

Online Help

regi_star 20



Wichtig: Das vorliegende Dokument ist ein Auszug aus der Online-Hilfe, die auf dem System installiert ist. Dieses Dokument wurde automatisch erstellt und ist nicht Bestandteil der offiziellen Produktdokumentation.

Important: This document is an excerpt from the online help, which is installed on the system. This document was generated automatically and it is not part of the official product documentation.

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1 System

1.1 Use, tool tips

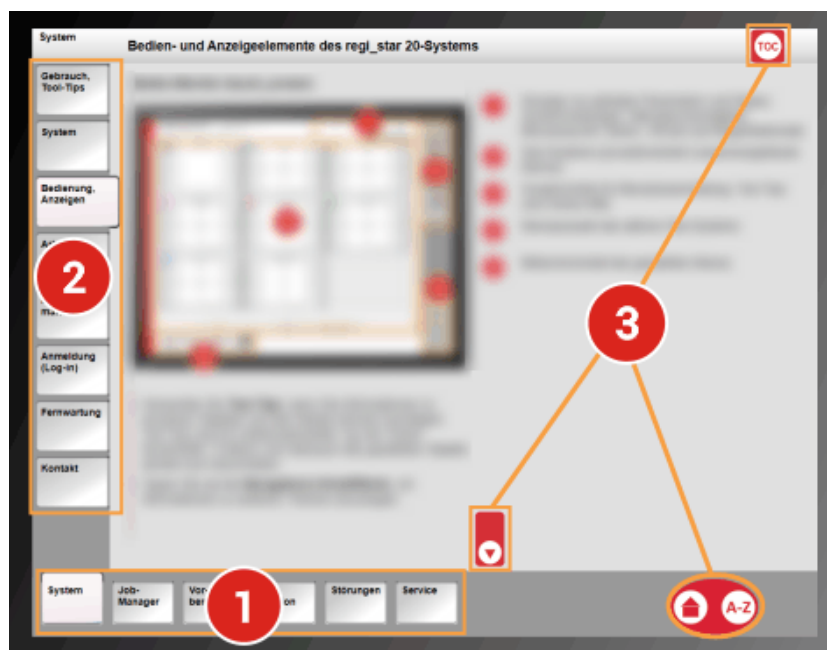
1.1.1 Structure of the online help

Familiarise yourself with the functions concerning the use of the online help! Use, for example,:

- >> 1.3 CONTENT REVIEW
- >> OBJECT-RELATED HELP (ICON HELP)

The online help describes the complete **regi_star 20** system including the usual variants. In the customer-specific individual case, however, smaller deviations may occur. No claims for retrofitting can be made based on this content!

Fig. 1.1.1



- 1 Select the required **help section**.
- 2 Select the desired **Help theme** in the table of contents. The information concerning this help theme is displayed.

For specific help themes it is possible to touch an object to retrieve further information. The desired **detailed information** is displayed.





Touch a cross reference to invoke further subjects! Example:

>> 1.1 STRUCTURE OF THE ONLINE HELP

3

Use the **navigation elements** to retrieve further information:

- ▶ Online help navigator for global functions
- ▶ Leafing through a help theme
- ▶ Content review

1.1.2 Online help navigator

Use this navigation element to scroll up or down in a help theme!



To have all information displayed, touch the arrow symbols displayed for long text sections!

Fig. 1.1.2



The online help navigator is always available. It contains global functions used to facilitate navigation.

1

Invoking the online help **start mask**. It contains information concerning the online help operation.

2

Invoke the **Index** alphabetically sorted to directly access the desired help theme.

3

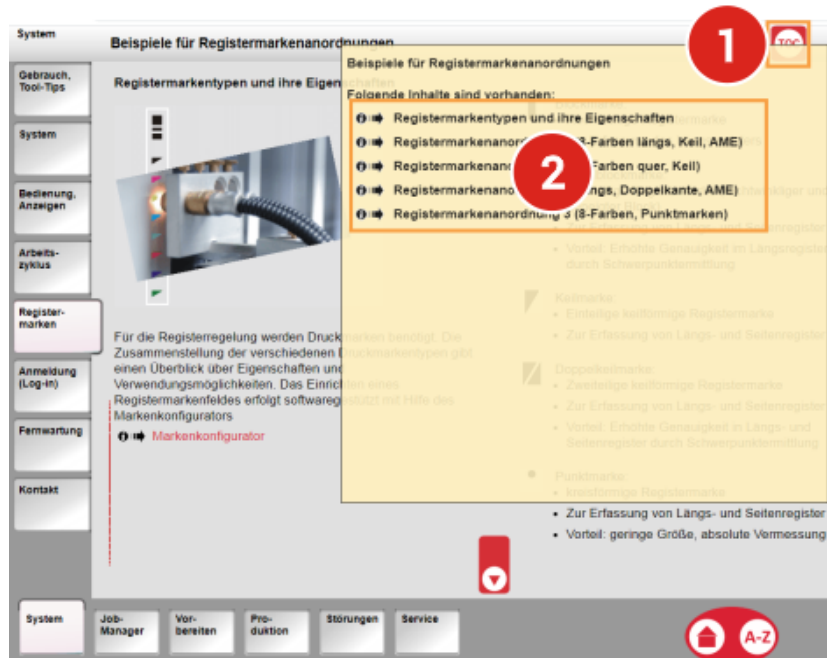
Switch off the online help to continue work with the **regi_star 20**. Alternatively: Touch the area outside of the online help window!

4

Invoke the **MEMO function**. Further information and suggestions concerning your application are contained there.

Fig. 1.1.3

1.1.3 Review of the contents of the selected help theme



1 Touch the **eye**. The **content review** of the help theme is displayed.

2 Touch a cross reference to access the desired content.

Leave this content review (without action) by touching an empty section!

1.1.4 Animations in the online help

In the **regi_star 20** online help, specific operating sequences are described in an animation (short film sequence). The animation is continuously repeated so that the operating sequence can be understood easily.

1 Touch the animation button.

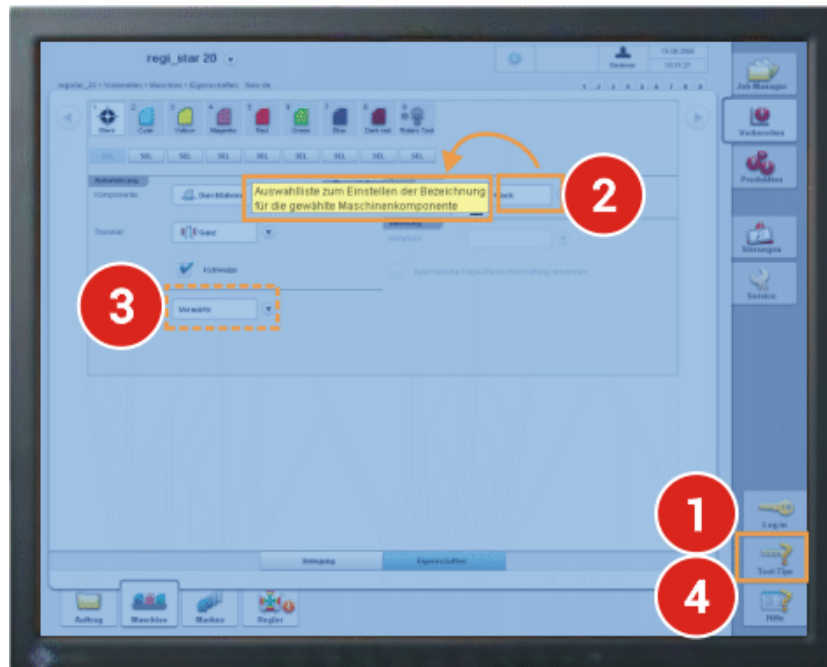
2 Observe the animation to familiarise yourself with the operating sequence and to receive additional information.

The animation can be stopped at any time by invoking a different help theme.

Fig. 1.1.5

1.1.5 Tool tips: Direct help on individual objects

Use tool tips when information on individual objects on your operator monitor is required! Tool tips are a further development of the online symbol help. Brief description of function and use of the selected object.



- 1** Switch on the tool tip mode. The complete operator monitor is coloured blue, the user interface (e.g. button) will become inactive.
- 2** Touch the object to which information is required. The information is displayed in a section with yellow background.
- 3** If necessary, repeat step 2 to retrieve further information.
- 4** Finally switch off the tool tip mode. Following that the user interface will be activated again.

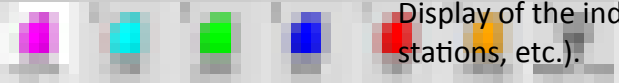
1.2 regi_star 20 > Schematic system review of the possible hardware components

Touch the sections in the graphic to which more information is required.





Print machine connected to the **regi_star 20** system.



Display of the individual machine components as symbols (e.g. print units, tool stations, etc.).



Register sensor to detect the print marks. The following variants are provided:

- ▶ **Fibre-optical register sensor:** Detection head on traverse bar, optical waveguide and sensor housing
- ▶ **Camera-based register sensor:** Camera sensor on traverse bar and processing unit



Central encoder (e.g. in this case attached to a tool station)



Optional units for waste identification (e.g. signal lamps, labeller, horn, etc.)



Absolute encoder in connection with an absolute encoder presetting (option)



Optional individual encoders on specific machine components



End position switches in connection with a feedback presetting (option)



Main components of the **regi_star 20** system (hardware components and IPC)



Complete **regi_star 20** system in customer-specific housing



Operator monitor (touch_screen) as a central operation and display unit

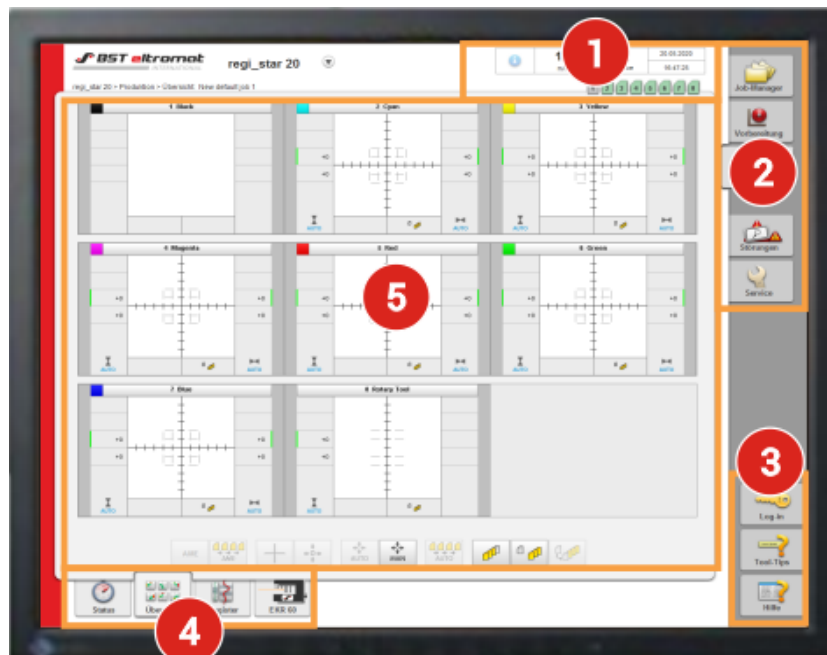
Optional control unit operating fields (keypads)

1.3 Operation, displays

1.3.1 Operator monitor (touch_screen)

- Use **tool tips** when information on individual objects on your operator monitor is required! Tool tips are a further development of the online symbol help. Brief description of function and use of the selected object.
- Touch the **navigation button** to display information about further subjects.

Fig. 1.3.1



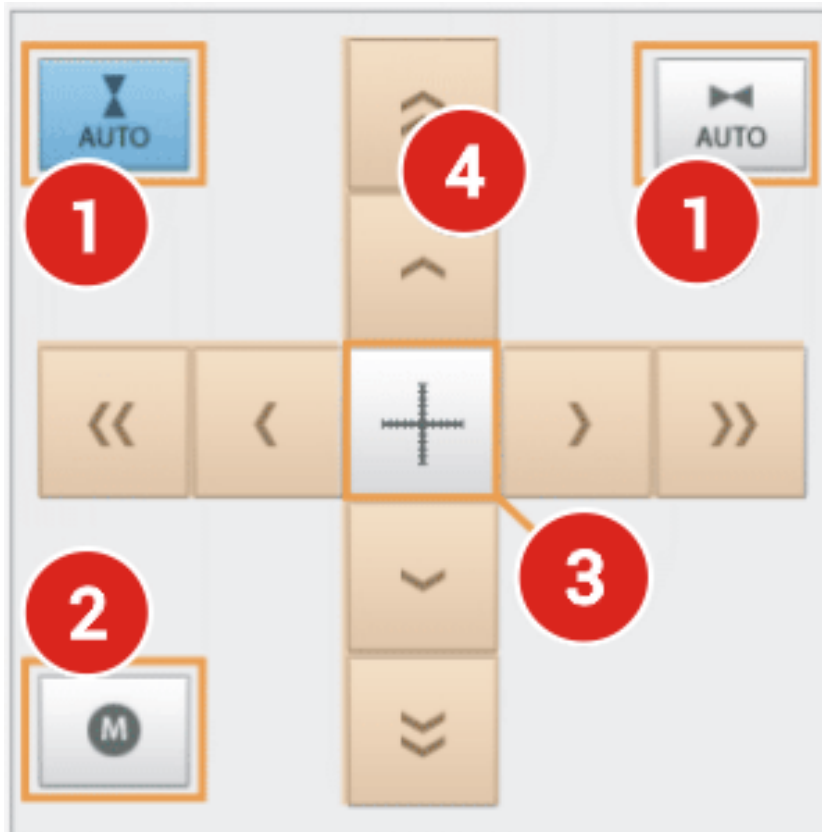
- 1 Display of global parameters and status: System messages, web speed, user profile, date, time and control unit modes
- 2 Sub-systems (process-oriented grouped menus).
- 3 Additional modules for user log-in, tool tips and online help.

- 4 Menu selection of the active sub-system
- 5 Mask content of the selected menu

1.3.2 Control unit operating field (soft keyboard)

A separate operating unit is provided for the operation of **individual** control unit. It is located in the user interface as a soft keyboard.

Fig. 1.3.2



- 1 Switching the register control on/off for:
 - ▶ length register (AUTO / MANU operating mode)
 - ▶ side register (AUTO / MANU operating mode)
- 2 Releasing / locking the operation of the corresponding register motors.
- 3 Set point take-over of the current actual values.
Only possible in the MANUAL operating mode!
- 4 Buttons for the setpoint value or register motor adjustment in two incremental widths.





► Changing set point values:

Ensure that the corresponding register motors are **not** released!

► Adjusting register motors:

Ensure that the control unit is in the MANUAL operating mode and the corresponding register motors are released!

With option "Side register":

Use these operating elements to adapt the control behavior for the length and side register. Positive values result in a more aggressive control behavior, negative values in a more passive control behavior.

1.3.3 Control unit operating field (keypad)

For **directly** operation of control units, keypad can be used as an option. Three control unit operating fields form one keypad. The control unit operating fields are allocated to control units via the number of the control unit.

Fig. 1.3.3



- 1 Switching the register control for length and side register on/off (AUTO / MANUAL operating mode, AUTO = blue LED is lit).



2

Releasing / locking the operation of the corresponding register motors (released = blue LED is lit).

3

Set point value take-over of the current actual values for the length and side register.

Only possible in the MANUAL operating mode!

4

Buttons for the setpoint value or register motor adjustment in two incremental widths.

► Changing set point values:



Ensure that the corresponding register motors are **not** released!

► Adjusting register motors:



Ensure that the control unit is in the MANUAL operating mode and the corresponding register motors are released!

5

Set the set point values to zero.



Only possible in the MANUAL operating mode!

6

Key not assigned.



With the INSETTER option: Releasing / locking the Insetter level adjustment.

7

Control unit number (Allocation of control unit operating field to control unit).

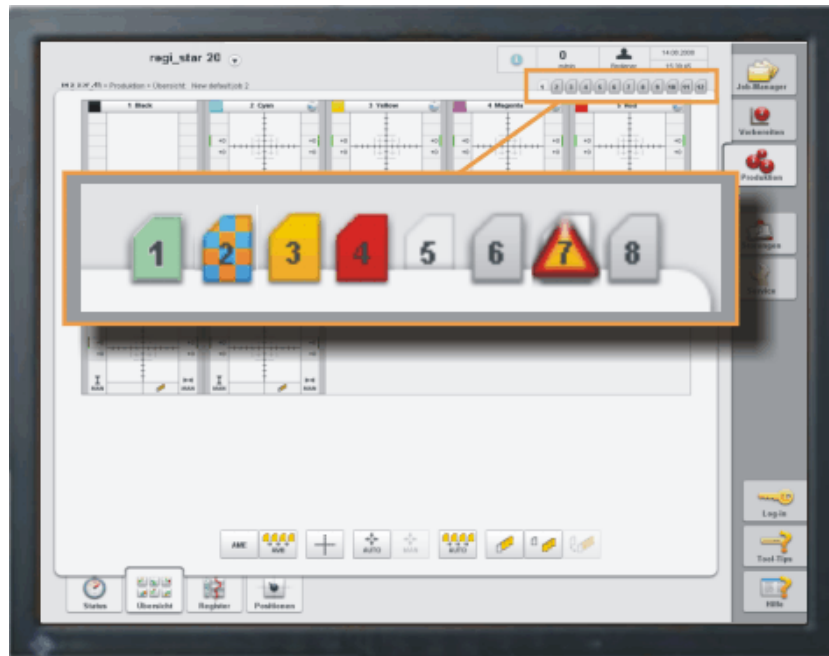
8

Alarm status of the control unit (alarm active = red LED is lit).

1.3.4 Status display of the control units

The status display of the control units is always visible and offers a current system review. The status of all configured control units is displayed. Numbers or name abbreviations consisting of two characters identify the control units. The machine component or control unit order can be configured.

Fig. 1.3.4



Control unit in automatic mode, no register errors



Control unit in automatic mode, register errors exceed warning threshold



Control unit in automatic mode, register errors exceed error threshold



Control unit in manual mode (no control)



Control unit switched off (inactive)



Presetting process active for this control unit

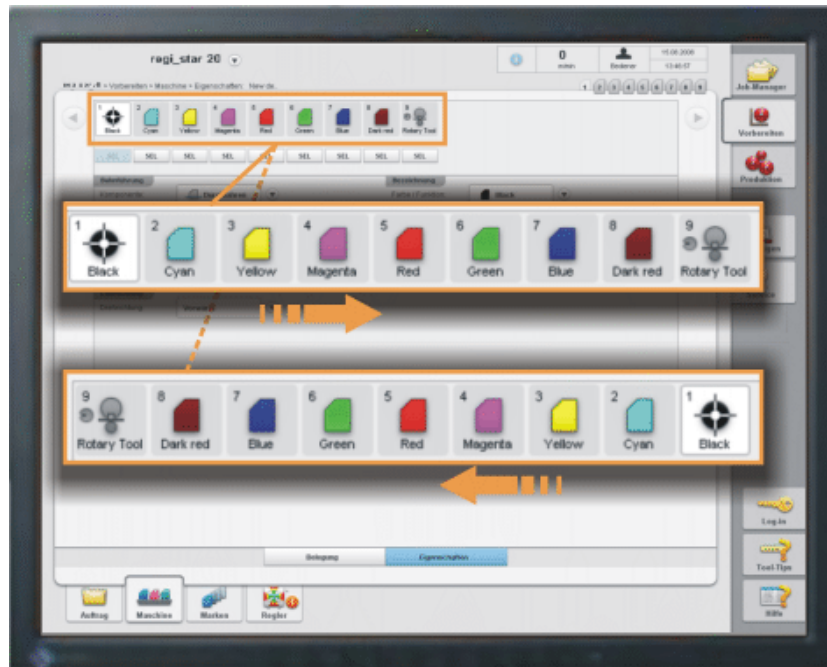


Control unit signals mark alarm (mark to be detected is defective or missing)

1.3.5 Display of a machine component type

The type of a machine component is displayed for every control unit. Print unit symbols have the colour selected in PREPARE. The machine component order (and, thus, also the web running direction through the printing press) can be configured.

Fig. 1.3.5



General gravure print unit

Cutting die (e.g. flat bed cutter)

Rotary tool (e.g. guillotine)

Pulling group

Swivel frame for lateral web running control

1.3.6 Register display

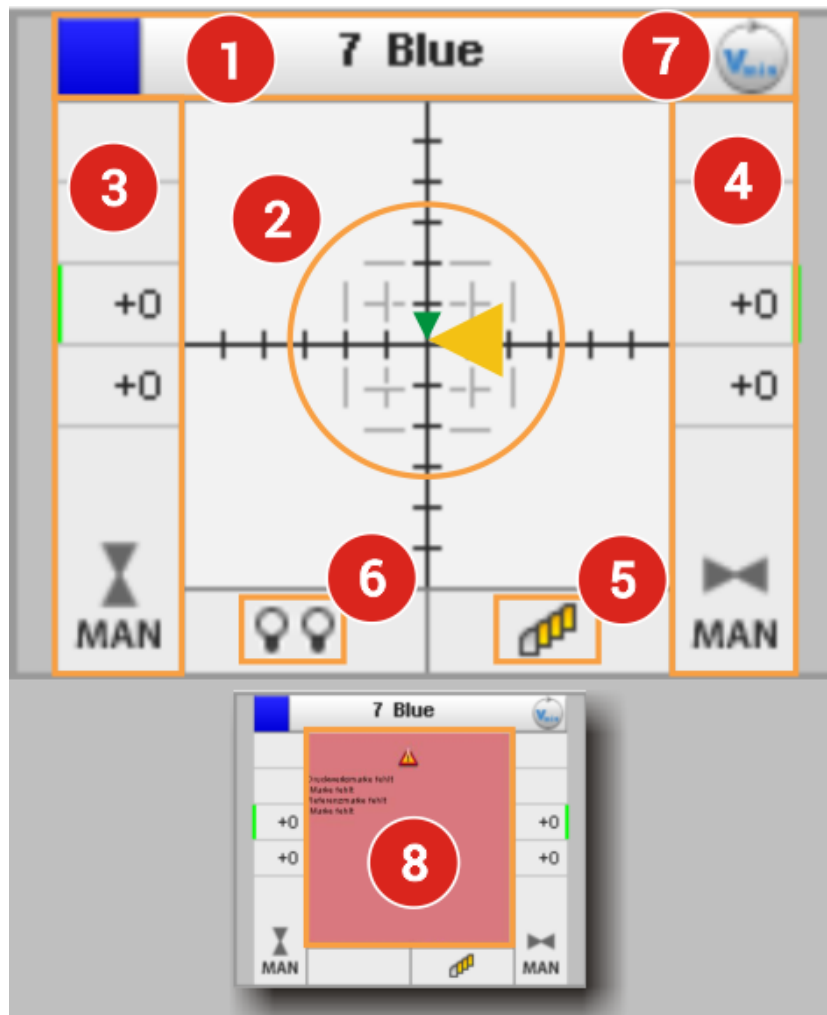
In the event of a mark alarm, an error message with red background is mapped instead of the register display. Short-time mark alarms are not critical. Remedy permanent mark alarms, e.g. by repositioning the measuring gate.

>> 1.13 OSCILLOSCOPE DISPLAY

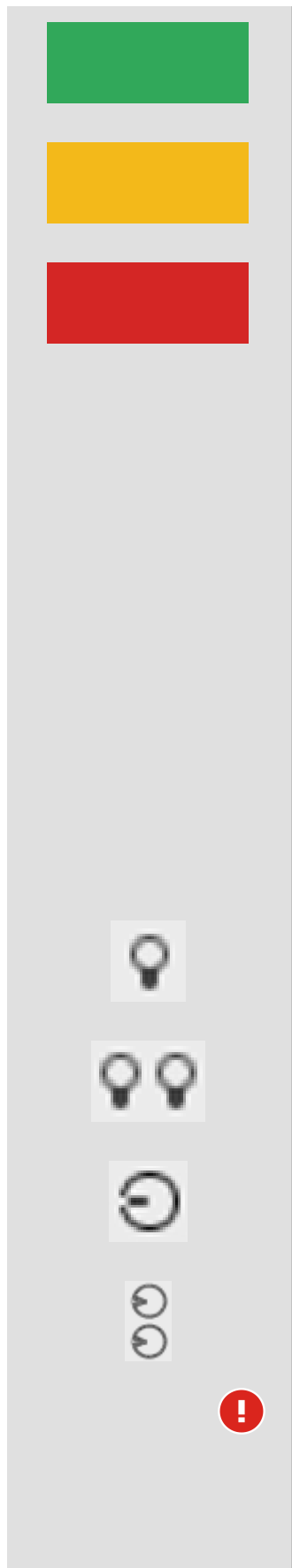


If a control unit is in an alarm status, no automatic register adjustments are carried out for this control unit.

Fig. 1.3.6



- 1 Display of the control unit designation (colour, control unit number, function text)
- 2 Register display: Graphical display of the actual values with coloured identification when the tolerance values are exceeded.



No register errors (GOOD)

Minor register errors (WARNING)

Register errors (ERROR)

3

Length register displays:

- ▶ Set point value
- ▶ Actual value
- ▶ Operating mode (Automatic / Manual)

4

Side register displays:

- ▶ Lateral web sensor position in relation to the mark centre (option)
- ▶ Set point value
- ▶ Actual value
- ▶ Operating mode (Automatic / Manual)

5

Display of the currently used measuring method (sequential / fixed measurement)

6

Display of the active sensor method:

single head

double head

web cylinder

Cylinder-Cylinder

CYLINDER-CYLINDER is only displayed at the beginning of the register control.

