

StructureExpert Weld-6 StructureExpert Weld-12

Version 3.30

Instruction Manual

Original Instructions

CE

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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.



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/-12

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

Features:

- inverted optical system
- built-in digital camera
- automatic lighting
- focus
- calibration with set magnification
- software-controlled magnification adjustment
- StructureExpert Weld-6: internal light system with 4 ramps of LED that can be controlled simultaneously or individually
- StructureExpert Weld-12: ring light system and optional coaxial illumination

StructureExpert Weld-6

Field of view from ~ 82 to 1.8 mm (~ 3.2" to ~ 0.07") Equivalent to ~ 2.5x - 120x optical magnification

StructureExpert Weld-12

Field of view from ~ 7.7 to ~ 0.71 mm (~ 0.3" to ~ 0.03") Equivalent to ~ 20x - ~ 240x magnification

3 Installation

Hint



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

4 The display



4.1 The menu panel



Α	Administration	С	General Measurements
В	Weld Bead Measurements	D	Exit

4.2 The main view (camera view)

The main window 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.

4.3 The control panel – overview

•

Use the control panel to manipulate the image you have taken. See also Control panel >9.



Live image Off/Live On

Toggle the button to display the image as live or frozen.

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

Camera

Click this tab to access to the camera controls.

Effects

Click this tab to access the effects settings.

Plan

•

Click this tab to display the drawing associated to the selected weld.

Annotations

Click this tab to add texts and arrows to the image. See Add text and arrows ►64.

4.4 Control panel

4.4.1 The tab Camera

When the camera switches on in **Live On** mode, the control panel becomes active and you can access the camera controls.

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.

	The lighting system is controlled from the software. Use the slider to adjust the light intensity.
	For StructureExpert Weld-6:
	To use the 4 sliders under the top slider, check off the checkbox.
Light	Use the 4 sliders to adjust the light intensity individually for each of the 4 segments, from 0 (no light) to full intensity.
	The units denote the 4 main compass directions:
	N(orth), S(outh), W(est), E(ast).
	For StructureExpert Weld-12:
	The lighting system is a ring light, and coaxial illumination is optional.

Image transformation

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

Construction lines



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

Select one of the construction lines and draw on the live or captured image.

To do so, click the icon you wish to adjust and change the settings. If needed, repeat the process for all icons.



4.4.2 The tab Effects

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

Color saturation



For adjusting color intensity.

-64: No color

+ 64 : High intensity color

Sharpness

For adjusting the detail level in the image.

Default value: 7

Reset

For resetting values to the default values.

Associate Zoom/Weld Bead / 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 overlay / 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 lines is displayed.

This setting requires system administrator rights.

Defined zoom position with saved overlays:



Rotating an image

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

Rotate image

None

- Mirror vertical
- **Mirror horizontal**
- 1. Right-click on the image.
- 2. Select Rotate image.
- Define the horizontal axis and release the mouse. The image is now horizontal.







Leds mode eco

When the checkbox is checked: When an image is captured, the light is switched off.

When the checkbox is not checked: The light is always switched on.

4.4.3 The tab Plan

You can display the drawing associated to the selected weld: Click once on the drawing to re-size it.



4.4.4 The tab Annotations

See also Add text and arrows ►64

4.5 Menu for the administration mode

The application interface is easy to navigate, and repetitive tasks can be configured for quick handling.

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

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



3. The following functions are available:



- A General Description: Defining general settings of the software related to specific customers. Extra measurement definitions. Accuracy.
- **B** New Part: Completely defining specific parts with all weld beads.
- **C** Modify Part: Modifying any weld bead from a part.
- D New Operator: Creating new operator.
- E Operator Management:
 - Managing passwords (adding, deleting, modifying).
 - Managining operators (adding, deleting, modifying).
- F Calibrate: Setting up automatic calibration procedures.
- **G Back**: Exiting administrator mode.
- **H** View the serial number of the equipment, the software version, and the activated options.

4.6 Menu for the measurement mode

1. Click Weld Bead Measurements.



2. The following functions are available:



A Change Configuration

- **B** Save Results
- C Print Weld Report
- D Excel Report
- E DataView
- F Monitoring
- G Reset

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

Fixed 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			

Seven 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

Measurements glossary			
Thickness sheet metal 1		Thickness sheet metal 2	
Throat	Throat	Gap	Gap
Joining angle 1	Alpha	Joining angle 2	Beta
Min penetration sheet 1	MiniP1	Min penetration sheet 2	MiniP2
Weld Bead penetration width 1	Leg1	Weld Bead penetration width 2	Leg2
Penetration sheet metal 1	Pene1	Penetration sheet metal 2	Pene2

There are 12 default measurements in the software, which represent the most common weld measurements.

You can change each measurement title in the **Measurements glossary** (Measurements glossary) area so as to be in compliance with the required standards.



Extra measurements

You can create extra measurements, if needed, 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:

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

For more information about measurements, see Measurement tools >39.

• Add the number of the extra measurement.



Optional comments

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

Optional comments Title 1 Batch_number Mandatory Title 2 Field2 Mandatory Title 3 Field3 Mandatory

These three 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 the **Machine description list** area you can enter the name of each welding machine, or each welding fixture, etc....

Machine description list (1 machine by line)		
Mandatory		
Welding Machine1		
Welding Machine2		
Welding Machine3		
Welding Machine4		

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.

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.

5 Configure the software

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

Enter extra check boxes number:	Add
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.

Measurements type (1 per line)						
Mandatory						
Shift 1						
Shift 2						
Shift 3						
	7.					

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, click the **Save Config** button to save the configuration.

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. Make the required changes and click on **Modify additional information**.

6 Launch the software

• To launch the software, click the icon on the desktop.



7 Create parts and welds

Create a part

1. Click New Part.



- 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.

Fixed 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. Click all the measurements required for the weld bead.



- 3. Check off the **Mandatory** checkboxes, as needed.
- 4. Select drawing options Thickness 1, Thickness 2, Throat Measurement.

Thickckness 1	Thickckness 2	Throat Measurement	Minimun penetration 1	Minimun penetration 2
Lines measurements Gircular measurements Full shape	Lines measurements Circular measurements Full shape	 ● Radius ● Triangle 	O Relative 20 (5%) ▼ ● Fixed 1 • ● dependent • • 50 % of ▼	O Relative 20 (5%) ▼ ● Fixed 1 ● dependent 50 % of
Ask to make all measurements			Thinnest penet	ration

5. Enter the acceptance criteria, if needed.



6. If the option "Min & Max Action Limit" module has been purchased with the system, you also have access to the Action Limit Mininimum 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

7. Click on Add weld bead.

 Part Identification;
 Tweld
 Modify weld bead
 Delete weld bead
 Delete weld bead

 id
 T1
 T2
 Throad
 Gap
 Alpha
 Peta
 MmiP1
 Legt
 Legt
 Pene3
 Pene3
 Undercut
 Undercut
 Weld length

 14
 0/9
 0/90
 0/01
 0/0
 0/00
 0/01
 0/00
 0/00
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Or

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

Or

9. Select an existing weld bead in the list. Modify it as requested. Click on **Modify weld bead**.

Deleting a weld bead

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

The minimum penetration depth feature

The following measurements 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 on 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**.

Mir	nimun penetration 1	Minimun penetration 2				
Relative	20 (5%) 🗸	Relative	20 (5%)			
Fixed	1.2	Fixed	1.5			
dependent50 % of		dependent 50 % of				
	Thinnest penetr	ation				

Fixed value

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

Minimu	un penetration 1	Minimun penetration 2				
 Relative 	20 (5%) 🗸	 Relative 	20 (5%) 🗸			
Fixed	1	Fixed	1			
dependent		 dependent 				
50 % of	→	50 % of	`			

Dependent value for penetration with effective width

Flat metal sheet or circular metal sheet)

Minimun penetration 1	Minimun penetration 2				
● Relative 20 (5%) ✓	 Relative 20 (5%) 				
Fixed 1	Fixed 1				
dependent	♦ dependent				
50 % of 🔽 👻	50 % of 🗸				

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 60% 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** (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) >44 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 mininum 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

Note

Acceptance criteria can also be defined through formulas.



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 L1Cos (cosinus of)Sin (sinus of)

Formulas must refer to the name of the measurements.



Do not use spaces and special characters in measurements names.

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

• Min (minimum of 2 values)

Note

Note

- 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



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 FOR	MULA
A ≥ 0.7 Tmin	A Min Value	=0.7*min(T1,T2)
B ≥ Tmin	B Min Value	=min(T1,T2)
H ≥ Tmin	H Min Value	=0.25*min(T1,T2)
H ≤ 0.5Tmin	H Max Value	=0.5*max(T1,T2)
B ≤ 0.3T1	B Max Value	=0.3*T1
B ≤ 0.3T2	B Max Value	=0.3*T2

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



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 .
- 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.



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

Between : Max. value/Act. Lim Max

Part selection : Nov. Part V		Weld bead selection	T weld orth trangle. N	/		Machine selection :	~		Type: 💙
OP I Class I		Design. :		Hat. 11	н		Width 1 :		Width: 2 I
	t1	12	a (Throat)	h(Gap)	MinPenel	MinPene2	b1 (PeneWth1)	b2 (PenelWth2)	f1 (ActPene1)
Measurements	2.07	3.92	3.69	-	0.20	0.20	-	-	0.27
PSrs.	1/96/2.10	3.96/ 4.00	1.60/1.30	0.00/0.00	0.00/0.00	0.00/ 0.00	2.87/2.87	3.92/3.92	0.20/4.49
Hot.	+	-f-	-f-	-/ 2.00	4	4	-f-	-f-	+
Back Nader									



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

Settings			×
Langage Calibration Color			
	Under Min		
	Action Limit Min		
	Between Min and Max	· ·	
	Action Limit Max	•	
	Above Max	-	
	Font Size :	24	
		Save settings	Close

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

- Part_batch_number_report.xls
- Welds_report.xls

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

epon)
Weld bead	Part	Display report		
			Specific report	
Selected t	template			
Welds_re	eport_Pa	rt123.xls		
Template	list			
Part_bat	ch_numb	er_report.xls		
Welds_re	port.xls	rt123.xls		
			Execute	
			Execute	
			Execute	

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 tab **Plan**.

8 Modify parts and welds

Remove a part from your configuration

- 1. Close the software SEW 6 or 12.
- 2. Go to the software folder in the Windows 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".

