1262	Int1263	Int1264	Int1265	Int1266	Int1267	Int1268	Int1269	Int1270	Int1271	Int1272	Int1273	Int1274	Int1275	Int1276	Int1277	Int1278	Int1279	Int1280	Int1281	Int1282	Int1283	Int1284	Int1285	Int1286	Int1287	Int1288	Int1289	Int1290	Int1291	Int1292	Int1293	Int1294	Int1295	Int1296	Int1297	Int1298	Int1299	Int1300	Int1301	Int1302	Int1303	Int1304	Int1305	Int1306	Int1307	Int1308	Int1309	Int1310	Int1311	Int1312	Int1313	Int1314	Int1315	Int1316	Int1317	Int1318	Int1319	Int1320	Int1321	Int1322	Int1323	Int1324	Int1325	Int1326	Int1327	Int1328	Int1329	Int1330	Int1331	Int1332	Int1333	Int1334	Int1335	Int1336	Int1337	Int1338	Int1339	Int1340	Int1341	Int1342	Int1343	Int1344	Int1345	Int1346	Int1347	Int1348
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16 DataView (option)

This module is available as an option to the software.

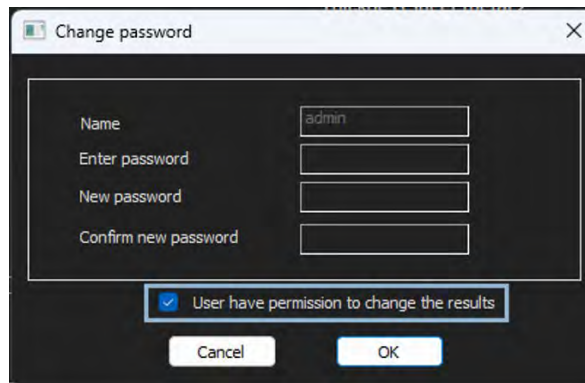
It offers the following functions:

- Viewing and filtering historical data by date, part, user, or compliance level (OK/NOK)
- Deleting historical data (a specific line)
- Redoing measurements on already saved images
- Replacing old measurements with the redone measurement

Operator management

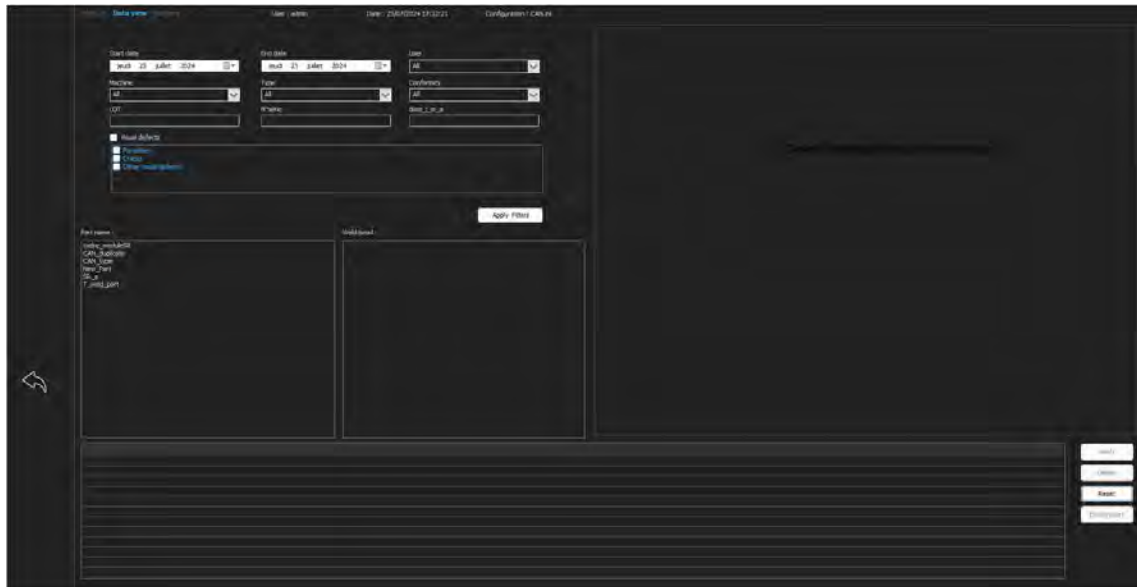
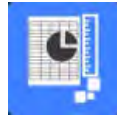
To be able to get access to all “review data” features, the operator must have access to modify the results files.

You can change the operators’ access rights in **Administration**.

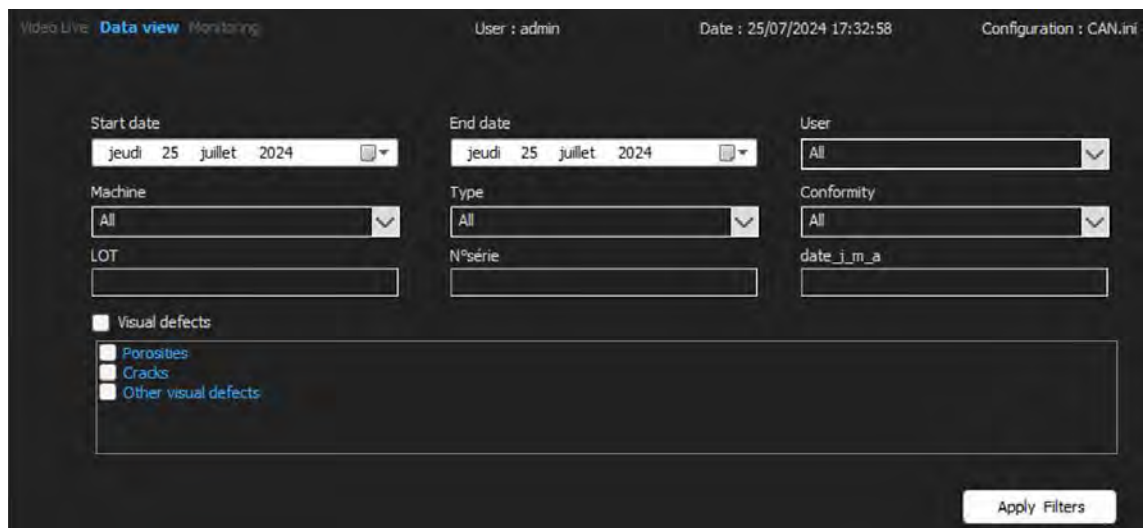


The DataView window

- To access the **DataView** window, click the **DataView** icon.



Sorting keys



16.1 DataView features

Verify

Reload the RAW image (with measurement), which has been captured at the date of measurement and then redo the measurement.

Verify is only active if a RAW image exists. If there is no RAW image, the button remains inactive.

Delete

Delete the active measurement line after the operator's confirmation.

Excel report

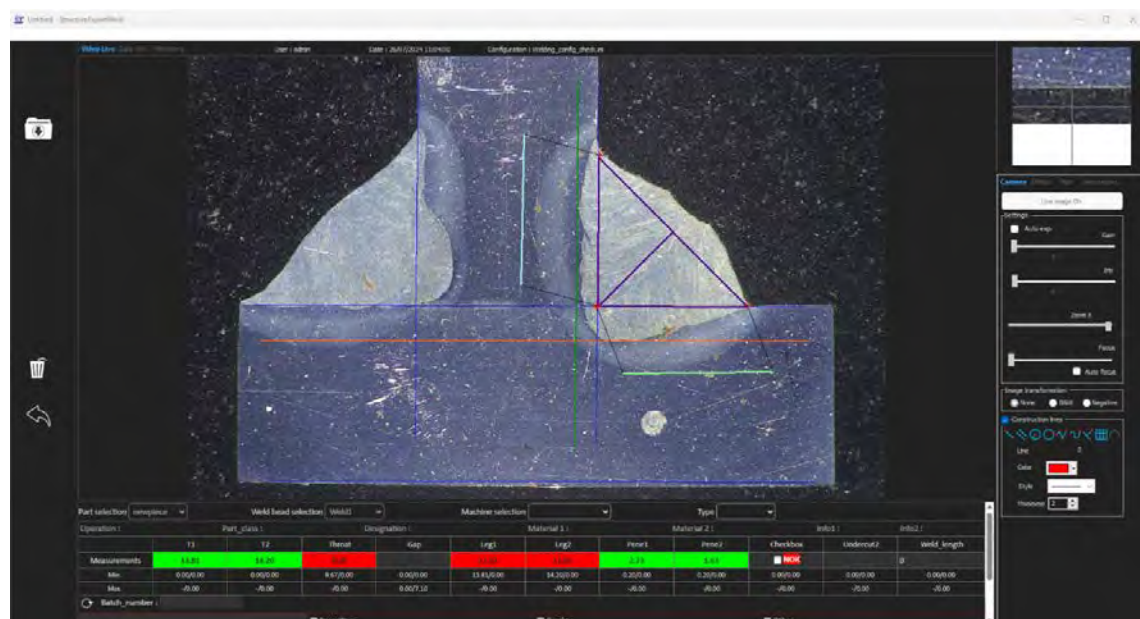
Create an Excel report of the active measurement line.

Reset

Reset the selections (part, weld,...).

Verify a measurement with data view

When you click **Verify**, the RAW image is loaded automatically in the tab **Video Live**.



- Part name and weld name are loaded automatically and cannot be changed.
- Machine selection, type and batch number are also loaded automatically and can be changed.
- The correct calibration is loaded.
- Original measurement lines are shown.

Redoing a measurement

To redo a measurement, click the measurement title. Original lines/results are deleted. Redo the measurement.

Saving an old measurement

If you click the **Save results** icon, the new measurement will replace the old measurement in the global Excel results files at the original date.

*Discarding new results*

If you do not want to save the new results, click the **Back** icon and click Yes.

**Raw images and data trash**

RAW Images are located in the folder **.../Configuration name/Results/Backup**

One .JPG file for each image, one text file containing the calibration, and one text file containing the measurement lines positions.

Data trash is located in the folder **.../Configuration name/Results/Backup**

Deleted by	Record :	257	14 September	2011	10h27m	4.19	3.85	0.00	0.00	0.00	0.00	0.21	0.19	0.00	0.00	1.21	2.55
Replaced by	Record :	257	14 September	2011	10h36m	0.00	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deleted by	Record :	257	14 September	2011	10h27m	4.03	2.96	0.46	0.00	0.00	0.00	0.20	0.20	0.00	0.00	0.84	2.86
Replaced by	Record :	257	14 September	2011	10h36m	0.00	0.00	0.00	3.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Replaced by	Seb	257	14 September	2011	10h02m	5.99	2.37	7.28	0.00	0.00	0.00	0.20	0.12	0.00	0.00	1.12	0.89
Replaced by	Seb	257	14 September	2011	10h02m	6.19	2.38	0.00	0.00	0.00	0.00	0.31	0.12	0.00	0.00	1.52	0.94

All the deleted or modified results are automatically saved in the file **dataTrash.xls**.

WE TEST AVRIL ► CONFIG1 ► Results ► backup				Rechercher da
ager avec ▼	Graver	Nouveau dossier		
Nom	Modifié	Type	Taille	
dataTrash	14/09/2011 10:28	Feuille Microsoft E...	1 Ko	
PART1_1_257_2011_10h02m14s	14/09/2011 10:02	Paramètres de co...	1 Ko	
PART1_1_257_2011_10h02m14s	14/09/2011 10:02	Image JPEG	289 Ko	
PART1_1_257_2011_10h02m36s	14/09/2011 10:02	Paramètres de co...	1 Ko	
PART1_1_257_2011_10h02m36s	14/09/2011 10:02	Image JPEG	290 Ko	
PART1_2_257_2011_10h27m15s	14/09/2011 10:27	Paramètres de co...	1 Ko	
PART1_2_257_2011_10h27m15s	14/09/2011 10:27	Image JPEG	229 Ko	
PART1_2_257_2011_10h27m49s	14/09/2011 10:27	Paramètres de co...	1 Ko	
PART1_2_257_2011_10h27m49s	14/09/2011 10:27	Image JPEG	229 Ko	



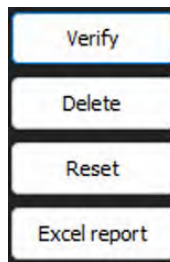
Print a report in the module DataView

To print a report in the module **DataView**, choose between the following two options:

1. Click **Print** at the top of the report.



2. Or click **Excel report** to generate an Excel report.



17 Report Generator (option)

17.1 General description

Requirements

- A report layout created with a recent version of Excel.
- A report layout saved in .XLS (not XLSX and not .XLSM).
- Excel 2007 at a minimum.

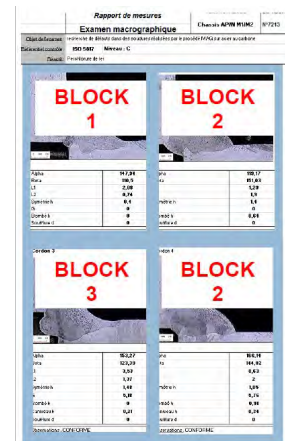
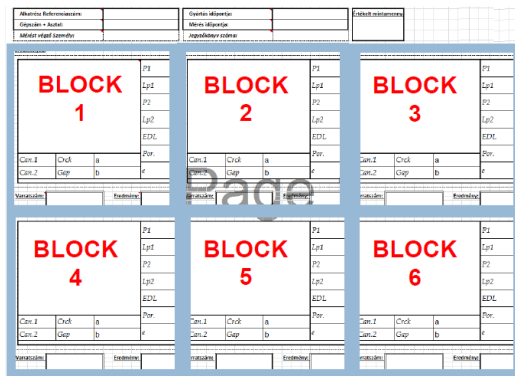
Purpose

Avoid the use of Excel Macros to create complex reports inside StructureExpert Weld software.

Mostly, part reports are composed of "blocks" (image, results, min, max, comments...) for each weld.

These blocks are duplicated in order to have all the welds of the part in the report.

Typical examples



A block can also be a line:

	E1	E2	EDL	r1	r2	Lp1	Lp2	p1	p2	Measure	Porosities	Cracks	Others		li	Nc
V0001C47	1.40	3.75	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0					0	
V0002C46	1.40	3.75	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0					0	
N0003C8	1.40	4.00	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0					0	
N0004C7	1.40	3.75	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0					0	

V0001C47			
E1	1.40	1.40	1.40
E2	3.75	3.75	3.75
EDL	1.40	1.40	1.40
r1	0.00	0.00	0.00
r2	0.00	0.00	0.00
Lp1	0.00	0.00	0.00
Lp2	0.00	0.00	0.00
p1	0.00	0.00	0.00
p2	0.00	0.00	0.00
V0002C46			
E1	1.40	1.40	1.40
E2	3.75	3.75	3.75
EDL	1.40	1.40	1.40
r1	0.00	0.00	0.00
r2	0.00	0.00	0.00
Lp1	0.00	0.00	0.00
Lp2	0.00	0.00	0.00
p1	0.00	0.00	0.00
p2	0.00	0.00	0.00
N0003C8			
E1	1.40	1.40	1.40
E2	4.00	4.00	4.00
EDL	1.40	1.40	1.40
r1	0.00	0.00	0.00
r2	0.00	0.00	0.00
Lp1	0.00	0.00	0.00
Lp2	0.00	0.00	0.00
p1	0.00	0.00	0.00
p2	0.00	0.00	0.00
V0004C7			
E1	1.40	1.40	1.40
E2	3.75	3.75	3.75
EDL	1.40	1.40	1.40
r1	0.00	0.00	0.00
r2	0.00	0.00	0.00
Lp1	0.00	0.00	0.00
Lp2	0.00	0.00	0.00
p1	0.00	0.00	0.00
p2	0.00	0.00	0.00
V0005C42			
E1	1.47	1.47	1.47
E2	4.60	4.60	4.60
EDL	1.47	1.47	1.47
r1	0.00	0.00	0.00
r2	0.00	0.00	0.00
Lp1	0.00	0.00	0.00
Lp2	0.00	0.00	0.00
p1	0.00	0.00	0.00
p2	0.00	0.00	0.00
V0006C41			
E1	1.35	1.35	1.35
E2	3.40	3.40	3.40
EDL	1.35	1.35	1.35
r1	0.00	0.00	0.00
r2	0.00	0.00	0.00
Lp1	0.00	0.00	0.00
Lp2	0.00	0.00	0.00
p1	0.00	0.00	0.00
p2	0.00	0.00	0.00

17.1.1 Prepare a report layout



Hint

We advise you to reduce the width and height of the cells. This will give you better flexibility in the design of your Excel layout.

- The layout can be designed on 1 or 2 Excel tabs (or more).
- The layout must fit in an A4 page.
- Make sure that the first page of your layout is fully printed on an A4 page with your default printer (adjust the sheet in 1 page).



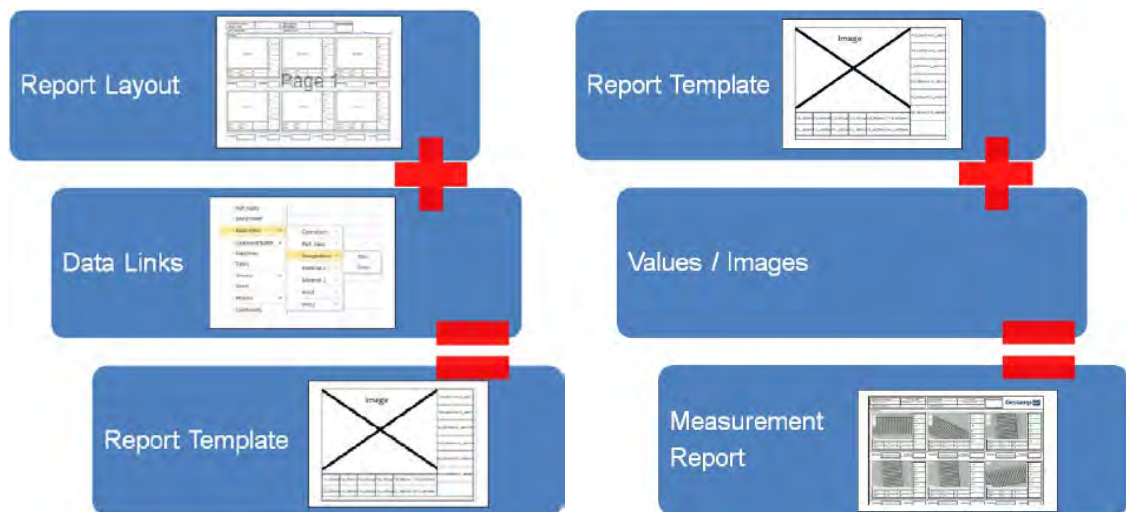
Note

The layout of your report only concerns the first page; if more pages are required, the module will automatically duplicate the layout of the first page.

For the images

- The dimension is defined by a number of columns, and the image will always have a ratio of $\frac{4}{3}$. Make sure to respect this ratio.
- In StructureExpert Weld, make sure that the configuration is the definitive or almost the definitive. For instance, if you change the measurement name, you will have to modify your StructureExpert Weld report template.

17.2 General principle and generic terms

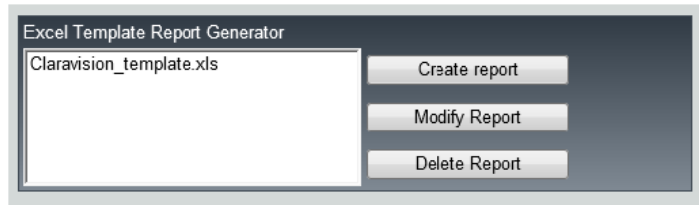


17.3 Create a report template

Select/open your layout

If you have purchased the StructureExpert Weld Report Generator module:

1. Go to **Admin/General description**.
2. At the bottom of the page, select **Excel Template Report Generator**.
3. Click **Create Report**.



4. Locate your report layout in Windows File Explorer.

5. Click **Open**.

Your excel layout is now open, and you have access to customized Excel features.

Add data links

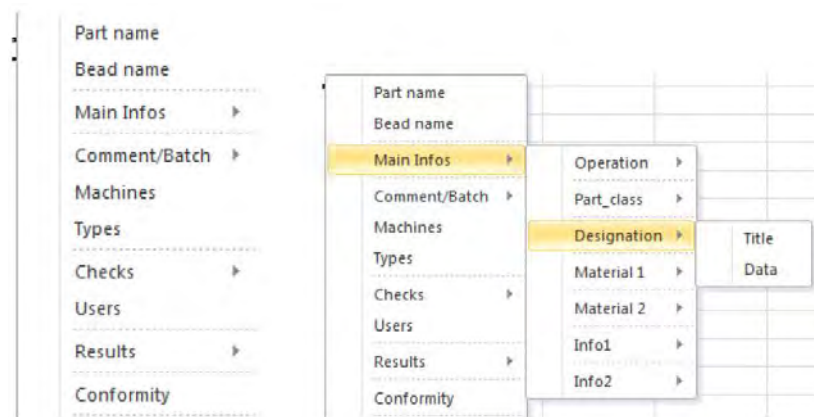
*New Excel Menu: **Add-ins***



With this new menu, you have access to image insertion, that is **Measured image** and **Original image** (if you have the optional DataView module, see [DataView \(option\)](#) ►86).

Other options are described later.

New mouse right click



With mouse right click, you get access to all the information of your StructureExpert Weld configuration (part name, weld name, free fields, measurement name, measurement value, Min, Max, etc...).

Merge StructureExpert Weld info in your Excel layout



Note

This merging only concerns the first block of the report.

Insert an image

In this example, the image will be placed between columns C to O and lines 8 to 29.

Before you insert the image, we recommend that you:

1. Merge the Excel cells.
2. Reduce the width and height of the cells. This will give better flexibility in the design of the report layout.

Then you can insert the image:

1. Select the area where you want to insert the image.
2. In the **Add-ins** menu, click **Measured image** or **Original image**.

A rectangle automatically appears, and below this rectangle a text like: IMAGE_GRAPHICS3_8_175,5_125,3571.



Note

Do not remove this text. It will automatically be excluded from the final report.

Remove the image

- Delete the image rectangle and the text behind.

Insert a measurement plan

If you have already linked a measurement plan to a weld bead, you can insert this.

1. Select the area where you want to insert the measurement plan.
2. In the **Add-ins** menu, click **Add Plan**.

A rectangle automatically appears, and below this rectangle a text like: IMAGE_GRAPHICS3_8_175,5_125,3571.



Note

Do not remove this text. It will automatically be excluded from the final report.

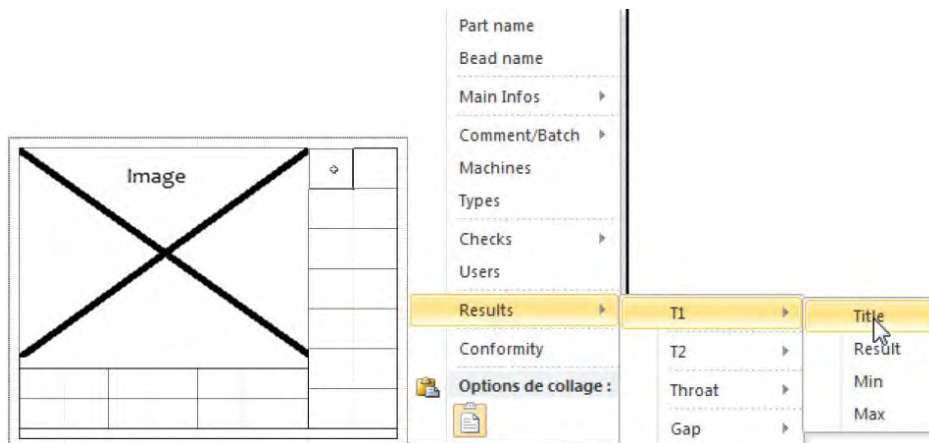
Remove the measurement plan

- Delete the image rectangle as well as the text behind.

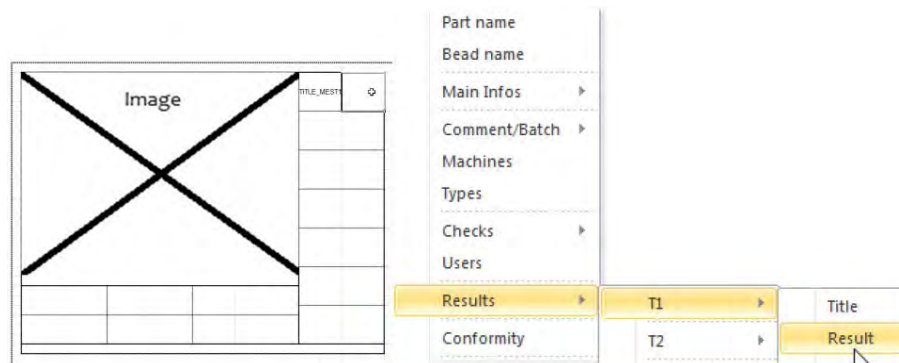
Insert measurements

4 links are available for each measurement:

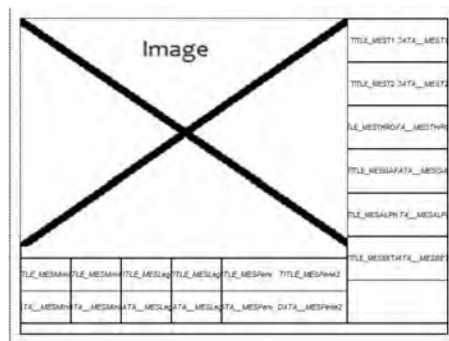
- Title
 - Result
 - Min
 - Max
1. Right-click and insert the title of measurement T1 (**Results/T1/Title**).