7

Display of speed related alarms:



Speed alarm

Acceleration alarm

8

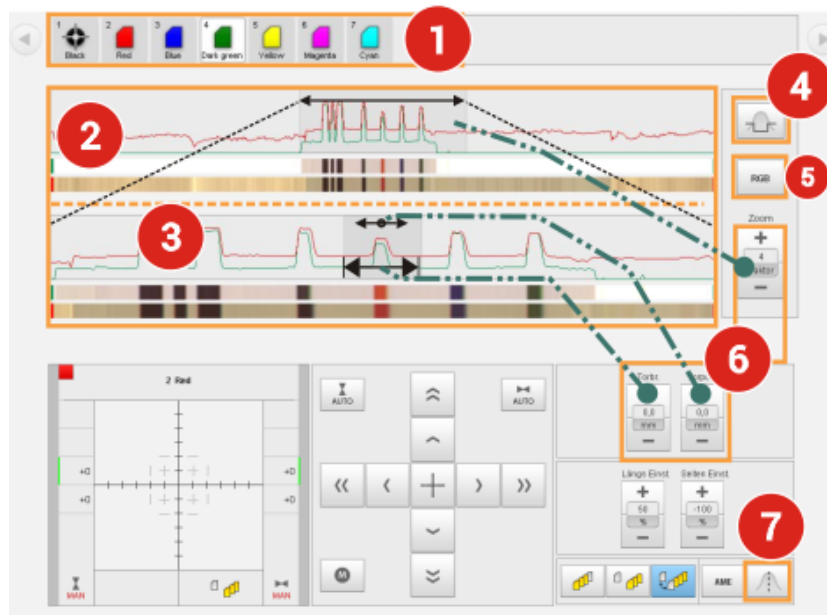
Display of mark alarms with the respective information text

1.3.7 Oscilloscope display (single head method)

Twin head method (option): Two mark signals are displayed: Channel 1 (green, reference), channel 2 (red, selected control unit). The measuring gate includes both mark signals.

Web-cylinder method (option): The cylinder pulse (red, active flank in the gate centre) is additionally displayed. The measuring gate includes the active flank and the mark signal.

Fig. 1.3.7



1

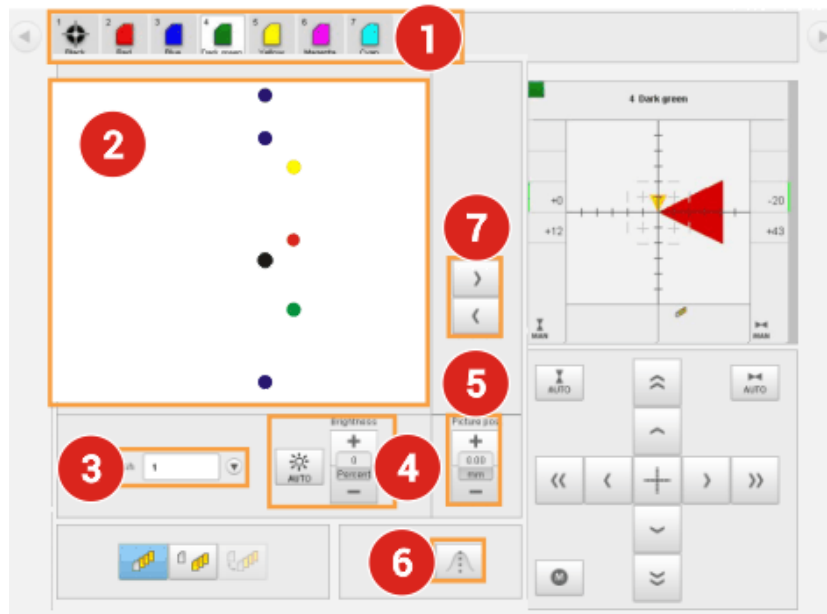
Machine component selection (signal source).

- 2 Mark signals of the **complete cylinder circumference**. Here you can touch a mark signal to roughly set the measuring gate around this mark. The area marked in grey displays the set zoom area.
- 3 Mark signals **within** the **zoom area**. Here you can touch a mark signal to precisely set the measuring gate around this mark. The areas marked in grey display the measuring gates.
- 4 Switch on / off the **direct gate positioning**. You can then set the measuring gate by tapping the desired mark signal. Confirm by pressing the ✓ button.
- 5 Switch on / off manual register adjustment with **RegiTouch**. For further information, please refer to
>> 4.10 REGITOUCH
- 6 Switch on/off the RGB display mode of the register mark sensor signals. In the RGB display mode, it is possible to precisely analyse the spectral parts of the mark signals.
- 7 You can correct the gate settings. Change the numerical values for **zoom**, **gate width** and **gate position**.
- 8 You can use the **gate centering** function to center a register mark in the measuring gate.

1.3.8 Live image

The live image allows the monitoring of the mark field at any time. In this manner, register errors can be visualised.

Fig. 1.3.8

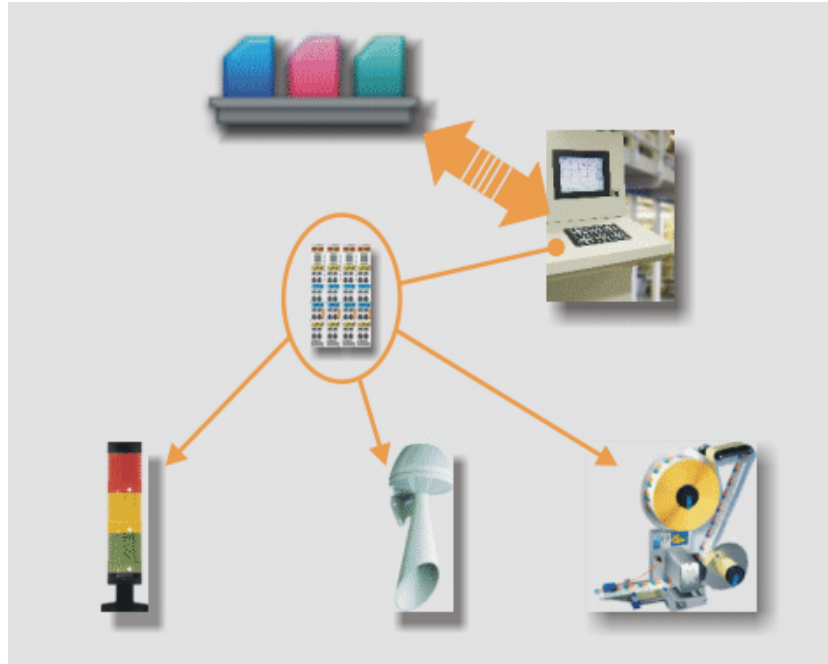


- 1 Machine component selection (signal source).
- 2 Live image display.
- 3 Some camera sensors allows the selection of the flash type:
 - ▶ Flash for reflecting materials
 - ▶ Flash for non-reflecting materials
- 4 Use the +/- keys to manually set the live image brightness. There is also the possibility to have the optimum brightness determined and set by the system (AUTO button).
- 5 You can displace the image position in the web running direction.
- 6 You can have the register mark field displayed in the live image centre.
- 7 **Nur bei Option "dimudrive connection (TP) is installed":**
You can move the camera sensor to the LH and RH side on the motorised traverse bar. This makes it possible to align the camera sensor with the register mark field.

1.3.9 Waste display

If the functions listed here are available partially depends on the customer specific machine equipment.

Fig. 1.3.9



- ▶ The **regi_star 20** system can be equipped with optional switching outputs for the display of register waste (production of a print product outside of the set register tolerances).
- ▶ Potential-free switch contacts and a switched supply voltage are available. It is possible for the customer to connect e.g. signal lamps, acoustic signal units or labellers here.
- ▶ The following signals are available:
 - ▶ Waste pre-warning (undelayed result signal)
 - ▶ Waste (undelayed result signal)
 - ▶ Waste/labeller (correctly delayed signal for the marking of register waste precisely to the format)

1.3.10 Activation & display of the production status

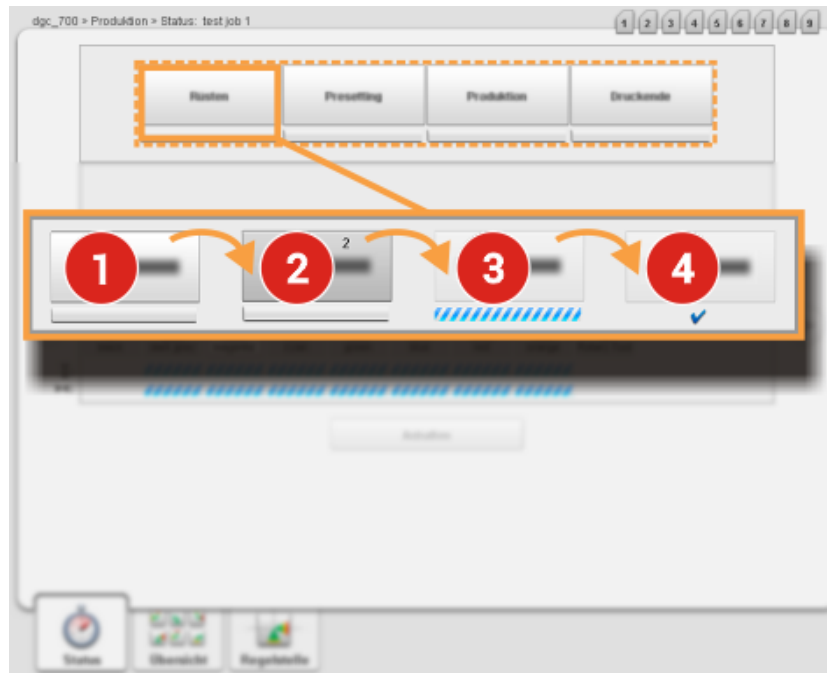
A process activity is indicated as follows:

no process

process running

process completed

Fig. 1.3.10



The following description applies for operating the MAKE-READY, PRESETTING, PRODUCTION and PRINT END production modes.

- 1**
 - ▶ Function is not actuated
 - ▶ Status is not set
- 2**
 - ▶ Button is touched and is held (countdown: 3-2-1)

Touch this button for more than 3 s to execute the function.

 - ▶ Status is not set
- 3**
 - ▶ Function is executed
 - ▶ Status is set
- 4**
 - ▶ Function is completed
 - ▶ Status remains set



1.4 Register marks

1.4.1 Register mark types and their features

Print marks are required for register control. The grouping of different print mark types shows the features and application possibilities. The register mark fields are set up supported by the software by means of the mark configurator

>> 6.10 MARK CONFIGURATOR

Fig. 1.4.1



Block mark:

- ▶ Rectangular register mark
- ▶ For the detection of the length register

Double block mark:

- ▶ Two-piece register mark (rectangular and tilted block)
- ▶ For the detection of length and side register
- ▶ Advantage: Increased accuracy in the length register by importance determination

Wedge mark:

- ▶ One-piece, wedge-shaped register mark

- For the detection of length and side register

Dot mark:

- circular register mark
- For the detection of length and side register
- Advantage: small size, absolute measurement

Edge mark/double edge mark

- one-dimensional register mark
- For the detection of the length register
- Advantage: Use of print features already existing as register mark

1.4.2 Register mark arrangement 1 (8-colours lengthwise, wedge, AME)

Click on the sections in the graphic to which more information is required.

Shown example:

- Type: 8-colour length mark field
- Mark shape: Wedge marks
- AME: Leading AME block mark field printed
- Position: LH format margin

Use the mark configurator to set up a register mark field.

>> 6.10 SETTING PRINT MARK FIELDS

Shown example:

- Type: 8-colour length mark field
- Mark shape: Wedge marks
- AME: Leading AME block mark field printed
- Position: LH format margin

Use the mark configurator to set up a register mark field.

>> 6.10 SETTING PRINT MARK FIELDS

1

Format start

2

Format end

3

AME block mark field, leading in the web running direction. The mark field configurator is used to measure the AME block mark field.

4

Register mark field

5

Register cross

6

Free print space around to the entire mark field (minimum spacing).

7

Running direction of the printed web at the position of the print mark sensing

1.4.3 Register mark arrangement 2 (8-colours crosswise, wedge)



Click on the sections in the graphic to which more information is required./>



Shown example:

- ▶ Type: 8-colour cross mark field
- ▶ Mark shape: Wedge marks
- ▶ AME: No
- ▶ Position: Top format margin

!

Use the mark configurator to set up a register mark field.

>> 6.10 SETTING PRINT MARK FIELDS



Shown example:

- ▶ Type: 8-colour cross mark field
- ▶ Mark shape: Wedge marks
- ▶ AME: No
- ▶ Position: Top format margin



Use the mark configurator to set up a register mark field.

>> 6.10 SETTING PRINT MARK FIELDS



Format start



Format end



Register mark field



Register cross



Free print space around to the entire mark field (minimum spacing).



Running direction of the printed web at the position of the print mark sensing

1.4.4 Register mark arrangement 4 (lengthwise, double edge, AME)



Click on the sections in the graphic for which more information is required.



Shown example:

- ▶ Type: Length mark field
- ▶ Mark shape: Double edge marks
- ▶ AME: Leading AME block mark field printed
- ▶ Position: LH format margin



Due to the fact that edge marks can be used as print parts (e.g. barcode lines), the edge mark appearance varies depending on the application. For this reason, the mark field shown is only a symbolic representation!



Use the mark configurator to set up a register mark field.

>> 6.10 SETTING PRINT MARK FIELDS



Shown example:

- ▶ Type: Length mark field
- ▶ Mark shape: Edge marks
- ▶ AME: Leading AME block mark field printed
- ▶ Position: LH format margin



Use the mark configurator to set up a register mark field.

>> 6.10 SETTING PRINT MARK FIELDS



Format start



Format end



AME block mark field, leading in the web running direction. The mark field configurator is used to measure the AME block mark field.



Symbolic representation for a double edge mark. Both edges can be existing print features (e.g. barcode lines).



Any print between the two edges of an edge mark or between two edge marks.



Running direction of the printed web at the position of the print mark sensing

1.4.5 Register mark arrangement 3 (8-colours lengthwise, dot marks)



Click on the sections in the graphic to which more information is required.



Shown example:

- ▶ Type: 8-colour length mark field
- ▶ Mark shape: dot marks
- ▶ Position: LH format margin

The mark field can consist of several part mark fields dependent upon the machines or print material properties and the number of printed colours:

- ▶ 2 to 5 colours --> 1 part mark field
- ▶ 6 to 8 colours --> 2 part mark fields
- ▶ 9 to 11 colours --> 3 part mark fields



Use the mark configurator to set up a register mark field.

>> 6.10 SETTING PRINT MARK FIELDS



Shown example:

- ▶ Type: 8-colour length mark field
- ▶ Mark shape: dot marks
- ▶ Position: LH format margin

The mark field can consist of several part mark fields dependent upon the machines or print material properties and the number of printed colours:

- ▶ 2 to 5 colours --> 1 part mark field
- ▶ 6 to 8 colours --> 2 part mark fields
- ▶ 9 to 11 colours --> 3 part mark fields



Use the mark configurator to set up a register mark field.

>> 6.10 SETTING PRINT MARK FIELDS



Format start



Format end



Reference marks: Each of the three reference marks of a part mark field is printed with the last colour of the previous mark field. These three reference marks must

be printed in one printing unit and must include the other marks, i.e. they represent the outer border of the (part) mark fields in the length direction.

Key colour: The key colour is repeated in each part mark field.

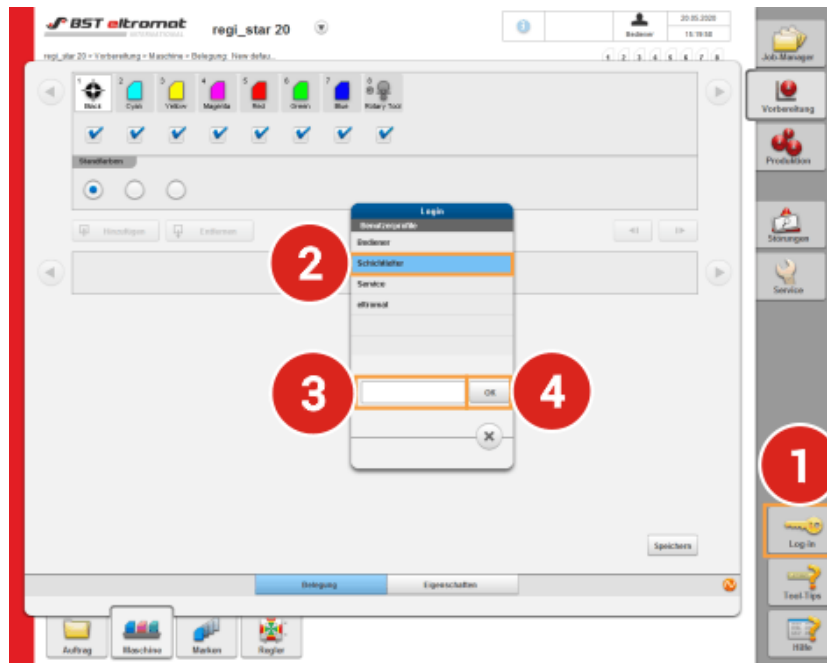
Register marks: The mark field comprises of circular dot marks. Each printing unit to be controlled must print a least one full surface dot mark.

Running direction of the printed web at the position of the print mark sensing

1.5 User log-in

The user interface knows various user profiles with progressive rights (limited user scope). Log in using the user profile suitable for your work. The standard user profile is OPERATOR.

Fig. 1.5



1 Open the user log-in dialog window.



2 Select the user profile desired for your log-in.

3 Enter your password.

The OPERATOR user profile does not require a password!

4 Acknowledge the input in order to log in. Now the system can be operated according to the selected user profile.



For a log-in using a user profile exceeding OPERATOR: After changes in the system settings have been completed log in again as OPERATOR (access protection).

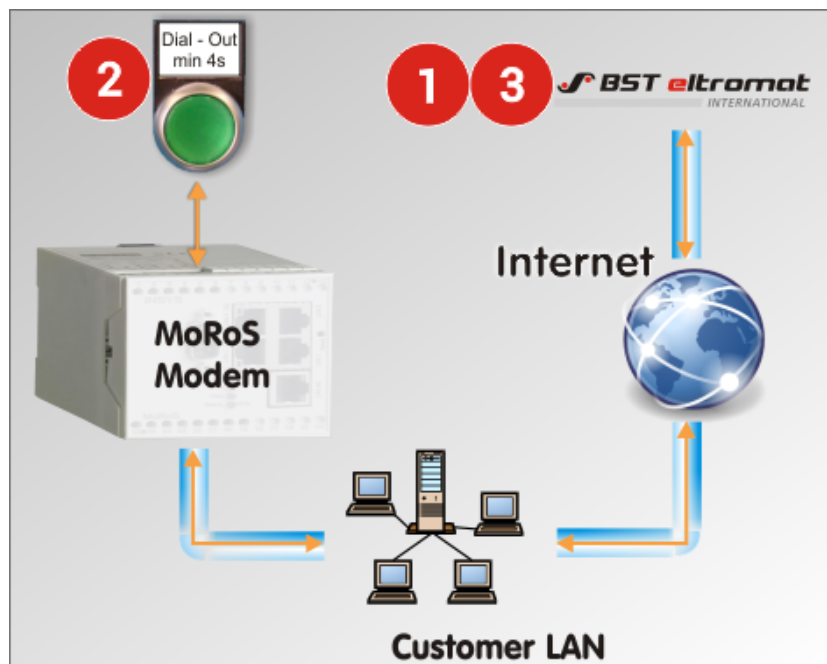
1.6 Using the remote service

The remote service function is used to connect the **regi_star 20** system to **BST eltromat GmbH Germany** via internet. Thus, **BST eltromat** is able to support the customer when carrying out tasks such as software changes, communication errors and hardware problems.



For information about installing the remote service, please refer to the assembly instruction of the **regi_star 20** system.

Fig. 1.6





- 1 Inform **BST eltromat** by telephone about your desire to activate the remote service function.
- 2 Activate the communication interface (hold the green push button in the operating panel/switch cabinet pressed for at least 4 seconds).

Now, the remote service can be executed.

- 3 Adhere to the instructions given by the **BST eltromat** service technician.

2 Job manager

2.1 Diagrammatic review of the JOB MANAGER sub-system



Touch the sections in the graphic to which more information is required.

This sub-system contains all functions, operating elements and displays required to save, load, delete and manage jobs. It consists of two subject-related menus arranged in a list

- ▶ JOB LIST and
- ▶ JOB MEMORY.



Producing the selected job (sub-system PRODUCTION): The **regi_star 20** system automatically controls the register while the print job is produced.



Processing the selected job in the sub-system PREPARE: All parameters of the register controller system can be set to the values suitable for the print product.



Job list: Contains the print jobs to be processed (max. 14). New jobs can be generated, prepared and subsequently produced. Furthermore, jobs can be deleted or taken over into the job memory.



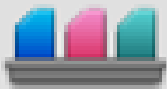
Job memory: Is intended for saving larger amounts of data. It contains all print jobs taken over from the job list. Jobs can be deleted or loaded back into the job list. Sorting and filter functions are integrated for an improved review.



Possible operations in the job list: Generating new jobs, saving a job in the job memory, deleting a job.



Possible operations in the job memory: Taking over the job into the job list, deleting job.



Print machine connected to the **regi_star 20** system.



The operations in the sketch are possible within the JOB MANAGER sub-system (rectangular section).

2.2 Job list

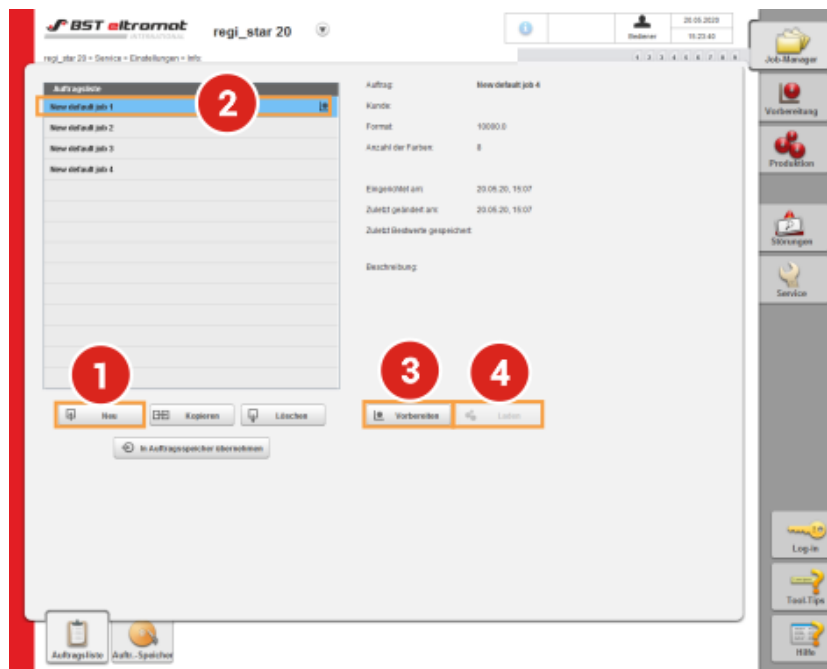
2.2.1 Creating and processing a new job

The job list contains print jobs to be processed currently. Jobs can only be generated here or taken over in PREPARE or in PRODUCTION.

>> 3.2 PREPARE

>> 4.2 PRODUCTION

Fig. 2.2.1



- 1 Generate a new job in the job list or follow step 2.
- 2 Touch the desired job in the job list (automatically for a new job).
- 3 Process the selected job in the PREPARE sub-system.

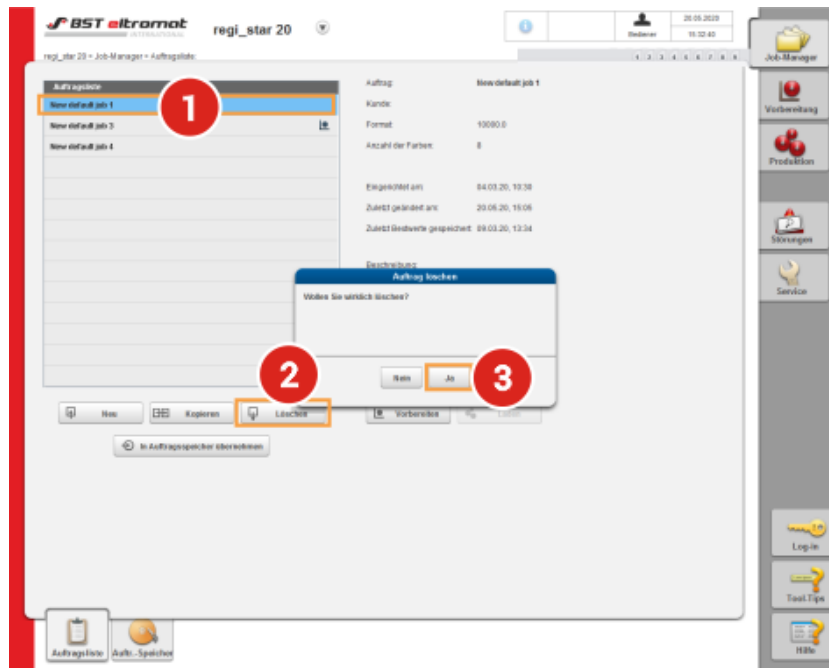
- 4 Take the prepared job over into the PRODUCTION sub-system.

2.2.2 Deleting a job

A safety inquiry serves to prevent unintentional deletion of an existing job !

The selected job is only deleted from the job list. If it has been saved in the job memory (option), it remains saved there.

Fig. 2.2.2



- 1 Touch the desired job in the job list.
- 2 Delete the selected job. A safety inquiry is displayed.
- 3 Acknowledge the safety inquiry.

