

Operating Instructions

D867 e-con
D867-70 e-con
D867-100 e-con

IMPORTANT
READ CAREFULLY BEFORE USE KEEP
FOR FUTURE REFERENCE

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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. 215).

Consider the instructions as part of the product and store them in a place where they are readily available.

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. 177) 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 are 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.

Safety

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

Location information

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

1.3 Other documents

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

1.4 Liability

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

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

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

Transport

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

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

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

2 Safety

This chapter contains basic information for your safety. Read the instructions carefully before setting up or operating the machine. Be sure to follow the information 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 be used for:

- 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 disassembled or deactivated. If it is essential to disassemble or deactivate safety equipment for a repair operation, it must be assembled and put back into operation immediately afterward.

2.2 Signal words and symbols used in warnings

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

Signal words Signal words and the hazard they describe:

Signal word	Meaning
DANGER	(with hazard symbol) If ignored, fatal or serious injury will result
WARNING	(with hazard symbol) If ignored, fatal or serious injury can result

CAUTION	(with hazard symbol) If ignored, moderate or minor injury can result
CAUTION	(with hazard symbol) If ignored, environmental damage can result
NOTICE	(without hazard symbol) If ignored, property damage can result

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

Icon	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.

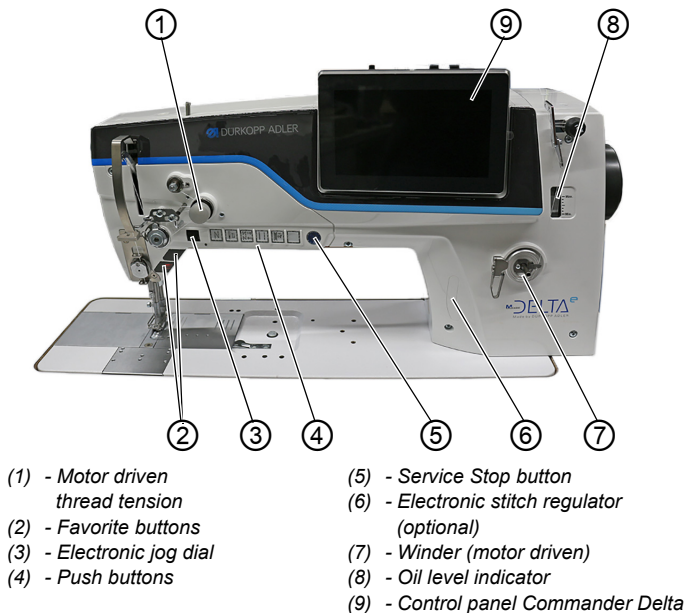
Measures for avoiding the danger.

- ↪ 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



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. 249) 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.



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.

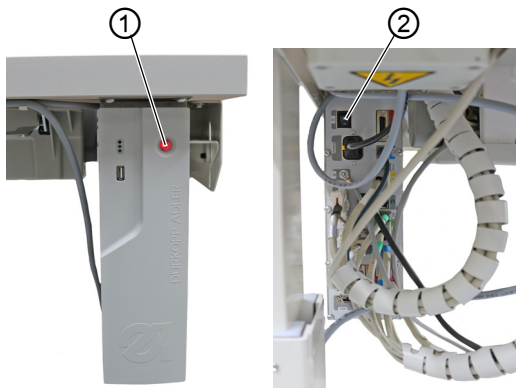
If possible, make preparations only when the machine is switched off.

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

- Inserting or changing the needle
- Threading the needle thread
- Threading or winding the hook thread
- Adjusting the thread tensions

4.2 Switching on and off the machine

Fig. 2: 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. Press 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 lights

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

Fig. 3: Switching on and off the sewing light (1)



(1) - Sewing light

(2) - Machine head lighting

Dimming the sewing lights

You can adjust the brightness of the sewing lights via software at the control panel (*Burger menu - Settings - User Configuration - Machine*).

Switching on and off the sewing lights

By default, there is no simple way to switch the sewing lights on or off. Enabling this option requires that you assign the function to switch the lights 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 - Smart keys configuration*).

4.4 Inserting or changing the needle

CAUTION



Risk of injury from sharp parts!

Puncture possible.

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

NOTICE

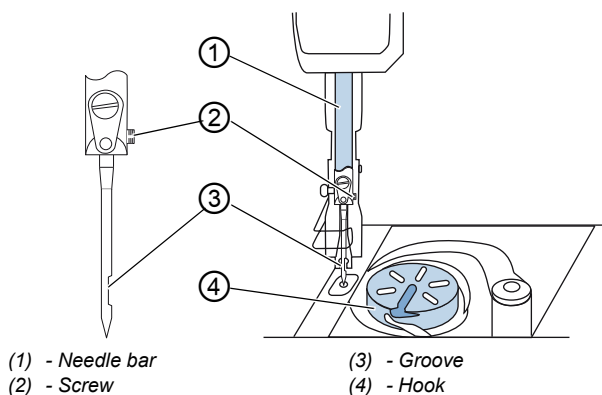
Property damage may occur!

There is a risk of machine damage, needle breakage or thread breaking 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 In 1-needle machines

Fig. 4: Inserting or changing the needle





To change the needle in a 1-needle machine:

1. Turn the handwheel until the needle bar (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 in the needle bar (1) until it reaches the end 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*).



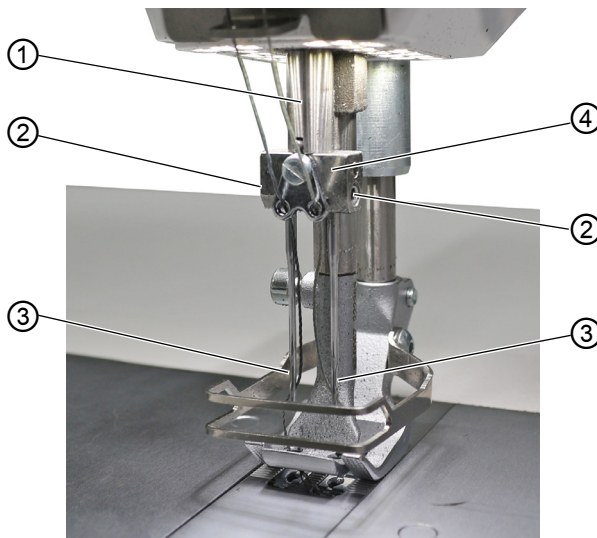
Disturbance

An incorrect hook side 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 In 2-needle machines

Fig. 5: Inserting or 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 new needles so that the grooves (3) point towards 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).



Order

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



Disturbance

An incorrect hook side 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

4.5 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.

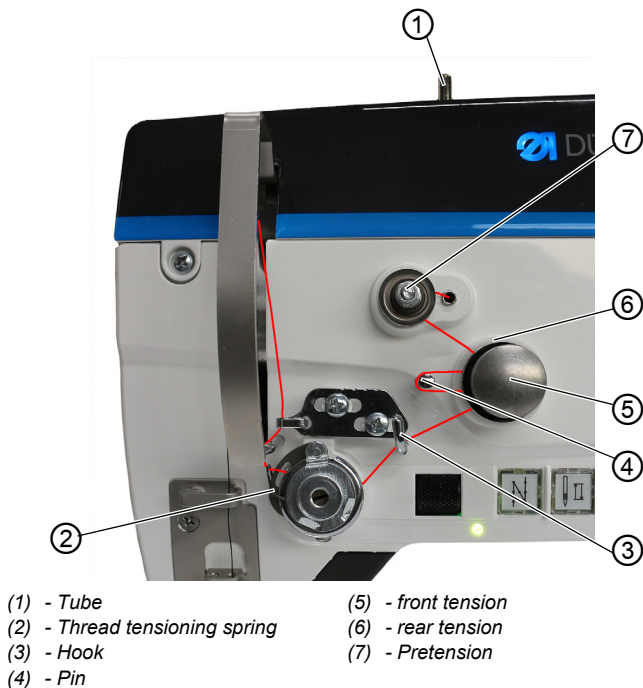
4.5.1 In 1-needle machines



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 on the unwinding bracket.

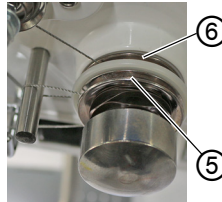
Fig. 6: Threading the needle thread (1)





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

Fig. 7: Threading the needle thread (2)



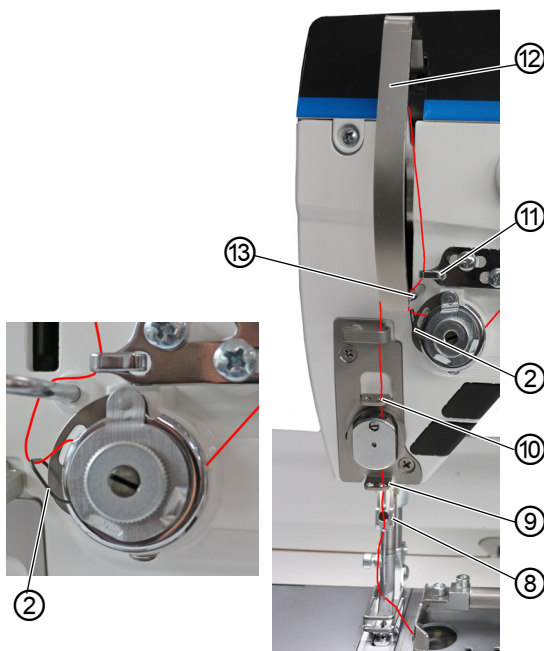
(5) - front tension

(6) - rear tension



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

Fig. 8: Threading the needle thread (3)



- (2) - Thread tensioning spring
- (8) - Thread guide
- (9) - Lower thread guide
- (10) - Upper thread guide

- (11) - Needle thread regulator
- (12) - Thread lever (covered)
- (13) - Pin

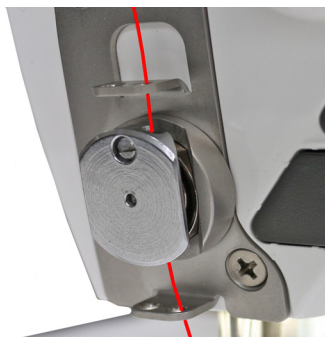


8. Feed the thread around the pin (13) from left to right and then from top to bottom through the rear hole of the needle thread regulator (11).
9. Insert the thread from the right to the left through the lower guide of the thread lever (12).
10. Insert the thread through the upper thread guide (10).
11. Insert the thread through a hole in the lower thread guide (9).

**For machines with thread clamp (optional)**

12. Insert the thread through the right hole of the guide above the thread clamp.
13. Insert the thread through the right hole of the guide below the thread clamp.

Fig. 9: Thread clamp



14. Insert the 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.



15. Insert the thread through the thread guide (8) on the needle bar block.
16. Insert the thread through the needle eye (towards the groove) in such a way that the loose thread end faces the hook.
17. Pull the thread through the needle eye 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 In 2-needle machines

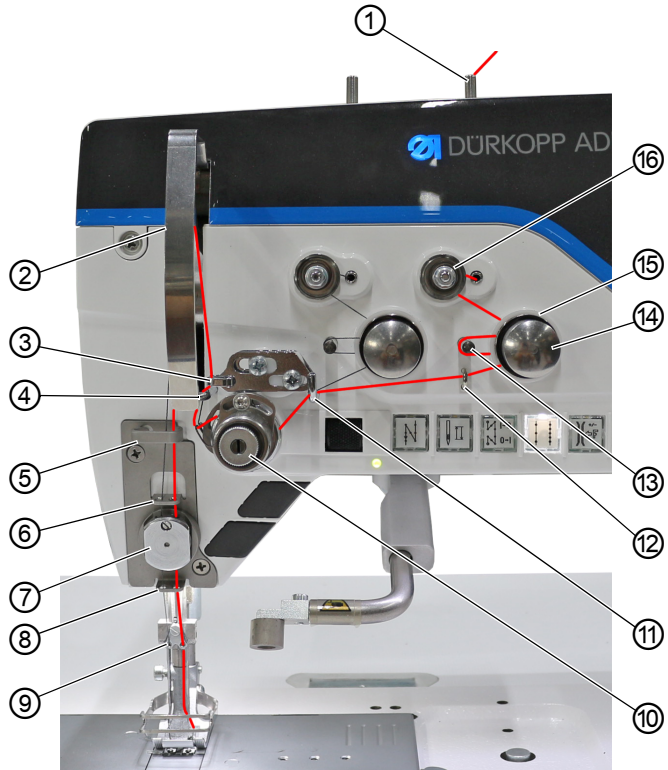


To thread the needle threads:

1. Fit the thread reels on the reel stand.
The unwinding bracket must stand directly above the thread reels.
2. Feed the threads from the rear to the front through the thread guides on the unwinding bracket.

Threading the right needle thread

Fig. 10: Threading the needle thread (1)



- | | |
|-------------------------------|---------------------------------|
| (1) - Tube | (9) - Thread guide |
| (2) - Thread lever | (10) - Thread tensioning spring |
| (3) - Needle thread regulator | (11) - Hook |
| (4) - Pin | (12) - Thread guide |
| (5) - Thread guide | (13) - Pin |
| (6) - Thread guide | (14) - front tension |
| (7) - Thread clamp | (15) - rear tension |
| (8) - Thread guide | (16) - Pretension |

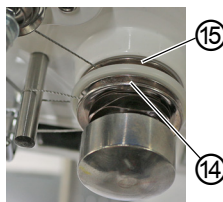


To thread the right needle thread:

1. Insert the thread from the top and guide it through the tube (1).
2. Feed the thread counterclockwise from the tube (1) around the pretension (16).

3. Feed the thread clockwise through the rear tension (15).
4. Feed the thread clockwise around the pin (13) and keep feeding it clockwise through the front tension (14).

Fig. 11: Threading the needle thread (2)



(14) - front tension

(15) - rear tension



5. Feed the thread from the right to the left through thread guide (12).
6. Feed the thread over the hook (11) before feeding it clockwise through the thread tensioning spring (10) from below.
7. Feed the thread around the pin (4) from left to right and then from top to bottom through the rear hole of the needle thread regulator (3).
8. Feed the thread from the right to the left through the lower guide of the thread lever (2).
9. Feed the thread through thread guide (5).
10. Feed the thread through the right hole of thread guide (6).
11. Feed the thread through the right hole of the thread clamp (7) (if a thread clamp is present).
12. Feed the thread through the right holes of thread guides (8) and (9).
13. Insert the thread through the needle eye (towards the groove) in such a way that the loose thread end faces the hook.
14. Pull the thread through the needle eye until the loose thread end has a length of approx. 4 cm with the thread lever (2) at the highest position.



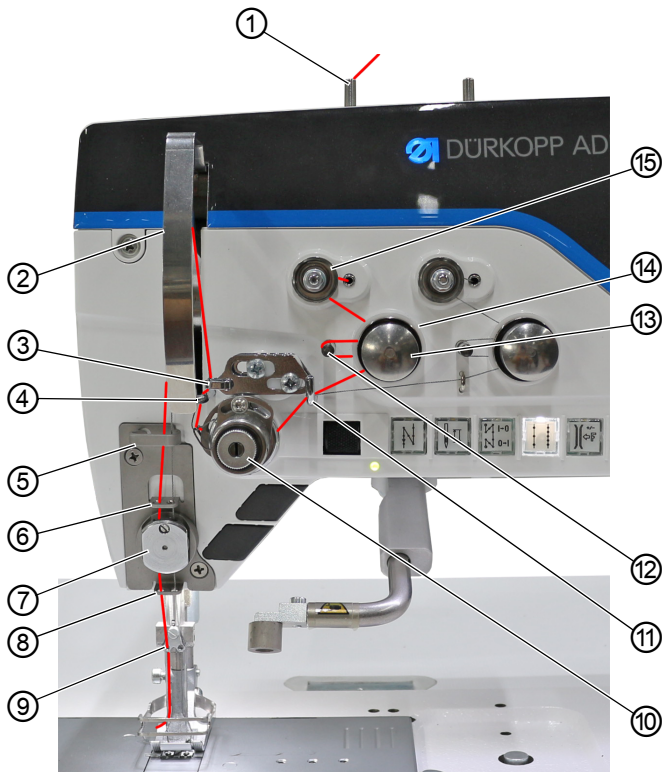
Important

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.

Threading the left needle thread

Fig. 12: Threading the needle thread (3)



- | | |
|-------------------------------|---------------------------------|
| (1) - Tube | (9) - Thread guide |
| (2) - Thread lever | (10) - Thread tensioning spring |
| (3) - Needle thread regulator | (11) - Hook |
| (4) - Pin | (12) - Pin |
| (5) - Thread guide | (13) - front tension |
| (6) - Thread guide | (14) - rear tension |
| (7) - Thread clamp | (15) - Pretension |
| (8) - Thread guide | |

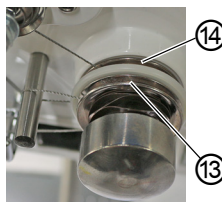


To thread the right needle thread:

1. Insert the thread from the top and guide it through the tube (1).
2. Feed the thread counterclockwise from the tube (1) around the pretension (15).

3. Feed the thread clockwise through the rear tension (14).
4. Feed the thread clockwise around the pin (12) and keep feeding it clockwise through the front tension (13).

Fig. 13: Threading the needle thread (4)



(13) - front tension

(14) - rear tension



5. Feed the thread over the hook (11) before feeding it clockwise through the thread tensioning spring (10) from below.
6. Feed the thread around the pin (4) from left to right and then from top to bottom through the rear hole of the needle thread regulator (3).
7. Feed the thread from the right to the left through the lower guide of the thread lever (2).
8. Feed the thread through thread guide (5).
9. Feed the thread through the right hole of thread guide (6).
10. Feed the thread through the right hole of the thread clamp (7) (if a thread clamp is present).
11. Feed the thread through the right holes of thread guides (8) and (9).
12. Insert the thread through the needle eye (towards the groove) in such a way that the loose thread end faces the hook.
13. Pull the thread through the needle eye until the loose thread end has a length of approx. 4 mm with the thread lever (2) 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.

4.6 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.



Information

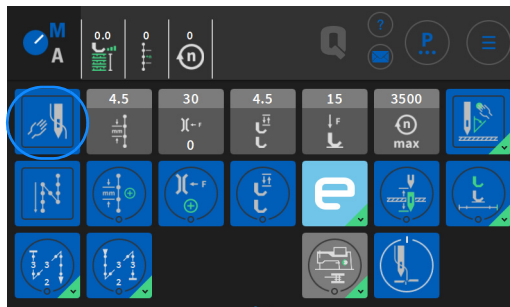
You will find a video with instructions regarding this chapter on the Commander Delta control panel of the machine.



To start the instructional video:

1. Switch on the machine.
- ☞ The user interface opens:

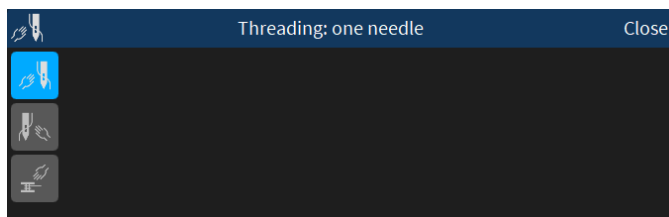
Fig. 14: Winding the hook thread (1)



2. Click on the tile  on the control panel.

↳ The following window opens:

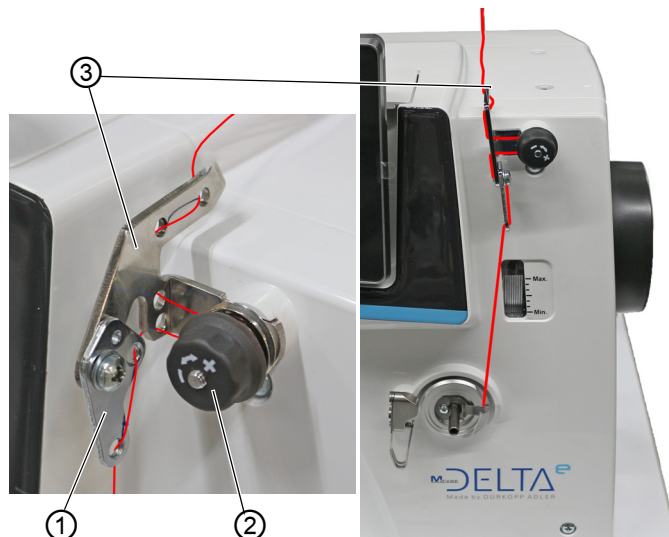
Fig. 15: Winding the hook thread (2)



3. Click on the tile *Threading: Bobbin winder* .

↳ The instructional video starts automatically.

Fig. 16: Winding the hook thread (3)



(1) - Thread guide
(2) - Pretension

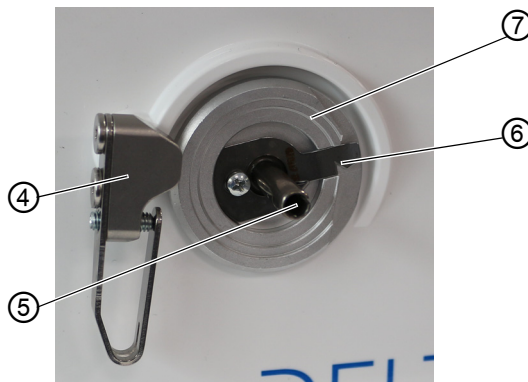
(3) - Thread guide



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.
3. Insert the thread in a wavelike manner through the first 2 holes of the thread guide (3): 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 (3) from left to right before feeding it clockwise around the pre-tension (2).
5. Feed the thread from the right to the left through the fourth hole of the thread guide (3).
6. Feed the thread from the left to the right through the upper hole of the thread guide (1).
7. Feed the thread from the right to the left through the lower hole of the thread guide (1).