🔽 🚞 Your_own_config	16/12/2024 17:00

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

Cordons	16/12/2024 17:01	Dossier de fichiers
Caracteria Results	16/12/2024 17:00	Dossier de fichiers
🚞 Stdrapports	16/12/2024 17:00	Dossier de fichiers

5. Open Cordons to see all the parts.

🚞 newpiece	16/12/2024 17:00
🧰 part1	16/12/2024 17:00
🚞 your_part1	16/12/2024 17:01

6. To delete one of the parts, tick off the part to delete and right-click on 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 to the Cordons folder, you can use the part in the future

Add new part

1. Click New Part.



		Use	er : admin	Date : 25/03/	2025 11:20:47	Configural	tion : DEMO AL ini								
Selection Twe	eld 🗸														Duplicate part
Weld bead ident	tification				Operati	ion									
Part_class					Designa	stion					Add a	a plan		plano	
Material 1					Materia	al 2					,	x			
Info1					Info2										
															Wold In
Sel.	- V												UnderGarre	Undertakt	The second
Mandatory															
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
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	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	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	0.00	0.00	0.00
 Lines measu Circular mea Full shape 	asurements		Circu	s measurements ular measurement Il shape	ts		 Radius Triangle 		Fixed depender 50 % of	1 nt))		Fixed dependent 50 % of	1	
Ask to make all	measuremen	nts									,	Thinnest penetral	tion		
Part identification:		Tweld					Add we	ld bead		Mor	dify weld bead		De	elete weld bead	
															Weld_lengt
							0/0LR20 (5%)	0/0LR20 (5%)							
15	0/0	0/0	0/0 T	0/0	0/0	0/0	0/0LR20 (5%)	0/0LR20 (5%)	0/0	0/0	0/0	0/0	0/0	0/0	0/0
16_1	0/0	0/0	0/0 L	0/0	0/0	0/0	0/0LR20 (5%)	0/0LR20 (5%)	0/0	0/0	0/0	0/0	0/0	0/0	0/0
16_2	0/0	0/0	0/0 L	0/0	0/0	0/0	0/0LR20 (5%)	0/0LR20 (5%)	0/0	0/0	0/0	0/0	0/0	0/0	0/0
16_5	0/0	0/0	0/01	0/0	0/0	0/0	0/01 820 (5%)	0/01820 (5%)	0/0	0/0	0/0	0/0	0/0	0/0	0/0
16.5	0/0	0/0	0/01	0/0	0/0	0/0	0/01820 (5%)	0/01820 (5%)	0/0	0/0	0/0	0/0	0/0	0/0	0/0
2 2A	0/0	0/0	0/0 T	0/0	0/0	0/0	0/0LR20 (5%)	0/0LR20 (5%)	0/0	0/0	0/0	0/0	0/0	0/0	0/0
2 2B			0/0 T				0/0LR20 (5%)	0/0LR20 (5%)							
							0/0LR20 (5%)	0/0LR20 (5%)							
4.1	0/0	0/0	0/от	0/0	0/0	0/0	0/01 020 (5%)	0/01020 (5%)	0/0	0/0	0/0	0/0	0/0	0/0	0/0

Add a weld bead

See the procedure for creating a weld bead.

Modifying a weld bead

- 1. Select an existing weld bead in the above table
- 2. Make the changes.
- 3. Click on Modify weld bead.



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.

Deleting a weld bead

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

9 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.



10 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 New Operator.



2. Enter the name of the operator in the Name field.

		INICKNESS SNEEL MEDALZ	
[Change password		×
	Name	admin	
	Enter password		
	New password		
	Confirm new password		
-			
	🔽 User have per	mission to change the results	
	Cancel	OK	
<u> </u>			

- 3. Enter the password of the operator in the **Enter new password** field.
- 4. Confirm the password in the **Confirm new password** (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 The DataView module (option) ►88

Modify an operator's access rights

1. Click Operator Management.



- 2. Select the operator from the **Operator list** drop-down list.
- 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 check mark in the box **User have permission to change the results files**, the operator is authorized to remove measurements and to redo measurements in the dataview module. See The DataView module (option) ►88.

Delete an operator

1. Click Operator Management.



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

11 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 is as follows:

StructureExpert Weld-6	50 mm long with 1 mm divisions
StructureExpert Weld-12	10 mm long with 0.2 mm divisions

The software automatically calculates the calibration for each zoom position.

StructureExpert Weld-6	Zoom range covers a field of view (FOV) from 82 mm to 1.8 mm
StructureExpert Weld-12	Zoom range covers a field of view (FOV) from 7.6 mm to 0.7 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 icon **Calibrate**.



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 >9.



For StructureExpert Weld-12 systems, additional steps are required before calibration of the system. See the document "Optimising Settings WeldingExpert-11.pdf".

11.1 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**.

History		N		- 🗆 ×			
	Calibration history						
	Result	Date	Time	Report file			
	Successful			20180214155354.pdf			
	Successful			20180214155923.pdf			
0				,			

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

2. Open a calibration report.

History				- 0		
	Calibration history					
	Result	Date	Time	Report file		
	Successful	14/02/2018	15:59	20180214155923.pdf		

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

Struc	tureExp	ert				1	Struers
Report	of calibra	tion					
Calibratio	on date			02/14/201	18		
Calibrati	on time			15:53			
Calibrati	on plate seria	al number					
Calibrati	on certificatio	n number					
Data of i	CELIO	AT HUITIDET		11/02/201	18		
	soue			14/02/20	10		
Date of r	iext calibratio	on		14/02/201	18		
F.S(mm)	Z.P(steps)	10 -					10
9.207	1000	10					
9.15	2000	9	_				
7.577	3000	1					
7.034	4000	8	-				
6.504	5000						
5.991	6000	7	1				
5.5	7000	8					
5.036	8000						
4.583	9000	5		-			
4.15/	10000						
3.368	12000	4					
3.011	13000	2					
2.694	14000				~		
2.406	15000	2	_		-		
2.155	16000					The	
1.936	17000	1	-				
1.75	18000	1000	15. 19.727	5 20 202	220 28	134 10202	202 00000 000
1.584	19000	0 1 1 1 1	5000	10000	15000	00000	05000 00
1.442	20000	U	DUUG	10000	10000	20000	20000 30
1.322	22000			-			
1.119	23000	x-axis =Zoom	position(Z.	P)nm			
1.036	24000	Y-axis =Field :	size(F.S)ste	eps			
0.961	25000						
0.894	26000						
	07000						

Adding additional information to the calibration report

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

1. In the installation folder of the system, launch **Settings.exe**.

2. Click the tab **Calibration** to add information.

Settings	×
Langage Calibration Color Check Box Extra tools XML/JSON	
Calibration frequency:	1
Ask to do calibration after every	
Calibration certificate :	1
Calibration plate serial number	
Certification number	
Date of issue 03/05/2019	
Date of next calibration 03/05/2019	
Link of certificate	
Browse	
Save settings Close	

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.

Exiting administrator mode

1. Click **Back** to exit administrator mode.



12 Measurement tools



Hint

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



Hint

Hint

Measurements can be modified using the white handles of drawings.



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 no have to move the labels on the screen but it is possible to move them as you wish.

12.1 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 on the measurement title in the table. All the measurements lines and results are removed.

12.2 Single parallel lines

Measurement of the gap (b) and additional measurements

- 1. Click on 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).

12.3 Single line

Measurement of the throat and additional measurements

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

12.4 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.



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.

12.5 Penetration width

- 1. Click the **L1** title in the datasheet. 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 on the line and move it to obtain a better presentation.



A Width penetration

12.6 Penetration – effective width

For detailed information, see Penetration – Effective width in Create parts and welds ►21

12.7 Joining angle

- 1. Click the **Alpha** or **Beta** title in the data sheet to select the measurement.
- 2. In the image:
 - Click on 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°

12.8 Throat (inscribed circle)

This is usually denoted as **G**.

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

12.9 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.





12.10 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.



12.11 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.

12.12 Checkbox

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.

	Parallel	
	Line	
	Angle	
'	Region (Area)	
	Circle (Diameter)	
	Circle (center)	
	Triangle	
Thickness sheet metal 2	Set Square	
Gap	Checkbox	
r	keyboard input	
Joining angle 2	Porosity	
Min penetration sheet 2	Formula	
Weld Bead penetration width 2	Line Free	
Penetration sheet metal 2	PolyLine	
	Arc length	
	Leg length	
	Circle (radius)	
	AIS	
Undercut2	Checkbox 🗸	

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

Changing 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
✓	V	
0.20	CHK:OK	0.00
0.00	CHK:NCK	0.00
0.00	0.00	0.00
0.00	0.00	0.00



12.13 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.

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

Part selection Tweld	Weld bead select	tion 14 🗸 🗸	Machine selection	~	Туре	м	Rect
Operation :	Part_class :	Designation :		Material 1 :	Material 2 :	Info1 :	Info2 :
	т1	T2	Throat	MiniP1	Leg1	Pene1	Weld_length
Measurements							4
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.							
→ Batch number:			Field2 :		Field3 :		

12.14 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)

Porosity	Porosity	✓ Area	ν Min. Diam. (μm) 500
		% Area	
		Count	
		Max	

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

12.14.1 Step-by-step porosity measurement

Porosity					
Porosity area selection					
Manually Click to draw a region of interest (polygon).					
Auto Draw a rectangle around the weld seam					
Delete Add Draw a freehand line to indicate the area to add/remove					
Threshold Porosity selection (green)					
Delete objets Add Objects					
🎽 😵 😽 🔍 O ର 🗸					
See original image					
Cancel Validate					

Manually

Do manual corrections to detect the entire weld seam 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 seam detection.



3. Double click to close the polygon.



Auto

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

• Draw a rectangle around the weld seam.



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 on the icon, and click on 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 seam area.



12.15 Formula

Use a formula to create a new "measurement" which is the result of a calculation between two or several other measurements.

Example



For more information about the use of formulas, see Acceptance criteria with formulas in section Create parts and welds ►21.

12.16 Line free

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



12.17 Poly line

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



12.18 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.



12.19 Leg length

See Penetration width ►42.

12.20 Circle radius

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



13 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 Weld Bead Measurements.



- 2. In the **Operator**, 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...

13.1 Drawing properties

Change the color and thickness of each drawing tool

- 1. Right-click on 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 "Annotations"
- 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.

Camera			Annotatio	ons
T	2			
		Line		
Fill				
Cole	or:	-		
•	Transpare	ent		
Lino –				
Line -				
Col	or:		·	
Thic	kness :	0	▲ ▼	
\top				

14 Step-by-step measurement training

Make sure that the correct configuration is selected:

• Select a part ►60

- Select a weld bead ►60
- Select a machine ►61
- Select the measurement type ►61(option)
- Capturing an image ►62
- Camera and light settings ►62 (option)
- Image size ►62
- Weld bead measurement with predefined template -63
- Additional information ►63
- Add comments and check boxes -63
- Add text and arrows ►64
- Add measurement results to the image **~**65.
- Save the results ►67

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.

