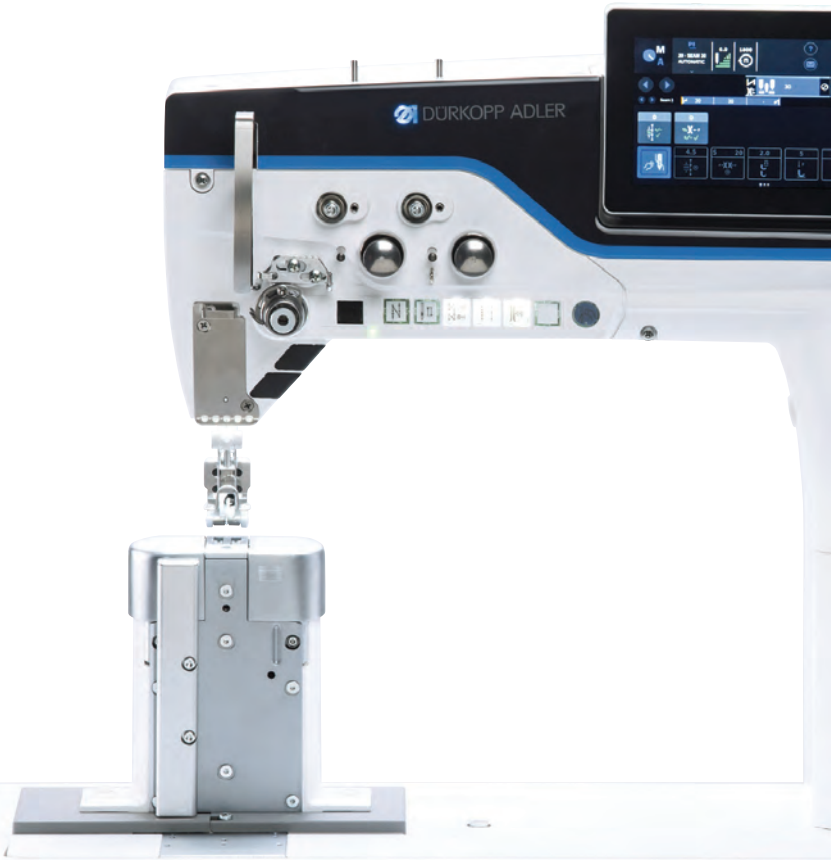
DÜRKOPP ADLER

D868

M-TYPE DELTA

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. 175*).

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. 151*) 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 setting.

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 a setting.

References

Reference to another section in these instructions.

Security 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 damage during transport
- 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 connecting cable must have a power plug approved in the relevant country. The power plug may only be assembled to the power 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:

- Setting up the machine
- 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 removed or deactivated. If it is essential to remove 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
	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.

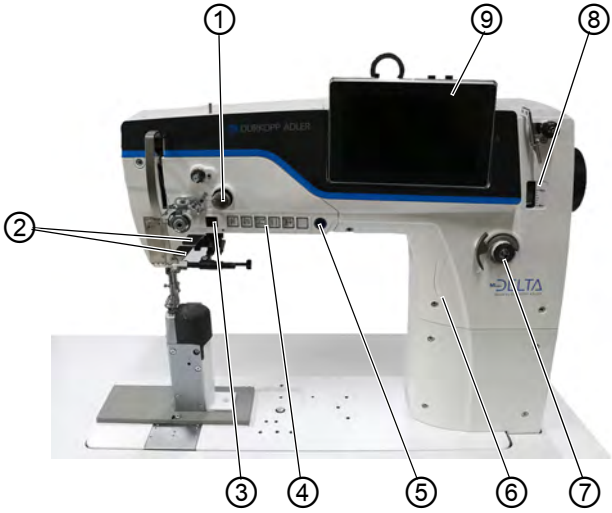
Measures for avoiding the danger.

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

3 Machine description

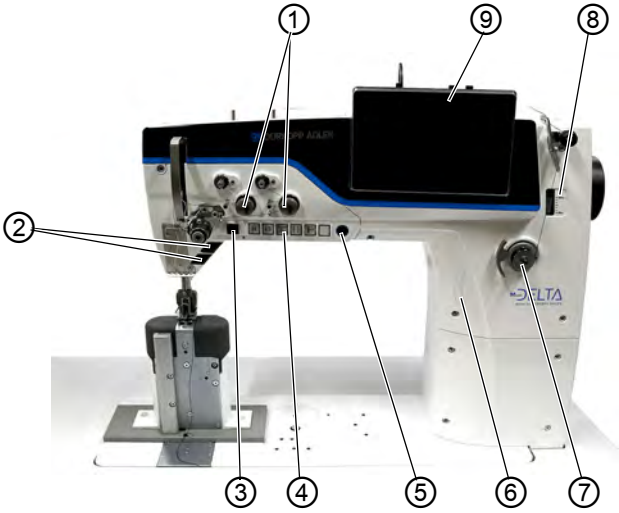
3.1 Components of the machine

Fig. 1: Components of the machine (1), 1-needle machine



(1) - Motor driven thread tension
(2) - Favorite buttons
(3) - Electronic handwheel
(4) - Push buttons
(5) - Service Stop button
(6) - Electronic stitch regulator device
(7) - Winder (motor driven)
(8) - Oil level indicator
(9) - Control panel Commander Delta

Fig. 2: Components of the machine (2), 2-needle machine



(1) - Motor driven thread tension
(2) - Favorite buttons
(3) - Electronic handwheel
(4) - Push buttons
(5) - Service Stop button
(6) - Electronic stitch regulator device
(7) - Winder (motor driven)
(8) - Oil level indicator
(9) - Control panel Commander Delta

3.2 Proper use

WARNING

Risk of injury from live, moving and cutting parts as well as from sharp parts!

Improper use can result in electric shock, crushing, cutting and punctures.

Follow all instructions provided.

NOTICE

Non-observance will lead to property damage!

Improper use can result in material damage at the machine.

Follow all instructions provided.

The machine may only be used with sewing material that satisfies the requirements of the specific application at hand.

The machine is intended only for use with dry sewing material. The sewing material must not contain any hard objects.

The needle thicknesses permissible for the machine are listed in the **Technical data** (📖 *p. 197*) chapter.

The seam must be completed with a thread that satisfies the requirements of the specific application at hand.

The machine is intended for industrial use.

The machine may only be set up and operated in dry conditions on well-maintained premises. If the machine is operated on premises that are not dry and well-maintained, then further measures may be required which must be compatible with DIN EN 60204-31.

Only authorized persons may work on the machine.

Dürkopp Adler cannot be held liable for damages resulting from improper use.

3.3 Declaration of Conformity

The machine complies with European regulations ensuring health, safety, and environmental protection as specified in the declaration of conformity or in the declaration of incorporation.

CE

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.

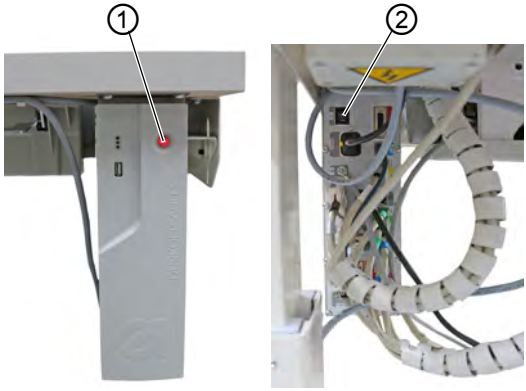
If possible, make preparations only when the machine is switched off.

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

- Inserting/changing the needle
- Threading the needle thread
- Inserting and winding on the hook thread
- Setting the thread tensions

4.2 Switching on and off the machine

Fig. 3: Switching on and off the machine



(1) - Button

(2) - Switch

Switching on the machine

To switch on the machine:

1. Press the switch (2) on the rear of the control to position **I**.
   - The button (1) on the front of the control illuminates red.
2. Tap the button (1) on the front of the control.
   - The control and the control panel of the machine start up.
3. Press the pedal backwards when prompted to do so on the display.
   - The machine performs a reference run and is afterwards ready for sewing.

Switching off the machine

To switch off the machine:

1. Press the button (1) on the front of the machine.
   - Control and control panel shut down and are set to standby; the button (1) illuminates red.
2. If necessary, press the switch (2) on the rear of the control to position **O**.
   - The machine is no longer set to standby.

4.3 Switching on and off the sewing lamps

The machine comes with a classic sewing lamp (1) in the area of the needle and machine head lighting (2) in the area of the arm.

Fig. 4: Switching on and off the sewing lamp

(1) - Sewing lamp *(2) - Machine head lighting*

Dimming the sewing lamps

You can adjust the brightness of the sewing lamps via software at the control panel (*Burger menu* > *Settings* > *User Configuration* > subitem *Machine* (📖 *p. 58*)).

Switching on and off the sewing lamps

By default, there is no simple way to switch the sewing lamps on or off. Enabling this option requires that you assign the function to switch the lamps on and off to the buttons on the push button panel.

You can assign functions to the buttons via software at the control panel (*Burger menu* > *Settings* > *User Configuration* > subitem *Fast Menu Key Configuration* (📖 *p. 58*)).

4.4 Inserting/changing the needle

CAUTION

Risk of injury from sharp parts!

Puncture possible.

Switch off the machine before you insert or change the needle.

NOTICE

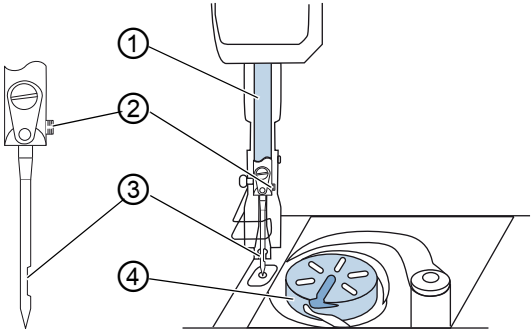
Property damage may occur!

There is a risk of machine damage, needle breakage or thread breakage if the distance between needle and hook tip is incorrect.

Set the distance to the hook tip after inserting a needle with a different strength.

4.4.1 On 1-Needle machines

Fig. 5: Inserting/changing the needle



(1) - Needle bar block
(2) - Screw
(3) - Groove
(4) - Hook

To change the needle in a 1-needle machine:

1. Turn the handwheel until the needle bar block (1) reaches the upper end position.
2. Loosen the screw (2).

3. Pull the needle out towards the bottom.
4. Insert the new needle into the hole of the needle bar block (1) until it reaches the stop.

Important

Align the needle in such a way that the groove (3) faces the hook (4).

5. Tighten the screw (2).

Order

Always adjust the clearance between the hook and the needle after changing to a different needle thickness (📖 *Service Instructions*).

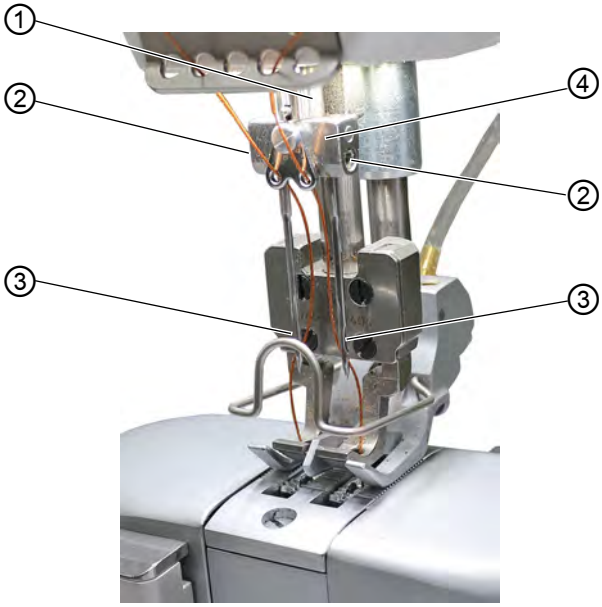
Disturbance

An incorrect hook clearance can cause the following disturbances:

- Changing to a thinner needle:
  - Skip stitches
  - Thread damage
- Changing to a thicker needle:
  - Damage to the hook tip
  - Damage to the needle

4.4.2 On 2-Needle machines

Fig. 6: Inserting/changing the needle



(1) - Needle bar
(2) - Screw
(3) - Groove
(4) - Needle holder

To change the needle in a 2-needle machine:

1. Turn the handwheel until the needle bar (1) has reached the upper end position.
2. To change the right needle, loosen the right screw (2).
3. To change the left needle, loosen the left screw (2).
4. Pull the needles downwards out of the needle holder (4).
5. Insert each new needle into the corresponding hole of the needle holder (4) until it reaches the stop.

Important

Align the new needles in such a way that the grooves (3) face the hook (4). As viewed from the operator level, the groove (3) of the left needle must point to the left, while the groove (3) of the right needle must point to the right.

6. Tighten the screw (2).

4.5 Threading the needle thread

WARNING

Risk of injury from needle tip and moving parts!

Puncture, cutting and crushing possible.

Turn off the machine before threading the thread.

Information

You will find a video with instructions regarding this chapter on the Commander Delta control panel of the machine.

To start the instructional video:

1. Switch on the machine.
2. Click on the tile  on the control panel.

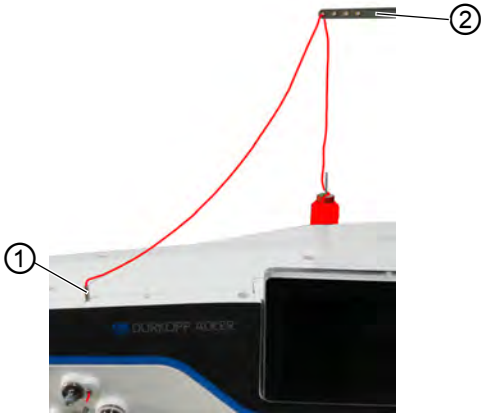
↳ A window opens named *Threading: one needle.* The instructional video starts automatically.

3. Click on the tile  in the left menu bar.

↳ The instructional video *Threading: two needles* starts automatically.

4.5.1 On 1-needle machines

Fig. 7: Threading the needle thread (1-needle machine) (1)



(1) - Tube

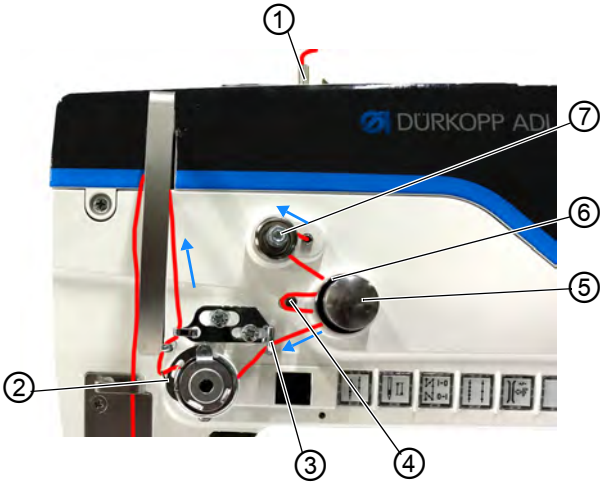
(2) - Thread guide on the unwinding bracket

To thread the needle thread:

1. Fit the thread reel on the reel stand.

   The unwinding bracket must stand directly above the thread reel.
2. Feed the thread from the rear to the front through the thread guide (2) on the unwinding bracket.
3. Insert the thread from the top and guide it through the tube (1).

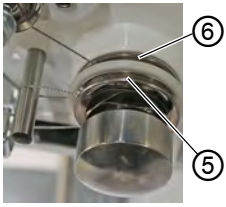
Fig. 8: Threading the needle thread (1-needle machine) (2)



(1) - Tube
(2) - Thread tensioning spring
(3) - Hook
(4) - Pin
(5) - Front tensioner
(6) - Rear tensioner
(7) - Pretension

4. Feed the thread counterclockwise from the tube (1) around the pretension (7).
5. Feed the thread clockwise through the rear tensioner (6).
6. Feed the thread clockwise around the pin (4) and keep feeding it clockwise through the front tensioner (5).

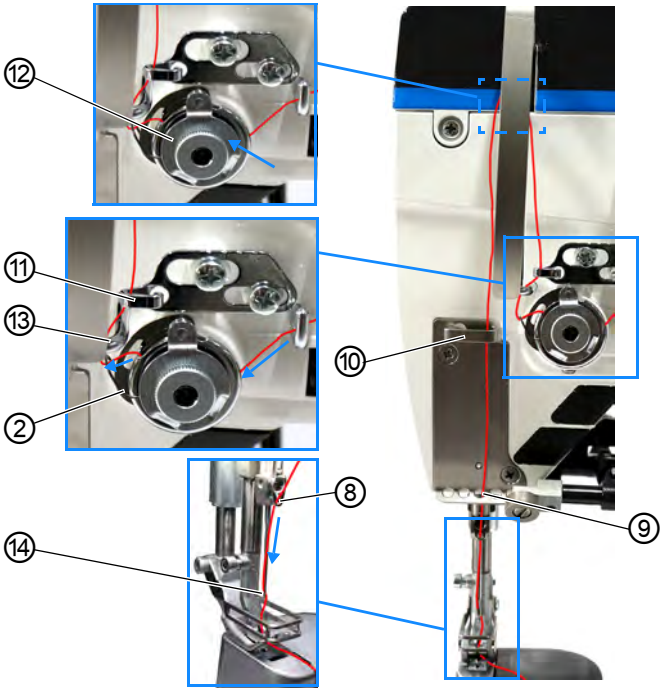
Fig. 9: Threading the needle thread (3)



(5) - Front tensioner
(6) - Rear tensioner

7. Feed the thread over the hook (3) before feeding it clockwise through the thread tensioning spring (2) from below.

Fig. 10: Threading the needle thread (1-needle machine) (4)



(2) - Thread tensioning spring
(8) - Thread guide
(9) - Lower thread guide
(10) - Upper thread guide
(11) - Needle thread regulator
(12) - Thread lever
(13) - Pin
(14) - Needle eye

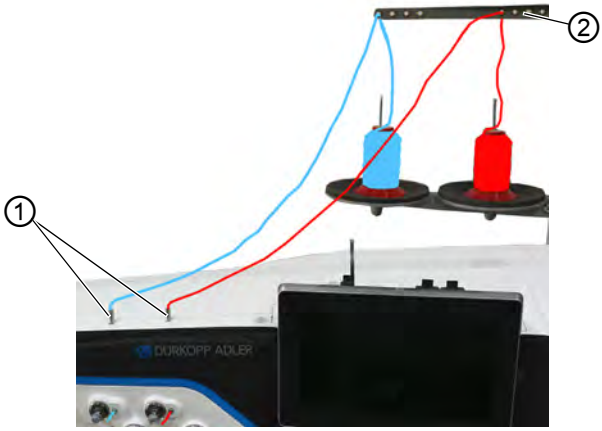
8. Feed the thread around the pin (13) from left to right and then from bottom to top through the hole of the needle thread regulator (11).
9. Insert the thread from the right to the left through the lower hole of the thread lever (12).
10. Insert the thread through the upper thread guide (10).
11. Insert the thread through a hole in the lower thread guide (9).
12. Insert the thread through the thread guide (8) on the needle bar block.
13. Insert the thread through the needle eye (14) in such a way that the loose thread end faces the hook.
14. Pull the thread through the needle eye (14) until the loose thread end has a length of approx. 4 cm with the thread lever (12) at the highest position.

Important:

Check the thread length.
If the loose thread end is too long, the thread may be caught by the hook and cause a disturbance. If the loose thread end is too short, the machine cannot start sewing.

4.5.2 On 2-needle machines

Fig. 11: Threading the needle thread (2-needle machine) (1)



(1) - Tube

(2) - Thread guide on the unwinding bracket

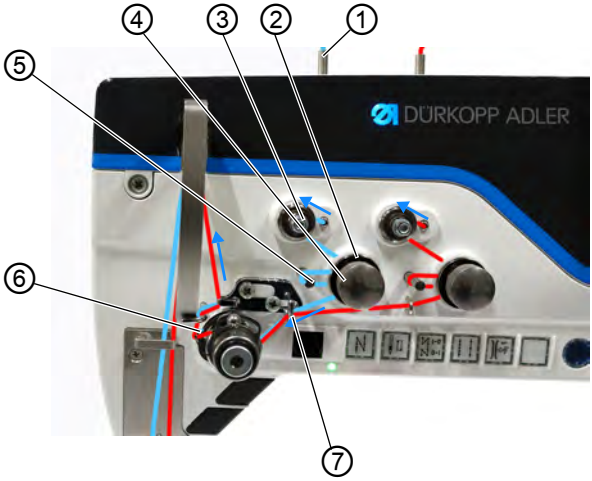
To thread the right and the left needle thread:

1. Fit the thread reels on the reel stands.

   The unwinding bracket must stand directly above the thread reels.
2. Feed the left thread from the rear to the front through the thread guide (2) on the unwinding bracket.
3. Feed the right thread from the rear to the front through the thread guide (2) on the unwinding bracket.

Threading the left needle thread at the tensioning plate

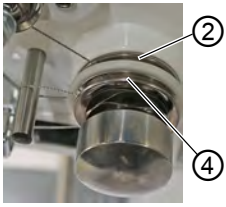
Fig. 12: Threading the needle thread (2-needle machine) (2)



(1) - Tube (left thread)
(2) - Rear tensioner (left thread)
(3) - Pretension (left thread)
(4) - Front tensioner (left thread)
(5) - Pin (left thread)
(6) - Rear thread tensioning spring
(7) - Hook

4. Insert the thread from the top and guide it through the tube (1).
5. Feed the thread counterclockwise from the tube (1) around the pretension (3).
6. Feed the thread clockwise through the rear tensioner (2).

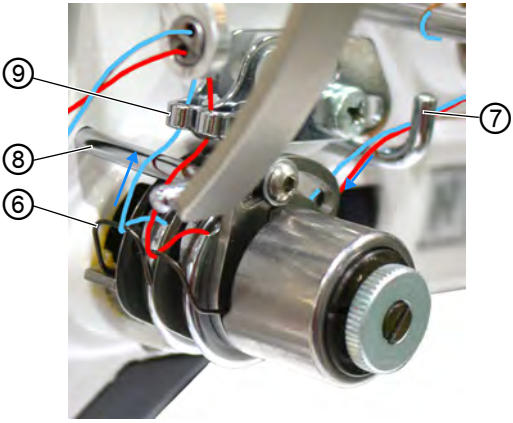
Fig. 13: Threading the needle thread (3)



(2) - Rear tensioner
(4) - Front tensioner

7. Feed the thread clockwise around the pin (5) and keep feeding it clockwise through the front tensioner (4).

Fig. 14: Threading the needle thread (4)

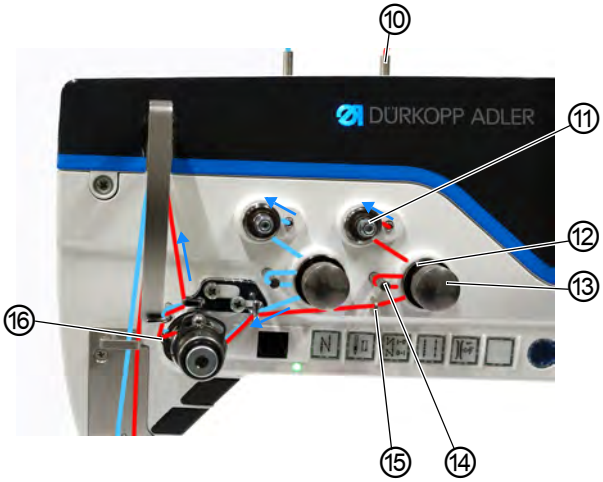


(6) - Rear thread tensioning spring (left thread)
(7) - Hook
(8) - Pin
(9) - Needle thread regulator (left thread)

8. Feed the thread over the hook (7) before feeding it clockwise through the rear thread tensioning spring (6) from below.
9. Feed the thread around the pin (8) from left to right and then from bottom to top through the hole of the rear needle thread regulator (9).

Threading the right needle thread at the tensioning plate

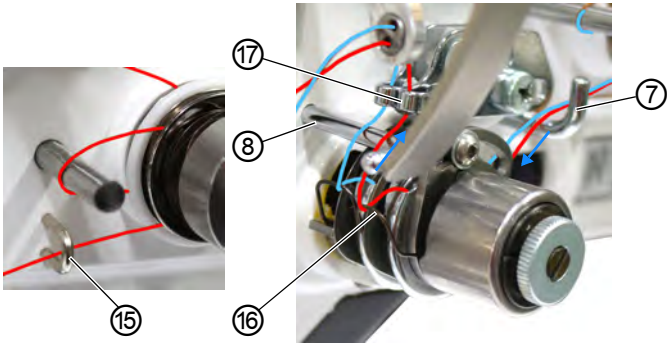
Fig. 15: Threading the needle thread (2-needle machine) (5)



(10) - Tube (right thread)
(11) - Pretension (right thread)
(12) - Rear tensioner (right thread)
(13) - Front tensioner (right thread)
(14) - Pin (right thread)
(15) - Hook (right thread)
(16) - Front thread tensioning spring

10. Insert the thread from the top and guide it through the tube (10).
11. Feed the thread counterclockwise from the tube (10) around the pretension (11).
12. Feed the thread clockwise through the rear tensioner (12).
13. Feed the thread clockwise around the pin (14) and keep feeding it clockwise through the front tensioner (13).

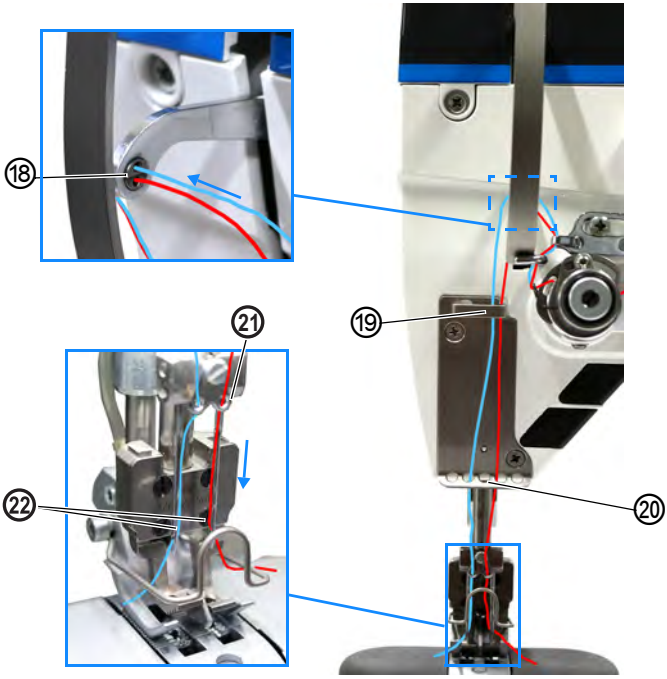
Fig. 16: Threading the needle thread (6)



(7) - Hook
(8) - Pin
(15) - Hook
(16) - Front thread tensioning spring (right thread)
(17) - Needle thread regulator (right thread)

14. Feed the thread through hook (15) and over hook (7) before feeding it clockwise through the front thread tensioning spring (16) from below.
15. Feed the thread around the pin (8) from left to right and then from bottom to top through the hole of the front needle thread regulator (17).

Fig. 17: Threading the needle thread (2-needle machine) (7)



(18) - Thread lever
(19) - Upper thread guide
(20) - Lower thread guide
(21) - Thread guide
(22) - Needle eye

16. Feed the left thread from the right to the left through the upper guide of the thread lever (18).
17. Feed the right thread from the right to the left through the lower guide of the thread lever (18).
18. Feed the left and the right thread through the upper thread guide (19).
19. Feed the left and the right thread each through a hole in the lower thread guide (20).
20. Insert the thread through the thread guide (21) on the needle bar block.
21. Insert the thread through the needle eye (22) in such a way that the loose thread end faces the hook.
22. Pull the thread through the needle eye (22) until the loose thread end has a length of approx. 4 cm with the thread lever (18) at the highest position.

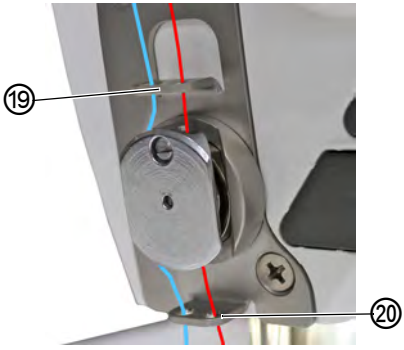
Important:

Check the thread length.
If the loose thread end is too long, the thread may be caught by the hook and cause a disturbance. If the loose thread end is too short, the machine cannot start sewing.

For machines with thread clamp (optional)

23. Insert the left thread through the left hole of the guide (19) above the thread clamp.
24. Insert the right thread through the right hole of the guide (19) above the thread clamp.
25. Insert the left thread into the thread clamp from the left so that the thread is held in place inside the hook of the clamp.
26. Insert the right thread into the thread clamp from the right so that the thread is held in place inside the hook of the clamp. The thread is supposed to run through the clamp almost without touching it and in such a way that it only makes contact with the guides above and below the thread clamp.
27. Insert the left thread through the left hole of the guide (20) below the thread clamp.
28. Insert the right thread through the right hole of the guide (20) below the thread clamp.

Fig. 18: Thread clamp



(19) - Guide *(20) - Guide*

4.6 Winding the hook thread

WARNING

Risk of injury from needle tip and moving parts!

Puncture, cutting and crushing possible.

Turn off the machine before threading the thread.

The hook thread can be wound on without sewing.

Important

Never use the winder without a bobbin. If using it without a bobbin, you run the risk of the thread winding itself around the bobbin shaft, which may cause damage to the winder.

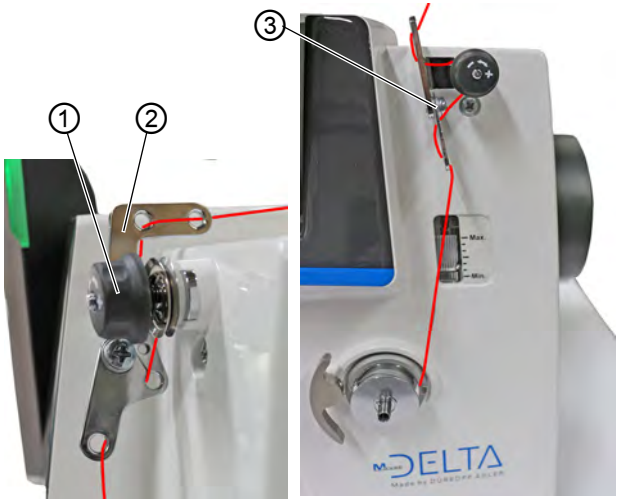
To wind the hook thread:

1. Fit the thread reel on the reel stand.

   The unwinding bracket must stand directly above the thread reel.

