DÜRKOPP ADLER

581

Operating Instructions

IMPORTANT

READ CAREFULLY BEFORE USE

KEEP FOR FUTURE REFERENCE

1 About these instructions

These instructions have been prepared with utmost care.
They contain information and notes intended to ensure long-term and reliable operation.

Should you notice any discrepancies or if you have improvement requests, then we would be glad to receive your feedback through **Customer Service** (📖 *p. 171*).

Consider these instructions as part of the product and keep it easily accessible.

1.1 For whom are these instructions intended?

These instructions are intended for:

- Operators:
  This group is familiar with the machine and has access to the instructions. Specifically, chapter **Operation** (📖 *p. 19*) is important for the operators.
- Specialists:
  This group has the appropriate technical training for performing maintenance or repairing malfunctions. Specifically, the chapter **Setup** (📖 *p. 147*) is important for specialists.

Service Instructions are supplied separately.

With regard to minimum qualification and other requirements to be met by personnel, please also follow the chapter **Safety** (📖 *p. 9*).

1.2 Representation conventions – symbols and characters

Various information in these instructions is represented or highlighted by the following characters in order to facilitate easy and quick understanding:

Proper setting

Specifies proper setting.

Disturbances

Specifies the disturbances that can occur from an incorrect adjustment.

Cover

Specifies which covers must be disassembled in order to access the components to be set.

Steps to be performed when operating the machine (sewing and equipping)

Steps to be performed for service, maintenance, and installation

Steps to be performed via the software control panel

The individual steps are numbered:

1. First step
2. Second step

... The steps must always be followed in the specified order.

- Lists are marked by bullet points.

Result of performing an operation

Change to the machine or on the display/control panel.

Important

Special attention must be paid to this point when performing a step.

Information
Additional information, e.g. on alternative operating options.

Order

Specifies the work to be performed before or after an adjustment.

References

Reference to another section in these instructions.

Safety Important warnings for the user of the machine are specifically marked. Since safety is of particular importance, hazard symbols, levels of danger and their signal words are described separately in the chapter **Safety** (*p. 9*).

Location information If no other clear location information is used in a figure, indications of **right** or **left** are always from the user's point of view.

1.3 Other documents

The machine includes components from other manufacturers. Each manufacturer has performed a hazard assessment for these purchased parts and confirmed their design compliance with applicable European and national regulations. The proper use of the built-in components is described in the corresponding manufacturer's instructions.

1.4 Liability

All information and notes in these instructions have been compiled in accordance with the latest technology and the applicable standards and regulations.

Dürkopp Adler cannot be held liable for any damage resulting from:

- Breakage and transport damages
- Failure to observe these instructions
- Improper use
- Unauthorized modifications to the machine
- Use of untrained personnel
- Use of unapproved parts

Transport

Dürkopp Adler cannot be held liable for breakage and transport damages. Inspect the delivery immediately upon receiving it. Report any damage to the last transport manager. This also applies if the packaging is not damaged.

Leave machines, equipment and packaging material in the condition in which they were found when the damage was discovered. This will ensure any claims against the transport company.

Report all other complaints to Dürkopp Adler immediately after receiving the product.

2 Safety

This chapter contains basic information for your safety. Read the instructions carefully before setting up or operating the machine. Make sure to follow the information included in the safety instructions. Failure to do so can result in serious injury and property damage.

2.1 Basic safety instructions

The machine may only be used as described in these instructions.

The instructions should be available at the machine's location at all times.

Work on live components and equipment is prohibited. Exceptions are defined in the DIN VDE 0105.

For the following work, switch off the machine at the main switch or disconnect the power plug:

- Replacing the needle or other sewing tools
- Leaving the workstation
- Performing maintenance work and repairs
- Threading

Missing or faulty parts could impair safety and damage the machine. Only use original parts from the manufacturer.

Transport Use a lifting carriage or stacker to transport the machine. Raise the machine max. 20 mm and secure it to prevent it from slipping off.

Setup The connection cable must have a power plug approved in the relevant country. The power plug may only be assembled to the connection cable by qualified specialists.

Obligations of the operator Follow the country-specific safety and accident prevention regulations and the legal regulations concerning industrial safety and the protection of the environment.

All the warnings and safety signs on the machine must always be in legible condition. Do not remove!
Missing or damaged warnings and safety signs must be replaced immediately.

Requirements to be met by the personnel

Only qualified specialists may:

- Set up the machine/put the machine into operation
- Performing maintenance work and repairs
- Performing work on electrical equipment

Only authorized persons may work on the machine and must first have understood these instructions.

Operation

Check the machine during operating for any externally visible damage. Stop working if you notice any changes to the machine. Report any changes to your supervisor. Do not use a damaged machine any further.

Safety equipment

Safety equipment should not be disassembled or deactivated. If it is essential to disassemble or deactivate safety equipment for a repair operation, it must be assembled and put back into operation immediately afterward.

2.2 Signal words and symbols used in warnings

Warnings in the text are distinguished by color bars. The color scheme is based on the severity of the danger. Signal words indicate the severity of the danger.

Signal words Signal words and the hazard they describe:

Signal word	Meaning
DANGER	(with hazard symbol) If ignored, fatal or serious injury will result
WARNING	(with hazard symbol) If ignored, fatal or serious injury can result
CAUTION	(with hazard symbol) If ignored, moderate or minor injury can result
CAUTION	(with hazard symbol) If ignored, environmental damage can result
NOTICE	(without hazard symbol) If ignored, property damage can result

Symbols The following symbols indicate the type of danger to personnel:

Symbol	Type of danger
	General
	Electric shock

Symbol	Type of danger
	Puncture
	Crushing
	Environmental damage

Examples Examples of the layout of warnings in the text:

DANGER

Type and source of danger!
Consequences of non-compliance.
Measures for avoiding the danger.

- This is what a warning looks like for a hazard that will result in serious injury or even death if ignored.

WARNING

Type and source of danger!
Consequences of non-compliance.
Measures for avoiding the danger.

- This is what a warning looks like for a hazard that could result in serious or even fatal injury if ignored.

CAUTION

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

↳ This is what a warning looks like for a hazard that could result in moderate or minor injury if the warning is ignored.

NOTICE

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

↳ This is what a warning looks like for a hazard that could result in property damage if ignored.

CAUTION

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

↳ This is what a warning looks like for a hazard that could result in environmental damage if ignored.

3 Machine description

3.1 Components of the machine

Fig. 1: Components of the machine

(1) - Button for threading mode
(2) - Buttons
(3) - Control panel

The machine is fitted with a programmable control and a control panel.

These can define up to 50 different buttonholes.

The buttonholes can be programmed in up to 25 sequences (📖 *p. 78*).

A sequence can include a maximum of 9 different buttonholes; each individual buttonhole within the sequence can be repeated up to maximum 9 times consecutively.

During sewing, it is possible to switch automatically or manually between the programmed buttonholes (📖 *p. 72*).

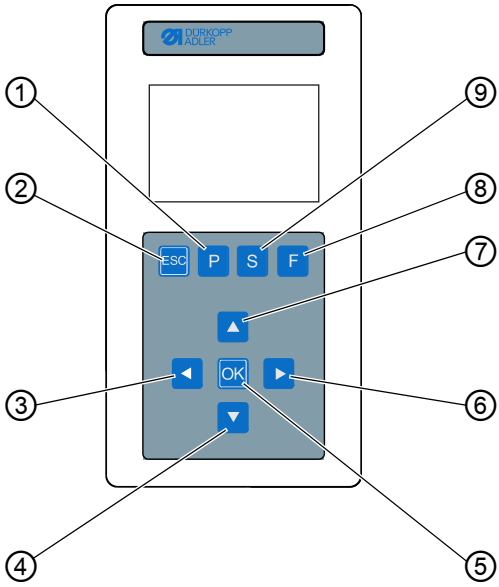
3.2 Control panel

The **OP5000** control panel is located on the side of the machine and is connected to the control. Using the control panel, you can adjust the functions for the relevant buttonhole.

The control panel comprises:

- Display
- Buttons

Fig. 2: Control panel



(1) - P Button
(2) - ESC button
(3) - Arrow button
(4) - Arrow button
(5) - OK button
(6) - Arrow button
(7) - Arrow button
(8) - F button
(9) - S button

Buttons and functions of the control panel

No.	Button	Function
①	P	• Calls up the setting mode for individual buttonholes
②	ESC	• Returns to the operator level • Rejects changes
③	◀	• Moves one level down • Changes to previous buttonhole shape
④	▼	• Moves to the menu item one field lower • Reduces values
⑤	OK	• Calls up values • Saves changed values

No.	Button	Function
⑥		• Changes to the next buttonhole shape
⑦		• Moves to the menu item one field higher • Increases values
⑧		• Calls up service mode
⑨		• Calls up the setting mode for buttonhole sequences

4 Operation

The operating sequence consists of several different steps. Fault-free operation is necessary in order to achieve a good sewing result.

4.1 Preparing the machine for operation

WARNING

Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

If possible, make preparations only when the machine is switched off.

Complete the following steps in preparation of sewing before starting to work:

- Inserting/changing the needle
- Threading the needle thread
- Threading and winding on the hook thread
- Adjusting the thread tension

4.2 Switching on and off the machine

Fig. 3: Switching on and off the machine

(1) - Main switch

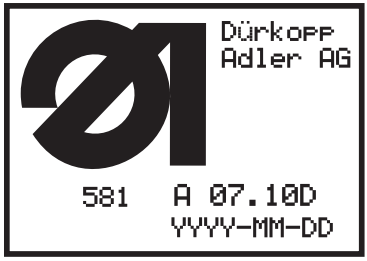
Switching on the power supply

To switch on the power supply:

1. Turn the main switch (1) into position **I**.

↳ The splash screen appears on the display, whereby YYYY-MM-DD stands for the current date:

Fig. 4: Switching on the power supply



↳ The machine moves to the loading position and is ready to sew when the main menu (🕮 *p. 61*) appears.

Switching off the power supply

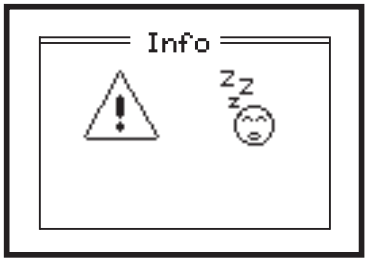
Information
The main switch is simultaneously the EMERGENCY STOP switch. When the main switch is switched off, the machine is disconnected from the power supply.

To switch the power supply off:

1. Turn the main switch (1) into position **0**.

↳ All drives and the control are disconnected from the mains grid.
The following appears on the display:

Fig. 5: Switching off the power supply



4.3 Activating and deactivating threading mode

Threading mode can be used to thread needle thread, hook thread, and gimp thread.

Fig. 6: Activating and deactivating threading mode

(1) - Button for threading mode

Activating threading mode

To activate threading mode:

1. Press the button (1) on the head cover. The button must engage.

↳ The machine is in threading mode.
The button lights up.
The fabric support plate moves into the best position for threading.
The fabric clamps remain in the position they were in when threading mode was switched on.
The sewing drive is separated from the power supply.
The slitting blade is switched off.

↳ You can now:

- insert the needle
- thread the hook thread
- thread the needle thread
- thread the gimp thread

Deactivating threading mode

To deactivate threading mode:

1. Press the button (1) again. The button must disengage.

↳ After a short pause, the machine is ready to sew again. The sewing process is continued from the point where threading mode was activated.

4.4 Inserting/changing the needle

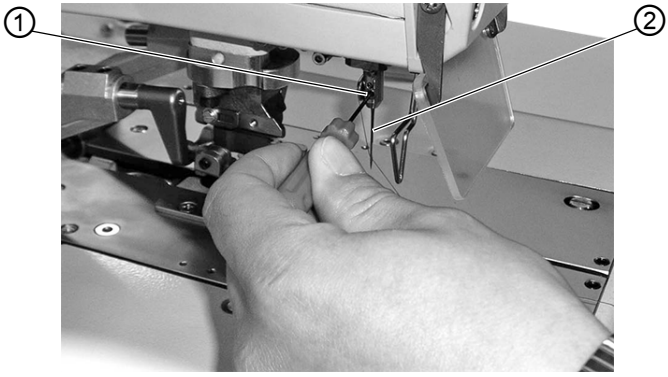
WARNING

Risk of injury from sharp parts!

Puncture possible.

Only change the needle with the machine switched off.

Fig. 7: Inserting/changing the needle (1)



(1) - Screw *(2) - Needle*

To insert or change the needle:

1. Loosen the screw (1).
2. Pull the needle (2) from the needle bar.
3. Insert the new needle into the hole in the needle bar until it reaches the end stop.

Fig. 8: Inserting/changing the needle (2)

(3) - Needle piston

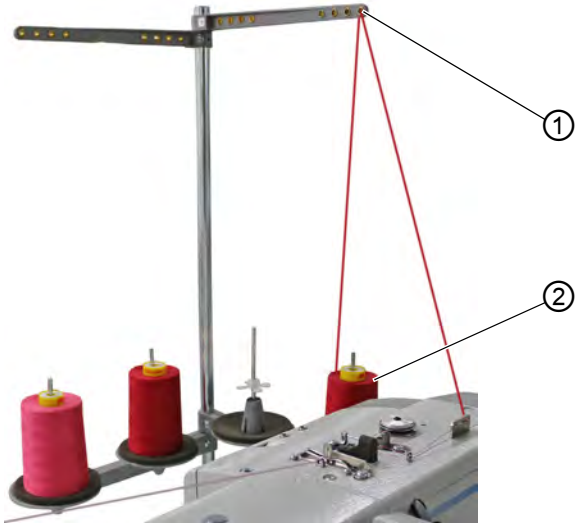
4. Align the needle (2) such that the groove is facing forward and the flat part (only in needle system 579) on the needle piston (3) is facing to the left in the direction of the screw (1).
5. Tighten the screw (1).

4.5 Threading the needle thread

WARNING

Risk of injury from sharp parts!
Puncture possible.
Switch off the machine or press the Threading mode button before threading the needle thread.

Fig. 9: Threading the needle thread (1)



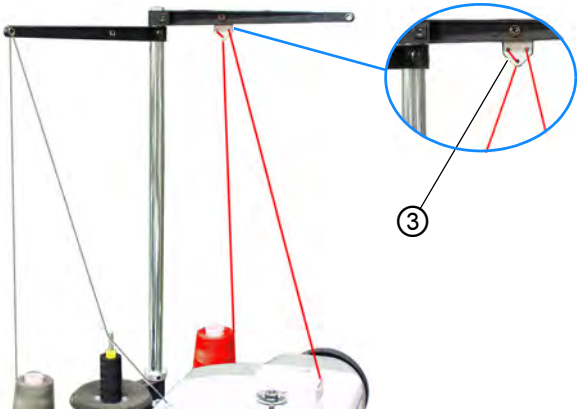
(1) - Hole *(2) - Thread reel*

To thread the needle thread:

1. Press the Threading mode button.
   OR
   Switch off the machine.
2. Fit the thread reel (2) on the thread reel holder.
3. Insert the needle thread through the hole (1) in the unwinding bracket.

Information

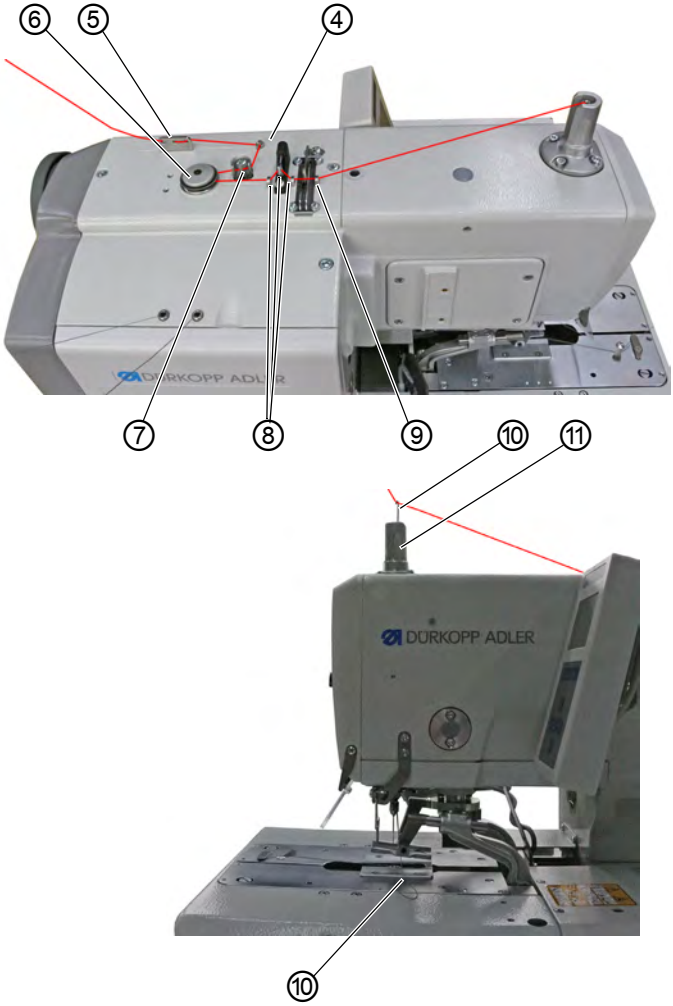
Fig. 10: Threading the needle thread (2)



(3) - Guide

If using threads that are very smooth, you can also assemble the guide (3) on the unwinding bracket and thread the needle thread through the guide (3) as shown above.

Fig. 11: Threading the needle thread (3)

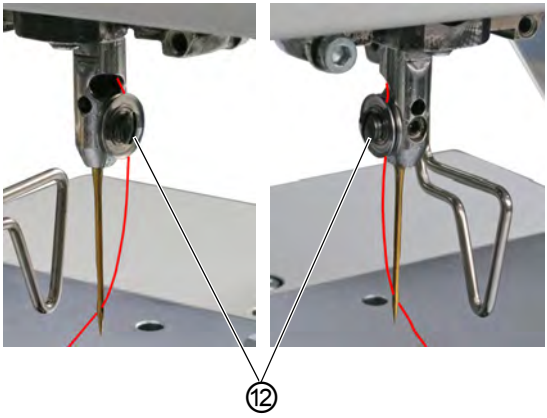


(4) - Guide
(5) - Guide
(6) - Tensioner
(7) - Guides
(8) - Guides
(9) - Guide
(10) - Threading wire
(11) - Thread guide

4. Insert the needle thread from the rear to the front through guide (5).
5. Feed the needle thread from the left to the right through guide (4).
6. Feed the needle thread from the right to the left through guide (7).

7. Guide the needle thread counterclockwise around the tensioner (6).
8. Feed the needle thread from the left to the right through guides (8) and (9).
9. Guide the threading wire (10) through the hollow needle bar from the bottom and pull the needle thread down through the thread guide (11).
   OR
   Use compressed air to blow the needle thread through the thread guide (11) from top to bottom.

Fig. 12: Threading the needle thread (4)



(12) - Tensioner

10. Feed the needle thread through the tensioner (12) from the side.
11. Insert the needle thread from the back to the front through the needle eye.

4.6 Threading the hook thread

WARNING

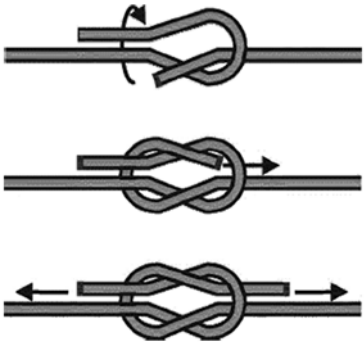
Risk of injury from sharp parts!

Puncture possible.

Switch off the machine or press the Threading mode button before threading the hook thread.

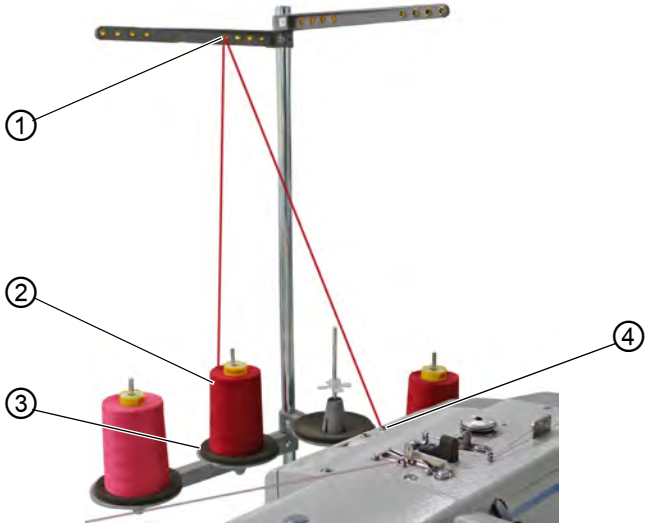
Information

Fig. 13: Threading the hook thread (1), weaver's knot



If you do not wish to re-thread the hook thread completely, you can use a weaver's knot to tie a new thread to the old thread. You can then proceed by pulling through the new thread carefully.

Fig. 14: Threading the hook thread (2)



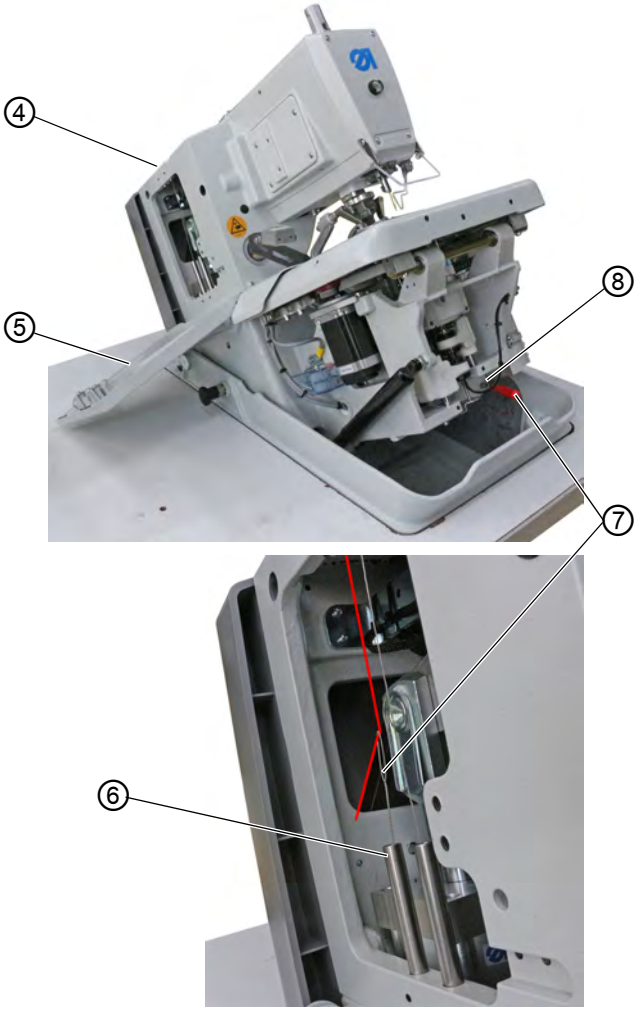
(1) - Hole
(2) - Thread reel
(3) - Thread reel holder
(4) - Hole

To thread the hook thread:

1. Press the Threading mode button.
   OR
   Switch off the machine.

   ↳ The hook rotates into the threading position.
2. Fit the thread reel (2) on the thread reel holder (3).
3. Insert the hook thread through the hole (1) in the unwinding bracket.

Fig. 15: Threading the hook thread (3)



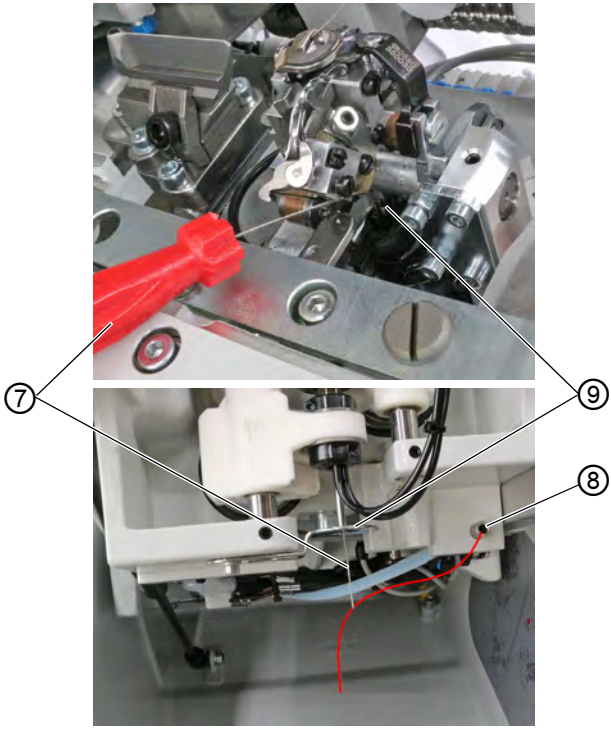
(4) - Hole
(5) - Cover
(6) - Guide
(7) - Threading wire
(8) - Hole

4. Pivot the cover (5).
5. Swivel up the machine.
6. Slide the threading wire (7) through the hole (8).

↳ The threading wire (7) will exit the guide (6).

7. Thread the hook thread through the hole (4) and insert it into the loop of the threading wire (7).
8. Pull the threading wire (7) with the hook thread out of the hole (8).
   OR
   Use compressed air to blow the hook thread through guide (6).
9. Remove the clamping plates.

Fig. 16: Threading the hook thread (4)

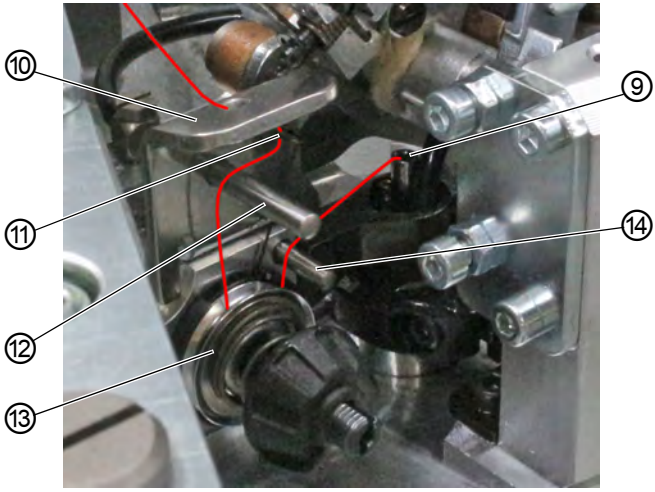


(8) - Hole
(9) - Guide
(7) - Threading wire

10. Slide the threading wire (7) through the guide (9).
11. Feed the hook thread through the hole (8) and insert it into the loop of the threading wire (7).

12. Pull the threading wire (7) with the hook thread up and out of the guide (9).
    OR
    Use compressed air to blow the hook thread through the guide (9) from the bottom.

