Schleuniger

S.ON

Wire Processing Software for *CoaxStrip 6380*

Reference Manual

Software Version 2.0x |Edition 3.0 (12-2019)

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Original Instructions
The German edition of this document is the original Instructions.

Translation of the original Instructions
All non German language editions of this document are translations of the original Instructions.

Product variant: CoaxStrip 6380 |

TOPIC LIST

TABLE OF CONTENTS

GENERAL

Thank you for your trust in the Schleuniger Technique. You have acquired a high performance Schleuniger product, designed and manufactured in our factory to your needs.

Read through this manual with due care and attention. It contains important tips and safety instructions, which allow precise and reliable production.

1.1 MANUFACTURER

In this Manual, Schleuniger AG Thun, Switzerland is referred to as manufacturer and abbreviated with „Schleuniger".

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1.2 PRODUCT TYPE

This manual is valid for the following products/models:

- *S.ON* Wire processing software for *CoaxStrip 6380*

The applicable product type and the manufacture year can be found on the rating plate or the EG declaration of conformity. See *"EU-Declaration of Conformity (Register 2)"* of the ring binder.

1.3 INFORMATION ABOUT THE OPERATING INSTRUCTIONS

We have taken every possible measures to ensure the accuracy and completeness of this documentation. Since errors can be avoided despite the diligence never fully, we are always grateful for any advice and suggestions.

- In the following procedures of this manual, the with *S.ON* controlled product (Wire processing machine) is named in the text only with "Machine".
- This manual belongs to the "Operating Instructions" and is part of the product. It contains all information to operate *S.ON* efficiently and safely.
- Observe the safety regulations and instructions.
- If the product changes hands, the Operating Instruction must be handed over to the new owner.
- Published modifications and corrections from the manufacturer must be complemented. Inform at your local *Schleuniger* distributor.

1.3.1 Contents

General

Each person using the software must be properly trained and have read and understood this Operator manual. This is also imperative, even when the respective person has operated such a software or similar software previously and where they have been trained by the manufacturer.

As Operating Instructions we declare:

- In printed form the entire content of the folder according to the content table.
- On electronic media this Reference manual, the Introduction course and the Quick reference (if provided).

The manual is no longer valid, if any of its contents (except a Quick reference) are removed or is changed on the data storage medium.

Construction

The Operating Instructions consist of the following parts:

Reference manual machine

The Reference Manual contains the complete information for the machine, which is operated with *S.ON*. It serves as a learning- and general reference work for the personnel.

Contents	■ Safety ■ Description of the product ■ Installation ■ Operating units
Target audiences	■ Operator ■ Qualified personnel ■ Technical specialists

Reference Manual *S.ON*

The Reference manual contains all information for operating the *S.ON* software. It serves as a learning- and general reference work for the personnel.

Contents	■ Safety ■ Description of the product ■ Schleuniger wire processing concept ■ Installation ■ Operating units ■ Programming ■ Configuration ■ Diagnostics ■ Data management
Target audiences	■ Operator ■ Qualified personnel ■ Technical specialists

1.3.2 Safekeeping

- Keep the Operating Instructions nearby of the product and safe against immissions.
- The instructions must be available for the operating personnel at all times.
- The contents must remain clearly legible beyond the expected lifespan of the product.

1.4 SYMBOLS

The symbols are placed in the marginal notes column and refer to the adjacent text. They have the following meaning:

Symbol	Meaning	Description
	Info	Information which helps to operate the product efficiently and error-free.
	Overview	Detailed description or introductional chapter.
	Tip	Recommendations and tips which improve the intended utilization of the product.
	Topic	Important link.

1.5 LEGEND

In the text, mark-up is used in the following manner.

Markup	Meaning	Description
[KEY]	Key / button	Key commands and buttons on screen representations are in the text shown in squared brackets, capital letters and orange colored.
„Configuration“	Screen title / menu	Screen titles and menus are represented in the text in "quotation marks".
"1.5 Legend (Page 11)"	Cross referencing	Cross referencing are represented in blue and italic.
1.▹	Activity direction	Activity directions are a summary of activity steps with an arrow.
➥	Consequence of an activity direction	Results or released actions in activity directions are represented with a leading arrow.

The following abbreviations are used.

Abbreviation	Meaning	Description
Fig.	Figure	Figures are captioned as "Fig." in the picture title.
Tab.	Table	Tables are captioned as "Tab."
mm	Millimeter	All Measures in the manuals are given in millimeters.
CW	Clockwise	Direction of rotation for a component or an operating element viewed from rotation axis.
CCW	Counter clockwise	Direction of rotation for a component or an operating element viewed from rotation axis.

1.6 LIMITATION OF LIABILITY

The content of these Operating Instructions was put together taking into consideration the current standards and guidelines according to the state of the technology and our many years of experience.

The manufacturer disclaims any liability for damages and accidents as a result of:

- Disregard of the instructions

- Disregard of safety regulations
- Non-intended usage

1.7 WARRANTY STATEMENTS AND POLICIES

See Schleuniger document *„General Conditions of Sale and Delivery"*.

1.8 COPYRIGHT PROTECTION

Keep this instructions confidentially. It is intended for the exclusive use of persons operating the product. Without written agreement, this instructions shall not be made available to third parties.

The content of the manual in the form of text, illustrations, drawings, circuit diagrams or other presentation, is protected by copyright law of the manufacturer.

1.8.1 Trademarks

The control software S.ON is a trade mark of Schleuniger.

Windows® is a registered trademark of Microsoft corporation in the USA and other countries.

The rights for other brands and product names in these instructions are deposited by their owners and must be accepted herewith. Mentioning products not manufactured by Schleuniger is intended exclusively for information purposes. It does not constitute advertising. Schleuniger is not responsible in terms of selection, performance or usability of this products. Registered trademarks are not specially marked in these instructions. However, this does not mean that they can be used freely.

See also Chapter *"14.5 Licenses (Page 117)"*.

SAFETY

2.1 TARGET AUDIENCES

This Operating Instructions is intended for individual target audience. Certain chapters therefore are withhold for a particular target audience and mentioned accordingly in the introductional section. Only this group is authorized to carry out the appropriate tasks. The other contents generally is intended for all audience and is not stated specially.

The product is intended to be operated by persons older than 14 years. Younger persons are not allowed to operate the product.

The target audiences must have the following skill. Thus have the competence to carry out certain activities.

Operating company

Qualification	■ Higher level juristic person ■ Authority to give directives ■ Define competences
Authority / activity	■ Teaching ■ Deploy authorized personnel ■ Use product according to the intended usage

Technical specialists

Technical specialist / service technician	■ Product-specific training ■ Know-how in wire processing technics
Authority / activity	■ Installation ■ Operating ■ Programming

Qualified personnel

Qualification	■ Technical skill ■ Product-specific training ■ Know-how in wire processing technics
Authority / activity	■ Operating ■ Programming ■ Instructor ■ Maintenance

Operating personnel

Qualification	■ Product-specific training
Authority / activity	■ Operating

2.2 WARNING NOTICES

The warning notices in the entire manual are marked with the warning banner and the appropriate danger symbol. The following danger level applies to software products.

CAUTION

Warning notice „Caution"

This hint indicates a potential hazardous situation, which if not avoided, may result in minor or moderate injury on the machine operated with *S.ON*.

Compulsory comply the warning notices to avoid accidents and personnel injury.

2.3 CAUTION PROPERTY DAMAGE

NOTICE

"Property damage"

This panel indicates a hazardous situation, which if not avoided, can result in damage to property.

2.4 MODIFICATION OF THE SOFTWARE

To avoid any dangerous situations and for an optimal performance, it is not allowed to make any modifications or changes on the product without explicit written permission of the manufacturer or the local Schleuniger distributor.

PRODUCT SPECIFICATIONS

3.1 APPLICATION PURPOSE

3.1.1 Intended usage of product

The product is intended for the following application:

- Programming and controlling of cut and strip processes for cables and wires.

See also chapter *"4.1 Applications (Page 17)"*.

As limits the areas in the technical data apply. Any other use of this product is regarded as non-intended use. For damages arising therefrom, Schleuniger is not liable.

3.2 TECHNICAL SPECIFICATIONS

Description		Value	Unit
Storage capacity for articles	Total memory available for programming.	2	GB
Operating unit	Display with LED backlight and touch screen	5.7	Inch
	Resolution	640 x 480	Pixel

Tab. 1: Technical specifications

PRODUCT DESCRIPTION

This chapter gives a description of product specifications, information on the limits of the product and points on the scope of delivery. The individual parts are shown and described by photographs. Further provides the product description information about the functioning and the operation modes.

S.ON is the operating software for a wide palette of *Schleuniger* cut & strip- and semi-automatic machines. Wire programming and production is controlled via a touch screen which is available in different models and sizes, dependent on the machine to be controlled.

The software covers a wide spectrum of applications. The well-arranged screens, operating elements and pictograms simplifies the initial skill adaptation training on understanding the *Schleuniger* wire processing concept rigorous.

- Libraries for article data, Raw material and Processing
- Preset values during programming
- Efficient programming due to pre-defined wire ends
- Visual representation and coloring of the operating elements and pictograms
- Functions for the enhanced programming of complex materials
- Clear configuration with calibration aids
- Saved articles can be loaded via a barcode scanner

4.1 APPLICATIONS

The *S.ON* software enables a wide variety of commercial wires/cables to be programmed and output for processing to the machine. The possibilities are many and varied.

In addition, in the following examples the conductors may be twisted.

The following is an excerpt:

Application	Wire sample
Partial strip	
Full strip	
Multiple strip	
Multi-layer 2-layers, partial or full strip	
Multi-layer multi layers, partial or full strip	
Regrip	

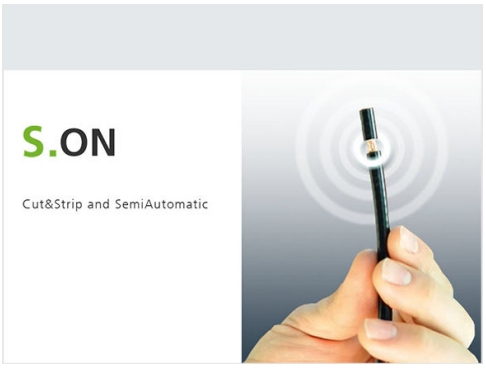
Fig. 1: Application

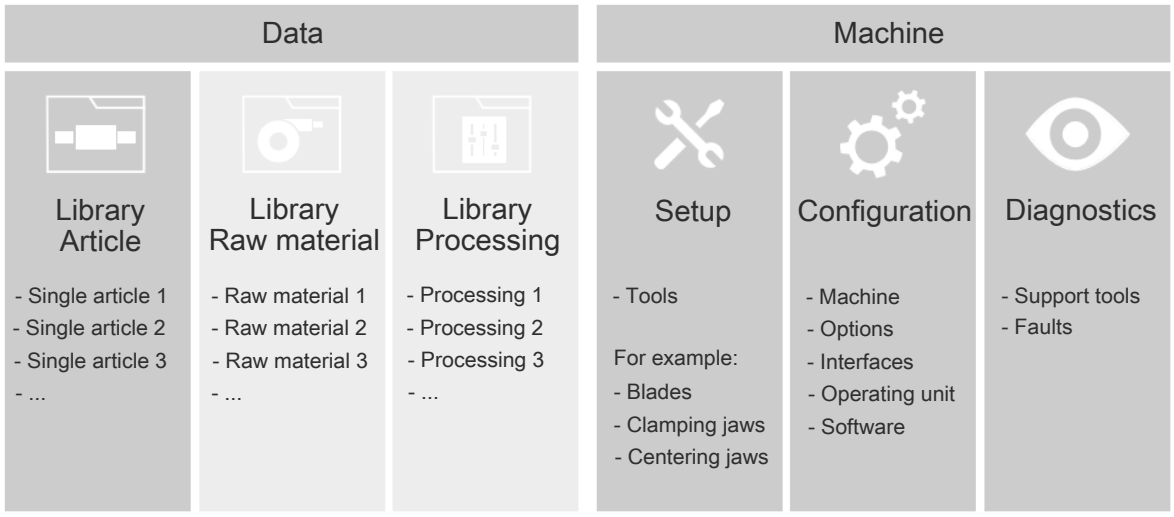
SCHLEUNIGER WIRE PROCESSING CONCEPT

Schleuniger has its own concept for the programming of the wire processing machines.

The design of the software is made user friendly. Graphical representations help making programming articles.

- **Standard process flow:** Orders that slightly vary, for single articles with common operating steps. Simplified and well-arranged representation of the screens. Adequate for users with none or little knowledge of programming.
- **Library mode:** Extended programming concept. For many different jobs that are always use the same Processing. Processing's can be re-used. The raw material in the library mode has no default function (with the exception of the displayed color). Settings for the Raw material and Processing are saved separately in own libraries. They can be assigned individually to an article.





5.1 STANDARD PROCESS FLOW

Raw material and Processing are stored directly in the article.

- **Advantage:** A single article is programmed quickly. Raw material changes influence via the adaptive default value calculation directly the Processing and as a result the production.
- **Disadvantage:** For each new article of the same type the Raw material and Processing settings hence must be entered over and over. Changes in the same Raw material and Processing also must be carried out in every article separately.

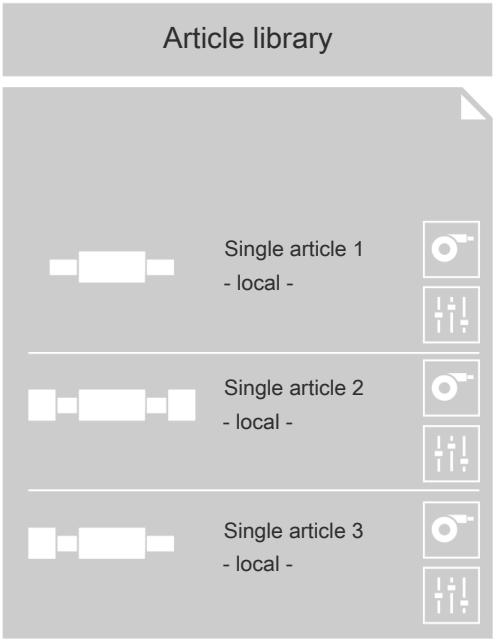


Fig. 2: Overview standard process flow

5.2 LIBRARY MODE

The "Library mode" finds a remedy for the disadvantages which appear in standard process flow. In this mode Processing- and Raw material settings are saved in a way that individual articles can use always the same Raw material and Processing all over again.

All the settings for the Raw material and Processing can be saved in a database. The entered record then, can be used in different articles as often as necessary.

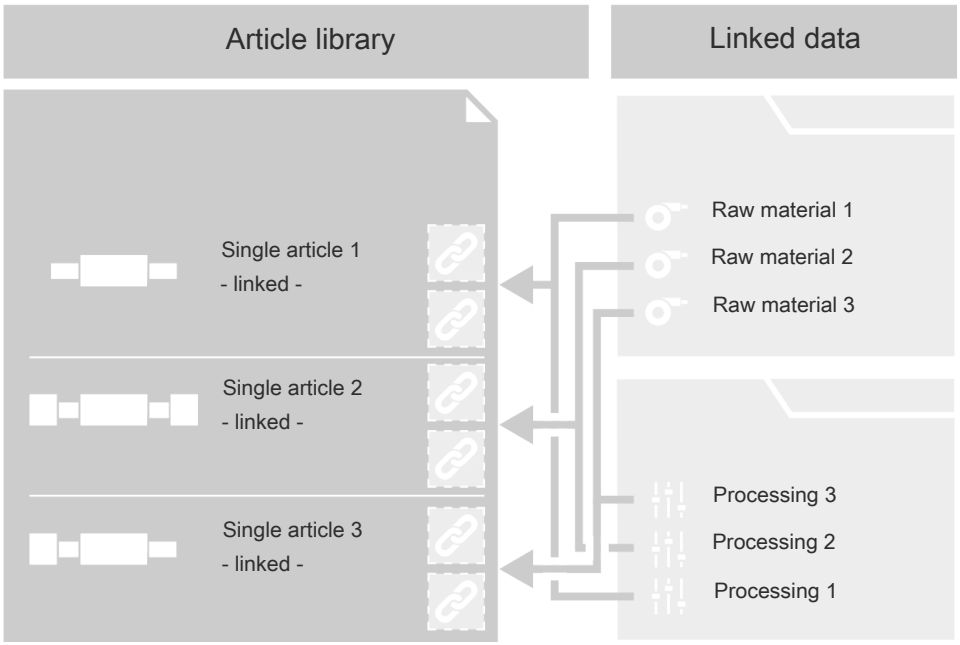
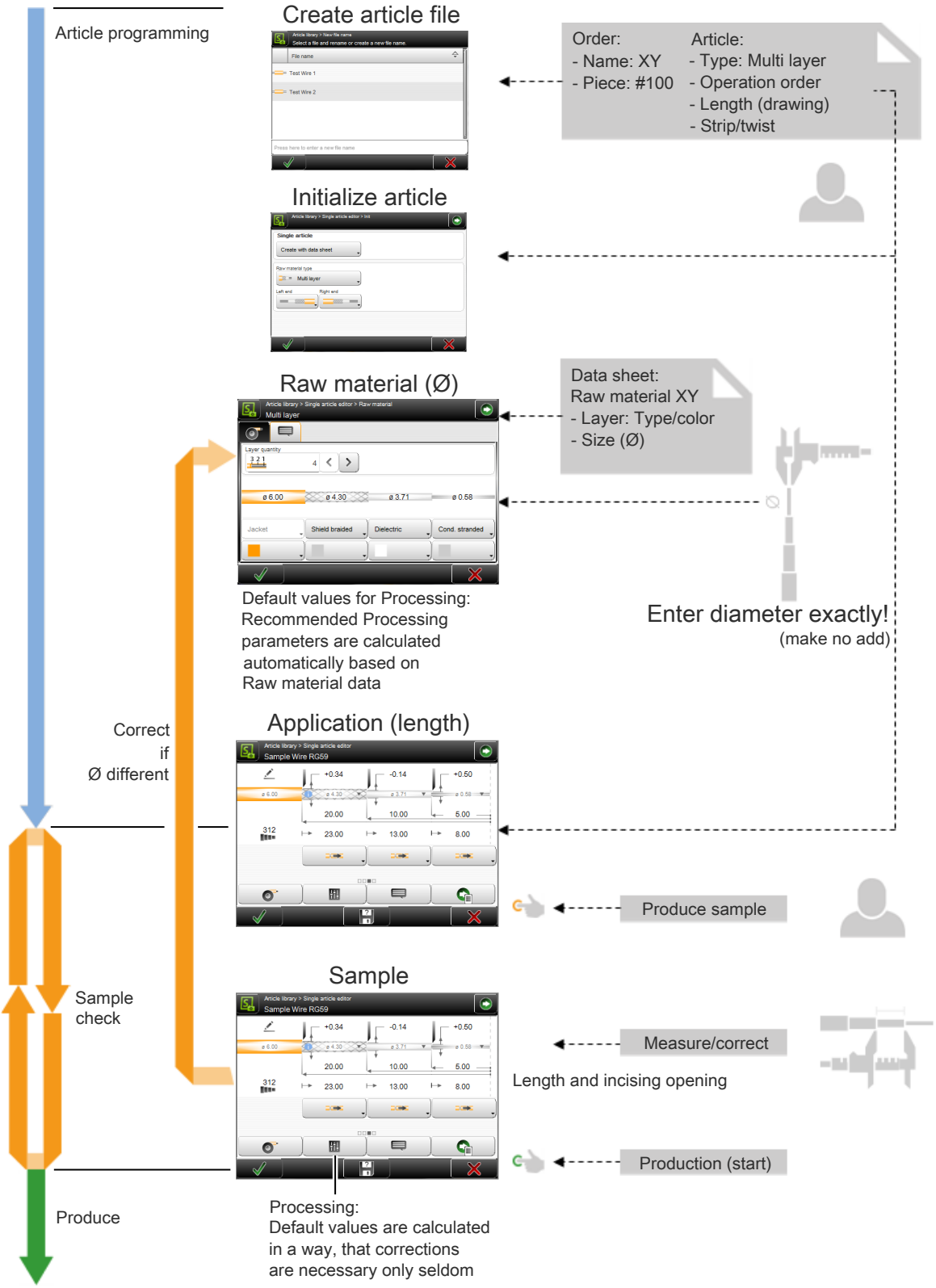


Fig. 3: Overview, „Library mode“

Caution: In the “Library mode”, the adaptive default value calculation from the Raw material is not available. See Chapter *"9 Library mode (Page 63)"*.

5.3 ARTICLE PROGRAMMING



5.4 COMPARISON OLD PROGRAMMING CONCEPT - *S.ON*

The operating concept of *S.ON* to the old programming has fundamentally changed.

In the chart, the comparison is shown in detail:

Old name	New name	Description	Advantages
Screen programming	**Raw material**	Describes the appearance and measures of the unprocessed raw material Data (diameters and layers) form the basis for the calculated default values and the Processing parameters The Raw material must be depicted realistically!	Separation of measuring the Raw material and definition of Processing parameters After exact recording, most of the Processing parameters no longer need to be altered Later: Raw material records are reusable in articles by means of the library concept **Recording is necessary only once**
Programming screen	**Article / application**	Describes how the product should look like	Data are taken over from order drawing **Recording is necessary only once**
Programming screen	**Processing**	Describes the Processing parameters	Automatically generated from Raw material **Altering several times, usually only Incising opening necessary (accessible in the application screen)**
Incising diameter	Processing: **Incising opening** (also visible in the application screen)	Defines the distance of the blades to the Raw material diameter during incising Incising diameter = outer diameter of the layer to be exposed + Incising opening In the configuration settings it is still possible to switch to the "Absolute" measuring, see chapter *"8.2.1 Incising relative/absolute (Page 46)"*.	Is no longer an absolute value, but relative to the Raw material diameter This makes it immediately apparent whether the blades are moved towards the material during processing
Wayback	Process element: **Pull-off opening** (not visible in the application screen)	Defines the distance of the blades to the Raw material diameter during pull-off Pull-off diameter = outer diameter of the layer to be exposed + pull-off opening In the configuration settings it is still possible to switch to the "Absolute" measuring.	Does not refer, as earlier the “Wayback”, to the incising diameter, thus the strip can be parametrized independently of the incision This makes it immediately apparent whether the blades are moved towards the material during processing

Tab. 2: Comparison of older operation - *S.ON*

INSTALLATION / FIRST COMMISSIONING

6.1 GENERAL SOFTWARE SETUP

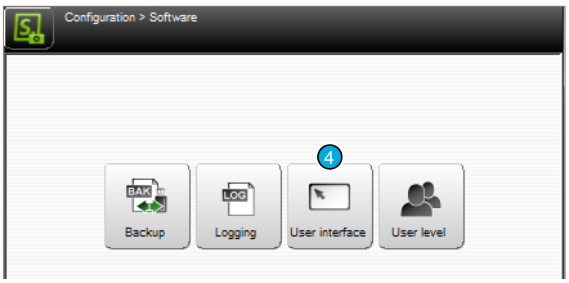
On the control software *S.ON* there are general settings which must be carried out when commissioning the machine. The settings are to be carried out in the screen "Configuration - Software - User interface".

During the initial commissioning, it is assumed that the user level control is turned off. Other settings are set factory default in such a way that they are optimized for the first use.

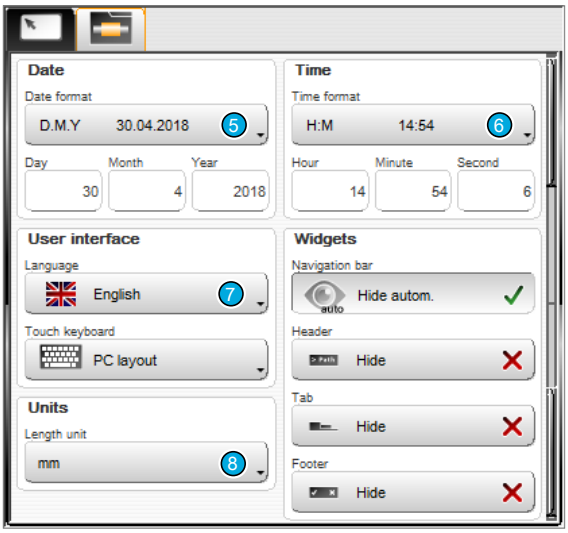
1. [NAVIGATION] 1
2. [CONFIGURATION] 2

3. [SOFTWARE] 3

4. [USER INTERFACE] 4



5. ▹ Set the **[DATE FORMAT]** 5 and **[TIME FORMAT]** 6 to the local conditions.
6. ▹ Select the **[LANGUAGE]** 7 of the user interface.
7. ▹ Set the country specific **[LENGTH UNIT]** 8 to „mm“ or „Inch“.
8. ▹ Confirm the setting with **[OK]**.



It is recommended that the first time you use the *S.ON* other parameters should be kept in the default setting. If the user has already experience with similar products, the chapter *"11.2.4.3 User interface - tab 1 (Page 88)"* describes what the individual parameters stand for.

GENERAL HANDLING / OPERATION

The operation of *S.ON* is described in this and in the following chapters (working with standard process flow and in library mode and managing article libraries) in detail. All commands, functions and parameters used for the programming are described step by step there. The descriptions in this chapter shall help the user to get an in-depth understanding and shall serve as a reference to handle difficult programming tasks.

The corresponding buttons for the commands, functions and the alpha numeric data entry will be shown directly on the touch screen. A simple touch executes the desired function. Also status messages show up on the touch screen, depending on the function mode.

Keys and its state and other elements can be distinguished by means of a color scheme.

7.1 VISUAL REPRESENTATION OF THE OPERATING ELEMENTS AND PICTOGRAMS

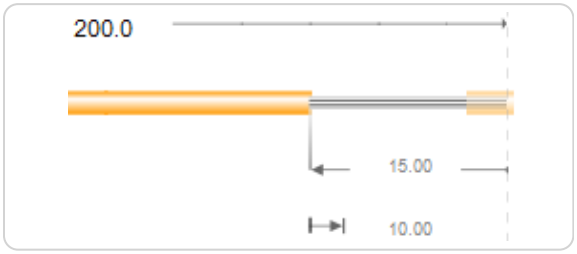
The screens partially contain the name of a distinctive wire processing machine. But it is expressly pointed out that the functions and displays of this apply also for the other machines of this family of products.

The library mode is deactivated by default on *S.ON*. But for further explanation the screens are partially represented with activated library mode.

Depending on the state of the operating elements they are distinguished with their color and shape:

Key	State	Key	State
	Key pressed		Key not pressed
	Screen selected		Screen available but not selected
	Tab selected		Tab available but not selected

7.2 GENERAL MEASURING GUIDELINES



The stripping types and length are programmed with the help of the graphical screen layout where the article is represented.

By means of the dimensioning arrows in the wire picture, it is stated which meaning the digits above and below the graphics represent.

In the set up sample, the measure 15.0 e.g. describes the right stripping position, i.e. the position viewed from the right wire end where the blades incise the insulation.

The measures are displayed in the country-specific unit. This previously must be set up in the "Configuration - Software - User interface", see chapter *"6.1 General software setup (Page 25)"*.

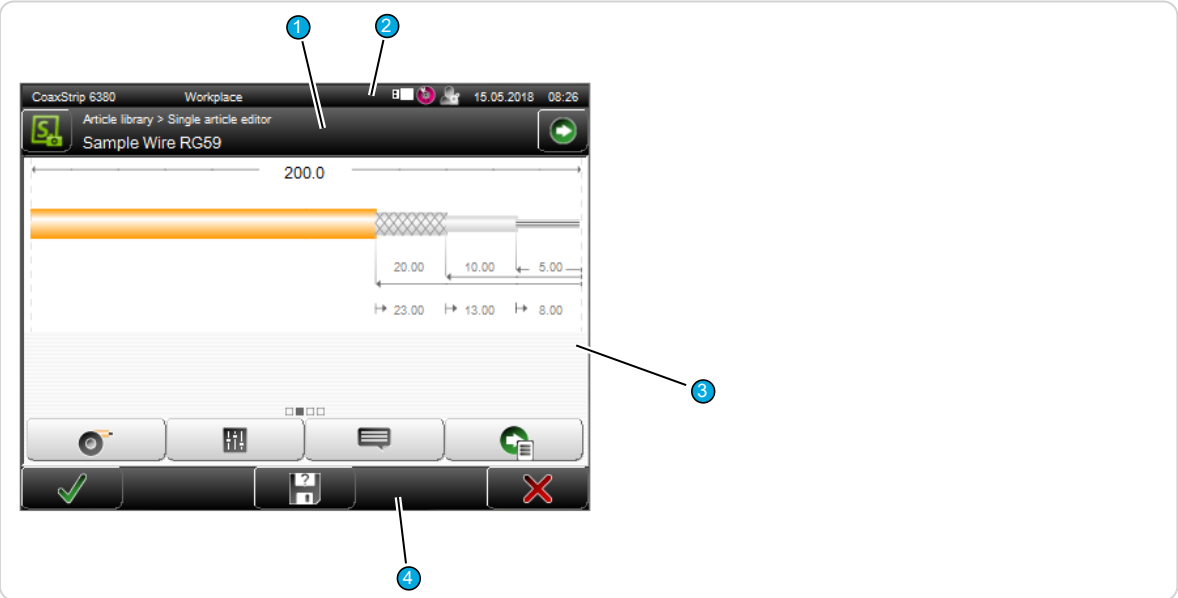
7.3 QUICK INFO

Calls up the corresponding quick info dialog for a command or pictogram. A help dialog is shown in which detailed information/commands for this element are contained.

Call function as follows:

1. Hold down and keep pressed the key or pictogram for two or tree seconds for which information is requested.
   ➥ Quick info is displayed.
2. Release key or pictogram.
   ➥ Quick info automatically disappears.

7.4 TOUCH SCREEN



1	Header area[1]	3	Content area
2	Info/machine status	4	Footer area[1]

[1]) - By touching the info/machine Status bar 2 , this area is hidden (must be enabled in the configuration).

7.4.1 Header line

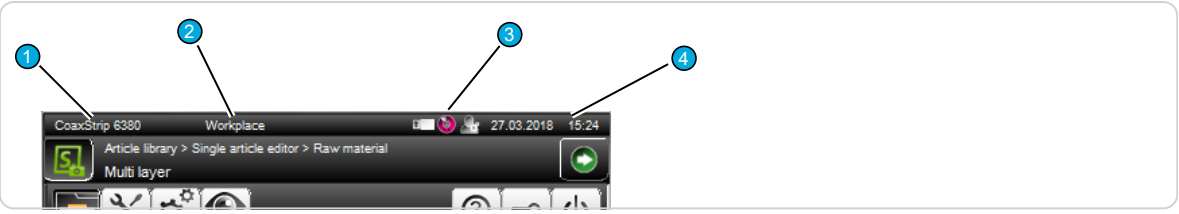
Contains the key Navigation, where most of the programming commands can be called. In addition, there is the Production key that appears when the user is in the single article editor.

For the easy identification of a function in a selected screen, we find additionally information in the header area.

- Name of the selected screen
- Currently loaded article
- Currently loaded Raw material, Processing
- Instructions for further editing in this screen

7.4.2 Info / machine status

In this area, information such as the machine name is displayed. Furthermore we find the most important preset information like connected USB devices, their state and the actual system date and -time.



1 **Product:** The type of machine and machine model.
2 **Machine name:** For example, machine #, can be defined in the "Configuration - Machine".
3 **Info area:** Connected devices, status of the configuration, refer to the table below.
4 **Internal system clock:** Display of current system- date and time.

Info area, the most important symbols:

	**USB memory stick:** Indicates the presence of an USB memory stick connected at the machine rear.
	**User level control:** If in the "Configuration - Software - User level", “User level - Available” is active, it shows in which user level the user is logged-in. For additional information to the user levels, see chapter *"Login (Page 32)"*.

7.4.3 Content area

The data entry during programming an article, takes place in this area. There are also command keys, where we can change directly to another screen (e.g. Raw material or Processing editor). Also lists are present in the content area.

By touching a certain key, a drop-down list pops up where the programmer can select preset values.