2. Feed the thread from the rear to the front through the thread guide on the unwinding bracket.

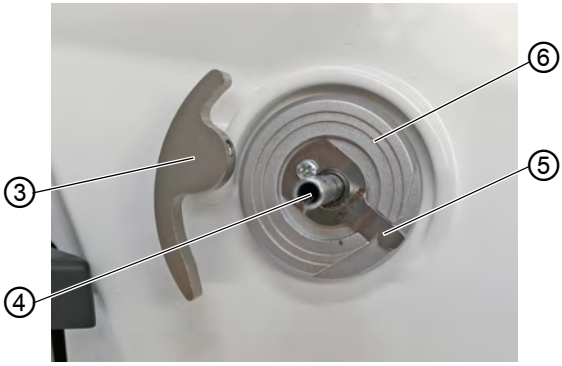
Fig. 19: Winding the hook thread (1)



(1) - Pretension
(2) - Thread guide
(3) - Thread guide

3. Insert the thread in a wavelike manner through the first 2 holes of the thread guide (2): from left to right through the first hole and from right to left through the second hole.
4. Feed the thread through the third hole of the thread guide (2) from left to right before feeding it clockwise around the pretension (1).
5. Feed the thread to the left through the thread guide (3).
6. Feed the thread from the left to the right through the bottom-most hole of the thread guide (3).

Fig. 20: Winding the hook thread (2)



(4) - Winder lever
(5) - Bobbin shaft
(6) - Knife
(7) - Winder

7. Guide the thread to the winder (7).
8. Clamp the thread behind the cutter (6) and tear off the loose end behind it.
9. Fit the bobbin on the bobbin shaft (5).
10. Turn the bobbin on the bobbin shaft (5) until the drive dog spring audibly clicks into place in the slot of the bobbin.
11. Pull the winder lever (4) up.

↳ The winding process starts and ends automatically when the bobbin is full. The winder lever (4) returns to its lower position.

Information
The hook thread is normally wound on when sewing is in progress. However, you can also wind on the hook thread without sewing, e. g. if you require a full bobbin in order to start sewing. For this purpose, use Bobbin Wind mode in Manual mode (📖 *p. 105*).

12. Pull off the full bobbin.
13. Tear off the thread behind the cutter (6).
14. Insert the full bobbin into the hook (📖 *p. 39*).

4.7 Changing the bobbin

WARNING

Risk of injury from needle tip and moving parts!

Puncture, cutting and crushing possible.

Turn off the machine before changing the bobbin.

NOTICE

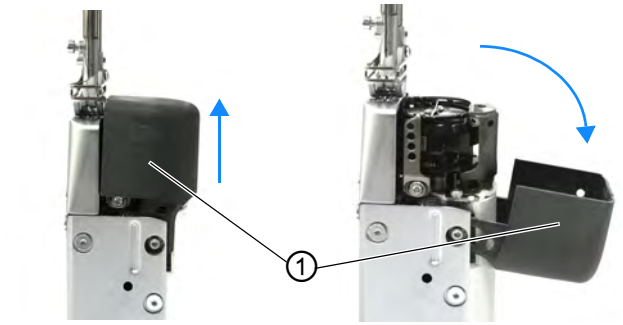
Property damage may occur!

The surface of the bobbin may become damaged, causing the bobbin rotation monitor to stop working correctly.

Do NOT use sharp parts to remove the bobbin!

The procedure used to change the bobbin is the same for 1-needle machines and 2-needle machines. The only difference is that the hook into which the bobbin is inserted is turned by 180 degrees for the left and the right side.

Fig. 21: Changing the bobbin (1)

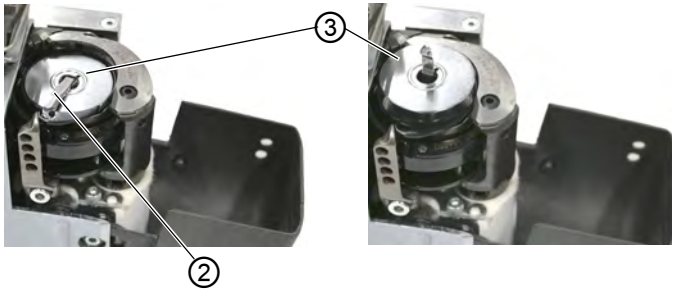


(1) - Hook compartment cover

To change the bobbin:

1. Pull up the hook compartment cover (1) carefully and pivot it.

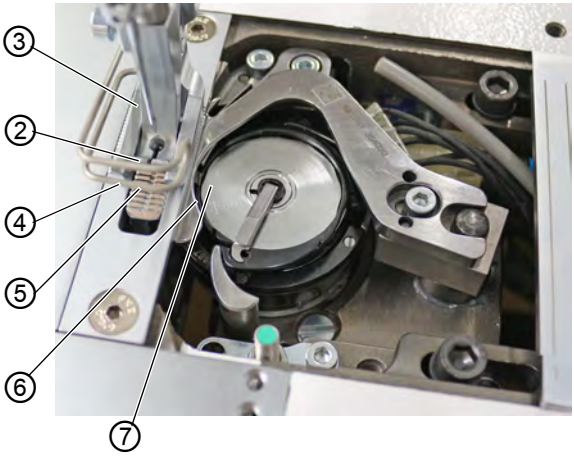
Fig. 22: Changing the bobbin (2)



(2) - Bobbin case retainer
(3) - Bobbin

2. Flip the bobbin case retainer up (2).
3. Remove the empty bobbin (3).

Fig. 23: Changing the bobbin (3)



(1) - Hook compartment cover
(2) - Bobbin case retainer
(3) - Bobbin
(4) - Slot
(5) - Guide
(6) - Tension spring
(7) - Slot

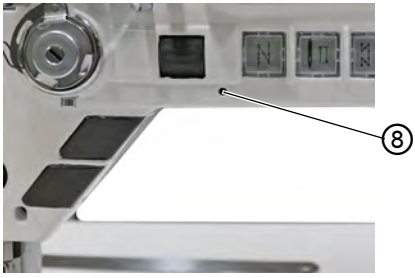
4. Insert a full bobbin (3).

Important

Insert the bobbin so that it moves in the opposite direction of the hook when the thread is pulled out.

5. Feed the hook thread through slot (7) in the bobbin case retainer.
6. Pull the hook thread under the tension spring (6).
7. Feed the hook thread through slot (4) and pull it approx. 3 cm further.
8. Close the bobbin case retainer (2).
9. Pivot the hook compartment cover (1) and push it down.

Fig. 24: Changing the bobbin (4)



(8) - LED

Machines with automatic remaining thread monitor
If the hook thread needs to be replaced, the LED indicator lamp (8) on the machine arm flashes blue.

Important

Each of the bobbins has a thread supply groove that is embedded in the bobbin core.

Insert the bobbin in the hook in such a way that the thread supply groove faces down. Otherwise, the remaining thread monitor will not work.

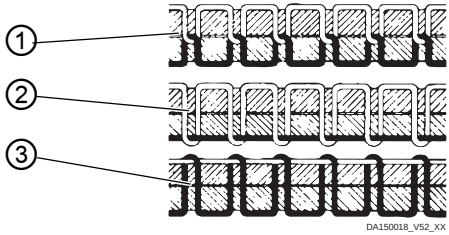
4.8 Thread tension

Together with the hook thread tension, the needle thread tension influences the final seam pattern. With thin sewing material, excessive thread tension can lead to undesired gathering and thread breakage.

Proper setting

If the tension of needle thread and hook thread is identical, the thread interlacing lies in the middle of the sewing material. Set the needle thread tension so that the desired seam pattern is achieved with the lowest possible tension.

Fig. 25: Thread tension



(1) - Identical needle thread and hook thread tension
(2) - Hook thread tension higher than needle thread tension
(3) - Needle thread tension higher than hook thread tension

4.8.1 Setting the needle thread tension

The needle thread tension can only be set using the software of the Commander Delta; for detailed information, refer to the chapter Programming (📖 *p. 53*).

4.8.2 Setting the hook thread tension

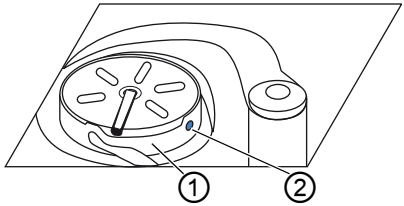
WARNING

Risk of injury from needle tip and moving parts!

Puncture, cutting and crushing possible.

Switch off the machine before setting the hook thread tension.

Fig. 26: Setting the hook thread tension



(1) - Tension spring *(2) - Screw*

The hook thread tension is generated by the tension spring (1) and adjusted via the screw (2).

To set the hook thread tension:

1. Turn screw (2).
   - Increasing the tension: turn screw (2) clockwise
   - Reducing the tension: turn screw (2) counterclockwise

4.9 Adjusting the needle thread regulator

WARNING

Risk of injury from needle tip and moving parts!
Puncture, cutting and crushing possible.

Switch off the machine before adjusting the needle thread regulator.

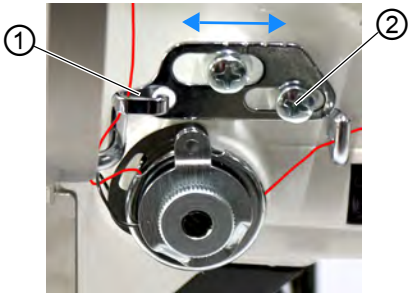
The needle thread regulator determines the tension applied to guide the needle thread around the hook.

Proper setting

The loop of the needle thread slides at low tension over the thickest point of the hook.

4.9.1 In 1-needle machines

Fig. 27: Adjusting the needle thread regulator (1-needle machine)



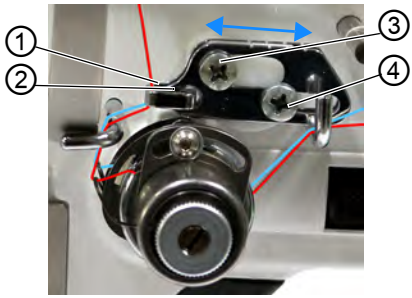
(1) - Needle thread regulator *(2) - Screw*

To adjust the needle thread regulator:

1. Loosen the screw (2).
   - **To increase the tension:** Slide the needle thread regulator (1) to the right
   - **To reduce the tension:** Slide the needle thread regulator (1) to the left
2. Tighten the screw (2).

4.9.2 In 2-needle machines

Fig. 28: Adjusting the needle thread regulator (1-needle machine)



(1) - Rear needle thread regulator
(2) - Front needle thread regulator
(3) - Screw
(4) - Screw

To adjust the needle thread regulator for the left thread in 2-needle machines:

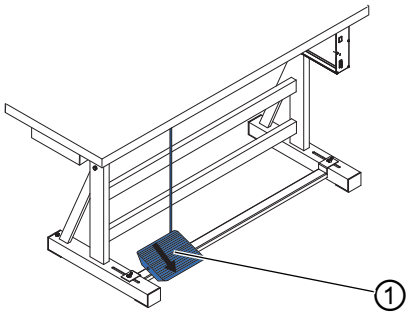
1. Loosen the screw (3).
   - **To increase the tension:** Slide the needle thread regulator (1) to the right
   - **To reduce the tension:** Slide the needle thread regulator (1) to the left
2. Tighten the screw (3).

To adjust the needle thread regulator for the right thread in 2-needle machines:

1. Loosen the screw (4).
   - **To increase the tension:** Slide the needle thread regulator (2) to the right
   - **To reduce the tension:** Slide the needle thread regulator (2) to the left
2. Tighten the screw (4).

4.10 Lifting the sewing feet

Fig. 29: Lifting the sewing feet



(1) - Pedal

To lift the sewing feet:

1. Press the pedal (1) halfway back.

↳ The machine stops and lifts the sewing feet.
The sewing feet remain up as long as the pedal is pressed halfway back.

OR

1. Press the pedal (1) fully back.

↳ The thread cutter is activated, and the sewing feet are raised.

4.11 Sewing backwards with the stitch regulator (optional)

The electronic stitch regulator on the machine arm reduces the stitch length down to sewing backwards in the lower end position.

Fig. 30: Sewing backwards with the stitch regulator

(1) - Stitch regulator

1. Slowly push the stitch regulator (1) down.

↳ The stitch length becomes smaller. In the lower end position, the machine sews backwards with the set stitch length.

4.12 Setting quick stroke adjustment (optional)

On machines equipped with a knee button, the knee button can be used to switch on the increased sewing foot stroke.

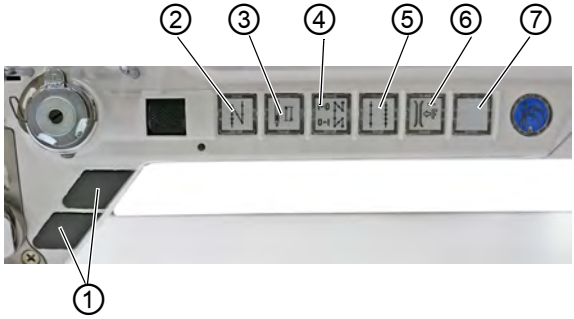
You can assign functions to the knee button in the software using the control panel of the machine.

4.13 Quick functions on the push button panel

The machine has push buttons on the machine arm which can be used to activate specific functions while sewing. You can assign any functions you require to the function buttons. You can define the settings in the software (🕮 *p. 61*).

4.13.1 Activating function buttons

Fig. 31: Activating function buttons



(1) - Favorite buttons
(2) - Sewing backwards
(3) - Needle position
(4) - Bartack suppression
(5) - Stitch length preselection
(6) - Additional value Needle thread tension
(7) - fully customizable button

To activate/deactivate a function button:

Activating a function

To activate a function button:

1. Press the desired button.

↳ Function is activated. The button lights up.

Deactivating a function

To deactivate a function button:

1. Press the desired button again.

↳ Function is deactivated. The button turns off.

Functions of the buttons

Button	Function
	**Sewing backwards** When this button is activated, the machine sews in reverse.
	**Needle position** When this button is activated, the needle moves to a specific position. This position is determined individually via the parameter settings. For more information, refer to the 🕮 Service Instructions. The machine comes configured so that selecting the button will bring the needle up to the top dead center.
	**Bartack suppression** This button cancels the general setting for sewing start and end bartacks. If bartacks are on, pressing the button skips the next bartack. If bartacks are off, pressing the button sews the next bartack.
	**Stitch length** When this button is selected, the machine sews with the greater stitch length that was programmed for this stitch length on the control panel.
	**Additional value needle thread tension** When this button is selected, the machine sews with the programmed additional thread tension.
	**Fully customizable** The button is fully customizable. The machine comes configured so that a press of the button will switch on the underarm lighting.

4.13.2 Assigning a function to the favorite buttons

You can transfer the button functions from the push button panel to the favorite buttons. Select a function that you frequently use so that you can switch it on faster while sewing.

Fig. 32: Assigning a function to the favorite buttons

(1) - Favorite buttons

You can assign any functions you require to the favorite buttons. You can define the settings in the software (📖 *p. 61*).

4.14 Sewing

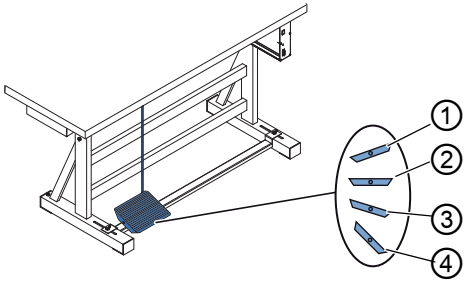
WARNING

Risk of injury from the needle if sewing is started unintentionally!

Puncture possible.

Do not press the pedal when you fingers are in the area of the needle tip.

Fig. 33: Sewing



*(1) - Position **+1***
*(2) - Position **0***
*(3) - Position **-1***
*(4) - Position **-2***

The pedal starts and controls the sewing process.

Condition	Processes
Before starting sewing	
Initial situation	• Pedal in rest position (position **0**) ↳Machine is at a standstill ↳Needle is up. Sewing feet down.
Positioning the sewing material	• Press the pedal halfway back (position -1) ↳The sewing feet are lifted. • Position the sewing material. • Release the pedal. ↳Sewing feet are lowered onto the sewing material.
At seam beginning	

Condition	Processes
Start bartack and sew	• Press the pedal forwards (position +1) and keep it there. ↳Machine sews a start bartack (if specified). ↳Afterwards, the machine continues to sew - with increasing speed the further forward the pedal is pressed.
In the middle of the seam	
Stop sewing	• Release the pedal (position 0). ↳Machine stops. Depending on the setting, sewing feet and needle are up / down.
Continue the sewing process (after releasing the pedal)	• Press the pedal forwards (position +1) ↳Machine continues to sew - with increasing speed the further forward the pedal is pressed.
Sew over thicker parts of the material	• Switch on the elevated sewing foot stroke with the knee button (🕮 *p. 47*).
Change the stitch length	• Activate the 2nd stitch length using the button on the push button panel (🕮 *p. 48*).
Increase the thread tension	• Activate additional thread tension using the button on the push button panel (🕮 *p. 48*).
Sew an intermediate bartack	• Sew backwards with stitch regulator (🕮 *p. 47*) or activate backwards sewing using the button on the push button panel (🕮 *p. 48*).
At seam end	
Finish the seam and remove the sewing material	• Press the pedal fully back (position -2) and keep it there. ↳End bartack is sewn, and thread is cut (if set). ↳Machine stops. ↳Needle is up. Sewing feet up. • Remove the sewing material.

5 Programming Commander DELTA

5.1 Control panel Commander DELTA

Fig. 34: Control panel Commander DELTA

All settings in the software are performed using the Commander DELTA control panel.

Information
If a value is entered that is not within the specified value range, the software will automatically adopt the limit value which is closest to your entry from the value range.

5.2 Navigating the Commander DELTA control panel

You navigate the control panel by tapping the screen with your fingers. There is no need for an input device.

You can open menus by tapping the corresponding button with your finger. You switch between the different pages of the main screen by swiping with one finger.

You can modify the information displayed in the status bar (1). You can also adjust the tiles shown on the three pages of the main screen (2). You customize the information using the control panel settings, 📖 *p. 80*.

Fig. 35: Navigating the Commander DELTA control panel

(1) - Status bar *(2) - Main screen*

5.2.1 Symbols and tiles

Explanation of recurring symbols:

Icon	Meaning
	The letter shown in blue is active. A = Automatic mode M = Manual mode Tap the symbol to toggle between the two modes.
	Programming mode (access via the burger menu), see 🕮 *p. 110*.
	Parameters you can set in manual mode.
	Burger menu A window opens that lets you select Automatic mode, Manual mode, Programming mode or Settings.
	Context-sensitive help Start by tapping the gray question mark before tapping the area for which you need help - this brings up a pop-up window containing a Help text. Tap anywhere to make the window disappear.
	Gray tiles Parameters for which you can/must enter a numerical value. Values can be input by tapping.
	Blue tiles (stored) You can active or deactivate dark tiles encircled by a white line by tapping. You cannot set any values.

Icon	Meaning
	Blue tiles (multifunction) You can active or deactivate dark tiles encircled by a white line and showing a blue triangle in the corner by tapping. A long tap opens a menu that lets you input values.
	Blue tiles (not stored) You cannot enter any values for dark tiles surrounded by a square white line. The function assigned to the tile is only active for as long as you tap the tile.
	Grayed-out tiles Grayed-out tiles merely provide information. You can neither enter values nor active or deactivate these tiles.

5.2.2 Entering values

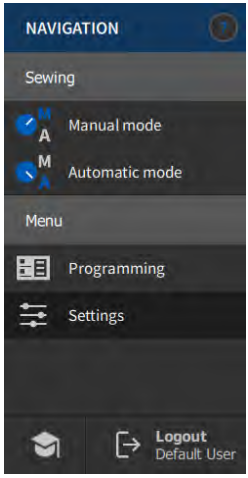
You can input values using the buttons  or  or by typing on the integrated on-screen keyboard.

Values highlighted in red are invalid as they are not within the specified value range. If you enter invalid values, the software will automatically set the limit value of the value range.

5.2.3 Navigating the burger menu

You can open the burger menu with a tap of the symbol  .

Fig. 36: Navigating the burger menu



to Manual mode (see 🕮 *p. 79*)

to Automatic mode (see 🕮 *p. 106*)

to Programming mode (see 🕮 *p. 110*)

to the Settings (see 🕮 *Service Instructions*)

Open tutorials
Log out user

5.2.4 Navigation during the start of the control panel

You can access the languages and settings without having to wait for the control panel to finish starting up.

You can select these options as soon as their icons are displayed on the control panel. After entering your user login, you will be taken to the language options or the settings - depending on which option you selected.

Symbol	Explanation
	Language selection
	Settings

5.3 User Configuration

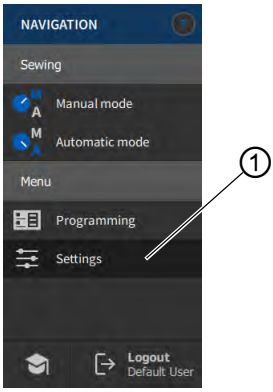
The User Configuration allows the currently logged-in user to customize the software interface to their specific needs.

To access the User Configuration:

1. Tap the symbol to bring up the navigation pane.

↳ This opens the navigation interface.

Fig. 37: User Configuration (1)

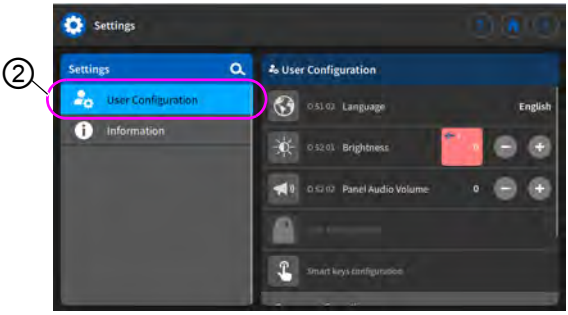


(1) - Settings

2. Tap `Settings` (1).

↳ This opens the Settings interface.

Fig. 38: User Configuration (2)



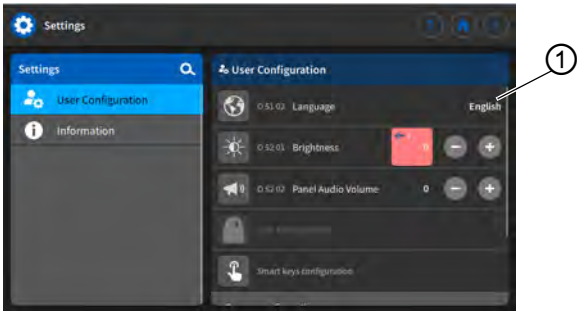
(2) - User Configuration

3. Tap the item *User Configuration* (2) on the left.
↳ You are in the User Configuration.

5.3.1 Setting the language

Here, you can set the language of the software.

Fig. 39: Setting the language (1)



(1) - Language indicator

To set the language:

1. Tap on the language indicator (1).
↳ A list holding the language selection opens:

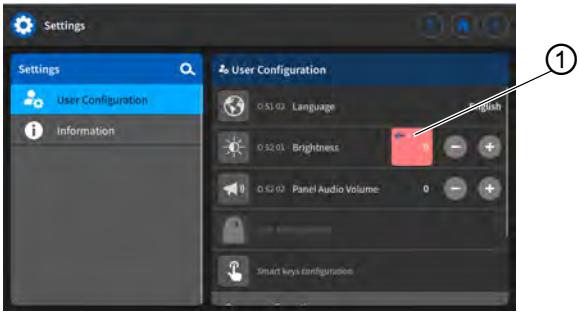
Fig. 40: Setting the language (2)

2. Tap on the desired language.
↳ The language of the control panel is changed immediately.

5.3.2 Setting the brightness

Here, you can adjust the brightness of the control panel.

Fig. 41: Setting the brightness (1)



(1) - Brightness indicator

To set the brightness:

1. Tap on the brightness indicator (1).
2. Enter the desired value using the keyboard or the buttons + or −.

↳ The brightness of the control panel is adjusted.

5.3.3 Setting the volume

Here, you can adjust the volume of the audio output.

Fig. 42: Setting the audio volume (1)

(1) - Audio volume indicator

To set the audio volume:

1. Tap on the audio volume indicator (1).
2. Enter the desired value using the keyboard or the buttons + or −.

↳ The volume of the control panel is adjusted.

5.3.4 User Management administration

This section is locked if you are logged in as the `Default User`. Settings in User Management cannot be adjusted without extended authorizations.

User Management administration is explained in a separate chapter (📖 *p. 63*).

5.3.5 Setting the fast menu key configuration

Here, you can assign the functions of the push button panel and of the favorite buttons.

Fig. 43: Setting the fast menu key configuration (1)

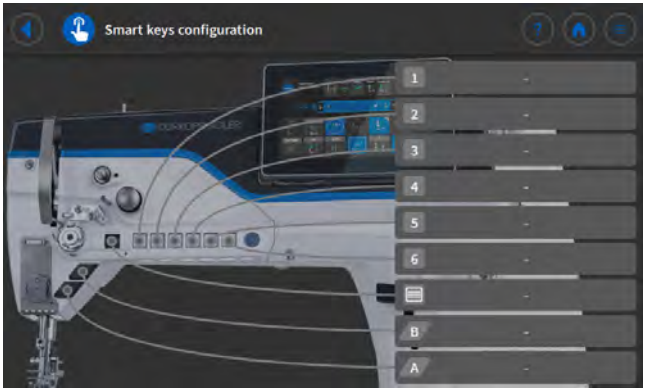
(1) - Audio volume indicator

To set the fast menu key configuration:

1. Tap on the subitem `Fast menu key configuration` (1).

↳ This opens the interface of the fast menu key configuration:

Fig. 44: Setting the fast menu key configuration (2)



2. Press on the bar of the button to which you wish to assign a function.

↳ This opens the selection of the functions that can assigned to this button.

Fig. 45: Setting the fast menu key configuration (3)

3. Tap on the function you wish to assign to the button.
4. Tap to select the option `Not stored` or `Stored`.
5. Tap outside the selection to exit the selection.

↳ The adjusted settings are stored.

5.3.6 Setting the screen configuration

The screen configuration is used for the display of the tiles in Manual mode.

The setting is explained at the appropriate place in the chapter on Manual mode (📖 *p. 80*).

5.4 User Management

The User Management section allows you to create users and roles with different authorizations.

The factory setting is such that the *Default User* will automatically be logged in when the machine starts. You can change this setting at the Technician level as needed.

The following is an explanation of the user *Default Technician*, who is set up as the default user. You can set up any number of users and roles that meet your individual requirements.

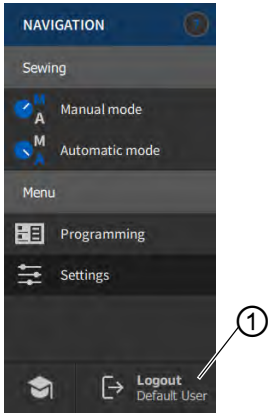
Requirement for User Management administration: You have to be logged in as the Default Technician.

To log in as the *Default Technician*:

1. Tap the symbol  to bring up the navigation pane.

↳ This opens the navigation interface.

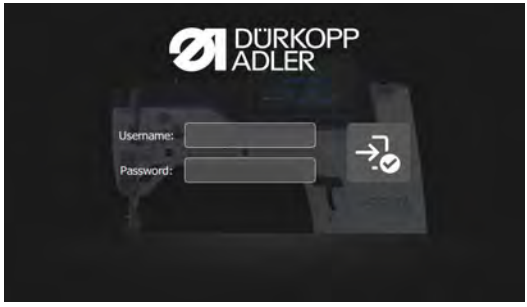
Fig. 46: User Management (1)



(1) - Logout

2. Tap `Logout` (1).

↳ This opens the Login interface.



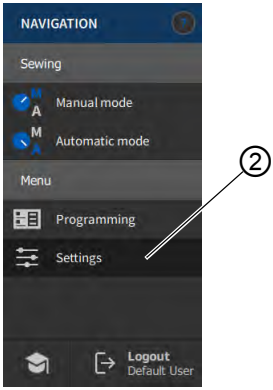
3. Enter `technician` and `25483` for username and password.
4. Tap  .

↳ The user is logged in.

To access User Management:

1. Tap the symbol to bring up the navigation pane.
   ↳ This opens the navigation interface.

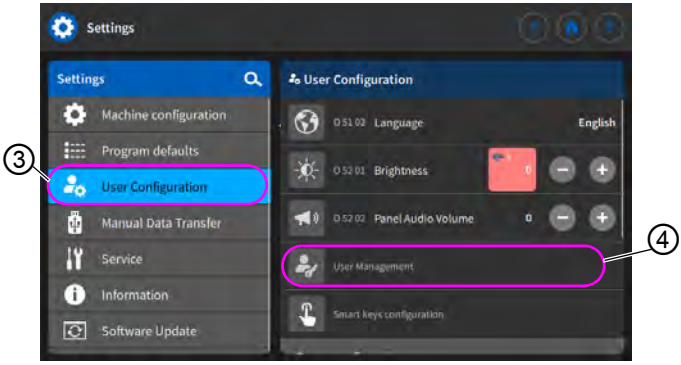
Fig. 47: User Management (2)



(2) - Settings

2. Tap `Settings` (2).
   ↳ This opens the Settings interface.

Fig. 48: User Management (3)



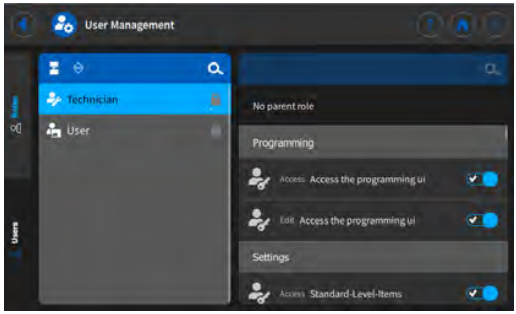
(3) - User Configuration *(4) - User Management*

3. Tap the item `User Configuration` (3) on the left.

4. Tap the item `User Management` (4) on the right.

↳ The user management interface opens - which may look different depending on the user.

Fig. 49: User Management (4)

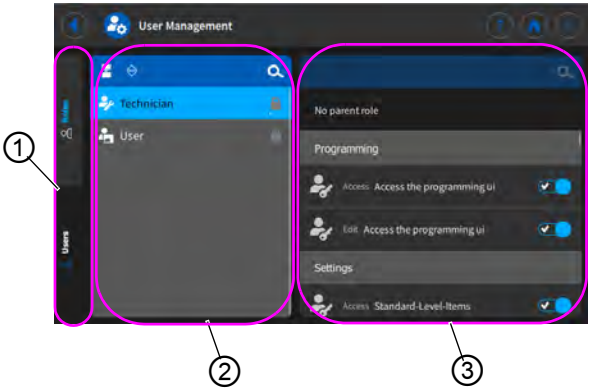


5. Define the desired settings (for explanations, see 📖 *p. 67*).
6. Tap to return to Settings or to return to Manual mode.

5.4.1 Authorizations as *Default Technician*

The factory setting for the *Default Technician* requires that the technician enter their username and password (*technician, 25483*) to log in. If selecting User Management as a *Default Technician* (📖 *p. 63*), you will be presented with the following interface:

Fig. 50: Authorizations as *Default Technician*



(1) - Tab for roles and users
(2) - List of roles/users
(3) - Settings for roles/users

On the left-hand side, you can select between the tabs (1) reserved for roles (📖 *p. 68*) and users (📖 *p. 72*). Detailed explanations are provided further below. To the right of the tabs you will find the list (2) of created roles / users - varying with the tab (1) you selected. On the far right, you will find the settings (3) associated with the role/user you selected.