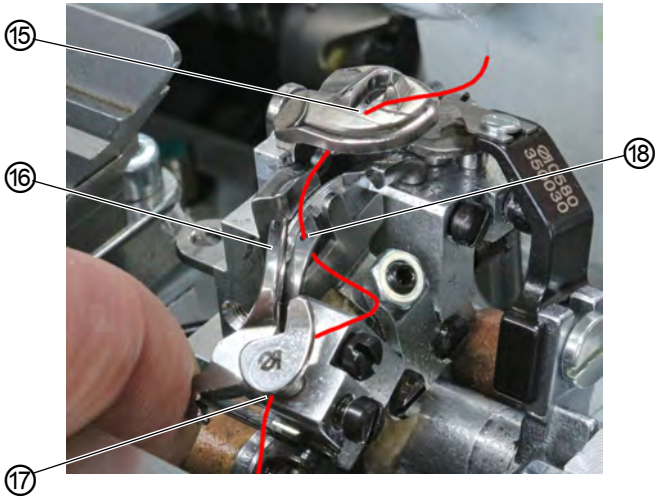
Fig. 17: Threading the hook thread (5)



(9) - Guide
(10) - Guide
(11) - Spring
(12) - Pin
(13) - Tensioner
(14) - Pin

13. Feed the hook thread from guide (9) over pin (14).
14. Guide the hook thread clockwise around the tensioner (13).
15. Guide the hook thread over pin (12).
16. Feed the hook thread through the spring (11) from the bottom.
17. Feed the hook thread through guide (10) from the bottom.

Fig. 18: Threading the hook thread (6)



(15) - Throat plate
(16) - Spreader
(17) - Hole
(18) - Hole

18. Feed the hook thread through hole (17).
19. Push the spreader (16) to the side.
20. Feed the hook thread through hole (18) from the bottom.
21. Feed the hook thread through the throat plate (15) from the bottom.

4.7 Threading the gimp thread

WARNING

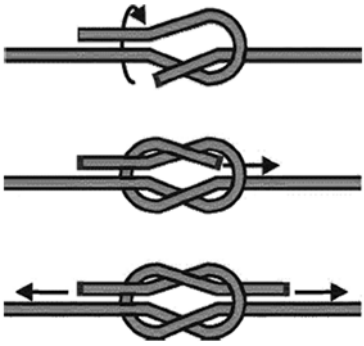
Risk of injury from sharp parts!

Puncture possible.

Switch off the machine or press the Threading mode button before threading the gimp thread.

Information

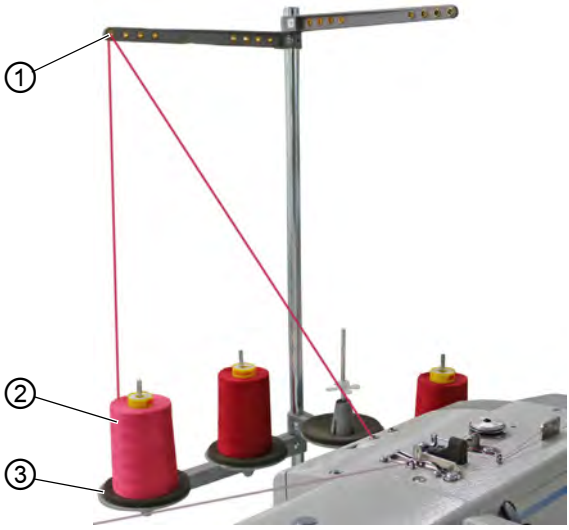
Fig. 19: Threading the gimp thread, weaver's knot



If you do not wish to re-thread the gimp thread completely, you can use a weaver's knot to tie a new thread to the old thread. You can then proceed by pulling through the new thread carefully.

4.7.1 Threading the gimp thread (subclass 121 and 321)

Fig. 20: Threading the gimp thread (1)



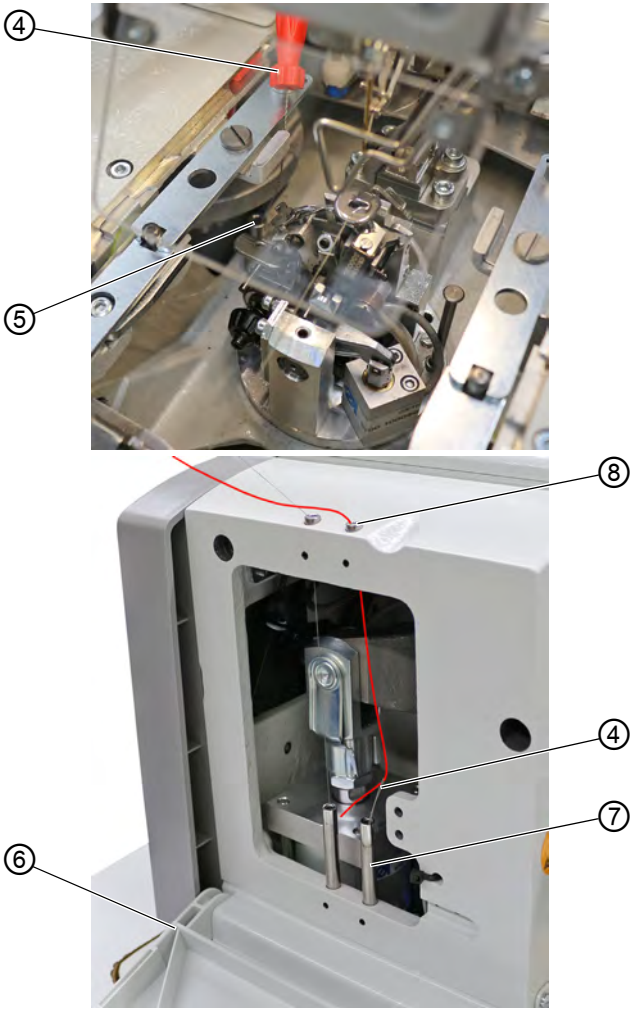
(1) - Hole
(2) - Thread reel
(3) - Thread reel holder

To thread the gimp thread:

1. Press the Threading mode button.
   OR
   Switch off the machine.

   The hook rotates into the threading position.
2. Remove the clamping plates.
3. Fit the thread reel (2) on the thread reel holder (3).
4. Insert the gimp thread through the hole (1) in the unwinding bracket.

Fig. 21: Threading the gimp thread (2)



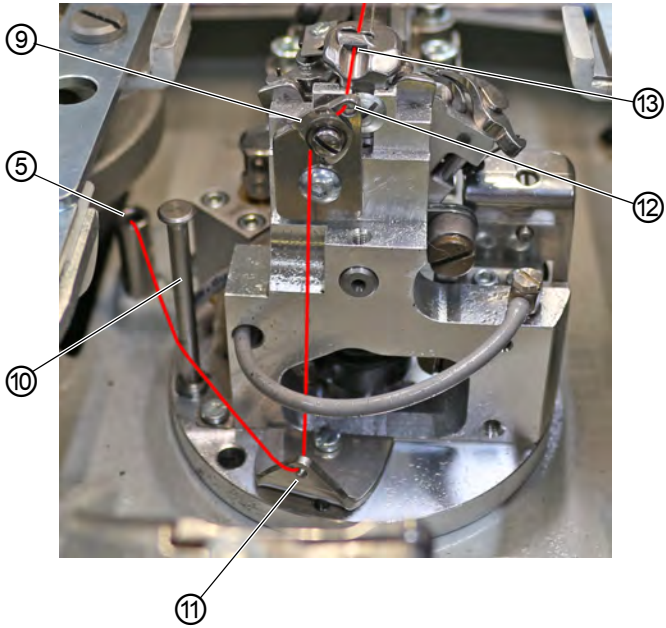
(4) - Threading wire
(5) - Guide
(6) - Cover
(7) - Guide
(8) - Hole

5. Pivot the cover (6).
6. Slide the threading wire (4) through guide (5).

The threading wire (4) will exit guide (7).

7. Thread the gimp thread through the hole (8) and insert it into the loop of the threading wire (4).
8. Pull the threading wire (4) with the gimp thread through guide (7).
   OR
   Use compressed air to blow the gimp thread through guide (7).

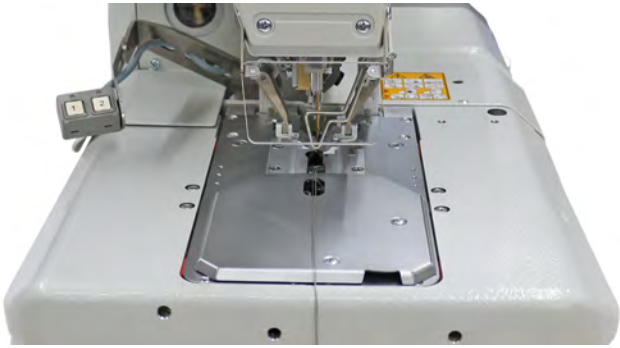
Fig. 22: Threading the gimp thread (3)



(5) - Guide
(9) - Plate
(10) - Pin
(11) - Guide
(12) - Guide
(13) - Hole

9. Turn the sewing mechanism manually by 180°.
10. Feed the gimp thread from guide (5) past the pin (10) on the outside.
11. Feed the gimp thread through guide (11) from the front.
12. Feed the gimp thread behind the plate (9) from bottom to top.
13. Feed the gimp thread through guide (12) from the front.
14. Feed the gimp thread through the hole (13).

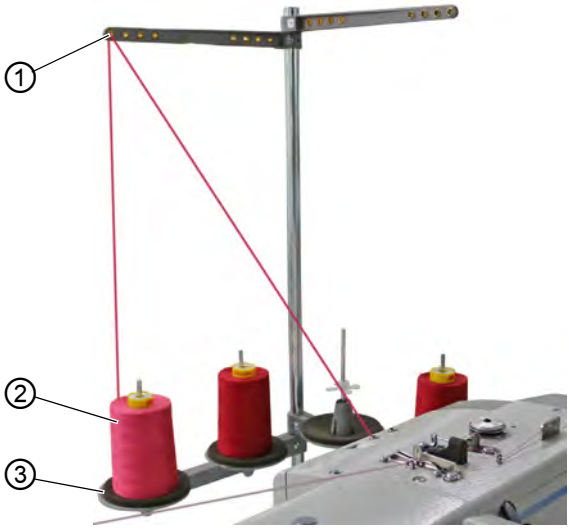
Fig. 23: Threading the gimp thread (4)



15. Place the clamping plates.

4.7.2 Threading the gimp thread (subclass 141 and 341)

Fig. 24: Threading the gimp thread (1)



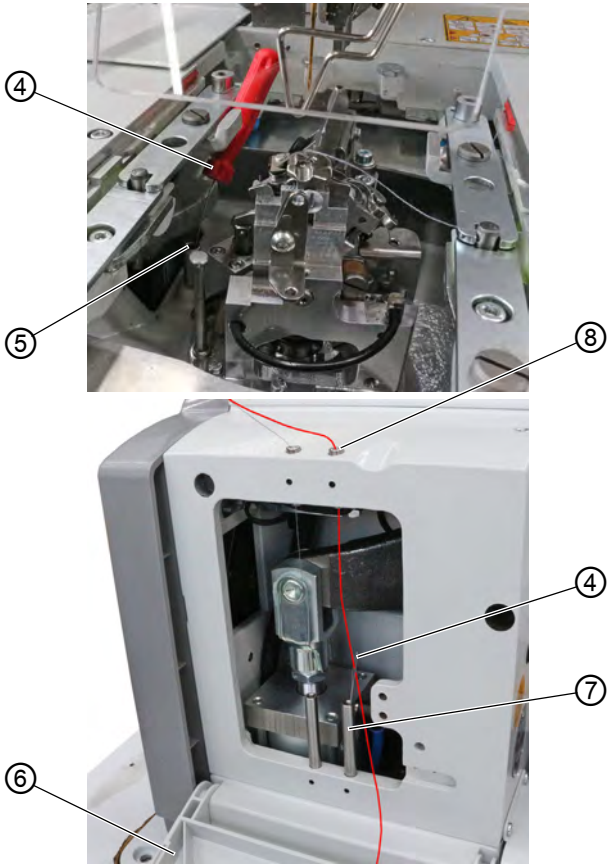
(1) - Hole
(2) - Thread reel
(3) - Thread reel holder

To thread the gimp thread:

1. Press the Threading mode button.
   OR
   Switch off the machine.

   The hook rotates into the threading position.
2. Remove the clamping plates.
3. Fit the thread reel (2) on the thread reel holder (3).
4. Insert the gimp thread through the hole (1) in the unwinding bracket.

Fig. 25: Threading the gimp thread (2)



(4) - Threading wire
(5) - Guide
(6) - Cover
(7) - Guide
(8) - Hole

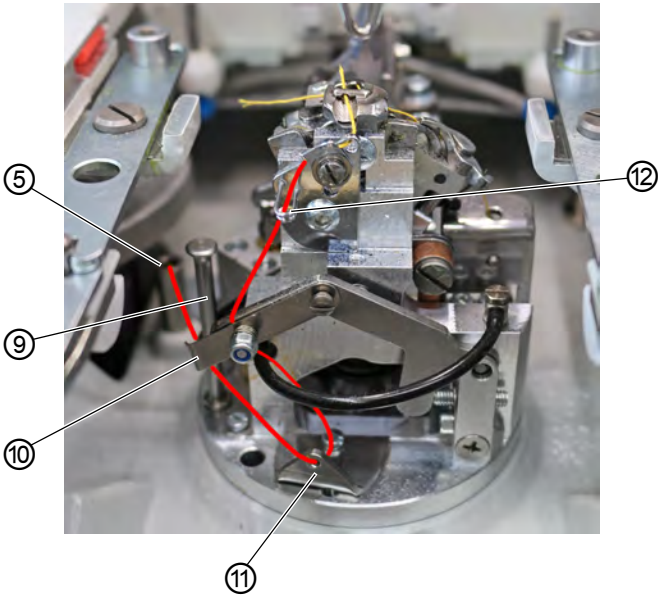
5. Pivot the cover (6).
6. Slide the threading wire (4) through guide (5).

   The threading wire (4) will exit guide (7).
7. Thread the gimp thread through the hole (8) and insert it into the loop of the threading wire (7).
8. Pull the threading wire (7) with the gimp thread through guide (5).

   OR

   Use compressed air to blow the gimp thread through guide (7).

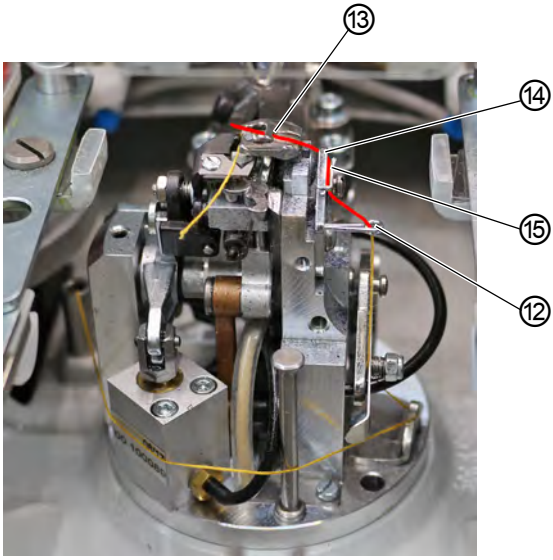
Fig. 26: Threading the gimp thread (3)



(5) - Guide
(9) - Pin
(10) - Plate
(11) - Guide
(12) - Guide

9. Feed the gimp thread from guide (5) past the pin (9) on the outside and under the plate (10).
10. Feed the gimp thread through guide (11) from the front.
11. Feed the gimp thread behind the plate (10) from bottom to top.
12. Feed the gimp thread from bottom to top through guide (12).

Fig. 27: Threading the gimp thread (4)



(12) - Guide
(13) - Hole
(14) - Guide
(15) - Plate

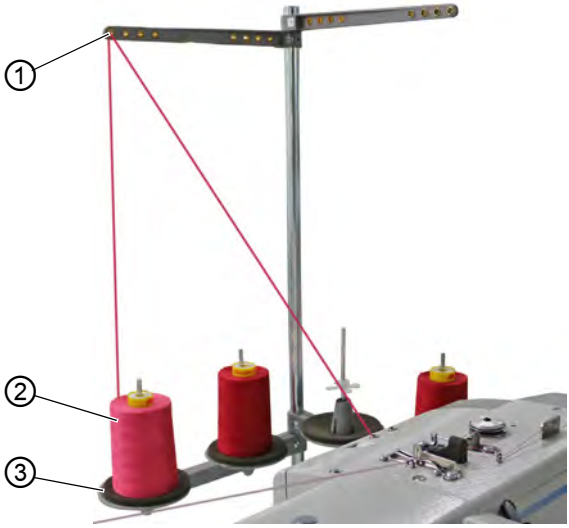
13. Feed the gimp thread behind the plate (15) from bottom to top.
14. Feed the gimp thread through guide (14) from the front to the rear.
15. Feed the gimp thread through the hole (13).

Fig. 28: Threading the gimp thread (5)

16. Place the clamping plates.

4.7.3 Threading the gimp thread (subclass 151)

Fig. 29: Threading the gimp thread (1)



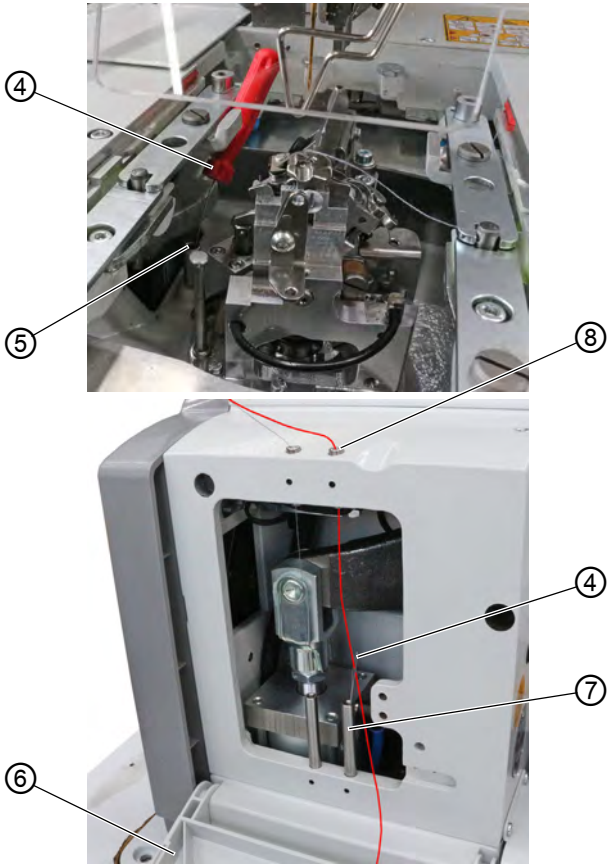
(1) - Hole
(2) - Thread reel
(3) - Thread reel holder

To thread the gimp thread:

1. Press the Threading mode button.
   OR
   Switch off the machine.

   ↳ The hook rotates into the threading position.
2. Remove the clamping plates.
3. Fit the thread reel (2) on the thread reel holder (3).
4. Insert the gimp thread through the hole (1) in the unwinding bracket.

Fig. 30: Threading the gimp thread (2)

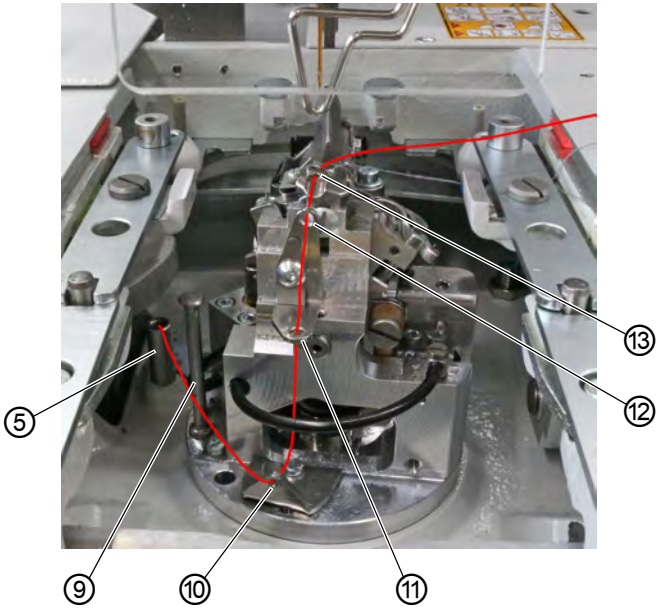


(4) - Threading wire
(5) - Guide
(6) - Cover
(7) - Guide
(8) - Hole

5. Pivot the cover (6).
6. Slide the threading wire (4) through guide (5).

   The threading wire (4) will exit guide (7).
7. Thread the gimp thread through the hole (8) and insert it into the loop of the threading wire (7).
8. Pull the threading wire (7) with the gimp thread through guide (5).
   OR
   Use compressed air to blow the gimp thread through guide (7).

Fig. 31: Threading the gimp thread (3)



(5) - Guide
(9) - Pin
(10) - Guide
(11) - Hole
(12) - Hole
(13) - Hole

9. Feed the gimp thread from guide (5) past the pin (9) on the outside.
10. Feed the gimp thread through guide (10) from the front.
11. Feed the gimp thread through hole (11) from the bottom.
12. Feed the gimp thread through hole (12) from the front.
13. Feed the gimp thread through the hole (13).

Fig. 32: Threading the gimp thread (4)

(14) - Knife

14. Place the clamping plates.
15. Cut the gimp thread off at the knife (14).

4.8 Thread tension

The thread tensions depend on the type and quality of the thread as well as on the sewing material. The buttonhole looks best when sewn with the lowest possible thread tension.

Overly tight thread tensions can result in undesired ruffing and thread breaking with thin sewing material.

4.8.1 Adjusting the needle thread tension

The needle thread tension must generally be set tighter than the hook thread tension. The thread tension is electronically regulated. It comprises the main tension for the sewing process and a remaining residual tension (cutting tension) for tightening the needle thread during the cutting operation under the throat plate.

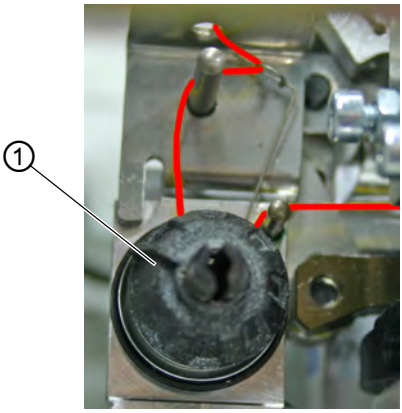
Regulate the residual tension (cutting tension) to suit the elasticity of the needle thread used, so that the thread end hanging from the needle is sufficiently long to ensure that the thread is sewn on safely.

To adjust the needle thread tension:

1. Set the main tension for the sewing process using the control panel (📖 *p. 69*).
2. Set the residual tension (cutting tension) using the control panel.

4.8.2 Adjusting the hook thread tension

Fig. 33: Adjusting the hook thread tension



(1) - Hook thread tensioner element

To adjust the hook thread tension:

1. Swivel up the machine head.
2. Use the hook thread tensioner (1) to adjust the hook thread tension:
   - Increase the hook thread tension: turn clockwise
   - Reduce the hook thread tension: turn counterclockwise
3. Swivel down the machine head.

The length of the starting thread can be adjusted by changing the thread tension at the start.

4.9 Removing and fitting clamping plates

WARNING

Risk of injury from sharp parts!
Puncture possible.

Remove and fit the clamping plates when the machine is switched off or in threading mode.

Removing clamping plates

Fig. 34: Removing clamping plates

(1) - Clamping plate, left *(2) - Clamping plate, right*

To remove the clamping plates:

1. Slightly raise the right clamping plate (2) at the back and pull it backwards.
2. Remove the clamping plate (2) sideways to the right.
3. Slightly raise the left clamping plate (1) at the back and pull it backwards.
4. Remove the clamping plate (1) sideways to the left.

Fitting clamping plates

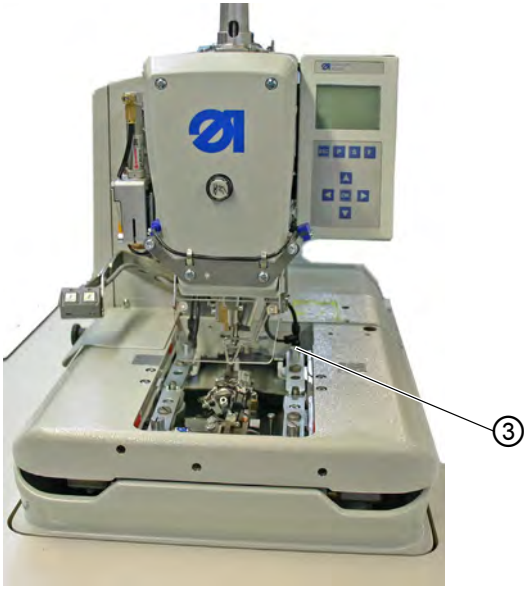
NOTICE

Property damage may occur!

Incorrectly positioned clamping plates can result in material damage.

Position clamping plates as described.

Fig. 35: Fitting clamping plates



(3) - Pin

To fit the clamping plates:

1. Push the clamping plate forward into the mounting.
2. Allow the clamping plate to engage at the back into the pin (3).

4.10 Swiveling the sewing machine up and down

WARNING

Risk of injury from sharp parts!

Puncture possible.

Only swivel up the machine when it is switched off or in threading mode.

WARNING

Risk of injury from moving parts!

Crushing possible.

Hold the machine firmly when swiveling it down.

NOTICE

Property damage may occur!

Operating the machine when it is swiveled up can result in material damage.

Always swivel the machine down before starting to sew.

Swiveling up

Certain tasks (e.g. threading the hook thread or the gimp thread) require that you swivel up the machine.

Fig. 36: Swiveling the machine up

(1) - Locking bolt

To swivel the machine upwards:

1. Pull out the locking bolt (1).
2. Raise the machine at the front.
3. Release the locking bolt (1) again and allow it to engage in a hole.
   To do this, you may have to swivel the machine up and down a little.
4. Do not let go of the machine until the locking bolt (1) has engaged.

Once you have completed the activities you have planned, swivel the machine back down again.

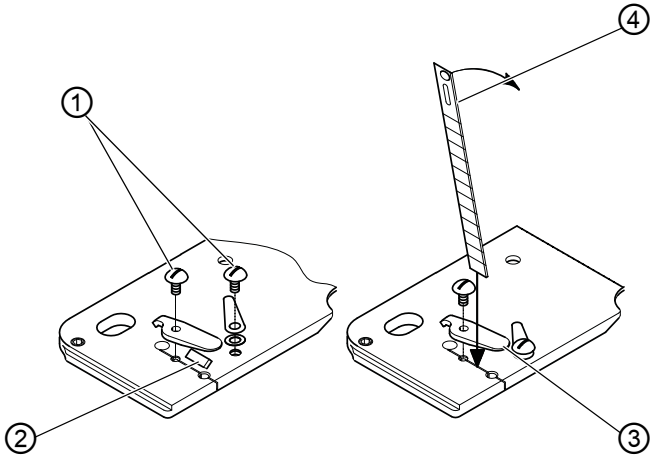
Swiveling the sewing machine down

To swivel the machine down:

1. Hold the machine firmly.
2. Pull out the locking bolt (1).
3. Swivel the machine down slowly.

4.11 Changing the knife

Fig. 37: Changing the knife



(1) - Screws
(2) - Old knife
(3) - Downholder
(4) - New knife

To change the knife:

1. Loosen the screws (1) and remove the downholder (3).
2. Remove the old knife (2).
3. Insert the new knife (4) to the base of the slot and bend in the direction of the arrow.
4. Re-tighten the screws (1).
5. Tighten the downholder using the screw (1).

Important

The knife must not project outside the downholder!

4.12 Sewing

The sewing process can be controlled either with the buttons on the machine or via the pedal.

4.12.1 Sewing using the push buttons

The clamps can be controlled and the sewing process started with the buttons on the machine. The function differs depending on the setting in the Service menu (🕮 *Service Instructions*).