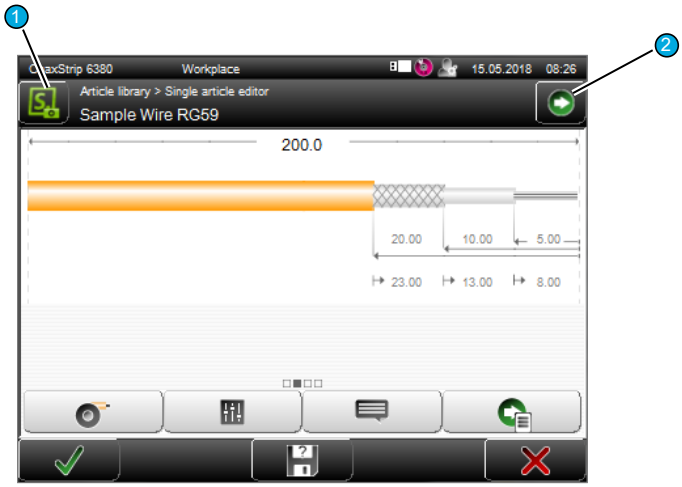
7.4.4 Footer area

In the footer area there are keys for the commands available for the whole screen or *S.ON*.

The most important general footer symbols are shown in the following chart:

Key	instruction	Description
	**Ok**	Return to next higher screen level and save entries. Is represented in the descriptions always with **[OK]**.
	**Cancel**	Return to next higher screen level, do not save the entries. Is represented in the descriptions always with **[CANCEL]**.
	**Leave**	Go to next higher screen level. Is represented in the descriptions always with **[PREVIOUS]**.
	**Save as**	Save the changed data in the current screen under a new name. Is represented in the descriptions always with **[SAVE AS...]**.

7.5 MAIN CONTROLS



1 Navigation

2 Production

7.5.1 Navigation

In the navigation we find selection keys for the main screens and advanced function keys for the management of user-level management, to display information and the shutdown command of the control software.

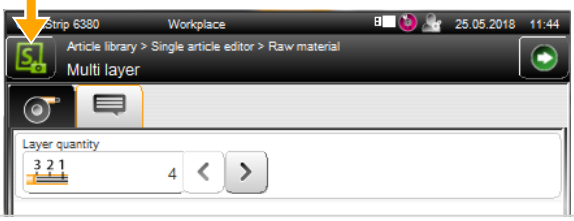
Certain keys will only be displayed if the function is activated in the configuration (e. g. User level control - Login).

If the content area or the footer line is touched, the navigation bar will be hidden.

By touching the key "Navigation", the navigation bar can be displayed in the header.

Header line with screen information and register navigation:

Navigation (key not touched)

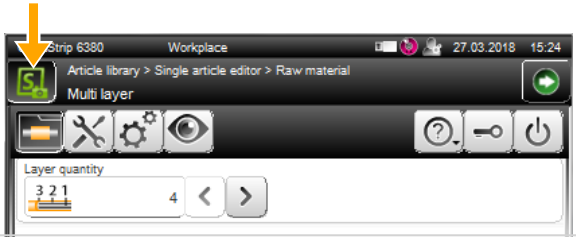


Screen information

Tab navigation

Pop-up navigation bar:

Navigation (key pressed)



Screen information

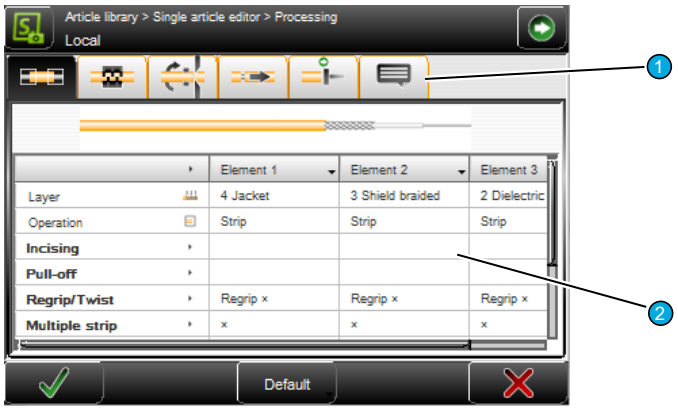
Navigation bar

Screen information

See chapter *"7.4.1 Header line (Page 28)"*.

Tab navigation

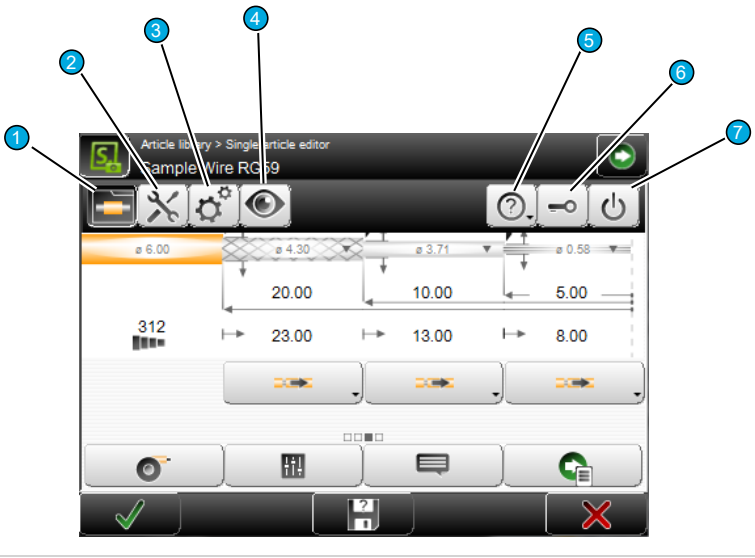
Commands and functions within a main screen will due to the space requirement and for the better overview be divided into several tabs (e.g. the Processing editor).



1 Tabs

2 Input area

After touching the button "Navigation", more global commands are shown.



1 Single article editor/article library

2 Setup

3 Configuration

4 Diagnostics

5 Info

6 Login[1]

7 Shutdown

[1]) - Only appears when in the "Configuration - Software - User Level" is activated.

Navigation description

Single article editor / article library

Display of the single article editor, where all the programming work to the article is done, or display of the article library where article records are managed.

Setup

Easy set-up work on the machine and the tools. Here also the wizard for changing blades is located. The set up is available in the user levels "Operator" and "Programmer".

Configuration

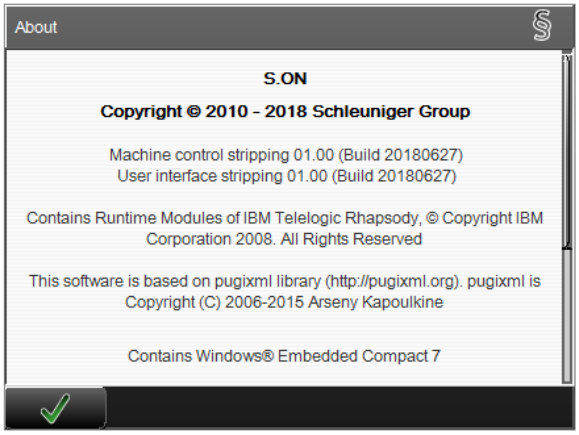
Detailed configuration of the control software *S.ON*. Setting of machine parameters. The configuration is only available in the user level "Maintenance".

Diagnostics

Detailed information system for the isolation of errors that can occur during production. The Diagnostics is only available in the user level "Maintenance".

About... (?)

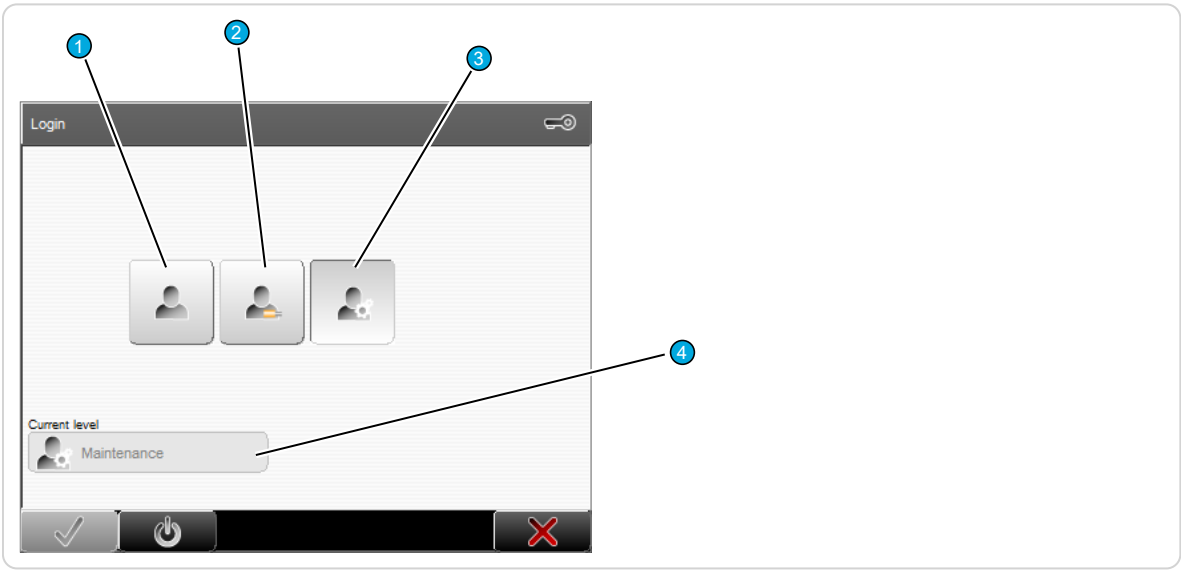
This screen informs about the used software versions and the copy rights of third party software installed additionally to *S.ON*.



See also the section in the appendix *"14.5 Licenses (Page 117)"*.

Login

If the user level in the "Configuration - Software - User Level" is turned on, this button is also displayed. Here we can change to a different user level.



1 Log-in to user level „Operator“
2 Login user level „Programmer“
3 Login user level „Maintenance“
4 Currently logged on level

The user is logging in to the appropriate user level with a password and can then access all commands and parameter settings enabled for this level.

Procedure for entering a password: After touching the corresponding key for the user level, the alpha numeric touch-keyboard is shown. In the text field it is written for which user level the password is required. The password is displayed encrypted.

1. In the log-in screen select the desired [USER LEVEL].
2. [OK]
   ➥ The alphanumeric touch-keyboard pops-up.
3. Enter the password via the keys.
4. Confirm the entry with [OK] or discard it with [CANCEL].

Shutdown

S.ON is properly shutdown and the axes move into a safe shut-down position. Before shutdown, the warning message "Really shutdown?" is shown. Then the machine can be switched off at the main switch.

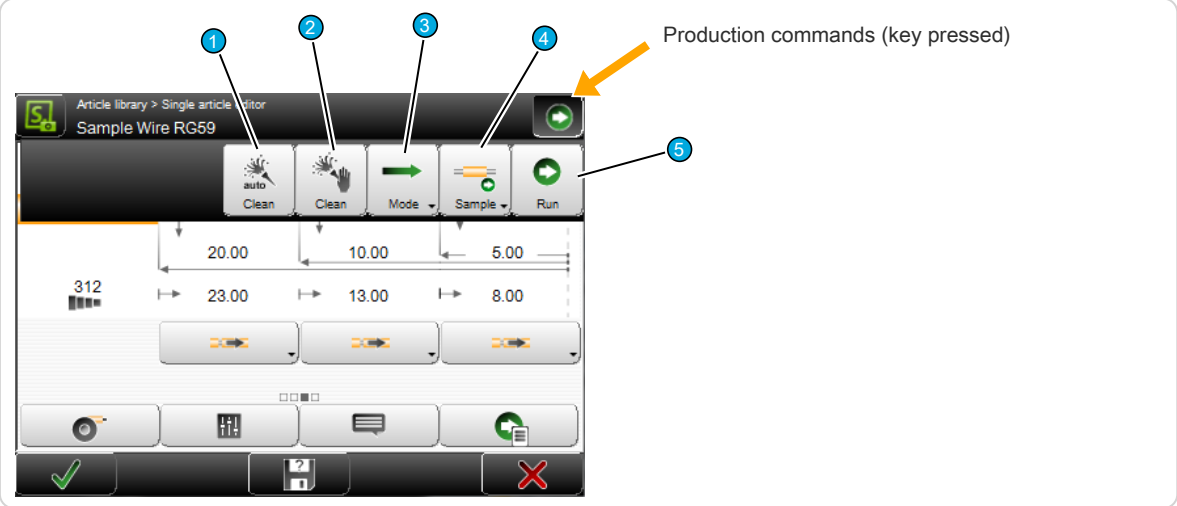
If the user was in the article editor when a shutdown is initiated, the shown/entered data are saved in a memory buffer. When a sub-screen of the article editor is opened, the data there get lost. If in the article library, instead of the article editor, the article library is displayed. On restarting, the data are loaded from the memory buffer.

7.5.2 Production

In the header line of the touch screen the button "Production" is located. Touching this, shows the production commands for the production control of the machine. If the user is in the configuration settings, the key "Production" is hidden.

Some commands have several switching states (e.g. produce sample. sample left/right). The selectable switching state is shown in the key. Certain commands depend on others and only show-up if they are selected first.

If the machine is not ready for production, some or all of the keys are hidden. In such cases no production is possible. At this point an appropriate message is shown.



1 Auto cleaning
2 Cleaning
3 Mode
4 Sample
5 Run

Cleaning / auto cleaning

Auto cleaning: Here the machine performs an automatic cleaning process and is then again ready for production.

Cleaning: If “Auto cleaning” is not enough, the key "Cleaning" can be touched. Thereby a wizard starts, which prompts you to remove the safety cover. The machine moves into the cleaning position. Afterwards, the processing area can be cleaned with a brush and/or a vacuum cleaner from wire residue. After cleaning attach the safety cover again and close the wizard.

Mode

In the normal production a programmed article is produced in one cycle if **[RUN]** was pressed. For trouble shooting or for analyzing a special article and to optimize the settings, it can be of interest to execute the production in step by step. The production is executed in individual steps.

For additional information to the “Mode”, see chapter *"10 Production (Page 71)"*.

Sample

If sample is switched off, the article is produced normally. The entered quantity is processed normally.

Sample 1

Is sample set to left or right end, the article is treated specially. For further information, see the chapter *"10 Production (Page 71)"*.

Run

The normal production of a programmed article is started. The programmed quantity and batch is produced in one cycle provided that no stop condition was programmed before.

7.6 KEYS / COMMANDS / PICTOGRAMS

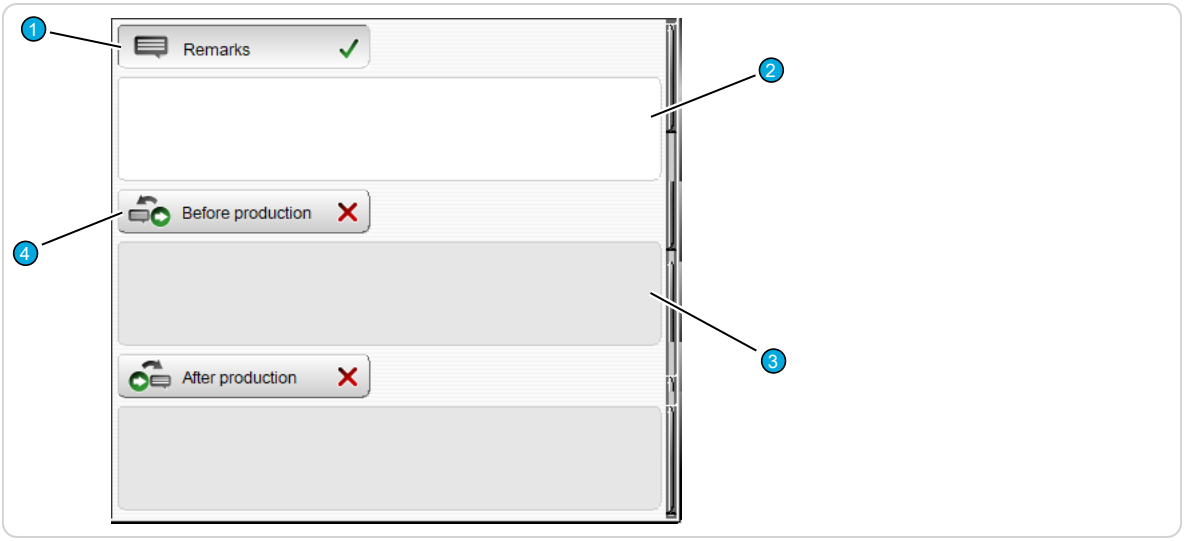
In the following chapter there is a description of the general operating elements and pictograms used on the touch screen. These elements are partially combined with symbols and/or text for the better overview.

For more information, see Chapter *"14.1 Overview of symbols (Page 113)"*.

7.6.1 Toggle key / entry field

Toggle keys are displayed depending on the function with or without symbol. They can have a different shape relating to the switching state. There are also toggle keys with or without text.

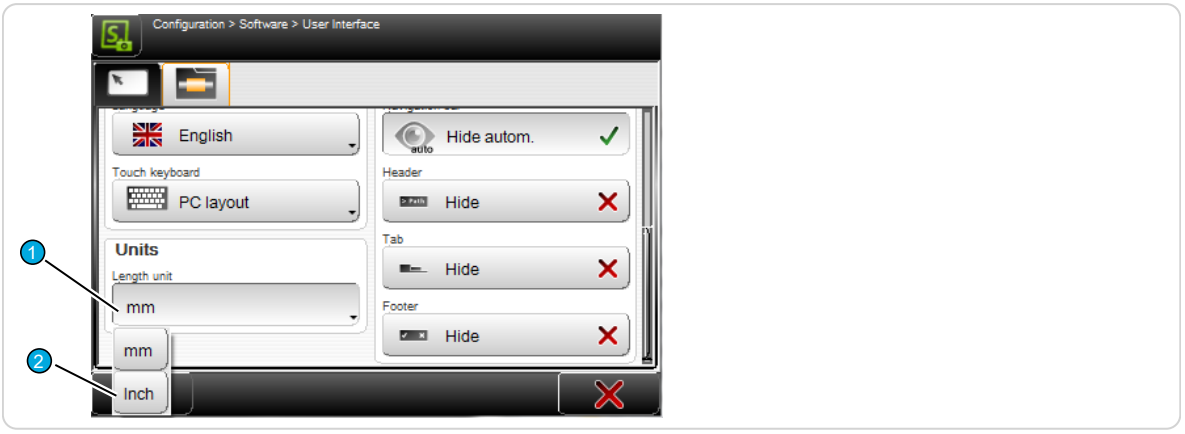
These are keys for activating or deactivating a function or a procedure. Other elements and symbols related to these functional elements, entry fields and graphics which are not assigned to a function in the selected state are grayed out or disappear completely.



1 Shift key activated
2 Entry field activated
3 Entry field deactivated
4 Shift key deactivated

7.6.2 Drop-down list

Here a selection of values (e.g. the length unit or the user interface language) can be set directly via the keys in the opened drop-down list. In the selection key itself the actually set value or the option in text form and/or the symbol is shown.

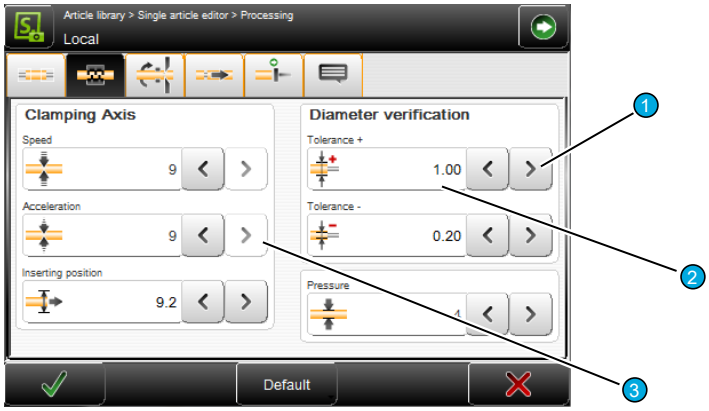


1 Set-up value
2 Drop-down list selection

7.6.3 Spin box / numeric touch keyboard

Value change directly in the entry field

With the arrow keys, the displayed value left of the arrows can be decreased and increased. If the value entry field end value is reached, the arrow button is grayed out and the value can no longer be set.

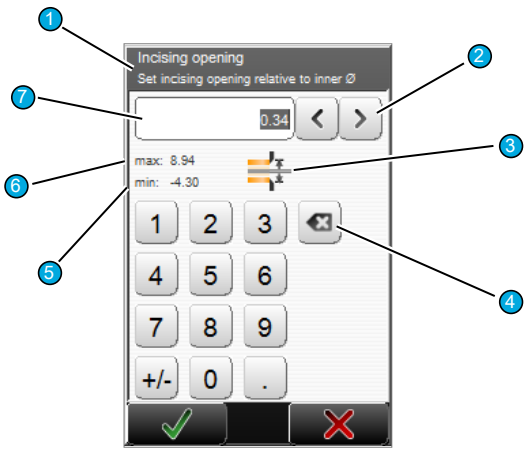


1 Spin box up/down
2 Set-up value
3 Spin box end value reached

Touching the entry area of the spin box opens the numeric touch-keyboard where the value is entered directly via the numeric keys. See next chapter.

Value change via the numeric touch keyboard

If the entry area of a spin box or a digit is touched directly, a keyboard pops-up in which the numeric value can be entered via the numeric keys.



1 Header with parameter name
2 Setting up/down
3 Pictogram of the function
4 Delete input to the left of the cursor
5 Minimum settable value
6 Maximum settable value
7 Currently set value

The entry is confirmed with [OK] or discarded with [CANCEL]. The entered values are checked in most cases. If the value is out of the allowable range, the entry cannot be confirmed with [OK]. The cursor jumps back to the data entry field.

The data entry can also be carried out via a standard PC keyboard connected to the USB-connector.

7.6.4 Alphanumeric touch-keyboard

The alphanumeric touch-keyboard is used in article lists to name list entries (e.g. part name, Raw material name, Processing name, name of an article library). They can also be used to enter or change a password.

The touch-keyboard pops-up as soon as the corresponding text field is touched.

1 Existing article list

2 New article entry field

The entry is confirmed with [OK] or discarded with [CANCEL].

1 Definition of data entry

2 Delete text left of the entry

3 Delete text right of the entry

4 Display of entered data

The text entry is confirmed with [OK] or discarded with [CANCEL].

The data entry can also be carried out via a standard PC keyboard or a barcode scanner connected to the USB-connector.

7.6.5 Special entry fields and functions

Some fields (especially numeric fields) have a special function:

Password

The password is a combination of numbers and/or letters. Only stars are shown in the field.

The following characters are not allowed during password entry: \\ / : * ? \ „ < > | and all not English characters.

Protected

Protected entry fields cannot be activated and no data entry can be made. Entry fields are protected e. g. if the user has no access right to it, or the change of the value is not provided in the actual programming type. In this case, normally the field disappears completely.

Inch / mm

All values in fields containing length units, are in „Inch" or „Millimeters". The length unit to be used has to be set in the "Configuration".

7.6.6 Dialog window

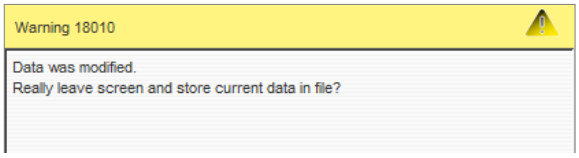
During programming or the production, the data entry is checked against their validity. For example, after a parameter change often a message is displayed, what action the user intends to change.

Information

An information is shown if *S.ON* a communication issues or a decision is necessary.

Warning

A warning is shown if a requested action from the user is risky (e. g. data loss).

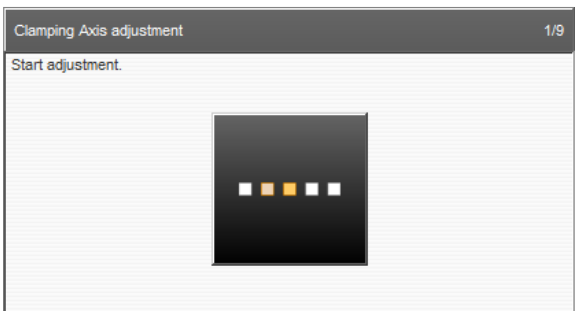


Error

An error is shown if a requested action from the user is not valid e. g. deleting a saved write protected article or if errors occur during the production. For further information to error protocols, see the chapter *"11.2.4.2 Logging (Page 87)"*.

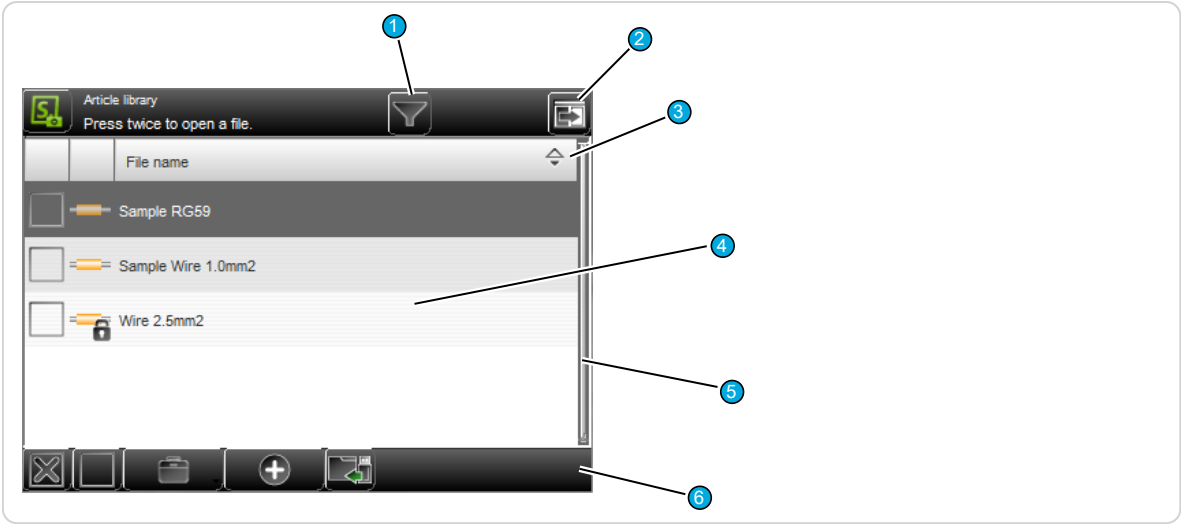
Wait dialog

There are also wait dialogs. They only contain a message, no interaction is necessary. They are used if e. g. the calculation of a set value lasts some time, or when mechanical components are to be calibrated.



7.6.7 Lists and libraries

Here data in tabular form are shown (e. g. the programmed, saved articles from the article library or Raw Material data). In the next figure an example of an article library is displayed.



1 List filter
2 List view
3 List header
4 List contents area
5 Scroll-bar
6 Global list commands

List filter

Files can be filtered according to specific criteria (e.g. to search for strings). Here a filter text can be entered in order to find the desired files.

List view

Changes the display of the file entries. We can select between "File view only" and "File view with Date".

List header line

Naming the list column. By touching a column header, the list entries are sorted ascending or descending. The sorting direction is marked with an arrow symbol on the right of the header.

List contents area

Shows data of the article library, Raw material-, Processing library and others. After touching a list entry twice, the corresponding editor is opened.

Scroll bar

By touching the touch screen and moving the finger up or down, we can scroll in the list, see chapter *"7.7 Data management (Page 39)"*.

Global list commands

Depending on the list type, we find additional common commands to the actual list (e.g. creating a new list entry, global selection/deselection of all list entries). Specific list commands are described in the respective chapters in detail.

7.7 DATA MANAGEMENT

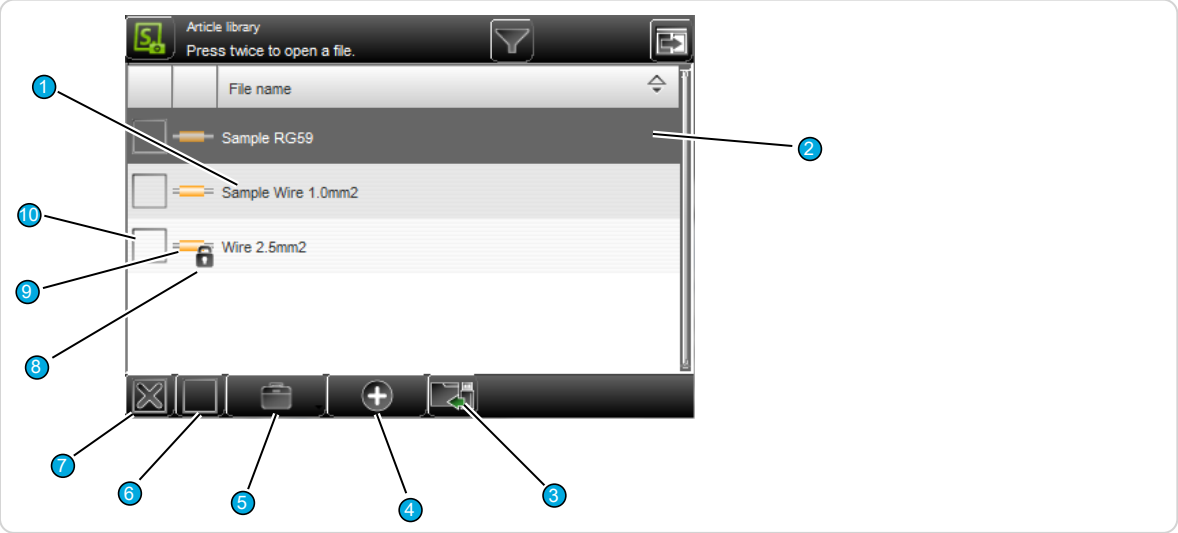
In the lists, article libraries, Raw material- and Processing libraries are loaded, created from scratch, saved, renamed and managed in other ways. Here common commands are explained, which are valid for all file screens. In all the lists we find common procedures for the file storage after programming and for the handling of the saved files. Specific file commands however are explained in the respective chapters to the processing modes in detail.

For the work with *S.ON*, there are lists for the individual processing modes and others available:

- Article library
- Raw material library
- Processing library
- Lists of data backups

Before switching off the machine after work, *S.ON* remembers from which screen the machine was switched off, e.g. if from the article editor (standard process flow, "Library mode") or from the article library. According to this, this screen is shown first after a restart. If the user level control was activated before, the log-in screen shows up first.

7.7.1 Overview



1	File description	6	Deselect all files
2	File highlighted	7	Select all files
3	Import file	8	Write protection activated
4	Create new file	9	File type
5	File options	10	File selected

7.7.2 Description

File name

Unique identifier of the file entry in text form (e.g. article number of the wire/cable). The entries are sorted alphabetically by default, but can be sorted individually by touching the column header in the respective column in ascending or descending order (arrow).

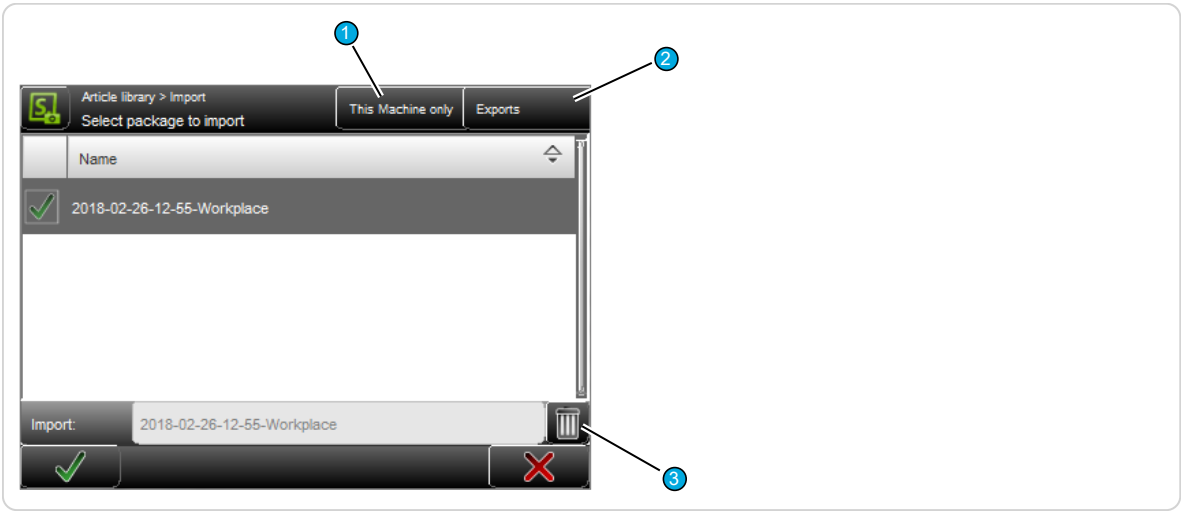
File highlighted

A file is for file manipulation (duplicate, rename), or to open in the article editor (touched again) highlighted.