Fig. 17: Winding the hook thread (4)



(4) - Bobbin winder lever
(5) - Bobbin shaft

(6) - Knife
(7) - Winder



8. Guide the thread to the winder (7).
9. Clamp the thread behind the knife (6) and tear off the loose end behind it.
10. Fit the bobbin on the bobbin shaft (5).

11. Turn the bobbin on the bobbin shaft (5) until the drive dog spring audibly clicks into place in the slot of the bobbin.
12. Pull the bobbin winder lever (4) up.
 - ✎ The winding process starts and ends automatically when the bobbin is full. The bobbin 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. 122).



13. Pull off the full bobbin.
14. Tear off the thread behind the knife (6).
15. Insert the full bobbin into the hook ( p. 38).

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

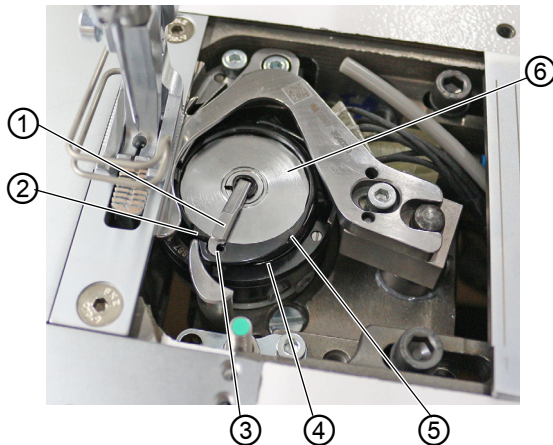
Property damage may occur!

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 bobbin change works in the same way on 1-needle machines as on 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. 18: Changing the bobbin (1)



(1) - Bobbin case retainer

(2) - Slot

(3) - Guide

(4) - Tensioning spring

(5) - Slot

(6) - Bobbin



To change the bobbin:

1. Swivel up the bobbin case retainer (1).
2. Remove the empty bobbin.
3. Insert a full bobbin:

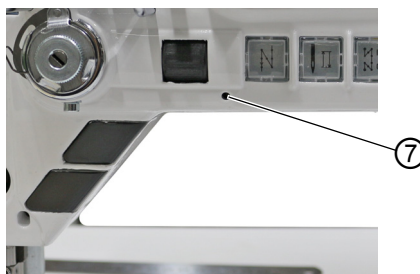


Important

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

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

Fig. 19: Changing the bobbin (2), message remaining thread monitor



(7) - LED



Machines with automatic remaining thread monitor

If the hook thread needs to be replaced, the LED indicator lamp (7) lights up on the machine arm.



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

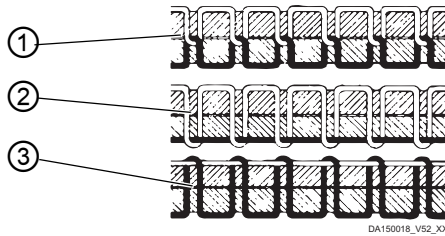
Together with the hook thread tension, the needle thread tension influences the final seam pattern. With thin sewing material, excessive thread tension can lead to undesired ruffling and thread breaking.



Proper setting

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

Fig. 20: 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 Adjusting the needle thread tension

The needle thread tension can only be adjusted using the software of the Commander Delta; for detailed information, refer to the chapter Programming (Manual Mode  p. 95; Automatic Mode  p. 133).

4.8.2 Adjusting the hook thread tension

WARNING

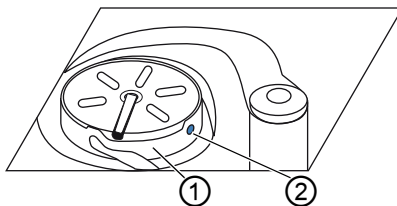


Risk of injury from needle tip and moving parts!

Puncture, cutting and crushing possible.

Switch off the machine before adjusting the hook thread tension.

Fig. 21: Adjusting the hook thread tension



(1) - Tensioning spring

(2) - Screw

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



To adjust the hook thread tension:

1. Turn the screw (2).
 - **Increase the hook thread tension:** Turn screw (2) clockwise
 - **Reduce the hook thread 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.

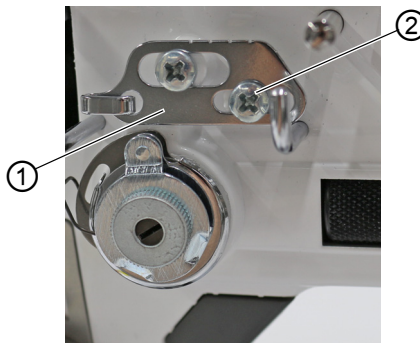
The needle thread regulator determines the needle thread quantity to be guided around the hook.



Proper setting

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

Fig. 22: Adjusting the needle thread regulator



(1) - Needle thread regulator

(2) - Screw

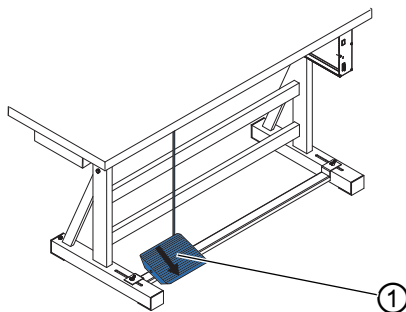


To adjust the needle thread regulator:

1. Loosen the screw (2).
 - **Reduce the thread quantity:** Slide the needle thread regulator (1) to the right
(Thread is guided more tightly around the hook)
 - **Increase the thread quantity:** Slide the needle thread regulator (1) to the left
(Thread is guided more loosely around the hook)
2. Tighten the screw (2).

4.10 Lifting the sewing feet

Fig. 23: 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.



Thread cutting 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. 24: Sewing backwards with the stitch regulator



(1) - Stitch regulator



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



The stitch length keeps decreasing up to the middle of the adjustable range. Starting with this position, the machine will sew backwards, with the stitch length increasing. In the lower end position, the machine sews backwards with the set stitch length.

4.12 Adjusting 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 Activating the puller feed drive (optional)

Fig. 25: Activating the puller feed drive



(1) - Puller feed drive button
Push button bar

(2) - Puller feed drive button on
the DELTA Commander



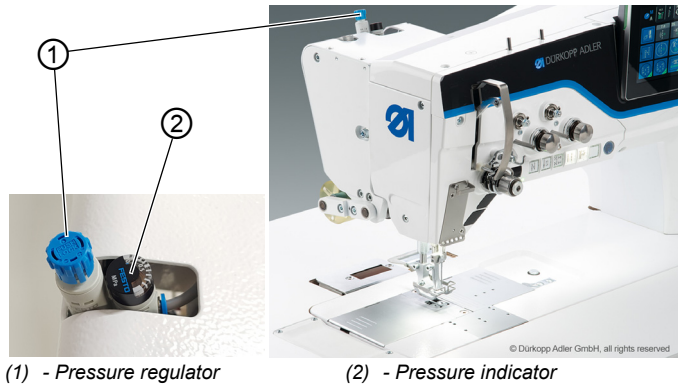
To activate the puller feed drive:

1. Press the puller feed drive (1) or (2) on the machine arm (place tiles on the main screen p. 89).
- Top puller is raised/lowered.
- Puller feed drive is active.

4.13.1 Adjusting the top puller pressure

The pressure of the top puller can be adjusted when the puller feed drive is activated.

Fig. 26: Adjusting the top puller pressure



To adjust the pressure of the top roller:

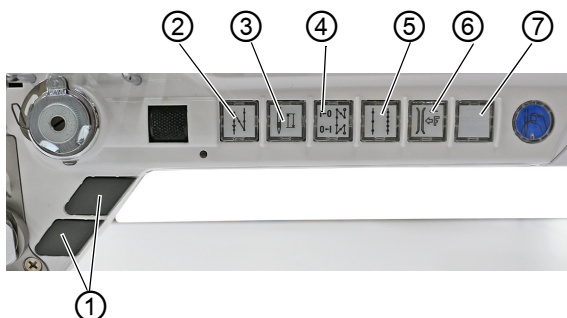
1. Activate the puller feed drive.
2. Pull the pressure regulator (1) up.
3. Turn the pressure regulator and adjust the pressure (0-6 bar).
 - Increase pressure: turn clockwise.
 - Reduce pressure: turn counterclockwise.
4. Push the pressure regulator (1) down.

4.14 Quick functions on the push buttons

The machine has push buttons on the machine arm which can be used to activate specific functions while sewing. You can define the settings in the software ( p. 70).

4.14.1 Activating function keys

Fig. 27: Activating function keys



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

Activating a function



To activate a function key:

1. Press the desired button.
- ✎ Function is activated. The button lights up.

Deactivating a function



To activate/deactivate a function key:

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, read the  <i>Service Instructions</i> . 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 sewing foot stroke.

4.14.2 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. 28: 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. 70).

4.15 Sewing

WARNING

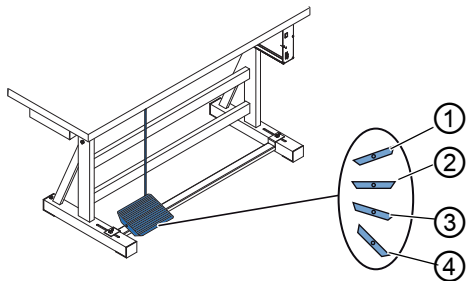


Risk of injury from the needle if sewing is started unintentionally!

Puncture possible.

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

Fig. 29: 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 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.

Condition	Processes
At seam beginning	
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. 46).
Changing the stitch length	• Activate the 2nd stitch length using the button on the push button panel (📖 p. 47).
Increasing the thread tension	• Activate additional thread tension using the button on the push button panel (📖 p. 47).
Sewing an intermediate bartack	• Sew backwards with stitch regulator (📖 p. 45) or activate backwards sewing using the button on the push button panel (📖 p. 47).
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 up, sewing feet down. • Remove the sewing material.

5 Programming Commander DELTA

5.1 Control panel Commander DELTA

Fig. 30: 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.

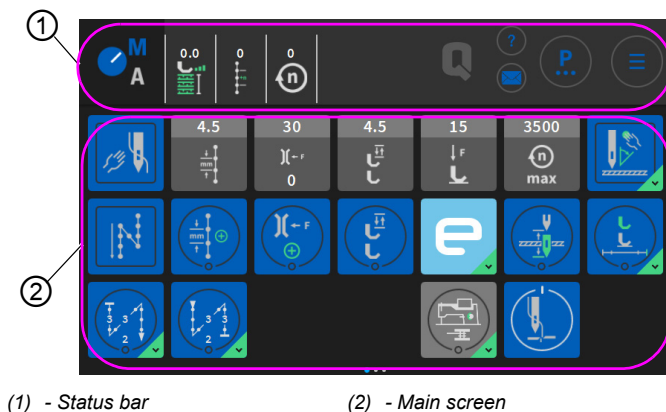
5.2 Navigating the Commander DELTA control panel

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 pressing the corresponding button with your finger. You switch between the different pages of the start screen by swiping with one finger.

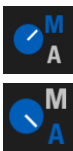
You can modify the information displayed in the status bar (1). You can also adjust the tiles shown on the three pages of the main screen (2). You customize the information using the control panel settings, [p. 89](#).

Fig. 31: Navigating the Commander DELTA control panel



5.2.1 Symbols and tiles

Explanation of recurring symbols:

Icon	Meaning
	The blue letter indicates the active mode. A = Automatic mode M = Manual mode To switch between the modes, press on the symbol.
	Programming mode (access via the burger menu  p. 126).
	Tutorials You can use the Manual Data Transfer to import PDFs and videos ( Service Instructions).
	In Manual Mode: Parameters that can be adjusted. In Automatic Mode: Programming mode
	Burger menu A menu with a navigation interface opens. You can select the following options: • Automatic mode • Manual mode • Programming mode • Settings • Tutorials • Logout
	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. Press  to close the window.

Icon	Meaning
 	Messages The message store shows maintenance messages, warnings and error messages of the machine. • Press <i>Close</i> to close the window. • To open a message, press on it. The window shows the message and the input entered by the user. • Press <i>Back</i> to close the message. • To close the message and return to the main screen, press <i>Close</i>.
	Value tiles Parameters for which you can/must enter a numerical value. Values can be input by pressing.
	Function tiles (stored) You can activate or deactivate the blue tiles encircled by a white line by pressing. You cannot set any values.
	Multi functional tiles You can activate or deactivate blue tiles encircled by a line and showing a lower green corner by pressing. A long press opens a menu that lets you input values.
	Function tiles (not stored) You cannot enter any values for blue tiles surrounded by a square line. The function assigned to the tile is only active for as long as you press 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

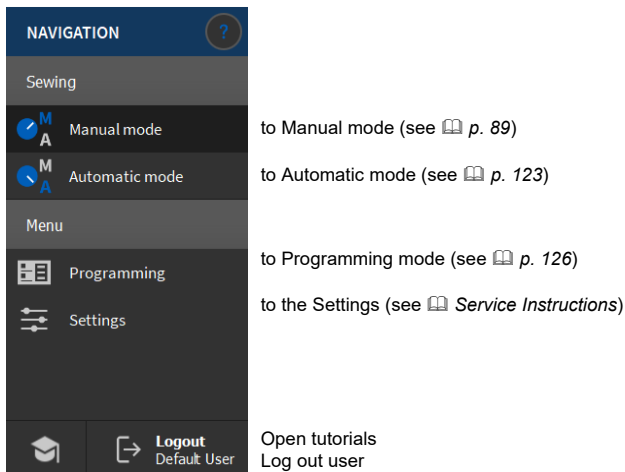
You can input values using the buttons  or  or by typing on the integrated on-screen keyboard.

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 press of the symbol .

Fig. 32: Navigating the burger menu



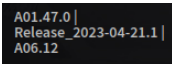
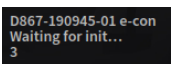
5.2.4 Navigation during the start of the control panel

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

Fig. 33: Navigation during the start of the control panel



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.

Icon	Explanation
	Language selection
	Settings Login as a technician required. It will then be possible to change the settings before the machine starts up ( Service Instructions).
	• Version number - control panel • Version - additional information • Version number - control
	• Machine class + subclass • Additional text: Text that will be transmitted from the control to the control panel. • Waiting time
	Skip button You can skip the waiting time with a press of this button.

5.3 Log in user

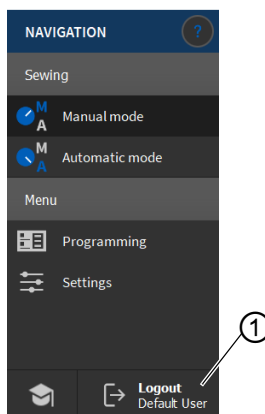
The factory setting of the software is such that the *Default User* will be logged in automatically when the machine is switched on. This does not require any type of authorization. The auto login can be switched off at the Technician level, and the *Default User* and the *Default Technician* can be deactivated ( Service Instructions). The following explains how you can switch users.



To enter the login interface:

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

Fig. 34: Log in user (1)



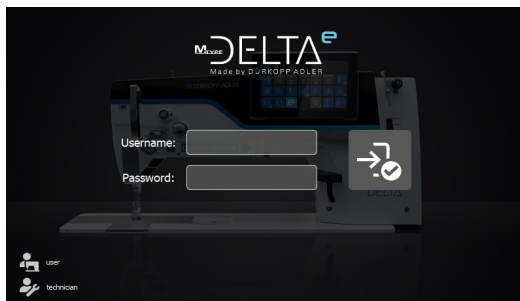
(1) - Logout



2. Press *Logout* (1).



This opens the login interface.



There are four ways to log in. These four options – including the necessary settings in the software – are described below.

5.3.1 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. 83).



The user can log in immediately with this login information.

Login with username and password



To log in with username and password:

1. Enter *username* and *password*.
The usernames *user* or *technician* are entered automatically when you select the icons at the bottom left.

2. Press .

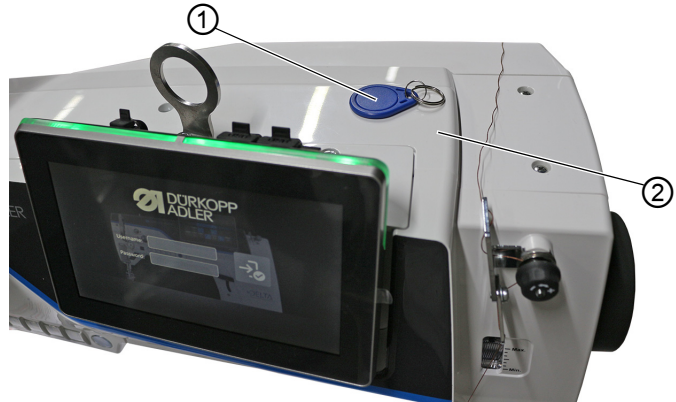


If the login information is correct, the user will be logged in.

5.3.2 Login with NFC tag

The NFC tags shipping from the factory are not personalized. Non-personalized NFC tags are detected by the software individually by their serial number. The NFC tags can be personalized with the help of such external software applications as TagXplorer made by NXP.

Fig. 35: Login with NFC tag



(1) - NFC chip

(2) - Arm cover

Assigning an NFC tag to a user



To assign an NFC tag to a user:

1. Select a user in *User Management* or create a new user (📖 p. 83).
2. Press the item *Login with NFC tag*.
↳ A new window opens.
3. To assign the NFC chip (1), hold the NFC chip (1) up to the arm cover on the right-hand side (2).
↳ The window disappears, and the function *Login with NFC tag* is active.

Login with NFC tag



To log in with an NFC tag:

1. The display shows the login interface.

2. Hold the assigned NFC chip (1) up to the arm cover on the right-hand side (2).
 - ↳ If the NFC tag has been assigned correctly, the user will be logged in.
-



Information

To log out, you can hold up the NFC tag again or log out manually on the control panel.

5.3.3 Login with 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. 83).
2. Press 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, press *Pair*.
- ↳ The window disappears, and the function *Login with USB key* is active.

Login 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.

5.3.4 Login with file on USB key

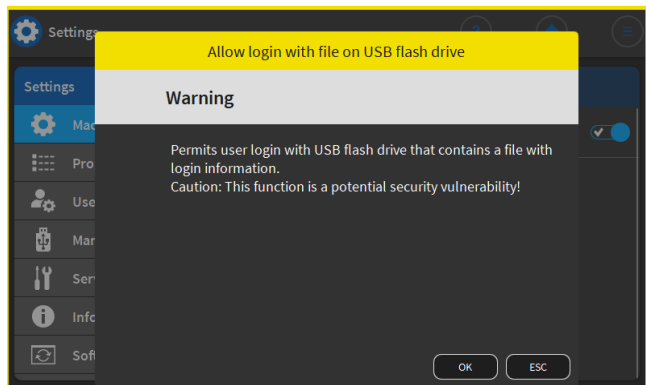
You cannot assign this function under User Management until it has been activated in the machine configuration.



To allow login with a file stored on a USB key:

1. Log in by entering *technician* and *25483* for username and password.
2. Open the burger menu and go to *Settings - Machine configuration* to select the button *Authentication methods*.
 - ↳ The *Authentication methods* interface opens.
3. Activate the slider control *Allow login with file on USB key*.
 - ↳ A warning opens.

Fig. 36: Login with file on USB key



4. Confirm with *OK*.
 - ↳ You can assign this function under User Management.
5. Press  to return to Machine configuration or  to return to Manual mode.

Assigning file on USB key to a user



To assign a file stored on a USB key to a user:

1. Create a new user under *User Management* ( p. 83).
 2. Activate the item *Login with username and password*.
 3. Press *Edit* and assign a username and password.
 4. Press the item *Login with file on USB key*.
 A new window opens.
 5. Plug the USB key holding the file into one of the ports on the control panel.
 6. Select the USB key you wish to assign to the user for login purposes.
 7. To assign the USB key, press *Pair*.
 The window disappears, and the function *Login with file on USB key* is active.
-



Information

Once the user with the assigned file stored on a USB key has been created on every machine, login will be possible with a copy of the file stored on any USB key.



To log in with a file stored on a USB key:

1. Plug the USB key holding the file into the control panel.
2. Enter username and password.
 If the file on the UBS key has been assigned correctly, the user will be logged in.

5.4 User Configuration



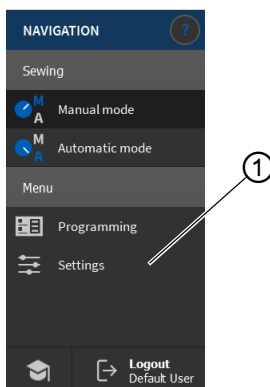
The User Configuration allows the currently logged-in user to customize the software interface to their specific needs.



To access the User Configuration:

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

Fig. 37: User Configuration (1)

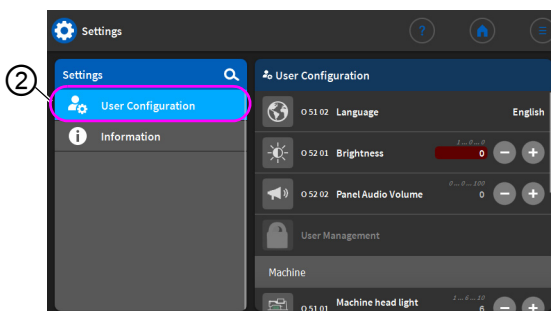


(1) - Settings



2. Press *Settings* (1).
- ↳ This opens the Settings interface.

Fig. 38: User Configuration (2)



(2) - User Configuration



3. Press the item *User Configuration* (2) on the left.

↳ You are in the User Configuration.