2. Right-click and insert the the result of measurement T1 (**Results/T1/Result**).

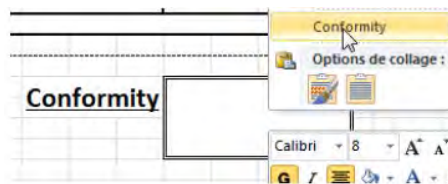


3. This procedure is the same for all the measurements. Repeat these steps until all the measurement info you need is in block 1.
4. The result should be similar to this example:



Insert a conformity link

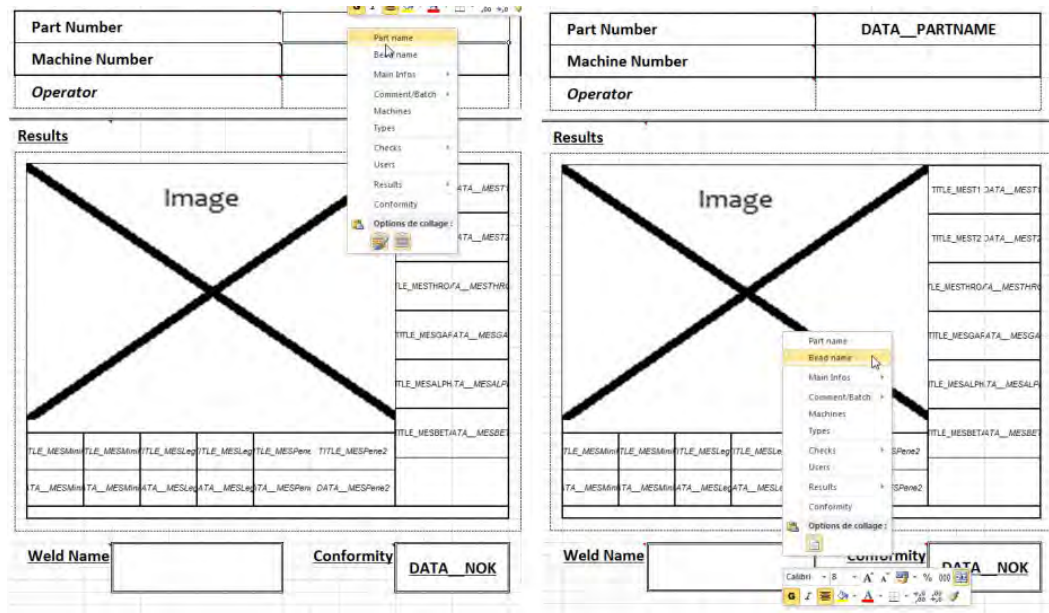
- Right-click and select **Conformity**.



The displayed value will be **OK** (green) or **NOK** (red), ie. Not OK.

Insert part name and weld bead name

1. Right-click and insert **Part name** and **Bead name**.

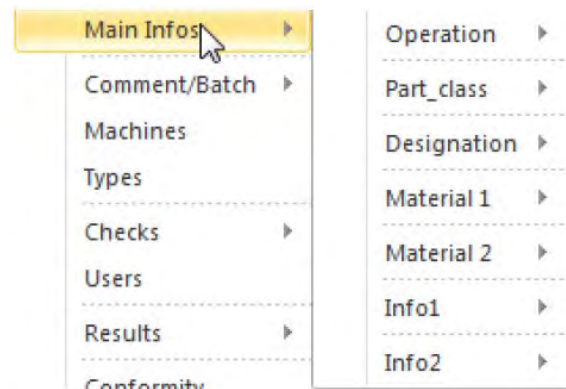


2. Insert the other links required by following the same procedure as above.

Main Infos

In the StructureExpert Weld architecture, the **Main Infos** options make up a special case and can be different for each weld.

For technical reasons, in the Report Generator module, **Main Infos** are the values of the first weld of the part.



Duplicate blocks

Once the first block is ready, the report is almost finished.

- Now define how many blocks to duplicate horizontally and vertically.

Example

3 horizontal blocks/2 vertical blocks per A4 page:

Example

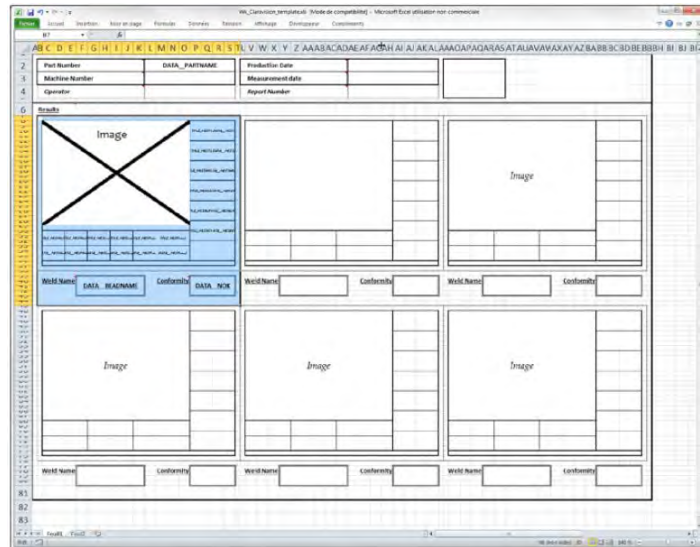
2 horizontal blocks/2 vertical blocks per A4 page:

Example

1 horizontal line block/33 vertical blocks per A4 page:

1. Select the block to be duplicated.

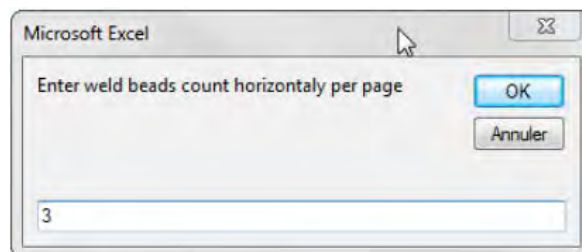
The selected block must be next to the one to be duplicated (vertically & horizontally), otherwise the StructureExpert Weld values will not fit in the desired cells.



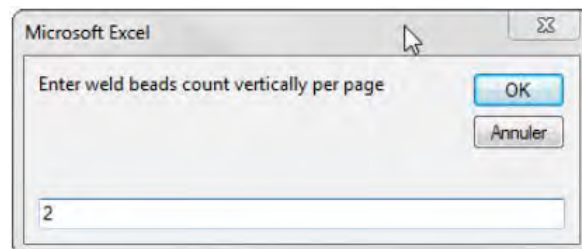
2. In the **Add-ins** menu, click **Weld Range**.



3. Enter the number of horizontal blocks.



4. Enter the number of vertical blocks.

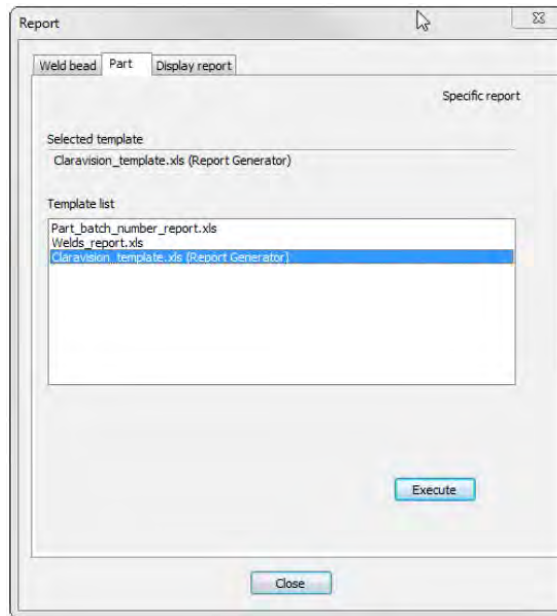


Save the report template

- In the **Add-ins** menu, click on **Save Template**.

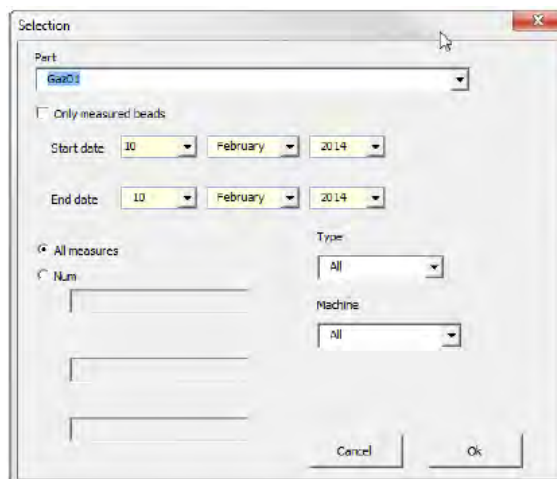


The report template will now be available in **Template list** in the StructureExpert Weld software.

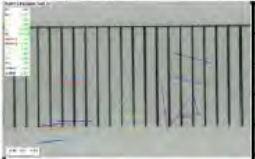
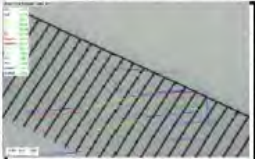
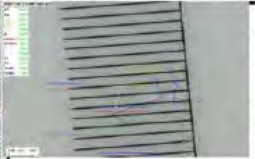


Use the report

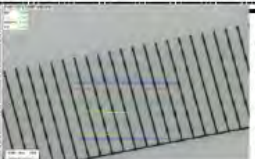
Regular windows appear:



Alkotór Referenciázás:	PART GESTAMP	Gyártás időpontja:	04.12.2013	Értékelő névadás:
Gépezés + Állás:	Welding Machine: Shift 1	Méres időpontja:	Welding Machine	
Adatvető utolsó személy:		Ággregálási szám:		

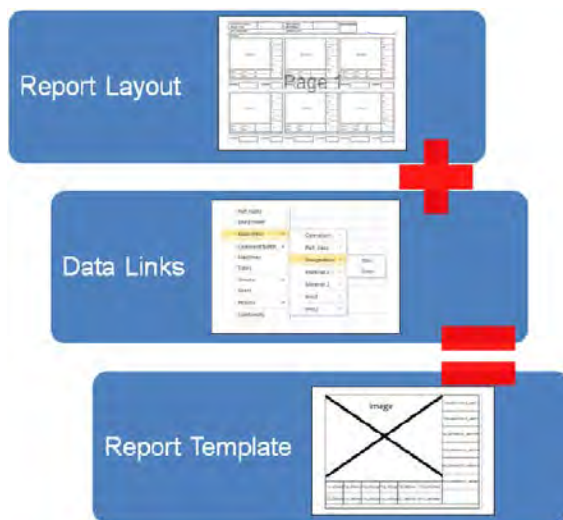
Eredmény:																																																									
 <table border="1"> <tr><td>P1</td><td>0.45</td></tr> <tr><td>LP1</td><td>3.45</td></tr> <tr><td>P2</td><td>1.17</td></tr> <tr><td>LP2</td><td>1.64</td></tr> <tr><td>EDL</td><td>1.84</td></tr> </table> <table border="1"> <tr><td>CAN1</td><td>2.33</td><td>CrcK</td><td>X</td><td>A</td><td>11.75</td></tr> <tr><td>CAN2</td><td>2.27</td><td>Gap</td><td>1.28</td><td>B</td><td>70.92</td></tr> <tr><td>Por</td><td>X</td><td></td><td></td><td></td><td>2.4</td></tr> </table>	P1	0.45	LP1	3.45	P2	1.17	LP2	1.64	EDL	1.84	CAN1	2.33	CrcK	X	A	11.75	CAN2	2.27	Gap	1.28	B	70.92	Por	X				2.4	 <table border="1"> <tr><td>P1</td><td>1.93</td></tr> <tr><td>LP1</td><td>3.1</td></tr> <tr><td>P2</td><td>1.48</td></tr> <tr><td>LP2</td><td>1.4</td></tr> <tr><td>EDL</td><td>1.71</td></tr> </table> <table border="1"> <tr><td>CAN1</td><td>2.25</td><td>CrcK</td><td>X</td><td>A</td><td>79.81</td></tr> <tr><td>CAN2</td><td>2.2</td><td>Gap</td><td>2.24</td><td>B</td><td>20.13</td></tr> <tr><td>Por</td><td>X</td><td></td><td></td><td></td><td>4.3</td></tr> </table>	P1	1.93	LP1	3.1	P2	1.48	LP2	1.4	EDL	1.71	CAN1	2.25	CrcK	X	A	79.81	CAN2	2.2	Gap	2.24	B	20.13	Por	X				4.3
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Variáns:	PART.GESTAMP.WELD	Eredmény:	Welding Machine
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 <table border="1"> <tr><td>P1</td><td>-</td></tr> <tr><td>LP1</td><td>-</td></tr> <tr><td>P2</td><td>-</td></tr> <tr><td>LP2</td><td>-</td></tr> <tr><td>EDL</td><td>-</td></tr> </table> <table border="1"> <tr><td>CAN1</td><td>-</td><td>CrcK</td><td>X</td><td>A</td><td>11.45</td></tr> <tr><td>CAN2</td><td>-</td><td>Gap</td><td>-</td><td>B</td><td>12.31</td></tr> <tr><td>Por</td><td>X</td><td></td><td></td><td></td><td>-</td></tr> </table>	P1	-	LP1	-	P2	-	LP2	-	EDL	-	CAN1	-	CrcK	X	A	11.45	CAN2	-	Gap	-	B	12.31	Por	X				-	 <table border="1"> <tr><td>P1</td><td>-</td></tr> <tr><td>LP1</td><td>-</td></tr> <tr><td>P2</td><td>-</td></tr> <tr><td>LP2</td><td>-</td></tr> <tr><td>EDL</td><td>-</td></tr> </table> <table border="1"> <tr><td>CAN1</td><td>4.44</td><td>CrcK</td><td>X</td><td>A</td><td>-</td></tr> <tr><td>CAN2</td><td>2.41</td><td>Gap</td><td>-</td><td>B</td><td>-</td></tr> <tr><td>Por</td><td>X</td><td></td><td></td><td></td><td>-</td></tr> </table>	P1	-	LP1	-	P2	-	LP2	-	EDL	-	CAN1	4.44	CrcK	X	A	-	CAN2	2.41	Gap	-	B	-	Por	X				-
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P1	-																																																								
LP1	-																																																								
P2	1.46																																																								
LP2	-																																																								
EDL	-																																																								
CAN1	-	CrcK	X	A	-																																																				
CAN2	-	Gap	2.26	B	-																																																				
Por	X				6																																																				

Variáns:	PART.GESTAMP.WELD	Eredmény:	
Variáns:	PART.GESTAMP.WELD	Eredmény:	
Variáns:	PART.GESTAMP.WELD	Eredmény:	

17.4 Modify the report layout and report template



The original report layout must be used if you want to modify the appearance.

The original report layout must be used if you want to modify the appearance.

No changes in appearance are allowed.

Modify the appearance of a report layout

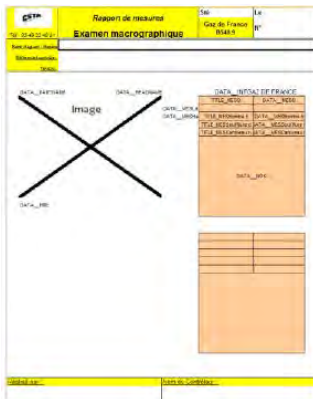


Note

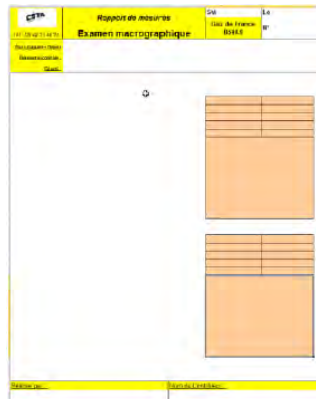
After merging the data links, you cannot modify directly the appearance of your report template. You must modify your report layout. If you do the changes in your report template, the changes will not be applied.

1. Open the original "report layout".
2. Make the changes.
3. Then save.

Original report template



Original report layout

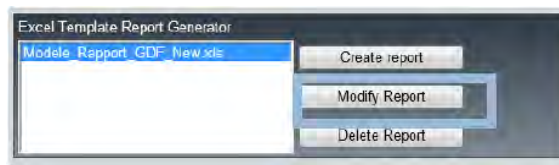


Modified report layout

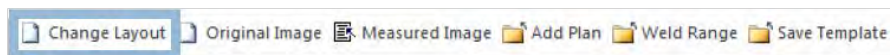


To apply the modified layout to an existing “report template”:

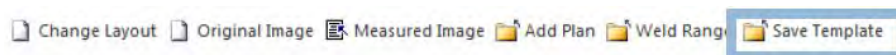
1. Go to **Admin/General description**.
2. Select your report template.
3. Click **Modify Report**.



4. Click **Change Layout**.



5. Browse to your modified report layout.
6. Click **Save Template**.



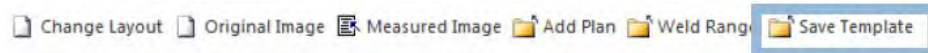
Modify the report template and data links

In the report template, you can modify the data links previously merged in your report template.

1. Go to **Admin/General description**.
2. Select your report template.
3. Click **Modify Report**.



4. Make all the needed changes.
5. Click **Save Template**.



6. Your report is now updated.

18 QDas (option)

Introduction

The software provides a solution for saving weld bead measurements in the QDas format.

Use the **SEW_QDas_Settings.exe** software to manage QDas settings in StructureExpert Weld (SEW):

- Associating QDas tags (K1xxx, K2xxx, K0xxx) to SEW data.
- Defining the folder for saving data.

Part Data/K1 tags	
QDas tags in Range K1xxx (known as Part Data) will be associated with:	
– Configuration Name – Part Name – Weld Bead Name – Operation, Part_Class, Designation, Material 1, Material 2, Info 1, Info 2.	

Characteristic/K2 tags
QDas tags in Range K2xxx (known as Characteristic Data) will be associated with:
– Measure Id – Description – Unit – Min/Action Limit Min – Max/Action Limit Max – Formula

Value/k0 tags
QDas tags in Range K0xxx (known as Values) will be associated with:
– User – Date – Machine – Type – Text comment – Comment1 (batch number), comment 2, comment 3)

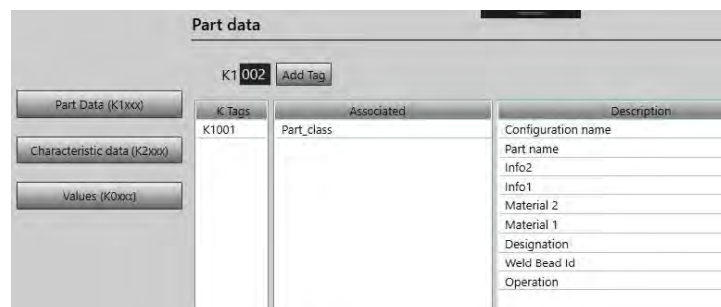
18.1 SEW_QDas settings

SEW_QDas_Settings.exe is located at the root of the software installation folder.

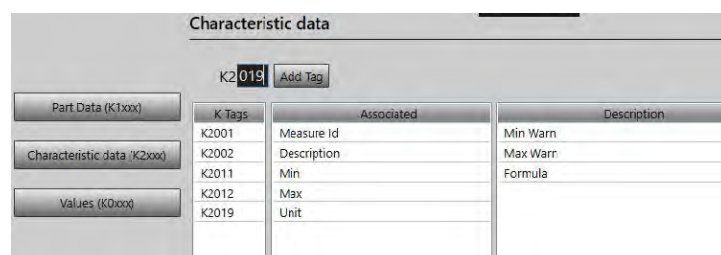
This software is used as a setting software to associate each tag with SEW data.

Use the 3 screens as shown in the following:

1. Associating **Part data**



2. Associating **Characteristics data**



3. Associating **Values**

Associating SEW data to QDas tag:

1. Select the screen corresponding to the data/tags.
2. Enter the tag number for the part (A).
3. Click **Add tag** to store the new tag in the **K Tags** list (B).
4. Click the text in the **Description** data list (D) that you wish to associate to the tag.
5. Drag the text to the **Associated** list (C).

The graphic shows Tag k1001 already associated to SEW data called Part_Class (B) and (C).

Removing tags/associated data

- To remove a tag and the associated SEW data ((B) and (C)), double-click the K tag you wish to remove (B).
- To remove only the associated data ((C)), drag the text to the description list (D).

Additional options

- Click **More Options** to access additional options.

When you save a QDas file, measurement values can be saved in two different ways:

- On a single line, with a separator character

```
0.000 0.000 0.000 0.000 0.000 0.560 0.000 0.000 1.000 0.0000000
K0004/0 20.03.20/09:45:00
K0006/0
K0008/0 1
K0009/0
K0010/0 0
0.000 0.000 0.000 0.000 7.440 0.000 0.000 0.000 0.000 0.0000000
K0004/0 20.03.20/09:45:07
K0006/0 |
K0008/0 1
K0009/0
K0010/0 0
0.000 0.000 0.000 0.000 8.180 0.000 0.000 1.000 0.000 0.0000000
```

or

- Each measurement value can be associated with its measurement number, K-Field

```

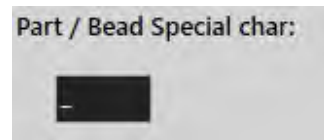
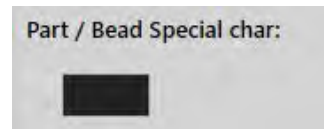
K0004/0 20.03.20/18:51:47
K0006/0
K0008/0 1
K0009/0
K0010/0 0
K0011/1 0.00
K0012/2 0.00
K0013/3 0.00
K0014/4 0.00
K0019/9 2.61
K0011/10 0.00
K0011/11 0.00
K0011/12 0.00
K0011/13 1.00
K0011/14 0.00
K0011/15 0.00
K0011/16 0
K0011/17 0
K0011/18 0
K0004/0 20.03.20/18:51:52
K0006/0
K0008/0 1
K0009/0
K0010/0 0

```

The **Part / Bead Special char** field

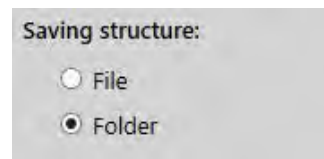
When you create parts and welds in SEW software, the most frequently used special character is the underscore “_” as a prefix to the part name or more often to the weld name: e.g. _001, _025, _0136....This will ensure correct sorting in the software as well as in the Excel reports.

The special character underscore “_” can be a problem when you save data in the QDas format, so this option enables saving all the results eliminating “_” in all part names and weld names. Enter the special character you wish to remove.



Saving a QDas file

When you save a QDas file, the file is usually saved in a sub-folder.



However, you can also save the file in a fixed folder using the file option, therefor files are saved in a fixed location:

Config_demo2_NewPart_Convex1_00000001.dfq

File names structure:

Configuration name_Part_name_weld identification_000000x.dfq

Defining a QDas saving folder

- To define the saving folder for QDas data, click **Browse**.

18.2 QDas results

When you have saved settings, you can use SEW to save QDas results.

Whenever you wish to save results, they will be saved as usual in the Excel format, and also in the QDas format according to the settings.

SEW uses the QDas folder to save QDas data. Each result will be store in a subfolder defined as :

QDasFolder/ConfigurationName/BeadName/xxxxxxx.dfq

The results will be saved as a DFQ structure. The name is defined by 8 digits from 00000001.dfq. As seen in the QDas specification, the name is incremented at every modification in the descriptive part (known as DFD).

19 SewSoft AI 4.0 (option)

The core functionality of the StructureExpert Weld software, SewSoft, remains the same with or without the AI 4.0 module. However, when the AI 4.0 module is enabled, certain interface elements within SewSoft are enhanced.

The AI 4.0 module enables automated measurement of weld beads and seamless data sharing across your organization.

This module is available through a monthly or annual subscription, which includes access to the latest software updates, new AI models, and updated Microsoft Power BI dashboards.

General information on the operation of the AI module

Algorithms

The AI module is broken down into 2 distinct modules that are automatically linked when the module is used:

- A first algorithm makes it possible to analyze and segment the image in order to identify the different constituent elements of the image.
Typically in the analysis of a weld, 3 elements are identified: Sheet 1, sheet 2 and the weld bead.
- A second analysis algorithm allows the automation of the measurement by combining the elements detected above and a measurement model created beforehand by the user.

Weld models

Model creation is a prerequisite for the effective operation of SewSoft AI 4.0 (see [Template tips and tricks ▶110](#)). Each weld bead must be individually associated with a theoretical measurement model that defines its geometric and dimensional parameters.

A single model cannot be reused across multiple weld beads. For instance, if you need to measure 100 unique welds, you must first define 100 corresponding weld models. This modeling process is a one-time setup per weld configuration.

Each model specifies the primary measurement points and parameters that the AI module will process and evaluate.

19.1 The possibilities of the AI module

Available measurement tools

With the AI module, these standard measurement tools of the StructureExpert Weld software, SewSoft, remain fully available for developing new weld models:

Thickness 1, Thickness 2, Throat, Penetration 1, Penetration 2, Leg length 1, Leg length 2, Min Penetration 1, Min Penetration 2.



Operation	Part class		Designation		Material 1		Material 2		Info1	Info2
Measurements	T1	T2	Throat	MinP1	MinP2	Leg1	Leg2	Penet1	Penet2	
Min	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00	0.00/0.00	
Max	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	



Hint

In the measurement model, it is still possible to include the tools of the **Gap**, **Alpha** and **Beta** angles. These measurement lines appear on the AI model but are not calculated automatically.

You can also integrate additional measurement types, such as **Parallel**, **Porosity**, **Line**, etc., into your weld model. However, these measurements are not processed by the AI algorithm and must be performed manually.

All these additional measurements on the image are not included when you save the model.

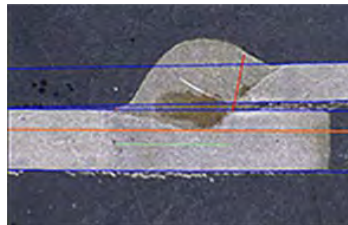
AI supported weld geometries

The current AI module supports automatic measurement of the following geometries:

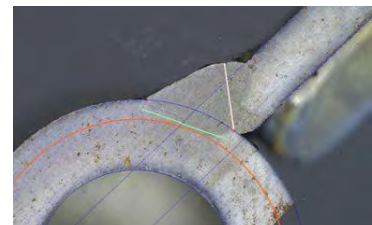
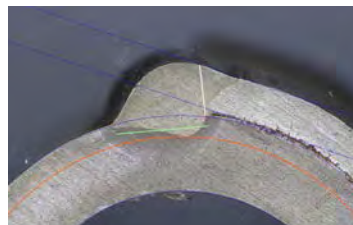
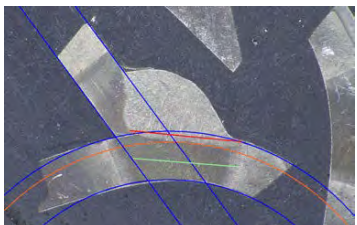
T-weld



Lap weld



Circular welds



Hint

Other types of geometries can be integrated into the AI 4.0 module. If you have special needs, contact Struers.

19.2 Create AI weld templates

You must develop your model on a good-quality, "compliant" weld and not on a "margin" weld in terms of compliance.

A single model cannot be reused across multiple weld beads. For example, if you need to measure 100 unique welds, you must first create 100 corresponding weld models. This modeling process is a one-time setup per weld configuration.

Models can be modified at any time to accommodate changing requirements or to improve upon a previously defined configuration.