Import file

Here previously exported data can be read-back (imported) from an USB memory stick connected to the rear of the machine.

In the article library also, either the selected articles only can be imported, or the import file can include the corresponding Raw material- and Processing data as well. If the file to be imported already exists, a warning message shows up.



1 File filter
2 Exports
3 Delete file

File filter

We can define, if only the configuration data shall be displayed from this machine in the list or also configuration data from other machines.

Exports

Shows only export packages or also backup packages.

Delete file

The highlighted data in the list, saved on the USB memory stick, are deleted.

Create new file

This creates a new file (e.g. a new article or a new Raw material). For easy finding the data, a meaningful name (e.g. the part number of the wire) shall be entered here.

Then the article editor is opened and the article can be programmed. More information for creating a new article are explained in the respective chapters to the processing modes.

File options

Here, more file manipulation commands are available.

- **Duplicate highlighted file:** For an existing saved file, a copy with the same settings is created.
- **Rename highlighted file:** Changes the file name of the selected file.
- **Delete selected files:** All selected (selected with a cross) files will be deleted. The files are deleted irrevocably. Before this action, the user is asked "If he really wants to delete the files?".
- **Loch/unlock selected files:** The write protection can be activated for each file individually. Inadvertently deleting or changing a list entry is not possible anymore. On any attempt, a warning message shows up!
- **Export selected files:** The selected list entries are saved to an USB memory stick. For this, an USB memory stick must be connected to the machine rear. If desired the export can include the Raw material- and Processing data as well.
- **Convert selected files:** Old selected files, created with a previous software version are converted to the actual one (this saves a conversion in the background).

Select / deselect all files

All files in the file list are selected or deselected for further manipulation.

Write protection enabled

Indicates that the file is marked via "File options" as write protected. No changes can be made to this file. The write protection can be removed via "File options" (the user hence must be logged in to the corresponding user level).

File type

Indicates what data the file contains (e.g. single article or Raw material).

File selected

At selected files the user can through the "File Options" execute additional commands (delete, lock, unlock, export, convert).

Open file

By touching the according list entry twice, the contents of the file is loaded into the corresponding editor.

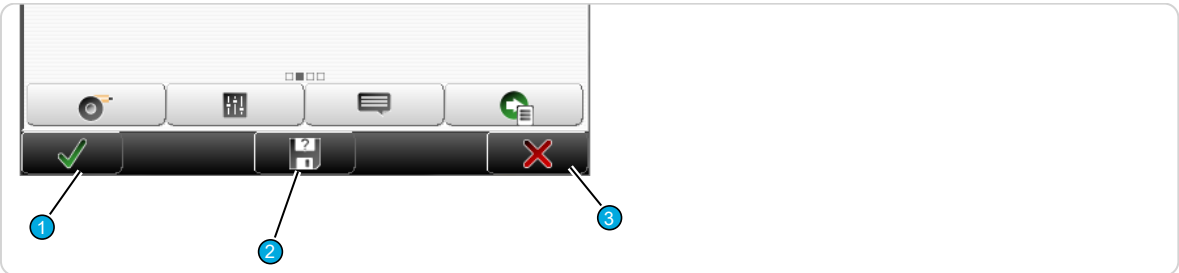
7.7.3 File name convention

While typing in the file name remember to only enter characters in the ASCII range of 1 to 127. (Invalid characters are: \\ / : * ? \ „ < > | and all non-English ones).

7.8 SAVING ARTICLE

After programming an article in the article editor, the article normally is saved permanently in the article library. If the machine was shut down without saving, the data of the actual programmed article is saved only in the memory buffer and is shown first after restarting. If also data in lower levels have been changed (e.g. Processing) however they are lost.

The relevant storage commands are available in the footer area of the respective editor:



1 Save

2 Save as...

3 Discard changes

7.8.1 Save

[OK] : All changes are written back to the library under the name defined when the article was created. First the user is asked; „If he wants to overwrite the existing data?“ -> Confirm with [OK] or discard with [CANCEL].

7.8.2 Save as...

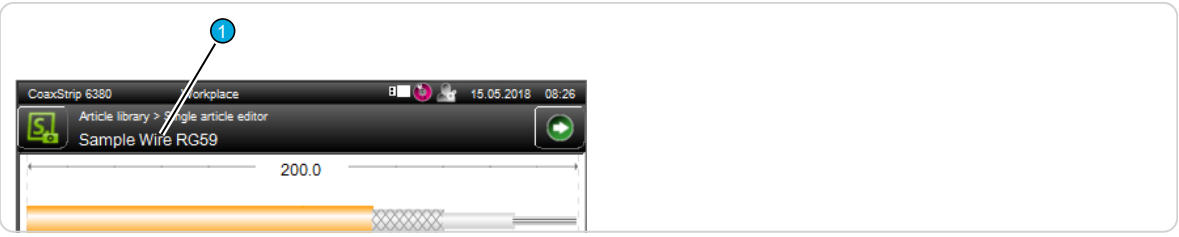
[SAVE AS...]: After changing an already available article from the library, the changed data can be saved directly under a new name to the library. The entry dialog for the new article name is shown. Enter new name and confirm with [OK]. After this, the article editor is shown again.

7.8.3 Cancel changes

Discard changes made in the article editor with [CANCEL] and go back to the article library. The previously made settings are not saved. For safety reasons, a warning message is shown „Data have been changed, really want to cancel?“.

7.9 SHOW ARTICLE

In the header area of the article editor, the actually loaded article is shown.



1 Display file name

7.10 LOAD FILE WITH BARCODE SCANNER

Generally the entry via the bar code scanner functions in *S.ON* the same way as for the touch keyboard. The value will be scanned during the scan command directly into the input field and can be confirmed with [OK] .

If the user is in the article library or in the single article editor, in case of a scan command, the barcode is read in and the article is directly opened in the single article editor. The prerequisite for this is that at least four characters of the article name already exist in the article library. If an existing article in the single article editor is in progress, which has not yet been saved, a warning message is displayed.

The barcode may also contain only the beginning of the article name. If a search is unique to the name beginning the article will be opened. If with the barcode no or several items are found, an error message appears.

Restriction: The file names must not contain spaces, since otherwise the barcode automation is not working properly.

For hardware requirements and connection of the barcode scanner, see the *"Reference manual of the machine"*.

7.11 LOADING FILE WITH AUTOMATION INTERFACE

Single articles are selected by entering a name via barcode scanner, or coding via digital inputs, and opened automatically.

The automatic loading of individual items is only available in the file list of articles as well as the main screen of the single article editor.

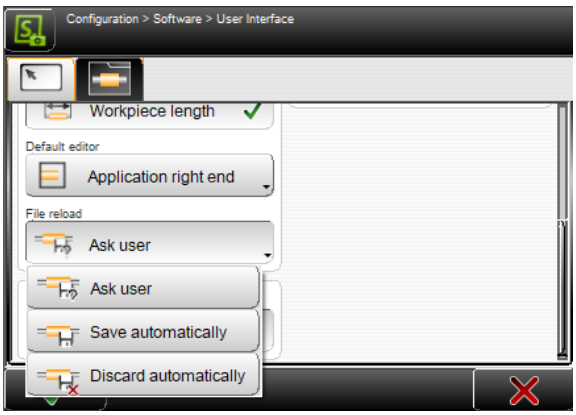
When a single article name is entered, the corresponding wire opens automatically in the single article editor.

When a dialog window is active (message, keyboard input), the names entered will be ignored.

When data of an open single article have not been saved yet, the behavior is as follows according to the configuration setting:

Asking the user

1. Follow the request to confirm the corresponding dialogs manually first.
2. In the event of an interrupted dialog by the user, the single article is not loaded.



Saving automatically

1. The opened article is saved, the appearing dialog is confirmed automatically.
2. The single article is loaded.

Discarding automatically

1. The opened article is discarded, the appearing dialog is confirmed automatically.
2. The single article is loaded.

For information on compatibility check of article and processing data, see *"Page 106"*.

STANDARD PROCESS FLOW

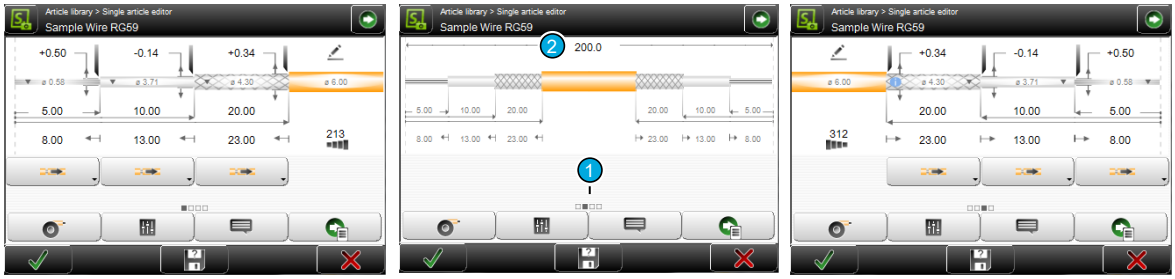
The *S.ON* control software can, as described already, program articles differently. Here all the important basic settings for the programming are described, which apply to the “Standard process flow”. The description for the other modes contains only supplementary explanations.

In the single article editor most of the settings are treated. This screen is the so called central operating platform, where the user gains access to all settings available in this user level like Raw material type, length and stripping parameters.

8.1 SINGLE ARTICLE EDITOR OVERVIEW

In the single article editor, all for this product intended articles can be programmed.

Application left end | Article overview | Application right end



- Application left end (if in the "Configuration - Software - User Interface", “One end only" is disabled)
- Article overview
- Application right end
- Production state

Depending on the configuration settings, the editor contains several main screens which can be selected with a wiping motion with your finger to the left or right.

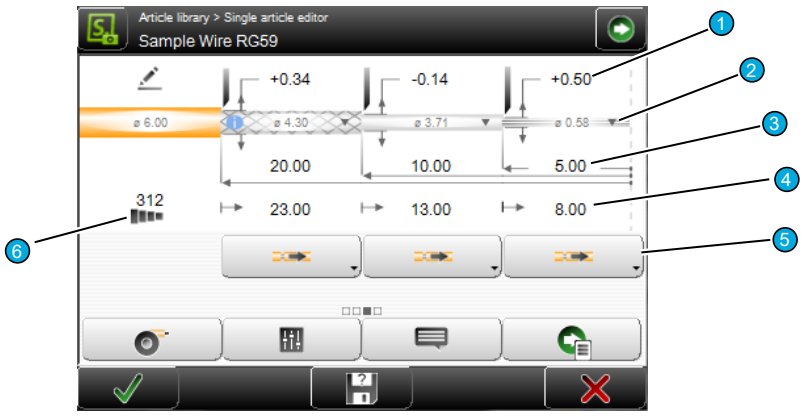
Screen identification: Via the screen identification 1 the user can identify, in which screen he is located.

Wire length: In the article overview only the wire length 2 can be changed. This value is used for "stripping" products only for the identification of the part. The display of the wire length can be deactivated in the "Configuration - Software - User Interface” under “Workpiece length”.

Production state: With a wiping motion all the way to the right, the production status would be displayed. This is not shown in this overview. For additional information to this, see chapter *"10 Production (Page 71)"*.

When creating a new article, or when leaving the Raw material editor when creating, by default the screen "Application right end” is displayed. In the "Configuration - Software - User Interface", under "Default editor", also an other of the above screens can be selected.

Raw material data as well as Processing’s and settings to the production process are treated from the single article editor, in other screens (editors), see chapter *"8.3 Single article editor further screens (Page 49)"*.



1 Incising relative/absolute
2 Processing element
3 Stripping length
4 Pull-off length
5 Pull-off type
6 Stripping sequence

8.2 SINGLE ARTICLE EDITOR DESCRIPTION

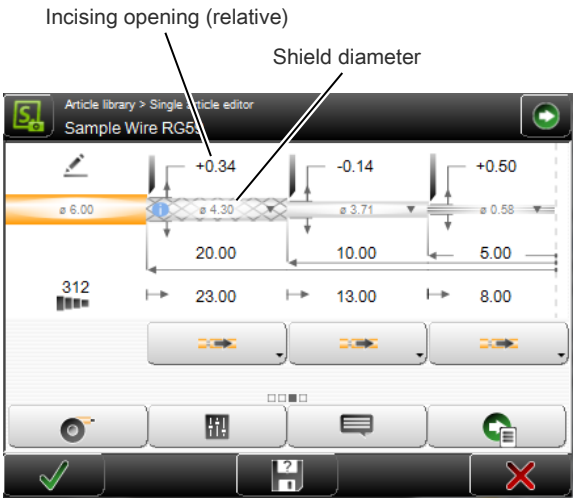
8.2.1 Incising relative/absolute

The value defines the incising diameter, or the incising opening on the individual layers.

There are two possible settings (can be defined in the "Configuration - Software - User Interface" under "Value entry method"). The default setting is "Relative to the raw material Ø".

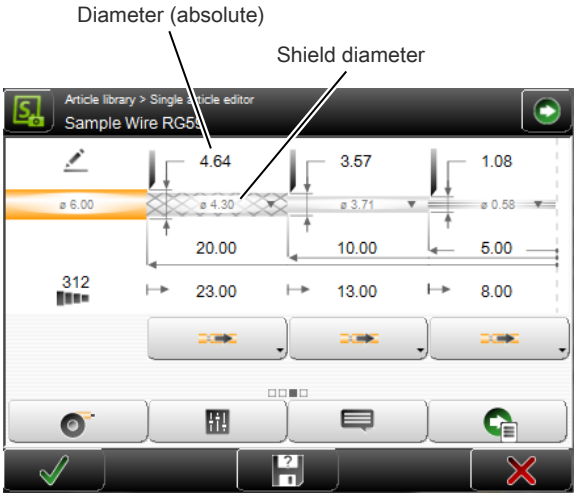
Relative to the raw material Ø

In the default setting, this is an offset in relation to the diameter of the corresponding layer (in the example, shield Ø4.30 mm + offset 0.34 mm = incising on Ø4.64 mm).



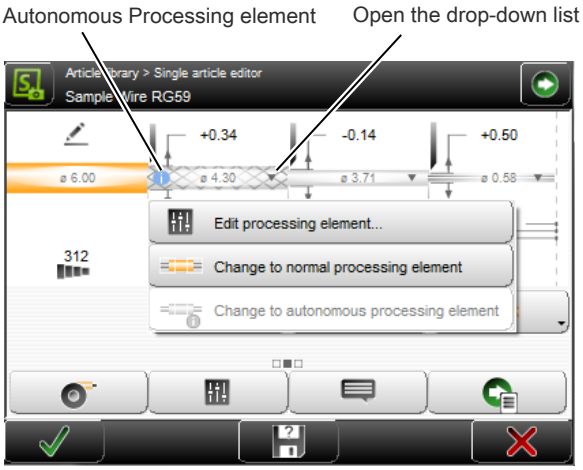
Absolute

Here directly the diameter is entered as an absolute value (example, shield Ø4.30 mm, incising at Ø4.64 mm).



8.2.2 Processing element

Touching this area (marked in the operation with an arrow pointing down), opens a drop-down list box, where for the Processing, different actions can be taken.



Change to autonomous Processing element

Switch on/off, save to autonomous Processing element. If this is selected, a copy of the Processing element is stored in the operation.

If the Processing element is set to autonomous, an info icon is displayed left of this operation.

Change to normal Processing element

The operation will be produced with the appropriate element from the Processing. It is treated the same way as on the rest of the article. When changing back, the message that the autonomous Processing element is deleted, is shown.

Edit Processing element

Here we can jump to the Processing element column, which belongs to this operation. The values can be edited there directly.

8.2.3 Stripping length

Defines the position where the blades incise the insulation.

8.2.4 Pull-off length

Defines how much to pull- off on the corresponding layer. The pull-off length by default is always chosen a little bigger as the stripping length so that a full strip is produced.

- **Full strip:** The pull-off length must be selected greater than or equal to the stripping length.
- **Partial strip:** The pull-off length must be selected less than the stripping length.

8.2.5 Stripping type

Defines how the corresponding layer is to be processed. The following stripping settings are available:

	Setting	Description
	**No stripping**	If the corresponding layer for example for test purposes, during the stripping process shall be skipped, this stripping setting can be selected.
	**Normal stripping:**	(Default value) The layer is stripped normally by the entered stripping length.
	**Pre-processed operation**	Is used when the corresponding layer has already been processed (for example, if the shield of the raw material to be processed has already been stripped).
	**Stripping with twist**	To avoid that the strands fray, they can be twisted during the stripping process. During the pull-off action, the article is hold tight with the centering jaws and the rotary incising unit rotates thereby. It is possible to set the level of twisting strength and the pull-off speed in the processing.

8.2.6 Stripping sequence

For the multi layer applications, if necessary, the stripping sequence can be changed. This leads to faster processing, depending on the Raw material and/or better stripping results and reduces wear on the blades.

There are preset stripping sequences, but the sequence can also be entered manually, by entering numbers directly.

8.3 SINGLE ARTICLE EDITOR FURTHER SCREENS

Raw material data as well as Processing's and settings to the production process are treated based from the single article editor in different screens (editors).

1 Init *"Page 49"*
2 Raw material editor *"Page 51"*
3 Processing editor *"Page 53"*
4 Comment[1] *"Page 60"*
5 Production settings *"Page 60"*

[1]) - Only visible when in the "Configuration - Software - User Interface", under "Comment fields", activated.

8.3.1 Init

Defines basic settings for the article. When a new article has been invoked, after entering the product name this screen is automatically called and the setting "Create with Data Sheet" is selected.

1 Single article creation type
2 Raw material type
3 Application left/right

Single article creation type

Select whether the loaded article should be processed directly, or whether a new article on the basis of its data sheet should be created by entering the Raw material data. After touching [OK], on the second method, the Raw material editor is displayed.

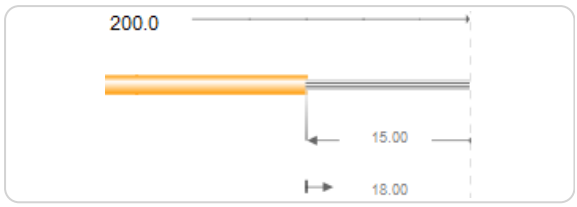
Raw material type

Selection of the Raw material type, single conductor or multi layer. For more details on the Raw material, see chapter *"8.3.2 Raw material editor (Page 51)"*.

Application left / right

Defines the End setting (end application) on the article. There are different ways (pre-settings) which depending on the Raw material type save a lot of programming steps. Be sure to select the method best suited for the current Raw material, respectively the current task. Steps are generated depending on the quantity of layers of the material.

Full strip

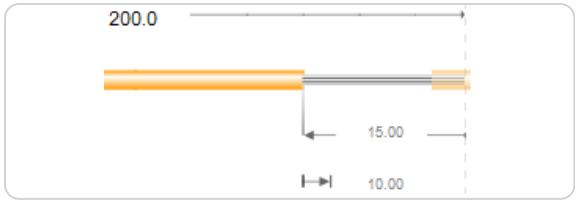


This stripping type is suitable for removing the jacket of standard wires, or for stripping the insulation from 2-layer wires.

If the pull-off length is greater than the stripping length, a full strip is performed. By default, the length of the pull-off length specified by the software is always slightly larger than the stripping length.

In the example shown here, the article is produced with a full strip of 15 mm.

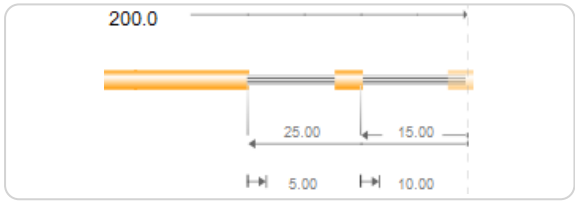
Partial strip



This stripping type is suitable for removing the jacket of standard wires, or for stripping the insulation from 2-layer wires. The partial strip prevents fraying of the individual strands of the conductor. The pull-off length is 10 mm, which produces a partial strip at a stripping length of 15 mm.

The value for the pull-off length is only defined in the application left/right.

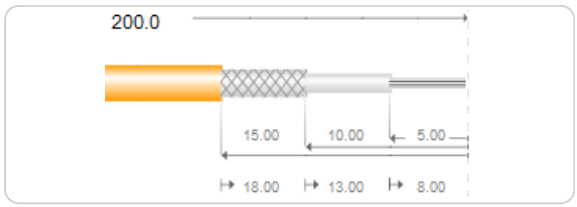
Double strip



This processing type is suitable for individual stripping and stripping with windows.

In the example opposite, in addition to the partial strip, a window with a length of 5 mm is created at the position 25 mm from the right end.

Multi layer



This application type is well suited for coaxial cables, also when partial strips are to be programmed.
Inserts an usually immediately producible full strip for all processable layers.

In the example opposite three layers are stripped fully.

Copying the other end to this end

Copies all the end settings from the opposite end application to the selected one. This command also copies all the Processing values. This way one end can be programmed and as soon as all settings are verified, it can be copied to the other side.

8.3.2 Raw material editor

In *S.ON* for the standard process flow, pre-defined raw material types specified in the "Init" screen are available for selection:

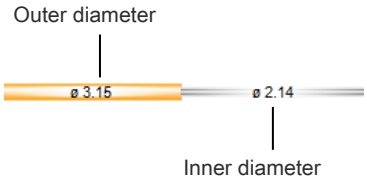
- Single conductor
- Multi layer

This describes the Raw material composition divided in layers. This gives an understanding to the machine what it processes. For example it can check via the outer diameter if the correct raw material is loaded, or it knows how many layers can be stripped (thus if it is a stranded wire, only layer 2 or a multi layer cable, where the layers 2 or 3 can be stripped).

The correct and accurate capture of Raw materials is essential for the processing of the article. On the basis of the Raw material, the optimum production Processing parameters are calculated.

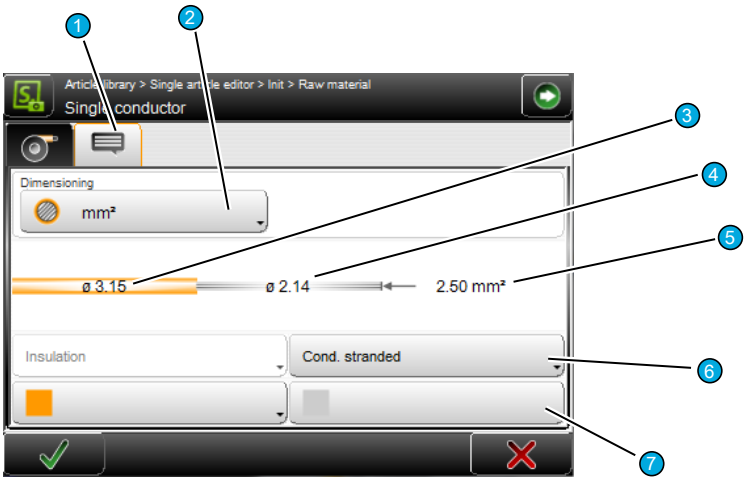
Overview of standard Raw Materials

The chart bellow gives an overview of the Raw material measuring mode.

Measuring	Definition
AWG solid	Raw material is defined as American Wire Gauge solid wire.
AWG stranded	Raw material defined as "American Wire Gauge" with stranded wire.
mm^2 solid	Raw material defined as conductor diameter in mm^2 with solid wire.
mm^2	Raw material defined as conductor diameter in mm^2 as stranded wire.
Diameter ∅	Here the user determines the inner and outer diameter himself.
	

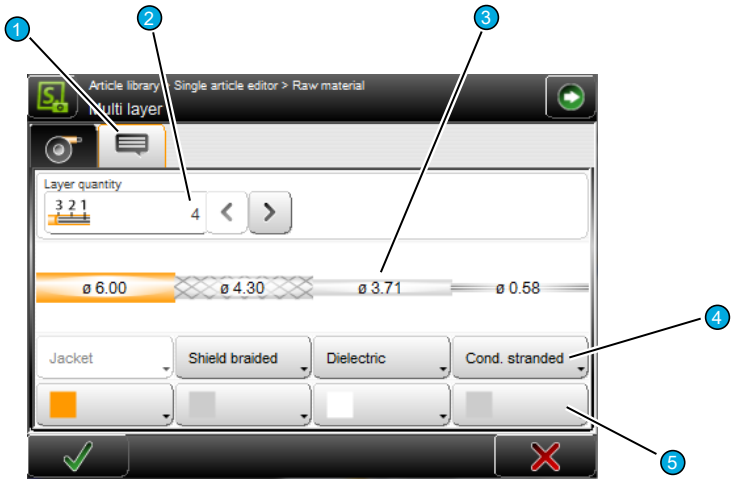
For the Raw material type “Multi layer” only the measuring mode “Diameter ∅“ is available.

Overview Raw material editor single conductor



1 Raw material comment
2 Measuring mode
3 Outer diameter
4 Inner diameter
5 Measuring (AWG or mm^2)
6 Purpose of layer
7 Layer color

Overview Raw material editor multi layer



1 Raw material comment
2 Layer quantity
3 Diameter
4 Layer function
5 Layer color

Description Raw material editor

Raw material comment

Defines a comment on the Raw material, for example, to prompt to change it. The tab can be hidden in the "Configuration - Software - User Interface".

Measuring

Defines which Raw material measuring type to be used.

The following measuring modes are available:

- **mm²:** The conductor cross section can be changed.
- **AWG:** The value is selected from a drop-down list with predefined AWG measures.
- **Diameter:** The insulation and conductor diameter can be set.

If a raw material does not correspond exactly to the specifications, which should correspond to the dimension "mm2" or "AWG" by default, this can be adjusted by correcting the inner and / or outer diameter.

AWG and mm² values are reset to their initial values, when switched from "Strands" to "Solid" (only *CoaxStrip 6480/6580*).

Layer quantity

Selection of the number of layers in the Raw material if the Raw material type is set to "Multi layer".

Measure / diameter (inside / outside)

Here in accordance with the setting under "Measure", the cross-section or the diameter of the used Raw material and the cross-section/diameter of the individual layers is defined. This is a measure which informs the machine how far the clamping- and centering jaws shall close after loading the Raw material.

The correct dimensioning of the Raw material is also absolutely necessary for the Processing defaults.

Layer function

Serves for further specification of the measuring type and the visual representation of the Raw material. Depending on the setting under “Raw material type”, additional layer functions are listed here.

- Jacket
- Shield: Solid, foil, braided, corrugated, dielectric
- Conductor: Solid, stranded
- Insulation or dielectric

This entry is important for the generation of the default values.

Layer color

Is used for the visual colored representation of the conductor. This function has no effect on other settings.

8.3.3 Processing editor

Overview

The way in which *S.ON* processes a certain type of articles is defined in the Processing. The Processing describes how the machine a Raw material type (for example, a stranded wire) shall process. This is defined by data such as speed, pull-off opening etc... The settings for the Processing are entered in the Processing editor.

Functional overview of the individual tabs in the Processing editor:

Tab		Description
	Processing elements	Parameter settings for the individual elements (incising, rotation, pull-off, regrip, twist).
	Clamping	Settings for the clamping jaw positioning and the pressure force.
	Rotation/centering	Settings on the rotary incising unit and the centering unit.

Tab		Description
	Pull-off	Offset adjustment of the pull-off axis.
	Production start/trig-gering	Definition of the insert method of the raw material. Activation of the automatic wire end detection (CS 6380/6480).
	Comment	General comments on the articles to be produced during the Pro-cessing change.

Default

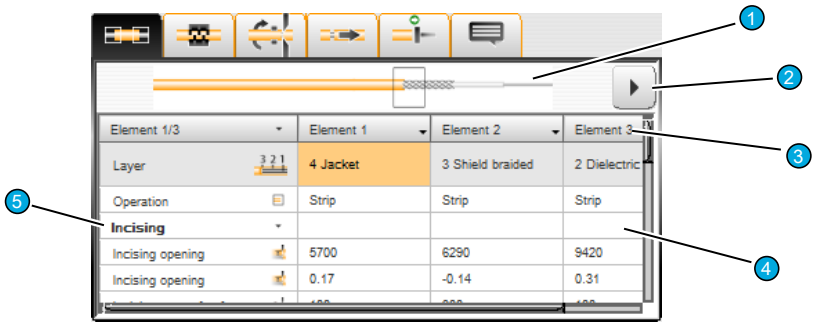
In contrast to the general "Default" setting determined from the Raw material during the program-ming, there is the default function in the Processing, where further selections can be made:

- Apply for selected element (only for the tab "Elements")
- Apply for current tab
- Apply for all tabs

Processing elements

Applies to all settings of the Processing elements. Here the behavior of the machine during the pro-duction process is defined. Processing elements may be set for each layer of the article individually. This can be values like incising diameter, possible operating modes etc.

General overview



1 **Application type:** Schematically representation of the loaded application with display, which Processing element actually is selected.

2 **Next element:** With the key, we can navigate to the next element.

3 **Header line element column:** Defines the corresponding element.

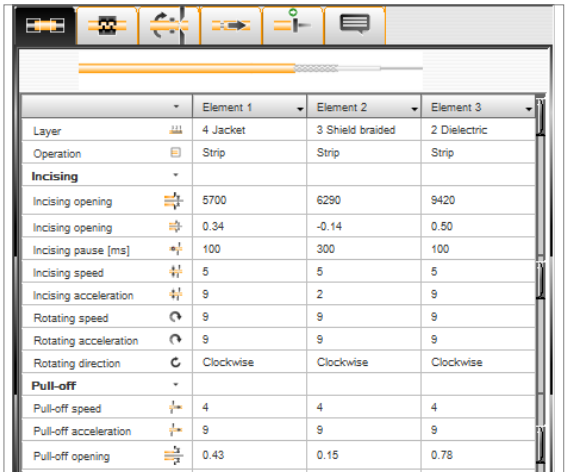
4 **Content area:** Display of the settings of a particular element. After touching the element, the appropriate setting can be edited directly.

5 **Main title of settings:** By simply touching a major title in the element table (e. g. cutting), other settings specific to this theme are unfolded. This is marked with an arrow pointing down.
To unfold all the main titles, touch the header line of the element description.

Settings

Layer: The to the corresponding element belonging layer (jacket, shield, dielectric, conductor).

Operation: The operation to be carried out on this element (stripping), see *"8.2.5 Stripping type (Page 48)"*.



Incising - Incising opening: In the default setting, this is an offset in relation to the diameter of the corresponding layer (in the example, shield Ø4.3 mm + offset 0.23 mm = incising on Ø4.53 mm). In the “Configuration - Software - User interface", under "Value entry method", “Relative to raw material Ø" must be activated. More about relative/absolute entry, see chapter *"8.2.1 Incising relative/absolute (Page 46)"*.

Incising - Incising pause [ms]: On most insulation materials it is helpful to wait a specified time after the incising. Extremely elastic materials and braids will first be pressed together by the blades a little during cutting and only after a certain time incised. By a waiting time the insulation will be better separated. It can be defined with the „Incising pause" in Milliseconds. With extremely flexible materials, a longer pause results in proper cuts.

Incising - Incising speed: How fast shall the incising take place. Affects the stripping quality, but at the cost of the entire processing speed. The incising speed speed is changed in steps of 0 to 9.

Incising - Incising acceleration: How much shall be accelerated on incising. Affects the stripping quality. The incising acceleration is changed in steps of 0 to 9.

Rotation - Rotating speed: How fast should the blades rotate during processing. Affects the stripping quality. The rotation speed is changed in steps of 0 to 9.

Rotation - Rotating acceleration: How fast should the rotation of the blades accelerate during processing. The rotation acceleration is changed in steps of 0 to 9.

Rotation - Rotation direction: Selection of the rotation direction of the blades. This setting is dependent on the raw material type (special shield braids). It only in very rare cases makes sense to change the direction of rotation. The blades are then pulled inward by the friction of the material. By default, the blades are pressed outward.

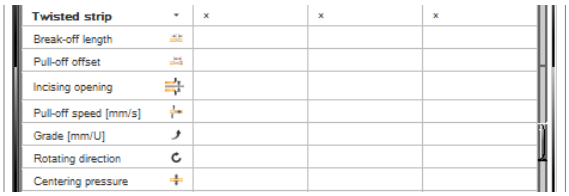
Pull-off - Pull-off speed: How fast should the insulation be stripped. Not all materials adhere equally onto the layer that they cover. For tightly adhered jackets we recommend to pull them off slowly. Affects the stripping quality, but at the cost of the entire processing speed. The pull-off speed is changed in steps of 0 to 9.