14.1 Select a part

• Select the part from the drop-down menu.

Weld bead selection

Part selection V Weld bead selection V Machine selection V Type V M Rect

14.2 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.

Machine selection



14.3 Select a machine

Selecting the welding machine is important for tracking data.

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

Machine selection	Welding_Machine1 🗸	Туре	~

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

Machine selection	~
	Welding Machine1
	Welding Machine2
	Welding Machine3
	Welding Machine4



Hint

You can rename the machine in your configuration.



Note

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

14.4 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).



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

14.5 Capturing an image

Note

1. Click Live On.

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

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

14.6 Camera and light settings

1. 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).

14.7 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 on 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.

14.8 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 keyboard key to draw a straight line

14.9 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.

14.10 Add comments and check boxes

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

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

- Porosities
- Cracks
- Etc.

:::::Comments Area ::::::	Porosities
Merge drawings	Merge measurements

Comments and check boxes are shown in the report and in the Excel spreadsheet.

14.11 Add text and arrows

The panel on the right side of the screen displays the tab **Camera** as well as the tab **Annotations**. You can always move, change, or delete a graphical overlay.

Before annotation you must configure colors and font size.

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



Arrows

- 1. To insert an arrow, click the arrow icon.
- 2. Then click on the image.



3. To change or move an arrow, use the handles.



Text

1. To insert a text, click the text icon. The text will be placed in a text frame.



- 2. 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.
- 3. When you release the mouse, you can write the text at the position of the blinking cursor.
- 4. To move a text area, select it and drop it in the desired position.
- 5. To change a text, press the Ctrl key 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 \sim 65 It also applies to measurement labels that you can modify their size.

14.12 Add measurement results to the image

You can manually add a selected measurement exactly where it is required in the image. Click on 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.

Measurements



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...).



14.13 Save the results

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

1. Select Save Results.



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

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 C	344 MCA Wagon	Naht 3_2
SB	2.11	The stor
X	2.71	a starter
g	0.23	
b1	6.49	
bB	0.61	12.24
bA.	3.07	1.3

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 connstruction 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

15 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 > 102

Software configuration

Configuration : Ford MCA 18_01_2011.ini

The installation folder

29/04/2013 10:5		
30/04/2013 16:		
29/04/2013 10:5		
29/04/2013 10:5		
29/04/2013 10:5		
29/04/2013 10:		
29/04/2013 10:5		

The configuration folder

Cordons	
Rapports	
Results	
Stdrapports	

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

Ford C344	Naht 3_1
Ford C344 MCA Grand	Naht 3 2
Ford C344 MCA Wagon	Naht 3_3
	Naht 3_4
	Naht 3_5
	Naht 4_1
	Naht 4_2
	Naht 1_3
	Naht 4_4
	Naht 4_5
	Naht 5_1
	Naht 5_2
	Naht 5_3
	Naht 5_4
	Naht 5_5

The Results folder

Ford C344 MCA Wagon_Naht 3_1	Ford C344 MCA Wagon_Naht 3_1.xls
Ford C344 MCA Wagon_Naht 3_2	Ford C344 MCA Wagon_Naht 3_2.xls
Ford C344 MCA Wagon_Naht 3_3	Ford C344 MCA Wagon_Naht 3_3.xls
퉬 Ford C344 MCA Wagon_Naht 4_1	Ford C344 MCA Wagon Naht 4 1.xls
Ford C344 MCA Wagon_Naht 4_2	Ford C344 MCA Wagon Nabt 4 2.xls
🍌 Ford C344 MCA Wagon_Naht 4_3	Ford C344 MCA Wagon Nabt 4 3 vis
Ford C344 MCA Wagon_Naht 32_1	Tota Cotte Mick Wagon_Nank 4_5.Xis
Ford C344 MCA Wagon Naht 32 2	Ford C344 MCA Wagon_Naht 32_1.xl
-	Ford C344 MCA Wagon_Naht 32_2.xl

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



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 The DataView module (option) >88.

16 Reports

16.1 Generate an HTML report

Note

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

To access this function, click Print Weld Report.



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.

16.2 Generate an Excel report

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

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



Authorizing Excel macros

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

1. Select File > Options > Trust Center.

cel Options			?	>
General Formulas	Help keep your documents safe and your computer secure and healthy.			
Data	Security & more			
Proofing	Visit Office.com to learn more about protecting your privacy and security.			
Save	Microsoft Trust Center			
Language	Microsoft Excel Trust Center			
Accessibility Advanced	The Trust Center contains security and privacy settings. These settings help keep your computer secure. We recommend that you do not change these settings.	<u>T</u> rust Center	Setting	s
Customize Ribbon				
Quick Access Toolbar				
Add-ins				
Trust Center				
		ок	Can	nce

- 2. Select Trust Center Settings.
- 3. Select Macro settings.

Trust Center			?	×
Trusted Publishers	Macro Settings			
Trusted Locations Trusted Documents Trusted Add-in Catalogs	 Disable VBA macros without notification Disable VBA macros with notification Disable VBA macros except digitally signed macros 			
Add-ins	• Enable VBA macros (not recommended; potentially dangerous code can run)			
ActiveX Settings	Enable Excel 4.0 macros when VBA macros are enabled			
Protected View	Developer Macro Settings			
Message Bar	✓ Trust access to the <u>V</u> BA project object model			
External Content				
File Block Settings				
Privacy Options				
Form-based Sign-in				
		ОК	Car	ncel

4. Check off the check box Trust access to the VBA project object model.

Change the logo in an Excel report

To add your own logo to the Excel report:

- Go to C:\Struers\StructureExpert Weld\Welding\Reports\En\Xml\ExcelBead (En = the language folder).
- 2. Open the file **Weld_bead_report_template**.

🚞 Reports	12/02/2025 11:25
📑 Weld_bead_report_template	25/03/2025 16:56

- 3. Right-click on 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.


16.3 Generate a weld bead report

Use this function to generate a weld bead report.

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



- Click the tab Weld bead 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.

Date		10					
	03/2018	11h32m	•	Machine			
User				Туре			and the second sec
Part	New	/_Part		Weld bea	d T weld wi	th tria	ngle
Detailed info	rmatio	ns]	Information	-	Value ~
OP		sen.		1	Batch_Number		
Class							
Design.							
Mat. 1						_	
Mat. 2							
vviatn 1]			
Туре 👻	Min 👻	Max 🔻	Measure -	Result: -	Visual defects	-	Value -
t1	0	-	2,05	PASS	Porosities		0
t2	0	-	3,94	PASS	Cracks	3	0
a(throat)	1,43	-	3,61	PASS	Other visual defe	cts	0
h(gap)	0	2.00	-	PASS			
minpene1	0	-	0,2	PASS		_	
himpenez	2.05	-	0,2	PASS	-		
b7(penewth7	2,05		5	DASS		-	
f1(actpene1)	0.2	2	0.24	PASS		-	
f2(actpene2)	0.2	-	0.86	PASS			
New Part 11 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14	Tweld with 0 2.06 3.64 3.64 0.20 0.20 0.20 0.21 0.21 0.21 0.21 0.21	iangie					

16.4 Work with Excel and weld bead report templates

1. Launch Excel.



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

16.5 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 **Excel Report**.



- Click the tab **Part** 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

Note

Operation



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

1. Select your part and the filters.

art	
	•
newpiece part1	
Start date 11 February	✓ 2025 ▼
End date 11 February	• 2025 •
	Туре
Batch number	Al
	Machine
,	Al
	Save in pdf
I	Count of

2. Click OK.

The report is separated in 2 sections (tabs):

First section

Second section

Images of all the measured weld beads with measures and comments

Synopsis of all the measured values and check boxes

	25/07/2024 ad	4 18h58m48s min			Machine		
	ad	min			T		
	Maria				Type		
	New	/_Part			Weld bead		
ations]	Information	Value 🔻
						OP	
]		
lin 👻	Act Min 👻	Act Max 👻	Max 👻	Measure 👻	Results 👻	Visual defec 🔻	Value 👻
0	-	-	-	8.76	FAIL		
0	-	-	-	6.05	FAIL		
4,24	-	-	-	-	PASS		
0	-	-	2.00	-	PASS		
0	-	-	-	1.75	FAIL		
0	-	-	-	0.50	FAIL		
8,76	-	-	-	-	PASS		
6,05	-	-	-	-	PASS		
1,75	-	-	-	3.07	FAIL		
0,2	-	-	-	-	PASS		
	iin ▼ 0 4,24 0 0 0 8,76 6,05 1,75 0,2	tions in ▼ Act Min ▼ 0 - 4,24 - 0 - 4,24 - 0 - 8,76 - 6,05 - 1,75 - 0,2 -	ations in ▼ Act Min ▼ Act Max ▼ 0 4,24 4,24 0 4,24 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	attions Act Min Act Max Max Max 0 - - - - 0 - - - - 0 - - - - 0 - - 2.00 - - 0 - - - - - - 0 - </td <td>attions Act Min Act Max Max Measure 0 - - 6 6 0 - - 6 6 0 - - 6 6 0 - - 6 6 1 - - 1 6 1 - 2.00 - 1 0 - - 1 1 0 - - 1 1 1 0 - - 1 1 1 1 0 - - 1 <td< td=""><td>attions attions in Act Min Act Max Max Measure Results P 0 - - 5.76 FAIL P 0 - - 6.05 FAIL P 0 - - 0 FAIL P 0 - - 0 FAIL P 0 - - 0 FAIL P</td><td>attions Information Information OP OP O</td></td<></td>	attions Act Min Act Max Max Measure 0 - - 6 6 0 - - 6 6 0 - - 6 6 0 - - 6 6 1 - - 1 6 1 - 2.00 - 1 0 - - 1 1 0 - - 1 1 1 0 - - 1 1 1 1 0 - - 1 <td< td=""><td>attions attions in Act Min Act Max Max Measure Results P 0 - - 5.76 FAIL P 0 - - 6.05 FAIL P 0 - - 0 FAIL P 0 - - 0 FAIL P 0 - - 0 FAIL P</td><td>attions Information Information OP OP O</td></td<>	attions attions in Act Min Act Max Max Measure Results P 0 - - 5.76 FAIL P 0 - - 6.05 FAIL P 0 - - 0 FAIL P 0 - - 0 FAIL P 0 - - 0 FAIL P	attions Information Information OP OP O

16.6 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.

Welding > Reports > En > models					
	^	Name	^		
		🔳 logo.bmp			
		📧 monitor.xls			
		Part.xls			
		획 welds.xls			

2. 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 tab **Developer**. (Make sure that it is activated in your Exel settings).