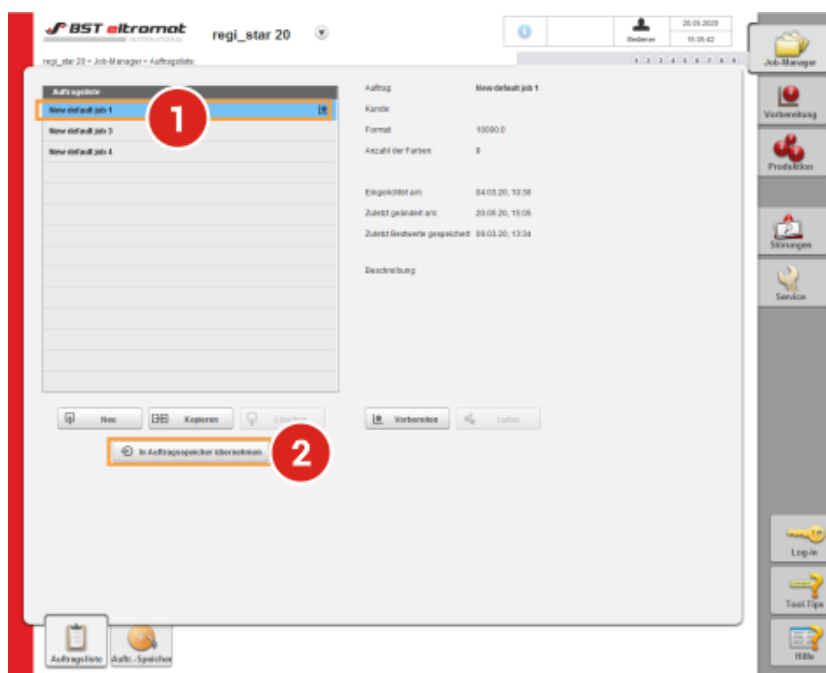
The job is deleted from the job list.

2.2.3 Saving the job

A safety inquiry serves to prevent that an existing job is unintentionally written over!

>> 2.6 JOB MEMORY

Fig. 2.2.3



- 1 Touch the desired job in the job list.
- 2 Save the selected job in the job memory.

2.3 Job memory

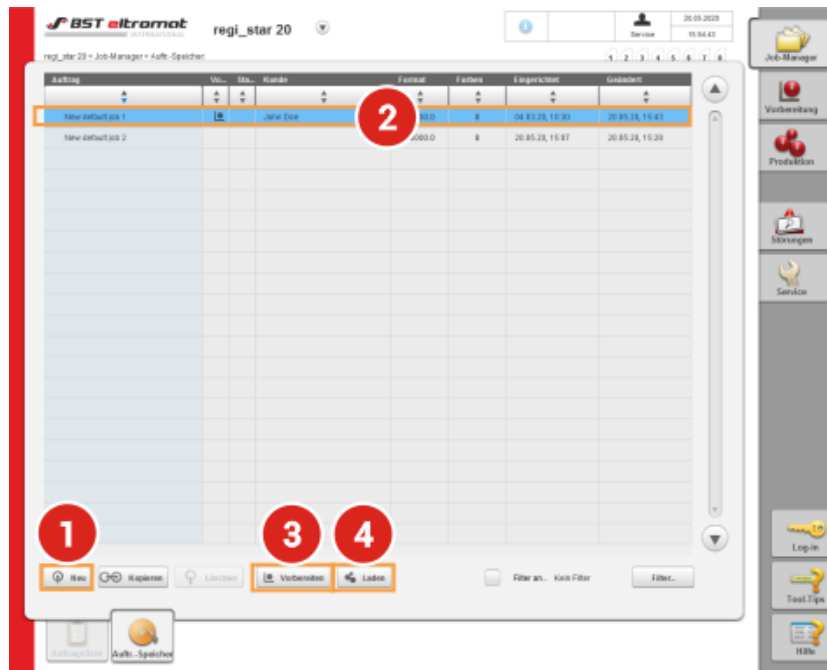
2.3.1 Creating and processing a new job

The job memory contains print jobs to be processed currently. Jobs can only be generated here or taken over into PREPARE or PRODUCTION.

>> 3.2 PREPARE

>> 4.2 PRODUCTION

Fig. 2.3.1



- 1 Generate a new job in the job memory or follow step 2.
- 2 Touch the desired job in the job memory (automatically for a new job).
- 3 Process the selected job in the PREPARE sub-system.
- 4 Take the prepared job over into the PRODUCTION sub-system.



Under normal circumstances, the job which was in the PRODUCTION status last is loaded into the register controller during system start. If **no** job was in the PRODUCTION status prior to system start, it is possible to load another job instead. Further information on this:

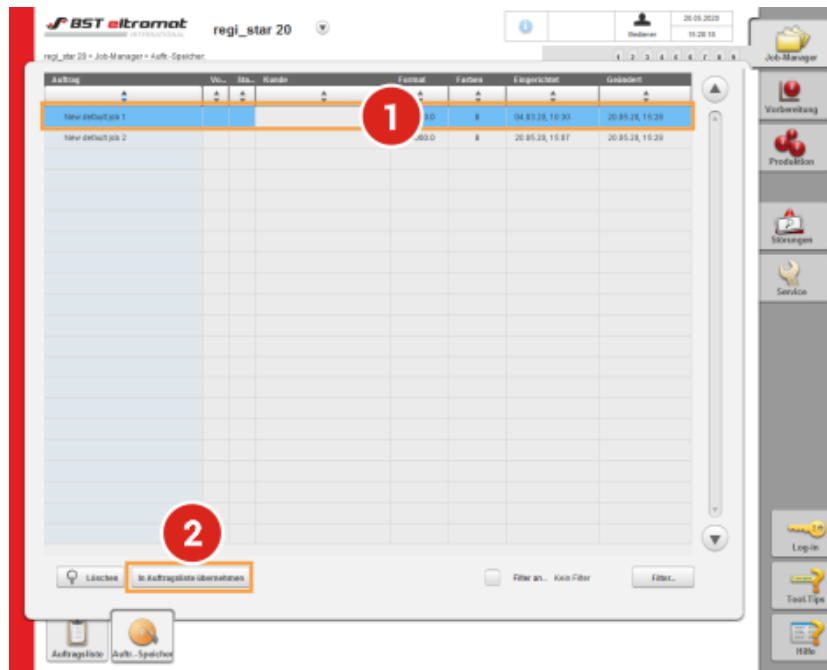
>> 6.6 SERVICE, SETTINGS:

2.3.2 Taking over the job into the job list

The job memory contains all saved print jobs. They can be deleted or taken over into the job list for processing at any time.

>> 2.2 JOB LIST

Fig. 2.3.2

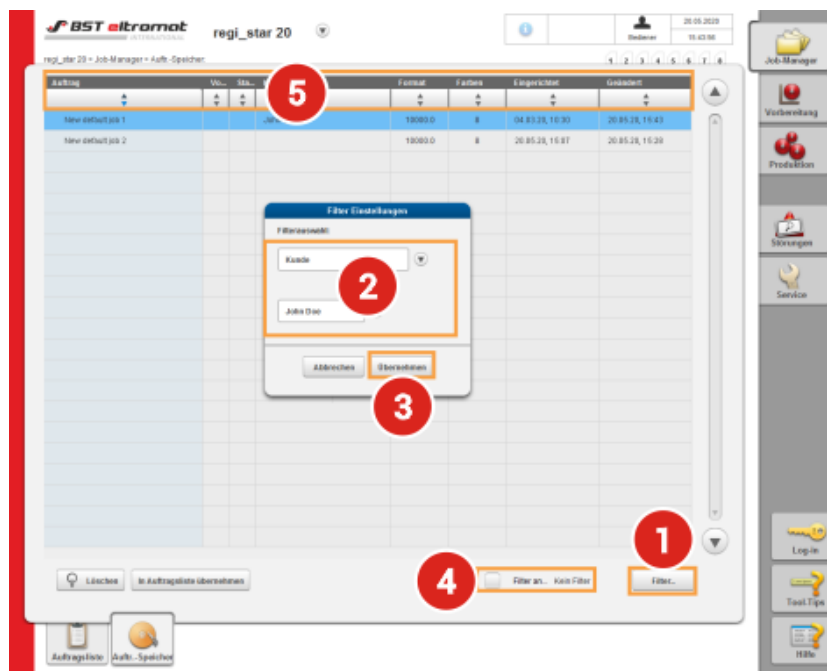


- 1 Touch the desired job in the job memory.
- 2 Take over the selected job into the job list.

2.3.3 Filter function

The filter function allows to filter specific print jobs (e.g. all jobs of one customer) from all jobs saved in the job memory.

Fig. 2.3.3

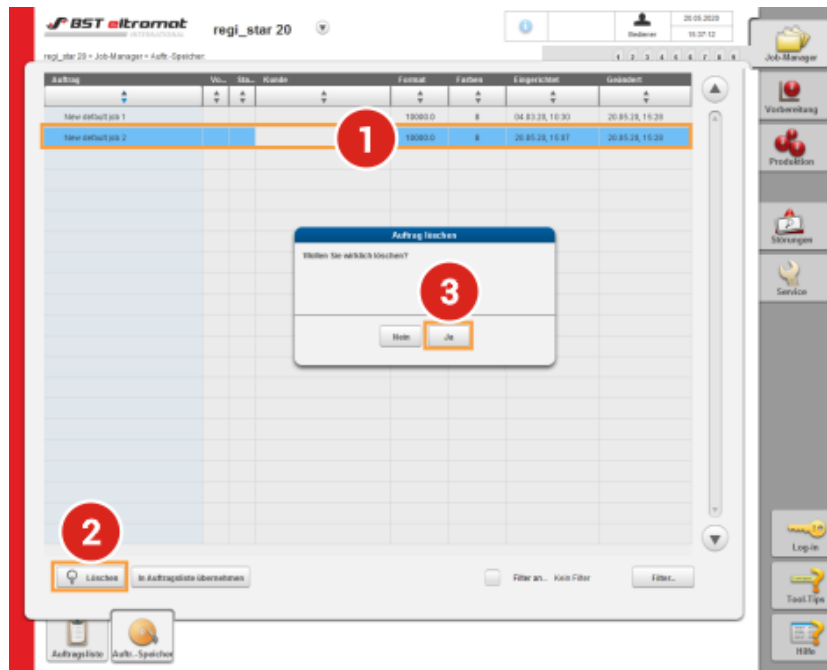


- 1 Invoke the filter function.
- 2 Select the desired filter type and, if required, further criteria from the list.
- 3 Confirm your selection.
The filtered jobs are displayed.
- 4 You can activate and deactivate the filter function as required.
- 5 The jobs can be sorted in the list according to columns (ascending or descending) by touching the top column section.

2.3.4 Deleting a job

A safety inquiry serves to prevent unintentional deletion of an existing job !

Fig. 2.3.4



- 1 Touch the desired job in the list of the job memory.
- 2 Delete the selected job. A safety inquiry is displayed.
- 3 Acknowledge the safety inquiry.
The job is deleted from the job memory.

3 Prepare



3.1 Diagrammatic review of the PREPARE sub-system

Touch the sections in the graphic to which more information is required.

This sub-system contains all functions, operating elements and displays required for setting up print jobs. It consists of the four theme related sections

- ▶ JOB,
- ▶ MACHINE,
- ▶ MARKS and
- ▶ CONTROLLER.

The sections are also sub-divided into graphical menus.



Machine parameter entry



Job parameter entry



Operator monitor (touch_screen) for the parameter entry



regi_star 20 system



Mark parameter entry



The operations in the sketch are possible within the PREPARE sub-system (rectangular section).



Controller parameter entry

3.2 Job

3.2.1 Job data entry

This global job data is also displayed in the job list.

Fig. 3.2.1

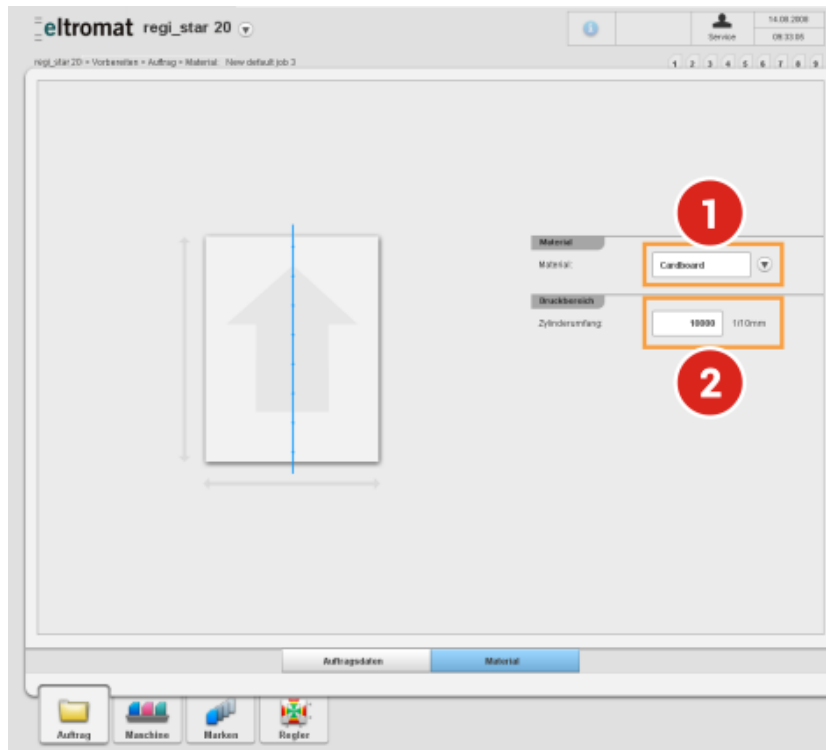
- 1 Enter an informative job designation.
- 2 If necessary, enter a customer description.
- 3 If necessary, enter additional information about the job.

Further entries:

>> 3.3 CHANGE TO THE FOLLOWING MENU!

Fig. 3.2.2

3.2.2 Adjustment of material and format



1 Enter the precise cylinder circumference.

Also use the MEMO function for further information.

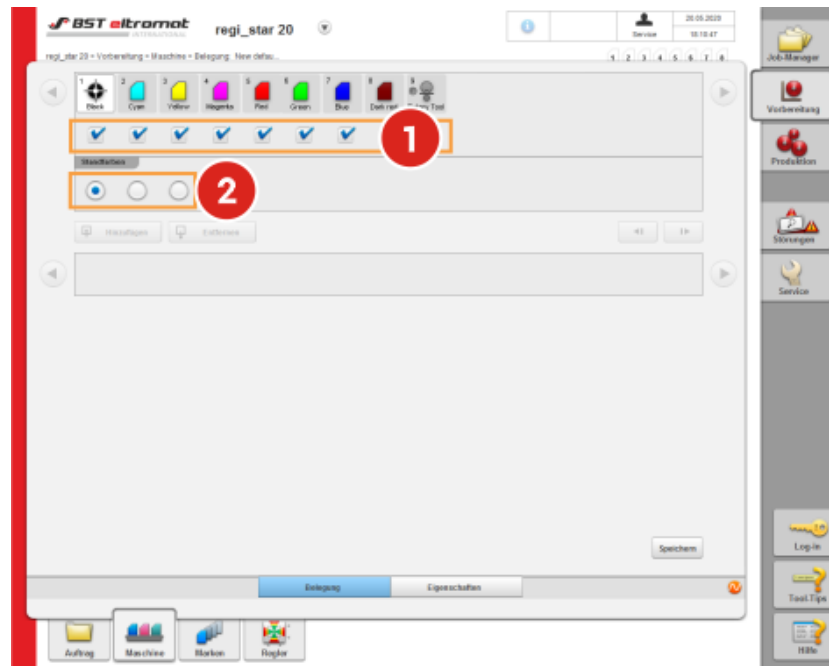
Further entries:

>> 3.4 CHANGE TO THE FOLLOWING MENU!

Fig. 3.3.1

3.3 Machine

3.3.1 Machine assignment adjustment



- 1 Select the machine components to be used. They will participate in the control process.
- 2 Determine the print unit for the key colour (control reference).

The key colour print unit is identified by this symbol.



Only the first or second print unit participating in the printing process can be selected as the key colour.



Further entries:

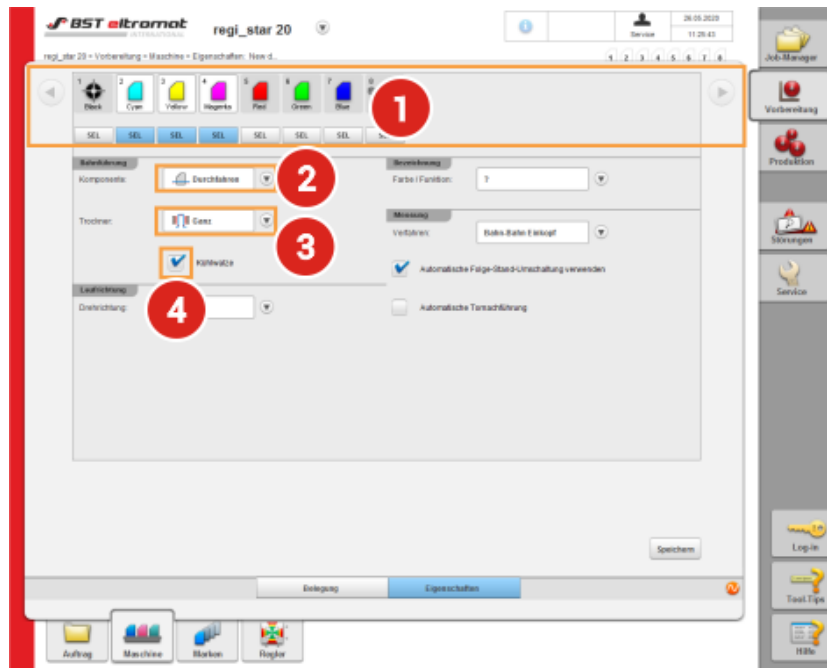
>> 3.5 CHANGE TO THE FOLLOWING MENU!

3.3.2 Web guide adjustment

Multiselect (SELbutton) allows processing several machine components simultaneously.

Touch **one** machine component to undo multiselect.

Fig. 3.3.2



- 1 Select one or several machine component(s) to process it/them subsequently (Multiselect).
- 2 Select the type of web guide on the print unit (web path).
- 3 Select the operating mode of the dryer (web path).
- 4 Determine whether or not a cooling roller is to be used (web path).

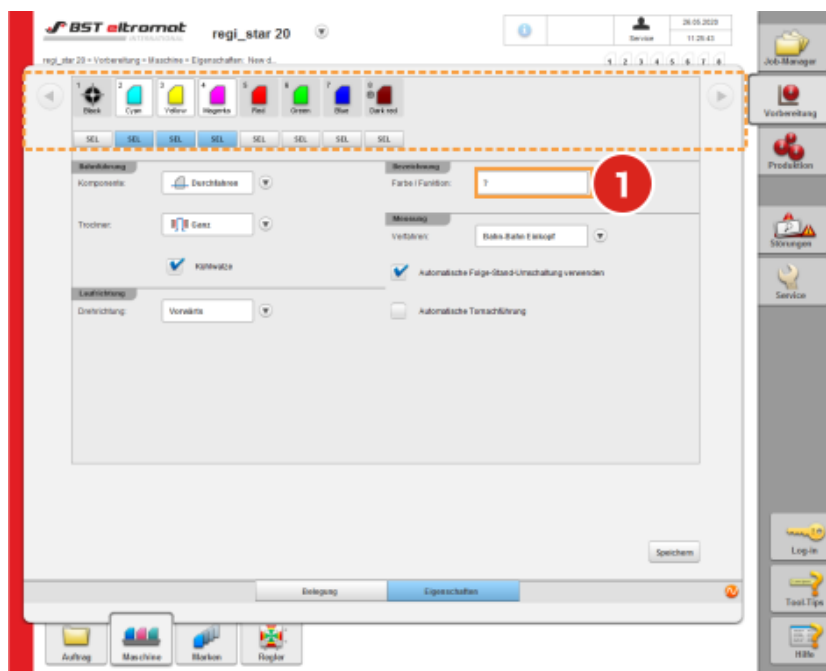
Further entries:

>> 3.6 ADHERE TO THE FOLLOWING OPERATING STEPS!

3.3.3 Designation entry

The identification selected by you is used in the PREPARE and PRODUCTION sub-systems.

Fig. 3.3.3



1 Select the identification suitable for the machine component.

MAGENTA machine component: Print unit, colour designation: Magenta

Further entries:

>> 3.7 ADHERE TO THE FOLLOWING OPERATING STEPS!

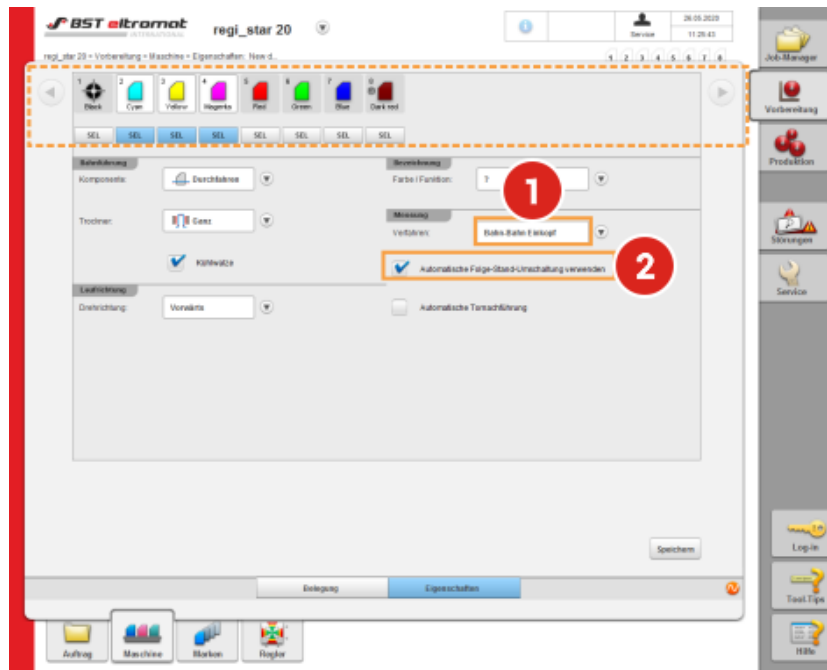
3.3.4 Measuring method adjustment

Automatic sequential/fixed measurement switch-over (single-head method only): Depending on the web speed, the system automatically toggles between the two measuring methods. For the register control this means:

- ▶ Sequential control during acceleration phases of the machine (waste prevention)
- ▶ Standard control during constant web speed (increased accuracy)

The selection possibility of the measuring method depends on the register mark sensor type.

Fig. 3.3.4



- 1 Select a measuring method for the mark detection.

WEB-WEB-SINGLE-HEAD

- ▶ with 1-channel register mark sensor
- ▶ when the print marks are positioned one after the other in the web running direction

WEB-WEB-TWO-HEAD

- ▶ with 2-channel register mark sensor
- ▶ when the print marks are positioned next to each other in the web running direction

WEB-CYLINDER

- ▶ for machine components which do not print register marks (e.g. guillotine)
- ▶ for machine components which only print the register marks with very low contrast colours

The web-cylinder method requires a shaft encoder fitted to the respective machine component.

- 2 If necessary, the automatic toggling between sequential to fixed measurement can be switched off.
- 3 You can activate the automatic gate follow-up (**not** for measurements via cylinder pulse).

Further entries:

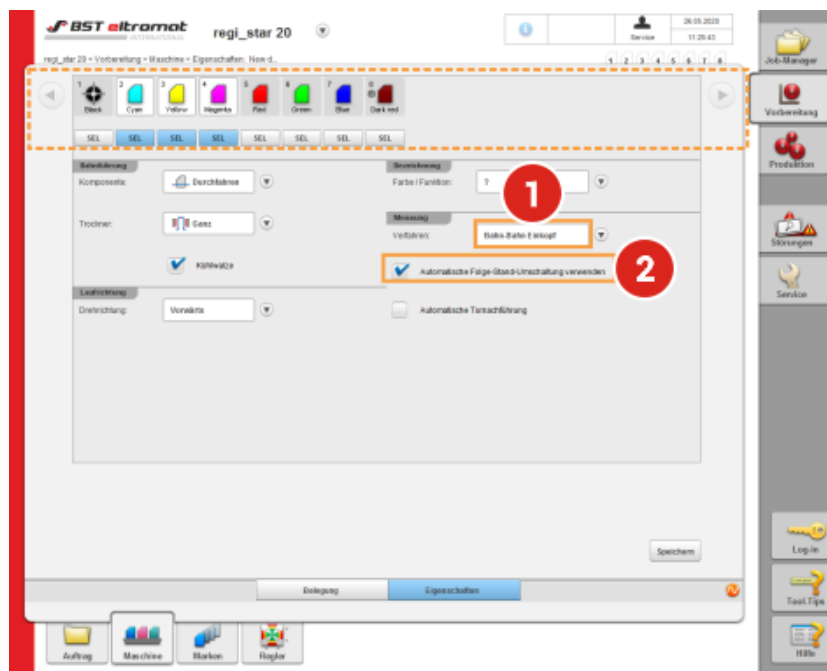
>> 3.9 ADHERE TO THE FOLLOWING OPERATING STEPS!

3.3.5 Measuring method adjustment

Automatic sequential/fixed measurement switch-over: Depending on the web speed, the system automatically toggles between the two measuring methods. For the register control this means:

- ▶ Sequential control during acceleration phases of the machine (waste prevention)
- ▶ Standard control during constant web speed (increased accuracy)

Fig. 3.3.5



- 1 Select a measuring method for the mark detection.

WEB-WEB-SINGLE-HEAD

- ▶ when the print marks are positioned one after the other in the web running direction
- ▶ when the print marks are positioned next to each other in the web running direction

WEB-CYLINDER

- ▶ for machine components which do not print register marks (e.g. guillotine)

The web-cylinder method requires a shaft encoder fitted to the respective machine component.

- 2** If necessary, the automatic toggling between sequential to fixed measurement can be switched off.