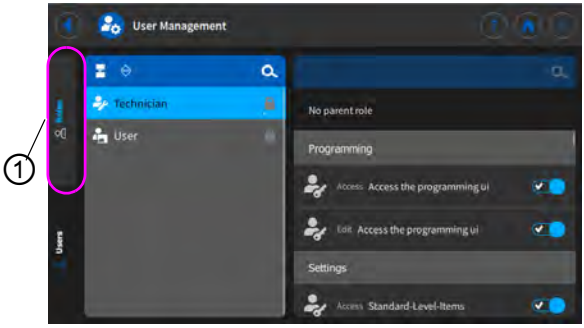
Explanation of role and user

Roll	User
A role defines which authorizations are permitted or forbidden. It is possible to assign more than one role to a single user. You need to be a user to log in; you cannot log in using a role.	You can log in as a user. A user can be assigned one or several roles - this is how they receive their authorizations.

5.4.1.1 Managing roles

If selecting User Management as a `Default Technician` (📖 *p. 58*), you will be presented with the following interface:

Fig. 51: Managing roles



(1) - Tab for roles

Tap the tab (1) reserved for the `Roles` on the left-hand side.

Deleting a role

To delete a role:

1. Tap the desired role.

↳ The role is highlighted in blue.

2. Tap ✕.

↳ The role disappears from the list; it has been deleted.

Information

Roles with a 🔒 symbol behind their names have been created at the factory. They cannot be deleted.

Creating/deriving a new role

To create a new role:

1. Tap (only a role with fewer or equal authorizations than your own).

   The list shows a new role.

2. Define the settings for the role (see table below).

Information
When logged in as a *Default Technician*, you can only select role derivations up to the role of *Technician*. You can adjust this setting in the authorizations of the roles (table below).

Settings of the roles

Read/Edit/Access	Menu item
Programming	
Access	Access the programming ui
Edit	Access the programming ui
Settings	
Access	Standard-Level-Items
Access	Technician level
Manual mode	
Edit	Status bar
Edit	Main screen
Access	Role main screen
Access	Role status bar
Edit	Sewing parameters
Access	Switch to automatic mode
Access	Parameter View

Read/Edit/Access	Menu item
Edit	Manual bartack
Edit	Sewing foot lifted
Edit	Needle stop position
Edit	Bobbin Wind Mode
Edit	Segment abort
Edit	Edge trimmer
Edit	2nd Edge Guide Position
Edit	Additional Height Edge Guide
Edit	Edge Guide reference position
Edit	Stitch length
Edit	Switch Stitch Length
Edit	Needle thread tension
Edit	Switch Thread Tension
Edit	Sewing foot pressure
Edit	Sewing foot stroke
Edit	Switch Foot Stroke Alternation
Edit	Bartack Toggle
Edit	Max. Speed
Edit	Bartack at seam begin
Edit	Bartack at seam end
Edit	Needle Half Stitch
Edit	Enabled Thread Trim
Edit	Needle thread clamp
Edit	Threading mode
Edit	Light barrier
Edit	Reset bobbin stitch counter

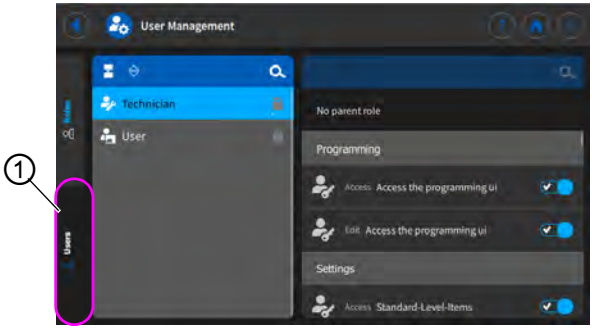
Read/Edit/Access	Menu item
Edit	Seam Center Guide
Automatic mode	
Access	Program selection
Edit	Program
Edit	Stitch length correction factor
Edit	Needle thread tension correction factor
Sewing	
Access	Submenu Start bartack
Access	Submenu End bartack
Access	Submenu Sewing foot lift
Access	Submenu Thread clamp
Access	Submenu Initial alignment stitch
Access	Submenu Gap (additional value)
Access	Submenu Reset Bobbin Counter
Access	Submenu Reset daily piece counter
Access	Seam Center Guide activated
User Management	
Edit	Current user

Read/Edit/Access	Menu item
Edit	Roles up to technician
Edit	Users up to technician
Edit	Auto Login editable

5.4.1.2 Managing users

If selecting User Management as a `Default Technician` (📖 *p. 58*), you will be presented with the following interface:

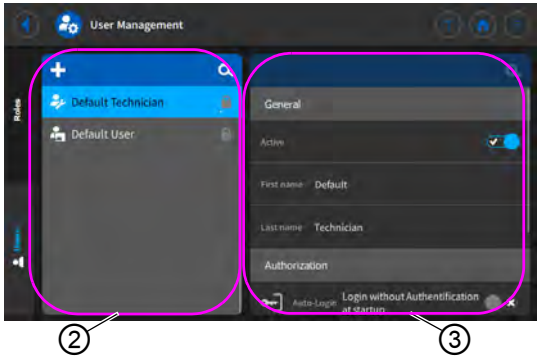
Fig. 52: Managing users (1)



(1) - Tab for users

Tap the tab (1) reserved for the `Users` on the left-hand side. This interface appears:

Fig. 53: Managing users (2)



(2) - List of users

(3) - Settings of the user

The left-hand side holds a list of all users (2) that have been created. When tapping a user in this section, you will see on the right-hand side which settings (3) have been defined for the selected user.

Deleting a user

To delete a user:

1. Tap the desired user.
   - The user is highlighted in blue.
2. Tap .
   - The user disappears from the list; it has been deleted.

Information

Users with a symbol behind their names have been created at the factory. They cannot be deleted.

Creating a new user

To create a new user:

1. Tap .
   - The list shows a new user.
2. Define the settings for the user (see table below).

Settings of the user

Icon	Setting	Explanation
General		
	First name	Name of the user, NOT to be confused with the data used for logging in!
	Name	
Authorization		

Icon	Setting	Explanation
	*Login with username and password*	On/Off
		Username Name for logging in
		Password Password for logging in
	*Login with NFC token*	Login by NFC chip allowed or not allowed
	*Login with USB key*	Login by USB key allowed or not allowed
	*Automatic login during system start*	Automatic login when machine starts; no login required
Roles (🕮 *p. 68*)		
	*Technician*	Slider control active/inactive; for assigning the role
	*User*	Slider control active/inactive; for assigning the role

5.4.2 User login

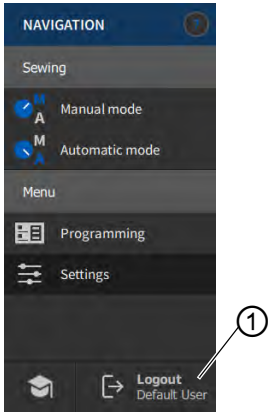
The factory setting of the software is such that the *Default User* will be logged in automatically when the machine is switched on. This does not require any type of authorization. The following explains how you can switch users.

To access User Management:

1. Tap the symbol to bring up the navigation pane.

↳ This opens the navigation interface.

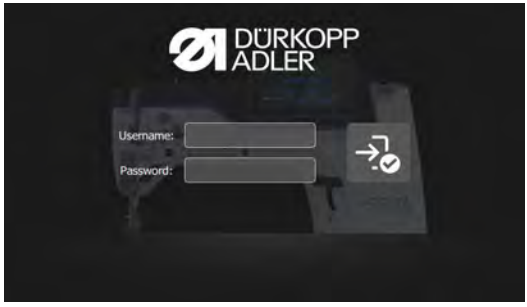
Fig. 54: User login (1)



(1) - Logout

2. Tap *Logout* (1).

↳ This opens the Login interface.



There are three ways to log in. The three options - including the necessary settings in the software - are described below.

5.4.2.1 Logging in with username and password

Assigning a username and password

To assign a username and password:

1. Create a new user in *User Management* and assign this user a username and password (📖 *p. 72*).

↳ The user can log in immediately with this login information.

Login in with username and password

To log in with username and password:

1. Enter *username* and *password*.
2. Tap  .

↳ If the login information is correct, the user will be logged in.

5.4.2.2 Login in with a USB key

Assigning a USB key to a user

To assign a USB key to a user:

1. Select a user in *User Management* or create a new user (📖 *p. 72*).
2. Tap the item *Login with USB key*.

↳ A new window opens.

3. Plug the USB key into one of the ports on the control panel.
4. Select the USB key you wish to assign to the user for login purposes.
5. To assign the USB key, tap *Pair*.

↳ The window disappears, and the function *Login with USB key* is active.

Login in with USB key

To log in with a USB key:

1. Plug the assigned USB key into the control panel.

↳ If the USB key has been assigned correctly, the user will be logged in.

5.4.2.3 Login in with NFC chip

Assigning an NFC chip to a user

To assign an NFC chip to a user:

1. Select a user in *User Management* or create a new user (📖 *p. 72*).
2. Tap the item *Login with NFC chip*.

↳ A new window opens.

3. To assign the NFC chip, hold the chip up to the control panel on the left-hand side.

↳ The window disappears, and the function *Login with NFC chip* is active.

Login in with NFC chip

To log in with an NFC chip:

1. Hold the assigned NFC chip up to the control panel on the left-hand side.

↳ If the NFC chip has been assigned correctly, the user will be logged in.

5.5 Software operating modes

The software of the control panel offers various operating modes:

- **Manual mode**

  Manual mode is the simplest operating mode. There are no programs/seam programs and no inputs for individual seam sections.

  Changes to the sewing foot pressure, stroke height, stitch length, needle thread tension and, also, the activation of other functions are always implemented immediately.

  All the major sewing parameters can be changed manually during the sewing process.

- **Automatic mode**

  Automatic mode allows for the execution of setups (seam program comprised of only one seam section) or complex seam programs (comprising 2 or more seam sections).

  Seam programs are divided into individual seam sections. Each section is assigned its own individual stitch length, needle thread tension, etc.

- **Programming**

  Programming mode makes it possible to create, adjust or delete a seam program in a quick and easy manner.

The individual modes and their uses are explained in detail later on.

5.6 Using Manual mode

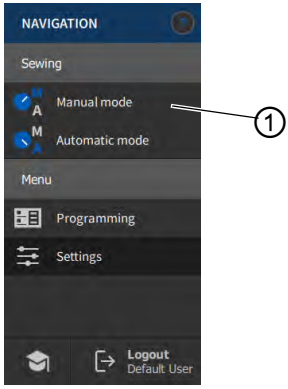
In manual mode, no programs have been saved, allowing you to use all parameters in a variable manner.

To access the Manual mode:

1. Tap the symbol to bring up the navigation pane.

↳ This opens the navigation interface.

Fig. 55: Using Manual mode



(1) - Manual mode

2. Tap `Manual mode` (1).

↳ The interface of Manual mode opens.

5.6.1 Setting up the user interface

You can customize the arrangement of the tiles and the appearance of the status bar in Manual mode.

Arranging the tiles on the main screen

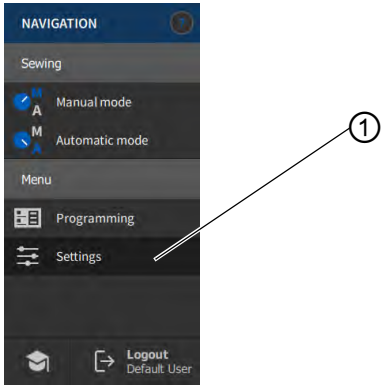
The main screen consists of three pages, which you can customize to your individual needs.

To adjust the tiles on the main screen:

1. Tap the symbol  to bring up the navigation pane.

↳ This opens the navigation interface.

Fig. 56: Setting up the user interface (1)

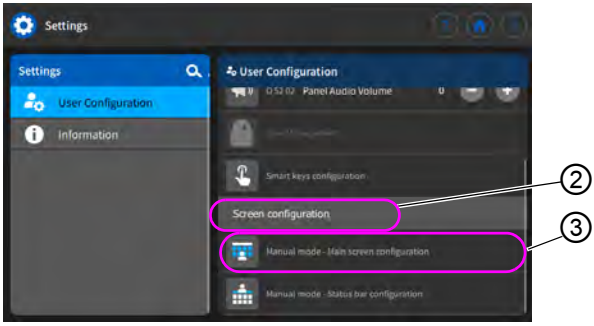


(1) - Settings

2. Tap `Settings` (1).

↳ This opens the Settings interface.

Fig. 57: Setting up the user interface (2)

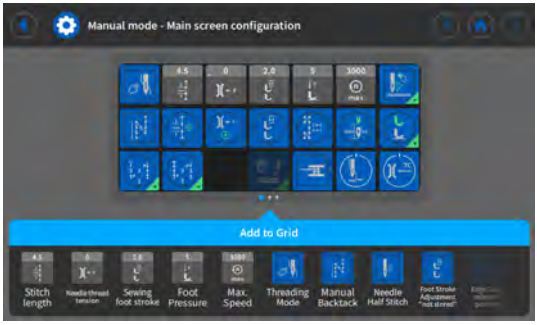


(2) - Screen configuration *(3) - Main screen configuration*

3. Go to *`Screen configuration`* (2) and tap on *`Manual mode - Main screen configuration`* (3).

   The interface used for configuring the main screen opens.

Fig. 58: Setting up the user interface (3)



4. Tap and hold the desired tile and drag it to move it into or out of the grid.

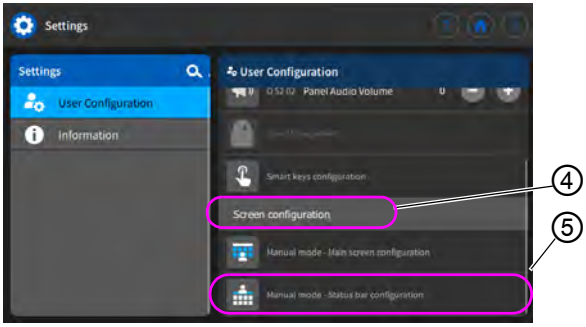
5. Tap to return to Settings or to return to Manual mode.

Adjusting the information displayed in the status bar

To adjust the appearance of the status bar:

1. Go to *Settings* (see above).

Fig. 59: Setting up the user interface (4)



(4) - Screen configuration *(5) - Status bar configuration*

2. Go to *Screen configuration* (4) and tap on *Manual mode - Status bar configuration* (5).

↳ The interface used for configuring the status bar opens.

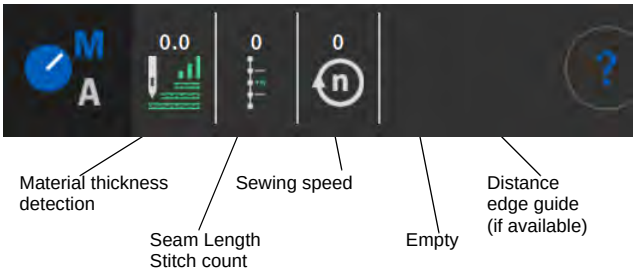
Fig. 60: Setting up the user interface (5)

3. Tap and hold the desired symbol and drag it to move it into or out of the status bar.

4. Tap to return to Settings or to return to Manual mode.

Default status bar settings

Fig. 61: Default status bar



5.6.2 Setting the parameters

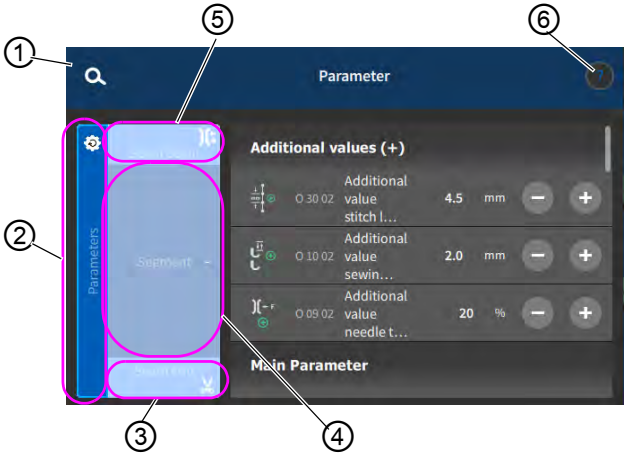
In Manual mode, you can set a variety of parameters. The functions and how they affect the parameters are described further below.

To access the parameter settings:

1. Tap the symbol to bring up the parameter pane.

↳ This opens the parameter settings interface.

Fig. 62: Setting the parameters



(1) - Search
(2) - Parameters cross-segment
(3) - Parameters Segment End
(4) - Parameters Segment
(5) - Parameters Segment Begin
(6) - Context-sensitive help

5.6.3 Setting cross-segment *parameters*

There are various options for setting the cross-segment parameters. The following table lists all possible options.

Settings that are more complex and therefore require further explanation are described in more detail after the table.

Icon	Parameter	Setting
Additional values (+)		
	*Additional value stitch length (+)* The 2nd value for the stitch length can be switched on using a button on the push button panel or the tile on the control panel.	Value range 00.0 - 12.0 (depending on sewing equipment and subclass)
	*Additional value sewing foot stroke (+)* The 2nd value for the sewing foot stroke can be switched on using a button on the push button panel, the knee button or the tile on the control panel.	Value range 05.0 - 09.0 [mm]
	*Additional value needle thread tension (+)* The 2nd value for the needle thread tension can be switched on using a button on the push button panel or the tile on the control panel.	Value range 01 - 99
	*Gap (2nd value)* The 2nd value for the gap between the motor driven edge guide and the needle (factoring in the defined safety distance to the sewing feet).	Value range 1.0 - 45.0 (depends on the sewing equipment)
Main Parameter		
	*Bobbin monitor mode*	(see 🕮 *p. 88*)
	*Point position* The distance of the needle from the material can be adjusted to allow precise positioning of the sewing material when starting sewing. The value entered here corresponds to the degree number on the handwheel.	Value range 000 – 359 [°]

Icon	Parameter	Setting
	*Gap* Value for the gap between the motor driven edge guide and the needle (factoring in the defined safety distance to the sewing feet).	Value range 1.0 - 45.0 (depends on the sewing equipment)
Correction speed effect		
	*Correction speed effect*	Value range On/Off (see 🕮 *p. 90*)
	*Stitch length*	The stitch length changes slightly depending on the speed. For this reason, the stitch length can be adjusted at different speeds by the software.
	*Needle thread tension*	Depending on the speed, the needle thread tension can be adjusted at different speeds by the software.
	*Sewing foot pressure*	Depending on the speed, the sewing foot pressure can be adjusted at different speeds by the software.
Material thickness detection		
	*Material thickness detection*	Value range On/Off (see 🕮 *p. 94*)
	*Sewing foot stroke*	The sewing foot stroke can be adjusted to different material thicknesses by the software.
	*Stitch length*	The stitch length changes slightly depending on the material thickness. For this reason, the stitch length can be adjusted to different material thicknesses by the software.

Icon	Parameter	Setting
	*Needle thread tension*	Depending on the material thickness, the needle thread tension can be adjusted to different material thicknesses by the software.
	*Sewing foot pressure*	The sewing foot pressure can be adjusted to different material thicknesses by the software.
	*Max. sewing speed*	The maximum sewing speed can be adjusted to different material thicknesses by the software.
Output		
	*Output 1-16*	(see 🕮 *p. 98*)

5.6.3.1 Setting the *Bobbin monitor mode* parameters

The amount of remaining thread on the bobbin can be monitored optically or by software using this setting.

Menu item	Setting option 1	Setting option 2
Off		
Monitor Monitor mode can only be used if the additional equipment of the remaining thread monitor is present on the machine. Monitor mode allows for optical monitoring of the bobbin.	*Sewing stop*  Sewing stops and a notice is shown on the display when the bobbin is detected to be nearly empty. If the parameter is not activated, only the LEDs on the machine arm give a warning if the bobbin is empty.	Value range On/Off
	Sewing foot lower position 	Value range On/Off
	t Clean  Duration for which the lens is blown clear with compressed air. The process takes place as the thread is cut.	Value range 0000 – 5000 [ms]

Menu item	Setting option 1	Setting option 2
Software / Stitch Counter In Software mode, the bobbin is monitored by the software based on the number of stitches sewn.	*Counter Type*  4 different counters can be applied. The following 3 subitems can be set for each of the counters.	Value range A/B/C/D
	Counter value  Bobbin supply capacity in stitches. This is a very variable value, which depends on the size of the bobbin and the thickness of the thread.	Value range 00000 - 99999
	Sewing stop  Sewing stops and a notice is shown on the display when the bobbin is detected to be nearly empty. If the parameter is not activated, only the LEDs on the machine arm give a warning if the bobbin is empty.	Value range On/Off
	Sewing foot lower position 	Value range On/Off
	Reset necessary  It is only possible to resume sewing after changing the bobbin and confirming the message on the control panel.	Value range On/Off

5.6.3.2 Setting the *Correction speed effect* parameters

Some parameters are affected by high speeds because of the resulting physical effects. To counteract these effects and to achieve consistent results, even at high speeds, adjustment factors can be set depending on the speed.

Overview of settings modes

The correction of the effects of high speeds can be identified in various modes and responded to depending on the setting. This general explanation can be applied to the following specific parameters.

Setting mode	Description
linear	In the linear setting, the size of the parameter increases or decreases steadily as the speed increases. The increase/decrease of the parameter depends on the limits set for the minimum and maximum speed.
2.OnOff	If a certain speed is exceeded, the 2nd value of the parameter is activated. If the speed then falls below this level again, it switches to the base value for the parameter.
2.On	If a certain speed is exceeded, the 2nd value of the parameter is activated. If the speed then falls below this level again, it does NOT switch to the base value for the parameter. Only after finishing the seam by cutting the thread is the base value for the parameter set again.

Setting options *Stitch length*

Menu item	Setting 1	Setting 2
linear	*Stitch length* Value range -50 – 50 [%]	Maximum stitch length variation reached at the upper speed limit.
	Min. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase/reduction of stitch length should start.
	Max. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase/reduction of stitch length should occur.
2. Value On/Off	*Min. sewing speed* Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2nd stitch length should be used.
2. Value On	*Min. sewing speed* Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2nd stitch length should be used.

Setting options *Needle thread tension*

Menu item	Setting 1	Setting 2
linear	*Needle thread tension* Value range 00 – 99	Maximum needle thread tension reached at the upper speed limit.
	Min. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in needle thread tension should start.
	Max. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in needle thread tension should occur.
2. Value On/Off	*Min. sewing speed* Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2nd needle thread tension should be used.
2. Value On	*Min. sewing speed* Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2nd needle thread tension should be used.

Setting options *Sewing foot pressure*

Menu item	Setting 1	Setting 2
linear	*Sewing foot pressure* Value range 00 – 20	Maximum sewing foot pressure reached at the upper speed limit.
	Min. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in sewing foot pressure should start.
	Max. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in sewing foot pressure should occur.

5.6.3.3 Setting the *Material thickness detection* parameters

To achieve consistently good sewing results for different material thicknesses, some parameters can be adjusted specifically to the material thickness.

Overview of settings modes

The material thickness can be identified in various modes and responded to depending on the setting. This general explanation can be applied to the following specific parameters.

Setting mode	Description
linear	In the linear setting, the size of the parameter increases or decreases steadily as the material thickness increases. The increase/decrease of the parameter depends on the limits set for the minimum and the maximum material thickness.
2.OnOff	If a certain material thickness is exceeded, the 2nd value of the parameter is activated. If the material thickness then falls below this level again, it switches to the base value for the parameter.
2.On	If a certain material thickness is exceeded, the 2nd value of the parameter is activated. If the material thickness then falls below this level again, it does NOT switch to the base value for the parameter. Only after finishing the seam by cutting the thread is the base value for the parameter set again.

Setting options *Sewing foot stroke*

Menu item	Setting 1	Setting 2
linear	*Sewing foot stroke* Value range 00 – 09 [mm]	Maximum sewing foot stroke reached at the upper material thickness limit.
	Min. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot stroke should start.
	Max. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot stroke should occur.
2.OnOff	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd sewing foot stroke should be used.
2.On	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd sewing foot stroke should be used.

Setting options *Stitch length*

Menu item	Setting 1	Setting 2
linear	*Stitch length* Value range -50 – 50 [%]	Maximum stitch length variation reached at the upper material thickness limit.
	Min. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness at which the increase/reduction of stitch length should start.
	Max. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase/ reduction of stitch length should occur.
2.OnOff	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd stitch length should be used.
2.On	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd stitch length should be used.

Setting options *Needle thread tension*

Menu item	Setting 1	Setting 2
linear	*Needle thread tension* Value range 00 – 99	Maximum needle thread tension reached at the upper material thickness limit.
	Min. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in needle thread tension should start.
	Max. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in needle thread tension should occur.
2.OnOff	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd needle thread tension should be used.
2.On	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd needle thread tension should be used.

Setting options *Sewing foot pressure*

Menu item	Setting 1	Setting 2
linear	*Sewing foot pressure* Value range 00 – 20	Maximum sewing foot pressure reached at the upper material thickness limit.
	Min. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot pressure should start.
	Max. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot pressure should occur.

Setting options *Max. sewing speed*

Menu item	Setting 1	Setting 2
linear	*Max. sewing speed* Value range 0000 – 4000	Maximum speed reached at the upper material thickness limit.
	Min. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing speed should start.
	Max. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing speed should occur.

5.6.3.4 Setting the Outputs (*Output*) parameter

This parameter provides virtual outputs that can be assigned customer-specific functions. They can be used when customer-specific applications require a signal from the control of the machine.

These parameters cannot be used unless the virtual outputs have been assigned to a physical output at the Technician level. This requires that the parameter *Additional I/O Configuration* be configured at the Technician level; for more details, refer to the explanation in the 🕮 *Service Instructions*.

5.6.4 Setting the *Segment Begin* parameters

There are various options for setting the Segment Begin parameters. The following table lists all possible options.

Settings that are more complex and therefore require further explanation are described in more detail after the table.

Icon	Parameter	Setting
Parameter Seam Begin		
	*Needle thread clamp* The needle thread clamp is closed at the 1st stitch of the seam to ensure that the needle thread lies on the underside of the sewing material	Value range On/Off
Seam begin bartack settings		
	*Bartack at seam begin*	Value range On/Off
	*Number of stitches backwards*	Value range 01 - 50
	*Number of stitches forward*	Value range 01 - 50
	*Number of bartack sections* A bartack consists of several sections. If the sewing direction is changed, a new section is started. The number of sections in a bartack can be set here.	Value range 01 - 99
	*Stop-Time for direction change* The waiting time at the turning points (for example for a change of sewing direction) is set at this point. A short waiting time in milliseconds should ensure consistent seam quality (ornamental-stitch bartack)	Value range 0000 – 1000 [ms]

Icon	Parameter	Setting
	*Stitch length default* If this function is active, the same stitch length is used for the bartack as the one set in Manual mode. If this function is deactivated, a custom input can be entered.	On/Off
		Stitch length of stitches forward Value range 01.0 - 12.0 [mm] (depending on subclass)
		Stitch length of backwards stitches Value range 01.0 - 12.0 [mm] (depending on subclass)
	*Speed in bartack*	Value range 0000 - 2000
	*Single stitches per pedal* If this function is activated, each stitch in the bartack can be sewn individually by pressing the pedal. This function can only be used meaningfully if the speed is set very low for the bartack.	Value range On/Off
	*Needle thread tension default* If this function is active, the same needle thread tension is used for the bartack as the one set in Manual mode. If this function is deactivated, a custom input can be entered.	Value range On/Off
	*Catch bartack* To ensure a safe sewing start and complete sewing of the start bartack, an additional bartack can precede the start bartack. Only the number of forward and backward stitches can be selected. The stitch length cannot be set individually – it corresponds to the stitch length of the normal start bartack.	On/Off
		Number of stitches backwards Value range 01 - 50
		Number of stitches forward Value range 01 - 50
		Number of bartack sections Value range 01 10

Icon	Parameter	Setting
	*First bartack section* The 1st section of the bartack can be programmed with a different number of stitches. All subsequent sections have the preset number of stitches from the settings for the start bartack.	On/Off *Number of stitches* Value range 01 - 50
	*Last bartack section* The last section of the bartack can be programmed with a different number of stitches. All previous sections have the preset number of stitches from the settings for the end bartack.	On/Off *Number of stitches* Value range 01 - 50
	*Invert bartack direction* Normally, a bartack starts either with the sewing direction (forwards – even number of sections) or against the sewing direction (backwards – odd number of sections), depending on the number of sections. Setting this parameter inverts the sewing direction of the bartack.	Value range On/Off

5.6.5 Setting the *Segment* parameters

There are various options for setting the parameters in the segment. The following table lists all possible options.

Settings that are more complex and therefore require further explanation are described in more detail after the table.

Icon	Parameter	Setting
Seam Parameter		
	*Stitch length*	Value range 00.0 - 12.0 [mm] (depending on the sewing equipment and the subclass)
	*Needle thread tension*	Value range 01 - 99
	*Sewing foot pressure*	Value range 01 - 20
	*Sewing foot stroke*	Value range 1.0 – 9.0 [mm]
	*Max. Speed* It is possible to reduce the maximum sewing speed at this point. The value of the maximum sewing speed can be set in the software at the Technician level.	Value range 0050 – 3800 [rpm] (depending on subclass)
	*Sewing foot lift at stop*	Value range On/Off
	*Height of sewing foot lift at Sewing stop*	Value range 00 – 20 [mm] (depending on subclass)
	*Light barrier* (optional additional equipment) The light barrier detects the beginning and the end of the material. After a signal was detected, sewing can continue automatically with the specifically set parameters.	Value range On/Off (see 🕮 *p. 132*)

5.6.6 Setting the *Segment End* parameters

There are various options for setting the parameters at the segment end. The following table lists all possible options.

Settings that are more complex and therefore require further explanation are described in more detail after the table.