Fig. 38: Buttons

(1) - Button 1 *(2) - Button 2*

1st setting (default):

- Button 1: Clamps are opened or closed, respectively.
- Button 2: The sewing process starts if the clamps are closed.

2nd setting:

- Button 1: Clamps are opened or closed, respectively.
- Button 2: If the clamps are not lowered, they are lowered now. The sewing process starts.

The buttons facilitate quick-stop during sewing.

To activate quick-stop:

1. Press button 1 or 2.

↳ The sewing process stops.

You now have the following options:

- Canceling the sewing process
- Continuing the sewing process

Canceling the sewing process

To cancel the sewing process:

1. Press button 1.

Continuing the sewing process

To continue the sewing process:

1. Press button 2.

4.12.2 Sewing with the pedal

The foot button is a 2-step pedal without backpedal function:

- When the first step is pressed, the clamps are closed.
  To re-open the clamps, release the first step.
- When the second step is pressed, the sewing process starts.
  When the sewing process is running, you can release the pedal.

The pedal supports quick-stop during sewing. You cannot continue the sewing process with the pedal.

Activating quick-stop

To activate quick-stop:

1. Press the pedal.

↳ The sewing process stops.

You now have the following options:

- Canceling the sewing process
- Continuing the sewing process

Canceling the sewing process

To cancel the sewing process:

1. Press the pedal.

↳ The sewing procedure is canceled.

Continuing the sewing process

To continue the sewing process:

1. Press the  button on the control panel

Information
You can also use the buttons on the machine for quick-stop (📖 *p. 56*).

Removing the sewing material in subclass 151

Fig. 39: Removing the sewing material in subclass 151

(1) - Knife *(2) - Thread clamp*

To remove the finished sewing material:

1. Feed the hook thread and the gimp under the thread clamp (2).
2. Pull both threads from right to left along the knife (1).

The threads are cut.

5 Programming

5.1 Software description

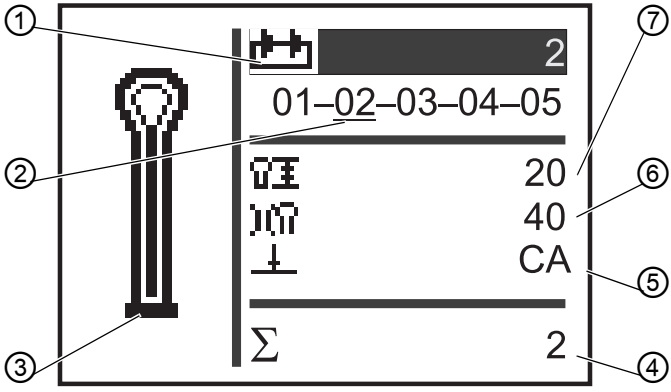
There are 2 modes at the operator level:

- Sequential mode
- Single buttonhole mode

The main menu comprises the following fields depending on the mode:

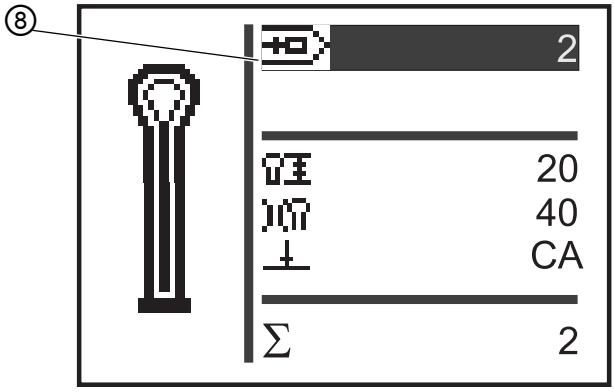
- Sequential number (1) or buttonhole number (8)
- Buttonhole sequence (2) or empty row
- Thread tension (7)
- Cutting length or eyelet diameter (6)
- Cutting mode (5)
- Piece counter (4)

Fig. 40: Sequential mode



(1) - Sequential number
(2) - Buttonhole sequence
(3) - Buttonhole shape
(4) - Piece counter
(5) - Cutting mode
(6) - Cutting length
(7) - Thread tension

Fig. 41: Single buttonhole mode



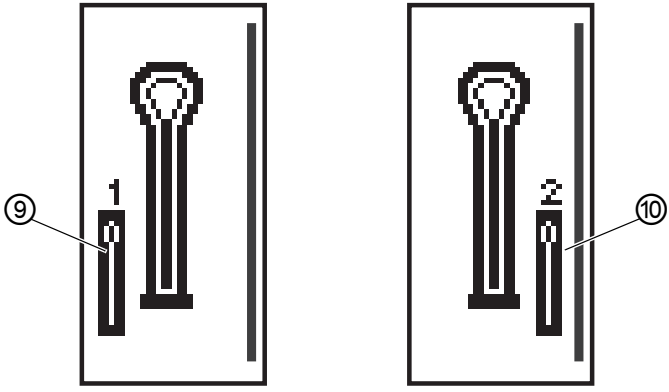
(8) - Buttonhole number

It is possible to see which field is active by the white lettering on a dark background.

For subclasses 312, 321 and 341, there is also monoflex mode, as 2 knife positions are possible.

Active monoflex mode is indicated by display of a bar next to the buttonhole shape:

Fig. 42: Monoflex mode



(9) - Knife position 1

(10) - Knife position 2

5.1.1 Structure

The machine menu is divided into levels. In the main menu, the most important information for sewing operation is displayed (operator level).

There are further levels in addition to the operator level:

- Adjusting mode to program buttonholes (P level)
- Adjusting mode to program buttonhole sequences (S level)
- The service menu to perform service work (F level); this is password-protected

A menu item in these levels can also contain further sub-menu items.

5.1.2 Operation modes

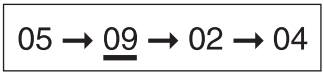
Depending on the adjustment, when the machine is in sequential mode it will be in one of the following operation modes:

- Automatic operation
- Manual operation
- Light barrier mode (if available)

Automatic operation

In the sequence shown on the display, arrows are displayed between the buttonhole shapes. It is possible to see the currently selected buttonhole from the bar below the number.

Fig. 43: Display for automatic operation

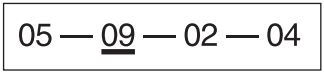


After sewing a buttonhole, the control changes automatically to the next buttonhole shape. After sewing the last buttonhole, the control changes back to the first buttonhole shape within the sequence.

Manual operation

In the sequence shown on the display, lines are displayed between the buttonhole shapes. It is possible to see the currently selected buttonhole from the bar below the number.

Fig. 44: Display for manual operation



The control does **not** change automatically between the buttonhole shapes. Changes are made manually using the buttons ◀ or ▶.

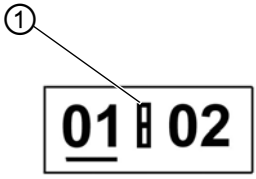
Light barrier mode

If the light barrier kit is installed, it is possible to work in light barrier mode.

Either the lapel or the front edge is detected by 2 light barriers, and the corresponding program is automatically selected.

Precisely 2 programs must be entered in the sequence.
Light barrier mode can be recognized by the symbol (1).

Fig. 45: Light barrier mode



(1) - Symbol

5.2 Operator level

At the operator level, the most important information for sewing operation is displayed.

5.2.1 Basic operation

You can change the values at the operator level by pressing the corresponding button on the control panel (📖 *p. 16*). Depending on where the cursor is positioned, the values change either in 1-step or 10-step increments.

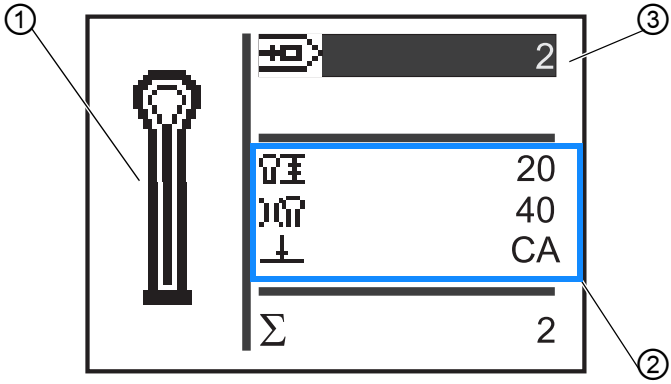
Depending on the setting in the sequence menu, either sequential mode or single buttonhole mode is available (📖 *p. 72*).

You can tell which mode is activated by the fact that it is highlighted in the topmost field of the display after switching on (📖 *p. 63*).

5.2.2 Single buttonhole mode

At the operator level, you can select a buttonhole from 50 pre-programed buttonholes.

Fig. 46: Single buttonhole mode



(1) - Buttonhole shape
(2) - Values
(3) - Buttonhole number

To select a pre-programmed buttonhole:

1. Using the ▲ button, navigate to the field **Buttonhole number** (3).

2. Press the OK button.

↳ The cursor flashes.

3. Select the desired buttonhole number using the buttons ▲ or ▼.
   As a selection aid, the current buttonhole shape (1) and the most important corresponding values (2) are displayed.

4. Confirm the selection with the OK button.

5.2.3 Sequential mode

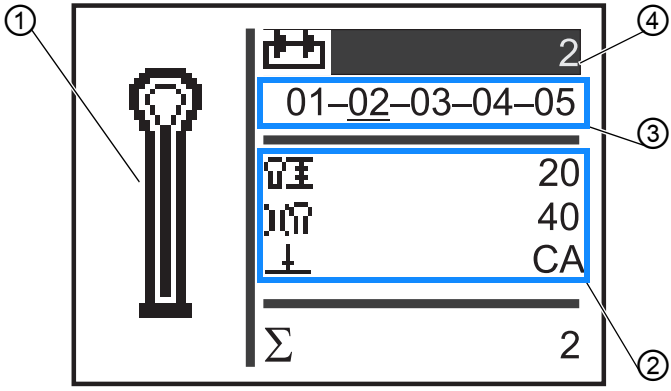
Depending on the setting, the machine will be in either automatic, manual or light barrier mode (📖 *p. 63*). In sequential mode you can switch between programmed buttonholes in the sequence at any time, unless you are working in light barrier mode.

There are 2 steps for selecting a buttonhole in sequential mode:

Order

1. Select a sequential number.
2. Select a buttonhole.

Fig. 47: Sequential mode



(1) - Buttonhole shape
(2) - Values
(3) - Sequence
(4) - Sequential number

Selecting a sequential number

To select the sequential number:

1. Using the ▲ button, navigate to the field **Sequential number** (4).
2. Press the OK button.

↳ The cursor flashes within the desired row.

3. Select the desired number using the buttons ▲ or ▼.
4. Confirm the selection with the OK button.

Selecting a buttonhole

To select a buttonhole:

1. Select the buttonhole within the sequence shown using the buttons ◀ or ▶.

↳ The desired buttonhole is marked with a bar.
As a selection aid, the current buttonhole shape is displayed in the **Buttonhole shape** (1) field, and the corresponding values are displayed in the **Values** (2) area.

Selecting the mode of operation

To select the mode of operation:

1. Use the buttons ▲ or ▼ to navigate to the field **Sequence** (3).
2. Press the OK button.
3. Use the button ▲ to change operating mode.

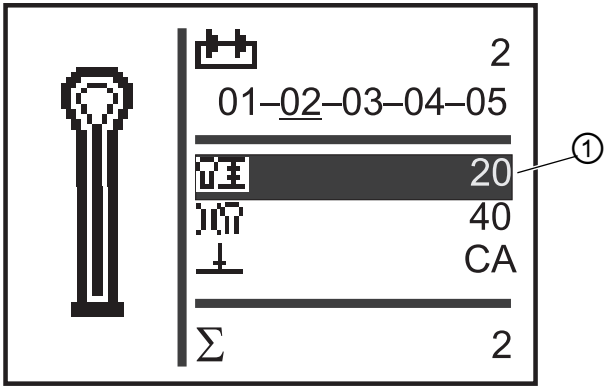
↳ The arrows between the buttonhole shapes appear or disappear as appropriate.

4. Confirm the selection with the OK button.

5.2.4 Adjusting the cutting length

On the display, the field (1) indicates the cutting length.
You can adjust the cutting length.

Fig. 48: Adjusting the cutting length



(1) - Cutting length

To adjust the cutting length:

1. Use the button ▼ to navigate to the field **Cutting length** (1).
2. Press the OK button.

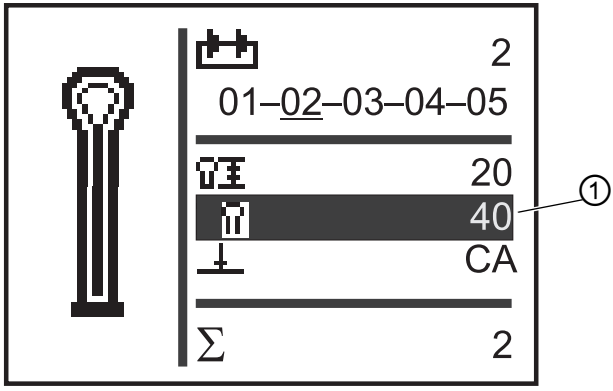
↳ The cursor flashes.

3. Use the buttons ▲ or ▲ to set the desired value.
4. Confirm with the OK button.

5.2.5 Adjusting the thread tension

On the display, the field (1) indicates the thread tension during sewing. You can adjust the thread tension.

Fig. 49: Adjusting the thread tension



(1) - Thread tension field

To adjust the thread tension:

1. Use the button ▼ to navigate to the field **Thread tension** (1).
2. Press the OK button.

↳ The cursor flashes.

3. Use the buttons ▲ or ▼ to set the desired value.
4. Confirm with the OK button.

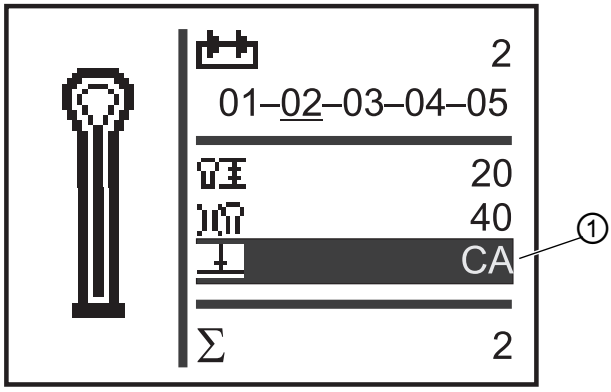
5.2.6 Adjusting the cutting mode

On the display, the field (1) indicates the cutting mode.
The cutting mode determines when and whether a buttonhole is to be cut during the sewing process.
For cutting mode, you can switch between the following parameters:

Parameters for cutting mode

Parameter	Function
0	= No cutting
CA	= Cut after the seam end (Cut After)
CB	= Cut before the seam beginning (Cut Before)

Fig. 50: Adjusting cutting mode in sequential mode



(1) - Cutting mode

To adjust the cutting mode:

1. Use the ▼ button to navigate to the field **Cutting mode** (1).
2. Press the OK button.

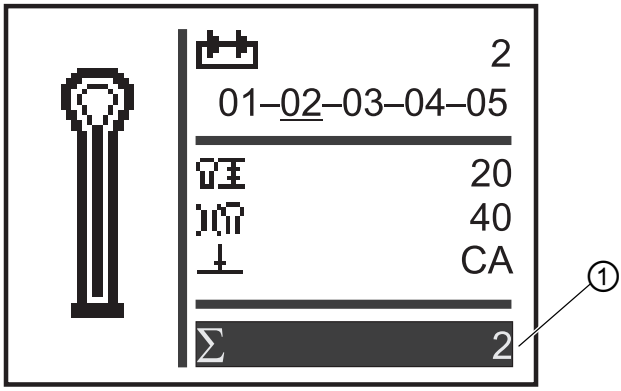
   The cursor flashes.
3. Use the buttons ▲ or ▼ to set the desired value.
4. Confirm with the OK button.

5.2.7 Initializing the piece counter

The machine is equipped with a piece counter that counts the number of sewn buttonholes. After the Σ symbol (1) the current value (e.g. 2) is displayed. The piece counter value is retained after the machine is switched off.

The piece counter counts up to a maximum of 9999 buttonholes. When this value is exceeded, the count starts again at 0.

Fig. 51: Initializing the piece counter



(1) - Piece counter field

To reset the piece counter:

1. Use the ▼ button to navigate to the field **Piece counter** (1).
2. Press the OK button.

↳ The menu bar changes.

3. Hold the OK button for approx. 2 seconds.

↳ The piece counter is set to *0* and the display changes back to the main menu (📖 *p. 65*).

5.3 Buttonhole programming

The buttonholes are programmed on the P level.
The respective characteristics of the buttonhole, e.g. buttonhole length and eye shape, can be set for all bartack forms.

Important

Once you press the OK button, you can no longer sew!

Important

If you change the bartack form of a buttonhole program, all values of this buttonhole are reset to the preset value.

Information
Not all buttonhole shapes and variants can be sewn with every subclass or item of sewing equipment.

To program a buttonhole:

1. Press the OK button.
   - The setting mode for the individual buttonholes is started.
2. Using the button ▲, navigate to the field **Buttonhole number** (📖 *p. 65*).
3. Press the OK button.
4. Select the desired buttonhole number using the buttons ▲ or ▼.
5. Press the OK button.
6. Using the buttons ▲ or ▼ select the bartack form.
7. Press the OK button.
8. Select the desired bartack using the buttons ▲ or ▼.

Bartack forms

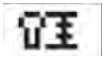
No bartack	Taper bar	Bartack	Round tack	Eyelet
				

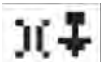
9. Confirm the selection with the OK button.

Using the button ◀ you can move one level higher and set further values (see the following list of menu items and sub-menu items).

Or you can quit the setting mode using the ESC button.

List of menu items and sub-menu items

Value	Description
	**Length settings**
	**Cutting length:** The cutting length can be adjusted, depending on the sewing equipment, from 6 mm to max. 50 mm.
	**Eyelet diameter (only for eyelet machines)**
	**Stitch length in the buttonhole seam:** Distance from stitch to stitch within the seam (from 0.5 mm to 2 mm).
	**S.p.m. in the eyelet (only for eyelet machines):** Number of evenly distributed stitches in the entire eyelet.
	**Overlap in the eyelet (only for eyelet machines):** Overlap of seam beginning and seam end.
	**Thread cutting length:** For subclass 581-112 or 581-312, you can adjust the length of needle thread and hook thread on the underside of the buttonhole. Stitch condensing increases the seam safety at the seam beginning and at the seam end.

Value	Description
	**Stitch length of the condensing stitches at the seam beginning:** Distance from stitch to stitch within the condensing at the seam beginning.
	**Stitch length of the condensing stitches at the seam end:** Distance from stitch to stitch within the condensing at the seam end.
	**Number of condensing stitches at the seam beginning:** S.p.m. within the condensing at the seam beginning.
	**Number of condensing stitches at the seam end:** S.p.m. within the condensing at the seam end.
	**Needle thread tension**
	**Sewing tension:** Electronically regulated sewing tension within the sewing cycle.
	**Cutting tension:** Reduced needle thread tension for the needle thread trimmer.
	**Sewing start tension:** The length of the initial thread inserted can be regulated by changing the thread tension at the start of sewing.
	**Eye settings**
	**Eye shape:** 7 different eye shapes can be programmed.
	**S.p.m. in the eye:** Min. 4 to max. 25 stitches can be set in the rounding of the buttonhole eye.
	**Eye angle:** The buttonhole eye can be inclined slightly to the left or right.
	**Zigzag stitch adjustment:** The mechanically set zigzag stitch width can be reduced by up to 1.0 mm or increased by up to 0.5 mm.

Value	Description
	**Cutting settings**
	**Cutting mode:** Depending on the sewing equipment, the buttonhole can be cut either after (CA), before (CB) or not at all (0).
	**Cutting area:** Distance between the two inner stitches of the forward and return seam.
	**Multiflex mode cutting margin:** 1 = Total cut, 2 = Middle cut, 3 = Eye cut or edge cut/bar cut
	**Cutting length for total cut:** The cutting length can be shorted by max. 2 mm.
	**Cutting position for middle cut:** The position can be specified as a percentage and increases from the eye position (0 %) to the rearmost position (100 %).
	**Cutting correction in the x-direction:** The knife position within the buttonhole can be pushed to the left or right.
	**Cutting correction in the y-direction:** The knife position within the buttonhole can be pushed forward or back.
	**Cutting pressure correction:** Automatic adjustment (4 stages) of the cutting force for the buttonhole knife depending on the buttonhole length. - up to 14 mm buttonhole length (eyelets) 2 stages - from 15 mm to 30 mm buttonhole length 3 stages - from 31 mm buttonhole length 4 stages In this menu item, you can increase or reduce the preset cutting force, depending on the buttonhole length.
	**Flexible cutting**: Monoflex mode 581-312 or 581-321 or 581-341

Value	Description
	**Taper bar settings**
	**Taper bar length:** The taper bar length can be adjusted, depending on the sewing equipment and buttonhole length, from 2 mm to max. 36 mm.
	**Zigzag stitch width in the taper bar:** The zigzag stitch width applicable for the entire buttonhole can be reduced in the taper bar.
	**Overlap in the taper bar:** Overlap of the forward and return seams in the taper bar.
	**Height of the bartack incline:** The length of the taper in the bartack is adjustable.
	**Bar tack settings**
	**Bar tack length:** Total length of the bar tack. The setting range is automatically adjusted depending on the selected cutting space and the zigzag stitch width.
	**Stitch length in the bar tack:** Distance from stitch to stitch within the bar tack (from 0.5 mm to 2 mm).
	**Zigzag stitch width in the bar tack:** The zigzag stitch width can be reduced or increased in the bar tack.
	**x-position of the bar tack:** The entire bar tack can be moved slightly to the left or right.
	**Seam length in the bar tack:** Overlap of the forward and return seams with the bar tack.
	**Round tack settings**
	**S.p.m. in the round tack:** Min. 6 to max. 12 stitches can be set in the round tack or 4 to 10 stitches in the lower semi-circle.

Value	Description
	**Zigzag stitch width in the round tack:** The zigzag stitch width applicable for the entire buttonhole can be reduced in the round tack.
	**Seam start position**: The seam beginning can be either in the round tack or within the forward seam.
	**Overlap in the seam:** Overlap of seam beginning and seam end in the seam.
	**Seam start position within the seam:** The position of the seam beginning within the forward seam can be changed from the start of the seam (100 %) to the eye (0 %).
	**Overlap in the round tack:** Overlap of seam beginning and seam end in the round tack.
Gimp	**Gimp monitoring (only for additional equipment 581-141 and 581-341):** Monitoring on/off, as to whether the gimp thread is inserted.
	**Following buttonhole:** Number of the buttonhole that is sewn directly after this buttonhole without opening the clamps. This makes it possible to carry out double passes.
	**Speed:** Revolutions per minute.

5.4 Sequence programming

The sequences are programmed on the S level.

Important

Once you press the S button, you can no longer sew!

To program a sequence:

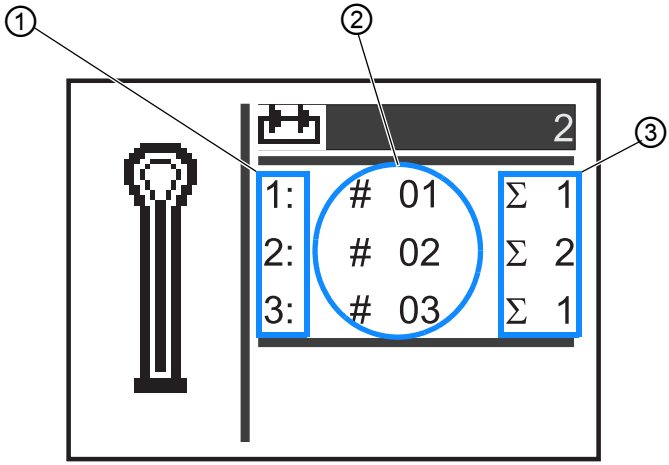
1. Press the S button.

↳ The setting mode for the individual sequences is started.

2. Use the ▲ button to navigate to the **Sequential number** field (📖 *p. 66*).
3. Press the OK button.

↳ The following appears on the display:

Fig. 52: Programming sequences (1)

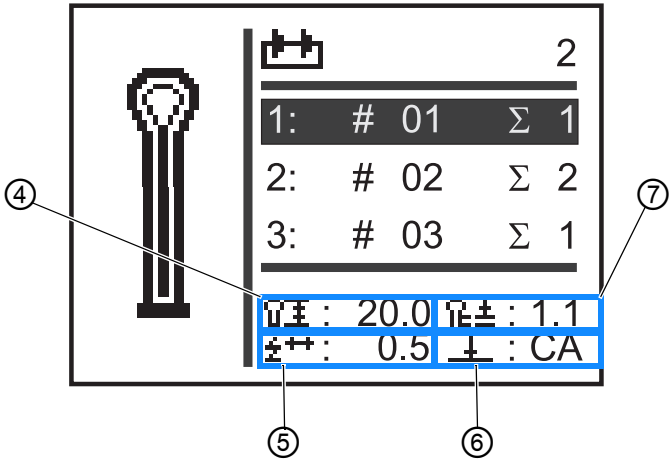


(1) - Position within the sequence
(2) - Buttonhole number
(3) - Number of buttonholes

4. Select the desired sequential number using the buttons ▲ or ▼.
5. Press the OK button.

↳ The following appears on the display:

Fig. 53: Programming sequences (2)



(4) - Cutting length
(5) - Zigzag stitch adjustment
(6) - Cutting mode
(7) - Stitch length

6. Use the buttons ▲ or ▼ to select the position desired for the buttonhole within the sequence (1st column of the display).
   ↳ The cursor shows the current position.
7. Press the OK button.
8. Use the buttons ▲ or ▼ to select the desired buttonhole number (2nd column of the display).
   ↳ The buttonhole shape is displayed.
9. Press the OK button.
10. Use the buttons ▲ or ▼ to set the desired number of buttonholes (3rd column of the display).
11. Confirm with the OK button.

You can add further buttonhole programs. Start again with step 1.

5.4.1 Deleting a buttonhole at the end of a sequence

To delete a buttonhole at the end of a sequence:

1. Use the buttons ▲ or ▼ to select the last but one line of the programmed buttonhole sequence.
2. Press the OK button.
3. Use the buttons ▲ or ▼ to select the buttonhole program `0`.
4. Confirm with the OK button.

↳ The selected buttonhole is deleted.

When you want to quit setting mode, press the ESC button.
This will take you back to the operator level.

5.4.2 Adding a buttonhole at the end of a sequence

To add a buttonhole at the end of a sequence:

1. Use the ▼ button to select the last line of the programmed buttonhole sequence.
2. Press the OK button.
3. Select the desired buttonhole program using the buttons ▲ or ▼.
4. Press the OK button.

When you want to quit setting mode, press the ESC button.
This will take you back to the operator level.

5.4.3 Inserting a buttonhole within a sequence

It is not possible to insert buttonholes individually into the sequence. Note the current sequence programming and change the sequence accordingly (📖 *p. 72*).

You can also switch off sequential mode.

5.4.4 Switching off sequential mode

If you want to use single buttonhole mode instead of sequential mode, switch off sequential mode.

To switch off sequential mode:

1. Press the S button.
2. Use the button ▲ to navigate to the field **Sequential number** (📖 *p. 66*).
3. Press the OK button.
4. Use the ▼ button to select the sequential number `0`.
5. Press the OK button.