Further entries:

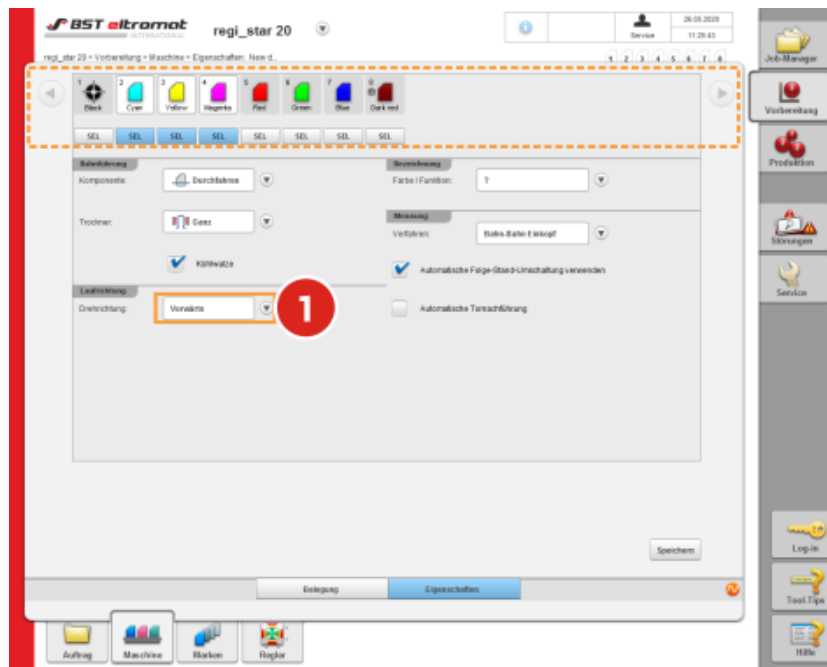
>> 3.9 ADHERE TO THE FOLLOWING OPERATING STEPS!

3.3.6 Running direction adjustment

All machine components have the rotational direction complying with the printed web running direction as a standard.

With reversing print units: Ensure that the register mark sensor detection heads are correctly attached when changing the rotational direction !

Fig. 3.3.6



- 1** Select the rotational direction of a print unit.

FORWARD

► Standard rotational direction

BACKWARDS

► for reversing print units used for the rear side print

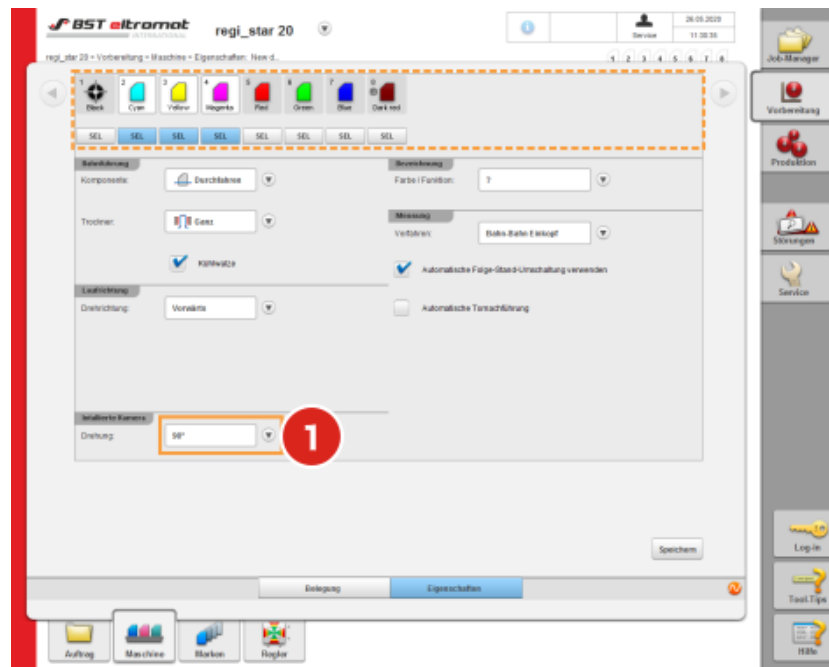
Further entries:

>> 3.11 ADHERE TO THE FOLLOWING OPERATING STEPS!

3.3.7 Adjusting the camera assembly angle

The camera can be installed at different angles on the camera traverse bar depending on the mark field to be detected. For this reason, enter the assembly angle here.

Fig. 3.3.7



1 Select the angle, at which the camera is installed in relation to the printed web (specification in clockwise direction).

0°

► Standard alignment

90°

► Alignment by 90° clockwise

180°

► Alignment by 180° clockwise

270°

► Alignment by 270° clockwise

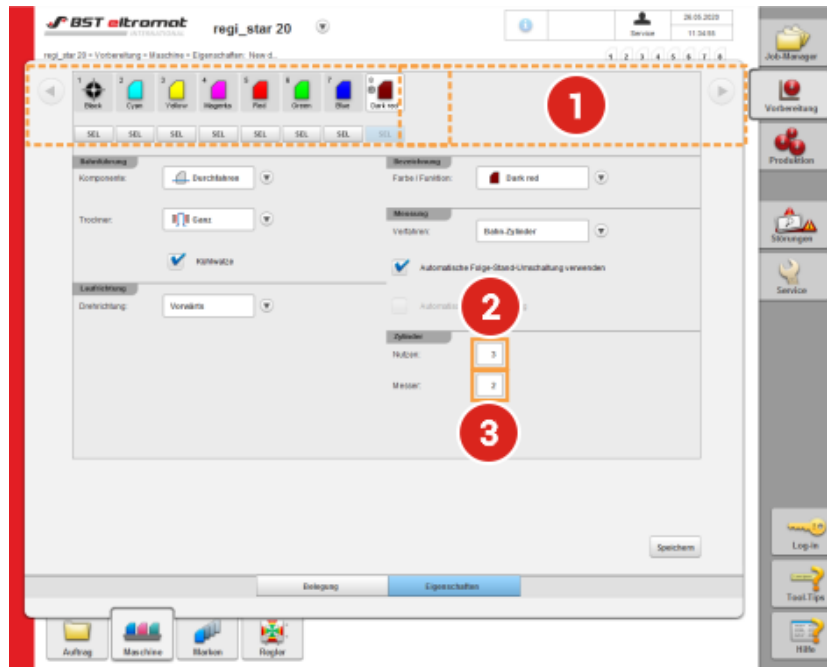
Further entries:

>> 3.11 ADHERE TO THE FOLLOWING OPERATING STEPS!

3.3.8 Tool configuration

Use this option when the format length of a tool deviates from that of the reference print unit (key colour). The impression ratio based on the reference print unit can be determined here. The number of blades for the cutting tools is also determined here.

Fig. 3.3.8



The following values can be determined for **tools** in relation to the **reference print unit** (key colour). If necessary, also enter a number of impressions for the reference print unit.

- 1 Select a tool.

A rotating tool is identified by this symbol.



- 2 With the IMPRESSION option: Determine the number of impressions per format length in the web running direction.

- 3** With the BLADE option: Determine the number of blades per format length in the web running direction.

Further entries:

>> 3.12 CHANGE TO THE FOLLOWING MENU!

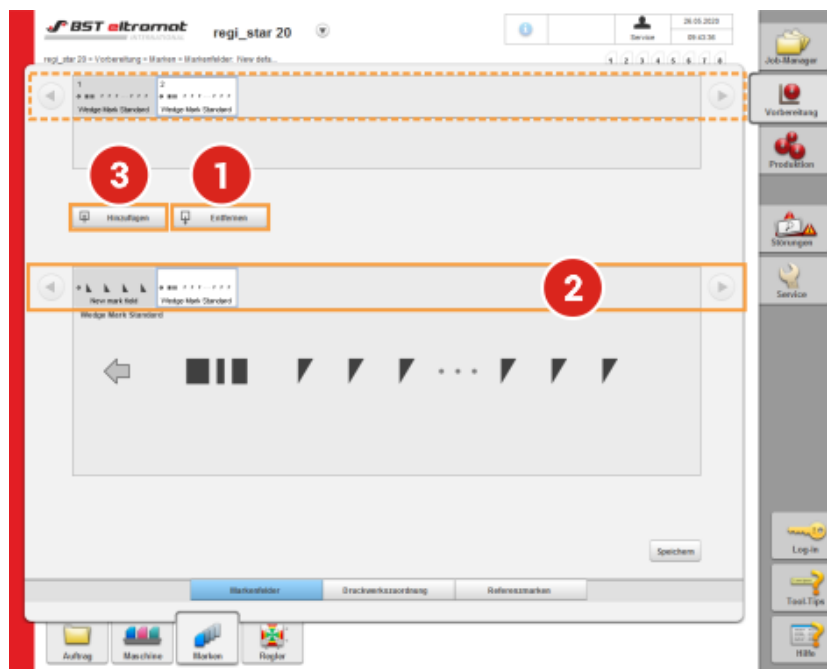
3.4 Marks

3.4.1 Use of predefined mark fields

You can define your own mark fields suitable for the print job (possible from the SHIFT SUPERVISOR user profile)!

>> 6.10 SERVICE, MARK CONFIGURATOR

Fig. 3.4.1



A mark field is displayed in the **active mark field selection** (top selection list). When this presetting is suitable for your print job skip the following 3 steps !

- 1** Delete the mark field displayed as the presetting from the active mark field selection.

2 Touch the desired mark field in the selection list.

3 Add this mark field to the active mark field selection.

It is also possible to add several mark fields to the active mark field selection. For this purpose, repeat steps 2 and 3.

Further entries:

>> 3.13 CHANGE TO THE FOLLOWING MENU!

3.4.2 Allocating the print units

The print unit allocation serves to determine the print unit which is used to print a register mark within a register mark field.

Register marks which are not allocated are displayed in grey.

Print units not allocated cannot be controlled.

1 Allocate a mark of the selected register mark field to the machine components used in the print job (see animation).

Further information:

- >> 3.20 PRINT UNIT ALLOCATION WITH DOT MARKS
- >> DESELECTING THE PRINT UNIT ALLOCATION
- >> REPEATING THE KEY COLOUR IN THE MARK FIELD
- >> USING SEVERAL MARK FIELDS
- >> CHANGING THE MARK SPACING

Further entries:

>> 3.14 CHANGE TO THE FOLLOWING MENU!

3.4.3 Reference marks

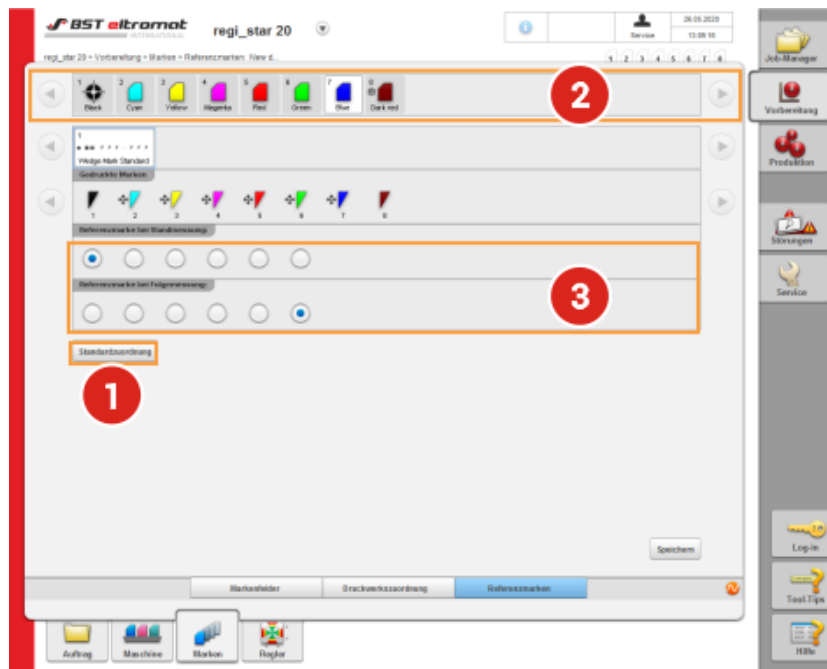
The allocation of reference marks to machine components (print units) forms the technical control reference for the respective control unit.

The following is valid for the standard allocation of reference marks:

- The key colour is the reference point for fixed measurements.
- The colour of the respective previous print unit is the reference point for sequential measurements.

Fig. 3.4.3

>> 3.21 SEE ALSO: REFERENCE MARKS IN CASE OF USING DOT MARKS



- 1 If possible, use the standards allocation for fixed and/or sequential measurement. The standard allocation is valid for **all used** machine components!

Fig. 3.3



- 2 For special applications, the machine components can be individually selected for allocation.
- 3 Then determine the respective reference mark for fixed and sequential measurement.

Repeat steps 2 and 3 until all reference marks are allocated.

Further entries:

>> 3.22 CHANGE TO THE FOLLOWING MENU!

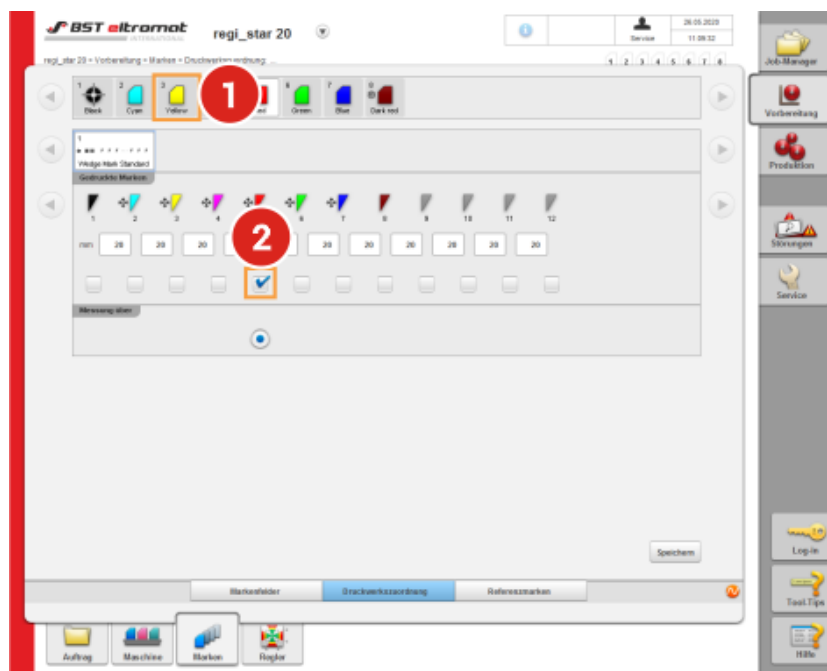
3.4.4 Deselecting the print unit allocation

It is possible to cancel print mark allocations to machine components / print units which are not required or incorrect.

Register marks which are not allocated are displayed in grey.

Machine components / print units not allocated cannot be controlled.

Fig. 3.4.4



- 1 Select the machine components the allocation of which is to be deselected.
- 2 Touch the checkbox to cancel the allocation.

>> 3.13 RETURN TO THE PRINT UNIT ALLOCATION

3.4.5 Repeating the key colour in the mark field

Repetition of the key colour within the register mark field means that the key colour register mark is repeated at several points in the register mark field.

Measurement accuracy or the compliance with register marks of an existing print cylinder set can be the reason for this.



- 1 Touch the animation button.
- 2 Observe the adjustment of a key colour repetition in the register mark field shown in the animation.

>> 3.13 RETURN TO THE PRINT UNIT ALLOCATION

3.4.6 Using several mark fields

It is possible to use several mark fields within one print job to be able to fulfil specific requirements. Examples:

- ▶ Printed web turning (top and bottom side print)
- ▶ Technical control reference which is not identical to the key colour



- 1 Touch the animation button.
- 2 Observe the use of several mark fields shown in the animation.



Multiselect of register marks: Determine the mark to be used for register measurement (MEASURE VIA optional button).

>> 3.13 RETURN TO THE PRINT UNIT ALLOCATION

3.4.7 Changing the mark spacing

The spacing between the register marks is determined by the selected mark field. If necessary, the mark spacing can be adapted.

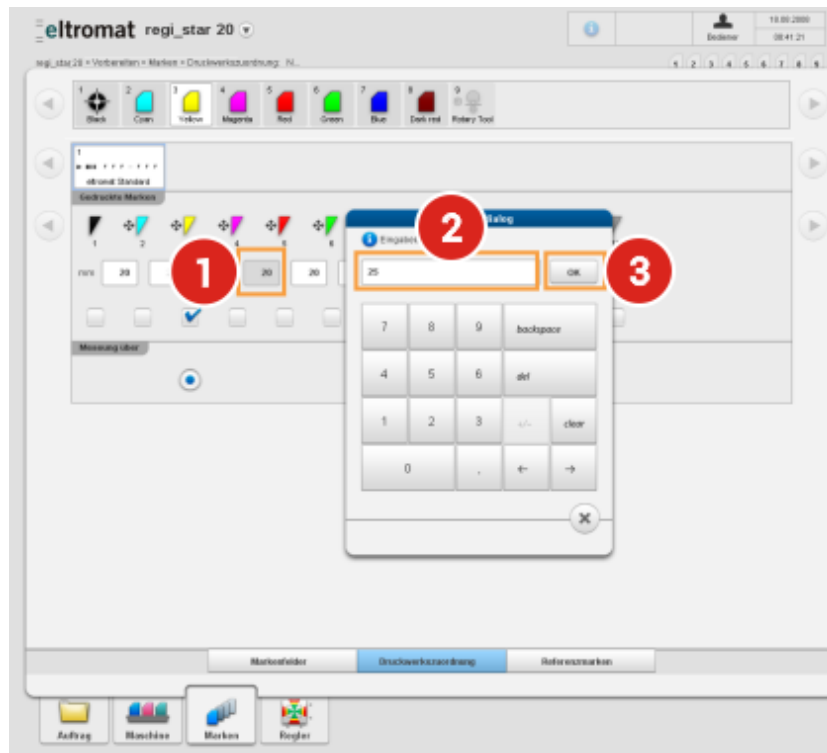
A changed mark spacing only become effective when using the single-head method.





Fig. 3.4.7

For the two-head method, the register mark spacing is prescribed by the mechanical arrangement of the detection heads (detection head holders).



- 1** Touch the mark spacing to be changed.
- 2** Enter the required dimension.
- 3** Acknowledge the input.

>> 3.13 RETURN TO THE PRINT UNIT ALLOCATION

3.5 Dot marks

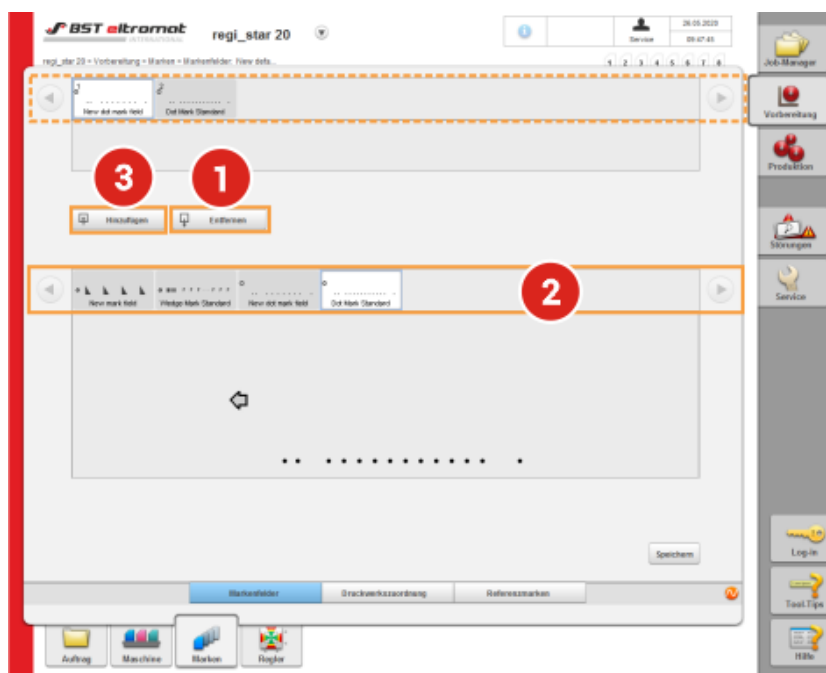
3.5.1 Use of predefined mark fields



You can define your own mark fields suitable for the print job (possible from the SHIFT SUPERVISOR user profile)!

>> 6.15 SERVICE, MARK CONFIGURATOR

Fig. 3.5.1



A mark field is displayed in the **active mark field selection** (top selection list). When this presetting is suitable for your print job skip the following 3 steps !

- 1** Delete the mark field displayed as the presetting from the active mark field selection.
- 2** Touch the desired mark field in the selection list.
- 3** Add this mark field to the active mark field selection.



It is also possible to add several mark fields to the active mark field selection. For this purpose, repeat steps 2 and 3.



Further entries:

>> 3.20 CHANGE TO THE FOLLOWING MENU!

3.5.2 Allocating the print units

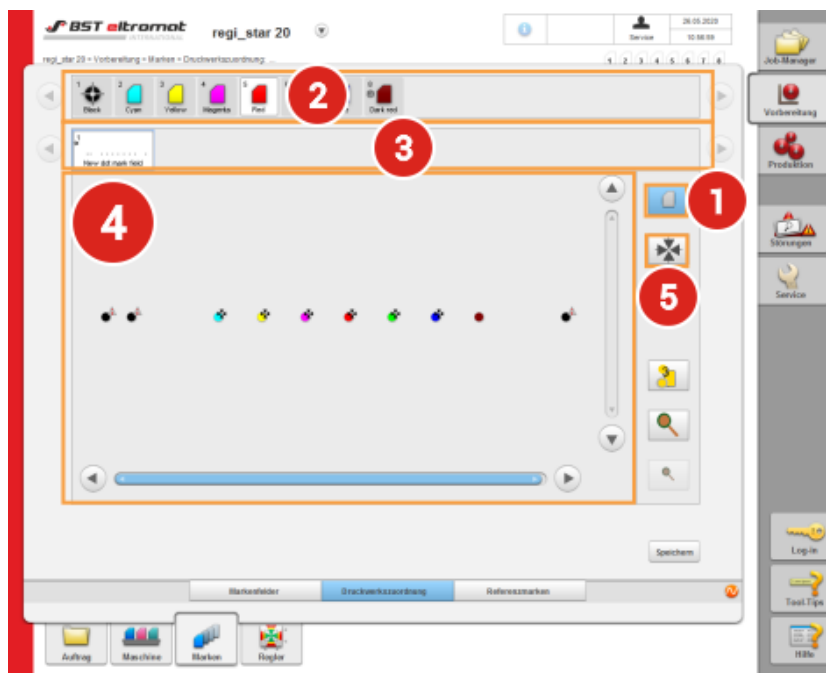
The print unit allocation serves to determine the print unit which is used to print a register mark within a register mark field.



Register marks which are not allocated are displayed in grey.

Fig. 3.5.2

Print units not allocated cannot be controlled.



- 1 Change to the ALLOCATION mode.
- 2 Select the desired machine component.
- 3 If necessary, select the desired partial mark field.
- 4 Allocate a register mark to the selected machine component.

If necessary, the mark field display can be zoomed in or out.

If necessary, an existing allocation can be cancelled by touching the respective register mark again.

Repeat operating steps 2 to 4 for each machine component.

Several register marks can be allocated to one machine component. In this case, select the register mark used for measurement. For this purpose, carry out the following operating step:

- 5 Change to the MEASURING MARK mode and repeat steps 2 to 4 for the desired machine components.

Further entries:

>> 3.21 CHANGE TO THE FOLLOWING MENU!

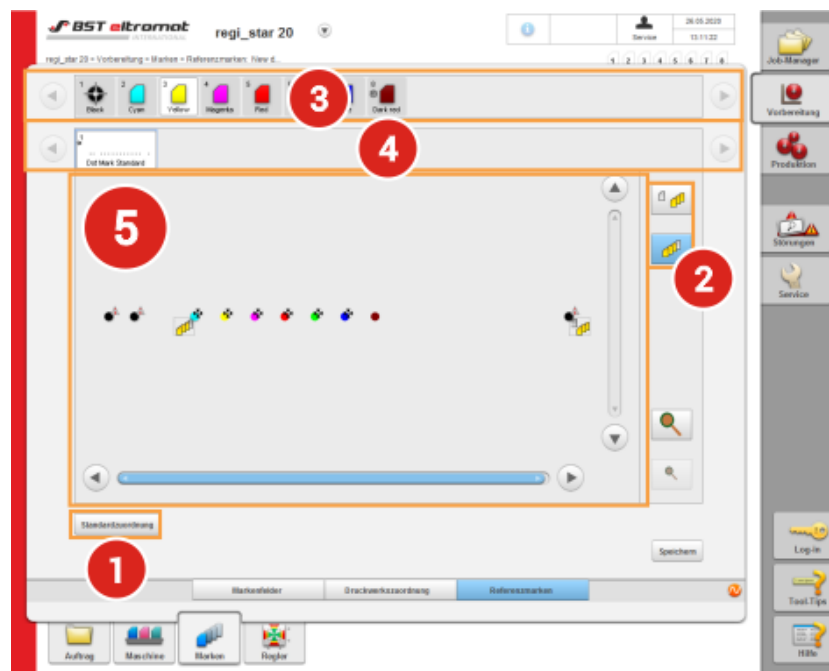
3.5.3 Reference marks

The allocation of reference marks to machine components (print units) forms the technical control reference for the respective control unit.

The following is valid for the standard allocation of reference marks:

- The key colour is the reference point for fixed measurements.
- The colour of the respective previous print unit is the reference point for sequential measurements.

Fig. 3.5.3

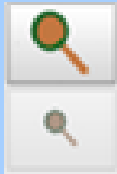


- 1 If possible, use the standards allocation for fixed and/or sequential measurement. The standard allocation is valid for **all used** machine components!



For special applications, the machine components can be individually selected for allocation. In this case, the following operating steps must be carried out:

- 2** Select the measuring method the allocation of which is to be carried out: Standard or sequential measurement.
- 3** Select the desired machine component.
- 4** If necessary, select the desired partial mark field.
- 5** Allocate the desired reference mark to the selected machine component.



If necessary, the mark field display can be zoomed in or out.



Repeat steps 3 and 4 until all reference marks are allocated.



If necessary, repeat the process for a different measuring method (fixed or sequential measurement). For this, start with operating step 2.



Further entries:

>> 3.22 CHANGE TO THE FOLLOWING MENU!

