Schleuniger

S.ON

Wire Processing Software for *PowerStrip 9580*

Reference Manual

Software Version 8.1x |Edition 9.0 (03-2021)

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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: PowerStrip 9580 |

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 *PowerStrip 9580*

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.

- This manual is stated as "Operating Instructions" and is part of the product. It contains all information to operate the machine 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 *PowerStrip 9580*

The Reference Manual contains the complete information for the *PowerStrip 9580*, 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 13)"	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.

CAYMAN™, the CAYMAN-logo, IGUANA™ and the IGUANA-logo are trademarks of Schleuniger.

The control software S.WOP 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 *"17.4 Licenses (Page 174)"*.

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 *PowerStrip 9580* connected to this software.

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 control of cut off, cut through and stripping processes for cables, wires and tubes.

See also chapter *"4.1 The main applications (Page 19)"*.

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. Approximate memory needed for 1000 articles (average for mixed applications)	1 3	GB MB
Operating unit	Monitor FPD with touch screen display and LED background light	10.4	Inch
	Resolution	1024 x 768	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.

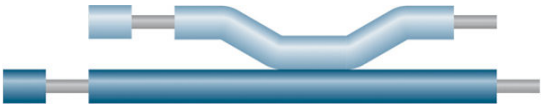
S.ON is the operating software for a wide palette of *Schleuniger* cut & strip machines. Wire programming and production is controlled via a touch screen which is available in different models and sizes, dependent on the machine to be controlled.

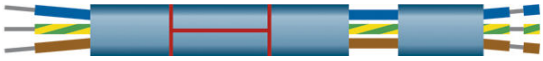
The software covers a wide spectrum of applications. The well-arranged screens, operating elements and pictograms simplifies the initial skill adaptation training on understanding the *Schleuniger* wire processing concept rigorous.

- Libraries for article data, Raw material and Processing.
- Assembly of article lists for cable harness and others.
- 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.
- Well-arranged configuration with calibration wizards for controlling the *PowerStrip 9580*.

4.1 THE MAIN APPLICATIONS

Processing capabilities include single wire, multi-conductor cables (Power cords), Coaxial cables, Zip cords, Plastic optical fiber (POF) and many more.

Application	Example
Cut to length	
Full- or partial strip left and right	
Multi-step stripping	
Multi-layer stripping	
Jacket stripping of multi-cords	
Jacket stripping of extremely thin insulations	
Jacket- and inner wire stripping	
Trim, separate and stripping of individual wires	
Cutting back individual conductors (ribbon cables)	

Application	Example
Multi-step stripping with slitting and window	
Marking of articles	

SCHLEUNIGER WIRE PROCESSING CONCEPT

Schleuniger has its own concept for the programming of the *PowerStrip 9580*.

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 lot of individual orders using the same Raw material and/or Processing or articles that require special processing steps. Settings for the Raw material and Processing are saved separately in own libraries. They can be assigned individually to an article.
- **Article list mode:** Processing of article lists. For intense varying orders, containing many or a lot of single articles. Article lists comprise of individual articles from the article library (e. g. for harness).

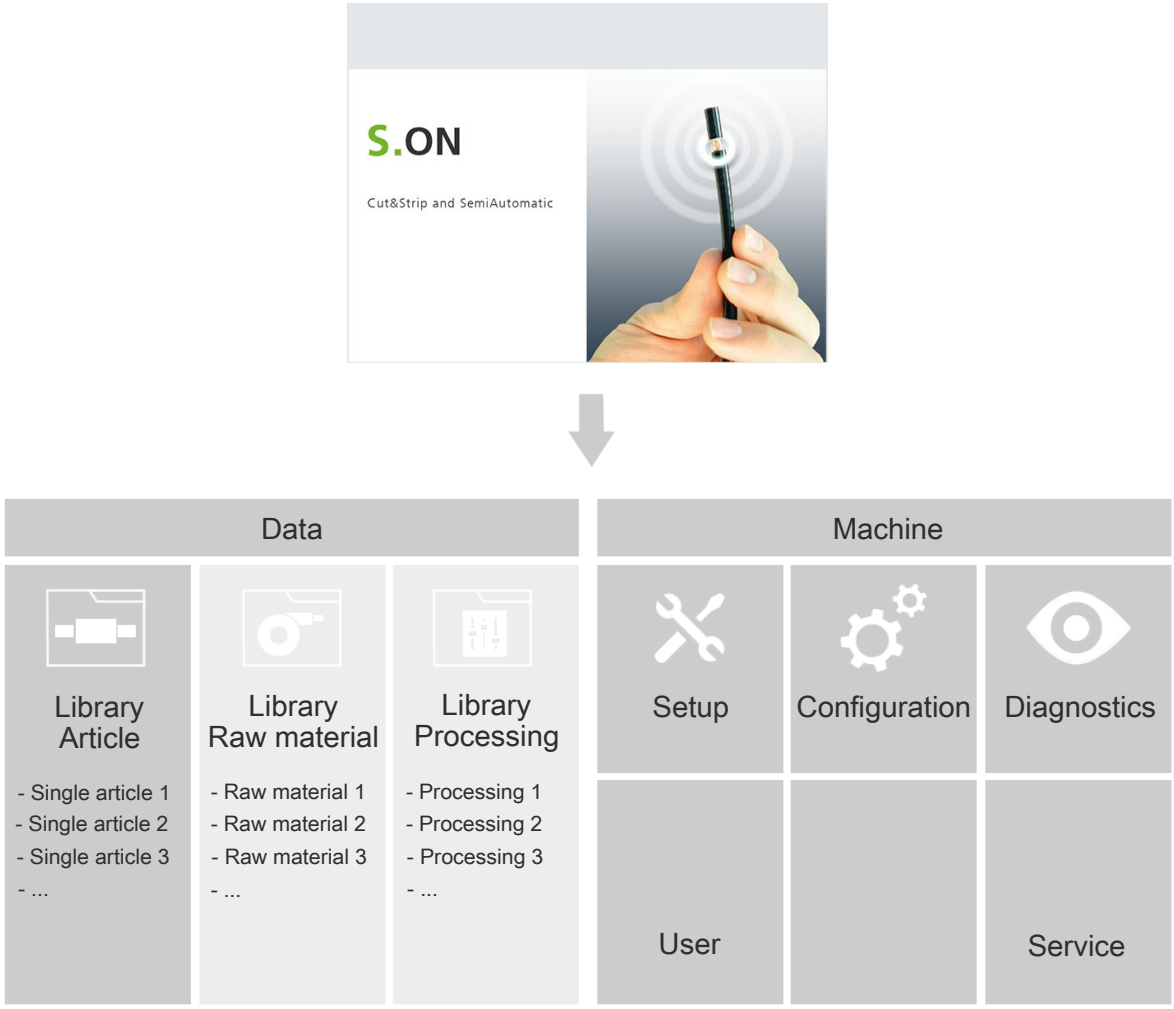


Fig. 1: Wire processing concept, overview

5.1 STANDARD PROCESS FLOW

The data of the Raw material and the local Processing are saved directly together with the article settings.

- **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.

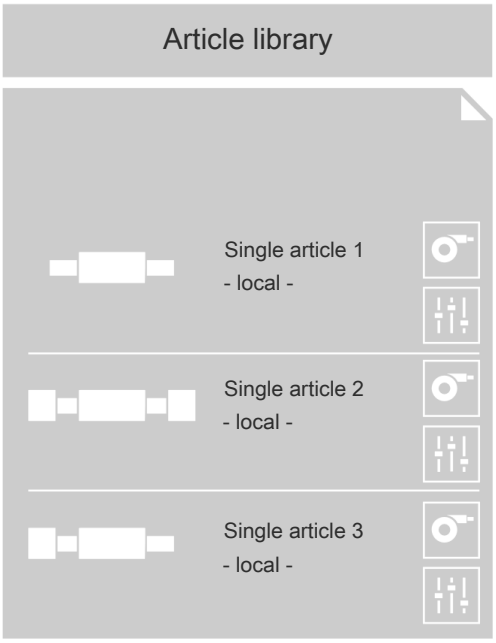


Fig. 2: Overview “Standard process flow”

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.

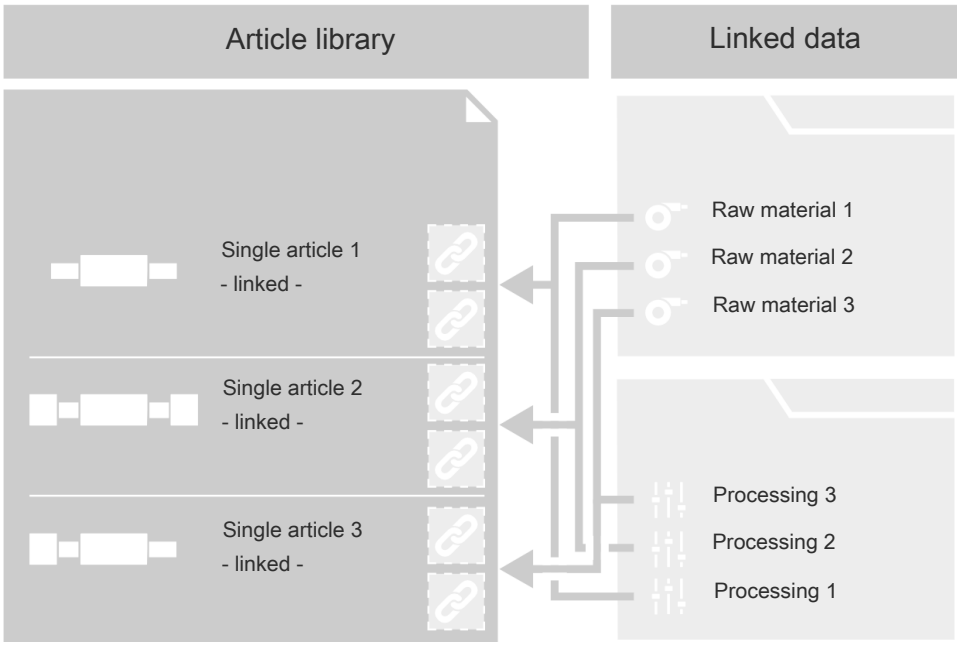


Fig. 3: Overview, „Library mode“

Caution: In the “Library mode”, the adaptive default value calculation from the Raw material is not available. See Chapter *"9 Library mode (Page 95)"*.

5.3 ARTICLE LIST MODE

This programming mode is best suited for intense varying orders, containing many or a lot of single articles. Is often used to produce wiring harnesses.

An article list consists of a list of individual articles programmed in the "Standard processing flow"- or in "Library mode". The articles are produced one after the other. The article list can be saved as one set and recalled later for production or for editing the list.

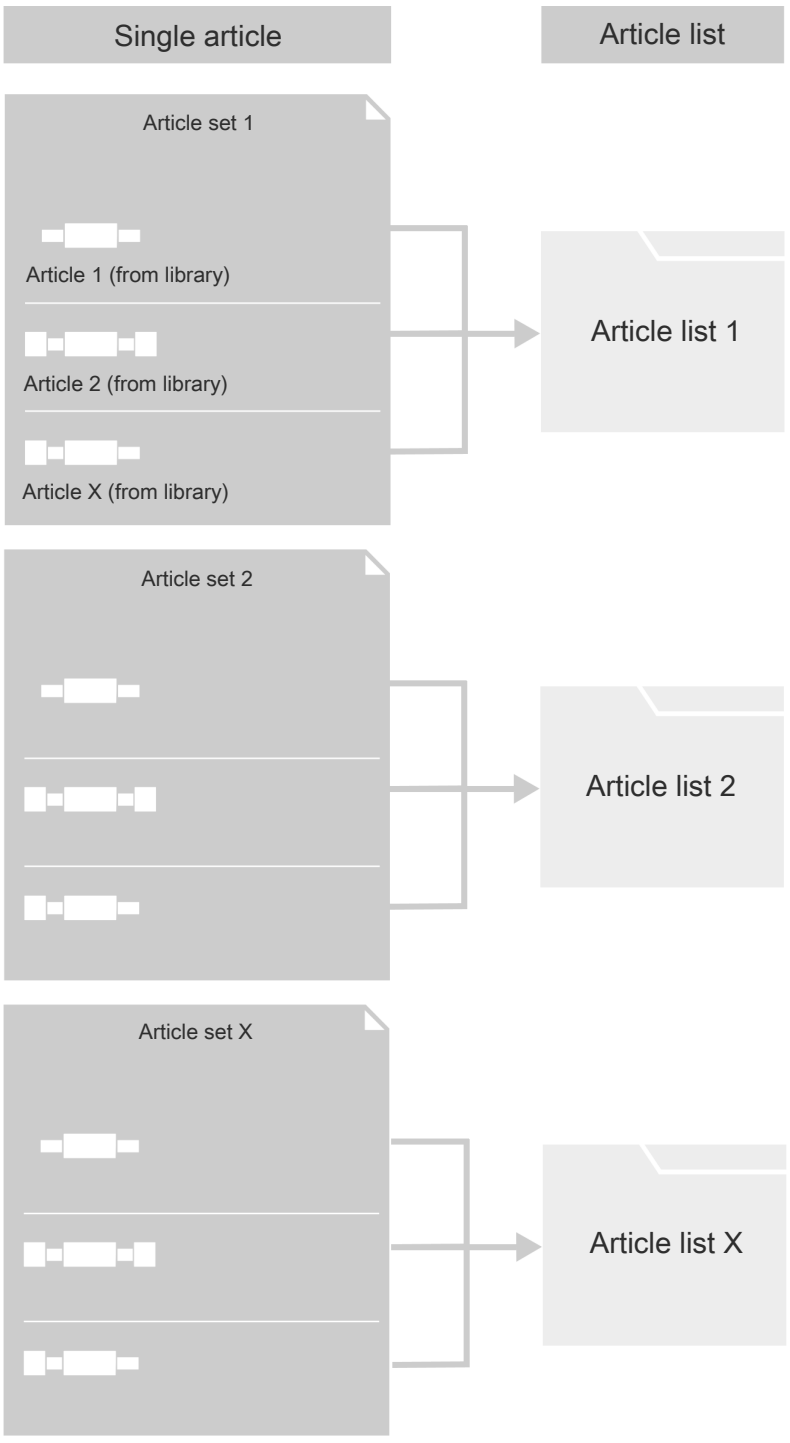


Fig. 4: Overview, “Article list mode”

5.3.1 Additional properties in the “Article list mode”

An important advantage of the “Article list mode” is, that the production of an article list is carried out without slug between the individual articles. The software recalculates the control of wire processing devices placed before the blades (markers etc.).

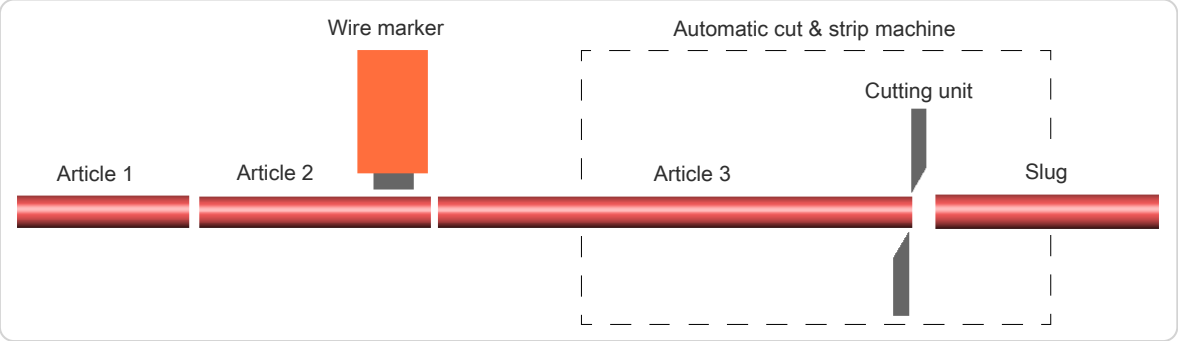


Fig. 5: Processing without slug

Each article can be defined individually with the same parameters like in the "Standard process flow":

- Article name (e.g. the part number used in the company!).
- Wire length (total length of a processed article)
- Pull-off length (processed length on the ends).
- Operation modes (e.g. normal stripping or slitting the jacket in length).
- Production quantities (with the ability of breaking down the quantity into several batches)
- Name of the Raw material
- Name of the Processing

INSTALLATION / FIRST COMMISSIONING

6.1 SAFETY INSTRUCTIONS

CAUTION

While the machine starts up!

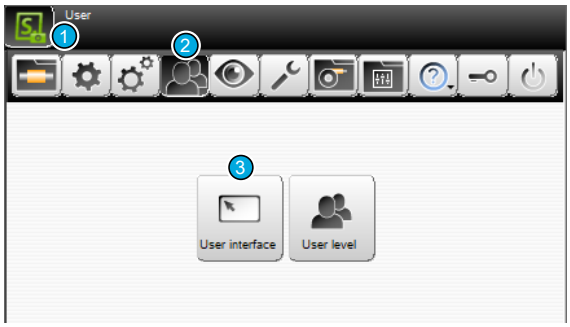
Disregarding could lead to injury.

On controlling the *PowerStrip 9580*, the touch screen on which *S.ON* is installed, must be placed directly to the machine.

6.2 GENERAL SOFTWARE SETUP

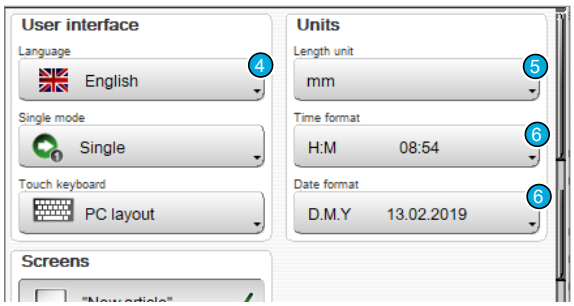
On the machine there are general settings which must be carried out when putting into operation. The settings are to be carried out in the screen "Configuration - User - User interface".

1. [NAVIGATION] 1
2. [USER] 2
3. [USER INTERFACE] 3



4. Select the [LANGUAGE] on the user interface (touch screen) 4.
5. Set the country specific [LENGTH UNIT] 5 to „mm“ or „Inch“.
6. Set the [TIME FORMAT] and the [DATE FORMAT] 7 on the user interface to the country specific actuality.
7. [OK]
8. NAVIGATION

   ➥ Back to the article editor.



GENERAL HANDLING / OPERATION

The operation of *S.ON* is described in this and the following chapters in detail (Working in "Simple mode", " Library mode", "Article list mode" and managing article libraries). All commands, functions and parameters used for the programming are described step by step. 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. See also Chapter *"16 Programming tips / examples (Page 169)"*.

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

Labeling of the operating elements and pictograms is depending on the layout on the touch screen positioned differently. The function hence is the same.

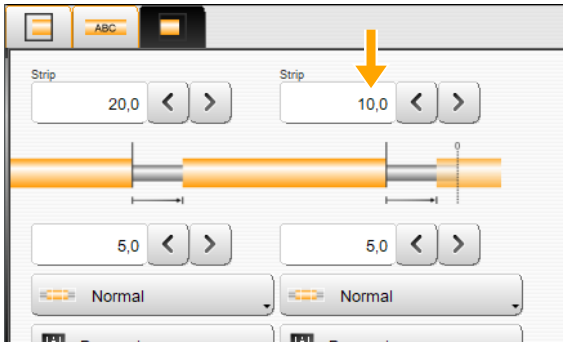
Most screen representations in this instructions are targeted on the 5.7 Inch display and partially contain the name of the automatic cut & strip machine *MultiStrip 9480*. However, it is expressly pointed out, that this also is valid for other display sizes and also for the automatic cut & strip machines *PowerStrip 9550*, *MegaStrip 9650* and *EcoStrip 9380*.

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
	Tab selected		Tab available

7.2 GENERAL MEASURING GUIDELINES

The wire length, stripping types and -lengths 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 e.g. 10.0 describes the right stripping length, 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 - User - User interface", see chapter *"6.2 General software setup (Page 27)"*.

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

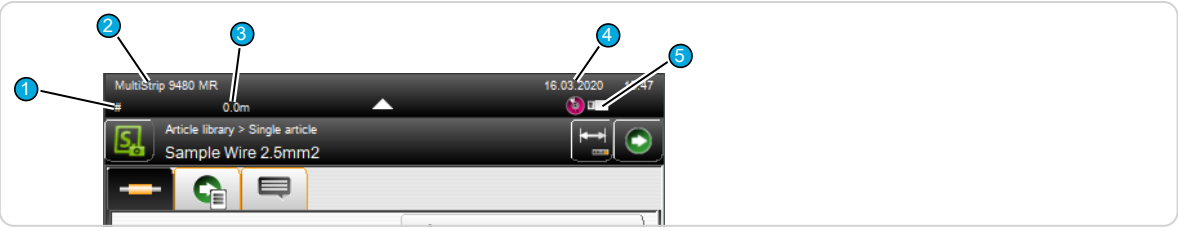
Contains the key “Navigation”, where most of the programming commands can be called. In addition, there is the „Production“ key that appears when the user is in the single article editor.

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
- Production modes
- 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 **Machine name:** For example, machine number, can be defined in the "Configuration - Machine".
2 **Product:** The type of machine and machine model.
3 **Total Raw material produced:** Shows how much Raw material was used up since it was loaded the last time.
4 **Internal system clock:** Display of current system date and system time
5 **Info area:** Connected devices, status of the configuration, refer to the table below.

Info area, the most important symbols:

	**USB data storage medium**	Indicates the presence of an USB data storage medium 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 *"User level (Page 148)"*.

7.4.3 Content area

The data entry during programming an article, takes place in this area. Depending on the function there are also command keys where values can be set directly, e.g. resetting the production counter or where we can jump directly to another screen (e.g. Processing editor).

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

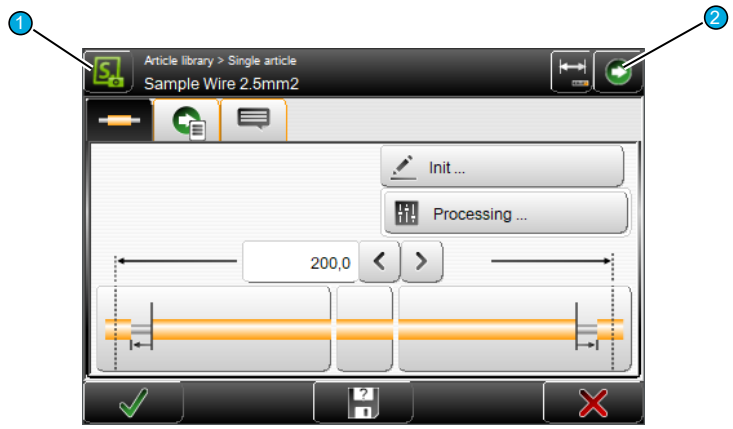
7.4.4 Footer area

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

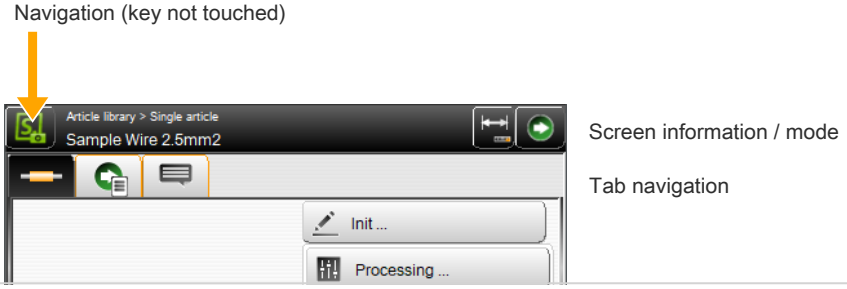
By pressing the button "Navigation", the user calls the navigation bar. In this are we find the selection keys for all main screens, in which additional commands are included:

- Setup
- Configuration
- User management
- Diagnostics
- Service
- Library management (Raw material, Processing)
- Information
- Login
- Shut down control software

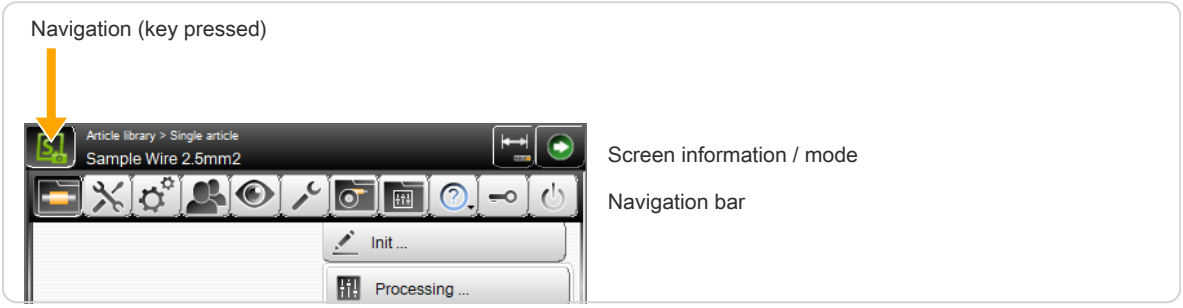
Certain keys will only be displayed if the function is activated in the configuration (e.g. „Login“).

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

Header line with screen information and register navigation:



Pop-up navigation bar:

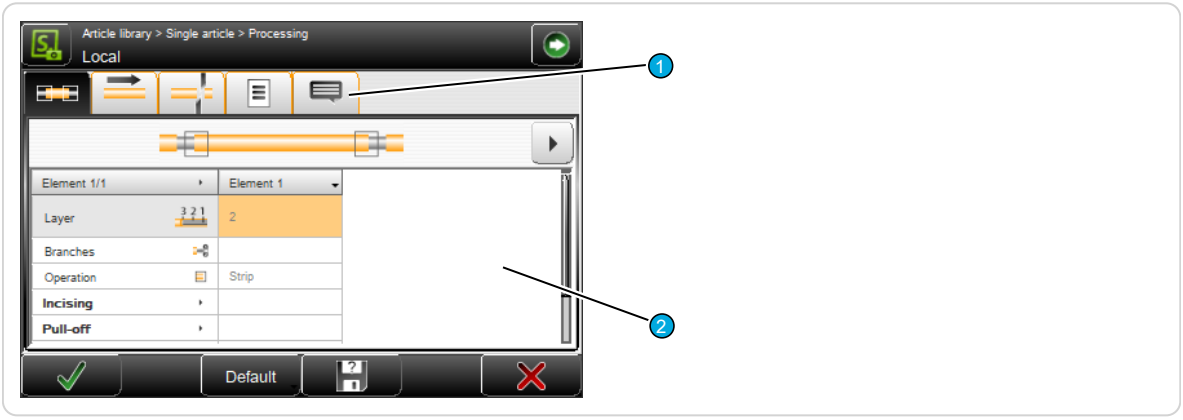


Screen information

See chapter *"7.4.1 Header line (Page 30)"*.

Tab navigation

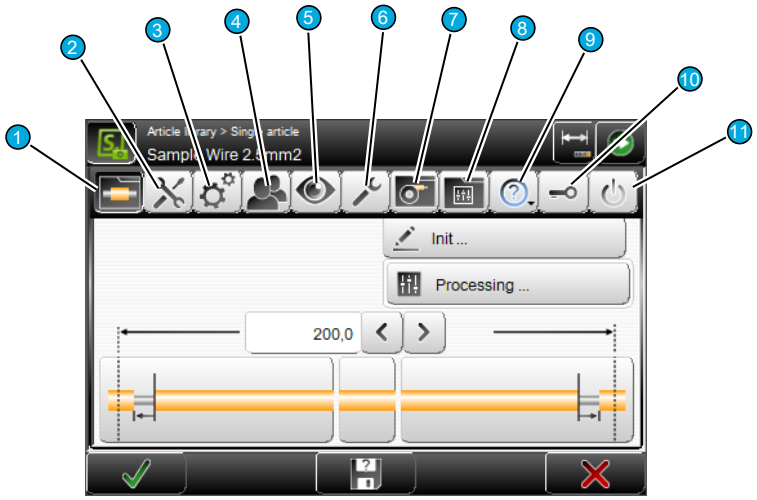
Commands and functions within a main screen will due to the space requirement and for the better overview be divided into several tabs (e.g. the Processing editor).



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 User
5 Diagnostics
6 Services
7 Raw material library[1]
8 Processing library[1]
9 About ... (?)
10 Login[2]
11 Shutdown

[1]) - Is only displayed if under user - “User - interface", "Allow - library mode” is enabled.

[2]) - Is only displayed if under user - “User - levels", "User levels - available” is enabled.

Navigation bar commands

Detailed information can be found in the appropriate main chapters.

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".

User

Setup of the user interface and the user level access rights.

Diagnostics

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

Service

Here data can be manipulated and library data be backed up, and the logging during the production can be retrieved.

Raw material library

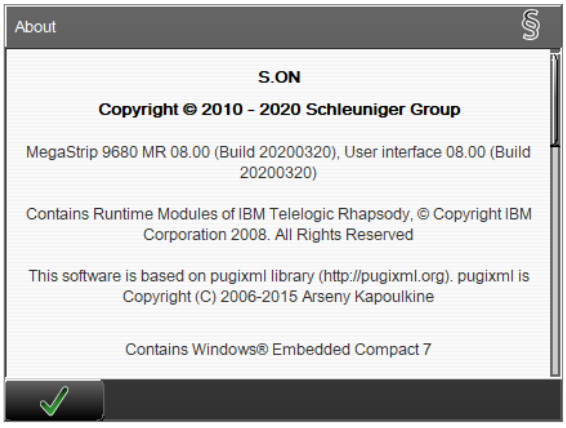
Display and processing of the raw materials that are stored in the library. Is only displayed if under user - “User - user interface", "Allow - library mode” is enabled.

Processing library

Display and processing of the Processing data that are stored in the library. Is only displayed if under user - “User - user interface", "Allow - library mode” is enabled.

? (About ...)

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



Login

In the "Login screen", the individual user can log in directly to the desired user level. Is only displayed if under “User - user - levels", "User levels - available” is enabled.

1	Login user level „Operator“	3	Login user level „Maintenance“
2	Login user level „Programmer“	4	Actual logged-in user 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 will be properly shut down and the *PowerStrip 9580* automatically switched off. Before shut-down, the warning message "Really shutdown?" is shown.

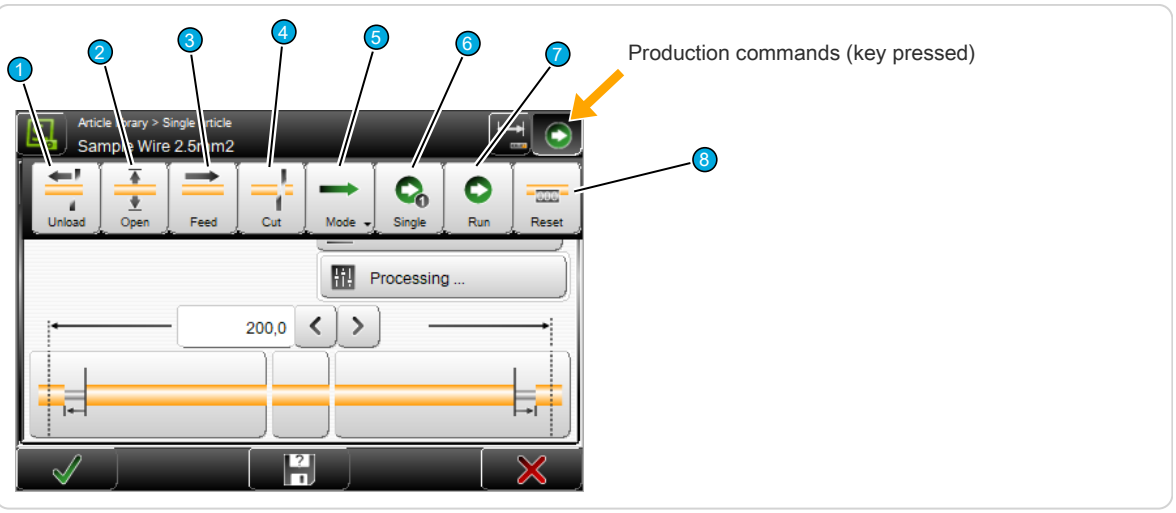
If the user was in the article editor when a shutdown is initiated, the shown/entered data are saved in a memory buffer. When a sub-screen of the article editor is opened, the data there get lost. If article libraries are edited, the article library is used instead of the article editor. On restarting, 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 keys have a toggle state (e.g. loading or unloading a raw material). The selectable switching state is shown bellow the key. Certain commands depend on others and only show-up if they are selected first.

If the *PowerStrip 9580* is not ready for operation (e.g., if the communication between touch screen and machine is not established) some or all keys are hidden. In such cases no production is possible. At this point an appropriate message is shown.



1	Unload/load	5	Mode
2	Open/close	6	Single
3	Feed	7	Run
4	Cut	8	Reset

Unload / load

After touching [UNLOAD] the feeding belts move backwards, the raw material is fed out of the machine to the left and then the feeding belts open.

A raw material is loaded automatically on the *PowerStrip 9580*. Feed the raw material by hand up to the right feeding belts and then touch [LOAD]. The raw material is held by the feeding belts, feed forwards, cut and the slug is ejected on the right of the machine.

NOTICE

Caution, property damage!

For *PowerStrip 9580* with optional wire straightener, the raw material can be squeezed or jammed on the inlet.

Always loosen the contact pressure on the wire straightener before executing [UNLOAD].

Open / close

Opens the feeding belts to a pre-defined value set in the control software to remove the raw material from the *PowerStrip 9580*. The cutting unit thereby moves out of the cutting axis.

Closes the feeding belts and the blades to the pre-defined raw material diameter set in the software. The cutting unit thereby moves into the cutting axis.

Feeding

The loaded raw material is fed forwards by the feeding belts as long as the key is pressed. Is normally used to feed the raw material beyond the cutting axis and to cut the scrap wire piece with [CUT].

This command can only be executed if before [CLOSE] or [LOAD] was executed.

Cut

The loaded raw material is cut through and the slug is ejected. The slug is ejected from the right feeding belts (in "short mode" it is not ejected).

This command is only activated if before [CLOSE] or [LOAD] was executed.

Mode

Production mode (normal operation): In normal mode a programmed raw material 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 steps and/or slow motion. The following additional modes are available:

Step by step: After [RUN] was touched, the production continues automatically but much slower than in normal operation. Each step is initiated with a single touch of a key. The step by step mode can also be automatically executed. For this each single processing step is executed continuously with a selectable interval.

Speed control: After [RUN] was touched, the production continues automatically but much slower than in normal mode. All movements are performed by default at speed and acceleration set to zero. Each individual movement of the blades or feeding belts may be carefully observed therewith. The speed can be increased during the production.

Step by step and speed control: Use step by step and speed control in combination. The process is performed in steps and in slow motion. Speed and the interval can be changed during the production.

Single

With single you produce a single piece of the currently programmed article. After the production the article is ejected on the right of the machine and can then be checked to give the user the opportunity to correct it before the regular production, if differing measures or improper production quality results. The programmed wire quantity and batch are not affected thereby. [SINGLE] can also be used to produce additional articles after a completed production run.

This command is only activated if before [CLOSE] or [LOAD] was executed.

Run 1

The programmed quantity and batch are affected here as with [RUN]. To be able to produce with [RUN 1], "Single mode = Run 1" must be set in the "User interface".

Start

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.

This command is only activated if before [CLOSE] or [LOAD] was executed.

Reset

The length counter for the already used-up raw material is reset.

Recoil brake

This key has the same function as the one on the machine front and is described more detailed there. It shows up on the touch screen logically only if the raw material is not loaded. If the option recoil brake is physically available, it must be activated in the "Configuration - Machine" before it can be used and before the key is displayed.

7.6 KEYS / COMMANDS / PICTOGRAMS

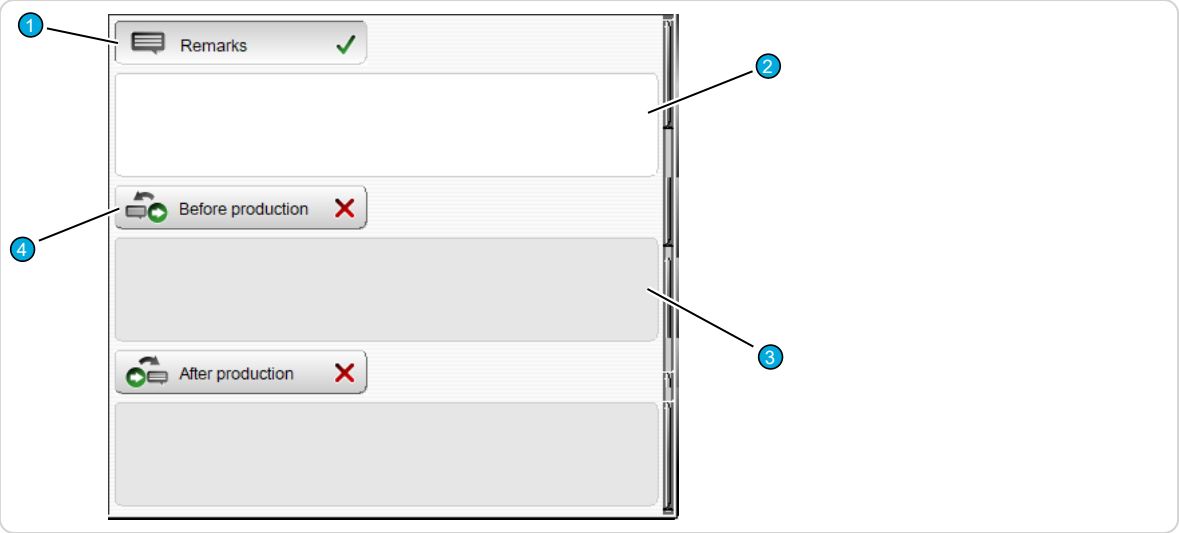
In the following chapter there is a description of the general operating elements and pictograms used on the touch screen. These elements are partially combined with symbols and/or text for the better overview.

For more information, see Chapter *"17.1 Overview of symbols (Page 171)"*.

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.

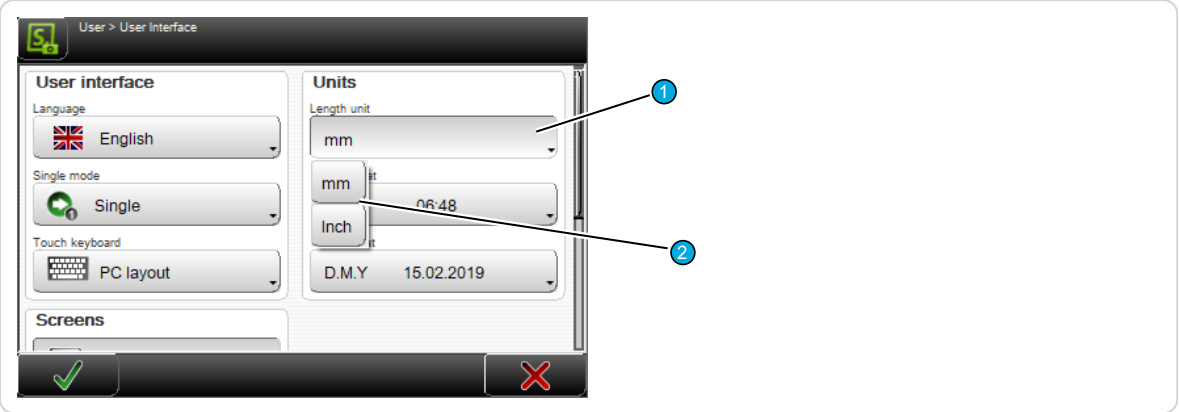
These are keys for activating or deactivating a function or a procedure. Other elements and symbols related to these functional elements, entry fields and graphics which are not assigned to a function in the selected state are grayed out or disappear completely.



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.

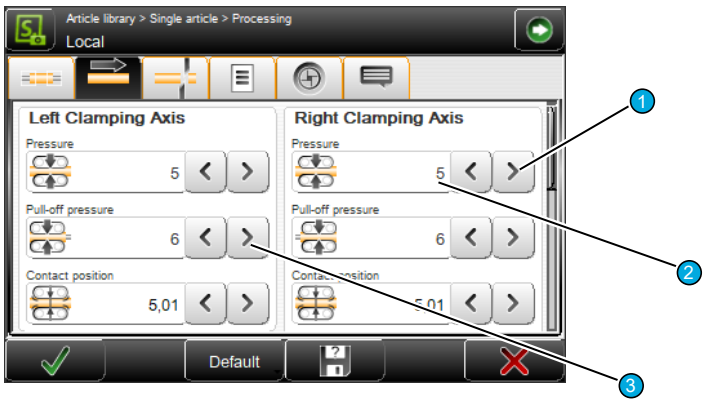


1 Set-up value
2 Drop-down list selection

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 spin box end value is reached, the arrow button is grayed out and the value can no longer be set.

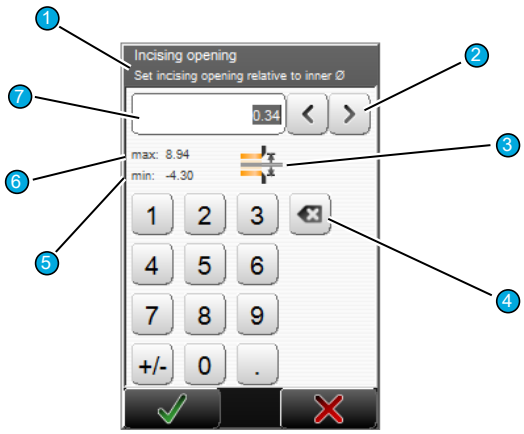


1 Spin box up/down
2 Set-up value
3 Spin box end value reached

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 touch keyboard pops-up in which the numeric value can be entered via the numeric keys or via the spin box 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 rejected 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 Display of entered data

2 Delete text left of the entry

3 Delete text right of the entry

4 Definition of data entry

The data entry can also be carried out via a PC-keyboard 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

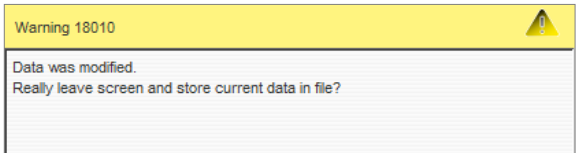
During programming or the production, the data entry is checked against their validity. For example, after a parameter change often a message is displayed, what action the user intends to change.