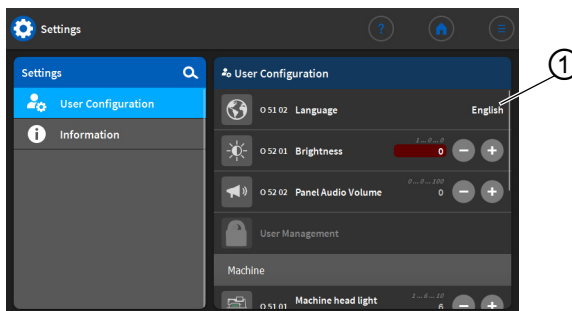
Icon	Description	Reference
	<i>Language</i>	 <i>p. 67</i>
	<i>Brightness</i>	 <i>p. 68</i>
	<i>Panel Audio Volume</i>	 <i>p. 68</i>
	<i>User Management</i>	 <i>p. 69</i>
Machine		
	<i>Machine head light brightness</i>	 <i>p. 69</i>
	<i>Sewing light brightness (integrated LED sewing light)</i>	 <i>p. 70</i>
	<i>Smart keys configuration</i>	 <i>p. 70</i>
	<i>Desk height adjustment</i>	 <i>p. 72</i>
Screen configuration		
	<i>Manual mode - Main screen configuration</i>	 <i>p. 89</i>
	<i>Manual mode - Status bar configuration</i>	 <i>p. 89</i>

5.4.1 Setting the language



Here, you can set the language of the software.

Fig. 39: Setting the language (1)



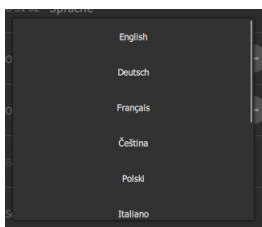
(1) - Language indicator



To set the language:

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

Fig. 40: Setting the language (2)



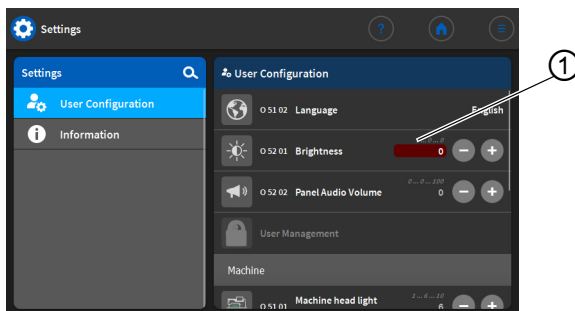
2. Press on the desired language.
- ↳ The language of the control panel is changed immediately.

5.4.2 Setting the brightness



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

Fig. 41: Setting the brightness (1)



(1) - Brightness indicator



To set the brightness:

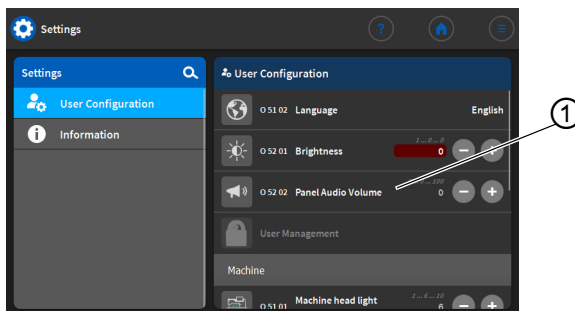
1. Press on the brightness indicator (1).
2. Enter the desired value using the keyboard or the buttons  or .
- 👉 The brightness of the control panel is set.

5.4.3 Setting the volume



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

Fig. 42: Setting the audio volume (1)



(1) - Audio volume indicator



To set the audio volume:

1. Press 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.

5.4.4 User Management



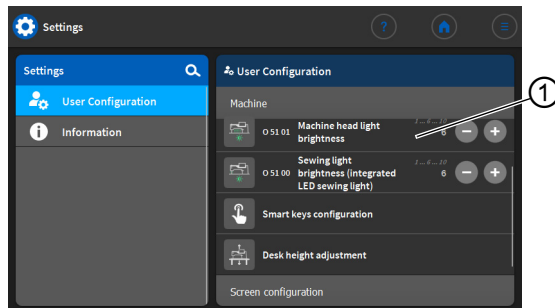
This section is locked if you are logged in as the *Default User*. Settings in User Management cannot be adjusted without extended authorizations.

The settings under User Management are explained in a separate chapter ( p. 77).

5.4.5 Machine head light brightness



Fig. 43: Machine head light brightness



(1) - Brightness indicator
machine head light

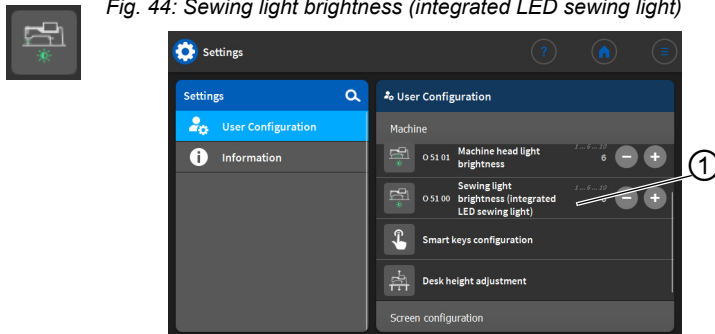


To set the brightness of the machine head light:

1. Press on the brightness indicator of the machine head light (1).
 2. Enter the desired value using the keyboard or the buttons  or .
- ↳ The brightness of the machine head light is set.

5.4.6 Sewing light brightness (integrated LED sewing light)

Fig. 44: Sewing light brightness (integrated LED sewing light)



(1) - Brightness indicator sewing light



To set the brightness of the sewing light:

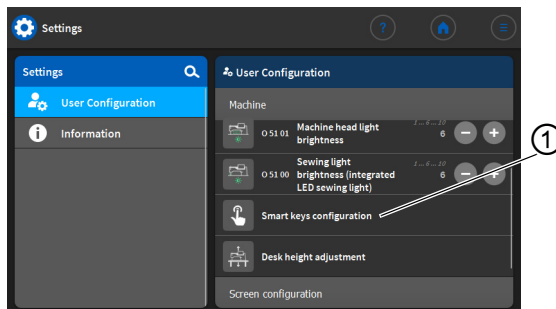
1. Press on the brightness indicator of the sewing light (1).
 2. Enter the desired value using the keyboard or the buttons  or .
- The brightness of the sewing light is adjusted.

5.4.7 Setting the smart keys configuration



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

Fig. 45: Setting the smart keys configuration (1)



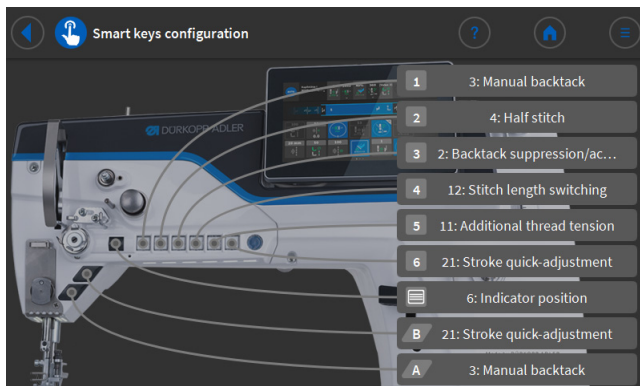
(1) - Smart keys configuration



To set the smart keys configuration:

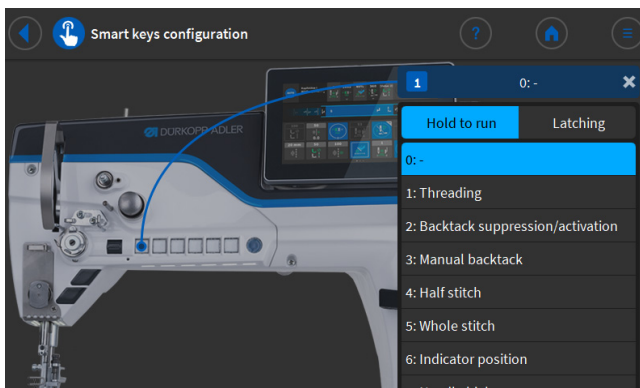
1. Press on the sub-item *Smart keys configuration* (1).
- ✎ This opens the interface of the fast menu key configuration:

Fig. 46: Setting the smart keys 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. 47: Setting the smart keys configuration (3)



3. Press on the function you wish to assign to the button.

4. Press to select the option *Not stored* or *Stored*.
 5. Press outside the selection to exit the selection.
- ✎ The adjusted settings are stored.

5.4.8 Desk height adjustment



To allow the *Default User* to access the display *Desk height adjustment*, the setting must be activated in the machine configuration.



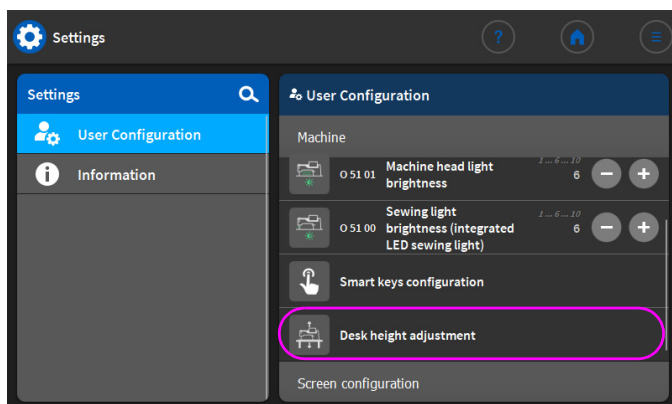
To activate the desk height adjustment:

1. Log in by entering *technician* and *25483* for username and password.
 2. Open the burger menu and go to *Settings - Machine configuration* to select the button *Desk height adjustment*.
 3. Activate the slider control:
Desk height adjustment enable
- ✎ The desk height adjustment is active.
4. Define the desired settings:

Icon	Parameter	Setting
	<i>Desk height adjustment enable</i>	Value range On/Off
	<i>Desk height offset</i> If there is an obstacle below the sensor, the distance between the obstacle and the floor must be specified.	Value range -60.0 - 80.0 [cm]
	<i>Table height</i>	Value range 0.0 - 140.0

5. Open the burger menu and click on the *Logout* button to log out of the *Default Technician*.

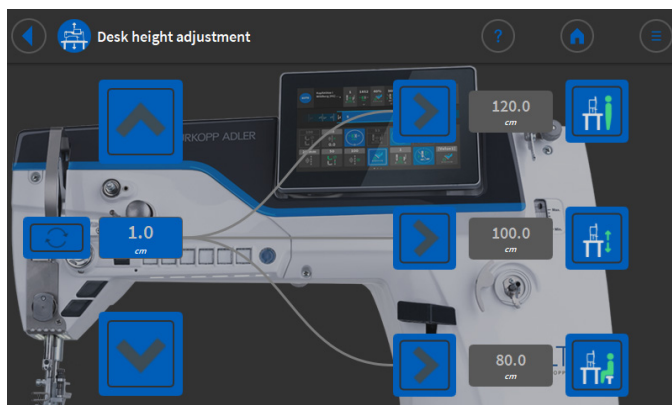
Fig. 48: Desk height adjustment (1)



To set the desk height:

1. Open the burger menu and go to *Settings - User Configuration* to select the button *Desk height adjustment* (1).

Fig. 49: Desk height adjustment (2)

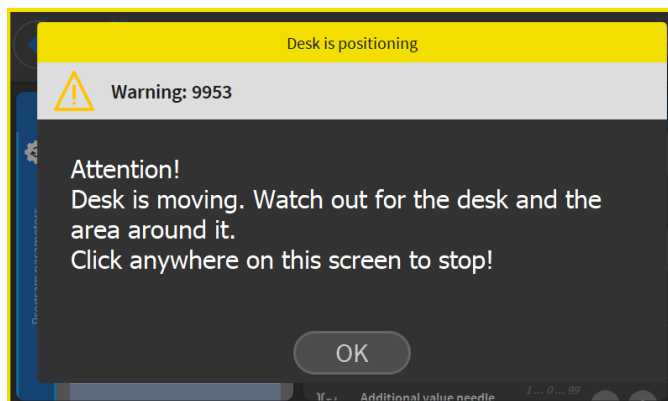


2. Define the desired settings:

Icon	Description
	<i>Reset</i> Sets the height to the next measured value. Use this to reset the system when the point of measuring has changed. A desk height sensor error (warning: 9956) requires a reset ( p. 215).
	<i>Desk up</i> The desk moves up manually.
	<i>Desk down</i> The desk moves down manually.
	<i>Use Position</i> Press and hold this button to store the current position as the target position.
	<i>Positioning Start (Standing)</i> Press this button to start positioning the desk to the target height.
	<i>Positioning Start (Custom)</i> Press this button to start positioning the desk to the target height.
	<i>Positioning Start (Sitting)</i> Press this button to start positioning the desk to the target height.

-  Desk is positioning.
To cancel the positioning before the target position has been reached, tap the touch area.

Fig. 50: Desk height adjustment (3)



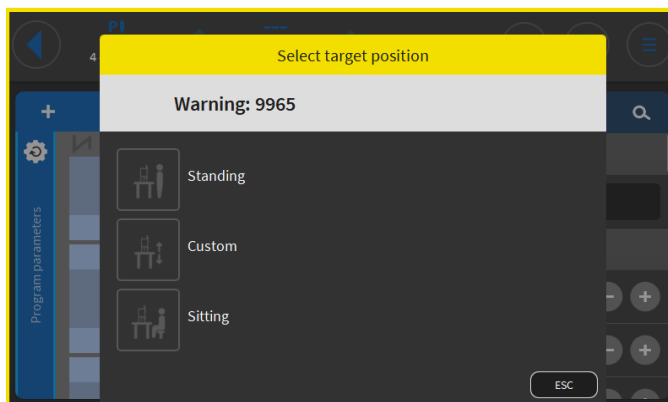
3. Press  to return to Settings or  to return to Manual mode.



Information

You can select a new desk height after every login.

Fig. 51: Desk height adjustment (4)



5.4.9 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. 89).

5.5 User Management



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

The 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.

Prerequisite for access to User Management: You have to be logged in as the *Default Technician*.

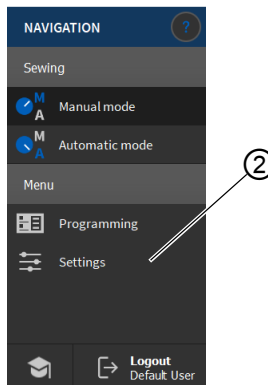
5.5.1 Authorizations as *Default Technician*



To access User Management:

1. Log in by entering *technician* and *25483* for username and password.
2. Press the symbol  to bring up the navigation pane.
- ↳ This opens the navigation interface.

Fig. 52: User Management (2)

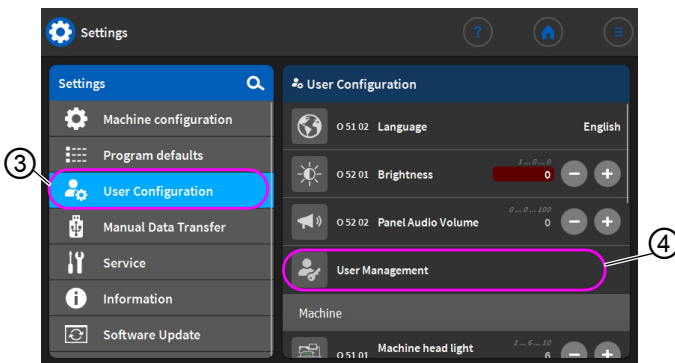


(2) - Settings



3. Press *Settings* (2).
- ↳ This opens the Settings interface.

Fig. 53: User Management (3)



(3) - User Configuration

(4) - User Management

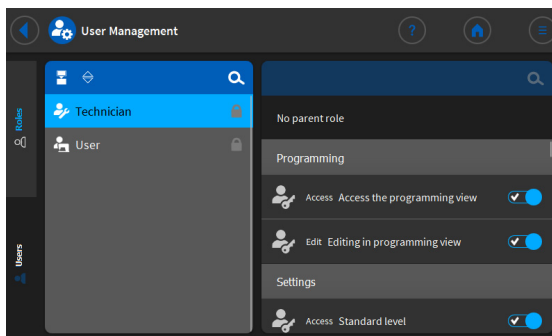


4. Press the item *User Configuration* (3) on the left.

5. Press the item *User Management* (4) on the right.

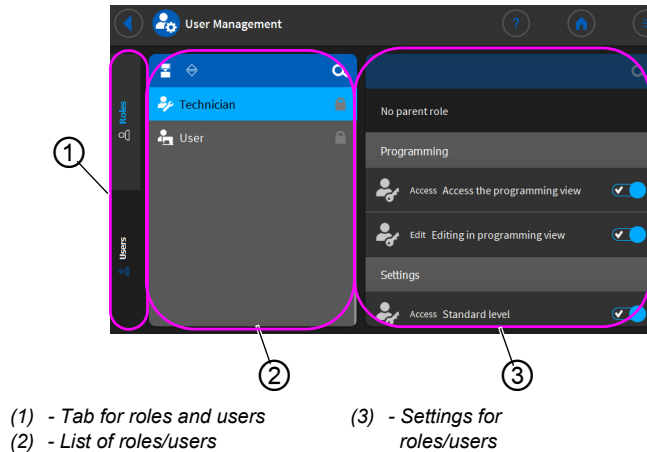
↳ The user management interface opens - may look different depending on the user.

Fig. 54: User Management (4)



6. Define the desired settings.

Fig. 55: Authorizations as Default Technician



On the left-hand side, you can select between the tabs (1) reserved for roles (book p. 79) and users (book p. 83). 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.

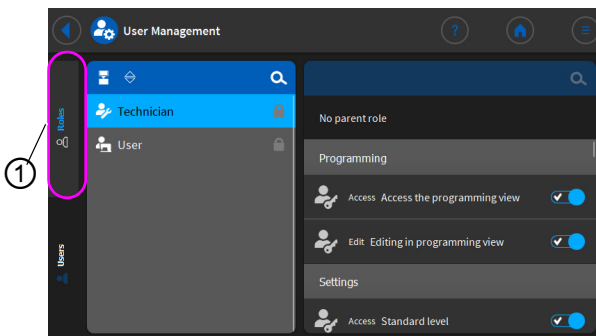
Explanation of role and user

Role	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.

5.5.2 Managing roles

If selecting User Management as a *Default Technician* (book p. 65), you will be presented with the following interface:

Fig. 56: Managing roles



(1) - Tab for roles

Press the tab (1) reserved for the *Roles* on the left-hand side.

Deleting a role



To delete a role:

1. Press the desired role.
↳ The role is highlighted in blue.
2. Press .
- ↳ 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. Press  (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	Edit on the programming screen
Settings	
Access	Standard level
Access	Technician level
Manual mode	
Edit	Bartack enabled
Edit	Status bar
Edit	Main screen
Access	Role Main Screen
Access	Role Status Bar
Access	Switch to automatic mode
Access	Parameter View
Edit	Manual bartack
Edit	Sewing foot lifted
Edit	Needle stop position
Edit	Bobbin wind mode
Edit	Segment abort
Edit	Edge trimmer

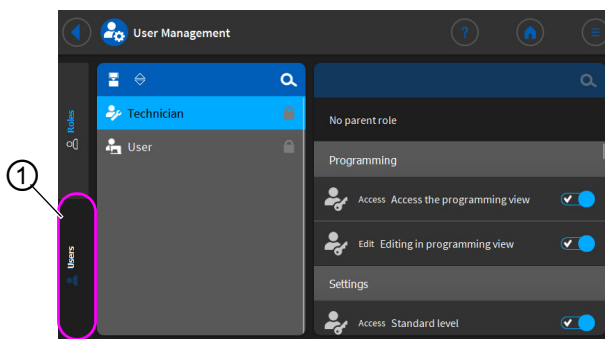
Read/Edit/Access	Menu item
Edit	Edge guide reference position
Edit	Stitch length
Edit	Switch stitch length
Edit	Needle thread tension
Edit	Switch thread tension
Edit	Sewing foot pressure
Edit	Sewing foot stroke
Edit	Switch foot stroke alternation
Edit	Bartack toggle
Edit	Max. Speed
Edit	Needle Half Stitch
Edit	Thread trimmer active
Edit	Needle thread clamp
Edit	Threading Mode
Edit	Light barrier
Edit	Reset Bobbin Counter
Edit	Seam Center Guide
Automatic mode	
Access	Program selection
Edit	Stitch length correction factor
Edit	Needle thread tension correction factor
Sewing	
Edit	Enable multi functional tiles
User Management	
Edit	Current user

Read/Edit/Access	Menu item
Edit	Roles up to technician
Edit	Roles up to vendor
Edit	Roles up to production
Edit	Roles up to developer
Edit	Users up to technician
Edit	Users up to vendor
Edit	Users up to production
Edit	Users up to developer
Edit	Auto Login Editable

5.5.3 Managing users

If selecting User Management as a *Default Technician* (p. 65), you will be presented with the following interface:

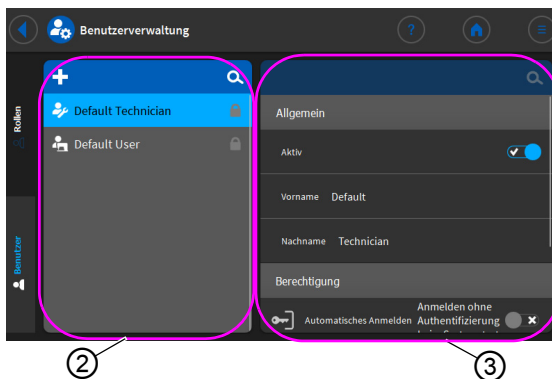
Fig. 57: Managing users (1)



(1) - Tab for users

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

Fig. 58: 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 pressing 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. Press the desired user.
↳ The user is highlighted in blue.
2. Press .
- ↳ 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. Press .
- ↳ The list shows a new user.
2. Define the settings for the user (see table below).