3.6 Controller

3.6.1 Entry of set point values and tolerances

The tolerance ranges of the machine components are displayed in a different colour:

GOOD (0 < tolerance value < warning threshold)



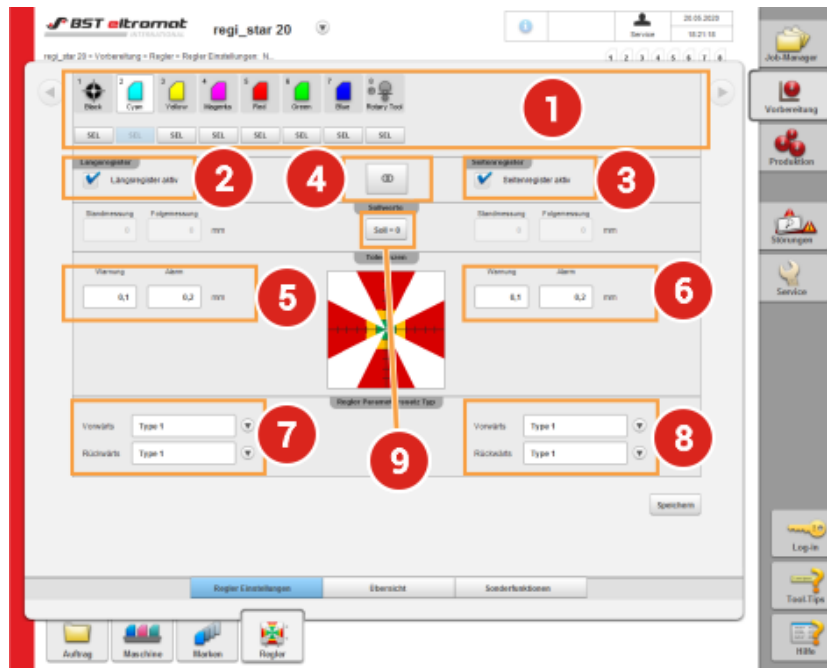
WARNING (warning threshold < tolerance value < alarm threshold)



ALARM (alarm threshold < tolerance value)



Fig. 3.6.1



1 Select one or more machine component(s) (Multiselect).

Activate at least one register to allow a register control to take place at the selected machine component.

2 If necessary, activate the length register control.

3 **With option "Side register":**
If necessary, activate the side register control.

4 **With option "Side register":**
For the entry of symmetrical tolerance ranges: The side register can be coupled to the length register.

5 If necessary, define the tolerance ranges for the length register. For this purpose, enter the tolerance values for warning and error.

6

With option "Side register":

Also define the tolerance ranges for the side register.

7

Select a control parameter type for the length register (selection of the type optional for print web running in the reverse direction).

8

With option "Side register":

Select a control parameter type for the side register (selection of the type optional for print web running in the reverse direction).



Control parameter types are defined customer-specifically by **BST eltromat** to optimize the control for different applications (e.g. material).



Repeat the previous steps until all required tolerance values are determined.

9

Preparation of repeat jobs: The setpoint values can be set to "0" (start point). Ensure that the job is **not** in the PRODUCTION status during this setting.



Further entries:

>> 3.23 CHANGE TO THE FOLLOWING MENU!

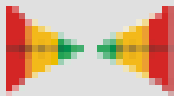
3.6.2 Use of the control unit review



The operating methods of the individual control units have different symbols:



Length register control

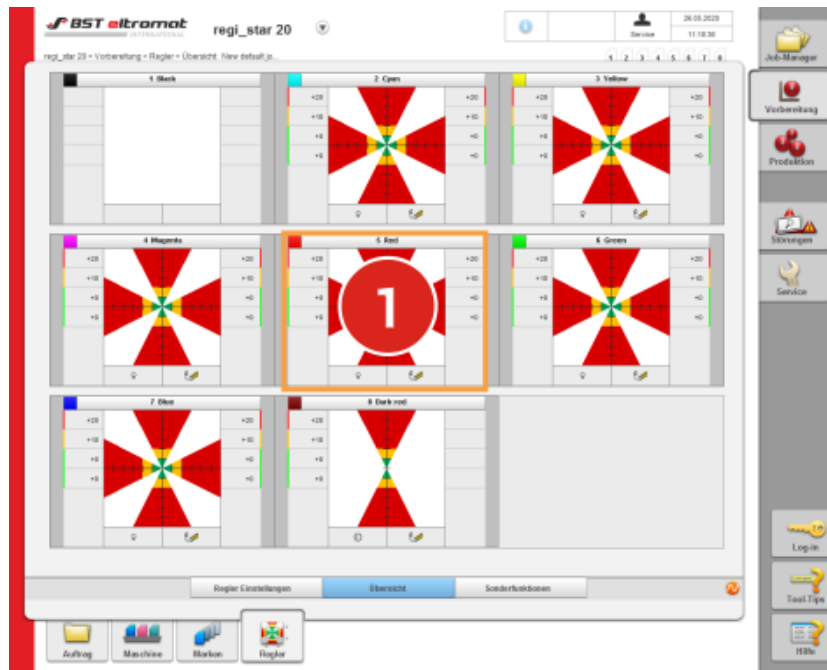


Side register control



Length and side register control

Fig. 3.6.2



The review shows all configured control units with the corresponding settings.

The following settings are displayed:

- ▶ Control unit designation
- ▶ Tolerance ranges for WARNING and ALARM concerning the length / side registers
- ▶ Set point values for sequential / fixed control concerning the length / side register
- ▶ Measuring methods of the sensors and type of control

1 Touch a control unit display to access the SET POINT VALUES & TOLERANCES menu of the corresponding control unit.

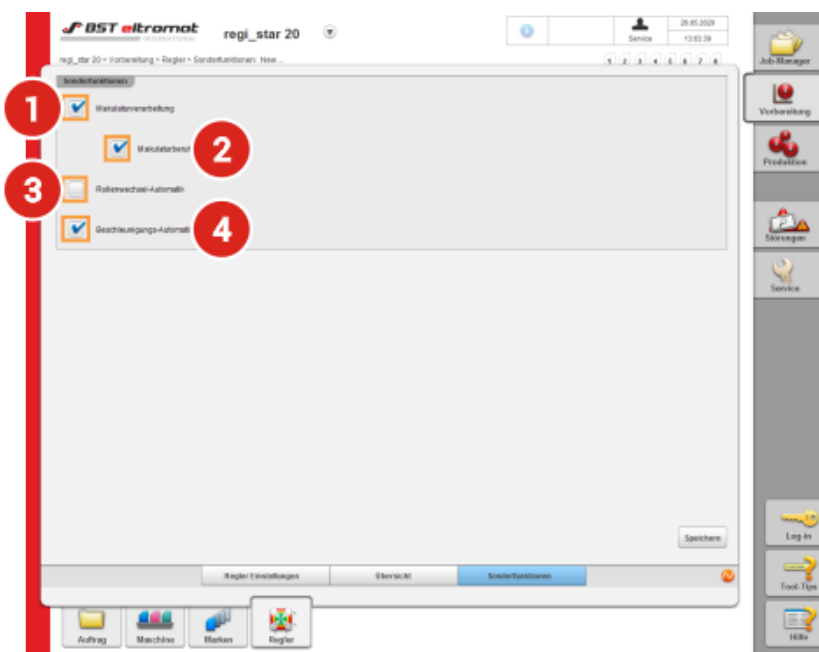
Further entries:

>> 3.24 CHANGE TO THE FOLLOWING MENU!

3.6.3 Activation of special functions

The availability of the special functions listed here depends on the customer specific machine equipment.

Fig. 3.6.3



- 1 If necessary, switch on waste processing.
The switch output, to be used by the customer for connecting message units, will be activated.
- 2 If necessary, switch on waste reduction.
Now the waste signal will only be set after 3 successive incorrect format lengths.
- 3 If necessary, switch on the reel change automatic mode.
The reel change waste is minimised due to a special behaviour.
- 4 If necessary, switch on the acceleration automatic mode.
Acceleration phases are optimally controlled by dynamic parameterisation.

4 Production



4.1 Diagrammatic review of the PRODUCTION sub-system

Touch the sections in the graphic to which more information is required.

This sub-system contains all functions, operating elements and displays required during the production process of print jobs. It consists of the four theme related graphical menus

- ▶ STATUS,
- ▶ CONTROL UNIT REVIEW,
- ▶ REGISTER and
- ▶ POSITIONS.



Optional functions for positioning: Spindle positioning (length / side register)



regi_star 20 system



Operator



Status of the running print job and the components participating in the register control:

- ▶ MAKE-READY: Components are moved to their zero positions
- ▶ PRESETTING: Components are moved to their set point positions (option)
- ▶ PRODUCTION: Print job runs, automatic register control
- ▶ PRINT END: Print job is terminated, final actions



Print machine connected to the **regi_star 20** system.



Review of **all** control units as well as global functions:

- ▶ Set point values, current actual values and register error displays
- ▶ Switch all control units to AUTO or MANUAL, taking over the set point values
- ▶ Execute an automatic mark detection, select the measuring method



Functions of a selected control unit:

- ▶ Detailed register display
- ▶ Oscilloscope functions
- ▶ Control unit operating field



The operations in the sketch are possible within the PRODUCTION sub-system (rectangular section).

4.2 Production status

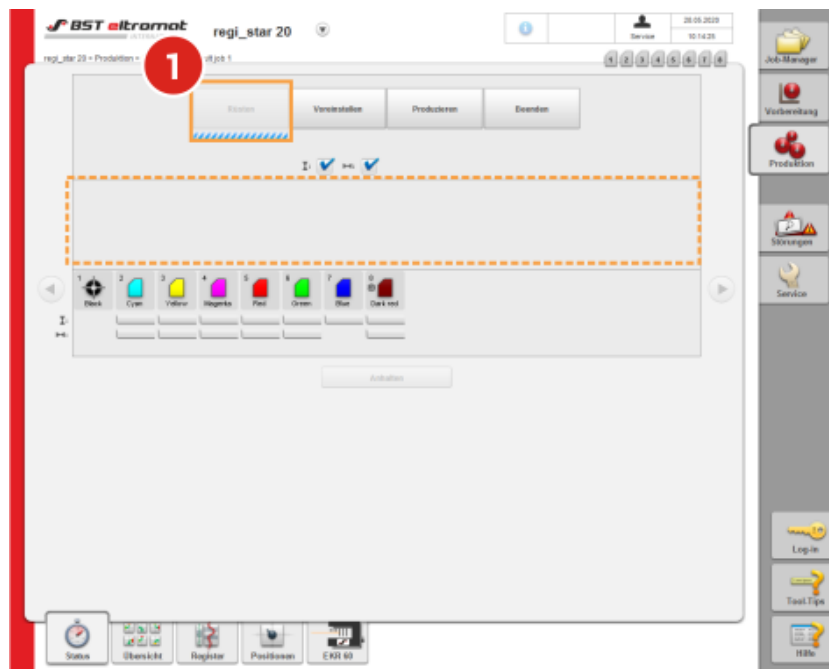
4.2.1 Printing press make-ready



Observe the status displays and process activities as well as the text messages for the running process.

>> 1.16 ACTIVATION & DISPLAY OF THE PRODUCTION STATUS

Fig. 4.2.1



Always carry out make-ready prior to starting production and only when the machine is at zero speed.



Adhere to the following points when making the printing press ready to achieve precise reproduceability for repeat jobs:

- ▶ Suspend all print cylinders in the register cross position (identical rotational start position)
- ▶ Ensure a printed web feed of at least 5 format lengths for each inching cycle (shaft encoder synchronisation)



Touch this area and hold pressed for more than 3 s to establish a reproduceable start situation (**zero position**).

4.2.2 Correcting the gate position

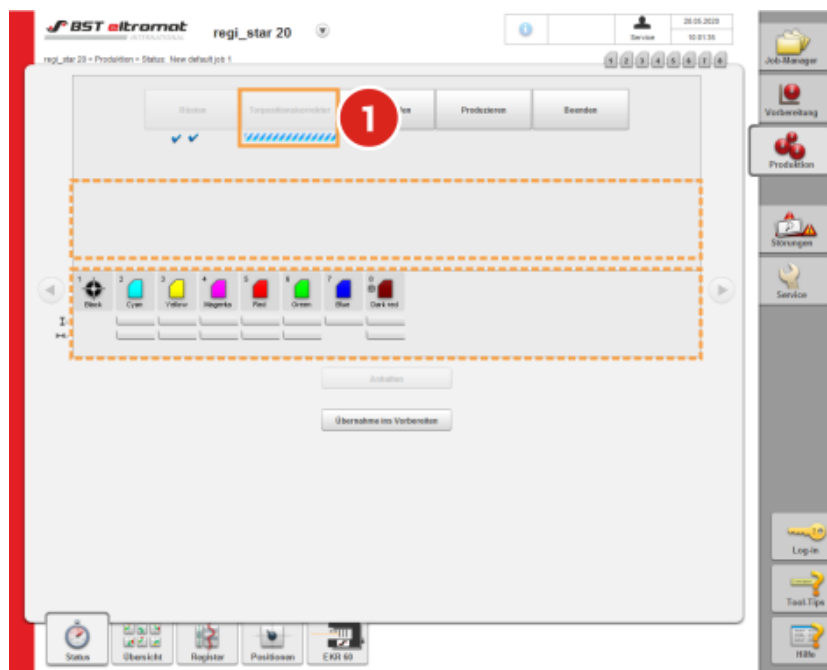


Observe the status and process activity displays as well as the text messages for the running process!

>> 1.16 ACTIVATION & DISPLAY OF THE PRODUCTION STATUS

When using a tool (e.g. creaser) which has a format with an uneven ratio in relation to the format of the other print units (e. g. 4/7), adjust the gate position of the register sensor after make-ready of the machine, if necessary.

Fig. 4.2.2



Always carry out this function for new jobs!



Carry out this function if new gate positions were set in the PRODUCTION menu.

1 Touch this area and hold pressed for more than 3 s to correct the gate position.

After correcting the gate position, check that all register marks are in the gate! If necessary, fine adjust the register on the tool.

4.2.3 Carrying out a presetting

Observe the display of the running process. Process activities:

no process

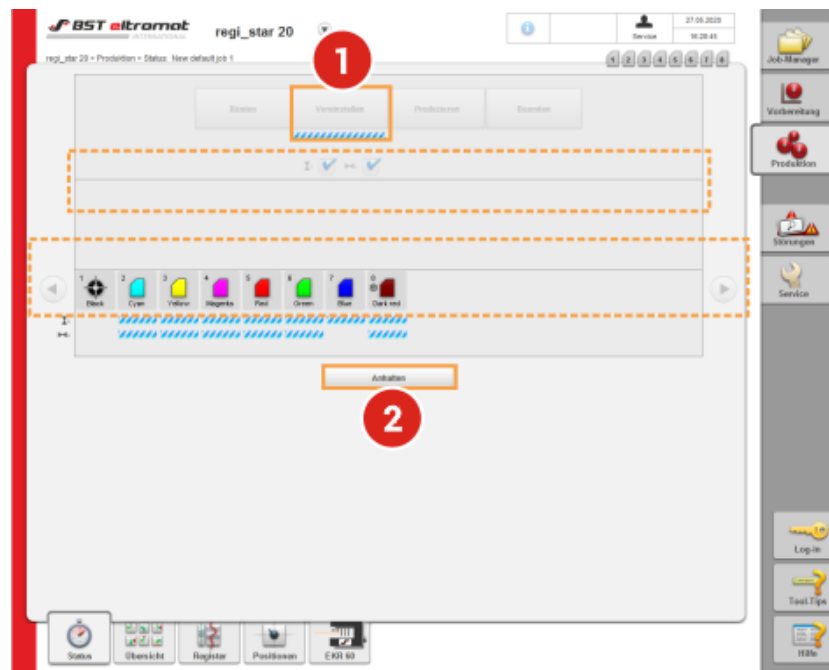
process running

process completed

For new jobs: Prior to starting production you can carry out a spindle positioning:

>> 4.13 SPINDLE POSITIONING

Fig. 4.2.3



For repeat jobs (adjust the printed web run through the machine in relation to the saved job):

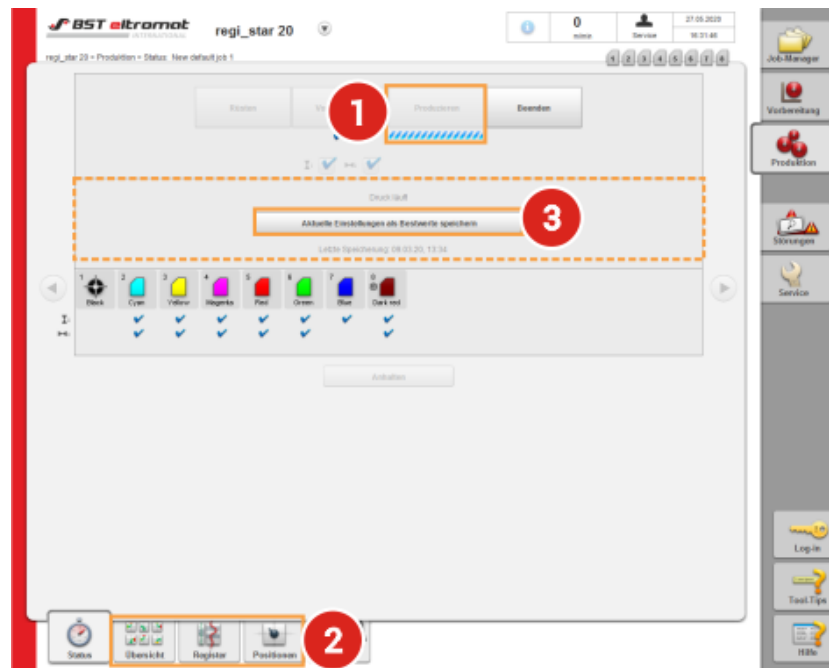
- 1 Select the following presetting methods to be executed:
 - ▶ Length register presetting
 - ▶ Side register presetting
- 2 Touch this area and hold pressed for more than 3 s to move the machine components to their set point positions (presetting).
- 3 You can stop the running process for safety reasons. It can be subsequently restarted.

4.2.4 Production start (activation of the register controller system)

In the PRODUCTION status, the register control of the **regi_star 20** system is active. The following possibilities are provided:

- ▶ Automatic or manual setting of the measuring gates
- ▶ Taking over the set point values
- ▶ Carrying out a precise register correction
- ▶ Automatic mode of the register controller system
- ▶ Monitoring the register control

Fig. 4.2.4





Although the status PRODUCTION might yet be inactive, you can already operate the control units (e.g. for the spindle positioning in case of presetting).



Touch this area and hold pressed for more than 3 s to activate the register controller system and to produce the print job.



The register control can be monitored and precise corrections carried out by means of the following menus:

>> 4.7 CONTROL UNIT REVIEW

>> 4.8 OSCILLOSCOPE, REGISTER DISPLAY AND OPERATING FIELD

>> 4.15 MOVING THE SPINDLE, RELATIVE

>> 4.16 MOVING THE SPINDLE, ABSOLUTE

>> 4.11 INSETTER



When the desired print quality has been achieved, the current setpoint values and settings can be written back into the job list. These optimum values can be used for a repeat job.



This function should particularly be used at the end of a print job, when

- ▶ all control units are in AUTO operating mode and
- ▶ no or only slight register errors occur.

Fig. 4.2.5

4.2.5 Print termination (deactivation of the register controller system)



Save the current set point values and adjustments for the desired print quality (optimum values), **before** changing to the PRINT END status!

- 1** Touch this area and hold pressed for more than 3 s to deactivate the register controller system.
- 2** Exit the current job.



Change to the JOB LIST to produce a new print job.

>> 2.2 SUB-SYSTEM JOB MANAGER, JOB LIST

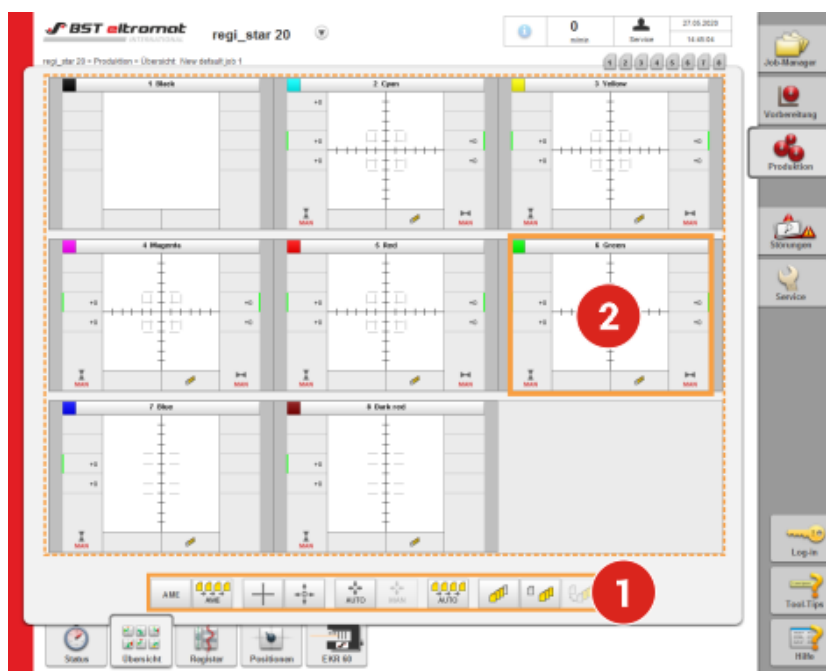


4.3 Use of the control unit review

Information concerning register display and mapped in mark alarms:

>> 1.12 SYSTEM, REGISTER DISPLAY

Fig. 4.3



- 1** Touch this area to use one of the following functions for all control units participating in the print job:

Automatic mark recognition (AME), for all control units at once

Sequential automatic mark recognition, control unit by control unit

Take-over of the current actual values as setpoint values

Automatic length register control

With option "Side register":
and side register control

Manual operating mode

Sequential automatic length control



With option "Side register":
and side register control

Measuring method: Sequential measurement

Measuring method: Fixed measurement

Automatic change between sequential and fixed measurement

- 2** Touch a register display to access the oscilloscope display of the corresponding control unit.

4.4 Register

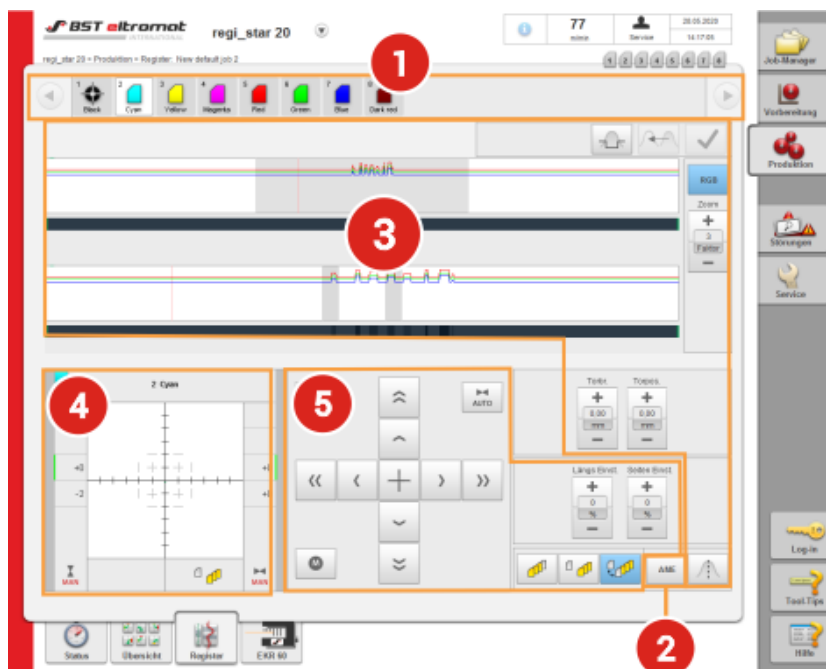
4.4.1 Use of oscilloscope, register display and operating field



A manual mark search and measuring gate setting is not required when:

- ▶ the presetting was successfully completed
- ▶ the automatic mark detection is used

Fig. 4.4.1





- 1 Select a machine component. Oscilloscope and register display will be updated, the corresponding operating elements are active.
- 2 If an AME mark field is used: Touch here to execute an automatic mark recognition (AME). The gate position is automatically set around the corresponding register mark.
- 3 The oscilloscope functions can be used to manually adjust the mark in the measuring gate and execute corrections.

>> 1.13 SYSTEM, OSCILLOSCOPE DISPLAY

- 4 Use the graphical register display to monitor the current register error (colour identification when the tolerances are exceeded).

>> 1.12 SYSTEM, REGISTER DISPLAY

- 5 You can operate the selected control point (e.g. set point value corrections or motor adjustment) and set the control behavior (more aggressive or more passive) separately for the length and side register (optional).

>> 1.8 SYSTEM, CONTROL UNIT OPERATING FIELD



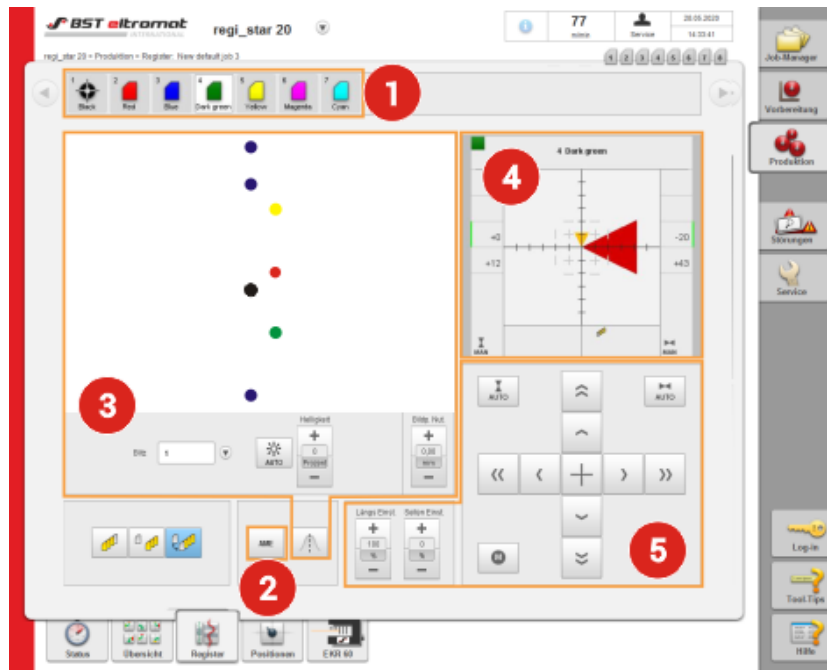
Repeat the steps until all register marks required for the print job are within the respective measuring gate.