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).

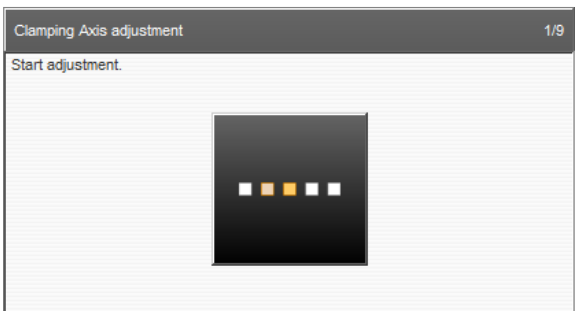


Error

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 *"15.1.3 Logging (Page 163)"*.

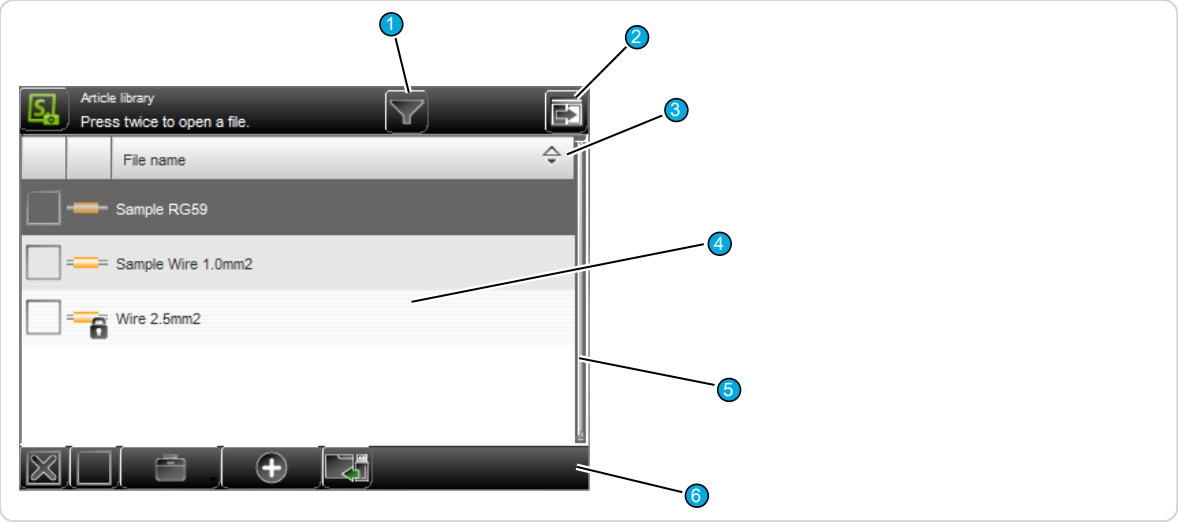
Wait dialog

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 43)"*.

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, article lists, 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.

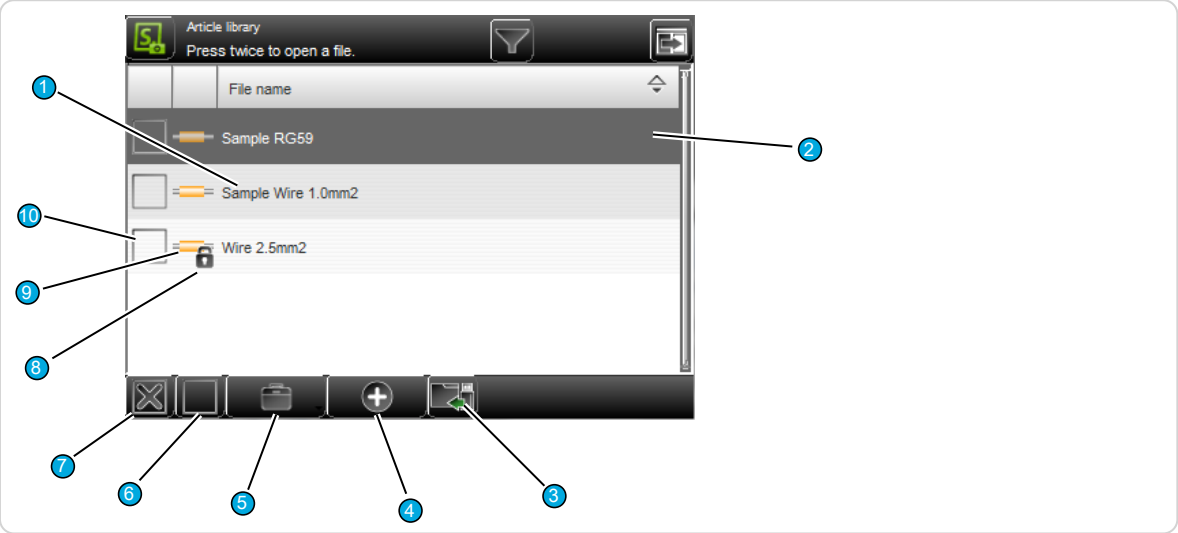
For the work with *S.ON*, there are lists for the individual processing modes and the configuration available:

- Single article
- Article library
- Article list
- Raw material- and Processing libraries
- Blade cartridge library

Before switching off the *PowerStrip 9580*, 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", "Article list 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

The display and function elements of the library in the article list mode differs in some details from all other file lists. See Chapter *"10 Article list mode (Page 111)".*



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).

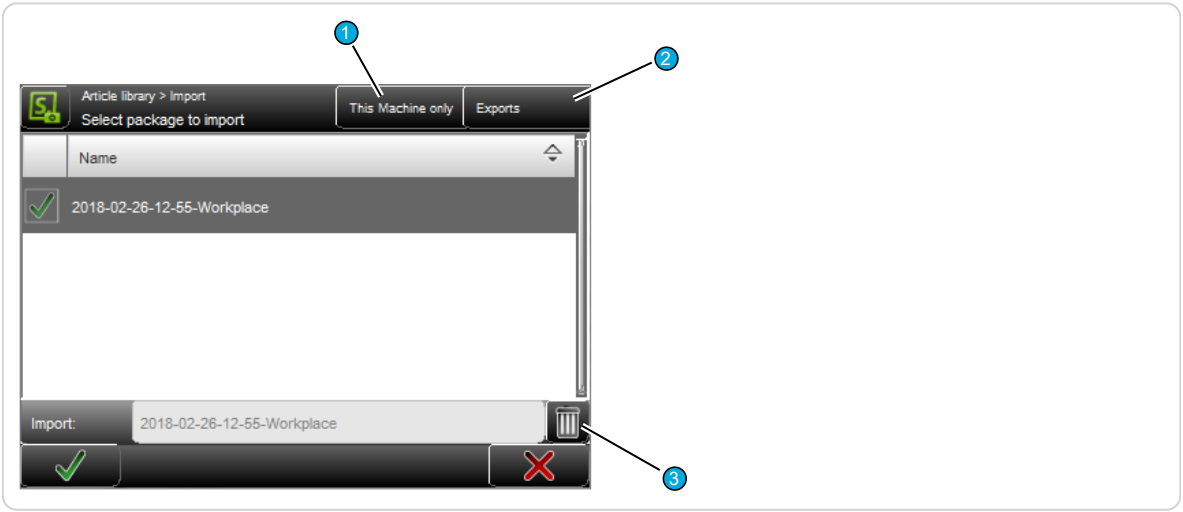
File highlighted

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

It can be defined, if only the data shall be displayed from this machine in the list or also data from other machines and from the wire processing software *CAYMAN*.

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

Shows in which operating mode the file was saved (e.g. single article or article list).

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.

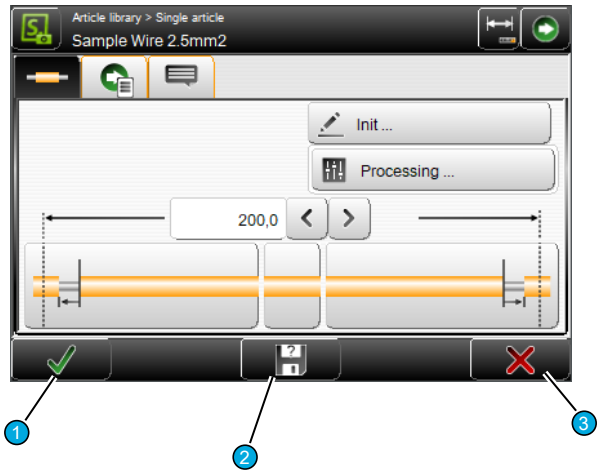
7.7.3 File name convention

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...

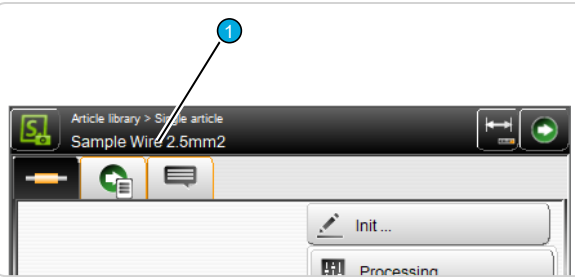
[SAVE AS...]: After changing an already available article from the library, the changed data can be saved directly under a new name to the library. The entry dialog for the new article name is shown. Enter new name and confirm with [OK]. After this, the article editor is shown again.

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 SETUP OF VIEWS AND MODES

The work on the touch screen can be carried out in different views and modes. This helps the operator or also the beginner to get familiar quickly with the production and programming platform. The selection can be made via the "Navigation"- and "Mode" keys.

The following important selections are provided:

Key command	Mode/view	User group
	Measuring mode (given value)	Operator, programmer
	Correction mode (correction value)	Operator, programmer
	"Setup" view	Operator, programmer
	"Configuration" view	Maintenance

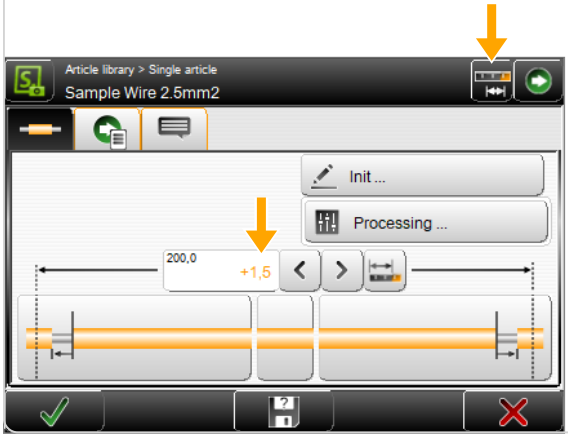
7.10.1 Toggle measuring mode / correction mode

Due to the way an article is produced or also due to the nature of individual articles, length and/or position irregularity can occur during the production. For this reason the correction mode was implemented. Here corrections of the wire length, the pull-off length and the position of the areas can be entered.

If the correction mode is activated it is possible to enter a positive or negative correction value in the length entry fields and also in the application screens in the position entry fields. After the correction entry the user can switch back to the measuring mode. The correction value is now displayed colored in the entry field. This additional measure is taken into consideration during the production of the article.

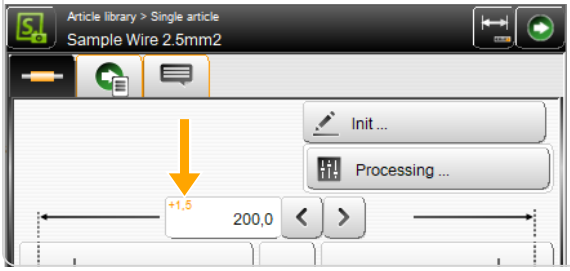
Measuring mode (given value):

Correction value (Correction value):



Example: Correction of wire length

The wire length is increased by 1.5 mm in the example below.



If the correction mode is on, the user opens directly the numeric touch-keyboard by touching [ENTER CORRECTION VALUE] where the effective measured length can be entered.

After touching [OK], the correction value is automatically calculated.

7.11 ENHANCED FUNCTIONS

7.11.1 “SmartDetect”

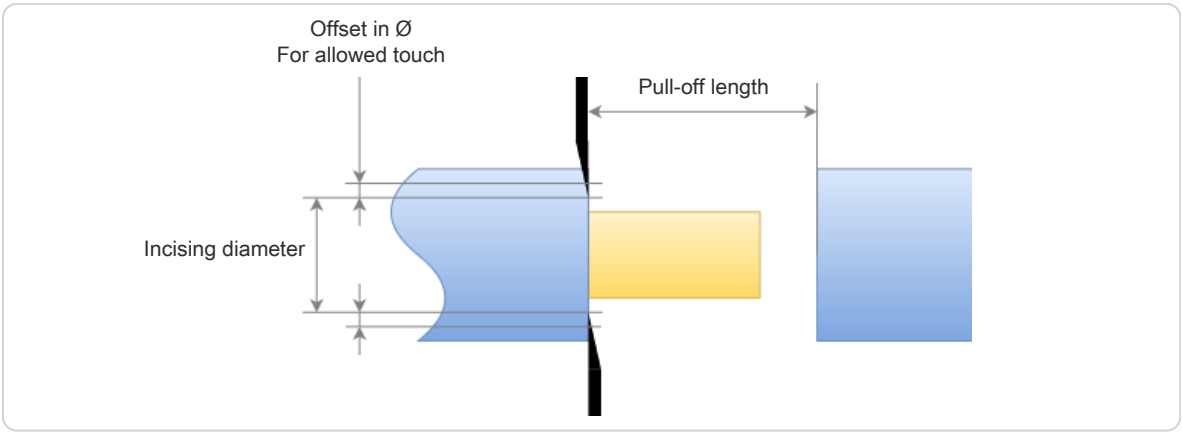
Functional principle

The “SmartDetect” monitoring system is used to monitor the stripping process. It detects slightest touches of the blades with the conductor during the processing. If a conductor contact is detected, normally a message is generated and the stripping process is stopped.

- The "SmartDetect" measurement always affects just a single pull-off operation, where two separate measurements are made.
  - **Incising:** During the incision it will be examined, for which diameter for the first time conductor contact occurred. (for the measurement, the blade geometry must be taken into account. For V-blades, the point of contact on the conductor does not correspond to the reference position of the blades, but to the edges of the blade.
  - **Pull-off:** It will be checked how much conductor contact during the entire pull-off operation took place.
- The user can define limit values for each pull-off action, to which point a pull-off has to be at a proper quality.

- **Incising:** Maximum permissible tolerance of the incising diameter to the diameter of the first detected contact.
- **Pull-off:** During what percentage of the total pull-off action may the blades touch the conductor.

- Evaluation in the event of an error
  - In the event of an error variances are described in detail with actual and setpoint values.
  - The production is stopped directly after the defective operation.
- Displaying messages
  - Continue production and ignore the “SmartDetect” message if the configuration setting allows this. Otherwise, abort the production, the workpiece stays where it is and the bad part must be disposed of manually.
  - For detailed information to the messages, see chapter *"7.11.3.1 Ignore function (Page 52)"*.
- Tests prior to the start of a production cycle
  - If "SmartDetect" is enabled in a Processing element, it must be enabled in the configuration.
  - If "SmartDetect" is enabled in a Processing element, the selected blade must support “SmartDetect”.
  - Deviations are issued via an error message and the production can not be started.
- General monitoring of the "SmartDetect" system
  - At the beginning of the production a referencing (Sweep and Adjust) is executed. The blades must be closed for the Sweep and open for the Adjust. If something fails thereby, the production must not start.
  - In addition, a referencing Adjust is carried out at the following times: When reaching the end of production, batch, quantity, article list, total quantity and production stop. Thereby the blades must be completely open. If this fails, the production is stopped and the user is warned that perhaps the last pieces produced were not monitored with "Smart Detect".
  - No contact must be detected immediately before incision or cutting through. If it does, the production will be stopped.
  - If the cutting through of a wire is carried out with a "SmartDetect" blade, compulsory contact with the conductor must be detected. If not, the production is stopped. This does not apply to the cutting through or cutting of a waste piece.
  - All the tests are executed only if at least one pull-off operation is monitored.



Limits of "SmartDetect"

Temporary mechanical deformation (spring/rubber effect) of the cutting unit can not be compensated by the control software. Depending on the size and mechanical resistance of the wire the measurement can differ from the real conductor contact.

Tips for an error-free production

To ensure that the production runs without interruption and, if possible, no touches occur, the following recommendations are to follow:

- Apply a partial strip instead of a full strip. The shorter the pull-off way, the lower the probability of contact. In the event of a full strip, strands tend to spread.
- Switch on the function “Regrip”. The blades grasp on the insulation for stripping. This prevents the blades from damaging the conductor.
- Enlarge the conductor diameter so that the blades incise less far into the insulation.
- Enlarge the way back so that the blades have more distance to the conductor during stripping.

Settings

See chapter *"8.5.3 Elements (Page 67)"* and *"12.4.5 Monitoring (Page 137)"*.

Further information

“SmartDetect" is an option and requires a special cutting unit. See chapter *"12.4.3.2 Configure/activate blades (Page 135)"*.

7.11.2 Sensitivity correction

The sensitivity is set directly in the hardware. With this set sensitivity, the sensor either detects a contact or not.

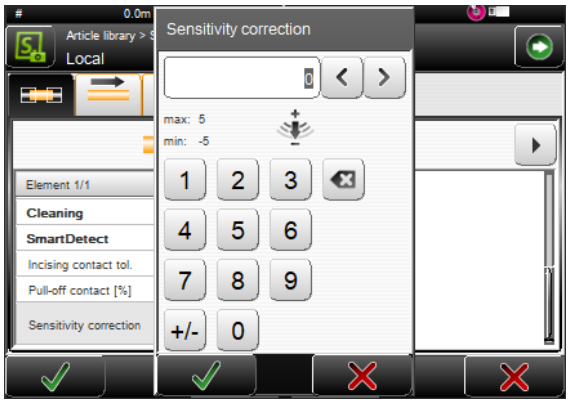
Relevant for the calculation are:

- Raw material length
- Programmed incise diameter of the current article.

The correctly programmed diameter is important: Corrections in the blade lengths must really be made on the blade, otherwise a wrong sensitivity will be calculated.

The same sensitivity is set at the left and right ends.

For urgent needs in the Processing element of the article, a correction of the calculated sensitivity values can be made. The value range is between -5 (most insensitive) and +5 (most sensitive).



- A correction should only be performed in an urgently necessary case.
- If a contact is not detected during an incision, the value can be increased. However, this also increases the risk of false triggers.
- If false triggers occur, the value can be reduced. But perhaps real contacts are then no longer recognized.

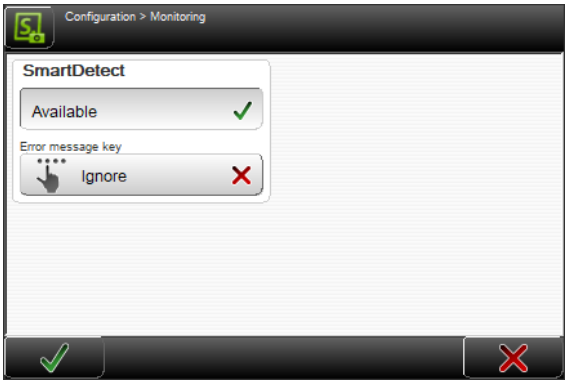
7.11.3 Disposal of rejected pieces

Depending on the situation, defective pieces detected by SmartDetect are disposed of before the blade or after the blade in the machine. The various setting options are described below. A successful production with SmartDetect also depends on the quality of the raw material.

Ignore function

Procedure with SmartDetect without Ignore function:

Prerequisite: In the “Monitoring” configuration, SmartDetect is turned on and the “Ignore” error message key is turned off.



If a SmartDetect contact occurs during production, warning 5955 appears with a detailed description of the contact and recommendations for further action to resolve the problem.

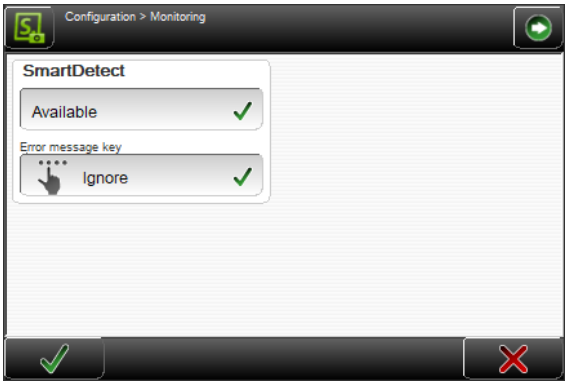
- F1: Accept contacts and continue. Accepting that the system has detected a contact. The current piece is rejected (according to the existing setting) and not counted in the produced quantity.
- F7: Cancel production. The current production is canceled. The rejected piece must be rejected manually.

The display frequency of the message depends on whether the mode “Single” or mode “Start (Start 1)” is in use.

The display duration of the message is set in Configuration - Quality assurance. See chapter *"12.4.9 Quality Assurance (Page 140)"*.

Procedure with SmartDetect with Ignore function:

Prerequisite: In the “Monitoring” configuration, SmartDetect is turned on and the “Ignore” error message key is turned on.



Also with this setting the warning 5955 appears with a detailed description of the contact and recommendations for further action to resolve the problem. In addition to F1 (Accept contacts and continue) and F7 (Cancel production), F2 (Ignore contacts and continue) is available:

- F2: Ignore contacts and continue. Ignoring that the system has detected a contact. The article production is continued. If there is no further contact, the article is counted as “produced” in the quantity produced.
- If there is another contact, the same procedure starts with a new warning 5955. React with F1 or F2 or F7. This can be done on the same article as often as necessary.

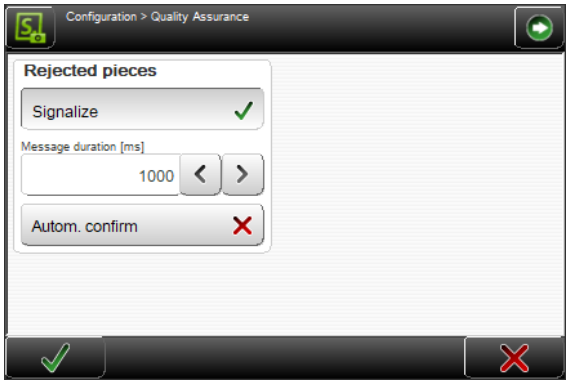
Setting the output signal

If required, a signal can be sent to a subsequent device (e.g. a robot) via Signal I/O assignment.

Prerequisite: In the Quality assurance configuration under “Rejected pieces”, "Signalize" is switched on.

However, this only means that a signal can be set. The actual signal setting is done in "Configuration - Machine - Interfaces - Library Signal I/O Assignment".

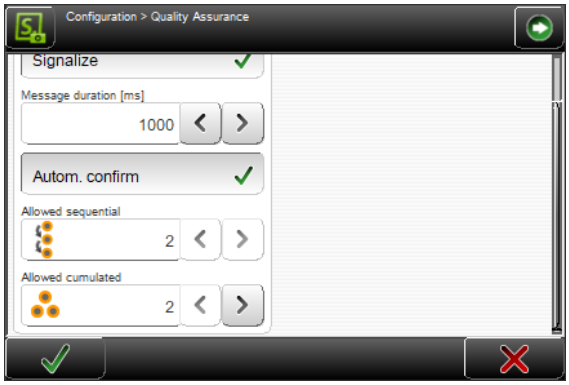
See chapter *"12.4.2.6.1 Signal I/O (Page 130)"*.



Limitation of number of errors

In the "Quality assurance" configuration, "Automatic confirm" must be activated so that the following two types of counter types can be set.

- Allowed sequential Number of allowed successive contacts of the blade with the conductor during production.
- Allowed cumulated: Total number of allowed contacts of the blade with the conductor during production.



As soon as one of the two counters is reached and the defective piece has been rejected, the machine stops and error message 5955 appears with the following informations:

- Which counter was reached, the counter reading and the configured maximum value.
- Which counter was not reached, the counter reading and the configured maximum value.
- History of the last rejected articles with reasons for the sorting out.

This last error message is not automatically accepted but must be acknowledged.

Discarding a rejected piece

The length and type of the piece play a role in deciding what to do with the rejected piece.

If the right element has had a contact, the defective piece is cut off and a new attempt is made automatically. Depending on the configuration, a defined number of attempts is possible until the machine stops.

- No offset device involved, error on the right element: The defective piece is cut off as short as possible to save material. After the blade, the rejected piece falls into the receptacle in the machine.
- With offset device involved, error on right element or error on left element: The complete piece is finished and then disposed of according to configuration in front of the blade.

See also chapter *"8.5.6.2 Dispose waste piece (Page 74)"*.

Rejected piece with text variables

S.ON supports seven different predefined text variables, see chapter *"8.7.2 Defined text (Page 85)"*. Most text variables can be treated as normal text for the rejected pieces. Exceptions are the text variables Quantity produced @3, Batch produced @4 and Counter @5: If a piece that is printed with one or more of these variables is rejected, a waste piece is produced and the post-production occurs automatically.

@1	Time	✓	No waste piece
@2	Date	✓	No waste piece
@3	Quantity produced	✗	Slug
@4	Batch produced	✗ ✓	depending on the situation (batch size and number of pieces remaining within the batch)
@5	Counter	✗	Slug
@6	Toggle bold	✓	No waste piece
@7	File name	✓	No waste piece

- **Variable Quantity produced @3**: If Quantity produced is used, the pre-printed texts are generally rejected when a piece is rejected.
  - Next step: Production is automatically continued with the number that was rejected.
- **Variable Batch produced @4**: If the Batch number is used, depending on the batch size and the situation, articles with pre-printed text will be rejected as waste when a piece is rejected.
  - Next step: Production is automatically continued with the number that was rejected.
- **Variable Counter @5**: If the Counter is used (the variable Counter @5 is unique as opposed to the variable @3), the pre-printed texts are generally rejected when a piece is rejected. A waste piece is always produced after the rejected piece.
  - Next step: Production is automatically continued at the next higher counter number, as the counter number can only occur once.

Restrictions

- Partial stripping pushes the insulation beyond the wire end, but it is not known how far. Therefore, when discarding a rejected piece, it is assumed that it protrudes no more than 50 mm. If more insulation protrudes, the raw material collides with the guides or it can no longer be gripped correctly with the belts.
- For production with offset device: If the last article to be produced in an article list results in a rejected piece, a waste piece is always produced, despite the setting “Production - prepare” and although this wire was correctly pre-produced.

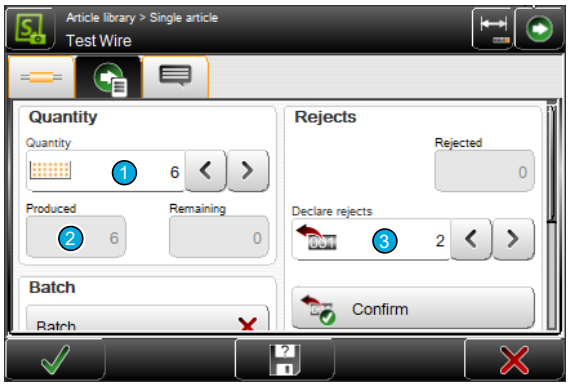
7.11.4 Manual declaration of rejected pieces

After finished or interrupted production the quality of the produced pieces can be checked manually. This is possible in the production control of the article.

- If the piece is classified as non-acceptable, it can be manually declared as a rejected piece.

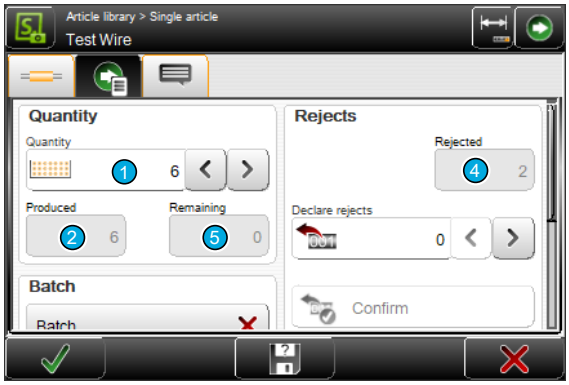
Example: Declare rejects

1. The planned number of pieces to be produced can be seen in the “Quantity” field 1. After production, the number of pieces produced can be seen in the “Produced” field 2.
2. Enter the number of manually rejected pieces in the “Declare rejects” field 3.
3. [CONFIRM].



4. The number of rejected pieces is now listed in the “Rejected“ field 4 and therefore the number of pieces for the post-production is listed in the “Remaining” field 5. The number of pieces produced in the "Produced” field 2 has been reduced by 2 accordingly.
5. [RUN]

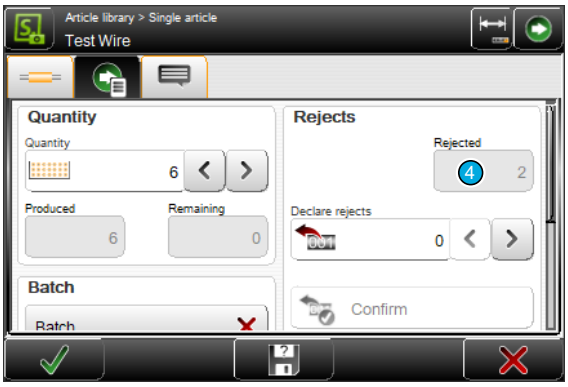
6. Result of the post-production
   ➥ The “Remaining” field 5 now shows the number of 0. The number of pieces produced 2 corresponds to the planned number 1. The number of rejected pieces 4 is displayed unchanged.



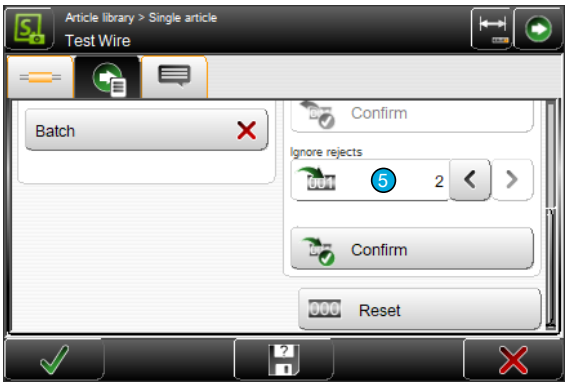
- Rejected pieces (including those detected by SmartDetect) can be declared good after manual verification, i. e. the rejected piece can be manually ignored. This option is only offered if the “Ignore” setting is activated in the “Monitoring” menu in the configuration.

Example: Ignore rejects

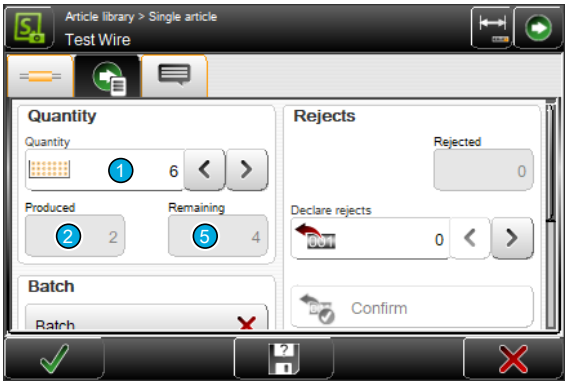
1. Rejected pieces 4 can be manually ignored, i.e. be declared good.



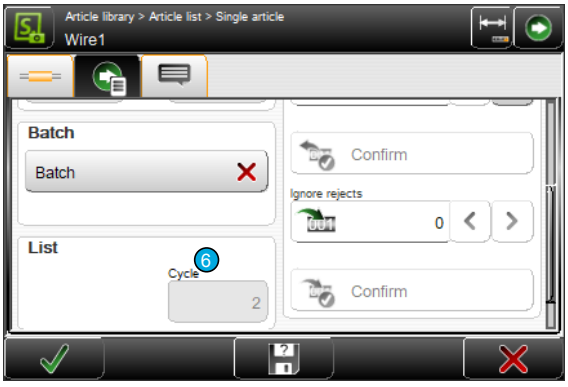
2. In the „Ignore rejected“ field 5 enter the number of rejected pieces to be ignored. [CONFIRM].



3. A total of 8 pieces were produced, 2 more than planned. This causes the machine to automatically start another production cycle. Therefore, the “Produced” field 2 shows the difference between the actual number of pieces produced (8 in total) and the planned number 1 (here 6), i.e. 2. In the “Remaining” field 5 the difference between the planned number (here 6) and the number in the “Produced” field (here 2) appears, i.e. 4. This limitation is known.



4. This is somewhat more obvious when producing an article list: The production cycle 6 is automatically increased by 1 when the above situation occurs.



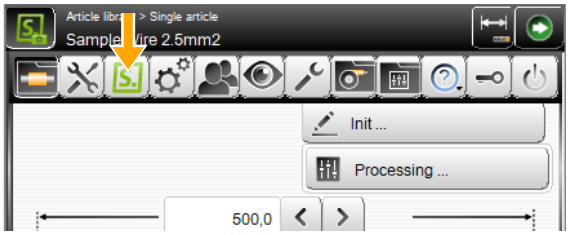
7.11.5 *CAYMAN*-Support

If the *PowerStrip 9580* is controlled via the wire processing software *CAYMAN*, an additional screen selection is displayed in the navigation bar, where the communication can be established. For this, the *PowerStrip 9580* must be connected via an ETHERNET interface cable to the PC.

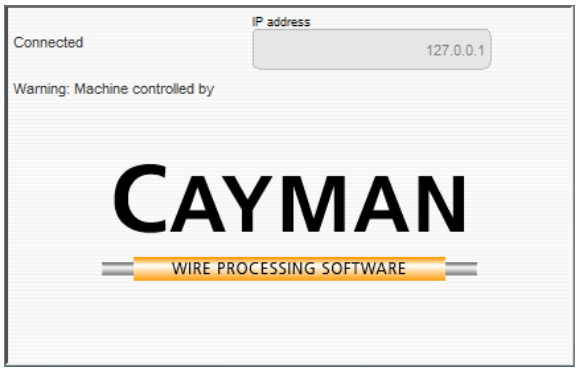
To activate *CAYMAN* proceed as follows:

1. ▹ **NAVIGATION**
2. ▹ **[CONFIGURATION]**
3. ▹ **[MACHINE]**
4. ▹ **[OPERATING UNIT]**
5. ▹ Under *CAYMAN*, activate “Support”.

For more information and settings on the wire processing software, refer to the *"Reference manual - CAYMAN"*.



As soon as the *PowerStrip 9580* is connected with *CAYMAN* the following connection screen is displayed on the touch screen:



The installation and the operation of *CAYMAN* is described in the *„Operator Manual“* of this product in detail.

7.11.6 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"*.

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 PRINCIPAL "STANDARD PROCESS FLOW"

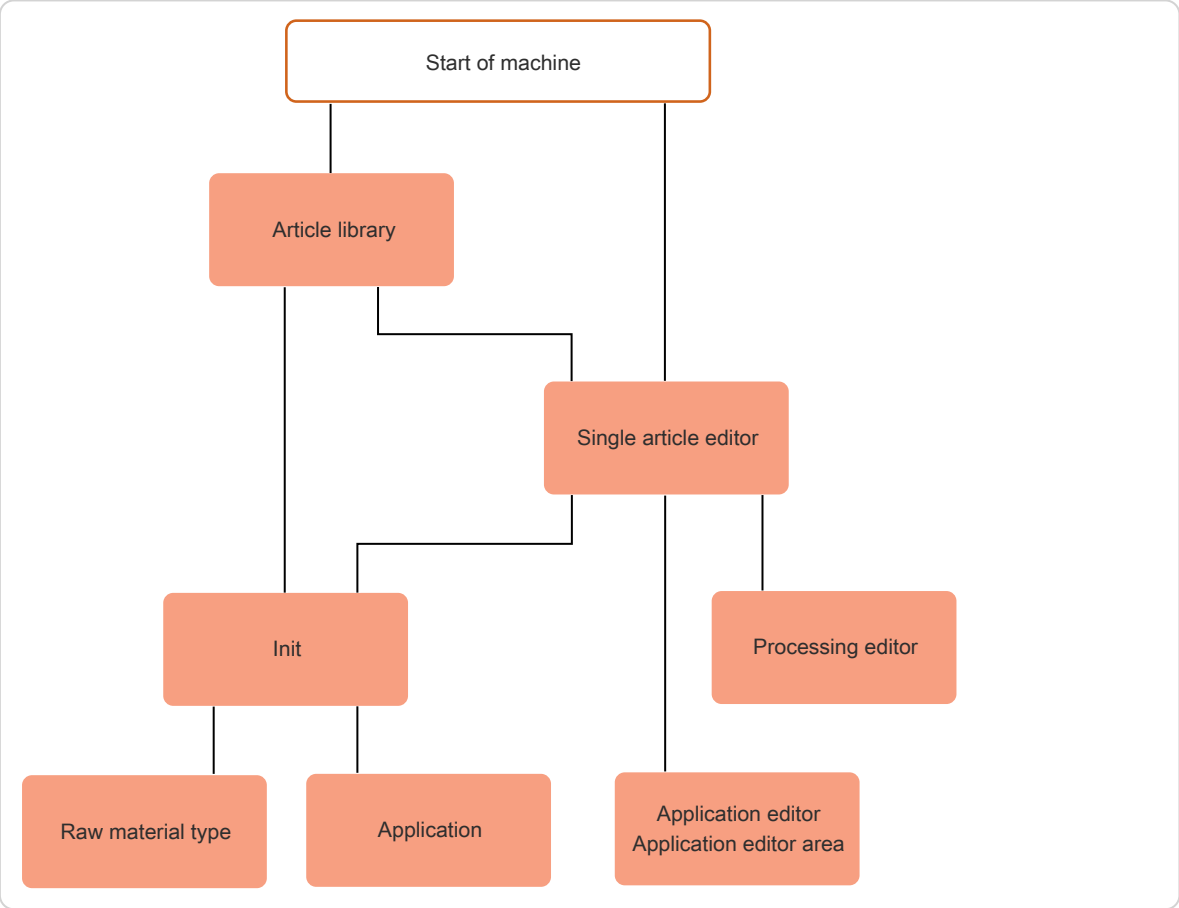
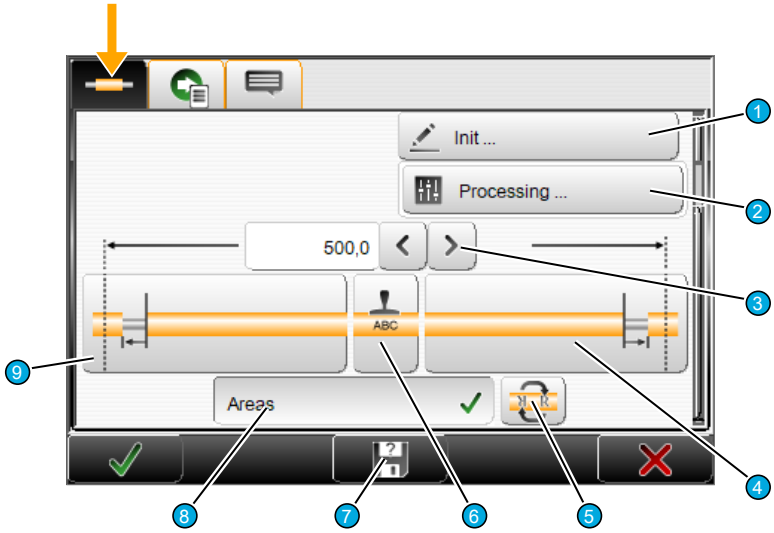


Fig. 6: Principal, "Standard process flow"

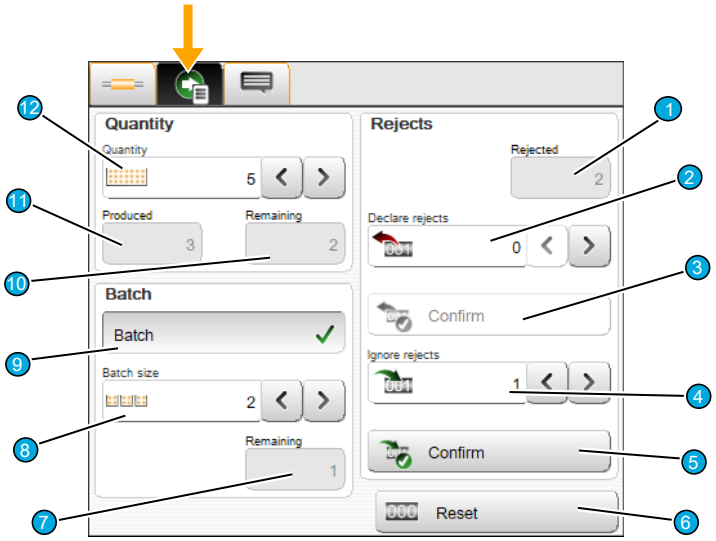
8.2 SINGLE ARTICLE EDITOR OVERVIEW

Tab 1 (article editor)



1 Init
2 Processing
3 Wire length
4 End application right
5 Swap area
6 Area application
7 Name file
8 Activate area
9 End application left

Tab 2 (production control)

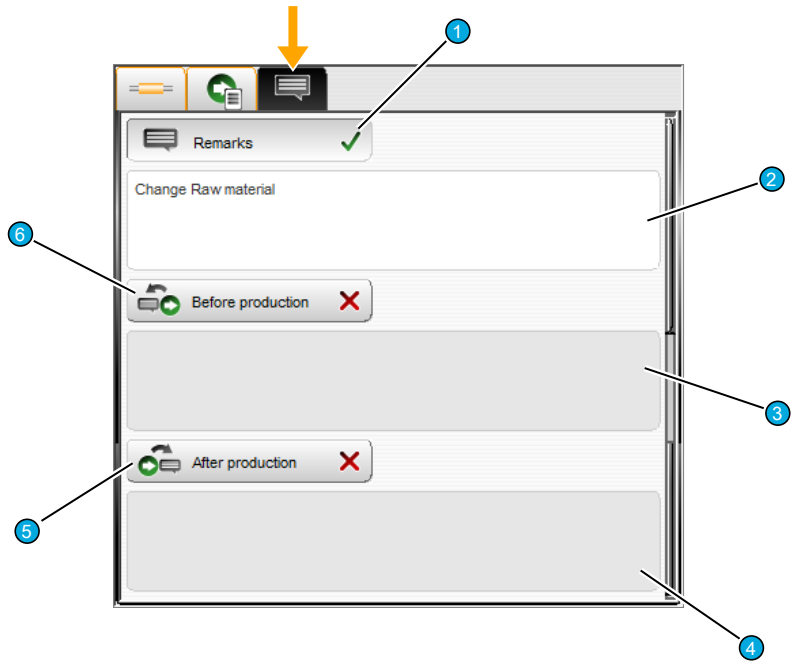


1 Rejected pieces
2 Declare rejects
3 Confirm entry
4 Ignore rejects
5 Confirm entry of ignored rejected pieces
6 Total counter reset
7 Batch remaining
8 Batch size
9 Activate batch processing
10 Remaining pieces

11 Produced pieces

12 Quantity pieces

Tab 3 (messages)



1 Enable comments
2 Remarks text entry
3 Before production text entry
4 After production text entry
5 After production activate
6 Before production activate

8.3 SINGLE ARTICLE EDITOR DESCRIPTION

For the measuring units of the following settings, the settings in the "Configuration" are valid.