- 6. Click on Visual Basic.
- 7. Click on Module 1.

nicrosoft Visual Basic pour Applications - [M	odule1 (Code)]				
Eichier Edition Affichage Insertion	Forma <u>t D</u> ébogage E <u>x</u>	écution <u>O</u> utils	<u>C</u> ompléments	Fe <u>n</u> être <u>?</u>	
🛛 🖬 • 🔜 🕹 🖦 🛍 🗠 (*) (*) •		; 🛪 🕜 🛛		Ŧ	
Projet - VBAProject	X (Génér	ral)			~ (Dé
VBAProject (Welds_report.xls) Microsoft Excel Objets Microsoft Excel Objets Field (Feuil 1) TistWorkbook Modules Modules Modules	Pu Pu	bblic ConfigAn bblic OnPdfReg bblic pdfFile bblic piece An bblic OnlyWidd bblic MONITORN bblic PintMen bblic PiecePat bblic TitleStn bblic TitleStn bblic TitleStn	rchive As St po As Booles As String s String thResult As ING As Boole sBeads As In th As String) As String rlot1 As St rlot2 As St rlot3 As St	Boolean ean teger g ring ring ring	

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

End Sub	Rechercher				×
Public Sub Perform Report() Dim newName As String	Rechercher -	welds xls		~	
LogoRatio = -1#		en cours	Sens: Tous	~	Annuler
Set macroBook = ThisWorkboo If MONITORING = True Then	Module en	cours	Mot entier		Remplacer
End If	O Projet en o Texte séleo	ours ctionné	Critères spéciaux		Aide
<pre>path = ThisWorkbook.Path Model = pathLang & "\models'</pre>	\Welds.xls"]			

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

End Sub	Rechercher					×
Public Sub Perform_Report() Dim newName As String	<u>R</u> echercher :	welds.xls			~	Sui <u>v</u> ant
LogoRatio = -1# Set macroBook = ThisWorkboo If MONITORING = True Then piece = monitor	Dans Pro <u>c</u> édure Mo <u>d</u> ule en o Proiet en o	en cours cours ours	Sens :	Tous ier ter la casse	~	Annuler R <u>e</u> mplacer
End If 'Open Model worksheet	○ Te <u>x</u> te sélec	tionné	Critères	s spéciaux		<u>A</u> ide
path = ThisWorkbook.Path						
Model = pathLang & "\models'	welds_Part	123 .xl s	в "			

- 10. Close the window Visual Basic.
- 11. Save the Excel file in a new name, e.g. "Welds_report_Part123.xls".

Enregistrer sous						×
← → ~ ↑	(C:) > Struers > StructureExpert Weld-S	3291 → Welding → Reports	⇒ Part v	ð P	Rechercher d	ans : Part
Organiser 🔻 Nouveau	dossier					ii • 🔞
Cz ^	Nom	Modifié le	Туре	Taille		
De En Evolutio Fr Genera Hu It Jp	 Part, batch_number_report.xls Welds_report.xls 	07/10/2020 15:18 06/04/2021 09:40	Feuille de calcul Feuille de calcul	125 Ко 116 Ко		
Nom de fichier : Weld	s_report_Part123k/ls					~
Type: Classe	tur Excel 97 - 2003 (*.xls)					Ý
Auteurs : Your	User Name Mots clés :)]Enregistrer les miniatures	Ajoutez un mot-clé	Titre : Ajoutez un	titre		
 Masquer les dossiers 			Out	ils 👻 🛃	nregistrer	Annuler

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

Report					\times
Weld bead	Part	Display report			
				Specific report	
Selected to	emplate				
Welds_re	port_Pa	rt123.xls			
Template i	ist				
Part_bate Welds_re	h_numb port.xls	er_report.xls			
Welds_re	port_Pa	rt123.xls			
				Execute	
			Close		

13. Run the report as normal.

16.7 View a part report

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



2. Click the tab **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**.

onfiguration		Use date		Configuration	We	lding_config		
CAN	▶ 25	5/07/2024		Cordon Operation	Weld1		Material 1 Material 2	
Part All 🗸	Type All	Machine	· · · ·	Part_class Designation		_	Info1 Info2	
т	N°série	date_j_	m_a	Filters : Start date	06-Apr-21		Other filters : Comment_0	
		Reset	Reports list	5 Type	All			
AN_type10_July_2024.a AN_type10_July_2024.a AN_type10_July_2024.a AN_type10_July_2024.t AN_type10_July_2024.t AN_type10_July_2024.t AN_type10_July_2024.a AN_type11_July_2024.a AN_type11_July_2024.a	z.xisx uuem.xlisx est1.xlisx est2.xlisx est3.xlisx dsx dsx dsx xlisx xlisx sx sx						2	
AN_type1_July_2024.1. AN_type1_July_2024.4. AN_type7_July_2024.xl AN_type7_July_2024.xl AN_type8_July_2024.xl -\$CAN_type10_July_202	sx 4.auem.xlsx							

16.8 Monitoring and process tracking

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 Monitoring.



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.

🗹 Weld bead	Measure
 ✓ S1 ✓ S2 ✓ S3 ✓ S4 	✓ t1 ✓ bump1 ✓ t2 ✓ bump2 ✓ Peff p1 leg1 Alpha p2 Beta poro MinPene1 eq1 MinPene2 eq2 b1(PeneWth1) eq3 b2(PeneWth2) f1(ActPene1) f2(ActPene2) ✓ ✓ Wt Wt_eq ✓ depth
	Apply filters

Filter selection

- 1. Select the filters you wish to use:
 - Machine
 - Туре
 - 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



- **B** Defined minimum value (if set)
- **C** Measurement evolution

- **D** Weld bead name
- E Defined maximum value (if set)

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
Mean	Mean value
Std Dev	Standard deviation
95% Conf Interv.	95% confidence interval
Ср	Cp value
Cpk	Cpk value
СрU	CpU value (if only maximum value is defined)
CpL	CpL value (if only minimum value is defined)
Value	Description
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.

16.9 Save results and reports

Create a complete part report

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



leport	6)
Part				
			Specific report	
Selected temp	ate			
Template list				
Part_batch_n	umber_report.xls			
Welds_report.	umber_report_ActL.xis .xis			
weids_report	_ACTL.XIS			
			Execute	
			arread the	
	Г	Close		
	L	Close		



Create a complete monitoring report

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

	rarerepore
1	Monitoring report
	Export data

		PART	Cartouche soudi From	e EC
Cordon hfo1 hfo2 hfo3 hfo4 hfo5 hfo6	2 Palier Droit 7 7222222222222 73 74 75 75 76	Machine Conformity User Type Batch number		Visual defects:
Aeasure	t2_ep_palier		Measure	B_largeur_cordon
ipec, Max ipec, Max ipec, Min din value daa value daan titoev 152 Conf. Interv ipk	132 0.533 0.317 0.043 0.044 0.721 0.043 0.044 0.044 04f topic		n Spec. Mas Spec. Min Min value Mis value Mis value Stopev Stor Conf. Inter Cp Cpk	132 Formula 0,722 1033 0,668 0,056 0,656 0,055 Off topic Off topic
Aeasure	b largeur pe	ne	Measure	S nene
whentytytyt	MMA 11-0000		//www.w.ln/ly/vi	+2719 WWWWW 132 0.32

Export data

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

Part report
Monitoring rep
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
Lartouche_EC_Cartouche soudée ECAll_Mes.csv	05/03/2018 12:11

A .csv file is created for each selected weld.