4.4.2 Use of camera image, register display and operating field

This menu is only available for machine components the register marks of which are measured with a camera-based register sensor.

Fig. 4.4.2



- 1 Select a machine component. Oscilloscope and register display will be updated, the corresponding operating elements are active.
- 2 If an AME mark field is used: Touch here to execute an automatic mark recognition (AME). The gate position is automatically set around the corresponding register mark.
- 3 **With option "RSH-CAM + RSC":**
You can monitor the mark field in the live image. During this, the live image brightness can be adapted and the camera image position displaced.
- 4 Use the graphical register display to monitor the current register error (colour identification when the tolerances are exceeded).
- 5 You can operate the selected control point (e.g. set point value corrections or motor adjustment) and set the control behavior (more aggressive or more passive) separately for the length and side register (optional).

>> 1.14 SYSTEM, LIVE IMAGE DISPLAY

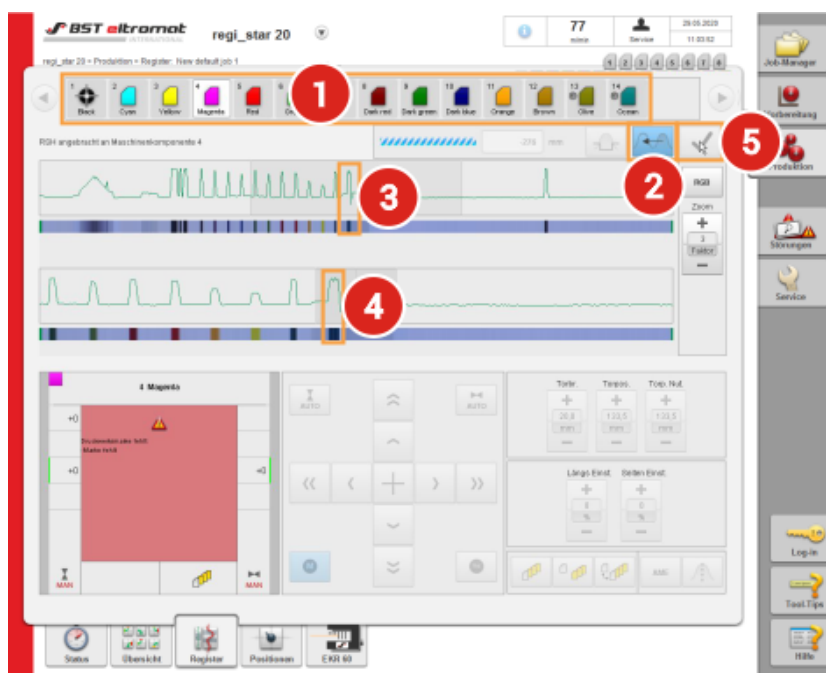
>> 1.12 SYSTEM, REGISTER DISPLAY

>> 1.8 SYSTEM, CONTROL UNIT OPERATING FIELD

4.4.3 Performing manual register adjustment with RegiTouch

RegiTouch permits quick and easy manual adjustment of the length register. Unlike manual adjustment by means of the control unit panel, **RegiTouch** Only requires the initial position and target position of a printing feature (e.g. a print mark) to be defined in the oscilloscope display. No operator intervention is required during the subsequent adjustment.

Fig. 4.4.3



1 Select the desired machine component.

2 Activate **RegiTouch**.

The following two operating steps can be performed both in the top and in the bottom section of the oscilloscope display.

3 Select the initial position of the desired printing feature (e.g. print mark) in the oscilloscope display.

4 Select the target position in the oscilloscope display (position at which the printing feature is to be **located**).

If you have made a mistake while defining the initial or target position, repeat step 3 and 4.



If you wish to cancel the entire process, press the button indicated in operating step 2 again.

5

Confirm the inputs.

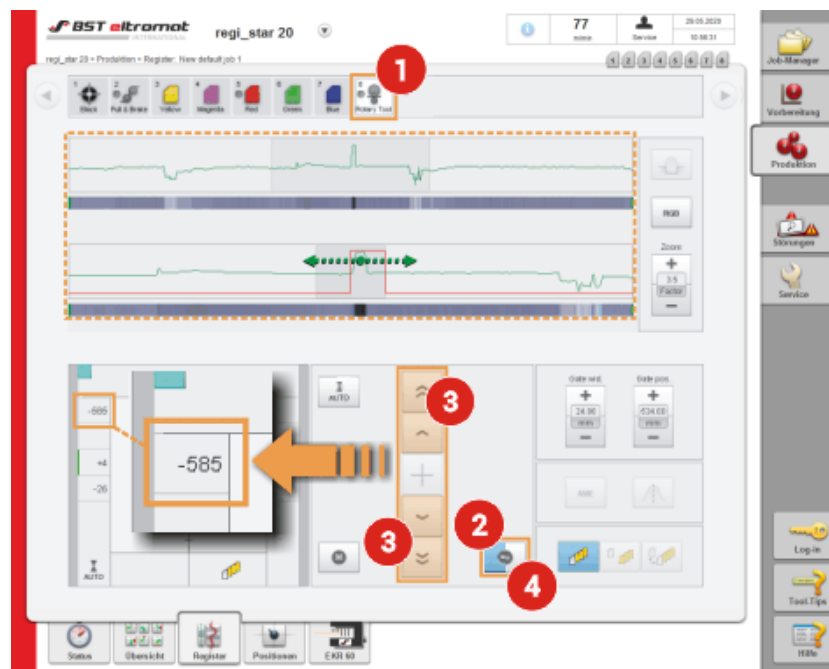
The length register is adjusted based on the selected target position.

A status display is shown during adjustment.

4.4.4 Insetter (insetter level adjustment)

The insetter is used if an already printed web has to be again printed, stamped, pressed or cut in register (offline). The format of the already printed web is adapted to the format of the processing machine. This is realized by superimposing the speed of a servo motor with the speed of the insetter control unit (pull and brake or tool).

Fig. 4.4.4



Starting point:

- the insetter control unit (e.g. rotary tool at the end of all print units) is selected for the machine assignment,
- the measuring method for the mark detection (e.g. web-cylinder) is selected and

- ▶ the insetter control unit is in MANU operating mode (automatic length register control is switched off).

>> 3.4 MACHINE ASSIGNMENT

>> 3.7 MEASURING METHOD

- 1 Select the insetter control unit.

The oscilloscope display shows that the web pulses (green mark signals) are currently moving in a certain direction.

In case of the measuring method “web-cylinder”, the colour display means

- ▶ GREEN: reference (mark signals of the pre-printed web)
- ▶ RED: cylinder pulse

- 2 Touch this area to release the insetter level adjustment.

- 3 Adjust the insetter level in two incremental widths (slow/fast) until the pulses nearly come to a halt.

The current insetter level is shown top left in the register display.

For repeat jobs: set the already known insetter level.

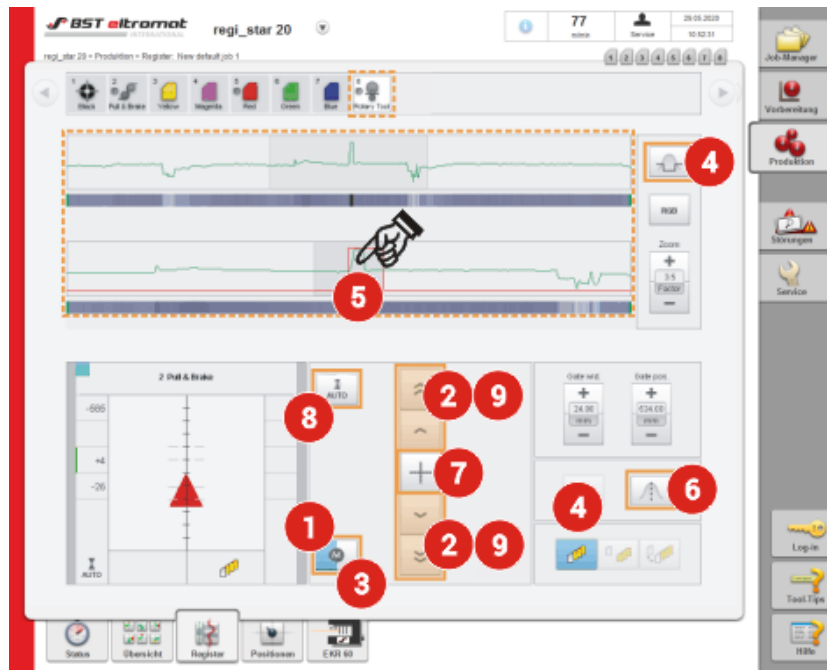
- 4 Touch this area to lock the insetter level adjustment.

>> 4.12 ADHERE TO THE FOLLOWING OPERATING STEPS

4.4.5 Insetter (correct current register errors)

In addition, the current register error (length register) must be corrected manually by means of instantaneous commands to the register motors. Thereby register retentiveness between the pre-printed web and the current print can be achieved.

Fig. 4.4.5



Establish length register retentiveness: correct the register error in the length register by means of instantaneous commands.

- 1** Switch the operation of the register motors on.
- 2** Adjust the length register by briefly touching these buttons until the pre-printed web is register compatible with the current printed web (visual comparison, e.g. behind the tool).
- 3** Switch the operation of the register motors off.
- 4** Activate the direct gate positioning.
- 5** Touch the green mark signal to set the measuring gate onto it.
- 6** Carry out the gate centering function.
- 7** Carry out the setpoint value take-over.
- 8** Activate the automatic length register control.

- 9 If necessary, carry out setpoint value corrections of the length register in two incremental widths (slow/fast).
 >> 1.12 SYSTEM, REGISTER DISPLAY

4.5 Positions

4.5.1 Moving the spindle to its start position

Observe the displays of the current spindle position and process activities:

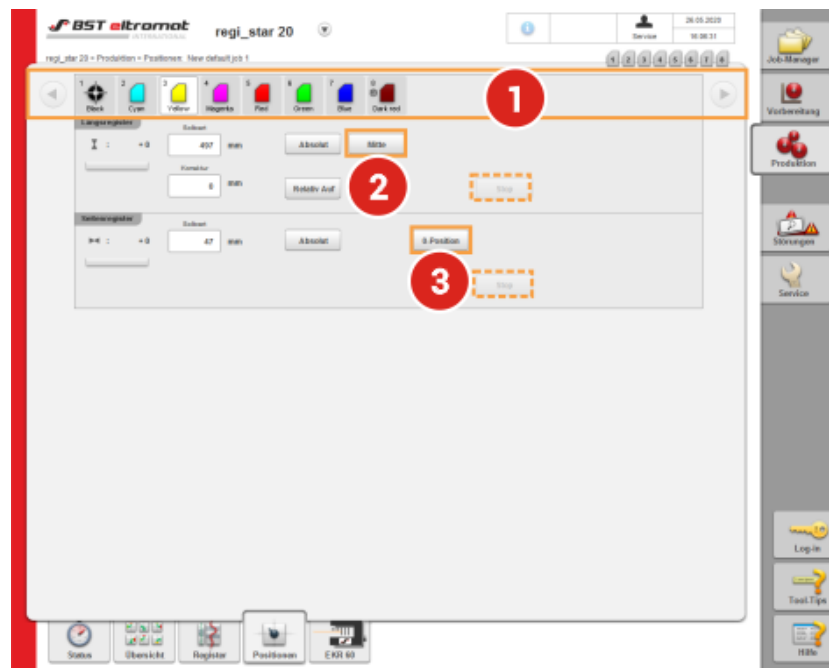
current spindle position

no process, spindle at zero speed

register spindle is moved

It is possible to stop spindle movement at any time (STOP button).

Fig. 4.5.1





The spindle positioning functions are mainly intended for the production start of a new job (machine at zero speed, printed web relieved). Spindle positioning, however, can also be used during production.



Stop! Too fast spindle adjustments during the running production can lead to web tear and/or loop formation in the printed web.



Select the desired machine component (except the key colour print unit).

For the length register:



Move the spindle to its centred position (start position for the largest spindle adjustment possible in both directions).

For the side register:



With option "Side register presetting":

Touch here to move the spindle to its 0 position (lateral alignment of the print cylinders, start position).

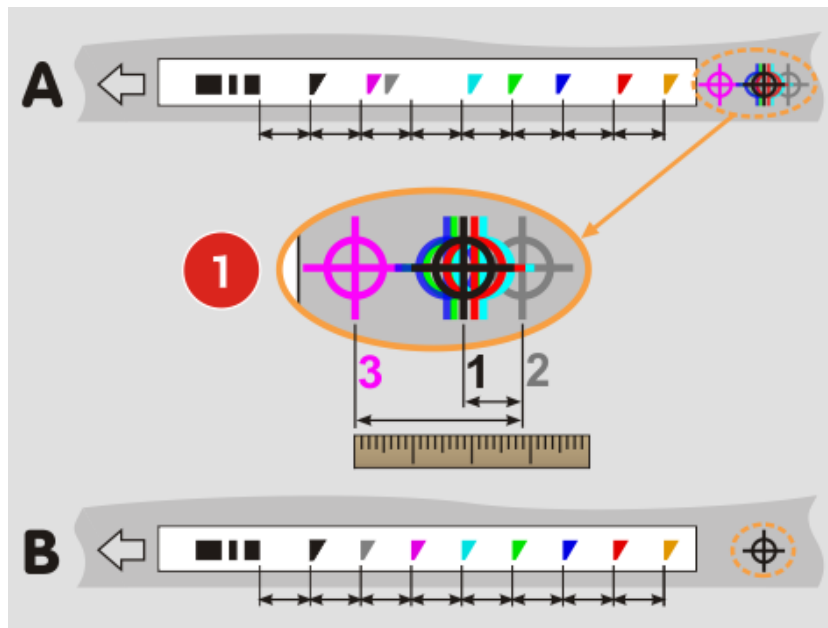


Repeat the previous steps until all spindles are located on their start positions.

4.5.2 Measurement of register crosses in relation to each other

Prior to starting the production of a new job, ensure that the length register is adjusted so that the register crosses of all machine components are above each other.

Fig. 4.5.2



Print for one machine length: The register crossed of all machine components (print units) are **not** directly above each other.

- ➊ Measure the spacings between the register crosses (print unit per print unit, i.e. the following register cross is measured in relation to the respectively previous one). Subsequently carry out the required adjustments.

- ▶ 1. Measure the spacing of register cross 2 in relation to register cross 1.
- ▶ 2. Measure the spacing of register cross 3 in relation to register cross 2.
- ▶ ...

Required adjustments:

- ▶ Reduce the web path between print unit 2 and 1.
- ▶ Increase the web path between print unit 3 and 2.
- ▶ ...

>> 4.15 RELATIVE SPINDLE ADJUSTMENT



The register crosses are precisely above each other during the next printing test.

4.5.3 Moving the spindle, relative



Observe the displays of the current spindle position and process activities:

I: +611,0

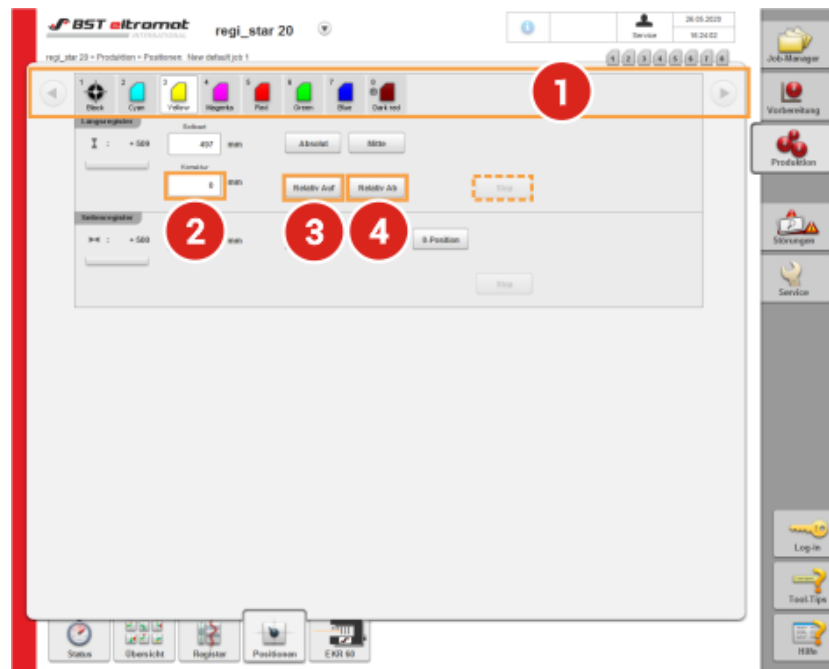
current spindle position

no process, spindle at zero speed

register spindle is moved



Fig. 4.5.3



1

Select the desired machine component.

2

Enter the measured register cross spacing (relative correction value).

Depending on the measured result, carry out one of the following steps:

3

Increase the web path.

4

Reduce the web path.

The spindle moves relatively by the entered correction value.





Repeat the previous steps until all spindles are located on the desired positions.



I : +611,0

4.5.4 Moving the spindle, absolute

Observe the displays of the current spindle position and process activities:

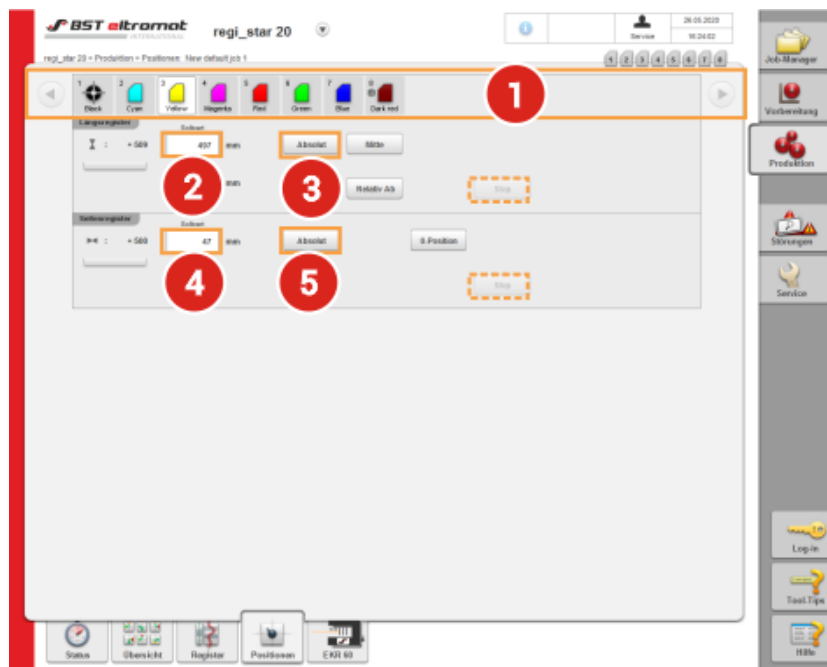
current spindle position

no process, spindle at zero speed

register spindle is moved



Fig. 4.5.4



- 1 Select the desired machine component.
- 2 Enter the absolute length register spindle position (set point value).
- 3 Move the spindle absolute to the set point value.

- 4 With option "Side register presetting":**
Enter the absolute side register spindle position (set point value).

- 5 With option "Side register presetting":**
Move the spindle absolute to the set point value.



The absolute position values are calculated from the **sum or difference** between the current spindle position and register cross spacing measured.



Repeat the previous steps until all spindles are located on the desired positions.

4.6 View status information of coupled web course controller

The **regi_star 20** system can be coupled with up to six web course controllers of the type **EKR ProCom 60**. This coupling permits

- the exchange of status information between the two systems and
- controlling the register sides using the web course controller.

Fig. 4.6



- 1** Header of the status field:
- Number of the web course controller to which the displays in the status field refer.

► Number of the control position coupled with the web course controller.

The following four status displays have a blue background if the corresponding status is active:

- 2** Status display of the automatic mode
- 3** Status display of the manual mode
- 4** Status display of the servo center mode
- 5** Status displays of both edge sensors. In case of center line control, both sensors are active.
- 6** Display of the current edge position (overlap) for both edge sensors:
 - 0% = no overlap / web outside of the corresponding edge sensor.
 - 100% = complete overlap / web completely in the measuring area of the corresponding edge sensor.
- 7** Display of the current EMS drive position
 - 0% = Motor retracted
 - 100% = Motor extended
- 8** This symbol is displayed in case of a communication error.

5 Malfunctions



5.1 Diagrammatic review of the MALFUNCTIONS sub-system

Touch the sections in the graphic to which more information is required. Refer to the following help themes for further information about error remedy:

>> 5.4 LIST OF THE RELEVANT SYSTEM AND ERROR MESSAGES

>> TYPICAL ERROR SITUATIONS

This sub-system contains all functions, operating elements and displays required to effectively remedy an error. It consists of two subject-related menus arranged in a list

- ▶ ERROR LIST and
- ▶ MESSAGE LIST.



regi_star 20 system



Operator



Print machine connected to the **regi_star 20** system.



The message list contains errors, which are a reaction to **operator-based** errors.



System-based errors are protocolled in the error list. Detailed information about the occurred errors are shown in the error list. The specified malfunction class defines the malfunction valency and facilitates error remedy.



Malfunction class: error



Malfunction class: warning



Malfunction class: information



Possible operations in the error list:

acknowledging the error message,



deleting the error message



The signal flows and operations in the sketch are possible within the MALFUNCTIONS sub-system (rectangular section).

5.2 Acknowledging and deleting system errors

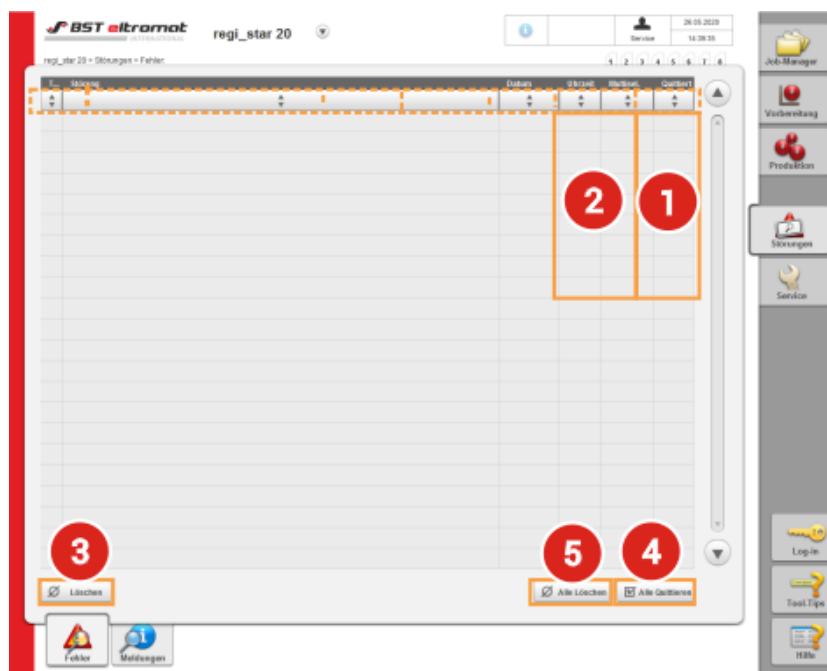


Acknowledge error messages **after** the error cause has been remedied. In this way, the error list will be kept manageable.



The entries can be sorted in the list according to columns (ascending or descending) by touching the top column section.

Fig. 5.2





- 1 Touch here to acknowledge one or several selected entries.
- 2 Touch here to select one or several acknowledged entries (entries can be simultaneously deleted).
- 3 Delete the selected and acknowledged entries.

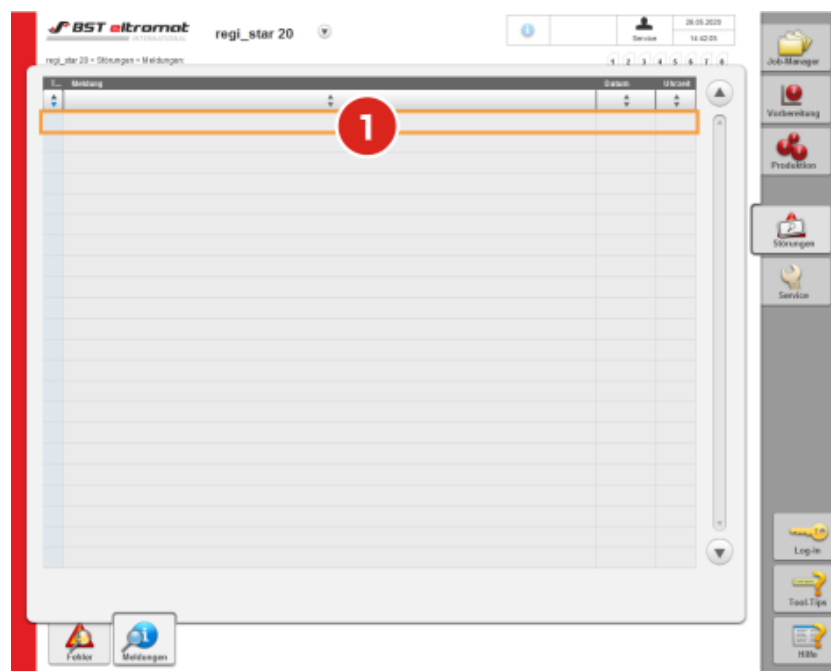
Alternatively:

- 4 Touch here to acknowledge all entries in the list.
- 5 Delete all acknowledged entries.

5.3 Displaying messages



Fig. 5.3



- 1 The reactions on incorrect operations are shown here.





The message list can contain a maximum of 200 entries (register).