↳ The sequential mode is switched off.

6. Press the ESC button.

↳ The setting mode is ended. This will take you back to the operator level.

5.5 Service menu

The service menu holds machine functions that can be used for servicing work. The service menu is password-protected in order to prevent unintentional incorrect machine settings.

To set the machine, you must make the following settings on the control panel:

- Subclass (📖 *p. 94*)
- Buttonhole without bartack
- Zigzag stitch = 0.0
- Cutting area = 0.0

5.6 Activating the technician level

The service menu gives you access to machine functions that can be used for servicing work. The service menu is protected with a code in order to prevent unintentional incorrect machine settings during use. All settings in the service menu are performed at the technician level.

To activate the technician level:

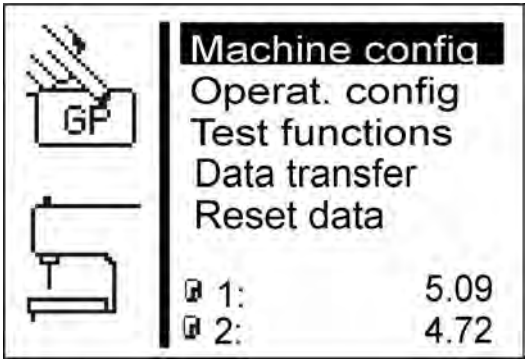
1. Press the F button on the control panel.

↳ The input mask for the code appears on the display.

2. Using the arrow buttons enter the code 2548.
3. Press the OK button.

↳ The service menu appears on the display:

Fig. 54: Activating the technician level



You can select the individual menus using the arrow buttons.
The selected menu is activated by pressing the OK button.

To exit the service menu:

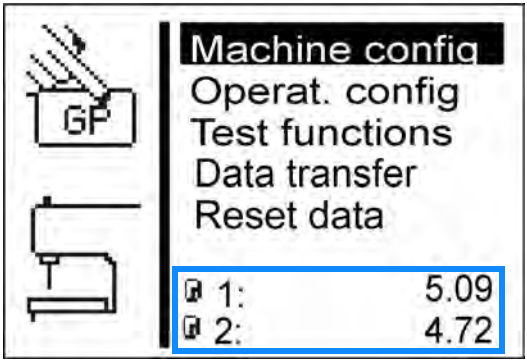
1. Press the ESC button.

↳ The control switches back to the main menu.

5.7 Buttonhole cycle

The technician level allows you to check the cycle time of a buttonhole or the mere sewing time of a buttonhole.

Fig. 55: Buttonhole cycle



To view the buttonhole cycle:

1. Activate the technician level (📖 *p. 82*).

↳ Displayed in the bottom portion of the screen are 2 lines.

- 1: Cycle time (measured from the time sewing begins to the time when the upper fabric clamps open)
- 2: Sewing time (measured from the start to the end of sewing)

↳ Changes to the parameters will apply to the cycle time and the sewing time.

5.8 Menu structure

The following table provides an overview of the menu structure in the service menu.

Structure of the OP5000 service menu

Menu item	Numerical	Function	Sub-items	Sub-items	Reference
Machine config	1	Used to specify the basic settings of the machine which shall apply in all programs			🕮 *p. 88*
	1.1		Load.pos		🕮 *p. 88*
	1.2		Zig-zag		🕮 *p. 90*
	1.3		Thread mon.		🕮 *p. 92*
	1.4		Cut. time		🕮 *p. 93*
	1.5		E-group		🕮 *p. 94*
	1.5.1			Subcl.	
	1.5.2			E-group	
	1.6		Threading mode		🕮 *p. 96*
	1.6.1			Standard	
	1.6.2			Parallel	
	1.7		Operation mode		🕮 *p. 98*
	1.7.1			Standard	
	1.7.2			Sample	
	1.7.3			Tandem	
	1.7.4			Indexer	

Menu item	Numerical	Function	Sub-items	Sub-items	Reference
	1.8		Tension data		🕮 *p. 99*
	1.9		Multiflex		🕮 *p. 101*
	1.9.1			Mode	
	1.9.2			X-corr. L	
	1.9.3			X-corr. R	
	1.9.4			Y-corr.	
	1.9.5			Blocklength	
	1.9.6			Knife L	
	1.9.7			Knife R	
	1.10		ZZ offset		🕮 *p. 103*
	1.11		Cut control		🕮 *p. 104*
	1.12		Spec.funct.		🕮 *p. 104*
Operat. config	2	Used to change language, and technical settings			🕮 *p. 105*
	2.1		Language		🕮 *p. 105*
	2.1.1			Deutsch	
	2.1.2			English	
	2.1.3			Numbers	
	2.2		Start mode		🕮 *p. 107*
	2.3		Sewing light		🕮 *p. 109*
	2.4		Button beeps		🕮 *p. 110*

Menu item	Numerical	Function	Sub-items	Sub-items	Reference
Test functions	3	Used to quickly check the input and output elements, change sewing processes and trace back events			🕮 *p. 111*
	3.1		Multi test		🕮 *p. 111*
	3.1.1			Output test	
	3.1.2			Input test	
	3.1.3			Auto input test	
	3.1.4			Sewing motor test	
	3.1.5			Step.motor test	
	3.1.6			Flash test	
	3.1.7			RAM test	
	3.2		Sewing process		🕮 *p. 119*
	3.2.1			Step by step	
	3.2.2			Start ref.	
	3.2.3			St.cont.operat	
	3.2.4			Looper adjust	
	3.3		Import/Export		🕮 *p. 125*
	3.3.1			Import	
	3.3.2			Export	
	3.4		Events		🕮 *p. 125*
	3.4.1			All events	
	3.4.2			Latest events	
Data transfer	4	Load/save files			
	4.1		Import		🕮 *p. 128*
	4.2		Export		🕮 *p. 129*
Reset data	5	Reset data			🕮 *p. 130*

5.9 Menu item *Machine config*

The menu item *Machine config* allows you to determine the basic settings for the machine which apply to all programs. In this menu item, the following sub-items are available for selection:

- Load.pos (📖 *p. 88*)
- Zig-zag (📖 *p. 90*)
- Thread mon. (📖 *p. 92*)
- Cut. time (📖 *p. 93*)
- E-group (📖 *p. 94*)
- Threading mode (📖 *p. 96*)
- Operation mode (📖 *p. 98*)
- Tension data (📖 *p. 99*)
- Multiflex (📖 *p. 101*)

5.9.1 Load.pos

In the sub-item *Load.pos.* you can set the desired loading position.

Parameters in the *Load.pos* sub-item

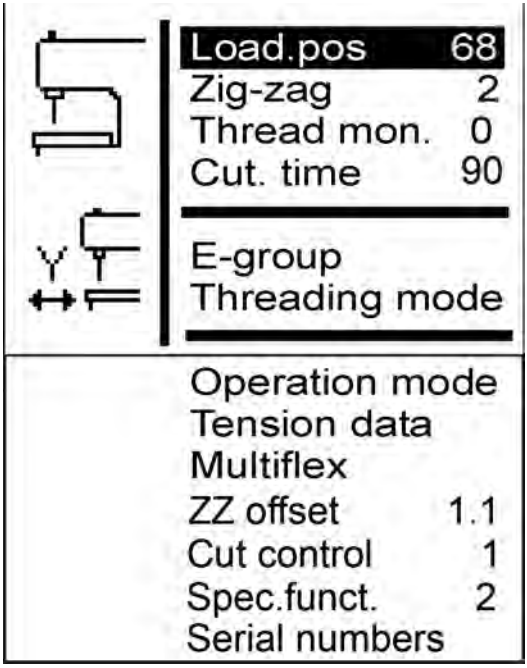
Icon	Entry	Meaning	Possible Value range	Preset value
	Load.pos	Loading position: Distance from the cutting point	0-68	68

To adjust the loading position:

1. Select *Machine config* in the service menu (📖 *p. 82*).
2. Press the OK button.

↳ The following appears on the display:

Fig. 56: Load.pos



3. Press the OK button.

   ↳ *68* appears on the display.
   The preset value is identical to the seam start position.

4. Enter the desired value using the arrow buttons.

5.9.2 Zigzag stitch width

In the sub-item *Zig-zag* you can check the width of the zigzag stitch.

On eyelet machines, you can adjust the width of the zigzag stitch.

NOTICE

Property damage may occur!

There is a risk of breaking when there are different zigzag stitch widths set within the sewing equipment.

Set both the electronic and mechanical zigzag stitch widths to **narrow** or both to **wide**.
Check the mechanical zigzag stitch width.

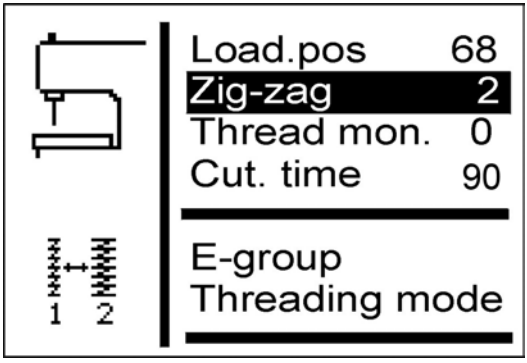
Parameters in the *Zig-zag* sub-item

Icon	Entry	Meaning	Possible value range	Preset value
	Zig-zag	Zigzag stitch width: • 1 = Narrow • 2 = Wide	1-2	

To check the zigzag stitch width:

1. Select (📖 *p. 82*) *Machine config* in the service menu .
2. Press the OK button.
3. Press the ▼ button as often as required until *Zig-zag* is highlighted on the display.

Fig. 57: Zig-zag



Under `Zig-zag` the set value (here: `2`) is displayed.

You can only adjust the zigzag stitch width using the corresponding sewing equipment (📖 *p. 94*).

5.9.3 Thread mon.

In the sub-item *Thread mon.* the thread monitor for the needle thread is set.

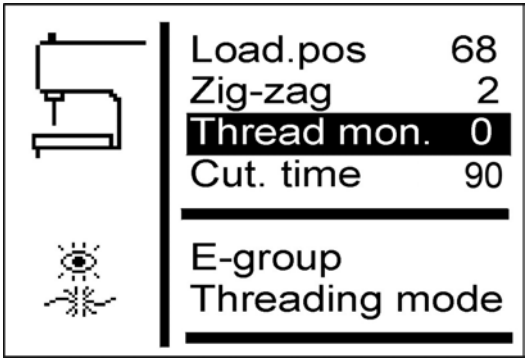
Parameters in the *Thread mon.* sub-item

Icon	Entry	Meaning	Possible value range	Preset value
	Thread mon.	S.p.m. after which the sewing process is canceled due to a thread breaking	0-14	7

To adjust the thread monitor:

1. Select *Machine config* in the service menu (📖 *p. 82*).
2. Press the OK button
3. Press the ▼ button as often as required until *Thread mon.* is highlighted on the display.

Fig. 58: Thread mon.



4. Press the ▼ button.

↳ 7 appears on the display.

5. Enter the desired value using the arrow buttons.

5.9.4 Cut. time

In the sub-item *Cut. time* you can set the switch-on time of the cutting block individually. As a result, the sewing material to be worked on is cut cleanly and such that it is not unnecessarily long.

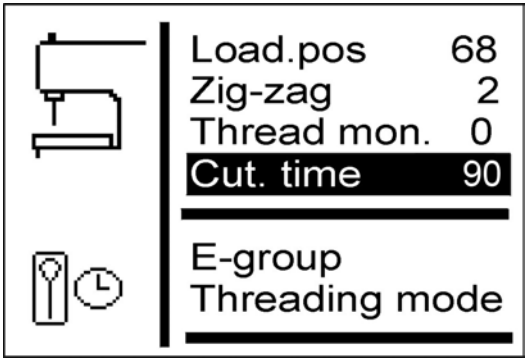
Parameters in the *Cut. time* sub-item

Icon	Entry	Meaning	Possible value range	Preset value
	Cut. time	Switch-on time of the cutting block in ms	70-300	90

To set the switch-on time of the cutting block:

1. Select *Machine config* in the service menu (📖 *p. 82*).
2. Press the OK button.
3. Press the ▼ button as often as required until *Cut. time* is highlighted on the display.

Fig. 59: Cut. time



4. Press the OK button.
5. Enter the desired value using the arrow buttons.

5.9.5 E-group

You can insert different sewing equipment. In the sub-item *E-group* enter the selected sewing equipment.

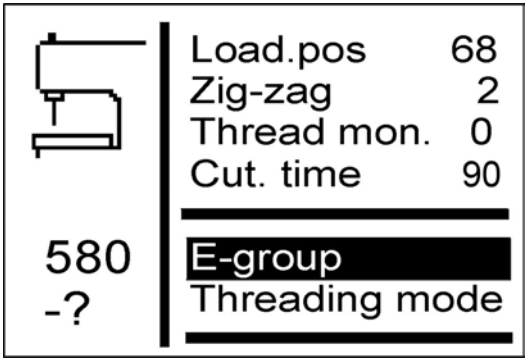
Parameters in the *E-group* sub-item

Icon	Entry	Meaning	Possible value range	Preset value
	E-group	see following table		

To adjust the sewing equipment:

1. Select *Machine config* in the service menu (📖 *p. 82*).
2. Press the OK button.
3. Press the ▼ button as often as required until *E-group* is highlighted on the display.

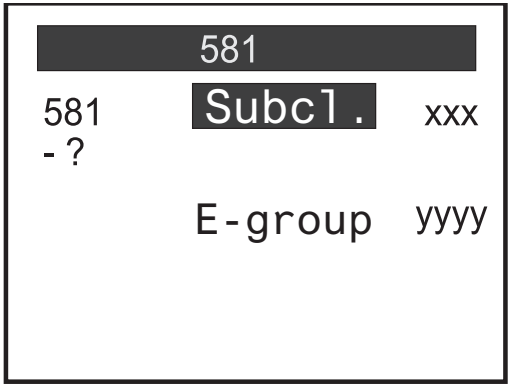
Fig. 60: E-group (1)



4. Press the OK button.

↳ The following appears on the display:

Fig. 61: E-group (2)



5. Select using the ▼ *E-group* button.
6. Press the OK button.
7. Enter the selected sewing equipment.

Subclass	Sewing equipment, narrow	Sewing equipment, wide
112	E1101 E1151 E1190	E1121 E1171 E1195
121	E1201 E1202 E1204	E1221 E1222 E1224
141	E1401 E1403	E1421 E1423
151	E1501 E1502 E1504 E1551 E1553 E1590	E1521 E1522 E1524 E1571 E1573 E1595
312	E3101	E3121
321	E3201	E3221
341	E3401	E3421

Information
For subclasses 141 and 314, you can also set in the *E-group* sub-item length packages that you have purchased.

5.9.6 Threading position

The sub-item *Threading position* is used to set how the machine is set up.

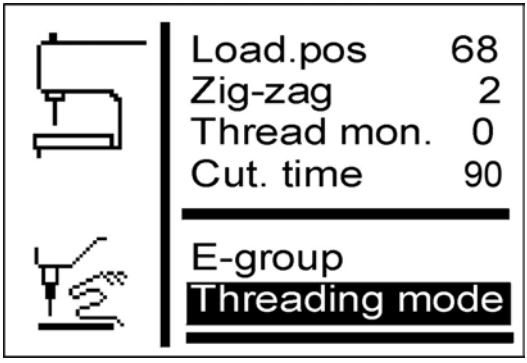
Parameters in the *Threading position* sub-item

Icon	Entry	Meaning	Possible value range	Preset value
	Threading position	• Standard = Normal insertion • Longitudinal = Lateral insertion		

To adjust the threading position:

1. Select *Machine config* in the service menu (*p. 82*).
2. Press the OK button.
3. Press the ▼ button as often as required until *Threading position* is highlighted on the display.

Fig. 62: Threading position



4. Press the OK button.

   ↳ *Standard* appears on the display.

5. Press the ▼ button.

   ↳ *Parallel b/h* appears on the display.

5.9.7 Operation mode

The sub-item *Operation mode* is used to set the operating mode.

Parameters in the *Operation mode* sub-item

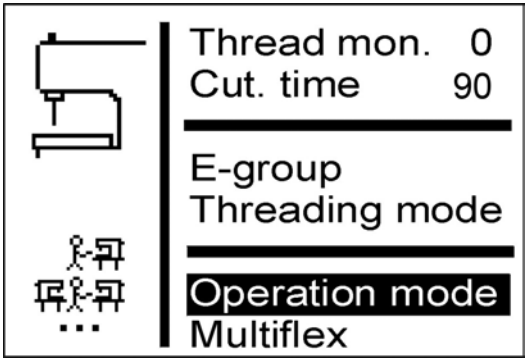
Icon	Entry	Meaning	Possible value range	Preset value
	Operation mode	• **Standard** = Normal sewing • **Sample** = Machine stops before the buttonhole is cut • **Tandem** = Connection to a 2nd machine • **Indexer** = Machine is installed on an indexer		

You can check buttonholes in sample mode.

To set the operating mode:

1. Select *Machine config* in the service menu (📖 *p. 82*).
2. Press the OK button.
3. Press the ▼ button as often as required until *Operation mode* is highlighted on the display.

Fig. 63: Operation mode



4. Press the OK button.

↳ *Standard* appears on the display.

5. Press the ▼ button as often as required until the desired value appears.

5.9.8 Tension data

In the sub-item *Tension data* you can set the characteristic values for the magnets of the needle thread tension.

Important

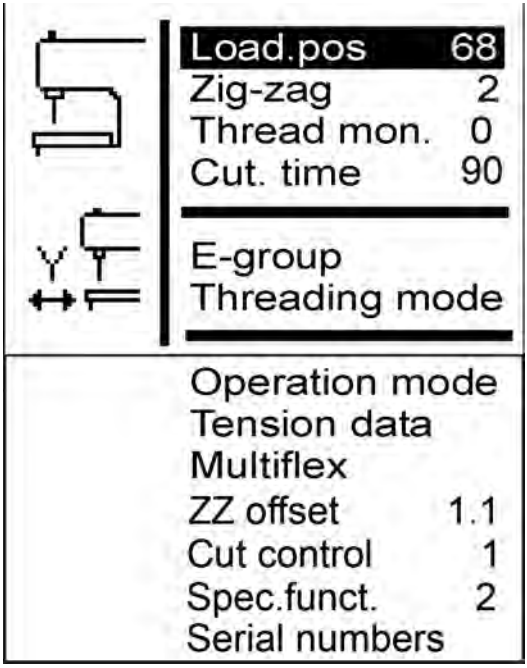
Only change the characteristic values when you install a new magnet! The corresponding values will be enclosed with the magnet in a new order.

To adjust the tension data:

1. Select *Machine config* in the service menu (📖 *p. 82*).
2. Press the OK button.

↳ The following appears on the display:

Fig. 64: Tension data



3. Press the ▼ button as often as required until *Tension data* is highlighted on the display.
4. Press the OK button.

↳ Value 1 is highlighted on the display.

5. If you want to change the highlighted characteristic value, press the OK button.
   If you want to change a different characteristic value, press the ▼ button as often as required until that value is highlighted.

5.9.9 Multiflex (581-321 and 581-341 only)

The sub-item *Multiflex* is used to adjust the integrated cutting system.

Parameters in the *Multiflex* sub-item

Icon	Entry	Meaning	Possible value range	Preset value
	Multiflex	• Mono • Multi		

Mono mode

- X-correction left buttonhole
- X-correction right buttonhole
- Y-correction for both buttonholes

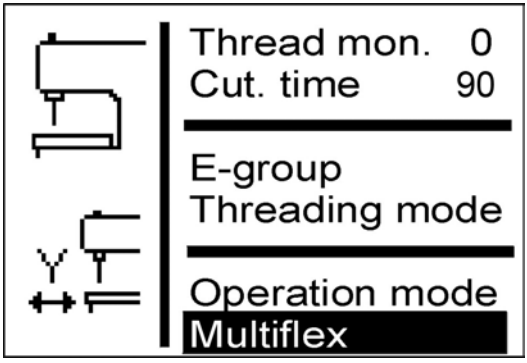
Multi mode

- X-correction left buttonhole
- X-correction right buttonhole
- Y-correction for both buttonholes
- Blocklength
- Knife number for left knife
- Knife number for right knife

To adjust the cutting system:

1. Select *Machine config* in the service menu (📖 *p. 82*).
2. Press the OK button.
3. Press the ▼ button as often as required until *Multiflex* is highlighted on the display.

Fig. 65: Multiflex



4. Press the OK button.

   ↳ *Mono* appears on the display.

5. Press the ▼ button.

   ↳ *Multi* appears on the display.

6. Press the OK button.

Knives and their shape

Part number	Knife number	Shape
0580 332000	31	With eye 2.8 x 4.3 x 36 mm
0580 332010	21	With eye 2.1 x 3.2 x 36 mm
0580 332020	02	Middle cut without eye 8mm
0580 332030	33	Only eye 2.8 x 4.3 mm
0580 332040	23	Only eye 2.1 x 3.2 mm
0580 332050	01	Without eye 36 mm
0580 332060	32	Middle cut with eye 2.8 x 4.3 x 8 mm
0580 332070	22	Middle cut with eye 2.1 x 3.2 x 8 mm
0580 332100	82	Eyelet ∅ 1.0 mm
0580 332110	83	Eyelet ∅ 1.5 mm
0580 332120	84	Eyelet ∅ 2.0 mm
0580 332130	86	Eyelet ∅ 3.0 mm
0580 332140	88	Eyelet ∅ 4.0 mm

5.9.10 ZZ offset

The sub-item *ZZ offset* is used to set the compensation for the zigzag stitch offset.

Parameters in the *ZZ offset* sub-item

Icon	Entry	Meaning	Possible value range	Preset value
	ZZ offset	Zigzag stitch offset	0.8-1.6	1.3

5.9.11 Cut control

The sub-item *Cut control* is used to set the cutting monitoring.

Parameters in the *Cut control* sub-item

Icon	Entry	Meaning	Possible value range	Preset value
	Cut control	• 0 = Off • 1 = On	0-1	1

5.9.12 Spec.funct.

You can set the following special functions:

- Only open clamps in the loading position (1)
- Subsequent sewing pattern (2)
- Extended min or max limits (4)
- Open clamps together (8)
- Extra-long buttonholes (16)

Up to 31 combinations are possible here.

5.10 Menu item *Operat. config*

In the *Operat. config* menu item, you can specify further machine settings relating to the user.

In this menu item, the following sub-items are available for selection:

- *Language* (📖 *p. 105*)
- *Push buttons* (📖 *p. 107*)
- *Sewing light* (📖 *p. 109*)
- *Button beeps* (📖 *p. 110*)

5.10.1 Language

In the *Language* menu item, select the desired language (Deutsch or English or Numbers).

Parameters in the *Language* sub-item

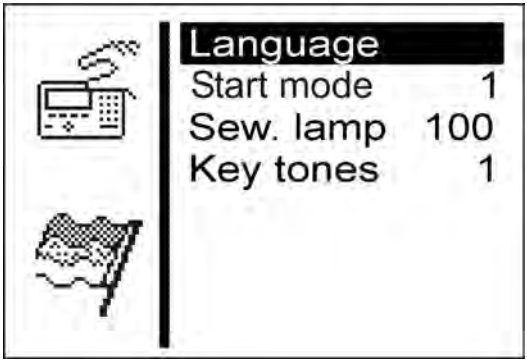
Icon	Entry	Meaning	Possible value range	Preset value
	Language	Set the language for the user interface	• Deutsch • English • Numerical	

To select the language:

1. Select *Operat. config* in the service menu (📖 *p. 82*).
2. Press the OK button.

↳ The following appears on the display:

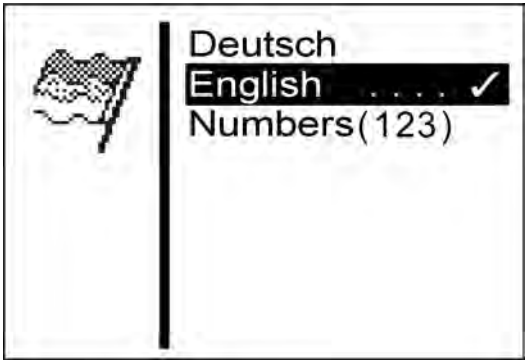
Fig. 66: Language (1)



3. Press the OK button.

↳ The following appears on the display:

Fig. 67: Language (2)



4. Press the ▼ button as often as required until the desired language is highlighted.
5. Press the OK button.

5.10.2 Push buttons

In the sub-item `Push buttons` you can convert the way in which the machine buttons function. There are 2 settings here.

Parameters in the `Push buttons` sub-item

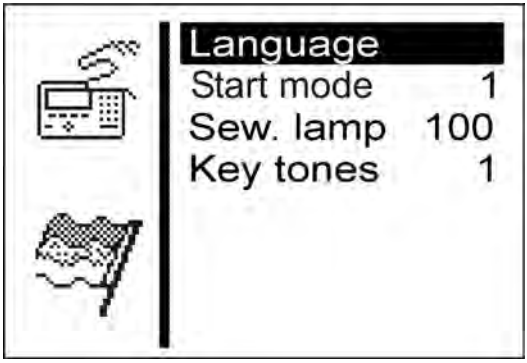
Icon	Entry	Meaning	Possible value range	Preset value
	Push buttons	• **1** = *Button 1*: Clamping plates are opened or closed, respectively. *Button 2*: The sewing process only starts when the clamping plates are closed • **2** = *Button 1*: Clamping plates are opened or closed, respectively. *Button 2*: The sewing process starts. The clamping plates are automatically closed	1-2	2

To convert the way in which the buttons function:

1. Select `Operat. config` in the service menu (📖 *p. 82*).
2. Press the OK button.

↳ The following appears on the display:

Fig. 68: Push buttons



3. Press the ▼ button so that *Push buttons* is highlighted on the display.
4. Press the OK button.

   ↳ *2* appears on the display.
5. Press the ▼ button.

   ↳ *1* appears on the display.
6. Press the OK button.

5.10.3 Sewing light

In the sub-item *Sewing light* you can set the brightness of the sewing light, if this additional equipment is installed.

Parameters in the *Sewing light* sub-item

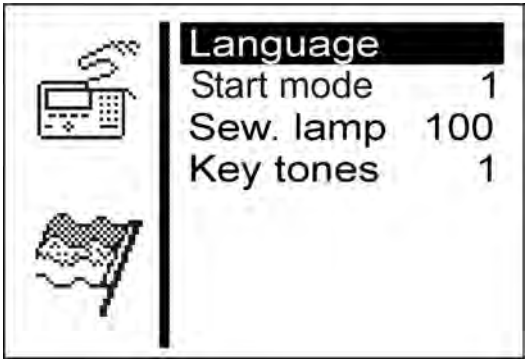
Icon	Entry	Meaning	Possible value range	Preset value
	Sewing light	• 0 = Off • 100 = Maximum brightness	0-100	100

To set the brightness of the sewing light:

1. Select *Operat. config* in the service menu (📖 *p. 82*).
2. Press the OK button.

↳ The following appears on the display:

Fig. 69: Sewing light



3. Press the ▼ button as often as required until *Sewing light* is highlighted on the display.
4. Press the OK button.

↳ *100* appears on the display.

5. Press the ▼ button as often as required until the desired brightness is achieved.
6. Press the OK button.

5.10.4 Button beeps

In the sub-item *Button beeps* you can set the button beeps.