Hint

In the model, you can include the **Gap**, **Alpha** and **Beta** angles. However, these specific measurements are displayed on the image but must be adjusted manually, i.e. the user must correctly reposition these tools (angles and gap).



Note

Similarly, you can include all the additional measurements necessary in the model. However, when you develop the model, you must be careful not to draw the measurements on the model. You must make these specific measurements manually. All additional measurements on the image are automatically removed when you save the template.

Enter extra measurements number		Validate	
Undercut1	Set Square	Undercut2	Parallel
Weld_length	keyboard input		

19.2.1 Template tips and tricks

Sheet thicknesses

Draw lines T1 and T2 without protruding beyond the sheet metal.

T-welds and lap welds

In the case of T-welds and lap welds, the plates can be reversed. This means that in the case of a T-weld, T1 or T2 can refer to both the vertical plate or the horizontal plate. In the case of a lap weld, T1 or T2 can refer to the lower or upper plate.

Ensure that the full thickness of both sheet metals is clearly visible.

Example

	Correct	Incorrect
T-weld		
Lap weld		

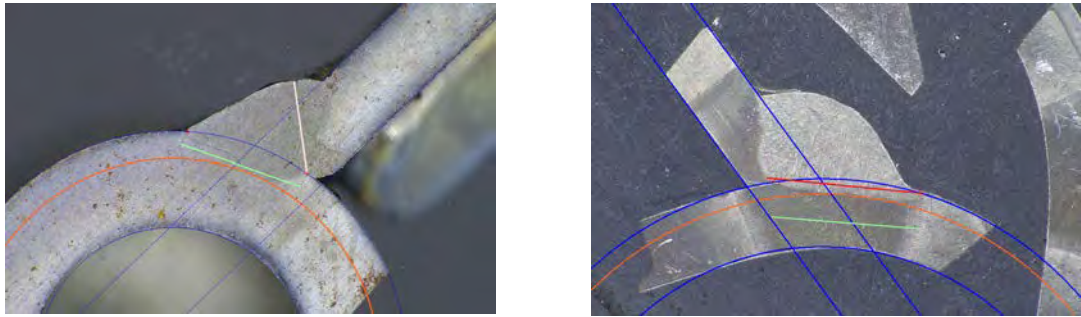
The selected magnification must allow clear identification of both T1 and T2.

Example

	Correct magnification	Incorrect – too high magnification
T-weld		
Lap weld		

Circular sheets

In the case of circular sheets, T1 should refer to the circular sheet and T2 to the flat sheet.
For optimal efficiency, you should position the sample approximately as shown below.

Example**Throat measurement**

General remark concerning the throat's drawing:

- The throat indicates the direction of the weld (left/right)
- With lap welds, the throat is measured if there is a T2.
- The origin of the throat, when it is on the intersection of the weld and T1, must be drawn far enough from the intersection between T1 and T2 to avoid misinterpretations (same for legacies).

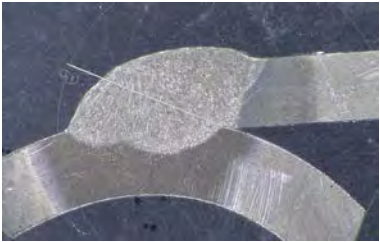
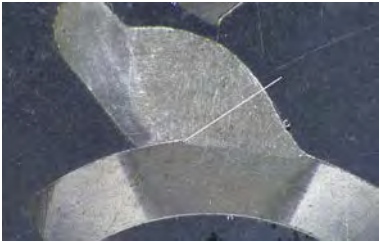
Measurement with triangle

In the context of automatic measurement, the Triangle tool can only be used with T Welds, the use of the tool **Triangle** is allowed with other geometries, but the measurement will remain manual.

Measurement with circle

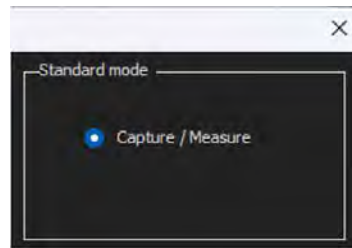
When you create a model, the circle tool for throat measurement is crucial for ensuring the accuracy and efficiency of subsequent automatic measurements. Correctly drawing the throat is essential, as it defines the weld's left or right orientation.

Examples:

Drawings	Correct	Incorrect
Throat 1		
Throat 2		
Drawings for T-welds	Correct	Incorrect
		
		
		

19.3 Create an AI model

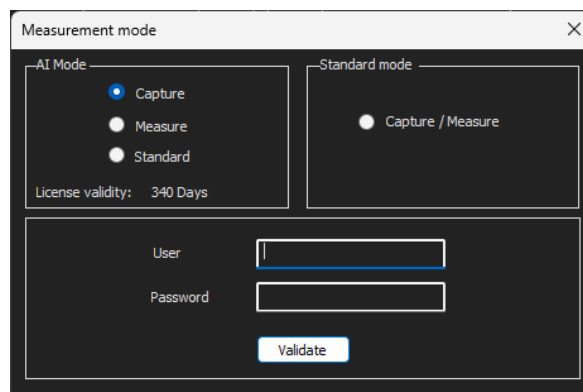
1. Use **Standard mode** to create your AI models (see [AI standard mode ►135](#)).



2. Click the **Weld Bead Measurements** icon.



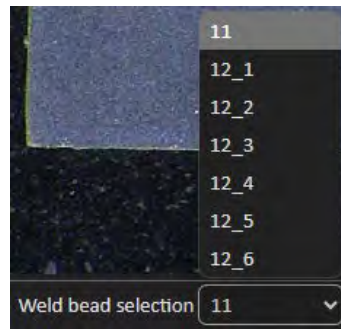
3. Fill in **User** and **Password**, and confirm on **Validate**.



4. Choose the part that your bead refers to.



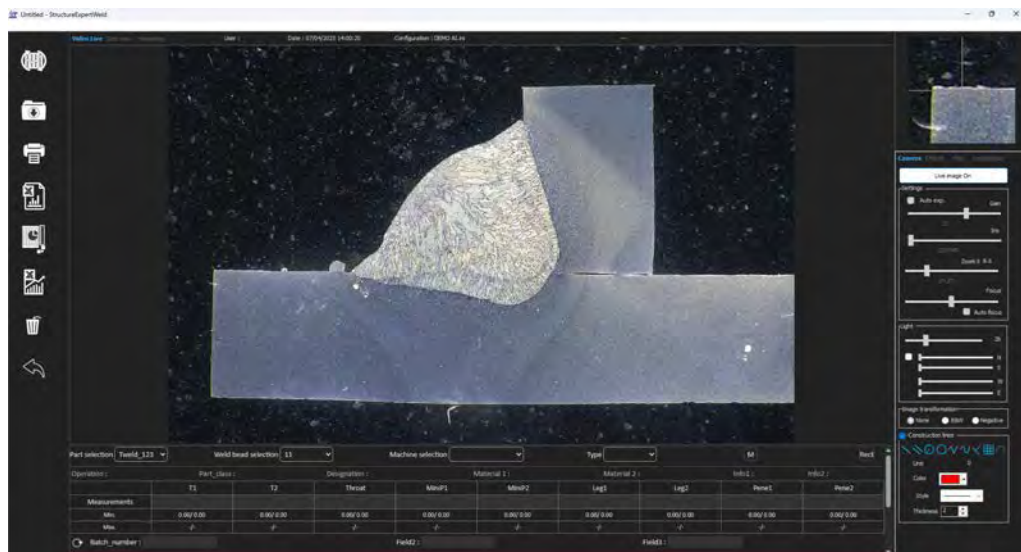
5. Choose the bead whose template you wish to create.



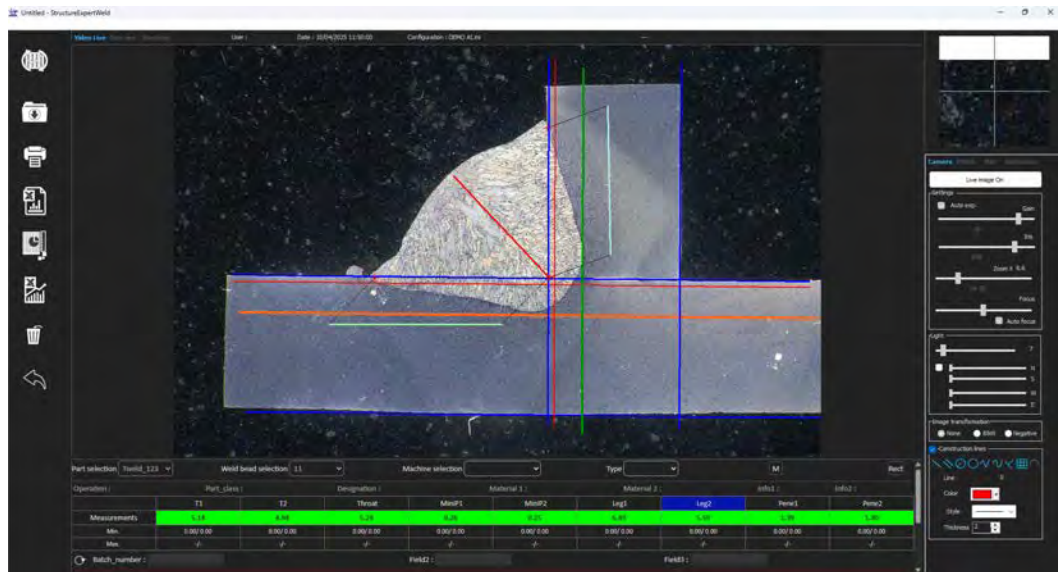
Note

We recommend that you carry out this operation with as much care as possible on a weld that is considered standard and "conform" OK. Do not use a non-compliant sample with unusual defects. This weld bead will serve as a reference for future AI calculations.

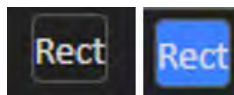
6. Start using the measurement tool in the standard manner.



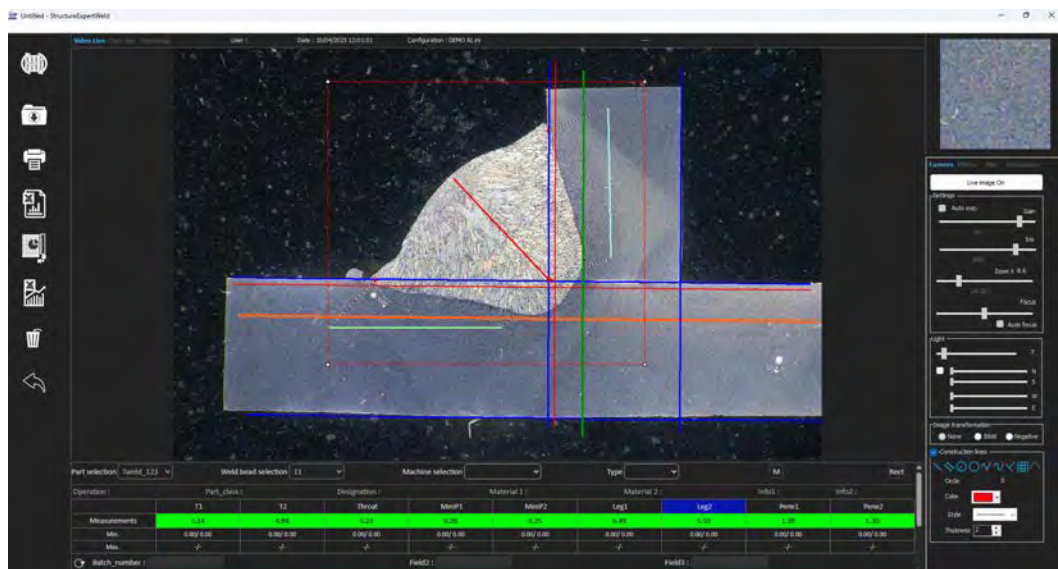
7. Draw T1, then T2, the throat, the Leg1, Leg2 ...
8. Finalize your plots with the measurement tools (optional, you can add more tools if you like).



9. Click the **Rect** button (see [Important instructions about the rectangle ►117](#)).



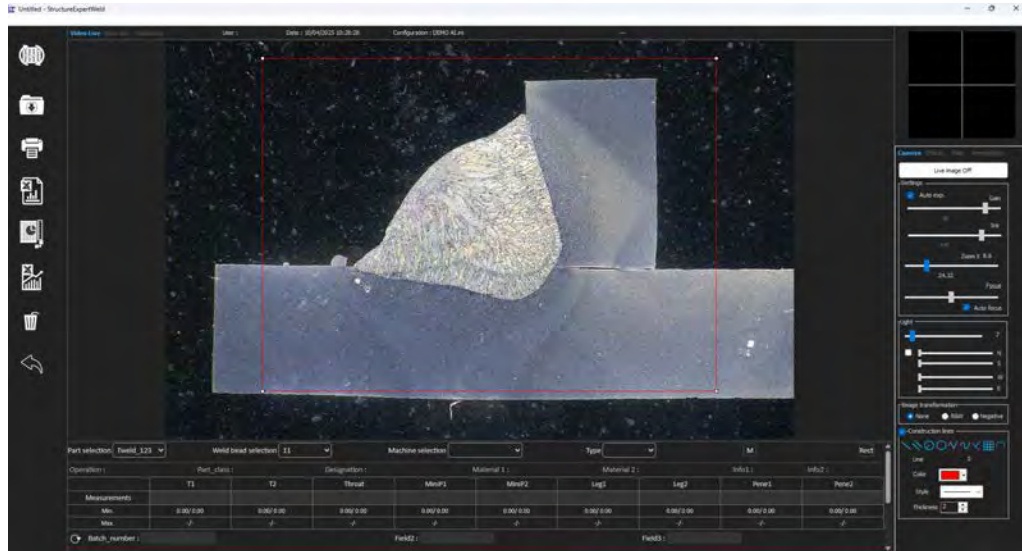
10. Accurately draw the rectangle which encloses the weld bead to ensure optimal alignment.
Here our bead has all the parameters that the AI module processes automatically (T1, T2, Throat, MiniP1, MiniP2, Leg1, Leg2, Pene1, Pene2):



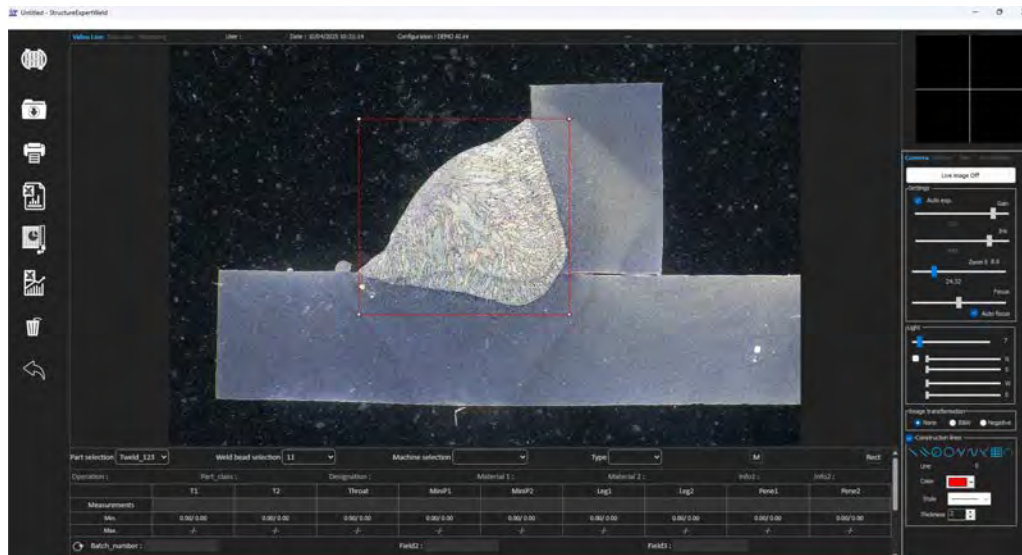
Important instructions about the rectangle

Incorrect use

- If the rectangle is too wide around the weld, this may generate numerous artifacts during the automatic measurement process.

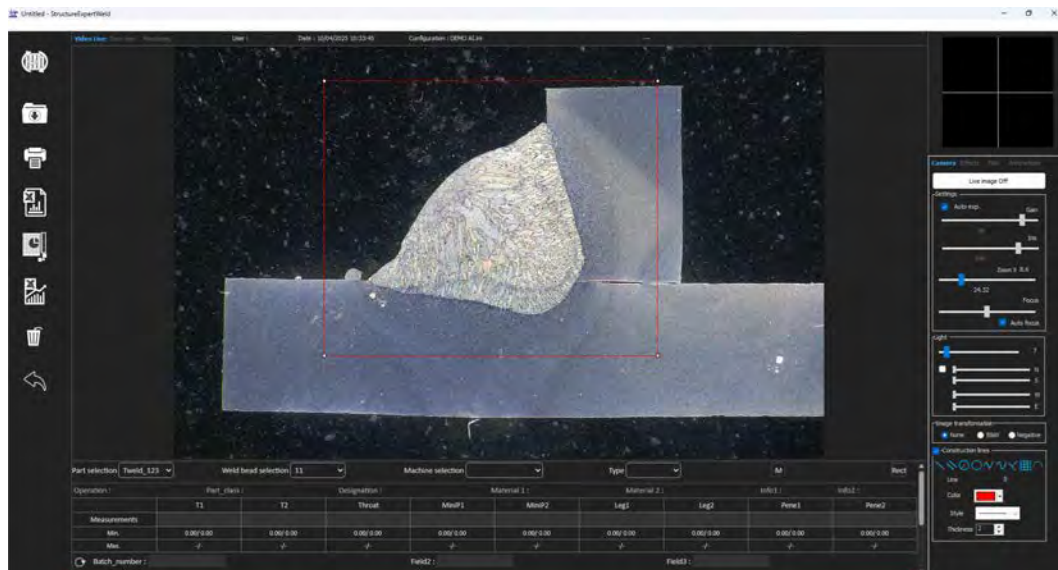


- If the rectangle is too tight around the weld, this may generate many manual corrections after the automatic measurement process.



Correct use

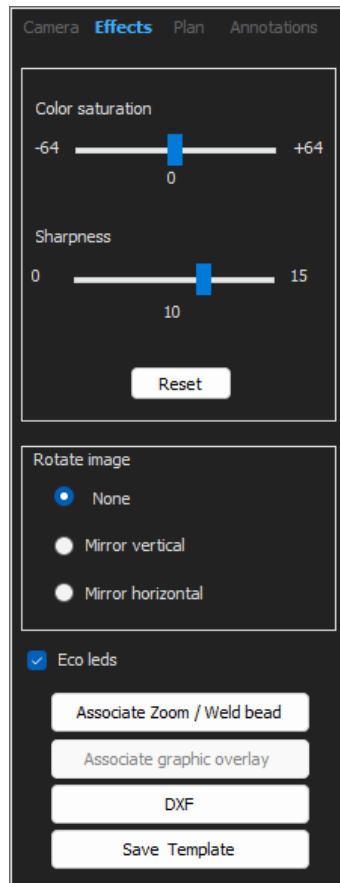
- Adjust the rectangle to cover both the weld and some of the immediate surroundings, providing the operator with ample space to comfortably place future samples within the defined boundary.



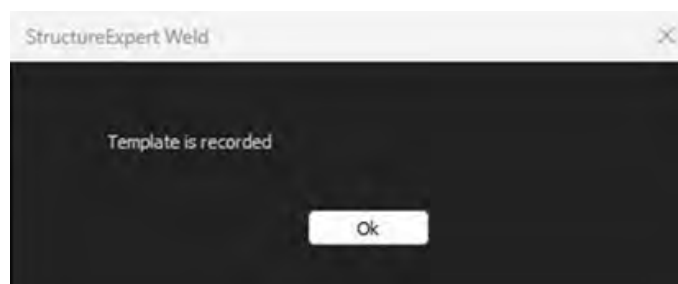
See [Scenarios for creating models ▶120](#) for other cases.

Model with GAP and angles / Model with all possible parameters in StructureExpert Weld – additional measurements

1. Go to the **Effects** tab, then choose **Save template**.



2. The template is recorded. Click **Ok**.



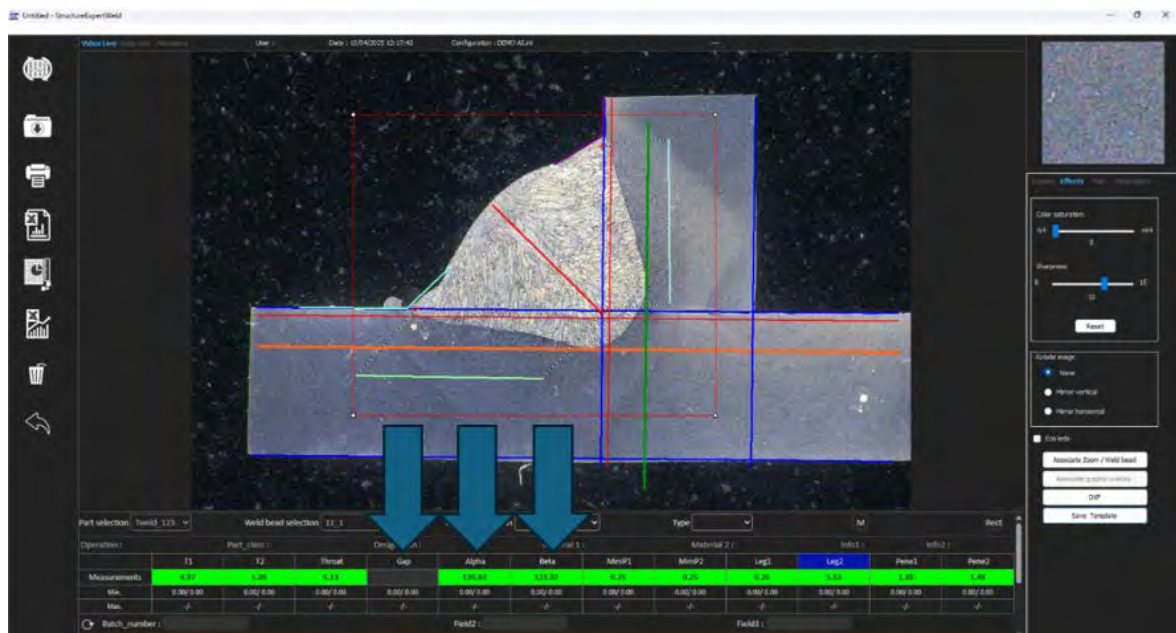
3. Now a template is assigned to your weld.
4. Select the trash can to delete your tracks.



You can now move on to the next bead to create a new model.

19.3.1 Scenarios for creating models

In addition to the case described in [Template tips and tricks ▶110](#), your templates may contain other measurements necessary for your needs.



The Gap, Alpha and Beta measurements can be integrated into your model, but you must adjust those manually when you use the AI model on your future samples.



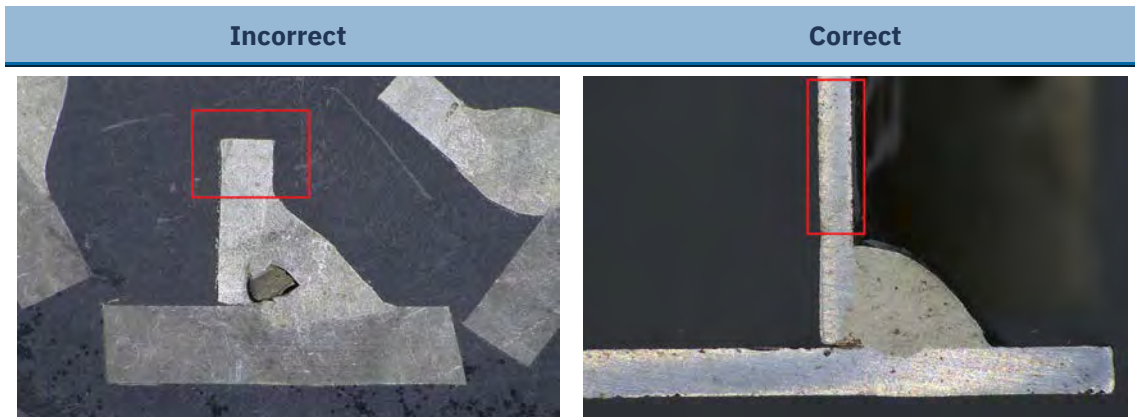
In addition, for this weld, additional measurements have been selected (Undercut 1, Undercut 2), these measurements must not be drawn on the image as part of the model creation process. These additional measurements must be carried out manually after analysis by the AI module.

19.3.2 Key considerations for developing effective AI models

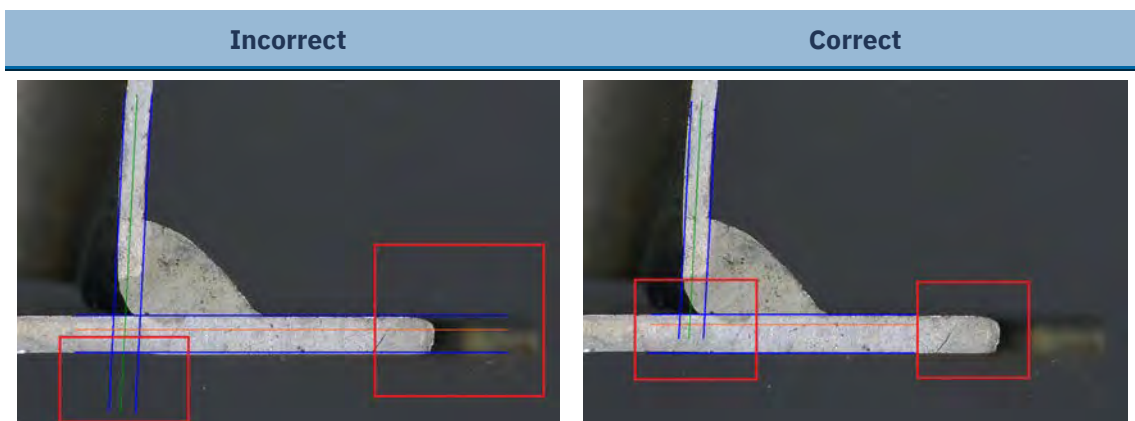
Optimize T1 and T2 thickness measurement

For T-welds

- Make sure the T2 of your sample is sufficiently long to facilitate improved AI analysis. The T2 must not be cut too short.