n	174																														
and on	intel .	Info2	[pin]	intell	InfoS	Intelli	Into7																								
Paller Ga	n. 1	2.22E+1	0	3	4	5	6	7																							
4	20					Mesures	T1	12	Throat	Gap	Alpha	Beta	MnP1	MnP2	Leg1	Leg2	Penel	Pene2	12_ep_pal	le 12_ep_flas	B, largeur,	b, largeur,	s S.pene	Libre_1	Libre_2	Lbre_3	Souther	Porosité	Machine	Commervis	Image
	2					Mn.		0	0	0	0	0	0	0	0	0	0	0	0 0	0 0	\$B17+0.00	2.0.32	0.32		0	0	0				
loer	Day of Year	Bay	Month	Year	Type	Max.			-					-		-			-	-			-				0				
						Use		0	0	1	0	0	0	0	0	0	0	0	0	1 0		1	1	1	0	0	0				
NV.	3		3 January	201	8 Cart FT31	3 13h28m		0	0	0	0	0	0	0	0	0	0	0	0 0.72	0	0.716	0.359	0.503		0	0	0	0	0 Kepler 1		Canouche soudée EC_1Pa
w	3		3 January	201	8 Cart F141	2 1h3in		0	0	0	0	0	0	0	0	0	0	0	0.0.719	0	0.731	0.41	0.508		0	0	0 1	0	0 Kepler 2		Cantouche soudée EC_1Pa
w	3		3 January	201	8 CartF141	2 19/35m		0	0	0	0	0	0	0	0	0	0	0	0 0.715	0	0.809	0.386	0.509		0	0	0 1	0	O Kepler 3		Cartouche zoudée EC_1Pa
i	3		3 January	201	8 Cart F14L	2 13h48m		0	0	0	0	0	0	0	0	0	0	0	0.0.752	0	0.831	0.429	0.551		0	0	0 1	0	0 Kepler 4		Canouche soudée EC_1Pa
	3		3 January	201	8 Cart F13L	2 14h44m		0	0	0	0	0	0	0	0	0	0	0	0 0.722	0	0.858	0.432	0.552		0	0	0	0	O Kepler 4		Canouche soudée EC_1Ps
	3.		3 January	201	8 Cart FT3L	2 16h17m		0	0	0	0	0	0	0	0	0	0	0	0.0.716	0	0.791	0.394	0.543		0	0	0	0	O Kepler 4		Cartouche soudée EC_1Pa
	3		3 January	201	8 Cart FT31	2 17h05m		0	0	0	0	0	0	0	0	0	0	0	0 0.708	0	0.791	0.415	0.519		0	0	0 1	0	0 Kepler 4		Canouche soudée EC_1Pa
í	3		3 January	201	0 Cart FI3L	2 17h50m		0	0	0	0	0	0	0	0	0	0	0	0.0.685	0	0.781	0.397	0.519		0	0	0	0	O Kepler 4		Canouche zoudée EC_1Pi
	3		3 January	201	8 Carl FT3L	2 Tih Mm		0	0	0	0	0	0	0	0	0	0	0	0.0.699	0	0.749	0.395	0.498		0	0	0 1	0	0 Kecler 4		Cartouche soudée EC. 1Pa
	3		3 January	201	8 Cart FT31	2 19624m		0	0	0	0	0	0	0	0	0	0	0	0.0.694	0	0.766	0.391	0.466		0	0	0 1	0	O Kepler 4		Canouche soudée EC_1Pa
1	3		3 January	201	8 Cart F14L	2 20h05m		0	0	0	0	0	0	0	0	0	0	0	0.0.744	0	0.817	0.41	0.552		0	0	0 1	0	O Kepler 3		Canouche zoudée EC_1Pa
W.	- 4		4 January	201	0 Cart/Ft0L	2 Thim		0	0	0	0	0	0	0	0	0	0	0	0 0.723	0	0.896	0.365	0.493		0	0	0	0	0 Kepler 1		Cartouche soudée EC_1Pa
	4		d January	201	8 Cart FSIL	2 12h18m		0	0	0	0	0	0	0	0	0	0	0	0 0.756	0	0.878	0.407	0.496		0	0	0	0	O Kepler 2		Cancuche soudée EC_1Pa
14	4		4 January	201	8 Cart F14L	2 12h22m		0	0	0	0	0	0	0	0	0	0	0	0.0.729	0	0.765	0.376	0.525		0	0	0	0	0 Kepler 3		Canouche zoudée EC_1Pa
w.	5		5 January	201	0 Carl FML	2 19-04m		0	0	0	0	0	0	0	0	0	0	0	0 0.721	0	0.937	0.396	0.536		0	0	0 1	0	O Kepler 1		Cartouche soudée EC., 1P.
	5		S January	201	8 Cart FML	2 19-07m		0	0	0	0	0	0	0	0	0	0	0	0 0.741	0	0.841	0.396	0 503		0	0	0 1	0	0 Keeler 2		Canouche soudée EC_1P
14	5		5 January	201	8 Cart F14L	2 11h 10m		0	0	0	0	0	0	0	0	0	0	0	0 0.724	0	0.894	0.386	0.505		0	0	0 1	0	0 Kecler 3		Canouche zoudée EC. 1Pa
	5		5 January	201	Cat FT3L	2 13h49m		0	0	0	0	0	0	0	0	0	0	0	0 0.714	0	0.825	0.419	0.555		0	0	0 1	0	O Kepler 4		Cartouche soudée EC., 1P.
	8	-	8 January	201	8 Cart F14L	2 07h54m		0	0	0	0	0	0	0	0	0	0	0	0 0 723	0	0.854	0.436	0.52		0	0	0	0	0 Kecler 2		Canouche soudie EC. 1P
	8	-	8 January	201	8 Cart F14L	2 07h59m		0	0	0	0	0	0	0	0	0	0	0	0 0.719	0	0.834	0.406	0.472		0	0	0 1	0	0 Kepler 3		Canouche zoudée EC., 1P.
	0	-	0 January	201	Cat FUL	2 009-03m		0	0	0	0	0	0	0	0	0	0	0	0 0.722	0	0.783	0.405	0.535		0	0	0 1	0	O Keoler 1		Cartouche soudie EC 1Pa
	9		9 January	201	8 Cart F14L	2 07b17m		0	0	0	0	0	0	0	0	0	0	0	0.0.686	0	0.782	0.403	0.542		0	0	0	0	0 Kecler 1		Cancuche soudile EC 1Pa
	9		9 January	201	0 Cart F14L	2 07521m		0	0	0	0	0	0	0	0	0	0	0	0.0.707	0	0.895	0.443	0.523		0	0	0 1	0	O Kepler 2		Cantouche zoudée EC. 1Pa
	9		3 January	201	Cat FML	2 07h26m		0	0	0	0	0	0	0	0	0	0	0	0 0.712	0	0.000	0.429	0.510		0	0	0 1	0	O Keoler 3		Catouche soudie EC 1Pa
			3 January	201	8 Cart FT31	2 19-20m		0	0	0	0	0	0	0	0	0	0	0	0 0 703	0	0.825	0.422	0.525		0	0	0	0	O Kecler 6		Canceache sceadile EC 1Pa
	3		3 January	201	0 Carl F131	2 12h00m		0	0	0	0	0	0	0	0	0	0	0	0.0.766	0	0.829	0.402	0.450		0	0	0	0	O Kecler 6		Cartouche soudie EC, 1Pa
	9		January C	201	Carl FTIL	2 Mbilles		0	0	0	D	0	0	0	0	0	0	0	0 0.747	0	0.827	0.422	0.5%		0	0	0 1	0	O Keoles 6		Catmarke smaller EC 1Pa
	3		3 January	201	Cast F111	2 17h42m		0	0	0	0	0	0	0	0	0	0	0	0.0.683	0	0.945	0.410	0.545		0	0	0	0	O Kenler 6		Catrache stratie EC 1Pa
-	3		3 January	201	Carl Fill	2 17hddm		0	0	0	0	0	0	0	0	0	0	0	0.07	0	0.040	0.443	0.550		0	0	0 1	0	O Kenler 6		Catrache matie FC 1Pa
	9		2 January	201	E Cast FTIL	2 10-02m		0	0	0	0	0	0	0	0	0	0	0	0.0.65	0	0.878	0.38	0.43		0	0	0	0	O Keoler 6		Catourie stratig EC 1Pa
1	10	1	D Jacuary	201	B Cart F141	2 19-01-		0	0	0	0	0	0	0	0	0	0	0	0.0.661	0	0.796	0.376	0.546		0	0	0	0	O Kenler 1		Catrache madée EC 1Pa
	10		O Januaria	201	Cast Criti	2.15/06-0		0	0	0	0	0	0	0	0	0	0	0	0.0.644		0.046	0.417	0.456		0	0	0	0	3 Kaular 2		Castownike constitution for 1Pa

A global .csv file is created with the values of all selected welds.

Profession .	C																													
Configuration	Catouch	W_CL																												
ean -	Cartoup	W HOUSEFELD																												
Start data	1 Januar	2018																												
Enddate	5 Marci	b 2018																												
Machine	44																													
Conformity	All																													
Uner	AL																													
Type	Al																													
Comment 0																		-												
Comment_1																														
Commens_2																														
Weld Name	Conformi	ty User	Day of Year Day	Month	Year	Typ+	Time	T1	T2	Throat	Gap	Alpha	Beta	MoP1	MnP2	Leg1	Leg2	Pene1	Pene2	12.40.0M	12_40_As	oc B_largeve,	-b_largeur,	S_pene	Libre_1	Libre_2	Libre_3	Southure	Porosité	Machine
1Paler Gauche	0K	EN	3	3 January	20%	8 Cart FT3	L3 11h28m		0	0	0	0	0	0	0	0	0	0	0	0.0.72		0.0.7%	0.359	0.503		0	0	0 1	0	0 Kepler1
1Paler Gauche	OK .	the	3	3 January	201	8 Cart F14	L2 11631m		0	0	0	0	0	0	0	0	0	0	0	0.0.719		0.0.731	0.41	0.508		0	0	0 1	0	0 Kepler 2
1Paler Gauche	0K	mv.	3	3 January	2018	8 Cart FNI	L2 11h35m		0	0	0	0	0	0	0	0	0	0	0	0.0.715		0.003	0.386	0.509		0	0	0	0	0 Kepler 3
1Paller Gauche	OK	ki .	3	3 January	2018	8 Cart F14	L2 13h48m		0	0	0	0	0	0	0	0	0	0	0	0 0.752		0 0.831	0.429	0.551		0	0	0	0	0 Kepler 4
1Paler Gauche	OK	ki -	3	3 January	201	8 Cart FT3	L2 14h44m		0	0	0	0	0	0	0	0	0	0	0	0 0.722		0.0.858	0.432	0.552		0	0	0	0	0 Kepler 4
1PalerGauche	OK	kų.	3	3 January	2010	B Cart F13	L2 16h17m		0	0	0	0	0	0	0	0	0	0	0	0 0.716		0.0.791	0.394	0.543		0	0	0 1	0	0 Kepler 4
1Paler Gauche	OK.	kį	3	3 January	2018	B Cart F13	L2 17h05m		0	0	0	0	0	0	0	0	0	0	0	0 0.708		0.0.791	0.415	0.519		0	0	0	Û.	0 Kepler 4
1Paler Gauche	OK	kį –	3	3 January	2010	0 Cart F13	L2 17h50m		0	0	0	0	0	0	0	0	0	0	0	0.0.005		0.0.781	0.397	0.519		0	0	0	0	0 Kepler 4
1Paler Gauche	OK.	kį	3	3 January	20%	8 Cart FT3	L2 Tih Mm		0	0	0	0	0	0	0	0	0	0	0	0 0.699		0 0.743	0.395	0.438		0	0	0	0	0 Kepler 4
1Paler Gauche	OK.	14 C	3	3 January	201	D Carl FT3	L2 13h24m		0	0	0	0	0	0	0	0	0	0	0	0 0.694		0.0.766	0.291	0.466		0	0	0	0	0 Kepler 4
1Paler Gauche	OK	ki	3	3 January	201	8 Cart FN	L2 20H05m		0	0	0	0	0	0	0	0	0	0	0	0 0.744		0 0.817	0.41	0.552		0	0	0	0	0 Kepler 3
1Paller Gauche	OK	mv	4	4 January	201	8 Cart F13	L2 12hHm		0	0	0	0	0	0	0	0	0	0	0	0 0.723		0.0.896	0.365	0.493		0	0	0	3	0 Kepler1
1PalerGauche	OK	mu	4	4 January	201	8 Cart F14	L2 12h18n		0	0	0	0	0	0	0	0	0	0	0	0.0.756		0.0.878	0.407	0.435		0	0	0 1	9	0 Kepler 2
1PalerGauche	OK	ev	4	4 January	201	8 Cart FN	L2 12h22m		0	0	0	0	0	0	0	0	0	0	0	0 0.729		0.0.765	0.376	0.525		0	0	0	2	0 Kepler 3
1Paler Gauche	OK	env .	5	5 January	20%	0 CartFH	L2 11h04m		0	0	0	0	0	0	0	0	0	0	0	0 0.721		0 0.937	0.396	0.536		0	0	0	2	0 Kepler 1
1Paler Gauche	OK	ev.	5	S January	201	8 Cat FM	L2 19-07m		0	0	0	0	0	0	0	0	0	0	0	0 0.741		0.0.041	0.396	0.503		0	0	0	0	0 Kepler 2
1Paler Gauche	OK	mv.	5	5 January	20%	U Cat.FN	L2 11h 10m		0	0	0	0	0	0	0	0	0	0	0	0 0.724		0 0.894	0.386	0.505		0	0	0	3	0 Kepler 3
1Paler Gauche	UK	N	5	5 January	201	8 Cart PT3	LZ 13h43m		0	0	0	0	0	0	0	0	0	0	0	0 0.7%		0 0.825	0.419	0.555		0	0	0	3	0 Kepler 4
1PalerGauche	DK	4	8	8 January	201	8 Cart FN	LZ 07MS4m		0	0	0	0	0	0	0	0	0	0	0	0.0.723		0 0.854	0.436	0.52		0	0	0	3	0 Kepler2
1Patertsauche	UK	10	8	8 January	208	5 Lat P N	L2 0/M53m		0	0	0	0	0	0	0	0	0	0	0	0 0.719		0.0.834	0.405	0.472		0	0	0	3	U Kepler 3
1PalerGauche	UK	kg	8	8 January	208	5 Car P13	L2 08W03m		0	0	0	0	0	0	0	0	0	0	0	0 0 722		0 0 783	0.405	0.535		0	0	0	3	0 Kepler1
1Pater Gauche	UK .	10	2	3 January	2018	Cartrie	L2 Unhinh		0	0	0	0	0	0	0	0	0	0	0	0 0.000		0.0.702	0.403	0.542		0	0	0	<u></u>	U Kepher 1
1Pater Gauche	00	4	-	5 January	20%	D Call Pe	LC OTAL M		0	0	0	0	2	0	0	0	0	0	0	0 0.107		0 0.035	0.445	0.523		0	0	0		O Kepler 2
1Pater Gauche	00 C			3 January	201	Con FTU	LC UTFACUM		0	0	0	0	0	0	0	0	0	0	0	0.0.752		0.0.000	0.423	0.510		0	0	0		O Kepter 3
IP-ater Gauche	01	-		3 January	201	Cartria	2 11201				0	0	0	0	0	0	0	0	0	0 0.705		0.023	0.422	0.020		0	0	0		O Mepher 4
1D-las Caucha	2	-		9 January	201	Con FT3	2 5/1-10-		0	0	0	0	0	0	0	0	0	0	0	0.0.747		0.0.023	0.422	0.450		0	0	0		O Kepler u
10-day Caucha	22	-		a langery	204	Con Fill	0.170.434		0	0	ŏ	0	0	0	0	~	0	0	0	0.0444		0.0.00	0.410	OFIF		0	0	0	6	O Kenleyd
1Pater Gauche	2	erv .		9 January	201	Con F12	2 ThAte		0	0	0	0	0	0	0	0	0	0	0	0.07		0.0.040	0.449	0.540		0	0	0	6	0 Keplers
1Paler Gauche	NY N	and a second	9	3 January	201	B Cast FT3	2 10/000		0	0	ů.	0	0	0	0	0	0	0	0	0.065		0.0.628	0.38	0.43		0	0	0	0	O Keoler 6
1Paler Gauche	OF		10	TO Laterate	201	Cart	2.15.05		0	0	ň	ů.	ň	0	0	0	0	0	ň	0.0.663		0.0.206	0.326	0.546		ň	0	0	0	O Verder 1
1Paler Gauche	OK	No.	10	10 January	20%	B Cast FT3	12 Th08m		0	0	ő	0	0	0	0	0	0	0	0	0.0.644		0.0.868	0.417	0.486		0	0	0	0	1 Kenler 3
1Paler Gauche	OK	N.	10	10 Internet	201	Car FM	2 15/09m		0	0	0	0	0	0	0	0	0	0	0	0.0684		0.0.864	0.432	0.566		0	0	0	0	0 Keples 2
1Paler Gauthe	OK	1	11	11 Jacuary	201	Cart F11	2 0fb35e		0	0	0	0	0	0	0	0	0	0	0	0 0 712		0.0.051	0.379	0.455		0	0	0	0	0 Kenler 3
1Paler Gauche	OK	E.	11	11 January	209	B Cart FM	2 08639m		0	0	0	0	ñ	0	0	0	0	0	0	0.0733		0.0.798	0.378	0.519		0	0	0	0	0 Kenler 1
1PalerGauche	OK .	bi .	11	11 January	201	CanFH	2 0fb43m		0	0	0	0	0	0	0	0	0	0	0	0.0.710		0.0.636	0.409	0.502		Ó.	0	0	0	0 Kepler 2
1Paler Gauche	OK.	61	11	11 January	201	Carl F13	2 10633m		0	0	0	0	0	0	0	0	0	0	0	0.0714		0.0.9t3	0.441	0.503		ů.	0	0	0	0 Kenler 6