Icon	Parameter	Setting
Parameter Seam End		
	*Sewing foot lift after trim*	Value range On/Off
	*Height of sewing foot lift after trim*	Value range 00 – 20 [mm] (depending on subclass)
	*Thread trimmer*	Value range On/Off
End bartack parameters		
	*Bartack at seam end*	Value range On/Off
	*Number of stitches backwards*	Value range 01 - 50
	*Number of stitches forward*	Value range 01 - 50
	*Number of bartack sections* A bartack consists of several sections. If the sewing direction is changed, a new section is started. The number of sections in a bartack can be set here.	Value range 01 - 99
	*Stop-Time for direction change* The waiting time at the turning points (for example for a change of sewing direction) is set at this point. A short waiting time in milliseconds should ensure consistent seam quality (ornamental-stitch bartack).	Value range 0000 – 1000 [ms]

Icon	Parameter	Setting
	*Stitch length default* If this function is active, the same stitch length is used for the bartack as the one set in Manual mode. If this function is deactivated, a custom input can be entered.	On/Off
		Stitch length of stitches forward Value range 01.0 - 12.0 [mm] (depending on subclass)
		Stitch length of backwards stitches Value range 01.0 - 12.0 [mm] (depending on subclass)
	*Speed in bartack*	Value range 0000 - 2000
	*Single stitches per pedal* If this function is activated, each stitch in the bartack can be sewn individually by pressing the pedal. This function can only be used meaningfully if the speed is set very low for the bartack.	Value range On/Off
	*Needle thread tension default* If this function is active, the same needle thread tension is used for the bartack as the one set in Manual mode. If this function is deactivated, a custom input can be entered.	Value range On/Off
	*Catch bartack* To ensure a safe sewing start and complete sewing of the start bartack, an additional bartack can precede the start bartack. Only the number of forward and backward stitches can be selected. The stitch length cannot be set individually – it corresponds to the stitch length of the normal start bartack.	On/Off
		Number of stitches backwards Value range 01 - 50
		Number of stitches forward Value range 01 - 50
		Number of bartack sections Value range 01 - 10

Icon	Parameter	Setting
	*First bartack section* The 1st section of the bartack can be programmed with a different number of stitches. All subsequent sections have the preset number of stitches from the settings for the start bartack.	On/Off *Number of stitches* Value range 01 - 50
	*Last bartack section* The last section of the bartack can be programmed with a different number of stitches. All previous sections have the preset number of stitches from the settings for the end bartack.	On/Off *Number of stitches* Value range 01 - 50
	*Invert bartack direction* Normally, a bartack starts either with the sewing direction (forwards – even number of sections) or against the sewing direction (backwards – odd number of sections), depending on the number of sections. Setting this parameter inverts the sewing direction of the bartack.	Value range On/Off

5.6.7 Using bobbin wind mode

A bobbin can be wound without sewing. You can choose if you want the winding process to stop automatically when the bobbin is full or not until the bobbin shaft has completed a certain number of rotations.

To use bobbin wind mode:

1. When setting up the user interface (📖 *p. 80*), drag the tile for bobbin wind mode onto the main screen.
2. Tap  to return to Manual mode.
3. Tap on the bobbin wind mode symbol and choose between *Lever* and *Rotations*.
4. Define and confirm the settings.

↳ Bobbin wind mode begins.

5.7 Using Automatic mode

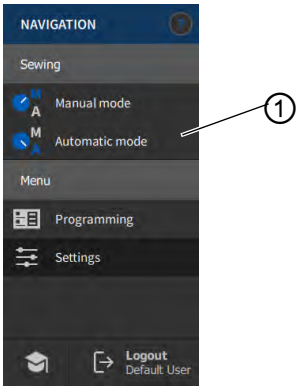
Automatic mode is comprised of all stored programs.

To access the Automatic mode:

1. Tap the symbol to bring up the navigation pane.

↳ This opens the navigation interface.

Fig. 63: Using Automatic mode (1)



(1) - Automatic mode

2. Tap `Automatic mode` (1).

↳ The interface of Automatic mode opens. The program stored last is loaded.

The display shows tiles and information below the upper bar that vary with the selected program:

Fig. 64: Using Automatic mode (2)

Explanations of icons/symbols in Automatic mode:

Symbol/Icon	Meaning
	Selected program
	Move to the next or previous step in seams/ segments - also during the seam
X	Abort a seam program
	Seam/segment including information on the settings for seam beginning, seam and seam end
	Display of the entire program including its seams and segments.

Symbol/Icon	Meaning
	Adjustment factors that can still be adjusted during the seam
	Grayed-out tiles for information on the set parameters can be adjusted by programming (📖 *p. 110*).
	Dark gray tiles can only be activated or deactivated. You define which tiles will be visible by programming (📖 *p. 110*).

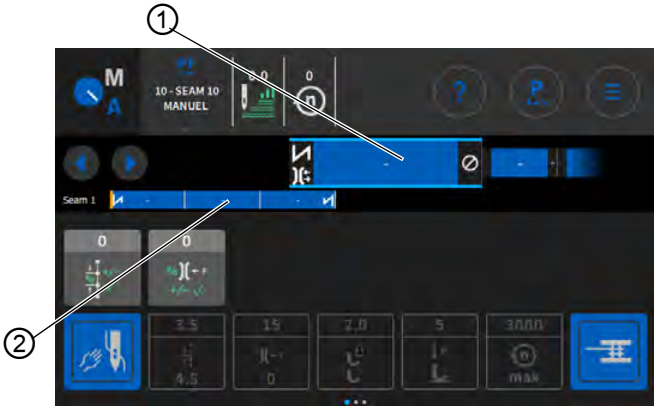
5.7.1 Sewing in Automatic mode

To sew in Automatic mode:

1. Select the program.
2. Press the pedal forward and sew.

You can see the following on the control panel:

Fig. 65: Sewing in Automatic mode



(1) - Progress in the segment *(2) - Progress in the program*

Possible actions in the course of the seam

The following table lists the functions that can be performed in the course of the seam.

Button/Pedal	Function
	Go to the next or previous step in the seams/ segments
Push the pedal halfway back	Lift sewing foot.
Push the pedal fully back or cancel by tapping the **X**	Cut off or cancel the program. The program remains stopped at the cutoff point.

5.7.2 Canceling a program in Automatic mode

To cancel a program in Automatic mode:

1. Push the pedal fully back.

   ↳ The program is canceled and the thread cut. The machine takes note of where the program was canceled, and then continues from the same point when sewing resumes.

2. To cancel the program completely, press the pedal all the way backwards again.

   ↳ The program is canceled, and the machine starts from the first seam section in the program when sewing resumes.

Important

Canceling by pedal is only possible if the parameter segment switch by pedal is NOT active in the program defaults at the Technician level.
If the parameter is still active, you can cancel the program only by tapping the cross on the control panel.

5.8 Using Programming mode

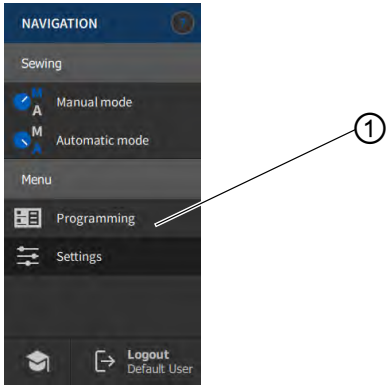
Programming mode allows you to create new programs and copy and adjust existing programs.

To access Programming mode:

1. Tap the symbol  to bring up the navigation pane.

↳ This opens the navigation interface.

Fig. 66: Using Programming mode (1)

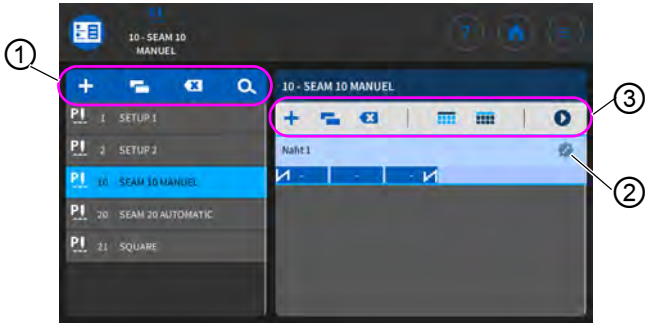


(1) - Programming mode

2. Tap `Programming`.

↳ The user interface for Programming mode opens.

Fig. 67: Using Programming mode (2)



(1) - Manage the programs
(2) - Edit the seams/segments
(3) - Manage the seams/segment

5.8.1 Managing programs

You can create, delete and copy programs. Managing the items is quick and easy thanks to the buttons listed below.

	Create a new program
	Delete a selected program
	Copy and insert a program
	Search for a program name

5.8.2 Managing seams

You can create, delete and copy seams. You can also add tiles to the main screen or the status bar. Managing the items is quick and easy thanks to the buttons listed below.

Settings in the selected program (edit seam)	
	Add seam
	Delete seam
	Copy and insert a seam
	Place tiles on the main screen of the program (grid), see 🕮 *p. 80*.
	Place information in the status bar of the program, see 🕮 *p. 80*.
	Exit Programming/Edit and return to the beginning of the program (in Automatic mode)

5.8.3 Editing the segments of a seam

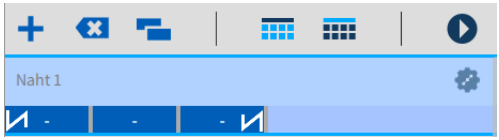
This section allows you to set the parameters for the current seam.

To edit the segments of a seam:

1. Tap on the desired seam.

↳ The seam is highlighted in blue.

Fig. 68: Editing the segments of a seam (1)



2. Tap on the symbol .

↳ The interface used for setting the parameters opens:

Fig. 69: Editing the segments of a seam (2)

(1) - Manage segments
(2) - Parameters cross-segment
(3) - Parameters Segment
(4) - Parameters Segment End/ Seam end
(5) - Parameters Segment Begin/ Seam Begin
(6) - List of adjustable parameters

5.8.4 Managing segments

You can create, delete and copy segments. Managing the items is quick and easy thanks to the buttons listed below.

Edit segments	
	Add segment
	Delete segment
	Copy and insert a segment

5.8.5 Setting program parameters

There are various options for setting the cross-program parameters. The following table lists all possible options.

Settings that are more complex and therefore require further explanation are described in more detail after the table.

Icon	Parameter	Setting
Additional values (+)		
	*Additional value stitch length (+)* The 2nd value for the stitch length can be switched on using a button on the push button panel or the tile on the control panel.	Value range 00.0 - 12.0 (depending on sewing equipment and subclass)
	*Additional value sewing foot stroke (+)* The 2nd value for the sewing foot stroke can be switched on using a button on the push button panel, the knee button or the tile on the control panel.	Value range 05.0 - 09.0 [mm]
	*Additional value needle thread tension (+)* The 2nd value for the needle thread tension can be switched on using a button on the push button panel or the tile on the control panel.	Value range 01 - 99

Icon	Parameter	Setting
	*Gap (2nd value)* The 2nd value for the gap can be switched on using a button on the push button panel or the tile on the control panel.	Value range 01.0 – 45.0 [mm]
Program Cycle		
P → Px	*Next program* A subsequent program can be defined. Input via program number.	
	*Program Cycle* The program is executed as a loop, which is useful, for instance, for ornamental stitch seams. You select the start segment and the end segment from a program and define how often you wish the selected segments to be sewn.	On/Off
		Start Segment Value range 00 – 30 (0 = the cycle starts with the first segment)
		End Segment Value range 00 – 30 (0 = the cycle ends with the last segment)
		Repetitions Value range 00 – 99 (0 = the cycle continues until the next segment is activated manually)
Main Parameter		
	*Needle thread clamp* The needle thread clamp is closed at the 1st stitch of the seam to ensure that the needle thread lies on the underside of the sewing material	Value range On/Off
	*Bobbin monitor mode*	(see 🕮 *p. 117*)

Icon	Parameter	Setting
	*Counter mode* Daily piece counter, can be set to count either up or down.	*Off/Up/Down*
		Reset When the daily piece counter is activated, it must be reset once after entering a value to ensure it counts correctly.
	*Point position* The distance of the needle from the material can be adjusted to allow precise positioning of the sewing material when starting sewing. The value entered corresponds to the degree number on the handwheel.	000 - 359 [°]
Correction speed effect		
	*Correction speed effect*	Value range On/Off (see 🕮 *p. 119*)
	*Stitch length*	The stitch length changes slightly depending on the speed. For this reason, the stitch length can be adjusted at different speeds by the software.
	*Needle thread tension*	Depending on the speed, the needle thread tension can be adjusted at different speeds by the software.
	*Sewing foot pressure*	Depending on the speed, the sewing foot pressure can be adjusted at different speeds by the software.
Material thickness detection		
	*Material thickness detection*	Value range On/Off (see 🕮 *p. 123*)
	*Sewing foot stroke*	The sewing foot stroke can be adjusted to different material thicknesses by the software.

Icon	Parameter	Setting
	*Stitch length*	The stitch length changes slightly depending on the material thickness. For this reason, the stitch length can be adjusted to different material thicknesses by the software.
	*Needle thread tension*	Depending on the material thickness, the needle thread tension can be adjusted to different material thicknesses by the software.
	*Sewing foot pressure*	The sewing foot pressure can be adjusted to different material thicknesses by the software.
	*Max. sewing speed*	The maximum sewing speed can be adjusted to different material thicknesses by the software.

5.8.5.1 Setting the *Bobbin monitor mode* parameters

The amount of remaining thread on the bobbin can be monitored optically or by software using this setting.

Menu item	Setting 1	Setting 2
Off		
Monitor Monitor mode can only be used if the additional equipment of the remaining thread monitor is present on the machine. Monitor mode allows for optical monitoring of the bobbin.	*Sewing stop*  Sewing stops and a notice is shown on the display when the bobbin is detected to be nearly empty. If the parameter is not activated, only the LEDs on the machine arm give a warning if the bobbin is empty.	Value range On/Off
	Sewing foot lower position 	Value range On/Off
	t Clean  Duration for which the lens is blown clear with compressed air. The process takes place as the thread is cut.	Value range 0000 – 5000 [ms]

Menu item	Setting 1	Setting 2
Software / Stitch Counter In Software mode, the bobbin is monitored by the software based on the number of stitches sewn.	*Counter Type*  4 different counters can be applied. The following 3 sub-items can be set for each of the counters.	Value range A/B/C/D
	Counter value  Bobbin supply capacity in stitches. This is a very variable value, which depends on the size of the bobbin and the thickness of the thread.	Value range 00000 - 99999
	Sewing stop  Sewing stops and a notice is shown on the display when the bobbin is detected to be nearly empty. If the parameter is not activated, only the LEDs on the machine arm give a warning if the bobbin is empty.	Value range On/Off
	Sewing foot lower position 	Value range On/Off
	Reset necessary  It is only possible to resume sewing after changing the bobbin and confirming the message on the control panel.	Value range On/Off

5.8.5.2 Setting the *Correction speed effect* parameters

Some parameters are affected by high speeds because of the resulting physical effects. To counteract these effects and to achieve consistent results, even at high speeds, adjustment factors can be set depending on the speed.

Overview of settings modes

The correction of the effects of high speeds can be identified in various modes and responded to depending on the setting. This general explanation can be applied to the following specific parameters.

Setting mode	Description
linear	In the linear setting, the size of the parameter increases or decreases steadily as the speed increases. The increase/decrease of the parameter depends on the limits set for the minimum and maximum speed.
2.Value On/Off	If a certain speed is exceeded, the 2nd value of the parameter is activated. If the speed then falls below this level again, it switches to the base value for the parameter.
2. Value On	If a certain speed is exceeded, the 2nd value of the parameter is activated. If the speed then falls below this level again, it does NOT switch to the base value for the parameter. Only after finishing the seam by cutting the thread is the base value for the parameter set again.

Setting options *Stitch length*

Menu item	Setting 1	Setting 2
linear	*Stitch length* Value range -50 – 50 [%]	Maximum stitch length variation reached at the upper speed limit.
	Min. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase/reduction of stitch length should start.
	Max. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase/reduction of stitch length should occur.
2.Value On/Off	*Min. sewing speed* Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2nd stitch length should be used.
2.Value	*Min. sewing speed* Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2nd stitch length should be used.

Setting options *Needle thread tension*

Menu item	Setting 1	Setting 2
linear	*Needle thread tension* Value range 00 – 99	Maximum needle thread tension reached at the upper speed limit.
	Min. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in needle thread tension should start.
	Max. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in needle thread tension should occur.
2.Value On/Off	*Min. sewing speed* Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2nd needle thread tension should be used.
2. Value On	*Min. sewing speed* Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2nd needle thread tension should be used.

Setting options *Sewing foot pressure*

Menu item	Setting 1	Setting 2
linear	*Sewing foot pressure* Value range 00 – 20	Maximum sewing foot pressure reached at the upper speed limit.
	Min. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in sewing foot pressure should start.
	Max. sewing speed Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in sewing foot pressure should occur.

5.8.5.3 Setting the *Material thickness detection* parameters

To achieve consistently good sewing results for different material thicknesses, some parameters can be adjusted specifically to the material thickness.

Overview of settings modes

The material thickness can be identified in various modes and responded to depending on the setting. This general explanation can be applied to the following specific parameters.

Setting mode	Description
linear	In the linear setting, the size of the parameter increases or decreases steadily as the material thickness increases. The increase/decrease of the parameter depends on the limits set for the minimum and the maximum material thickness.
2.Value On/Off	If a certain material thickness is exceeded, the 2nd value of the parameter is activated. If the material thickness then falls below this level again, it switches to the base value for the parameter.
2. Value On	If a certain material thickness is exceeded, the 2nd value of the parameter is activated. If the material thickness then falls below this level again, it does NOT switch to the base value for the parameter. Only after finishing the seam by cutting the thread is the base value for the parameter set again.

Setting options *Sewing foot stroke*

Menu item	Setting 1	Setting 2
linear	*Sewing foot stroke* Value range 00 – 09 [mm]	Maximum sewing foot stroke reached at the upper material thickness limit.
	Min. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot stroke should start.
	Max. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot stroke should occur.
2.Value On/Off	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd sewing foot stroke should be used.
2. Value On	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd sewing foot stroke should be used.

Setting options *Stitch length*

Menu item	Setting 1	Setting 2
linear	*Stitch length* Value range -50 – 50 [%]	Maximum stitch length variation reached at the upper material thickness limit.
	Min. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness at which the increase/ reduction of stitch length should start.
	Max. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase/ reduction of stitch length should occur.
2.Value On/Off	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd stitch length should be used.
2. Value On	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd stitch length should be used.

Setting options *Needle thread tension*

Menu item	Setting 1	Setting 2
linear	*Needle thread tension* Value range 00 – 99	Maximum needle thread tension reached at the upper material thickness limit.
	Min. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in needle thread tension should start.
	Max. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in needle thread tension should occur.
2.Value On/Off	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd needle thread tension should be used.
2. Value On	*Min. Material thickness* Value range 00.0 – 10.0 [mm]	Material thickness from which the 2nd needle thread tension should be used.

Setting options *Sewing foot pressure*

Menu item	Setting 1	Setting 2
linear	*Sewing foot pressure* Value range 00 – 20	Maximum sewing foot pressure reached at the upper material thickness limit.
	Min. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot pressure should start.
	Max. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot pressure should occur.

Setting options *Max. sewing speed*

Menu item	Setting 1	Setting 2
linear	*Max. sewing speed* Value range 0000 – 4000	Maximum speed reached at the upper material thickness limit.
	Min. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing speed should start.
	Max. Material thickness Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing speed should occur.

5.8.6 Setting the *Seam Begin/Segment Begin* parameters

There are various options for setting the Seam Begin/Segment Begin parameters. The following table lists all possible options.

Settings that are more complex and therefore require further explanation are described in more detail after the table.

Icon	Parameter	Setting
Seam begin bartack parameters		
	*Bartack at seam begin*	Value range On/Off
	*Number of stitches backwards*	Value range 01 - 50
	*Number of stitches forward*	Value range 01 - 50
	*Number of bartack sections* A bartack consists of several sections. If the sewing direction is changed, a new section is started. The number of sections in a bartack can be set here.	Value range 01 - 99

Icon	Parameter	Setting
	*Stop-Time for direction change* The waiting time at the turning points (for example for a change of sewing direction) is set at this point. A short waiting time in milliseconds should ensure consistent seam quality (ornamental-stitch bartack).	Value range 0000 – 1000 [ms]
	*Stitch length default* If this function is active, the same stitch length is used for the bartack as the one set in Manual mode. If this function is deactivated, a custom input can be entered.	On/Off
		Stitch length of stitches forward Value range 01.0 - 12.0 [mm] (depending on subclass)
		Stitch length of backwards stitches Value range 01.0 - 12.0 [mm] (depending on subclass)
	*Speed in bartack*	Value range 0000 - 2000
	*Single stitches per pedal* If this function is activated, each stitch in the bartack can be sewn individually by pressing the pedal. This function can only be used meaningfully if the speed is set very low for the bartack.	Value range On/Off
	*Needle thread tension default* If this function is active, the same needle thread tension is used for the bartack as the one set in Manual mode. If this function is deactivated, a custom input can be entered.	Value range On/Off

Icon	Parameter	Setting
	*Catch bartack* To ensure a safe sewing start and complete sewing of the start bartack, an additional bartack can precede the start bartack. Only the number of forward and backward stitches can be selected. The stitch length cannot be set individually – it corresponds to the stitch length of the normal start bartack.	On/Off
		Number of stitches backwards Value range 01 - 50
		Number of stitches forward Value range 01 - 50
		Number of bartack sections Value range 01 - 10
	*First bartack section* The 1st section of the bartack can be programmed with a different number of stitches. All subsequent sections have the preset number of stitches from the settings for the start bartack.	On/Off
		Number of stitches Value range 01 - 50
	*Last bartack section* The last section of the bartack can be programmed with a different number of stitches. All previous sections have the preset number of stitches from the settings for the end bartack.	On/Off
		Number of stitches Value range 01 - 50
	*Invert bartack direction* Normally, a bartack starts either with the sewing direction (forwards – even number of sections) or against the sewing direction (backwards – odd number of sections), depending on the number of sections. Setting this parameter inverts the sewing direction of the bartack.	Value range On/Off

5.8.7 Setting the *Segment* parameters

There are various options for setting the parameters in the segment. The following table lists all possible options.

Settings that are more complex and therefore require further explanation are described in more detail after the table.

Icon	Parameter	Setting
Seam Parameter		
	*Stitch length*	Value range 00.0 - 12.0 [mm] (depending on the sewing equipment and the subclass)
	*Needle thread tension*	Value range 01 - 99
	*Sewing foot pressure*	Value range 01 - 20
	*Sewing foot stroke*	Value range 1.0 – 9.0 [mm]
	*Seam length in segment* or *Number of stitches in segment*	You can set the active option at the Technician level *Machine configuration > Mode segment size*. The s.p.m. option is set at the factory. The display remains after the thread has been cut, while counting/measuring will begin when sewing starts again.
	*Max. Speed* It is possible to reduce the maximum sewing speed at this point. The value of the maximum sewing speed can be set in the software at the Technician level.	Value range 0050 – 3800 [rpm] (depending on subclass)
	*Needle position* Needle position at sewing stop.	Value range On/Off
	*Sewing foot lift at stop*	Value range On/Off

Icon	Parameter	Setting
	*Height of sewing foot lift at Sewing stop*	Value range 00 – 20 [mm] (depending on subclass)
	*Backwards* When the parameter is activated, the section is sewn backwards.	Value range On/Off
	*Seam Center Guide* (only on 2-needle machines, optional additional equipment)	Value range On/Off
	*Puller* (optional additional equipment) The puller supports the transport of the sewing material. The feed of the two rollers is calculated automatically based on the stitch length of the machine. An adjustment may be necessary depending on the application. The rollers of the puller can be adjusted separately. The input is in percent: a positive value increases the roller feed while a negative value reduces the feed.	On/Off *Correction top roller* Value range -100 – 100 [%] *Correction bottom roller* Value range -100 – 100 [%]
	*Gap* (optional additional equipment) The edge guide helps to precisely position the sewing material. The value set indicates the distance between the needle and edge guide/material edge.	Value range 01.0 - 45.0 [mm]
	*Light barrier* (optional additional equipment) The light barrier detects the beginning and the end of the material. After a signal was detected, sewing can continue automatically with the specifically set parameters.	Value range On/Off (see 🕮 *p. 132*)
Output		
	*Output 01-16*	(see 🕮 *p. 133*)

5.8.7.1 Setting the *Light barrier* parameters

The light barrier detects the beginning and the end of the material. After a signal was detected, sewing can continue automatically with the specifically set parameters.

Icon	Menu item	Setting
	*Distance* Distance from the detection of the signal to the end of the material. This distance signifies the path from the needle to the light barrier. The path is specified in millimeters and used by the machine to independently calculate the number of stitches.	Value range 0 - 255
	*Signal detection at seam begin* The signal scan of the light barrier is performed at the beginning of the seam. If the function is activated, the light barrier must detect a signal to allow the machine to sew. If the function is inactive, sewing can take place without signal detection.	Value range On/Off
	*Signal detection at seam end* The signal scan of the light barrier is performed at the end of the seam. If the function is active, the machine will continue to sew with the specifically set parameters following the signal detection. If the function is inactive, nothing will happen.	Value range On/Off
	*Seams* Input of the number of signal detections after which the machine is supposed to continue with the specifically set parameters.	Value range 1 - 255
	*Filter stitches* Loosely woven fabric with stitches may cause the light barrier to wrongly detect a signal. To prevent this from happening, you enter the number of filter stitches. This number represents the minimum number of stitches with signal detection following the 1st detection of the signal.	Value range 0 - 255

5.8.7.2 Setting the Outputs (*Output*) parameter

This parameter provides virtual outputs that can be assigned customer-specific functions. They can be used when customer-specific applications require a signal from the control of the machine.

These parameters cannot be used unless the virtual outputs have been assigned to a physical output at the Technician level. This requires that the parameter *Additional I/O Configuration* be configured at the Technician level; for more details, refer to the explanation in the 🕮 *Service Instructions*.

5.8.8 Setting the *Segment End/Seam End* parameters

There are various options for setting the parameters at the segment end. The following table lists all possible options.

Settings that are more complex and therefore require further explanation are described in more detail after the table.

Icon	Parameter	Setting
Parameter Seam End		
	*Sewing stop*	Value range On/Off Setting as to what will happen at the end of a segment/seam. (see 🕮 *p. 136*)
Adjustments for seam end bartack parameters		
	*Bartack at seam end*	Value range On/Off
	*Number of stitches backwards*	Value range 01 - 50
	*Number of stitches forward*	Value range 01 - 50

Icon	Parameter	Setting
	*Number of bartack sections* A bartack consists of several sections. If the sewing direction is changed, a new section is started. The number of sections in a bartack can be set here.	Value range 01 - 99
	*Stop-Time for direction change* The waiting time at the turning points (for example for a change of sewing direction) is set at this point. A short waiting time in milliseconds should ensure consistent seam quality (ornamental-stitch bartack).	Value range 0000 – 1000 [ms]
	*Stitch length default* If this function is active, the same stitch length is used for the bartack as the one set in Manual mode. If this function is deactivated, a custom input can be entered.	On/Off
		Stitch length of stitches forward Value range 01.0 – 12.0 [mm] (depending on subclass)
		Stitch length of backwards stitches Value range 01.0 – 12.0 [mm] (depending on subclass)
	*Speed in bartack*	Value range 0000 - 2000
	*Single stitches per pedal* If this function is activated, each stitch in the bartack can be sewn individually by pressing the pedal. This function can only be used meaningfully if the speed is set very low for the bartack.	Value range On/Off
	*Needle thread tension default* If this function is active, the same needle thread tension is used for the bartack as the one set in Manual mode. If this function is deactivated, a custom input can be entered.	Value range On/Off

Icon	Parameter	Setting
	*Catch bartack* To ensure a safe sewing start and complete sewing of the start bartack, an additional bartack can precede the start bartack. Only the number of forward and backward stitches can be selected. The stitch length cannot be set individually – it corresponds to the stitch length of the normal start bartack.	On/Off
		Number of stitches backwards Value range 01 - 50
		Number of stitches forward Value range 01 - 50
		Number of bartack sections Value range 01 - 10
	*First bartack section* The 1st section of the bartack can be programmed with a different number of stitches. All subsequent sections have the preset number of stitches from the settings for the start bartack.	On/Off
		Number of stitches Value range 01 - 50
	*Last bartack section* The last section of the bartack can be programmed with a different number of stitches. All previous sections have the preset number of stitches from the settings for the end bartack.	On/Off
		Number of stitches Value range 01 - 50
	*Invert bartack direction* Normally, a bartack starts either with the sewing direction (forwards – even number of sections) or against the sewing direction (backwards – odd number of sections), depending on the number of sections. Setting this parameter inverts the sewing direction of the bartack.	Value range On/Off

5.8.8.1 Setting the *Sewing stop* parameters

You can set additional parameters for the *Sewing stop*. Possible settings and the corresponding value ranges are listed in the table.

Icon	Menu item	Setting option
	*Needle up position*	Value range On/Off
	*Thread trimmer* (can only be set in the last segment)	Value range On/Off
	*Sewing foot lift at segment end*	Value range On/Off
	*High sewing foot lift after thread cutting/at segment end*	Value range 00 – 20 [mm] (depending on subclass)

5.9 Importing/exporting programs

Programs cannot be imported or exported by the Default User.

This process requires that the user be logged in as a technician, 🕮 *Service Instructions*.

5.10 Performing a software update

A software update - for control panel or control - is always performed on the control panel. The software of the control is updated automatically whenever a software update is performed for the control panel. The files necessary for updating the control are already included in the file updates of the control panel.

To perform a software update:

1. Log in as a user with the access rights necessary to perform a software update (see 📖 *p. 58* on how to define this setting).
2. Download the software version from the Internet (www.duerkopp-adler.com) and save it to a USB key.
3. Plug the USB key into the port on the control panel.
4. Open the burger menu and select the menu *Settings - Software Update*.

↳ A window listing the files stored on the USB key opens.

5. Tap the file containing the software update.

↳ Another window opens.

6. To start the software update, tap on the *Start Update* button.
7. Wait until advised that the USB key can be removed OR that the control panel was restarted.

Information

If detecting - while the control panel is being restarted - that the software of the control requires an update as well, the system will start this update automatically.

It may take up to 15 minutes for the system to complete the update and restart the control panel successfully.

---

8. Once the control panel has been restarted, the machine can be used again.
9. If you have not already done so, you can now remove the USB key.

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
Check the bobbins for wear and damage and replace them if necessary			●	
Cleaning				
Removing lint and thread remnants	●			
Lubricating				
Lubricating the machine head	●			
Lubricating the hook		●		

Work to be carried out	Operating hours			
	8	40	160	500
Servicing the pneumatic system				
Setting the operating pressure	●			
Draining the water condensation	●			
Cleaning the filter element		●		

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 remnants can impair the operation of the machine.

Clean the machine as described.

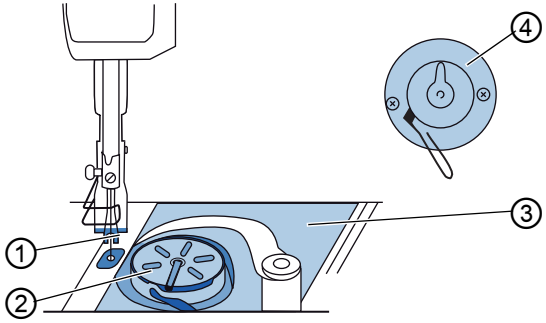
NOTICE

Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

Fig. 70: Areas requiring special cleaning



(1) - Area around the needle
(2) - Hook
(3) - Area under the throat plate
(4) - Cutter on the winder

Areas particularly susceptible to soiling:

- Cutter on the winder for the hook thread (4)
- Area under the throat plate (3)
- Hook (2)
- Area around the needle (1)

To clean the machine:

1. Switch off the machine at the main switch.
2. Remove any lint and thread remnants using a compressed air gun or a brush.

Important

If you wish to clean the machine with cleaning agents, do not use just any cleaner. To prevent damage to the surfaces, use the cleaner MONOCLEAN X400. Follow the instructions on how to use this cleaning agent to prevent damage to the machine.

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.

The machine is equipped with a central oil-wick lubrication system. The bearings are supplied from the oil reservoir.

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.