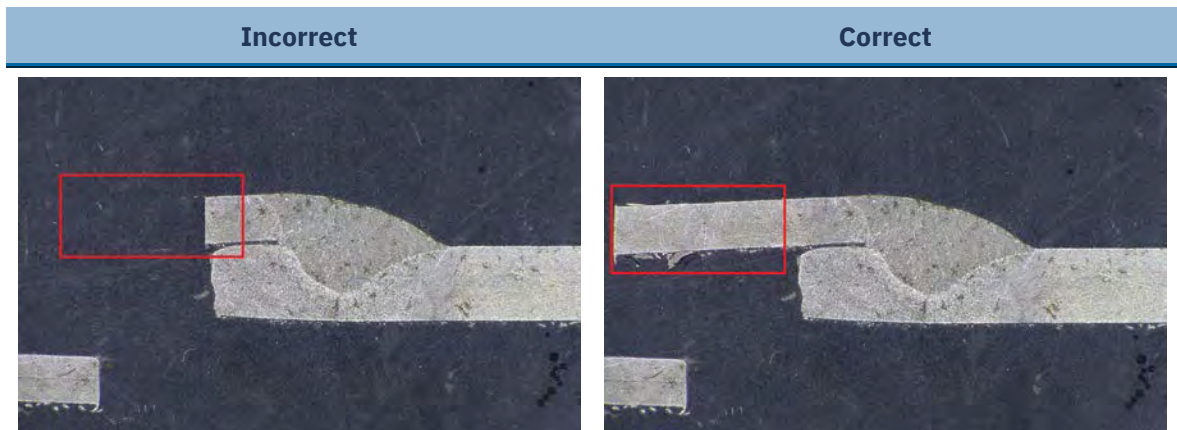


- Draw lines T1 and T2 without protruding beyond the sheet metal.



For lap welds

- Make sure the T2 of your sample is sufficiently long to facilitate improved AI analysis. The T2 must not be cut too short.



- Draw lines T1 and T2 without protruding beyond the sheet metal.
For optimal operation on lap welds, it is essential to also draw T2, and not only T1.



Optimize throat drawings and hooks

For T-welds



Hint

The throat indicates the direction of the weld (left-right).

The origin of the throat, when it is on the intersection of the weld and T1, must be drawn far enough away from the intersection between T1 and T2 to avoid misinterpretations (same remark for lengths legacies).

Throat hook on T1



Throat attachment point at the intersection between T1 and T2



Throat hook on T2



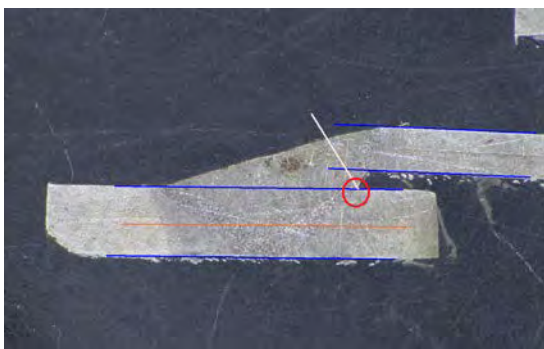
For lap welds



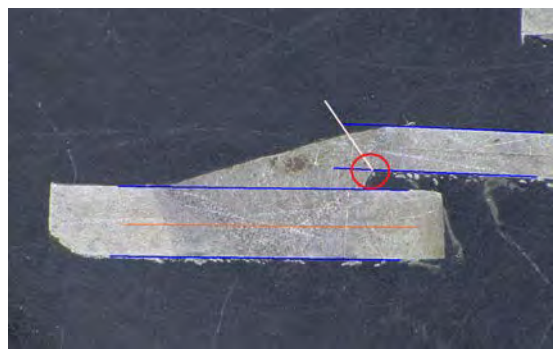
Hint

The throat indicates the direction of the weld (left-right). With lap welds, the throat is measured only if T2 is present on the measurement model.

Anchor point with throat on T1



Throat hook on T2



Drawings of the Leg1 and Leg2 penetration widths



Hint

The leg lengths are measured on the edges of the T1 and T2 sheets when a minimum penetration is not defined. Leg lengths are measured at the minimum penetration line when defined. See [Minimum Penetration 1](#) , [Penetration 2](#) ►125

For T-welds

Leg length hooks on T1 and T2

The leg lengths are defined far back from the weld to mean that the measurements are made on the T1 and T2 sheets.



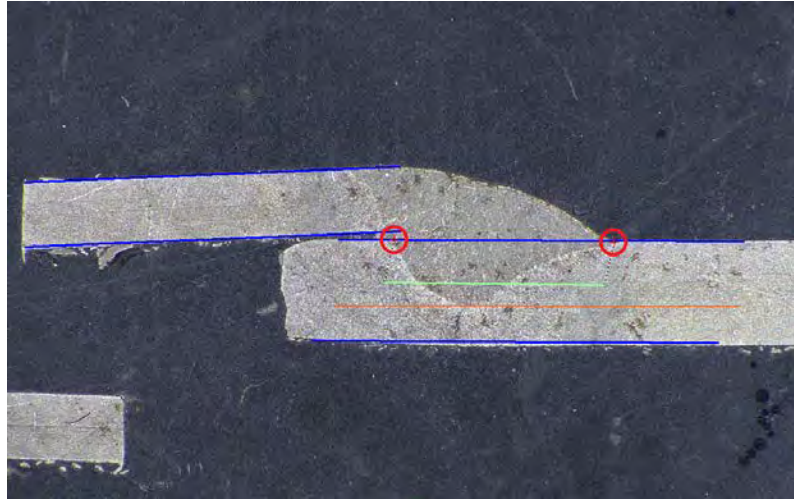
Leg length hooks on T1 and at the T1/T2 intersection

The leg length on the vertical plate ends at the intersection of T1 and T2.



For lap welds

Leg length hooks on T1

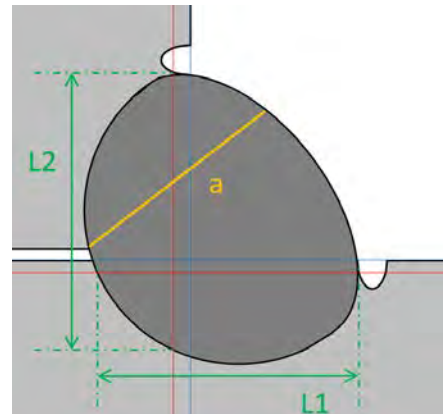
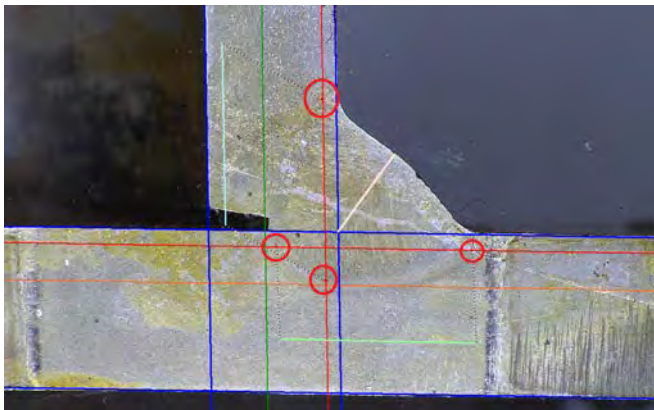


Minimum Penetration 1 , Penetration 2

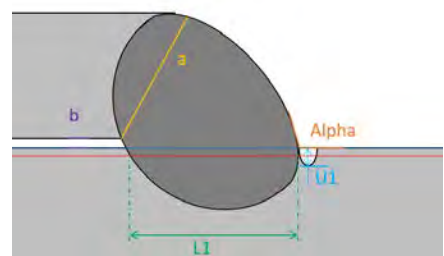
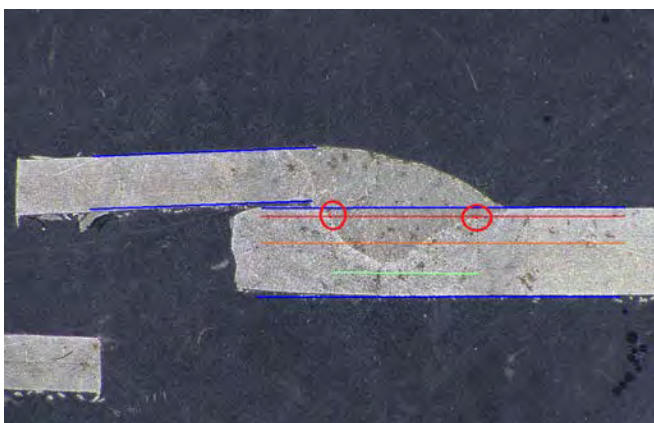
For T-welds

Leg length attachment points on minimum penetration

The leg lengths are defined on the penetration minimum lines on T1 and T2.



For lap welds



19.4 Operational modes

You can operate StructureExpert Weld in 2 modes:

- In standard mode (classic way, manual operation)
- In automatic-measurements mode with the AI module



19.4.1 Workflows

In **AI mode**, you can use the StructureExpert Weld software, with the power of AI to automate your measurements.

Note that this mode requires you to first create templates for each of your welds for AI processing (see [Template tips and tricks ▶110](#)).

Within the **AI mode**, 3 workflows are possible:

1. **AI capture** (see [▶127](#))
2. **AI measure** (see [▶130](#))
3. **AI standard** (see [▶135](#))

The software workflow for utilizing **AI capture** and **AI measure** is as follows:

1. Use the **AI mode** on StructureExpert Weld.
2. Capture an image of each weld to be measured.
3. SewSoft automatically stores the images in a temporary folder.
4. Meanwhile, the images are automatically analyzed by the **AI module** in the background and processed by the automatic measurement algorithm.
5. You can now validate the measurements, or make manual corrections if necessary.

The software workflow when using the **AI standard mode** is as follows:

1. Capture an image of the first weld to be measured.
2. The image is processed directly by the AI model algorithm, and the measurements are displayed within a few moments depending on weld complexity and computer performance.
3. You can either validate the measurement or make manual corrections if necessary.
4. Repeat with the next weld sample.

19.4.2 AI capture mode

Use this mode to capture images of your weld beads.

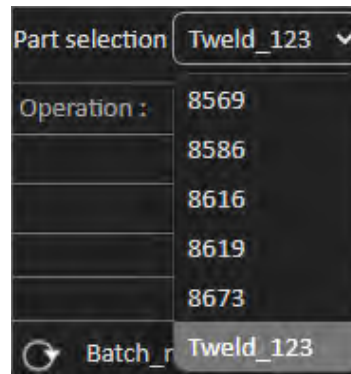
1. To choose the AI capture mode, select **Capture**.

2. Place your 1st weld bead on the glass of your StructureExpert Weld.
3. Click the **Weld bead measurements menu** button.

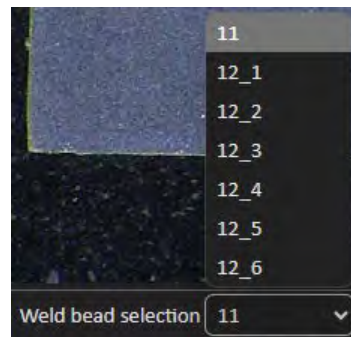


4. Fill in your user name and password; then click **Validate**.

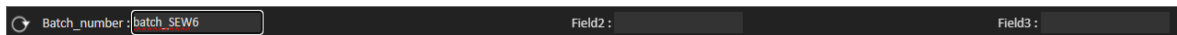
5. Select the part your beads refer to.



6. The device goes into "Live ON" mode.
7. Choose the right bead.



8. Fill in the different fields offered, the name of the machine used, and the batch number.

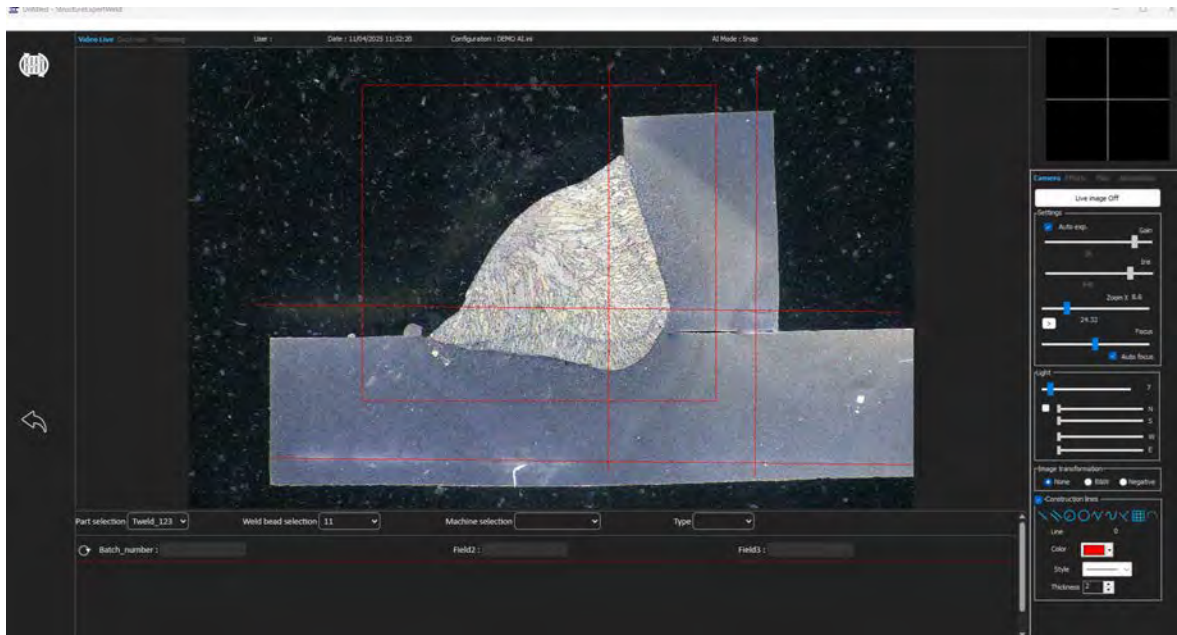
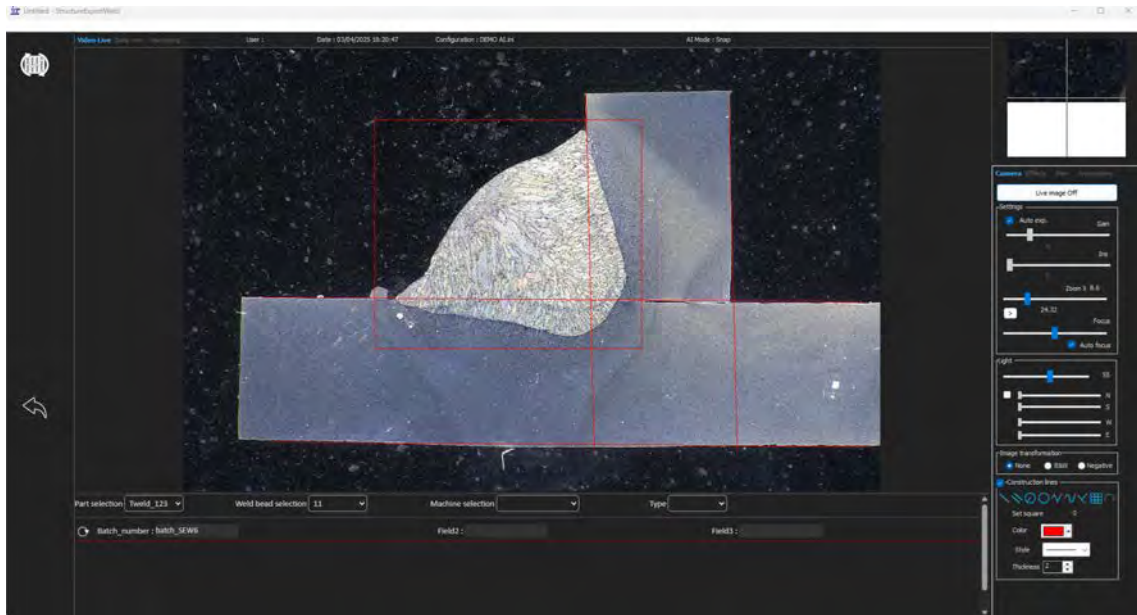


Hint

Enter your batch number, this allows you to have all the successive welds of the same batch stored in the same place.
This also prevents you from having 2 identical welds and the last one captured from overwriting the image of your previous weld.

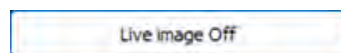
9. Position your weld bead on the reference lines, taking care to place the weld in the rectangle of the model on the screen.

Precise alignment with the red lines is not required, as corrections are applied during the analysis phase.



Example of an acceptable sample position. Note that while the sample is not aligned with the red lines, the weld bead is positioned within the red rectangle.

10. Click the **Live image Off** button.



If there is no model associated with the selected bead, the reference lines do not appear on the image. It is still possible to save the image, but it will have to be measured manually because no automatic processing is possible without a model associated with the weld.

11. Click the button **Snap**.

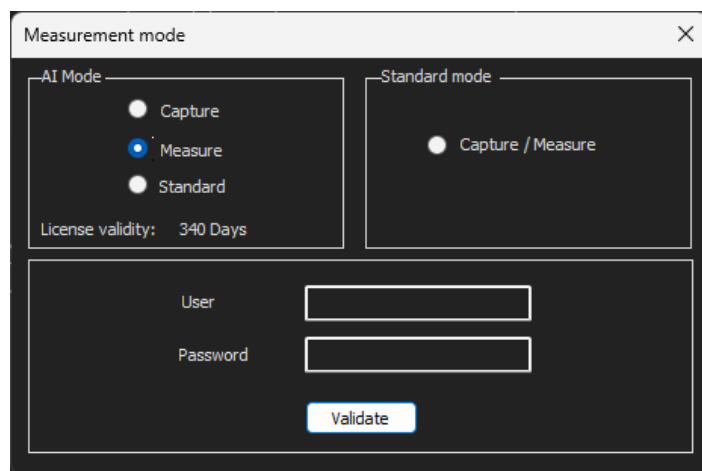


12. Your image is captured, and the AI analysis is done in the background.
13. Position the next sample, and proceed in the same way.

19.4.3 AI measure mode

After having captured your images (see [AI measure mode ▶130](#)), switch to **AI measure mode** to process your images to validate the measurements of your welds.

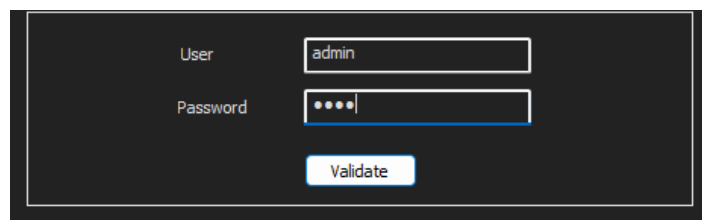
1. To choose the **AI measure mode**, select **Measure**.



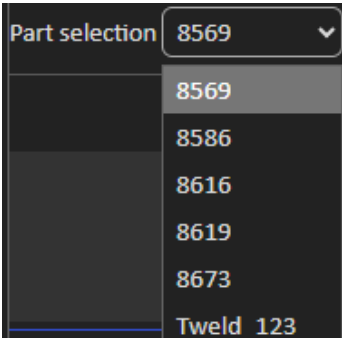
2. Click the **Weld bead measurements menu** icon.



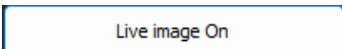
3. Fill in your user name and password, and click **Validate**.



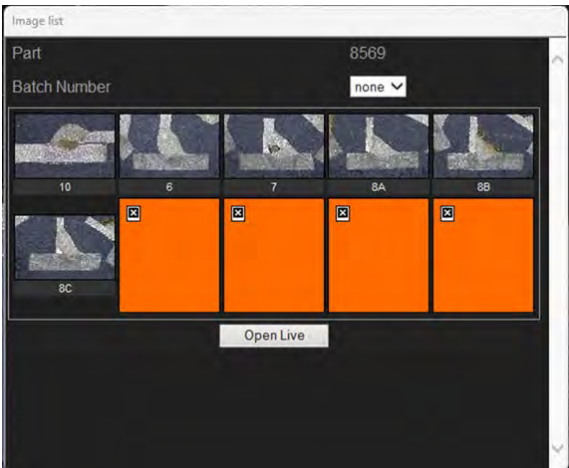
4. Select the part your welds refer to.



5. Click **Live image On**.



6. A window appears on the screen:



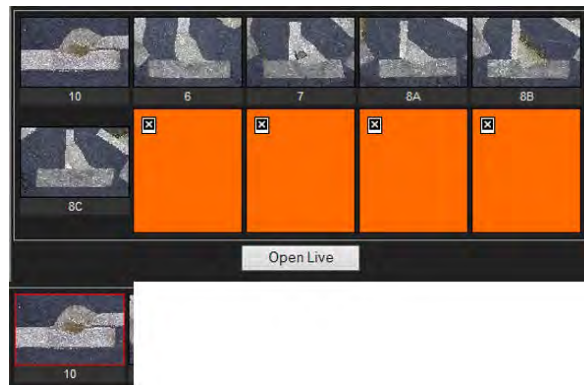
In this window, you will find a temporary list of all previously captured images.



Note
It is only possible to display images related to a particular batch number.



7. Select the image of your choice from the list.

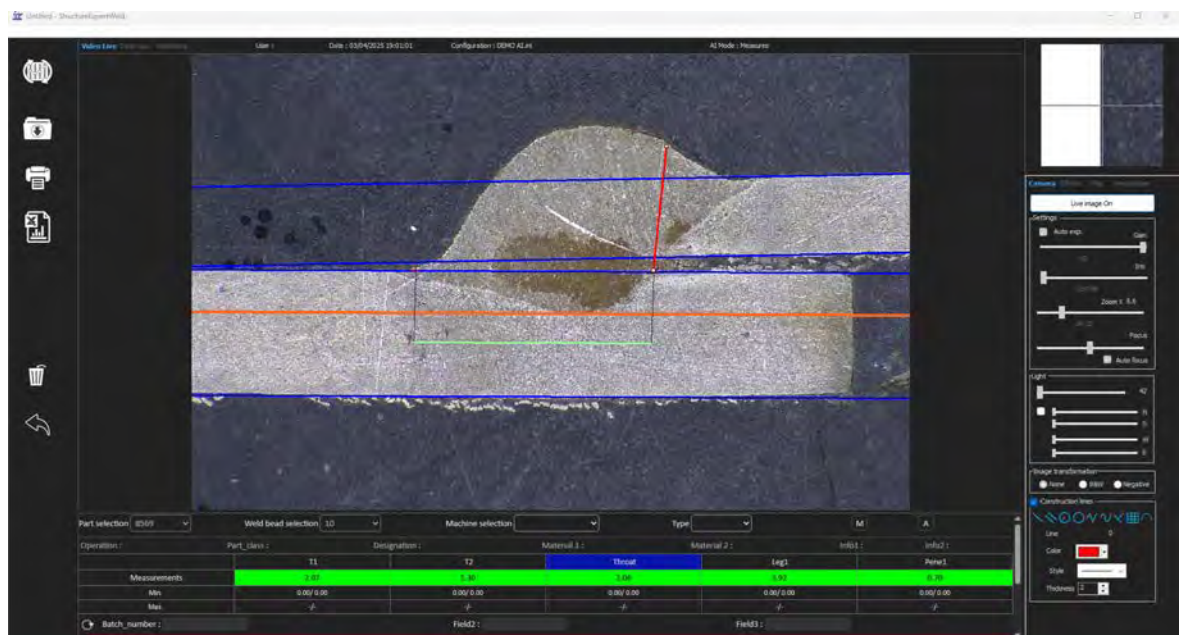
**Note**

The labels of the welds appear under each of the welds. At a glance, you can check that all the welds that are linked to a given part are present.

8. Then select **Open Live** to validate, or double-click the image of your choice.

Open Live

9. Instantly, the image opens, and the measurements are displayed.



You can check and rectify one or more measurements if necessary.

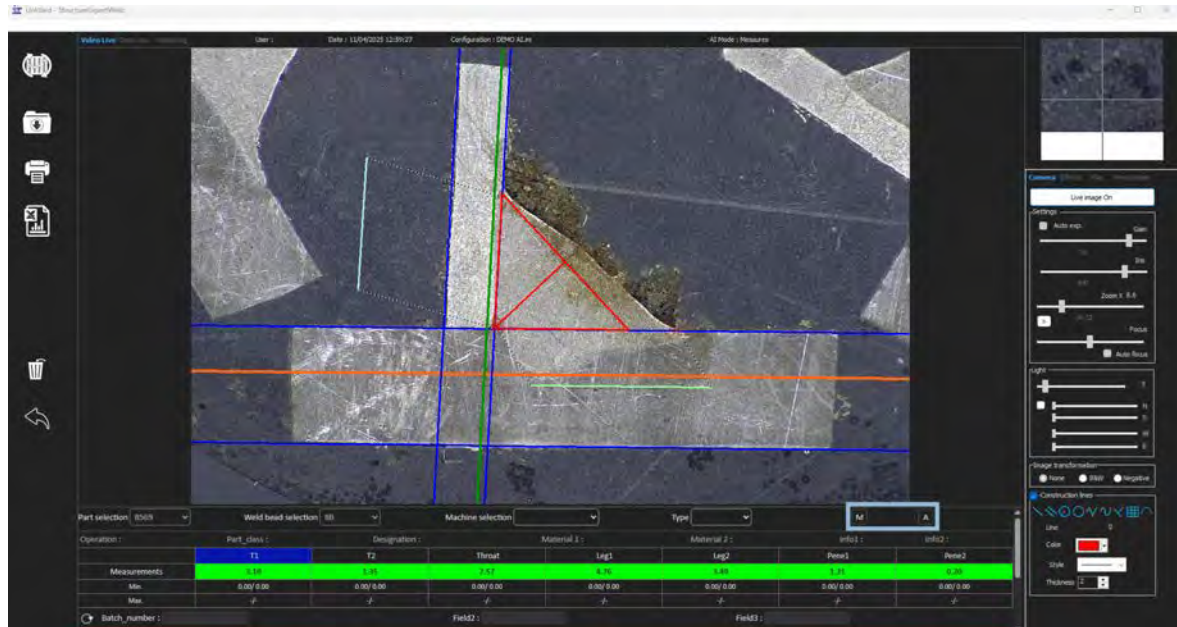
- You can adjust the measurements directly in the image by selecting the line to be modified.
- Or you can click the measurement title in the table to erase the strokes on the image, and you can manually redo the measurement.

10. In order to validate and save your changes, click the **Save results** icon.



M and A buttons

In the **AI measure mode**, 2 buttons are available above the measurement table, **M** and **A**.