5.4 List of the relevant system and error messages

AME failed

- ▶ Incorrect dimensions of the AME block mark or the symmetrical mark field
- ▶ Cylinder circumference does not correspond with the current format

>> 6.12 CHECK/CORRECT THE DIMENSIONS OF THE AME TYPE

>> 3.3 ENTER A CYLINDER CIRCUMFERENCE WHICH CORRESPONDS WITH THE FORMAT

- ▶ Checking the lateral web sensor alignment

Checking the lateral web sensor alignment

- ▶ Length register control is deactivated

>> 3.22 SWITCH ON THE LENGTH REGISTER CONTROL FOR AME

Error has occurred after „Center marks“ 50

- ▶ Gate width selection too large (several mark signals in the gate area, interference pulses)

>> 4.8 CHECKING THE GATE SETTINGS OF THE CONTROL UNIT (REDUCE GATE WIDTH)

AME failed 63

- ▶ Incorrect dimensions of the AME block mark or the symmetrical mark field
- ▶ AME block mark or parts of the symmetrical mark field could not be inspected

>> 3.22 CHECK/CORRECT THE DIMENSIONS OF THE AME TYPE

>> 3.3 ENTER A CYLINDER CIRCUMFERENCE WHICH CORRESPONDS WITH THE FORMAT

- ▶ Checking the lateral web sensor alignment

Absolute encoder defective or not installed 101



Message only with absolute encoder presetting (option)

- ▶ Feedback of invalid absolute encoder values when the spindle moves
- ▶ Replacing the absolute encoder

>> 1.24 CONTACT THE BST ELTROMAT SERVICE PERSONNEL

Serial absolute encoder defective or measuring range exceeded 102

- ▶ Spindle overruns the limit switches
- ▶ Feedback of invalid absolute encoder values when the spindle moves
- ▶ When the adjustment range is exceeded: Replace/check the limit switches
- ▶ When defective: Replacing the absolute encoder

>> 1.24 CONTACT THE BST ELTROMAT SERVICE PERSONNEL

5.5 Typical error situations

5.5.1 Register mark sensor focusing

For register controlling, print marks are opto-electrically detected and transmitted to the register control system as input values. This task is carried out by the **rsh** register mark sensor. Prerequisite for fault-free detection being:

- ▶ the correct focusing on the printed web
- ▶ the alignment of the optics in relation to the print marks to be detected
- ▶ the clean optics



- 1 Touch the animation button.
- 2 Observe the correct focus adjustment (printed web spacing = 9mm) in the animation

5.5.2 Error situations in the sub-system PREPARE

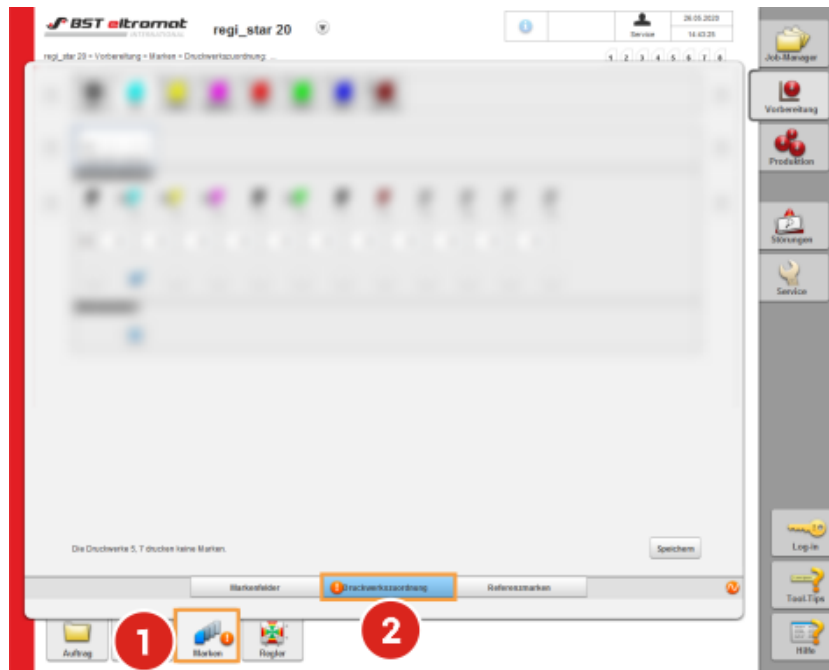
Inadmissible adjustments can cause errors in the PREPARE sub-system. They are displayed as a graphic:

Error symbol in the respective menu



Remedy this error, **befor** saving the prepared job in the job list.

Fig. 5.5.2



- 1 Touch the menu in which the error symbol is displayed.
- 2 If necessary, touch the slave menu in which the error symbol is displayed.
- 3 Check and correct the settings:
 - ▶ Use the standard allocations and standard values as a base.
 - ▶ Check the settings for congruity and logic.
 - ▶ Allocate the settings again.
 - ▶ Compare the settings to fault-free, saved jobs.
 - ▶ If necessary, operate menu overlapping to check cross references.

6 Service



6.1 SERVICE sub-system review

The SERVICE sub-system is mainly intended for the configuration and parameterisation of the **regi_star 20** system by the **BST eltromat** service personnel.

The following functions can also be accessed by the operator (depending on the user profile (log-in)):

- ▶ Global system information concerning hardware and software versions
- ▶ Online language selection for user surface, tool tips and online help
- ▶ Selection of a length unit
- ▶ Setting date and time
- ▶ Changing and resetting passwords (depending on the user profile)
- ▶ Cleaning function for the operator monitor (touch_screen)
- ▶ Mark configurator to define print mark fields (higher-ranking user profile as OPERATOR required)
- ▶ **Important:** For the following functions, a user profile ranking higher than OPERATOR is required:
 - ▶ Zero positioning of the absolute encoders (after replacement)
 - ▶ Display of speed and acceleration values (for each print unit)
 - ▶ Display of IPC information, EtherCAT status and system utilization

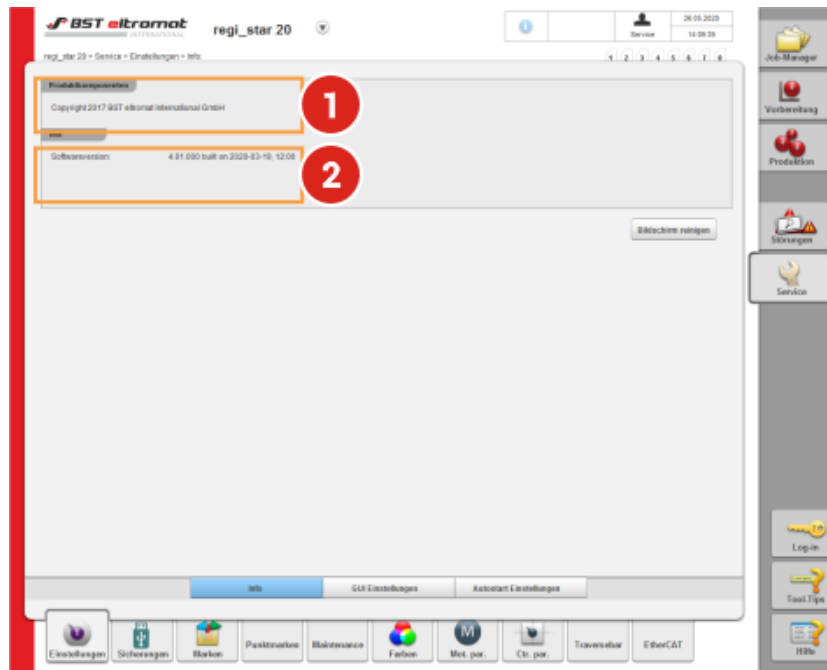
Touch the help subject in the table of contents to which further information is required.

6.2 System information, monitor cleaning

6.2.1 System information display

This menu contains system information about hardware and software components and versions. You can specify this system information, e.g. for questions by telephone.

Fig. 6.2.1



- 1** Display of the product components of the register controller system.
- 2** Display of the HMI software version.

6.2.2 Cleaning the monitor

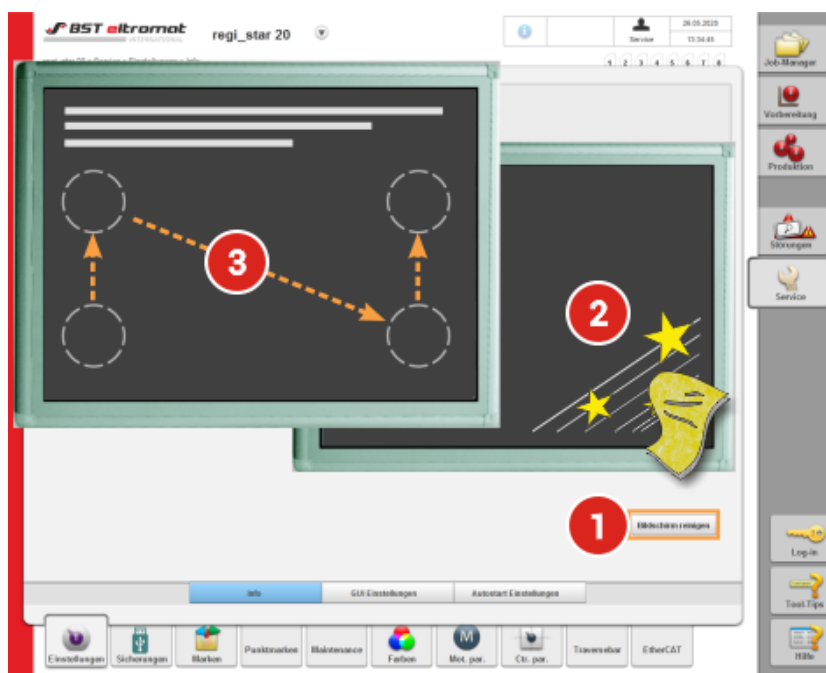


Avoid unintentional incorrect operations by using this function while cleaning the operator monitor.



Only use glass cleaning agent and a soft cloth.

Fig. 6.2.2



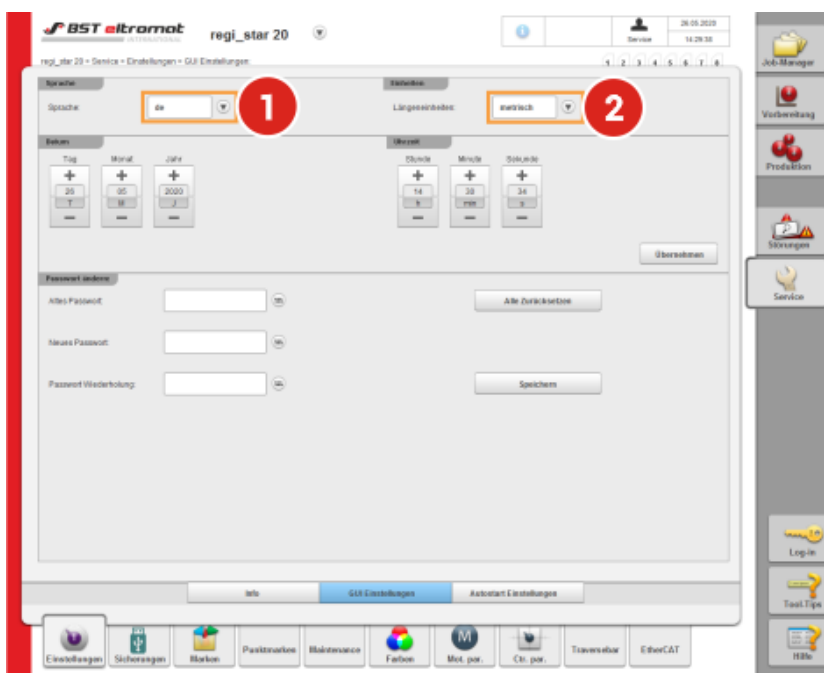
- 1** Touch here to activate the cleaning mode. The operator monitor is deactivated.
- 2** Now clean the operator monitor.
- 3** Subsequently, reactivate the operator monitor. For this purpose, touch the displayed markings.

6.3 System settings

6.3.1 Language and dimension unit selection

This menu is intended for important, global system settings.

Fig. 6.3.1



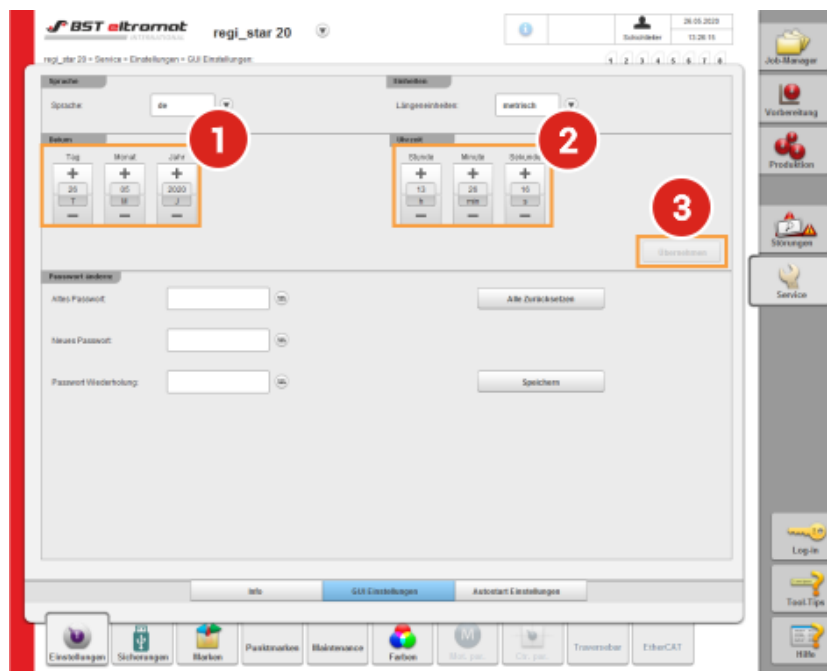
- 1 Select the desired language for the user interface, tool tips and online help.
- 2 Select the required length unit.

These settings are immediately active.

6.3.2 Setting date and time

This menu is intended for important, global system settings.

Fig. 6.3.2

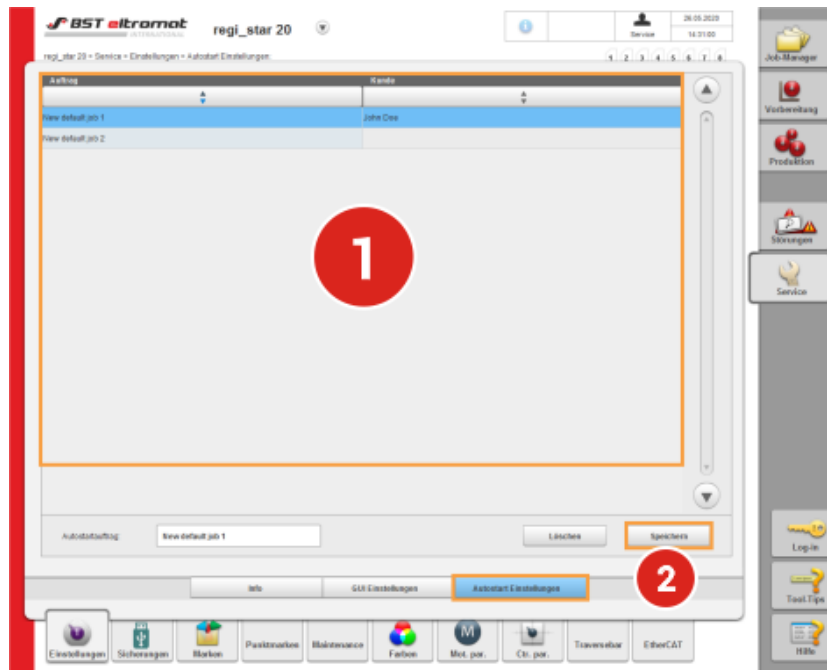


- 1 Set day, month and year.
- 2 Set hour, minute and second.
- 3 Acknowledge the inputs.

6.3.3 Activation of automatic job loading

Under normal circumstances, the job which was in the PRODUCTION status last is loaded into the register controller during system start. If **no** job was in the PRODUCTION status prior to system start, it is possible to load another job instead. Perform the following operating steps to determine this job in the SERVICE menu.

Fig. 6.3.3



1 Touch the desired job in the job memory.

2 Confirm automatic loading of the selected job.

At the next system start the selected job will automatically be loaded into the register controller, unless a job was in the PRODUCTION status prior to restart.

6.3.4 Entry of mechanical offset for backside print unit

At the backside print unit two camera sensors are installed facing each other and are connected to the register controller. It is possible that the two camera sensors are not precisely aligned with each other due to mechanical influences. The **regi_star 20** can compensate for this offset.

Fig. 6.3.4

First measure the mechanical offset between the two camera sensors.

1 Enter the mechanical offset between the two camera sensors.

- 2 Save the entered offset.

The system will now compensate for the offset.

6.4 Password

6.4.1 Changing a password

You can only change your own password but not that of a different user profile!

>> 6.9 RESETTING PASSWORDS

Unintentional incorrect entries are avoided due to a safety inquiry.

Fig. 6.4.1

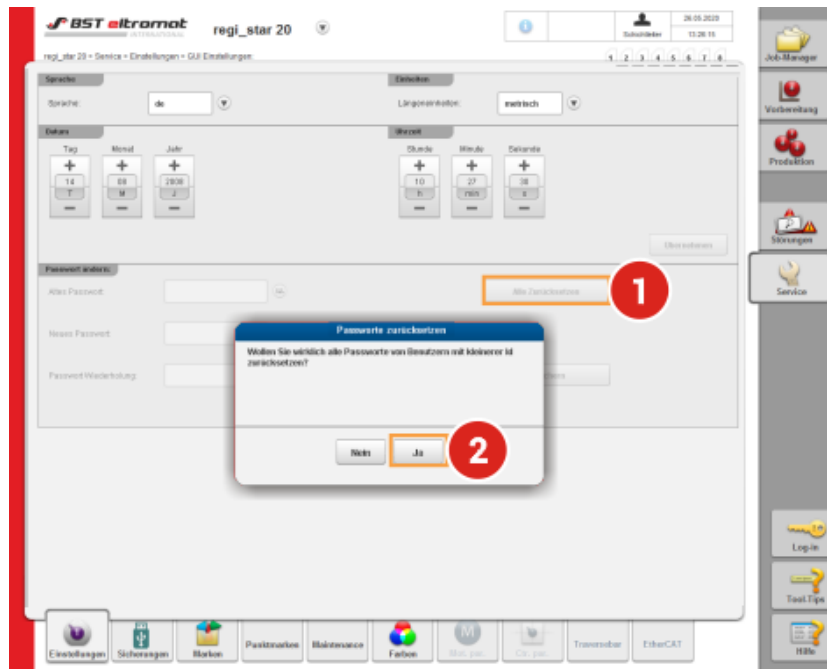
- 1 Enter your current (old) password.
- 2 Enter your new password.
- 3 Confirm your new password.
- 4 Save your new password.

6.4.2 Resetting passwords

Resetting passwords allow a system log-in without password entry. A new password must be entered following a log-in with a reset user profile!

>> 6.8 CHANGING A PASSWORD

Fig. 6.4.2



- 1 Touch here to reset the passwords of all user profiles with lower rights (than the rights of the currently selected). A safety inquiry is displayed.
- 2 Acknowledge the safety inquiry. The passwords are reset.

6.5 Mark configurator

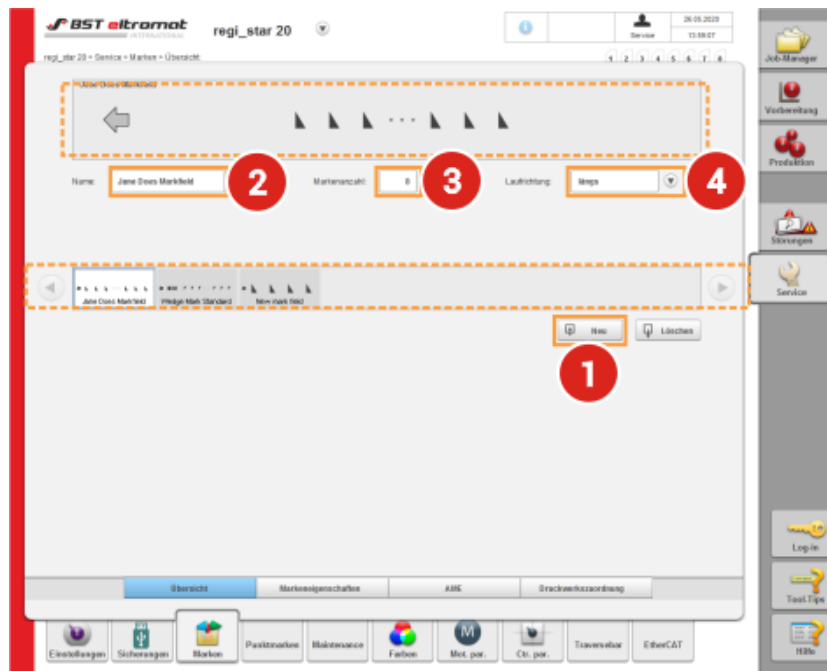
6.5.1 Creation of a new mark field

The mark field to be processed is displayed increased in the top monitor area (detailed preview including specification of the web running direction).

Use this preview to establish compliance with the printing sample !

Fig. 6.5.1

>> 6.14 DELETING MARK FIELDS



STOP! Incorrectly set print mark fields can result in increased waste. Ensure that the print mark field **precisely corresponds** with the printing sample!

Log in for the use of the mark configurator at least with the SHIFT SUPERVISOR user profile.

>> 1.22 USER LOG-IN

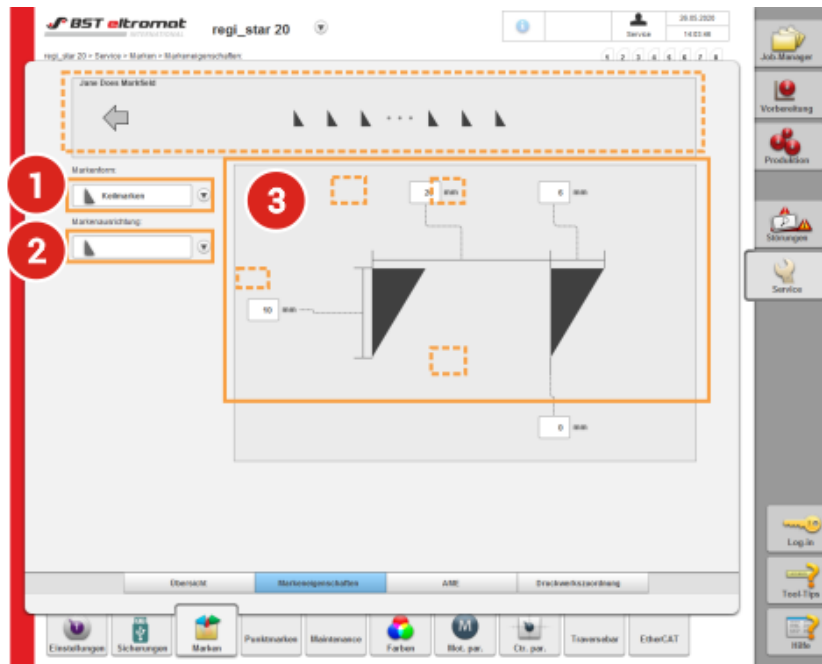
- 1** Add a new mark field to the selection list of all available mark fields.
- 2** Enter a clear name for the mark field.
- 3** Determine the number of register marks in the mark field.
- 4** Determine the mark field running direction in relation to the web running direction.

6.5.2 Changing mark features

For the BLOCK MARK mark type it is not possible to determine a mark alignment.



Fig. 6.5.2



- 1 Determine the mark type for the selected mark field.
- 2 Determine the mark alignment for the selected mark field.
- 3 Enter the dimensions for the selected mark type.



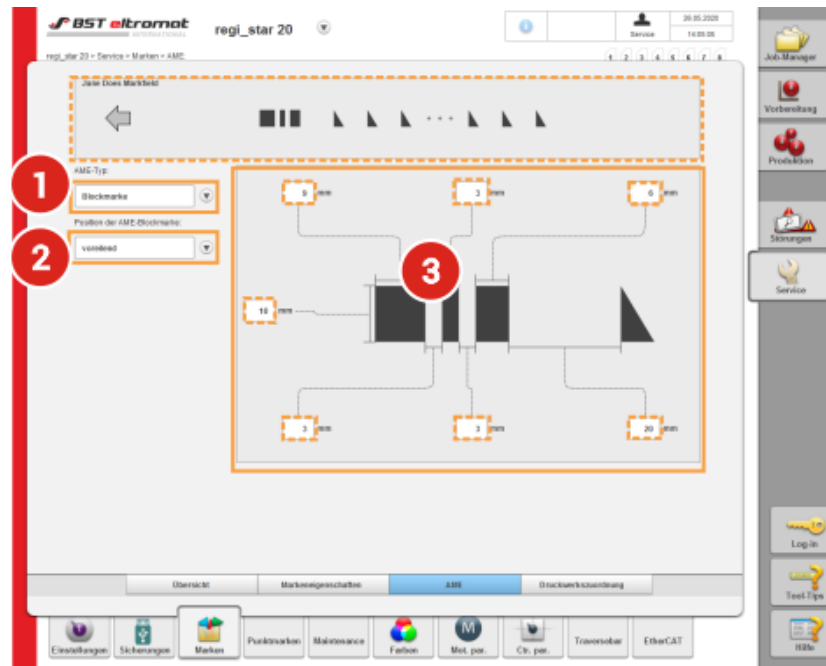
Enter, for example, width and length of a mark, the mark spacing and the length of the mark section (depending of the selected mark type).

6.5.3 AME mark set-up



Depending on the determined running direction and mark type, different AME types can be selected.

Fig. 6.5.3



- 1 Determine the AME type for automatic mark detection (AME).

If no automatic mark detection is used, steps 2 and 3 cannot be performed.

- 2 Determine the AME mark position in relation to the mark field.