8.3.1 Init

See chapter *"8.9 Init (Page 89)"*.

8.3.2 Processing

See chapter *"8.5 Processing editor (Page 65)"*.

8.3.3 Wire length

Defines the length, the raw material is to be cut to. The length entry is limited by the length of the application type, thus the applications cannot be rendered useless through an insufficiently long length entry.

8.3.4 End application left / right

No stripping

The Raw material is not stripped, no stripping operation is performed. It is solely cut to the programmed length and then ejected.

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.

Example full strip: Stripping length = 20.0 mm, pull-off length = 25.0 mm

Partial strip

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

Example partial strip: Stripping length = 20.0 mm, pull-off length = 10.0 mm

Window strip

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

Example: Stripping length = 20.0 mm, pull-off length = 10.0 mm, window position = 30.0 mm, window length = 5.0 mm

Multi layer

This application type is well suited for coaxial cables, especially when partial strips have to be programmed.

Inserts an (usually) immediately producible full strip for all processable layers. (the strip sequence has been optimized for the standard coaxial cables).

Example: Jacket stripping length = 40.0 mm, jacket pull-off length = 45.0 mm, shield stripping length = 30.0 mm, shield pull-off length = 35 mm, dielectric stripping length = 20 mm, dielectric pull-off length = 15 mm

Multi conductor

Suitable for wires with more than one conductor e.g. power cords. First the jacket is stripped completely, then the wires are placed side by side using the optional combing unit and finally they are stripped with a multiple radius blade.

Example: Stripping length = 8.0 mm, pull-off length = 6.0 mm, jacket-stripping length = 40.0 mm

Flat ribbon

The Flat ribbon (also called Zip cord) require a special treatment using several different operation modes. First, they are separated, and then stripped, then one conductor is shortened and finally this shortened conductor is stripped.
The application flat ribbon is intended especially for this complex treatment and with other types, simply makes full strips on each layer. Special blades are required for separating and stripping.

Example: Separate (length) = 40 mm, stripping length 1 = 10.0 mm, pull-off length 1 = 5.0 mm, shorten = 15 mm, stripping length 2 = 25 mm, pull-off length 2 = 5 mm

See also Chapter *"8.6 Application editor (Page 79)"*.

8.3.5 Area application

See Chapter *"8.7 Application editor area (Page 82)"*.

8.3.6 Swapping areas

Exchanges the left area with all its area application settings with the right one and vice versa, the areas are mirrored therewith horizontally and vertically.

A message shows up, if the mirrored text is not congruent with the original one.

8.3.7 Activate area

Activates or deactivates the specified area function. If this function is off, all settings of the area applications are ignored during the production.

8.3.8 Rejected pieces

Displays the number of rejected pieces that have been entered and confirmed in the field „Declare rejects“.

8.3.9 Declare rejects

After manual inspection of the produced pieces, enter the number that must be rejected. Depending on the machine, rejecting can be done automatically using the optional "SmartDetect" function.

8.3.10 Ignore rejects

After manual inspection of the rejected pieces, indicate the number that is considered good, i. e. to be ignored.

8.3.11 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.

8.3.12 Remaining batch size

Shows the quantity of article batches still to be produced since the last production start. The value can be reset to zero with the command [RESET PRODUCTION COUNTER].

8.3.13 Batch size

Entry of the total quantity of batches to be produced.

8.3.14 Activate batch

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 "Article list - Production settings", the production is stopped after each produced batch and a message shows up on the touch screen.

If this function is selected, an additional entry field is shown, where the batch size is entered.

Batches can be used with post processing devices (e.g. WireStacker) to initiate certain actions. The "Quantity" is either divided in partial orders or it is performing continuously (batch deactivated).

8.3.15 Remaining articles

Shows the amount of articles still to be produced since the last production start. The value can be set back to the "Total" with the command **[RESET PRODUCTION COUNTER]**.

8.3.16 Produced articles

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

8.3.17 Quantity

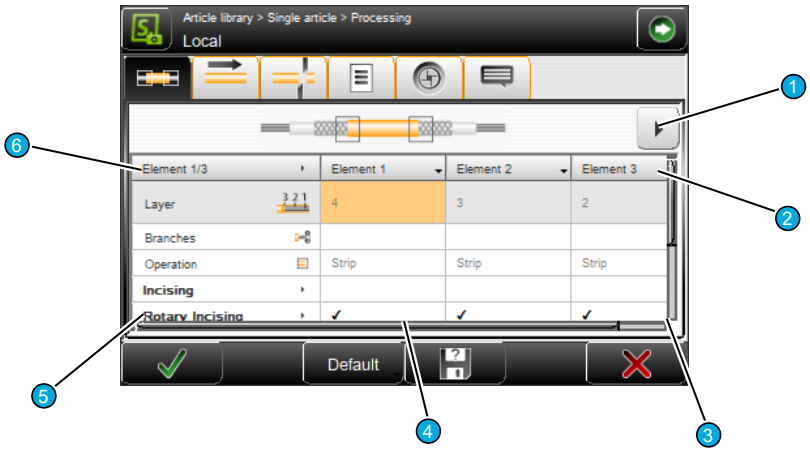
Entry of the quantity of articles to be produced.

8.3.18 Remarks / messages

Remark fields for comments in conjunction with the to be produced article. Here also messages before or after the production can be entered here, e.g. before the production to advise the operator to change the sealing foil on the HotStamp, before the production continues.

8.4 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 89"*
2 Processing editor *"Page 65"*
3 Editor application right *"Page 79"*
4 Editor Editor application area *"Page 82"*

5 Editor application left *"Page 79"*

6 Raw material editor[1] *"Page 87"*

[1]) - Only Raw material types: Diameter, multi-layer, multi-conductor, flat ribbon

A distinction is made between two different application types:

End application: Defines how the left and/or right ends (application) shall be processed (stripped).

Area application: Settings for the positioning and shape of the marking stamped on the produced article.

8.5 PROCESSING EDITOR

8.5.1 General overview

The way how *S.ON* processes a certain type of article is defined in the Processing. This records describe how the *PowerStrip 9580* processes a Raw material type (e.g. a Multi conductor or a Flat ribbon). This is determined by data such as speed, incising depth, way back, air jet time, utilized blades etc. All settings for the Processing are entered in the Processing editor.

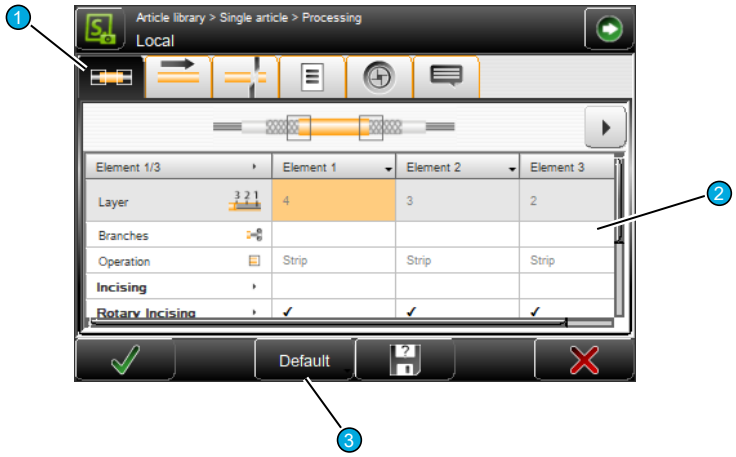


Fig. 7: Processing editor overview

1 Tab selection

2 Content area

3 Default

The following is an overview of the individual tabs and their function:

Tab		Concerns the	Description
	Elements	Stripping unit	Instructions for the execution of operations (strip, comb, slit, separate, shorten).
	Feed	Feeding unit	Settings concerning the raw material feeding by the feeding belts/rollers.
	Cut	Stripping unit	Instructions for the cutting unit movement during cutting the raw material.
	Options	Miscellaneous	Definitions made for the feed monitoring and the behavior when executing a full strip on the right end and the connected post processing devices.
	Rotary incising unit	Cutting axis	Settings for the rotary incising unit (rotary speed, blade position, centering).

Tab		Concerns the	Description
	Comment	Production	General comments in the Processing to the produced articles.

8.5.2 Default

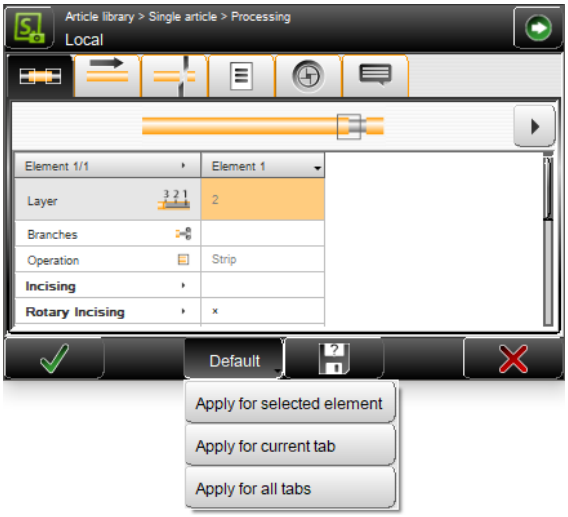
First the raw material must be defined for the article to be processed. Afterwards, *S.ON* can automatically calculate the necessary processing values for correct execution.

This automatic setting is adequate for an error free production with most standard applications. If e. g. the outer jacket diameter differs from the default value, the Processing values must be altered in the “Processing editor” accordingly.

Default tab “Elements”

After pressing “Default” in the tab “Elements” a selection is offered for the use of the default setting:

- Apply to selected element
- Apply to current tab
- Apply to all tabs



Default other tabs

In the remaining tabs, "Apply to current tab" and "Apply to all tabs" are available.

8.5.3 Elements

Defines all settings of the Processing elements. This can be incision diameter, possible operating modes etc.

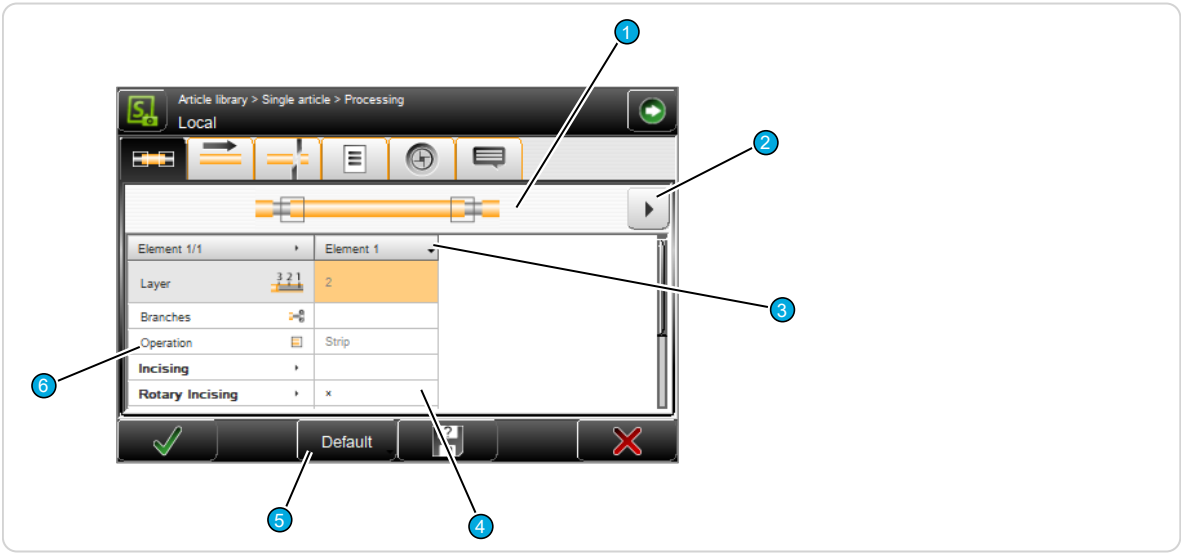


Fig. 8: Processing elements

1	Application type	4	Parameter values
2	Show next column	5	Default
3	Header element column	6	Parameter name

Application type

Schematically representation of the loaded application with display, which Processing element actually is selected.

Show next column

If there are several element columns for a complex wire type, the user can jump to the next column.

Header line element column

By tapping the header, the following drop-down list is shown, but only in the "Library mode".

Duplicate highlighted column	An additional element column with all previous values is created. It can then be edited.
Delete highlighted column	The selected element column is deleted.

Element settings

The set value can be changed directly by pressing a value field. Here the behavior of the *PowerStrip 9580* during the production process can be defined.

Element description

Display of the element description to the element column. Touching the header element in the element description, opens all element fields on this category, or selects all element lines.

Elements default

See Chapter *"8.5.2 Default (Page 66)"*.

Element	Description
Layer	Can only be changed in the “Library mode”
Branches	Can only be changed in the “Library mode”
Operation	Can only be changed in the “Library mode”
Incising:	
Incising unit inactive	Shall the cutting unit be used for this element (yes/no).
Blade no.	Selection of the type and the position of the desired blade. As blade types, only the blades in *S.ON* defined under "Configuration - Machine - Blades" are available. If a blade is selected which is not activated in the "Configuration", the name is shown in brackets.
Incising diameter	Definition of the incising diameter. The above selected blade is closed to this diameter during production.
Incise pause [ms]	On certain insulation materials it is helpful to wait a specified time after the incising. Thus the insulation is cut properly. This waiting time can be defined with the „Incising pause" in Milliseconds. With extremely flexible materials, a longer pause results in proper cuts.
Rotary incising:	Shall the rotary incising unit be used to incise (yes/no). If enabled, the blades of the incising unit serve only to hold the insulation piece to be pulled-off.
Incising diameter	Incising diameter with the rotary incising unit. Only activated if "Rotary incising unit" is on. If the rotary incising unit is disabled, the value of incising diameter is copied into “Diameter” and the field “Wayback” becomes the difference between the two. If the rotary incising unit is activated, the value "Diameter" is copied into the field "Incising diameter", the value "Wayback" is added to "Diameter" and "Wayback" is set to zero.
Incise pause [ms]	Highly elastic insulations are sometimes not cut to the proper diameter, if the blades open too soon. Therefore a programmed pause in Milliseconds can be set here, while the blades continue to rotate before they move back.
Incising speed	Speed at which the rotary incising of the insulation takes place.
Incising acceleration	Speed at which the rotary incising of the insulation takes place.
Pull-off:	
Pull-off speed	These settings change the speed of the pull-off movement, whereas 0 is the smallest and 9 the largest selectable value.
Pull-off acceleration	These settings change the acceleration of the pull-off movement, whereas 0 is the smallest and 9 the largest selectable value.
Wayback	After incising, the blades travel back by the stated value, in order not to damage the inner layers during the pull-off operation.
Pull-off offset	Set the offset of the blade position on the part for the pull-off.
Stroke quantity	Defines the vibration speed, when the combing unit is mounted. Each single wire thereby is placed properly against each other, before stripping.
Regrip:	Shall the function “Regrip” be used (Yes/No). Protects the conductor from being damaged. See also Chapter *"8.5.3.1 “Regrip” function (Page 69)"*.

Element	Description
Break-off length	Set length used to break the insulation. 
Pull-off offset	Offset used for the regrip position. 
Incising diameter	Diameter used for the "Regrip" function. 
Cleaning:	
Discard slug	With a full strip, the stripped insulation sometimes adheres to the blades. If this setting is enabled, the blades carry out a cleaning motion after a full strip, by cutting thrue the waste piece.
Air jet unit [ms]	With the optional air jet unit the slug is blown off. To switch off this function, the value must be set to zero.
SmartDetect (option):	Activates Smart Detect for this element.
Incising contact tolerance	Tolerance relative to the incising diameter. How much may the blades incise into the conductor. Relative distance in relation to the incising diameter. Incising tolerance = diameter of first conductor contact - incising diameter.
Pull-off contact [%]	Allowed contact quantity while pull-off. How many percent may the blades touch the conductor during the entire pull-off movement. **Caution when full strip:** Overdraw belongs to the pull-off length.
Sensitivity correction	Correction value for the touch sensitivity. In order to achieve optimum measurement conditions, the sensitivity is calculated on the basis of the article length and the programmed cross-section of the conductor. If necessary, a correction can be made to the calculated sensitivity value with values from -5 (least sensitive) to +5 (most sensitive). This value should never be changed without good reason. See also chapter *"7.11.2 Sensitivity correction (Page 51)"*.

Tab. 2: Processing elements

“Regrip” function

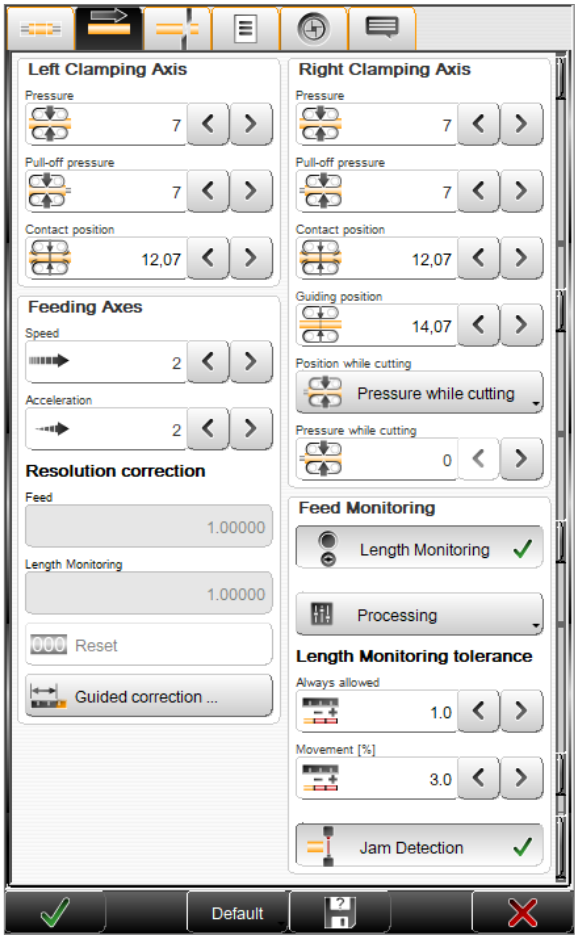
With "Regrip" activated, the procedure is as follows:

1. Incising and way back (Ø 1.17)	
2. Breaking while feeding „Break length“ = 5.0 mm	

3. Open	
4. Regrip with feeding for „Strip offset“ = 2.0 mm	
5. Strip to „Stripping diameter“ = Ø1.52 mm	

8.5.4 Feed

Concerns all settings for the forth and back-feeding of the raw material by the left and right feeding units during the stripping process.



Left / right clamping axes

Pressure

Pressure during feeding the raw material. The pressure is the force applied to the Raw material by the feed belts during feeding (contact pressure).

Pull-off pressure

Pressure force during the insulation's pull-off. The Pull-off pressure is the force with which the Raw material is clamped by the feed belts during the stripping operation.

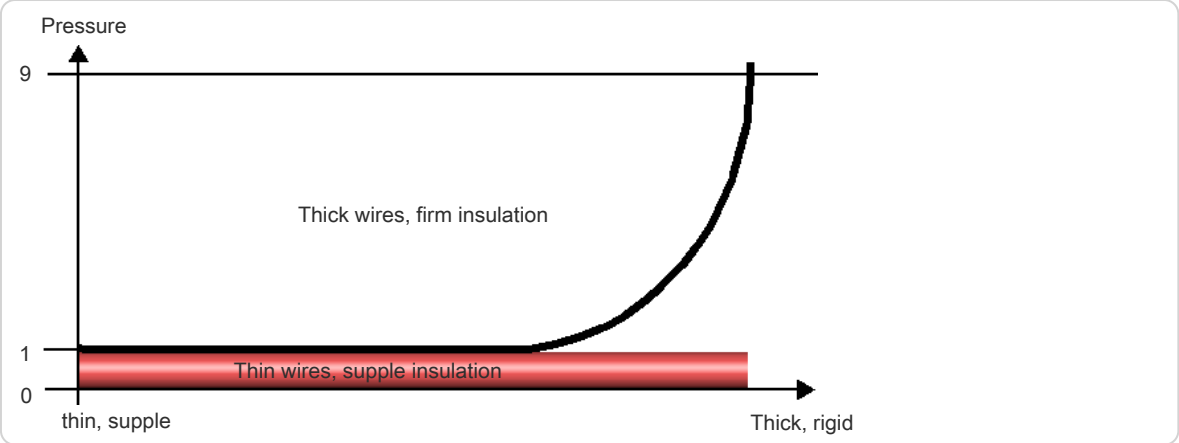


Fig. 9: Set-up of pull-off pressure

With different "pull-off pressure" and "pressure" settings, production time is lost because the belts have to move between feed and pull-off operation to another position.

Contact position

Defines the position of the feed belts. This value determines the distance between the upper and lower feed belts. This distance is also affected by the values "Pressure" and "Pull-off pressure". The programed diameter must be somewhat smaller than the raw material diameter.

Right clamping axis

For general settings (pressure, pull-off pressure and contact position), see “Left clamping axis”.

Guiding position

Other position for the right feed belts. This setting has to be altered when the right partial stripping length is larger than the distance between the blades and the right feeding belts. The right hand feed belts open slightly during the stripping. This ensures that the belts do not press on the conductor, which would result in defective pull-offs.

A diameter should be set here, which is approx. 1 mm larger than the raw material diameter.

Position while cutting

This corresponds to the right feeding unit. The following positions are available.

Contact position: The raw material is clamped with the preset values of the feed belts.

Guiding position: When cutting stiff raw materials they can block the blades if they are clamped hard by the feeding belts. To avoid this, the cutting units can be opened to the value "Guiding position" during cutting.

Pressure while cutting: Here the raw material is clamped with the pre-set strip pressure during cutting

Feeding axes

Speed / acceleration

These settings change the feeding speed and the acceleration of the feeding unit during the transport of the raw material, whereas 0 is the smallest and 9 the largest selectable value.

Resolution correction

Length variations can occur due to the material characteristics of the raw material. This can be corrected here.

Length variations can also occur if feeding the material is improperly. This can happen for example, if the wire straightener has too much force on the raw material, or if the bobbin is stuck. For such cases the correction is not intended.

Feed

The analyzed value of a "Guided correction" (see bellow) is entered here and included for further production.

Length corrections defined in the article editor are ignored thereby. Also a warning message is shown when such corrections exist.

Length monitoring

If under feed monitoring the length monitoring is activated and a "Guided correction" is performing, the measured value from the length monitoring is also included. The determined value is entered here. This is necessary as the individual raw material behavior leads to an additional deviation during the length monitoring.

Reset

Corrections from a "Guided correction" can be reset here again.

Guided correction

To absorb length variations for an accordingly Processing (similar raw material types), a menu guided length correction **[GUIDED CORRECTION]** can be carried out in the Processing settings, by loading an adequate raw material. This correction is not to be confused with the length correction which refers only to the length and stripping measures.

For the resolution correction in the Processing, it is assumed that the settings "Feeding axes, left/right contact clamping" have been calibrated in the configuration. See *„Reference Manual - Maintenance“* of the *PowerStrip 9580*.

Feed monitoring

Activating length monitoring

Here the length monitoring for the exact length measuring of the to be produced article is switched on. For this the optional length monitoring must be mounted on the *PowerStrip 9580*.

The length monitoring must be activated in the "Configuration - Machine".

With switched on length monitoring this setting can be determined by the respective Processing or globally by the configuration:

Processing –> length monitoring tolerance - always allowed: Always accept up to this tolerance. If the error is less than the tolerance, no message is shown, otherwise a warning message is displayed. This function is used specially with small feeding.

Processing –> length monitoring tolerance - movement%: Range where no action takes place through the length monitoring (Example: for a wire length of 100 mm, there is for 1 % tolerance an acceptable error of 1 mm).

Activate jam detection

Activates the feeding check of the produced article on the outlet. For this the optional jam detector must be mounted on the *PowerStrip 9580*.

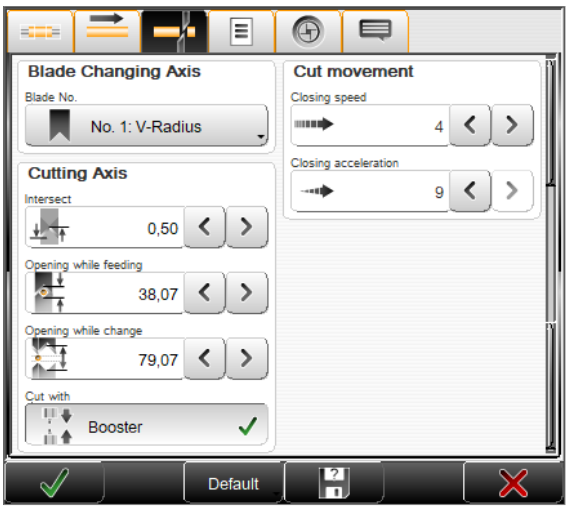
The jam detector must be activated in the "Configuration - Machine - Jam detection".

For raw materials < 1.5 mm there may be a problem with belt or rubber roller drives. We recommend to deactivate the jam detection for this raw materials.

8.5.5 Cut

Covers all settings for the cutting by the stripping blades during the cut and strip process.

Blade changing axis



Blade no.

This defines the blade type used and the blade position. Here the selection of the blades assigned to the *PowerStrip 9580* with its associated position can be selected.

Cut movement

Closing speed / closing acceleration

These settings change the speed and the acceleration of the cutting movement, whereas 0 is the smallest and 9 the largest selectable value.

Cutting axis

Intersect

Depending on the type of blade and the material being processed, the blades intersect when cutting through the raw material (standard value is 0.5 mm). This traversing path can be defined here.

Opening while feeding

During feeding, the blades return to their defined reference position.

This value must be sufficiently large enough to ensure that the raw material is not damaged during feeding. On the other hand, the position should not be unnecessarily large or the blade movements will take too long.

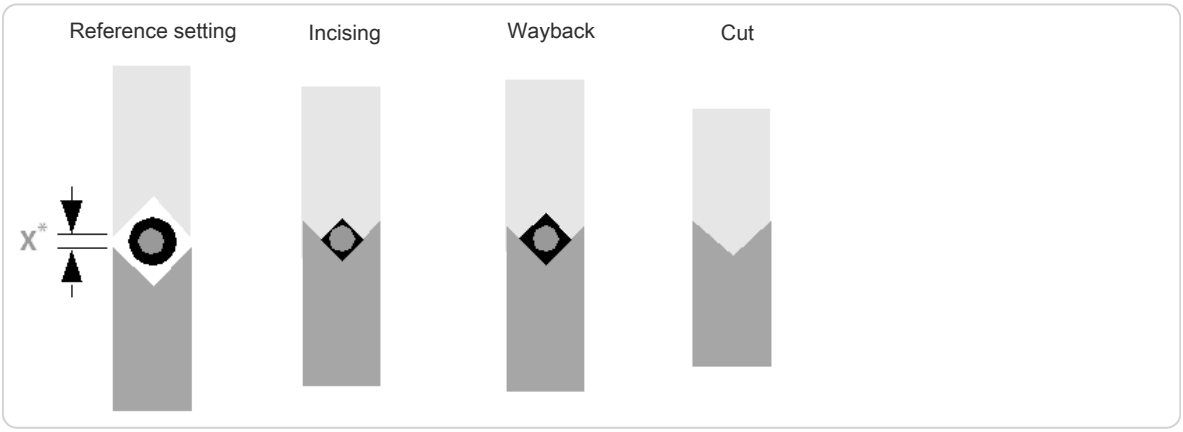


Fig. 10: Position of blades while feeding

*) With a blade change, the blades open to the value: X > raw material diameter

Opening while change

Defines the blade opening during a blade change. This is the reference position during the raw material feeding.

It is important that this value is selected large enough, otherwise the raw material will jam and the blades may break.

Cut with booster activate

Optionally a pneumatic cutting unit booster is available. Here it can be activated. With large diameters (> 150 mm^2), it supports the cutting unit with additional force to the cutting axes. This ensures a precise cut.

The maximum cutting speed should therefore be set to not higher than 5 (optimal cutting speed = 1).

NOTICE

Property damage!

The raw material can be squeezed and there is a danger to break the blades.

The blades must necessarily open far enough.

8.5.6 Options

Post-processing

Defines the source for the post processing.

Configuration

Here the Post Processing device is controlled basically by the „Configuration“. The settings made in the "Configuration" are used.

Processing

This defines which post-processing devices are acceptable for the production. To be able to start the production, one of the selected devices must be set as the active post-processing device in the "Setup".

The following settings are available:

- **None:** The production shall be carried out without a post-processing device.
- **Passive wire stacker:** A passive wire stacker shall be used.
- **Active wire stacker:** An active wire stacker shall be used.
- **Cable coiler:** A cable coiler shall be used.
- **User defined device:** A user defined device is configured and shall be used.

Dispose waste piece

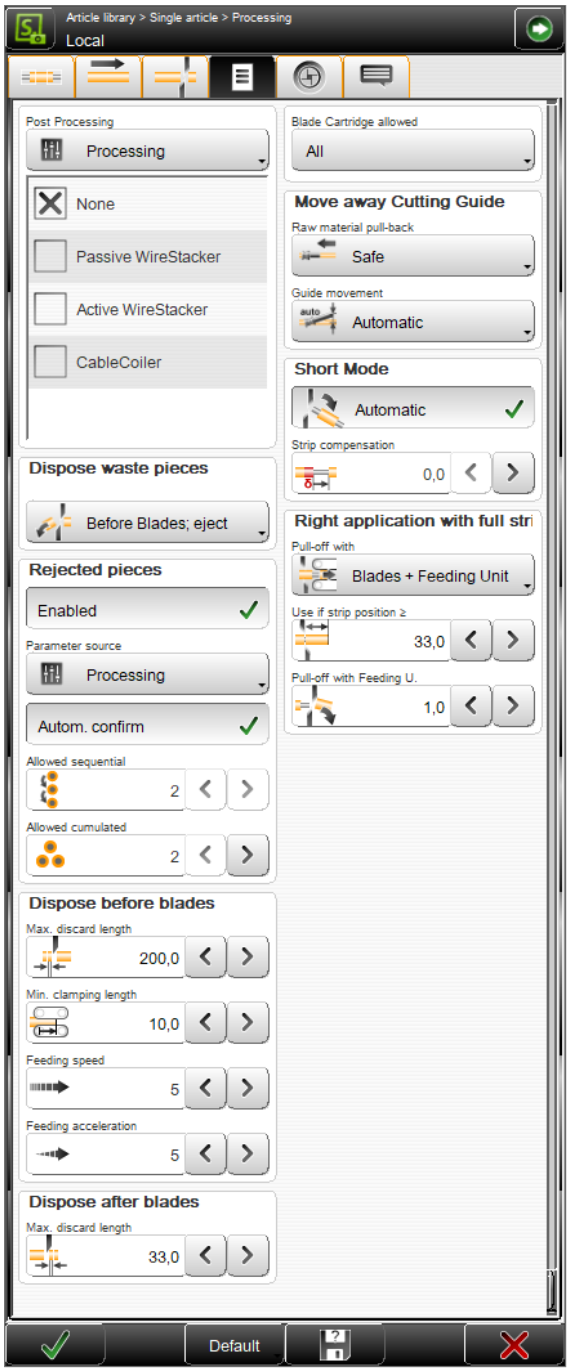
During processing, the stripped insulation piece sometimes gets stuck in the stripping area.

There are three different ways to remove the waste piece:

- Normal
- After blades; cut
- Before blades; eject

Normal

The waste piece is ejected uncut after the blades.



After blades; cut

If this setting is enabled, the blades shred the waste piece after the cutting process. Thereby the optimal process reliability is guaranteed compared to the third setting, while blade wear is somewhat greater.

Before blades; eject

Prevents the waste piece or parts thereof from remaining in the good parts. The process reliability is less well with this setting, the blade wear is rather low.

Dispose before blades

Maximum discard length: The waste piece is cut into parts and then ejected before the blades. This defines the maximum length of each piece to be cut.

Minimum clamping length: Defines the minimum length, where the waste piece is just clamped.

Feeding speed/-acceleration: Defines the feeding speed/-acceleration the material is fed with during processing.

Allowable cartridge

This setting depends on the used *PowerStrip 9580* model.

All

All blade cartridges from the configuration may be used.

Defining selection

Only blade cartridges from the drop-down list must be used for the actual Processing.

Add cartridge (+): Add a blade cartridge defined in the configuration to the local list.

Delete cartridge: Delete a selected blade cartridge from the local list.

Option Rejected pieces

Activated: Enables the function for sorting out defective pieces. The “SmartDetect” monitoring function must be activated in the configuration.

Parameter source: Configuration (the configuration settings apply) or procedure. If “Processing” is selected, the “Automatic confirmation” key appears.

Automatic confirmation: The input fields "Allowed sequential" and "Allowed cumulated" are available for counting the allowed contacts of the blade with the conductor. See also chapter *"7.11.3.3 Limitation of number of errors (Page 53)"*.

For further information see chapter *"7.11.1 “SmartDetect” (Page 49)"* and *"7.11.3 Disposal of rejected pieces (Page 51)"*.

Move away cutting guide

Define the wire pull-back method for the right strip.

Raw material pull-back

Safe: The raw material first is pulled back to a defined value and then the swivel guide moves up.

Fast: The raw material is pulled-back for a predefined value and simultaneously the swivel guide moves up (fast production, works in most cases with short articles).

Safe/length: The raw material is pulled back for the defined value "Pull back length" and then the swivel guide moves up.

Set pull-back length

Defines the pull-back length in the left guide. This option can be used to prevent a bend of the raw material when the swivel guide moves up (the measure 134 mm corresponds to a complete withdrawal from the guide for models with swivel guide).

This option is suitable for the treatment of rigid raw materials.

Guide movement

Defines the method for the guide movement for the left partial-/full strip.

Automatic: The method is defined automatically.

Manual: The guide movement is executing according to the measure in "Movement way" (*MultiStrip 9480* only).

Off: The guide does not move during the left partial-/full strip.

Short mode

The "Short mode" settings can be invoked either automatically or manually.

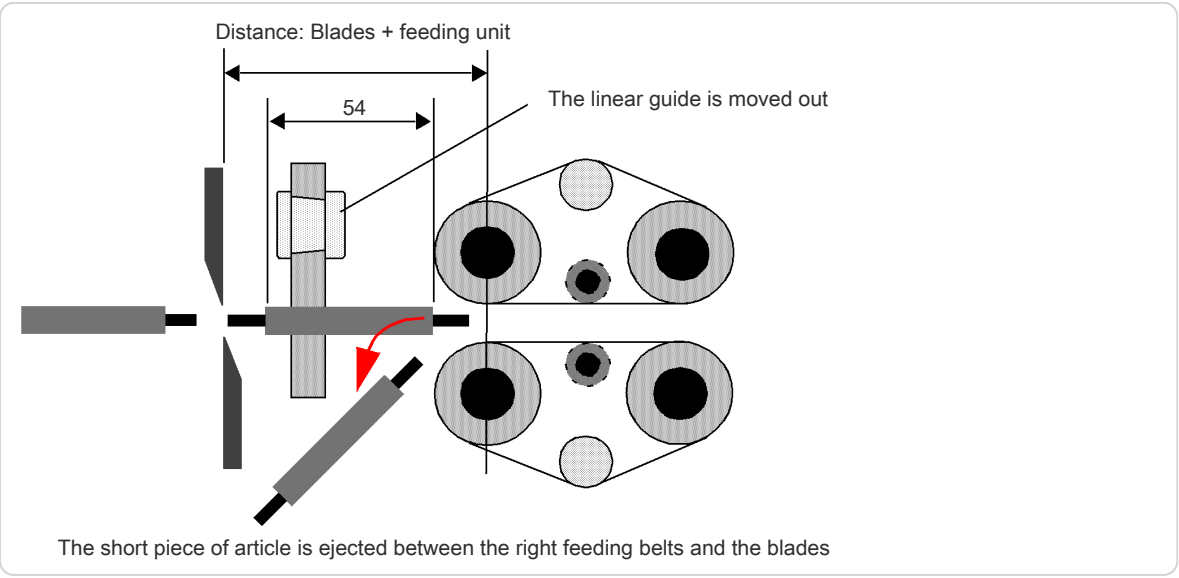


Fig. 11: Short mode

Automatic

If after processing the slug on the article is shorter than the value calculated by the machine, the "Short mode" is activated. Production in "Short mode" concludes to all operations from the left side to be integrated to the right side. The linear guide is moved out of the wire axis and the right feeding belts open to the value "Guiding gap" (processing - feed). Then the produced article is ejected between the blades and the right feeding belts out of the machine.

Manual

While invoking the "Short mode" manually, the behavior of the *PowerStrip 9580* can be determined exactly.

Left application - converting activate/deactivate Defines if the operations of the left side are to be converted to the right side. Certain requirements must be fulfilled for the conversion, otherwise an error message occurs:

- Only "Strip mode" used
- Direction, to the end
- Same layers and branches
- No "Strip with window" operations

Guide position while feeding - Retracted activate/deactivate: Defines the behavior of the guide before the right feeding unit. Either it is "Retracted" or it acts "Automatically". The guide is moved out of the wire axis.

Strip compensation

Because of executing the left side strip to the right hand side of the article, it can occur that the insulation gets stretched slightly during production. This sometimes causes a small piece of insulation to be left over on the left end of the material. To prevent this, a value greater than zero can be entered in the „strip compensation“ field. All the left stripping is shifted to the left by this value.

This compensation is available in "Short mode - Auto“ as well as in „Manual".

Right application with full strip

Defines the pull-off method for the right full strip. Full strips on the right end must be specially treated, since depending on length the slug can jam between the blades and the right guide respectively the right feeding unit. To prevent this, the slug can be pulled off and ejected by the right feeding unit.

Pull-off with - blades

The full strip takes place without the assistance of the right feeding belts.

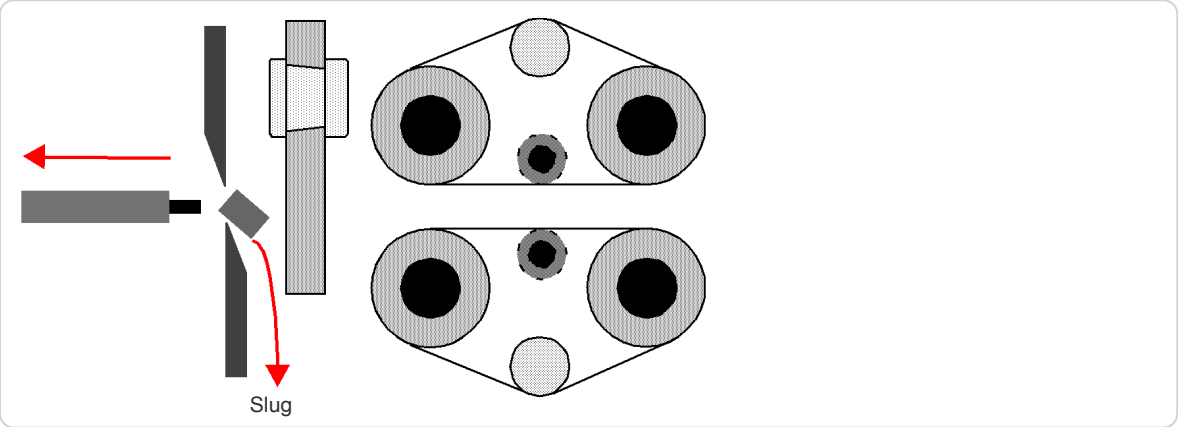


Fig. 12: Right full strip with blades only

Pull-off with - blades + feeding unit

Use if strip position >: Defines the minimal stripping length in the active mode. If the full strip is larger than the length selected here, the slug is pulled off and ejected by the right feeding unit - otherwise the stripping is done without the help of the right feeding unit.

Pull-off with feeding unit: Defines the maximal pull-off length with feeding unit. This is the part of the stripping, which is performed by the feeding unit.