Pull-off - Pull-off acceleration: How much shall be accelerated during pull-off. The pull-off acceleration is changed in steps of 0 to 9.

Pull-off - pull-off opening (if relative): Correction of the pull-off opening on the individual layers. Offset in relation to the inner diameter of the corresponding layer. On this diameter shall the layer be pulled-off (for example, shield + offset 0.23 mm = pull-off on Ø4.53 mm). In the “Configuration - Software - User interface", under "Value entry method", “Relative to raw material Ø" must be activated. The pull-off opening must not be less than the incising diameter. Otherwise, the value is corrected (warning message).

Pull-off - pull-off diameter (if absolute): Correction of the pull-off diameter on the individual layers. On this diameter the layer is stripped. In the “Configuration - Software - User interface", under "Value entry method", “Absolute" must be activated.

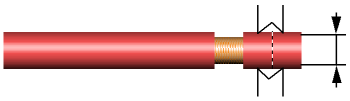
Twisted strip: These functions are used to protect the inner conductor.



- Break-off length: Length used to break the insulation.

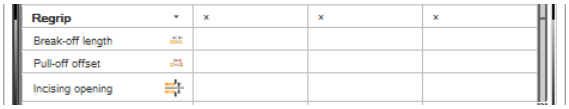
- Pull-off offset: Offset used for the regrip position.

- Incising opening: Incising opening relative to the inner diameter.



- Pull-off speed [mm/s]: How fast should be pulled-off during twisting.
- Grade [mm/U]: How fast should the blades rotate during twisting. The grade of the twisting.
- Rotating direction: Selection of the rotating direction while twisting. Also dependent on the used raw material.
- Centering pressure: Defines the clamping pressure force of the centering jaws during twisting.

Regrip: These functions are used to protect the inner conductor.

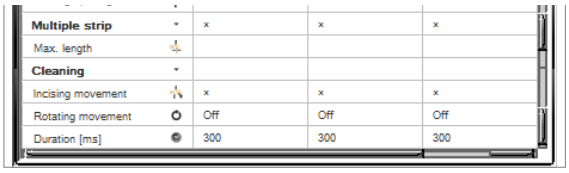


- Break-off length: Length used to break the insulation.
- Pull-off offset: Offset used for the regrip position.
- Incising opening: Incising opening relative to the inner diameter.

Regrip additional statements

With "Regrip" activated, the procedure is as follows:

1. Incision + pull-off opening	
2. Break while feeding	
3. Open	
4. Regrip with feeding by “Pull-off offset”.	
5. Stripping on „Pull-off opening“	



Multiple strip: Stripping in several sub-steps divided, advantage on tough insulations. The divisions are selected in a way that the last part of the entry corresponds to "Multiple strip max. length". The rest is divided into equal parts.

Multiple strip - Max. length: Defines the maximum length for each individual insulation piece while on "Multiple strip".

Cleaning - Incising movement: Activates a moving action of the blades and the centering jaws against each other (cleaning movement). This will remove residues more efficient.

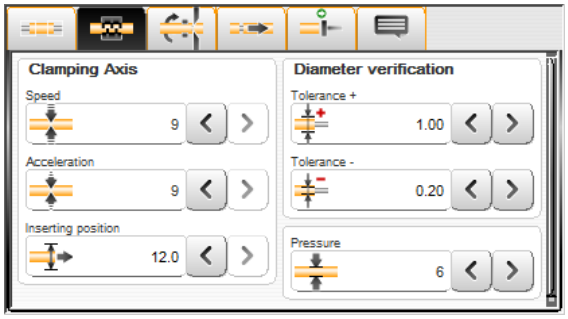
Cleaning - Rotating movement: Activates the function rotating movement. Due to static charging, residues of stripped material often stick on the blades or the stripped material remains stuck in the processing area. With this function the cutting unit rotates shortly after stripping so that the residues will be ejected.

Cleaning - Duration [ms]: Defines how long the corresponding processes shall last.

Clamping

Describes the settings for the overall positioning and clamping force of the clamping jaws during the stripping process.

Clamping axis



Speed: The value changes the speed of the clamping jaws when closing and opening. The speed is changed in steps of 0 to 9.

Acceleration: The value changes the acceleration of the clamping jaws when closing and opening. The acceleration is changed in steps of 0 to 9.

Inserting position: Defines the position of the jaw opening while inserting the raw material.

Diameter verification

Tolerance ±: After clamping the raw material, the machine checks if the outer diameter of the raw material matches with the settings in the software. Here a tolerance value is entered, how large the deviation can be until the machine issues an error message. These settings are only active when in the "Configuration - Assemblies - Clamping axis", the "Diameter verification" is set to "Available".

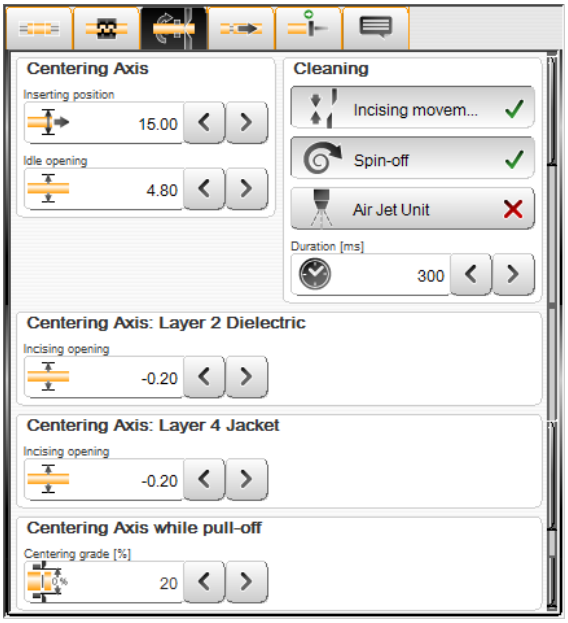
Pressure

Defines the compressive force exerted by the clamping jaws on the raw material after the stripping process has been started.

Rotation / centering

Concerns the functions on the rotation and the centering axis.

Centering axis



These settings are global for all layers.

Inserting position: Opening of the centering jaws while inserting the raw material.

Idle opening: Opening of the centering jaws relative to the outside diameter during pull-off. On intense natural bending of the raw material, this value should be kept large. This is at the cost of the entire processing speed.

Cleaning

These settings are intended for the cleaning after the production.

Incise movement: Activates a moving action to separate the slug from the blades and the centering jaws.

Spin-off: Activates the function spin-off. Due to static charging, residues of stripped material often stick on the blades or the stripped material remains stuck in the processing area. With this function the cutting unit rotates shortly after stripping so that the residues will be ejected.

Air jet unit: Activates the optional air jet unit for blowing off the slug.

Duration [ms]: Defines how long the corresponding processes shall last.

Centering axis: Layer 1 - x:

Incising opening: Opening of the centering jaws during the incision.

Centering axis while pull-off:

Centering degrees [%]: The relative position of the centering jaws during pull-off.

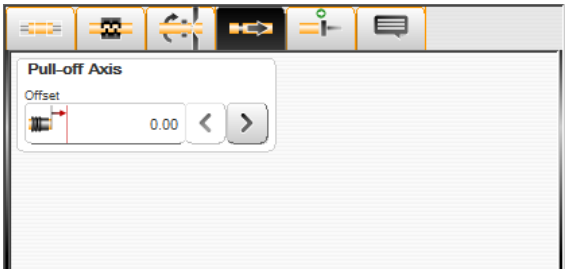
Opening %	Description	
0	Centering jaws are exactly at the height of the blades	Minimal guidance during pull-off
100	Centering jaws are exactly on the outer diameter of the underlying layer under the centering jaws	Maximum guidance during pull-off

Strip

Describes the settings for the pull-off of insulation, dielectric, shield.

Pull-off axis

Offset: An offset relative to the clamping jaw position. Is used e.g. if already a "Seal" is attached to the raw material and shall not be clamped on this position. The offset limits the maximum possible stripping range.



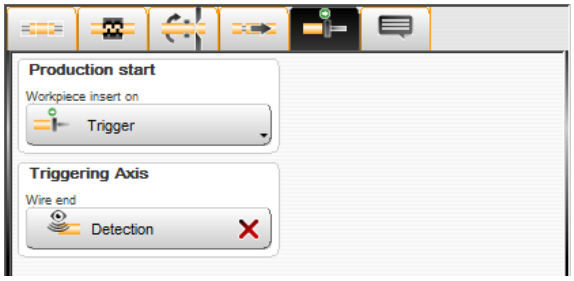
Triggering

Describes the settings for the trigger axis.

Production start

Workpiece insert on: Determines on what the raw material should be positioned when inserting. The following settings are available:

- Trigger
- Centering jaws
- Blades (automatic inlet)



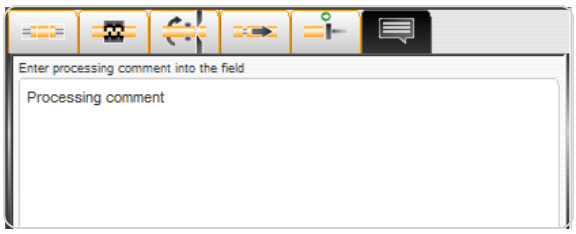
For more information on the production start, refer to the reference manual of the *CoaxStrip 6380*.

Triggering axis

Wire end - detection: After touching the trigger when inserting the raw material, the jaws close and the trigger unit moves back. If the wire end detection is turned on, the position of the wire end is precisely detected with the trigger. This function is used if the stripped lengths should be accurate. This function hence is at the cost of the entire processing speed.

Processing comment

Here a comment can be entered when the Processing has to be changed. The tab can be hidden in the "Configuration - Software - User Interface".



8.3.4 Global comment

Overview comments / messages

1 Activate comments/messages

2 Comment/message text

Remark fields for comments in conjunction with the to be produced article.

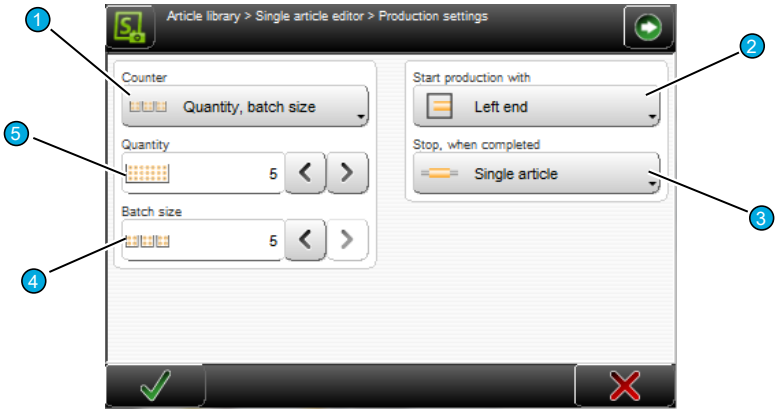
It is also possible to enter messages that should appear before production and after production.

Comments and messages are entered before the production and then, displayed depending on the application.

The function key "Comment" in the single article editor can be hidden in the "Configuration - Software - User interface".

Production settings

Overview



1 Counter

2 Start production with[1]

3 Stop when completed[1]

4 Batch size

5 Quantity

[1]) - Is displayed only when both ends have been programmed.

Counter

According to the processing show more or less production parameters.

There are three possible variants.

- **Produced only:** Shows only the produced articles.

- **Quantity:** Also the number of produced items can be entered.
- **Quantity, batch size:** In addition to the quantity also the batch size can be entered.

Start production with

Choose whether the production process should begin with the left or right end.

Stop when completed

The production will be stopped if one of the following items is reached.

- **Batch size:** The production is stopped after each produced batch.
- **Quantity:** Defines when changed from one end to the other.
- **Single article:** The production is stopped after each produced article.

Batch size

Entry of the total quantity of batches to be produced.

To break down the quantity defined under "Quantity", a batch value can be entered which subdivides the production of the article into smaller quantities (batches). Depending on the settings in "Stop when completed", the production is stopped after each produced batch and a message shows up on the touch screen.

Quantity

Entry of the quantity of articles to be produced.

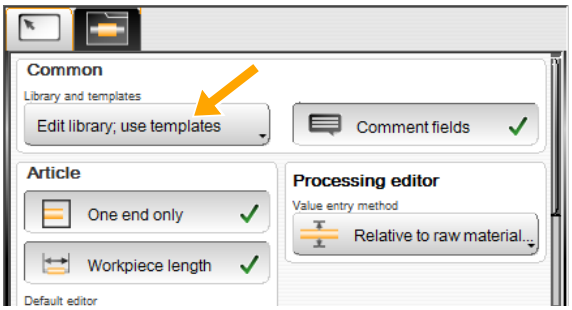
LIBRARY MODE

To be able to use this mode the correct way it is essential to study the chapter *"8 Standard process flow (Page 45)"* first. Here only the functions which differ from the standard process flow or added new functions are described.

9.1 ACTIVATING LIBRARY MODE

In order to use the library mode, it must first be enabled in the configuration.

1. NAVIGATION
2. [CONFIGURATION]
3. [SOFTWARE]
4. [USER INTERFACE]
5. Under [LIBRARY AND TEMPLATES], set as follows.



- **None:** The use of Raw material or Processing data from the library is completely disabled.
- **Use templates:** Raw material data from the library can be used as templates for new articles and will be thereby copied to newly created articles.
- **Edit library; use templates:** In addition to the use as templates, new articles can be created to library data as links. The data in the Raw material- and Processing libraries can be edited and managed.

Calculation of the Processing values based on the Raw material) is not available in this form in the library mode. When changing from standard process flow in the "Library" mode, from the raw material hence a library Raw material and from the Processing a library processing can be stored.

Caution: As already described in the wire processing concept, in the library mode, the adaptive default value calculation out of the Raw material is not available. Adaptation of the Raw material must be manually transferred into the Processing.

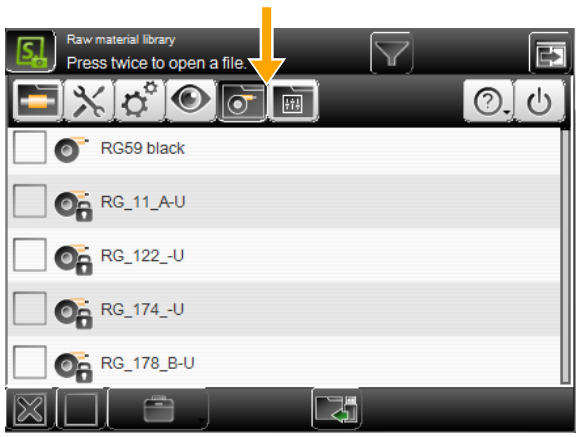
Alternative: Convert the library data record to local, adapt the Raw material with the default value support and then save it back to the library.

The following screen shows the single article editor in library mode. In the content area at the top, the Raw material and the Processing associated from the corresponding libraries are displayed. The raw material can no longer be edited directly. This must be called and edited in the Raw material library.

1 Raw material library

2 Processing library

In the navigation bar there are two new entries which direct to the Raw material and Processing libraries. These files can be as already mentioned, edit there.



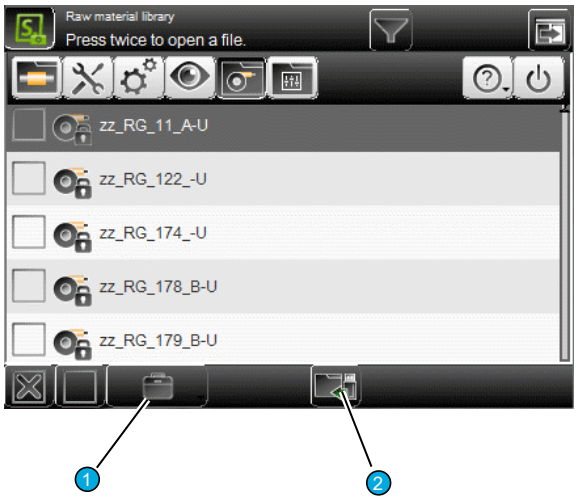
9.2 RAW MATERIAL LIBRARY

The initial products - that is to say raw materials, inserted to the machine - are saved in the Raw material library as records. These records describe how an article is made up (e.g. a multi layer article). This includes the type (e.g. twisted pair cable).

In the Raw material library, alternatively to the file management, there is also the ability to edit Raw material parameters but independently from articles.

When deleting a raw material, first the article library is searched for its use.

9.2.1 Raw material library list view



1 File options

2 Import file

For the description of other elements in the Raw material list, see Chapter *"7.7 Data management (Page 39)"*.

File options

Here, more file manipulation commands for the Raw material are available.

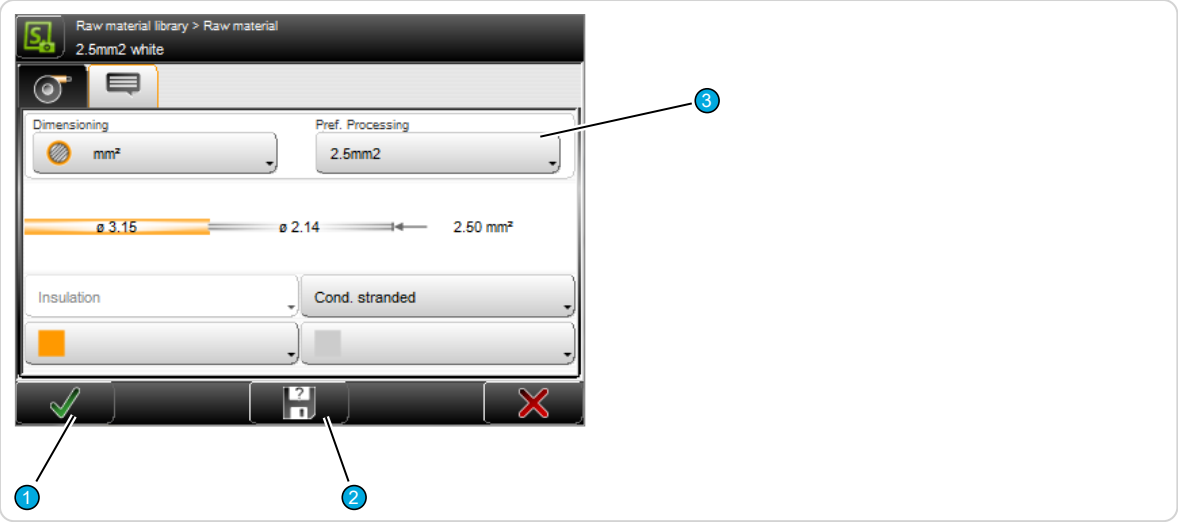
- **Duplicate highlighted file:** For an existing saved file, a copy with the same settings is created.
- **Rename highlighted file:** Changes the file name of the selected file.
- **Delete selected files:** All selected (selected with a cross) files will be deleted. The files are deleted irrevocably. Before this action, the user is asked "If he really wants to delete the files?".
- **Loch/unlock selected files:** The write protection can be activated for each file individually. Inadvertently deleting or changing a list entry is not possible anymore. On any attempt, a warning message shows up!
- **Export selected files:** The selected list entries are saved to an USB memory stick. For this, an USB memory stick must be connected to the machine rear. If desired the export can include the Raw material- and Processing data as well.
- **Convert selected files:** Old selected files, created with a previous software version are converted to the actual one (this saves a conversion in the background).

Import file

See chapter *"7.7.2.3 Import file (Page 40)"*.

9.2.2 Raw material editor

An existing Raw material is processed. The Raw material editor is opened.



1 **Saving Raw material:** In the Library mode, the changed settings in the Raw material editor can be stored in the Raw material library with [OK].

2 **Saving Raw material under:** It is possible to modify existing or template Raw materials and then to save them under a different name in the Raw material library.

3 **Preferred Processing:** In the library mode, in addition, the preferred Processing can be selected here. The selected Processing of the article can be overridden at any time under "Init".

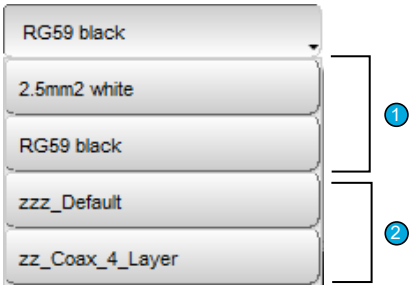
For further information on the Raw material editor, also includes multi layers, see under standard process flow *"8.3.2 Raw material editor (Page 51)"*.

The factory default Raw materials (templates) are write protected. Self -defined Raw materials can therefore not be saved under these names.

9.2.3 Raw material selection in the "Init" screen

In contrast to the standard process flow, Raw materials can be selected in the "Init" screen from a drop-down list for linking.

Display and direct selection of a Raw material previously programmed and saved in the Raw material library, and factory default Raw materials from the drop-down list.



1 **Self-created raw materials:** Already programmed and in the Raw material library saved data.

2 **Factory default Raw materials:** Factory defined Raw materials, starting with „zz....". Which Raw materials displayed here depends on the machine type.

Factory-specified Raw materials whose file names begin with "zz ..." can be deleted with the "Delete selected files" command.

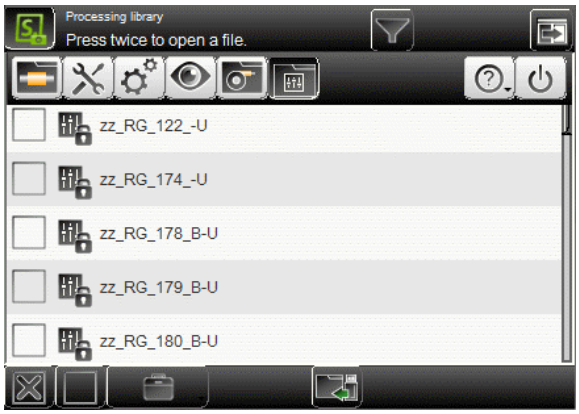
9.3 PROCESSING LIBRARY

The way in which the machine processes a certain article is saved in the Processing library as record. The records describe how the machine shall process a wire type, see *"8.3.3 Processing editor (Page 53)"*.

If a file in the library is changed, all articles linked to this file are changed instantaneously without any extra action.

In the Processing library, alternatively to the file management, there is also the ability to edit Processing settings but independently from articles.

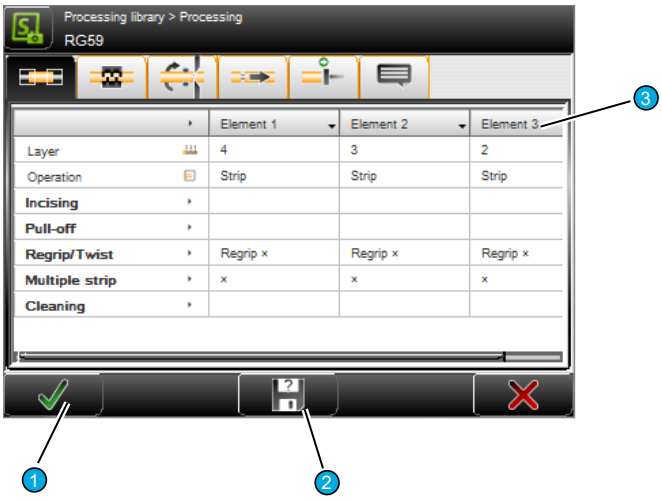
9.3.1 Processing library list view



For the description of the elements in the Processing list, see in *"9.2 Raw Material library (Page 64)"*.

9.3.2 Processing editor

An existing Processing is altered. The Processing editor is displayed in which as in standard process flow, the machine parameters can be adapted to the raw material.



1 **Save Processing:** In the library mode, the changed settings in the Processing editor can be stored in the Processing library with [OK].

2 **Save Processing as:** It is possible to modify existing or default Processing's and then to save them under a different name in the Processing library.

3 **Duplicate elements/delete:** By touching the table header, missing Processing elements can be added or deleted in library mode.

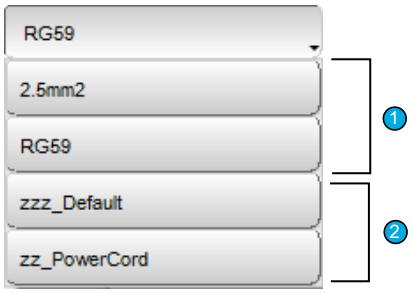
Factory default Processing's are write protected. Self-defined Processing's can therefore not be saved under these names.

9.3.3 Processing selection in the "Init" screen

In contrast to the standard process flow, Processing's can be selected from a drop-down list to link to.

Display and direct selection of Processing previously programmed and saved in the Processing library from the drop-down list.

There are additional predefined factory default Processing's for individual applications available.



1 **Self-created Processing's:** Previously programmed and in the Processing library saved data.

2 **Factory default Processing's:** Selection of the factory default Processing's Which factory default Processing's are shown here, depends on the selected wire processing machine.

When selecting a Raw material, its preferred Processing is selected automatically.

9.4 CREATE NEW ARTICLE

A new article in the library mode can be created in three different ways.

- Transform an existing article programmed in standard process flow to library mode and generate new records in the Raw material and Processing library.
- Link a new or existing article with existing records from the Raw material and Processing library.
- Create the article in the standard process flow with a template of a Raw material from the library. The Raw material data are copied into the article.

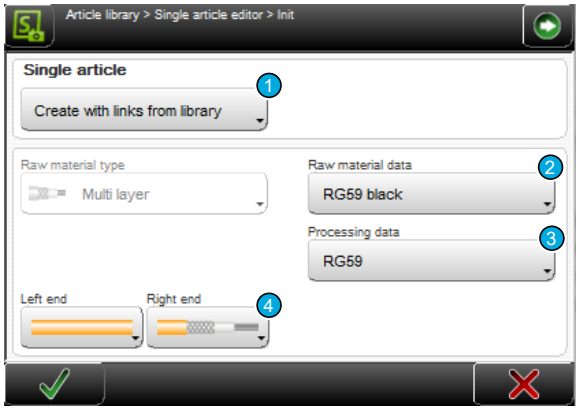
9.4.1 Convert an existing article

For this procedure, the Raw material and Processing library can be still empty.

1. ▹ Call existing article, programmed in standard process flow.
2. ▹ Go to the screen **[INIT]**.
3. ▹ On „Single article" 1, set „Edit current".
4. ▹ Set „Convert to library" 2.
   - ➥ The Raw material library is opened, where a new name can be entered. Then the Raw material is stored in the library.
5. ▹ **[OK]**
   - ➥ The Processing library is opened, where a new name can be entered. Then the Processing is stored in the library.
6. ▹ **[OK]**
   - ➥ The single article editor is displayed where the article can be programmed.

9.4.2 Link new / existing article

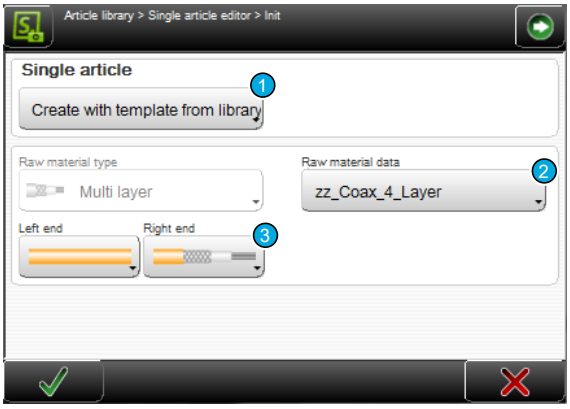
In order for this approach to work, already records should be stored in the Raw material and Processing library.



1. Create a new article in the article library, or call an existing one.
   - ➥ The “Init” screen is opened.
2. On „Single article“ 1, set „Create with link from library“
3. Under „Raw material data“ 2, select the appropriate Raw material.
4. Under „Processing 3“ select the appropriate Processing or take over the linked preferred Processing (saved in the Raw material).
5. Select the corresponding end applications for the right and left end 4.
6. [OK]
   - ➥ The single article editor is displayed and the stripping and pull-off lengths can be programmed.

9.4.3 Create with template from library

In order for this approach to work, a template Raw material must be available in the Raw material library.



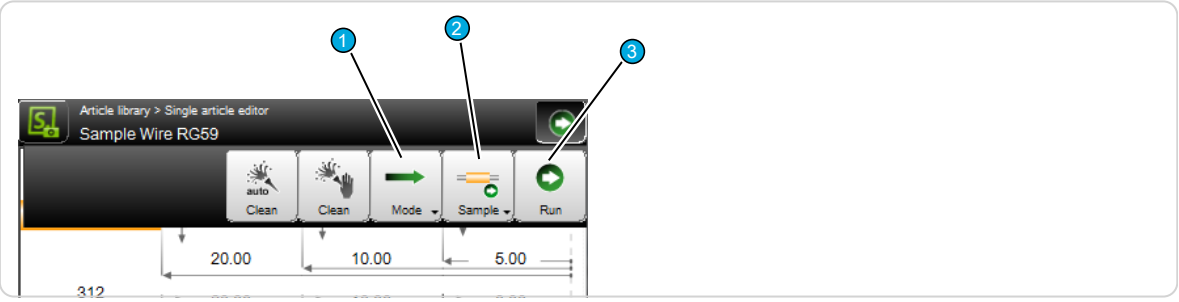
1. Create a new article in the article library, or call an existing one.
   - ➥ The “Init” screen is opened.
2. On „Single article“ 1, set „Create with template from library“
3. Under „Raw material data“ 2, select the appropriate template Raw material.
   - ➥ The Raw material data are copied into the article.
4. Select the corresponding end applications for the right and left end 3.
5. [OK]
   - ➥ The raw material editor is displayed and the Raw material data can be programmed.
6. [OK]
   - ➥ The single article editor is displayed where the article can be programmed.

PRODUCTION

10.1 PRODUCTION VIA TRIGGER

See the *"Reference manual of the machine"*.

10.2 PRODUCTION VIA PRODUCTION KEYS



1 Mode
2 Sample
3 Run

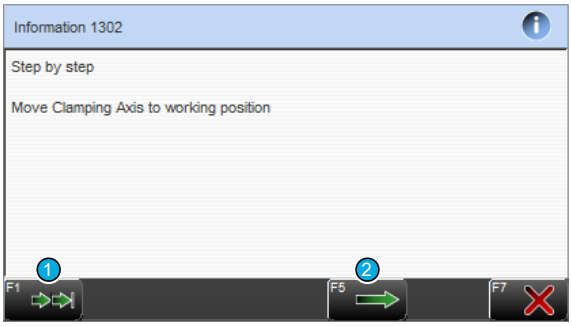
10.2.1 Production in step by step mode with [MODE]

It can be observed during the production, if all steps have been executed properly, if before the production, via the button "Mode" the single-step mode is switched on.

Each movement step is accomplished with every keystroke. But synchronous movements are still performing simultaneously. Each step is initiated with a single touch of a key.

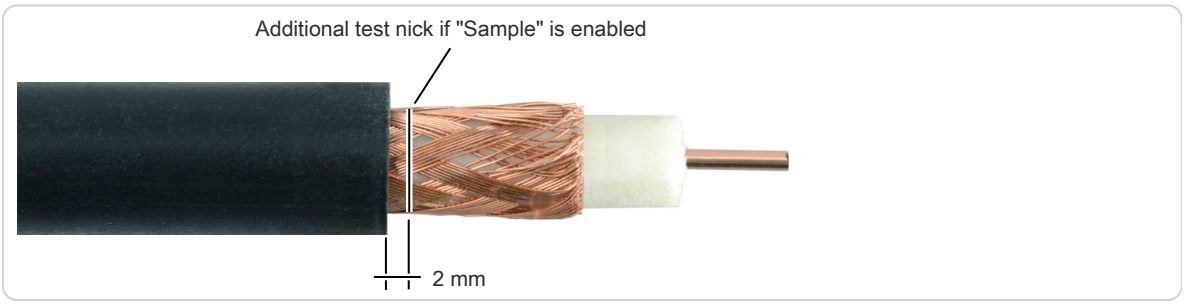
1. ▹ [MODE]
2. ▹ [STEP BY STEP]

3. ▹ [RUN]
   ➥ The step by step information screen is shown.
4. ▹ [STEP BY STEP (F1)] 1
   ➥ The process cycle is advanced by one step.
5. ▹ [STEP BY STEP (F5)] 2 terminates the step by step mode. The next production is started without step by step.
   [CANCEL] terminates the production.



10.2.2 Production with [SAMPLE 1]

If sample is switched on[1], the counter is not increased. In addition, 2 mm before the regular incision, a test nick is carried out. Thus, the article can be easily checked for the correct incision depth and further processing before the regular series production.
The quantity programmed and the partial sum will not be affected with activated "Sample".