A button

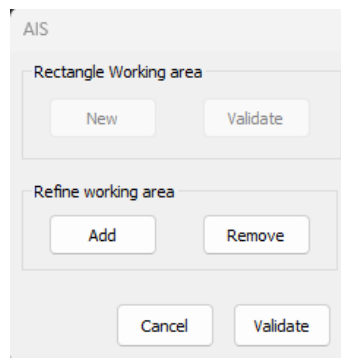
Use the **A** button to highlight your weld by revealing the weld area detected by the AI.

As a general rule, if the rectangle surrounding the weld is made correctly (see [Important instructions about the rectangle ►117](#)), the weld is correctly materialized. But this also depends on the metallographic preparation of the sample and the chemical etching performed.

1. When your measurements are displayed, click the **A** button.



2. The **AIS** window appears.



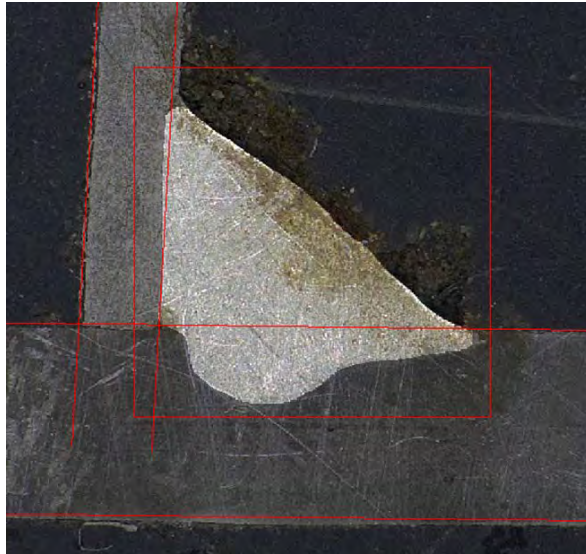
3. Now you can refine this work area.

Add

If an area of the image is not taken into account by the automatic detection of the AI module of the weld, you can include this area.

1. Click **Add**.
2. Click the area of the image that you want to include.

In this example, the weld was detected correctly:

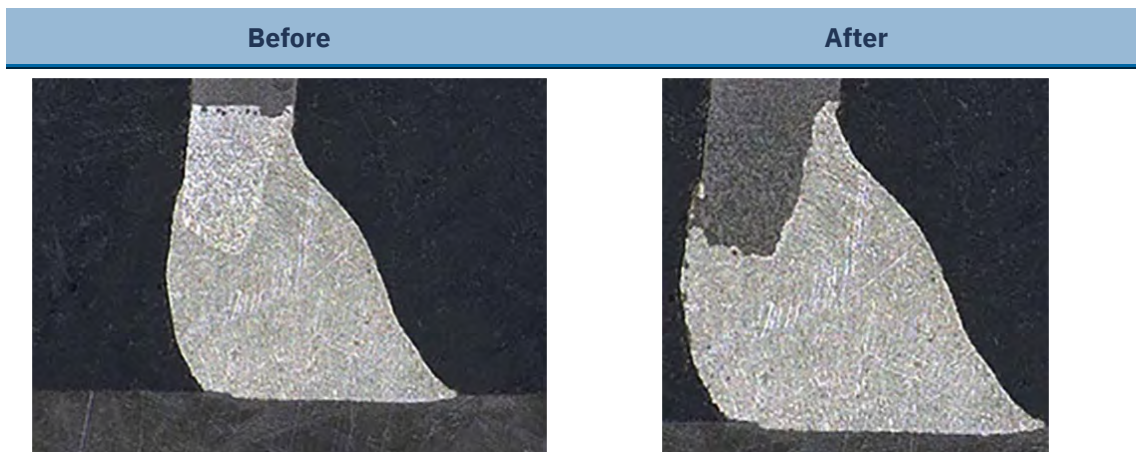


Remove

If the image includes an area you wish to disregard from the weld, you can exclude this.

1. Click **Remove**.
2. Click in the space to be disregarded. You may have to click several times to refine the area.
3. Make your corrections.
4. Click **Validate**.
5. Your weld measurements are displayed again instantly and are adjusted to the corrected weld area.

For example, here part of the thickness, T2, is detected as a weld but then removed:

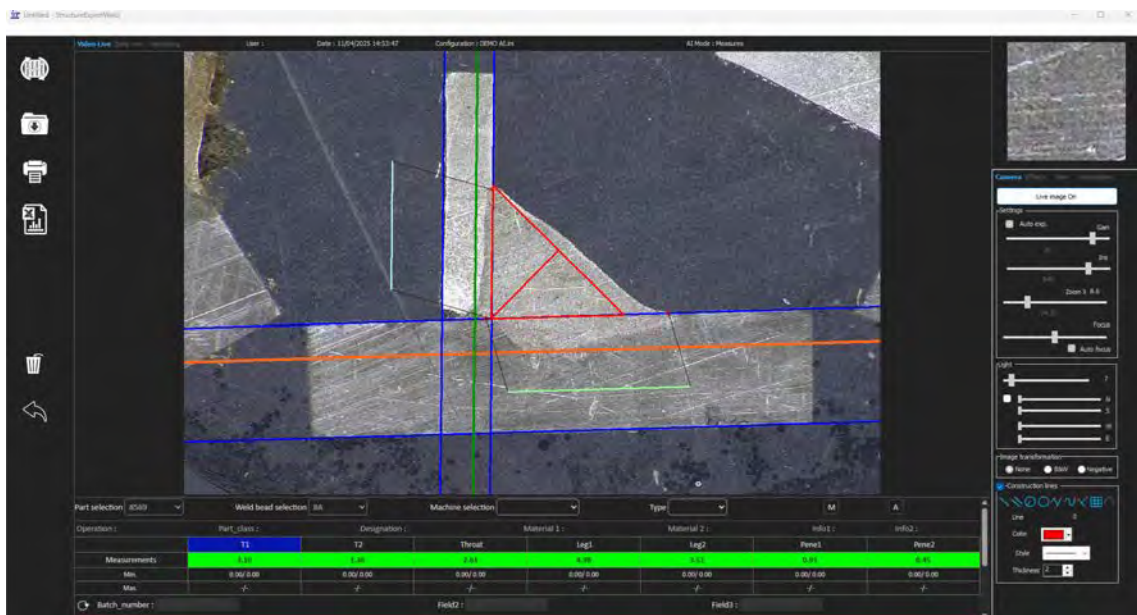


M button

Use the **M** button to display the "theoretical" model that was saved when you created the associated model for the AI processing of your weld.



For example, in this image, the weld is analyzed:



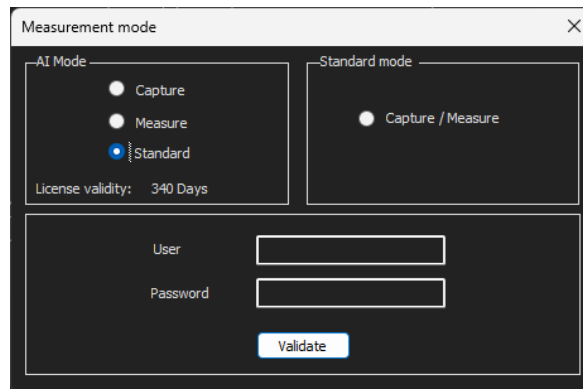
19.4.4 AI standard mode

With this mode:

- You take one image of your weld bead and directly display the measurements, then repeat the process for the next image.
- If you already have created an AI model, use this standard mode.

– If you have no models available, you can also use this mode to carry out manual measurements on an image.

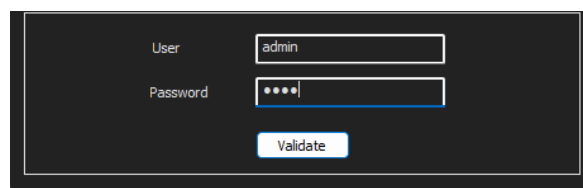
1. To choose the **AI standard mode**, select **Standard**.



1. Place a bead.
2. Click the **Weld bead measurements** icon.



3. Fill in your user name and password.

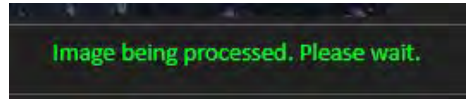


4. Then click **Validate**.
5. Select the part your welds refer to.

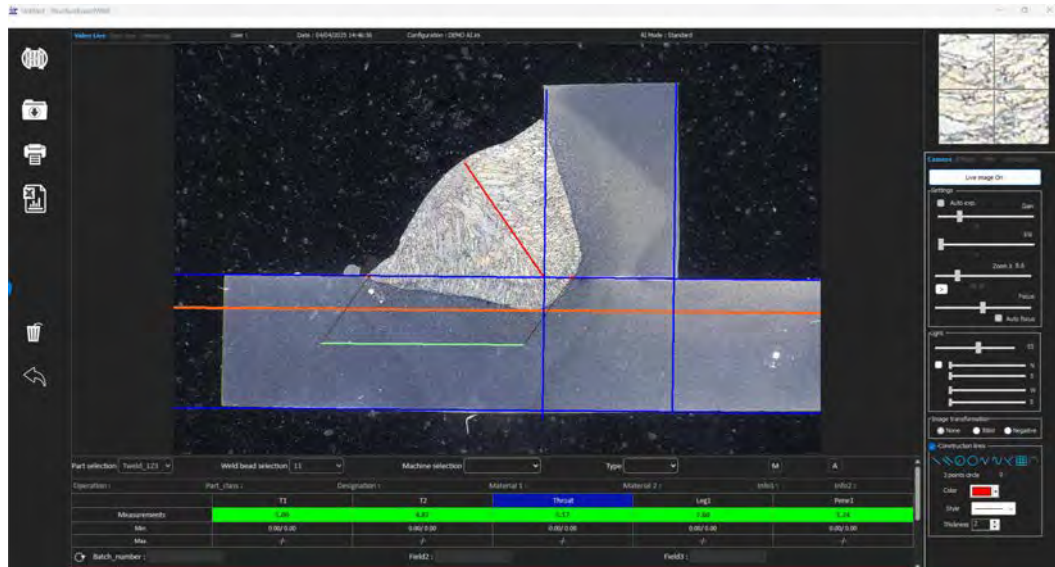


6. Choose the weld you want to measure.
7. Fill in the different fields offered, i.e. the batch number and the other fields if necessary.

- It is not necessary to be perfectly aligned with the red lines, a correction is applied at the time of analysis.



11. After a few seconds, the measurements appear on the screen.



12. You can check and rectify one or more measurements if necessary.

Click the measurement title in the table to erase the strokes on the image, and you can manually redo the measurement.

13. In order to validate and save your welds, click the **Save results** icon.



14. Repeat the procedure on the following welds.

20 XML/JSON (option)

To facilitate the integration of the generated data into third-party software, use the XML/JSON module to save data in the .XML or .JSON formats.

The software continues to save data in the usual way, as described in this manual, and will save some additional files.

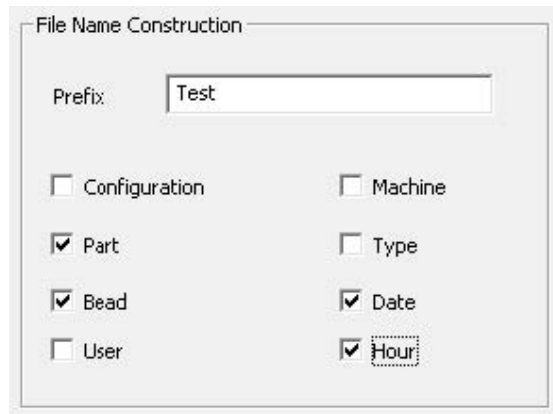
If the option is activated, a new tab, **XML/JSON** is shown in **Settings.exe**.

In this module, you can define

- The file saving path (local drive or network drive)
- File name rules

You can also define a prefix as well as any necessary information in the file name.

Each information is separated by an underscore : _



The image shows a 'File Name Construction' dialog box. It has a 'Prefix' text field containing the word 'Test'. Below this are two columns of checkboxes. The first column contains 'Configuration' (unchecked), 'Part' (checked), 'Bead' (checked), and 'User' (unchecked). The second column contains 'Machine' (unchecked), 'Type' (unchecked), 'Date' (checked), and 'Hour' (checked). The 'Hour' checkbox is highlighted with a dashed border.

In the above example file name will be **Test_Part_Bead_Date_Hour**.

If a file is already present in the saving folder and a new file has the same name, the new file will automatically replace the old one.

- File format : XML or JSON.
- If a copy of the saved image is needed with the saved file.

All the generated files are saved in the selected path.

All these files will not be deleted except by manual or automatic user operation.

21 Data Sharing and Visualization (option)

Refer to [the Microsoft website](#) for detailed guidance on how to store, utilize, and share data using Power BI Desktop and SharePoint.



Hint

Note, that websites are non-static and may change. We therefore advise you to browse and search if links in this manual are no longer available.

- [Create a SharePoint site](#)
- [Download and install Power BI Gateway](#)
- [Power BI Online](#)

Use the Microsoft website's search functionality to independently access additional relevant information and resources.

21.1 Microsoft Power BI and SharePoint



Hint

Note, that websites are non-static and may change. We therefore advise you to browse and search if links in this manual are no longer available.



Note

The Data Sharing and Visualization module relies on integration with Microsoft Power BI and SharePoint, which are third-party platforms developed, maintained, and supported by Microsoft. We are not responsible for the setup, configuration, licensing, support, or ongoing maintenance of either platform.



Note

Use of this module assumes that Power BI and SharePoint are already properly configured and operational within your environment. Any issues related to access, data connectivity, user permissions, platform limitations, or service outages must be handled by your organization's IT department or through Microsoft support channels.

We make no guarantees regarding the performance, availability, or security of these external services. Furthermore, this module is not affiliated with, endorsed by, or supported by Microsoft.



Note

Access to required Power BI and SharePoint features may be subject to licensing constraints set by Microsoft. It is your responsibility to ensure that appropriate licenses are obtained and user permissions are correctly configured.

Although we refer to your organization's IT department and Microsoft for support on the setting up and use of Microsoft Power BI and SharePoint, we provide some basic guides and hints in [Appendix 5: Tips on working with Data Sharing and Visualization ▶165](#).

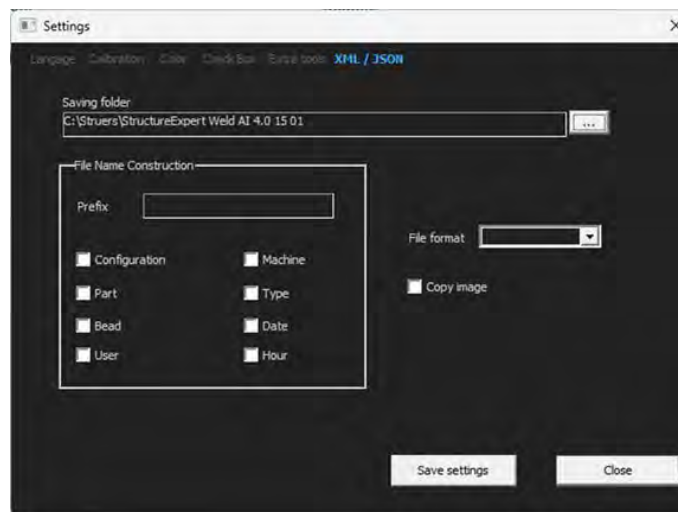
21.1.1 Licenses and prerequisites

To use the Data Sharing and Visualization module, Microsoft Power BI Desktop must be installed on the PC with an active Power BI license. SewSoft supports both the free version of Power BI and the Power BI Pro license. Power BI Desktop is available for download from the Microsoft website and requires a Windows operating system. For optimal performance, install the x64 version on 64-bit systems.

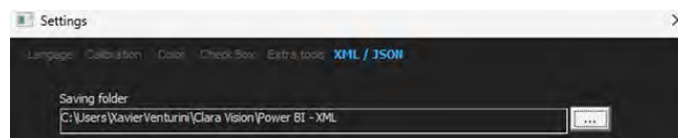


21.1.2 Store measurement results on SharePoint

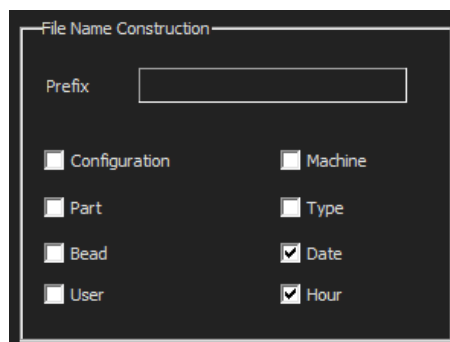
1. Create a SharePoint site. See [Setup on Power BI Desktop ►169](#).
2. Copy and paste the XML folder from your local saving folder in SharePoint.
The folder must be called “XML”.
3. Set up XML/JSON parameters in StructureExpert Weld for automatic incorporation into SharePoint and Power BI:
 - a. Under C:\Struers\StructureExpert Weld, locate and open Settings.exe.
 - b. Select the tab XML / JSON.



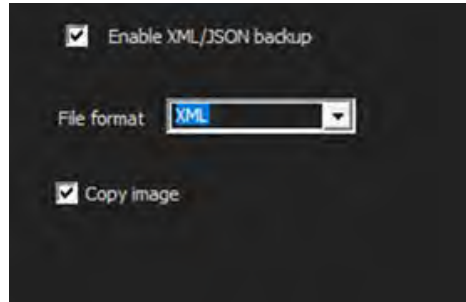
- c. Define the **Saving folder** on SharePoint.



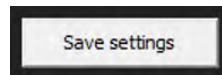
- d. Activate the below checkboxes. The boxes **Date** and **Hour** are sufficient.



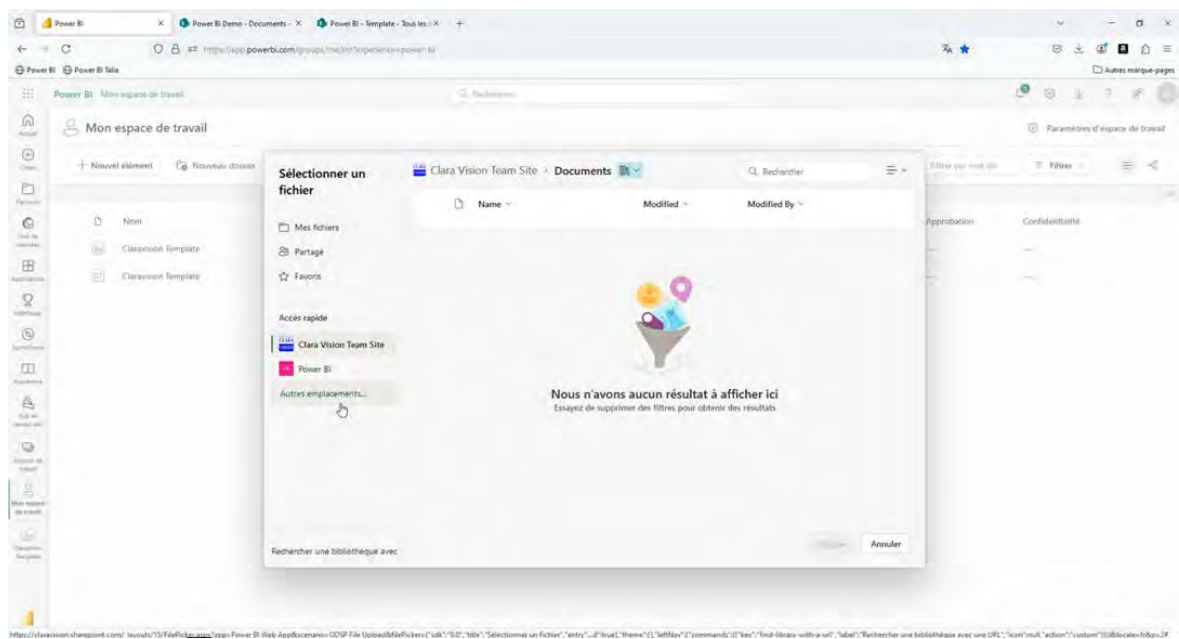
- e. Check off the box **Enable XML/JSON backup**, and select **XML**.



f. Click the button **Save settings**.



g. To verify that everything works correctly, make a measurement in the StructureExpert Weld software, and verify that XML files and images are correctly saved in the SharePoint folder.



To change the StructureExpert Weld saving path, do the following:

-

- Data to be copied or to be moved:

Name	Date modified	Type	Size
Archives	18/09/2017 17:45	File folder	
Calibration	18/09/2017 16:32	File folder	
cci	18/09/2017 16:29	File folder	
Componentes	18/09/2017 16:34	File folder	
Config_demo2	20/10/2017 14:43	File folder	
Configurations	20/10/2017 14:43	File folder	
DemoImages	18/09/2017 16:29	File folder	
Name Date modified Type Size (1) Air Suspension.ini 18/09/2017 16:30 Configurations\air... 1.00 (2) CamParameters.ini 18/09/2017 16:30 Configurations\cam... 17.44 (3) ConfigParameters.ini 18/09/2017 16:30 Configurations\cam... 1.00 (4) DMMABLES.ini 18/09/2017 16:30 Configurations\cam... 5.02 (5) Easiness.ini 18/09/2017 16:30 Configurations\cam... 17.03 (6) EasinessParameters.ini 18/09/2017 16:30 Configurations\cam... 1.00 (7) EasinessParameters.ini 18/09/2017 16:30 Configurations\cam... 16.34 (8) EasinessParameters.ini 18/09/2017 16:30 Configurations\cam... 1.00 (9) EasinessParameters.ini 18/09/2017 16:30 Configurations\cam... 16.34 (10) EasinessParameters.ini 18/09/2017 16:30 Configurations\cam... 16.29 (11) EasinessParameters.ini 18/09/2017 16:30 Configurations\cam... 1.00 (12) EasinessParameters.ini 18/09/2017 16:30 Configurations\cam... 16.31 (13) EasinessParameters.ini 18/09/2017 16:30 Configurations\cam... 16.29			
prints	18/09/2017 16:29	File folder	
Rears 2013	18/09/2017 16:34	File folder	
Rears part services	18/09/2017 16:34	File folder	
Renault	18/09/2017 16:34	File folder	
Welding	18/09/2017 16:32	File folder	
Welding_config	18/09/2017 16:29	File folder	
CalibrationHistory.exe	17/07/2017 13:53	Application	42 KB
CameraSettings.exe	30/09/2011 13:56	Application	167 KB

Folders of the different configurations

☐ Name	Date modified	Type	Size
Archives	18/09/2017 17:45	File folder	
Calibration	18/09/2017 16:32	File folder	
cci	18/09/2017 16:29	File folder	
Componentes	18/09/2017 16:34	File folder	
Config_demo2	20/10/2017 14:43	File folder	
Configurations	20/10/2017 14:43	File folder	
DemolImages	18/09/2017 16:29	File folder	
Doc	18/09/2017 16:29	File folder	
ENSAMBLES	18/09/2017 17:44	File folder	
Ford MCA 18_01_2011	18/09/2017 17:03	File folder	
Fronts (service parts)	18/09/2017 16:34	File folder	
hock6	18/09/2017 16:34	File folder	
Icones	18/09/2017 16:29	File folder	
log	18/09/2017 16:31	File folder	
plans	18/09/2017 16:29	File folder	
Rears 2013	18/09/2017 16:34	File folder	
Rears part services	18/09/2017 16:34	File folder	
Renault	18/09/2017 16:34	File folder	
Welding	18/09/2017 16:32	File folder	
Welding_config	18/09/2017 16:29	File folder	
CalibrationHistory.exe	17/07/2017 13:53	Application	42 KB
CameraSettings.exe	30/09/2011 13:56	Application	167 KB

All the data required is now on the network drive:

☐ Name	Date modified	Type	Size
Archives	20/10/2017 08:39	File folder	
Componentes	19/06/2017 15:20	File folder	
Config Porosity	20/10/2017 10:02	File folder	
Configurations	20/10/2017 10:29	File folder	
ENSAMBLES	19/06/2017 15:22	File folder	
Ford MCA 18_01_2011	18/09/2017 17:15	File folder	
Fronts (service parts)	19/06/2017 15:22	File folder	
hock6	19/06/2017 15:22	File folder	
Rears 2013	19/06/2017 15:22	File folder	
Rears part services	19/06/2017 15:23	File folder	

3. In the installation folder of the StructureExpert Weld software, open **Settings.exe** and change the saving path to the network drive.

When you use the StructureExpert Weld software, data will now be loaded and saved on the network drive.



Networking StructureExpert Weld systems

In this example, StructureExpert Weld is installed on **Computer 1**, **Computer 2** and **Computer 3**.

The data is on a server.

Each computer has access to the server through a network drive.



Notes on StructureExpert Weld software data

The Configuration folder				
The Configuration folder contains all the created configurations files.				
Air Suspension.ini	03/05/2017 18:00	Configuration sett...	2 KB	
Componentes.ini	03/05/2017 18:00	Configuration sett...	2 KB	
Config Porosity.ini	20/10/2017 10:27	Configuration sett...	2 KB	
Config_demo2.ini	29/10/2013 15:26	Configuration sett...	2 KB	
ENSAMBLES.ini	03/05/2017 18:00	Configuration sett...	2 KB	
Ford MCA 18_01_2011.ini	30/11/2011 15:46	Configuration sett...	1 KB	
Fronts (service parts).ini	03/05/2017 18:00	Configuration sett...	2 KB	
hock6.ini	03/05/2017 18:44	Configuration sett...	2 KB	
Rears 2013.ini	03/05/2017 18:00	Configuration sett...	2 KB	
Rears part services.ini	03/05/2017 18:00	Configuration sett...	2 KB	
Renault.ini	02/12/2011 09:49	Configuration sett...	2 KB	
Welding_config.ini	06/05/2013 08:41	Configuration sett...	2 KB	

Folders of the configurations

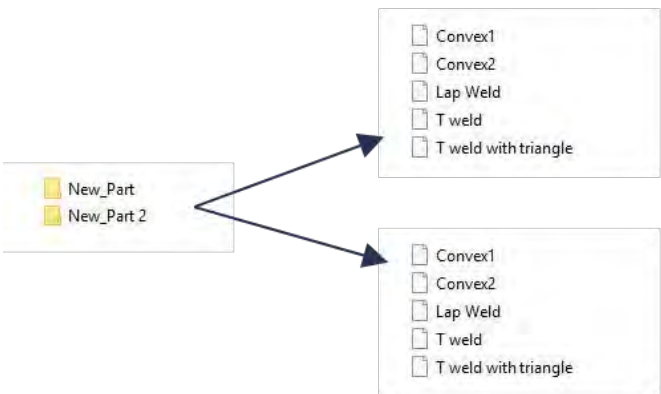
Each folder has 3 sub-folders.