Settings of the user

Icon	Setting	Explanation
General		
	Active	On/Off If multiple users have been created, you can deactivate, for instance, the user created at the factory.
	First name	Name of the user, NOT to be confused with the data used for logging in!
	Name	
Authorization		
	Login with username and password	On/Off
		Username Name for logging in
		Password Password for logging in
	Login with NFC tag	Login by NFC chip allowed or not allowed
	Login with USB key	Login by USB key allowed or not allowed This method allows for the pairing of one user with one USB key.

Icon	Setting	Explanation
	Login with file on USB key	Access to this setting only after the setting has been activated in the machine configuration
		Login by file on USB key allowed or not allowed This method allows for the pairing of one user with a file that can be copied to several USB keys.
	<i>Automatic Login on System start</i>	Automatic login when machine starts; no login required
Roles (📖 p. 79)		
	<i>Technician</i>	Slider control active/inactive; for assigning the role
	<i>User</i>	Slider control active/inactive; for assigning the role

5.6 Information



Icon	Description
	<i>Date and time</i> •Date and time •Time zone •Time format
	<i>Copyright</i>
	<i>Software version</i>

Icon	Description
	<i>Software licenses</i>
	<i>Counter</i> Here you can view different counter values and statistics: • <i>Total piece counter</i> • <i>Daily piece counter</i> • <i>Stitch counter total</i> • <i>Stitch counter bobbin thread</i> • <i>Usage statistic</i> • <i>Limit Control of the thread tension</i> • <i>Operating hours</i> • <i>Working time daily</i>
	<i>Control</i>
	<i>Control panel</i>
	<i>Machine</i> • <i>Class</i> • <i>Machine subclass</i> • <i>Serial number</i> • <i>Production date</i>

5.7 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 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) or complex seam programs (comprising 2 or more seams).

The seams are divided into individual segments.

Each segment 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.

5.8 Using Manual mode

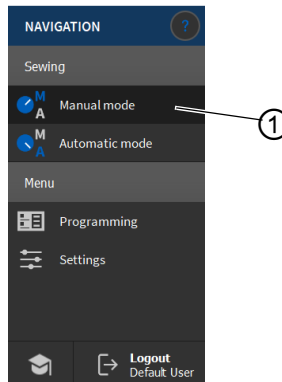
In manual mode, no programs have been saved, allowing you to use all parameters in a variable manner.



To access the Manual mode:

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

Fig. 59: Using Manual mode



(1) - Manual mode



2. Press *Manual mode* (1).
- ↳ The interface of Manual mode opens.

5.8.1 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

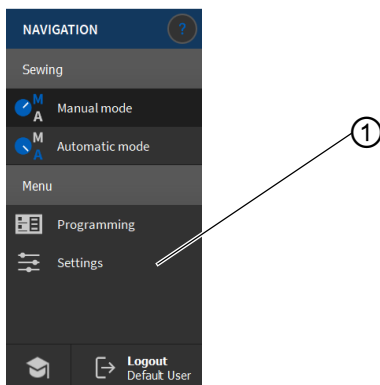
The main screen consists of three pages, which you can customize to your individual needs.



To adjust the tiles on the main screen:

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

Fig. 60: Setting up the user interface (1)



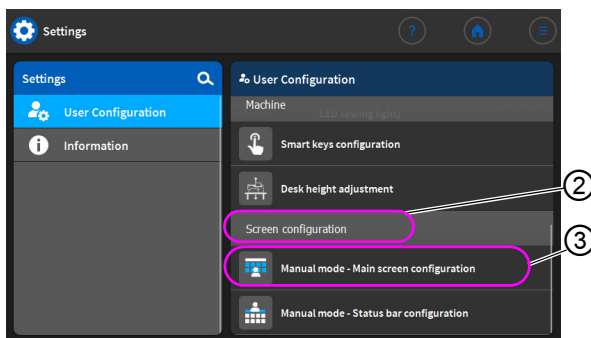
(1) - Settings



2. Press *Settings* (1).

↳ This opens the Settings interface.

Fig. 61: Setting up the user interface (2)



(2) - Screen configuration

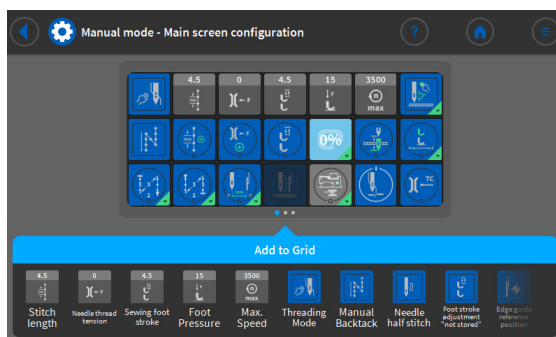
(3) - Main screen configuration



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

↳ The interface used for configuring the main screen opens.

Fig. 62: Setting up the user interface (3)



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

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



Information

Some descriptions are hard to read.

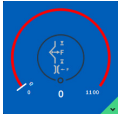
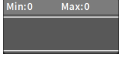
1. Press  and then the corresponding tile.

↳ A pop-up window with title and Help text is displayed.

2. Press  to close the window.

Special tiles

Most tiles act as supplements to the function that can be accessed via the program parameters and the programming menu. Some functions, however, can only be managed or activated via a tile.

Icon	Meaning
	Energy saving mode A press of this tile lets you set the control panel to energy saving mode. To exit energy saving mode again, press the pedal back. A long press of this tile lets you set a delay after which the energy saving mode will be activated automatically. A video still start playing after this time has elapsed. Once the video has finished, the machine will be in energy saving mode.
	Screen lock A press of this tile lets you lock the control panel against inadvertent taps. A long press on the grayed-out tile disables the screen lock again.
	PDF viewer Shows a stored PDF file.
	Limit Control of the thread tension You can activate/deactivate the function with a press of the tile. A long press brings up the setting options of the TTLC system. The limits are shown as values.
	Limit Control of the thread tension speedometer widget You can activate/deactivate the function with a press of the tile. A long press brings up the setting options of the TTLC system. The limits are shown graphically.
	Limit Control of the thread tension - time view widget The tile shows whether the last 30 stitches were within or above the limits. An additional statistic can be viewed under Information ( p. 86).

Icon	Meaning
	Perfect Quality Sensor (PQS) Enabled the functions of the Perfect Quality Sensor (PQS). Works only to a speed of 2200 [1/min].
	Piece Issue Mark current piece as repaired or as faulty. Distribution viewable as a statistic ( p. 86).
	Bobbin Wind Mode ( p. 122)

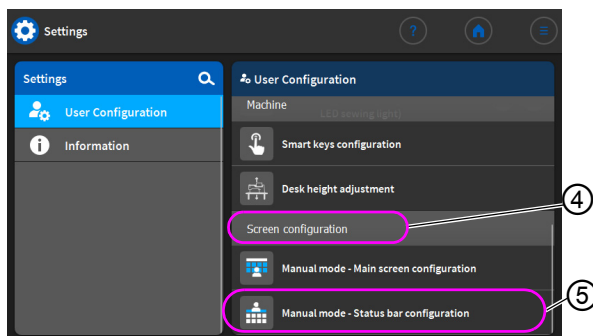
Setting the information displayed in the status bar



To set the appearance of the status bar:

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

Fig. 63: Setting up the user interface (4)



(4) - Screen configuration

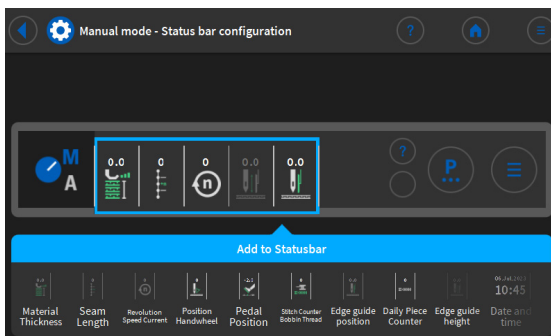
(5) - Status bar configuration



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

↳ The interface used for configuring the status bar opens.

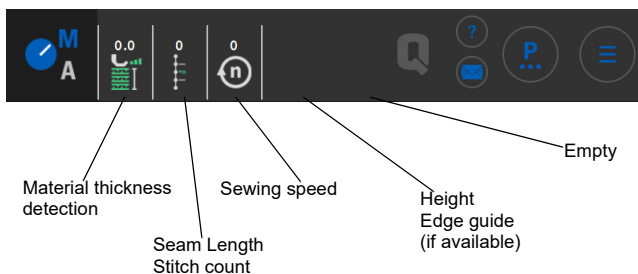
Fig. 64: Setting up the user interface (5)



3. Press and hold the desired symbol and drag it to move it into or out of the status bar.
4. Press  to return to Settings or  to return to Manual mode.

Default status bar settings

Fig. 65: Default status bar



5.8.2 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.

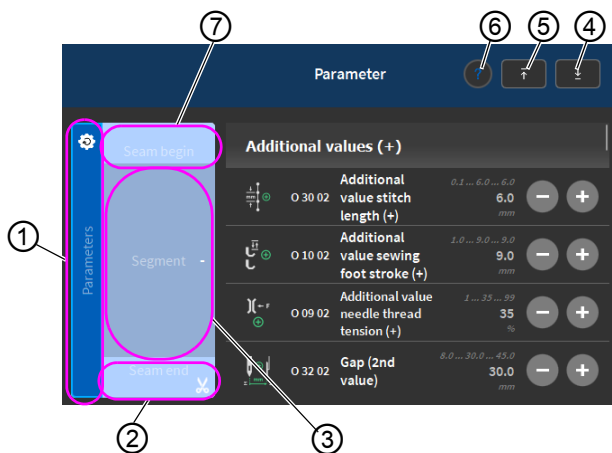
For an overview of all parameters and their setting options, refer to the  parameter list of the DELTA series.



To access the parameter settings:

1. Press the symbol  to bring up the parameter pane.
- ↳ This opens the parameter settings interface.

Fig. 66: Setting the parameters (1)



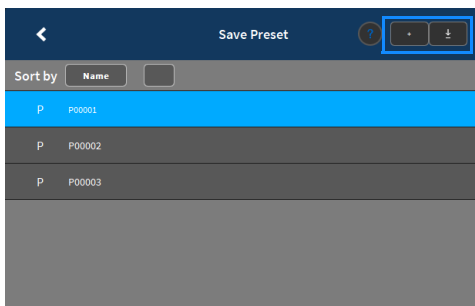
- | | |
|--------------------------------|--------------------------------|
| (1) - Parameters cross-segment | (5) - Load Preset |
| (2) - Parameters Segment End | (6) - Parameters Segment Begin |
| (3) - Parameters Segment | (7) - Context-sensitive help |
| (4) - Save Preset | |



To save the manual values as a program:

1. Press on the symbol Save Preset (4).
- ↳ A new window opens.

Fig. 67: Setting the parameters (2)



2. Add a new program or overwrite an existing program:
 - To add a new program, press the  symbol.
 - To overwrite an existing program, select a program and press the  symbol.

↳ The stored values have been called up as a program in Automatic Mode.



To load the first segment of a program into Manual Mode:

1. Press on the symbol Load Preset (5).

↳ A new window opens.
2. Press on a program to select it.

↳ The selected program is marked blue.
3. To load the preset values of the first segment into Manual Mode, press the  symbol.

5.8.3 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 2 nd 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 2 nd 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 2 nd 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 (2 nd value) The 2 nd value for the gap of motor driven edge guide to the needle (considering the defined safety clearance to the sewing feet). (Access only after activation in the machine configuration)	Value range 1.0 - 45.0 (8.0 - 45.0 [mm]) (depends on the sewing equipment)
Main Parameter		
	Needle thread clamp	Value range On/Off
	Needle cooling	Value range On/Off

Icon	Parameter	Setting
	<i>Bobbin monitor mode</i>	(see  p. 101)
	<i>Point position</i> 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 [°]
	<i>Gap</i> Value for the gap of motor driven edge guide to the needle (considering the defined safety clearance to the sewing feet). (Access only after activation in the machine configuration)	Value range 1.0 - 45.0 (depends on the sewing equipment)
	<i>Edge Guide Check Up/Down Mode</i> To avoid collisions, an electronic proximity switch checks the position of the edge guide and keeps the edge guide from moving. (Access only after activation in the machine configuration)	Value range Off/Up/Down (depending on the edge guide position that is to be checked)
	<i>Correction top roller</i> (Access only after activation in the machine configuration)	Value range -100 - 100 [%]
Material thickness detection		
	<i>Material thickness detection</i>	Value range On/Off (see  p. 103)
	<i>Sewing foot stroke</i>	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.
Correction speed effect		
	Correction speed effect	Value range On/Off (see  p. 109)
	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.

Icon	Parameter	Setting
Function modules		
	<i>Function modules 1-8</i>	(see  p. 113)
Output		
	<i>Output 1-16</i>	(see  p. 113)

5.8.3.1 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
<i>Off</i>		
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.	<i>Sewing stop</i>  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
	<i>Sewing foot lower position</i> 	Value range On/Off
	<i>t Clean</i>  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
<i>Software / Stitch Counter</i> In Software mode, the bobbin is monitored by the software based on the number of stitches sewn.	<i>Counter Type</i>  A-D Σ 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
	<i>Counter value</i>  Σ:0000 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
	<i>Sewing stop</i>  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
	<i>Sewing foot lower position</i> 	Value range On/Off
	<i>Reset necessary</i>  It is only possible to resume sewing after changing the bobbin and confirming the message on the control panel.	Value range On/Off

5.8.3.2 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 setting 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
<i>linear</i>	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.
<i>2 . On/Off</i>	If a certain material thickness is exceeded, the 2 nd 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.
<i>2 . On</i>	If a certain material thickness is exceeded, the 2 nd 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
<i>Linear absolute</i>	<i>Sewing foot stroke</i> Value range 00 – 09 [mm]	Maximum sewing foot stroke reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot stroke should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot stroke should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -09 – 09 [mm]	Difference up to maximum sewing foot stroke reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot stroke should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot stroke should occur.
<i>2.On/Off</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd sewing foot stroke height should be used.
<i>2.On</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd sewing foot stroke height should be used.

Setting options *Stitch length*

Menu item	Setting 1	Setting 2
<i>Linear with offset</i>	<i>Offset</i> Value range -50 – 50 [%]	Difference up to maximum stitch length variation reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase/reduction of the stitch length should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase/reduction of the stitch length should occur.
<i>2.On/Off</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd stitch length should be used.
<i>2.On</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd stitch length should be used.


Setting options *Needle thread tension*

Menu item	Setting 1	Setting 2
<i>Linear absolute</i>	<i>Needle thread tension</i> Value range 00 – 99	Maximum needle thread tension reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in needle thread tension should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in needle thread tension should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -99 – 99	Difference up to maximum needle thread tension reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in needle thread tension should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in needle thread tension should occur.
<i>2.On/Off</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd needle thread tension should be used.
<i>2.On</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd needle thread tension should be used.



Setting options *Sewing foot pressure*

Menu item	Setting 1	Setting 2
<i>Linear absolute</i>	<i>Sewing foot pressure</i> Value range 00 – 20	Maximum sewing foot pressure reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot pressure should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot pressure should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -20 – 20	Difference up to maximum sewing foot pressure reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot pressure should start.
	<i>Max. material thickness</i> 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
<i>Linear absolute</i>	<i>Max. Sewing speed</i> Value range 0000 – 4000	Maximum speed reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing speed should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing speed should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -3000 – 0	Difference up to maximum speed reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing speed should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing speed should occur.

5.8.3.3 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 setting 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
<i>linear</i>	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.
<i>2. On/Off</i>	If a certain speed is exceeded, the 2 nd value of the parameter is activated. If the speed then falls below this level again, it switches to the base value for the parameter.
<i>2. On</i>	If a certain speed is exceeded, the 2 nd 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
<i>Linear with offset</i>	<i>Offset</i> Value range -50 – 50 [%]	Difference up to maximum stitch length variation reached at the upper speed limit.
	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase/reduction of stitch length should start.
	<i>Max. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase/reduction of stitch length should occur.
<i>2. Value On/Off</i>	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2 nd stitch length should be used.
<i>2. Value On</i>	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2 nd stitch length should be used.


Setting options *Needle thread tension*

Menu item	Setting 1	Setting 2
<i>Linear absolute</i>	<i>Needle thread tension</i> Value range 00 – 99	Maximum needle thread tension reached at the upper speed limit.
	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in needle thread tension should start.
	<i>Max. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in needle thread tension should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -99 – 99	Difference up to maximum needle thread tension reached at the upper speed limit.
	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in needle thread tension should start.
	<i>Max. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in needle thread tension should occur.
<i>2. Value On/Off</i>	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2 nd needle thread tension should be used.
<i>2. Value On</i>	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2 nd needle thread tension should be used.


Setting options *Sewing foot pressure*

Menu item	Setting 1	Setting 2
<i>Linear absolute</i>	<i>Sewing foot pressure</i> Value range 00 – 20	Maximum sewing foot pressure reached at the upper speed limit.
	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in sewing foot pressure should start.
	<i>Max. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in sewing foot pressure should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -20 – 20	Difference up to maximum sewing foot pressure reached at the upper speed limit.
	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in sewing foot pressure should start.
	<i>Max. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in sewing foot pressure should occur.

5.8.3.4 Function modules

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

This parameter cannot be used unless the function modules have been assigned to a physical output at the Technician level. This requires that the parameter *Module management* be configured at the Technician level; for more details, refer to the explanation in the  *Service Instructions*.

It is possible for each function module to place one function tile (stored) on the main screen ( p. 89).

Menu item	Setting 1	Setting 2
	Function modules 1 - 8	Value range Material thickness/input
	<i>Material thickness</i> Only visible in the mode <i>Material thickness</i> . The function module becomes active starting with the entered limit.	Value range 00 – 10 [rpm] (depending on subclass)



5.8.3.5 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.

This parameter cannot be used unless the virtual outputs have been assigned to a physical output at the Technician level. This requires that the parameter *Module management* be configured at the Technician level; for more details, refer to the explanation in the  *Service Instructions*.

5.8.4 Setting the *Seam 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
Parameters Seam Begin		
	<i>Bartack at seam begin</i>	Value range On/Off
Seam begin bartack parameters		
	<i>Number of stitches backwards</i>	Value range 01 - 50
	<i>Number of stitches forward</i>	Value range 01 - 50
	<i>Number of bartack sections</i> 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
	<i>Stop-Time for direction change</i> The waiting time at the turning points (e.g. 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
	<i>Stitch length default</i> If this function is active, the same needle 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
		<i>Stitch length of backwards stitches</i> Value range 01.0 - 12.0 [mm] (depending on subclass)
		<i>Stitch length of stitches forward</i> Value range 01.0 - 12.0 [mm] (depending on subclass)
	<i>Sewing speed</i>	Value range 0000 - 2000
	<i>Single stitches per pedal</i> 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
	<i>Needle thread tension default</i> 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
	<i>Catch bartack</i> 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
		<i>Number of stitches backwards</i> Value range 01 - 50
		<i>Number of stitches forward</i> Value range 01 - 50
		<i>Number of bartack sections</i> Value range 01 10

Icon	Parameter	Setting
	<i>First bartack section</i> The 1 st 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
		<i>Number of stitches</i> Value range 01 - 50
	<i>Last bartack section</i> 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
		<i>Number of stitches</i> Value range 01 - 50
	<i>Invert bartack direction</i> 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

5.8.5 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		
	<i>Stitch length</i>	Value range 00.0 - 12.0 [mm] (depending on the sewing equipment and the subclass)
	<i>Needle thread tension</i>	Value range 01 - 99
	<i>Sewing foot pressure</i>	Value range 01 - 20
	<i>Sewing foot stroke</i>	Value range 1.0 – 9.0 [mm]
	<i>Max. Speed</i> It is possible to reduce the maximum sewing speed at this point. The maximum sewing speed can be set in the software at the Technician level.	Value range 0050 – 3800 [rpm] (depending on subclass)
	<i>Sewing foot lift at stop</i>	Value range On/Off
	<i>Height of sewing foot lift at stop</i>	Value range 00 – 20 [mm] (depending on subclass)

Icon	Parameter	Setting
	<i>Puller</i> (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.	Value range On/Off (see  p. 157)
	<i>Light barrier</i> (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. 158)
	Thread tension sensor mode (Access only after activation in the machine configuration)	Value range On/Off (see  p. 159)

5.8.6 Setting the *Seam End* parameters

There are various options for setting the Segment End 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 end parameters		
	<i>Sewing foot lift after trim</i>	Value range On/Off
	<i>Height of sewing foot lift after trim</i>	Value range 00 – 20 [mm] (depending on subclass)
	<i>Thread trimmer</i>	Value range On/Off
	<i>Bartack at seam end</i>	Value range On/Off
Adjustments for seam end bartack parameters		
	<i>Number of stitches backwards</i>	Value range 01 - 50
	<i>Number of stitches forward</i>	Value range 01 - 50
	<i>Number of bartack sections</i> 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
	<i>Stop-Time for direction change</i> The waiting time at the turning points (e.g. 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]
	<i>Stitch length default</i> If this function is active, the same needle 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
		<i>Stitch length of backwards stitches</i> Value range 01.0 - 12.0 [mm] (depending on subclass)
		<i>Stitch length of stitches forward</i> Value range 01.0 - 12.0 [mm] (depending on subclass)
	<i>Sewing speed</i>	Value range 50 - 2000
	<i>Single stitches per pedal</i> 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
	<i>Needle thread tension default</i> 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
		<i>Needle thread tension</i> Value range 01 - 99 [%]

Icon	Parameter	Setting
	<i>Catch bartack</i> 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
		<i>Number of stitches backwards</i> Value range 01 - 50
		<i>Number of stitches forward</i> Value range 01 - 50
		<i>Number of bartack sections</i> Value range 01 - 10
	<i>First bartack section</i> 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
		<i>Number of stitches</i> Value range 01 - 50
	<i>Last bartack section</i> 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
		<i>Number of stitches</i> Value range 01 - 50
	<i>Invert bartack direction</i> 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 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. 89), drag the tile for bobbin wind mode onto the main screen.
 2. Press  to return to Manual mode.
 3. Press on the bobbin wind mode symbol and choose between *Lever* and *Turns*.
 4. Define and confirm the settings.
-  Bobbin wind mode begins.