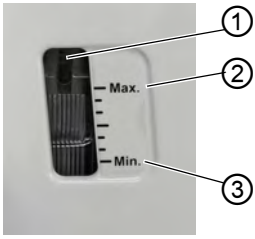
Container	Part no.
250 ml	9047 000011
1 l	9047 000012
2 l	9047 000013
5 l	9047 000014

6.2.1 Lubricating the machine head

Proper setting

The oil level is between the minimum level marking and the maximum level marking.

Fig. 71: Lubricating the machine head



(1) - Refill opening
(2) - Maximum level marking
(3) - Minimum level marking

To lubricate the machine head:

1. Check the oil level indicator at the inspection glass every day.
2. If the inspection glass lights up red, the machine is not sufficiently supplied with oil.
3. If the oil level is below the minimum level marking (3): Pour oil through the refill opening (1) but no higher than the maximum level marking (2).

6.2.2 Lubricating the hook

CAUTION

Risk of injury!

Crushing and puncture possible.

Only lubricate the hook when the machine is switched off. Carry out function tests with utmost caution when the sewing machine is switched on.

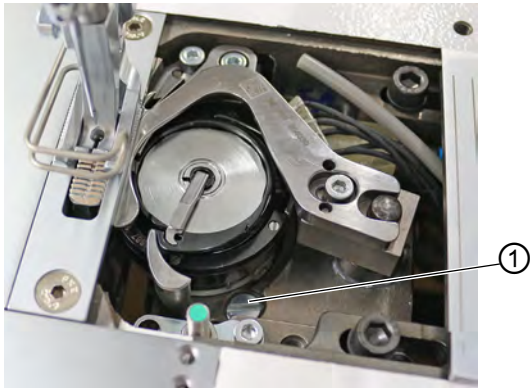
The approved oil quantity for hook lubrication is a factory specification.

Proper setting

1. Hold a piece of blotting paper next to the hook.
2. Allow the machine to run without thread and sewing material for 10 seconds with the sewing feet lifted and at a high speed.

↳ The blotting paper will show a thin strip of oil when sewing is complete.

Fig. 72: Lubricating the hook



(1) - Screw

To lubricate the hook:

1. Turn the screw (1):
   - counterclockwise: more oil is released
   - clockwise: less oil is released

Important

The released amount of oil does not change until the operating time has run a few minutes. Sew for several minutes before you check the setting again.

6.3 Servicing the pneumatic system

6.3.1 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

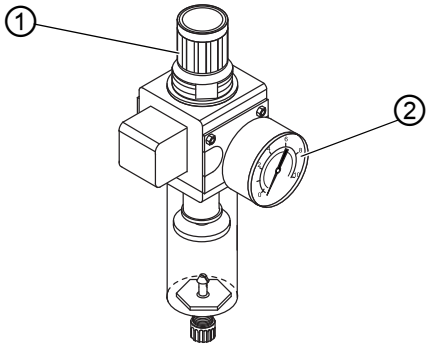
Ensure that the machine is only used when the operating pressure is set correctly.

Proper setting

Refer to the **Technical data** (📖 *p. 197*) 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. 73: Setting the operating pressure



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

To set the operating pressure:

1. Pull the pressure controller (1) up.
2. Turn the pressure controller until the pressure gage (2) indicates the proper setting:
   - Increase pressure = turn clockwise
   - Reduce pressure = turn counterclockwise
3. Push the pressure controller (1) down.

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.

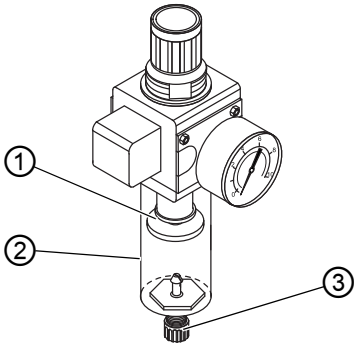
The water separator (2) of the pressure controller will show accumulation of a water-oil mixture.

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. 74: 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 collection tray under the drain screw (3).
3. Loosen the drain screw (3) completely.
4. Allow the water-oil mixture to drain into the collection tray.
5. Tighten the drain screw (3).
6. Connect the machine to the compressed air supply.

6.3.3 Cleaning the filter element

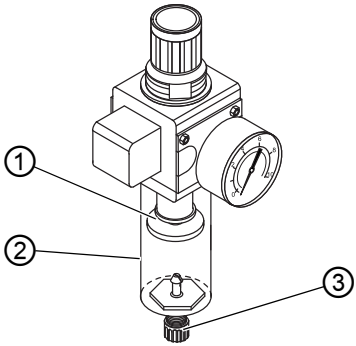
NOTICE

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. 75: 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. 147*).
3. Loosen the collection tray (2).
4. Loosen the filter element (1).
5. Blow out the filter element (1) using a 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 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.

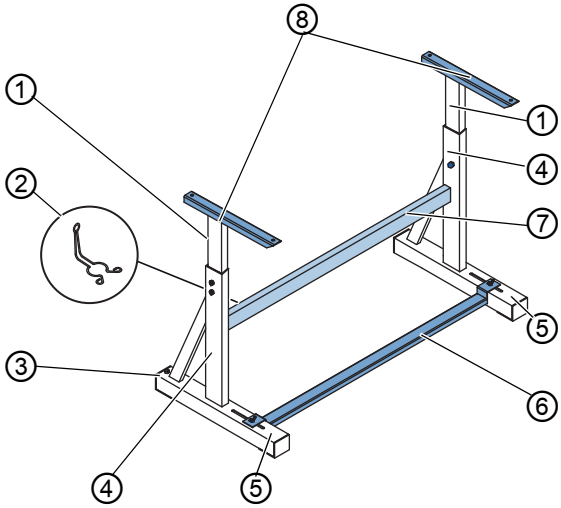
7.2 Removing the transport locks

Remove all transport locks before setting up the machine:

- Lashing straps and wooden blocks from the machine head, the table and the stand
- Supporting wedges between machine arm and throat plate

7.3 Assembling the stand

Fig. 76: Assembling the stand



(1) - Inner bar
(2) - Holder for oil can
(3) - Adjusting wheel
(4) - Stand bar
(5) - Foot strut
(6) - Cross strut
(7) - Cross bar
(8) - Head section - inner bar

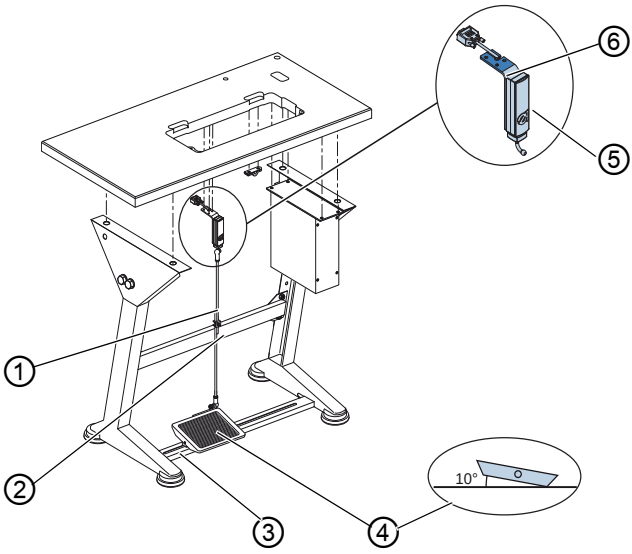
To assemble the stand:

1. Screw the cross bar(s)* (7) onto the stand bars (4).
2. Screw the oil can holder (2) at the rear to the upper cross bar (7).
3. Screw the cross strut (6) to the foot struts (5).
4. Insert the inner bars (1) in such a way that the longer end of the head section (8) is above the longer end of the foot struts (5).
5. Tighten the inner bars (1) down so that both head sections (8) are at the same height.
6. **Important:** Turn the adjusting wheel (3) so that the stand has even contact with the ground.

* Stand components for long arm machines have 2 cross bars, and the other stand components have 1 cross bar.

7.4 Assembling the pedal and setpoint device

Fig. 77: Assembling the pedal and setpoint device



(1) - Pedal rod
(2) - Screw
(3) - Cross strut
(4) - Pedal
(5) - Setpoint device
(6) - Bracket

To assemble pedal and setpoint device:

1. Fit the pedal (4) on the cross strut (3) and align it in such a way that the middle of the pedal is under the needle. The cross strut has elongated holes to allow for the alignment of the pedal.
2. Tighten the pedal (4) on the cross strut (3).
3. Screw the bracket (6) under the tabletop so that the pedal rod (1) runs to the pedal (4) at right-angles to the setpoint device (5).
4. Screw the setpoint device (5) onto the bracket (6).
5. Attach the pedal rod (1) with the ball sockets to the setpoint device (5) and to the pedal (4).
6. Pull the pedal rod (1) to the correct length:

Proper setting

10° inclination with pedal (4) released

7. Tighten the screw (2).

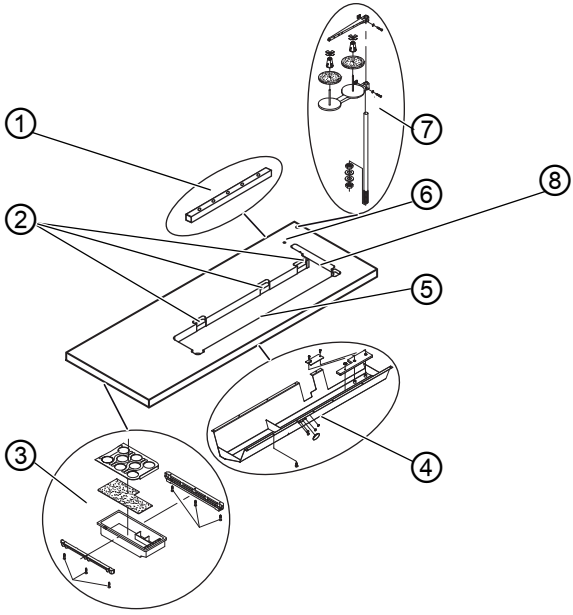
7.5 Tabletop

Ensure that the tabletop has sufficient load-bearing capacity and strength. If you want to make your own tabletop, use the dimensions given in the diagram **Appendix** (📖 *p. 199*) as a template.

7.5.1 Completing the tabletop

The tabletop is optional. Drawings are provided in the appendix to allow you to independently assemble a tabletop (📖 *p. 199*).

Fig. 78: Completing the tabletop



(1) - Cable duct
(2) - Slot
(3) - Drawer
(4) - Oil pan
(5) - Rubber strip
(6) - Hole
(7) - Reel stand
(8) - Tilt sensor magnet

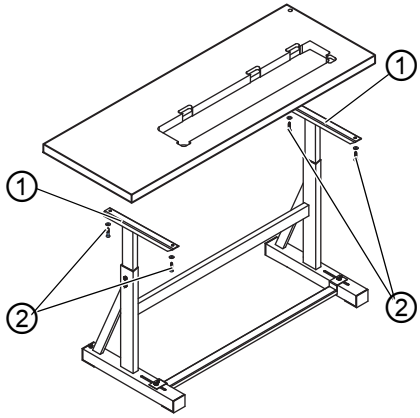
To complete the tabletop:

1. Screw the drawer (3) with the left-hand bracket to the underside of the tabletop.

2. Assemble the tilt sensor magnet (8) on the side of the tabletop cutout.
3. Screw the oil pan (4) in place under the slot for the machine.
4. Screw the cable duct (1) to the underside of the tabletop.
5. Insert the reel stand (7) into the hole.
6. Assemble the reel stand (7) with nut and washer.
7. Tighten the thread reel holder and the unwinding bracket on the reel stand (7) in such a way that they are exactly opposite each other.
8. Insert the plug (6) in the hole.
9. Insert the lower hinge parts into the slots (2).

7.5.2 Assembling the tabletop to the stand

Fig. 79: Assembling the tabletop to the stand



(1) - Head section *(2) - Screws*

To assemble the tabletop to the stand:

1. Place the tabletop on the head sections (1) of the inner bars.
2. Use the screws (2) to fasten the tabletop at the screw holes of the head sections.

7.6 Setting the working height

WARNING

Risk of injury from moving parts!

The tabletop can sink under its own weight when the screws on the stand bars are loosened. Crushing possible.

Ensure that your hands are not jammed when loosening the screws.

CAUTION

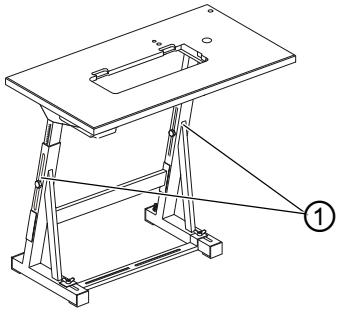
Risk of musculoskeletal damage from incorrect setting!

The operator can sustain musculoskeletal damage if failing to comply with the ergonomic requirements.

Adjust the working height to the body height of the person who will operate the machine.

The working height is continuously adjustable between 750 and 900 mm (clearance between the floor and upper edge of the tabletop).

Fig. 80: Setting the working height



(1) - Screws

To set the working height:

1. Loosen the screws (1) on the stand bars.
2. Set the tabletop to the desired height.

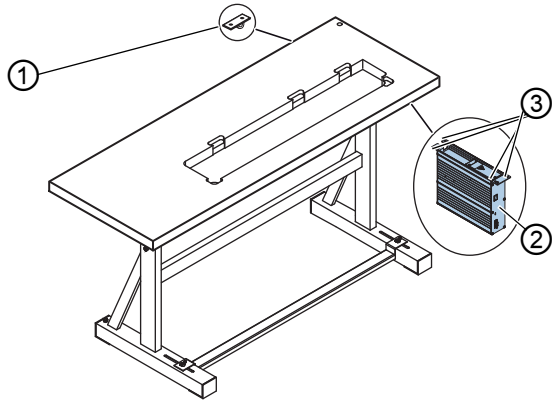
Important

Pull out or push in the tabletop evenly at both sides to prevent it from jamming.

3. Tighten the screws (1) on the stand bars.

7.7 Assembling the control

Fig. 81: Assembling the control



(1) - Strain relief mechanism
(2) - Control
(3) - Screw holder

To assemble the control:

1. Screw the control (2) onto the 4 screw holders (3) under the tabletop.
2. Clamp the power cable of the control (2) into the strain relief mechanism (1).
3. Screw the strain relief mechanism (1) under the tabletop.

7.8 Inserting the machine head

WARNING

Risk of injury from moving parts!

The machine head is very heavy. Crushing possible.

Ensure that your hands are not jammed when inserting the machine head.

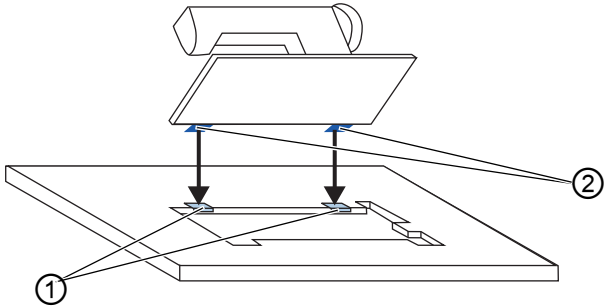
NOTICE

Property damage may occur!

Cable may sustain damage and impair the operation of the machine.

Always lay the cables so as not to create any chafing or pinching points.

Fig. 82: Inserting the machine head (1)

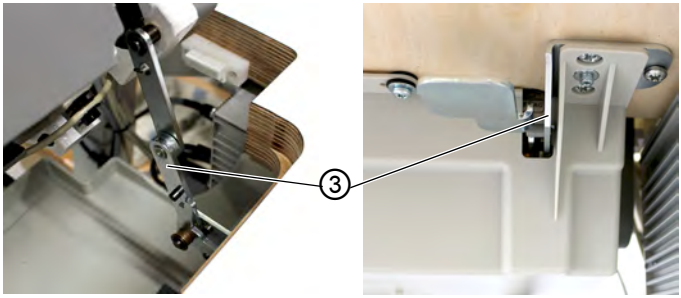


(1) - Rubber inlays *(2) - Upper hinge parts*

To insert the machine head:

1. Tighten the upper hinge parts (2) onto the machine head.
2. Guide the cables through the tabletop with great care so as not to create any chafing or pinching points.
3. Insert the machine head from above at an angle of 45°.
4. Insert the upper hinge parts (2) into the rubber inlays (1).

Fig. 83: Inserting the machine head (2)



(3) - Locking mechanism

5. Assemble the locking mechanism (3) to tabletop and machine.
6. Tilt the machine head forward and insert it into the slot in the tabletop.

7.9 Erecting the machine head

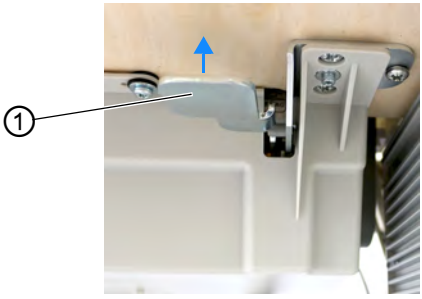
WARNING

Risk of injury from moving parts!

The machine head is very heavy. Crushing possible.

Ensure that your hands are not jammed when inserting the machine head.

Fig. 84: Erecting the machine head



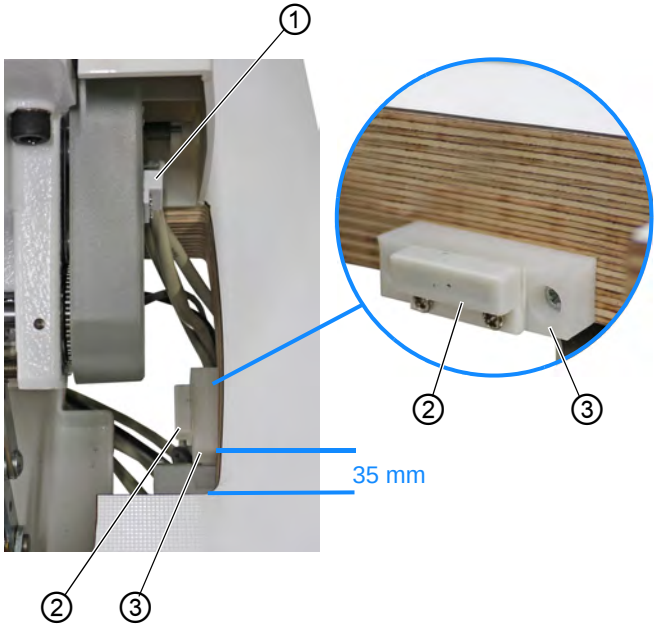
(1) - Lever

To erect the machine head:

1. Pull up the lever (1) below the tabletop.
2. Fold the machine into the tabletop.

7.10 Assembling the tilt sensor

Fig. 85: Assembling the tilt sensor



(1) - Sensor
(2) - Magnet
(3) - Distance piece

To assemble the tilt sensor:

1. Tilt the machine head.

The sensor (1) has been pre-assembled on the machine head.

The magnet (2) and wood screws are in the bag that contains the bobbins.

2. Tighten the distance piece (3) in the tabletop cutout using wood screws.
   - Tighten the distance piece (3) on the lower edge of the tabletop cutout and on the edge on the side at a distance of approx. 35 mm.
3. Tighten the magnet (2) in the center on the distance piece (3).

7.11 Changing the handwheel

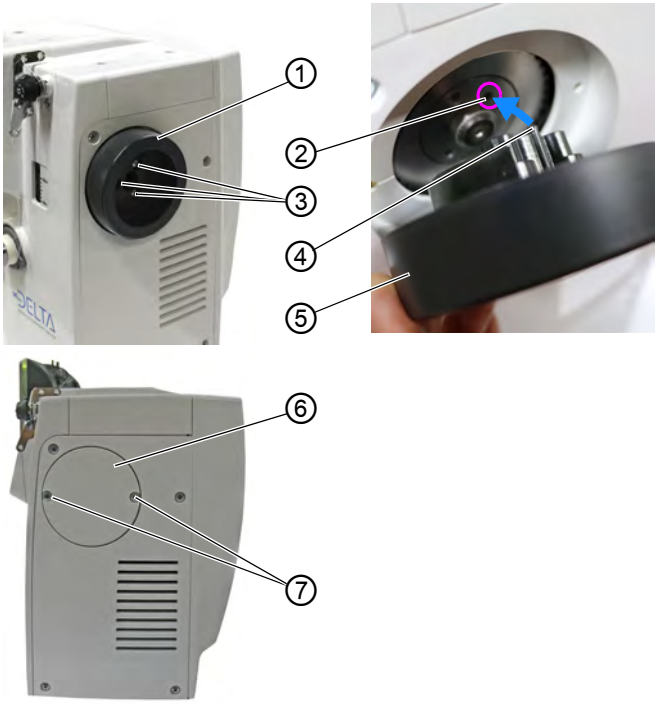
The handwheel that ships with the machine is the large handwheel.

The large handwheel can be replaced with the included small handwheel.

Important

When assembling the small handwheel, the included cover must be positioned above the handwheel and tightened on the machine.

Fig. 86: Changing the handwheel



(1) - Large handwheel
(2) - Hole
(3) - Screws
(4) - Pin
(5) - Small handwheel
(6) - Cover
(7) - Screws

To change the handwheel:

1. Loosen the screws (3).
2. Remove the large handwheel (1).
3. Position the small handwheel (5) above the pulley in such a way that the pin (4) protruding on the inside of the handwheel fits into the matching hole (2) in the pulley.
4. Tighten the small handwheel (5) using the screws (3).
5. Place the cover (6) and tighten it using the screws (7).

The handwheel has been changed.

7.12 Assembling the knee button

Fig. 87: Assembling the knee button

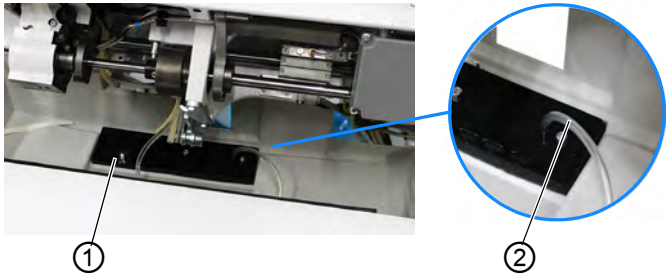
(1) - Knee button
(2) - Connecting cable
(3) - Plug

To assemble the knee button:

1. Screw the knee button (1) in front of the oil pan firmly in place under the tabletop.
2. Guide the connecting cable (2) to the back between the oil pan and the control.
3. Insert the plug of the knee button into the socket of the control.

7.13 Assembling the oil extraction line

Fig. 88: Assembling the oil extraction line



(1) - Filter *(2) - Hose*

To assemble the oil extraction line:

1. Tilt the machine head.
2. Tighten the filter (1) inside the oil pan with the plastic adapter to the right.
3. Insert the tube (2) of the oil extraction line into the plastic adapter.

7.14 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.

Important

The voltage on the type plate of the sewing motor must correspond to the mains voltage.

7.14.1 Establishing equipotential bonding

DANGER

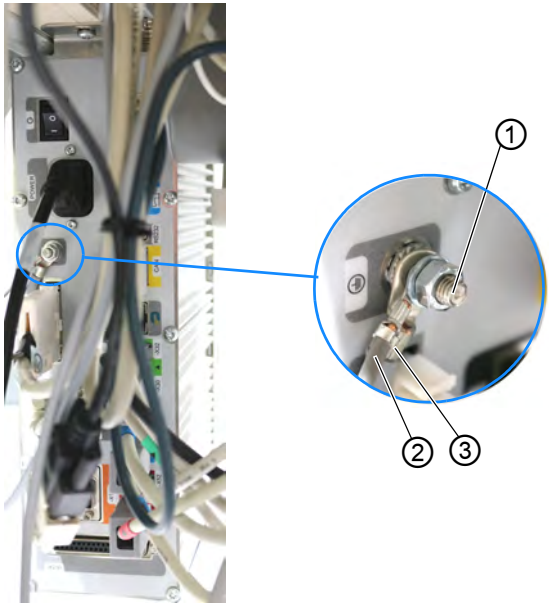
Risk of death from live components!

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

Disconnect the power plug before establishing equipotential bonding. Ensure the power plug cannot be unintentionally reinserted.

The grounding wire conducts away any static charging of the machine head.

Fig. 89: Establishing equipotential bonding



(1) - Control connection
(2) - Motor grounding wire
(3) - Machine head grounding wire

To establish equipotential bonding:

1. Guide the grounding wire through the slot in the tabletop.
2. Connect the grounding wire to the connection on the control (1).

Important

To establish equipotential bonding, you need to assemble the necessary components to the connection on the control in the following order: Detent-edged washer, grounding wire, machine head (3), motor grounding wire (2), washer, and nut.

7.14.2 Connecting the control

DANGER

Risk of death from live components!

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

Disconnect the power plug before connecting the control. Ensure the power plug cannot be unintentionally reinserted.

To connect the control:

1. Connect the control as specified in the wiring diagram (📖 *p. 199*).

7.15 Pneumatic connection (optional)

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 setting!

Incorrect system pressure can result in damage to the machine.

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

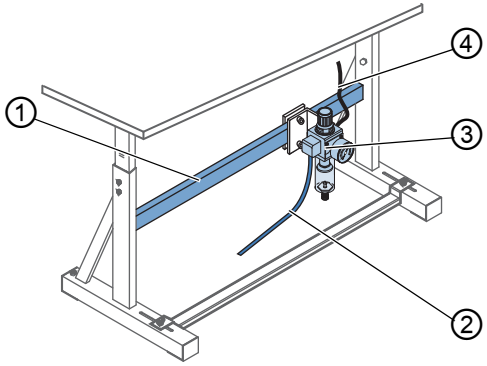
The pneumatic system of the machine and of the additional equipment must be supplied with dry and oil-free compressed air. The supply pressure must lie between 8 and 10 bar.

Information
The pneumatic connection package is available under part number 0797 003031. It consists of:

- System connection hose (length 5 m, diameter 9 mm)
- Hose connectors and hose clamps
- Coupling socket and coupling plug

7.15.1 Assembling the compressed air maintenance unit

Fig. 90: Assembling the compressed air maintenance unit



(1) - Cross bar
(2) - System connection hose
(3) - Maintenance unit
(4) - Machine hose

To assemble the compressed air maintenance unit:

1. Assemble the maintenance unit (3) to the upper cross bar (1) of the stand using the bracket, screws and clip.
2. Connect the machine hose (4) coming out of the machine head to the maintenance unit (3) at the top right.
3. Connect the system connection hose (2) to the pneumatic system.

7.15.2 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

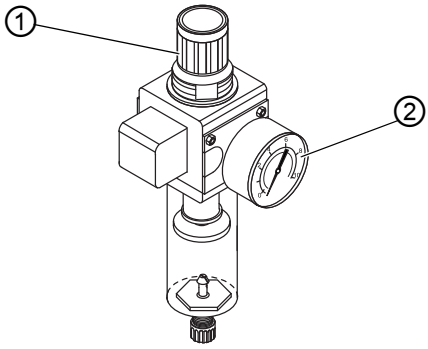
Incorrect operating pressure can result in damage to the machine.

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

Proper setting

Refer to the **Technical data** (*p. 197*) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Fig. 91: Setting the operating pressure



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

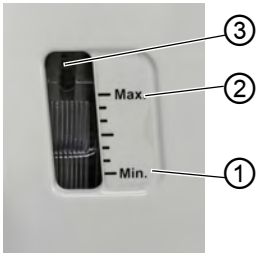
To set the operating pressure:

1. Pull the pressure controller (1) up.
2. Turn the pressure controller until the pressure gage (2) indicates the proper setting:
   - Increase pressure = turn clockwise
   - Reduce pressure = turn counterclockwise
3. Push the pressure controller (1) down.

7.16 Checking the lubrication

All wicks and felt bits of the machine head are soaked in oil at the factory. This oil is conveyed to the reservoir during use. This is why you should avoid filling too much oil during initial filling.

Fig. 92: Checking the lubrication



(1) - Minimum level marking
(2) - Maximum level marking
(3) - Inspection glass

To check the lubrication:

1. Sew with the machine for approx. 1 minute.
2. Check at the inspection glass (3) whether the warning indicator is lit red or the oil level has dropped below the minimum marking (1).
3. If this is the case, top off oil (📖 *p. 143*).

7.17 Performing a test run

When setup is complete, perform a test run to check the functionality of the machine.

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.

You need to perform a number of activities if the machine is to be shut down for a longer period of time or completely decommissioned.

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.