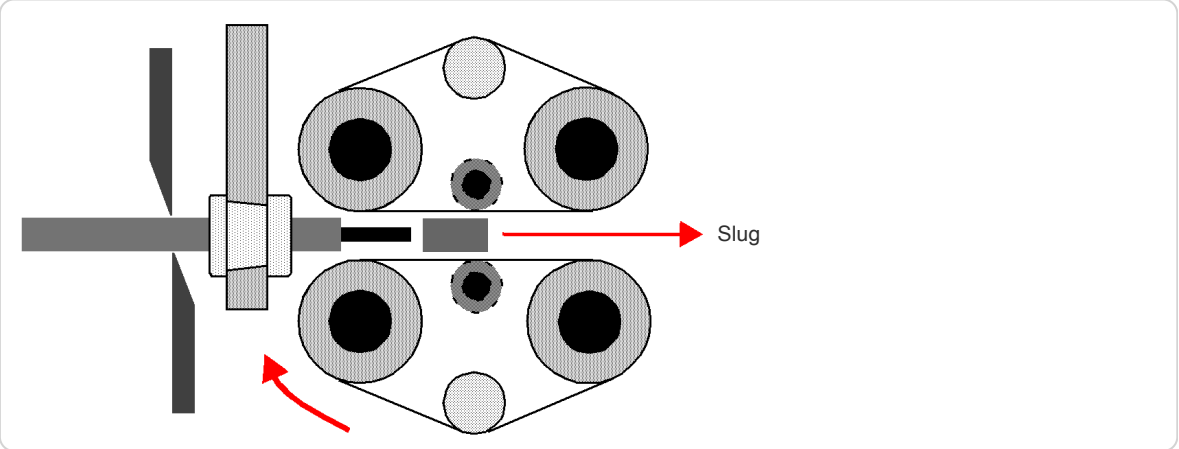


Fig. 13: Right full strip by blades + feeding unit

8.5.7 Rotary incising unit

If the *PowerStrip 9580* is equipped with a rotary incising unit, general settings for the rotary cut can be made here.

Rotary movement

Speed / acceleration

Defines the rotational speed and acceleration over a range from 0 to 9.

Rotary incising unit

Distance correction

Here small raw material specific offset corrections of the rotary incising unit position can be made.

Guided correction

Also a menu guided correction can be carried out. For this an article must be programmed which has been stripped with the rotary incising unit. See also Chapter *"8.5.4.2 Resolution correction (Page 71)".*

Rotary incising axis

Opening while feeding

The blades of the rotary incising unit close to this opening diameter while feeding the raw material.

Centering axis

Speed / acceleration

Defines the traversing speed and acceleration of the centering over a range from 0 to 9.

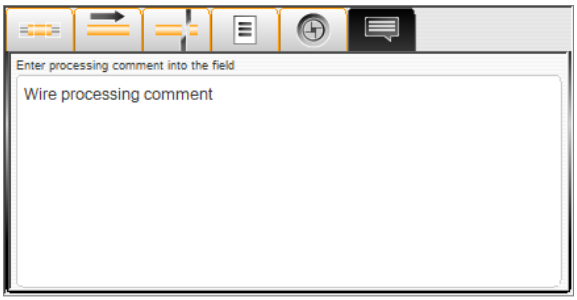
Pressure

Defines the closing pressure force of the centering axis.

Opening while feeding

During feeding, the centering opens to the corresponding set value.

8.5.8 Comment



Here a comment can be entered when the Processing has to be changed. This can be switched on or off in the "Configuration - Production“ settings.

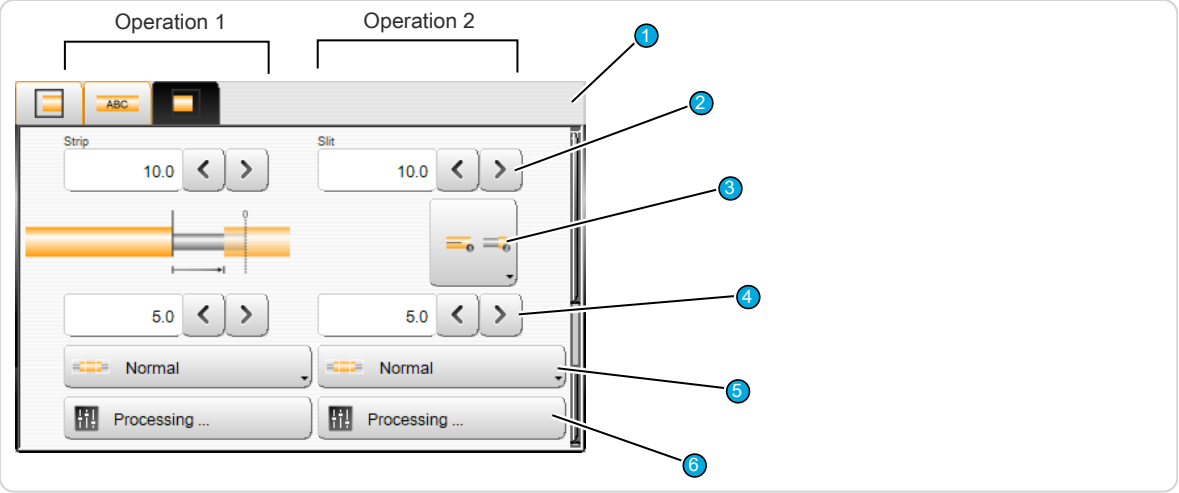
If an article list has to be produced, the comments can be globally switched on or off.

Via the keys below the comment field, the blade configuration and/or the connected post-processing device settings can be taken over into the comment field.

8.6 APPLICATION EDITOR

8.6.1 Overview

As soon as an application type has been selected, the application editor can be opened by touching the respective pictogram. Here additional details to the article can be entered (stripping length, pull-off length and others). Depending on the application type, more or less operation steps (operations) are available.



1	Tab[1]	4	Length
2	Position	5	Save as local Processing element
3	Slitting option	6	Processing element of this operation

[1]) - here the user can select between left, right and area application.

8.6.2 Description

Processing step (operation)

Here the operation types stripping (jacket/inner conductor), slitting, comb or window are shown.

Position

Describes the start position of this operation e.g. the stripping position or the start of the slitting.

Slitting option

This switches the slitting operation on or off. Additionally if the slitting operation is switched on, it can be defined if the slitting takes place before or after stripping.

Length

Describes the length of the operation element, e.g. the length to be slit.

Save as local processing element

Switch on/off, saving as local Processing element. If this is switched to "Normal", the operation is performed the same as for the rest of the article. If local Processing element is selected, the values entered in this operation step column are stored locally in the operation.

Processing element of this operation

This shows the corresponding Processing element of the operation, the values can be edit directly in the element column.

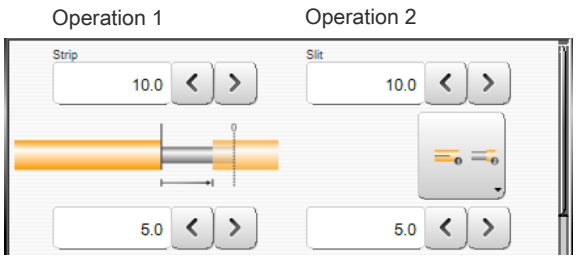
8.6.3 Partial- and full strip

Operation 1: Describes in this order the values for the right and left end:

- Stripping (10.0 mm)
- Pull-off (5.0 mm)

Operation 2: Defines in this order, if the insulation is to be slit and if so, if this is carried out before stripping or after:

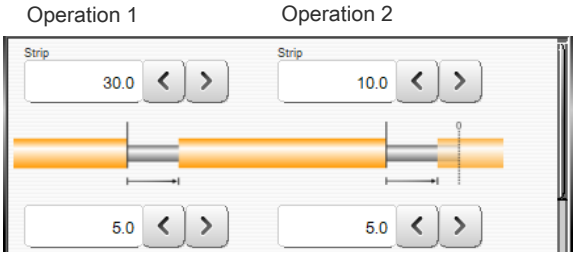
- The start position of the slit (10.0 mm)
- The length of the slit (5.0 mm)



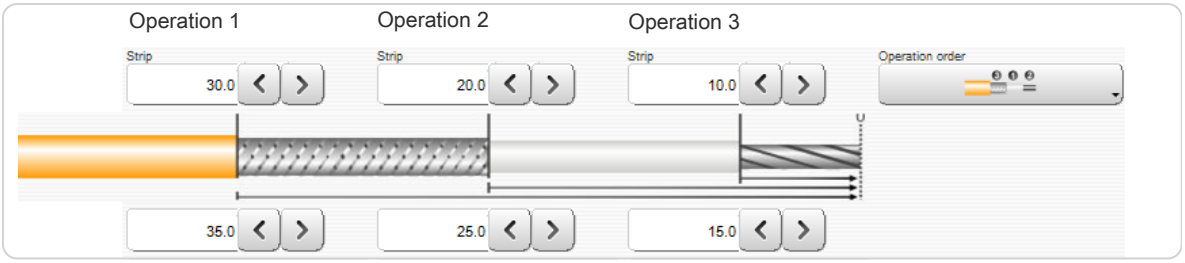
8.6.4 Window strip

Operation 1/2: The operation 2 is known from the previous partial strip. The operation 1 defines in this order the stripping of the window:

- The start position of the window strip (30.0 mm)
- The length of the window (5.0 mm)



8.6.5 Multi layer cable



Operation 1: Defines in this order the full- or partial strip of the jacket:

- Stripping length (30.0 mm)
- Pull-off length (35.0 mm)

Operation 2: Defines in this order the full- or partial strip of the intermediate layer:

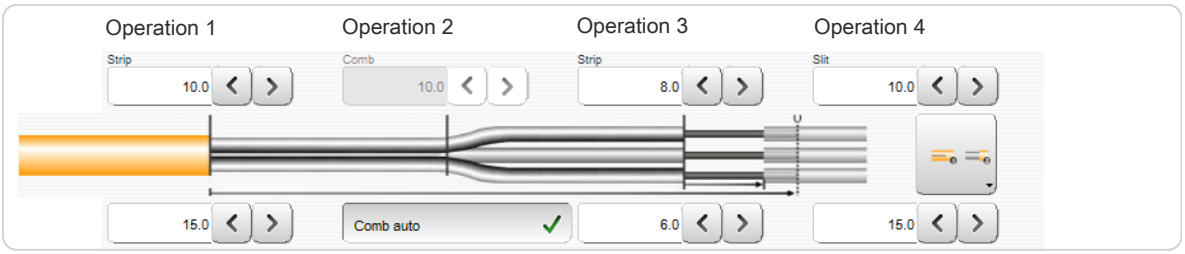
- Stripping length (20.0 mm)
- Pull-off length (25.0 mm)

Operation 3: Defines in this order the full- or partial strip of the dielectric:

- Stripping length (10.0 mm)
- Pull-off length (15.0 mm)

Under "Operation order" the stripping order during processing can be changed. This depends on the nature of the raw material and affects also the production speed.

8.6.6 Multi conductor cable



Operation 1: Defines in this order the full strip of the jacket:

- Stripping length (10.0 mm)
- Pull-off length (15.0 mm)

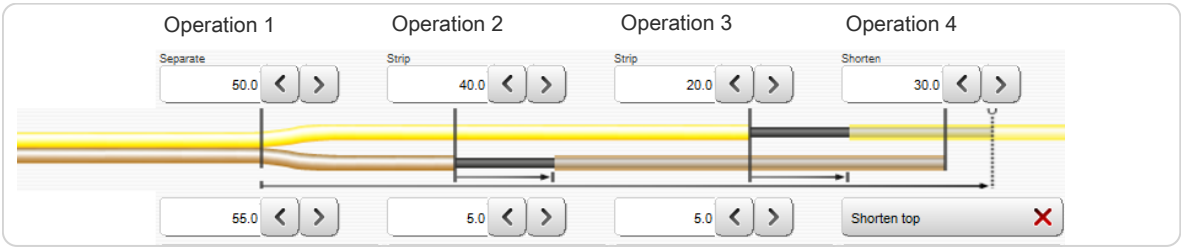
Operation 2: Consists of only one value and defines the start position of the combing.

Operation 3: Defines the stripping of the inner wire in this order:

- Stripping length (8.0 mm)
- Pull-off length (6.0 mm)

Operation 4: Defines the slitting, as has already been described in part/full strip.

8.6.7 Flat ribbon cable



Operation 1: Defines the separation of the wires:

- Position (50.0 mm)
- Length (55.0 mm)

Operation 2: Defines the stripping of the first inner wire in this order:

- Stripping length (40.0 mm)
- Pull-off length (5.0 mm)

Operation 3: Defines the stripping of the second inner wire in this order:

- Stripping length (20.0 mm)
- Pull-off length (5.0 mm)

Operation 4: Consists of only one value (30.0 mm) and defines the shortening of the conductor.

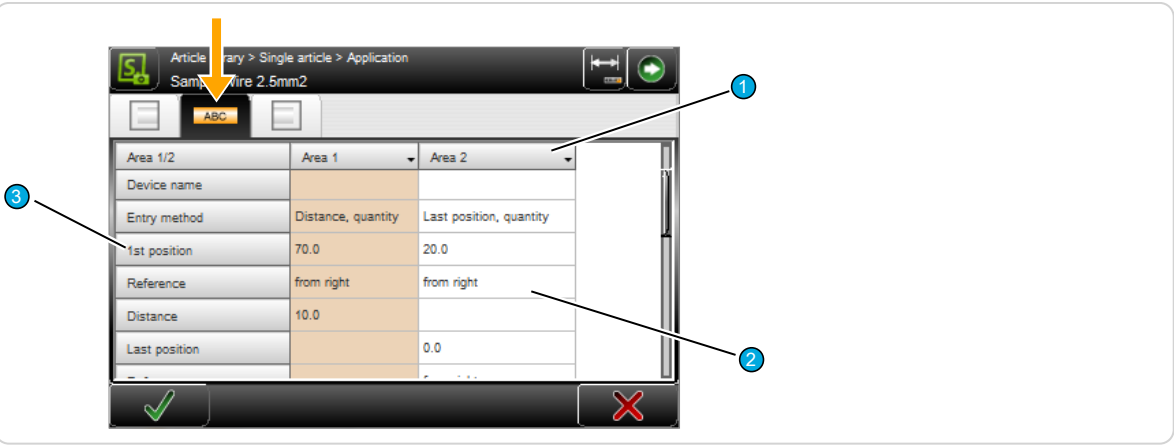
Additionally, under operation 4, it can be defined if shorten takes place on the upper or lower conductor.

8.7 APPLICATION EDITOR AREA

Areas are meant for marking the wire with a HotStamp, Inkjet printer or thermal transfer printer. An article can be marked with many individual texts on different positions.

8.7.1 Screen overview

By touching the area zone in the article editor the area editor shows up where areas (article labeling) are programmed. First an overview is shown, where all area columns with settings are listed.



1 Header line area column
2 Editable area
3 Description of area

Header line area column

By touching the header section of an area column, a drop-down list is displayed, where areas are duplicated or deleted.

Duplicate highlighted column	An additional area column with all previous values is created. It can then be edited.
Delete highlighted column	The selected area is deleted.

The user can use different marking devices simultaneously. Therefore an additional area screen is provided for each marking device or in case of marking a wire measured from the left or the right end. All settings e. g. position or quantity can be independently set in each area.

Editable area

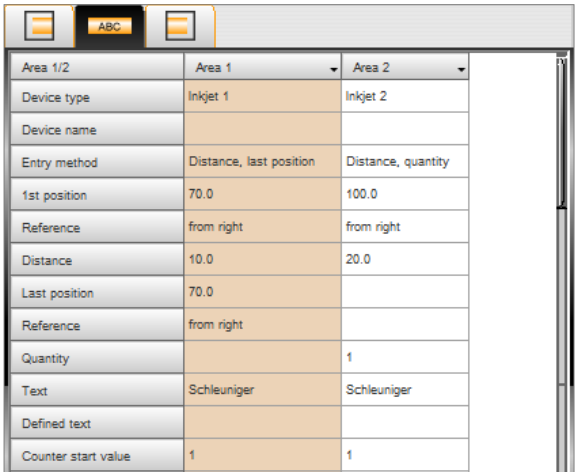
Touching any value field in the overview column, opens the entry mask, where the settings can be altered.

Description of the area

Display of description for the area column.

8.7.2 Area settings

Device type



Select the device type for this area. None, Hot-Stamp, Inkjet- or thermal transfer printer is available here by default.

The selection of the device depends on the configuration of the wire processing line.

None: Is used for temporarily deactivate the area application.
The setting "None" can be used when no marking device is used, but the programmed positions of the areas shall not be lost. The *PowerStrip 9580* would not permit production with a device set in an area, but physically not present.

HotStamp: Marking the article by use of a hot stamp unit. A wire marker device must be connected therefore.

Inkjet-/thermal transfer printer: Marking the wire with an Inkjet- or thermal transfer method printer. A thermal transfer printer can only be used with *CAYMAN*. Settings for the font properties are only displayed if "Inkjet" is set.

Device name

User defined device name if using customer specific marking devices.

Entry method

Select the repeat method for this area. To define the area clearly, only two of the three possible selections (Distance, last position / quantity / last position, quantity) have to be set. The program calculates the third parameter automatically from the two entered parameters.

If the entry method is switched over, the disabled entry field is enabled and the next one disabled. The values are retained.

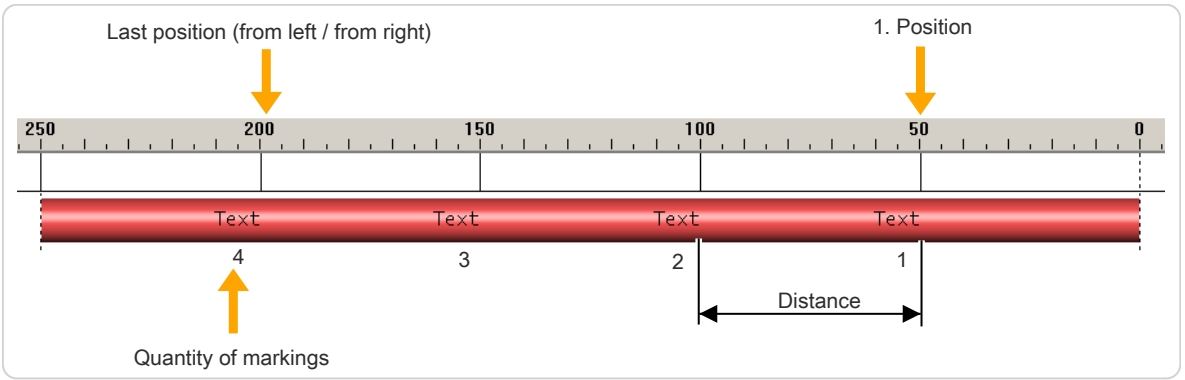


Fig. 14: Positioning of areas

1st position

Sets the position of the first repetition The position of the first marking is measured towards the end.

Reference

Toggle the referencing end (left or right). From left or from right can be selected here.

Distance

Sets the distance between two repetitions.

Calculation formula:

$$\text{Distance} = \frac{\text{(last position - first position)}}{\text{(Quantity - 1)}}$$

Last position

Sets the position of the last repetition.

Calculation formula:

Last position (from left / from right) = 1. position + (quantity - 1) × distance

Reference

Toggle the referencing end (left or right). From left or from right can be selected here.

Quantity

Sets the quantity of repetitions.

Calculation formula:

$$\text{Quantity} = 1 + \frac{\text{(last position - first position)}}{\text{Distance}}$$

With the entry method „Distance, last position" the last position is only printed if it meets exactly the position „first position + (quantity -1) x distance". E. g. this means the last position is the max. allowable position.

Text

Entry of the text to be printed on the article. The appearance of the text can be individually arranged with tags. Also variables like time and date can be defined.

The options to be used for the text entry are depending on the device type:

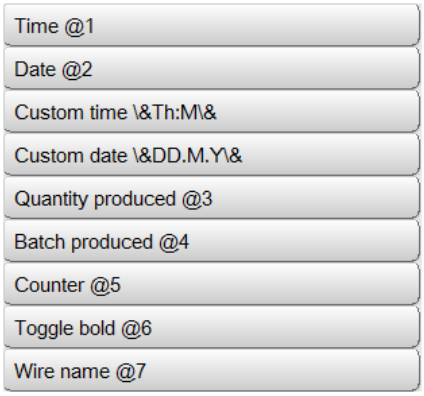
Device type	
None	The text field is grayed-out
HotStamp	With the HotStamp device, this input serves only for the representation on the screen and as a demand to set the correct text on the HotStamp, since with the HotStamp the text to be printed has to be set manually. To do so a stop condition can be selected.
Inkjet printer	The Inkjet printer receives this text directly from *S.ON* and marks the article with this. Following to text entry field additional fields for the font face are available.
Thermal transfer printer	With the thermal transfer printer device, this input serves only for the representation on the screen or for the transfer to the wire processing software *CAYMAN*, since with the Thermal transfer printer the text to be printed has to be set manually or via *CAYMAN*. Here no text properties (font type, font size) are shown.

Defined text

During the text entry additional predefined variable fields (tags) can be entered on different positions of the text. For this, the cursor must be positioned in the text entry field on the desired position.

To enter a standard Schleuniger tag, select the appropriate tag in the drop-down list. The tag then appears in the text field with a leading "@" symbol.

The following predefined fields are available:



Time @1: Prints the actual system time in the format pre-defined in the „Configuration".

Date @2: Prints the actual system date in the format pre-defined in the „Configuration".

Custom time \&TH:M\&: Prints the actual time in a format which can be defined by the user itself.

Custom date \&DD:M:Y\&: Prints the actual date in a format which can be defined by the user itself.

Quantity produced @3: Counts the number of already produced articles.

Batch produced @4: Counts the number of already produced batches.

Counter @5: Uses the entry field "Start Counter".

Toggle bold @6: All following letters are shown in bold/normal.

File name @7: Prints the actual article name defined in the library.

Tags can also be entered without the "@" key directly into the text field.

There are limitations in the use of the @3, @4 and @5 tags in connection with rejected pieces.

There are also additional "Simple tags" available, but they can only be used on specific printers:

Tag	Meaning	Printer model
\#A	Logo-Index A (one capital letter following to \#)	Wiedenbach
\#B to \#Z	Logo-index B (C,D,E etc.)	Wiedenbach
\#L	Align text left	Brady Wraptor TTP 4000
\#R	Align text right	Brady Wraptor TTP 4000
\#C	Align text centered	Brady Wraptor (not TTP 4000)

Additional tags are available for the bar code display and others. These also are only available on specific printers. A start tag must always be terminated with an end tag „\&". In between the appropriate information is entered.

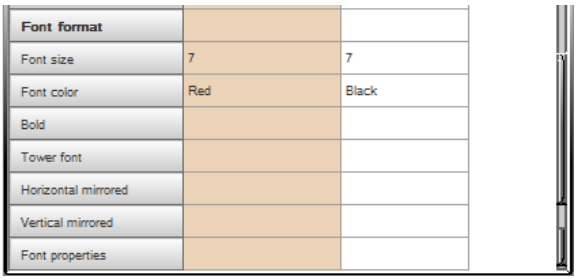
Tag	Meaning	On printer	Interpreted in Inkjet DLL	Interpreted In *CAYMAN* device connector	Not supported
\&1	Barcode 39	Wiedenbach	Metronic Alpha Jet C & Evo	Brady Wraptor TTP 4000	Imaje, Domino
\&2	Barcode 2/5 interleave	Wiedenbach	Metronic Alpha Jet C & Evo	Brady Wraptor TTP 4000	Imaje, Domino
\&3	Barcode EAN13	Wiedenbach	Metronic Alpha Jet C & Evo	Brady Wraptor TTP 4000	Imaje, Domino

Tag	Meaning	On printer	Interpreted in Inkjet DLL	Interpreted In *CAYMAN* device connector	Not supported
\&4	Barcode 128	Wiedenbach	Metronic Alpha Jet C & Evo	Brady Wraptor TTP 4000	Imaje, Domino, Metronic Alphajet Evo only capital letters allowed.
\&5	Barcode EAN128	Wiedenbach	Metronic Alpha Jet C & Evo	Brady Wraptor TTP 4000	Imaje, Domino, Metronic Alphajet Evo only capital letters allowed.
\&6	Barcode UPC-A (=UPC12)	Wiedenbach	Metronic Alpha Jet C & Evo	Brady Wraptor TTP 4000	Imaje, Domino
\&7	Barcode Pharma (=PZN)		Metronic Alpha Jet C	Brady Wraptor TTP 4000	Imaje, Domino, Wiedenbach, Metronic Alpha Jet Evo
\&8	Barcode EAN8		Metronic	Brady Wraptor TTP 4000	Imaje, Domino, Wiedenbach
\&9	Barcode UPC-E (=UPC8)		Metronic Alpha Jet C & Evo	Brady Wraptor TTP 4000	Imaje, Domino, Wiedenbach
\&a	Barcode EAN128C		Metronic Alpha Jet C & Evo		Imaje, Domino, Wiedenbach
\&b	Barcode EXT-2 (=EAN-2)		Metronic Alpha Jet C & Evo		Imaje, Domino, Wiedenbach
\&c	Barcode EXT-5 (=EAN-5)		Metronic Alpha Jet C & Evo		Imaje, Domino, Wiedenbach
\&d	Barcode Codabar		Metronic Alpha Jet C & Evo	Brady Wraptor TTP 4000	Imaje, Domino, Wiedenbach
\&D	User-defined date		Imaje, Metronic, Wiedenbach		
\&F	File name of a bitmap/logo	Coditherm	Metronic Alpha Jet C & Evo	Brady Wraptor TTP 4000	
\&T	User-defined time		Imaje, Metronic, Wiedenbach		
\&m	Data matrix (2D-code)			Brady Wraptor TTP 4000	
\&q	QR-code			Brady Wraptor TTP 4000	
\&z	Aztec (2D-Code)			Brady Wraptor TTP 4000	
\&L	Layout of label			Brady Wraptor TTP 4000	
\&S	Scaling of label element			Brady Wraptor TTP 4000	
\&n	New line			Brady Wraptor TTP 4000	
\&	End of printout (end tag)				

Counter start value

Defines the start value of the field "Counter start". As the name states, this counter is increased by 1 after each produced article.

Font format



Here the font type and size can be entered. These fields, with the exception of the font color, are only displayed for printer types “Inkjet, Laser, Thermal transfer".

Font size: The selected font size is submitted to the printer, where the printing can be executed in this size.

Only enter font sizes which are supported also by the printer! Common sizes are 5, 7, 11(12) and 15(16).

Font color: To let *S.ON* know in which color the printer shall be printing, this is defined here additionally (only serves for the display in *CAYMAN* „WYSIWYG“ -> What you see is what you get).

If more articles with different colors have to be marked with the HotStamp, the sealing sheet device must be changed there. A stop condition can be defined for this purpose.

With a text or color change, an appropriate message is shown if in the article list - Properties, „Adapt HotStamp” is set to „Message”.

Bold: The text will be highlighted.

Tower font: The individual letters of the text are rotated by 90°.

Horizontal/vertical mirrored: The text is displayed mirrored.

Font properties: In these fields the user can switch on or off additional font properties but they are only helpful if they are supported by the connected printer device.

To make a single word or a letter to be shown in bold, select „@6 Toggle bold“.

The font properties are always set for the complete font operation.

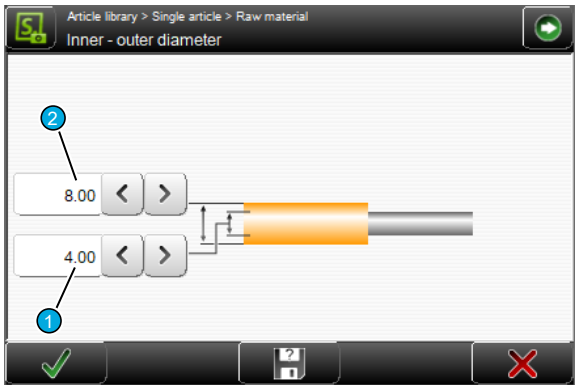
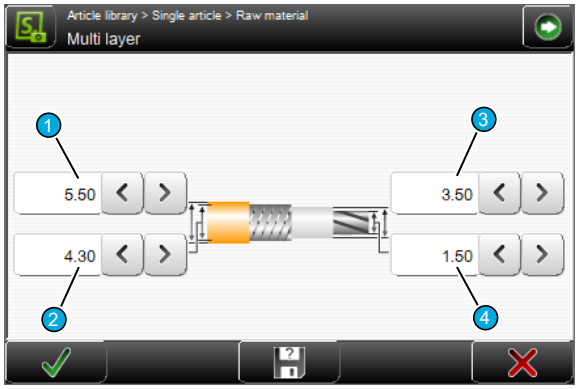
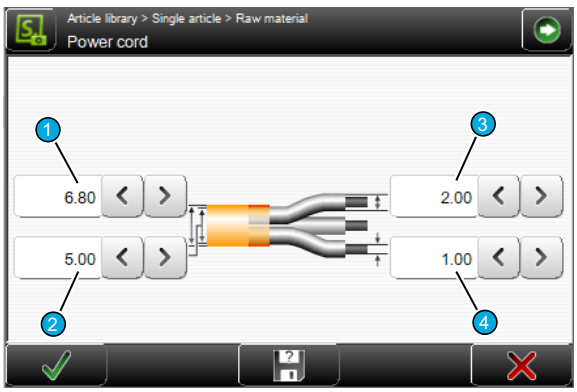
8.8 RAW MATERIAL EDITOR

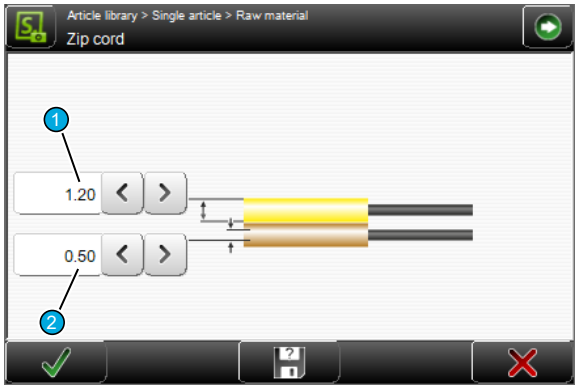
In *S.ON* a fixed selection of programmed Raw materials for selection is available for the standard process flow.

8.8.1 Overview of standard Raw Materials

The chart gives an overview of the Raw materials. The Raw material name in the left column is reserved.

Self defined Raw materials (defined in "Library mode") cannot be saved under this names.

Description	Definition	
Diameter	Here, the user determines the inner 1 - and outer diameter 2 itself. When invoking the direct measurement, the inner and outer diameter measure, is graphically shown.	
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.	
Multi layer	Here the user determines the diameters himself. When invoking the Raw material "Multi-layer", the measurements to be typed in are represented graphically. 1 Jacket-Ø 2 Outer Ø shield 3 Outer Ø insulation 4 Conductor Ø	
Multi conductor	Here the user determines the diameters himself. When invoking the Raw material "Multi-conductor", the measurements to be typed in are represented graphically. 1 Jacket-Ø 2 Inner-Ø 3 Outer Ø insulation 4 Conductor Ø	

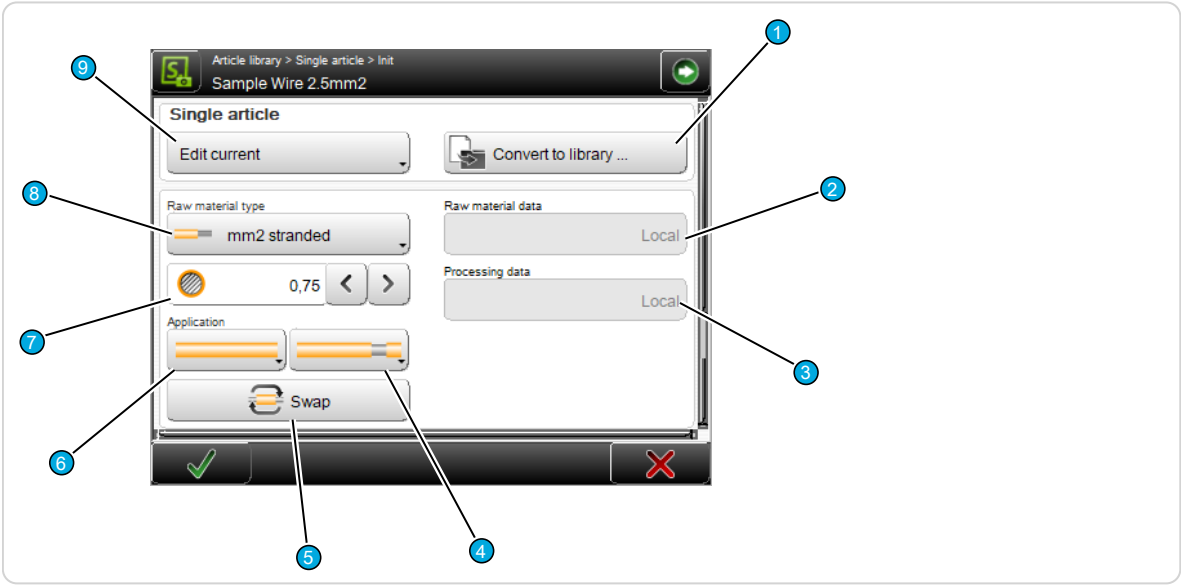
Description	Definition	
Flat ribbon	Here the user determines the diameters himself. When invoking the Raw material "Flat ribbon", the measurements to be typed in are represented graphically. 1 Outer Ø insulation 2 Conductor Ø	

Raw material selection

See Chapter raw material type *"8.9.6 Raw material type (Page 91)"*.

8.9 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 Convert to library
2 Raw material data
3 Processing data
4 Application right
5 Application swap
6 Application left
7 Wire dimension[1]
8 Raw material type
9 Single article creation type

[1]) - only Raw material types: mm2 or AWG

8.9.1 Convert to library

Saves the local Raw material and Process data in new libraries. After touching the button, the dialog is displayed where the library entries can be assigned a file name.

For further information on this type of processing type, "Library mode", see Chapter *"9 Library mode (Page 95)"*

8.9.2 Raw material- / Processing data

By default here for the "Standard process flow", "Local" is displayed. The Raw material and Processing data are stored locally in the article.

If "Create with links from library" is selected, the Raw material and Processing data can also be obtained from the libraries. From which library the data are obtained, is displayed here.

8.9.3 Application left / right

Defines the method, how the left and/or right end (application) shall be produced. The drop-down list only shows the ends depending on the type of certain Raw material and which production mode the user is working in (standard process flow, library-, article list mode). There are different applications, 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.

Not all application types can be used with all Raw materials. The following illustration gives an overview:

Raw material types	Possible applications
Diameter AWG solid AWG stranded mm2 solid mm2 stranded	Diameter, AWG solid, AWG stranded, mm2 solid, mm2 stranded
Multi layer	Multi layer
Multi conductor	Multi conductor
Flat ribbon	Flat ribbon

Tab. 3: Raw material types and applications

For further information to the applications, see Chapter *"8.3.4 End application left / right (Page 62)"*.

8.9.4 Swap application left/right

Exchanges the left end with all its end application settings with the right one and vice versa.

8.9.5 Wire dimension

This setting is only available for the raw material types "mm2" and AWG. Here the dimension of the used Raw material is defined. This is a measure which informs the *PowerStrip 9580* how far the feeding belts shall close after loading the raw material. This measure also helps in the calculation of default values for the Processing.

The field will be shown differently depending on the measuring type:

Raw material type	Description	Illustration
mm^2	The data are entered directly via the numeric touch-keyboard or via the arrow keys of the spin box.	
AWG	The value is selected directly from the drop-down list.	

For the other raw materials the wire dimensions are set in the Raw material editor.

For this proceed as follows:

1. In the “Init” screen touch **[OK]**.
   ➥ The “Single article” editor is shown.
2. Select **[ROHMATERIAL EDITOR]**.
3. Set the values accordingly.
4. **[OK]**

See also Chapter *"8.8 Raw material editor (Page 87)"*.

8.9.6 Raw material type

Defines the Raw material types available in the *PowerStrip 9580* which can be processed.

In the "Init" screen, on "Standard process flow", the following Raw materials are available:

- Diameter
- AWG solid
- AWG stranded
- mm2, solid
- mm2 stranded
- Multi layer
- Multi conductor
- Flat ribbon

For further information, see Chapters *"8.9.3 Application left / right (Page 90)"* and *"8.8 Raw material editor (Page 87)"*.

8.9.7 Single article - creation type

Here the initial situation is selected, with what the user begins, in order to create a single article.

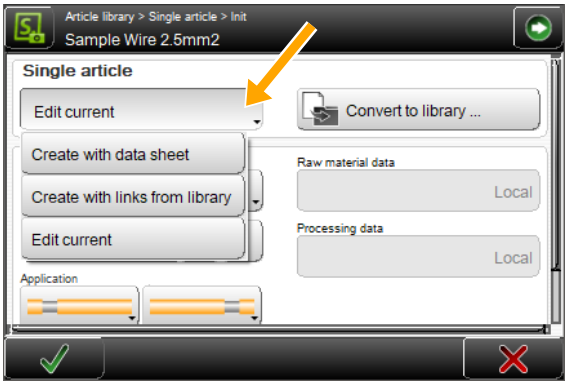


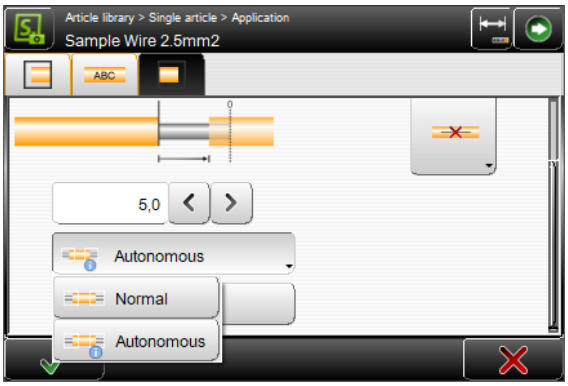
Fig. 15: Single article - creation type

- **Create with data sheet:** Dimensions are taken from the wire data sheet. If settings are already present, the values will be reset to default by this command.
- **Create with links from library:** An existing Raw material and Processing is selected from the library and is used as a template.
- **Edit current:** The article is edited with existing settings.

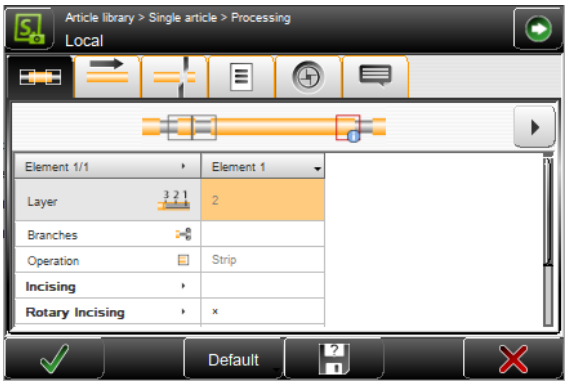
8.10 AUTONOMOUS PROCESSING ELEMENT

A Processing element can be normal or autonomous. An autonomous element is independent of the standard Processing element in 1 operation, thus autonomous.

1. Choose the option [AUTONOMOUS] in the application editor.



2. In the Processing editor, the autonomous element is marked with a white "i" on a blue background.



- When adaptively recalculating the default values, all autonomous elements are recalculated adaptively.

- When completely recalculating the default values from the settings or from the raw material editor, the autonomous elements are deleted. The corresponding warning message indicates that the elements will be deleted, if any are present.
- On the other hand, the autonomous elements are not deleted from the Processing editor during the calculation.

See also chapter *"8.11 Recalculation default values (Page 93)"*.

8.11 RECALCULATION DEFAULT VALUES

Processing values are based on raw material, machine type and configuration.

New local Processings are automatically created with the default values of the associated raw material. The processing can be opened and adapted in the single article editor or via the editor application. If the raw material is subsequently changed in the default settings, the processing is recalculated completely, adaptively (i.e. taking into account the previous adjustments in the process) or not at all, if desired.

See also chapter *"8.5.2 Default (Page 66)"*.

The following warning appears:
When changing raw material, it is recommended to calculate the default values.

- **[OK]**: Really calculate processing default values adaptively (recalculates raw material diameter depending values only and takes previous changes to those values into account)?
- **[ALL]**: Calculate processing default values for entire processing (existing autonomous processing elements are deleted), *"Page 92"*.
- **[NONE]**: Do not change any processing value.

LIBRARY MODE

To be able to use this mode the correct way it is essential to study the Chapter *"8 Standard process flow (Page 59)"* first. Here only the functions which differ from the “Standard process flow” or added new functions are described.