Icon	Parameter	Setting
	<i>Bobbin wind speed</i>	Value range 1 - 100 [%]
	<i>Bobbin wind mode</i>	Value range Lever/Turns
	<i>Bobbin wind turns</i> (Only visible if <i>Turns</i> has been selected)	Value range 0 - 9999

5.9 Using Automatic mode

Automatic mode is comprised of all stored programs.

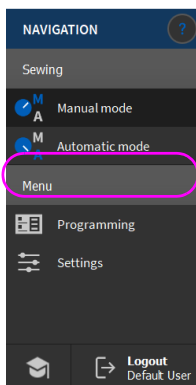


To access the Automatic mode:

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

☞ This opens the navigation interface.

Fig. 68: Using Automatic mode (1)

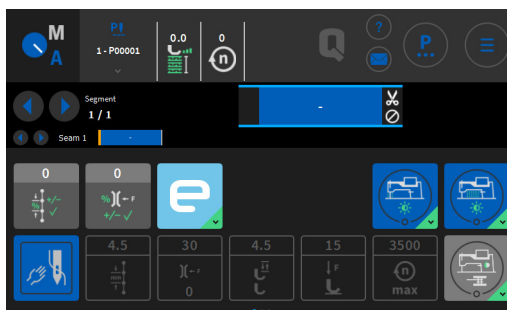


2. Press *Automatic mode*.

☞ 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. 69: Using Automatic mode (2)



Explanations of icons/symbols in Automatic mode:

Symbol/Icon	Meaning
	Selected program A press of this symbol lets you change the active program.
	Skip to previous/next segment - also during the seam
	Start Repair Mode Cancel a seam program by pressing again
	Seam/segment including information on the settings for seam beginning, seam and seam end
	Display of the entire program including its seams and segments.
	Value tiles Adjustment factors that can still be adjusted during the seam
	Grayed-out tiles Grayed-out tiles for information on the set parameters can be adjusted by programming (p. 126).
	Function tiles The blue tiles can only be activated or deactivated. You define which tiles will be visible by programming (p. 126).

5.9.1 Sewing in Automatic mode



To sew in Automatic mode:

1. Select the program.

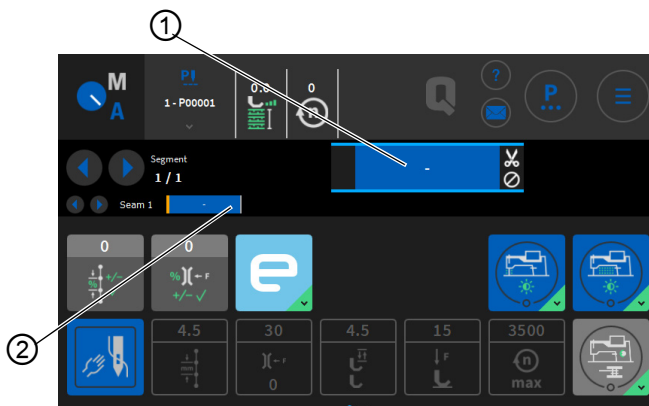


2. Press the pedal forward and sew.



You can see the following on the control panel:

Fig. 70: 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
	• Skip to previous/next segment.
Push the pedal halfway back	• Lift sewing foot.
Push the pedal fully back	• Cut off or cancel the program. The program remains stopped at the cutoff point. • An alternative option is to activate the parameter segment switch by pedal in the program defaults. The segment switch will then occur when the pedal is pressed fully back.
	• Visible as soon as the sewing process starts. • Start repair mode. Repair mode can be set in the program defaults. • Cancel a seam program by pressing again.

5.9.2 Canceling a program in Automatic mode



To cancel a program in Automatic mode:

1. Press 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 pressing the cross on the control panel.

5.10 Using Programming mode



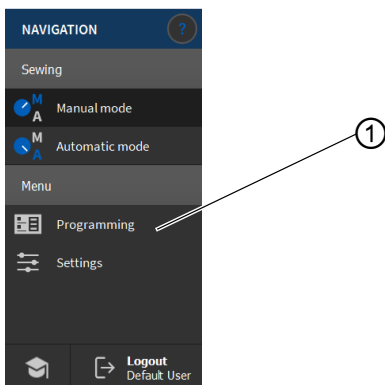
Programming mode allows you to create new programs and copy and adjust existing programs.



To access Programming mode:

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

Fig. 71: Using Programming mode (1)



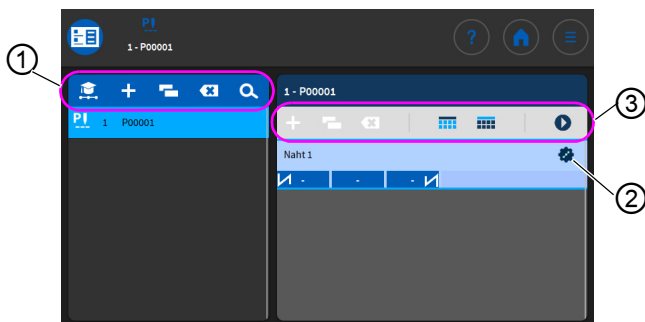
(1) - Programming mode



2. Press *Programming*.

↳ The user interface for Programming mode opens.

Fig. 72: Using Programming mode (2)



(1) - Manage the programs

(2) - Edit the seams/segments

(3) - Manage the seams/segment

5.10.1 Managing programs

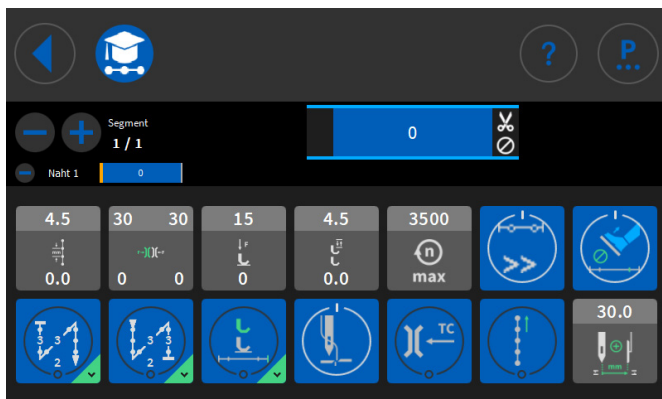
You can create, delete and copy programs. Managing the items is quick and easy thanks to the buttons listed below.

	Teach-In Write a new program during sewing ( p. 128)
	Create a new program
	Copy and insert a program
	Delete a selected program
	Search for a program name

5.10.1.1 Teach-In

Use this function to write a new program during sewing. Once the program has been saved, the parameters can be changed again in programming mode.

Fig. 73: Teach-In



Icon	Parameter	Setting
Seam Parameter		
	<i>Stitch length</i> Can only be adjusted before the first stitch of a segment.	Value range 0.00 - 6.00 [mm] (depending on the sewing equipment and the subclass)
	<i>Needle thread tension</i>	Value range 01 - 99
	<i>Sewing foot pressure</i>	Value range 01 - 20
	Sewing foot stroke	Value range 1.0 – 9.0 [mm]
	<i>Max. Speed</i> It is possible to reduce the maximum sewing speed at this point. The maximum sewing speed can be set in the software at the Technician level.	Value range 0150 – 3500 [rpm] (depending on subclass)
	Automatic skip to next seam segment Automatic stitch count active or inactive.	Value ranges On/Off
	Sewing stop Automatic sewing stop at segment end. The pedal has to be released to continue the sewing process. 0 = Off, 1 = On	Value ranges On/Off
	Bartack at seam begin Can only be adjusted before the first stitch of a segment.	Value range On/Off ( p. 114)
	Bartack at seam end	Value range On/Off ( p. 119)

Icon	Parameter	Setting
	<i>Sewing foot lifted</i> This function is used to lift the sewing foot automatically. If the function is executed within the seam segment, the automatic sewing foot lift refers to the sewing stop. Otherwise, the function refers to the seam segment end, e.g. after thread cutting.	Value ranges On/Off (Setting the <i>Segment</i> parameters  p. 117) (Setting the <i>Seam End</i> parameters  p. 119)
	<i>Thread trimmer active</i> Button to enable/disable the thread trimmer	Value ranges On/Off
	<i>Needle thread clamp</i> Can only be adjusted before the first stitch of a segment.	Value ranges On/Off
	<i>Backwards</i> Stitches in segment will be sewn backwards. Can only be adjusted before the first stitch of a segment.	Value ranges On/Off
	<i>Gap</i> (optional additional equipment) Gap of motor driven edge guide to the needle, considering the defined safety clearance to the sewing feet.	Value ranges On/Off



To exit Teach-In:

1. Cut off the threads.



A window for exiting the program is displayed:

- *Discard seam*: The window closes and the started seam is reset.
- *Append seam*: The started seam is stored and a new seam is appended.
- *Finish teach*: The program is saved and teach-in is finished.

5.10.2 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
	Copy and insert a seam
	Delete seam
	Place tiles on the main screen of the program (grid), see  p. 89.
	Place information in the status bar of the program, see  p. 89.
	Exit Programming/Edit and return to the beginning of the program (in Automatic mode)

5.10.3 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. Press on the desired seam.
- ↳ The seam is highlighted in blue.

Fig. 74: Editing the segments of a seam (1)

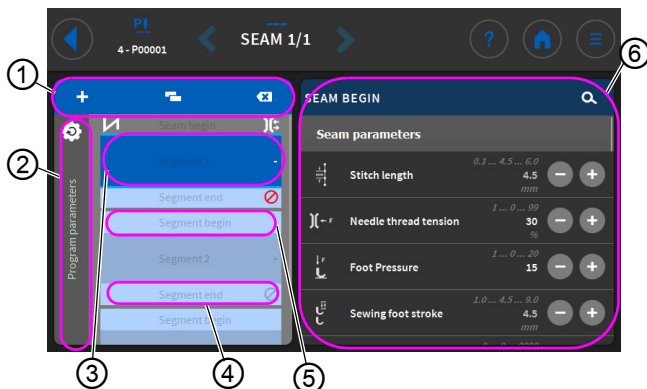




2. Press on the symbol .

↳ The interface used for setting the parameters opens:

Fig. 75: 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

5.10.4 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
	Copy and insert a segment
	Delete segment

5.10.5 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
Program activation		
	<i>Scan code</i> (Function only available with activated scanner)	 p. 136
Additional values (+)		
	Additional value stitch length (+) The 2 nd 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 0.10 - 6.00 (depending on sewing equipment and subclass)
	Additional value sewing foot stroke (+) The 2 nd 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 01.0 - 09.0 [mm]
	Additional value needle thread tension (+) The 2 nd 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 (2 nd value) The 2 nd 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 08.0 -45.0 [mm]
Program Cycle		
P → Px	<i>Next program</i> A subsequent program can be defined. Input via program number.	

Icon	Parameter	Setting
	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
		<i>Start Segment</i> Value range 00 – 30 (0 = the cycle starts with the first segment)
		<i>End Segment</i> Value range 00 – 30 (0 = the cycle ends with the last segment)
		<i>Repetitions</i> 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 1 st stitch of the seam to ensure that the needle thread lies on the underside of the sewing material	Value range On/Off
	Needle cooling	Value range On/Off
	<i>Bobbin monitor mode</i>	(see  p. 138)
 0000	Counter Mode Daily piece counter, can be set to count either up or down.	<i>Total/Up/Down</i>
		<i>Reset</i> When the daily piece counter is activated, it must be reset once after entering a value to ensure it counts correctly.

Icon	Parameter	Setting
	<i>Point position</i> 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 [°]
Material thickness detection		
	<i>Material thickness detection</i>	Value range On/Off (see  p. 141)
	<i>Sewing foot stroke</i>	The sewing foot stroke can be adjusted to different material thicknesses by the software.
	<i>Stitch length</i>	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.
	<i>Needle thread tension</i>	Depending on the material thickness, the needle thread tension can be adjusted to different material thicknesses by the software.
	<i>Sewing foot pressure</i>	The sewing foot pressure can be adjusted to different material thicknesses by the software.
	<i>Max. sewing speed</i>	The maximum sewing speed can be adjusted to different material thicknesses by the software.
Correction speed effect		
	<i>Correction speed effect</i>	Value range On/Off (see  p. 147)

Icon	Parameter	Setting
	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.
Function modules		
	Function modules 1-8	(see  p. 113)

5.10.5.1 Activating a program using a *scan code*



To activate a scanner:

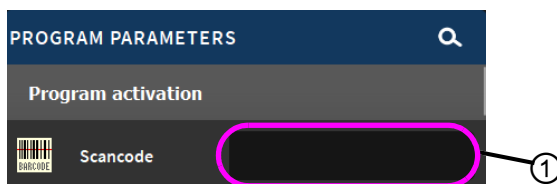
1. Log in by entering *technician* and *25483* for username and password.
2. Open the burger menu and go to *Settings - Machine configuration* to select the button *Scanner*.
3. Activate *Scanner* and *Scan Program Barcode Strings*.
4. Press  to go back.
5. Press the *Interface* button.
6. Press the *BDE* button.
7. Setting *Scanner Mode*.

8. Switch off and on the machine.
- ↳ Scanner beeps.
- ↳ A correctly taught scanner will now be ready for use.



To activate a program using a scan code:

Fig. 76: Activating a program using a scan code



(1) - Text field

1. Call up Programming mode > Program parameters.
2. Scan the code.
- ↳ The name of the program is displayed in the text field (1).



To call up a program using a scan code:

1. Call up Automatic Mode.
2. Scan the code.
- ↳ The program stored in the code is active.



5.10.5.2 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
<i>Off</i>	<i>Sewing stop</i>  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
	<i>Sewing foot lower position</i>  	Value range On/Off
<i>Software / Stitch Counter</i> In Software mode, the bobbin is monitored by the software based on the number of stitches sewn.	<i>Counter Type</i>  A-D Σ 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
	<i>Counter value</i>  Σ:0000 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

Menu item	Setting 1	Setting 2
	<i>Sewing stop</i>  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
	<i>Sewing foot lower position</i> 	Value range On/Off
	<i>Reset necessary</i>  It is only possible to resume sewing after changing the bobbin and confirming the message on the control panel.	Value range On/Off

Menu item	Setting 1	Setting 2
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.	<i>Sewing stop</i>  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
	<i>Sewing foot lower position</i>  	Value range On/Off
	<i>t Clean</i>  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]

5.10.5.3 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 setting 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
<i>linear</i>	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.
<i>2. Value On/Off</i>	If a certain material thickness is exceeded, the 2 nd 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.
<i>2. Value On</i>	If a certain material thickness is exceeded, the 2 nd 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
<i>Linear absolute</i>	<i>Sewing foot stroke</i> Value range 00 – 09 [mm]	Maximum sewing foot stroke reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot stroke should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot stroke should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -09 – 09 [mm]	Difference up to maximum sewing foot stroke reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot stroke should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot stroke should occur.
<i>2.On/Off</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd sewing foot stroke height should be used.
<i>2.On</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd sewing foot stroke height should be used.

Setting options *Stitch length*



Menu item	Setting 1	Setting 2
<i>Linear with offset</i>	<i>Offset</i> Value range -50 – 50 [%]	Difference up to maximum stitch length variation reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase/reduction of the stitch length should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase/reduction of the stitch length should occur.
<i>2.On/Off</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd stitch length should be used.
<i>2.On</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd stitch length should be used.


Setting options *Needle thread tension*

Menu item	Setting 1	Setting 2
<i>Linear absolute</i>	<i>Needle thread tension</i> Value range 00 – 99	Maximum needle thread tension reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in needle thread tension should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in needle thread tension should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -99 – 99	Difference up to maximum needle thread tension reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in needle thread tension should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in needle thread tension should occur.
<i>2.On/Off</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd needle thread tension should be used.
<i>2.On</i>	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 nd needle thread tension should be used.



Setting options *Sewing foot pressure*

Menu item	Setting 1	Setting 2
<i>Linear absolute</i>	<i>Sewing foot pressure</i> Value range 00 – 20	Maximum sewing foot pressure reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot stroke should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot pressure should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -20 – 20	Difference up to maximum sewing foot pressure reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot stroke should start.
	<i>Max. material thickness</i> 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
<i>Linear absolute</i>	<i>Max. Sewing speed</i> Value range 0000 – 4000	Maximum speed reached at the upper material thick- ness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing speed should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sew- ing speed should occur.
<i>Linear with offset</i>	<i>Max. Sewing speed</i> Value range -3000 – 00	Difference up to maximum speed reached at the upper material thickness limit.
	<i>Min. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing speed should start.
	<i>Max. material thickness</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sew- ing speed should occur.

5.10.5.4 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 setting 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
<i>linear</i>	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.
<i>2. Value On/Off</i>	If a certain speed is exceeded, the 2 nd value of the parameter is activated. If the speed then falls below this level again, it switches to the base value for the parameter.
<i>2. Value On</i>	If a certain speed is exceeded, the 2 nd 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
<i>Linear with offset</i>	<i>Offset</i> Value range -50 – 50 [%]	Difference up to maximum stitch length variation reached at the upper speed limit.
	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase/reduction of stitch length should start.
	<i>Max. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase/reduction of stitch length should occur.
<i>2. Value On/Off</i>	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2 nd stitch length should be used.
<i>2. Value On</i>	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2 nd stitch length should be used.



Setting options *Needle thread tension*

Menu item	Setting 1	Setting 2
<i>Linear absolute</i>	<i>Needle thread tension</i> Value range 00 – 99	Maximum needle thread tension reached at the upper speed limit.
	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in needle thread tension should start.
	<i>Max. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in needle thread tension should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -99 – 99	Difference up to maximum needle thread tension reached at the upper speed limit.
	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in needle thread tension should start.
	<i>Max. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in needle thread tension should occur.
<i>2. Value On/Off</i>	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2 nd needle thread tension should be used.
<i>2. Value On</i>	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2 nd needle thread tension should be used.


Setting options *Sewing foot pressure*

Menu item	Setting 1	Setting 2
<i>Linear absolute</i>	<i>Sewing foot pressure</i> Value range 00 – 20	Maximum sewing foot pressure reached at the upper speed limit.
	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in sewing foot pressure should start.
	<i>Max. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in sewing foot pressure should occur.
<i>Linear with offset</i>	<i>Offset</i> Value range -20 – 20	Difference up to maximum sewing foot pressure reached at the upper speed limit.
	<i>Min. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in sewing foot pressure should start.
	<i>Max. Sewing speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in sewing foot pressure should occur.

5.10.6 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
Parameters Seam Begin		
	<i>Scan Mode</i> (Access only after activation in the machine configuration)	Value range Read & Compare/Read & Store/Off ( p. 153)
Seam begin bartack parameters		
	<i>Bartack at seam begin</i>	Value range On/Off
	<i>Number of stitches backwards</i>	Value range 01 - 50
	<i>Number of stitches forward</i>	Value range 01 - 50
	<i>Number of bartack sections</i> 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
	<i>Stop-Time for direction change</i> The waiting time at the turning points (e.g. 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
	<i>Stitch length default</i> If this function is active, the same needle 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
		<i>Stitch length of stitches forward</i> Value range 0.10 - 06.0 [mm] (depending on subclass)
		<i>Stitch length of backwards stitches</i> Value range 0.10 - 06.0 [mm] (depending on subclass)
	<i>Sewing speed</i>	Value range 50 - 2000
	<i>Single stitches per pedal</i> 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
	<i>Needle thread tension default</i> 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
	<i>Catch bartack</i> 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
		<i>Number of stitches backwards</i> Value range 01 - 50
		<i>Number of stitches forward</i> Value range 01 - 50
		<i>Number of bartack sections</i> Value range 01 - 10

Icon	Parameter	Setting
	<i>First bartack section</i> The 1 st 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
		<i>Number of stitches</i> Value range 01 - 50
	<i>Last bartack section</i> 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
		<i>Number of stitches</i> Value range 01 - 50
	<i>Invert bartack direction</i> 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

5.10.6.1 Scan Mode

Before a chip can be read and stored for the first time, you must select *Read & Store*.

To check if the chip is the chip that has been stored, you must select *Read & Compare*.

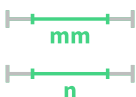
Different messages may be displayed during the scan process/ sewing:

- Scan required: Please scan the RFID tag.
- Scan required: Please scan the same RFID tag again.
- Scan again as RFID tags did not match: The Read & Compare found that the chips did not match. Please scan the same RFID tag as before.
- Another scan required: Please scan the same RFID tag again.