Save statistics

1. To save statistics as an .xml file, click **Save statistics**.



Spec. Min	: Formula
Spec. Max	1_0
Min value	: 0.460
Max value	: 1.065
Mean	: 0.864
Std Dev	: 0.073
95% Confinte	erv: 0.007
Ср	: Offtopic
Cpk	: Offtopic



17 The DataView module (option)

This module is available as an option to the software

This feature offers the following functions:

- Viewing old results files
- Deleting old results (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 the software part Administration.

Change password	×
Name	admin
Enter password	
New password	
Confirm new password	
🔽 User have pe	rmission to change the results
Cancel	ОК

The DataView window

In the main window, a **DataView** icon is shown.

1. To access this feature, click the icon **DataView**.



	Video Live Data view Monitoring	User : admin Date : 25/07/2024 17:32:21	Configuration : CAN.ini	
Ş	Sort des mod 23 judit 2024 *** Heline 4 const 0 mod dents • for the mod dents Partone I (soft spacefield) Partone Southers Partone Southers Parton	Und Unit Unit Type Colored A Type A Image: A and the add and and the add and and and the add and and and the	Select ind	ividual result to view report
				Verify
				Delete
				Excel report

Sorting keys

Live Data view Monitoring	User : admin	Date : 25/07/2024 17:32:58	Configuration : C/
Start date jeudi 25 juillet 2024	End date jeudi 25 juillet 2024	User	
Machine All	Type All	Conformity V All	<u>~</u>
	Nºsérie		
 Visual defects Porosities Cracks 			
Other visual defects			
			Apoly Filters

Part and weld bead selection



Table of results of the filtering data

Carlorsty	580	An of your	dev	minth	(rear	type	heure	71	Treet	C.ep_feaue	Djirgew_larder	k Jargev Jane	1,004	Indire	Perceité	Native	Correcto	Shept.	Noribre de cycles	hefprodult	Eo.pr	<u>.</u>
bc i	-	3	. 5	301-	2012	Cel.	124-	2	t.	4.755	0.772	0.572	0.33		0	Repler 1		Cat-		4034040	1	
DK.		2	3	Jan-	21.8	Cart	124	3	. 6	0.715	0.815	0.336	1.478			Hapler 2	Off 11	Cert_		4234847	+	
OK:	81	5	. 2	301	2918	CH1	IPh	0	ε.	9.722	0.675	0.387	0.395		0	Notes 3	.em 32	Cel.	9.	4254047	3	
ðí.	- No	3	. 3	Jan.	2018	Cet.	12.	0	0	0.713	0.721	0.358	1.435		0	Hapler 4		Cart	12h	4234947	2	
10 C	10			345	310	Cart.	141-		. 6	0.714	0.815	0.463	0.245			tapler 4		cart	140	4234546	2	
ac.	- kg	3	-2	30	2818	Cart.	20		8	0.594	0.683	0.367	8.40		¢.	Hapler 4		Cart-	29-30	4234646	2	
2K	10	8.	- 3	Jan	2018	CH1.	13%	.0		0.584	0.728	0.417	\$ 328		ė.	Xepler 4		Cart.	29930	4234346	2	
DC	k	3	3	Jan.	2018	Cet	10.	- 15	6	9.732	0.829	0.435	6.453		8	Rooter 4		Cat	17130	4234846	12	
DK.	iq.	1	3	Jan.	2018	Ort.	ip.,	.0		0.678	0.717	0.58	0.372		0	Kapler 4		Cart	12h	4224846	2	
And a local division of the	- 10	8	. 5	381	2818	G#1	191.	. 6	. 6	0.677	6.811	0.398	8.307		÷.	Noter 4		Cirt-	290	4034946	2	
NOC 1	- 10	1	. 2	30-	2018	Cart	124-		ε.	4.715	0.821	0.388	5.203		¢ .	100101-1		Cart	19-00	42346 N	. 2	
HOC .	10	3.		341	2018	CHI	391			0.302	0.045	0.418	4.229			KADAR II.		CM-	29153	4234648	4	
DC-	1g	3	3	201-	2010	Cart	20%-	0	8	0.040	0.000	0.572	0.549		0	Hoder 1		Cart	19130	4234947	2	. w

ST Untitled - Struct	ureExpertWeld																													o x
	Video Live Dat	a view Mor	nitoring			User : add	in .		Date : 26/	07/2024 1	1:03:32		Configura	ation : W	elding_co	nfg_check	n	_												_
																					Measu	urements	report / P	rint prev	ews Print					Î
	Start vend	dəte hedi 26 ju	ilet 2024		En Ve	d date endredi 26	jullet 2	024	ii v	User Al				×				St	ructur	eExpe	rt Wel	d					🖌 Stri	iers		
	All Batch	ne _runber		~		× 			~	Al	rmty			~				Date User Part Mac Type	hine I	26/07/20 admin newpiec	24 11h02m e	n								
		Porosities Cradia Other																Welk Part Info1	d bead _class trial 1	Weld1		Me	C D N Ir tasuremen	Operation Resignati Naterial 2 http://www.second http://wwwwww.second http://wwww.second http://wwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwww	s					
	Partname : Nexplete			_	_		_	Weld be Weld 1 Weld 2	sad :	_	_		Apply	Filters				Type Min A L Max Mea	Min Max surement	1 12 0.00 0.00	9.67 (ap leg 0.00 13 - 7.10	1 leg2	pene1 0.20 2.73	pene2 che 0.20	NOR	lercut2 weld_leng	83.1.1.ISB		
Ş																									Visual Porest Oracea Other Magnets Field of	l defects es casen 'vew	0 0 0 20 20 20 20 20 20 20 20 20 20 20 2			
																				Opti	ionnal comr	ments								v
	Conformity	user admin	day of year 208	day 1 26	July	year by 2024	pe heun 11h.	a T1 . 13.81	T2 14.20	Threat 8.28	Gap 0.00	Leg1 11.81	Leg2 F	2.73	Pene2	0 Checkbox	Undercut2 0.00	Weld_length 0	Porositio	is Cradks	Other Ma	tachine (Comments	Emage new	Batch_number				N.	erify
																													De	elete
																													R	eset
																													Exce	freport

Measurement report of the selected measurement line

17.1 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,).

Verifying 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 on the measurement title. Original lines/results are deleted. Redo the measurement.

Saving an old measurement

If you click on **Save results**, 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 **Back** 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

		6	0				1	h		m	0	U	P	u.		5		v	
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	2.95
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	3.96	3.46	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	Record :		257	14 September	2011	10h02m	5.99	2.37	2.28	0.00	0.00	0.00	0.30	0.12	0.00	0.00	1.12	0.89
Replaced by	Seb	Record :		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.