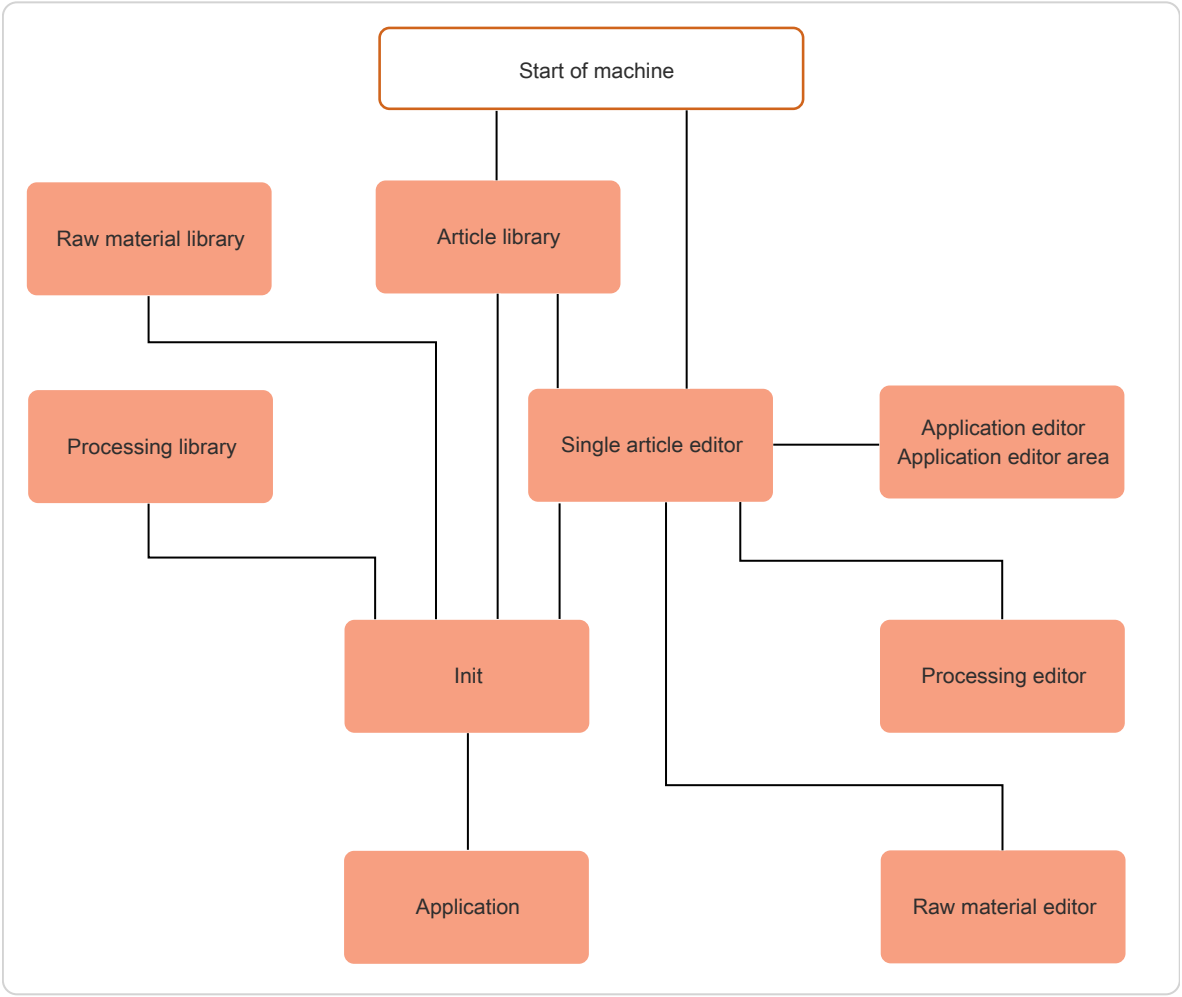
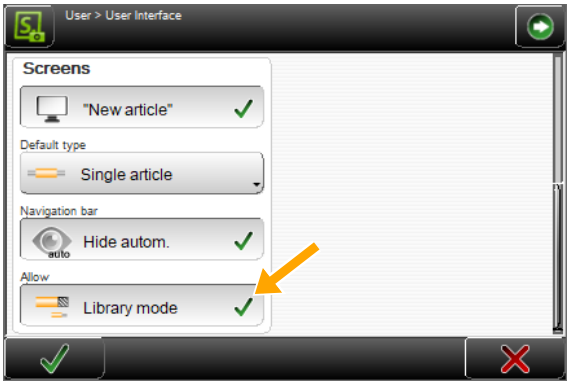


Fig. 16: Principle, "Library mode"

9.1 ACTIVATING LIBRARY MODE

In order to use the library mode, it must first be enabled under “User”.

1. ▹ **NAVIGATION**
2. ▹ **[USER]**
3. ▹ **[USER INTERFACE]**
4. ▹ Under "Screens - Allow", activate **[LIBRARY MODE]**.



The "Library mode" provides additionally the application type called “User defined". This way also multi-step stripping can be performed.

What ends are displayed, depends on the used raw material.

The command “Default” to calculate the Processing values based on the Raw material is not available in this form in the “Library” mode.

During changing from "Standard process flow" to "Library mode" a library Raw material can be saved from the standard Raw material. The values are taken over from the simple Raw material. The following message is shown: “Save current raw material data in a new library file?". The same applies to the Processing data.

9.2 CREATE NEW ARTICLE

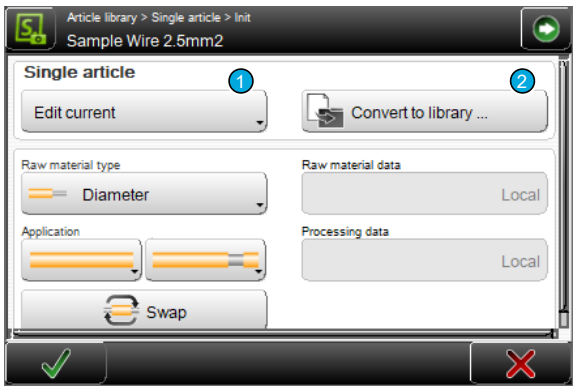
A new article in the ”Library mode” can be created in two different ways.

- 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.

9.2.1 Convert an existing article

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

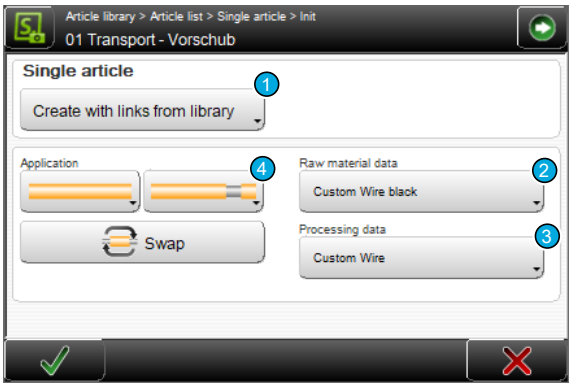
1. Call existing article, programmed in standard process flow, in the single article editor.
2. Go to the “Init” screen.
3. On „Single article“ 1, set „Edit current article“.
4. Set „Convert to library“ 2.
   - ➥ The Raw material library is opened, where a new name can be entered. Then the Raw material 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 is programmed to the end.



9.2.2 Link new / existing article with library data sets

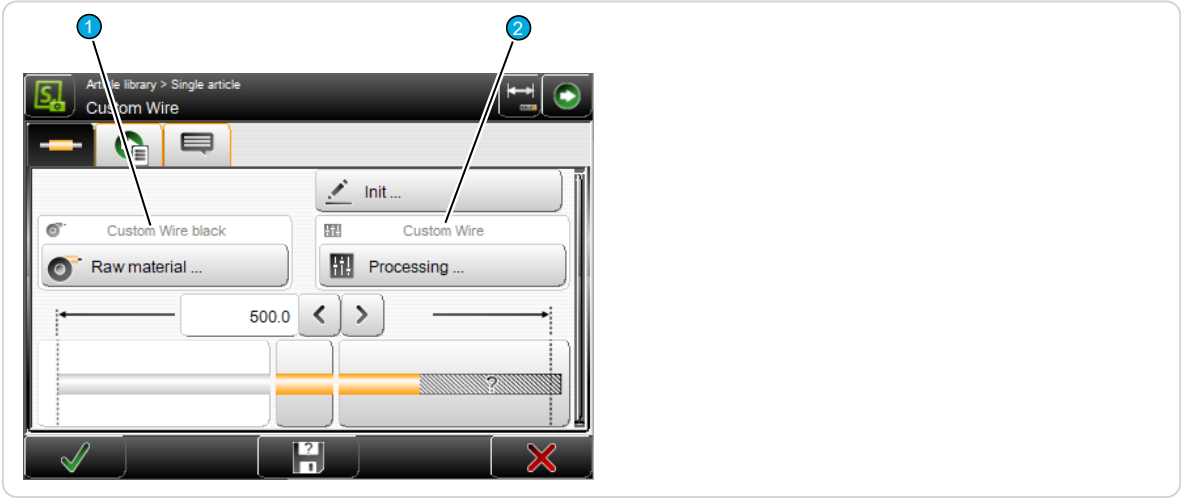
In order for this approach to work, already records should be stored in the Raw material and Processing library.

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 possibly left end 4.
6. [OK]
   ➥ The single article editor is displayed and the further stripping parameters can be programmed.



9.3 SINGLE ARTICLE EDITOR IN THE LIBRARY MODE

The following screen shows the single article editor in “Library mode”. In the content area, the Raw material and the Processing associated from the corresponding libraries are displayed. Raw material and Processing values can be changed directly in the corresponding editors.

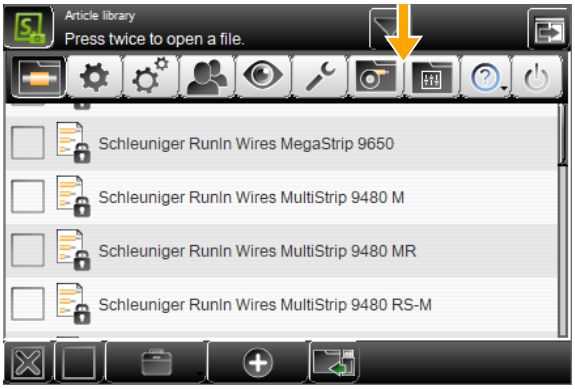


1 Raw material library

2 Processing library

In the navigation bar there are two new entries which direct to the Raw material and Processing libraries.

The files can also be edited there:



9.4 RAW MATERIAL LIBRARY

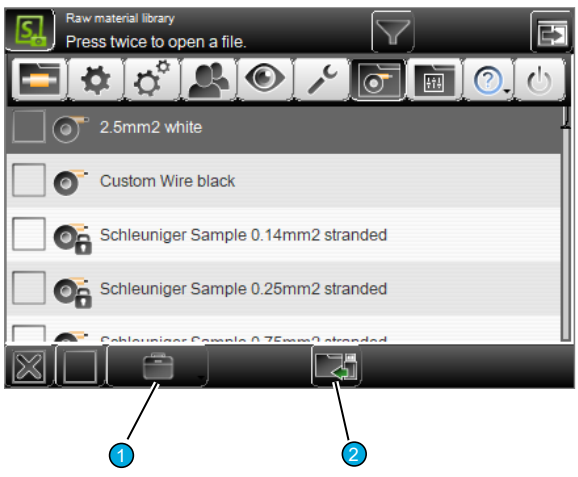
The initial products - that is to say raw materials, introduced to the *PowerStrip 9580* - are saved in the Raw material library as records. These records describe how an article is made up (e.g. a Power cord or a flat cable). This includes the type (e.g. Ribbon cable or twisted pair cable).

This describes the Raw material composition divided in layers. This gives an understanding to the *PowerStrip 9580* 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-conductor cable, where the layers 2 or 3 can be stripped).

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

In the Raw material library, alternatively to the file management, there is also the ability to manage Raw material files independently from articles and article lists.

9.4.1 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 43)"*.

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. However, before the user is asked: “Really delete selected files?”
- **Loch/unlock selected files:** The write protection can be activated for each file individually. Inadvertently deleting or changing file entries 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).

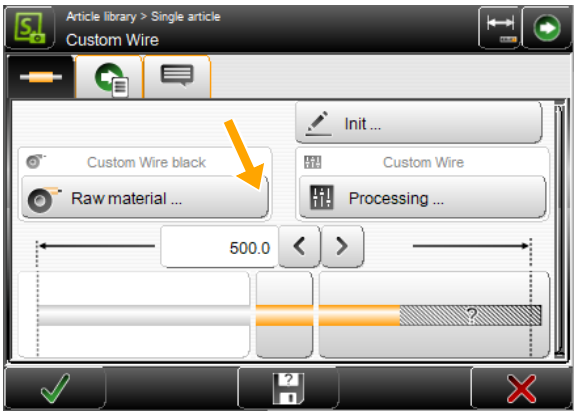
Import file

See Chapter *"7.7 Data management (Page 43)"*.

9.4.2 Raw material editor

An existing Raw material can be edited. The Raw material editor is opened.

The user can access the "Raw material" screen via the [RAW MATERIAL EDITOR] key. Here the Raw material type, the corresponding Processing and other settings can be defined.

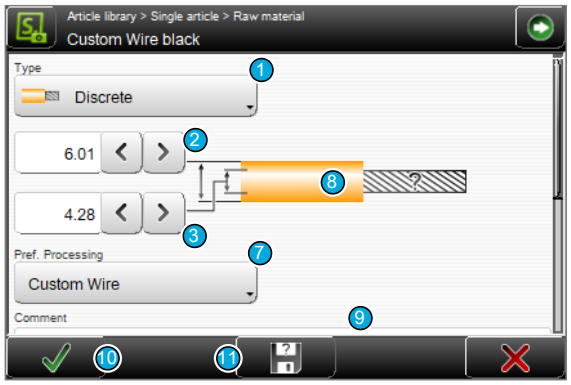


All for the user available Raw materials can be saved in the Raw material library. This only is necessary once for each Raw material. The entered file then can be used in different articles and different article lists as often as necessary.

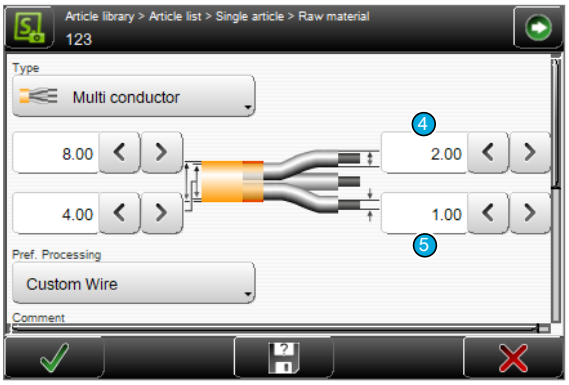
The Raw material type can be selected from a drop-down list.

Depending on the Raw material type, more or less selections are shown:

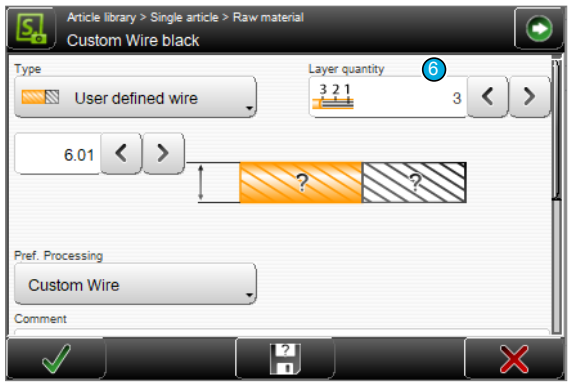
Single conductor:



Multi conductor:



User defined wire:

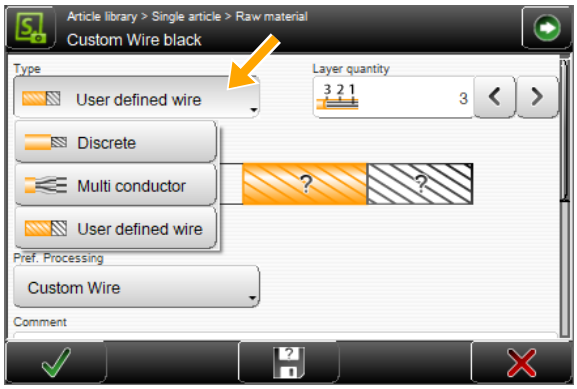


1 Type
2 Outer diameter jacket
3 Inner diameter
4 Outer diameter insulation
5 Outer diameter conductor
6 Layer quantity
7 Prefered processing
8 Pictogram of Raw material
9 Raw material comment
10 Saving Raw material
11 Saving Raw material under

Settings

Type

Defines the Raw material type to be produced.



Discrete: The outer- and inner diameter of a single wire can be entered separately.

Multi conductor: As discrete but separate entry of the insulation diameter of a single wire and the wire diameter itself.

User defined wire: Suitable for multi-layer coaxial cables and the slitting of wires. Here the outer diameter and the amount of layers can be entered. The further diameters within the steps are defined in the "Application editor".

Outer diameter jacket

Diameter of the outer insulation.

Inner diameter

Inner diameter of the jacket.

Outer diameter insulation

Diameter of the insulation of a single wire for multi conductor cables (e. g. Power cord).

Outer diameter conductor

Diameter of the inner wires of a single conductor on multi conductor cables.

Layer quantity

Defines the quantity of layers correlating with this Raw material. The entry field is only visible if the type "User defined wire" is selected.

Preferred Processing

Selection of the Processing from the Processing library which is linked to this Raw material. The selected Processing of the article can be overridden at any time under "Init".

Raw material comment

Here a comment, e. g. to confirm to change the Raw material, can be entered.

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].

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.

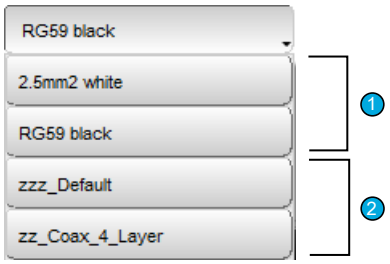
The factory default Raw materials (templates) are write protected. Self -defined Raw materials can therefore not be saved under these names.

For further information on the Raw material editor, also includes multi layers, see under „Standard process flow“ *"8.8 Raw material editor (Page 87)"*.

9.4.3 Raw material selection in the "Init" screen

In contrast to the standard process flow, Raw materials can be selected for the “Library mode” 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.

There are the following predefined factory default Raw materials available.

zzz_Custom	zzz_Default	zz_Coax_4_Layers
zzz_PowerCord	zz_Calibration	

The factory default Raw materials are write protected. Self -defined Raw materials can therefore not be saved under these names. But it is possible, to alter the pre-defined Raw material and then to save it under a new name.

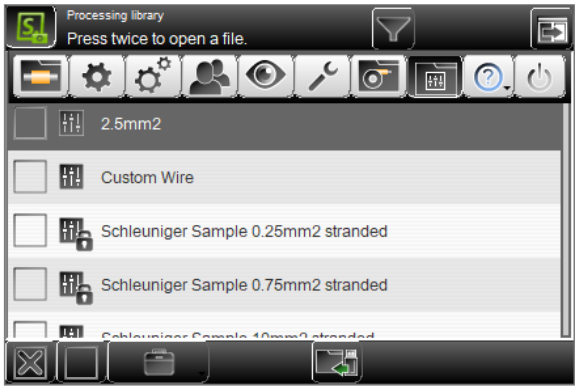
9.5 PROCESSING LIBRARY

The way in which the *PowerStrip 9580* processes a certain article is saved in the Processing library as file. This records describe how the *PowerStrip 9580* processes a wire type (e.g. a Power cord or a Flat ribbon). This is determined by data such as speed, incision depth, way back, air jet time, utilized blades etc.

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 change Processing settings but independently from articles and article lists.

9.5.1 Processing library list view

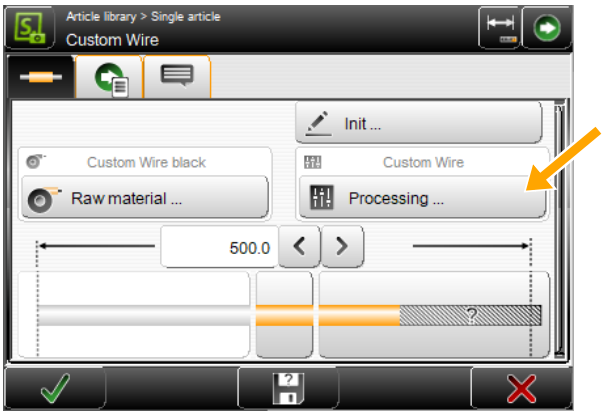


For the description of the elements in the Processing list see *"9.4.1 Raw material library, list view (Page 98)"*.

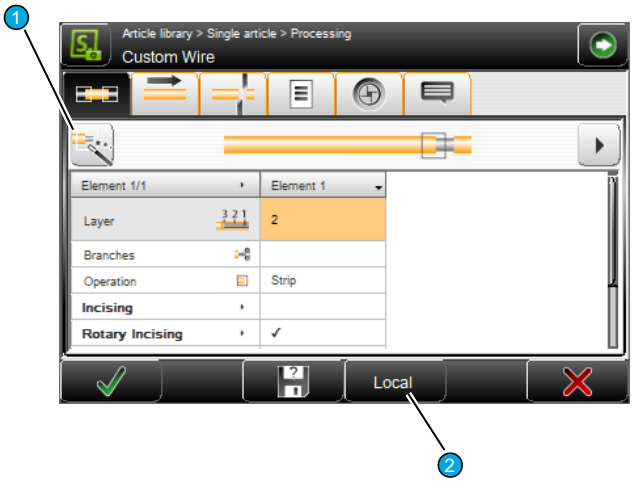
9.5.2 Processing editor

An existing Processing can be edited. The Processing editor is opened.

The user can access the "Processing" screen via the **[PROCESSING]** key. Here the Processing settings are defined.



All for the user available Processings can be saved in the Processing library. This only is necessary once for each Processing. The entered file then can be used in different articles and different article lists as often as necessary.



1 Complete

2 Local

In the Processing editor, the settings can be changed in the different tabs.

In contrast to the "Standard process flow", there is in the "Library mode" in the "Elements" tab the key [COMPLETE ELEMENTS]. Via this key, additionally required elements for the application of the current article are automatically added.

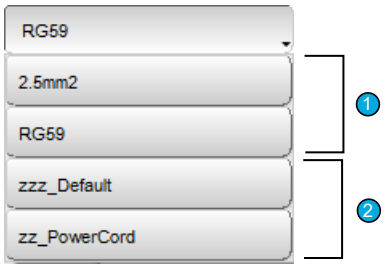
If a library Processing is selected, the additional key [LOCAL] is displayed in the Processing editor. Here in an easy way a local Processing can be produced from the write protected Processing library, which can temporarily be used for the production. Then it can also be saved again under a new name in the Processing library.

For the additional settings to the Processing editor, see "Standard process flow" *"8.5 Processing editor (Page 65)"*.

9.5.3 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.



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

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.

There are the following predefined factory default Processing's available.

zz_Coax_3_Layer_Succoform	zz_Coax_4_Layer	zz_PowerCord
zz_Zip_Cord	zzz_Default	
Plus additional product-specific default wire types often used.		

The factory default Processing's are write protected. Self-defined Processing's can therefore not be saved under these names. But it is possible, to alter the pre-defined Processing and then to save it under a new name.

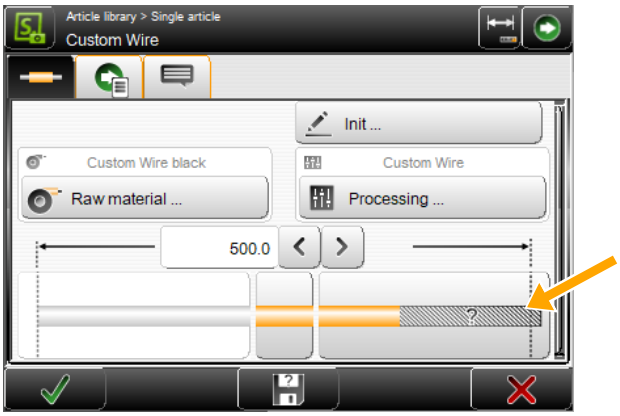
9.6 APPLICATIONS

9.6.1 Predefined

See "Standard process flow", chapter *"8.6 Application editor (Page 79)"*.

9.6.2 User defined

If the predefined applications are not sufficient "User defined application" can be used. With this programming concept, all the options of the end Processing can be utilized.



The article can be programmed directly as "User defined application". However, switching to "User-defined application" after a predefined application has been previously programmed, all settings of the predefined application are adopted.

The opposite direction from "User defined application" to the predefined applications will not work. Likewise, switching from predefined applications to other predefined applications deletes the previously entered data.

The preset steps and settings calculated by *S.ON* can be viewed and edited in the article editor - application screen. This is an additional programming aid for beginners, to gain a better understanding of the step by step programming.

As soon as a “User defined application” is programmed, no schematically representation is shown anymore in the editor “Processing Elements”.

Example of a multi-step stripping (the Raw material is produced here in multiple steps):

Fig. 17: For example, pull-off in several steps

9.6.3 Layer sectioning on complex wires

Layer 1 in a complex cable such as multi-conductor, stands for the innermost layer, usually the conductor of a cable. If no branches have been defined, the element applies for the whole layer. The type of the operation mode for the layer is based on the nature of the raw material.

With the *Schleuniger* wire processing concept, layer sectioning always is defined from inside to outside.

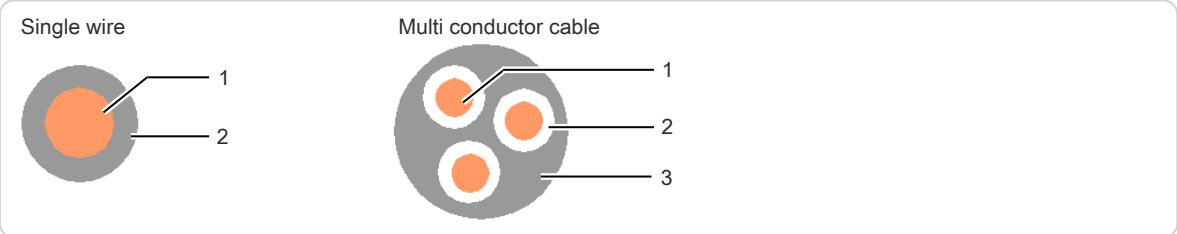


Fig. 18: Layer sectioning

See also under *"9.6.4.2 Branches (Page 107)"*.

9.6.4 Application editor

In the editor application, when "User defined application" is selected, so called operations, split in columns, can be added or removed individually.

By touching the pictogram in the article editor (left or right end), the editor application is shown where the operations can be programmed. First an overview of the operations is shown.

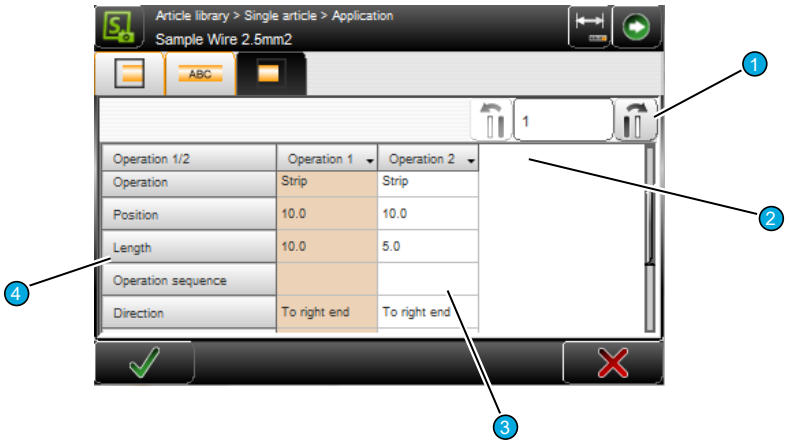


Fig. 19: Application operations

1	Show next/previous column	3	Operation settings
2	Header line operation column	4	Operation-description

Show next / previous column

If there are several operation columns for a complex wire type, the user can jump to the next column.

Header line operation column

By touching the header line, the following drop-down list is displayed.

Duplicate highlighted column	An additional operation column with all previous values is created. It can then be edited.
Delete highlighted column	The selected operation column is deleted.

Operation settings

The set value can be changed directly by pressing a value field. Here the behavior of the *PowerStrip 9580* during the processing of the applications is defined.

Operation-description

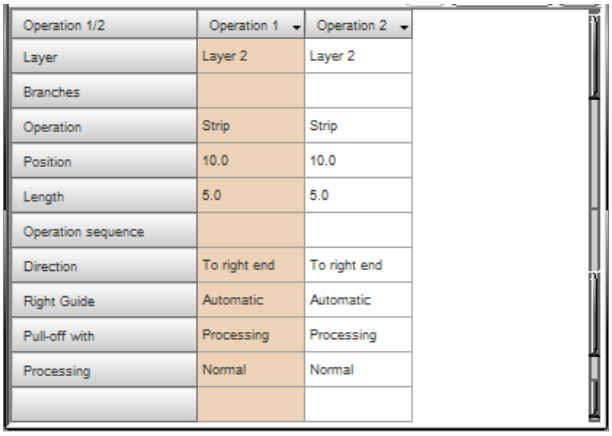
Display of the operation description to the content.

Layer

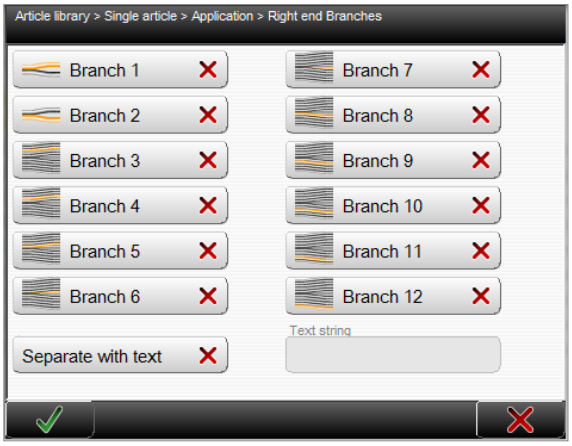
The layer where the operation is to be performed. Statement of the layer, 1 stands for the innermost layer, usually the conductor of a wire. If no branches have been defined, the operation applies to the whole layer. The type of the operation mode for the layer is based on the nature of the raw material.

Layer 1 cannot be selected in stripping mode, all existing layers would be stripped this way, thus it would be a cut not a strip. Only a valid layer according to the Raw material setting can be selected here.

See also Chapter *"9.6.3 Layer sectioning on complex wires (Page 105)"*.



Branches



In the editor Branch, the entered branches are shown or changed. A block of several branch ranges can be entered. This either is done by touching directly the appropriate branch in a selection of 12 branches, or in the lower area of the screen as a text string. In the text string, the sets are separated by a semi colon (e.g. 5;6;7) One set can either be built from one branch or a continuous range of branches (e.g. beginning branch connected through a hyphen with an end branch (e.g. 5-10). The text string also allows definitions of branches exceeding a range of 12.

The selection in the 12 branch keys is represented in the field “Text string”.

Example 1: "5" is entered to separate a 10-core flat cable between the fifth and sixth branch.

Example 2: To shorten the branches 1 - 5 of the same flat cable, the branches 1 to 5 are activated or entered as text string "1-5".

If no branches are entered in the cell Branch, all branches are automatically selected in the modes Strip, Comb, Separate and Shorten. In the mode "Slit", the central branch is selected in each case (in the case of an even quantity of branches, the branch directly over the center).

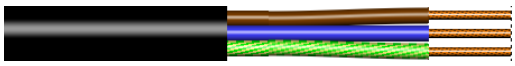
Operation

Operation modes refer to different types of wire treatment that can be done by the *PowerStrip 9580*.

Stripping

Cutting the insulation over the whole circumference, and then pulling-off the separated part from the rest of the wire.

Comb

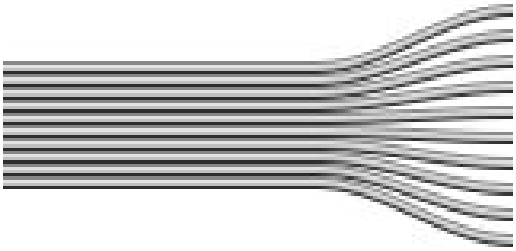


Combing several twisted conductors with the optional combing device.

Slit

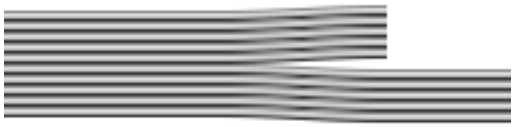
Cutting the insulation lengthwise to the wire axis. Requires a special slitting blade.

Separate



Separating the insulation lengthwise to the wire axis on flat cables, between the individual conductors. As opposed to slitting, here the cut is not made on the insulation of a conductor, but is centered exactly between two adjacent conductors.

Shorten



This mode is used to shorten particular wires.

Position

Defines the position for the operation element. It is defined within zero and the wire length.

Length

Defines the length of the treatment for this operation element.

Operation sequence

If "Operation sequence" is set to “Continuous”, the total treatment length of the linked operation is determined by the length of the rearmost of this linked operation. The entry field "Length" is disabled, except with the last operation concerned.

Deactivated: With a full strip the article is produced as follows:

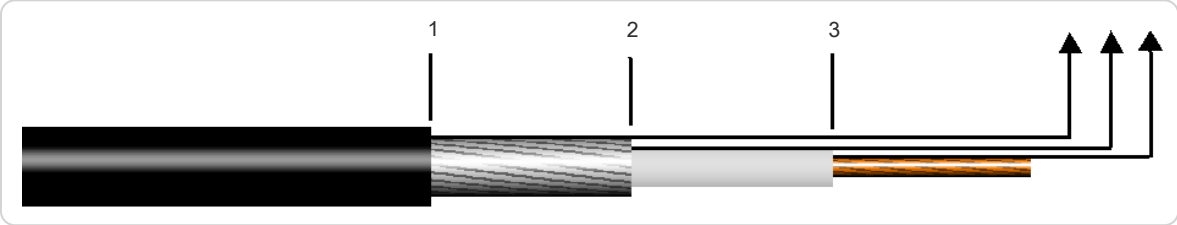


Fig. 20: Operation sequence = not continuous

Activated: Several operations are combined to one. All incisions and stripping are performed with the same pair of blades, without opening the blades between the processing steps.

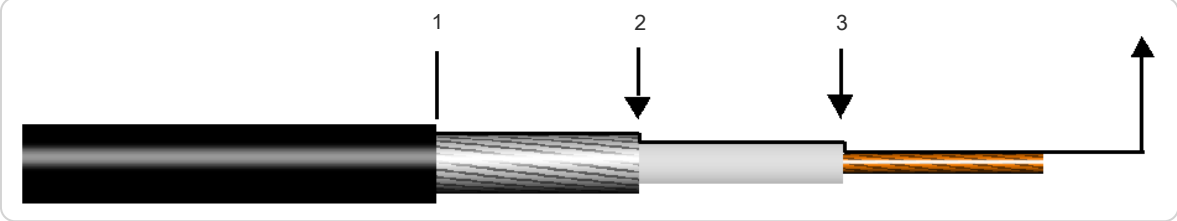


Fig. 21: Operation sequence = continuous

Direction

This defines the direction in which the e. g. slitting shall be performed.

The selections "To right end" or "To left end" are available.

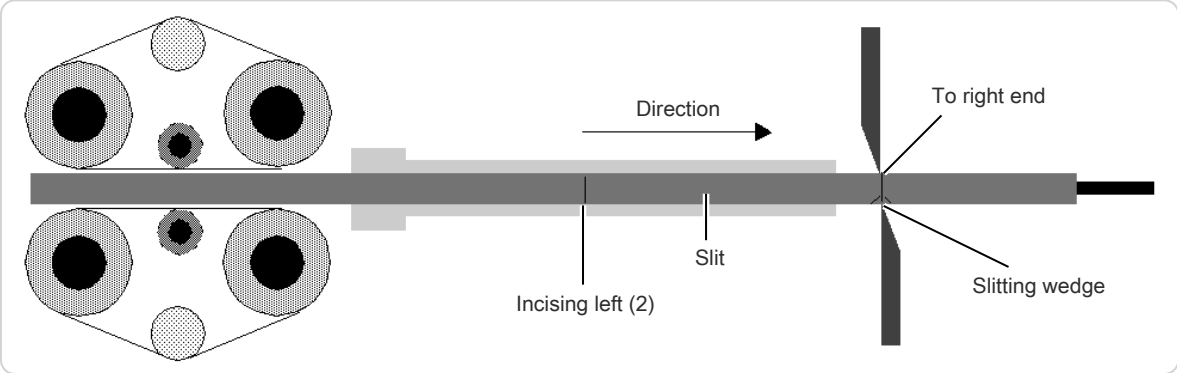


Fig. 22: Direction

Pull-off with

Defines the method for the full strip on the right side, if it is different from the method in the Processing. The standard behavior "Processing" can be prioritized here.

Available selections are:

- Processing
- Blade
- Blades + feeding unit

Processing

Shows the Processing element of this operation. In the editor “Processing element”, additional elements can be added, deleted and settings within an element can be changed.

Additional settings for processing a layer are made here. This can be values like incising diameter, possible operating modes etc. The individual definitions per layer and branch, also per operating mode are represented in detail in an element screen.

For additional information to the Processing element see Chapter *"9.5.2 Processing editor (Page 102)"*.

Normal / autonomous

Defines how this operation shall be saved:

- **Normal:** 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.
- **Autonomous:** A copy of the Processing element is stored in the operation.

ARTICLE LIST MODE

In the main screen of the article list, single articles are added and settings necessary for the production can be made. This screen is the central operating platform, where the user gains access in its user level to all settings in the article list mode.

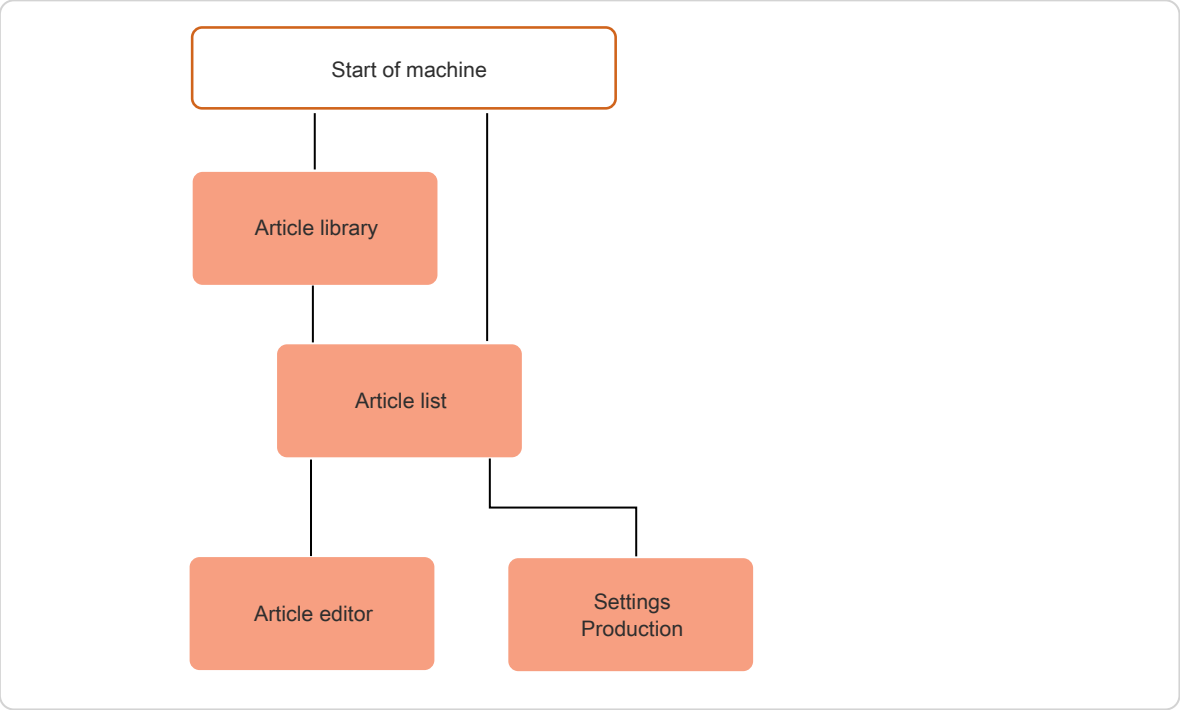
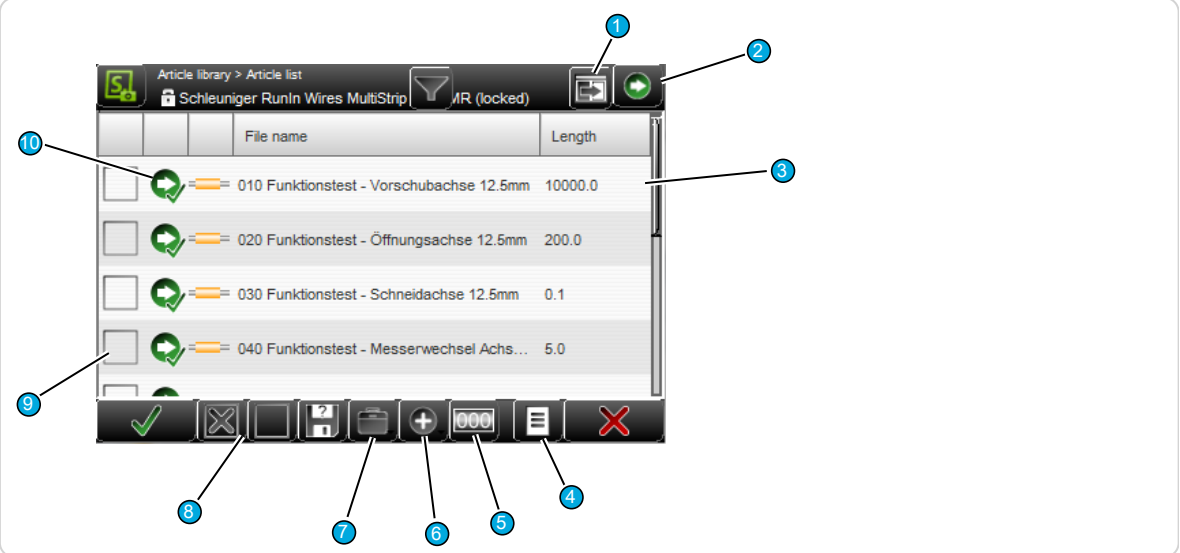


Fig. 23: Principle, "Article list mode"

In the "Article list mode" there is in comparison to the article library additional control elements.



1 List view
2 Produce article list
3 Article programming
4 Production settings
5 Production counter reset
6 Create new file
7 Options selected files
8 Select/deselect all files
9 Select actual file
10 Production release

10.1 LIST VIEW

The article list can be shown in different ways. This gives the ability to process the list sorted according to different criteria. For a better overview, a simple view is shown by default.

The view can be changed by touching **[LIST VIEW]**.

There are three different views:

Article list view 1:

Wire name	TPro	Lists	Quar	Prod.	Batcl
Sample 0.75…	0	0	5	0	-
Sample 10m…	0	0	5	0	-
Sample 70m…	0	0	5	0	-
Sample 70m…	0	0	5	0	-
Sample 4 x 2.…	0	0	5	0	-
Sample RG2…	0	0	3	0	-

Article list view 2:

Wire name	Length
Sample 0.75mm² stranded	150.0
Sample 10mm² stranded	150.0
Sample 70mm² stranded (M, MR)	250.0
Sample 70mm² stranded (S, SR)	250.0
Sample 4 x 2.5mm² Multiconductor	200.0
Sample RG214 coaxial	350.0

Article list view 3:

Wire name		
Sample 0.7…	Schleuniger Sa…	Schleuniger Sa…
Sample 10…	Schleuniger Sa…	Schleuniger Sa…
Sample 70…	Schleuniger Sa…	Schleuniger Sa…
Sample 70…	Schleuniger Sa…	Schleuniger Sa…
Sample 4 x …	Schleuniger Sa…	Schleuniger Sa…
Sample RG…	Schleuniger Sa…	Schleuniger Sa…

View 1: In this list, the article name and the most important production settings from the article editor are shown.