 Cordons	14/11/2017 09:49	File folder
 Results	14/11/2017 09:45	File folder
 Stdreports	14/11/2017 09:43	File folder

The Cordons folder

The **Cordons** folder contains a folder for each created part.

Each part folder contains all the welds of the part.



The Results folder

 backup	14/11/2017 09:46	File folder	
 New_Part_Convex2	14/11/2017 09:45	File folder	
 New_Part_T weld	14/11/2017 09:46	File folder	
 New_Part_Convex2_extra.xls	14/11/2017 09:45	Microsoft Excel 97...	2 KB
 New_Part_Convex2_extra.xls	14/11/2017 09:45	Microsoft Excel 97...	1 KB
 New_Part_T weld.xls	14/11/2017 09:46	Microsoft Excel 97...	2 KB
 New_Part_T weld_extra.xls	14/11/2017 09:44	Microsoft Excel 97...	1 KB

The Backup folder (only with the Dataview module)

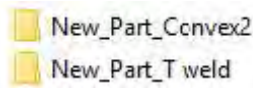
This folder contains all the raw images without merged measurements and the associated calibration.

These images are used in the StructureExpert Weld software to remeasure the welds.

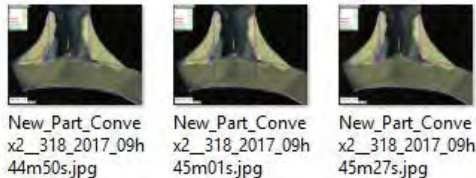


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A folder is automatically created for each weld for saving images.
The name of the folder is built using "Part name_Weld name".



The name of the image is built using "Part name_Weld name_user_date_hour".



All the results of a same weld are saved in an excel files.

[illegible]

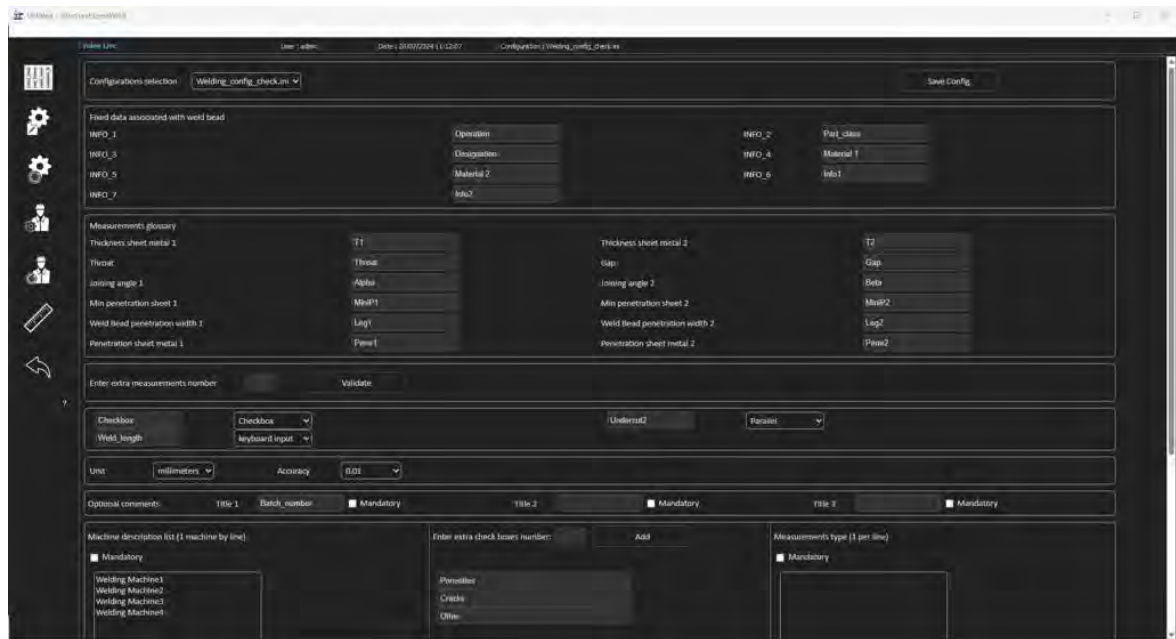
The extra.xls file contains the action limit settings of the weld.

[illegible]

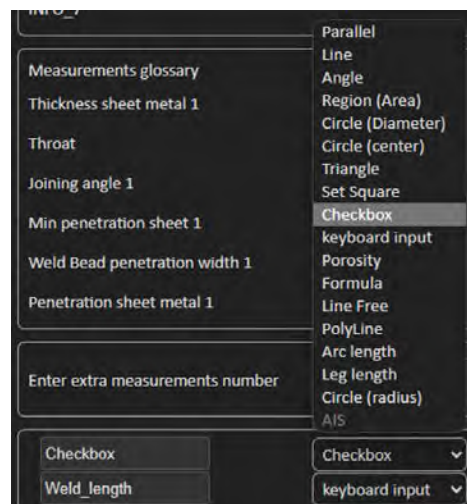
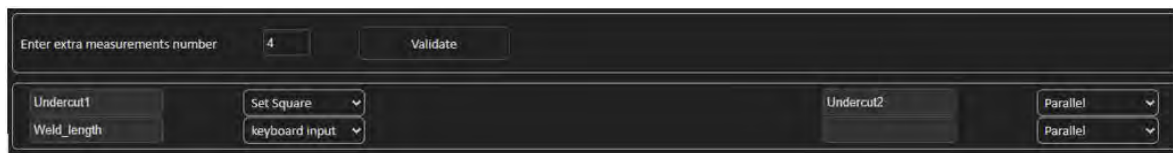
23 Appendix 2: Setup visual check

Some welding standards do not require geometrical evaluation of the weld but only a visual inspection to see if the weld is correct or incorrect.

To facilitate this kind of inspection, a specific tool has been implemented into StructureExpert Weld software.



When you create a new software configuration (**Administration > General Description**), a tool is available in the **Enter extra measurements number > Check Box** list.



- To evaluate a weld, create a checkbox.

If the checkbox is...

- **unchecked**, the weld is **incorrect**. The result is shown in **red**.
- **checked**, the weld is **correct**. The result is shown in **green**.

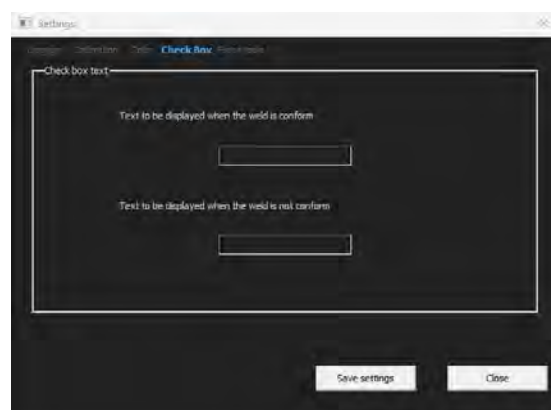
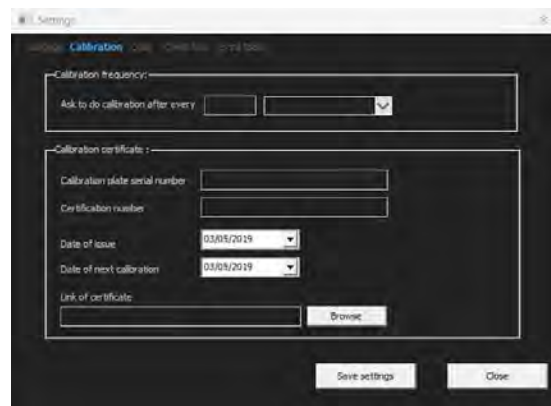
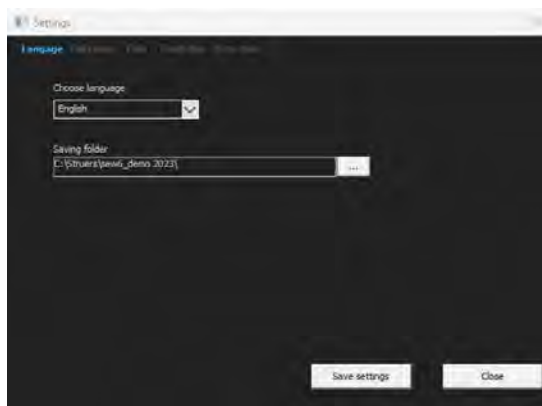
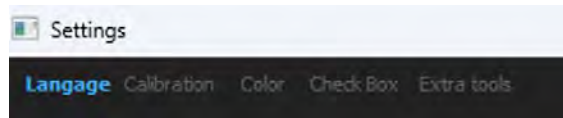


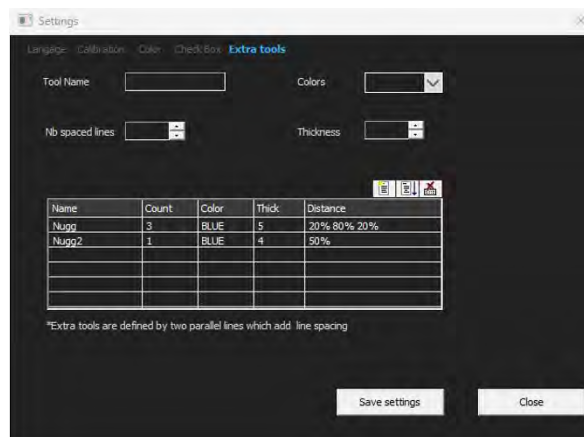
Note

You can change the text which is shown when the weld is correct or incorrect in the **Settings.exe** file in the installation folder of the software.

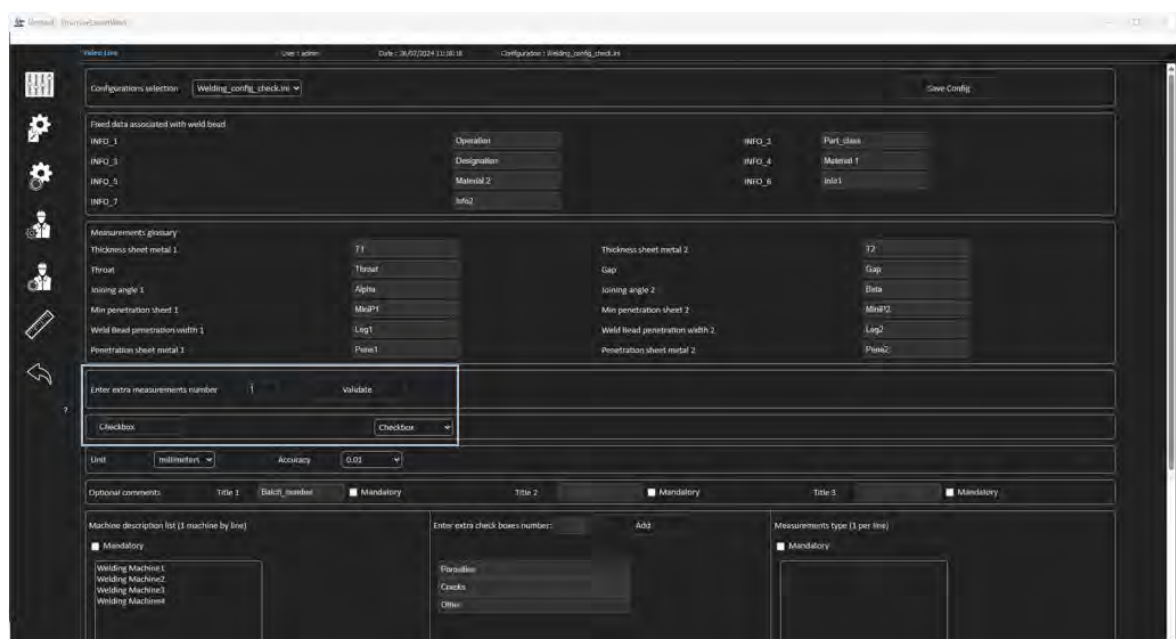

Settings

The setting file is composed of 5 menus, **Language**, **Calibration**, **Color**, **Check Box** and **Extra tools**.

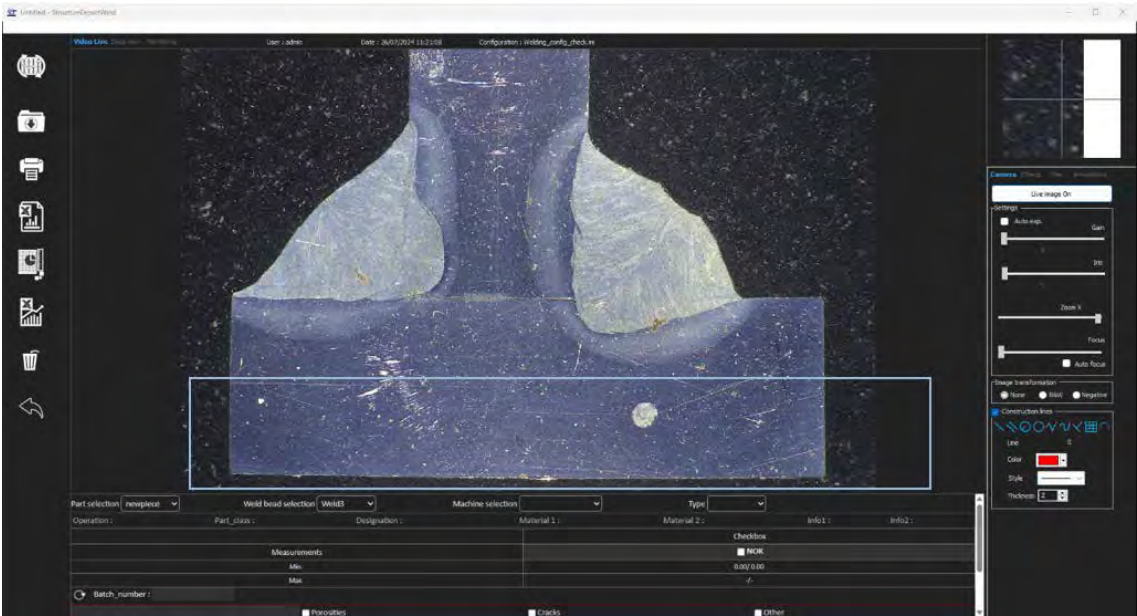




Configuration example: No measurement - only visual inspection



Setting up a new part



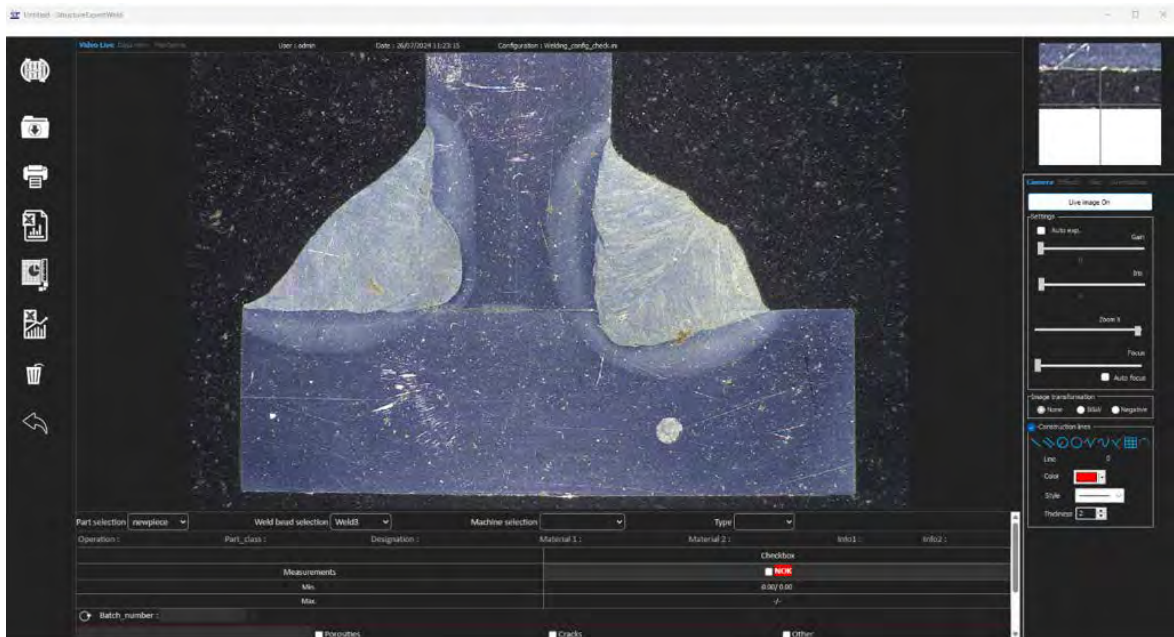
Visual inspection – correct weld

The box is checked and is shown in **green**, also in the image.



Visual inspection – incorrect weld

The box is not checked and is shown in **red**, also in the image.



Checkbox
☐ NOK
0.00/ 0.00
-/-

24 Appendix 3: Min & Max action limits

Some welding standards require additional parameters to the acceptance criteria (min & max values), the Min & Max action limits.

To be in conformity with the most advanced welding standard, Min & Max action limits have been implemented in the StructureExpert Weld software.

1. In the **Administration** part of the software, select **New Part** and/or **Modify Part**.

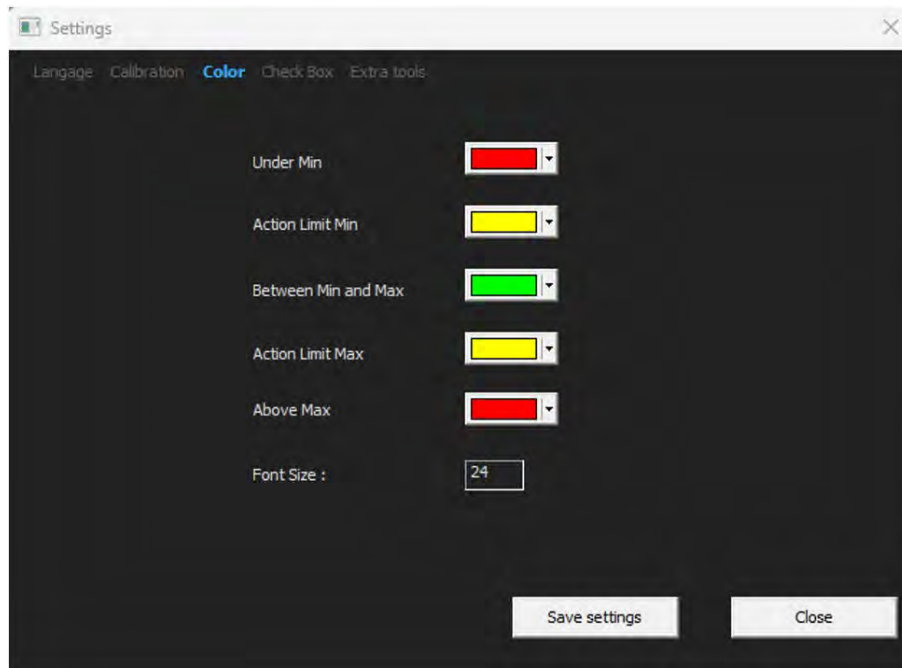
In addition to the acceptance criteria, you can define Min & Max action limits.

When you make a measurement, results will be shown with the following colors:

– Under Min	Red
– Action Limit Min	Yellow
– Between Min & Max	Green
– Action Limit Max	Yellow
– Above Max	Red

**Note**

You can change the colors in the **Settings.exe** file in the installation folder of the software.

**Setting up a part using Min & Max action limits****Note**

From version 3.0: Min& Max action limits can be defined with fixed values as well as formulas.

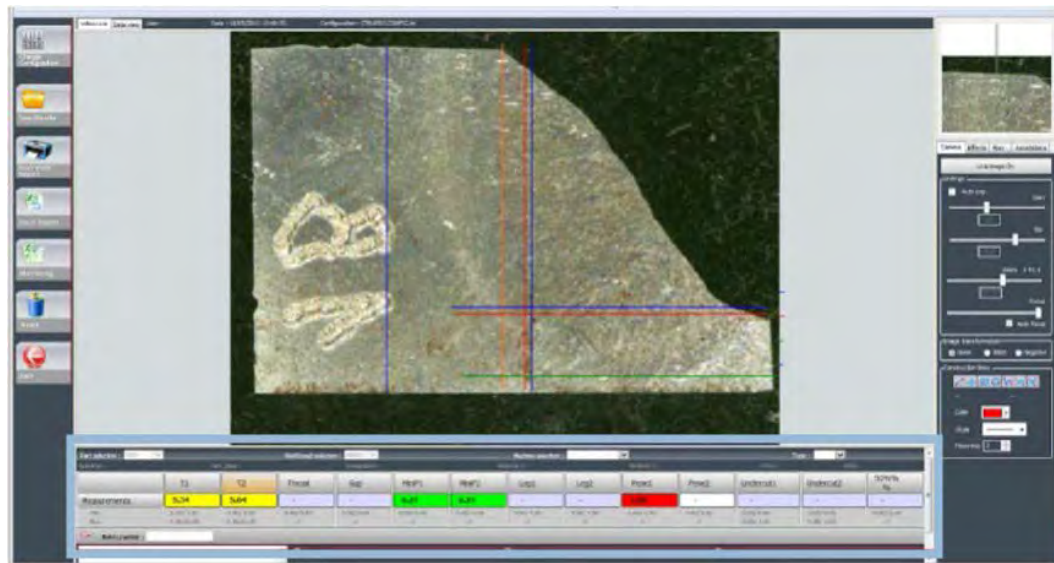
For details about formulas, see [Formula ►52](#) and [Create parts and welds ►22](#).

Line	T1	T2	Throat	Gap	Alpha	Beta	MinP1	MinP2	Leg1	Leg2	Penet1	Penet2	Checkbox	Undercut2	Weld Length
Set	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Mandatory	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Min															
Max															
Act. Lim Min															
Act. Lim Max															

- Values of Min action limits must be higher than the Min value.
- Values of Max action limits must be lower than the Max value.

If these conditions are not met, results between Action Limits & Min/Max will be shown in Green.

Measurements using Min & Max action limits



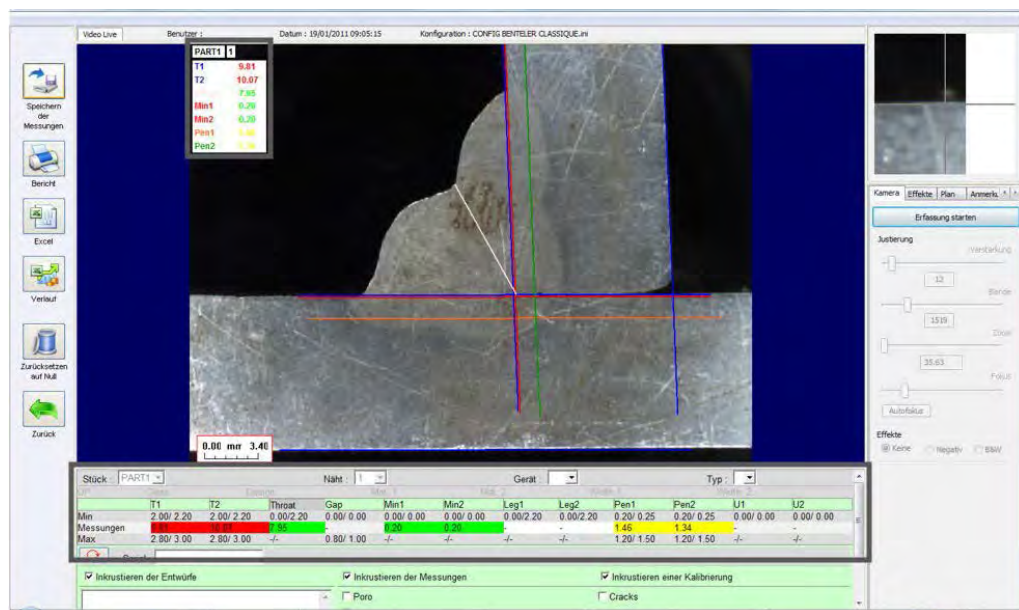
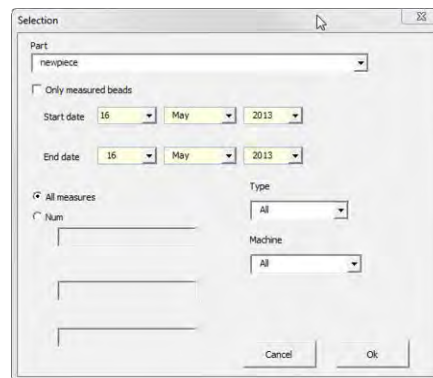
Results are automatically compared to the acceptance criteria and Min/Max action limits. See colors ▶152.

Printing a report

Min & Max action limit option requires a specific report template

- Part_batch_number_report_ActL.xls

- Welds_report_ActL.xls
1. Select the report to be created.



Microsoft Excel																	Fichier Edition Affichage Insertion Format Outils Données Fenêtre ?																	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Microsoft Excel

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BENTELER **Messbericht**

Automobiltechnik

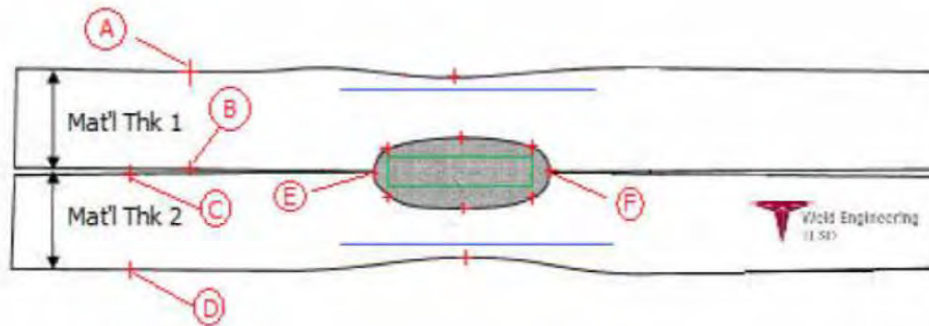
	1	2	3
T1	5.45	7.61	4.77
T2	6.85	7.07	3.90
Throat	5.75	10.15	5.25
Gap	2.25	2.54	3.23
Min1	5.25	5.85	5.25
Min2	5.25	5.25	5.25
Leg1	1.45	1.82	1.25
Leg2	1.85	3.55	1.75
Pen1	2.07	1.68	1.85
Pen2	1.25	3.21	0.00
U1	5.25	5.25	5.25
U2	2.25	2.27	5.35

	4	10	11
T1	4.83	5.35	5.32
T2	5.25	5.15	4.70
Throat	5.25	5.25	5.25
Gap	3.05	0.47	3.92
Min1	5.25	5.25	5.25

Rapport / Images /

25 Appendix 4: Resistance Weld Nugget measurements

25.1 Specific drawings and measurements



Collecting points

- **A** and **B**, to obtain material thickness of T1.
- **C** and **D**, to obtain material thickness of T2.
- **E** and **F**, to obtain nugget diameter.