Printing a report in the module DataView

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

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



<u>Y</u>es <u>N</u>o

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



18 The module Report Generator (option)

See the dedicated user manual.

19 The QDas module (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 I	Data/K1 tags									
Ç)Das tags in Range K1xxx (kı	own as Part Data) will be associated with:								
_	- Configuration Name									
-	- Part Name									
-	- Weld Bead Name									
-	- Operation, Part_Class, D	signation, Material 1, Material 2, Info 1, Info 2.								
	Selection : newpiece	Duplicate part								
	Weld bead identification :	Operation								
	Part_class	Designation								
	Material 1	Material 2								
	Info1	Info2								

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

19.1 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

	K1 002	Add Tag	
Part Data (K1xxx)	K Tags	Associated	Description
	K1001	Part_class	Configuration name
aracteristic data (K2xxx)			Part name
			Info2
141	8		Info1
values (Kuxxx)	<i>a</i> .		Material 2
			Material 1
			Designation
			Weld Bead Id
			Operation

2. Associating Characteristics data

	Character	istic data	
	K2 <mark>01</mark> 9	Add Tag	
Part Data (K1xxx)	K Tags	Associated	Description
	K2001	Measure Id	Min Warn
Characteristic data (K2xxx)	K2002	Description	Max Warn
	K2011	Min	Formula
Malana (Mona)	K2012	Max	
Values (KOXXX)	K2010	Unit	

3. Associating Values

values		
K0 008	Add Tag	
K Tags	Associated	Description
K0002	User	Comment2
K0003	Date	Comment3
K0004	Machine	
K0005	Туре	
K0006	Text comment	
K0007	Comment1	
	K0 008 K Tags K0002 K0003 K0004 K0005 K0005 K0005	KO COS Add Tag K Tags Associated K0002 User K0003 Date K0003 Date K0004 Machine K0005 Type K0006 Text comment K0007 Comment

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 (Add tag) to store the new tag in the K Tags (K Tags) list. (B).
- 4. Click on 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 following 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 on 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 0.001 0.001 0.001 0.001 0.561 0.001 0.001 1.001 0.001 0.001 0.00100