- TProd: Total articles produced in one list cycle
- Cycle: Total processed list cycles
- Quantity: Total quantity of articles to be produced
- Prod: Total articles produced
- Batch: Total batches to be produced

View 2: Here only the article name and the length are shown.

View 3: Here the article, -Raw Material-, and Processing names are shown.

10.2 ARTICLE LIST PRODUCTION

With **[LOAD]** or **[CLOSE]** and then **[RUN]**, the articles can be produced directly from this list, in the sequence from top to bottom. The production order can be changed by rearranging the article list with **[MOVE HIGHLIGHTED FILE UP/DOWN]**.

Production release: Only those article are produced for which the check box "Production release" is activated and for which the production state is not yet at the end state.

With **[SINGLE]** or **[CUT]** only the actual selected article is produced.

If an article is opened in the editor, only this article is produced. But the list passes are added to the counter.

10.3 ARTICLE PROGRAMMING

By touching the appropriate list row twice, the user is guided directly to the article editor, where as usual all the settings of the selected raw material can be performed as in "Standard process flow" or "Library mode".

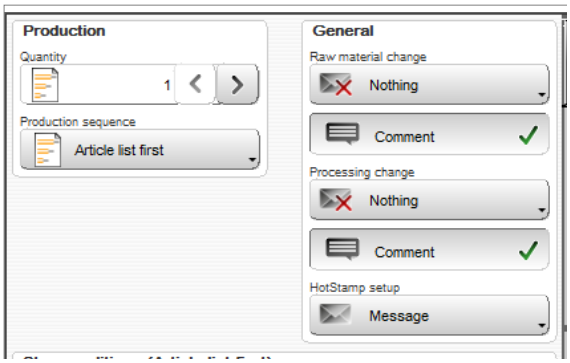
10.4 PRODUCTION SETTINGS

Additional settings concerning the production process in "Wire list mode". In this screen the behavior during the production e.g. quantity of passes, the order and the shown message before changing a Raw material can be defined.

10.4.1 Production

Quantity

This value defines, how often the article list is to be produced. We recommend e.g., to program an article list which contains all the wires required for a harness. The “List passes” field is then set according to the number of complete harnesses to be produced.



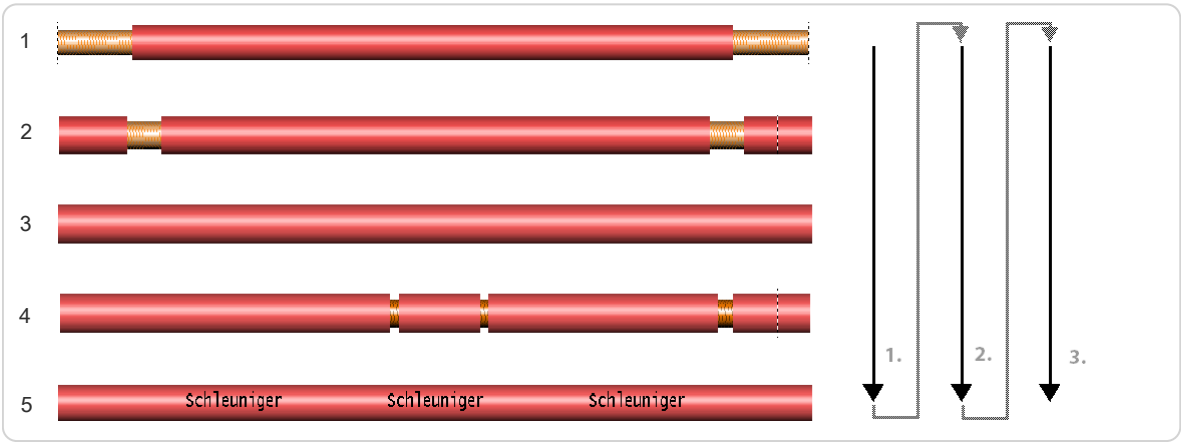
Production sequence

Article lists can be produced in two different ways.

"Article list first" and "Single article first" determine the way in which the article list is to be produced. This difference is only of significance when the value for “List passes” is greater than 1.

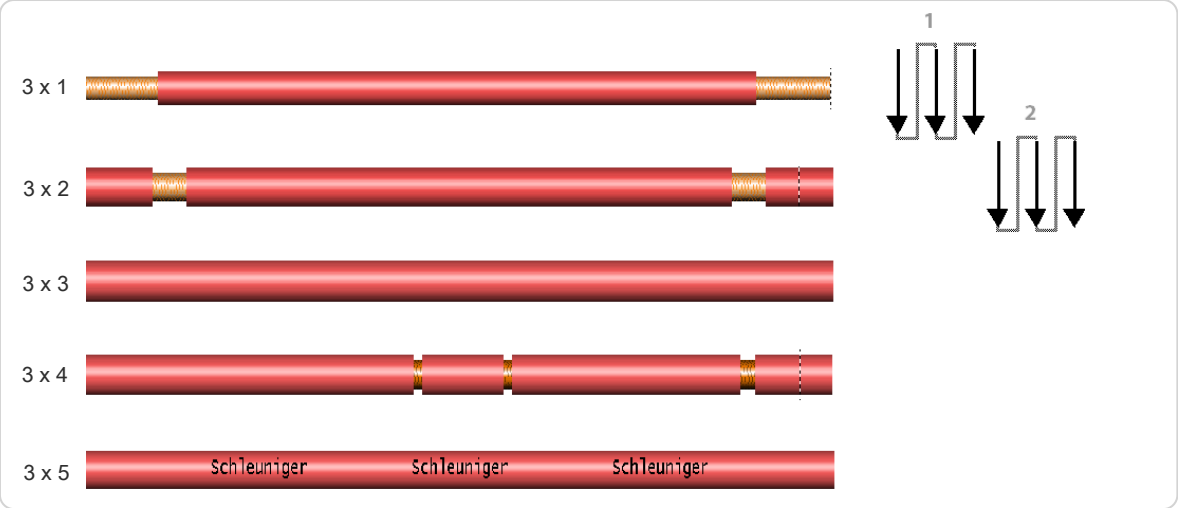
Article list first: The entire list is produced once, then this procedure is repeated by the quantity of list passes. This way a list can be produced which corresponds e.g. to a set of wires for one harness.

An article list e.g with 5 different single articles was programmed and we wish to process this list 3 times. This means we have to switch to "Article list first".



Single article first: The *PowerStrip 9580* produces the “Total” of each article fully (Quantity of “List passes” x “Article quantity”), before proceeding to the next article. This mode is especially recommended when different Raw materials are used. Less waste is produced.

If the “Production sequence” is changed to "Single article first", the list is produced as follows:



10.4.2 General

Raw Material change

Displays a message when the next article in the list needs a different Raw Material.

Comment

Displays a comment to it (instruction).

Processing change

Displays a message when the next article in the list needs a different Processing.

Comment

Displays a comment to it (instruction).

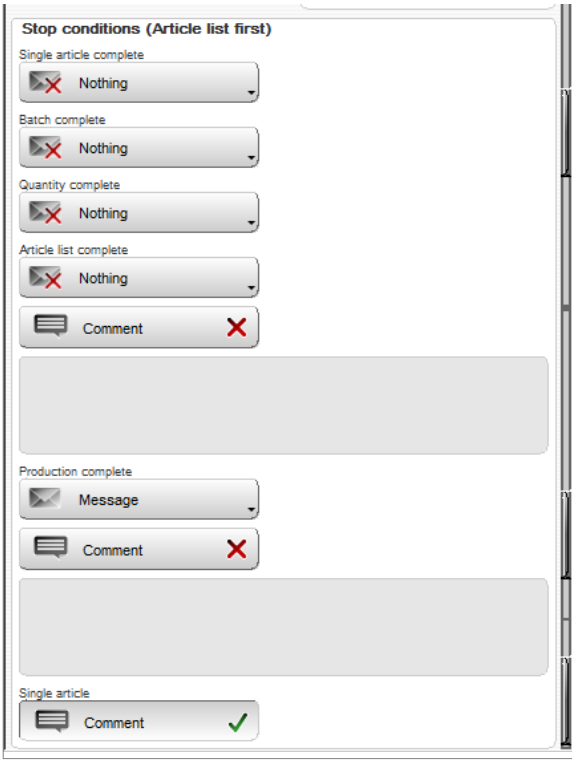
HotStamp setup

Displays a message when the next marking of the article needs a different text or an other text color.

10.4.3 Stop conditions

A "Stop condition" describes an event during the article list production, which stops the production along with a subsequent action. The kind of action is defined in the Wire list properties screen. There are several possibilities:

- Do nothing, do not interrupt the production at all.
- Interrupt the production, display a message.
- Controlling a user defined device
- Both (output a message and controlling a user defined device)



The actions can be assigned to the corresponding production step.

On a HotStamp setup, the last two options are not available.

We must differentiate between "Message" and "User-defined device"

- Message: Only the one with highest level is output.
- User defined device: Always trigger (even if several are present at the same time).

Single article complete

Defines a stop condition after the wire has been produced. The event occurs after each produced wire. Since it is normally not recommended to interrupt the production after each wire, the default setting is "Nothing".

Batch completed

Defines a stop condition after a batch has been produced. The event "Batch" occurs after each completed batch. This event is often used to control a device like a *WireStacker3150* and to collect a batch of articles. The default setting here is "Message".

Quantity complete

Defines a stop condition after the total quantity has been reached. This event occurs when all pieces of a wire are produced. The default setting here is "Message".

Total quantity complete / Message (single article first only)

Defines a stop condition after the total quantity has been reached. Occurs when an article has been produced with all list passes. The default setting is "Message".

Article list complete / message (article list first only)

Set a stop condition after the list has been produced. If the complete list is produced, this event occurs. The default setting is "Message".

Total quantity complete / comment

If this setting is activated, the message entered in the text edit field appears according to the behavior defined under the production step.

Production complete / comment

Set a stop condition after the whole production has been accomplished. If the article list is produced in the quantity of "List passes", the event "Production" occurs. The default setting is "Message".

Single article / comment

If this setting is activated, the message entered in the text edit field appears according to the behavior defined under the production step.

List / article comment

If this setting is activated, the message in the text edit field appears as it was entered in the article editor as "Single article" or "List comment", according to the behavior defined under the production step.

10.5 RESET PRODUCTION COUNTER

Resets the production counter for the list passes back to zero.

10.6 ADD NEW FILE / FILE FROM LIBRARY

Adds an article to the actual article list. Articles in "Standard process flow" or in "Library mode" can be added. This way a whole daily production can be programmed and automatized. Independent copies are produced this way. The production state in the original list persists. In the new list it can either be taken over to or reset to zero.

Also existing articles from the article library can be added here.

10.7 OPTIONS SELECTED FILES

Additional commands for the manipulation of files in the article list like, duplicate, rename, delete and repositioning files in the list.

10.8 PRODUCTION RELEASE

If the check box is set the article is produced on the next production start.

PRODUCTION

11.1 LOAD RAW MATERIAL

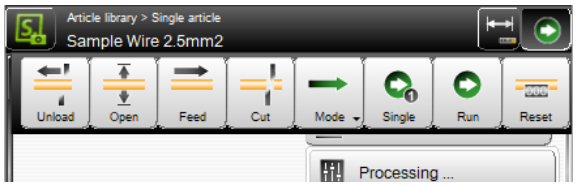
11.1.1 Normal loading with [LOAD]

1. Insert the raw material into the *PowerStrip 9580* and feed up to the swivel guide.
2. [LOAD]

11.1.2 Alternative loading with [CLOSE]

1. Feed the raw material passing the feeding belts, into the *PowerStrip 9580*.
2. [CLOSE]

3. With [FEED], feed the wire beyond the immovable or linear guide.
4. [CUT]



11.2 UNLOADING RAW MATERIAL

11.2.1 Normal unloading with [UNLOAD]

1. [UNLOAD]
   - ➥ The raw material is fed backwards and ejected on the left off the *PowerStrip 9580*, then the feeding units open.

Caution: With certain pre-processing peripheral devices or units (e.g. wire straightener), [UNLOAD] cannot be used as this would cause a jam. See next chapter.

11.2.2 Unloading with [OPEN]

1. [OPEN]
   ➥ Thereby only the feeding belts open and the raw material can be removed by hand out of the *PowerStrip 9580*.

While using [UNLOAD] and [OPEN] the cutting unit opens (also the rotary incising unit) and feeding belts to the in the Configuration defined maximum value.

2. Pull out the raw material on the left off the *PowerStrip 9580*.

11.3 RELOADING RAW MATERIAL

If the raw material has been used up during production, the lever of the wire end monitoring drops down and the message "No raw material" is shown on the touch screen. The PowerStrip 9580 stops the production immediately.

To load a new raw material after this, there are two possible ways:

11.3.1 Method A

1. Touch [FEED] until the last produced article is ejected (check the last article for proper production).
2. [OPEN]
   ➥ The lever of the wire end monitoring goes up.

3. Feed the raw material passing the wire end monitoring and the monitoring guide up to the feeding belts.
4. [CLOSE]

5. [FEED], and then [CUT]
   ➥ The feeding units close, the raw material is fed beyond the blades and then cut and ejected.

11.3.2 Method B

1. Touch [FEED] until the last produced article is ejected (check the last article for proper production).
2. [UNLOAD]
   ➥ The raw material is unloaded.
3. Feed the raw material passing the wire end monitoring and the monitoring guide up to the feeding belts.

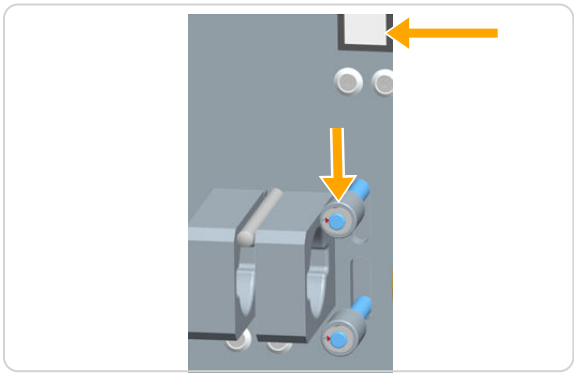
4. [LOAD]
   - The feeding belts close until the raw material is detected (they move to the preset contact gap). Then the material is fed and automatically cut. The slug is ejected on the right.

11.4 OPERATION OF THE RECOIL BRAKE

The recoil brake is operated via the key on the machine front of the *PowerStrip 9580* or on the touch screen as follows.

11.4.1 Loading procedure

1. Put the machine into operational state for raw material loading.
   - The lever on the wire end monitoring is up, the key [RECOIL BRAKE] on the machine front is flashing and it is also displayed on the touch screen panel.
2. Insert the raw material and feed it up to the feeding belts.
3. Press the [RECOIL BRAKE] key.
   - The pulleys of the recoil brake close and hold the raw material in position.



4. Touch [LOAD] or [CLOSE].
   - The feeding belts close and position the raw material, then the pulleys of the recoil brake open.

11.4.2 Unloading procedure

1. Touch [UNLOAD] or [OPEN].
   - The pulleys of the recoil brake close, the recoil brake key is flashing and the key on the touch screen is displayed again.
2. Hold the raw material on the entry with your hand and press [RECOIL BRAKE].
3. Remove the raw material.

11.5 START PRODUCTION

11.5.1 Series production with [START]

The total quantity entered is produced at once. ("Quantity" + "Batch size"). During production the "Production" screen is shown. See also Chapter *"6 Installation / first commissioning (Page 27)".*

11.5.2 Production with [SINGLE]

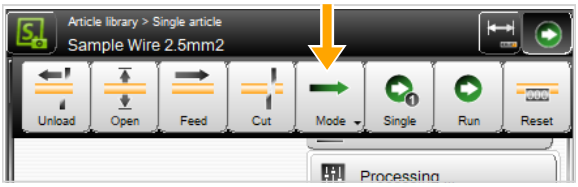
Only one single article is produced. This function is implemented normally to test the settings. Here only the wire name is shown in the "Production" screen. At the end of the production, automatically the article editor is shown again. The settings can now be inspected and corrected if necessary. See also Chapter *"6 Installation / first commissioning (Page 27)".*

11.5.3 Production in step by step- / speed control mode with [MODE]

With [SINGLE] as well as with [RUN] it can be observed during production whether all steps have been processed correctly if the single step mode is switched on before production.

Each movement step is accomplished with every keystroke. But synchronous movements are still performed simultaneously.

1. The step by step mode can be switched on before the production with [MODE].
   Several settings are possible here:
   - Step by step
   - Speed control
   - Step by step combined with speed control



2. [STEP BY STEP]

3. [SINGLE] or [RUN]
   ➥ The step by step information screen is shown.
4. [STEP BY STEP]
   ➥ With each touch on [STEP BY STEP] 1 the process cycle is advanced by one step.
5. [STEP BY STEP OFF] 2 terminates the step by step mode. The production continuous normally.
   [CANCEL] terminates the production.

With “Speed control” the normal production state screen is shown, but the production performs slower than normal. “Step by step” and “Speed control” can also be executed combined.

11.6 FURTHER COMMANDS / STATUS MESSAGES

11.6.1 Production screen

The production screen opens as soon as [SINGLE] or [RUN] was touched. With [SINGLE] only the article name is shown and the user can switch to the step by step mode during production. For the normal production with [RUN] in addition to these, additional information important for the analysis is shown.

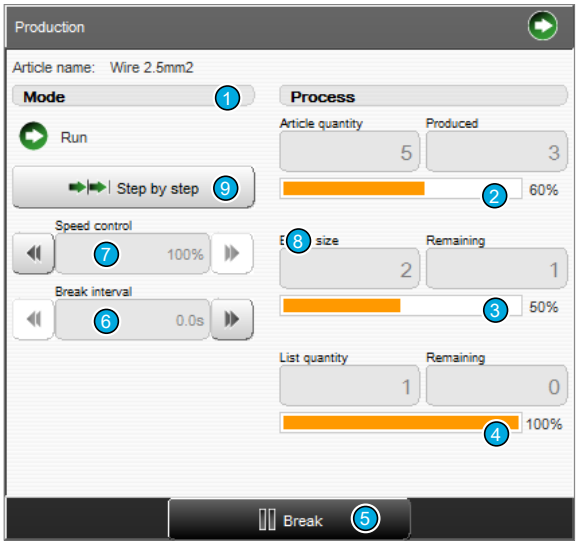


Fig. 24: Production screen, overview

1 Article name
2 Progress- article
3 Progress - batch
4 Progress - lists
5 Production break
6 Break interval
7 Speed control
8 Production step by step
9 Mode display

Production screen description

Article name

Show the currently loaded article in the machine buffer.

Process article

Shows the overall production progress of single wires as quantity and percentage. In addition the quantity of the already produced articles is shown.

Process batch

Shows the overall production progress of one batch as quantity and percentage. In addition the quantity of the already produced batches is shown.

Process article list

Shows the overall production progress of one article list as quantity and percentage. In addition the quantity of the already produced article lists is shown.

Break

The actual production is terminated. But the wire under production will be finished first.

Break interval

The step by step break interval is set to zero in normal operating mode. To monitor the production process, a pause between the individual processing steps can be set during production via the spin box. A value between 0 and 10 seconds can be set.

Speed control

Via this spin box the processing speed can be decreased during the production. The speed can be set in 10th steps.

In normal mode, the speed after the start is set to 100 % by default. This way the production is performing with the pre-set values in the configuration. If the speed is decreased, the individual steps are performing in lower speed.

If the mode "Speed control" is set, the speed is set to 0.

Production step by step

Here the user can switch to step by step mode during production.

Mode

Shows in which mode the production was started

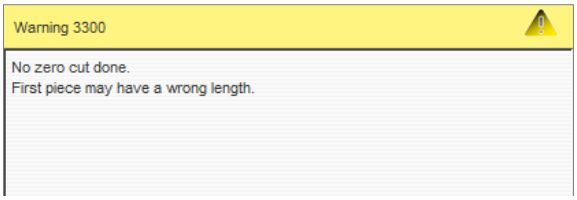
11.6.2 Messages during start-up

Function not implemented yet.

11.6.3 Messages during the production

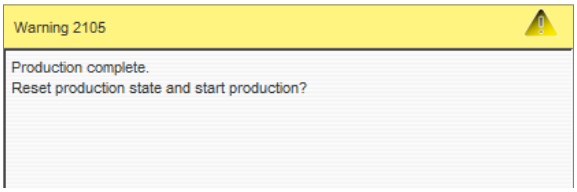
No zero cut done

If a raw material is loaded with [CLOSE] and then is not [CUT], or if between production cycles is fed forwards with [FEED] and not [CUT] afterwards, a warning message is shown after starting the production. After this message is shown, it is important to inspect the first produced article for the proper length.



Reset production

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



The production status is reset with [OK].

This message can be avoided, if reset is touched [PRODUCTION RESET] in the article editor before restarting the production.

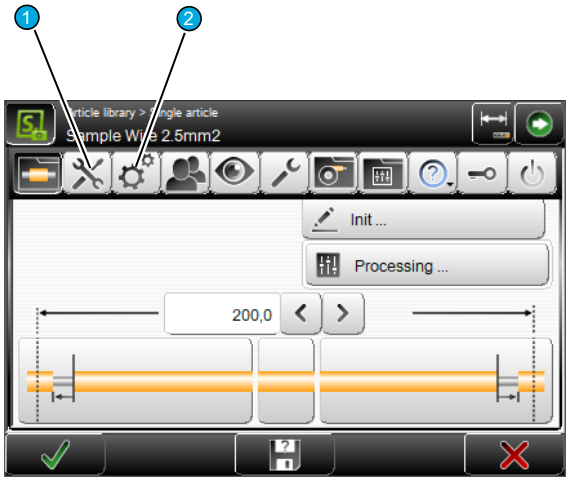
CONFIGURATION SETTINGS

In the screens set up and configuration, the basic settings are carried out, which serve as a basis for the functioning of the *PowerStrip 9580*. These settings are valid for all articles and affect the entire programming on the machine.

The settings made here can be partially overwritten in individual screens in the Processing.

12.1 SETUP VERSUS CONFIGURATION

In accordance with the access authorization, the view "Setup" or "Configuration" is available.



1 Setup

2 Configuration

Setup

The function "Setup" is implemented for the daily use of the *PowerStrip 9580* and it also helps the beginner to get familiar quickly with the basic settings in the configuration. Here only the most important settings can be changed (e.g. blade selection or switching on a PreFeeder, WireStacker, CableCoiler or activating the "Short mode").

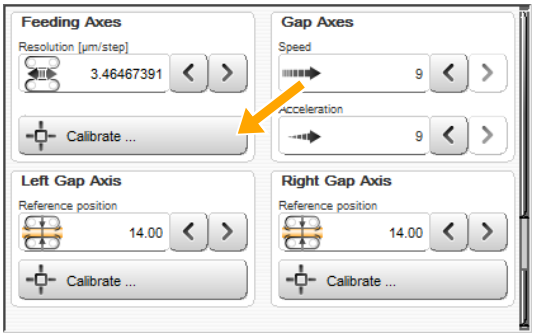
Configuration

In the Configuration" basically all settings for the *PowerStrip 9580* and the behavior of the control software can be altered. Hence the individual settings range is limited to the user level, the user is logged in.

12.2 CALIBRATE

In different screens of the setup and the configuration, there is the key **[CALIBRATION ...]**. Through this 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 (qualified personnel, technical specialist).



12.3 SETUP

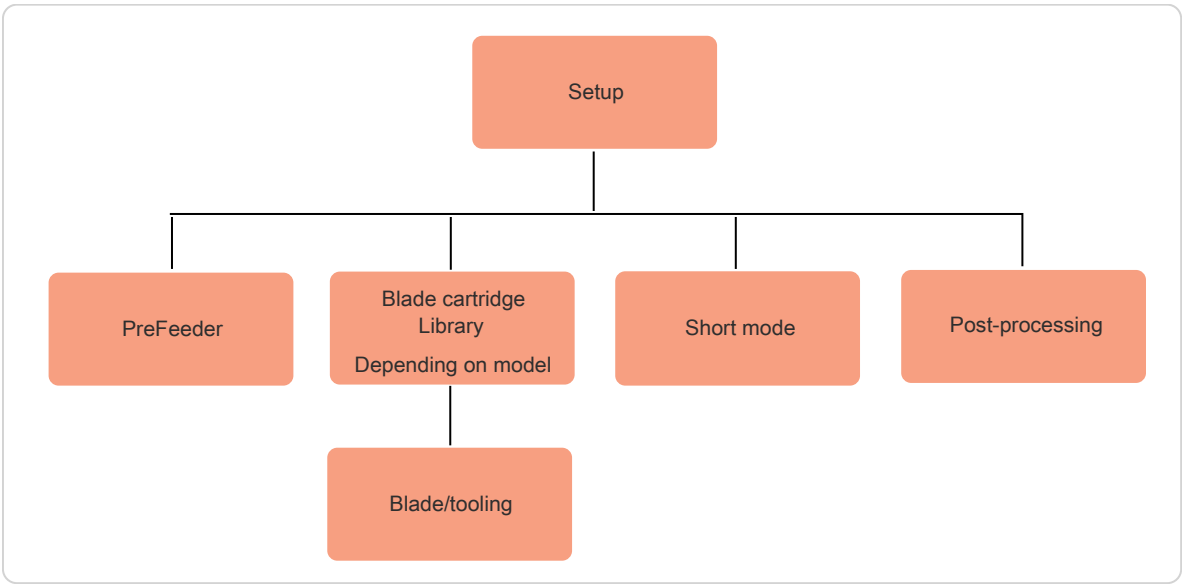
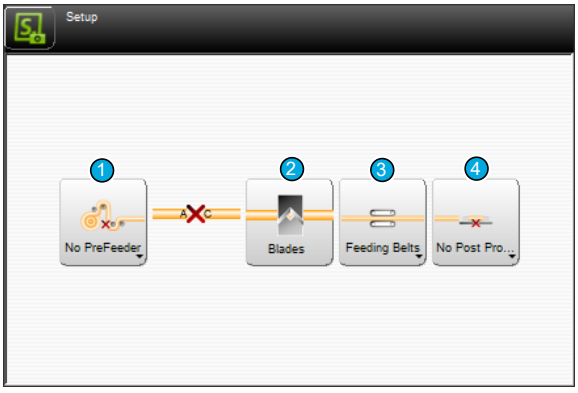


Fig. 25: Overview „Setup“

The main screen to setup the *PowerStrip 9580*:



1 PreFeeder
2 Blade- settings/-change/cartridges
3 Short mode / feeding type
4 Post processing device

12.3.1 PreFeeder

Activate/deactivate an in the production line integrated pre feeder in the control software.

12.3.2 Blade settings- / change / cartridge selection

Selecting the blade cartridges (machines with cartridge system). Selection (activation) of the physically available blades and tooling on the *PowerStrip 9580*. Furthermore there is the command available to move the cutting unit into the blade change position, to gain proper access to the blades.

12.3.3 Feed

Activate/deactivate a physically in the machine mounted "Short mode unit" in the control software.

12.3.4 Post processing device

Activate/deactivate an in the production line integrated wire stacker or cable coiler device in the control software.

Here also user defined devices can be selected that have previously been assigned in the configuration (as long as they have been defined as post processing device).

12.4 CONFIGURATION

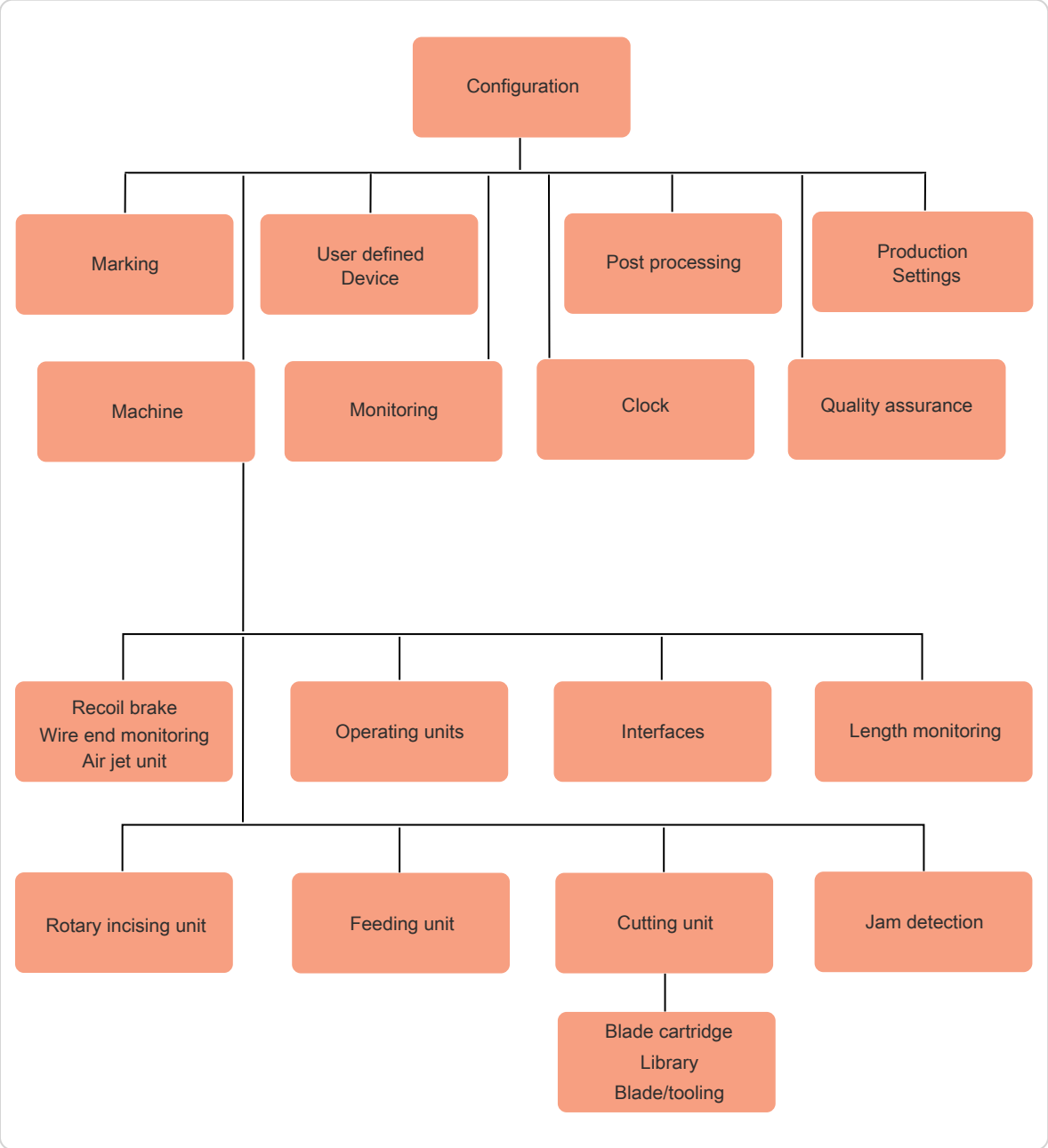
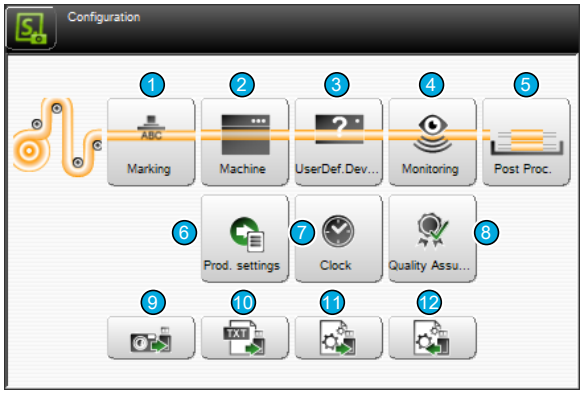


Fig. 26: Overview configuration

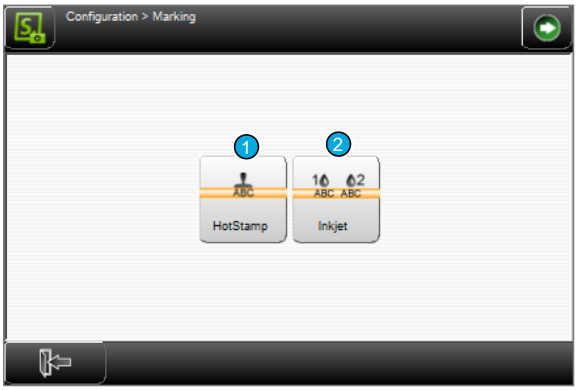
The main screen in the configuration:



1 Marking
2 Machine
3 User-defined device
4 Monitoring
5 Post processing
6 Production settings
7 Clock
8 Quality assurance
9 Export configuration as screenshots
10 Configuration export as text file
11 Configuration data export
12 Configuration data import

12.4.1 Marking

Concerns about settings for the communication with *Schleuniger* marking devices.



1 HotStamp
2 Inkjet printer

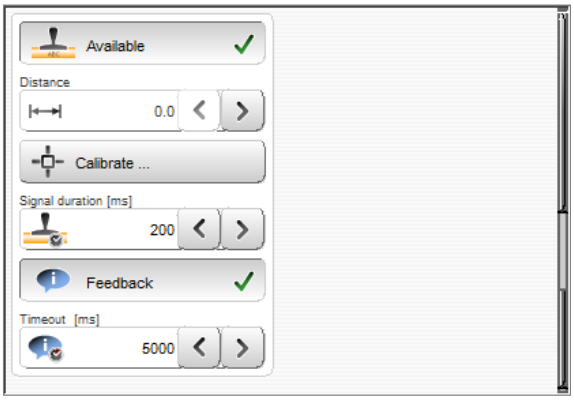
HotStamp

Available: Deactivate to inhibit the connection checking. The HotStamp device cannot be used during production if it is not activated.

Distance: This defines the distance from the HotStamp to the blade axis of the *PowerStrip 9580*.

Calibrate...: The calibration of the distance is menu guided.

Signal duration [ms]: During the signal duration the output to the HotStamp is activated, the printing is started, respectively it takes as long as the signal is on.

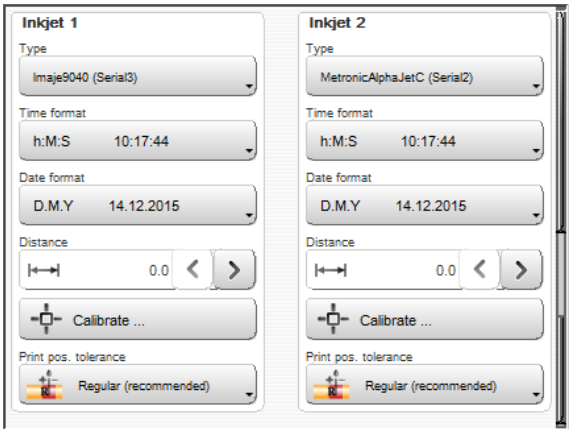


Feedback: Deactivated = The signal is transferred according to the signal duration, after the waiting time the *PowerStrip 9580* continues with the production.
Activated = The signal is transferred according to the signal duration, after the device responds, the *PowerStrip 9580* continues with the production, as long as no "Time-out" occurs.

Timeout [ms] (feedback = on): Sets the time, how long the machine is waiting for a response from the HotStamp device, until an error message occurs.

Pause after signal [ms] (when feedback = off) Time after the signal, in which the machine is waiting.

Inkjet printer



Type: Selection of the connected Inkjet printer. In addition the interface is shown in brackets, where the printer is hooked up to.

Time format: Country specific time format to be shown. The list contains the standard combinations for the 24- and the 12-hour system and for the ISO and U.S. date format including the display of the calendar week. For further information see Appendix.

Date format: Country specific date format setting. For further information see Appendix.

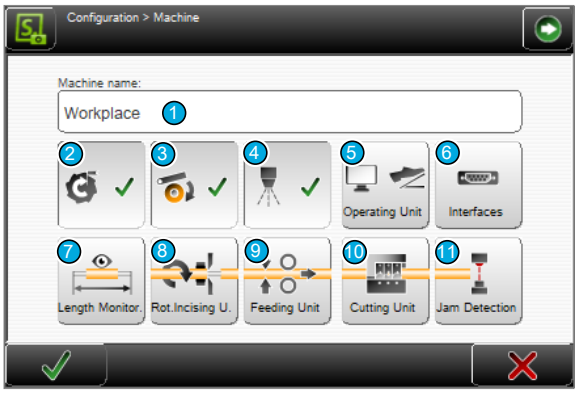
Distance: This defines the distance from the print head to the blade axis of the *PowerStrip 9580*. If the printing head is placed right of the blades (e. g. *MegaStrip 9650*), a negative value has to be set.

Calibrate...: The calibration of the distance is menu guided.

Print position tolerance: When this is set to "Small", the print procedure is slower, but the characters to be printed on the article are positioned more exactly. The setting must be evaluated manually and depends on the raw material diameter.

12.4.2 Machine

Here the general settings concerning the *PowerStrip 9580* are made. Certain settings are password protected and are only visible if the user is logged-in to the appropriate user level.



1 Machine name
2 Recoil brake
3 Wire end monitoring
4 Air jet unit
5 Operating unit
6 Interfaces
7 Length monitoring
8 Rotary incising unit
9 Feeding units
10 Cutting unit
11 Jam detection

Machine name

Definition of a machine name or a location description for this *PowerStrip 9580*. The name is also shown in the header area of the touch screen

Recoil brake

Activate/deactivate the in the *PowerStrip 9580* physically available recoil brake (option) in the control software.

Wire end monitoring

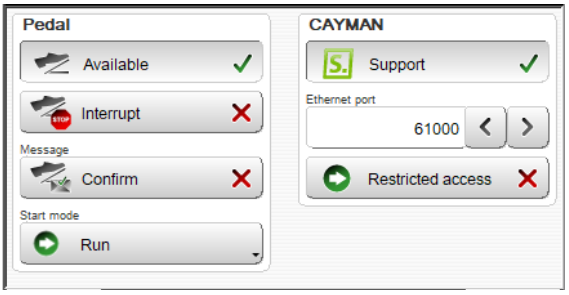
Activate/deactivate the in the *PowerStrip 9580* physically available wire end monitoring (option) in the control software.

Air jet unit

Activate/deactivate the in the *PowerStrip 9580* physically available air jet unit (option) in the control software.

Operating unit

Pedal



Setup of the pedal behavior during the production.

Available: Activate/deactivate a physically available pedal connected to the *PowerStrip 9580* (option) in the control software.

Interrupt: Activate/deactivate the production interruption per pedal.

Message: Activate/deactivate the confirmation messages per pedal

Start mode: Select the production start mode when using the pedal:

- **None:** Start mode is deactivated
- **Single:** Only one article (without affecting the production state)
- **Run:** All articles
- **Run 1:** Only one article

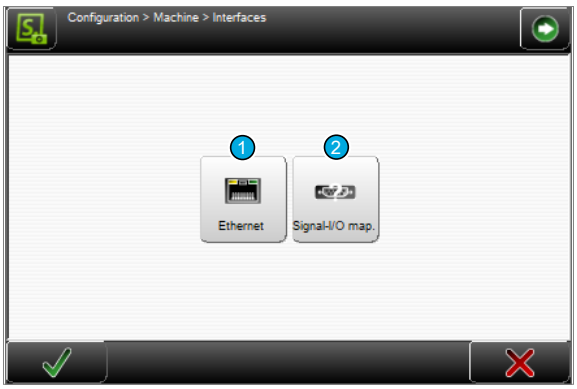
CAYMAN

Support: Here the *CAYMAN* support for controlling the *PowerStrip 9580* via the wire processing software CAYMAN is activated. An additional screen with the *CAYMAN* Symbol is displayed in the article editor.

Ethernet port: Port number for the *CAYMAN* interface. These must be set the same as in the *CAYMAN* software.

Interfaces

Here the ETHERNETinterfaces and signal I/O mappings are changed. Further software settings on the interfaces must only be carried out by maintenance personnel of your Schleuniger distributor and show up only after entering the appropriate password!

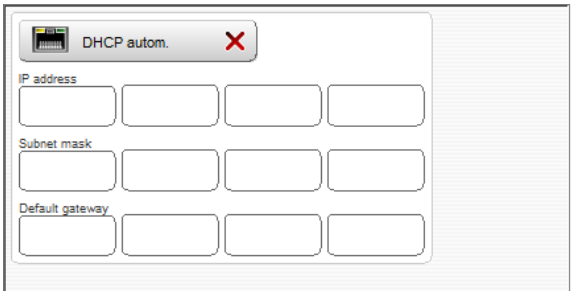


1 Ethernet

2 Signal I/O mapping

ETHERNET

Connection of the *PowerStrip 9580* to a TCP/IP network (e. g. connection machine - PC, to operate together with the wire processing software *CAYMAN*).



To establish a connection between PC and machine, each device must be capable to send data to the other. 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.

For additional information, see the *CAYMAN - Reference Manual*.

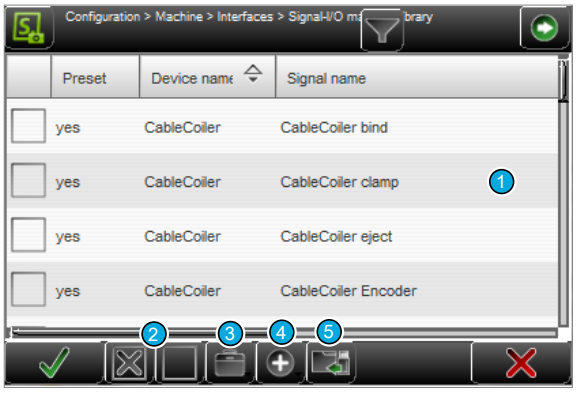
Signal I/O

The *PowerStrip 9580* can be equipped with different interfaces which can be assigned user-defined. To each signal used by the software (input/output) a pin can be assigned to. This allows a flexible networking of devices with the automatic cut & strip machine.