From this a rectangle can be generated that is in 10 percent from each edge (**E** and **F**) of the nugget, to determine where the sides are positioned.

The top is up 20% of T1 (top sheet thickness) from the center line of the nugget (faying surfaces of the 2 plates being welded) generated by the points **E** and **F**.

The bottom of the rectangle is down 20% of T2 from the **E** and **F** center line. This rectangle sets the minimum penetration lines (green rectangle in picture above). The green rectangle, for acceptance purposes, must be inside the weld nugget being viewed.

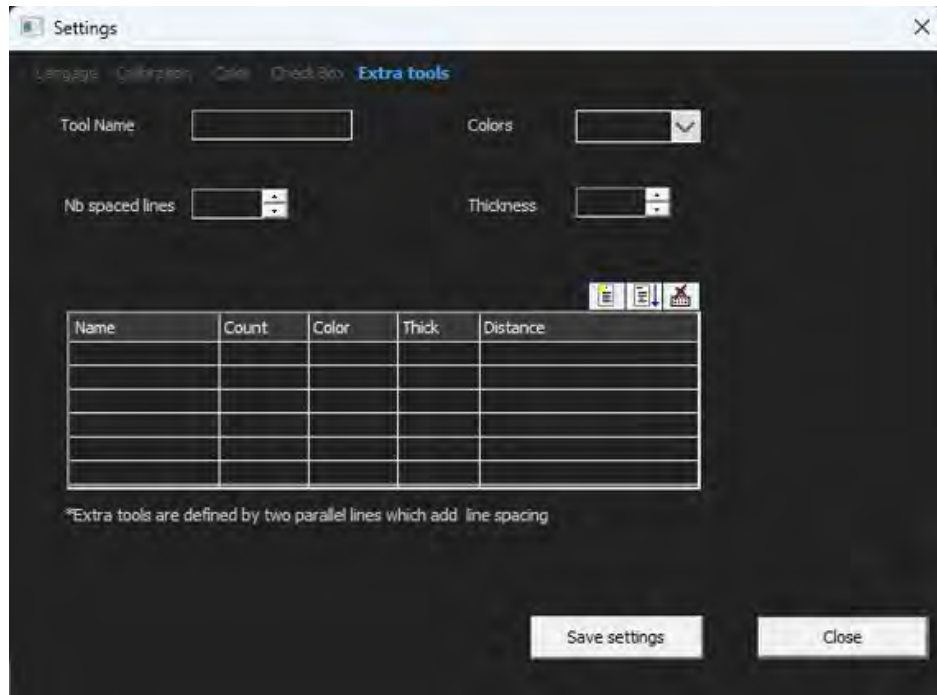
From the above collected points, the 2 blues lines are generated by placing the blue lines at 80 percent of **A** and **B** (material thickness) above line **E** and **F**. This is the maximum penetration line. The nugget cannot extend above this line.

The bottom blue line is 80 percent of **C** and **D** (material thickness) below line **E** and **F**. This is the maximum penetration of material 2.

25.2 Resistance Weld Nugget measurement settings

Use **Settings.exe** to create specific measurement tools.

- Click the **Extra tools** tab.



The goal is to create the following measurements:

- **A** and **B**, material thickness T1.
- **C** and **D**, material thickness T2.
- **E** and **F**, nugget diameter.

For each measurement, define reference lines in relation to the above measurements:

- For **A** and **B**: 1 line at 20% of T1 and 1 line at 80% of T1
- For **C** and **D**: 1 line at 20% of T1 and 1 line at 80% of T2
- For **E** and **F**: 1 line at 10% of Nugget diameter and 1 line at 90% of Nugget diameter.

Procedure

1. Define tool name, color and thicknesses.

Settings

Language Calibration Color Check Box **Extra tools**

Tool Name Colors

Nb spaced lines Thickness

Name	Count	Color	Thick	Distance

*Extra tools are defined by two parallel lines which add line spacing

Save settings Close

- Define the number of reference lines (**spaced lines**).

Settings

Language Calibration Color Check Box **Extra tools**

Tool Name Colors

Nb spaced lines Thickness

Name	Count	Color	Thick	Distance

*Extra tools are defined by two parallel lines which add line spacing

Save settings Close

- Validate with the arrow icon as shown.
- Define the placement of each reference line in %.

Line spacing parameters

Enter space between lines (for line 2)

20%

Next

Line spacing parameters

Enter space between lines (for line 2)

80%

Next

Settings

Language

Calibration

Color

Check Box

Extra tools

Tool Name

AB

Colors

Blue

Nb spaced lines

2

Thickness

5

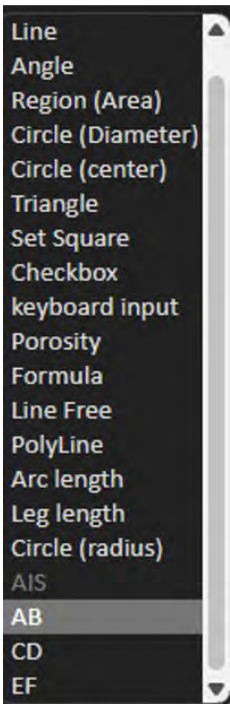
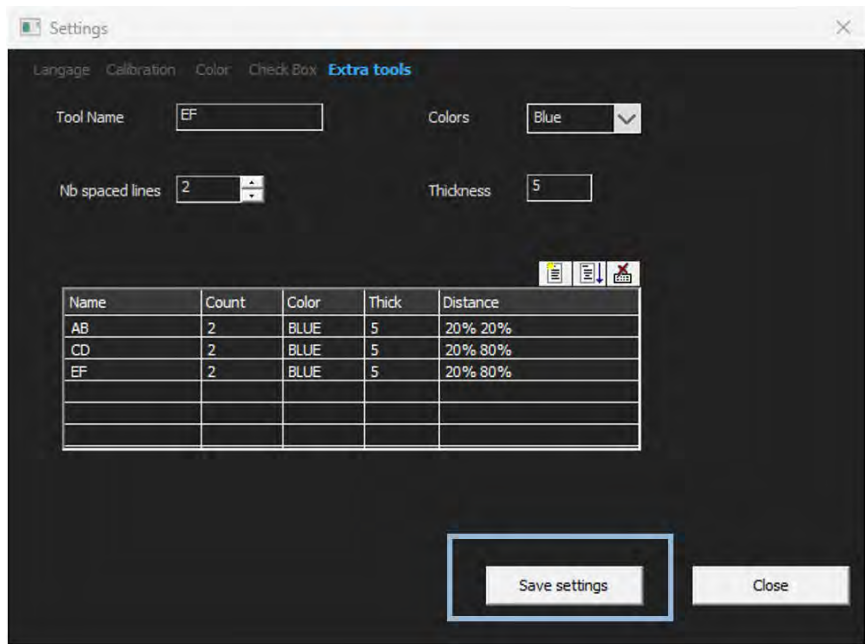
Name	Count	Color	Thick	Distance
AB	2	BLUE	5	20% 20%

*Extra tools are defined by two parallel lines which add line spacing

Save settings

Close

- Define all the needed measurements.



6. Save settings.
- These “new measurements” are now available for creating or modifying the general software configuration.

Example of software configuration

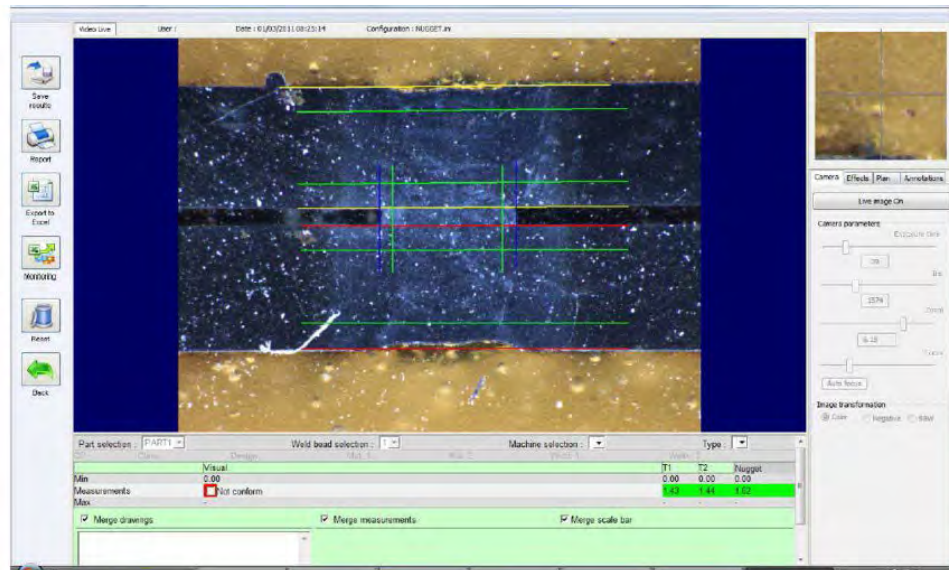
The screenshot shows the 'Configuration' window for 'REV_01_LULA_D32_WELDING05.ini'. It includes sections for 'Fixed data associated with weld bead', 'Measurements glossary', and 'Machine description list'. The 'Measurements glossary' section lists various parameters like T1, T2, Throat, Gap, Alpha, Beta, Min1, Min2, Leg1, Leg2, Pen1, Pen2, Checkbox, AB, CD, and EF, each with a corresponding input field and unit. The 'Machine description list' section includes fields for 'Welding Machine1', 'Welding Machine2', and 'Welding Machine3'.

Example of part creation

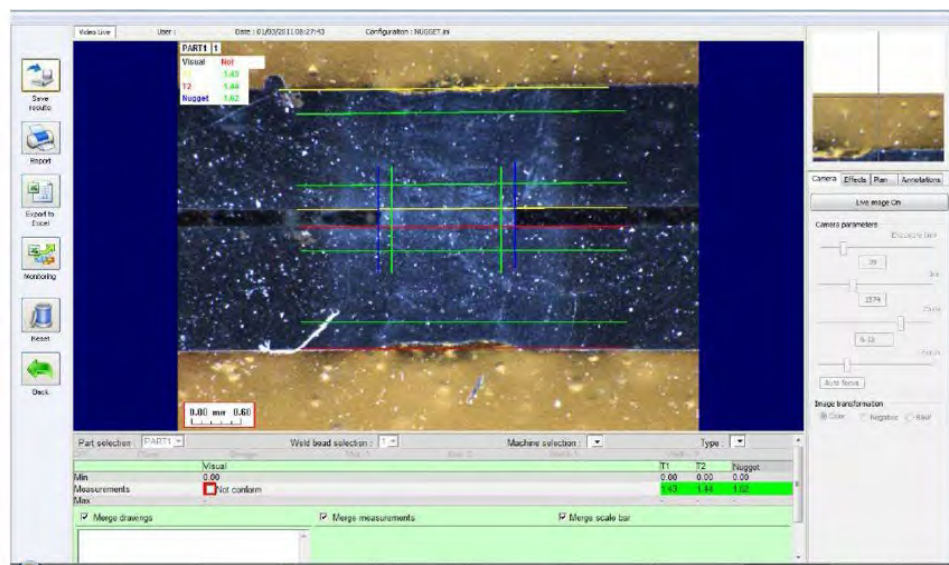
The screenshot shows the 'Part creation' window for 'newpiece'. It includes a 'Weld bead identification' section with fields for 'Weld1', 'Operation', 'Designation', 'Material 1', 'Material 2', 'Info1', and 'Info2'. Below this is a table of measurements and formulas. The table has columns for 'Line', 'Sel.', 'T1', 'T2', 'Throat', 'Gap', 'Alpha', 'Beta', 'Min1', 'Min2', 'Leg1', 'Leg2', 'Pen1', 'Pen2', 'Checkbox', 'AB', 'CD', and 'EF'. The 'Formulas' section includes fields for 'Thickness 1', 'Thickness 2', 'Throat Measurement', 'Minimum penetration 1', and 'Minimum penetration 2'. The 'Part identification' section includes a table with columns for 'id', 'T1', 'T2', 'Throat', 'Gap', 'Alpha', 'Beta', 'Min1', 'Min2', 'Leg1', 'Leg2', 'Pen1', 'Pen2', 'Checkbox', 'AB', 'CD', and 'EF'.

Measurements

- T1 measurement: Automatic placement of reference line.
- T2 measurement: Automatic placement of reference line.
- Nugget measurement: Automatic placement of reference line.



1. Visual check: Check whether the green rectangle is inside the weld nugget.
2. Save the results.



3. Print a report.

WELDING EXPERT CLARA VISION		Measurements Report				Date 01/03/2011	
Part : Machine identification: Batch number		PART1 All		User All		Type of measurements	
Welded landmark	Dimensional				Measurements balance	Visual	
	Visual	T1	T2	Nugget		In conformity	Non-conformity
1	1,00	100	100	100	X		X
2	100	100	100	100	O		O
	1,00				X		X
	100	100	100	100	O		O

Page 1

WELDING EXPERT
CLARA VISION

Measurements report

1



Visual	0
T1	1.90
T2	0.44
Nugget	1.57

2



Visual	1
T1	1.68
T2	0.47
Nugget	0.51

3



Visual	0
T1	+
T2	-
Nugget	-

26 Appendix 5: Tips on working with Data Sharing and Visualization

See also the general description of the module in [Data Sharing and Visualization \(option\)](#) ► 139.



Note

The Data Sharing and Visualization module relies on integration with Microsoft Power BI and SharePoint, which are third-party platforms developed, maintained, and supported by Microsoft. We are not responsible for the setup, configuration, licensing, support, or ongoing maintenance of either platform.



Note

Use of this module assumes that Power BI and SharePoint are already properly configured and operational within your environment. Any issues related to access, data connectivity, user permissions, platform limitations, or service outages must be handled by your organization's IT department or through Microsoft support channels.

We make no guarantees regarding the performance, availability, or security of these external services. Furthermore, this module is not affiliated with, endorsed by, or supported by Microsoft.

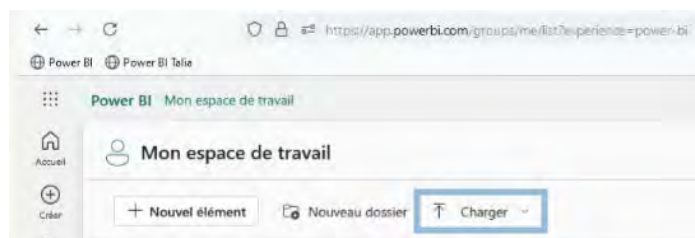


Note

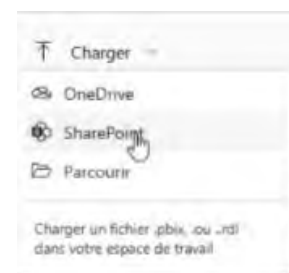
Access to required Power BI and SharePoint features may be subject to licensing constraints set by Microsoft. It is your responsibility to ensure that appropriate licenses are obtained and user permissions are correctly configured.

26.1 Set up web access for Power BI on Power BI Services

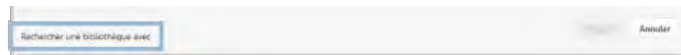
1. Go to the URL <https://app.powerbi.com/groups/me/list?experience=power-bi> to enter your workspace.
2. To upload the Power BI file you have stored on SharePoint, click **Upload**.



3. Select **SharePoint**.



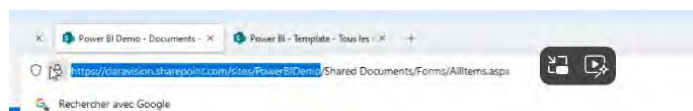
4. If you do not see the Power BI site you have created, click the search function in the bottom left corner.



5. This window appears.



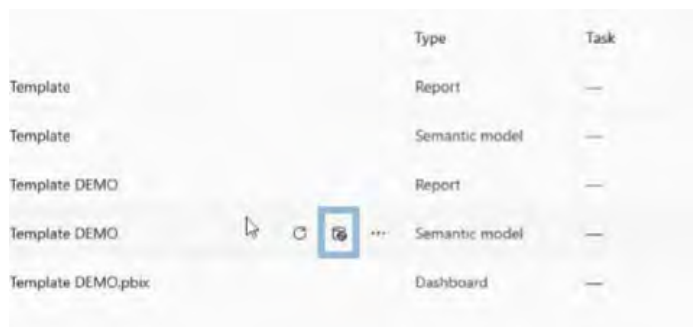
6. Go back to copy the URL of your SharePoint site.



7. Go back to Power BI, paste the URL, and click the search button.

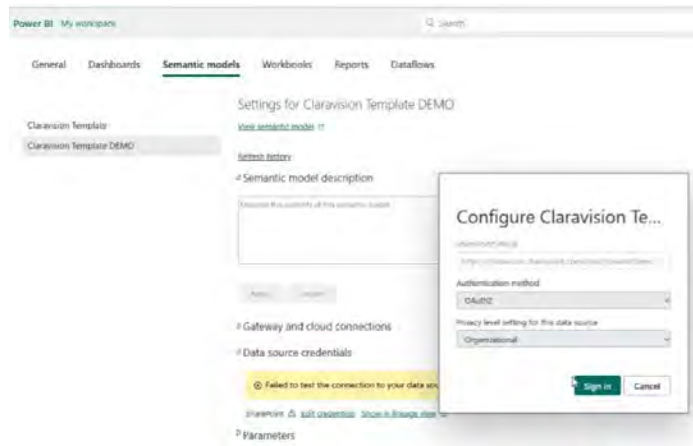


8. You now see the Power BI file you have created and saved. Select this and upload it.
9. The file is now uploaded to the website.
10. To complete the setup, click this icon.



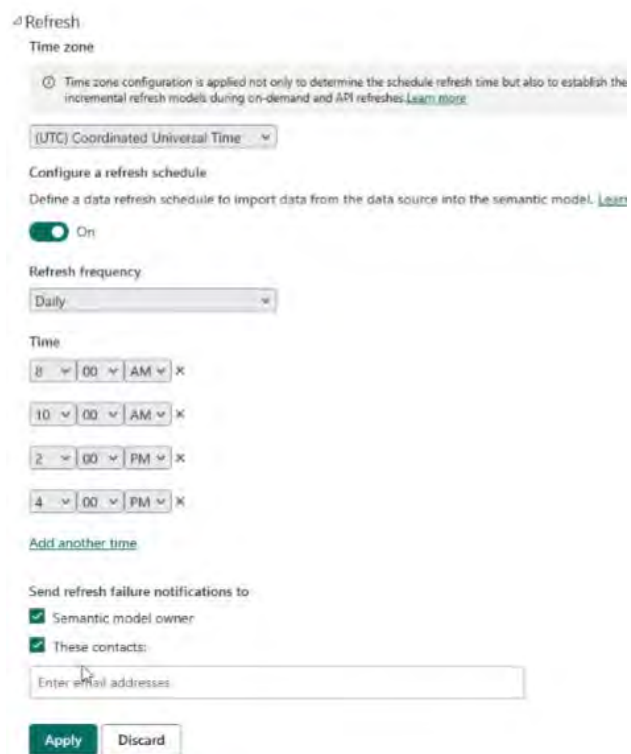
Set credentials

11. Go to **Data source credentials**.
12. Select **Edit credentials**.
13. Select OAuth2 in **Authentication method**.
14. Select **Organizational** in **Privacy level setting for this data source**.
15. Click **Sign in** to finish.



Set the refresh service

16. Go to **Refresh**.
17. Set the **On/Off** toggle button to **On**.
18. Click **Add another time** to choose the desired time slots.
19. Check off **These contacts** if you wish to be notified in case of any failures in the refresh process. Then type in the email address.
20. Click **Apply**.



Automatic update of synchronization

21. Click **Sync with OneDrive and SharePoint**.
22. Select **Automatic updates**.
23. Click **Apply**.

Sync with OneDrive and SharePoint

When changes are made to Power BI files stored in OneDrive or SharePoint, people can turn off this setting to prevent automatic updates to semantic models. [Learn more](#)

☐ Restrict updates

Only semantic model owners can update semantic models with changes made to the semantic model user refreshes the semantic model, changes from files stored in OneDrive or SharePoint.

☒ Automatic updates

Semantic models in the Power BI service are automatically updated with changes made to the semantic model user refreshes the semantic model, changes from files stored in OneDrive or SharePoint.

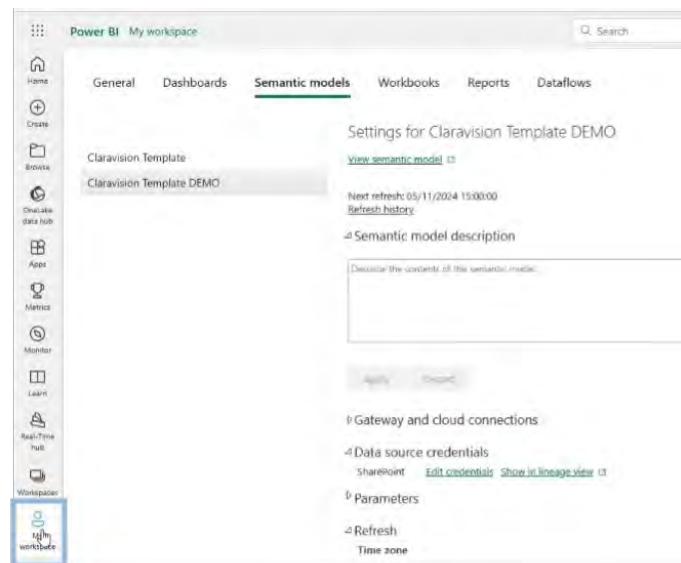
☐ Default updates

Semantic model refresh will continue to follow the current behavior and semantic model user refreshes the semantic model, changes from files stored in OneDrive or SharePoint.

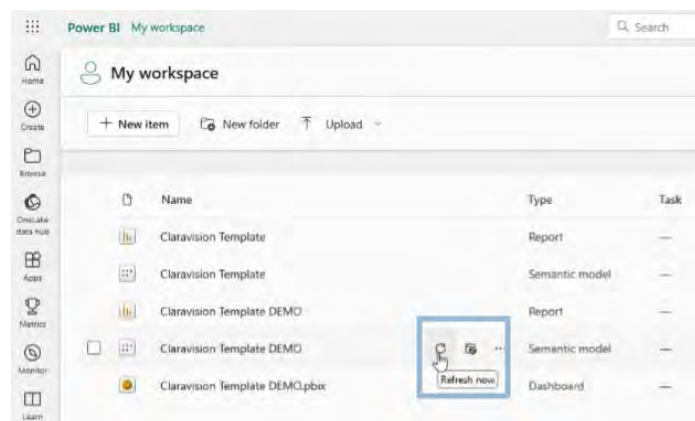
Apply **Discard**

Activate settings and share

24. Go back to **My workspace**.



25. Click the **Refresh now** icon to ensure that the settings are enabled.



26. You now see what the next refresh time is.



Name	Type	Task	Channel	Refreshed	Next refresh
Classification Template	Report	...	Power BI	05/11/24 13:03:05	...
Classification Template	Summary model	...	Power BI	05/11/24 13:03:05	05/11/24 14:00:00
Classification Template (DEMO)	Report	...	Power BI	05/11/24 14:04:19	...
Classification Template (DEMO)	Summary model	...	Power BI	05/11/24 13:04:19	...
Classification Template (DEMO) jobs	Deployment	...	Power BI	...	05/11/24 13:00:00

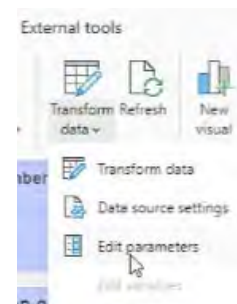
27. Access the report on the link in the **Name** column. The report opens online.

28. To share your report, copy and paste the URL.



26.2 Setup on Power BI Desktop

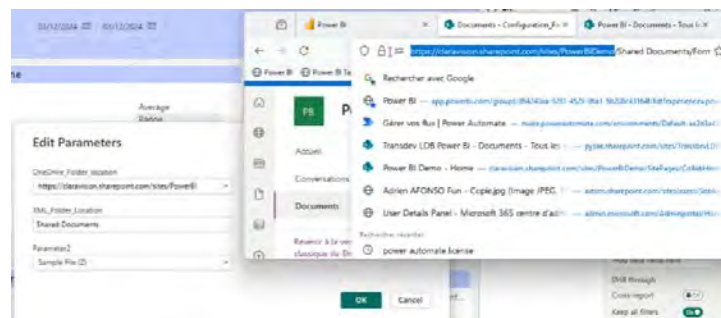
1. Open the Power BI file. This may take a while.
2. Change the parameters in **Edit parameters**.



3. Copy and paste your SharePoint address.

When you look at the URL, copy up until "/" + the folder name, here "/Shared Documents".

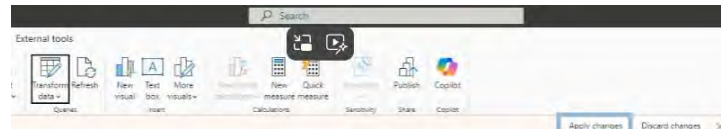
4. Now copy and paste the XML folder location in SharePoint, here "Shared Documents", into the second field.



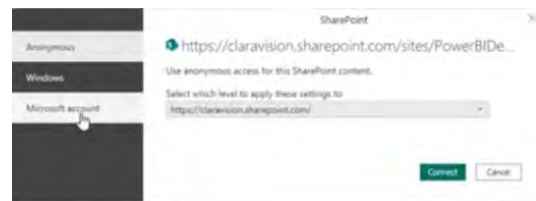
5. Add the symbol "/".
6. Add the subfolder if you have created one, here "Power BI"
7. Click **OK**.



8. Click **Apply changes**.



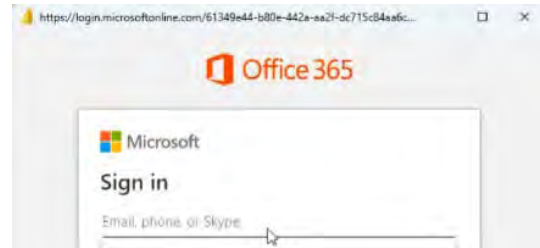
9. After loading, you will see this pop-up window.
10. Click **Microsoft account** to sign in.
11. Click **Sign in**.