Parameters in the *Button beeps* sub-item

Icon	Entry	Meaning	Possible value range	Preset value
	Key click	• 0 = Off • 1-50 = Beep duration in milliseconds for every button press	0-50	0

To switch the button beeps on:

1. Select *Operat. config* in the service menu (📖 *p. 82*).
2. Press the OK button.

↳ *Language* appears on the display.

3. Press the ▼ button as often as required until *Button beeps* is highlighted on the display.
4. Press the OK button.

↳ *0* appears on the display.

5. Set the desired beep duration using the arrow buttons.

5.11 Menu item *Test functions*

WARNING

Risk of injury from sharp and moving parts!

Puncture, cutting or crushing possible.

Exercise the utmost caution when performing tests when the machine is running.

In the menu item *Test functions* you can perform function tests on the input and output elements, check the sewing process and retrace events.

In this menu item, the following sub-items are available for selection:

- Multi test (📖 *p. 111*)
- Sewing process (📖 *p. 119*)
- Events (📖 *p. 125*)

The sub-items have further sub-items.

5.11.1 Multi test

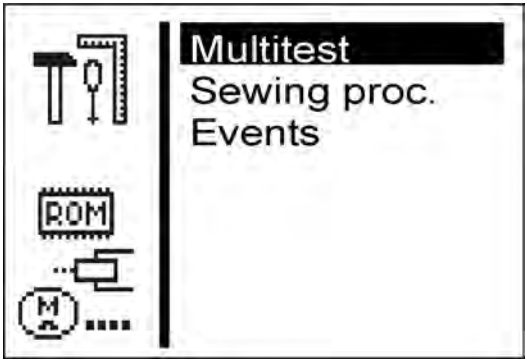
In the sub-item *Multi test* you can use the software to test whether specific elements are functioning. Additional measuring equipment is not required.

To select the sub-item *Multi test*:

1. Select *Test functions* in the service menu (📖 *p. 82*).
2. Press the OK button.

↳ The following appears on the display:

Fig. 70: Multi test



3. Press the OK button.

↳ The following options are available:

- *Output test*
- *Input test*
- *Auto input test*
- *Sewing motor test*
- *Step.motor test*
- *Flash test*
- *RAM test*

`Output test`

NOTICE

Property damage may occur!

Testing an output element can lead to collisions with other machine elements. There is a risk of breaking

Before switching on each output element, make sure that this cannot collide with other components.

In the sub-item `Output test` you can test the individual output elements.

To perform an output test:

1. Select `Output test`.
2. Press the OK button.
3. Using the arrow buttons, select the desired output element.

↳ The current status is displayed:

- 0 = Output not activated
- 1 = Output activated

4. Press the OK button.

↳ The output is switched over.

Functions of the operating elements

Output	Function
Y01	Needle thread trimmer; on the 581-112 and 581-312, additional hook thread trimmer
Y02	Hook thread tension
Y03	Fabric clamp
Y04	Spreader

Output	Function
Y05	Needle thread advancing device
Y06	Slitter
Y07	Slitter
Y08	Hook thread advancing device; only on the 581-121 and 581-321
Y09	Needle thread catcher to the sewing material
Y10	Open the needle thread catcher
Y11	Needle thread catcher to the needle
Y12	Hook thread trimmer; only on the 581-121, 581-141 and 581-321, 521-341
Y13	Multiflex knife
Y14	Multiflex cutting block
Y15	Slitter

You can quit the output test using the ESC button.

Input test

In the sub-item *Input test* you can test the individual input elements.

To perform an input test:

1. Select *Input test*.
2. Press the OK button.
3. Using the arrow buttons, select the desired input element (see *following table*).

The current status is displayed:

- 0 = Input not activated
- 1 = Input activated

Functions of the input elements

Input	Function
S03	Cutting punch position
S04	Light barrier mode
S05	Light barrier mode
S09	Button 1
S10	Button 2
S11	Pedal 1
S12	Pedal 2
S13	Pedal 3
RefN	Sewing motor
RefX	X-axis
RefY	Y-axis
RefZ	Z-axis

You can quit the input test using the ESC button.

Auto input test

In the sub-item *Auto input test* you can test the function of all input elements.

To perform the automatic input test:

1. Select *Auto input test*.
2. Press the OK button.

↳ When the status of an input is changed, this input is automatically displayed.

3. You can quit the automatic input test using the ESC button.

Sewing motor test

NOTICE

Property damage may occur!

Testing the sewing motor can lead to collisions with other machine elements. There is a risk of breaking.

It is essential that the clamping plates are removed before performing the sewing motor test.

In the sub-item *Motor test* you can test the sewing motor.

During the test, the speed can be increased in intervals of 100.

To carry out the sewing motor test:

1. Select *Motor test*.
2. Press the OK button.
3. Use the ▲ button to increase the speed.
4. Use the ▼ button to reduce the speed.
5. Quit the motor test using the ESC button.

Step.motor test

NOTICE

Property damage may occur!

Testing the stepper motor can lead to collisions with other machine elements. There is a risk of breaking.

It is essential that the clamping plates are removed before performing the stepper motor test.

In the sub-item *Step.motor test* you can test the stepper motors.

The stepper motors are tested using the associated reference switches.

To perform the stepper motor test:

1. Select *Step.motor test*.
2. Press the OK button.
3. With the buttons ◀ or ▶ select the corresponding stepper motor X … Z.
4. Using the ▲ or ▼ buttons, the stepper motor moves forward or back 20 steps.

X = X-direction (transverse movement of the fabric support plate)

Y = Y-direction (longitudinal movement of the fabric support plate)

Z = Z-direction (rotation of the sewing mechanism)

5. Quit the stepper motor test using the ESC button.

Flash test

In the sub-item *Flash test* you can test the flash memory by displaying a checksum.

To carry out a flash test:

1. Select *Flash test*.
2. Press the OK button.

↳ *Busy* appears on the display.
When the flash test ends, the calculated checksum is displayed on the left and *OK* or *Error* on the right.

3. Quit the flash test using the ESC button.

RAM test

In the sub-item *RAM test* you can test the working memory.

To carry out a RAM test:

1. Select *RAM test*.
2. Press the OK button.

↳ *Busy* appears on the display.
When the RAM test is ended, one of two events is displayed:

- OK = Working memory is working properly
- Error = Error in the working memory

3. Quit the RAM test using the ESC button.

5.11.2 Sewing process

WARNING

Risk of injury from sharp and moving parts!

Puncture, cutting or crushing possible.

Do not perform any maintenance or setting works during testing.

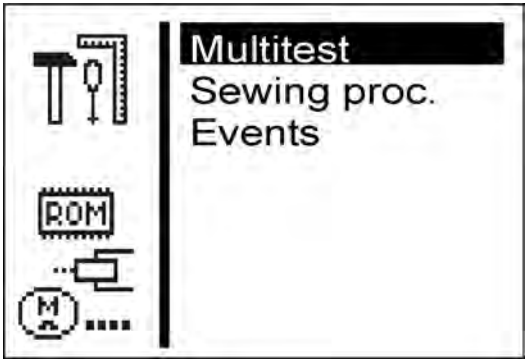
In the sub-item *Sewing proc.* you can test the sewing process.

To select the sub-item *Sewing proc.*:

1. Select *Test functions* in the service menu (📖 *p. 82*).
2. Press the OK button.

↳ The following appears on the display:

Fig. 71: Sewing process



3. Press the ▼ button so that *Sewing proc.* is highlighted on the display.

4. Press the OK button.

↳ The following options are available:

- *Step by step*
- *Start ref.*
- *St.cont.operat*
- *Looper adjust*

Step by step

In the sub-item *Step by Step* sewing is stopped at various points during the sewing process. The stop points make it easier to check and adjust the machine.

To start the test program:

1. Press the OK button.

↳ The set value has the following meaning:

- 0 = Normal sewing process, the test program is switched off.
- 1 = After switching the valves for the needle thread catcher, the sewing process is stopped.
- 2 = After switching the valves for the relevant thread cutting system, the sewing process is stopped.
- 3 = After switching each valve, the sewing process is stopped.

You can quit the test program, by pressing OK and then ◀.

Start ref.

In the sub-item *Start ref.* a reference run can be started.

With the aid of the reference run, you can perform basic machine settings.

To start a reference run:

1. Select *Start ref.*.
2. Press the OK button.

St.cont.operat

In the sub-item *St.cont.operat* a continuous run can be started.

Before the start of sewing, a security prompt is first displayed, which must be confirmed with *Yes*.

To start a continuous run:

1. Select *St.cont.operat*.
2. Press the OK button.

Looper adjust

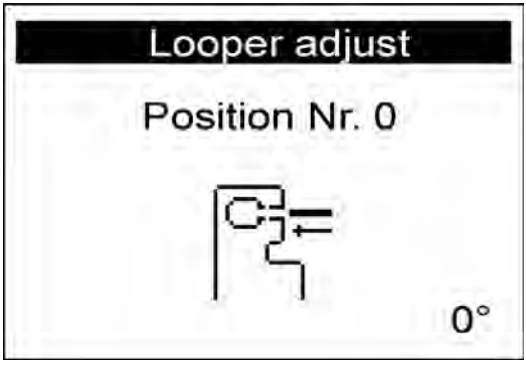
The sub-item *Looper adjust* lets you check the settings of the sewing tools. To this end, the sewing motor moves to the pinning points for calibration (📖 *Service Instructions*) and then to the various settings to check the looping stroke, needle stroke, needle guard and spreader positions.

To check the sewing tools:

1. Select *Looper adjust*.
2. Press the OK button.

↳ The machine performs a reference run. The following appears on the display:

Fig. 72: Looper adjust (1)



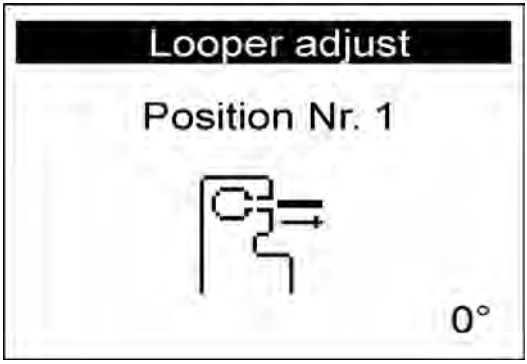
(1) - Locking peg

3. Insert the locking peg (1) and check whether the peg is engaged in the slot of the arm shaft.
   In this position, the needle bar must be at top dead center.

4. Press the OK button.

↳ The following appears on the display:

Fig. 73: Looper adjust (2)

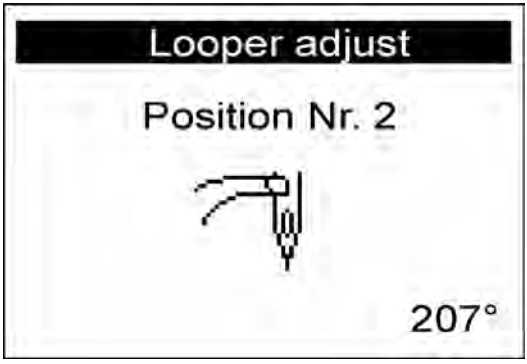


5. Remove the locking peg (1) again.

6. Press the OK button.

↳ The sewing motor moves into the test position 2 (looping stroke left).
The following appears on the display:

Fig. 74: Looper adjust (3)



7. Check if the tip of the left hook lines up with the center of the needle.

Proceed as follows if you need to change the setting of the hook:

1. Press the OK button.

↳ The machine moves back into the position 0.

2. Swivel the machine up.

↳ The screws needed for adjusting the hook setting are now accessible.

3. Adjust the hook setting.
4. Swivel the machine down.

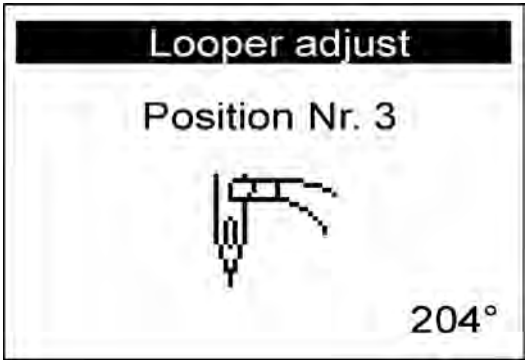
5. Press the OK button.

↳ The sewing motor moves back into the test position 2 again.

6. Check the hook position.
7. Press the OK button.

↳ The sewing motor moves into the test position 3 (looping stroke right).
The following appears on the display:

Fig. 75: Looper adjust (4)



You can check the hook position and adjust it if necessary as described above.

When you press the OK button, the next test position of the sewing tool appears on the display (see *following table*).

Important

The setting of the needle bar height has been selected such that the entire needle eye is visible below the left hook tip!

Positions and settings

Position	Setting
4	Needle bar height
5	Needle guard, left
6	Needle guard, right
7	Spreader, left open
8	Spreader, left closed
9	Spreader, right open
10	Spreader, right closed

5.11.3 Events

In the sub-item *Events* you can retrace events.

To select the sub-item *Events*:

1. Select *Test functions* in the service menu (📖 *p. 82*).
2. Press the OK button.
3. Select *Events*.
4. Press the OK button.

The following options are available:

- *All events*
- *Latest events*

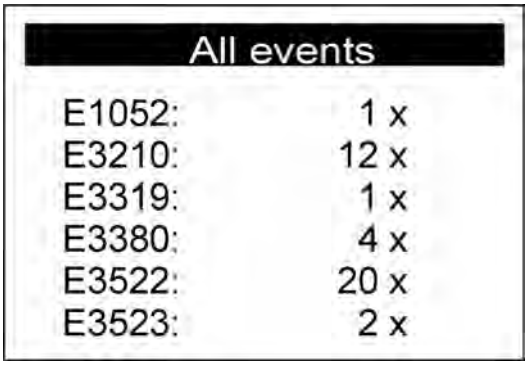
All events

In the sub-item *All events* all events that have occurred are displayed.

An explanation of the error messages is provided on 📖 *p. 171*.

Example:

Fig. 76: All events



To call up all events:

1. Select *All events*.
2. Press the OK button.

↳ All events are displayed.

You can also display other events by pressing the F button.

You can quit the sub-item using the ESC button.

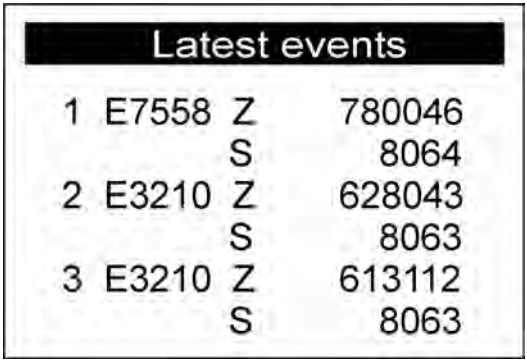
Latest events

In the sub-item *Latest events*, the events that occurred most recently are displayed.

An explanation of the error messages is provided in the chapter **Troubleshooting** (📖 *p. 171*).

Example:

Fig. 77: Latest events



To call up the latest events:

1. Select *Latest events*.
2. Press the OK button.

↳ The latest events are displayed.

You can quit the sub-item using the ESC button.

5.12 Menu item *Data transfer*

The menu item *Data transfer* allows you to save or load buttonhole programs to or from a USB key.

In this menu item, the following sub-items are available for selection:

- *Import* (📖 *p. 128*)
- *Export* (📖 *p. 129*)

5.12.1 Import

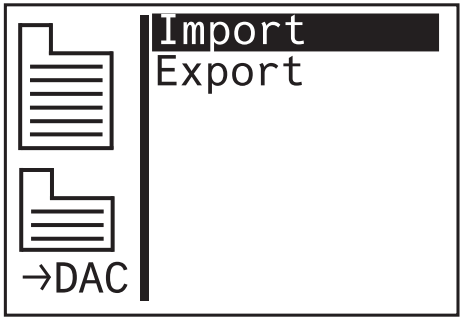
The menu item *Import* allows you to upload buttonhole programs to the machine from a USB key.

To select the sub-item *Import*:

1. Select *Data transfer* in the service menu (📖 *p. 82*).
2. Press the OK button.

↳ The following appears on the display:

Fig. 78: Import (1)

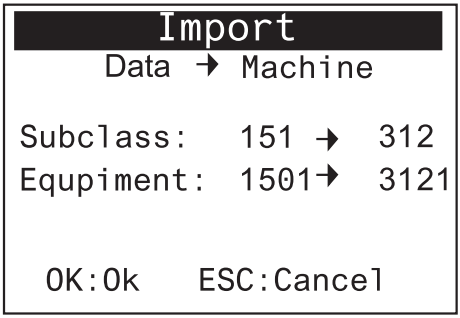


3. Press the OK button.

↳ The data is imported.

If the buttonhole programs originated from a machine with a different subclass or from other equipment, the following information is shown on the display:

Fig. 79: Import (2)



4. Press the OK button to import the data.

↳ The data is imported, and the display switches back to *Import/Export*.

5. Press the ESC button to cancel the data import.

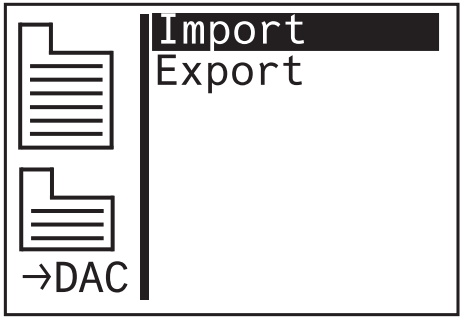
5.12.2 Export

The menu item *Export* allows you to save buttonhole programs from the machine to a USB key.

To select the sub-item *Export*:

1. Select *Data transfer* in the service menu (📖 *p. 82*).
2. Press the OK button.
3. The following appears on the display:

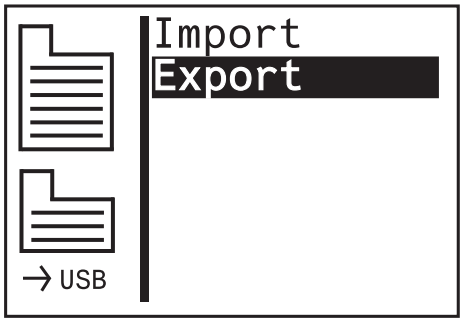
Fig. 80: Export (1)



4. Press the ▼ button and select *Export*.

↳ The following appears on the display:

Fig. 81: Export (2)



5. Press the OK button to save data to the USB key.

↳ The data is exported, and the display switches back to *Import/Export*.

5.13 Menu item *Reset data*

NOTICE

Data loss due to reset!

All settings are lost during a reset.

Before resetting, make sure that you have saved all the important data.

In the menu item *Reset data* you can reset programs and parameters on the delivery status, if the machine is no longer working correctly. To do this, re-entering the code is requested (for reasons of security).
Only the calibration values and the set subclass are retained.

6 Maintenance

WARNING

Risk of injury from sharp parts!

Punctures and cutting possible.

Prior to any maintenance work, switch off the machine or set the machine to threading mode.

WARNING

Risk of injury from moving parts!

Crushing possible.

Prior to any maintenance work, switch off the machine or set the machine to threading mode.

This chapter describes maintenance work that needs to be carried out on a regular basis to extend the service life of the machine and achieve the desired seam quality.

Advanced maintenance work may only be carried out by qualified specialists (🕮 *Service Instructions)*.

Maintenance intervals

Work to be carried out	Operating hours			
	8	40	160	500
Machine				
Remove thread residues	●			
Remove any sewing dust in the area below the throat plate	●			
Check the oil level	●			
Check and clean the toothed belt			●	
Lubricate the cutting punch			●	

Work to be carried out	Operating hours			
	8	40	160	500
Lubricate the clamping arm at the felt			●	
Lubricate the felt at the cam plate			●	
Pneumatic system				
Check the water level in the pressure regulator	●			
Clean the filter element in the compressed air maintenance unit	●			
Check the tightness of the system			●	

6.1 Cleaning

WARNING

Risk of injury from flying particles!

Flying particles can enter the eyes, causing injury.

Wear safety goggles.
Hold the compressed air gun so that the particles do not fly close to people.
Make sure no particles fly into the oil pan.

NOTICE

Property damage from soiling!

Lint and thread residues can impair the operation of the machine.

Clean the machine as described.

NOTICE

Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

The machine must be cleaned of dust and thread residues daily. A clean machine provides protection from faults.

To clean the machine:

1. Remove any sewing dust, thread residues and cutting waste from the area of the hook, the thread trimmer, the throat plate and the sewing head.
   If a vacuum is available, it is recommended to vacuum the sewing waste.
2. If required, empty the cutting waste from the suction container.

6.2 Lubricating

CAUTION

Risk of injury from contact with oil!

Oil can cause a rash if it comes into contact with skin.

Avoid skin contact with oil.
If oil has come into contact with your skin, wash the affected areas thoroughly.

NOTICE

Property damage from incorrect oil!

Incorrect oil types can result in damage to the machine.

Only use oil that complies with the data in the instructions.

CAUTION

Risk of environmental damage from oil!

Oil is a pollutant and must not enter the sewage system or the soil.

Carefully collect up used oil.
Dispose of used oil and oily machine parts in accordance with national regulations.

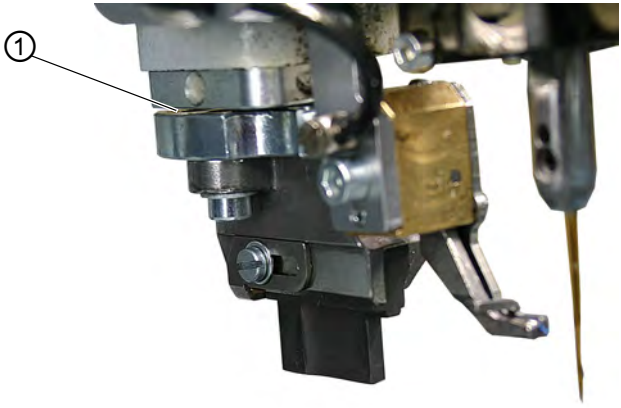
For topping off the oil reservoir, use only lubricating oil **DA 10** or oil of equivalent quality with the following specifications:

- Viscosity at 40 °C:10 mm^2/s
- Flash point: 150 °C

You can order the lubricating oil from our sales offices using the following part numbers.

Container	Part no.
250 ml	9047 000011
1 l	9047 000012
2 l	9047 000013
5 l	9047 000014

Fig. 82: Lubricating (1)



(1) - Cutting punch

Lubricate the machine as follows:

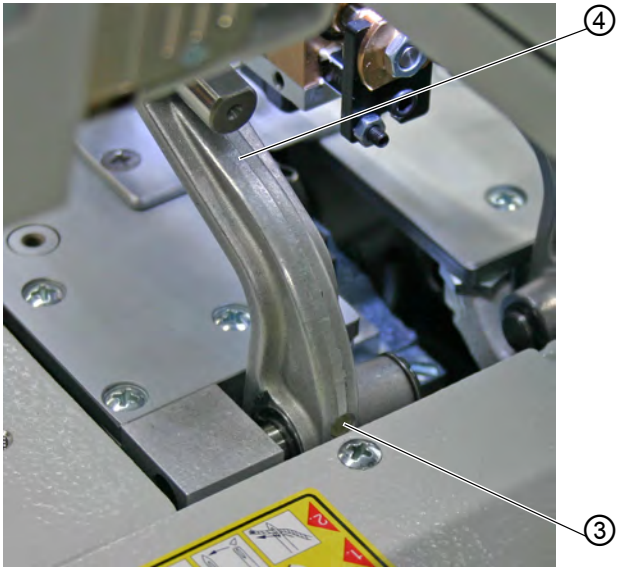
1. Lubricate the cutting punch (1).

Fig. 83: Lubricating (2)

(2) - Cam disk

2. Lubricate the felt at the cam disk (2).

Fig. 84: Lubricating (3)



(3) - Felt *(4) - Clamping arm*

3. Lubricate the felts (3) of the clamping arms (4).

6.3 Servicing the pneumatic system

6.3.1 Adjusting the operating pressure

NOTICE

Property damage from incorrect adjustment!

Incorrect operating pressure can result in damage to the machine.

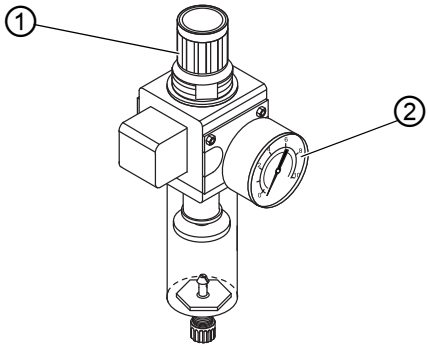
Ensure that the machine is only used when the operating pressure is correct.

Setting

Refer to the **Technical data** (📖 *p. 187*) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Check the operating pressure on a daily basis.

Fig. 85: Adjusting the operating pressure



(1) - Pressure regulator *(2) - Pressure gage*

Important

The operating pressure is preset on the maintenance unit for safety reasons. It cannot be changed.

6.3.2 Draining the water-oil mixture

NOTICE

Property damage from excess liquid!

Too much liquid can result in damage to the machine.

Drain liquid as required.

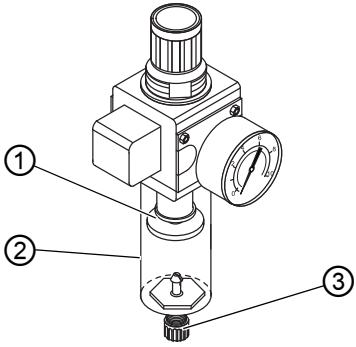
The collection tray (2) of the pressure regulator will show accumulation of a water-oil mixture.

Proper setting

The water-oil mixture must not rise up to the level of the filter element (1).

Check the level of the water-oil mixture in the collection tray (2).

Fig. 86: Draining the water-oil mixture



(1) - Filter element
(2) - Collection tray
(3) - Drain screw

To drain the water-oil mixture:

1. Disconnect the machine from the compressed air supply.
2. Place the vessel under the drain screw (3).
3. Loosen the drain screw (3) completely.
4. Allow the water-oil mixture to drain into the vessel.
5. Tighten the drain screw (3).
6. Connect the machine to the compressed air supply.

6.3.3 Cleaning the filter element

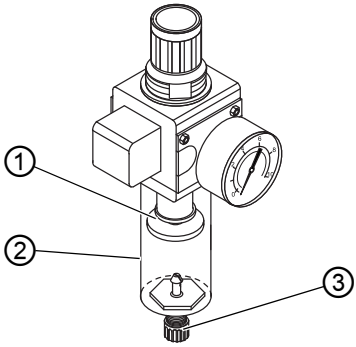
NOTICE

Damage to the paintwork from solvent-based cleaners!

Solvent-based cleaners damage the filter.

Use only solvent-free substances for washing out the filter tray.

Fig. 87: Cleaning the filter element



(1) - Filter element
(2) - Collection tray
(3) - Drain screw

To clean the filter element:

1. Disconnect the machine from the compressed air supply.
2. Drain the water-oil mixture (📖 *p. 138*).

3. Unscrew the collection tray (2).
4. Unscrew the filter element (1).
5. Blow out the filter element (1) using the compressed air gun.
6. Wash out the filter tray using benzine.
7. Tighten the filter element (1).
8. Tighten the collection tray (2).
9. Tighten the drain screw (3).
10. Connect the machine to the compressed air supply.

6.4 Changing cutting blocks and knife

Depending on the area of application, you must change the cutting blocks and the knife after six months at the earliest. You can change the cutting length by changing the cutting blocks.
The method for changing the cutting blocks and/or the knife differs depending on the subclasses.