[1]) - If in the "Configuration - Software - User Interface", "Only one end" is deactivated, we must distinguish here between "Sample left end" and "Sample right end".

10.2.3 Series production with [RUN]

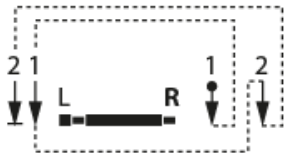
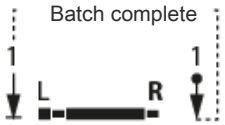
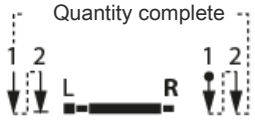
The total quantity entered, is produced at once. ("Quantity" + "Batch size"). Nevertheless each piece must of course be triggered individually.

10.3 PRODUCTION SEQUENCE

In the following, the production process schematically.

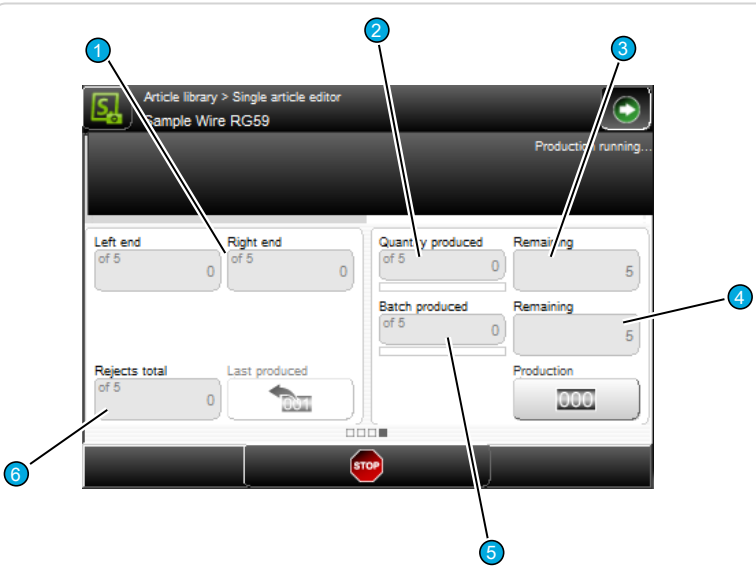
Hints about the following drawings:

- The arrow with the point is always the start
- The arrow with the line at the arrowhead is always the end
- The "Bold" marked letter indicates the end where the production begins
- L stands for "Left end"
- R stands for "Right end"

Quantity: 2x	Batch size: 1x	Quantity: 2x
		
■ 1 right end is produced -> switch to the left end ■ 1 left end is produced -> switch to the right end ■ ... Repeat procedure until quantity complete If an application is defined, the machine begins by default with the right end.	■ All batches of the right end are produced -> switch to the left end ■ All batches of the left end are produced until batch size complete	■ All pieces of the right end are produced -> switch to the left end ■ All pieces of the left end are produced until quantity complete

10.4 PRODUCTION SCREEN

If the production is started once the production screen will appear, in which the production status is displayed (only if "Sample" is not activated).



1 End right (left)
2 Quantity produced
3 Remaining (articles)
4 Remaining (batches)
5 Batch produced
6 Rejects total

10.4.1 End right (left)

Display of the stripping on the right side already produced. If in the configuration "One end only" is deactivated, the status of the left end is also displayed.

10.4.2 Quantity produced

Shows the quantity of already produced articles since the last production start. The value can after the production has terminated, be reset to zero with the command [RESET PRODUCTION COUNTER].

10.4.3 Remaining (articles)

Shows the amount of articles still to be produced since the last production start. The value can after the production has terminated, be reset to the full preset quantity with the command [RESET PRODUCTION COUNTER].

10.4.4 Remaining (batches)

Shows the amount of batches still to be produced since the last production start. The value can after the production has terminated, be reset to the full preset quantity with the command [RESET PRODUCTION COUNTER].

10.4.5 Batch produced

Shows the quantity of already produced batches since the last production start. The value can after the production has terminated, be reset to zero with the command [RESET PRODUCTION COUNTER].

10.4.6 Rejects total

Indicates how many articles have been rejected. Is incremented at each reset of “Last produced". This way the articles are registered, which are not paid in the ordinary course of total counter.

10.5 PRODUCTION COUNTER

1 Reset last produced

2 Production counter reset

10.5.1 Reset last produced

Resets only the last produced article. The production counter is reset by one and "Rejects total" is incremented by one.

10.5.2 Reset production counter

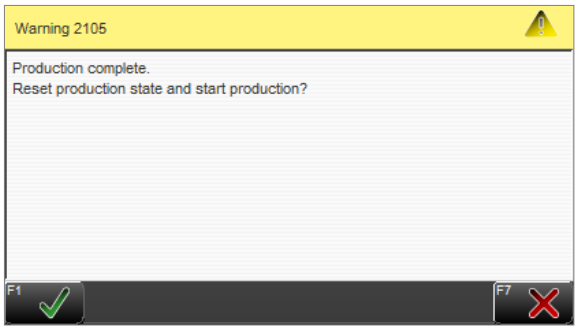
Resets all production counters back to its initial state. This function is used when a new production run is to be started. Produced, remaining and batch remaining are reset to zero, also the counter "Rejects total".

10.6 FURTHER COMMANDS / STATUS MESSAGES

10.6.1 Messages during the production

Reset production

A warning message appears if the same production is started twice. Here the production state (counter) must be reset first.



The production status can be reset with [OK].

To avoid this message, reset the production counter in the single article editor, in the status screen with [PRODUCTION RESET] before restarting the production.

10.7 AUTOMATED PRODUCTION START

10.7.1 Automation

In automation, there are two insertion modes as a production start:

- Automated (safe)
- Automated (fast)

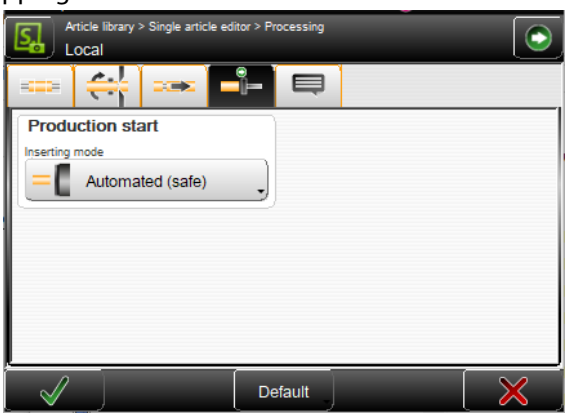
Model A and AC

In order to have articles loaded via the automation interface, the article must be entered with the corresponding prefix "Art_0xx" (e.g. "Art_001" for the first article to be selected). Otherwise, an error message appears that the article cannot be clearly identified.

Automated (safe)

Automatic operation: The stripping unit is positioned **behind** the raw material to be inserted. This prevents the raw material from colliding with the stripping unit.

1. Starting from the single article editor touch [PROCESSING].
2. Select the tab [PRODUCTION START].
3. At “Inserting mode” choose [AUTOMATED (SAFE)].
4. [OK]
5. During production the machine positions the stripping unit, so that it stands behind the raw material to be inserted.



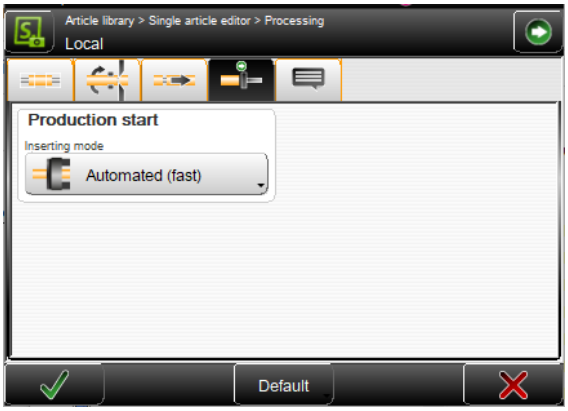
- Model AC: The stripping unit is oriented open towards the top. The raw material can be inserted from above.
- Model A: The stripping unit is oriented open towards the side. The raw material can be inserted from the side.

6. With long pull-offs the stripping unit moves as far back as possible. No error message appears if the pull-off is too long.
7. After the completion of the processing the stripping unit moves to the starting position behind the article end.
   ➥ The article can be removed unhindered.
8. Finally, the stripping unit is positioned, so that the next article can be inserted.

Automated (fast)

Automatic operation: The stripping unit is positioned on the **first incision** of the loaded article. The processing time can thus be reduced. However, the colliding of the raw material with the stripping unit cannot be excluded.

1. Starting from the single article editor touch **[PROCESSING]**.
2. Select the tab **[PRODUCTION START]**.
3. At “Inserting mode” choose **[AUTOMATED (FAST)]**.
4. **[OK]**
5. During production, the machine positions the stripping unit, so that the blades take the position of the fist incision.



- Model AC: The stripping unit is oriented open towards the top. The raw material can be inserted from above.
- Model A: The stripping unit is oriented open towards the side. The raw material can be inserted from the side.

6. Start the production.
   ➥ The first incision takes place without moving the stripping unit.
7. Finally, the stripping unit is positioned, so that the next article can be inserted.

For further informations on the automation refer to the *“Reference manual of the machine“*.
For information on compatibility check of article and processing data, see *"Page 106"*.

CONFIGURATION SETTINGS

In the screens set up and configuration (in accordance with the access authorization), the basic settings are carried out, which serve as a basis for the functioning of the machine. These settings are valid for all articles and affect the entire programming on the machine.

The settings made here may be partially overwritten in individual screens.

11.1 SETUP

The function "Setup" is implemented for the daily use of the machine and it also helps the beginner to get familiar quickly with the basic settings. Here only the most important wizards or adjustments (e.g. blade change, centering jaw change or the blade precision test) can be carried out.

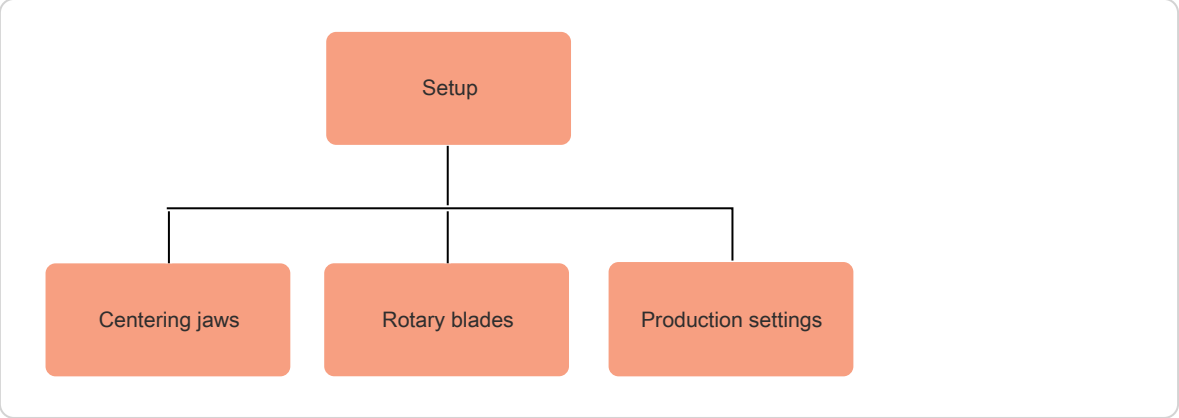
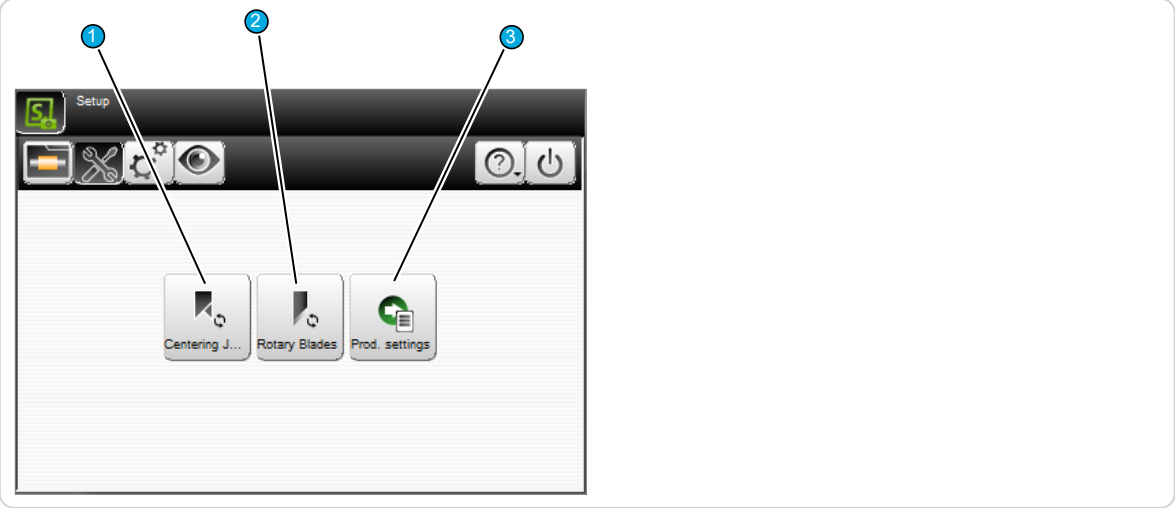


Fig. 4: Overview „Setup“



1 Centering jaws
2 Rotary blades
3 Production settings

11.1.1 Centering jaws

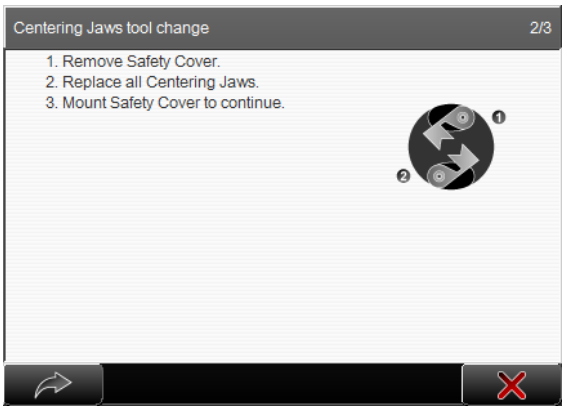
Changing the centering jaws to another type, or to replace worn-out centering jaws.

Tool thickness (X): Set the thickness of the centering jaws. For optional or customer-specific centering jaws, this value must be adjusted.

It is important that the effective range is set in the center. The centering jaws for mounting can be thicker at the end of the part.

Wizard centering jaw change

1. Remove the safety cover.
2. Proceed as in the screen to the right. The exact procedure is described in detail in the *"Reference manual of the machine"*.
3. Mount the safety cover.
4. **[OK]**
   ➥ Machine initializes, centering jaws tool change has been completed.
5. Perform a functional check.



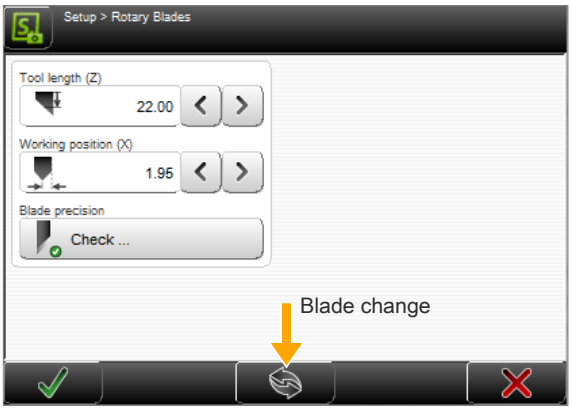
11.1.2 Rotary blades

General settings for the rotary blades, and start of the wizard for the blade change at the rotary unit.

Blade settings

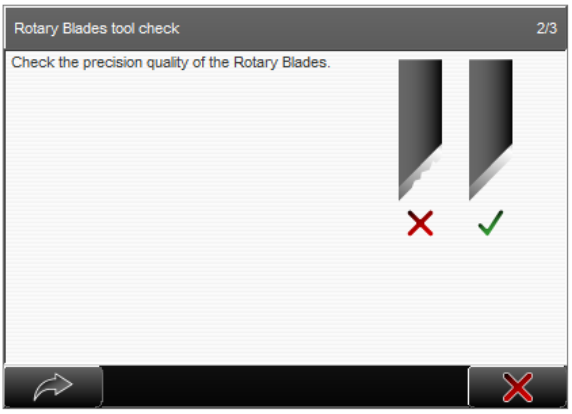
Tool length (Z): Setting the length of the blade from the blade edge to the blade center. With the appropriate gauge, this setting can be carried out via the wizard, see the next chapter.

Working position (X): Set the distance from the side edge of the blade to the blade center.



Blade precision - check: Starts the wizard for the verification of the accuracy of the blade edges.

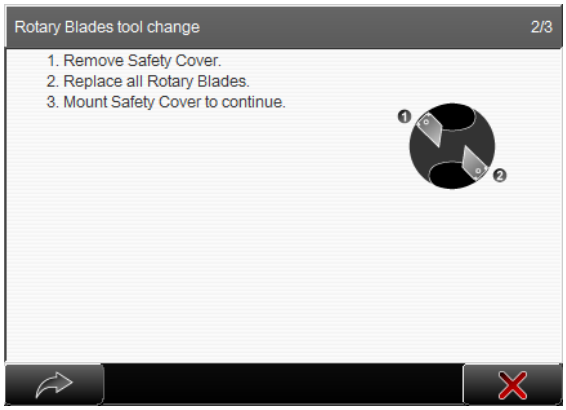
1. ▹ [CONTINUE]
2. ▹ Check the precision of the rotary blade edges. For a better view, the safety cover may be removed.
3. ▹ [CONTINUE]



Wizard rotary blade change

Changing the rotary blades to another type, or to replace worn-out blades.

1. ▹ Remove the safety cover.
2. ▹ Proceed as in the screen to the right. The exact procedure is described in detail in the *"Reference manual of the machine"*.
3. ▹ Screw on the new rotary blades with the hex screws.
4. ▹ Attach the safety cover.
5. ▹ [OK]
   ➥ Machine initializes, blade change has been completed.
6. ▹ Perform a functional check.

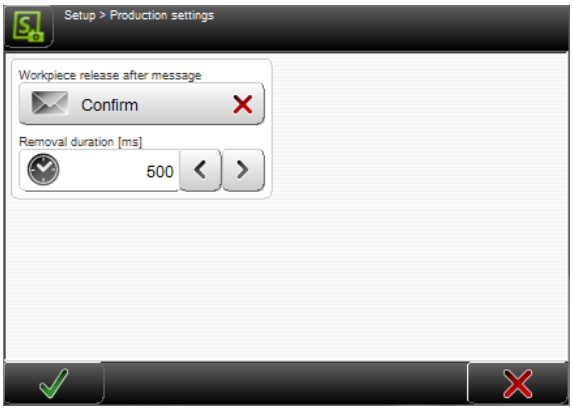


11.1.3 Production settings

General production settings for the *S.ON* control software.

Work piece release after message: Confirm, to release the workpiece after the confirmation message.

Removal duration [ms]: Set the needed duration to remove the workpiece.



11.2 CONFIGURATION

In the Configuration basically all settings for the machine and the behavior of the control software can be altered. If the user level control is switched on, the setting options, in accordance with the rights of the user level are restricted, in which the user is logged on.

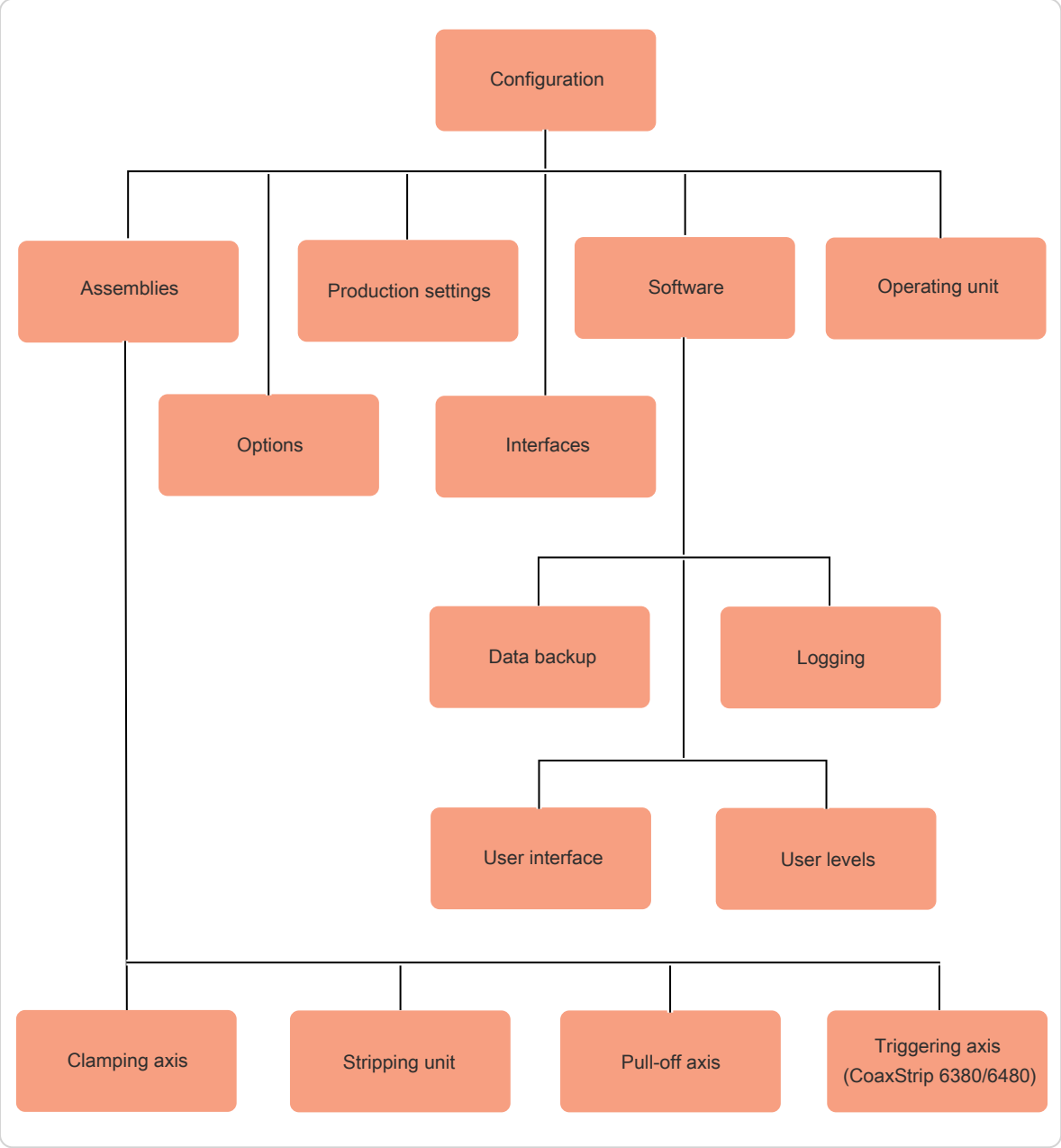
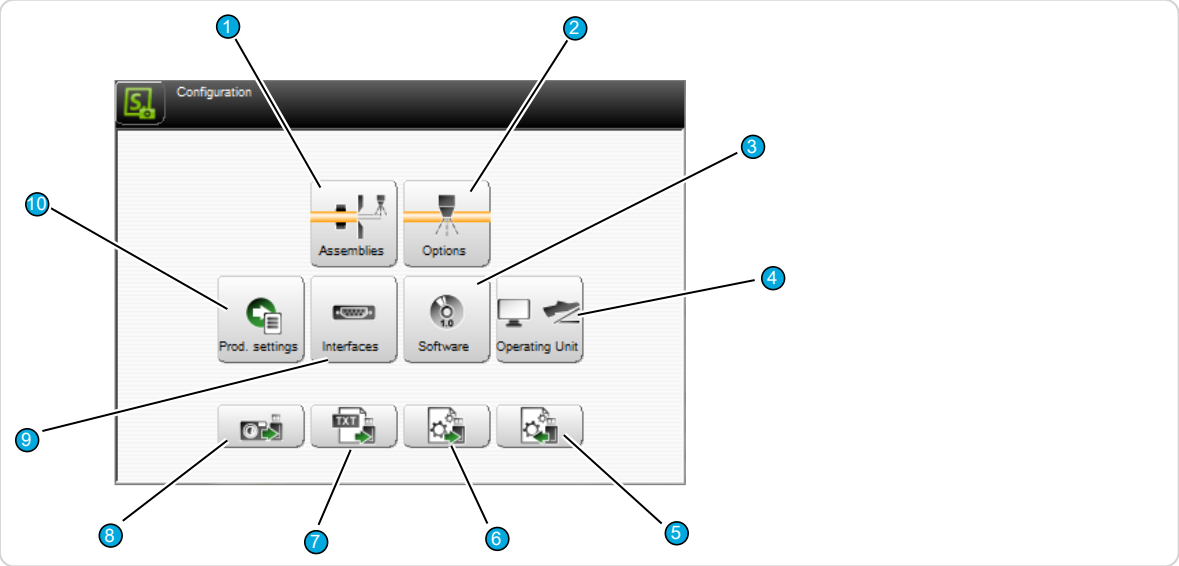


Fig. 5: Overview configuration

The main screen in the configuration:

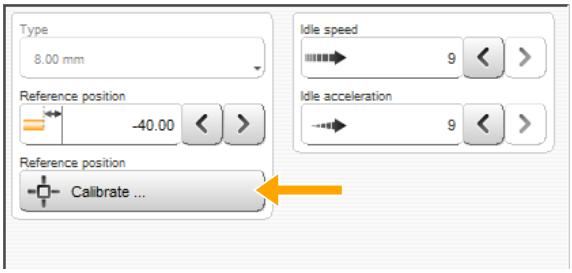


1 Assemblies
2 Options
3 Software
4 Operating unit
5 Import configuration data
6 Export current Configuration data
7 Configuration export as text file
8 Configuration export as screenshot
9 Interfaces
10 Production settings

11.2.1 Key „Calibration...“

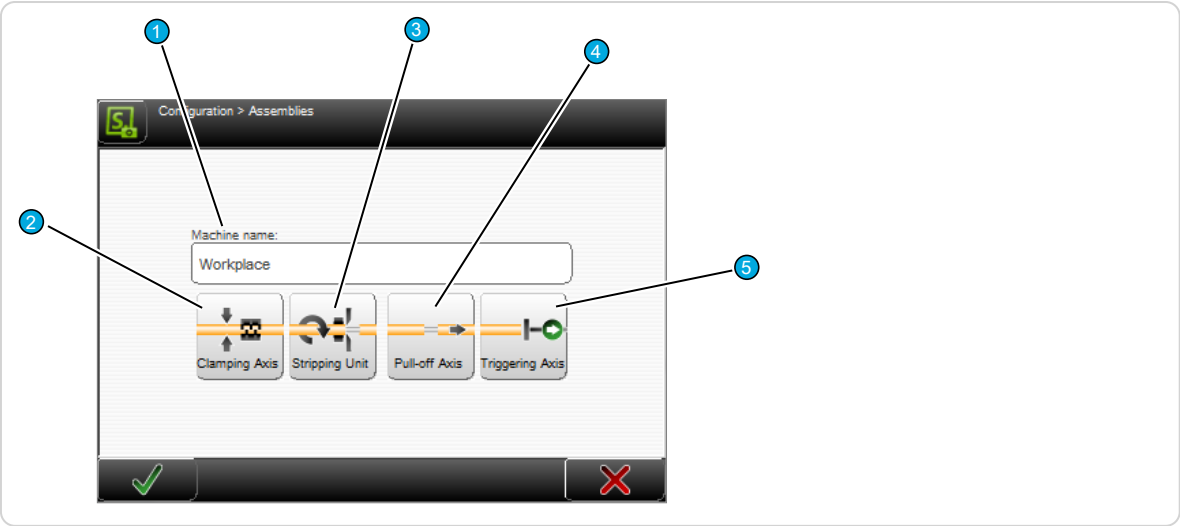
In different screens of the configuration, there is a [CALIBRATION...] key. Through this key a calibration of hardware components can be carried out. Calibrations are in most cases menu-guided via a wizard.

Caution: Calibrations are very delicate and should only be carried out by qualified personnel.



11.2.2 Components

Here the general settings concerning the assemblies of the machine are made. If the user level control in the Configuration is turned on, only the user "Maintenance” can access it.



1 Machine name
2 Clamping axis
3 Stripping unit
4 Pull-off axis
5 Triggering axis

Machine name

Definition of a machine name or a location description for this machine. The name is also shown in the header area of the touch screen

Clamping axis

General settings for the clamping.

Type: Display of the axis type.

Axis: Aligns the clamping jaws using the wizard.

Reference position: Defines the position of the sensor for referencing the clamping jaws.

Contact sensor position: The position of the contact sensor to detect the raw material diameter.

Idle speed: Defines how fast the clamping jaws move.

Idle acceleration: Defines how fast the clamping jaws accelerate.

Diameter verification: Activate, if the function “Diameter verification” shall be used.

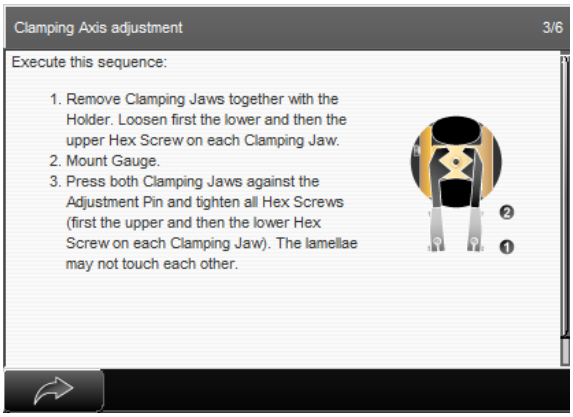
Axis - adjust

Aligns the clamping jaws using the wizard.

For the exact calibration procedure and the installation of the gauge, refer to the *Reference Manual of the machine"*.

1. Remove the safety cover.
2. Proceed as described in the screen to the right.
3. Attach the safety cover.

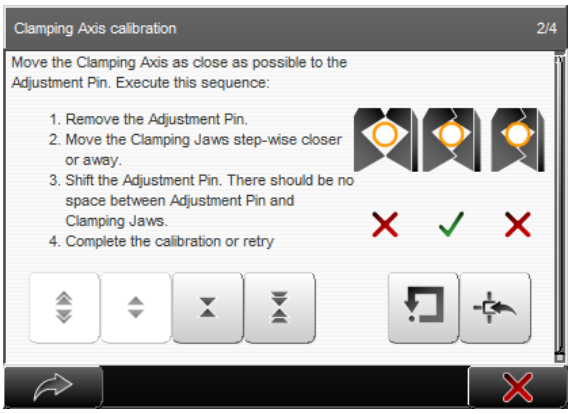
Caution: After adjusting, the following calibration of the clamping jaws must be carried out.



Reference position - calibrate

Calibrates the reference position of the clamping axis and the diameter check by using the wizard.

1. Remove the safety cover.
2. Proceed as described in the screen to the right.
3. Attach the safety cover.



Rotary stripping unit

General settings for the rotary stripping unit.

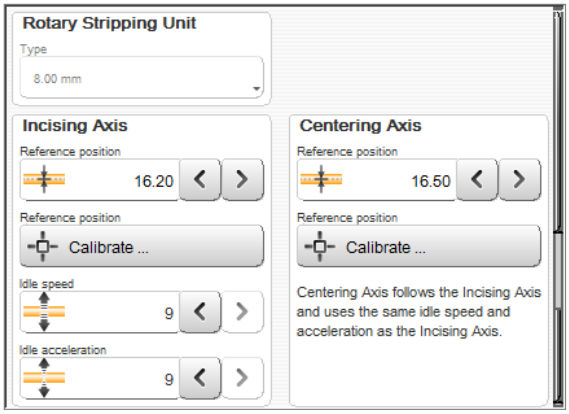
Rotary stripping unit - type: Display of the type.

Incising axis - reference position: Referencing the position of the sensor for the incising axis.

Incising axis - idle speed: Defines how fast the incising axis moves (in idle state, so for example, if not incising).

Incising axis - idle acceleration: Defines how fast the incising axis accelerates.