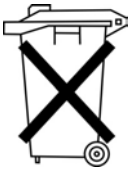
9 Disposal

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

Tel. +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

Code	Type	Possible cause	Remedial action
1000	Error	Sewing motor encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the • control, use correct connection
1001	Error	Sewing motor error Sewing motor plug (AMP) not connected	• Check connection and plug in • Test sewing motor phases (R = 2.8Ω, high impedance to PE) • Replace encoder • Replace sewing motor • Replace control
1002	Error	Sewing motor insulation error	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor

Code	Type	Possible cause	Remedial action
1004	Error	Incorrect sewing motor direction of rotation	• Replace encoder • Check motor plug assignment and change it if necessary • Check wiring in machine distributor and change it, if necessary • Test motor phases and check for correct value
1005	Error	Motor blocked	• Check for stiff movement • Replace encoder • Replace sewing motor
1006	Error	Maximum speed exceeded	• Replace encoder • Perform reset • Check class (t 51 04)
1007	Error	Error in the reference run	• Replace encoder • Check for stiff movement
1008	Error	Sewing motor encoder error	• Replace encoder
1010	Error	External synchronizer plug (Sub-D, 9-pin) not connected	• Connect cable of external synchronizer to control, make sure that interface (Sync) is correct • Only recommended for machines with transmission!
1011	Error	Encoder Z pulse missing	• Switch off the control, use handwheel to turn, and switch on the control again • If error is not corrected, check encoder
1012	Error	Synchronizer fault	• Replace synchronizer
1054	Error	Internal short circuit	• Replace control
1055	Error	Sewing motor overload	• Check for stiff movement • Replace encoder • Replace sewing motor
1060	Error	Sewing motor overload / overvoltage /overcurrent	• Check selection of class • Replace control • Replace motor • Replace encoder
1061	Error	Sewing motor overload / overvoltage /overcurrent	• Check selection of class • Replace control • Replace motor • Replace encoder

Code	Type	Possible cause	Remedial action
1120	Error	Sewing motor Init fault	• Perform a software update • Check selection of class
1121	Error	Sewing motor watchdog	• Perform a software update • Check selection of class
1203	Error	Position not reached (during thread cutting, reversal, etc.)	• Check the controller settings and change them if necessary (e.g. thread trimmer setting, belt tension, etc.) • Check position **thread lever at top dead center**
1302	Error	Failure with sewing motor current	• Check Service Stop • Check for stiff movement • Replace encoder • Replace motor
1330	Error	No response from sewing motor	• Perform a software update • Replace control
2101	Error	Stepper motor X30 reference run timeout	• Check reference sensor
2105	Error	Stepper motor card X30 blockage	• Check for stiff movement
2121	Error	Stepper motor card X30 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use the correct interface
2122	Error	Stepper motor card X30 flywheel position not found	• Check stepper motor 1 for stiff movement
2130	Error	Stepper motor card X30 not responding	• Perform a software update • Replace control
2131	Error	Stepper motor card X30 parameter init	• Perform a software update • Check selection of class
2152	Error	Stepper motor card X30 overcurrent	• Check for stiff movement
2171	Error	Stepper motor card X30 Watchdog (Stitch length)	• Perform a software update • Check selection of class
2172	Error	Stepper motor card X30 motor overload / overvoltage / overcurrent (Stitch length)	• Check selection of class • Replace control • Replace encoder • Replace stepper motor

Code	Type	Possible cause	Remedial action
2173	Error	Stepper motor card X30 Sewing motor encoder not connected (Stitch length)	• Replace control
2174	Error	Stepper motor card X30 Sewing motor encoder not init (Stitch length)	• Perform a software update • Check selection of class
2175	Error	Stepper motor card X30 Init Position not found (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2176	Error	Stepper motor card X30 not Enabled (Stitch length)	• Replace control
2177	Error	Stepper motor card X30 Overload (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2178	Error	Stepper motor card X30 Encoder failure (Stitch length)	• Replace encoder
2179	Error	Stepper motor card X30 Current sensor failure (Stitch length)	• Replace control
2180	Error	Stepper motor card X30 Incorrect stepping motor direction of rotation (Stitch length)	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
2181	Error	Stepper motor card X30 Reference drive failure (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2183	Error	Stepper motor card X30 overcurrent (Stitch length)	• Replace control
2184	Error	Stepper motor card X30 parameter init (Stitch length)	• Perform a software update • Check selection of class
2185	Error	Stepper motor card X30 insulation error (Stitch length)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor

Code	Type	Possible cause	Remedial action
2187	Error	Stepper motor card X30 transport interval failure (Stitch length)	• Perform a software update • Check selection of class
2188	Error	Stepper motor card X30 Reference drive failure (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2201	Error	Stepper motor X40 reference run timeout	• Check reference sensor
2205	Error	Stepper motor card X40 stepper motor blockage	• Check for stiff movement
2221	Error	Stepper motor card X40 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use the correct interface
2222	Error	Stepper motor card X40 flywheel position not found	• Check stepper motor 1 for stiff movement
2230	Error	Stepper motor card X40 not responding	• Perform a software update • Replace control
2231	Error	Stepper motor card X40 parameter init error	• Perform a software update • Check selection of class
2252	Error	Stepper motor card X40 overcurrent	• Check for stiff movement
2271	Error	Stepper motor card X40 Watchdog (sewing foot lift)	• Perform a software update • Check selection of class
2272	Error	Stepper motor card X40 motor overload / overvoltage / overcurrent (Foot lifting)	• Check selection of class • Replace control • Replace encoder • Replace stepper motor
2273	Error	Stepper motor card X40 Sewing motor encoder not connected (Foot lifting)	• Replace control

Code	Type	Possible cause	Remedial action
2274	Error	Stepper motor card X40 Sewing motor encoder not init (Foot lifting)	• Perform a software update • Check selection of class
2275	Error	Stepper motor card X40 Init Position not found (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2276	Error	Stepper motor card X40 not Enabled (Foot lifting)	• Replace control
2277	Error	Stepper motor card X40 I^2t (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2278	Error	Stepper motor card X40 Encoder failure (Foot lifting)	• Replace encoder
2279	Error	Stepper motor card X40 Current sensor failure (Foot lifting)	• Replace control
2280	Error	Stepper motor card X40 Incorrect stepper motor direction of rotation (Foot lifting)	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
2281	Error	Stepper motor card X40 Reference drive failure (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2283	Error	Stepper motor card X40 overcurrent (Foot lifting)	• Replace control
2284	Error	Stepper motor card X40 parameter init (Foot lifting)	• Perform a software update • Check selection of class
2285	Error	Stepper motor card X40 insulation error (Foot lifting)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2287	Error	Stepper motor card X40 transport interval failure (Foot lifting)	• Perform a software update • Check selection of class

Code	Type	Possible cause	Remedial action
2288	Error	Stepper motor card X40 Reference drive failure (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2301	Error	Stepper motor card X50 Reference drive failure (Stitch length)	• Check reference sensor
2305	Error	Stepper motor card X50 stepper motor blockage	• Check for stiff movement
2321	Error	Stepper motor card X50 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use the correct interface
2322	Error	Stepper motor card X50 flywheel position not found	• Check stepper motor 1 for stiff movement
2330	Error	Stepper motor card X50 not responding	• Perform a software update • Replace control
2331	Error	Stepper motor card X50 parameter init error	• Perform a software update • Check selection of class
2352	Error	Stepper motor card X50 overcurrent	• Check for stiff movement
2371	Error	Stepper motor card X50 Watchdog (sewing foot lift)	• Perform a software update • Check selection of class
2372	Error	Stepper motor card X50 motor overload / overvoltage / overcurrent (Foot stroke)	• Check selection of class • Replace control • Replace encoder • Replace stepper motor
2373	Error	Stepper motor card X50 Sewing motor encoder not connected(Foot stroke)	• Replace control
2374	Error	Stepper motor card X50 Sewing motor encoder not init (Foot stroke)	• Perform a software update • Check selection of class
2375	Error	Stepper motor card X50 Init Position not found (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2376	Error	Stepper motor card X50 not Enabled (Foot stroke)	• Replace control

Code	Type	Possible cause	Remedial action
2377	Error	Stepper motor card X50 Overload (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2378	Error	Stepper motor card X50 Encoder failure (Foot stroke)	• Replace encoder
2379	Error	Stepper motor card X50 Current sensor failure (Foot stroke)	• Replace control
2380	Error	Stepper motor card X50 Incorrect stepper motor direction of rotation (Foot stroke)	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
2381	Error	Stepper motor card X50 Reference drive failure (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2383	Error	Stepper motor card X50 overcurrent (Foot stroke)	• Replace control
2384	Error	Stepper motor card X50 parameter init (Foot stroke)	• Perform a software update • Check selection of class
2385	Error	Stepper motor card X50 insulation error (Foot stroke)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2387	Error	Stepper motor card X50 transport interval failure (Foot stroke)	• Perform a software update • Check selection of class
2388	Error	Stepper motor card X50 Reference drive failure (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2401	Error	Stepper motor card X60 reference run timeout (Edge guide)	• Check reference sensor

Code	Type	Possible cause	Remedial action
2405	Error	Stepper motor card X60 stepper motor blockage (Edge guide)	• Check for stiff movement
2421	Error	Stepper motor card X60 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use the correct interface
2422	Error	Stepper motor card X60 flywheel position not found	• Check stepper motor 1 for stiff movement
2430	Error	Stepper motor card X60 not responding	• Perform a software update • Replace control
2431	Error	Stepper motor card X60 parameter init error	• Perform a software update • Check selection of class
2471	Error	Stepper motor card X60 Watchdog (Edge guide)	• Perform a software update • Check selection of class
2472	Error	Stepper motor card X60 motor overload / overvoltage / overcurrent (Edge guide)	• Check selection of class • Replace control • Replace encoder • Replace stepper motor
2473	Error	Stepper motor card X60 Sewing motor encoder not connected(Edge guide)	• Replace control
2474	Error	Stepper motor card X60 Sewing motor encoder not init (Edge guide)	• Perform a software update • Check selection of class
2475	Error	Stepper motor card X60 Init Position not found (Edge guide)	• Check for stiff movement • Replace encoder • Replace motor
2476	Error	Stepper motor card X60 not Enabled (Edge guide)	• Replace control
2477	Error	Stepper motor card X60 Overload (Edge guide)	• Check for stiff movement • Replace encoder • Replace motor
2478	Error	Stepper motor card X60 Encoder failure (Edge guide)	• Replace encoder

Code	Type	Possible cause	Remedial action
2479	Error	Stepper motor card X60 Current sensor failure (Edge guide)	• Replace control
2480	Error	Stepper motor card X60 Incorrect stepper motor direction of rotation (Edge guide)	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
2481	Error	Stepper motor card X60 Reference drive failure (Edge guide)	• Check for stiff movement • Replace encoder • Replace motor
2483	Error	Stepper motor card X60 overcurrent (Edge guide)	• Replace control
2484	Error	Stepper motor card X60 parameter init (Edge guide)	• Perform a software update • Check selection of class
2485	Error	Stepper motor card X60 insulation error (Edge guide)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2487	Error	Stepper motor card X60 transport interval failure (Edge guide)	• Perform a software update • Check selection of class
2488	Error	Stepper motor card X60 Reference drive failure (Edge guide)	• Check for stiff movement • Replace encoder • Replace motor
2501	Error	Stepper motor card X70 reference run timeout (upper Puller)	• Check reference sensor
2505	Error	Stepper motor card X70 stepper motor blockage (upper Puller)	• Check for stiff movement

Code	Type	Possible cause	Remedial action
2521	Error	Stepper motor card X70 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use the correct interface
2522	Error	Stepper motor card X70 flywheel position not found	• Check stepper motor 1 for stiff movement
2530	Error	Stepper motor card X70 not responding	• Perform a software update • Replace control
2531	Error	Stepper motor card X70 parameter init error	• Perform a software update • Check selection of class
2571	Error	Stepper motor card X70 Watchdog (upper Puller)	• Perform a software update • Check selection of class
2572	Error	Stepper motor card X70 motor overload / overvoltage / overcurrent (upper Puller)	• Check selection of class • Replace control • Replace encoder • Replace stepper motor
2573	Error	Stepper motor card X70 Sewing motor encoder not connected(upper Puller)	• Replace control
2574	Error	Stepper motor card X70 Sewing motor encoder not init (upper Puller)	• Perform a software update • Check selection of class
2575	Error	Stepper motor card X70 Init Position not found (upper Puller)	• Check for stiff movement • Replace encoder • Replace motor
2576	Error	Stepper motor card X70 not Enabled (upper Puller)	• Replace control
2577	Error	Stepper motor card X70 Overload (upper Puller)	• Check for stiff movement • Replace encoder • Replace motor
2578	Error	Stepper motor card X70 Encoder failure (upper Puller)	• Replace encoder
2579	Error	Stepper motor card X70 Current sensor failure (upper Puller)	• Replace control

Code	Type	Possible cause	Remedial action
2580	Error	Stepper motor card X70 Incorrect stepper motor direction of rotation (upper Puller)	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
2581	Error	Stepper motor card X70 Reference drive failure (upper Puller)	• Check for stiff movement • Replace encoder • Replace motor
2583	Error	Stepper motor card X70 overcurrent (upper Puller)	• Replace control
2584	Error	Stepper motor card X70 parameter init (upper Puller)	• Perform a software update • Check selection of class
2585	Error	Stepper motor card X70 insulation error (upper Puller)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2587	Error	Stepper motor card X70 transport interval failure (upper Puller)	• Perform a software update • Check selection of class
2588	Error	Stepper motor card X70 Reference drive failure (upper Puller)	• Check for stiff movement • Replace encoder • Replace motor
2601	Error	Stepper motor X80 reference run timeout (bottom puller)	• Check reference sensor
2605	Error	Stepper motor card X80 stepper motor blockage (bottom puller)	• Check for stiff movement
2621	Error	Stepper motor card X82 encoder plug (Sub-D, 9-pin) not connected (bottom puller)	• Connect encoder cable to the control, use the correct interface

Code	Type	Possible cause	Remedial action
2622	Error	Stepper motor card X80 flywheel position not found (bottom puller)	• Check stepper motor 6 for stiff movement
2630	Error	Stepper motor card X80 not responding (bottom puller)	• Perform a software update • Replace control
2631	Error	Stepper motor card X80 init failure (bottom puller)	• Perform a software update • Check selection of class
2671	Error	Stepper motor card X80 Watchdog (bottom puller)	• Perform a software update • Check selection of class
2672	Error	Stepper motor card X80 motor overload / overvoltage / overcurrent (bottom puller)	• Check selection of class • Replace control • Replace encoder • Replace stepper motor
2673	Error	Stepper motor card X80 Sewing motor encoder not connected (bottom puller)	• Replace control
2674	Error	Stepper motor card X80 Sewing motor encoder not init (bottom puller)	• Perform a software update • Check selection of class
2675	Error	Stepper motor card X80 Init Position not found (bottom puller)	• Check for stiff movement • Replace encoder • Replace motor
2676	Error	Stepper motor card X80 not Enabled (bottom puller)	• Replace control
2677	Error	Stepper motor card X80 I^2t (bottom puller)	• Check for stiff movement • Replace encoder • Replace motor
2678	Error	Stepper motor card X80 Encoder failure (bottom puller)	• Replace encoder
2679	Error	Stepper motor card X80 Current sensor failure (bottom puller)	• Replace control

Code	Type	Possible cause	Remedial action
2680	Error	Stepper motor card X80 Incorrect stepper motor direction of rotation (bottom puller)	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
2681	Error	Stepper motor card X80 Reference drive failure (bottom puller)	• Check for stiff movement • Replace encoder • Replace motor
2683	Error	Stepper motor card X80 overcurrent (bottom puller)	• Replace control
2684	Error	Stepper motor card X80 parameter init (bottom puller)	• Perform a software update • Check selection of class
2685	Error	Stepper motor card X80 insulation error (bottom puller)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2687	Error	Stepper motor card X80 transport interval failure (bottom puller)	• Perform a software update • Check selection of class
2688	Error	Stepper motor card X80 Reference drive failure (bottom puller)	• Check for stiff movement • Replace encoder • Replace motor
2901	Error	General Reference Timeout of the stepper motors	• Check the reference sensors
3010	Error	U100 V start-up error	• Disconnect the stepper motor plugs; if error persists, replace control
3011	Error	U100 V short circuit	• Disconnect motor plug; replace control if error is not corrected: Replace control
3012	Error	U100 V (I^2T) overload	• One or several stepper motors defective
3020	Error	U24 V start-up error	• Disconnect magnet plug; replace control if error is not corrected: Replace control

Code	Type	Possible cause	Remedial action
3021	Error	U24 V short circuit	• Disconnect magnet plug; replace control if error is not corrected: Replace control
3022	Error	U24 V (I^2T) overload	• One or several magnets defective
3030	Error	Motor phase failure	• Replace control
3104	Warning	Pedal is not in position 0	• When switching the control on, take your foot off the pedal
3109	Warning	Operation lock	• Check tilt sensor on machine
3110	Information	Right thread tension magnet is not connected	• Check the connection of right thread tension magnet
3111	Information	Left thread tension magnet is not connected	• Check the connection of left thread tension magnet
3150	Information	Maintenance necessary	• For information on lubricating the machine, see the service instructions for the machine
3217	Information	RFW right	• Bobbin is empty • Insert a new bobbin
3223	Information	Skip stitch detection	• -
3224	Information	Bobbin rotation monitor	• The bobbin is not rotating • Check the bobbin, advance the initial thread
3225	Information	SSD sensor is soiled	• Use compressed air or a soft cotton cloth to clean the sensor
3354	Information	Failure in thread trimmer process	• Perform a software update
3383	Information	Failure in with the motor referencing process	• Check motor • Perform a software update
4201	Warning	Failure SD-Card	• Insert SD card • Replace control

Code	Type	Possible cause	Remedial action
4430	Warning	OP3000: Connection lost	• Check connection to OP3000 • Replace OP3000 • Replace control
4440	Error	OP3000: DAC receive buffer exceeded	• Check connection to OP3000 • Replace OP3000 • Replace control
4441	Warning	OP3000: DAC receiver timeout	• Check connection to OP3000 • Replace OP3000 • Replace control
4442	Warning	OP3000: DAC unknown message	• Check connection to OP3000 • Replace OP3000 • Replace control
4443	Warning	OP3000: DAC invalid checksum	• Check connection to OP3000 • Replace OP3000 • Replace control
4445	Error	OP3000: DAC send buffer exceeded	• Check connection to OP3000 • Replace OP3000 • Replace control
4446	Warning	OP3000: DAC no response	• Check connection to OP3000 • Replace OP3000 • Replace control
4447	Warning	OP3000: DAC invalid response	• Check connection to OP3000 • Replace OP3000 • Replace control
4450	Error	OP3000: DAC OP Receive buffer exceeded	• Check connection to OP3000 • Replace OP3000 • Replace control
4451	Warning	OP3000: DAC OP receiver timeout	• Check connection to OP3000 • Replace OP3000 • Replace control
4452	Warning	OP3000: DAC OP unknown message	• Check connection to OP3000 • Replace OP3000 • Replace control

Code	Type	Possible cause	Remedial action
4456	Warning	OP3000: DAC no response	• Check connection to OP3000 • Replace OP3000 • Replace control
4460	Warning	OP7000 connection lost	• Check connection to OP7000 • Replace OP7000 • Replace control
4906	Information	Not in translation table	• Check machine ID port • Reset or machine class change necessary
4907	Information	Not in translation table	• Reset or machine class change necessary
4908	Information	Not in translation table	• Reset necessary
4911	Information	Not in translation table	• Reset necessary
4918	Warning	Invalid update file	• Contact DA Service
4919	Warning	Reset failed	• Contact DA Service
4920	Warning	Error in update log	• Contact DA Service
4921	Warning	The update was interrupted	• Contact DA Service
4922	Error	Unable to find user database	• Contact DA Service
4923	Error	Synchronization failed	• Contact DA Service
4930	Information	Control replaced	• Data transfer from control panel to control
4931	Information	Checksum error of the control	• Data transfer from control panel to control
6353	Error	EEprom Timeout	• Switch off the control, wait until the LEDs are off, check connection for machine ID, and switch on control again
5001	Information	Incorrect class	• Change class • Perform reset

Code	Type	Possible cause	Remedial action
5002	Information	Incorrect class or machine ID connection error	• Change class • Perform reset
5003	Information	Data version is too old	• Perform reset
5004	Information	Checksum is incorrect	• Perform reset
6360	Information	No valid data on external EEprom (internal data structures are not compatible with the external data storage device)	• Software update
6361	Information	No external EEprom connected	• Connect machine ID
6362	Information	No valid data on internal EEprom (internal data structures are not compatible with the external data storage device)	• Check machine ID connection • Switch off the control, wait until the LEDs have gone out, and then switch on the control again • Software update
6363	Information	No valid data on internal and external EEprom (software version is not compatible with the internal data storage device, emergency operating features only)	• Check machine ID connection • Switch off the control, wait until the LEDs have gone out, and then switch on the control again • Software update
6364	Information	No valid data on internal EEprom and no external EEprom connected (the internal data structures are not compatible with the external data storage device)	• Check machine ID connection • Switch off the control, wait until the LEDs have gone out, and then switch on the control again • Software update
6365	Information	Internal EEprom defective	• Replace control
6366	Information	Internal EEprom defective and external data not valid (emergency operating features only)	• Replace control
6367	Information	Internal EEprom defective and external data not valid (emergency operating features only)	• Replace control

Code	Type	Possible cause	Remedial action
7270	Information	External CAN	• Check connection cables • Perform a software update • Replace CAN slaves
9310	Error	Tape feeder not connected	• Check connection cables • Perform a software update • Replace the control of the tape feeder
9320	Error	Tape feeder in lowered position	• No remedial action entered in translation table
9330	Information	Material thickness sensor not connected	• Check connection cables • Perform a software update • Replace material thickness sensor
9340	Error	Remaining thread monitor not connected	• Check connection cables • Perform a software update • Replace remaining thread monitor
9910	Warning	Sewing stop	• Check tilt sensor on machine • Check 24V • Replace control
9911	Warning	Power down	• The control is switched off
9912	Warning	Restart necessary	• Switch off the control
9913	Warning	Empty bobbin	• Please insert a full bobbin
9914	Warning	Reset	• Remove USB key!
9915	Warning	Please Wait!	• Please wait and do not remove USB key
9916	Warning	Erase internal Memory	• Deletion of the SD card. Continue with OK; cancel with ESC
9917	Warning	Erase USB key	• Deletion of the USB key. Continue with OK; cancel with ESC
9918	Warning	No USB key present	• Please insert USB key
9919	Warning	Sewing stop	• Machine in stop mode for threading the thread
9920	Warning	Referencing	• Please wait for motor referencing
9921	Warning	Show Message from QONDAC	• Show Message

Code	Type	Possible cause	Remedial action
9922	Warning	Service Stop	• Check the Service Stop button • Check 24V • Replace control
9923	Warning	Update required	• Press OK for Restart or ESC for cancel
9924	Warning	Security key generated	• Creation of a security key on a USB key
9925	Warning	Security Key changed!	• Overwrite Security Key?
9926	Warning	Please Confirm Reset	• Really reset?
9927	Warning	Reset	• Reset successfully
9928	Warning	Referencing?	• Press pedal backwards (pedal position-2)
9929	Warning	Not enough thread available	• Please insert a full bobbin
9930	Warning	Empty bobbin	• Please insert a full bobbin
9931	Information	Bobbin Wind mode	• Press pedal backwards exit bobbin wind mode
9932	Information	No program available	• Automatic mode is not available without a seam program. Please use programming mode to create a new seam program.

10.3 Errors in sewing process

Error	Possible causes	Remedial action
Unthreading at seam beginning	Needle thread pretension is too firm	Check needle thread pretension (📖 *p. 42*).
Thread breaking	Needle thread and hook thread have not been threaded correctly	Check threading path (📖 *p. 25*).
	Needle is bent or sharp-edged	Replace the needle (📖 *p. 22*).
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar (📖 *p. 22*).
	The thread used is unsuitable	Use recommended thread (📖 *p. 197*).
	Thread tensions are too tight for the thread used	Check thread tensions (📖 *p. 42*).
	Thread-guiding parts, such as thread guides, are sharp-edged	Check threading path (📖 *p. 25*).
	Throat plate or hook have been damaged by the needle	Have parts reworked by qualified specialists

Error	Possible causes	Remedial action
Skip stitches	Needle thread and hook thread have not been threaded correctly	Check threading path (📖 *p. 25*, 📖 *p. 39*).
	Needle is blunt or bent	Replace the needle (📖 *p. 22*).
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar (📖 *p. 22*).
	The needle thickness used is unsuitable	Use recommended needle thickness (📖 *p. 197*).
	The reel stand is assembled incorrectly	Check the assembly of the reel stand
	Thread tensions are too tight	Check thread tensions (📖 *p. 42*).
	Throat plate or hook have been damaged by the needle	Have parts reworked by qualified specialists
	Distance from the hook to the needle is not set correctly	Set the correct distance (📖 *Service Instructions*)
Loose stitches	Thread tensions are not adjusted to the sewing material, the sewing material thickness or the thread used	Check thread tensions (📖 *p. 42*).
	Needle thread and hook thread have not been threaded correctly	Check threading path (📖 *p. 25*, 📖 *p. 39*).
Needle breakage	Needle thickness is unsuitable for the sewing material or the thread	Use recommended needle thickness (📖 *p. 197*).

11 Technical data

11.1 Data and characteristic values

Technical data	Unit	D868-190922	D868-290922
Type of stitches		Double lockstitch 301	
Hook type		vertical (L), large (28mm)	
Number of needles		1	2
Needle system		134-35	
Needle strength	[Nm]	90 - 180	
Thread strength	[Nm]	120/3 - 10/3 (KFA max. 10/3)	
Stitch length	[mm]	12/12	
Speed maximum	[mm^{-1}]	2500	
Speed on delivery	[mm^{-1}]	2500	
Sewing foot stroke	[mm]	9	
Lifting height	[mm]	20	
Mains voltage	[V]	230 V	
Mains frequency	[Hz]	50/60	
Operating pressure	[bar]	6 (Compressed air only required in combination with optional additional equipment)	
Length	[mm]	690	
Width	[mm]	220	
Height	[mm]	480	
Weight	[kg]	74	76

11.2 Requirements for trouble-free operation

Compressed air quality must be ensured in accordance with ISO 8573-1: 2010 [7:4:4].