WARNING

Risk of injury from sharp parts!

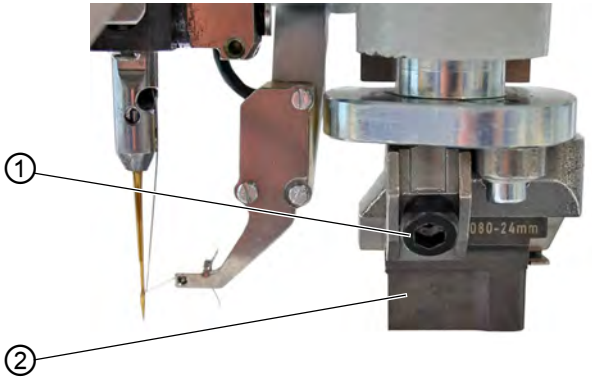
Cutting possible.

Only change the cutting block or knife when the machine is switched off.

6.4.1 Subclass without multiflex

Changing the cutting block

Fig. 88: Changing the cutting block



(1) - Screw *(2) - Cutting block*

To change the cutting block:

1. Loosen the screw (1) (Allen key in the accessories).
2. Pull the cutting block (2) forward and remove.
3. Insert the new cutting block and push to the end stop.
4. Re-tighten the screw (1).

Changing the knife

Fig. 89: Changing the knife

(3) - Knife *(4) - Screw*

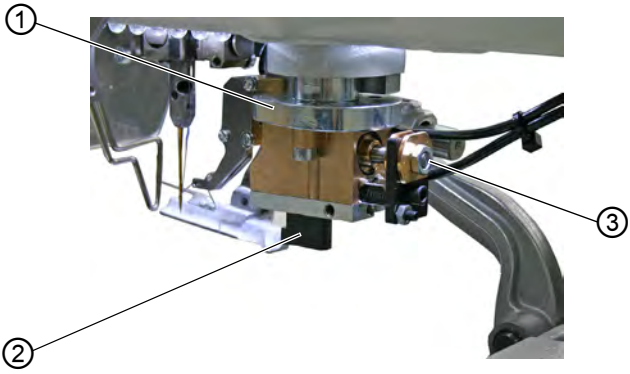
To change the knife:

1. Loosen the screw (4).
2. Pull the knife (3) forward and remove.
3. Insert the new knife and push to the end stop.
4. Re-tighten the screw (4).

6.4.2 Subclass with multiflex

Changing the cutting block

Fig. 90: Changing the cutting block (multiflex)



(1) - Cutting block holder
(2) - Cutting block
(3) - Screw

To change the cutting block:

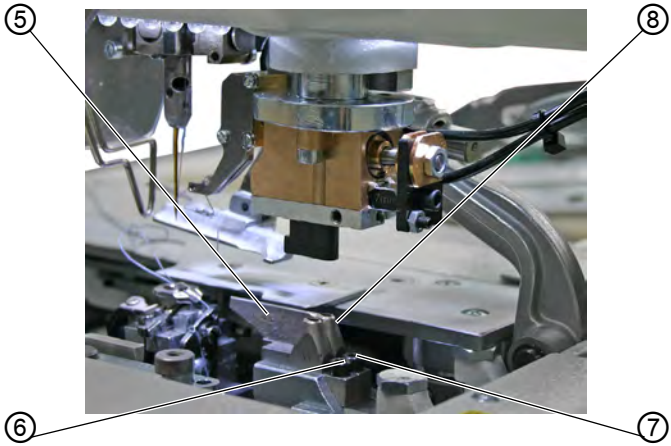
1. Remove compressed air supply hose (📖 *p. 158*).
2. Press the cutting block holder (1) down carefully with a screw driver.
3. Loosen the screw (3).
4. Pull the cutting block (2) out to the left.
5. Push the new cutting block (2) into the guide and tighten the screw (3).
6. Reconnect the compressed air hose.

When the compressed air is connected (📖 *p. 158*), the cutting block holder automatically moves back up.

Information
If you want to use a cutting block with a different length, you must make the appropriate setting on the control panel (📖 *Service Instructions).*

Changing the knife

Fig. 91: Changing the knife (multiflex)



(4) - Knife
(5) - Screw
(6) - Screw
(7) - Knife

To change the knife:

1. Loosen screw (5) or (6) (Allen key in the accessories).
2. Remove knife (4) or (7).
3. Insert the new knife and tighten with screw (5) or (6).

Important

If you cannot remove the knife, slightly loosen the screw of the second knife.

Information

If you want to use a knife with a different shape, you must make the appropriate settings on the control panel (📖 *Service Instructions).*

6.5 Parts list

A parts list can be ordered from Dürkopp Adler. Or visit our website for further information at:

www.duerkopp-adler.com

7 Setup

WARNING

Risk of injury from cutting parts!

Cutting injuries may be sustained while unpacking and setting up the machine.

Only qualified specialists may set up the machine.
Wear safety gloves

WARNING

Risk of injury from moving parts!

Crushing injuries may be sustained while unpacking and setting up the machine.

Only qualified specialists may set up the machine.
Wear safety shoes.

7.1 Checking the scope of delivery

The scope of delivery depends on your specific order. Check that the scope of delivery is correct after taking delivery.

7.2 Removing the transport locks

All transport locks must be removed prior to setup.

To remove the transport locks:

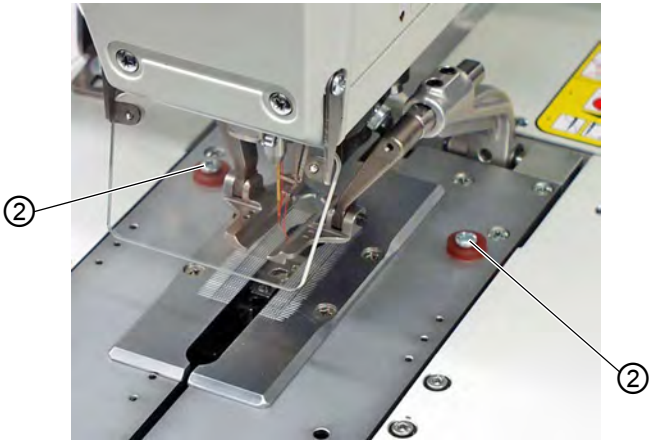
1. Remove the lashing straps and wooden blocks from the
   - Machine head
   - Stand
   - Stand

Fig. 92: Removing the transport lock of the machine head

(1) - Screw

2. Remove the screw (1) on the oil pan under the tabletop.
   The screw prevents the machine head from swiveling up during transport.

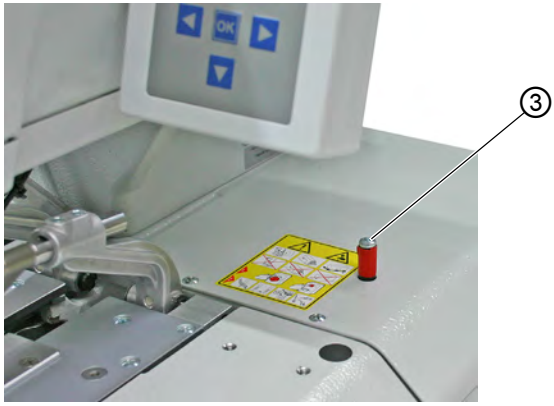
Fig. 93: Removing the transport lock of the clamping plates



(2) - Screws

3. Remove screws (2).
   The screws prevent the clamping plates from falling out.

Fig. 94: Removing the transport lock of the stand



(3) - Screw

4. Remove the screw (3).

7.3 Assembling the stand

If you ordered the matching stand, use the ring bolt to insert the machine (🕮 *p. 150*).

If you would like to use a different stand, you must perform the following work independently:

- Assemble the main switch (🕮 Additional Instructions *Connecting the control box at the main switch*)
- Assembling the tabletop (🕮 *p. 149*)
- Assembling the compressed air maintenance unit (🕮 *p. 159*)

7.4 Assembling the tabletop

If you wish to make your own tabletop, use the drawing (🕮 *p. 193*) as a template for the dimensions. The tabletop should be approx 40 mm thick.

7.5 Using the ring bolt

Fig. 95: Using the ring bolt

(1) - Ring bolt *(2) - Machine*

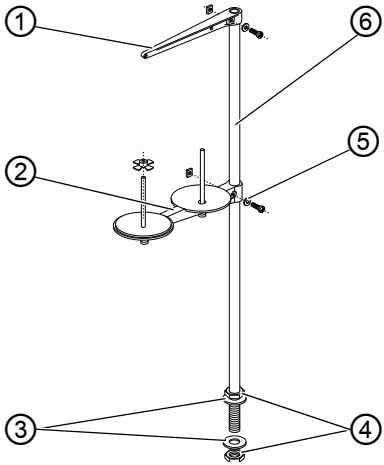
The ring bolt makes it easier for you to lift the machine into the stand. You can use it, for instance, to lift the machine with a suspension crane or you can also thread a stable rod through the ring bolt and then have 2 people lift the machine. The ring bolt is included in the accessories.

To use the ring bolt:

1. Screw the ring bolt (1) onto the machine.
2. Lift the machine (2) into the stand.
3. When the machine has been assembled, unscrew the ring bolt (1) again.

7.6 Attaching the reel stand

Fig. 96: Attaching the reel stand



(1) - Unwinding bracket
(2) - Thread reel holder
(3) - Washers
(4) - Nuts
(5) - Washer
(6) - Reel stand

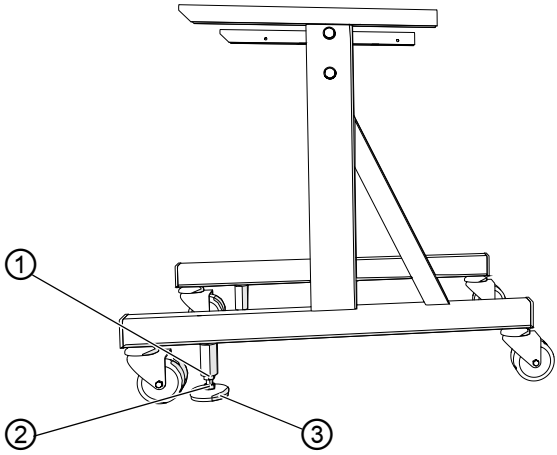
To assemble the reel stand:

1. Insert the reel stand (6) into the hole of the tabletop and attach it with nuts (4) and washers (3).
2. Assemble the thread reel holder (2).
3. Assemble the unwinding bracket (1).
4. Align the thread reel holder (2) and unwinding bracket (1) so that the thread reel holder and unwinding bracket are parallel to one another.

Information
You must adjust the centering piece to suit the type of thread reel. Incorrect adjustments can result in sewing disruptions.

7.7 Securing the stand

Fig. 97: Securing the stand



(1) - Counternut
(2) - Nut
(3) - Support plate

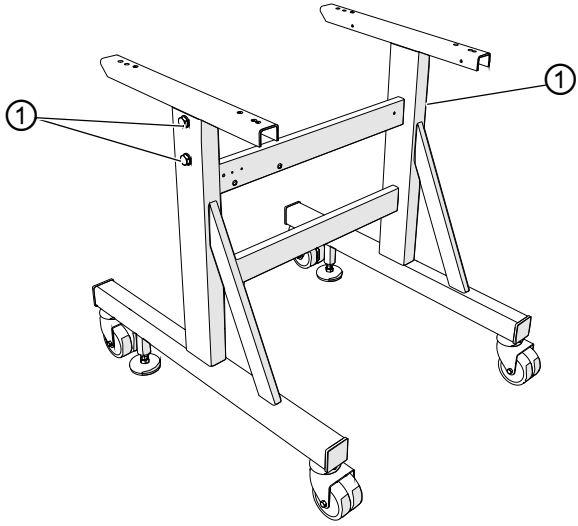
To ensure that the stand cannot move unintentionally, you have the option of securing it.

To secure the stand:

1. Screw both support plates (3) on the nut (2) as far down as required to ensure that the machine is firm and secure.
2. Screw the counternut (1) upward.
3. Tighten the counternut (1) slightly.

7.8 Adjusting the working height

Fig. 98: Adjusting the working height



(1) - Screws

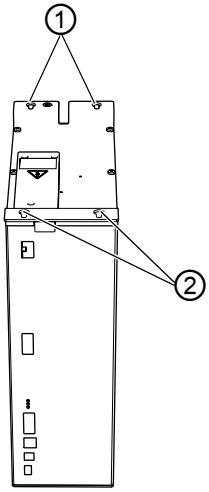
The working height is infinitely adjustable between 73 cm and 90 cm (measured to the upper edge of the tabletop).

To adjust the working height:

1. Loosen the screws (1) on both sides of the stand.
2. Adjust the tabletop of the machine so that it is level at the desired working height.
   To avoid jamming, slide the tabletop in or out evenly at both sides.
3. Tighten the screws (1).

7.9 Assembling the control

Fig. 99: Assembling the control (1)

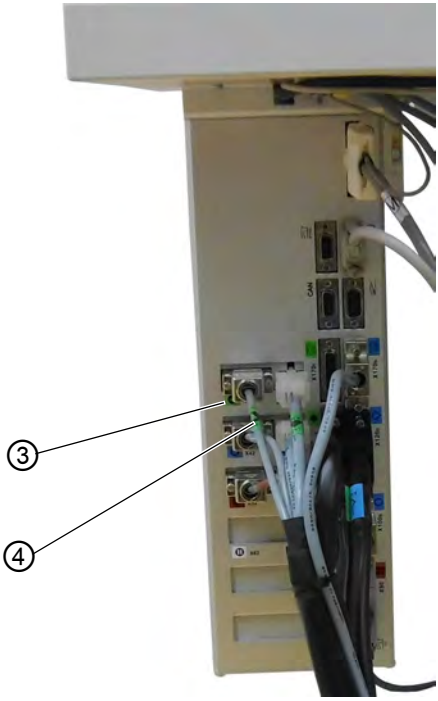


(1) - Screw position *(2) - Screw position*

To assemble the control:

1. Use screws to mount the control to the underside of the tabletop at positions (1) and (2). The side housing the type plate will be pointing to the left.

Fig. 100: Assembling the control (2)



(3) - Connection *(4) - Cable*

2. Connect all plugs with the relevant connections. The plugs are clearly labeled by means of identification on the cable (4), and the connections (3) on the housing are labeled correspondingly.
   The cable and connection have the same designation or the same symbol.
3. Connect all plugs with the connections.

7.10 Electrical connection

DANGER

Risk of death from live components!

Unprotected contact with electricity can result in serious injuries or death.

Only qualified specialists may perform work on electrical equipment.

To establish the electrical connection:

1. Connect the machine in accordance with the wiring diagram (📖 *p. 194*).

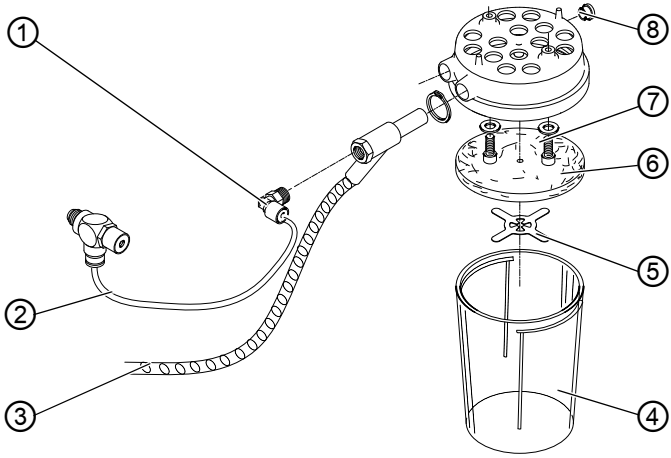
7.11 Establishing equipotential bonding

To establish equipotential bonding:

1. Establish equipotential bonding in accordance with the wiring diagram (📖 *p. 194*).

7.12 Assembling the suction container

Fig. 101: Assembling the suction container



(1) - Angle piece
(2) - Hose
(3) - Hose
(4) - Container
(5) - Spring plate
(6) - Foam
(7) - Screws
(8) - Blanking plug

The cutting waste that occurs during sewing ends up in the suction container.

To assemble the suction container:

1. Disassemble components (4), (5), (6) and (7) of the suction container in accordance with the figure.
2. Insert the blanking plug (8).
3. Screw the suction container into the pre-drilled holes under the oil pan using the screws (7).
4. Tighten the foam (6) with the spring plate (5) again.
5. Tighten the container (4).
6. Connect the hose (3) to the suction container via the injector. Cutting waste is extracted via the hose (3) into the container (4).
7. Screw the angle piece (1) onto the injector.
8. Connect the suction container with the pressure supply via the hose (2).

7.13 Pneumatic connection

NOTICE

Property damage from oily compressed air!

Oil particles in the compressed air can cause malfunctions of the machine and soil the sewing material.

Ensure that no oil particles enter the compressed air supply.

NOTICE

Property damage from incorrect adjustment!

Incorrect system pressure can result in damage to the machine.

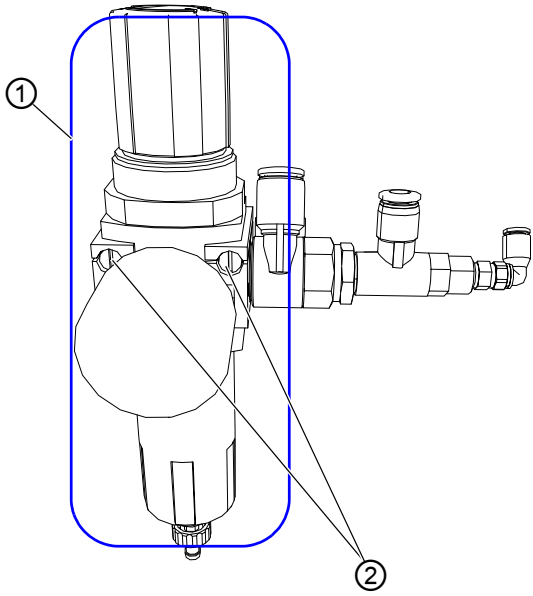
Ensure that the machine is only used when the system pressure is set correctly.

The pneumatic system of the machine and of the additional equipment must be supplied with dry and oil-free compressed air. A pneumatic connection package for stands with compressed air maintenance unit and pneumatic additional equipment is available for this purpose:

- Connection hose, 5 m long, Ø = 9 mm
- Hose connectors and hose clamps
- Coupling socket R ¼ and coupling plug

7.13.1 Assembling the compressed air maintenance unit

Fig. 102: Assembling the compressed air maintenance unit (1)

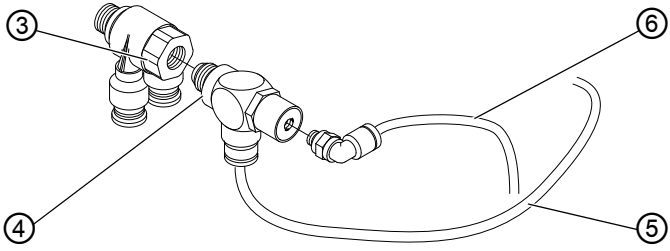


(1) - Compressed air maintenance unit
(2) - Screws

To assemble the compressed air maintenance unit:

1. Assemble the compressed air maintenance unit (1) to the stand using screws (2).

Fig. 103: Assembling the compressed air maintenance unit (2)



(3) - Distributor
(4) - Valve
(5) - Hose
(6) - Connection hose

2. Connect the valve (4) to the hose (5) for the suction container.
3. Connect the connection hose (6) for the compressed air to the valve (4).

7.13.2 Adjusting the operating pressure

NOTICE

Property damage from incorrect adjustment!

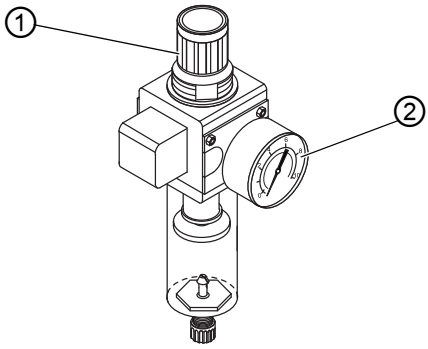
Incorrect operating pressure can result in damage to the machine.

Ensure that the machine is only used when the operating pressure is correct.

Setting

Refer to the **Technical data** (📖 *p. 187*) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Fig. 104: Adjusting the operating pressure



(1) - Pressure regulator *(2) - Pressure gage*

Wichtig

The operating pressure is preset on the maintenance unit for safety reasons. It cannot be changed.

7.14 Checking the lubrication

CAUTION

Risk of environmental damage from oil!

Oil is a pollutant and must not enter the sewage system or the soil.

Carefully collect up used oil.
Dispose of used oil and oily machine parts in accordance with the legal regulations.

For topping off the oil reservoir, use only lubricating oil **DA 10** or oil of equivalent quality with the following specifications:

- Viscosity at 40 °C:10 mm^2/s
- Flash point: 150 °C

You can order the lubricating oil from our sales offices using the following part numbers.

Container	Part no.
250 ml	9047 000011
1 l	9047 000012
2 l	9047 000013
5 l	9047 000014

You need to supply the wicks and felts as well as the hook and the needle bar with a small amount of oil during setup / after an extended standstill period.

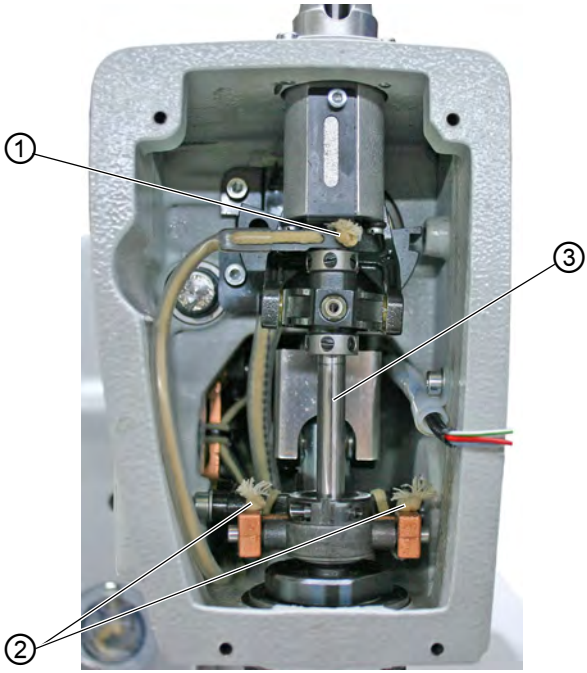
All moving parts in the machine are lubricated via an oil-wick system from 2 oil reservoirs.

Lubricating the machine

Lubricate the machine as follows:

1. Unscrew the head and side covers.

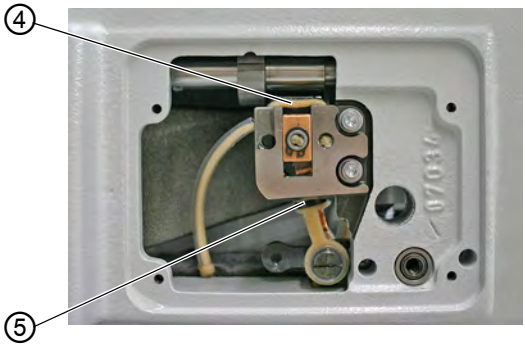
Fig. 105: Lubricating the machine (1)



(1) - Wick
(2) - Wick
(3) - Needle bar

2. Soak wicks (1) and (2) with a little oil.
3. Add 1-2 drops of oil to the pendulum sleeve and needle bar (3).
4. Tighten the head and side covers on.

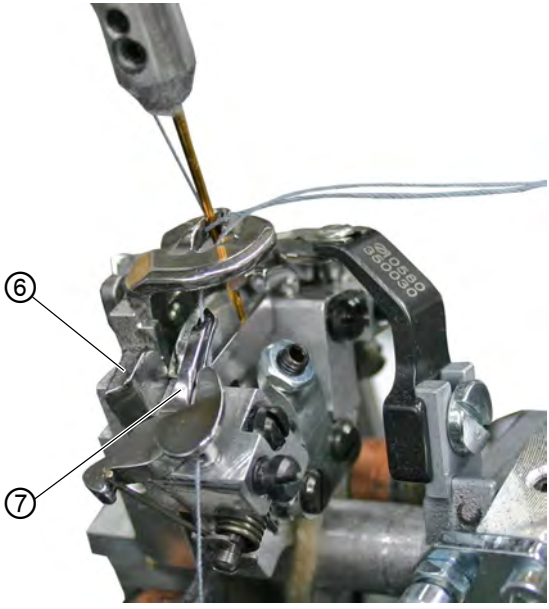
Fig. 106: Lubricating the machine (2)



(4) - Wick *(5) - Felt*

5. Soak the wick (5) with a little oil
6. Remove the clamping plates.
7. Soak the wick (4) with a little oil.

Fig. 107: Lubricating the machine (3)

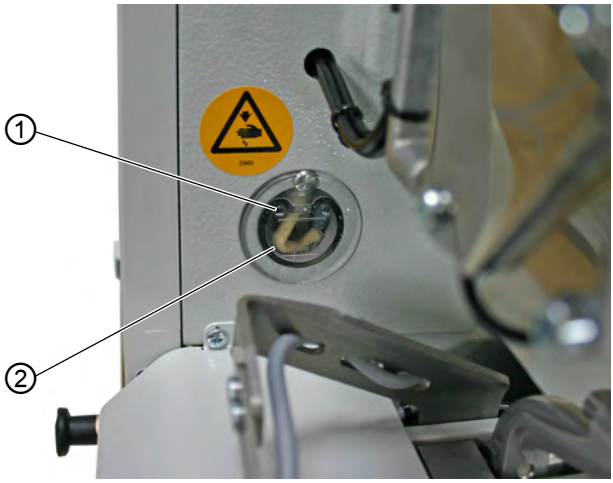


(6) - Spreader plate *(7) - Spreader*

8. Add 1-2 drops of oil to the spreader plate (6) and the spreader (7).

Topping off the oil

Fig. 108: Topping off the oil (1)



(1) - Filler opening *(2) - Oil reservoir*

To top off the oil:

1. Top off the oil reservoir (2) through the filler openings (1) up to the max mark

Fig. 109: Topping off the oil (2)

(3) - Filler opening *(4) - Oil reservoir*

2. Top off the oil reservoir (4) through the filler opening (3) up to the max mark.

7.15 Adjusting the material edge guides

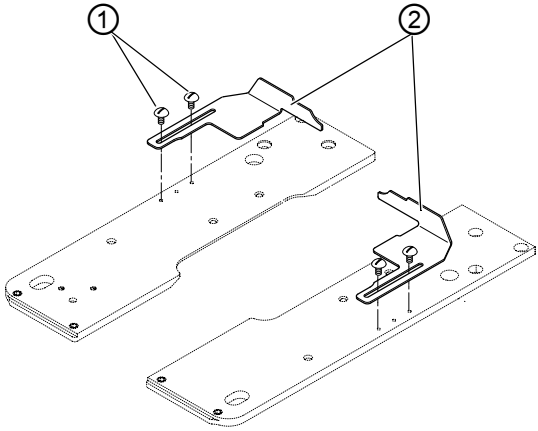
WARNING

Risk of injury from sharp parts!

Puncture possible.

Only adjust the material edge guides when the machine is switched off.

Fig. 110: Adjusting the material edge guides



(1) - Screws *(2) - Material edge guides*

To enable you to work precisely with the sewing material, you can adjust the position of the material edge guides.