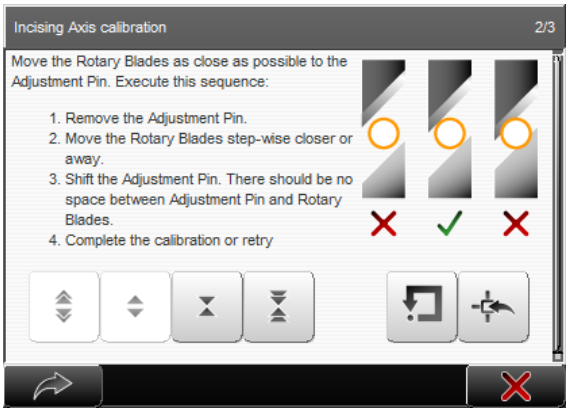
Centering axis - reference position: Referencing the position of the sensor for the centering axis.



Incising axis - reference position - calibrate

Calibrates the reference position of the incising axis by using the wizard.

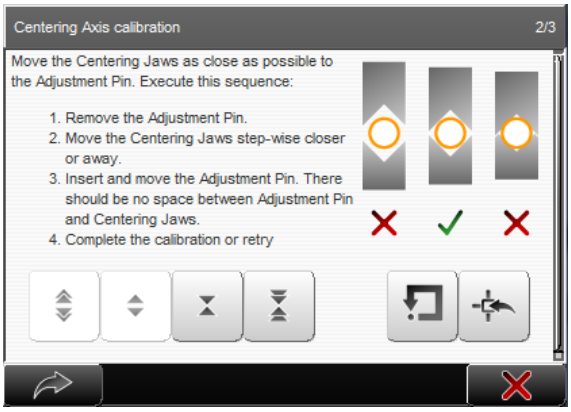
1. Remove the safety cover.
2. Proceed as described in the screen to the right.
3. Attach the safety cover.



Centering axis - reference position - calibrate

Calibrates the reference position of the centering axis by using the wizard.

1. Remove the safety cover.
2. Proceed as described in the screen to the right.
3. Attach the safety cover.



Pull-off axis

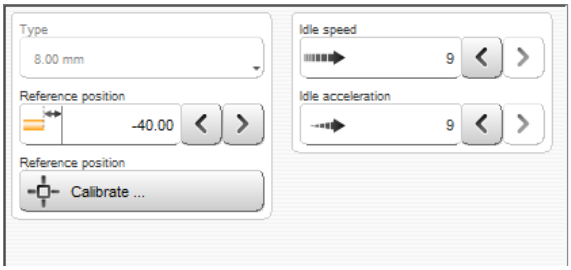
General settings for the pull-off axis.

Type: Display of the axis type.

Reference position: Defines the position of the sensor for referencing the pull-off axis.

Idle speed: Defines how fast the pull-off axis is moved in idle mode.

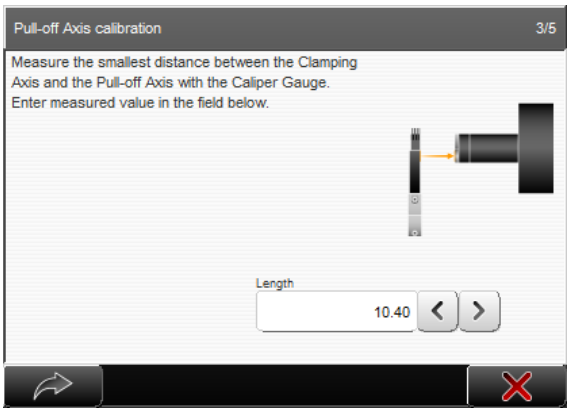
Idle acceleration: Defines how fast the pull-off axis is accelerated in idle mode.



Reference position - calibrate

Calibrates the reference position of the pull-off axis by using the wizard.

1. Remove the safety cover.
2. Proceed as described in the screen to the right.
3. Attach the safety cover.



Triggering axis

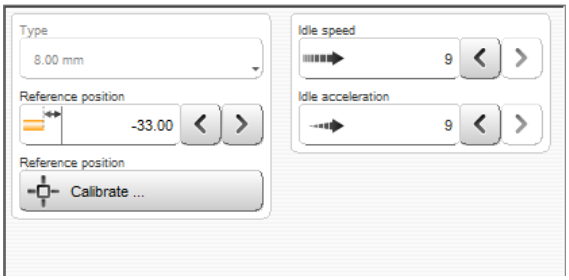
General settings for the triggering axis.

Type: Display of the axis type.

Reference position: Defines the position of the sensor for referencing the triggering axis.

Idle speed: Defines how fast the triggering axis is moved in idle mode.

Idle acceleration: Defines how fast the triggering axis is accelerated in idle mode.

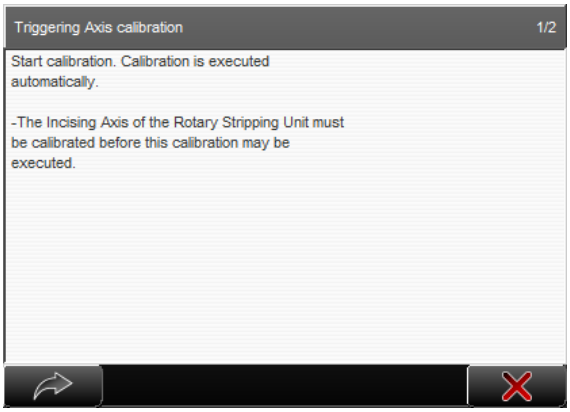


Reference position - calibrate

Starts the wizard to calibrate the trigger sensor.

The incising axis of the rotary stripping unit must be calibrated before this calibration can be performed.

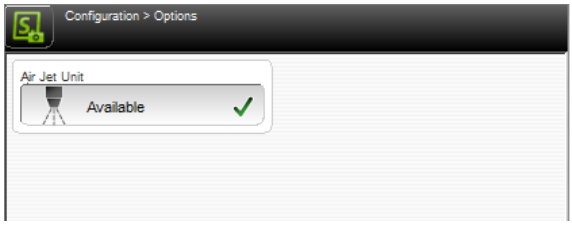
1. Remove the safety cover.
2. Proceed as described in the screen to the right.
3. Attach the safety cover.



11.2.3 Options

Enabling options in the *S.ON* control software.

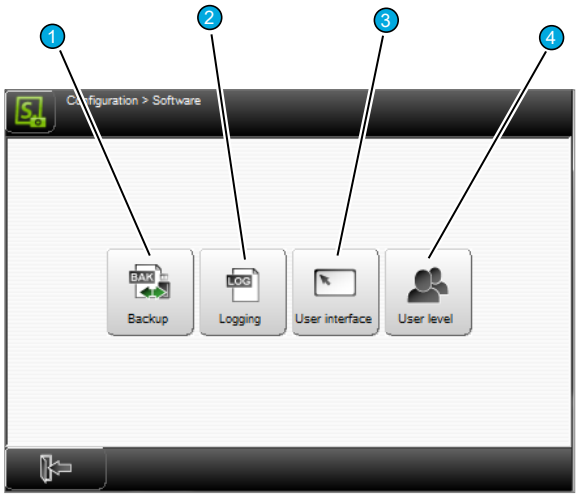
Air jet unit - available: Activate the optional air jet unit if it is physically present.



11.2.4 Software

In *S.ON* data can be backed up and restored on an USB memory stick, the software can be updated and there are general settings needed to be adjusted prior to use. See also *"6 Installation / first commissioning (Page 25)"*.

In order to prevent the use by unauthorized personnel, can via the user levels management, the access to different user levels be protected by passwords.



1 Data backup
2 Logging
3 User interface
4 User level

Data backup

Personnel qualification

The instructions in this chapter must be carried out by **qualified personnel**!

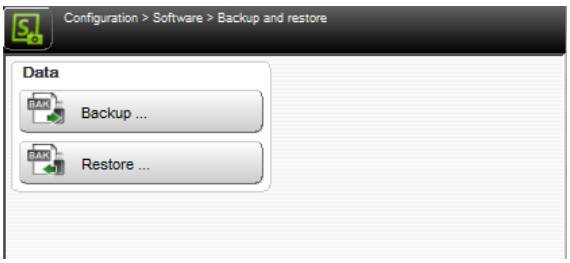
NOTICE

Data loss on USB memory stick!

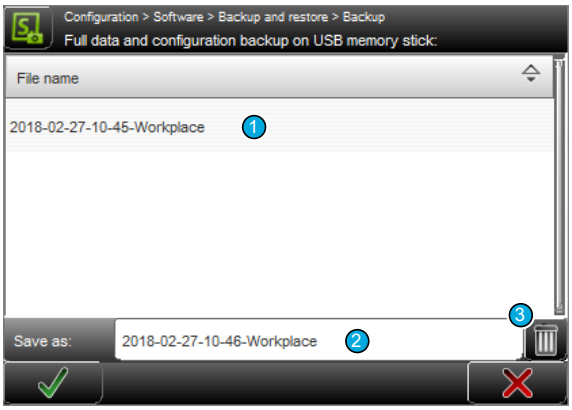
Inadequate handling or using a wrong USB memory stick can lead to data loss.

- For the data backup compulsory use the USB memory stick delivered with this software, as not all USB types are recognized by the control software.
- The USB memory stick must be formatted with the Microsoft file system „FAT".

With these features, articles and other data of the machine are stored onto an USB memory stick. These can be in the event of data loss or for further use, be loaded back into the machine.



Backup



All article data, configuration settings, and the log data is collected via this function on a memory stick connected to the USB port.

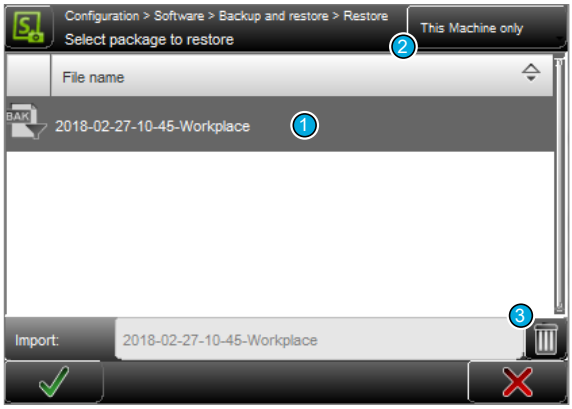
File name: Previously created backups from a particular machine are displayed in the list 1.

File name (save as...): A file name 2, composed of Date, Time and the machine name/location is proposed. But also a different file name can be entered here. Then the data backup is started with [OK].

Delete: Via the key [DELETE] 3, the highlighted backup data in the list are removed from the USB memory stick.

After a successful data backup, a message shows up which can be confirmed with [OK].

Redo



All article data and configuration settings of this or any other wire processing machine can be restored from an USB memory stick connected to the USB connector on the rear.

Name: Previously created backups from this machine or any other are displayed in the list 1.

This machine only: Via the key [THIS MACHINE ONLY] 2 the data are identified unique and only the data of the actual machine is shown. After highlighting the corresponding file from the list and then confirming with [OK], the data are restored.

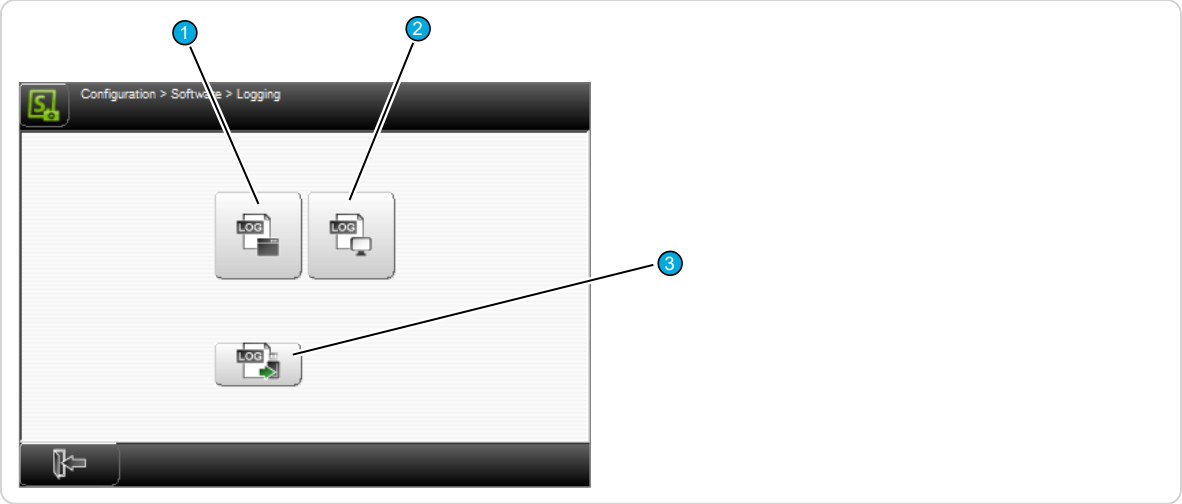
Delete: Via the key [DELETE] 3, the highlighted backup data in the list are removed from the USB memory stick.

After a successful data restore, a message shows up which can be confirmed with [OK].

Logging

The production procedures on the machine can be written into a protocol file for statistical use and for the trouble shooting. In this screen the protocol data can be managed and the software can be set up in a way that the logging is activated.

The protocols can be directly viewed in the error message screen, or exported to an USB-Memory stick for further analysis on a PC.



1 Log settings machine
2 Logging settings user interface
3 Export log file

Logging settings machine

Here we define how and which data of the machine shall be saved to the log file.

The following levels of the logging are available:

- None
- Error
- Warning
- Information
- Debug

Logging settings user interface

Here we define how and which data of the user interface shall be saved to the log file.

The following levels of the logging are available:

- None
- Error
- Warning
- Information
- Debug

Export logging file

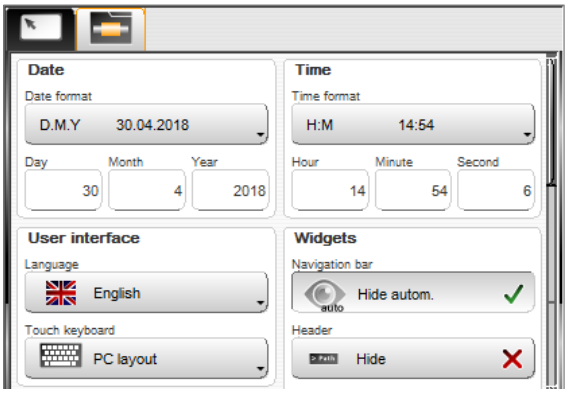
Here the produced current log file can be exported to a memory stick connected to the USB port.

After a successful export, a message shows up which can be confirmed with **[OK]**.

User interface - tab 1

The settings in the "User interface" screen apply to the general setup of the touch screen (system language, measuring unit, behavior of screens, etc.).

Date / time



Change of system time and date on the touch screen.

Time/Date format: Switching between the common (country specific) Time- and Date formats. The Time- and Date format is necessary for the display of the Time and the Date in the info area and for the statistics in the production screen.

A detailed chart of the Time- and Date formats is available in the Appendix, see chapter *"14.3 Formats (Page 115)"*.

In the entry fields of the spin boxes the current time and date is shown. Here also the new values can be set up.

If the backup battery on the main PCB is low or missing, the clock is reset and must be set-up again!

User interface

Language: Select the desired language of the touch screen surface. The available languages are dependent on the installed language files.

Touch keyboard: Here the general keyboard layout can be determined. Selections are: Standard keyboard (like PC keyboard) or alpha numeric (the keys are shown in alphabetic order).

PC layout:

Alphanumeric layout:

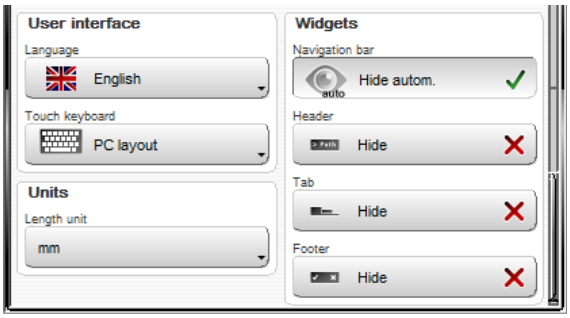
Touch screen - calibrate: The calibration of the touch screen is necessary to bring the sensitive touch surface in correlation with the pictures visually displayed. The operating matrix must correlate with the virtually displayed keys and pictures.

A calibration is necessary in the following cases:

- after replacing the touch screen
- after a data loss on the machine
- with incorrect handling of the operation
- with inaccurate sensitivity of the touch screen

After touching CALIBRATION the calibration window shows up. One after the other, touch the cross hairs at different locations (hold until cross hair changes its position). Then terminate the calibration by touching the screen again.

Units



Length unit: Select the desired measuring unit. All length settings etc. are displayed in all screens in the defined measuring unit. The measuring units "Millimeter (mm) or "Inch" are available.

Widgets

Here general settings concerning the display of individual screens can be made.

Navigation bar - hide automatically: Auto-hide the navigation bar.

Header - hide: Auto-hide the header when you touch the status bar.

Tab - hide: Auto-hide the tabs when you touch the status bar.

Footer - hide: Auto-hide the footer line when you touch the status bar.

User interface - tab 2

The settings in the "User interface" screen apply to the general setup of the touch screen (system language, measuring unit, behavior of screens, etc.).

In the following overview, the dependence of the software settings in the tab 2 to the article library is shown.

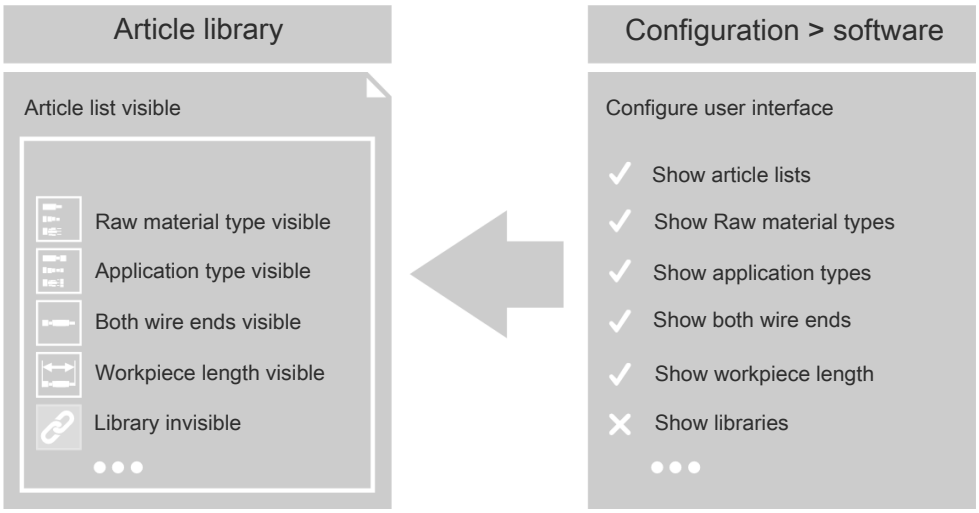
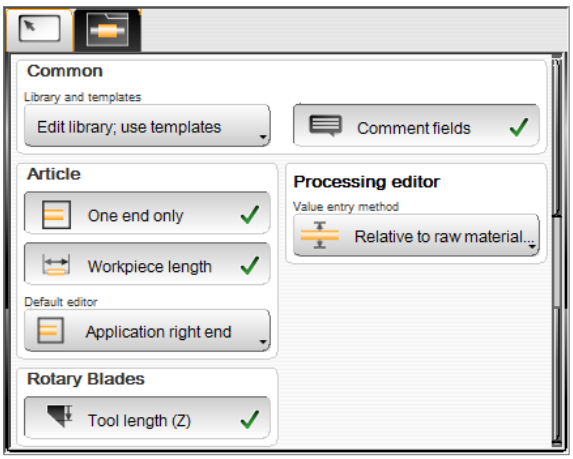


Fig. 6: Dependence software settings > article library

General



Libraries and templates: Switch the use of libraries on/off, templates show/hide template selection keys.

The following selections are available:

- None: No libraries and no templates are used.
- Use templates: Only the templates are used.
- Edit library; use templates: Libraries and the templates are used.

Comment fields: Display of comment input fields in the Raw material, Processing and in the single article editor, as well as view of comments for the events.

Article

One end only: Select whether only the right end of the article should be displayed in the article editor.

Workpiece length: Defines, whether in the single article editor the length of the article should be displayed.

Default editor: It can be selected here, which screen should be displayed on the single article screen when creating a new article, or after input of the Raw material.

The following selections are available:

- Application left end

- Article overview
- Application right end
- Production state

Also on opening a single article, the screen changes to the editor defined here.

Reload file

Single articles are selected by entering a name via barcode scanner, or coding via digital inputs, and opened automatically.

When data of an open single article has not been saved yet, the behavior is as follows according to the configuration setting:

Asking the user

1. Follow the request to confirm the corresponding dialogs manually first.
2. In the event of an interrupted dialog by the user, the single article is not loaded.

Saving automatically

1. The opened article is saved, the appearing dialog is confirmed automatically.
2. The single article is loaded.

Discarding automatically

1. The opened article is discarded, the appearing dialog is confirmed automatically.
2. The single article is loaded.

For further information, see chapter *"7.11 Loading file with automation interface (Page 43)"*

Rotary blades

Tool length: Display of the tool length (Z) parameters for the rotary blades.

Processing editor

Value entry method: Define whether the value entry in the single article editor should be defined relative (as incising opening), or absolute to the Raw material diameter. For further information, see chapter *"8.2.1 Incising relative/absolute (Page 46)"*.

User levels

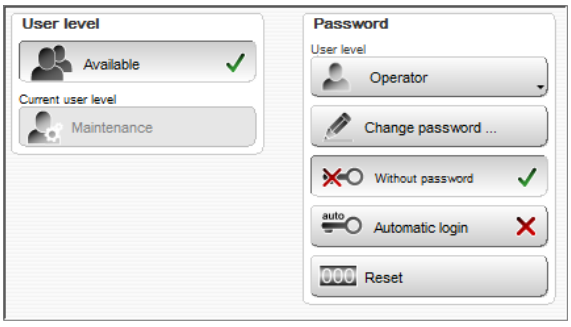
The settings in the "User levels" screen apply to the user level control of the *S.ON* software. It is possible to work in three different user levels.

The user logged in to a user level has only access to the commands and parameters designated for this level. To e. g. change a configuration setting, the user must be logged in to the „Maintenance“ level.

User level

Available: The access to the control software is restricted. Hence the user must log in to the according user level before he can execute the commands and change parameter settings. The user status is displayed in the info area.

If „Available“ is deactivated, no access restriction is needed. After switching on the control software, the user can access all screens and settings unrestricted.



Actual user level: Shows in which user level the user is logged-in.

Password

User level: Selection of the user level in which the user has to be logged-in after restarting the control software. The password can be changed individually on each user level. Initial factory default passwords are programmed.

Touch **Change password:** The password can be changed individually for each user level. The new password can be entered via the alphanumeric touch-keyboard (max. 14 characters). The password is displayed encrypted.

Procedure for changing the password:

1. Select the desired [USER LEVEL].
2. [CHANGE PASSWORD...]
3. Enter the old password on the alphanumeric touch-keyboard.
4. [OK]
5. Enter the new password.
6. [OK]
7. Confirm the new password.
8. 2 x [OK]

Without password: The following keys are only visible in the user level "Operator" have only functionality there and may be set as follows:

Without password Password	Automatic Login	Description
✓		The operator must not log in with the password. The other levels have to.
✓	✕	The password entry for the user level "Operator" is activated. But the operator must still login on starting the *S.ON*.
✓	✓	*S.ON* starts up automatically into the user level "Operator" and without a password request.

Password reset: The factory default initial passwords remain in the memory even if they have been renamed. While resetting the passwords to its initial settings all levels are affected. To carry out this, the user must be logged in to the user level "Maintenance".

After a new *CoaxStrip 6380* has left the factory, the following passwords are predefined (factory setting):

User level	Password
Operator	1
Programmer	12
Maintenance	123

Tab. 3: Preset passwords (factory default)

If the password for the user level "Maintenance" becomes lost, please contact your local *Schleuniger* distributor.

11.2.5 Operating unit

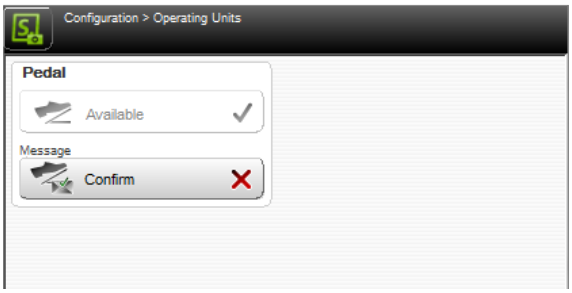
General settings for the machine and the accessories.

Pedal

A pedal plugged-in to the machine. Setup of the pedal behavior during the production.

Available: Indicate whether the pedal is plugged in.

Confirm: Activate the confirmation messages per pedal

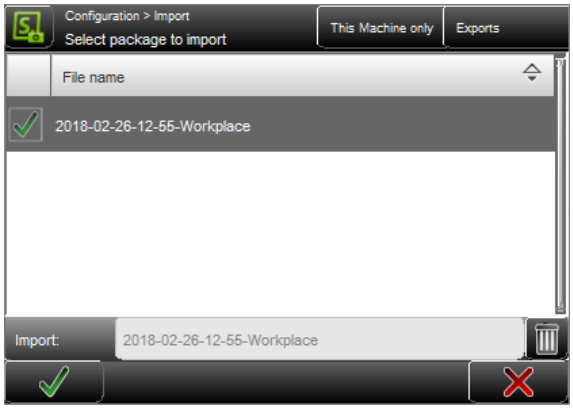


11.2.6 Import configuration data

Restore the entire configuration data (settings from a previous configuration) from the memory stick plugged into the USB port on the back of the machine.

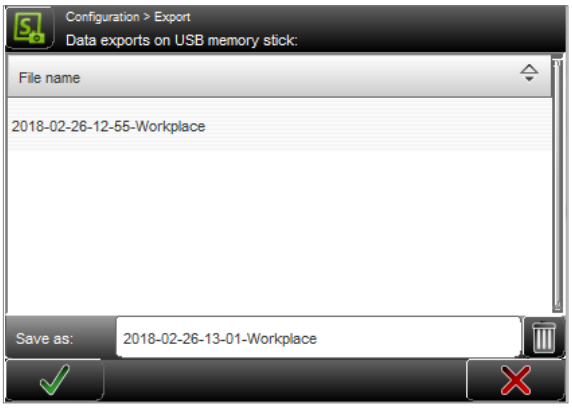
This machine only: With the key in the upper right corner we can define, if only the configuration data shall be displayed from this machine or also configuration data from another *Schleuniger*- machines of the same type.

Exports: Shows only export packages, or also backup packages.



11.2.7 Export current configuration data

Store the entire configuration and diagnostic data (current settings) on an USB memory stick plugged in.



11.2.8 Configuration export as text file

Create a text file of the complete "Configuration". Then store the text file on an USB memory stick plugged in.

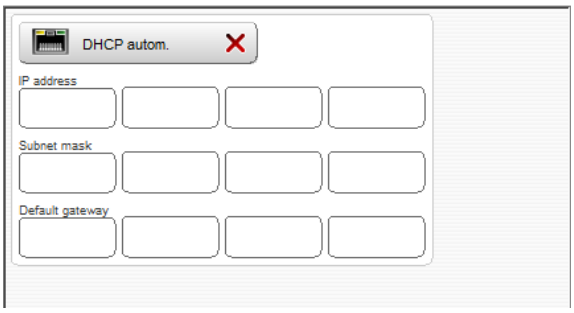
11.2.9 Configuration export as screenshots

Create screenshots of the complete "Configuration" and the most important diagnostics screens. Then store the screen shots on an USB memory stick plugged in.

11.2.10 Interfaces

Here the ETHERNET interface settings can be changed.

ETHERNET



Connection of the machine to a TCP/IP network (e.g. connection machine - PC, to operate together with a management software).

To establish a connection between PC and machine, each device must be capable to send data to the other device. To make sure that this data arrive correctly on the other station it must be named (addressed) explicitly. For ETHERNET networks this is done with an IP address.

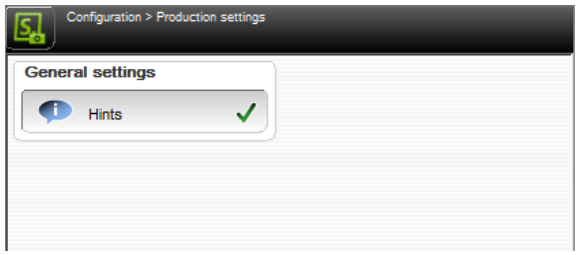
DHCP automatic: Check with your IT administrator.

IP address: Available address in the local network (check with your IT administrator).

Subnet mask: Check with your IT administrator.

Standard gateway: Check with your IT administrator.

11.2.11 Production settings



General settings for the *S.ON* control software.

General settings - hints: Global enable the display of hints during production.

11.3 SOFTWARE UPGRADE

To keep the control software *S.ON*, possibly the firmware and the operating system up to date, a software upgrade can be performed.

Personnel qualification

The instructions in this chapter must be carried out by **qualified personnel**!

11.3.1 Preparing the data

To be able to carry out an upgrade, the upgrade data must be available on an USB memory stick. The stick for the upgrade then is connected to the USB connector of the machine.

To make the data on the USB memory stick available, a special installation program is available which can be downloaded from the Internet or delivered by the *Schleuniger* distributor, see next chapter. For the upgrade procedure, an external Windows-PC is needed.

NOTICE

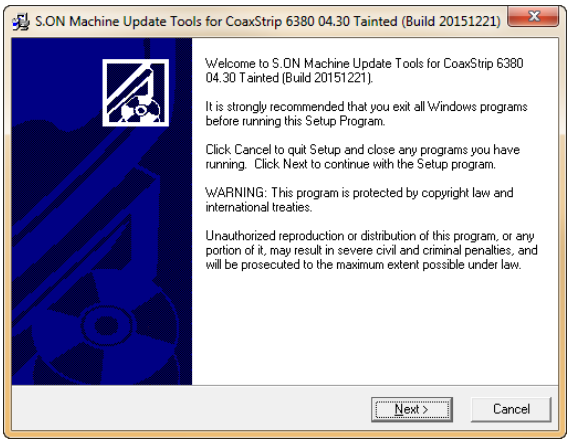
Caution, data loss!

If an error occurs during the software upgrade, data loss can occur.

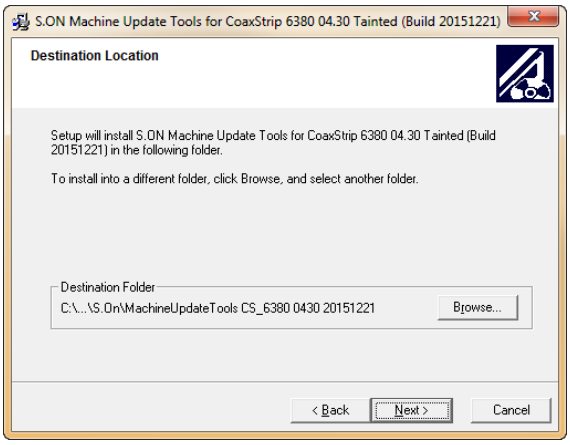
Normally no article data are lost during an upgrade. Hence before a software upgrade can be performed, we recommend to save all article data via the export function to an USB memory stick, see chapter *"11.2.4.1 Data backup (Page 86)"*.