12 Appendix

12.1 Wiring diagram

Fig. 93: Wiring diagram

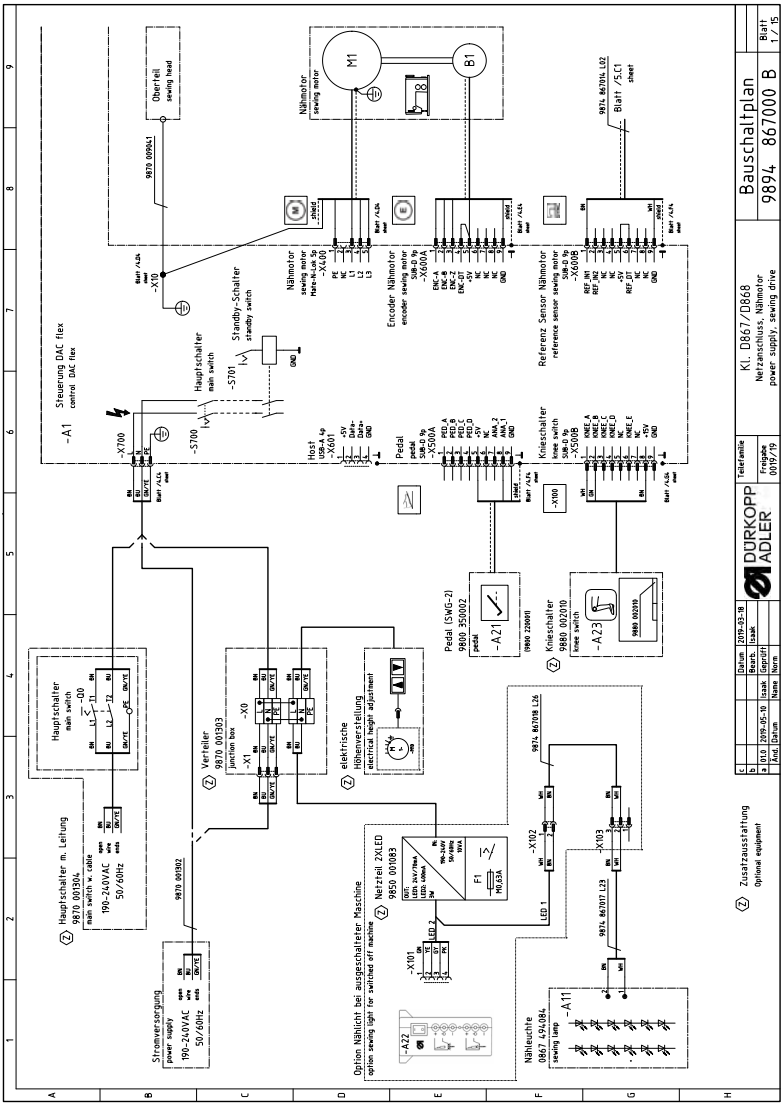


Fig. 94: Wiring diagram

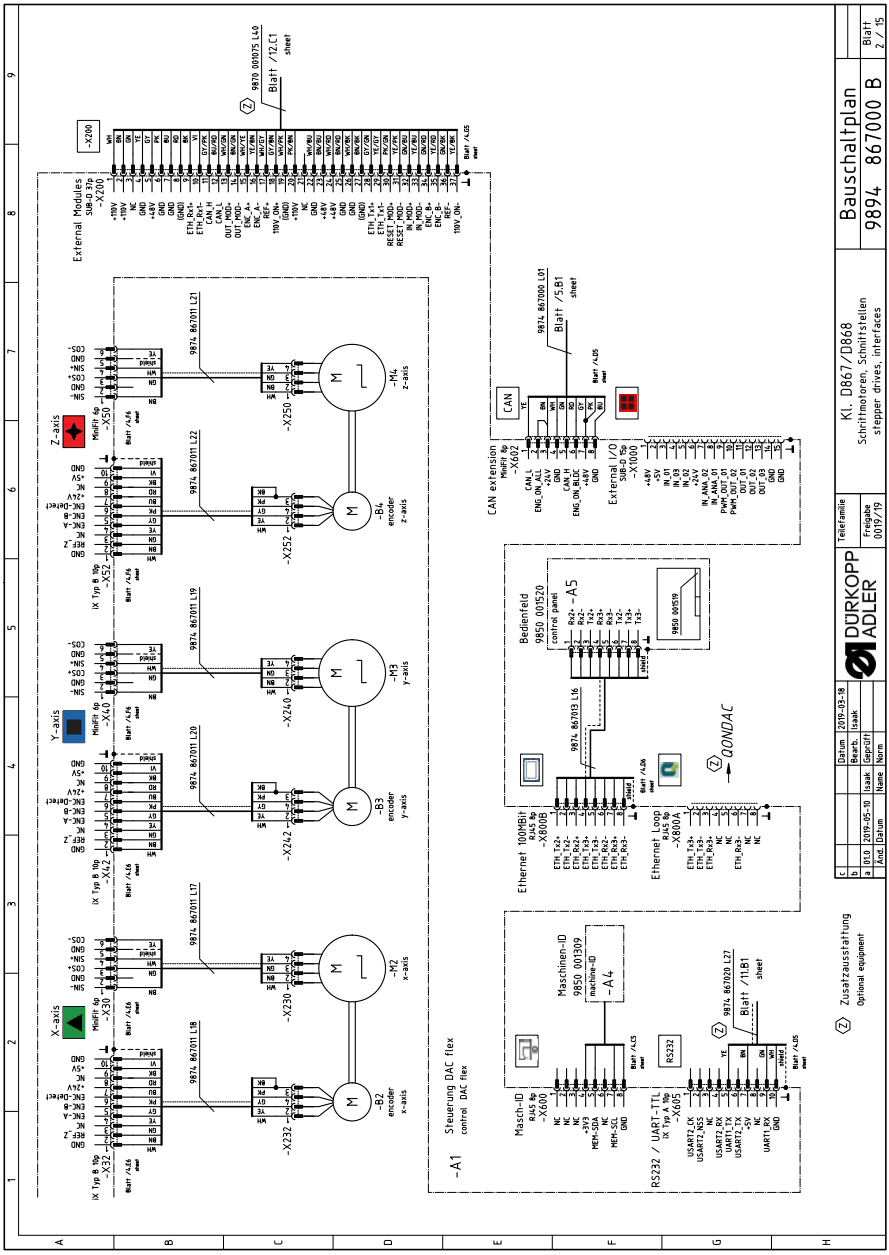


Fig. 95: Wiring diagram

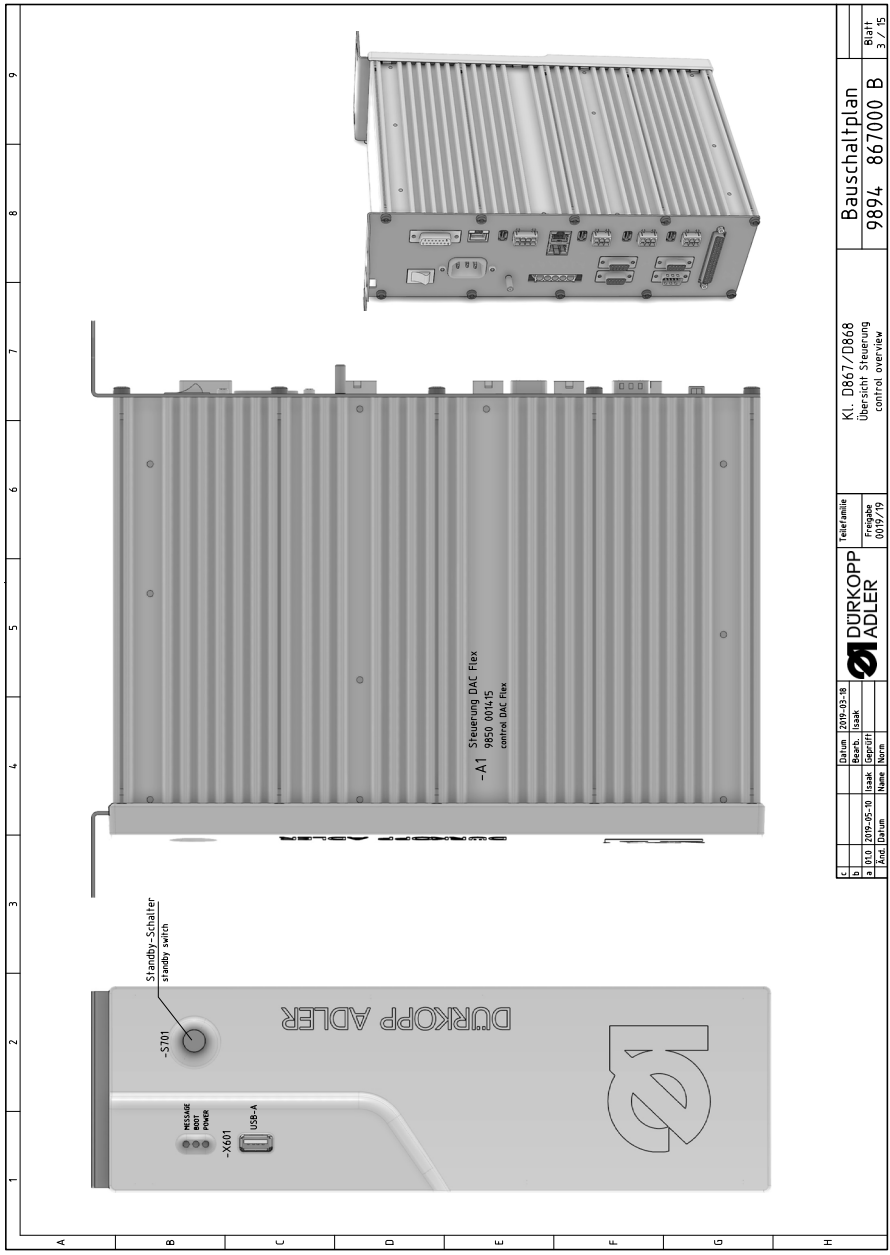


Fig. 96: Wiring diagram

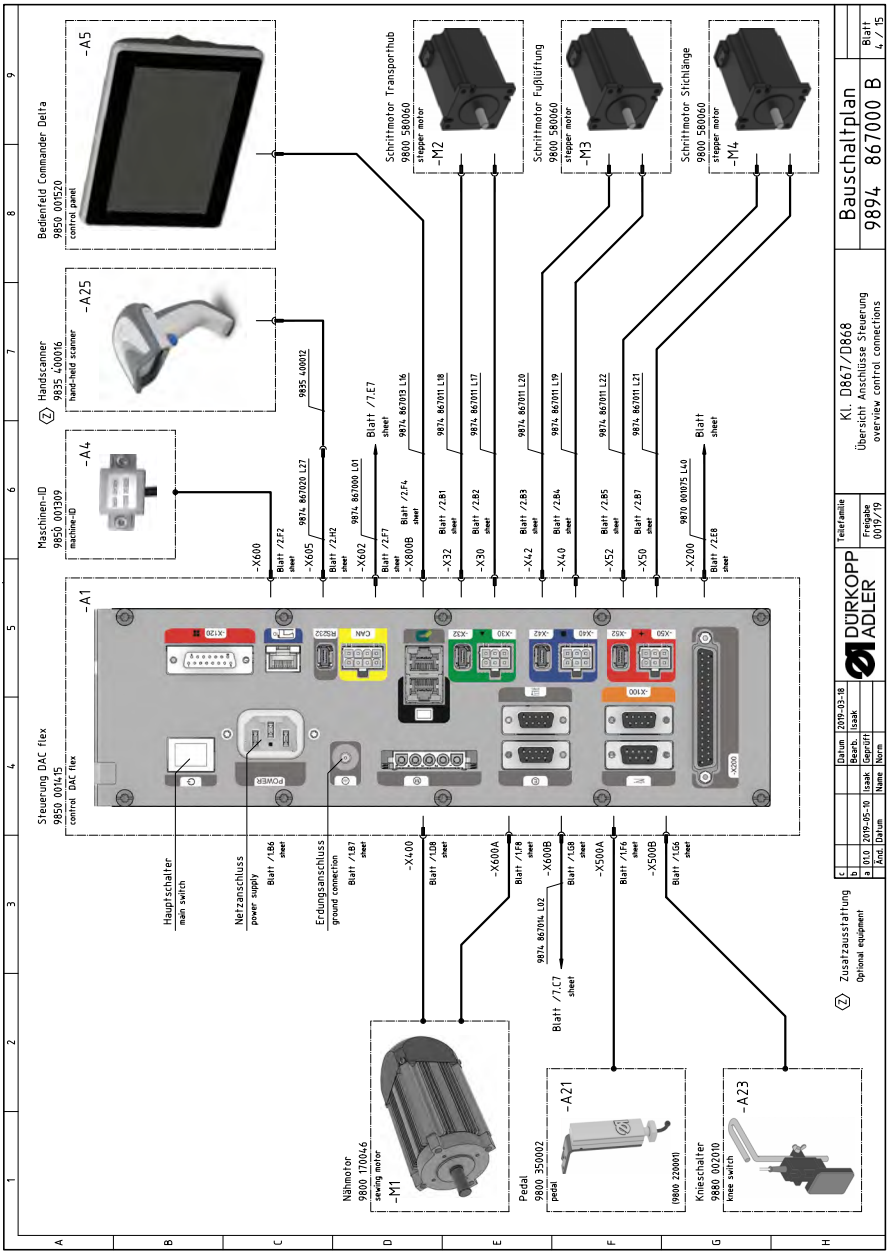


Fig. 97: Wiring diagram

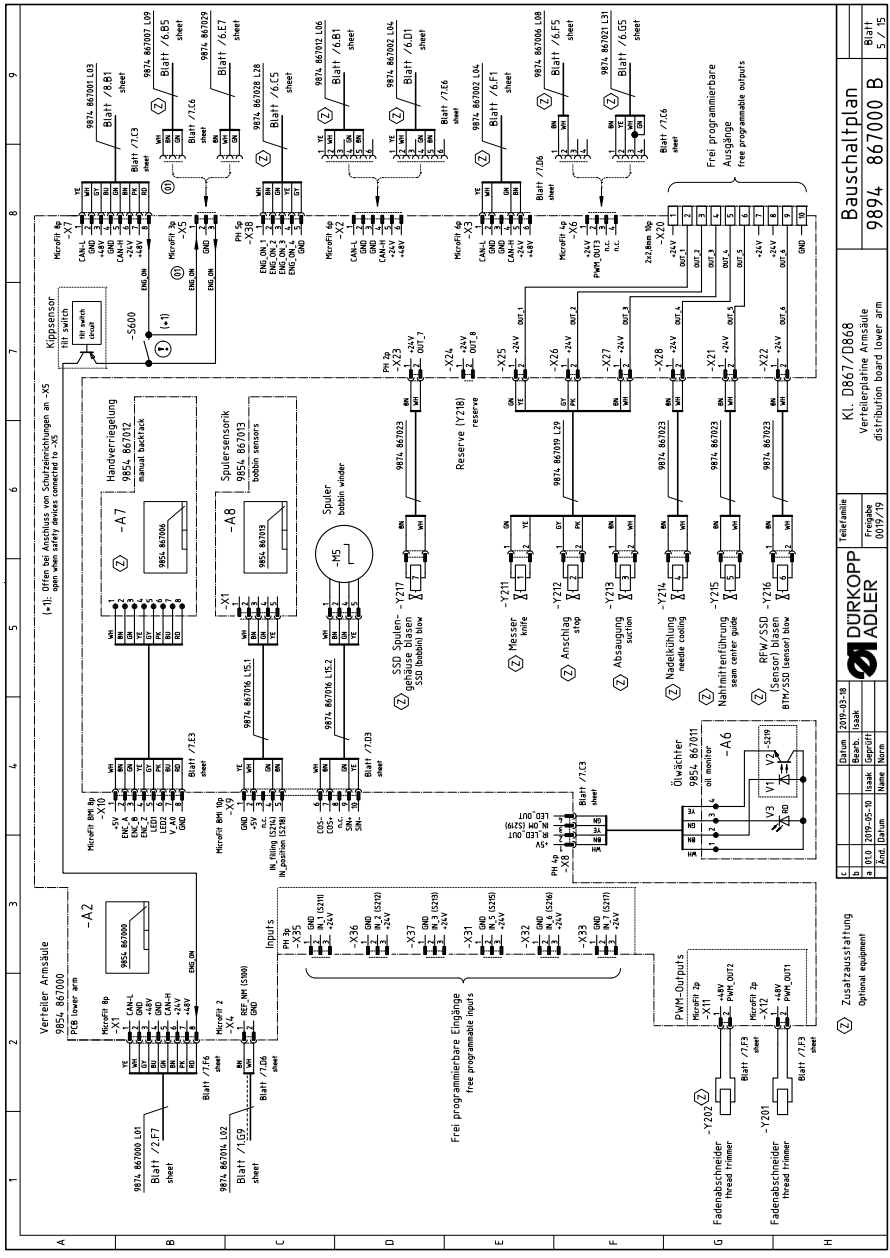


Fig. 98: Wiring diagram

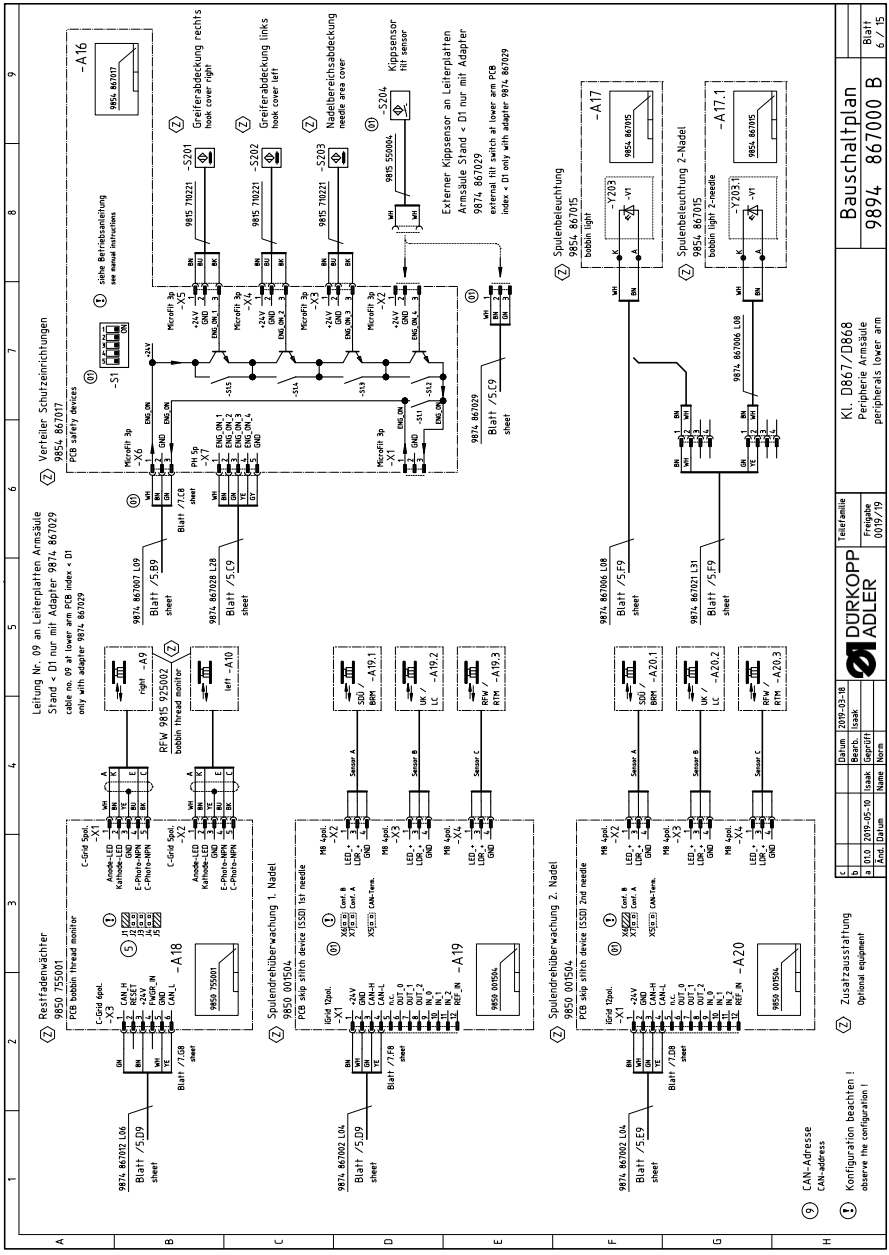


Fig. 99: Wiring diagram

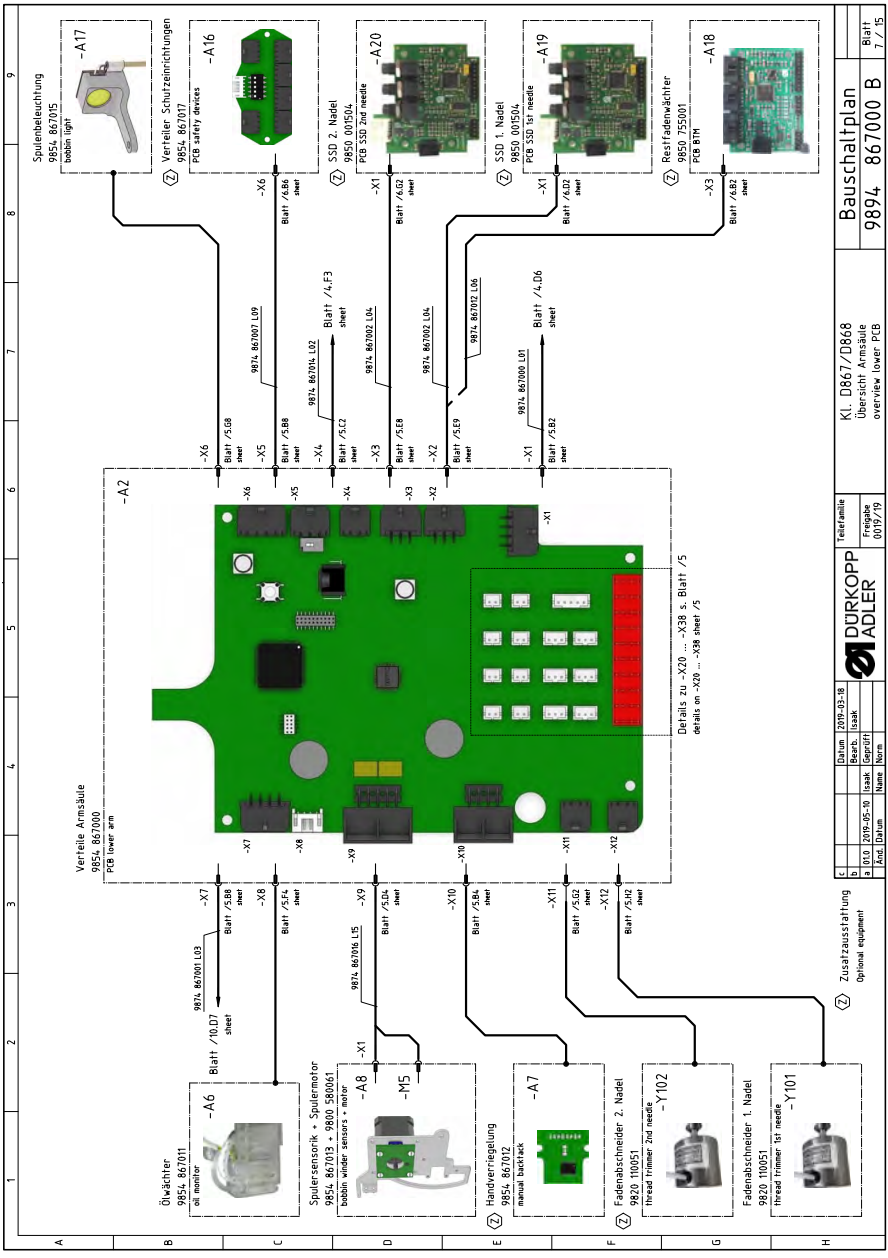


Fig. 100: Wiring diagram

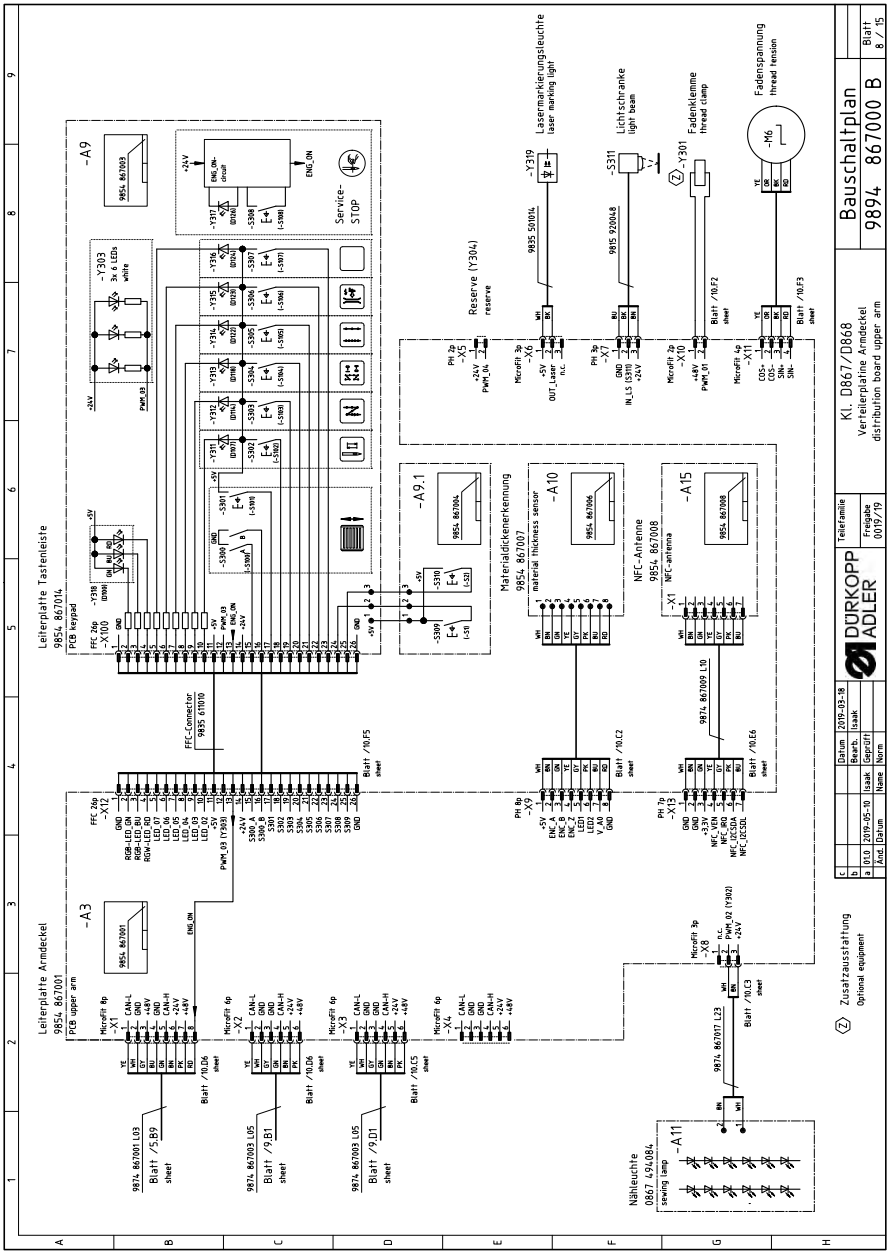


Fig. 101: Wiring diagram

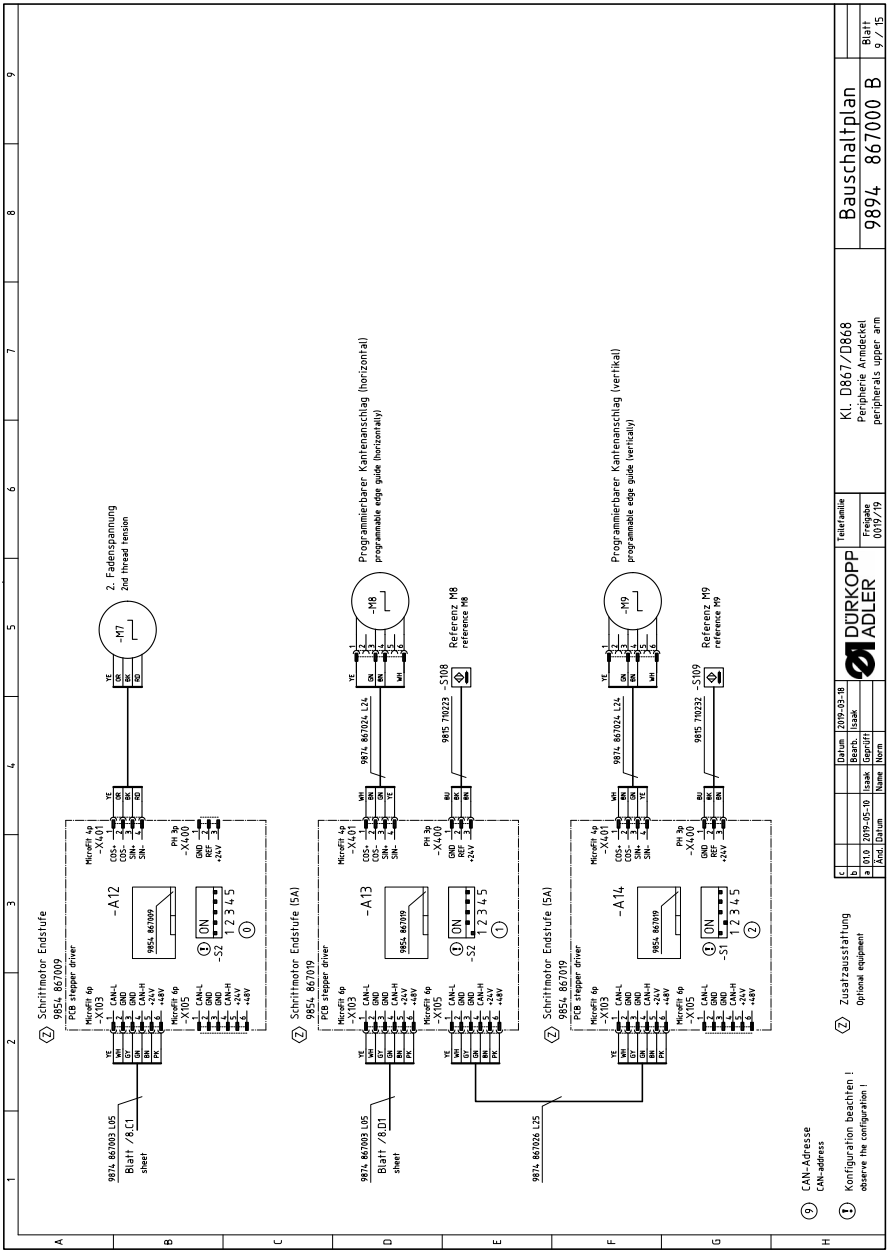


Fig. 102: Wiring diagram

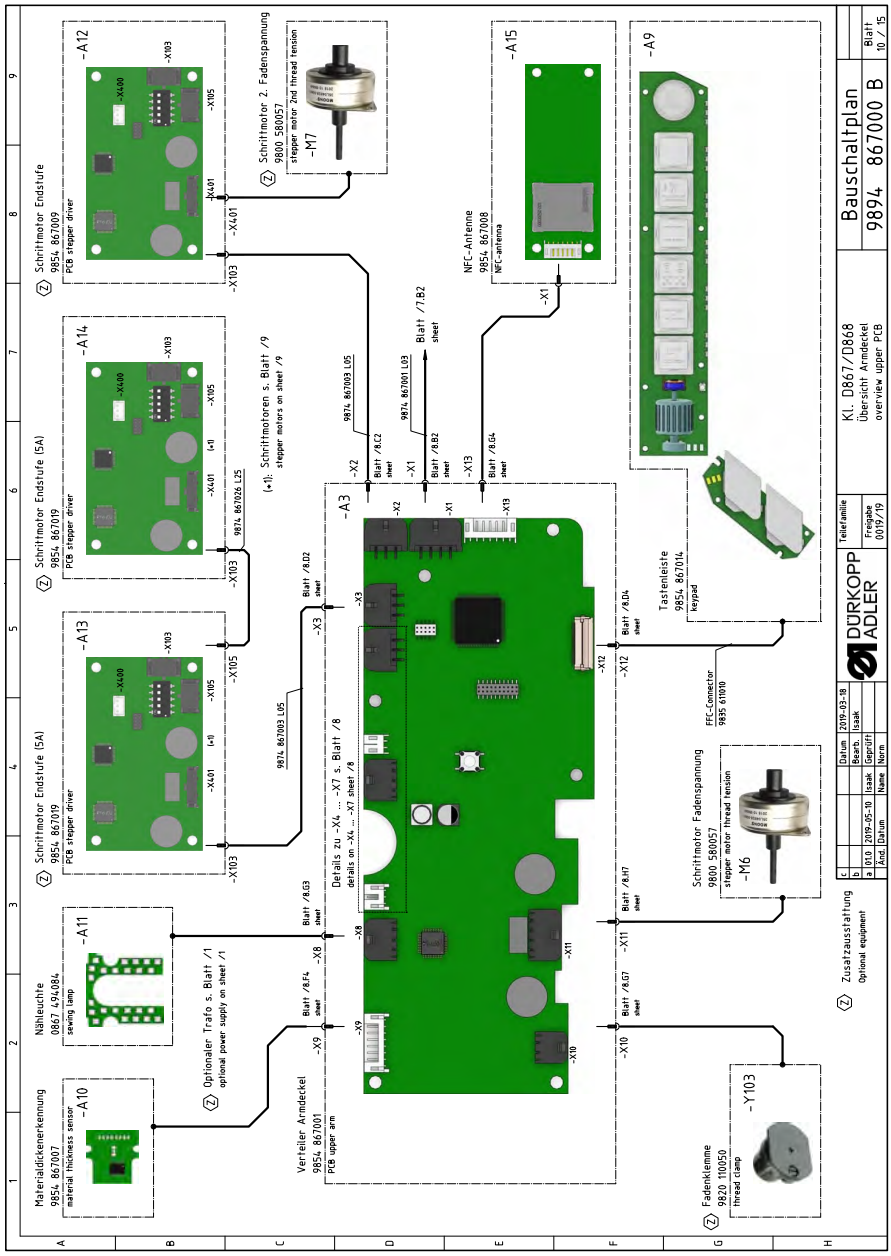


Fig. 103: Wiring diagram