To adjust the material edge guides:

1. Insert the sewing material until it comes into contact with the material edge guides (2) on the right and left sides.
2. Loosen the screws (1) on the right and left sides.
3. Set the sewing position by moving the material edge guides (2) to and fro.
4. Tighten the screws (1) again.

7.16 Performing a test run

Once the setup work is complete, put the machine into operation and perform a test run. Comply with the sequence:

Order

1. Switch on the machine.
2. Carry out a test run.
3. Switch off the machine.

To perform a test run:

1. Insert the sewing material.
2. Select a buttonhole shape (📖 *p. 65*) and first set a low speed.
3. Sew the buttonhole (📖 *p. 56*).
4. Continuously increase the speed.
5. Check whether the buttonhole meets the desired requirements.

If the requirements are not met, change the thread tension (📖 *p. 49*).

Information
If the splash screen does not appear on the control panel after switching on even after waiting for a long time, this means that there is no software on the control.

In this case, the software must first be installed (📖*Service Instructions*).

---

8 Decommissioning

WARNING

Risk of injury from a lack of care!

Serious injuries may occur.

ONLY clean the machine when it is switched off. Allow ONLY trained personnel to disconnect the machine.

CAUTION

Risk of injury from contact with oil!

Oil can cause a rash if it comes into contact with skin.

Avoid skin contact with oil.
If oil has come into contact with your skin, wash the affected areas thoroughly.

To decommission the machine:

1. Switch off the machine.
2. Unplug the power plug.
3. If applicable, disconnect the machine from the compressed air supply.
4. Remove residual oil from the oil pan using a cloth.
5. Cover the control panel to protect it from soiling.
6. Cover the control to protect it from soiling.
7. Cover the entire machine if possible to protect it from contamination and damage.

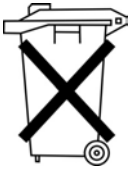
9 Disposal

CAUTION

Risk of environmental damage from improper disposal!

Improper disposal of the machine can result in serious environmental damage.

ALWAYS comply with the national regulations regarding disposal.



The machine must not be disposed of in the normal household waste.

The machine must be disposed of in a suitable manner in accordance with all applicable national regulations.

When disposing of the machine, be aware that it consists of a range of different materials (steel, plastic, electronic components, etc.). Follow the national regulations when disposing these materials.

10 Troubleshooting

10.1 Customer Service

Contact for repairs and issues with the machine:

Dürkopp Adler GmbH

Potsdamer Str. 190
33719 Bielefeld, Germany

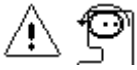
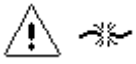
Phone: +49 (0) 180 5 383 756
Fax: +49 (0) 521 925 2594

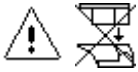
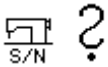
Email: service@duerkopp-adler.com
Internet: www.duerkopp-adler.com

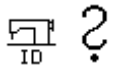
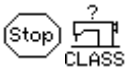
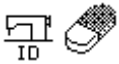
10.2 Messages of the software

Please contact customer service if an error occurs that is not described here. Do not attempt to correct the error yourself.

10.2.1 Information messages

Symbol	Description	Remedial action
	At the start of sewing, the needle is not in the upper home position or is on the wrong side	• Turn the handwheel until the message disappears
	The machine is in the threading position and not ready for sewing.	• When threading is complete, press the Threading mode button on the head cover to return to sewing mode
	The thread breaks during sewing	• Press the button on the head cover to move to the threading position

Symbol	Description	Remedial action
	At the start of sewing the needle is in the threading position	• Press the button on the head cover • Switch off and on the machine
	There is no compressed air or the pressure is too low	• Switching off the machine • Ensure the supply of sufficient compressed air • Switching on the machine
	A prohibited cutting combination was selected (ONLY for multiflex)	• In the control, check and adjust the data for the knives and the cutting block • If necessary, install and adjust appropriate knives and an appropriate cutting block
	The sewing process stops (ONLY for 141, 341 with integrated and activated gimp monitoring)	• The sewing process can be continued with the **OK** button or button 2, or stopped with the **ESC** button or button 1
	The serial number of the machine has not been entered	• Press the **OK** button • Contact DA Service

Symbol	Description	Remedial action
 :6361	Machine ID not detected	• Check the plug
	• Incorrect class • The software does not match the class	• after 5 seconds, the system will show a screen displaying the class • Continue with **YES**: **Caution!** the update will overwrite the existing data Continue with **NO**: Abort • Order and upload the correct software
	Machine ID has not been initialized	• Press the **OK** button

10.2.2 Error Messages

If an error occurs, the 

symbol appears on the display, followed by a four-digit number combination.

Error	Meaning	Possible cause	Remedial action
1000	Sewing motor fault	• Encoder plug (Sub-D, 9-pin) not connected or defective • Encoder defective	• Check the connection of the encoder cable and replace, if necessary
1001	Sewing motor fault	• Sewing motor plug not connected or defective	• Check the connection of the sewing motor cable • Test sewing motor phases (R = 2.8 Ω, high impedance to PE) • Replace encoder • Replace sewing motor • Replace control
1002	Sewing motor insulation fault		• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
1004	Sewing motor fault	• Incorrect direction of rotation	• Replace encoder • Check plug assignment and change, if necessary • Check wiring in machine distributor and change it, if necessary • Test motor phases and check for correct value
1005	Sewing motor current feed fault	• Sewing motor blocked • Encoder cable not connected or defective • Encoder defective	• Remove blockage • Check the encoder cable and replace, if necessary • Replace sewing motor

Error	Meaning	Possible cause	Remedial action
1006	Sewing motor fault	• Max. speed exceeded • Sewing motor cable defective • Sewing motor defective	• Switch off and on the machine • Replace encoder • Perform reset • Replace sewing motor • Contact customer service
1007	Error in the reference run		• Replace encoder • Check for stiff movement
1008	Fault in sewing motor encoder		• Replace encoder
1010	Sewing motor synchronization error	• External synchronizer plug (Sub-D, 9-pin) not connected	• Connect plug of external synchronizer to control, use correct connection (Sync) • Replace the reference switch or synchronizer • Only required for machines with transmission!
1011	Sewing motor synchronization error (Z pulse)		• Switch off the control, use handwheel to turn and switch on the control again • If error is not corrected, check encoder
1012	Sewing motor synchronization error		• Replace synchronizer
1051	Sewing motor timeout	• Cable to sewing motor Reference switch defective • Reference switch defective	• Replace cable • Replace reference switch (9815 935006)
1052	Sewing motor excess current	• Sewing motor cable defective • Sewing motor defective • Control defective	• Replace sewing motor cable • Replace sewing motor • Replace control

Error	Meaning	Possible cause	Remedial action
1053	Mains voltage too high	• Mains voltage too high	• Check mains voltage
1054	Internal short circuit		• Replace control
1055	Sewing motor overload	• Sewing motor is sluggish or is blocked • Sewing motor defective • Control defective	• Eliminate sluggishness/ block • Replace sewing motor • Replace control
1056	Sewing motor excess temperature	• Sewing motor not moving freely • Sewing motor defective • Control defective	• Eliminate sluggishness • Replace sewing motor • Replace control
1058	Sewing motor speed is greater than the setpoint	• Reference switch defective • Sewing motor defective	• Replace reference switch (9815 935006) • Replace sewing motor
1060	PowerParts		• Replace control
1062	Sewing motor IDMA auto-increment	• Disturbance	• Switch off and on the machine
1120	Software error	• Parameter not initialized	• Perform a software update
1203	Sewing motor: Position not reached		• Switch off and on the machine • Perform a software update • Contact customer service
1302	Sewing motor current feed fault	• Sewing motor blocked • Encoder cable not connected or defective • Encoder defective	• Remove blockage • Check the encoder cable and replace, if necessary • Replace sewing motor
1330	No response from sewing motor		• Switch off and on the machine • Perform a software update • Contact customer service

Error	Meaning	Possible cause	Remedial action
1342 – 1344	Sewing motor fault	• Internal error	• Switch off and on the machine • Perform a software update • Contact customer service
1410	Sewing motor: Thread trimmer speed is not achieved	• Encoder defective • Sewing motor defective	• Switch off and on the machine • Replace encoder • Replace sewing motor • Contact customer service
1411	Sewing motor: Thread trimmer position is not achieved	• Thread trimmer position is not achieved	• Switch off and on the machine • Perform a software update • Contact customer service
1412	Sewing motor: Stop position after turning backward is not achieved	• Stop position after turning backward is not achieved	• Switch off and on the machine • Perform a software update • Contact customer service
1420	Sewing motor current feed fault	• Sewing motor blocked • Encoder cable not connected or defective • Encoder defective	• Remove blockage • Check the encoder cable and replace, if necessary • Replace sewing motor
1421	Sewing motor timeout	• Cable to sewing motor Reference switch defective • Reference switch defective	• Replace cable • Replace reference switch (9815 935006)
1430	Sewing motor: Positioning speed is not achieved	• Sewing motor cable defective • Sewing motor defective • Control defective	• Switch off and on the machine • Replace the encoder • Replace sewing motor • Contact customer service

Error	Meaning	Possible cause	Remedial action
1431	Sewing motor: Stop position	• Internal sewing motor error	• Reduce the positioning speed • Perform a software update
1450	Internal sewing motor error	• Internal sewing motor error	• Switch off and on the machine • Perform a software update • Replace control • Contact customer service
1498 – 1499	Internal sewing motor error	• Internal sewing motor error	• Switch off and on the machine • Perform a software update • Replace control • Contact customer service
21	Stepper motor X-axis		
22	Stepper motor Y-axis		
23	Stepper motor Z-axis		
.. .. 02	Stepper motor current error	• Stepper motor not moving freely or blocked • Encoder cable not connected or defective • Stepper motor cable is not connected or faulty • Encoder defective • Stepper motor faulty	• Eliminate sluggishness/ block • Check the encoder cable and replace, if necessary • Replace encoder • If the stepper motor is not supplied with current: • Check the stepper motor cable and replace, if necessary • Replace stepper motor
.. .. 03	Stepper motor step losses	• Stiff mechanical movement or blockage	• Eliminate mechanical sluggishness or blocking
.. .. 21		• Encoder plug (Sub-D, 9-pin) not connected or defective • Encoder defective	• Check the connection of the encoder cable and replace, if necessary

Error	Meaning	Possible cause	Remedial action
.. .. 22	Pulse wheel search time out		• Check connection cables • Check stepper motor for stiff movement
.. .. 30	Stepper motor not responding		• Perform a software update • Replace control
.. .. 41	Stepper motor not responding	• Stepper motor card defective	• Perform a software update • Replace stepper motor card
.. .. 52	Stepper motor overcurrent	• Stepper motor faulty • Control defective	• Replace stepper motor • Replace control
.. .. 53	Stepper motor overvoltage	• Mains voltage too high	• Check mains voltage
.. .. 55	Stepper motor overload	• Stepper motor not moving freely or blocked • Stepper motor faulty • Control defective	• Eliminate sluggishness/ block • Replace stepper motor • Replace control
.. .. 56	Stepper motor excess temperature	• Stepper motor sluggish • Stepper motor faulty • Control defective	• Eliminate sluggishness • Replace stepper motor • Replace control
.. .. 62	Stepper motor IDMA auto-increment	• Disturbance	• Switch off and on the machine
3100 – 3103	Machine: Voltage error	• Temporary mains voltage interruption	• Check mains voltage and stabilize, if required
3221 – 3222	Machine: Thread tension regulation	• Internal error	• Switch off and on the machine • Perform a software update • Contact customer service

Error	Meaning	Possible cause	Remedial action
3300 – 3507	Fault in the machine control	• Internal error	• Switch off and on the machine • Perform a software update • Contact customer service
3508		• Needle position faulty	• Retighten the drive belt
3509 – 3724	Fault in the machine control	• Internal error	• Switch off and on the machine • Perform a software update • Contact customer service
4201	No USB key present		• Insert USB key
4208	Checksum error	File faulty	
4209	Error occurred while saving the file	The file to be saved is faulty	
4210	Error occurred while loading the file	No file on the USB key	• Plug in USB key containing the file
4460 – 4468	Control panel OP5000	• Disturbance	• Switch off and on the machine • Perform a software update • Replace control panel
6000 – 6299	Driver error	• Internal error	• Switch off and on the machine • Perform a software update • Contact customer service
6361	Machine ID not detected		• Check the plug
6365	Internal memory faulty	• Control defective	• Replace control

Error	Meaning	Possible cause	Remedial action
6400 – 6999	Driver error	• Internal error	• Switch off and on the machine • Perform a software update • Contact customer service
7551 – 7559	Communication with the control panel interface	• Internal error • Cable disturbance • Cable to the control panel interface is faulty	• Switch off and on the machine • Eliminate source of disturbance • Perform a software update • Replace cable • Contact customer service
7651 – 7659	Communication with the control panel interface	• Internal error • Cable disturbance • Cable to the control panel interface is faulty	• Switch off and on the machine • Eliminate source of disturbance • Perform a software update • Replace cable • Contact customer service
8151 – 8161	IDMA error	• Internal error • Disturbance • Control defective	• Switch off and on the machine • Perform a software update • Replace control • Contact customer service

Error	Meaning	Possible cause	Remedial action
8251 – 8258	Fault during ADSP booting or booting	• Internal error • Disturbance	• Switch off and on the machine • Perform a software update • Contact customer service
9000 – 9004	Seam appearance fault	• Internal error	• Switch off and on the machine • Perform a software update • Reset data (🕮 *p. 130*) • Contact customer service
9009	Cutting punch is not in position	• Cutting position sensor	• Check the plug and cable and replace, if required • Replace the distributor board

10.3 Errors in sewing process

Meaning	Possible causes	Remedial action
Thread breaking	• Needle thread and hook thread have not been threaded correctly	• Check threading path
	• Needle is bent or sharp-edged • Needle is not inserted correctly into the needle bar	• Replace needle • Insert the needle into the needle bar
	• The thread used is unsuitable	• Use the recommended thread
	• Thread tensions are too tight for the thread used	• Check thread tensions
	• Thread-guiding parts, such as thread tubes, thread guide or thread take-up disk, are sharp-edged	• Check the thread path
	• Throat plate, hook or spread have been damaged by the needle	• Have parts reworked by qualified specialists

Meaning	Possible causes	Remedial action
Skip stitches	• Needle thread and hook thread have not been threaded correctly	• Check threading path
	• Needle is blunt or bent • Needle is not inserted correctly into the needle bar	• Replace needle • Insert the needle into the needle bar
	• The needle thickness used is unsuitable	• Use recommended needle thickness *p. 187*
	• The reel stand is assembled incorrectly	• Check reel stand
	• Thread tensions are too tight	• Check thread tensions
	• Sewing material is not held correctly	• Check clamping pressure (*Service Instructions*)
	• Sewing material is not spread or is insufficiently spread	• Check the spread (*Service Instructions*)
	• The looping stroke was not corrected when changing the zigzag stitch width	• Adjust the looping stroke (*Service Instructions*)
	• Incorrect parts used for the desired sewing equipment	• Check the parts based on the equipment sheet
	• Hook or spread have shifted	• Check individual adjustments
	• Throat plate, hook or spread have been damaged by the needle	• Have parts reworked by qualified specialists

Meaning	Possible causes	Remedial action
Loose stitches	• Thread tensions are not adjusted to the sewing material, the sewing material thickness or the thread used	• Check thread tensions
	• Needle thread and hook thread have not been threaded correctly	• Check threading path
Needle breakage	• Needle thickness is unsuitable for the sewing material or the thread	• Use recommended needle
Seam beginning not secure	• Residual tension is too tight for the needle thread	• Adjust residual tension
Buttonhole is not clean	• Cutting pressure is insufficient	• Increase the cutting pressure (📖 *Service Instructions*)
	• Switch-on time of the cutting block is too short	• Increase switch-on time 📖 *p. 93*
	• Cutting edge of knife is blunt or chipped	• Replace and set the knife (📖 *Service Instructions*)
	• A cutting block that does not correspond to the knife is used	• Replace cutting block and set (📖 *Service Instructions*)

Meaning	Possible causes	Remedial action
Sewing mechanism rotation is faulty	• Toothed belt is not sufficiently tensioned	• Retighten the toothed belt, or replace if required
	• Toothed belt and toothed disks are dirty	• Clean the toothed belt and disks, if required replace the toothed belt
	• Sewing mechanism collides with other parts	• At a low speed, check the movement of the sewing mechanism and watch out for possible collisions
	• Set collars on hook support or needle bar drive are too tight	• Check the set collars, set a small amount of play if required: Looping stroke (📖 *Service Instructions*), needle bar height (📖 *Service Instructions*) and spreader plate (📖 *Service Instructions*)
	• Stiffness of individual parts	• Check all parts related to the sewing mechanism rotation
Fabric support plate transport is faulty	• Fabric support plate collides with other parts	• At a low speed, check the movement of the fabric support plate and watch out for possible collisions

11 Technical data

11.1 Data and characteristic values

Technical data	Unit	Class
Machine type		581
Type of stitches		Double chain stitch/ single chain stitch
Number of needles		1
Needle system		579
Needle strength	[Nm]	up to 125
Thread strength	[Nm]	30/3 - 120/3
Stitch length	[mm]	0.5 - 2
Speed maximum	[min^{-1}]	2500
Speed on delivery	[min^{-1}]	2000
Mains voltage	[V]	1x190 - 240
Mains frequency	[Hz]	50/60
Operating pressure	[bar]	6.5 +/- 0.5
Length	[mm]	1060
Width	[mm]	750
Height	[mm]	1050

11.2 Requirements for trouble-free operation

Compressed air quality as per ISO 8573-1: 2010 [7:4:4] must be ensured.

12 Glossary

Term	Explanation
CA	Abbreviation shown by the display: See *Cutting mode*.
CB	Abbreviation shown by the display: See *Cutting mode*.
Control panel	You can: • call up modes • read values • read information and error messages Is located on the side of the machine.
Cursor	Marks the current position in the software on the *display*.
Cutting diameter	Defines the diameter of the buttonhole to be cut.
Cutting length	Defines the length of the buttonhole, which depends on the diameter of the button.
Cutting mode	Determines when and whether a buttonhole is to be cut during the sewing process: • CB (before the sewing process) • CA (after the sewing process) • 0 (Cutting mode off) Changes the *cutting diameter*.
Display	Displays information.
End bartack	Secures the end of a seam.
Eyelet diameter	See *Cutting diameter*.
Function button	Refers to the **F** button. Activates service mode (technician level).
Hook thread	Identifies the thread coming from the bobbin under the sewing material support surface.
Light barrier	Helps to optically detect the seam end using a sensor.
Machine function	Identifies an equipment feature of a machine.

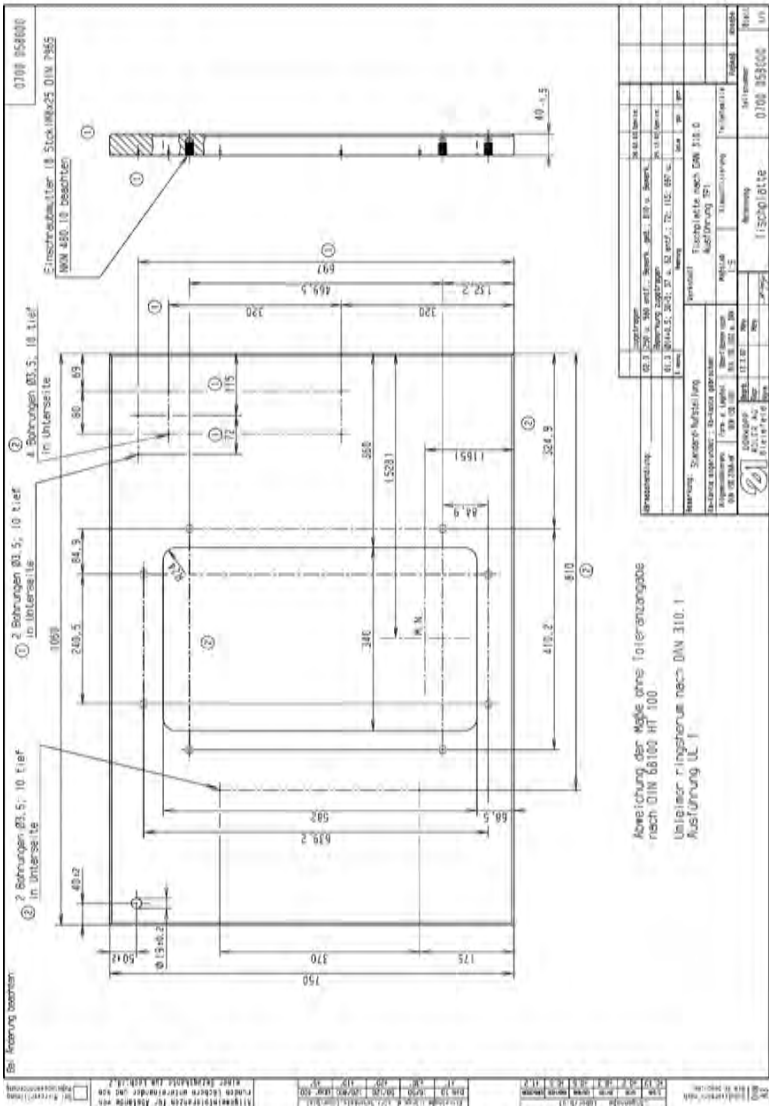
Term	Explanation
Maintenance unit	Comprises a water separator and pressure regulator.
Needle thread	Refers to the thread that is coming from the thread reel and is guided by the needle.
Needle thread monitor	Interrupts the sewing process if the needle thread breaks.
Parameter	Numerical value that activates or sets a machine function.
Piece counter	Counts the number of sewing cycles run (quantity) after the respective thread is cut.
Pressure gage	Measures and displays the operating pressure.
Pressure regulator	Ensures the correct operating pressure.
Reduced speed	The machine runs at a lower speed than that set at the factory.
Remaining thread monitor	Reports that the hook thread bobbin is empty.
S.p.m.	Indicates the number of stitches per minute.
Sewing material	Identifies the material to be sewn.
Sewing speed	Mathematical product of the stitch length and s.p.m.
Speed	Refers to the revolutions per minute performed by the sewing motor.
Speed limitation	See *Reduced speed*.
Start bartack	Secures the start of a seam.
Thread	Umbrella term for hook thread and needle thread.

Term	Explanation
Thread tension	Determines the appearance of the sewing material. Depends on the thread and sewing material used. There is: • Needle thread tension • Hook thread tension
Thread trimmer	Cuts the thread at the end of a sewing process. It is located under the sewing material support surface.
Threading mode	Mode that can be activated at the push of a button. Serves as a threading aid.
User level	Controls authorization as to which processes can be performed on the control. There are 4 levels: • Operator • Buttonhole programming (P) • Sequence programming (S) • Technician (F)
Water separator	Filters the condensed water and the dirt from the compressed air. Enriches the air with a certain quantity of oil.