11.3.2 Procedure

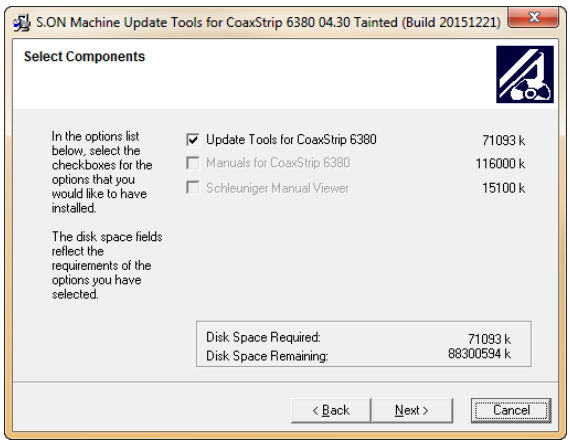
1. Download the USB memory stick upgrade tool, file "SetupUpgradeTools.exe" from the *Schleuniger* Extranet to the PC.
2. Start the „SetupUpgradeTools.exe“ on the PC.
3. **[NEXT]**



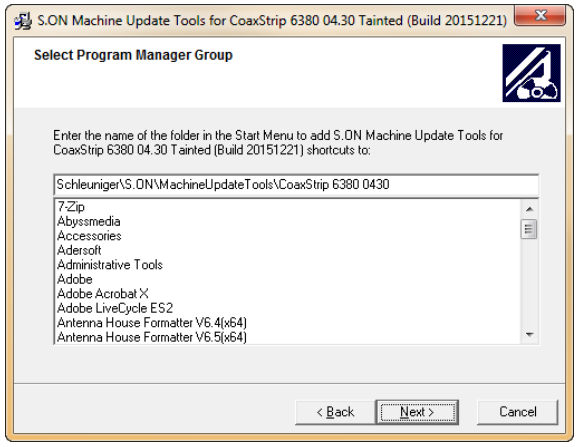
4. Select the path where the software on the PC shall be installed (use the default path or enter a new one via **[BROWSE]**).
5. **[NEXT]**



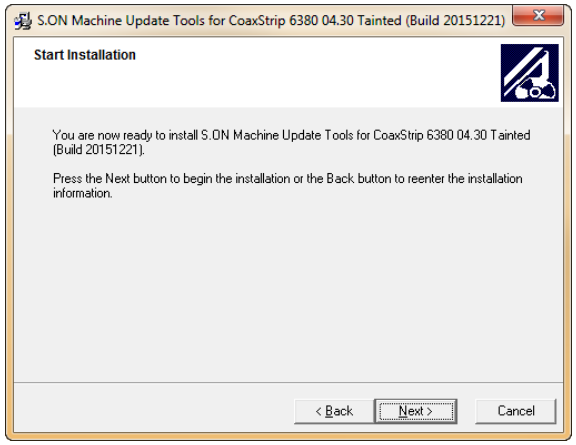
6. Select the desired components.
7. **[NEXT]**



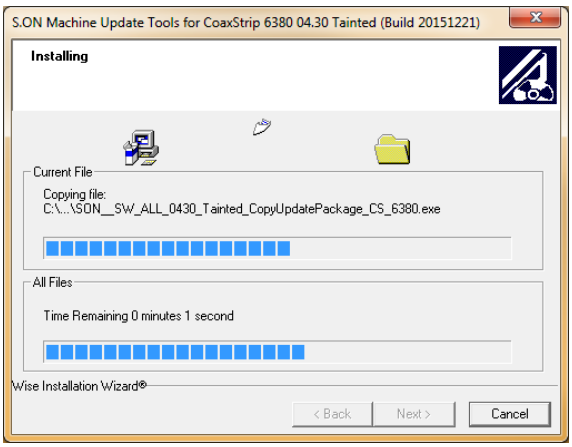
8. ▹ Select the default program management group.
9. ▹ [NEXT]



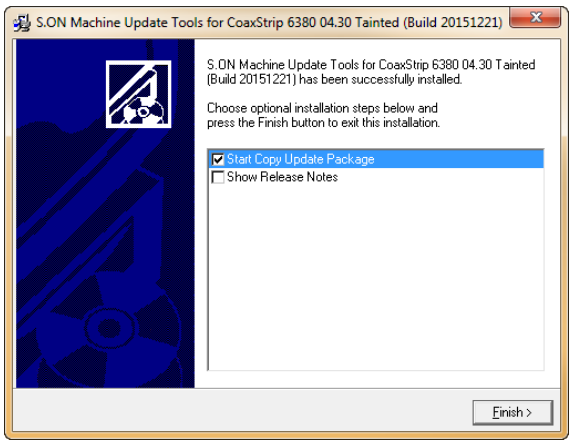
10. ▹ [NEXT]
    ➥ The installation starts.



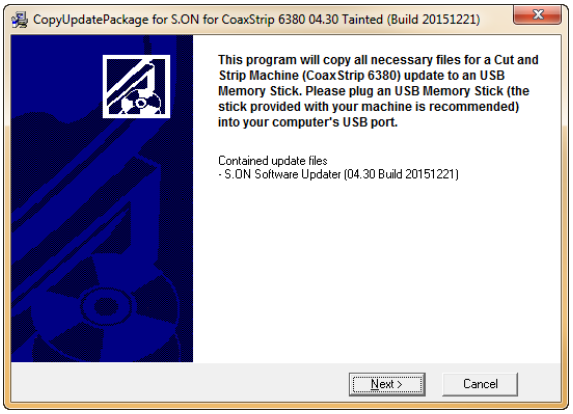
11. ▹ The software installation is carried out.



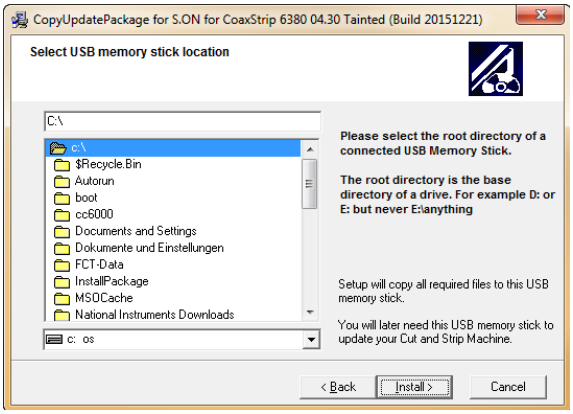
12. ▹ Select the option as in the figure.
13. ▹ **[FINISH]**



14. ▹ Insert a new, with the Microsoft-file system "FAT" formatted USB memory stick on the PC.
15. ▹ **[NEXT]**

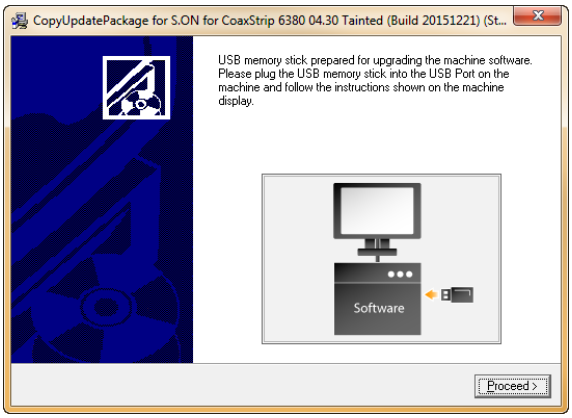


16. ▹ Select the path where the USB memory stick was recognized by the PC (e. g. D:\ or E:\).
17. ▹ **[INSTALL]**

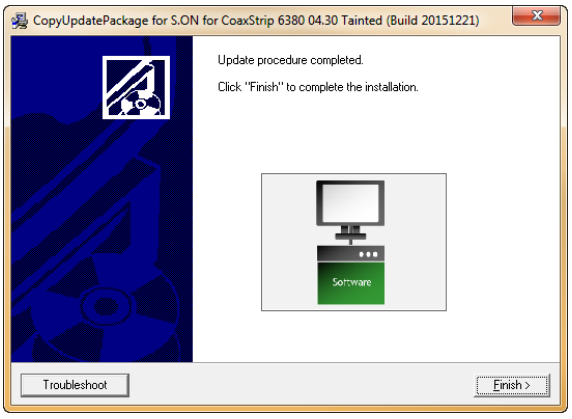


18. ▹ Operating system, firmware data and *S.ON* are copied to the USB memory stick.

19. ▹ Insert the prepared USB memory stick on the USB connector of the CoaxStrip 6380.
    ➥ The upgrade starts automatically. A message shows up, that the upgrade is performing. After a successful upgrade, an appropriate message is displayed.
20. ▹ **[PROCEED]**



21. ▹ **[FINISH]**
    ➥ The upgrade procedure is terminated. The machine will be started and initialized.



DIAGNOSTICS / TROUBLESHOOTING

S.ON is equipped with a comfortable diagnostics software, which is used to monitor the state of the machine and the connected peripheral devices. Here we can check the individual parts and the peripheral devices in case of an error condition.

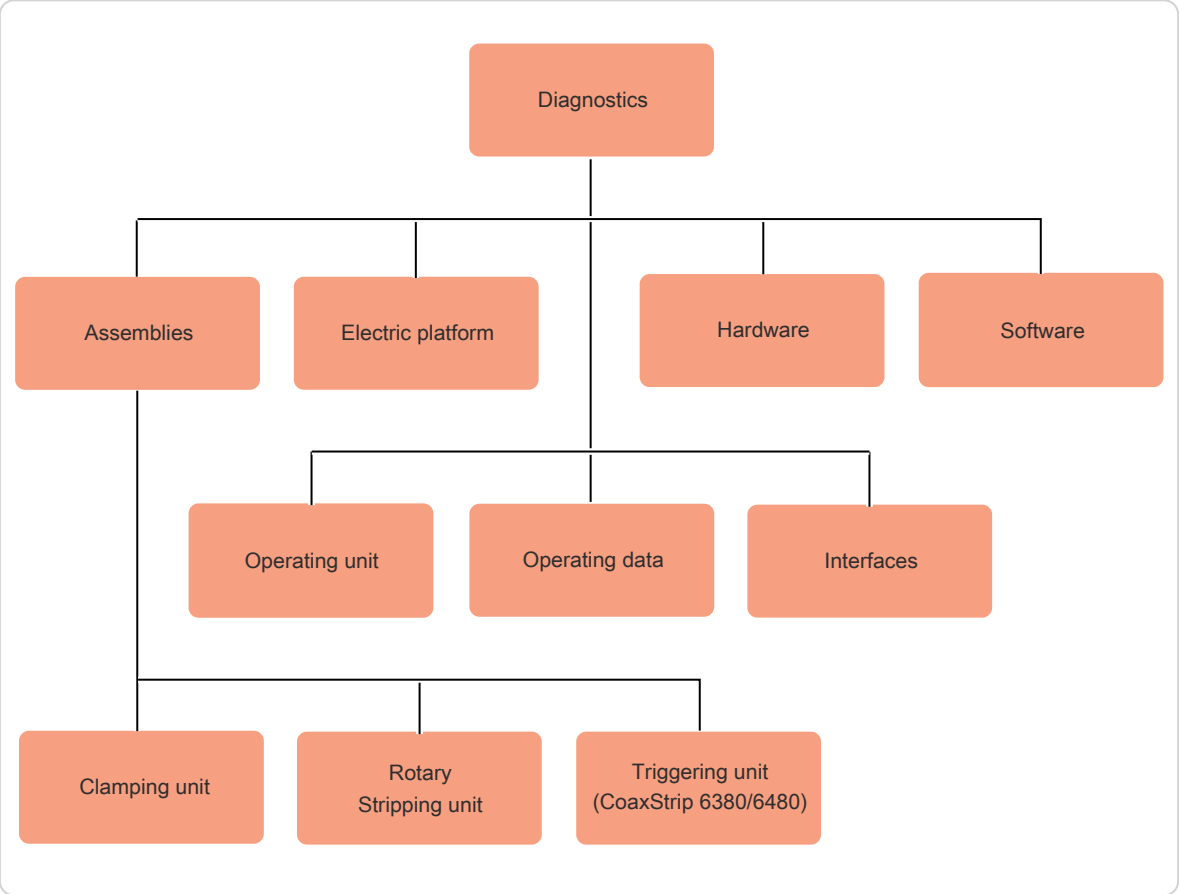


Fig. 7: Overview “Diagnostics”

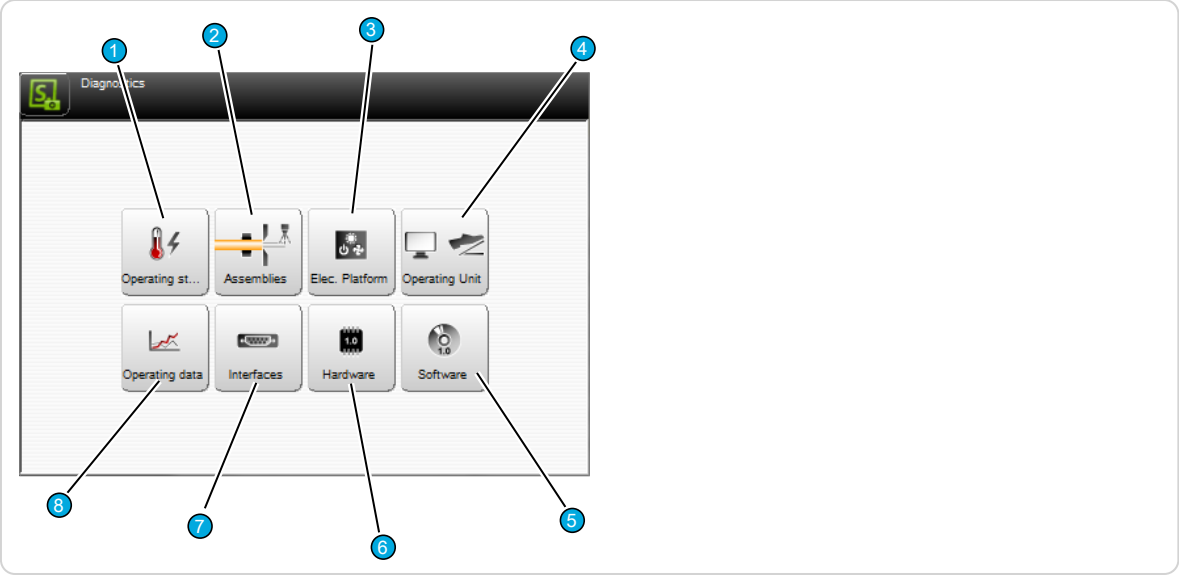


Fig. 8: Overview, diagnostic screens and elements

1 Operating status
2 Assemblies
3 Electric platform
4 Operating unit
5 Software
6 Hardware
7 Interfaces
8 Operating data

12.1 OPERATING STATUS

Verification the operating status of machine and display.

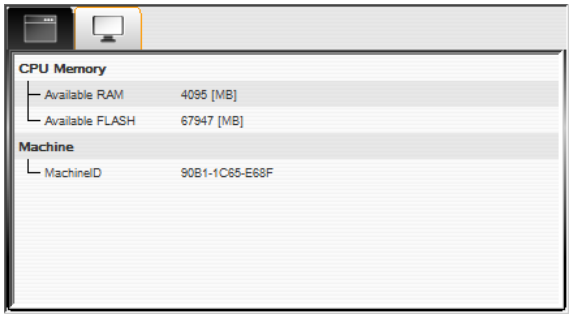
CPU memory

Available RAM: How much RAM memory is still available.

Available flash: How much flash memory is still available.

Machine

Machine ID: Display of the machine identification number.



12.2 COMPONENTS

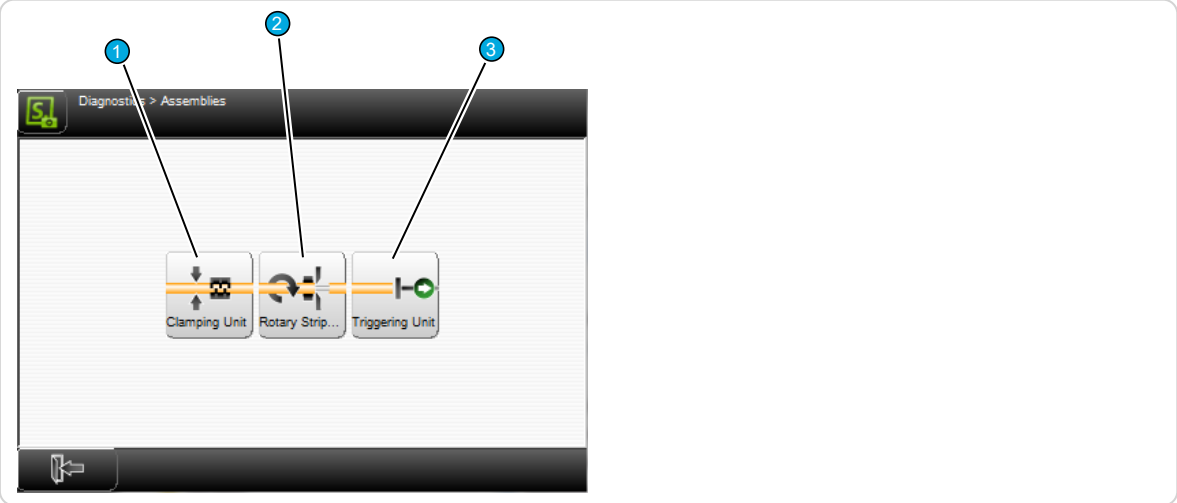
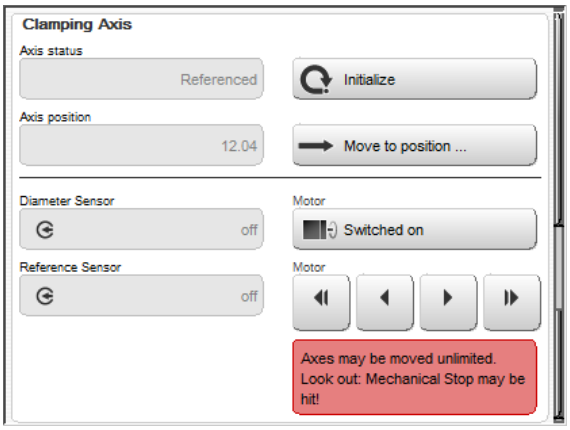


Fig. 9: Overview, diagnostics - assemblies

1 Clamping unit
2 Rotary stripping unit
3 Triggering unit

Clamping unit - clamping axis

Check and activate the clamping axis movement.



Axis status: Displays whether the axis is referenced, manual initialization of the axis.

Axis position: Display the axis position, manually move to position.

Diameter sensor: Display the status of the diameter sensor.

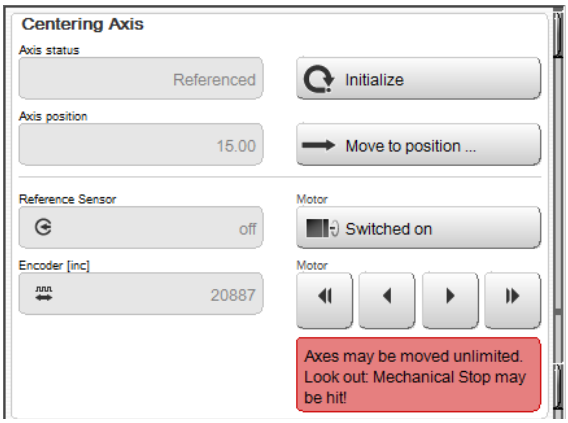
Reference sensor: Display the status of the reference sensor.

Motor: Switch motor on/off.

Motor: Move small/large step. To the right means open axis, to the left means close axis.
Caution: The axes can be moved freely and be traveled into the mechanical stop. This may lead to damage to the machine.

Check and activate axes at the rotary stripping unit.

Rotary incising unit - centering axis



Axis status: Displays whether the axis is referenced, manual initialization of the axis.

Axis position: Display the axis position, manually move to position.

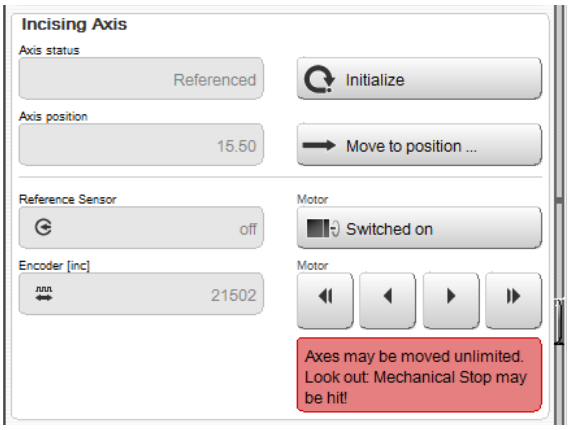
Reference sensor: Display the status of the reference sensor.

Encoder [inc]: Display of encoder position.

Motor: Switch motor on/off.

Motor: Move small/large step. To the right means open axis, to the left means close axis.
Caution: The axes can be moved freely and be traveled into the mechanical stop. This may lead to damage to the machine.

Rotary incising unit - incising axis



Axis status: Displays whether the axis is referenced, manual initialization of the axis.

Axis position: Display the axis position, manually move to position.

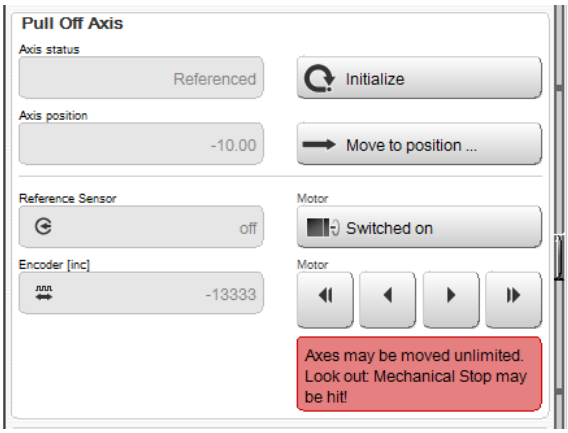
Reference sensor: Display the status of the reference sensor.

Encoder [inc]: Display of encoder position.

Motor: Switch motor on/off.

Motor: Move small/large step. To the right means open axis, to the left means close axis.
Caution: The axes can be moved freely and be traveled into the mechanical stop. This may lead to damage to the machine.

Rotary incising unit - pull-off axis



Axis status: Displays whether the axis is referenced, manual initialization of the axis.

Axis position: Display the axis position, manually move to position.

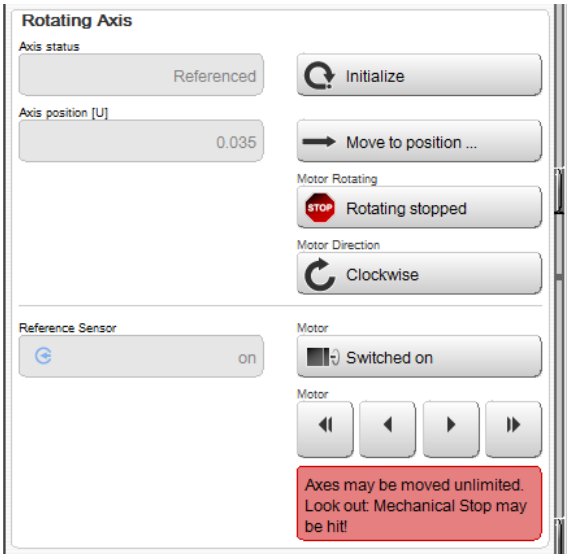
Reference sensor: Display the status of the reference sensor.

Encoder [inc]: Display of encoder position.

Motor: Switch motor on/off.

Motor: Move small/large step. To the right means open axis, to the left means close axis.
Caution: The axes can be moved freely and be traveled into the mechanical stop. This may lead to damage to the machine.

Rotary incising unit - rotating axis



Axis status: Displays whether the axis is referenced, manual initialization of the axis.

Axis position [U]: Display the axis position, manually move to position, stop motor rotation, change direction of rotation.

Reference sensor: Display the status of the reference sensor.

Motor: Switch motor on/off.

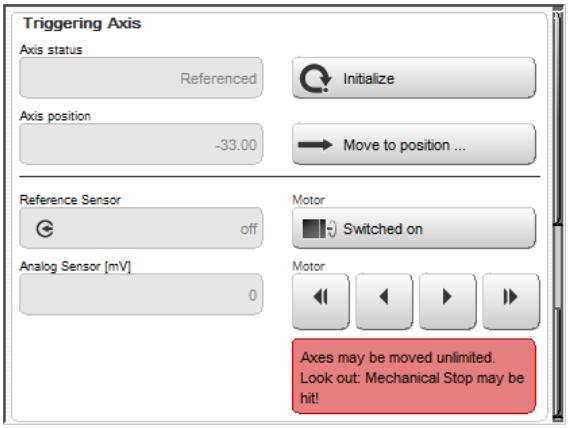
Motor: Move small/large step. To the right means open axis, to the left means close axis.
Caution: The axes can be moved freely and be traveled into the mechanical stop. This may lead to damage to the machine.

Rotary incising unit - air jet

Air jet activation: Switch on/off

Triggering unit - triggering axis

Check and activate the triggering axis movement.



Axis status: Displays whether the axis is referenced, manual initialization of the axis.

Axis position: Display the axis position, manually move to position.

Reference sensor: Display the status of the reference sensor.

Analog sensor: [mV] display state of the analog sensor.

Motor: Switch motor on/off.

Motor: Move small/large step. To the right means open axis, to the left means close axis.
Caution: The axes can be moved freely and be traveled into the mechanical stop. This may lead to damage to the machine.

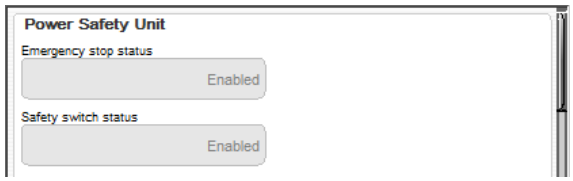
12.3 ELECTRIC PLATFORM

Check and manipulate the electrical signals on the platform. For further information on this platform, see the *"Reference Manual - Bricks"*.

Power safety unit

Emergency stop status: Display emergency stop condition.

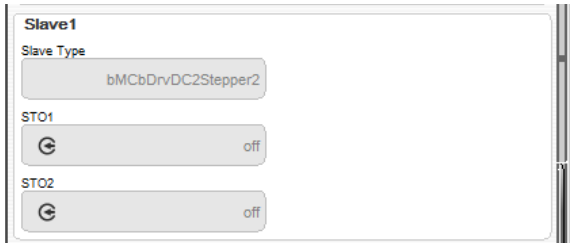
Safety Switch Status: Display safety switch on the safety cover.



Slave 1/2/3

Slave Type: Display of the slave controller type.

STO (Save Torque Off) Display of STO signals.



Machine

Light activation: Illumination of the processing area, switch on/off.

12.4 OPERATING UNIT

Check and manipulate the signals of the control unit.

Pedal

Pedal activated: Display the pedal status.

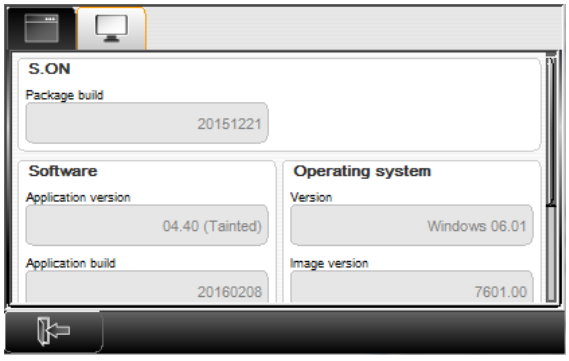
Pedal connected: Displays whether the pedal is connected to the machine.

12.5 SOFTWARE

Here versions of machine and operating unit software are displayed. These must be communicated in a support request to the service department of the local *Schleuniger* distributor.

The following software components are available:

- *S.ON* Program packet build
- **Software:** Application versions, application build, data version
- **Operating system:** Versions, image version, registration

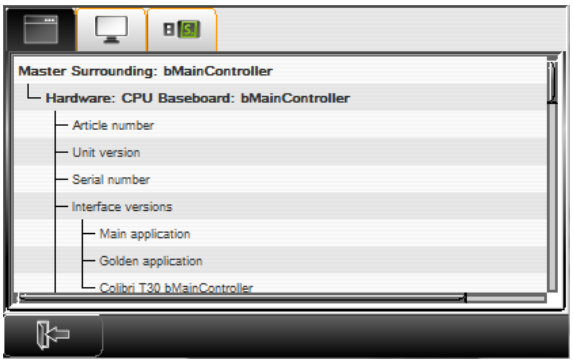


12.6 HARDWARE

There are the versions of the various hardware components for the machine and the operating unit shown. These must be communicated in a support request to the service department of the local *Schleuniger* distributor.

The following hardware components are available:

- **Machine**
  - Master surrounding
  - EtherCAT device
  - S-Link device
- **Operating unit**
  - Master surrounding



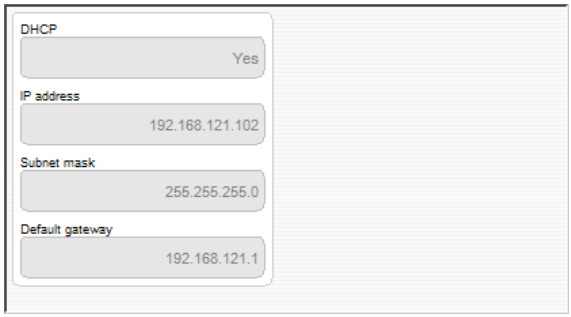
12.7 INTERFACES

Test for the in- and outputs of the electronics and the external interfaces of the *CoaxStrip 6380*.

Ethernet connection

Display of the ETHERNET IP-addresses and further information.

- DHCP
- IP address
- Subnet mask
- Default gateway



12.8 OPERATING DATA

The operating data are available for machine and operating unit. Here common production data like total quantity of all produced wires on this machine, production times etc. are displayed.

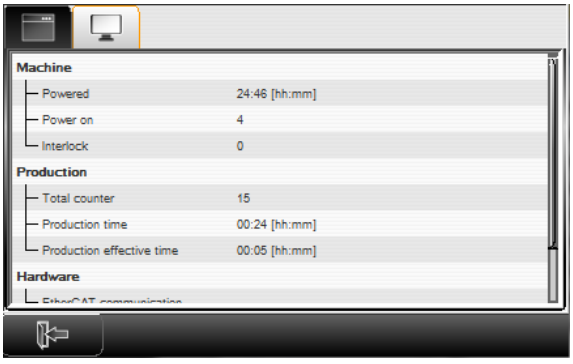
The information refers in general to the total run time since the machine for the first time has been put into operation.

Machine / operating unit

- **Switched on:** How often was the machine switched on and how long was it turned on.

Production

- **Total counter:** Counts all articles ever produced on this machine.



- **Production time:** Includes everything from pressing the "Start" button until the production dialog has been closed.
- **Production effective time:** Only shows the effective production time. Excludes messages from.

Hardware

- **EtherCAT communication:** Counters of the individual states in the control electronics.

12.9 COMPATIBILITY CHECK

Simplification of the user guidance

1. As soon as articles and Processing are opened, there is a compatibility check of the article and Processing data.
2. If the settings are incompatible, the message "Data compatibility check failed" appears with the appropriate change proposal.
3. This message depends on the user level and the editor type, see table below. When the user of the "Programmer" or "Maintenance" user level confirms the proposed change, the data is adjusted automatically.
4. The user at the "Operator" user level is only informed of the incompatibility.
5. If the change is rejected, the user remains in the article editor / article list / article library / configuration.

Editor-Type	Automatic correction
Article editor with local Processing	The article and the Processing are checked, and the correction is offered for both.
Article editor with Processing from the library	The article and the Processing are checked with the hint, that the Processing **cannot** be corrected automatically. The correction is offered for the article.
Processing editor	Only the Processing is checked, and the correction offered.

12.10 MESSAGES

On the touch screen, status messages are displayed which may show up before, during and after the production.

There are three types of messages which could occur during the production or programming the machine:

- General information
- Warning
- Error

General Information is self-explanatory in most cases and not specifically listed here. The most important warnings and errors concerning the production are shown in the following chart:

For further messages, see the document *„S.ON Messages“* where all in *S.ON* available hints, warnings and error messages are listed in detail.

12.10.1 Warning

Instruction	Description / action
2500: Protected mode active! Axis may be moved unlimited.	**Caution:** Look out, mechanical stop may be hit! The machine may be damaged in this mode if handled improperly.
3303: No pedal detected.	Pedal not connected properly or defective.
18003: Checksum error in .....file.	File defective. Delete file and enter file data again.
18010: Store current wire data in file?	The settings made in the wire screen are not saved yet and can be saved now.
18011: Continue anyway?	The changed Raw Material or Processing data have not been saved yet and will be discarded if continuing.
18014: Really set default values?	Default values will be set. Previously made settings can be lost.
18015: Reset production state?	The programmed amount of articles has been produced, the production state must be reset before the production can be continued.
18017 Local processing of the article will be deleted.	While selecting a Processing from the library, all previously made local Processing settings will be lost.
18023 Update in Processing library?	**Caution:** All article files linked to this Processing will also be changed.
18030: USB memory stick not found.	Insert stick (it may take up to 1 minute after inserting the stick until it is found by the machine). Only the stick supplied by *Schleuniger* shall be used.
18042: Update in Raw material library?	**Caution:** All article files linked to this Raw material are dependent on.
18105: Data compatibility check failed.	By confirming, the incompatible data will be corrected automatically. Only possible for the user level "Programmer" and "Maintenance".