K0004/0 20.03.20/09:45:00

K0005/0

K0005/0

K0005/0

K0009/0

K0010/0 0

0.001 0.001 0.001 7.441 0.001 0.001 0.001 0.001 0.001 0.00100

K0010/0 0

K0005/0 1

K0005/0 1

K0005/0 1

K0005/0 1

K0005/0 1

K0005/0 0

K0010/0 0

0.001 0.001 0.001 0.001 0.001 8.181 0.001 0.001 1.001 0.001 0.001000
```

or

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

K0004/0 20.03.20/10:51:47 K0005/0 K0003/0 K0003/0 K0001/1 0.00 K0001/1 0.00 K0001/2 0.00 K0001/2 0.00 K0001/4 0.00 K0001/10 0.00 K0001/10 0.00 K0001/10 0.00 K0001/11 0.00 K0001/12 0.00 K0001/13 1.00 K0001/15 0.00 K0001/15 0.00 K0001/15 0.00 K0001/17 0 K0001/17 0 K0001/18 0 K0001/17 0 K0001/18 0 K0001/17 0 K0001/18 0 K0001/17 0 K0001/10 0 K0001/17 0 K0001/10 0 K0000 K000

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

Saving structure:	
O File	
• Folder	

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**.

19.2 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/xxxxxx.dfq

The results will be saved as a DFQ structure. The name is defined by 8 digits from 0000001.dfq. As seen in the QDas specification, the name is incremented at every modification in the descriptive part (known as DFD).

20 The DXF module (option)

The DXF module allows import of .DXF files in the SEW software. It is supported from software version V3.20

The .DXF files are opened on the captured image, and drawings can be moved and orientated according to the sample position.

The drawings follow the magnification of the captured image, as the scale is incorporated in the .DXF file.



The DXF module is very useful for displaying complex drawings on SEW images. The main objective is to have reference lines for making precise measurements.

20.1 DXF operating mode

- 1. Capture the weld sample image.
- 2. Right-click on the image and select **DXF**.

Or

- 3. Select the tab **Effects** and select **DXF**.
- 4. Select the .DXF file you wish to open in the image.

		ٽ ×	,O Search DXF	
				•
12				
new	2ARCs_CROSS_C OLORS_Offset_fa t.dxf	AC7T1.dxf	AMQBP1.dxf	Arc.dxf
				C
Arc0002.dxf	BMW_FORD Lspoina2.dxf	BMW_FORD Pspoina.dxf	CJP1.dxf	F14XP1K.d
LBP1.dxf	PIV72P3.dxf			
		~	DXF (*.dxf)	
			Onen	Cancel

5. The .DXF file is automatically opened and adjusted to the upper left corner.

2			

6. Click on the DXF drawing to move it to the desired position on the sample.



7. Use CTRL + the mouse scrolling function to adjust the orientation of the drawing.



8. When the .DXF drawing is correctly adjusted, the drawings can be seen in the upper right magnification window of the software to facilitate measurements.



- 9. Make the measurements as usual.
- 10. If you wish to include the .DXF drawing on the saved image, check off the check box Merge construction lines and texts. If not, the .DXF drawing will be remove before the image is saved.

21 The XML/JSON module (option)

To facilitate the integration of the generated data into third-party software, use the XML/JSON module (Option) 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 : _

Prefix	Test					
🗌 Configu	uration	🗖 Machine				
🗸 Part		П Туре				
🔽 Bead		🔽 Date				
🗌 User		I → Hour				

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.

22 Appendix 1: Change network saving path

Change the saving path on the network/Networking StructureExpert Weld systems

A network drive must be accessible to save StructureExpert Weld data on the network or to share data between several StructureExpert Weld systems.

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

1. During the installation process, change the saving path at the end of the installation process.

Settings	× E Se	ttings	
Choose language English		Choose language	
Saving folder C:\Struers\StructureExpert Weld-5 v3\		Saving folder W:\Test WE	
Save settings	Close		Close

2. After installation, with existing data, copy the existing data in the shared network drive.

Folder configurations

Data to be copied or to be moved:

Name		Dat	e modified	Туре	Size
Archives		18/0	09/2017 17:4	5 File folder	
Calibration		18/0	9/2017 16:3	2 File folder	
cci		18/0	09/2017 16:2	9 File folder	
Componentes		18/0	9/2017 16:3	4 File folder	
Config_demo2		20/*	10/2017 14:4	3 File folder	
Configurations		20/1	10/2017 14:4	3 File folder	
Demolmages		18.0	9/2017 16:2	9 File folder	
All Name	Cale modified	Type 3	16:2	9 File folder	
Componenter.in	08/05/2017 (8:00	Configuration and	143 17:4	4 File folder	
(i) Configuration (i) Discourses	00/05/2017 18:00	Configuration sett	100 17:0	3 File folder	
(a) Peor MCA 18,01,2011.ex (b) Protes (Levics parts) ini	35/11/3811 (\$48 35/05/3817 (\$48	Configuration sets	203 16:3	4 File folder	
 (a) Restrict.com (b) Reserv 2011.im 	08/05/2017 18-44 08/05/2017 18:00	Configuration cett Configuration cett	10 16-3	A File folder	
(a) Read part contraction (b) Read to the	08/05/2017 19/08	Configuration sett	200	D File folder	
ii) Wetting, configure	0005/30130841	Configuration with	248	9 FileTolder	
			10:3	File folder	
pians		16/3	Jay 2017 16:2	9 File folder	
Rears 2013		18/0	9/2017 16:3	4 File folder	
Rears part services		18/0	09/2017 16:3	4 File folder	
Renault		18/0	09/2017 16:3	4 File folder	
Welding		18/0	09/2017 16:3	2 File folder	
Welding_config		18/0	09/2017 16:2	9 File folder	
CalibrationHistory.e	e	17/0	07/2017 13:5	3 Application	42 KB
A CameraSettings.exe		30/0	09/2011 13:5	6 Application	167 KB
□ ····					

Folders of the different configurations

Name	Date modified	Туре	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	
Demolmages	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	
lcones	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	
	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	Туре	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.

English	
Saving folder	
W:(Fest WE)	

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	he Configuration folder										
The Configuration	on folder cor	ntains all the	e created configurations files.								
Air Suspension.ini	03/05/2017 18:00	Configuration sett	2 КВ								
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 cor	nfigurations			
Each folder has 3 s	sub-folders.			
Cordons	14/11/2017 09:49	File folder		
Results	14/11/2017 09:45	File folder		
Stdrapports	14/11/2017 09:43	File folder		



he Results folder								
Backup	14/11/2017 09:46	File folder						
New_Fart_Convex2	14/11/2017 09:45	File folder						
New_Part_T weld	14/11/2017 09:46	File folder						
New_Part_Convex2.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_Fart_T weld.xls	14/11/2017 09:46	Microsoft Excel 97	2 KB					
New_Fart_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.



The Images folder

A folder is automatically created for each weld for saving images.

The name of the folder is built using "Part name_Weld name".

New_Part_Convex2 New_Part_T weld

Each image is automatically saved.

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







 New_Part_Conve
 New_Part_Conve

 x2_318_2017_09h
 x2_318_2017_09h

 44m50s.jpg
 45m01s.jpg

New_Part_Conve x2__318_2017_09h 45m27s.jpg

Excel result files

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

Nb	1.1.1.1.1.1.1	4																		
Cordon	OP	Cless	Design.	Mat. 1	Mat. 2	Width 1	Wideh, 2													
Convex2																				
N	3	4				Metures	u	12	a(Throat)	h(Gap)	Alpha	Neta	MinPone1	MerPone2	b1(PoneW	ne2(Penel	Ath FLI Act Pont	al f2 Activer	ez Undersut1	Undersut2
¢		3				Min.	0.00	0.00	0.7*min(SB)	2 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	6.20	0.00	0.00
User	Day of Year	Der	Month	Year	Type	Max.											4			
						the		1	1 1		0	0	0	1	s	1	1	8	1	8
	33		14 November	2	52.8	cyhsani.	4.64	6.80	8.26	0.00	0.00	0.00	0.30	0.20	0.00	0.00	0.75	2.88	0.00	0.00
	13	E	14 November	2	12.7	09945m	0.00	0.00	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	33	6	14 November	2	117	09h45m	4.67	6.62	2.93	0.00	0.00	0.00	0.20	0.20	0.00	0.00	0.52	1.27	0.00	0.00
	33	8	14 November	2	117 5hift 1	11h40m	4.64	6.84	0.00	0.00	0.00	0.00	6.20	0.20	0.00	0.00	0.80	1,44	6.00	0.00

Extra	a Exc	el file	es (on	ıly wi	th th	e Act	ion li	mit m	nodul	e)			
The e	extra.	xls fil	e con	tains	the a	ction	limit	settin	gs of	the w	veld.		
Туре	3	2											
N	1	4											
0.00	0.00	3.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.00	0.00
999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00

23 Appendix 2: Visual check of weld beads

Check box

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.

Video Live	User : admin	Date : 26/07/20	14 11: 12:07 Configuration : Web	lng_config_chedi.ini				
Configurations selection Welding_config	_check.ini 🗸						Save Config	
Fixed 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			
INFO_7			Info2					
Measurements glossary								
Thickness sheet metal 1				Thickness sheet metal 2				
Throat		Throat						
Joining angle 1				Joining angle 2				
Min penetration sheet 1		MiniP1		Min penetration sheet 2		MiniPi		
Weld Bead penetration width 1				Weld Bead penetration width 2				
Penetration sheet metal 1		Pene1		Penetration sheet metal 2		Penez		
Enter extra measurements number		Validate						
Checkbox Che Weld_length key	ckbax 👻				Parallel			
Unit millimeters V	Accuracy	0.01 -						
Optional comments Title 1	Batch_number	Mandatory	Title 2	Mandatory		Title 3	Mand	atory
Machine description list (1 machine by line)			Enter extra check boxes number:	Add	Measurem	ents type (1 per line)		
Mandatory					Manda	itory		
Welding Machine1			Porosities					
Weiding Machine2 Welding Machine3			Cracks					

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

Enter extra measurements number	4	Validate		
Undercut1	Set Square	Undercut2	Parallel	•
Weld_length	keyboard input		Parallel	

	(Dever II-1	
	Parallel	
Measurements glossary	Line	
incustrements glossary	Angle	
Thickness sheet metal 1	Region (Area)	
	Circle (Diameter)	
Throat	Circle (center)	
Loiping angle 1	Triangle	
Johning angle T	Set Square	
Min penetration sheet 1	Checkbox	
	keyboard input	
Weld Bead penetration width 1	Porosity	
	Formula	
Penetration sheet metal 1	Line Free	
	PolyLine –	
	Arc length	
Enter extra measurements number	Leg length	
	Circle (radius)	
	AIS	
Checkbox	Checkbox 🗸	
Weld_length	keyboard input 🗸	

- 1. To evaluate a weld, create a check box.
 - If the check box is unchecked, the weld is incorrect The result is shown in RED.
 - If the check box is checked, the weld is correct The result is shown in GREEN.


The setting file is composed of 5 menus:

Langage Calibration Color Check Box Extra tools Settings Langage Calibration Color Check Box Extra tools Choose language English Choose language English Childstruersbergi demo 2023	×
Settings Choose language English Saving folder Ci\Struers/sever6 demo 2023	×
Settings Choose language English Saving folder Cristin ersbewin demo 2023	×
Settings Langage Calibration Color Check Box Extra tools Choose language English Saving folder C15thuersbewő demo 2023	×
Langage Calibration Color Check Box Extra tools Choose language English Saving folder C195tmersterung demo 2023	
Choose language English	
English	
Saving folder	
C:\Struers\sew6_demo_2023\	
Save settings Close	

Settings	\times
Langage Calibration Color Check Box Extra tools	
Calibration frequency:	
Ask to do calibration after every	
Calibration certificate :	1
Calibration plate serial number	
Certification number	
Date of issue	
Date of next calibration 03/05/2019	
Link of certificate	
Browse	
	Í.
Save settings Close	



Settings	×
Langage Calibration Color Check Box Extra tools	
Text to be displayed when the weld is conform	
Text to be displayed when the weld is not conform	
Save settings	Close

Settings								×	
Langage C	alibration	Color Che	ck Box Extr	ra tools					
Tool Nam	ie 🗌				Colors	~			
Nb space	ed lines	<u>·</u>			Thickness	÷			
Name		Count	Color	Thick	Distance				
Nugg		3	BLUE	5	20% 80	% 20%			
Nugg2		1	BLUE	4	50%				
*Extra t	*Extra tools are defined by two parallel lines which add line spacing								
						Save settings		Close	

Video Live User : admin	Date : 26/07/2024 :	L1:16:18 Configuration : Weldin	g_canfig_chedc.ini				
Configurations selection Welding_config_check.ini v						Save Config	
Fixed data associated with weld bead							
INFO_1		Operation		INFO_2			
INFO_3		Designation		INFO_4	Material 1		
INFO_5		Material 2		INFO_6			
INFO_7		Info2					
Measurements glossary							
Thickness sheet metal 1			Thickness sheet metal 2				
Throat	Throat					Gap	
Joining angle 1	Alpha		Joining angle 2			Seta	
Min penetration sheet 1	MiniP1		Min penetration sheet 2			diniP2	
Weld Bead penetration width 1			Weld Bead penetration width 2				
Penetration sheet metal 1	Pene1		Penetration sheet metal 2			^b ene2	
Enter extra measurements number 1	Validate						
Checkbox	Checkbox	v					
Linit millimeter M Accuracy							
Unit Interest Total							
Optional comments Title 1 Batch_number	Mandatory	Title 2	Mandatory		Title 3	Ma	ndatory
Machine description list (1 machine by line)		inter extra check boxes number:	Add	Measuren	nents type (1 pe	r line)	
Mandatory				Manda	atory		
Welding Machine 1		Porosities					
Welding Machine2		Cracks					

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.





24 Appendix 3: Min & Max action limits (option)

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
Between Min & Max	GREEN
Above Max	RED
Between Min & Min Action limit	YELLOW
Between Max & Max Action limit	YELLOW
	Under Min Between Min & Max Above Max Between Min & Min Action limit Between Max & Max Action limit

Note

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

Settings			×
Langage Calibration Color			
	Under Min		
	Action Limit Min		
	Between Min and Max		
	Action Limit Max		
	Above Max	 •	
	Font Size :	24	
		Save settings	Close

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 ►54 and Create parts and welds ►21.



- 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, and are shown with the following colors:

-	Under Min	RED
-	Between Min & Max	GREEN
-	Above Max	RED
-	Between Min & Min Action limit	YELLOW
-	Between Max & Max Action limit	YELLOW

Note You c

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

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.









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.

- Image Settings
 Colors Check Box Extra tools

 Tool Name
 Colors

 No spaced lines
 Thickness

 Image Count
 Color

 Mame
 Color

 Image Count
 Color
 </tr
- Click the **Extra tools** (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							\times		
Langage Calibration	Color Che	eck Box Ext	ra tools			_			
ool Name [AB			Colors	Blue]			
Nb spaced lines	• •			Thickness	5				
Name	Count	Color	Thick	Distance					
Extra tools are de	"Extra tools are defined by two parallel lines which add line spacing								
					Save settings		Close		

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

Settings						\times
Langage Calibration		ik Box Extr	a tools			
Tool Name At	3			Colors	Blue 🗸	
Nb spaced lines 2	<u>÷</u>		1	Thickness	5	
				-		
Name	Count	Color	Thick	Distance		
*Extra tools are defi	ned by two p	arallel lines w	/hich add li	ne spacing		
				_		
					Save settings	Close

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



💽 S	ettings							\times		
	Langage Calibration Color Check Box Extra tools									
I	Tool Name AB				Colors	Blue				
	Nb spaced lines 2	÷			Thickness	5				
	Name	Count	Color	Thick	Distance					
	AB	2	BLUE	5	20% 20%					
				<u> </u>	+					
	*Extra tools are defir	ed by two p	arallel lines w	hich add	line spacing					
						Save settings	Close			

5. Define all the needed measurements.

II Se	ettings							\times
Lang			sk Box Extr	a tools				
T	Fool Name EF				Colors	Blue 🗸		
	Nb spaced lines 2	<u>.</u>			Thickness	5		
	Name	Count	Color	Thick	Distance			
	AB	2	BLUE	5	20% 20%			
	CD	2	BLUE	5	20% 80%			
	EF	2	BLUE	5	20% 80%			
					_			
		I		I	_			
							7	
						Save settings	Close	





6. Save settings.

These "new measurements" are now available for creating or modifying the general software configuration.

tureExpertWeld						
Video Live U	tser : admin Date : 16/12/20	24 18: 15: 24 Configuration : REV_01	JULA_D62_WELDINGS.IN			
Configurations selection REV_01_LULA_D52_WEL	DINGS.ini 👻				Sa	ve Config
Fixed data associated with weld bead						
INFO_1		Operation		INFO_2 ISC	5817_2023_Class	
INFO_3		Designation		INFO_4 Ma	terial 1	
INFO_5		Material 2		INFO_6 Thi	ckness mm	
INFO_7		Thickness mm				
Measurements glossary						
Thickness sheet metal 1			Thickness sheet metal 2			
Throat	Threat					
Joining angle 1	Alpha		Joining angle 2		Beta	
Min penetration sheet 1	MiniP1		Min penetration sheet 2		MiniP2	
Weld Bead penetration width 1			Weld Bead penetration width 2			
Penetration sheet metal 1	Penetration1		Penetration sheet metal 2		Penetration2	
Enter extra measurements number	Validate					
Excess_Asimmetry1 Line	~		Excess_Convexity	Line 🗸		
Excess_Asimmetry2	<u> </u>		Sagging_Incomplete	Parallel 🗸		
Undercut_1 Parallel			Undercut_2	Parallel 🗸		
Longth Line			Porosity	Porosity ~		
Unit millimeters 🗸 Ac	curacy 0.01 •					
Optional comments Title 1 Piece N	Number Mandatory	Title 2 Qu	ality Level found Mandatory	Title 3		Mandatory
Machine description list (1 machine by line) Mandatory		Enter extra check boxes number:	Add	Measurements t	ype (1 per line)	
Welding Machine1		Porosities		Shift 1		
Welding Machine2		Carda		Shift 2		

Example of software configuration

Example of part creation



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			Measurements Report						Date					
			N°.						01/03/2011					
										Type of measurements				
	Part : PART1		User											
1acn	Ba	tch n	umber :	A						AI				
	_		Dimensi	ional	_					Visual	b -	cieł		
Visual	11	Nuger						Measurements balance			In conformity	Non-conformity		
1,00	-	-		TT		11		x	TTT			>		
	100	-						0			0	•		
4,00								X				>		
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			NG EXPP LARA Values Applying Barching steerts Barching steerts Barching steerts Values Barching steerts Values Barching steerts Values Barching steerts Values Values Values Va	Note: 2019 Interview 1000 Interview 1000	The second secon		Measurements and the server of	Measurements Measurements Measurements No No	Measurements Repo	Masurements Report New www www www www www www www www www	Measurements Report Der Measurements Report Der Mithematical and	Masurements Réport Dee 10120011 Par: PARTS User All Data Construction of the second s		



26 Manufacturer

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- 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 oversettelser 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
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