13 Appendix

13.1 Tabletop drawing

Fig. 111: Tabletop drawing



13.2 Wiring diagram

Fig. 112: Wiring diagram

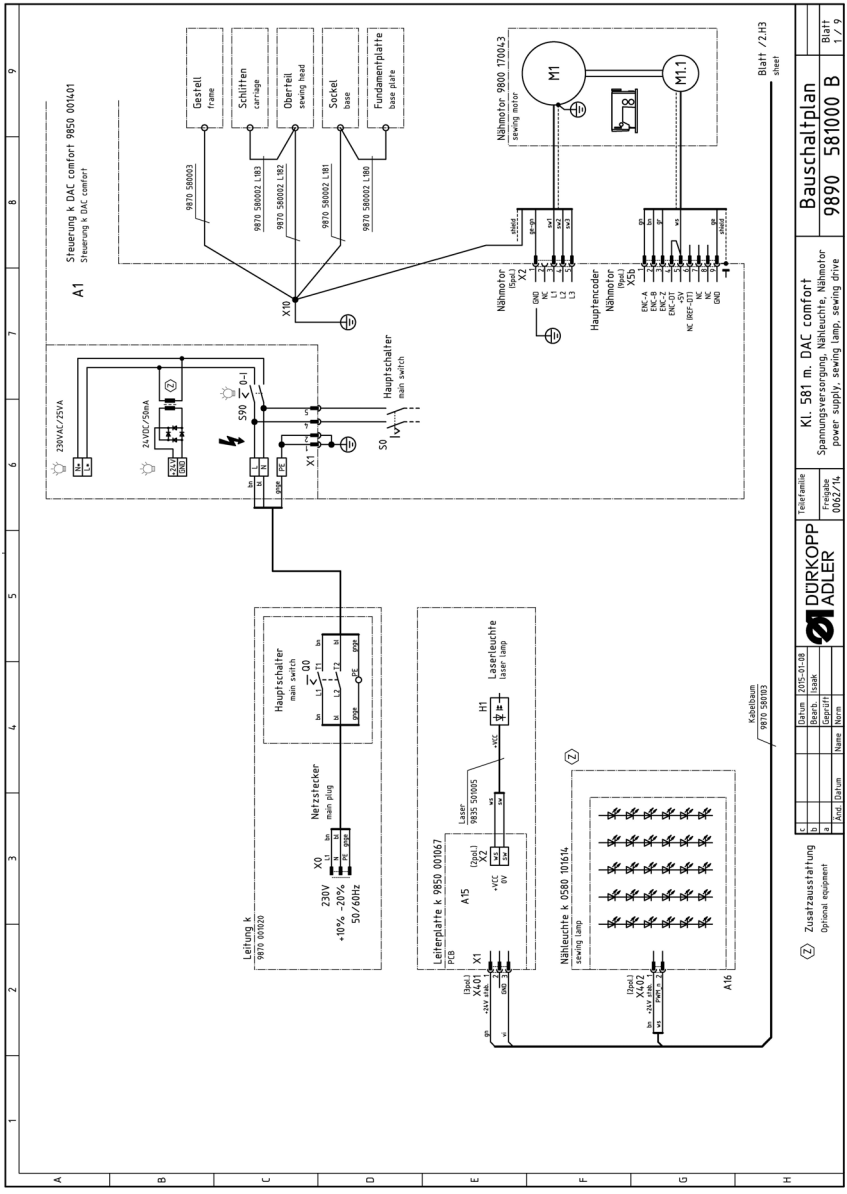


Fig. 113: Wiring diagram

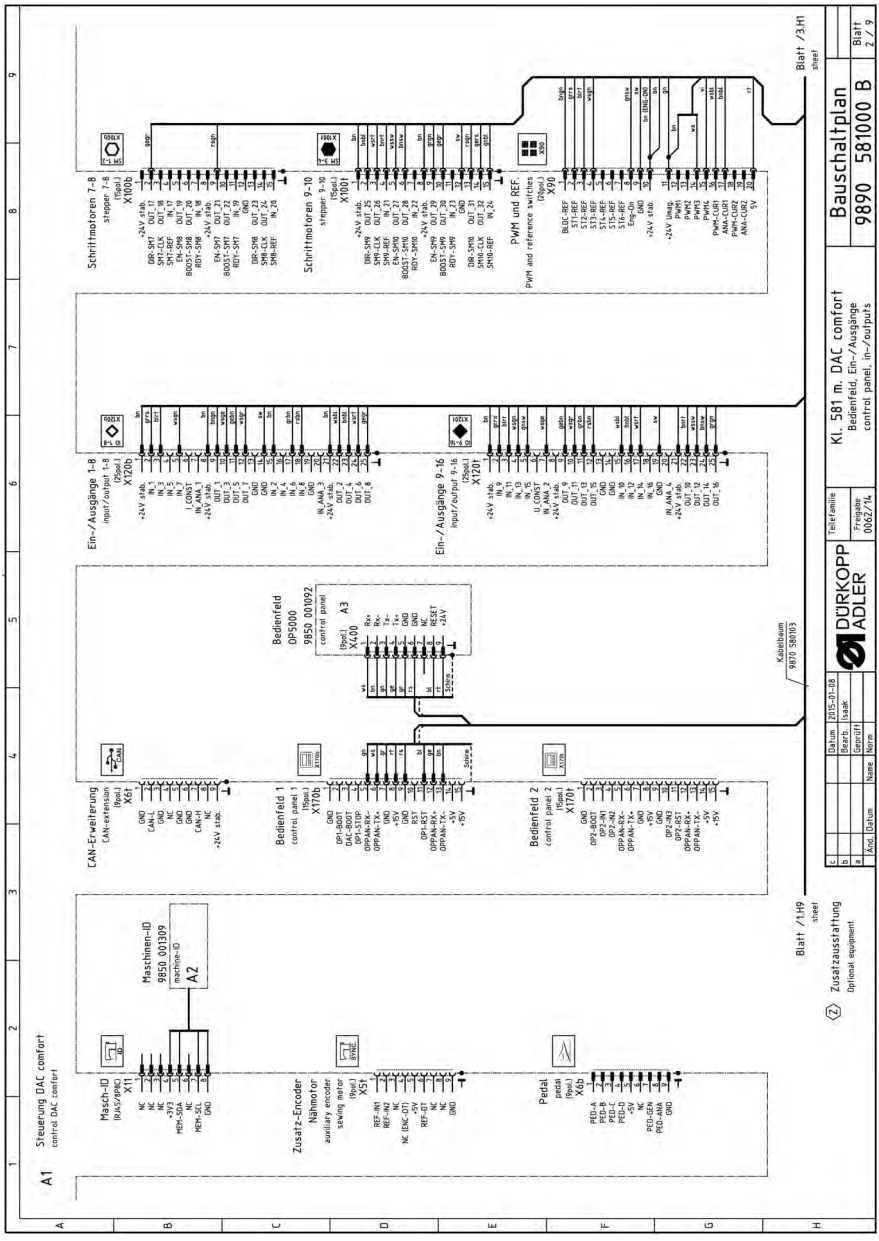


Fig. 114: Wiring diagram

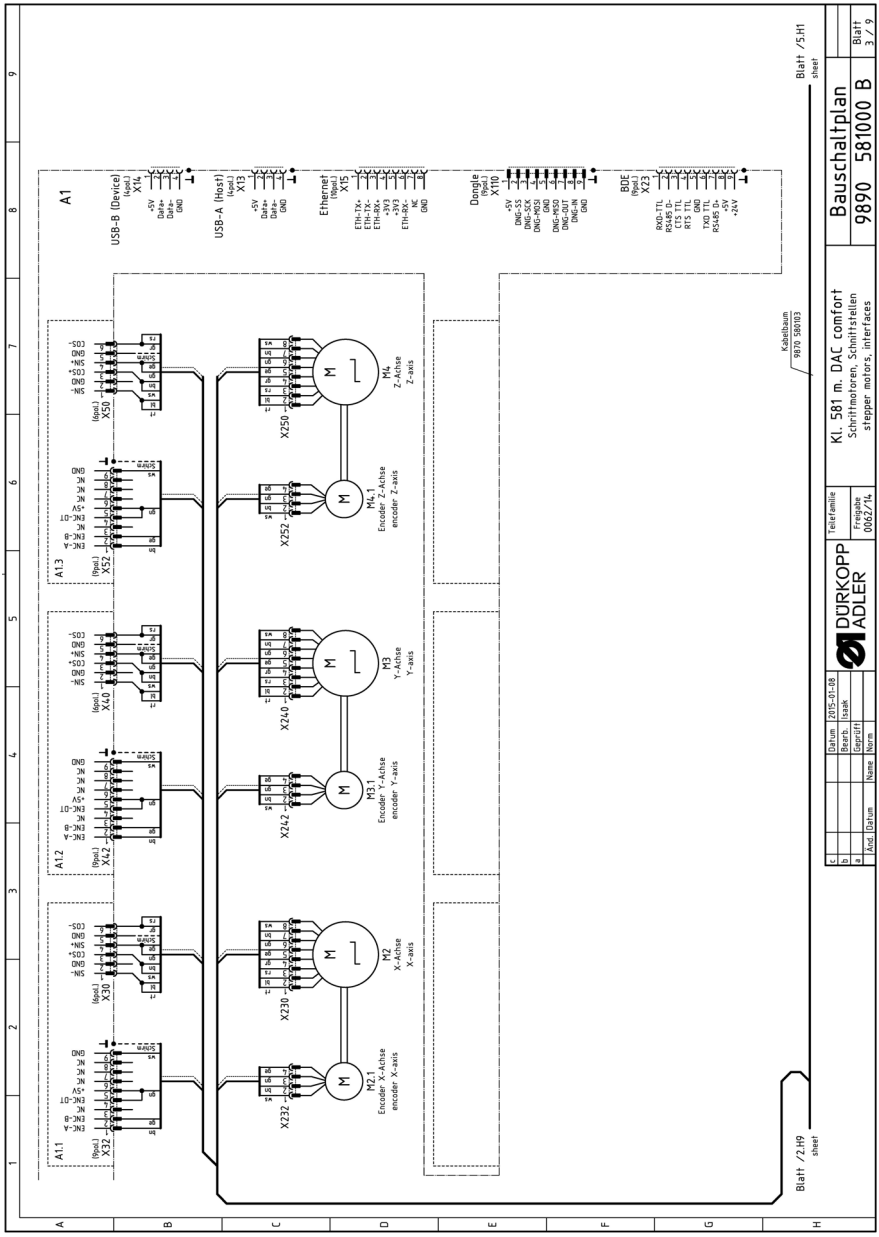


Fig. 115: Wiring diagram

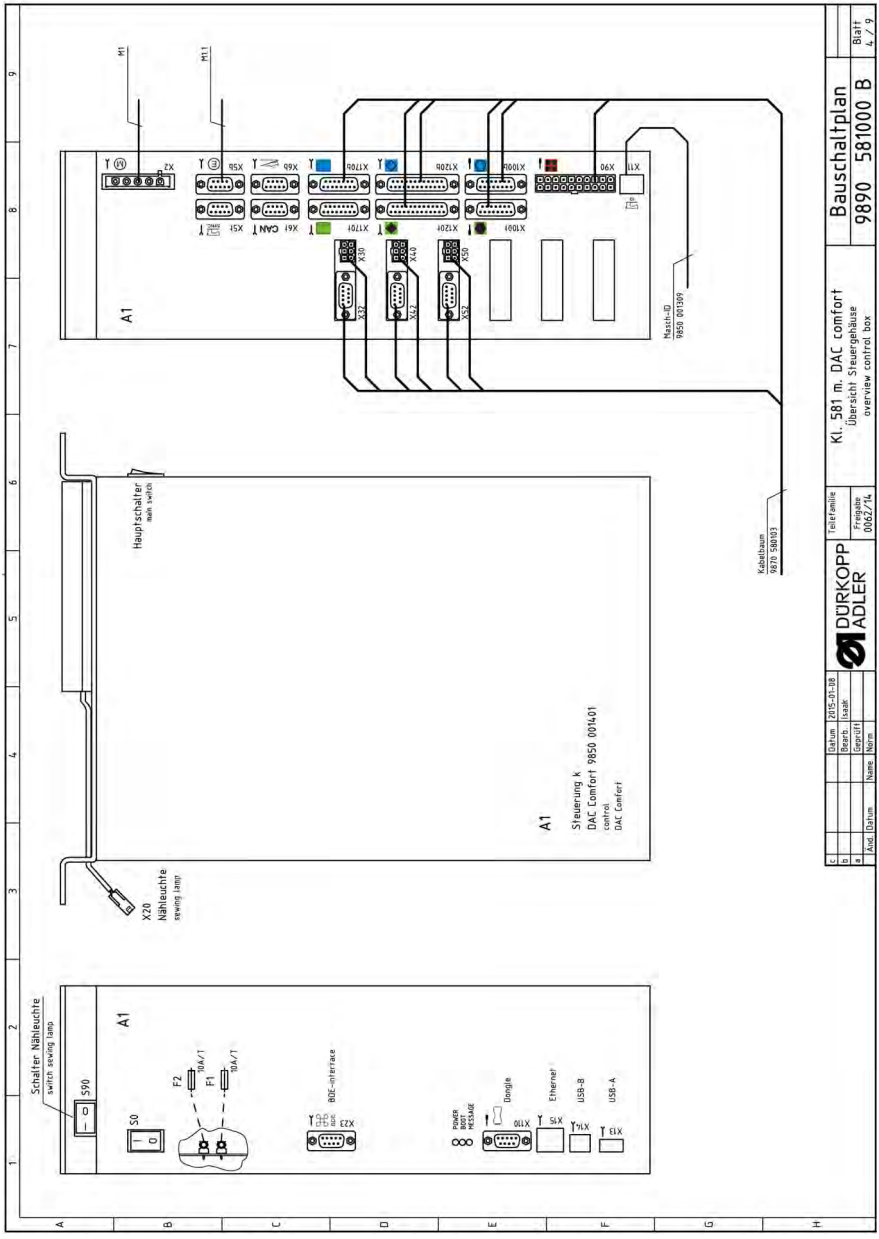


Fig. 116: Wiring diagram

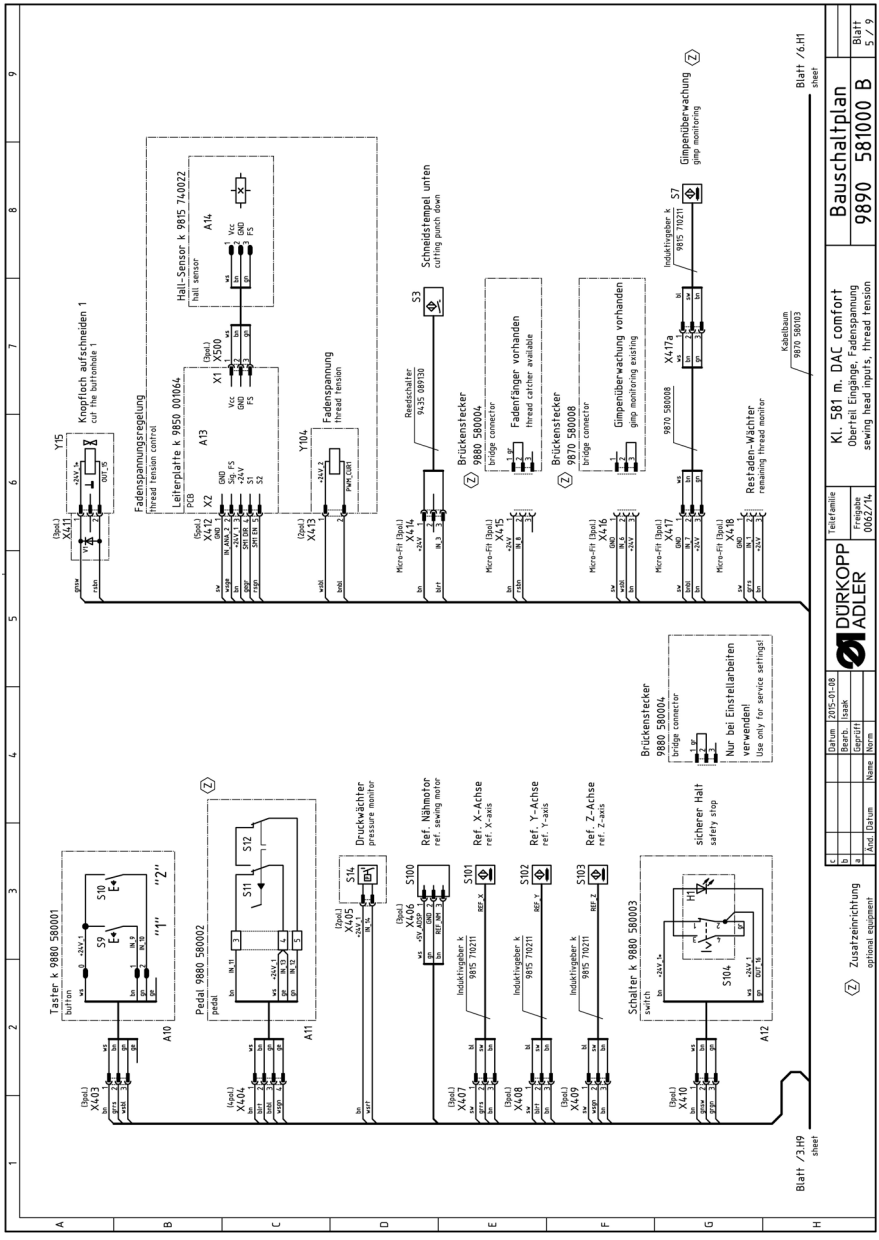


Fig. 117: Wiring diagram

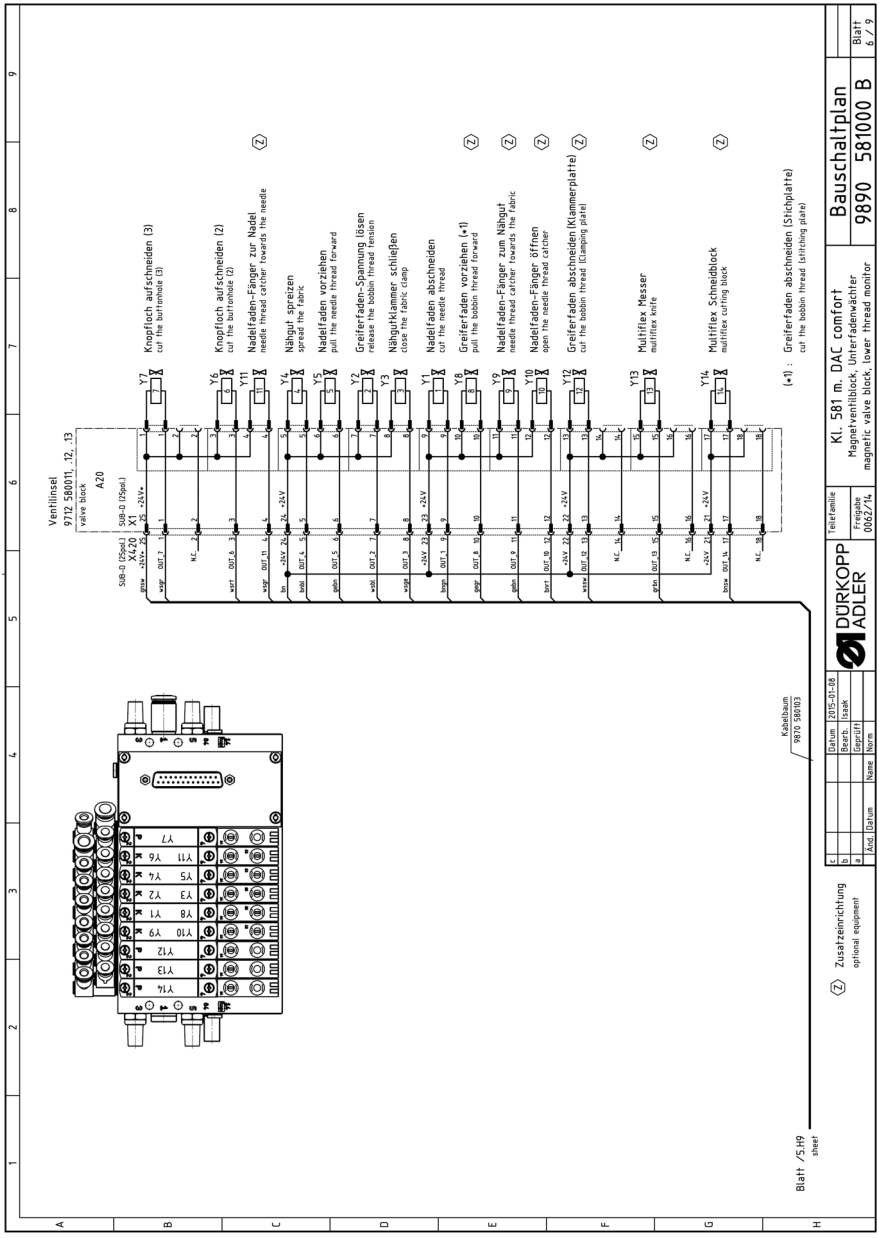


Fig. 118: Wiring diagram

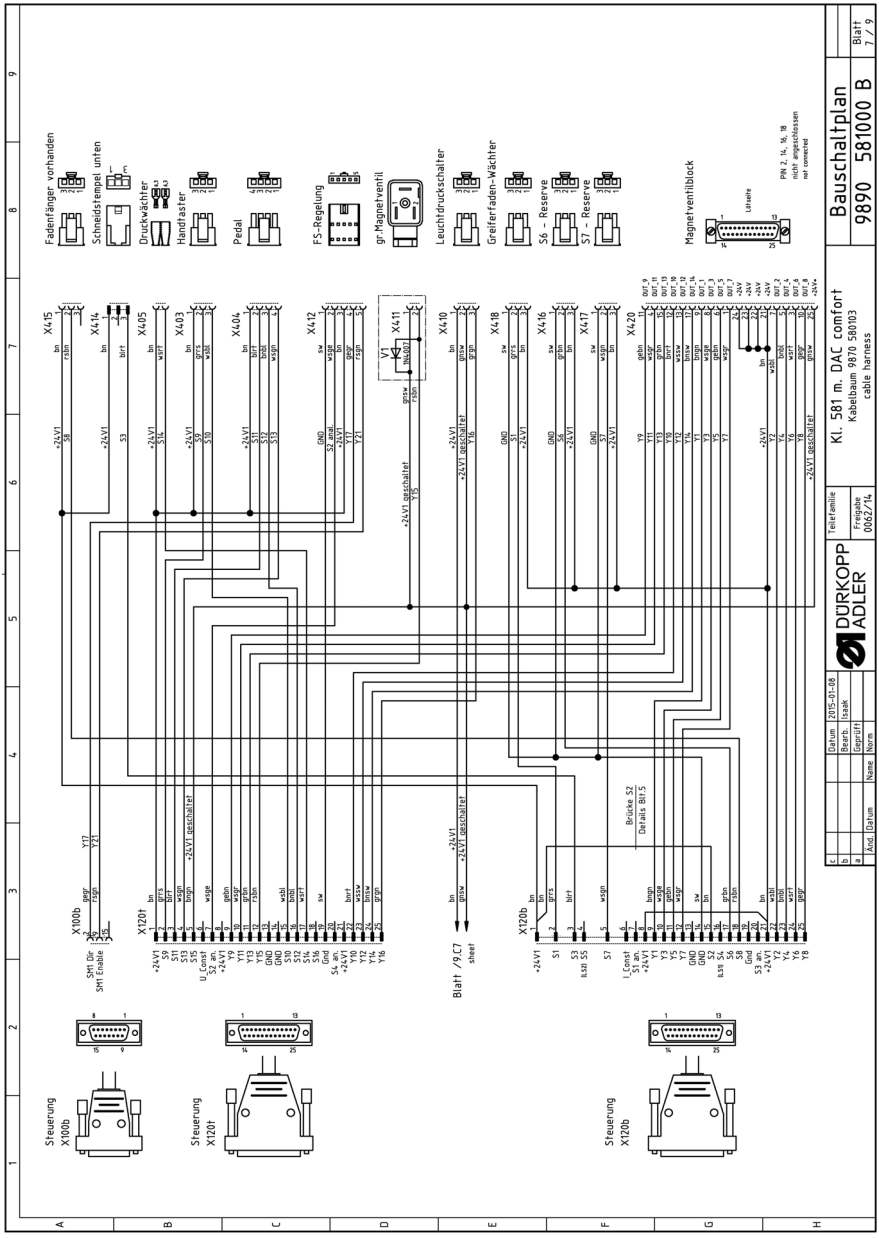


Fig. 119: Wiring diagram

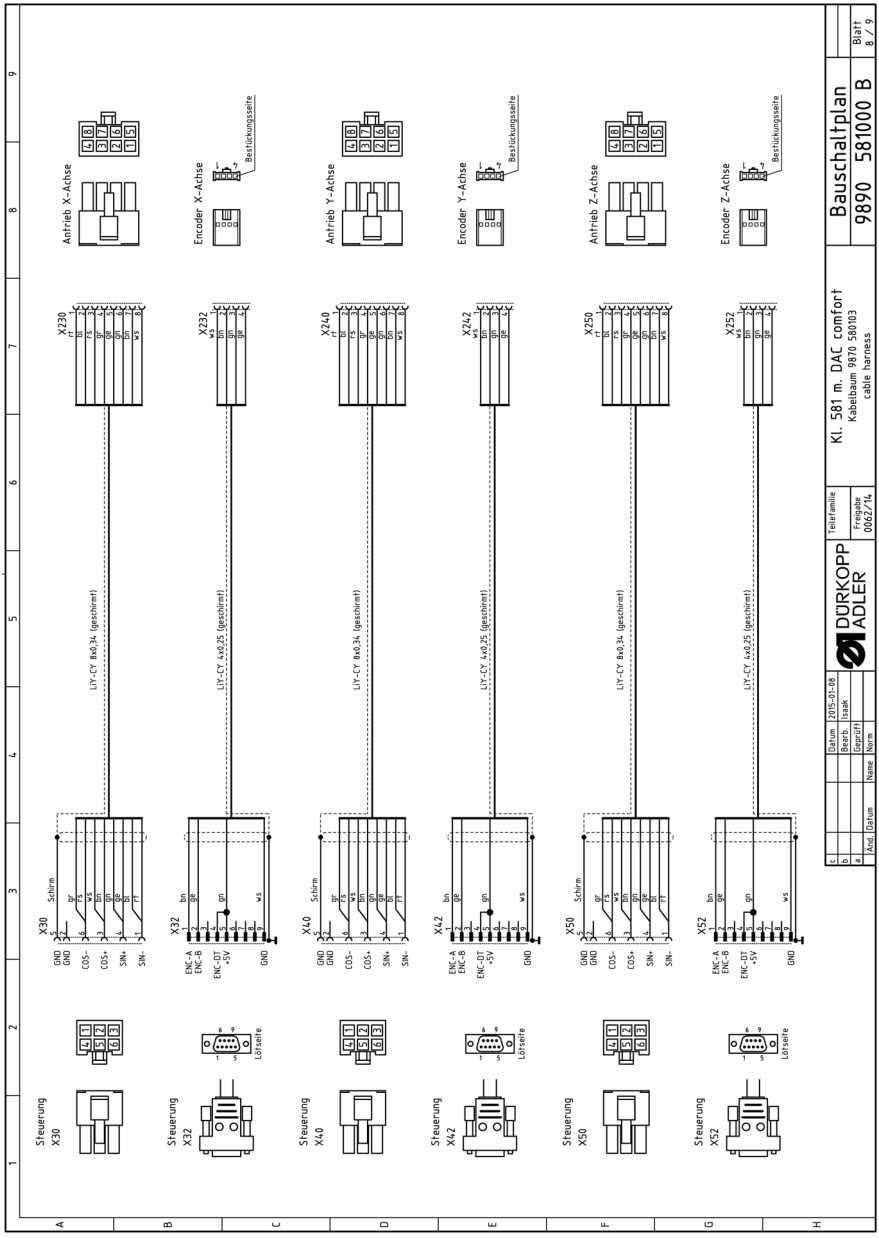
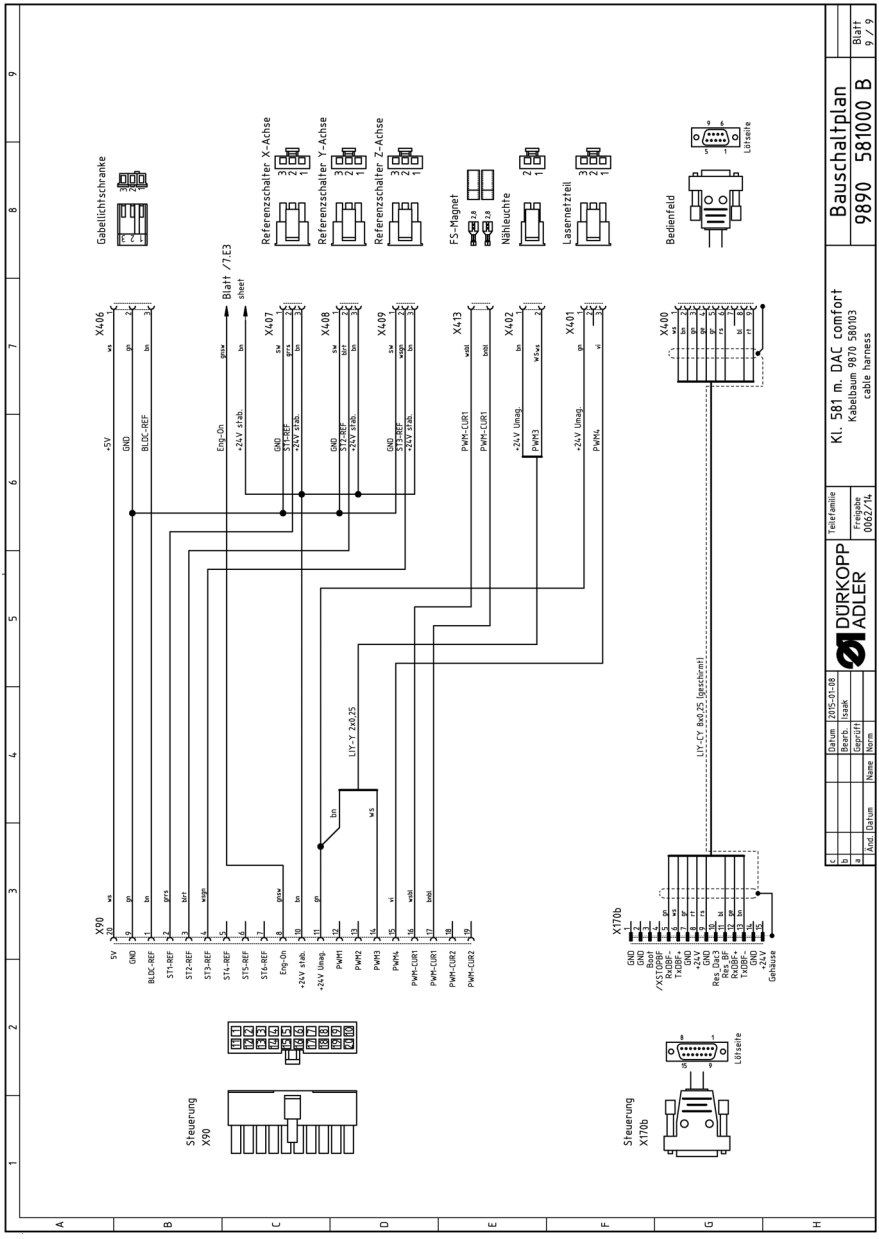


Fig. 120: Wiring diagram



DÜRKOPP ADLER GmbH
Potsdamer Straße 190
33719 Bielefeld
GERMANY
Phone +49 (0) 521 / 925-00
E-mail service@duerkopp-adler.com
www.duerkopp-adler.com