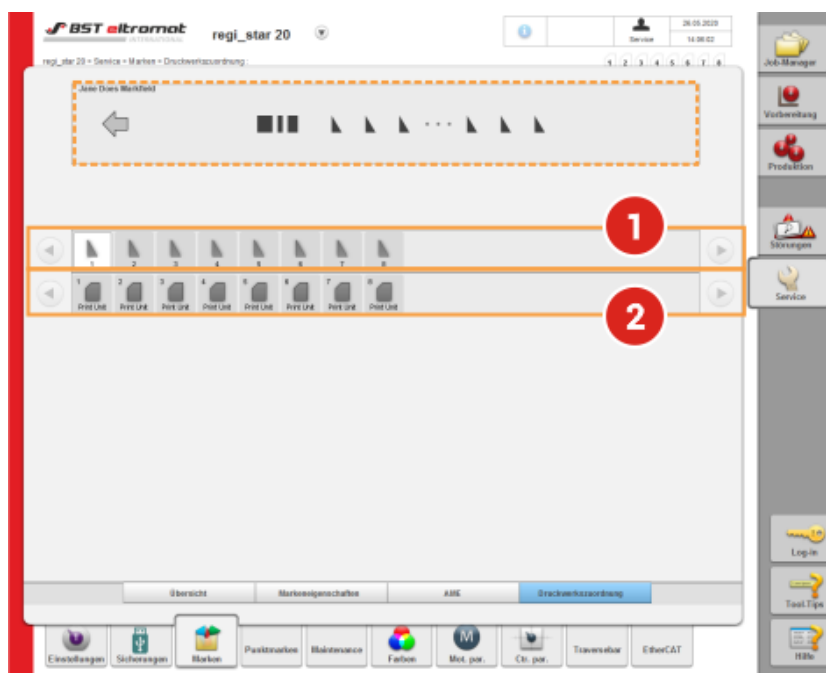
- 3 Enter the dimensions for the selected AME type.
 - For AME block mark: Enter the width of the AME block mark, the length and the spacings of the partial AME marks as well as the spacing in relation to the mark field.
 - For symmetrical mark field: Enter the spacing of the most internal register mark pairs.

6.5.4 Determination of the print unit allocation

The following allocations for a print unit are possible:

- **no** register mark (print unit does not print a mark)
- **a** register mark (standard)
- **several** register marks (e.g. with key colour repetition)

Fig. 6.5.4



Determine, the order and the print unit used to print the register marks (is a presetting in the PREPARE sub-system).

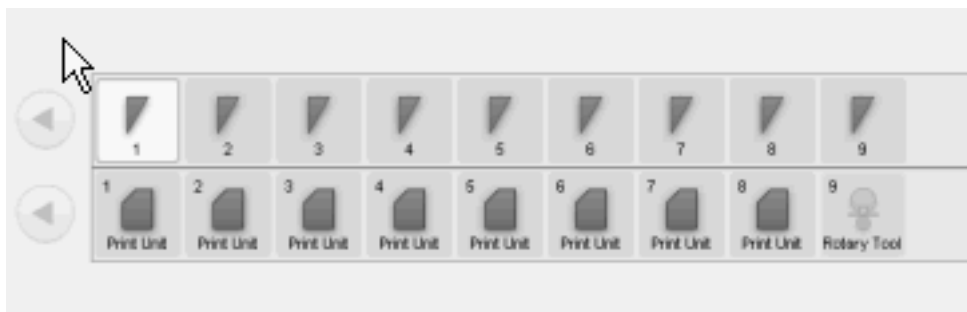
1

Touch the desired register mark in the selection list.

2

Allocate the selected register mark to a print unit (print unit number appears in the register mark symbol).

Fig. 6.4



Repeat steps 1 and 2 until all register marks of the mark field are allocated.



Now the register mark field is completely configured. Log in again as an OPERATOR. Confirm the safety inquiry to take over the entries.

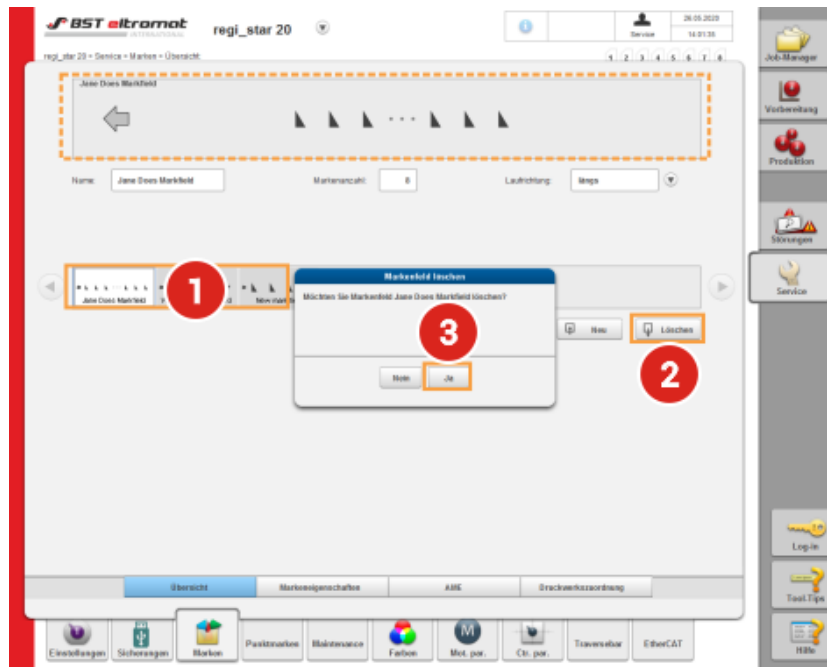
>> 1.22 USER LOG-IN

6.5.5 Deleting a mark field

Incorrect mark fields or mark fields no longer required can be deleted.

A safety inquiry serves to prevent unintentional deletion of a set mark field !

Fig. 6.5.5



- 1 Touch the desired mark field in the selection list of all available mark fields.
- 2 Delete the selected mark field. A safety inquiry is displayed.
- 3 Acknowledge the safety inquiry. The mark field is deleted from the selection list.

6.6 Mark configurator (dot marks)

6.6.1 Creation of a new mark field

The mark field to be processed is displayed increased in the top monitor area (detailed preview including specification of the web running direction).

Use this preview to establish compliance with the printing sample !

Fig. 6.6.1

>> 6.14 DELETING MARK FIELDS



STOP! Incorrectly set print mark fields can result in increased waste. Ensure that the print mark field **precisely corresponds** with the printing sample!

Log in for the use of the mark configurator at least with the SHIFT SUPERVISOR user profile.

>> 1.22 USER LOG-IN

- 1 Add a new mark field to the selection list of all available mark fields.
- 2 Enter a clear name for the mark field.
- 3 Determine the number of dot marks in the mark field.
- 4 Determine the dot mark diameter.

The register sensor grabbing range results from the mark field surface and a freely adjustable margin area:

- 5 Define the margin range size in the X direction.

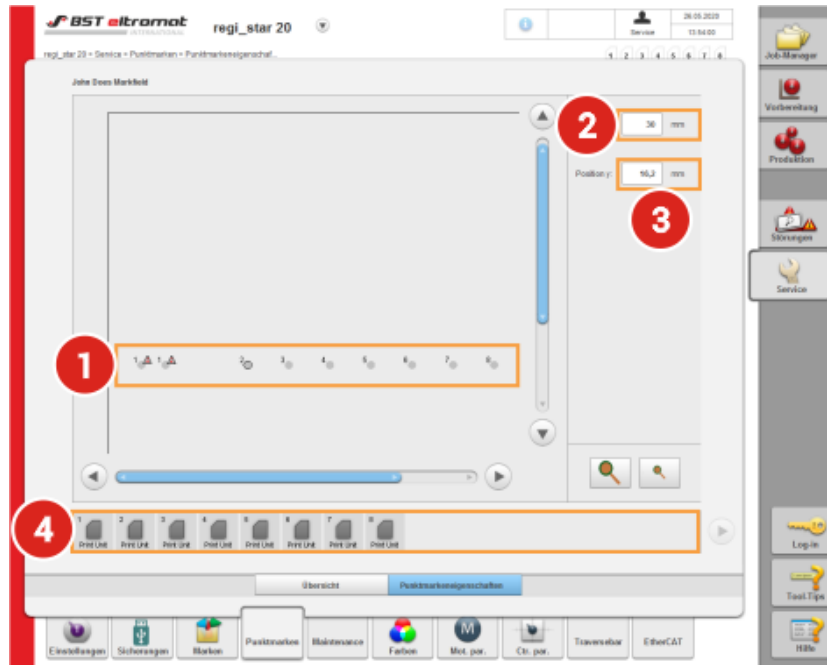
- 6 Define the margin range size in the Y direction.

6.6.2 Definition of a dot mark field

The following allocations for a print unit are possible:

- ▶ **no** register mark (print unit does not print a mark)
- ▶ **a** register mark (standard)
- ▶ **several** register marks (e.g. with key colour repetition)

Fig. 6.6.2



Determine, the order and the print unit used to print the register marks (is a presetting in the PREPARE sub-system). Important: A dot mark field can consist of several partial mark fields. In the mark configurator, only a partial mark field is edited and not the complete dot mark field.

If necessary, the mark field display can be zoomed in or out.

Perform the following operating steps for each dot mark of the mark field:

- 1 Touch the desired dot mark.

- 2 Define the desired position of the selected dot mark in the X direction.
- 3 Define the desired position of the selected dot mark in the Y direction.
- 4 Allocate the a print unit to the selected dot mark (print unit number appears in the dot mark symbol).



Now the register mark field is completely configured. Log in again as an OPERATOR. Confirm the safety inquiry to take over the entries.

>> 1.22 USER LOG-IN

6.6.3 Deleting a mark field

Incorrect mark fields or mark fields no longer required can be deleted.



A safety inquiry serves to prevent unintentional deletion of a set mark field !

Fig. 6.6.3



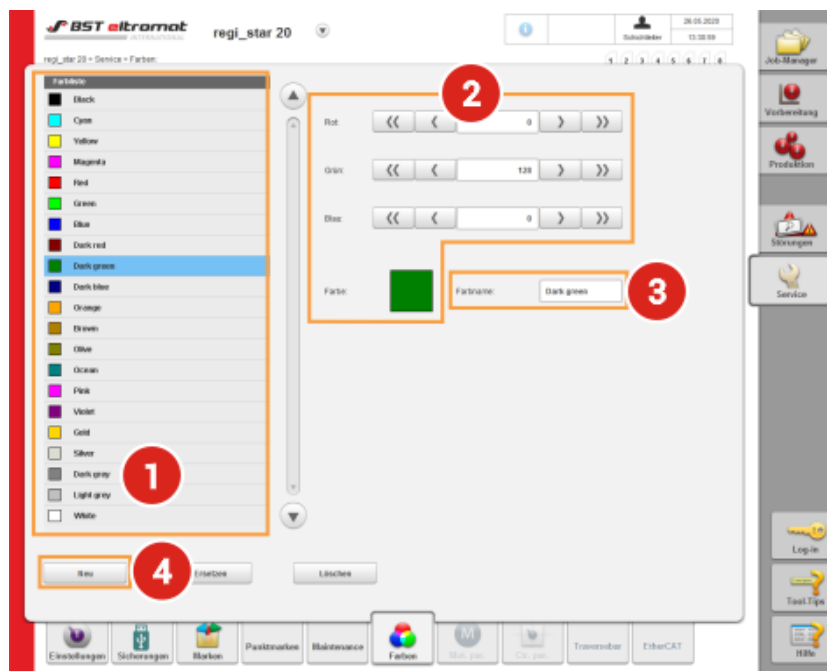
- 1 Touch the desired mark field in the selection list of all available mark fields.
- 2 Delete the selected mark field. A safety inquiry is displayed.
- 3 Acknowledge the safety inquiry. The mark field is deleted from the selection list.



6.7 Creation/replacement of the colour definition

The sub-system PREPARE is used to allocate a colour to each print unit. This colour is displayed in the user interface by respectively coloured symbols and in some menus additionally as plain text. To adapt the selection of colour definitions to your printing process, use the COLOURS menu of the sub-system SERVICE to define your own colours or replace existing definitions.

Fig. 6.7



For use of the mark configurator, log in at least with the user profile SHIFT ADVISOR!

>> 1.22 USER LOG-IN

- 1** Select the colour definition to be **replaced** or the desired position for a **new** colour definition. A new colour definition is saved behind the selected colour definition.
- 2** Enter the RGB values for the new colour. It is possible to directly enter the value into the input field or use the arrow keys to increase/reduce the values in two different increments.
- 3** Check the display of the set colour. If necessary, repeat the previous operating step.



- 4 Enter a clear designation for the colour definition.
- 5 Select one of the two following alternatives:
 - ▶ Save the settings as the new colour definition (button NEW) **or**
 - ▶ replace the colour definition selected in operating step 1 (button REPLACE).

The settings are applied after a system restart.

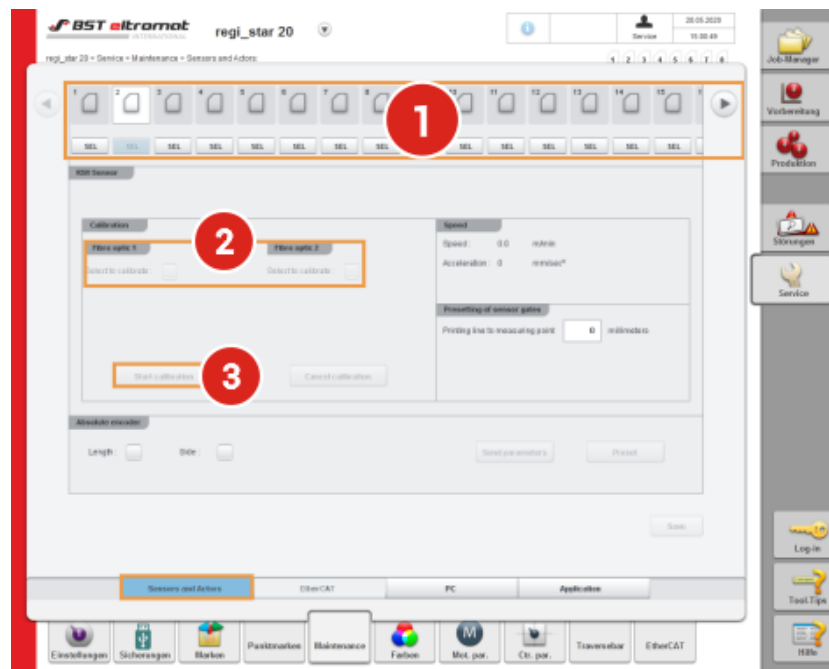
Touch the DELETE button to delete a selected colour definition.

6.8 Maintenance

6.8.1 Optical waveguide calibration

After replacing the optical waveguides (e.g. following a mechanical defect), calibrate the new components to allow the register sensor malfunction free operation. Also calibrate the register sensor when the lighting shows signs of ageing.

Fig. 6.8.1





Log in for the use of the maintenance functions at least with the SHIFT SUPERVISOR user profile.

>> 1.22 USER LOG-IN

- 1 Select the machine components the waveguides of which are to be calibrated.
- 2 Select the desired optical waveguides.
- 3 Start calibration and follow the instructions on the monitor.



For further information about the calibration of optical waveguides, please refer to the register sensor operating manual **RSH**

6.8.2 Moving the absolute encoders to their start position

After replacing an absolute encoder, transmit the configuration parameters to the new absolute encoder once and define the new reference position.

Fig. 6.8.2

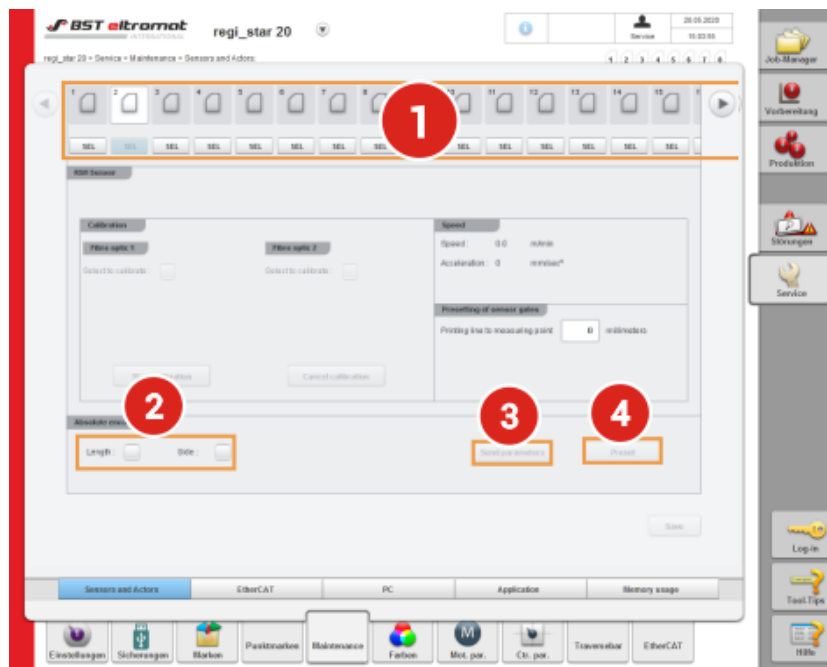


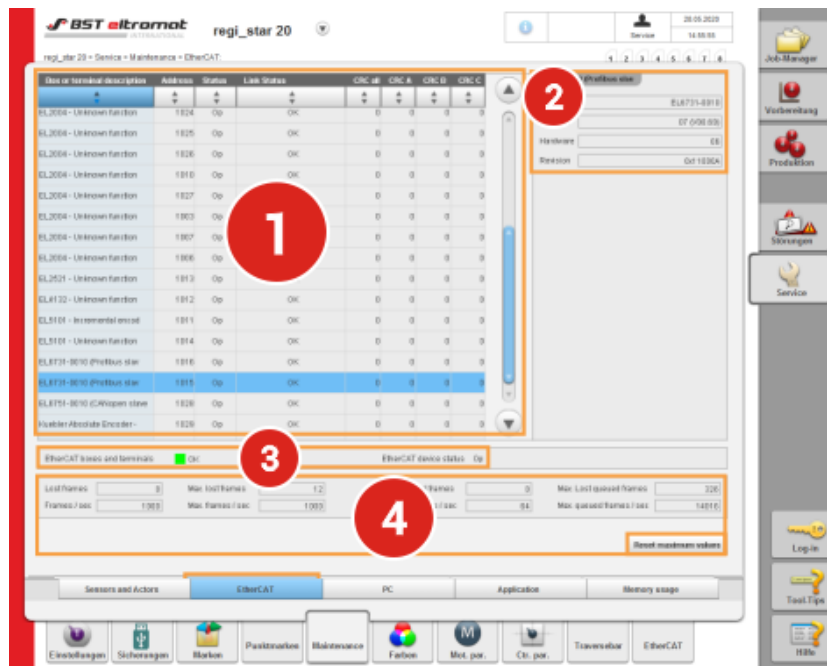


Fig. 6.8.3

- 1** Select the machine components the absolute encoders of which are to be replaced.
 - 2** Select the desired absolute encoders:
 - ▶ Absolute encoder for length register presetting
 - ▶ Absolute encoder for side register presetting
 - 3** Transmit the parameters to the new absolute encoder.
- Move the register spindle to zero position.
- 4** Transmit the zero position to the absolute encoder.

6.8.3 Displaying the status of the EtherCAT participants

Entries in the list can be sorted according to columns (increasing or decreasing) by touching the top column section.



- 1** Display of the most important information about all EtherCAT participants in a table. The following parameters are displayed:
 - ▶ **Box or terminal description:** Description of the EtherCAT participant (e.g. designation of a connection terminal or a register sensor)
 - ▶ **Address:** EtherCAT address

- ▶ **Status:** Status of the EtherCAT participant (in normal operating mode: OP)
- ▶ **Link status:** Status of the link (in normal operating mode: OK).
- ▶ **CRC all/A/B/C:** Counter for the occurred errors (invalid telegram data), total and/or for the respective port (A, B or C).

2

Further information about the EtherCAT participant selected in the table:

- ▶ **Name:** Name of the EtherCAT participant.
- ▶ **Software:** Software version of the EtherCAT participant.
- ▶ **Hardware:** Hardware version of the EtherCAT participant.
- ▶ **Revision:** Revision of the EtherCAT participant.

3

- ▶ **EtherCAT device status:** Total status of the EtherCAT bus system (in normal operating mode: OP).
- ▶ **EtherCAT boxes and terminals:** A respective message appears as soon as an EtherCAT participant status differs from OP.

4

Status displays to check the bus quality.

- ▶ **(Queued) Frames/sec** and **Lost/Lost queued Frames:** Currently determined value in the respective category.
- ▶ **Max. (Queued) Frames/sec** and **Max. Lost/Lost queued Frames:** Highest determined value in the respective category.

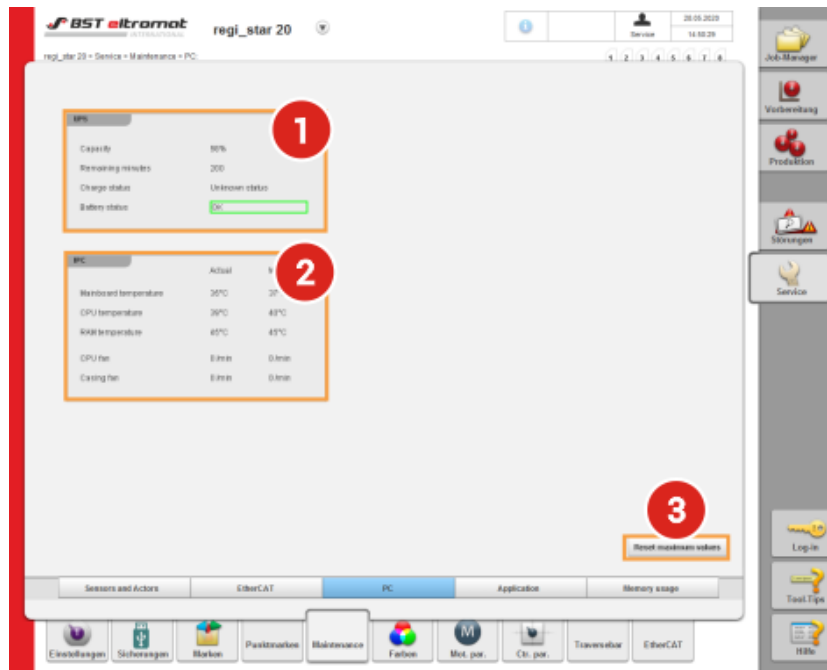


If necessary, reset the measured maximum values to 0 by means of the buttons RESET MAXIMUM VALUES. This also affects the max. values in the IPC menu.

6.8.4 Displaying IPC information

Here, information about the industrial PC of the *regi_star 20* system is displayed.

Fig. 6.8.4



- 1** **UPS:** Here, information about the UPS is displayed:

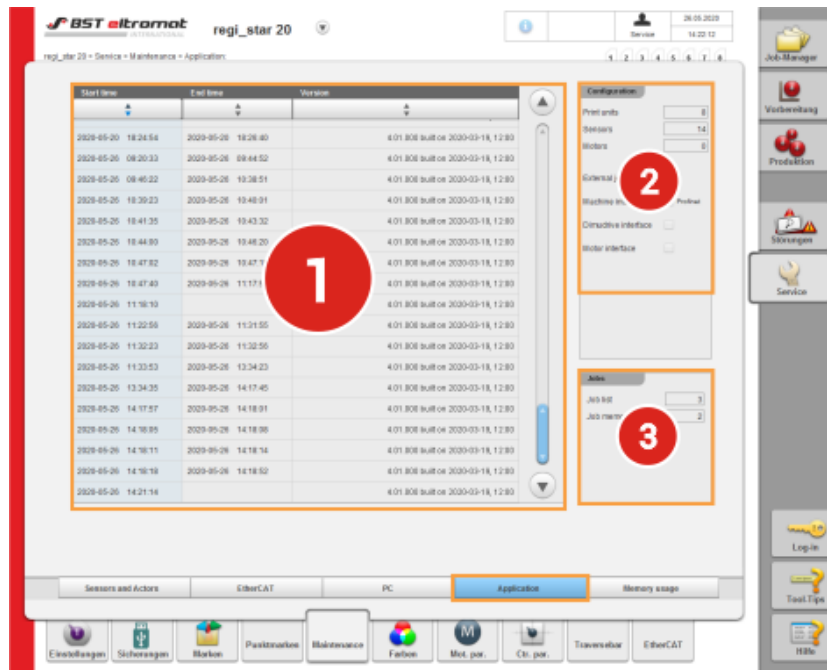
 - ▶ the capacity of the accumulator,
 - ▶ remaining time during which the system can be supplied by the UPS,
 - ▶ the charging status and
 - ▶ the battery status.
 - 2** **IPC:** Here, the actual and max. values of the following parameters are displayed:

 - ▶ temperatures of main board, CPU and RAM
 - ▶ speed of CPU and housing fan
- !** A high fan rotational speed with increasing temperature can be an indicator for soiled cooling bodies of the IPC.
- !** A low fan rotational speed with increasing temperature can be an indicator for a restricted fan function.
- 3** If necessary, reset all max. values to 0. This also affects the max. values in the ETHERCAT menu.

6.8.5 Displaying application data

Important information about the **reg_i_star 20** application is displayed here. All application times of the HMI are displayed in addition to important configuration data.

Fig. 6.8.5



- 1 Protocol of the application times of the HMI as a table.
 - **Start time:** Log of every HMI start including date and time.
 - **End time:** Log of every HMI termination including date and time.
 - **Version:** Version of the HMI during the respective application period.
- 2
 - Number of the configured print units, register mark sensors and motors.
 - Status display of the functions of the MACHINE INTERFACE and the EXTERNAL JOB CONTROL (active/inactive).
- 3 Number of the print jobs in the job list and in the job memory. This value is updated when the system is started.

6.8.6 Displaying the RAM utilization

Graphical display of the RAM utilization. The values are displayed as time course, i.e.: The further left a value is displayed in the curve, the further it dates back.



During production, a high load of the RAM is possible. Once the job is discharged, the load should be reduced noticeably.

Fig. 6.8.6