5.10.7 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		
	<i>Stitch length</i>	Value range 0.10 - 06.0 [mm] (depending on the sewing equipment and the subclass)
	<i>Needle thread tension</i>	Value range 01 - 99
	<i>Sewing foot pressure</i>	Value range 01 - 20
	<i>Sewing foot stroke</i>	Value range 1.0 – 9.0 [mm]
	<i>Seam length in segment</i> or <i>Number of stitches in segment</i>	You can set the active option at the Technician level <i>Machine configuration</i> > <i>Seam segment mode</i> . 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.
	<i>Max. Speed</i> It is possible to reduce the maximum sewing speed at this point. The maximum sewing speed can be set in the software at the Technician level.	Value range 0050 – 3800 [rpm] (depending on subclass)

Icon	Parameter	Setting
	<i>Needle position</i> Position of the needle when sewing stops.	Value range On/Off
	<i>Sewing foot lift at stop</i>	Value range On/Off
	<i>Height of sewing foot lift at stop</i>	Value range 00 – 20 [mm] (depending on subclass)
	<i>Backwards</i> When the parameter is activated, the section is sewn backwards.	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. (Access only after activation in the machine configuration)	Value range On/Off (see  p. 157)
	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. (Access only after activation in the machine configuration)	Value range 08.0 - 45.0 [mm]

Icon	Parameter	Setting
	<i>Edge Guide Check Up/Down Mode</i> To avoid collisions, an electronic proximity switch checks the position of the edge guide and keeps the edge guide from moving. (Access only after activation in the machine configuration)	Value range Off/Up/Down (depending on the edge guide position that is to be checked)
	<i>Light barrier</i> (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. 158)
	Switch foot stroke alternation	Value range On/Off
	Thread tension sensor mode (Access only after activation in the machine configuration)	(see  p. 159)
	<i>Seam Center Guide</i> (only on 2-needle machines, optional additional equipment)	Value range On/Off
Output		
	<i>Segment Output 01-16</i>	(see  p. 159)

5.10.7.1 Setting the *Puller* parameters



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.

Icon	Menu item	Setting
	<i>Puller correction synchroni- zation (Top/Bottom)</i> This function is used to synchronize the correction values for the top and the bottom roller.	Value range On/Off
	<i>Correction top roller</i> The feed of the top roller is calculated automatically based on the stitch length. An adjustment may be necessary depending on the application. The rollers can be adjusted separately. The input is in percent and will either increase or reduce the feed.	Value range -100 - 100 [%]
	<i>Correction bottom roller</i> The feed of the bottom roller is calculated automatically based on the stitch length. An adjustment may be necessary depending on the application. The rollers can be adjusted separately. The input is in percent and will either increase or reduce the feed.	Value range -100 - 100 [%]

5.10.7.2 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
	<i>Distance</i> Distance from the detection of the signal to the end of the material. The 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
	<i>Signal detection at seam begin</i> 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
	<i>Signal detection at seam end</i> 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
	Start after bartack	Value range On/Off
	Start delay	Value range 0 - 9999 [mm]

Icon	Menu item	Setting
	Switch-off delay	Value range 0 - 9999 [mm]
	<i>Seams</i> Input of the number of signal detections after which the machine is supposed to continue with the specifically set parameters.	Value range 1 - 255
	<i>Filter stitches</i> 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 1 st detection of the signal.	Value range 0 - 255



5.10.7.3 Parameters Thread tension sensor mode

Icon	Menu item	Setting
	<i>Lower limit</i>	Value range 0000 - 1100
	<i>Upper limit</i>	Value range 0000 - 1100
	<i>Thread tension warning delay stitches</i> If the specified maximum of allowed faulty values is exceeded multiple times in a row, the software outputs a warning.	Value range 000 - 100
	<i>Allowed faulty TT values per seam</i> If the specified maximum of allowed faulty values is exceeded in the entire seam, the software outputs a warning.	Value range 000 - 100

5.10.7.4 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.

This parameter 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*.

5.10.8 Setting the *Segment End/Seam End* parameters

There are various options for setting the Segment End 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 end parameters		
	<i>Sewing stop</i>	Value range On/Off Setting as to what will happen at the end of a segment/seam. (see  p. 163)
Adjustments for seam end bartack parameters		
	<i>Bartack at seam end</i>	Value range On/Off
	<i>Number of stitches backwards</i>	Value range 01 - 50
	<i>Number of stitches forward</i>	Value range 01 - 50

Icon	Parameter	Setting
	<i>Number of bartack sections</i> 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
	<i>Stop-Time for direction change</i> The waiting time at the turning points (e.g. 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]
	<i>Stitch length default</i> If this function is active, the same needle 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
		<i>Stitch length of backwards stitches</i> Value range 01.0 – 12.0 [mm] (depending on subclass)
		<i>Stitch length of stitches forward</i> Value range 01.0 – 12.0 [mm] (depending on subclass)
	<i>Sewing speed</i>	Value range 50 - 2000
	<i>Single stitches per pedal</i> 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
	<i>Needle thread tension default</i> 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.	On/Off
		<i>Needle thread tension</i> Value range 01 - 99

Icon	Parameter	Setting
	<i>Catch bartack</i> 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
		<i>Number of stitches backwards</i> Value range 01 - 50
		<i>Number of stitches forward</i> Value range 01 - 50
		<i>Number of bartack sections</i> Value range 01 - 10
	<i>First bartack section</i> 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
		<i>Number of stitches</i> Value range 01 - 50
	<i>Last bartack section</i> 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
		<i>Number of stitches</i> Value range 01 - 50
	<i>Invert bartack direction</i> 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

5.10.8.1 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
	Height of sewing foot lift after trim/at segment end	Value range 00 – 20 [mm] (depending on subclass)

5.11 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*.

5.12 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. 65 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. Select the file containing the software update.
↳ Another window opens.
6. To start the software update, press 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 sewing dust and thread residues	●			
Lubricating				
Lubricating the machine head	●			
Lubricating the hook		●		

Work to be carried out	Operating hours			
	8	40	160	500
Servicing the pneumatic system				
Adjusting 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!

Sewing dust and thread residues can impair the operation of the machine.

Clean the machine as described.

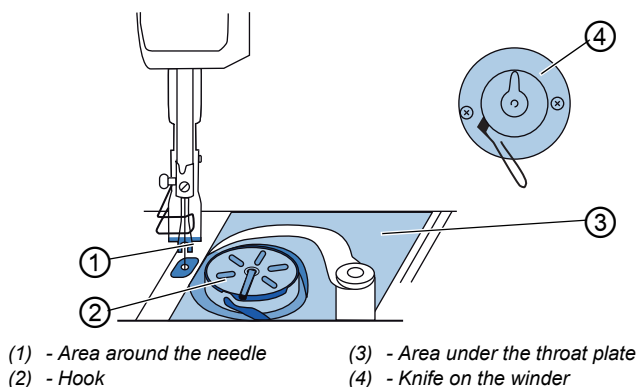
NOTICE

Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

Fig. 77: Areas requiring special cleaning

**Areas particularly susceptible to soiling:**

- Knife 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 sewing dust and thread residues 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 mm²/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

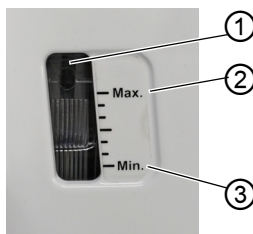
6.2.1 Lubricating the machine head



Proper setting

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

Fig. 78: Lubricating the machine head



(1) - Refill opening

(3) - Minimum level marking

(2) - Maximum 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.

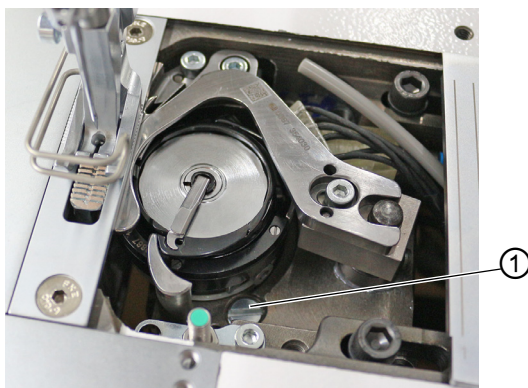
The approved oil quantity for hook lubrication is a factory specification.



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. 79: 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 Adjusting the operating pressure

NOTICE

Property damage from incorrect adjustment!

Incorrect operating pressure can result in damage to the machine.

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

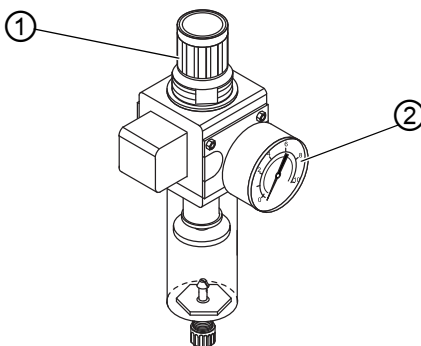


Proper setting

Refer to the **Technical Data** ( p. 249) 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. 80: Adjusting the operating pressure



(1) - Pressure regulator

(2) - Pressure gage



To adjust the operating pressure:

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

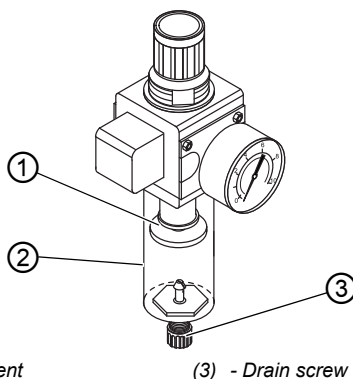
The water separator (2) of the pressure controller will show accumulation of a water-oil mixture.



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. 81: 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

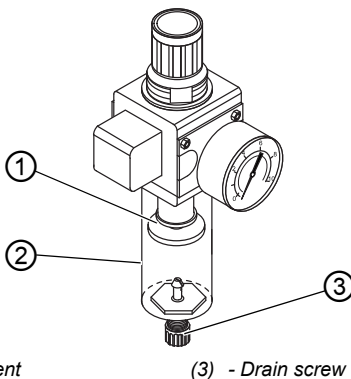
NOTICE

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. 82: 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 condensation ( p. 172).
3. Loosen the water separator (2).
4. Unscrew 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 water separator (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.

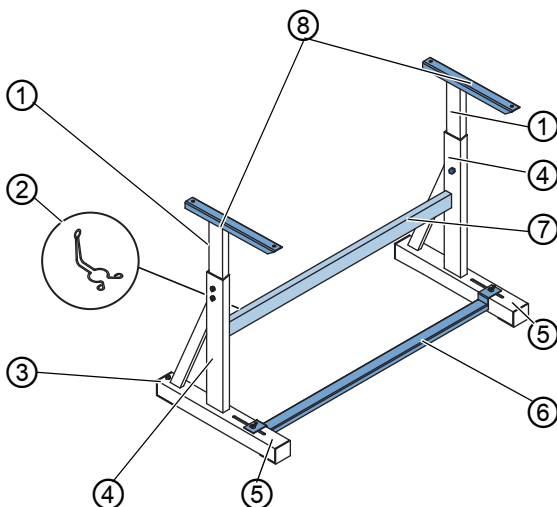
7.2 Removing the transport locks

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. 83: 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



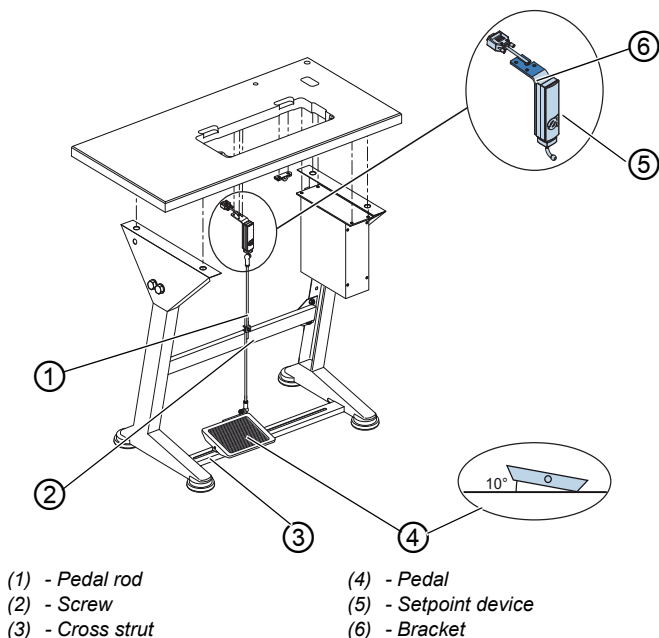
To assemble the stand:

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. 84: Assembling the pedal and setpoint device



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 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).

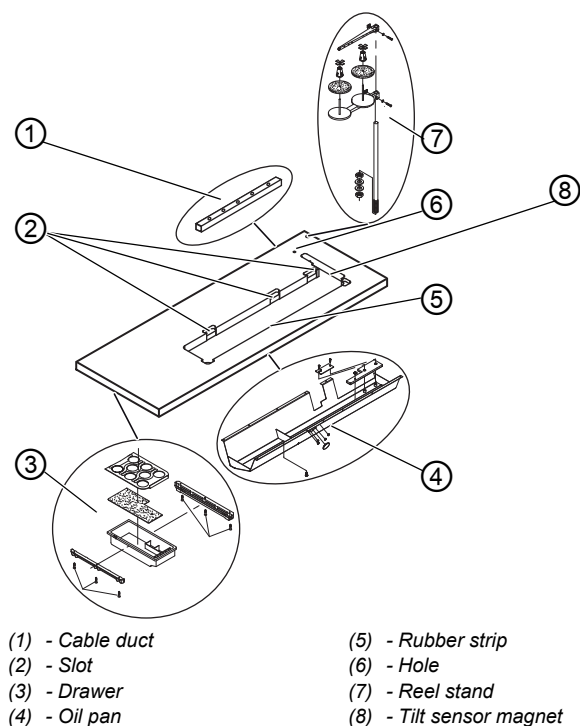
7.5 Tabletop

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 in the **Appendix** (📖 p. 251) as a template.

7.5.1 Completing the tabletop

The tabletop is optional. For drawings that allow you to independently assemble a tabletop, refer to the **Appendix** (📖 p. 251).

Fig. 85: Completing the tabletop (1)



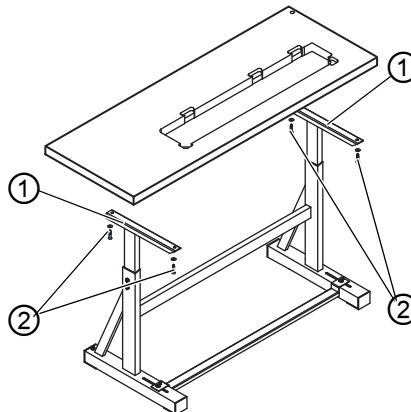
To complete the tabletop:

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 ( p. 190).
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. 86: 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 Adjusting 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



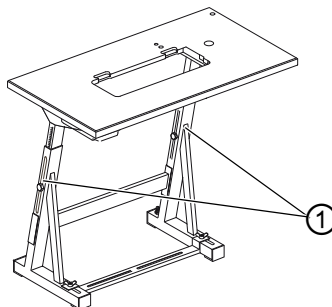
Risk of musculoskeletal damage from incorrect setting!

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. 87: Adjusting the working height



(1) - Screws



To adjust the working height:

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



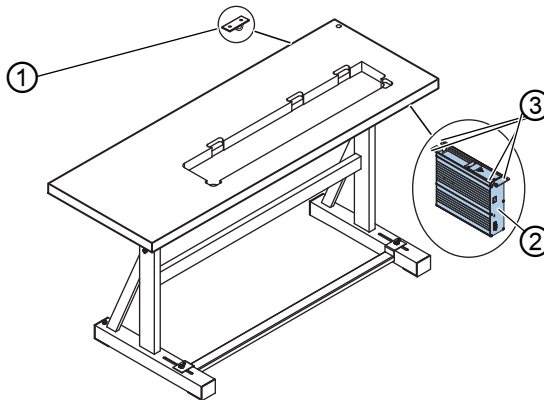
Important

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. 88: 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.

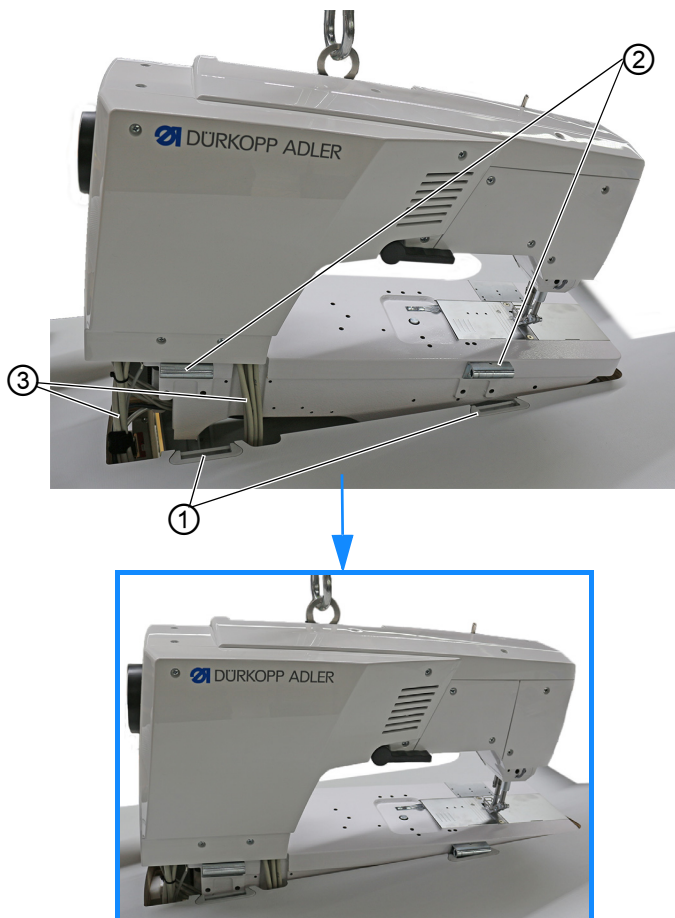
NOTICE

Property damage may occur!

Cables 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. 89: Inserting the machine head (1)



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

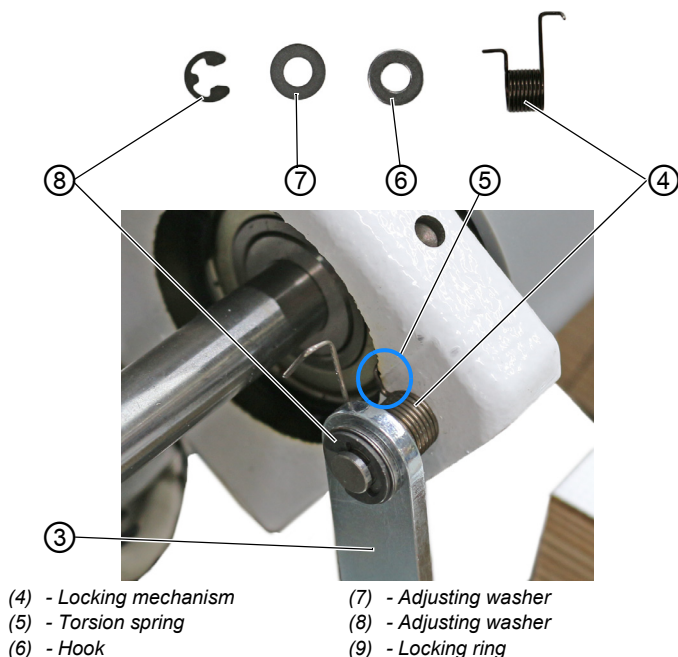
(3) - Cables



To insert the machine head:

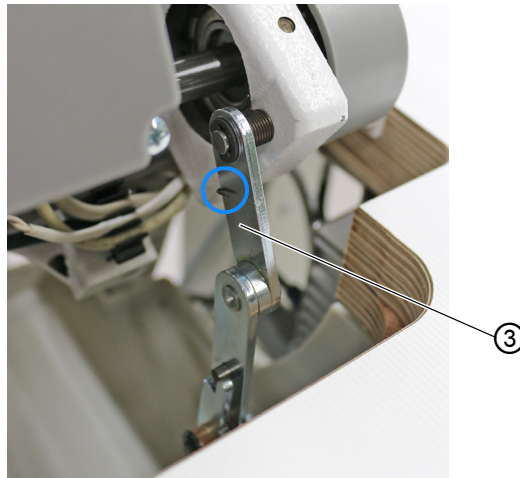
1. Tighten the upper hinge parts (2) onto the machine head.
2. Guide the cables (3) through the tabletop with great care so as not to create any chafing or pinching points.
3. Insert the machine head from above at an angle of 45°.
4. Insert the upper hinge parts (2) into the rubber inlays (1).

Fig. 90: Inserting the machine head (2)



5. Assemble the locking mechanism (3) to the tabletop.
Check prior to assembly if the locking mechanism can extend and retract without issue (📖 p. 189).
6. Fit the torsion spring (4).
Pay attention to the position of the hook (5).
7. Assemble the locking mechanism (3) to the machine using adjusting washers (6) and (7) and the locking ring (8).
8. Tighten the torsion spring (4) and clamp it behind the locking mechanism (3).
Make sure nobody can be insured if the torsion spring inadvertently recoils.

Fig. 91: Inserting the machine head (3)



(10) - Locking mechanism

9. Tilt the machine head forward to erect it and insert it into the slot in the tabletop.



Proper setting

If assembled correctly, the locking mechanism will engage when the machine is tilted back all the way, keeping the machine from tilting up inadvertently in the tabletop cut-out.