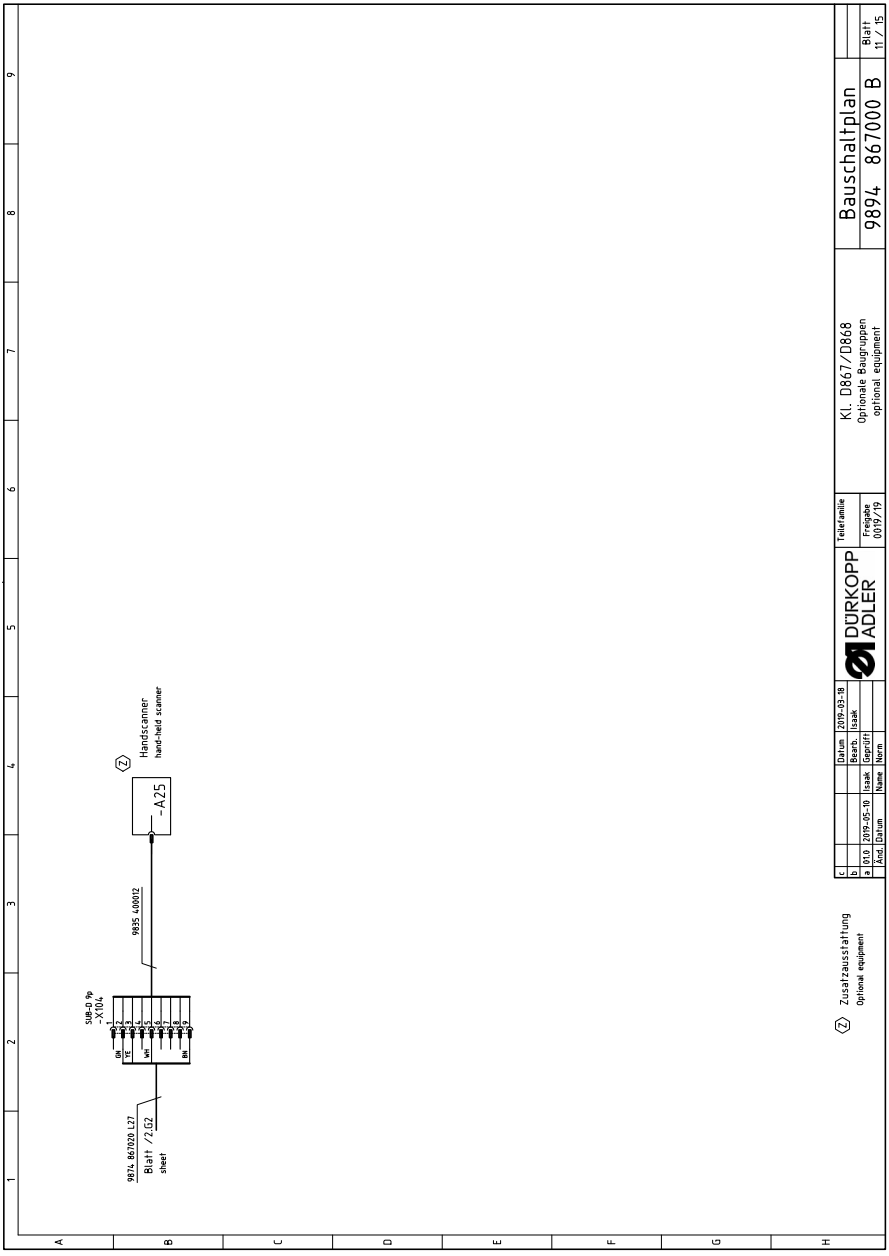


Fig. 104: Wiring diagram

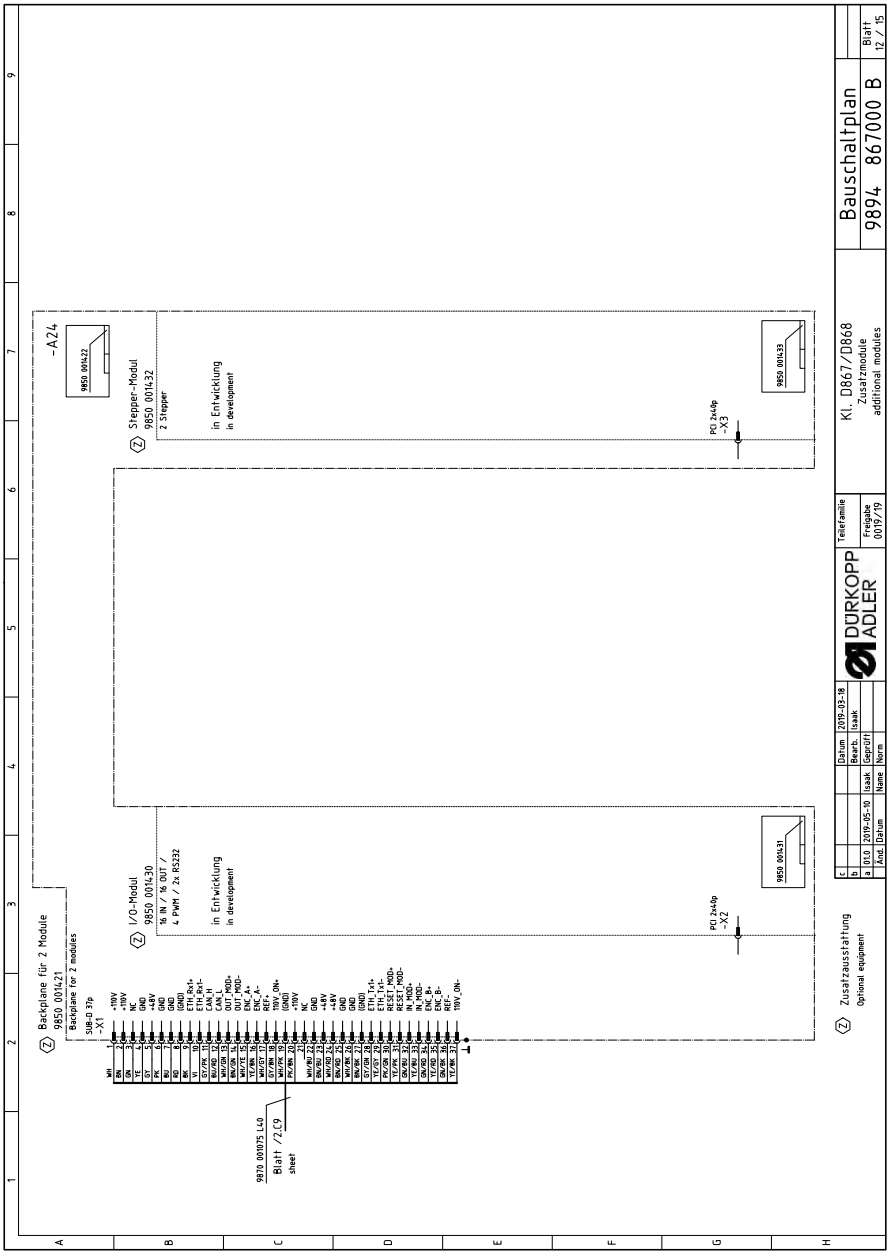


Fig. 105: Wiring diagram

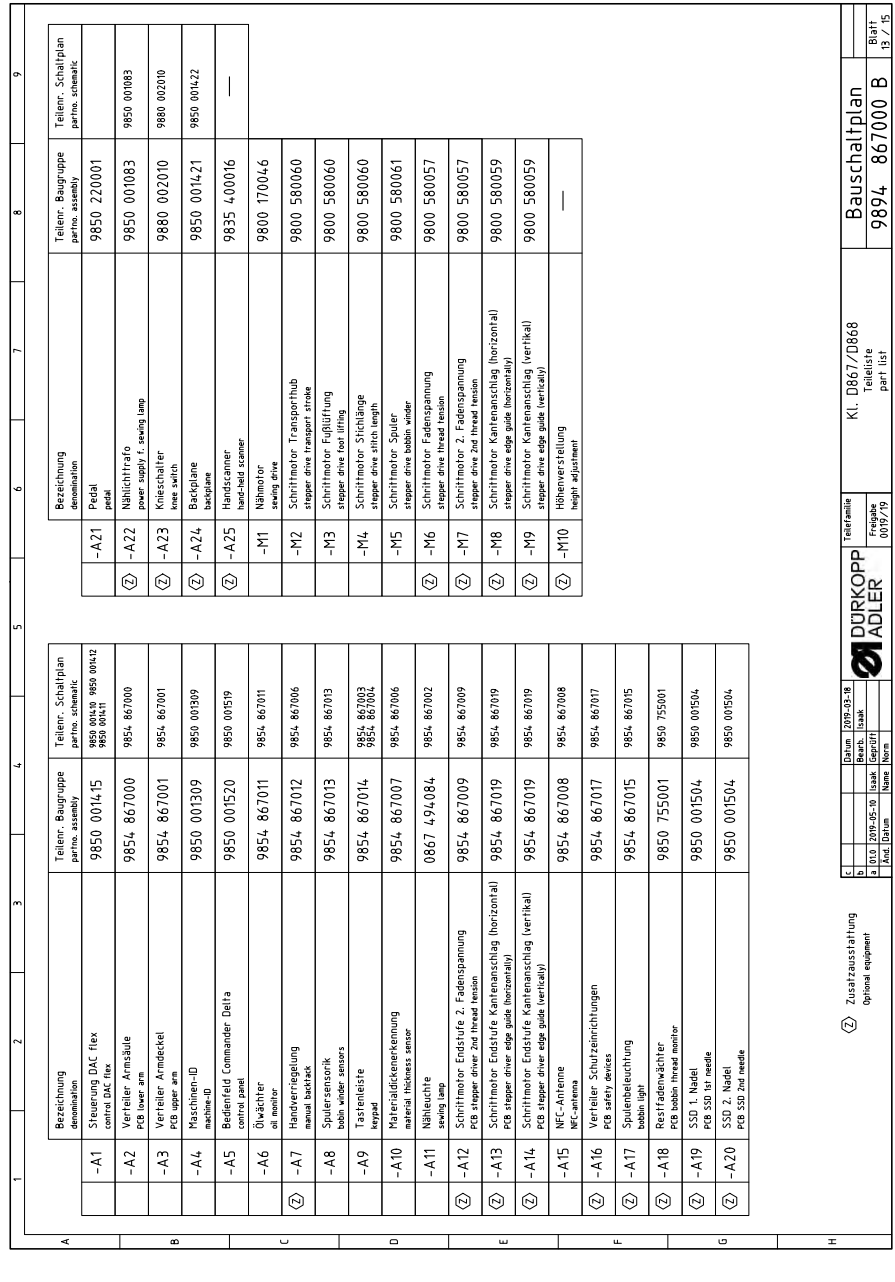


Fig. 106: Wiring diagram

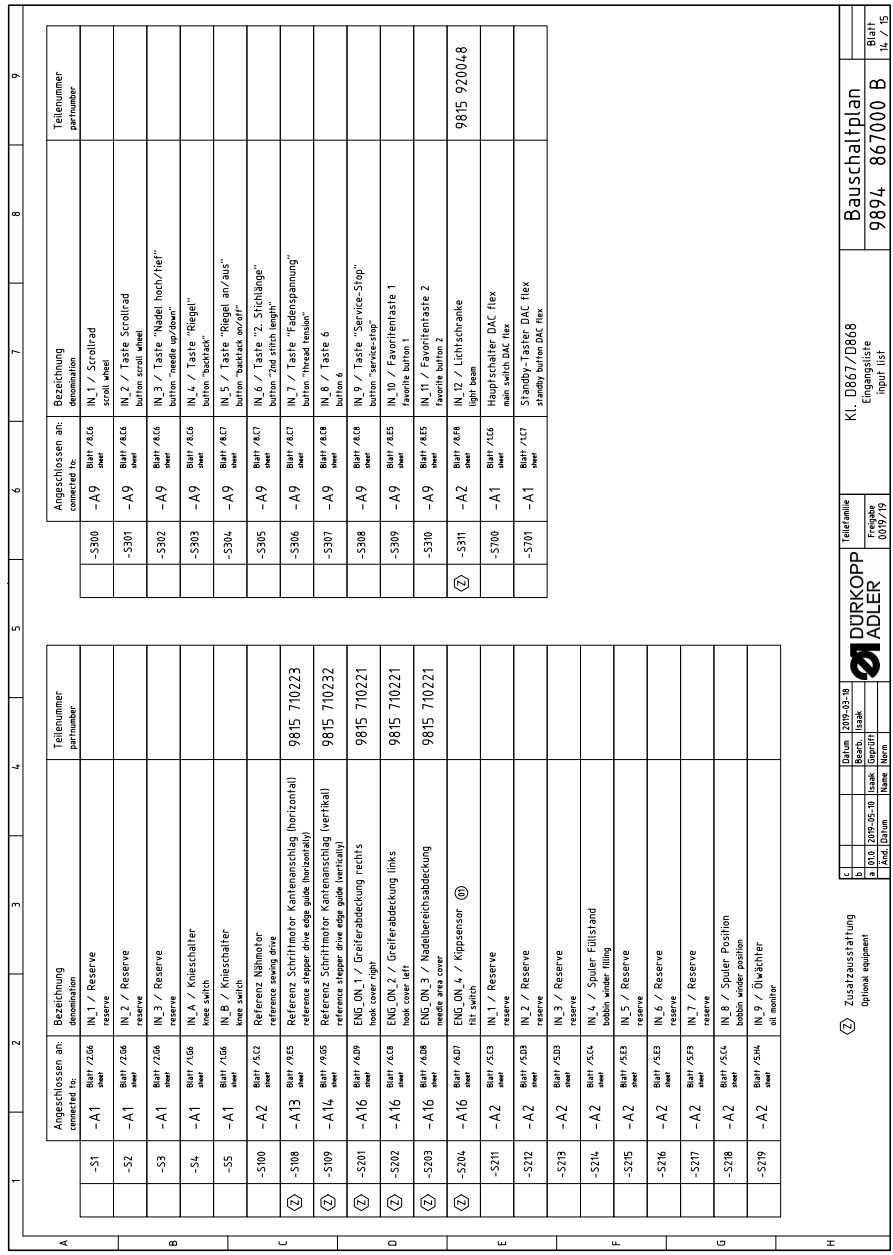
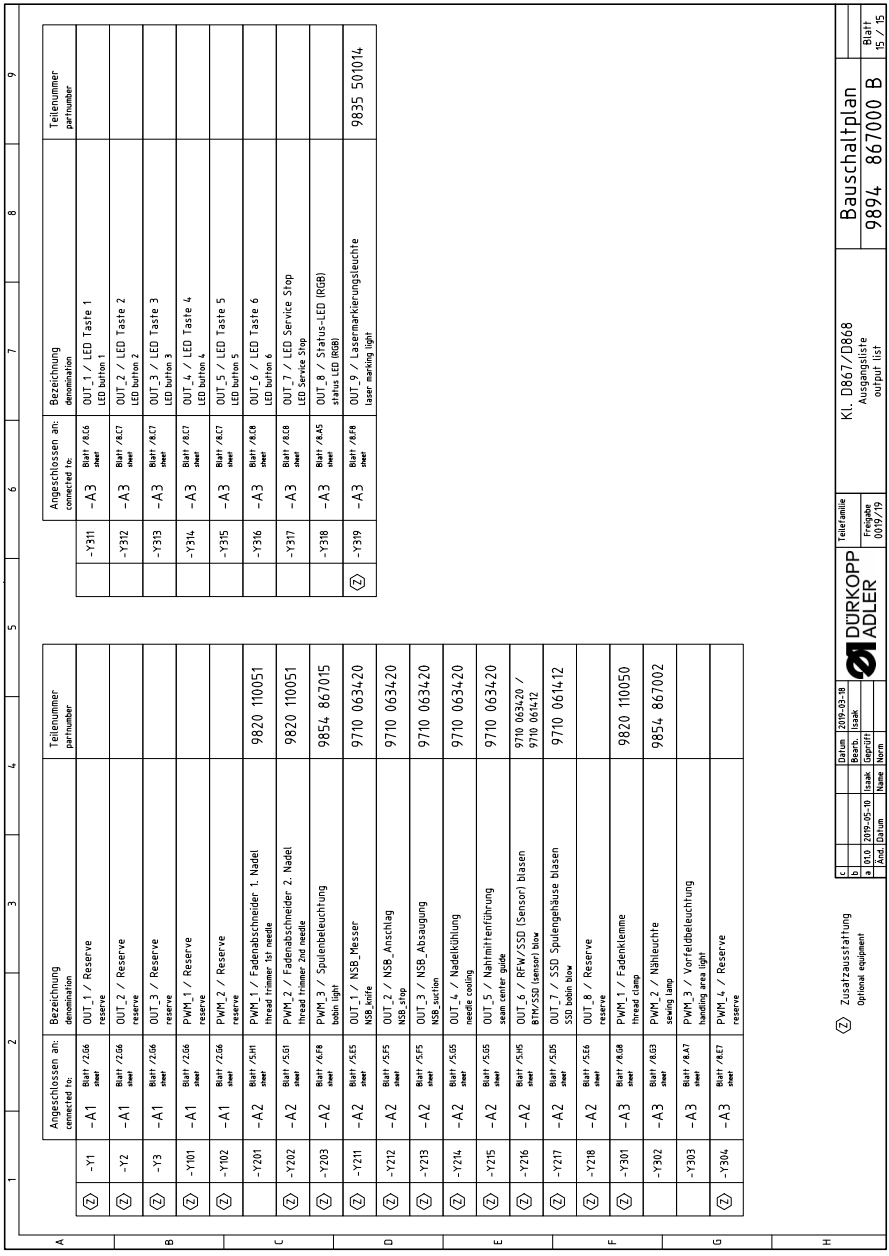


Fig. 107: Wiring diagram



12.2 Tabletop drawings

Fig. 108: Tabletop

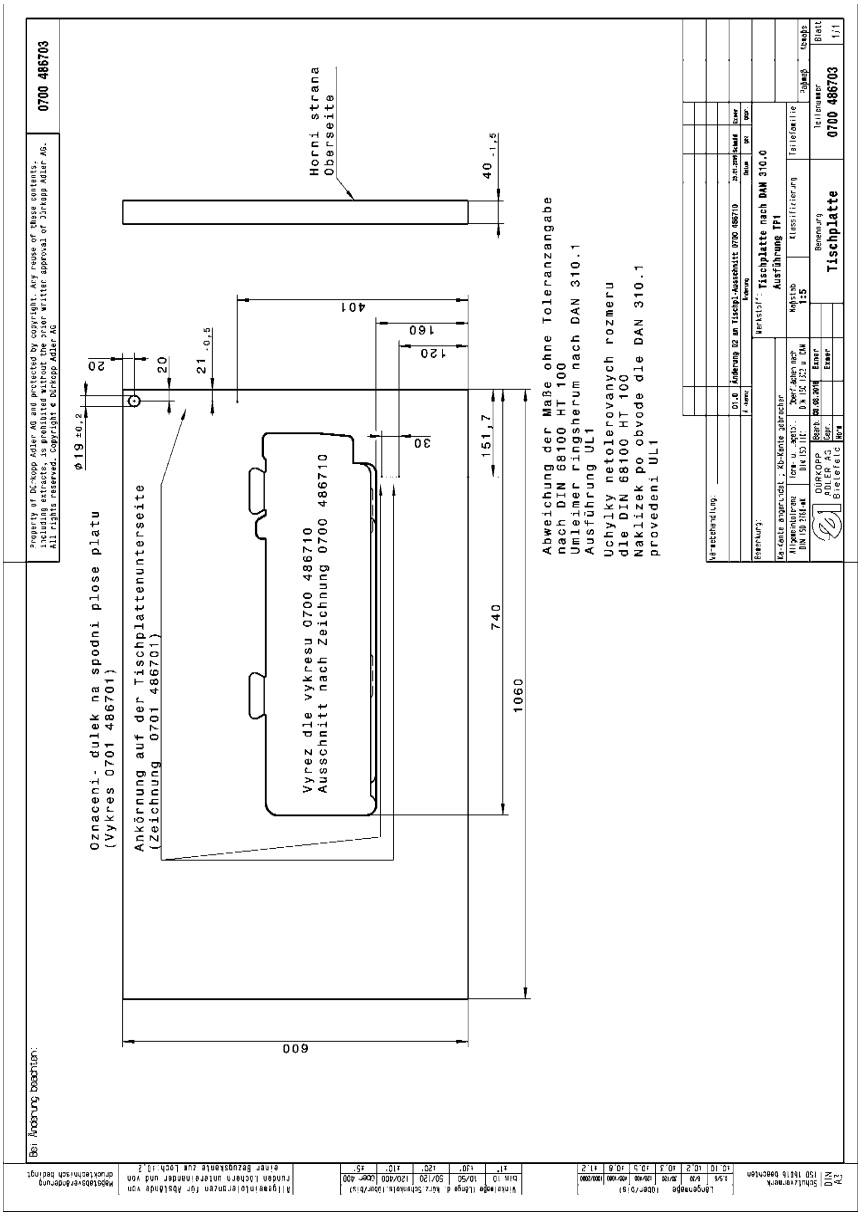


Fig. 109: Tabletop

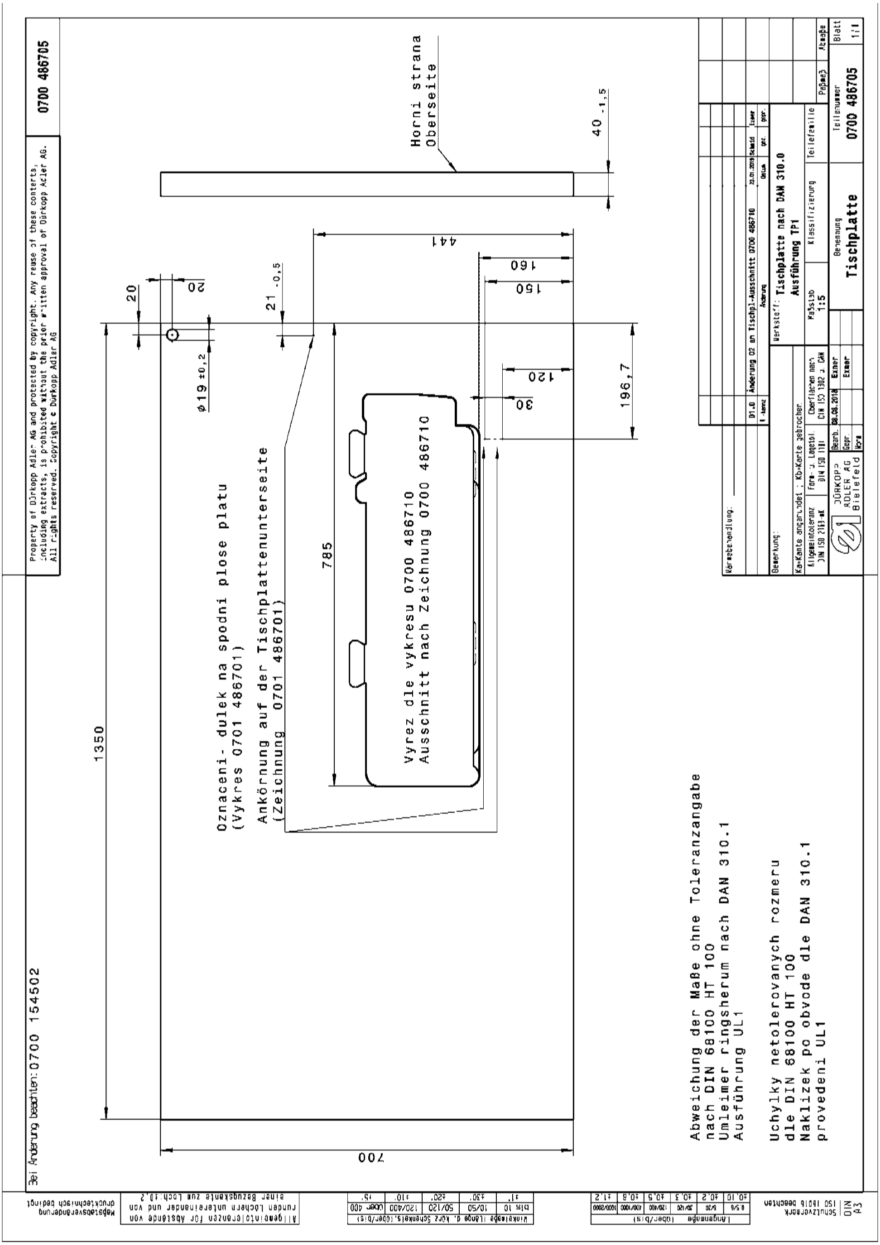


Fig. 110: Tabletop

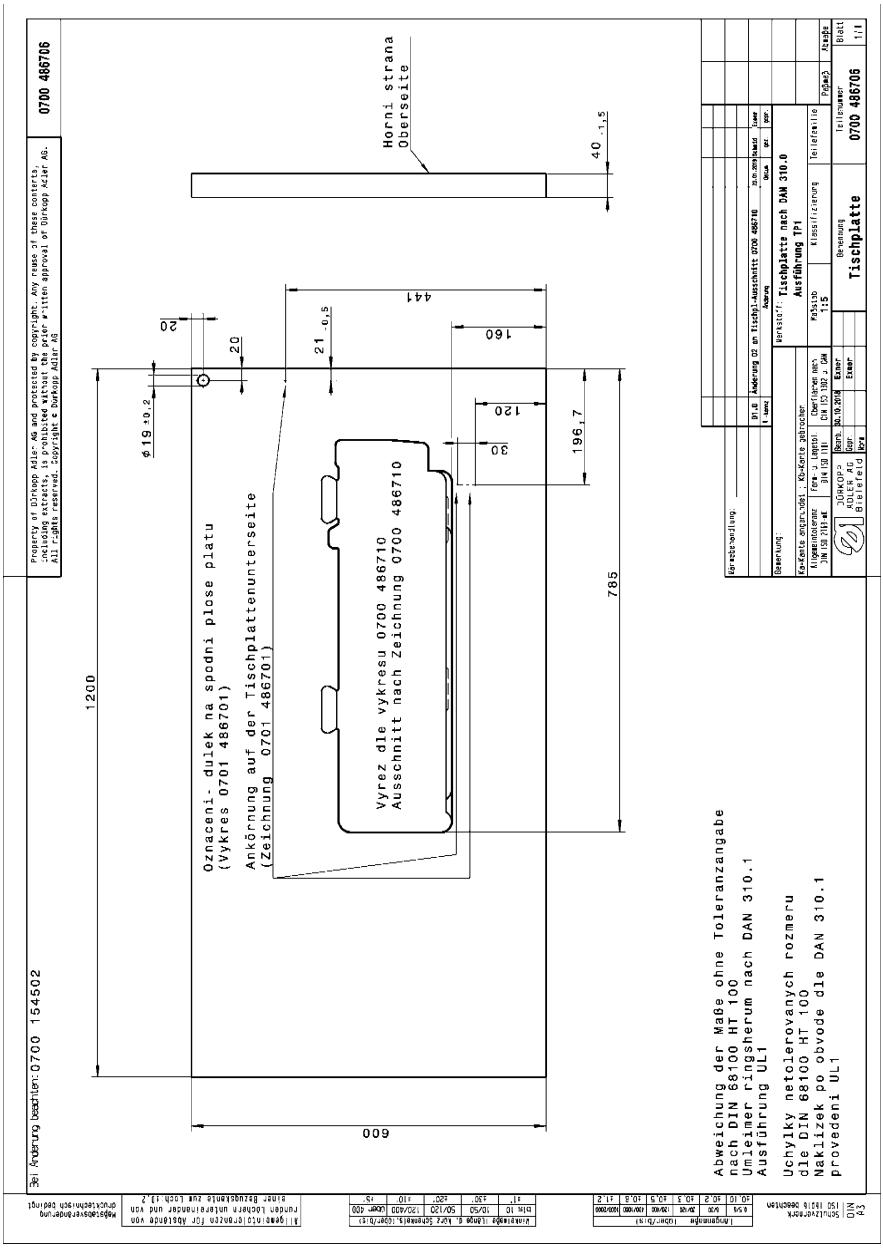


Fig. 111: Tischplatte

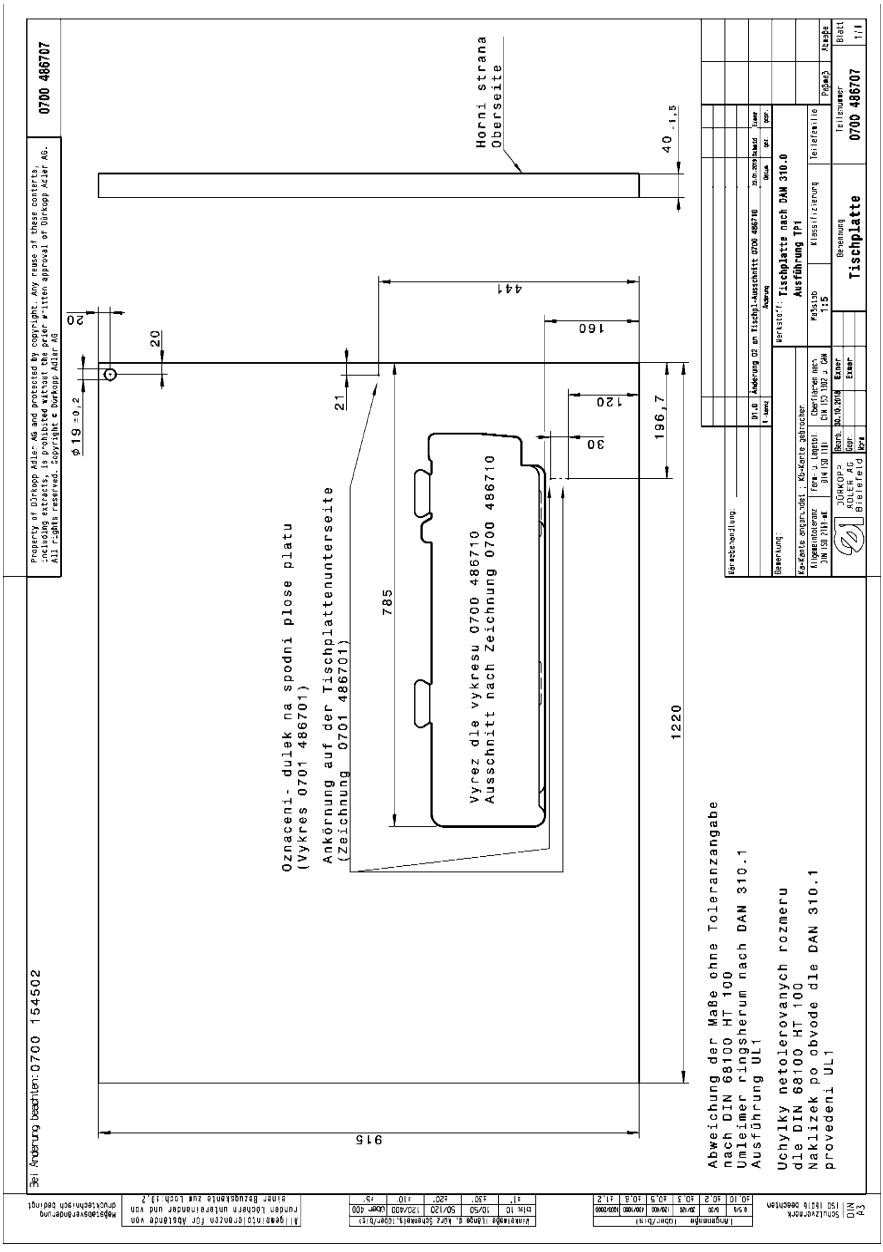
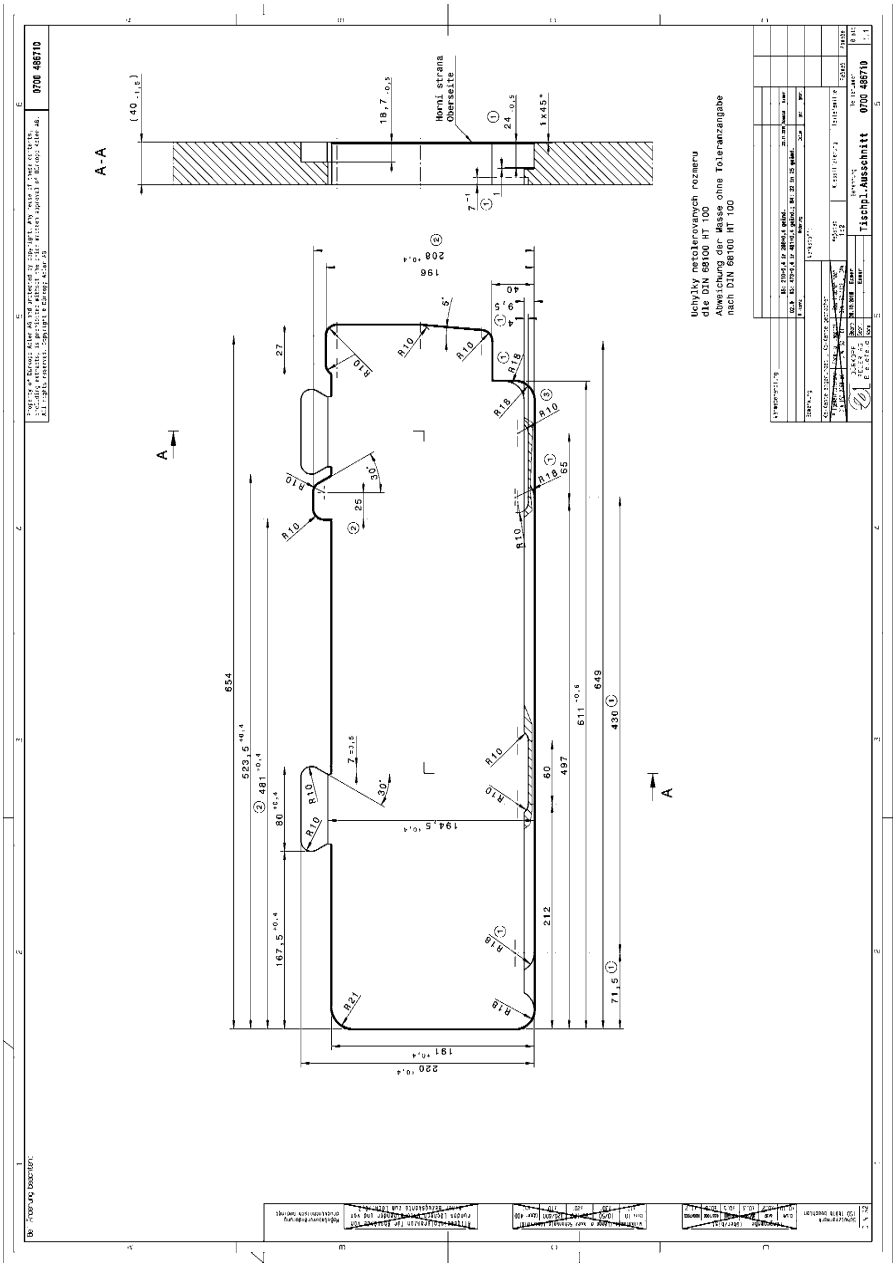


Fig. 112: Tabletop cutout



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