Tab. 4: Diagnostic warning messages

12.10.2 Error

Instruction	Description / action
5308 / 5316: Cut axis was blocked.	Too thick raw material loaded / cut axis feed speed too high / blades mounted improperly.
20004: Unknown data format.	Any open file is not usable, carry out another software update, use latest version!
20005: File is incompatible to the current software version.	Carry out the machine software update again. Use the latest version!
20067: Loading language.	Carry out the machine software update again.
20111: Backup failed.	USB memory stick full, not formatted or defective.
20112: Data restore failed.	Data on the USB memory stick not valid or stick defective.

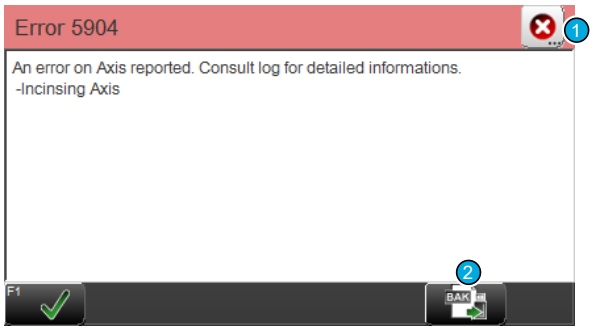
Instruction	Description / action
20150: Data compatibility check failed.	This is only a hint for the "Operator" user level. This message must be acknowledged, so that a user of the "Programmer" or "Maintenance" user level can make the suggested correction.

Tab. 5: Diagnostic error messages

More information on error messages

On an error state (e.g. Hardware incompatibility) an additional key 1 is shown in the error message dialog. Besides of the message text, by touching several times, two logs can be selected here:

- Machine control application log
- User interface application log



Via the key „Export“ 2 all on the machine saved logs can be exported to an USB memory stick.

This logs are for the *Schleuniger* support and serve for the exact analysis of hardware problems.

PROGRAMMING TIPS / EXAMPLES

13.1 PROGRAMMING TIPS

Here you will find programming tips which can help if the produced article does not meet the requirements.

13.1.1 Production faulty

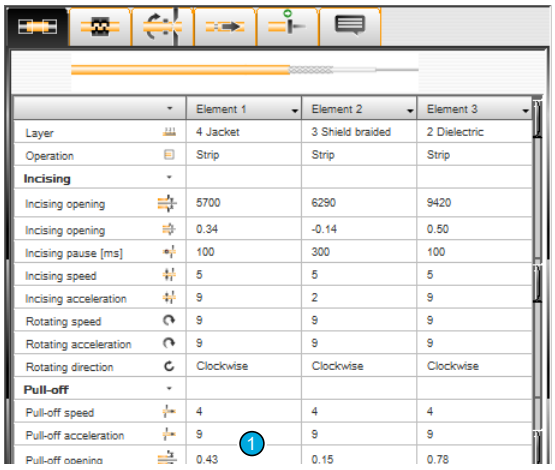
Pour stripping quality

Incision quality insufficient, strands were damaged, scratched conductors.

1. ▹ Go to the single article editor.
2. ▹ Correct the incising 1.
   Notice: Depending on the setting in the Configuration, this value must be corrected relative or absolute to the Raw material diameter, see chapter *"8.2.1 Incising relative/absolute (Page 46)"*.

Wire squeezed

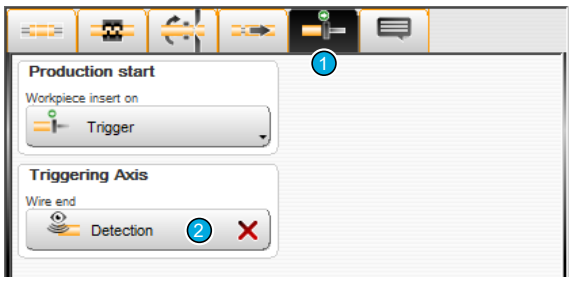
1. ▹ Starting from the screen "Single article editor, select [PROCESSING].
2. ▹ Tab [ELEMENTS].
3. ▹ Correct the pull-off opening 1 (if "Value entry method" relative).
   Pull-off diameter (if "Value entry method" absolute).



Stripping and/or pull-off length temporarily inaccurate

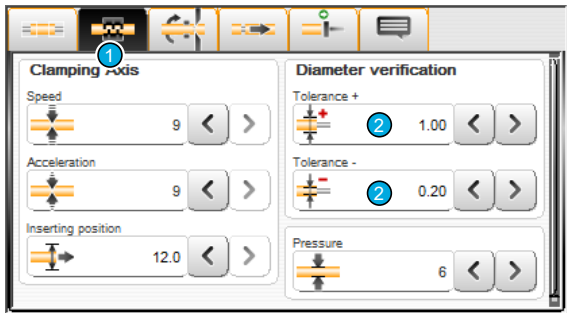
The stripping and pull-off values depend heavily on how the user inserts the raw material into the machine.

1. Starting from the screen "Single article editor, select [PROCESSING].
2. Tab [TRIGGERING AXIS] 1.
3. Switch on the wire end - [DETECTION] 2 (thereby the position of the wire end is exactly detected with the trigger)



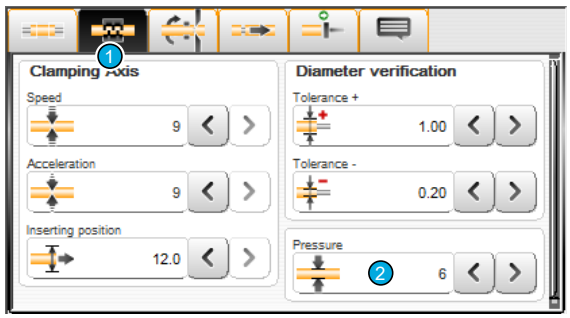
Diameter verification often triggers

1. Starting from the screen "Single article editor, select [PROCESSING].
2. Tab [CLAMPING] 1.
3. Increase [TOLERANCE] 2 (deviation on diameter check, until the machine outputs an error message)



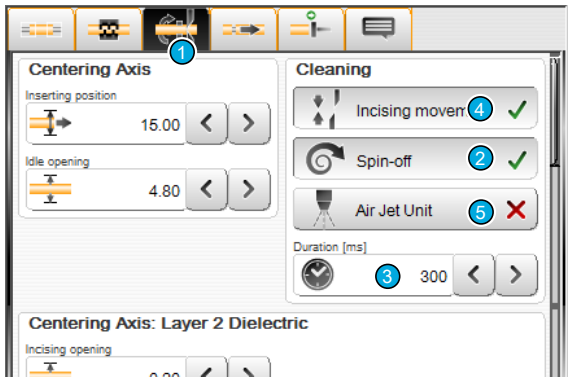
Pressure marks on the jacket

1. Starting from the screen "Single article editor, select [PROCESSING].
2. Tab [CLAMPING] 1.
3. Reduce [PRESSURE] 2.



Waste remains stuck in the stripping area

1. Starting from the screen "Single article editor, select [PROCESSING].
2. Tab [ROTATION/CENTERING] 1.
3. Switch on [SPIN-OFF] 2.
   - ➥ Thereby a further input field [DURATION] 3 is shown, where for the function a time is set how long it shall last.
4. Increase the value under "Duration" until the slug is separated correctly.



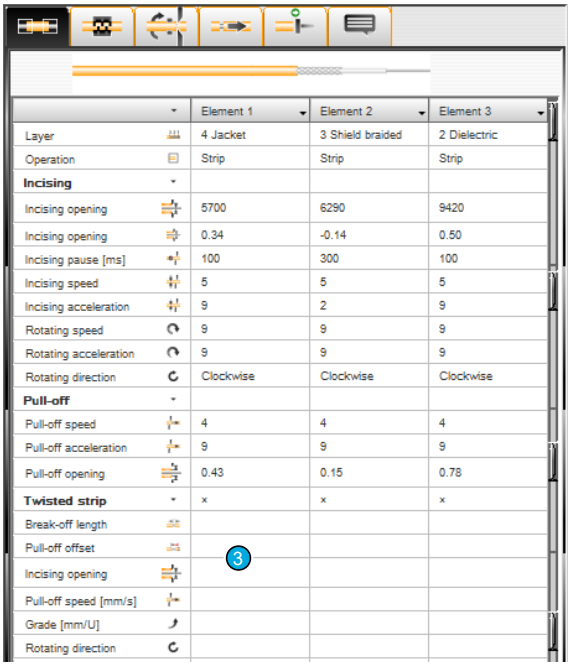
Notice: Additional measures for the slug disposal can be taken by activating the functions [INCISE MOVEMENT] 4 and/or [AIR JET UNIT] 5. Also here the value set under "duration" is considered.

13.1.2 General tips

Twist inner conductor

1. Go to the single article editor.
2. From the drop-down list 1 select "twist".
3. [PROCESSING] 2

4. Tab [ELEMENTS].
5. Alter the twisting parameters 3 accordingly.
   - **Pull-off speed:** Defines the twisting strength.
   - **Grade:** The grade of the twisting. Also contributes to the twisting strength.
   - **Centering pressure:** Restraining power of the wire during twisting.



	Element 1	Element 2	Element 3
Layer	4 Jacket	3 Shield braided	2 Dielectric
Operation	Strip	Strip	Strip
Incising			
Incising opening	5700	6290	9420
Incising opening	0.34	-0.14	0.50
Incising pause [ms]	100	300	100
Incising speed	5	5	5
Incising acceleration	9	2	9
Rotating speed	9	9	9
Rotating acceleration	9	9	9
Rotating direction	Clockwise	Clockwise	Clockwise
Pull-off			
Pull-off speed	4	4	4
Pull-off acceleration	9	9	9
Pull-off opening	0.43	0.15	0.78
Twisted strip	x	x	x
Break-off length			
Pull-off offset			
Incising opening			
Pull-off speed [mm/s]			
Grade [mm/U]			
Rotating direction			

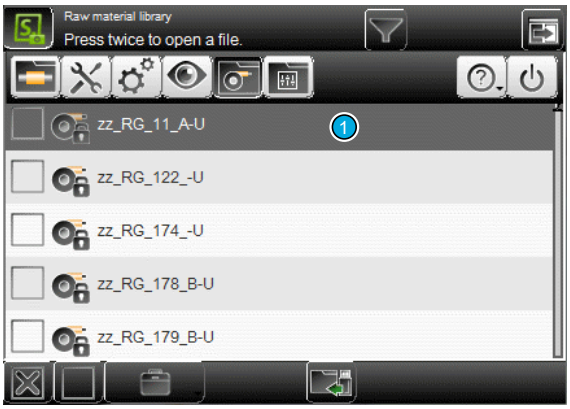
3

Creating a new Raw material

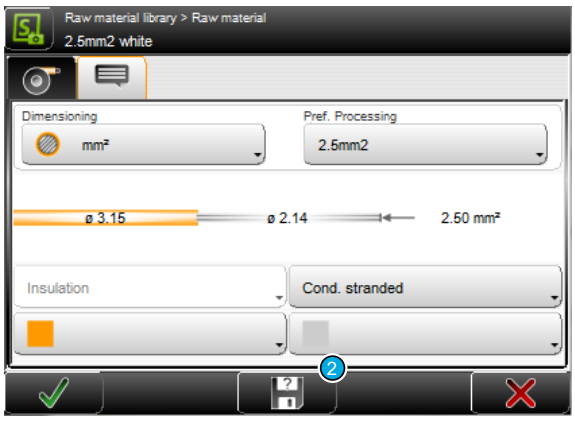
The example shows the creation of a new Raw material, regardless of the article programming.

Caution: In order for the Raw material and Processing libraries to appear in the navigation bar, the library mode must be activated in the configuration, see section *"9.1 Activating library mode (Page 63)"*.

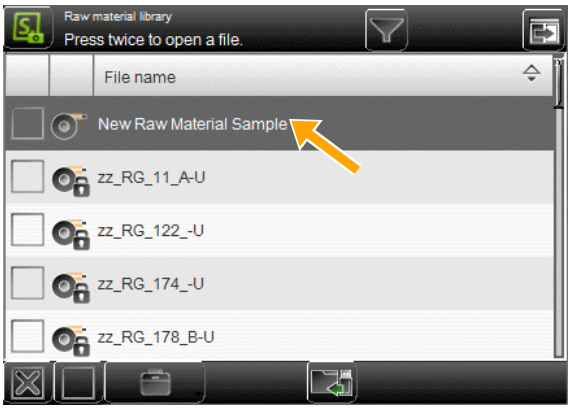
1. Touch the Raw material from the templates 1, which is closest to the newly to be created.



2. Alter the Raw Material Parameters.
3. [SAVE AS...] 2
4. Type in the name of the newly created Raw material on the alphanumeric keypad.
5. 2 x [OK]



6. The new Raw material is displayed in the list and can be used as a template for further programming.



APPENDIX

14.1 OVERVIEW OF SYMBOLS

The list shows the most important touch screen symbols used during programming and production on the product.

14.1.1 Main screens (navigation)

Symbol	Function	Symbol	Function
	Article editor		Setup
	Configuration		Diagnostics
	Raw material library		Processing library
	„About...“ screen		Logging into a user level
	Shut down *S.ON* control software		

14.1.2 Production commands

Symbol	Function	Symbol	Function
	Normal production start		Production mode normal
	Production mode step by step		Producing all wires
	Produce a single article right end		Produce a single article left end
	Cleaning		Automatic cleaning

14.1.3 Global header- and footer line commands

Symbol	Function	Symbol	Function
	Switch on/off the navigation bar		Switch on/off the production commands
	Confirm entry (save data)		Cancel (do not save data)

Symbol	Function	Symbol	Function
	Back to the previous screen		Save file under a new name

14.1.4 List commands

Symbol	Function	Symbol	Function
	Select file		Deselect file
	Import article from USB memory stick		Change list view
	Filter files		Additional file commands
	Enter new file		

14.2 USER LEVEL RESTRICTIONS

The following table shows, which functions can be accessed in which user level:

Screen		Operator	Programmer	Maintenance
Article:				
	Create, save, temporarily changes	×	✓	✓
	Produce	✓	✓	✓
	Modify	×	✓	✓
Login		✓	✓	✓
Setup:				
	Change centering jaws	×	✓	✓
	Change rotary blades	×	✓	✓
	Production settings	×	✓	✓
Configuration:				
	Assemblies	×	×	✓
	Production settings	×	×	✓
	Interfaces	×	×	✓
	Operating units	×	×	✓
	Options	×	×	✓
	Software - backup	×	✓	✓

Screen		Operator	Programmer	Maintenance
	Data restore (Programmer: article data only)	×	✓	✓
	Software - upgrade	×	×	✓
	Software - logging	×	×	✓
	Software - user interface	×	×	✓
	Software - user levels	×	×	✓
Diagnostics		×	×	✓
Processing library		×	✓	✓
Raw material library		×	✓	✓

Tab. 6: User level restrictions

14.3 FORMATS

The formats for the time and date display are defined as follows:

14.3.1 Time formats

In the following chart, the time formats are defined according to the Schleuniger standard. The example in the right column corresponds to the "**1.1.2000 17:12:13**".

Format	Meaning	Example
H	Hour (24), leading zero	17
h	Hour (24)	17
I	Hour (12), leading zero	05
i	Hour (12)	5
M	Minute, leading zero	12
S	Second, leading zero	13
X		PM
x		pm
Y		P.M.
y		p.m.

14.3.2 Date formats

In the following chart, the date formats are defined according to the Schleuniger standard. The example in the right column corresponds to the "**1.1.2000 17:12:13**".

Format	Meaning	Example
D	Day, leading zero	01
d	Tag	1

Format	Meaning	Example
M	Month, leading zero	01
m	Month	1
N	Name of the month in words translated in accordance with the system settings. (Only supported in CAYMAN device connector.)	January
n	Name of the month in words, truncated to three letters and translated in accordance with the system settings. (Only supported in CAYMAN device connector.)	January
Y	Year, 4-digits	2000
y	Year, 2-digits	00
E	Calendar week (ISO), leading zero*	52
w	Calendar week (ISO)*	52
X	Corrected year for ISO calendar week, 4-digits	1999
x	Corrected year for ISO calendar week, 2-digits	99
V	Calendar week (USA), leading zero	01
v	Calendar week (USA)	1
*) The specification of calendar weeks according to ISO 8601 can cause that the first four days of a year fall in the calendar week of the previous year.		

Besides a compendium of Wikipedia:

- Every Monday and only on Monday a new calendar week begins.
- The first calendar week is that containing at least 4 days of the new year.

At this point the following conclusions can be made:

- No incomplete calendar weeks exist, unexceptional every calendar week contains exactly 7 days.
- Each year has either 52 or 53 calendar weeks.
- A year has exactly 53 calendar weeks if it starts or ends with a Thursday.
- The 29., 30. and 31. December can already belong to the first calendar week of the following year.
- The 1., 2. and 3. January can still belong to the last calendar week of the previous year.

Example:

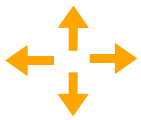
- Calendar week CW 52, 2003:
  2003-W52 - Monday, 22. December 2003 to Sunday, 28. December 2003
- Calendar week CW 1, 2004:
  2004-W01 - Monday, 29. December 2003 to Sunday, 4. January 2004

14.4 EXTERNAL KEYBOARD ON THE USB CONNECTOR

The text entry on the touch screen can also be carried out via a standard PC keyboard connected to the USB-connector of the panel. The keyboard language is set in the "Configuration".

Through the keyboard also Unicode characters can be entered in the text fields (for this hold down the **[ALT]** key and enter the corresponding digits **[0]** - **[9]** to select the character).

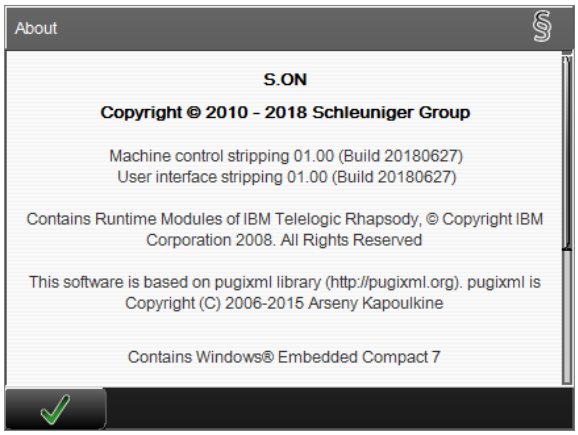
14.4.1 Key assignment

Symbol	Function	Symbol	Function
Home	Navigation Home	End	Navigation end
Page up	Navigation page up	Page down	Navigation page down
	Arrow keys		
Insert	Edit key	Esc	Escape
Del	Delete del	Enter	Enter key enter
Backspace	Backspace key 		

14.5 LICENSES

14.5.1 License info in the About... Screen

By touching **[?]** –> **[ABOUT...]** the license screen is shown. Here, general license agreements in conjunction with the *S.ON* Software are shown.



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14.5.6 Third-Party Licenses Used in Qt

Qt includes a number of third-party libraries that are used to provide certain features. Unlike the code described in the code used in Qt document, these libraries are supplied alongside the Qt modules.

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Run configure-help to see any options that may be available for controlling the use of these libraries.

Modifications, if any, done to the third-party libraries can normally be found by reviewing the change history of the corresponding files in the public Qt repository.

FreeType 2 (freetype) version 2.3.12

The FreeType project is a team of volunteers who develop free, portable and high-quality software solutions for digital typography. We specifically target embedded systems and focus on bringing small, efficient and ubiquitous products. -- quoted from 3rdparty/freetype/docs/freetype2.html.

See qtbase/src/3rdparty/freetype/docs/FTL.txt and qtbase/src/3rdparty/freetype/docs/GPL.txt for license details.

See also the files in qtbase/src/3rdparty/harfbuzz, which are used by FreeType.

Parts of the FreeType projects have been modified and put into Qt for use in the painting subsystem. These files are ftraster.h, ftraster.c, ftgrays.h and ftgrays.c. The following modifications has been made to these files:

- Renamed FT_ and ft_ symbols to QT_FT_ and qt_ft_ to avoid name conflicts.

- Removed parts of code not relevant when compiled with _STANDALONE_ defined.
- Changed behavior in ftraster.c to follow X polygon filling rules.
- Implemented support in ftraster.c for winding / odd even polygon fill rules.
- Replaced bitmap generation with span generation in ftraster.c
- Renamed: ftraster.h to qblackraster_p.h
- Renamed: ftraster.c to qblackraster.c
- Renamed: ftgrays.h to qgrayraster_p.h
- Renamed: ftgrays.c to qgrayraster.c

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- Parts of the FreeType library

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HarfBuzz (harfbuzz)

This is HarfBuzz, an OpenType Layout engine library. -- quoted from qtbase/src/3rdparty/harfbuzz/README.

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JPEG Software (libjpeg) version 8c

This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images. JPEG is intended for compressing "real-world" scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not exactly identical to the input image. -- quoted from qtbase/src/3rdparty/libjpeg/README.

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MD4 (md4.cpp and md4.h)

MD4 (RFC-1320) message digest.

Modified from MD5 code by Andrey Panin <pazke@donpac.ru>

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See qtbase/src/3rdparty/md4/md4.cpp and qtbase/src/3rdparty/md4/md4.h for more information about the terms and conditions under which the code is supplied.

MD5 (md5.cpp and md5.h)

This code implements the MD5 message-digest algorithm. The algorithm is due to Ron Rivest. This code was written by Colin Plumb in 1993, no copyright is claimed. This code is in the public domain; do with it what you wish. -- quoted from qtbase/src/3rdparty/md5/md5.h

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MNG Library (libmng) version 1.0.10

The libmng library supports decoding, displaying, encoding, and various other manipulations of the Multiple-image Network Graphics (MNG) format image files. It uses the zlib compression library, and optionally the JPEG library by the Independent JPEG Group (IJG) and/or lcms (little cms), a color-management library by Marti Maria Saguer. -- quoted from qtimageformats/src/3rdparty/libmng/doc/libmng.txt

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PNG Reference Library (libpng) version 1.5.10

Libpng was written as a companion to the PNG specification, as a way of reducing the amount of time and effort it takes to support the PNG file format in application programs. -- quoted from qtbase/src/3rdparty/libpng/libpng-manual.txt.

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SHA-1 (sha1.cpp)

Based on the public domain implementation of the SHA-1 algorithm

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See qtbase/src/3rdparty/sha1/sha1.cpp for more information about the terms and conditions under which the code is supplied.

SHA-3, originally known as Keccak

SHA-3, originally known as Keccak, is a cryptographic hash function designed by Guido Bertoni, Joan Daemen, Michaël Peeters, and Gilles Van Assche, building upon RadioGatún.

Implementation by the designers, hereby denoted as "the implementer".

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SQLite (sqlite) version 3.7.17.0

SQLite is a small C library that implements a self-contained, embeddable, zero-configuration SQL database engine.

According to the comments in the source files, the code is in the public domain. See the SQLite Copyright page on the SQLite web site for further information.

TIFF Software Distribution (libtiff) version 3.9.2

libtiff is a set of C functions (a library) that support the manipulation of TIFF image files. -- quoted from qtimageformats/src/libtiff/html/libtiff.html

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Wintab API (wintab)

Wintab is a de facto API for pointing devices on Windows. The wintab code is from http://www.pointing.com/WINTAB.HTM.

Data Compression Library (zlib) version 1.2.5

zlib is a general purpose data compression library. All the code is thread safe. The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 -- quoted from qtbase/src/3rdparty/zlib/README.

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Pixman (pixman) version 0.17.11

pixman is a library that provides low-level pixel manipulation features such as image compositing and trapezoid rasterization. -- quoted from qtbase/src/3rdparty/pixman/README

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Author: Siarhei Siamashka (siarhei.siamashka@nokia.com)

See qtbase/src/3rdparty/pixman/pixman-arm-neon-asm.h and qtbase/src/3rdparty/pixman/pixman-arm-neon-asm.S

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The Public Suffix List

The Public Suffix List is an initiative of the Mozilla Project, but is maintained as a community resource. It is available for use in any software, but was originally created to meet the needs of browser manufacturers. It allows browsers to, for example:

- Avoid privacy-damaging "supercookies" being set for high-level domain name suffixes
- Highlight the most important part of a domain name in the user interface
- Accurately sort history entries by site

The public suffix list is used inside Qt to avoid such "supercookies" mentioned above being set in the cookie jar supported by Qt (by the QNetworkCookieJar class).

See qtbase/src/network/access/qnetworkcookiejartlds_p.h.INFO for more information about how the list is used.

IAccessible2 IDL Specification

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ANGLE (angle)

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- Parts of ANGLE in qtbase/src/3rdparty/angle/src/compiler/preprocessor

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Shift-JIS Text Codec

Shift JIS (Shift Japanese Industrial Standards, also SJIS, MIME name Shift_JIS) is a character encoding for Japanese. It was originally developed by ASCII Corporation in conjunction with Microsoft.

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ISO 2022-JP (JIS) Text Codec

ISO/IEC 2022 is an ISO standard specifying: - a technique for including multiple character sets in a single character encoding system, and - a technique for representing these character sets in both 7 and 8 bit systems using the same encoding.

ISO-2022-JP is a widely used encoding for Japanese.

EUC-JP Text Codec

EUC-JP is a variable-width encoding used to represent the elements of three Japanese character set standards, namely JIS X 0208, JIS X 0212, and JIS X 0201.

EUC-KR TextCodec

Extended Unix Code (EUC) is a multibyte character encoding system used primarily for Japanese, Korean, and simplified Chinese. KR is a variable-width encoding to represent Korean text using two coded character sets, KS X 1001 and KS X 1003.

GBK Text Codec

GBK is an extension of the GB2312 character set for simplified Chinese characters, used in the People's Republic of China. GB is the abbreviation of Guojia Biaozhun (国家标准), which means national standard in Chinese, while K stands for Extension ("Kuozhan"). GBK not only extended the old standard GB2312 with Traditional Chinese characters, but also with Chinese characters that were simplified after the establishment of GB2312 in 1981. With the arrival of GBK, certain names with characters formerly unrepresentable, like the "rong" (镕) character in former Chinese Premier Zhu Rongji's name, are now representable.

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Big5 Text Codec

Big5, or BIG-5, is a Chinese character encoding method used in Taiwan, Hong Kong, and Macau for Traditional Chinese characters. Mainland China, which uses Simplified Chinese Characters, uses the GB character set instead.

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DES (des.cpp)

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Bison Parser 2.3a

A Bison parser, made by GNU Bison 2.3a.

Skeleton implementation for Bison's Yacc-like parsers in C

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TSCII Text Codec

The TSCII codec provides conversion to and from the Tamil TSCII encoding.

TSCII, formally the Tamil Standard Code Information Interchange specification, is a commonly used charset for Tamils.

This codec uses the mapping table found at http://www.geocities.com/Athens/5180/tsciiset.html. Tamil uses composed Unicode which might cause some problems if you are using Unicode fonts instead of TSCII fonts.

Drag and Drop

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Callgrind

Callgrind, an extension to Cachegrind created by Josef Weidendorfer which produces more information about callgraphs. It was folded into the mainline version of Valgrind in version 3.2.0. KCacheGrind is capable of visualizing output from Callgrind as well as Cachegrind.

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This file is part of callgrind, a valgrind tool for cache simulation and call tree tracing.

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Stack-less Just-In-Time compiler

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--quoted from qtbase/src/3rdparty/pcre/sljit/sljitLir.c

xcb

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Botan version 1.8.8

{Botan is a C++ crypto library.}

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The source code of Botan C++ crypto library can be found in QtCreator/src/libs/3rdparty

at-spi and at-spi2

at-spi provides a Service Provider Interface for the Assistive Technologies available on the GNOME platform and a library against which applications can be linked.

The AT-SPI package is a part of the GNOME Accessibility Project. (http://developer.gnome.org/projects/gap)

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-- quoted from qtbase/src/3rdparty/easing/easing.cpp

xkbcommon

xkbcommon is a library to handle keyboard descriptions, including loading them from disk, parsing them and handling their state. It's mainly meant for client toolkits, window systems, and other system applications

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-- quoted from libxkbcommon.0.3.1.tar.xz, the latest package available on xkbcommon.org

Clucene Core Library

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14.6 GLOSSARY

Access protection	The access protection prevents the user from reaching into the machine during production and keeping the necessary distance.
Actuators	Actuators transform the electrical signals into mechanical movement or pressure. The mechanical movement can be bi-/multi-stable or continuously.
Air jet unit	The air jet unit is used to blow off wire residue in the area of the blades.
Application	Defines the end application settings of the wire. Additional functions are provided, how the wire shall be stripped.
Article / single article	An article consists of at least one wire/dielectric, which has to be cut to length.
Article list	An article list is a list of individual single articles. We recommend e. g., to program an article list which contains all the articles required for e. g. a harness.
Axes	An axis is a route where a part of the machine moves. An axis can consist of actuators and sensors.
Centering	The centering unit has the task to align the raw material centric. Centering is the generic term and includes two "Jaws", i. e. "Centering jaws" mounted on a "Holder ". Are the centering jaws and the holder a single part, this is referred to as a centering. A centering can, for example, appear in the stripping unit as an axis. Consequently, this is called "Centering axis". The centering axis is a subassembly.
Compressed air	To use the compressed air driven components (e.g. air jet unit), the machine must be connected to a compressed air system.

Cutting unit	The cutting unit is responsible for the incising and cutting of the raw material. The cutting unit can depending on the machine model be equipped with one or more pairs of blades. If there are several blades available and the wire is not fed using the gripper to the cutting unit, there needs to be an additional axis in order to be able to change between the individual blades.
Directory	Under a directory structure we define the paths from where which data are used and where the data are to be exported or imported. A directory can be chosen for the following matters: ■ Order ■ Article ■ Raw material ■ Processing ■ Import ■ Export ■ Configuration ■ Peripheral devices
Guides	The task of a guide is the precise feeding of raw material to the next module. There are guides, which can be moved by means of a drive and those who do not have a drive. There is also a distinction between removable hole diameters and those that have a fixed hole diameter. A guide can be derived from the individual parts "Guide holder " and "Guide tube". A guide can be a separate module as well as a sub-group. If it is a subassembly it can be integrated or be external.
Library mode	In the library mode, Raw materials and Processing's are stored for re-use in libraries.
Maintenance unit	The maintenance unit must be connected to a compressed air system and supplies the machine with regulated and purified compressed air. In contrast to the simple compressed air connection, the compressed air can be controlled via a valve and a manometer on the maintenance unit.
Order	An order consists of several referenced articles, selected from an article management system. Typically for an order is the reconfirmation of the operator to the customer.
Processing	The way in which the wire processing machine processes a certain type of articles is defined in the Processing. The Processing describes how the machine a Raw material type (for example, a Power cord) shall process. This is determined by data such as speed, incision depth, way back, air jet time, utilized blades etc.
Processing area	The processing area is the space where the raw material is processed (cutting, stripping). The safety cover prevents that the user can touch moving parts during the production in the processing area.
Product	Derived from the Latin word producere does "Product* basically mean a Result. Thus the physically end product, which is forwarded to the customer finally. From a point of the production staff, this may be e.g. a harness.
Protected mode	The machine is put into the state "Safe mode", for example, if the machine is overheated or supplies must be switched off (motor movement not possible). A reliable operation can therefore no longer be guaranteed. This mode normally can only be suspended if performing a reboot on the machine, which is completed then with a successful initialization process.
Raw material	The Raw material describe how an article is made-up (e.g. a Power cord or a flat cable). This is the wire type (e.g. flat cable or twisted pair cable), the colors and dimensions of the wire. These data is used for a realistic representation of the wire on the screen and for supporting the user with the input of complex wires.
Safety appliances	Machines contain depending on the model, various safety element. They are responsible for to protect the user of the product against injury.

	The most important safety elements and mechanical protection devices: ■ Main power switch ■ Power button ■ Emergency stop button ■ Production stop key ■ Safety switch ■ Tower light ■ Safety cover ■ Finger protection
Stripping unit	The stripping unit allows precise incisions into very fine wires and strips them. A stripping unit can consist of the following axes: ■ Pull-off axis ■ Triggering axis ■ Clamping axis ■ Cutting axis
Trigger	The trigger is part of the triggering axis. By activating the trigger button, the production process is started. The area where the raw material comes into contact with the trigger, is called "Triggering sensor".
V-Blades	The V-blade has a V-shaped cutting geometry and is used primarily for the cutting-through, recut and stripping. V-blades normally have an angle of 90°. 

14.7 TABLE OF GRAPHICS

14.8 TABLE OF CHARTS

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