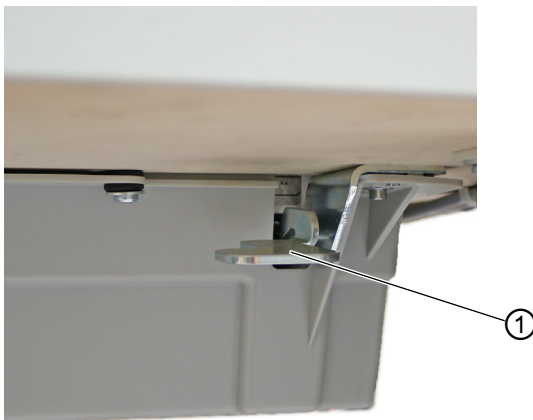


To check for proper operation:

1. Tilt the machine down ( p. 188).
 2. Try carefully to tilt the machine head up without pressing the lever below the tabletop.
Ensure that your hands are not jammed.
- ☞ If the locking mechanism is engaged correctly, the machine head cannot be erected without pressing the lever below the tabletop.

7.8.1 Tilting the machine head

Fig. 92: Tilting the machine head



(1) - Lever

Tilting the machine head



To tilt the machine head:

1. Tilt the machine head back as far as it will go.

Erecting the machine head



To erect the machine head:

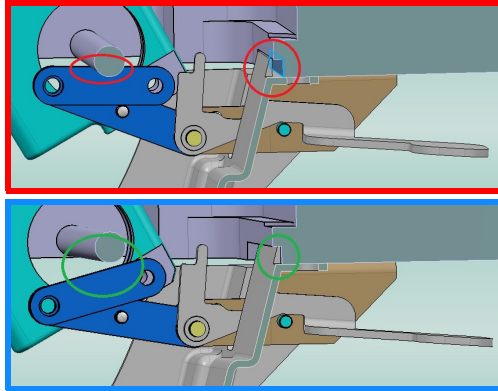
1. Press the lever (1) below the tabletop up with one hand.
2. Erect the machine head using your other hand.

7.8.2 Possible errors while assembling the locking mechanism

While the machine is being erected, the locking mechanism collides with the shaft (possibly bending it), as e.g.

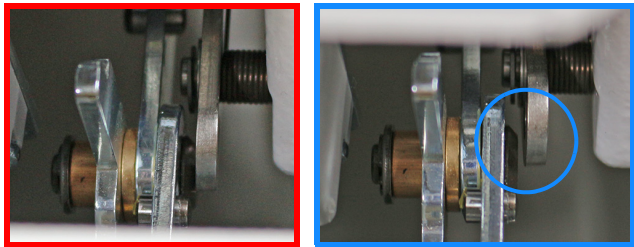
- the oil pan was not assembled correctly in the slot:

Fig. 93: Possible errors while assembling the locking mechanism (1)



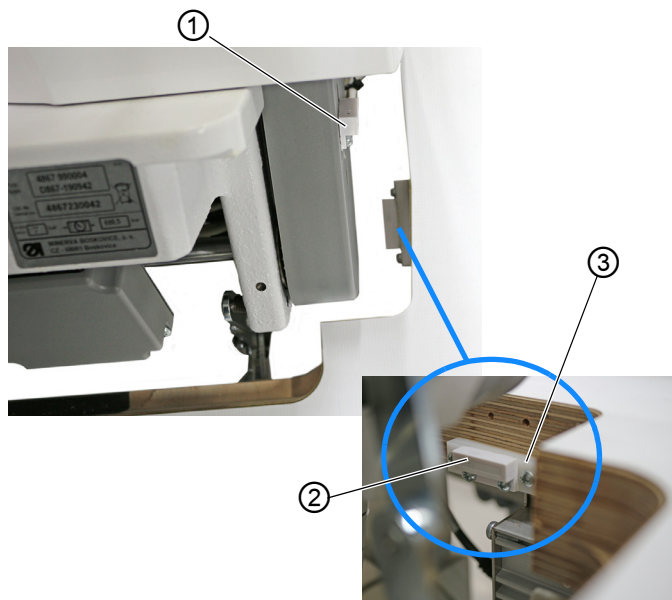
- the locking mechanism does not have enough play:

Fig. 94: Possible errors while assembling the locking mechanism (2)



7.9 Assembling the tilt sensor

Fig. 95: Assembling the tilt sensor (1)



(1) - Sensor
(2) - Magnet

(3) - Spacer



To assemble the tilt sensor:

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

The magnet (2), the spacer (3) and wood screws are in the bag that contains the bobbins.

2. Align the spacer (3): The spacer (3) is positioned opposite the sensor (2) when the machine head has been erected.
3. Use the wood screws to tighten the spacer (3) on the edge in the tabletop cutout (📖 p. 251).
4. Screw the magnet (2) to the spacer using the screws.
- ↳ The magnet and the sensor face one another when the machine head is erected.

7.10 Changing the handwheel

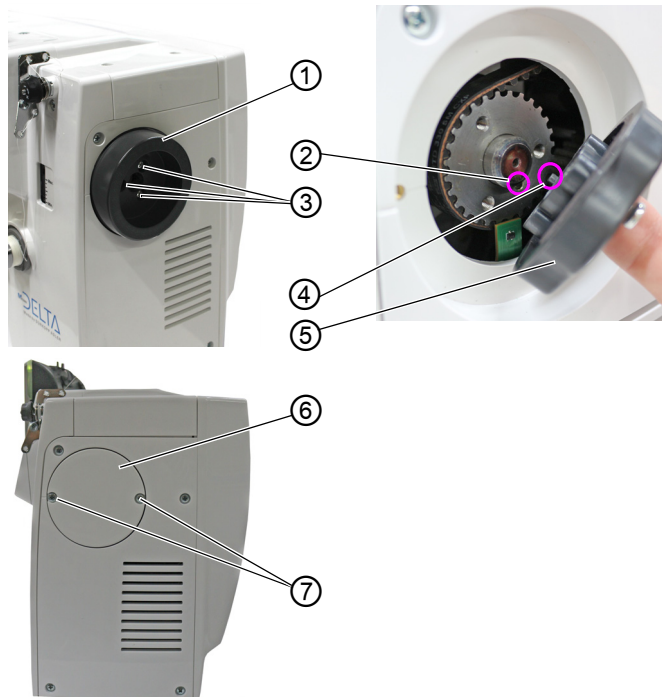
The handwheel that ships with the machine is the large handwheel. The large handwheel can be replaced with the small handwheel, which can be ordered as a spare part ( Parts List D867).



Important

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

Fig. 96: 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.

7.11 Assembling the knee button

Fig. 97: Assembling the knee button



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

- (3) - Plug

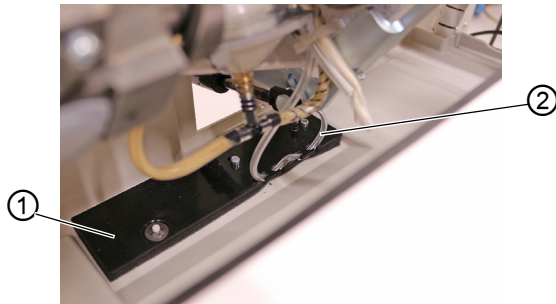


To assemble the knee button:

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.

7.12 Assembling the oil extraction line

Fig. 98: 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.

7.13 Assembling the LED sewing light

NOTICE

Property damage may occur!

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

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

The following is required for assembling the LED sewing light:

- LED sewing light
- Junction box
- Sewing light transformer

Fig. 99: Assembling the LED sewing light (1)



(1) - Cover

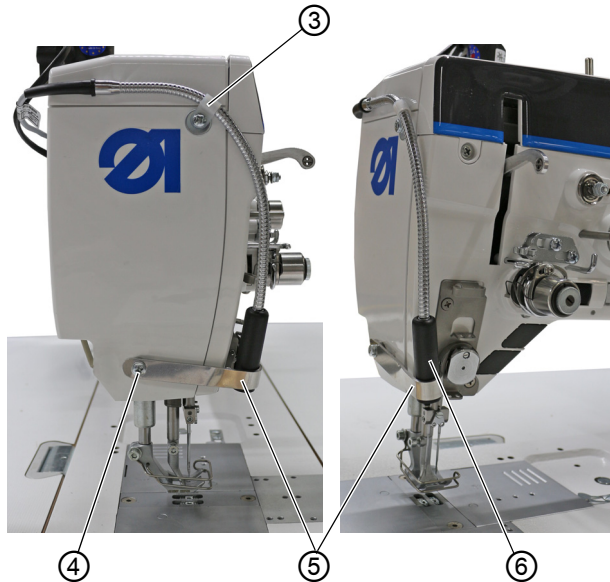
(2) - Cover



To assemble the sewing light:

1. Switch off the machine.
2. Disassemble covers (1) and (2).

Fig. 100: Assembling the LED sewing light (2)



(3) - Clip

(4) - Screw

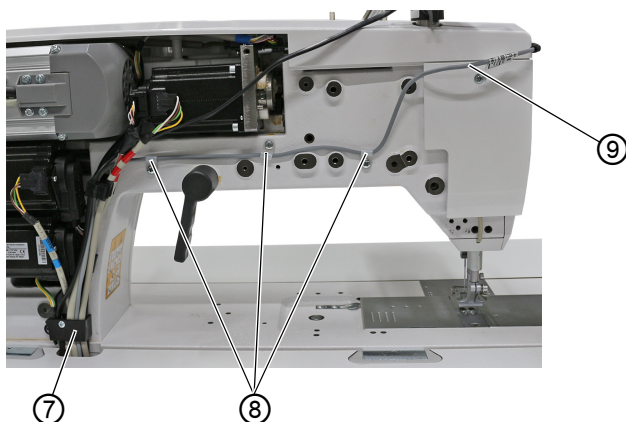
(5) - Holder

(6) - Sewing light



3. Screw the holder (5) to the head cover using the screw (4).
4. Slide the sewing light (6) into the holder (5) and tighten it at the head cover using the clip (3).

Fig. 101: Assembling the LED sewing light (3)



(7) - Guide
(8) - Clips

(9) - Cable



5. Lay the cable (9) inside the machine arm using the clips (8).
6. Lay the cable (9) through the guide (7) under the tabletop.
7. Assemble covers (1) and (2).
Cut out a corner of the cover (2) to keep the cable (9) from becoming damaged.

Fig. 102: Assembling the LED sewing light (5)

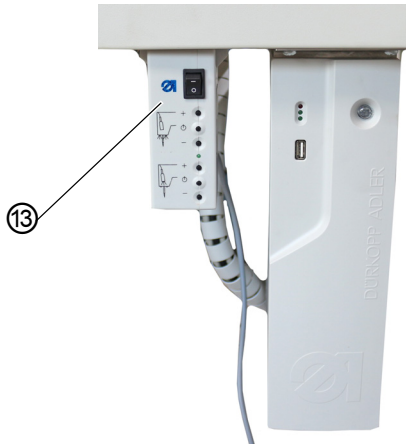


(10) - Cable
(11) - Power cable

(12) - Junction box

8. Screw the junction box (12) under the tabletop, paying attention to the length of the cables.
9. Pull the power cable (11) out of the control and insert it into the junction box (12).
10. Insert the cable (10) of the junction box (12) into the control

Fig. 103: Assembling the LED sewing light (6)



(13)- Sewing light transformer

11. Assemble the sewing light transformer (13) to the tabletop so that it lies within easy reach of the user.
12. Connect the cable (10) to the sewing light transformer as shown in the wiring diagram ( Service Instructions).
13. Tighten the cover of the junction box (12) and lay the cables neatly.

7.14 Assembling the CCEA sewing light

NOTICE

Property damage may occur!

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

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

The following is required for assembling the sewing light with table clamp:

- Sewing light CCEA
- Junction box

Fig. 104: Assembling the CCEA sewing light (1)



(1) - Cover

(3) - Arm cover

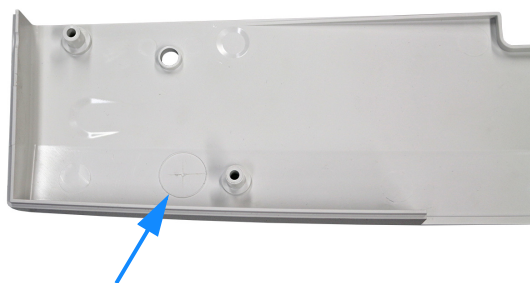
(2) - Cover



To assemble the sewing light:

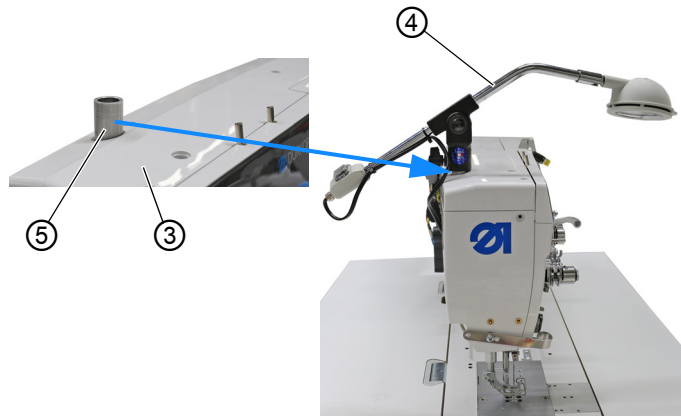
1. Switch off the machine.
2. Disassemble covers (1) and (2).
3. Disassemble the arm cover (3).

Fig. 105: Assembling the CCEA sewing light (2)



4. Drill a hole (Ø 24 mm) corresponding to the grain on the inside of the arm cover (3).
5. Assemble the arm cover (3).

Fig. 106: Assembling the CCEA sewing light (3)



(3) - Arm cover
(4) - Sewing light

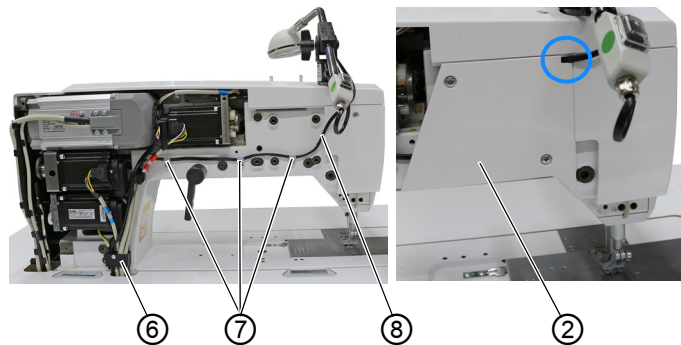
(5) - Holder



6. Tighten the holder (5) in the hole of the arm cover (3) using a screw and washer.

7. Slide the sewing light (4) onto the holder (5) and tighten it.

Fig. 107: Assembling the CCEA sewing light (4)



(2) - Cover
(6) - Guide

(7) - Clips
(8) - Cable

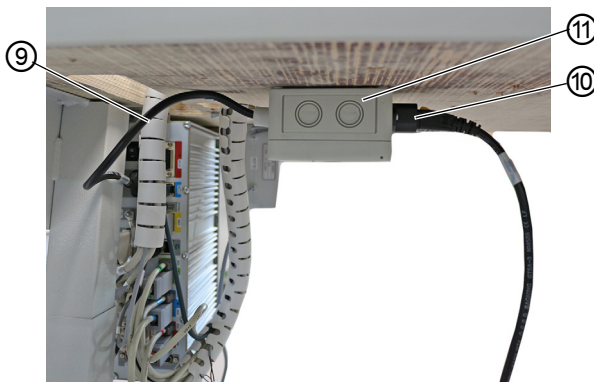


8. Lay the cable (8) inside the machine arm using the clips (7).

9. Lay the cable (8) through the guide (6) under the tabletop.

10. Assemble covers (1) and (2).
Cut out a corner of the cover (2) to keep the cable (8) from becoming damaged.

Fig. 108: Assembling the sewing light with table clamp (3)



(9) - Cable
(10) - Power cable

(11) - Junction box

11. Screw the junction box (11) under the tabletop, paying attention to the length of the cables.
12. Pull the power cable (10) out of the control and insert it into the junction box (11).
13. Insert the cable (9) of the junction box (11) into the control.
14. Connect the cable (8) to the control as shown in the wiring diagram (Service Instructions).
15. Tighten the cover of the junction box (11) and lay the cables neatly.

7.15 Assembling the sewing light with table clamp

NOTICE

Property damage may occur!

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

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

The following is required for assembling the sewing light with table clamp:

- Sewing light
- Junction box
- Power strip

Fig. 109: Assembling the sewing light with table clamp (1)



(1) - Sewing light



To assemble the sewing light with table clamp:

1. Switch off the machine.
2. Attach the sewing light (1) on the tabletop.

Fig. 110: Assembling the sewing light with table clamp (3)



*(2) - Cable
(3) - Power cable*

(4) - Junction box



3. Screw the junction box (4) under the tabletop, paying attention to the length of the cables.
4. Pull the power cable (3) out of the control and insert it into the junction box (4).
5. Insert the cable (2) of the junction box (4) into the control.

Fig. 111: Assembling the sewing light with table clamp (3)



(5) - Power strip

6. Connect the cable of the power strip (5) to the junction box (4) as shown in the wiring diagram (📖 Service Instructions).
7. Tighten the cover of the junction box (4) and lay the cables neatly.
8. Insert the plug of the sewing light (1) into the power strip (5).

7.16 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.



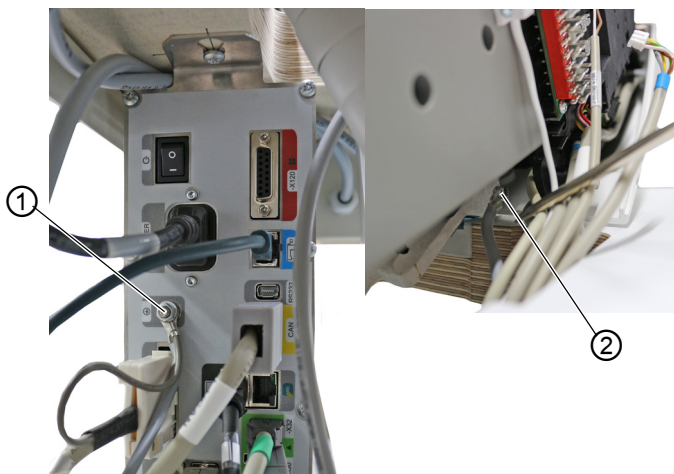
Important

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

7.16.1 Establishing equipotential bonding

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

Fig. 112: Establishing equipotential bonding



(1) - Control connection

(2) - Base plate connection



To establish equipotential bonding:

1. Tilt the machine head.
2. Feed the equipotential bonding cable from the connection (1) on the rear side of the control through the slot in the tabletop and fix it in place at the connection of the base plate (2).

7.16.2 Connecting the control

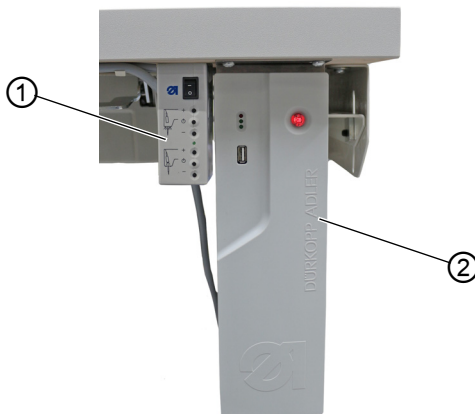


To connect the control:

1. Connect the control as specified in the wiring diagram ( Service Instructions).

7.16.3 Connecting the sewing light transformer

Fig. 113: Connecting the sewing light transformer



(1) - Sewing light transformer

(2) - Control



To connect the sewing light transformer:

1. Switch off the machine.
2. Screw the sewing light transformer (1) in place next to the control (2) under the tabletop.
3. Connect the sewing light transformer (1) as specified in the wiring diagram ( Service Instructions).

7.17 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 adjustment!

Incorrect system pressure can result in damage to the machine.

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

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



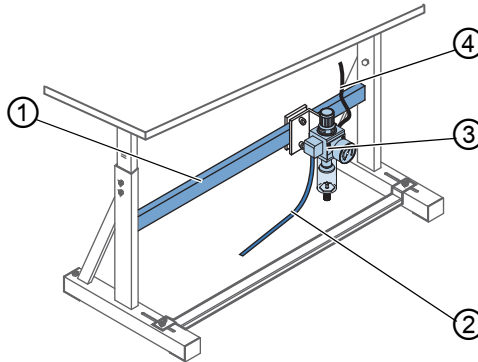
Information

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

7.17.1 Assembling the compressed air maintenance unit

Fig. 114: Assembling the compressed air maintenance unit



(1) - Cross bar

(3) - Maintenance unit

(2) - System connection hose

(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.

7.17.2 Adjusting the operating pressure

NOTICE

Property damage from incorrect adjustment!

Incorrect operating pressure can result in damage to the machine.

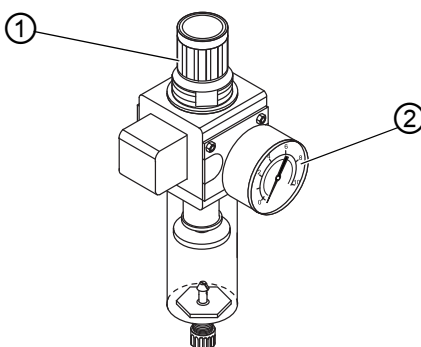
Ensure that the machine is only used when the operating pressure is set correctly.



Proper setting

Refer to the **Technical Data** (📖 p. 249) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Fig. 115: Adjusting the operating pressure



(1) - Pressure regulator

(2) - Pressure gage



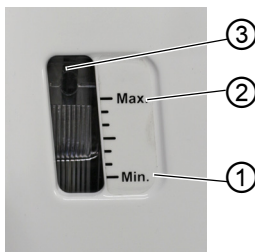
To adjust the operating pressure:

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

7.18 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. 116: Checking the lubrication



(1) - Minimum level marking

(3) - Inspection glass

(2) - Maximum level marking



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. 169).