12. In the pop-up window **Pick an account**, choose **Use another account**.



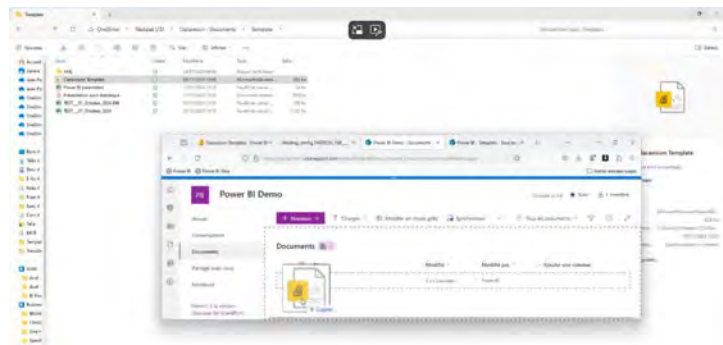
13. Sign in with your email and password.



14. When you see the message **You are currently signed in**, click **Connect**.

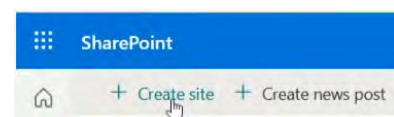


15. Loading may take some time.
16. You can now save the Power BI file on the **Save** icon.
17. Close the file on the **X** icon.
18. Drag and drop the Power BI file you just saved to SharePoint in the **Documents** tab.

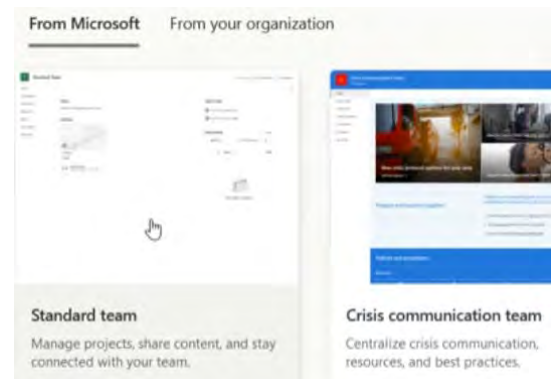


26.3 Create a SharePoint site

1. Go to SharePoint, and click **Create site**.
2. Select **Team site** (more private space).



3. Select **Standard team**.



4. Select **Use template**.



5. Type the desired **Site name**, for instance "Power BI Demo".
6. Copy the **Site name** from the **Site address**.
7. Click **Next**.

Site name *

Power BI Demo

The site name is available.

Site description

Tell people the purpose of your site.

Group email address *

PowerBIDemo

The group alias is available.

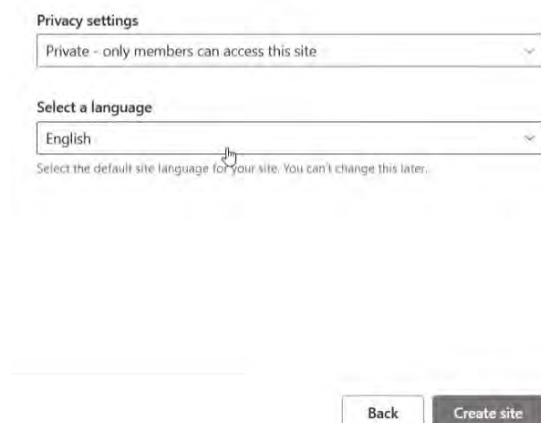
Site address *

https://claravision.sharepoint.com/sites/ PowerBIDemo

The site address is available.

Back Next

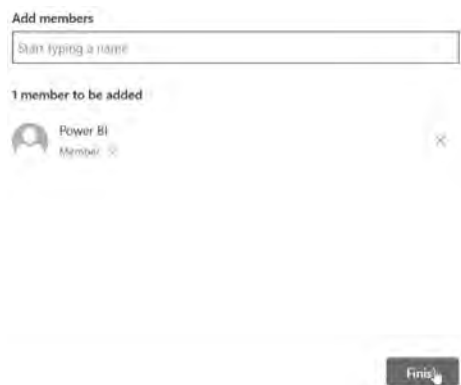
8. Click **Create site**.



9. You can add users, here for instance "Power BI". Type the name and click on it below.

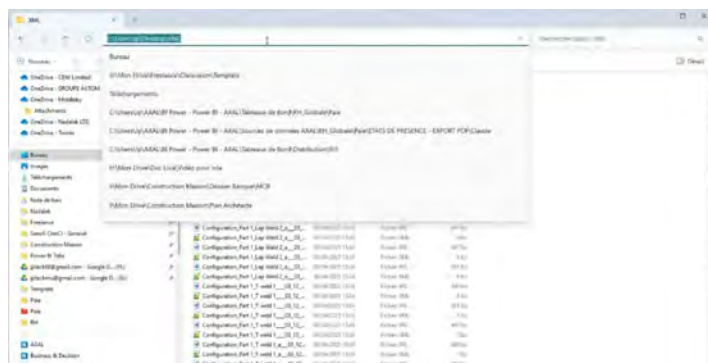


10. Click **Finish**.
The site is now created.



26.4 Set up a local path for your Power BI files

1. Find your data and copy the path.



2. In **Transform data**, click **Edit parameters**.



3. Paste the path and click **OK**.



4. Click **Apply changes**. This may take a while.

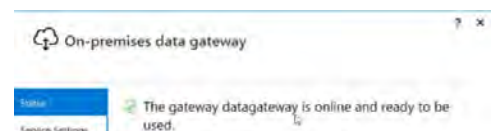


5. **Save** the settings on the disk icon.

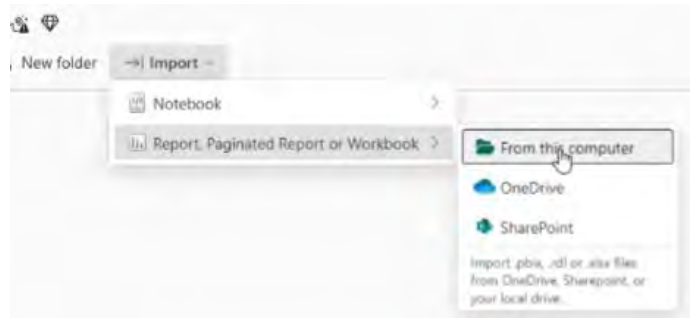
26.5 How to install a Power BI gateway

When you install a Power BI gateway, it helps you make a link between your data on a local server or your laptop to your Power BI cloud.

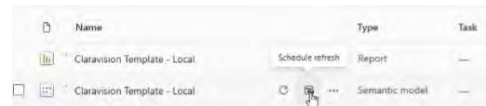
1. Find Microsoft's guide [Download and install a standard gateway](#).
2. Click the link **Download the standard gateway**. This will take a while.
3. Then just follow the instructions to select path, install, enter your email address, register a new gateway on your computer, give it a name, select password etc.
4. Select **Next**.
5. You are ready to move on when you see the message **The gateway datagateway is online and ready to be used**.
6. Go to your workspace in Power BI.



7. To import your Power BI file, click **Import, Report, Paginated Report or Workbook** and **From this computer**.



8. Locate and select the file in File Explorer, and wait for it to load.
9. Go to the **Semantic model** line, and click the **Schedule refresh** icon.



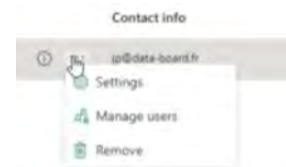
10. Under **Gateway and cloud connections**, you see the name of the gateway you just installed.



11. Click the settings icon **Manage Connections and Gateways**.



12. The settings window pops up.
You can also open this from **On-premises data gateways** and then the 3 dots.



13. Check off the bottom parameters for Power BI to allow users to refresh data.
14. Click **Save**.

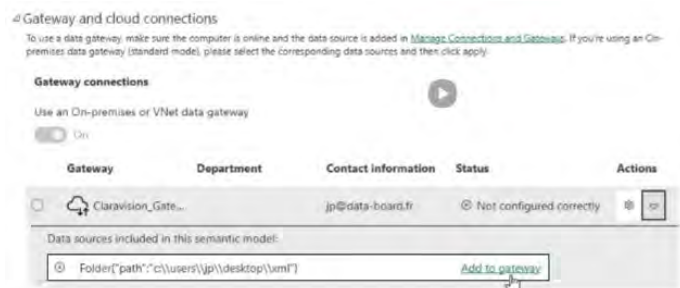
15. Go back to your workspace.



16. Click **Schedule refresh**.



17. In **Gateway and cloud connections**, click on the settings drop-down in the **Actions** column.



18. Click **Add to gateway**.

19. In **Full path**, you see the path to where you have stored your XML file and your image.
20. Enter a name for the gateway in **Connection name**.

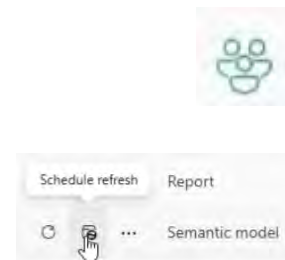
21. In **Authentication**, fill in your username and password.
22. Select **Organizational** in **Privacy level**.
23. Click **Create**.

The screenshot shows a form with two sections: 'Authentication' and 'General'. In the 'Authentication' section, 'Authentication method' is set to 'Windows', 'Windows username' is 'JP', and 'Windows password' is masked with asterisks. There is a checkbox for 'Skip test connection'. In the 'General' section, 'Privacy level' is set to 'Organizational'. At the bottom are 'Create' and 'Close' buttons.

24. In **Gateway and cloud connections**, click the drop-down in the field **Maps to**, and select the name of your gateway.
25. Click the green **Apply** button that appears below.
26. Go back to the your workspace.

The screenshot shows the 'Gateway and cloud connections' page. It has a toggle for 'Use an On-premises or VNet data gateway' set to 'On'. Below is a table with columns: Gateway, Department, Contact information, Status, and Actions. One entry is visible: 'Claravision_Gate...' with department 'jp@data-board.fr' and status 'Running on JP-PC, select all datasources to use'. Below the table, there's a section 'Data sources included in this semantic model:' with a list item 'Folder[\"path\"=\"c:\users\jp\desktop\xml\"]' and a 'Maps to' dropdown menu.

27. Make sure the server is turned on, and click **Schedule refresh**. The refresh may take a while.



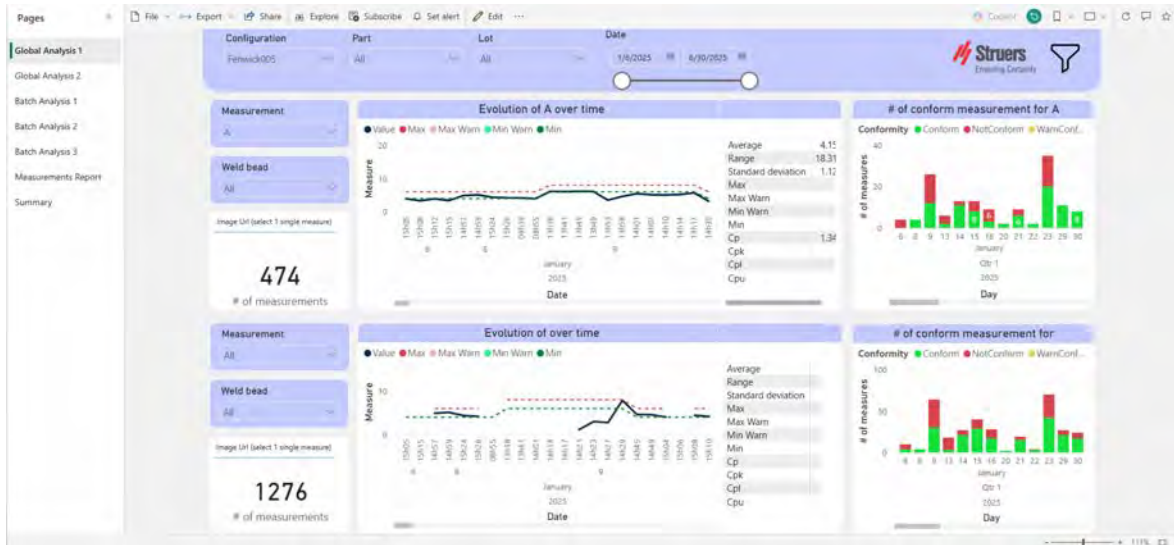
28. To activate the automatic refresh, go to **Refresh**.
29. Click the On/Off toggle button to set to **On**.
30. Set the desired refresh frequency.
31. Click **Apply**.

The screenshot shows the 'Refresh' settings page. It includes a 'Time zone' section with a note that configuration is not applied to incremental refresh models during on-demand refresh. The time zone is set to '(UTC) Coordinated Universal Time'. Below is a 'Configure a refresh schedule' section with a toggle for 'Define a data refresh schedule to import data' set to 'On'. The 'Refresh frequency' is set to 'Daily'. The 'Time' is set to '1:00 AM'. There is a link 'Add another time'. At the bottom, there's a section 'Send refresh failure notifications to' with a checkbox for 'Semantic model owner' checked and a checkbox for 'These contacts:' unchecked. At the very bottom are 'Apply' and 'Discard' buttons.

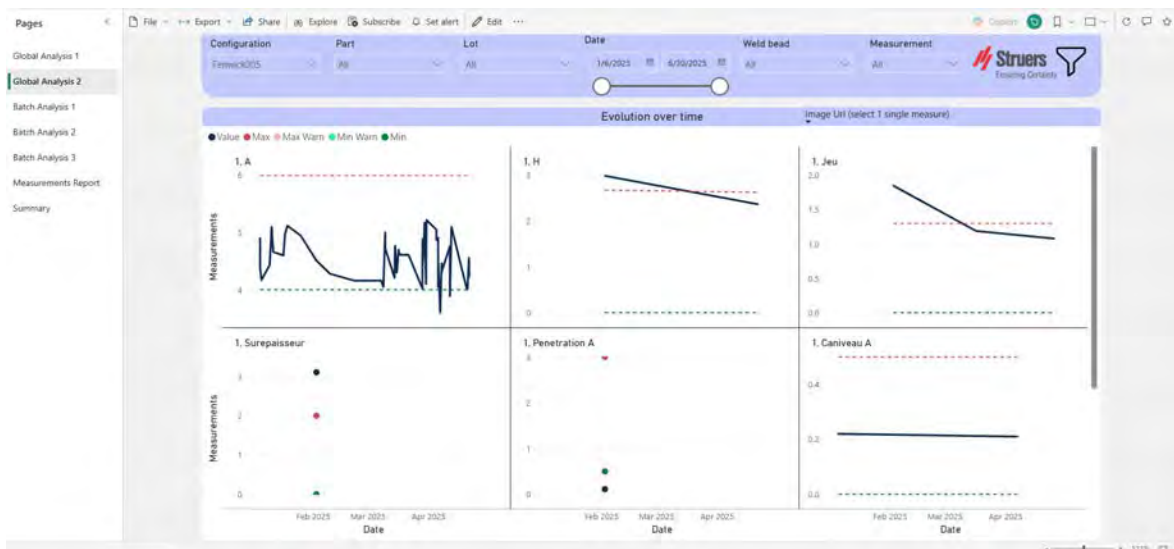
26.6 Supplied dashboards and reports

All the supplied dashboards and reports in the SewSoft AI 4.0 software for StructureExpert Weld are provided without any restrictions. Dashboards and reports are fully open for customization.

Global analysis 1: Measurement evolution and statistics



Global Analysis 2 : Measurement evolution on all weld parameters



Batch Analysis 1 :Measurement report

Pages

Global Analysis 1

Global Analysis 2

Batch Analysis 1

Batch Analysis 2

Batch Analysis 3

Measurements Report

Summary

File

Export

Share

Explore

Subscribe

Set alert

Copy

Configuration

Piece

Batch Number

Date

Weld bead

Measurement

DEMO AI US APP TE

All

All

5/11/2025

All

All

Struers

Ensuring Certainty

Weld bead	Image	URL	Type	T1	T2	Throat	Leg1	Leg2	Pen1	Pen2
Z1			Value	2.76	1.01	4.05	5.55	4.12	1.56	1.23
			Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Value	2.74	1.82	3.29	5.48	4.00	1.11	1.26
			Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Value	2.72	1.98	4.05	5.45	4.08	1.11	1.23
			Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Value	11.02							
		Min	0.00							
		Value	16.75							
		Min	0.00							
59			Value	2.70	2.07	2.49	5.56		1.25	
			Min	0.00	0.00	0.00	0.00		0.00	
			Value	2.67	2.25	2.32	5.56		1.27	
			Min	0.00	0.00	0.00	0.00		0.00	
			Value	7.47						
			Min	0.00						
		Value	5.96							
		Min	0.00							
LAP			Value	7.47						
			Min	0.00						
		Value	5.96							
		Min	0.00							

11/5

Batch Analysis 2: Measurement report with visual defects and conformity

Pages

FileExportShareExploreSubscribeSet alertEdit

Control

Global Analysis 1

Global Analysis 2

Batch Analysis 1

Batch Analysis 2

Batch Analysis 3

Measurements Report

Summary

Configuration

Piece

Batch Number

Date

Weld bead

Measurement

Struers

Ensuring Certainty

17 "OptionComments1" stands for "Batch Number"

Weld bead

OptionComments1 (*)

Image

URL

Measurement

Value

Min

21

99

Leg1

4.07

0.00

Pen1

1.11

0.00

Pen2

1.26

0.00

Porosities

Cracks

Other

Conformity

Conforms

59

T1

2.70

0.00

T2

2.07

0.00

Throat

2.49

0.00

Leg1

5.56

0.00

Pen1

1.25

0.00

Porosities

Cracks

Other

Conformity

Conforms

99

T1

2.67

0.00

T2

2.25

0.00

Throat

2.32

0.00

Leg1

5.56

0.00

Pen1

1.27

0.00

Porosities

Cracks

Other

Conformity

Conforms

LAP

Throat

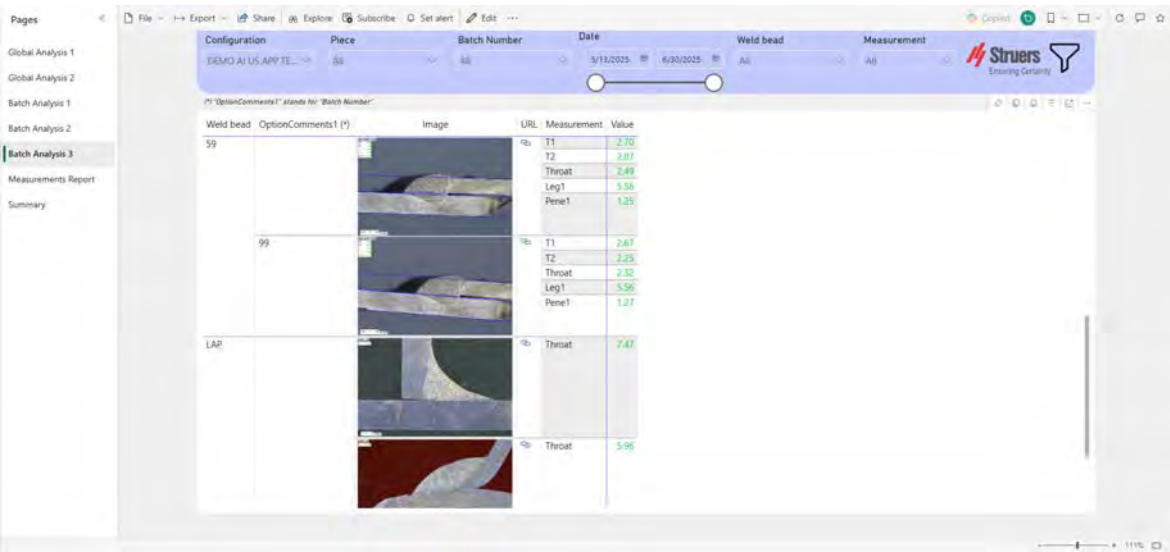
7.47

0.00

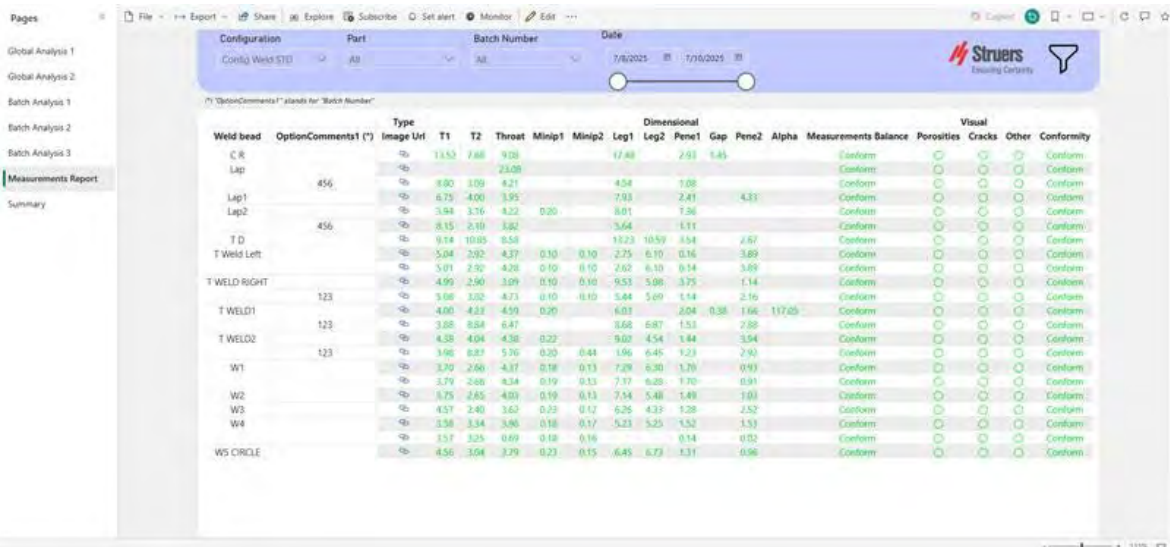
Conformity

Conforms

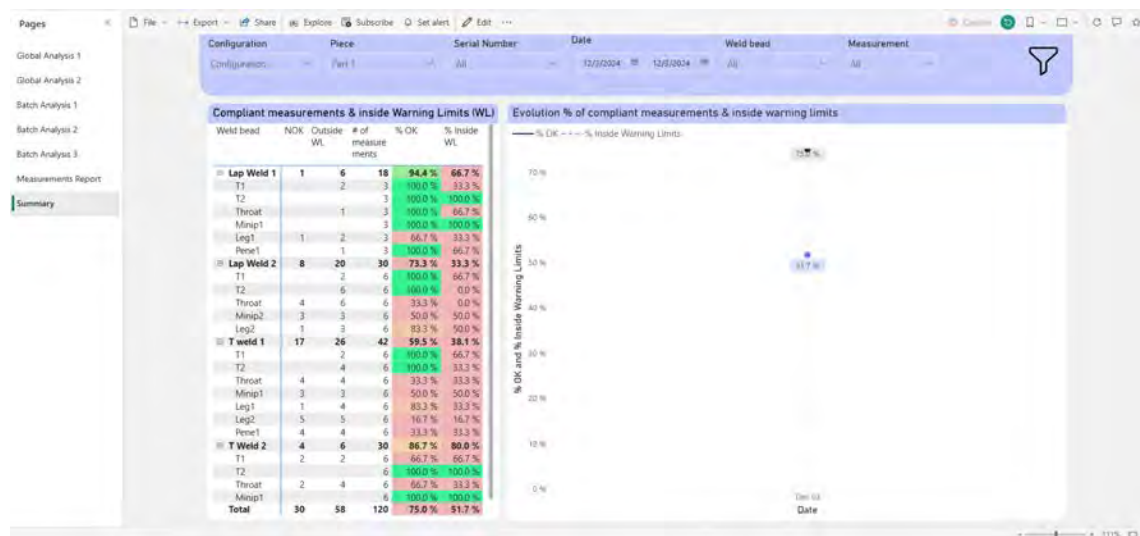
Batch Analysis 3: Simple measurements report



Measurement Report: Syntethic measurement report



Summary: Percentage of conform welds/non-conform welds/inside-action limits welds



27 Technical data

Measurement camera resolution		1700*1080 px
Field of view		From ~ 82 to 1.8 mm (~3.2" to ~ 0.07")
Zoom range		~ 2.5x- ~ 120x optical. Optical zoom / digital zoom combination
Measurement resolution		From 48µm (lower magnification) up to 1µm (higher magnification)
PC recommendations (required, but not included)	Operating software	Windows 10/11, 64 bits
	PC	Intel Core CPU (I3/I5/I7), 16 GB RAM. 1920 x 1080 graphics, Min. 3 x USB 2.0 ports, Min. 1 x USB 3.0 port, Excel 2003 Pro Edition or higher
	Monitor	Minimal 22" Full HD monitor (1920 x 1080)
Data output		CSV, PDF (with virtual printer) Q-DAS export (optional) XML (optional)
Sample weight		Max. 2 kg (4.41 lbs)
Safety standards		CE labelled according to EU directives

Dimensions		35 x 24.5 x 22 cm (13.8 x 9.6 x 8.7")
Weight		4 Kg (9 lbs)
Operating environment	Surrounding temperature	-5-40°C (23-104°F)
	Humidity	10%-90% RH non-condensing
Electrical data	Power supply	100 V AC – 240 V AC, 50/60Hz, single phase
	Power consumption Max. load	< 40W
	Idle	< 1W

28 Manufacturer

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www.struers.com

Responsibility of the manufacturer

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The manufacturer is to be considered responsible for effects on safety, reliability, and performance of the equipment only if the equipment is used, serviced, and maintained in accordance with the instructions for use.

en For translations see
bg За преводи вижте
cs Překlady viz
da Se oversættelser på
de Übersetzungen finden Sie unter
el Για μεταφράσεις, ανατρέξτε στη διεύθυνση
es Para ver las traducciones consulte
et Tõlked leiate aadressilt
fi Katso käännökset osoitteesta
fr Pour les traductions, voir
hr Za prijevode idite na
hu A fordítások itt érhetők el
it Per le traduzioni consultare
ja 翻訳については、
lt Vertimai patalpinti
lv Tulkojumus skatīt
nl Voor vertalingen zie
no For oversættelser se
pl Aby znaleźć tłumaczenia, sprawdź
pt Consulte as traduções disponíveis em
ro Pentru traduceri, consultați
se För översättningar besök
sk Preklady sú dostupné na stránke
sl Za prevode si oglejte
tr Çeviriler için bkz
zh 翻译见

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