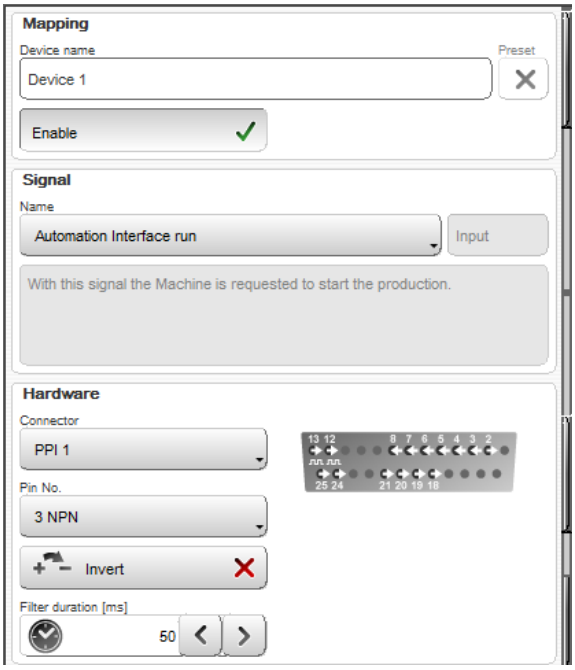
Assignments can individually be exported/imported. To not assign each single pin to our standard peripheral devices, we supply factory settings or packages from an USB data storage medium.

Signal I/O assignment: List entry of a signal I/O assignment 1.

Extended list commands: Export or delete selected I/O assignment in the list 3.



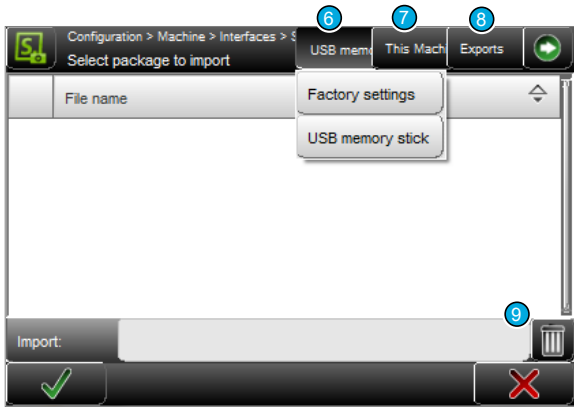
Create new assignment: Creates a new list entry of a signal I/O assignment 4. A screen is shown, where the signals can be assigned to the built in hardware interfaces accessible on the rear of the machine.



- Assignment - device name: The name of the device, freely selectable.
- Assignment - activate: Activate the selected signal (I/O).
- Signal - name: Function of the signal on the automatic cut- and strip machine, assigned to the connector.
- Hardware - connector: Applicable interface type, assigned to the signal.
- Hardware - Pin No: Applicable pin on the interface, assigned to the signal.
  Only the appropriate pins of the interface are shown.
- Hardware - Invert: Inverts the signal on the assigned pin.
- Hardware - filter duration [ms]: Sets the duration how long the signal shall be filtered (debounce e.g. a relay).
- Hardware - pin layout: Shows the connector type of the interface with the corresponding pin assignment.
- Hardware - Resolution [µm/step]: Defines the resolution of the encoder outputs. The value 100 µm/step is standard; 10 µm/step is recommended for inkjet printers.

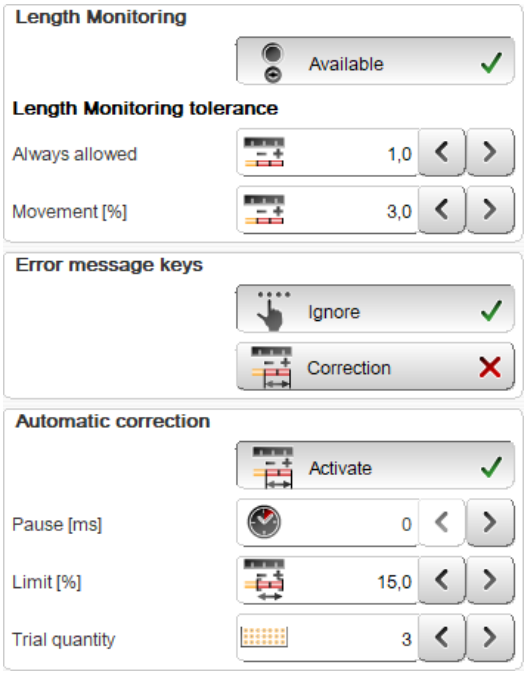
For more information about the signal I/O assignment, are located in the supplementary instructions manual *"Schleuniger Machine Interface"*.

Import: Imports a standard package (factory default settings) or a previously exported individual assignment list from an USB data storage medium 5.



- Load the factory default settings or the settings on an USB data storage medium 6.
- Allow imports only from this machine or all machines 7.
- Only exports or exports and backups are allowed 8.
- Delete selected entries in the current assignment list 9.

Length monitoring



The length monitoring (option) built into the *PowerStrip 9580* can be configured here. It monitors every feeding to the right.

Length monitoring - available: Activate/deactivate the length monitoring.

Tolerance - always allowed: Always accept up to this tolerance. If the error is less than the tolerance, no message is shown, otherwise a warning message is displayed.

Tolerance - movement [%]: Range where no action takes place through the length monitoring (example: for a wire length of 100 mm, there is for 1 % tolerance an acceptable error of 1 mm).

Error message keys - ignore: If "Ignore" is activated, the additional key “Continue (F1)" is displayed in the production screen. This decides whether the error should be accepted.

Error message keys - correction: If "Correction" is activated, the additional key “Correct (F2)" is displayed in the production screen. This decides whether the error in the Processing should be automatically corrected.

Automatic correction - activate: The machine corrects a length deviation after a certain pause automatically.

Automatic correction - pause: Waiting time until the automatic correction is performing.

Automatic correction - limit%: Trigger level from where the automatic correction is not performing any more.

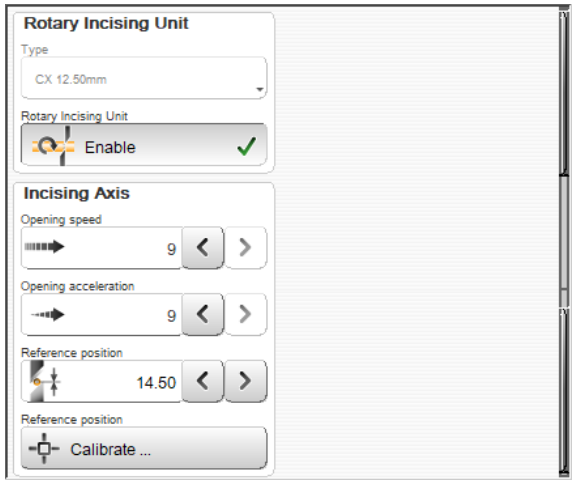
Automatic correction - trial quantity: How many times shall an automatic trial correction be performed.

If length monitoring is activated, also the wire end monitoring function must be activated.

If the length monitoring is activated for a particular article in the Processing, but not in the configuration, a warning message is issued.

Rotary incising unit

Cutting unit



Type: Displays the type of the rotary incising unit.

Activate: Activates the rotary incising unit if it is physically present.

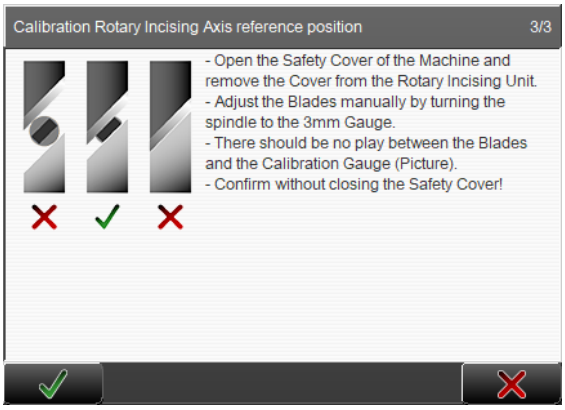
Incising axis

Opening speed: Speed on which the blades move in idle state. Here a value between 0 and 9 can be set.

Opening acceleration: Acceleration on which the blades start up in idle state. Here a value between 0 and 9 can be set.

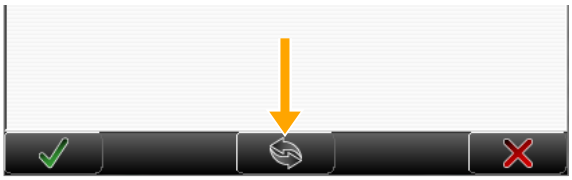
Reference position: Sensor position for referencing.

Reference position - calibrate ...: Start the guided calibration of the Reference position.



Blade change

Sets the rotary incising unit into the blade change position This way the spring force on the blade holders is released and the blades or cartridges can be safely changed.



Further software settings on the rotary incising unit must only be carried out by maintenance personnel of your Schleuniger distributor and show up only after entering the appropriate password!

Feeding unit

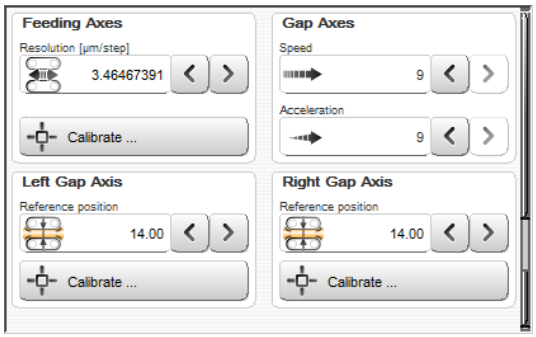
Feeding axes

Resolution: Defines the resolution of the feeding units.

Calibrate: The calibration is guided by a wizard.

Clamping axes

Speed/acceleration: Speed and acceleration with which the feeding units open/close. Here a value between 0 and 9 can be set.



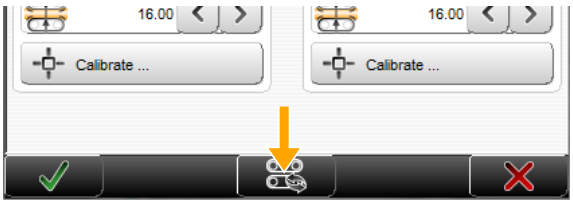
Left / right clamping axes

Reference position: Position of the feeding units (position of the sensor for the initialization).

Calibration: The calibration is guided by a wizard.

Tool change

The drives move to a position, where the feeding belts/rollers can be replaced easily accessible.



Further software settings on the feeding units must only be carried out by maintenance personnel of your *Schleuniger* distributor and show up only after entering the appropriate password!

Cutting unit

Type

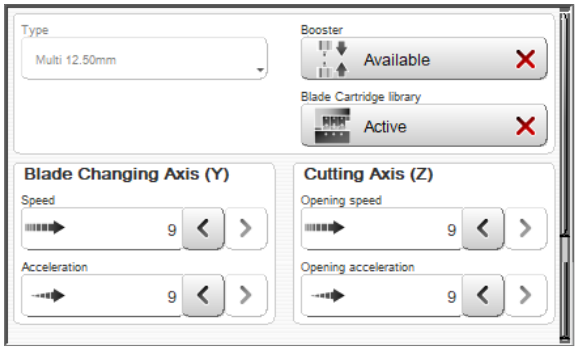
Shows the type of the cutting unit.

Booster - available

Activates the cutting unit booster globally for all Processing's if this is physically present.

Blade cartridge library active

Activates access to the blade cartridge library, where multiple cartridges can be stored and one cartridge can be activated. If the setting is deactivated, the table editor of the active cartridge can be accessed directly.



Blade changing axis (Y)

Speed: Defines the speed with which the blade-change axis moves.

Acceleration: Defines the acceleration with which the blade-change axis moves.

Cutting axis (Z)

Opening speed: Defines the speed with which the cutting axis moves.

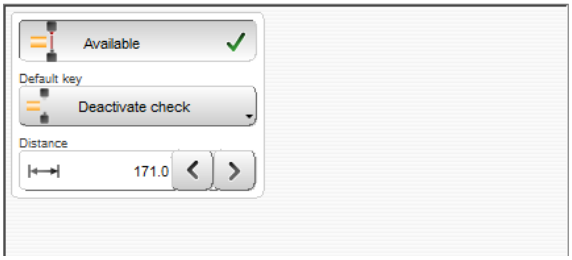
Opening acceleration: Defines the acceleration with which the cutting axis moves.

Jam detection

Available: Activate/deactivate the in the *PowerStrip 9580* physically available jam detector (option) in the control software.

Default key: Defines if the jam detection function in the editor "Processing - Options" shall be switched on by default if [DEFAULT] is touched.

Distance: Defines the distance from the cutting axis to the jam detector.



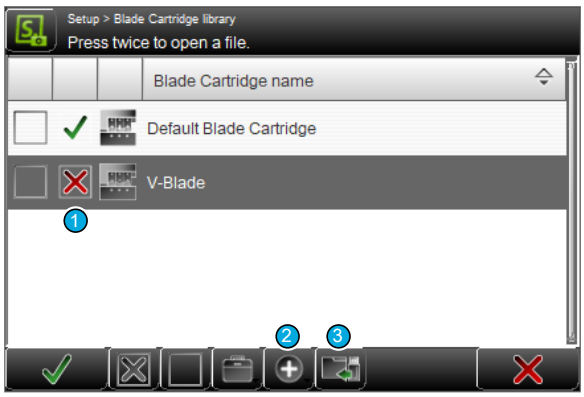
12.4.3 Cartridge selection / blade configuration / blade change

In this screen, the blades are allocated and calibrated in the software, according to the position in the blade holder or on the cartridge.

Before the blades can be allocated, a blade cartridge must be created/allocated. This is done in the cartridge library.

If the blade cartridge library is activated in "Configuration - Machine - Cutting unit", the blade cartridge library and the blade editor are displayed under "Setup - Blades".

If the blade cartridge library is switched off, only the blade editor is displayed under "Setup - Blades".



1 Activate cartridge
2 New cartridge
3 Import cartridge data

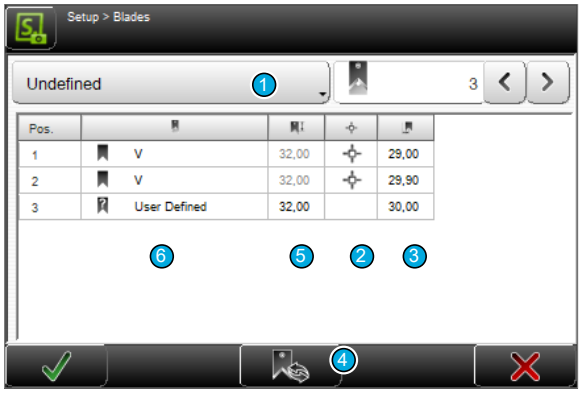
Cartridge properties

Blade cartridge library: Activate/deactivate the cartridge library in the control software.

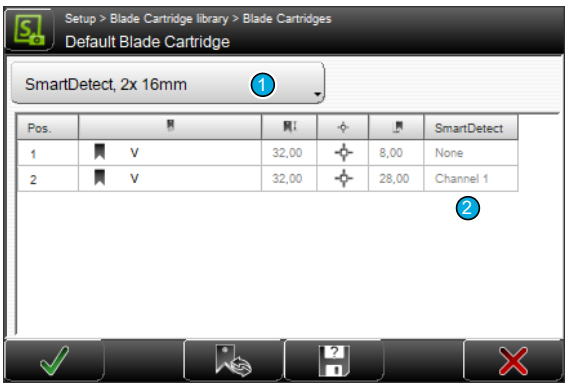
Configure/activate blades

By touching the corresponding blade cartridge from the library or by selecting directly "Configuration - Blades", the blade editor is opened. Here the blade type, the position and further settings for the mounted blades are defined.

With S- and SR-models only one blade on position 1 is displayed and the settings for the blade width and the blade position is invisible.



1 Blade number
2 Guided calibration
3 Distance
4 Blade change
5 Zero position
6 Blade type



1 Option SmartDetect

2 SmartDetect channel

Blade no.

Defines the width and number of mounted blades. Normally the standard width 20 mm (3 blade positions) or 16 mm (3 blade positions) is used. Alternatively the quantity of blades can be selected from 1 to 10. The widths are freely definable then.

Guided calibration

The blade calibration is an automatic process and is only intended for standard- and customer specific V-blades. This calibration must not be performed with radius V-blades. If inaccuracy occurs in the range of such blades, the blade is either used up or defective. But it may also be, that the cutting unit has small mechanical differences. In this case a calibration has to be performed. In such a case contact your local *Schleuniger* distributor.

Distance

Distance from the mechanical stop to the center of the blade.

Blade change

In the footer area, there is a [BLADE CHANGE] key which positions the cutting unit automatically on a the blade change position. The user reconfirms the mechanical blade change with [OK].

Z-zero position

This value is determined on the standard- and customer specific V-blades automatically via the calibration function. For other blade types and tooling (combing device and other) it is fixed defined by the software.

Blade type

Defines the type of blades and the calibration values of the individual blades (depending on the blade type). A choice must be made in each selectable position. If no blade is mounted, select “None”

The common blade types:

- **None:** When no blade is mounted on the specific position.
- **V- blade, V-radius:** For standard raw material with smaller cross section, cut and strip.
- **Radius:** Firm, thin and extremely elastic and thick insulations.
- **Radius blade with centering:** Prevents too deep an incision. Only suitable for stripping, not for cutting through.
- **Die:** Special blade, adapted to the conductor and the outer shape of a wire.
- **User defined:** Special designs like slitting blades, flat blades etc.
- **Slitting unit:** Optional available slitting unit.
- **Spacer:** By selecting special blade combinations it may occur that a space is left over between blades and tooling. To make sure that the subsequent blade/tooling however can be positioned exactly on the cartridge, a spacer (dummy blade) is needed, which fills the space on this position.

Option SmartDetect

SmartDetect is an option for production monitoring. See chapter *"7.11.1 "SmartDetect" (Page 49)"*.

SmartDetect channel

Allows to change the SmartDetect channel (none, 1 or 2).

12.4.4 User defined device

Customer specific pre-and post feed devices, or devices not directly corresponding to the wire processing (e.g. a warning light), can be activated here.

Device type: Selection of the device previously defined under "Name".

Available: Activate, when the user specific device is physically available.

Name: Free naming of the user defined device.

Distance: Distance between the cutting unit and the user defined device.

Signal duration [ms]: Duration of the signal sent to the user defined device.

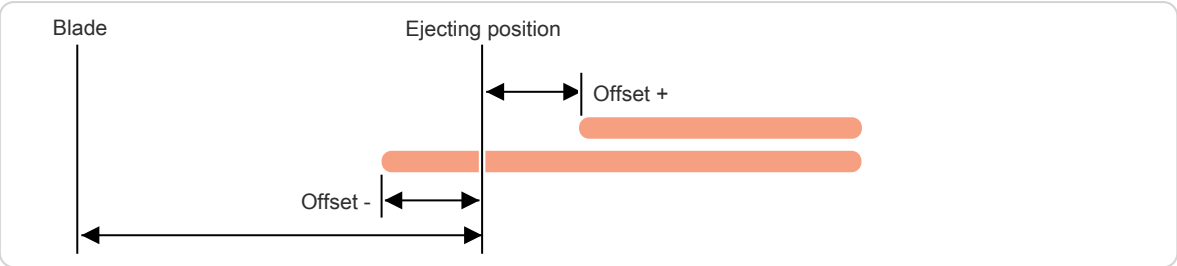
Pause after signal [ms] (when feedback = off) Time the machine will wait after the signal.

Timeout [ms] (feedback activated): Waiting time until a feedback from the user defined device is sent.

Post processing activate: To use the user defined device as for post processing this option must be activated.

Properties: If "post processing" is activated, additional settings can be made:

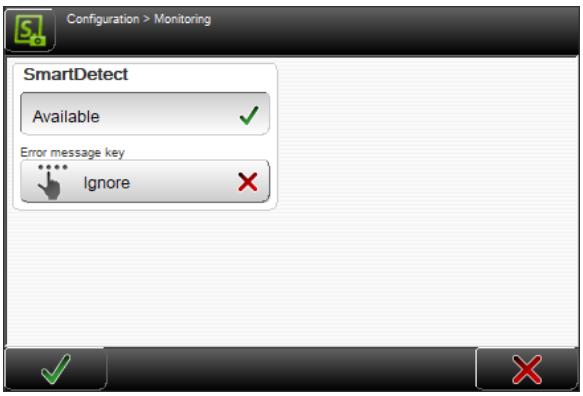
- General - offset: Readjust the ejection position from the blades of the automatic cut- and strip machine to the user defined device.



- Ejection - mode: Select ejection mode.
  - **Single:** The produced article is ejected through the right feeding unit and not until then the next article is being processed. Although this delays the production, the article is ejected in a defined manner.
  - **Release:** The finally processed article is fed to the ejecting position. Subsequently the right feeding belts open to assure a defined handing over. This way the article is not ejected but released.

12.4.5 Monitoring

Here the "SmartDetect" function is switched on. For the principle of operation, see chapter *"7.11.1 "SmartDetect" (Page 49)"*.

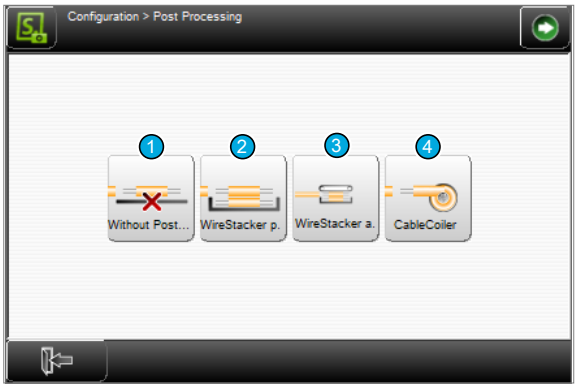


Available - Activate: Activate the “SmartDetect” function.

Error message key - Ignore: Must be activated to display the “Ignore” key in the error message when “SmartDetect” reports a contact of the conductor. Production will continue and a bad part will be accepted as good (ignoring the error message from “SmartDetect”).

12.4.6 Post-processing

This involves the general settings for the post processing devices like WireStackers or CableCoilers connected to the *PowerStrip 9580*.



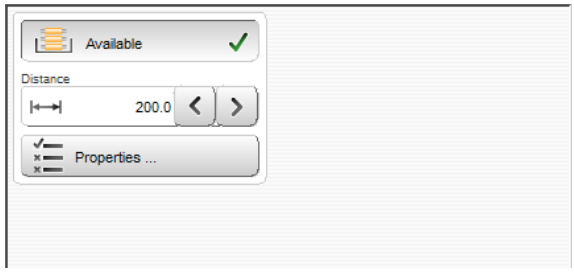
1 Without post processing
2 Passive wire stacker
3 WireStacker active
4 Cable coiler

Without post processing

Distance: Distance measured between the cutting axis and the ejecting position.

Properties...: See Chapter *"12.5 Extended settings for peripheral devices (Page 141)"*.

Wire stacker (passive/active)

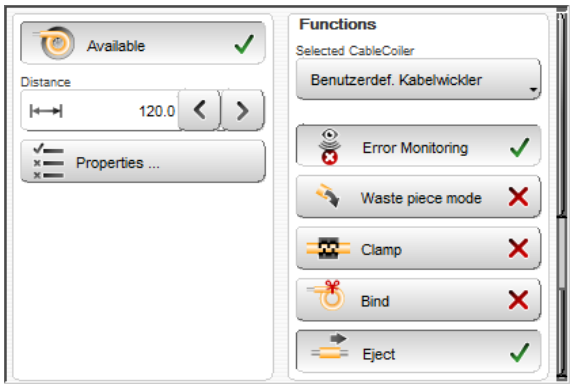


Available: The wire stacker can only be selected in the list of active devices if activated here.

Distance: Measured between the cutting axis and the ejecting position on the wire stacker. Standard value = 138 mm, directly right of the right feeding unit.

Properties...: See Chapter *"12.5 Extended settings for peripheral devices (Page 141)"*.

Cable coiler



Available: The cable coiler can only be selected in the list of active devices if activated here.

Distance: Distance measured between the blade axis and the takeover position of the CableCoiler. Standard value =138 mm, directly right of the right feeding unit.

Properties...: See Chapter *"12.5 Extended settings for peripheral devices (Page 141)"*.

Functions - selected CableCoiler: Select a standard CableCoiler.

If user defined CableCoiler is set here the functions bellow can be defined manually:

Error monitoring: Activate for coilers which are able to detect errors during production.

Waste piece mode: Activate if the coiler has such a function.

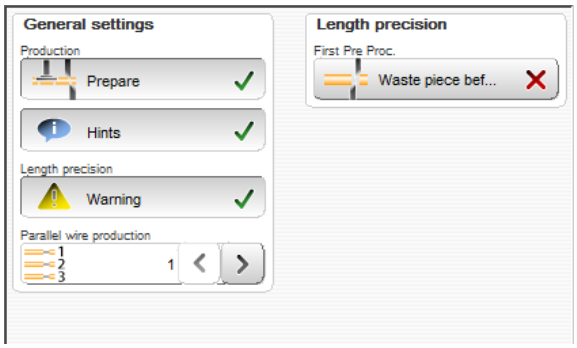
Clamp: Activate if the coiler can clamp the article before starting the coiling process. If the function clamping is activated, the parameter “Clamping offset” is shown in the “Properties”.

Bind: Activate if the coiler can bind coiled articles. If the function bind is activated, the parameter “Binding position” is shown in the “Properties”.

Eject: Activate if the coiler can control the ejection of the article.

On the *CableCoiler 1450* there are the new functions waste piece mode, clamping, bind and eject.

12.4.7 Production settings



Production - prepare: If "Prepare" is activated, the remaining article in the *PowerStrip 9580* is already pre processed during the production, e.g. with Inkjet printer or HotStamp. This way more articles can be produced with e.g. [SINGLE], without constituting an new slug. If "Production - Prepare" is deactivated, a pre-processing on the successive article is not performed.

Activate "Production - Prepare" when pre-processing operations are used. This way expensive slug can be avoided.

Production - Hints: Activates/deactivates hints during the production. Also the „Short mode” message is affected therewith.

Length precision - warning: Here the warning message is activated, which occurs, if the safety cover was opened during a production pause. The length precision can be in such a case no longer be guaranteed, as with open safety cover the feed axes are not under power and the raw material can move back and forth.

Parallel wire production: The *PowerStrip 9580* can handle more than one raw material at the same time. For this we need special guides which are in preparation in the *Schleuniger* factory.

Length precision - First pre-processing: Produces an antecedent slug before the first pre-processing. This ensures, that the article is positioned exactly on the blades before the pre-processing and thereby the first marking is positioned correctly.

12.4.8 Clock

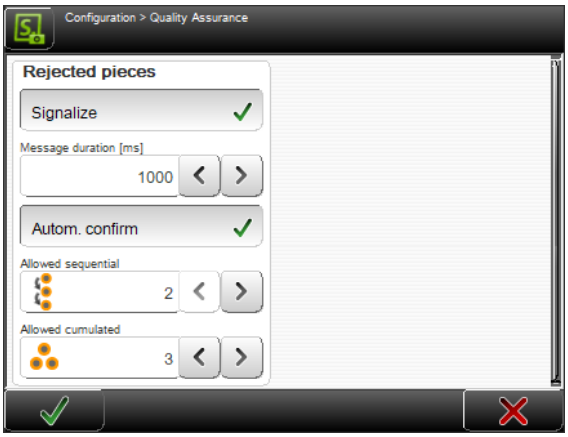
Change of system time and date on the touch screen.

In the entry fields of the spin boxes the current time and date is shown. Here also the new values are set. To confirm the entry of the new values touch [OK].

If the backup battery in the operating unit and/or the *PowerStrip 9580* is low or missing, the clock is reset and must be set-up again!

12.4.9 Quality Assurance

The "Quality Assurance" key only appears if SmartDetect was previously activated in the "Monitoring" menu with "Available".



Rejected pieces - Signalize: Activating enables the setting of an output signal. However, the effective signal setting is done in the Configuration > Machine > Interfaces > Signal I/O map. menu.

Message duration [ms]: Setting the message duration in milliseconds (min. 0, max. 10000).

Confirm automatically: This switch opens two further fields for setting options:

Allowed sequential Number of allowed consecutive touches during production.

Allowed cumulated: Total number of allowed contacts during production.

As soon as one of the two counters is reached, the error message is automatically accepted and the affected wire is automatically rejected.

12.4.10 Configuration export as screenshots

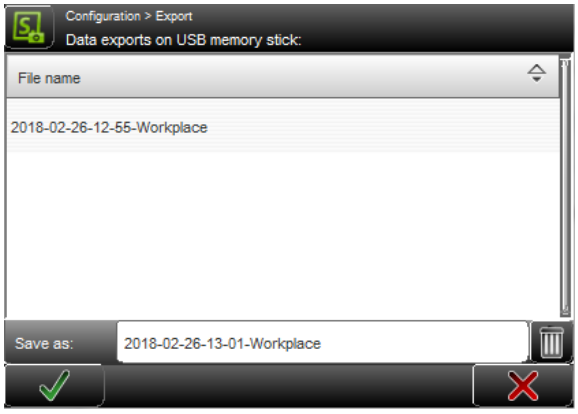
Create screenshots of the complete "Configuration" and the most important diagnostics screens. Then store the screen shots on an USB memory stick plugged in.

12.4.11 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.

12.4.12 Export configuration

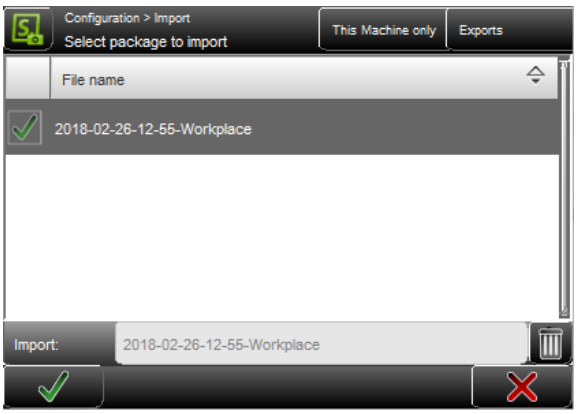
Save the whole "Configuration" (actual settings) on an USB memory stick connected to the USB port.



12.4.13 Import the actual configuration data

Restore the whole "Configuration" (settings from a previous configuration) from an USB memory stick connected to the USB port, back to the PowerStrip 9580.

This machine only: With the key in the upper right corner we can define, if only the configuration data shall be displayed from this *PowerStrip 9580* or also configuration data from another *Schleuniger*- machines.



Exports: The key in the upper right corner allows to choose whether to display only the exports derived from this *PowerStrip 9580* or exports and backups.

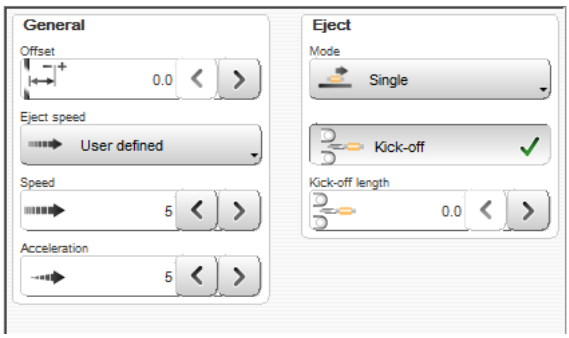
12.5 EXTENDED SETTINGS FOR PERIPHERAL DEVICES

12.5.1 Without post processing - properties

General

Offset: Therewith the ejecting position against the blades (positive values) or away from the blades (negative values) can be corrected. Negative values affect the article to be stick in the feeding unit, and are only meaningful if "Kick off" is switched on.

Eject speed: Here the produced article is ejected with the feeding speed defined under "Processing - feed". Optionally a user defined combination of “Speed” and “Acceleration” can be set.



Eject

Mode: After the feeding units have stopped the article on the programmed position, it will be ejected accurately.

- Continuous: The produced article remains in the right feeding belts and the next article is already processing. Ejection takes place automatically at the next feeding. This setting does not delay the production.
- Single: The produced article is ejected through the right feeding unit and not until then the next article is being processed. Although this delays the production, the article is ejected in a defined manner.
- Release: The finally processed article is fed to the ejecting position. Subsequently the right feeding belts open to assure a defined handing over. This way the article is not ejected but released.

Kick-off: If the "Kick off" is switched off, the ejecting process has finished after approaching the ejection position. If “Kick-off” is switched on, the article is ejected as defined after reaching the ejection position, e. g. a controlled feeding selected under "Kick off length" is carried out after.

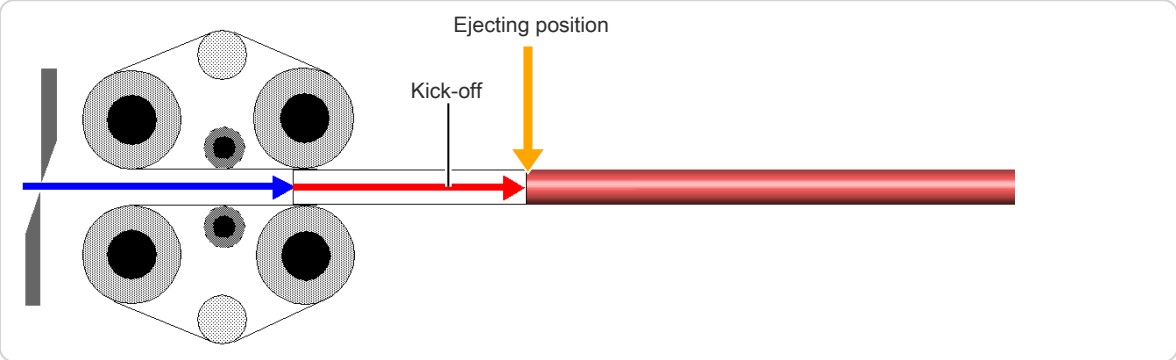
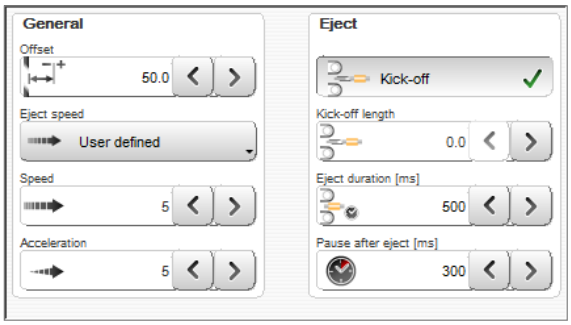


Fig. 27: Ejecting (kick-off)

12.5.2 WireStacker - properties

General



Offset: While ejecting the article, it is moved to the position set in the screen "Configuration - Wire stacker - Distance". This value defines the distance from the wire stacker to the blades. Normally the wire stacker is positioned directly facing on the right feeding belts. With this value the desired ejecting position against the blades (positive values) or away from the blades (negative values) can be corrected. Negative values affect the article to be stuck in the feeding unit, and are only meaningful if "Kick off" is switched on.

Eject speed: With the setting "Feed speed" the article is ejected with the speed defined under "Processing - feed". Optionally a user defined combination of “Speed” and “Acceleration” can be set for the ejection.

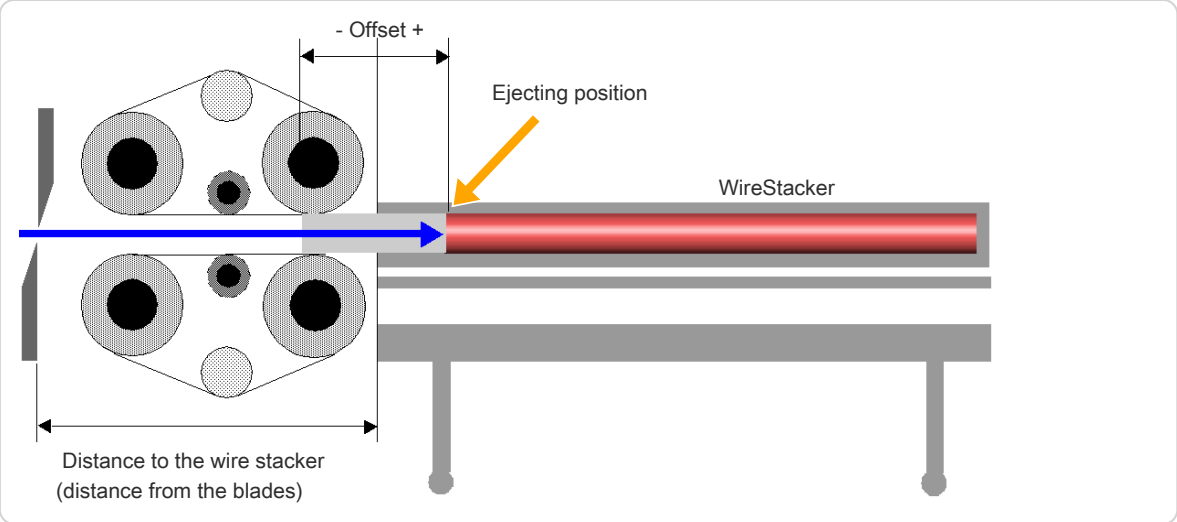


Fig. 28: Ejecting with offset

Eject

Kick-off: If "Kick off" is deactivated, the ejecting process has finished after approaching the ejection position (Wire stacker distance + ejection offset). If “Kick-off” is switched on, the article is ejected as defined after reaching the ejection position, e.g. a controlled feeding selected under "Kick off" is carried out after.

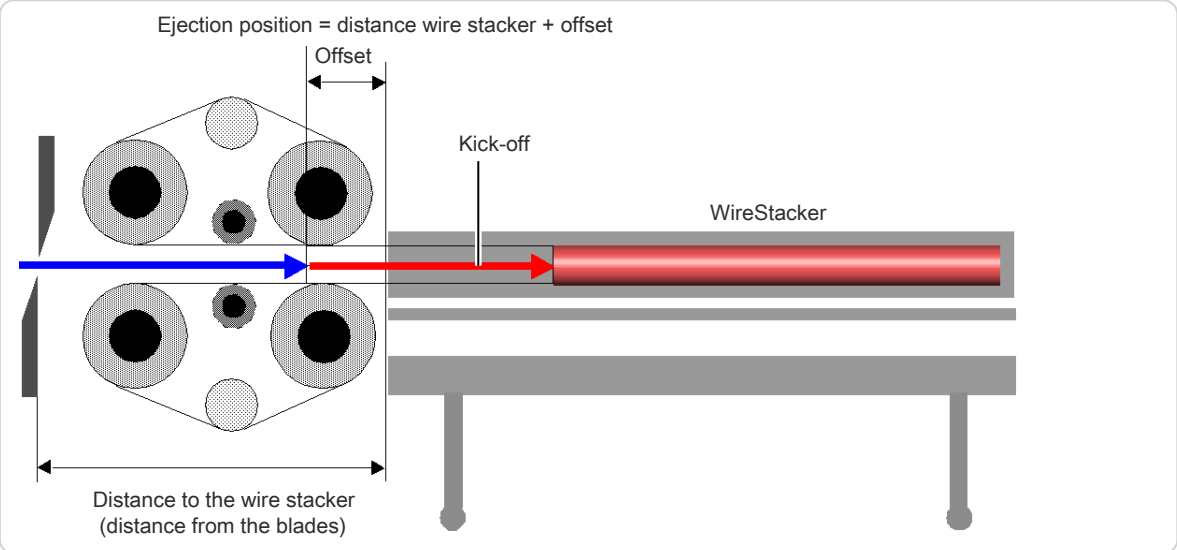


Fig. 29: Ejection with „Kick off“ activated

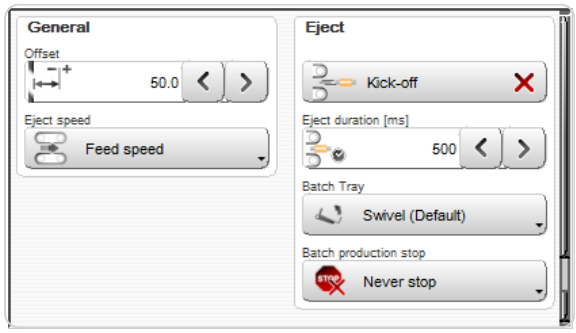
Eject duration [ms]: Depending on the nature of the raw material, the eject operation requires more or less time. This time is set in milliseconds [ms].

Wait after ejection [ms]: As soon as an article is ejected it takes some time until the wire stacker is back in its reference position. The *PowerStrip 9580* must therefore wait before it can feed the next article (passive wire stacker only).

Ejection (active WireStacker)

Batch tray: Defines how the batch tray should move.

Batch - production stop: Defines the behavior during a production stop.



12.5.3 Additional properties with active wire stacker

There are additional properties. This defines how the *PowerStrip 9580* and the wire stacker shall act after finishing a batch or the total production.

The options "Batch tray" and "Batch production stop" are available:

Batch tray

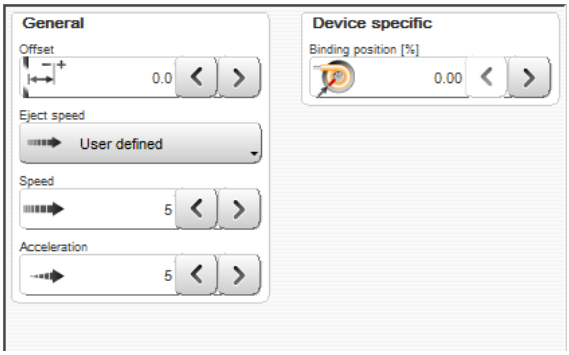
Function	Batch complete	Total complete
Swivel		
Always bottom	According to the list settings or always with single articles	According to the list settings or always with single articles
Always up	According to the list settings or always with single articles	According to the list settings or always with single articles

Batch - production stop:

Function	Batch complete	Total complete
Never stop	No message Batch tray of stacker swivels down	Message is shown Batch tray of stacker swivels down
On each batch	Message is shown Batch tray of stacker swivels down	Message is shown Batch tray of stacker swivels down
On second batch	1. Batch: No message Batch tray of stacker swivels down 2. Batch Show message Wait for [F1	Message is shown

12.5.4 CableCoiler - properties

General



Offset: While ejecting the article, it is moved to the position set in the screen "Configuration - Wire stacker - Distance". This value defines the distance in-between the blades and the Cable-Coiler. With the "Offset" the desired ejection position away from blades (positive values) or against the blades (negative values) can be corrected.

Eject speed: With the setting "Feed speed" the article is ejected with the speed defined under "Processing - feed". Optionally a user defined combination of “Speed” and “Acceleration” can be set for the ejection.

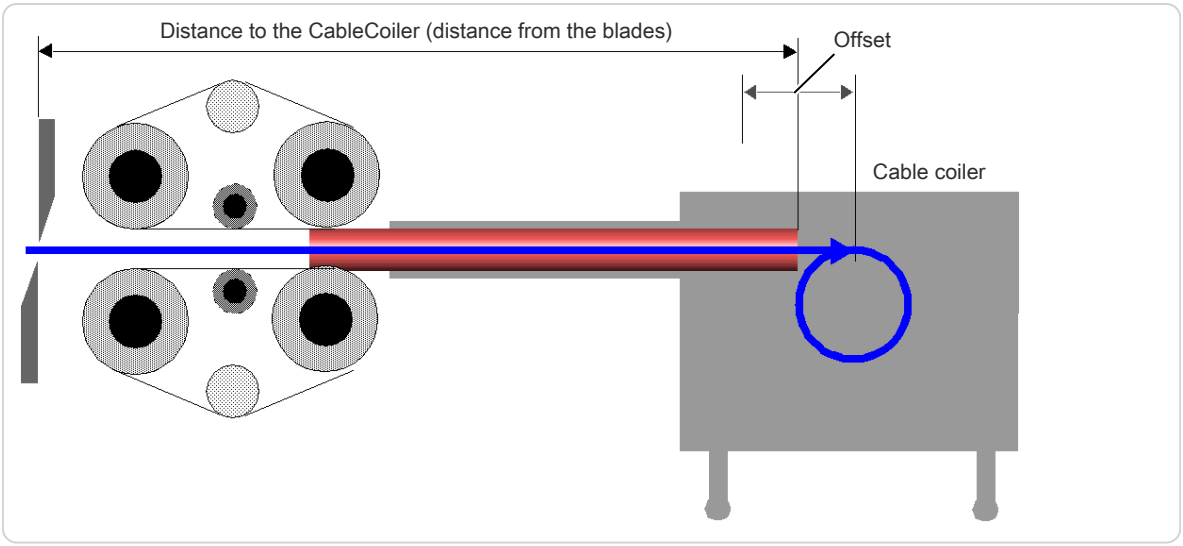


Fig. 30: Ejecting position cable coiler

Device specific

Here the user defines the position where the article has to be bind. Assuming the article will be bind after half of it is coiled. In this case he enters 50 %. The coiler then stops on this position. The binding position can be set to any position within the wire length. On 0 %, the function is disabled.

12.5.5 Programming

The post processing devices can be programmed on three different places:

Post processing mode

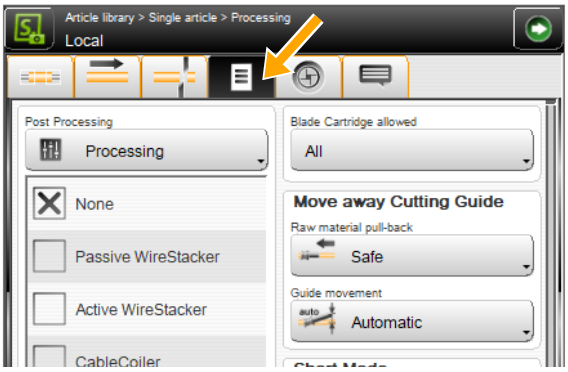
In the "Post processing" mode in the "Processing editor - Options" we define if the post processing device is controlled basically by the configuration or the Processing. The default value is set to "Configuration".

Programming in the Configuration

Work is carried out with the device selected in the "Setup" screen. If a Post Processing device is used with any article, this can be selected in the screen "Configuration". This type of programming is adequate if the machine is installed in a line with only one peripheral device and where the layout is changed seldom or never. Each article is produced by using the peripheral device. Therefore the post processing mode in the "Processing editor - options" must be set to "Configuration".

In this case, the type of post processing device can be selected directly in the screen "Configuration". The properties for the device can be selected within the corresponding sub menus.

Programming in the Processing



Production starts if the device selected in the Basic configuration has been set in the Processing.

Processing: If a designated article (defined by the Processing) is used always with the same post processing device, this can be selected in the Processing. This type of programming is recommended if several peripheral devices are available in a line. In this case, which peripheral device is used during production, can be selected in the Processing of the article.

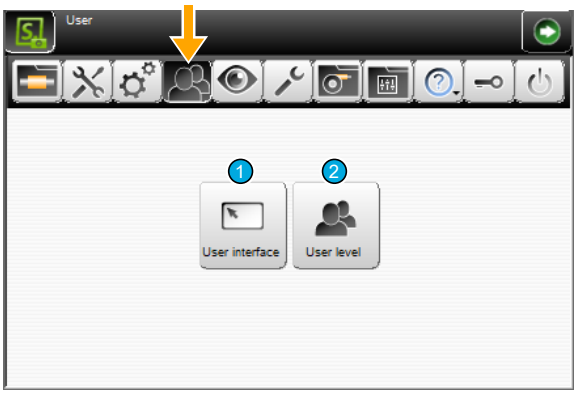
Local: If for a designated article a defined post processing device is used, it can be selected in the local Processing. This type of Processing is recommended if a designated article has to be produced differently from the programmed single article in the list.

USER INTERFACE / USER LEVELS

In *S.ON* there are general settings which have to be altered first before using it. See Chapter *"6 Installation / first commissioning (Page 27)"*.

To prevent the handling by unauthorized personnel, hence the access on certain user levels can be restricted by a password.

13.1 SCREEN OVERVIEW



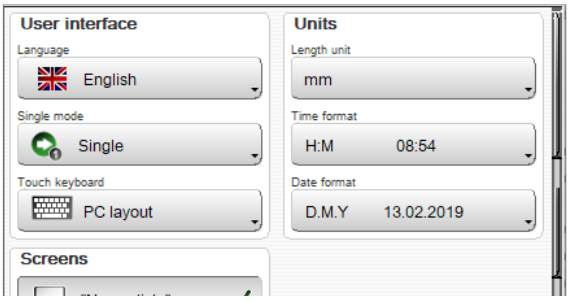
1 User interface

2 User levels

13.2 USER INTERFACE

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

User interface



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

Single mode - Single: The production counter is not updated if producing with [SINGLE].

Single mode - Run 1: The production counter is updated if producing with [START 1]. The production key is displayed different.

Touch-keyboard - PC-Layout: 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 keyboard - tone: Activates/deactivates the touch tone. If the tone is switched on, an audible sound is displayed after each touch of a key. This is an indication, that the key command has been recognized.

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 a component
- 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. In sequence touch the cross hairs displayed on the individual positions. Then terminate the calibration by touching the screen again.

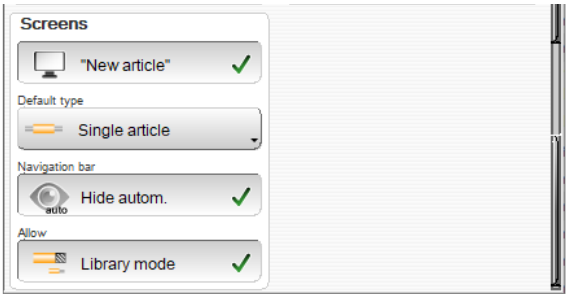
Units

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.

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 *"17.2 Time / date formats (Page 172)".*

Screens



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

New article: Defines, if the screen "New article" shall be shown when creating a new article.

Default type: When creating a new article we should be able to select by default between "Single article" or "Article list". If the option "New article" is deactivated, automatically the default type "Single article" or "Article list" is preset.

Default mode: When creating a new article, we should be able by default to select between "Simple mode" or "Library mode". If the option "New article" is deactivated, automatically the default type "Standard process flow" or "Library mode" is preset.

Navigation bar: Activates/deactivates the automatic fade-out of the navigation bar.

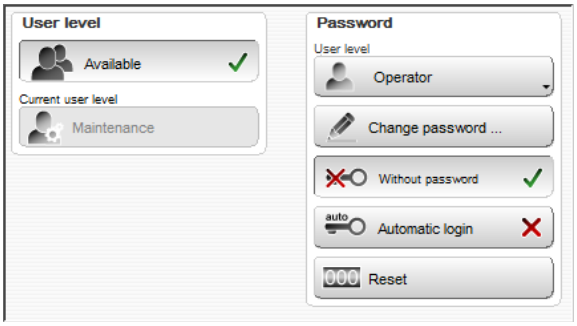
Allow: Activates/deactivates the use of the library mode.

13.3 USER LEVEL

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 activated: 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.

Available deactivated: No user level log-in 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 setting: 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]

Log-in defaults: 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 always log in with the password.
✓	✕	The password entry for the user level "Operator" is activated. But the operator must still login on a software start up.
✓	✓	The control software 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 *PowerStrip 9580* has left the factory, the following passwords are predefined (factory setting):

User level	Password
Operator	1
Programmer	12
Maintenance	123

Tab. 4: Preset passwords (factory default)

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

13.4 USER LEVEL RESTRICTIONS

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

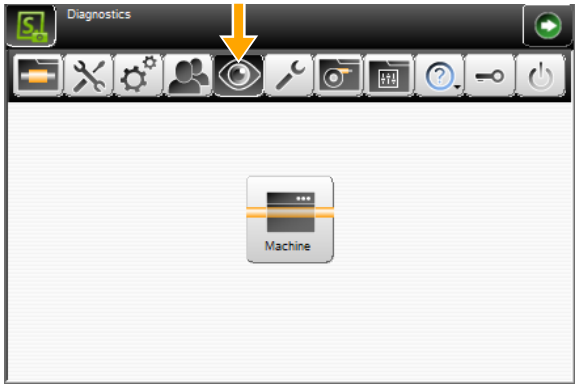
Screen	Operator	Programmer	Maintenance
Article			
Create, save, temporarily changes	✕	✓	✓
Change, produce	✓	✓	✓
Login	✓	✓	✓
Setup (simple configuration)			
Pre-processing (select a device)	✓	✓	✓
Marking (only display active devices)	✓	✓	✓
Blades (configure blades or select blade cartridge)	✓	✓	✓
Blade cartridge setup	✕	✓	✓
Post-processing (select a device)	✓	✓	✓
Configuration (extended)	✕	✕	✓
CAYMAN	✓	✓	✓
User	✕	✕	✓
Diagnostics	✕	✕	✓
Services			
Data backup	✕	✓	✓
Data restore (Programmer: article data only)	✕	(✓)	✓
Logging	✕	✕	✓
Processing library	✕	✓	✓
Raw material library	✕	✓	✓

Tab. 5: User level restrictions

DIAGNOSTICS / TROUBLESHOOTING

S.ON is equipped with a comfortable diagnostics software, which is used to monitor the state of the *PowerStrip 9580* and the connected peripheral devices. Here the user can check the parts of the machine and the peripheral devices in case of an error condition.

In the following screen the *PowerStrip 9580* including pre-and post processing devices is graphically represented. For the better overview, it is divided in several sub screens. All screens are described in detail in the following section. At the moment only the screen "Machine" is available.



14.1 DIAGNOSTICS "MACHINE"

This checks the state of the *PowerStrip 9580* and its internal and external interfaces.

Fig. 31: Overview, diagnostics machine

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

14.1.1 Components

The information of the components (titles) are taken directly from the hardware of the machine (generic diagnostics). These are permanently stored in the firmware in "English". This enables the simple global localization of components for troubleshooting.

NOTICE

Uncontrolled motor movement

By moving the motor axes in the control software it may travel into the mechanical stop. This can cause damage to the mechanics of the machine.

Move axes always under visual control.

If one motor is disabled, all motors will be disabled. When activated, those are energized, located on the same driver PCB.

In the diagnostics the user should avoid that the cutting unit booster hits the activated cutting bar.

This can be prevented as follows:

- The motor of the cutting axis is de-energized before the booster is triggered.
- The cutting axis is fully retracted before the booster is triggered.

If the cutting unit booster is triggered again and again to an activated cutting axis, the mechanism can be damaged.

Function	Description
Wire End Monitoring:	
Concerns the wire end monitoring of the *PowerStrip 9580*.	
Raw material detect sensor	Display whether the sensor responds when a raw material was detected in the wire axis.
Lift activation	Move the lever of the wire end monitoring up (on/off).
Recoil Brake:	
Concerns the recoil brake of the *PowerStrip 9580*.	
Wire released sensor	Indicate when the sensor of the recoil brake responds.
Button pressed sensor	Display whether the button in the processing area was pressed.
Brake activation	Invoke the pneumatic closing process of the recoil brake (on/off).
Light activation	Activate/deactivate the lamp of the recoil brake switch located in the processing area (on/off).
Length Monitoring:	
Concerns the length monitoring of the *PowerStrip 9580*.	
Encoder [Inc]	Display the encoder position.
Close activation	Activate squeezing of the pulleys (on/off).
Rotary Incising Unit:	
Concerns the rotary incising unit of the *PowerStrip 9580*.	
Centering axis - Axis status	Display whether the axis responds.
Centering axis - Axis position	Display the axis position.
Centering axis - Initialize	Perform an initialization (referencing) on the axis.
Centering axis - Move to position	Move axis to a certain position.

Function	Description
Centering axis - Motor	Switch on the motor of the axis.
	Move the motor of the axis forward/backward (slow/fast).
Incising axis - Axis status	Display whether the axis responds.
Incising axis - Axis position	Display the axis position.
Incising axis - Reference sensor	Display whether the reference sensor of the motor responds.
Incising axis - Encoder [Inc]	Display the encoder position.
Incising axis - Initialize	Perform an initialization (referencing) on the axis.
Incising axis - Move to position	Move axis to a certain position.
Incising axis - Motor	Switch on the motor of the axis.
	Move the motor of the axis forward/backward (slow/fast).
Rotating axis - Axis status	Display whether the axis responds.
Rotating axis - Motor rotating	Rotate axis (on/off).
Rotating axis - Motor direction	Set axis direction (CW/CCW)
Rotating axis - Motor	Activate motor (on/off).
	Move the motor of the axis forward/backward (slow/fast).
Feeding Unit Left:	
Concerns the left feeding unit of the *PowerStrip 9580*.	
Clamping axis - Axis status	Display whether the axis responds.
Clamping axis - Axis position	Display the axis position.
Clamping axis - Reference sensor	Display whether the reference sensor of the motor responds.
Clamping axis - Contact sensor	Display whether the contact sensor responds.
Clamping axis - Initialize	Perform an initialization (referencing) on the axis.
Clamping axis - Move to position	Move axis to a certain position.
Clamping axis - Motor	Switch on the motor of the axis.
	Move the motor of the axis forward/backward (slow/fast).
Feeding axis - Axis status	Display whether the axis responds.

Function	Description
Feeding axis - Axis distance	Display the axis distance.
Feeding axis - Initialize	Perform an initialization (referencing) on the axis.
Feeding axis - Move distance	Move the axis a certain distance.
Feeding axis - Motor	Switch on the motor of the axis.
	Move the motor of the axis forward/backward (slow/fast).
Cutting Guide:	
Concerns the cutting guide (left swivel guide before the blades) of the *PowerStrip 9580*.	
Initialize	Perform an initialization (referencing) on the cutting guide.
Encoder [Inc]	Display the encoder position.
Motor	Switch on the motor of the cutting guide.
	Move the motor of the cutting guide forward/backward (slow/fast).
Cutting Unit:	
Concerns the cutting unit of the *PowerStrip 9580*.	
Blade changing axis - Axis status	Display whether the axis responds.
Blade changing axis - Axis position	Display the axis position.
Blade changing axis - Reference sensor	Display whether the reference sensor of the motor responds.
Blade changing axis - Encoder [Inc]	Display the encoder position.
Blade changing axis - Initialize	Perform an initialization (referencing) on the axis.
Blade changing axis - Move to position	Move axis to a certain position.
Blade changing axis - Motor	Switch on the motor of the axis.
	Move the motor of the axis forward/backward (slow/fast).
Cutting axis - Axis status	Display whether the axis responds.
Cutting axis - Axis position	Display the axis position.
Cutting axis - Reference sensor	Display whether the reference sensor of the motor responds.
Cutting axis - Initialize	Perform an initialization (referencing) on the axis.
Cutting axis - Move to position	Move axis to a certain position.
Cutting axis - Motor	Switch on the motor of the axis.
	Move the motor of the axis forward/backward (slow/fast).

Function	Description
Booster - Out of wire axis sensor	Displays whether the sensor responds when the cutting unit booster is out of the wire axis.
Booster - In wire axis sensor	Displays whether the sensor responds when the cutting unit booster is within the wire axis.
Booster - Activation	Activate the cutting unit booster (on/off).
Air jet - Air activation	Activate the air jet unit (on/off).
Wire End Monitoring:	
Concerns the monitoring with SmartDetect unit of the *PowerStrip 9580*.	
Touched state	Display whether there is contact between the blade and the conductor.
Monitoring On/Off	Monitoring on/off
Feeding Guide Right:	
Concerns the rights feeding guide (right of the blades) of the *PowerStrip 9580*.	
Initialize	Perform an initialization (referencing) on the cutting guide. (**Caution**: "Initialize" only works if the "Short mode" unit is not installed).
Out of wire axis sensor	Display whether the sensor responds when the right feeding guide is out of the wire axis.
In wire axis sensor	Displays whether the sensor responds when the right cutting guide is within the wire axis.
Encoder [Inc]	Display the encoder position.
Motor	Switch on the motor of the cutting guide.
	Move the motor of the cutting guide forward/backward (slow/fast).
Feeding Unit Right:	
Concerns the right feeding unit of the *PowerStrip 9580*.	
Clamping axis - Axis status	Display whether the axis responds.
Clamping axis - Axis position	Display the axis position.
Clamping axis - Initialize	Perform an initialization (referencing) on the axis.
Clamping axis - Move to position	Move axis to a certain position.
Clamping axis - Reference sensor	Display whether the reference sensor of the motor responds.
Clamping axis - Encoder [Inc]	Display the encoder position.
Clamping axis - Motor	Switch on the motor of the axis.
	Move the motor of the axis forward/backward (slow/fast).
Feeding axis - Axis status	Display whether the axis responds.
Feeding axis - Axis distance	Display the axis distance.

Function	Description
Feeding axis - Initialize	Perform an initialization (referencing) on the axis.
Feeding axis - Move distance	Move the axis a certain distance.
Feeding axis - Motor	Switch on the motor of the axis.
	Move the motor of the axis forward/backward (slow/fast).
Jam Detector:	
Concerns the jam detector at the output of the *PowerStrip 9580*.	
Raw material detected	Indicate when a produced article is detected on the outlet.

14.1.2 Electric platform

The information of the components (titles) are taken directly from the hardware of the machine (generic diagnostics). These are permanently stored in the firmware in "English". This enables the simple global localization of components for troubleshooting.

Function	Description
Safety state	Display whether the safety state is enabled.
Opened safety circuit	Display whether the safety circuit on the main control PCB detects "Opened".
Slave2Sto	Slave2Sto (on/off)
Slave3Sto	Slave3Sto (on/off)
Slave4Sto	Slave4Sto (on/off)
Compressed Air available	Compressed air available (on/off)
Soft Power Off Switch	Soft Power off Switch (on/off)
Fan activation	Activate the fans in the electronic compartment (on/off).
Light activation	Activate the light in the drive compartment (on/off).
Fan activation	Activate the fans in the drive compartment (on/off).

14.1.3 Interfaces

Test for the in- and outputs of the electronics and the external interfaces of the *PowerStrip 9580*.

ETHERNET connection

Display of the ETHERNET port addresses and further information.

14.1.4 Operating unit

Currently no information available under this category.

14.1.5 Peripheral interfaces

The information of the components (titles) are taken directly from the hardware of the machine (generic diagnostics). These are permanently stored in the firmware in "English". This enables the simple global localization of components for troubleshooting.

Function	Description
Prod run feed involved2	Display the machine status with attached peripheral devices.
Prod run feed involved1	Display the machine status with attached peripheral devices.

Depending on the configuration more setting options appear.
This includes:

- Marking devices (HotStamp, ink jet printers)
- User defined devices
- Post-processing devices (WireStacker, CableCoiler)

14.1.6 Operating status

The operating status provides information about the currently available memory space for articles and other libraries.

The information in this screen are mainly dependent on the *PowerStrip 9580* configuration.

CPU memory: Display of remaining memory available for articles and other libraries.

Real-time: Displays whether the internal clock has been reset.

Machine: Identification number of the *PowerStrip 9580*.

14.1.7 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.
- **Emergency stop:** How often was the emergency stop button activated.
- **Axes, rotation and other units:** Display of the duration of operation and/or the display of the operating counters (axis movements).

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:** Excludes the time when a message was output (production interrupted).

The production via *CAYMAN* is included in the production time.

Software

- **Fatal error:** The number of serious errors encountered in the software.
- **Not enough RAM:** How often was the memory completely filled.

Communication

- ***CAYMAN* connected:** How long was the machine connected to *CAYMAN*.
- **Connection lost:** How often has the machine lost the connection to *CAYMAN*.

LabView test

The test was successful or failed.

Hardware

Counters of the individual states in the control electronics.

14.1.8 Hardware

Here versions of the individual hardware components are displayed. These must be communicated in a support request to the service department of the local *Schleuniger* distributor.

14.1.9 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.

14.2 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 *PowerStrip 9580*:

- 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 PDF-document *„S.ON Messages“* where all in *S.ON* available hints, warnings and error messages are listed in detail.

14.2.1 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.
3302: PreFeeder fault.	The PreFeeder has not been connected properly. Check the cable connection to the PreFeeder device! PreFeeder is possibly defective.
3303: No pedal detected.	Pedal not connected properly or defective.
3304: No CableCoiler detected.	The CableCoiler has not been connected properly. Check the cable connection to the CableCoiler device! CableCoiler is possibly defective.
18003: Checksum error in .....file.	File defective. Delete file and enter file data again.

Instruction	Description / action
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.
18094: Change processing default values?	When changing raw material, it is recommended to calculate the default values. [OK]: Really calculate processing default values adaptively (recalculates raw material diameter depending values only and takes previous changes to those values into account)? [ALL]: Calculate processing default values for entire processing (existing autonomous processing elements are deleted). [NONE]: Do not change any processing value.

Tab. 6: Diagnostic warning messages

14.2.2 Error

Instruction	Description / action
5303 Wire end monitoring detects no raw material.	No raw material loaded / wire end switch on wrong position / raw material used up during production.
5308 / 5316: Cut axis was blocked.	Too thick raw material loaded / cut axis feed speed too high / blades mounted improperly.
5321: Error on fan electronics.	Fan blocked / ventilator filter dirty. Fan defective, replace fan.
5332 / 5333: Check spacing between the texts.	Areas programmed to close successive! Feed speed set too fast for the communication with the printer.
5336: Machine is overheated!	Check ventilator filter. Possibly fan defective / fan exhaust blocked / ambient temperature too high.
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.

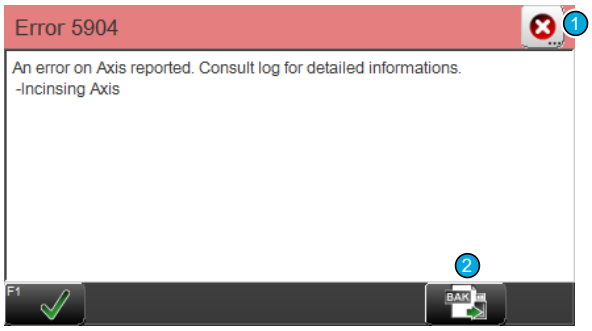
Instruction	Description / action
20111: Backup failed.	USB memory stick full, not formatted or defective.
20112: Data restore failed.	Data on the USB memory stick not valid or stick defective.
Machine- and panel software versions incompatible.	Check the software version in the diagnostic.

Tab. 7: Diagnostic error messages

14.2.3 Error message protocols

On an error state (e.g. hardware incompatibility) an additional button 1 is shown in the error message dialog. The following information is displayed by repeated actuation:

- General fault description
- Machine Control Application Log (protocol files of the machine control)
- User Interface Application Log (protocol files of the user interface)



With the “Data Backup” button 2 all log files stored on the machine can be saved to a USB data storage medium. These logs are for the *Schleuniger* support and serve for the exact analysis of hardware problems.

DATA MANAGEMENT / UPGRADES / SERVICES

This chapter contains information for the backup and restore of data and the software upgrade. Additionally we can change settings concerning the protocol reporting during the production.

Personnel qualification

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

NOTICE

Data loss USB data storage medium!

Inadequate handling or using a wrong USB data storage medium can lead to data loss.

- For the data backup compulsory use the USB data storage medium delivered with this software, as not all USB types are recognized by the software, see document *"Parts Catalog"*.
- The USB data storage medium must be formatted with the Microsoft file system "FAT".

15.1 SERVICES

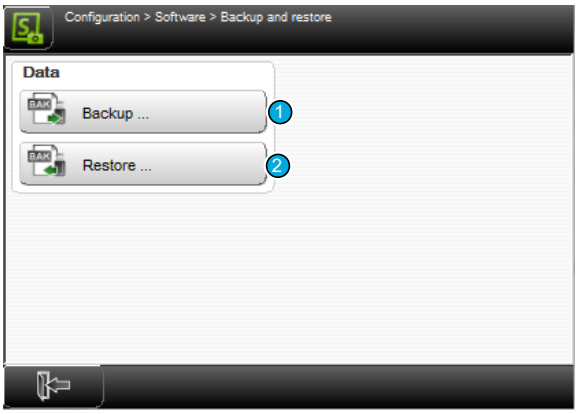
15.1.1 Main screen

For a clearly arranged overview, the "Services" screen is divided into several sub-screens. They will be described here in detail.

1 Data backup
2 Logging
3 File conversion

15.1.2 Backup

Here article data and the configuration of the *PowerStrip 9580* is saved on an USB memory stick to restore after a data crash or for other use.

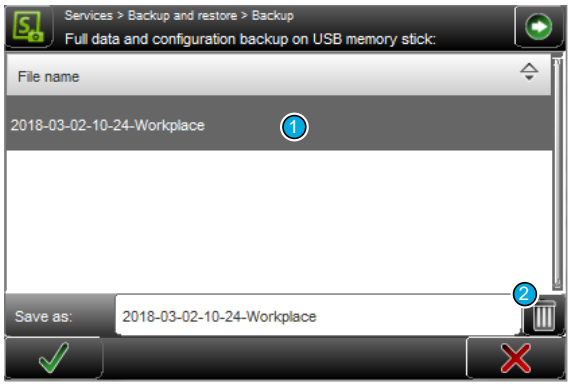


1 Backup

2 Redo

Backup

All article- and the configuration settings are saved to an USB memory stick through this function.



File name (save as...): A file name 1, 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].

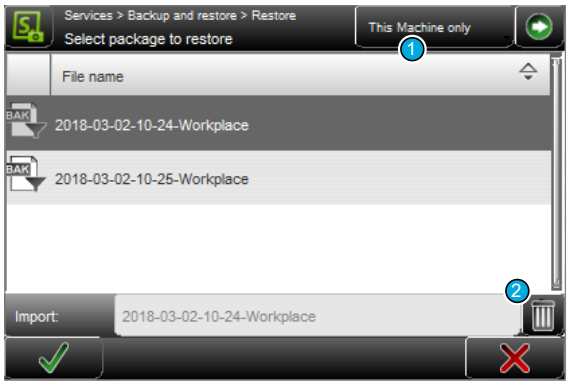
Name: Previously created backups from a particular machine are displayed in the list.

Delete: Via the key [DELETE] 2, 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 via this function.



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

This machine only: Via the key [THIS MACHINE ONLY] 1 the data are identified unique and only the data of the actual machine is shown. After selecting the corresponding file from the list and then confirming with [OK], the data are restored.

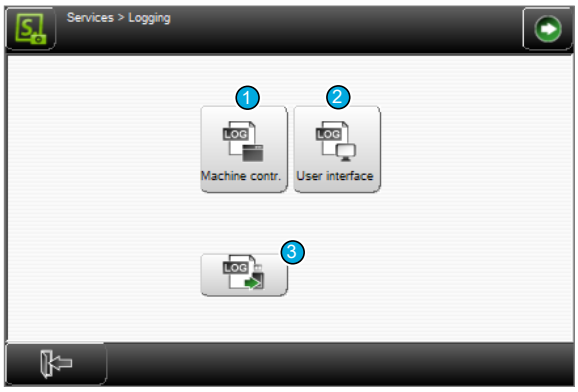
Delete: Via the key [DELETE] 2, the selected backup data in the list are removed from the USB memory stick.

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

15.1.3 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, printed-out or exported to an USB-Memory stick for further analysis on a PC.



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

Logging settings machine: Here the user defines how and which data of the *PowerStrip 9580* shall be saved to the log file.

The following levels of the logging are available:

- None
- Error
- Warning
- Information
- Debug

Protocol settings user interface: Here the user defines how and which data of the user interface shall be saved to the log file.

The following levels of the logging are available:

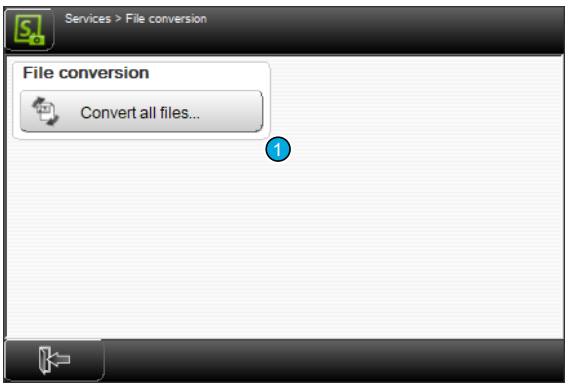
- None
- Error
- Warning
- Information
- Debug

Export logging file: Here the produced actual log file can be stored on an USB memory stick.

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

15.1.4 File conversion

To improve performance, old files (article, raw material and processing) are converted to the current data version. 1 time per machine start the user is informed if his data is still stored in an older version.



1 Convert all files

After touching **[CONVERT ALL FILES]** a warning appears that all files, including files with write protection, will be converted to the latest data format. This means that the files are then no longer compatible with older S.ON versions.

After confirming the question whether to continue with the conversion, the conversion starts.

After successful conversion, return to the "Service" menu by pressing the bottom left key.

15.1.5 Software upgrade

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

Preparing the data

To be able to carry out an upgrade, the upgrade data must be available on an USB data storage medium. The data storage medium for the upgrade then is connected to the USB connection of the automatic cut & strip machine.

To make the data on the USB data storage medium 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!

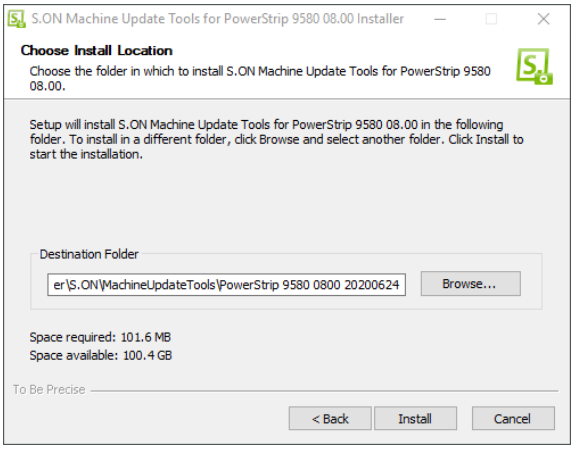
If an error occurs during the software upgrade, data loss can occur.

Normally no article data are lost during an upgrade. Hence before a software upgrade we recommend to save all wire data via the export function in the "Service" screen, to an USB memory stick.

Upgrade procedure

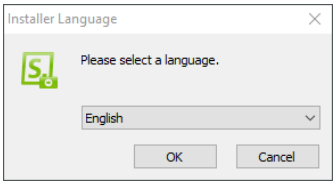
1. Install the USB data storage medium upgrade tool on the PC (file „MachineUpdateTools_Installer.exe“).
2. [NEXT]

3. Select the path where the software on the PC shall be installed (use the default path or enter a new one via [BROWSE]).
4. [INSTALL]
   ➥ The installation starts.



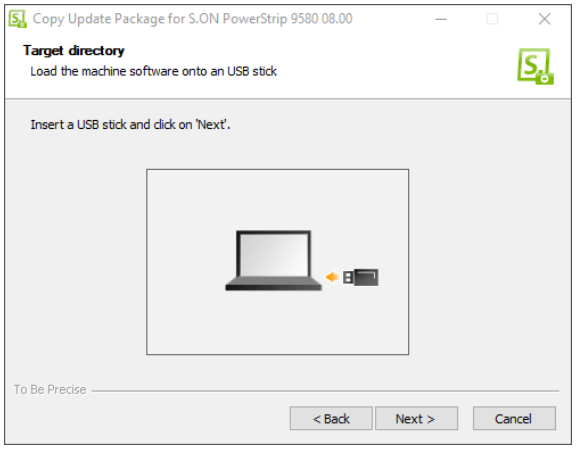
5. Select the option as in the figure.
6. [FINISH]

7. Choose the language.
8. [OK]

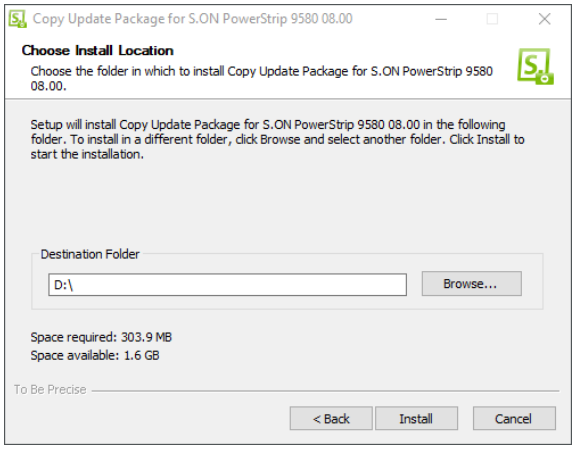


9. ▹ Connect a new USB data storage medium to the PC, which is formatted with the *Microsoft* file system "FAT".
10. ▹ **[NEXT]**

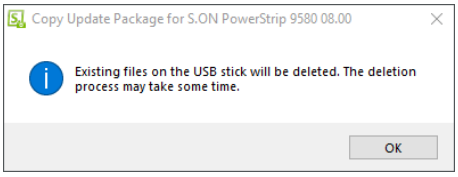
11. ▹ **[NEXT]**



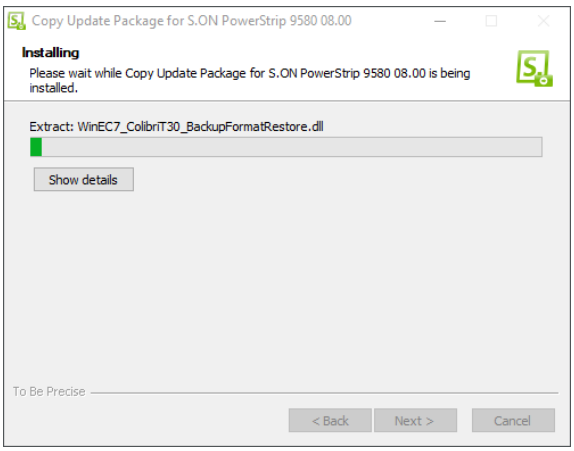
12. ▹ Select the path where the USB data storage medium was recognized by the PC (e. g. D:\ or E:\).
13. ▹ **[INSTALL]**



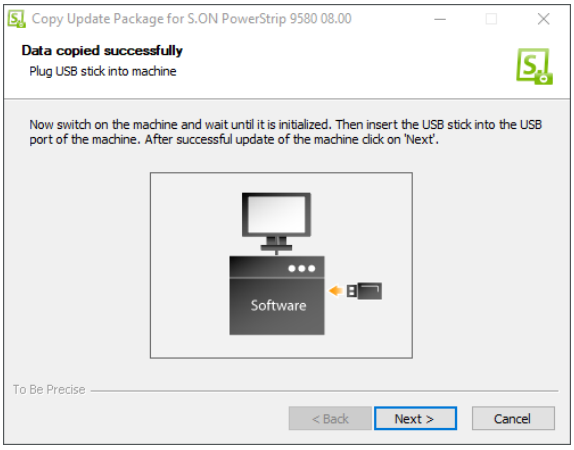
14. ▹ A message appears stating that existing files on the USB data storage medium will be deleted and that the deletion may take some time.
15. ▹ **[OK]**



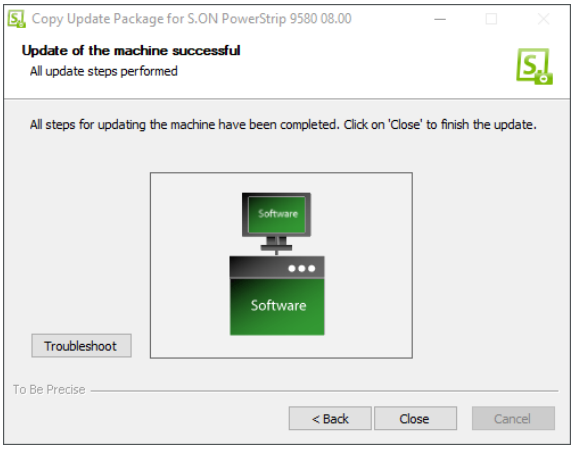
16. ▹ Operating system, firmware data and S.ON are copied to the USB data storage medium.



17. ▹ Insert the prepared USB data storage medium in the USB connection of the machine.
    ➥ The upgrade starts automatically. A message shows up, that the upgrade is performing. After a successful upgrade, an appropriate message is displayed.
18. ▹ **[NEXT]**



19. ▹ **[CLOSE]**
    ➥ The upgrade procedure is terminated.



PROGRAMMING TIPS / EXAMPLES

For programming examples to our *Schleuniger* products, we refer to the add-on document *„Programming examples for wire processing“*. There you will find different examples from the field, which can be worked through step by step, and give the user an in-depth understanding in handling the wire processing software *S.ON*.

See *Table of contents*.

APPENDIX

17.1 OVERVIEW OF SYMBOLS

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

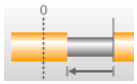
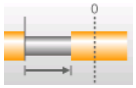
17.1.1 Main screens (navigation)

Symbol	Function	Symbol	Function
	Article editor		Setup
	Configuration		User interface/user level
	Diagnostics		Service
	Raw material library		Processing library
	„About...“ screen		Log out user level
	Shut down *S.ON* control software		

17.1.2 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)
	Back to the next higher screen		Save file under a new name
	Move into blade change position		

17.1.3 Article editor

Symbol	Function	Symbol	Function
	Editor application left open		Editor application right open
	Editor application area open		Tab 1: Article basic data
	Tab 2: Production data		Tab 3: Article comment

17.1.4 Toggle mode

Symbol	Function	Symbol	Function
	Correction mode		Default mode

17.1.5 List commands

Symbol	Function	Symbol	Function
	Select file		Deselect file
	Import article from USB memory stick		Change list view
	Filter files		Additional file commands
	Article list commands		Article list, reset production counter
	Production release article list		No production release article list
	Enter new file		

17.2 TIME / DATE FORMATS

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

17.2.1 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.

17.2.2 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
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:

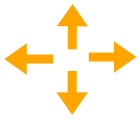
- Calendar week CW 52, 2003:
  2003-W52 - Monday, 22. December 2003 to Sunday, 28. December 2003
- Calendar week CW 1, 2004:
  2004-W01 - Monday, 29. December 2003 to Sunday, 4. January 2004

17.3 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).

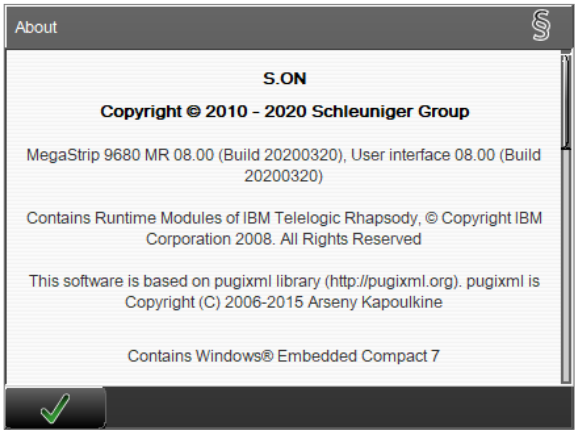
17.3.1 Key assignment

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 		

17.4 LICENSES

17.4.1 License info in the About... Screen

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



17.4.2 Pugixml

This software is based on pugixml library (*pugixml.org*). pugixml is Copyright (C) 2006-2012 Arseny Kapoulkine.

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17.4.3 Qt Framework 5.3

Contains the Qt library. The Qt library is subject to the terms and conditions of the Lesser General Public License (LGPL) 2.1, see chapter *"17.4.4 LGPL 2.1 License (Page 175)"*.

17.4.4 LGPL 2.1 License

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Version 2.1, February 1999

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[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

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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

- 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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See qtbase/src/3rdparty/harfbuzz/COPYING for license details.

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>

Written by Solar Designer <solar@openwall.com> in 2001, and placed in the public domain. There's absolutely no warranty.

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MD5 (md5.cpp and 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.

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SQLite (sqlite) version 3.7.17.0

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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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See qtimageformats/src/3rdparty/libtiff/README for license details.

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.

See qtbase/src/3rdparty/wintab/wintab.h for license details.

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

WebCore (WebKit)

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

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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.

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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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xcb

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Botan version 1.8.8

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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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Clucene Core Library

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