7.19 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	Corrective
999	Error	Error message	• Software error
1000	Error	Sewing motor encoder plug X5B (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, • use correct connection
1001	Error	Sewing motor error Sewing motor plug X2 (AMP) not connected	• Check connection and plug in • Test sewing motor phases ($R = 2.8\Omega$, high impedance to PE) • Replace encoder • Replace sewing motor • Replace the control

Code	Type	Possible cause	Corrective
1002	Error	Sewing motor insulation error	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
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 • Measure motor phases and check for value
1005	Error	Motor blocked	• Check for stiff movement • Replace encoder • Replace sewing motor
1006	Error	Maximum speed exceeded	• Replace encoder • Carry out a reset • Check class (t 51 04)
1007	Error	Error in the reference run	• Replace encoder • Check for stiff movement
1008	Error	Encoder error	• Replace encoder
1010	Error	External synchronizer plug X5T (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 the control
1055	Error	Sewing motor overload	• Check for stiff movement • Replace encoder • Replace sewing motor

Code	Type	Possible cause	Corrective
1060	Error	Sewing motor overload / overvoltage /overcurrent	• Check selection of class • Replace the control • Replace motor • Replace encoder
1061	Error	Sewing motor overload / overvoltage /overcurrent	• Check selection of class • Replace the control • Replace motor • Replace encoder
1120	Error	Sewing motor initialization failure	• Perform software update • Check selection of class
1121	Error	Sewing motor watchdog	• Perform 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
1204	Information	Position not reached (during bartack)	• 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
1205	Information	Position not reached (during bartack)	• 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
1206	Information	Position not reached (during bartack)	• 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

Code	Type	Possible cause	Corrective
1207	Information	Position not reached (during bartack)	• 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 software update • Replace the control
2101	Error	Stepper card X30 reference drive timeout	• Check reference sensor
2105	Error	Stepper card X30 blockage	• Check for stiff movement
2121	Error	Stepper card X30 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2122	Error	Stepper card X30 flywheel position not found	• Check stepper motor 1 for stiff movement
2130	Error	Stepper card X30 not responding	• Perform software update • Replace the control
2131	Error	Stepper card X30 initialization failure	• Perform software update • Check selection of class
2152	Error	Stepper card X30 overcurrent	• Check for stiff movement
2171	Error	Stepper card X30 watchdog (Stitch length)	• Perform software update • Check selection of class
2172	Error	Stepper card X30 motor overload / overvoltage / over-current (Stitch length)	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor

Code	Type	Possible cause	Corrective
2173	Error	Stepper card X30 sewing motor encoder not connected (Stitch length)	• Replace the control
2174	Error	Stepper card X30 sewing motor encoder not initialized (Stitch length)	• Perform software update • Check selection of class
2175	Error	Stepper card X30 init position not found (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2176	Error	Stepper card X30 not enabled (Stitch length)	• Replace the control
2177	Error	Stepper card X30 overload (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2178	Error	Stepper card X30 encoder failure (Stitch length)	• Replace encoder
2179	Error	Stepper card X30 current sensor failure (Stitch length)	• Replace the control
2180	Error	Stepper 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 card X30 reference drive failure (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2183	Error	Stepper card X30 overcurrent (Stitch length)	• Replace the control
2184	Error	Stepper card X30 parameter initialization (Stitch length)	• Perform software update • Check selection of class
2185	Error	Stepper card X30 insulation error (Stitch length)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor

Code	Type	Possible cause	Corrective
2187	Error	Stepper card X30 transport interval failure (Stitch length)	• Perform software update • Check selection of class
2188	Error	Stepper card X30 reference drive failure (Stitch length)	• Check for stiff movement • Replace encoder • Replace motor
2201	Error	Stepper card X40 reference drive timeout	• Check reference sensor
2205	Error	Stepper card X40 stepper motor blockage	• Check for stiff movement
2221	Error	Stepper card X40 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2222	Error	Stepper card X40 flywheel position not found	• Check stepper motor 1 for stiff movement
2230	Error	Stepper card X40 not responding	• Perform software update • Replace the control
2231	Error	Stepper card X40 initialization failure	• Perform software update • Check selection of class
2252	Error	Stepper card X40 overcurrent	• Check for stiff movement
2271	Error	Stepper card X40 watchdog (Foot lifting)	• Perform software update • Check selection of class
2272	Error	Stepper card X40 motor overload/overvoltage/overcurrent (Foot lifting)	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor
2273	Error	Stepper card X40 sewing motor encoder not connected (Foot lifting)	• Replace the control
2274	Error	Stepper card X40 sewing motor encoder not initialized (Foot lifting)	• Perform software update • Check selection of class

Code	Type	Possible cause	Corrective
2275	Error	Stepper card X40 init position not found (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2276	Error	Stepper card X40 not enabled (Foot lifting)	• Replace the control
2277	Error	Stepper card X40 I ² t (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2278	Error	Stepper card X40 encoder failure (Foot lifting)	• Replace encoder
2279	Error	Stepper card X40 Current sensor failure (Foot lifting)	• Replace the control
2280	Error	Stepper card X40 Incorrect stepping 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 card X40 reference drive failure (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor
2283	Error	Stepper card X40 overcurrent (Foot lifting)	• Replace the control
2284	Error	Stepper card X40 parameter initialization (Foot lifting)	• Perform software update • Check selection of class
2285	Error	Stepper card X40 insulation error (Foot lifting)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2287	Error	Stepper card X40 transport interval failure (Foot lifting)	• Perform software update • Check selection of class
2288	Error	Stepper card X40 reference drive failure (Foot lifting)	• Check for stiff movement • Replace encoder • Replace motor

Code	Type	Possible cause	Corrective
2301	Error	Stepper card X50 reference drive timeout (Foot stroke)	• Check reference sensor
2305	Error	Stepper card X50 stepper motor blockage	• Check for stiff movement
2321	Error	Stepper card X50 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2322	Error	Stepper card X50 flywheel position not found	• Check stepper motor 1 for stiff movement
2330	Error	Stepper card X50 not responding	• Perform software update • Replace the control
2331	Error	Stepper card X50 initialization failure	• Perform software update • Check selection of class
2352	Error	Stepper card X50 overcurrent	• Check for stiff movement
2371	Error	Stepper card X50 watchdog (Foot lifting)	• Perform software update • Check selection of class
2372	Error	Stepper card X50 motor overload/overvoltage/overcurrent (Foot stroke)	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor
2373	Error	Stepper card X50 sewing motor encoder not connected (Foot stroke)	• Replace the control
2374	Error	Stepper card X50 sewing motor encoder not initialized (Foot stroke)	• Perform software update • Check selection of class
2375	Error	Stepper card X50 init position not found (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2376	Error	Stepper card X50 not enabled (Foot stroke)	• Replace the control

Code	Type	Possible cause	Corrective
2377	Error	Stepper card X50 overload (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2378	Error	Stepper card X50 encoder failure (Foot stroke)	• Replace encoder
2379	Error	Stepper card X50 Current sensor failure (Foot stroke)	• Replace the control
2380	Error	Stepper card X50 Incorrect stepping 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 card X50 reference drive failure (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2383	Error	Stepper card X50 overcurrent (Foot stroke)	• Replace the control
2384	Error	Stepper card X50 parameter initialization (Foot stroke)	• Perform software update • Check selection of class
2385	Error	Stepper card X50 insulation error (Foot stroke)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2387	Error	Stepper card X50 transport interval failure (Foot stroke)	• Perform software update • Check selection of class
2388	Error	Stepper card X50 reference drive failure (Foot stroke)	• Check for stiff movement • Replace encoder • Replace motor
2401	Error	Stepper card X60 reference drive failure (Edge guide)	• Check reference sensor
2405	Error	Stepper card X60 stepper motor blockage (Edge guide)	• Check for stiff movement

Code	Type	Possible cause	Corrective
2421	Error	Stepper card X60 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2422	Error	Stepper card X60 flywheel position not found	• Check stepper motor 1 for stiff movement
2430	Error	Stepper card X60 not responding	• Perform software update • Replace the control
2431	Error	Stepper card X60 initialization failure	• Perform software update • Check selection of class
2471	Error	Stepper card X60 Watchdog (Edge guide)	• Perform software update • Check selection of class
2472	Error	Stepper card X60 motor overload/overvoltage/over-current (Edge guide)	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor
2473	Error	Stepper card X60 Sewing motor encoder not connected (Edge guide)	• Replace the control
2474	Error	Stepper card X60 sewing motor encoder not initialized (Edge guide)	• Perform software update • Check selection of class
2475	Error	Stepper card X60 init position not found (Edge guide)	• Check for stiff movement • Replace encoder • Replace motor
2476	Error	Stepper card X60 not enabled (Edge guide)	• Replace the control
2477	Error	Stepper card X60 overload (Edge guide)	• Check for stiff movement • Replace encoder • Replace motor

Code	Type	Possible cause	Corrective
2478	Error	Stepper card X60 encoder failure (Edge guide)	• Replace encoder
2479	Error	Stepper card X60 Current sensor failure (Edge guide)	• Replace the control
2480	Error	Stepper card X60 Incorrect stepping 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 card X60 reference drive failure (Edge guide)	• Check for stiff movement • Replace encoder • Replace motor
2483	Error	Stepper card X60 overcurrent (Edge guide)	• Replace the control
2484	Error	Stepper card X60 parameter initialization (Edge guide)	• Perform software update • Check selection of class
2485	Error	Stepper card X60 insulation error (Edge guide)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2487	Error	Stepper card X60 transport interval failure (Edge guide)	• Perform software update • Check selection of class
2488	Error	Stepper card X60 reference drive failure (Edge guide)	• Check for stiff movement • Replace encoder • Replace motor
2501	Error	Stepper card X70 reference drive timeout (Upper puller)	• Check reference sensor
2505	Error	Stepper card X70 stepper motor blockage (Upper puller)	• Check for stiff movement

Code	Type	Possible cause	Corrective
2521	Error	Stepper card X70 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2522	Error	Stepper card X70 flywheel position not found	• Check stepper motor 1 for stiff movement
2530	Error	Stepper card X70 not responding	• Perform software update • Replace the control
2531	Error	Stepper card X70 initialization failure	• Perform software update • Check selection of class
2571	Error	Stepper card X70 watchdog (Upper puller)	• Perform software update • Check selection of class
2572	Error	Stepper card X70 motor overload/overvoltage/over-current (Upper puller)	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor
2573	Error	Stepper card X70 sewing motor encoder not connected (Upper puller)	• Replace the control
2574	Error	Stepper card X70 sewing motor encoder not initialized (Upper puller)	• Perform software update • Check selection of class
2575	Error	Stepper card X70 init position not found (Upper puller)	• Check for stiff movement • Replace encoder • Replace motor
2576	Error	Stepper card X70 not enabled (Upper puller)	• Replace the control
2577	Error	Stepper card X70 overload (Upper puller)	• Check for stiff movement • Replace encoder • Replace motor
2578	Error	Stepper card X70 encoder failure (Upper puller)	• Replace encoder

Code	Type	Possible cause	Corrective
2579	Error	Stepper card X70 Current sensor failure (Upper puller)	• Replace the control
2580	Error	Stepper card X70 Incorrect stepping 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 card X70 reference drive failure (Upper puller)	• Check for stiff movement • Replace encoder • Replace motor
2583	Error	Stepper card X70 overcurrent (Upper puller)	• Replace the control
2584	Error	Stepper card X70 parameter initialization (Upper puller)	• Perform software update • Check selection of class
2585	Error	Stepper card X70 insulation error (Upper puller)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2587	Error	Stepper card X70 transport interval failure (Upper puller)	• Perform software update • Check selection of class
2588	Error	Stepper card X70 reference drive failure (Upper puller)	• Check for stiff movement • Replace encoder • Replace motor
2601	Error	Stepper card X80 reference run timeout (Bottom puller)	• Check reference sensor
2605	Error	Stepper card X80 stepper motor blockage (Bottom puller)	• Check for stiff movement
2621	Error	Stepper card X82 encoder plug (Sub-D, 9-pin) not connected (Bottom puller)	• Connect encoder cable to the control, use correct connection

Code	Type	Possible cause	Corrective
2622	Error	Stepper card X80 flywheel position not found (Bottom puller)	• Check stepper motor 6 for stiff movement
2630	Error	Stepper card X80 not responding (Bottom puller)	• Perform software update • Replace the control
2631	Error	Stepper card X80 initialization failure (Bottom puller)	• Perform software update • Check selection of class
2671	Error	Stepper card X80 watchdog (Bottom puller)	• Perform software update • Check selection of class
2672	Error	Stepper card X80 motor overload/overvoltage/over-current (Bottom puller)	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor
2673	Error	Stepper card X80 sewing motor encoder not connected (Bottom puller)	• Replace the control
2674	Error	Stepper card X80 sewing motor encoder not initialized (Bottom puller)	• Perform software update • Check selection of class
2675	Error	Stepper card X80 init position not found (Bottom puller)	• Check for stiff movement • Replace encoder • Replace motor
2676	Error	Stepper card X80 not enabled (Bottom puller)	• Replace the control
2677	Error	Stepper card X80 I²t (Bottom puller)	• Check for stiff movement • Replace encoder • Replace motor
2678	Error	Stepper card X80 encoder failure (Bottom puller)	• Replace encoder

Code	Type	Possible cause	Corrective
2679	Error	Stepper card X80 Current sensor failure (Bottom puller)	• Replace the control
2680	Error	Stepper card X80 Incorrect stepping 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 card X80 reference drive failure (Bottom puller)	• Check for stiff movement • Replace encoder • Replace motor
2683	Error	Stepper card X80 overcurrent (Bottom puller)	• Replace the control
2684	Error	Stepper card X80 parameter initialization (Bottom puller)	• Perform software update • Check selection of class
2685	Error	Stepper card X80 insulation error (Bottom puller)	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
2687	Error	Stepper card X80 transport interval failure (Bottom puller)	• Perform software update • Check selection of class
2688	Error	Stepper 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 reference switch
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 the 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 the control

Code	Type	Possible cause	Corrective
3021	Error	U24 V short circuit	• Disconnect magnet plug; replace control if error is not corrected: Replace the control
3022	Error	U24 V (I ² T) overload	• One or several magnets defective
3023	Error	U48 V start error	• Disconnect magnet plug; replace control if error is not corrected: Replace the control
3024	Error	U48 V short circuit	• Disconnect magnet plug; replace control if error is not corrected: Replace the control
3025	Error	U48 V (I ² T) overload	• One or more magnets defective
3030	Error	Motor phase failure	• Replace the 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
3112	Information	Reference failure (right) thread tension	• Restart the machine
3113	Information	Reference failure left thread tension	• Restart the machine
3150	Information	Maintenance required	• For information on maintenance of the machine, see the service instructions for the machine
3161	Information	Bobbin winder over temperature	• The bobbin winder was running too long. The bobbin winder is deactivated for 30 minutes.
3210	Information	Needle thread monitor (right)	• Check the needle thread (right).
3211	Information	Bobbin thread is broken	• Check the bobbin thread
3212	Information	Needle thread monitor (right)	• Check the needle thread (left).

Code	Type	Possible cause	Corrective
3223	Information	No loop (right)	Skip stitch monitor The sensor of the skip stitch monitor detected during the sewing process that the loop of the needle thread was not taken up, resulting in a "skip stitch".
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
3226	Information	No loop (left)	Skip stitch monitor The sensor of the skip stitch monitor detected during the sewing process that the loop of the needle thread was not taken up, resulting in a "skip stitch".
3227	Information	Bobbin Rotation (left)	Bobbin Rotation Monitor The sensor of the bobbin rotation monitor detected during the sewing process that no hook thread was consumed and that the seam was apparently not created properly.
3228	Information	Clean Loop Control sensor (left)	Sensors soiled The optical sensors for the skip stitch monitor, the bobbin rotation monitor and the remaining thread monitor are soiled and deliver no reliable signal. Please clean dirt off the sensors using compressed air or a soft brush.
3354	Information	Failure in thread trimmer process	Perform software update
3383	Information	Failure in the motor referencing process	- Check motor - Perform software update
4201	Warning	Failure SD-Card	- Insert SD card - Replace the control
4430	Warning	Commander connection lost	- Switch off the control - Check control panel connection

Code	Type	Possible cause	Corrective
4460	Warning	OP7000 connection lost	• Check connection to OP7000 • Replace OP7000 • Replace the control
4905	Information	New machine is connected	• New machine is connected • Set the class in the Service menu (press YES).
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	Update protocol failure	• Contact DA Service
4921	Warning	Update was interrupted	• Contact DA Service
4922	Error	No User Database found	• Contact DA Service
4923	Error	Sync failed	• Contact DA Service
4924	Warning	Update Control Unit Software	• The control is not responding. • Do you wish to update the control software?
4925	Warning	Sync failed	• Contact DA Service
4926	Warning	Sync failed	• Contact DA Service
4930	Information	Control replaced	• Data from operation panel will be stored to control

Code	Type	Possible cause	Corrective
4931	Information	Checksum failure of control	• Data from operation panel will be stored to control
6070	Error	Internal CAN	• Perform software update • Replace the 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
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 the control
6366	Information	Internal EEPROM defective and external data not valid (emergency operating features only)	• Replace the control

Code	Type	Possible cause	Corrective
6367	Information	Internal EEPROM defective and external data not valid (emergency operating features only)	• Replace the control
7270	Information	External CAN	• Check connection cables • Perform software update • Replace CAN slaves
7800	Information	DACFlex not connected	• Check DACFlex connection
8101	Error	Stepper Puller Top reference drive timeout	• Check reference sensor
8104	Error	Stepper Puller Top stepper motor blockage	• Check for stiff movement
8106	Error	Stepper Puller Top encoder plug not connected	• Connect encoder cable to the control • Use correct connection
8107	Error	Stepper Puller Top flywheel position not found	• Check stepper motor 1 for stiff movement
8108	Error	Stepper Puller Top not responding	• Perform software update • Replace the control
8109	Error	Stepper Puller Top initialization failure	• Perform software update • Check selection of class
8112	Error	Stepper Puller Top overcurrent	• Check for stiff movement
8116	Error	Stepper Puller Top revolution speed	• Speed of the Stepper Puller Top
8120	Error	Stepper Puller Top watchdog	• Perform software update • Check selection of class
8121	Error	Stepper Puller Top motor overload/overvoltage/overcurrent	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor

Code	Type	Possible cause	Corrective
8122	Error	Stepper Puller Top sewing motor encoder not connected	• Replace the control
8123	Error	Stepper Puller Top sewing motor encoder not initialized	• Perform software update • Check selection of class
8124	Error	Stepper Puller Top init position not found	• Check for stiff movement • Replace encoder • Replace motor
8125	Error	Stepper Puller Top not enabled	• Replace the control
8126	Error	Stepper Puller Top overload	• Check for stiff movement • Replace encoder • Replace motor
8127	Error	Stepper Puller Top encoder failure	• Connect encoder cable to the control • Use correct connection
8128	Error	Stepper Puller Top Current sensor failure	• Replace the control
8129	Error	Stepper Puller Top Incorrect stepping motor direction of rotation	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
8130	Error	Stepper Puller Top reference drive failure	• Check for stiff movement • Replace encoder • Replace motor
8131	Error	Stepper Puller Top overcurrent	• Replace the control
8132	Error	Stepper Puller Top parameter initialization	• Perform software update • Check selection of class
8133	Error	Stepper Puller Top insulation error	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace motor
8135	Error	Stepper Puller Top transport interval failure	• Perform software update • Check selection of class

Code	Type	Possible cause	Corrective
8136	Error	Stepper Puller Top reference drive failure	• Check for stiff movement • Replace encoder • Replace motor
8151	Error	Stepper Puller Bottom reference drive timeout	• Check reference sensor
8154	Error	Stepper Puller Bottom stepper motor blockage	• Check for stiff movement
8156	Error	Stepper Puller Bottom encoder plug not connected	• Connect encoder cable to the control, use correct connection
8157	Error	Stepper Puller Bottom fly-wheel position not found	• Check stepper motor 1 for stiff movement
8158	Error	Stepper Puller Bottom not responding	• Perform software update • Replace the control
8159	Error	Stepper Puller Bottom not responding	• Perform software update • Replace the control
8162	Error	Stepper Puller Bottom overcurrent	• Check for stiff movement
8166	Error	Stepper Puller Bottom revolution speed	• Speed of the Stepper Puller Bottom
8170	Error	Stepper Puller Bottom watchdog	• Perform software update • Check selection of class
8171	Error	Stepper Puller Bottom motor overload/overvoltage/overcurrent	• Check selection of class • Replace the control • Replace encoder • Replace stepper motor
8172	Error	Stepper Puller Bottom sewing motor encoder not connected	• Replace the control
8173	Error	Stepper Puller Bottom sewing motor encoder not initialized	• Perform software update • Check selection of class

Code	Type	Possible cause	Corrective
8174	Error	Stepper Puller Bottom init position not found	• Check for stiff movement • Replace encoder • Replace motor
8175	Error	Stepper Puller Bottom not enabled	• Replace the control
8176	Error	Stepper Puller Bottom overload	• Check for stiff movement • Replace encoder • Replace motor
8177	Error	Stepper Puller Bottom encoder failure	• Connect encoder cable to the control: Use correct connection
8178	Error	Stepper Puller Bottom Current sensor failure	• Replace the control
8179	Error	Stepper Puller Bottom Incorrect stepping motor direction of rotation	• Replace encoder • Check if plugs have been mixed up • Check the wiring in the machine distributor and change it if necessary
8180	Error	Stepper Puller Bottom reference drive failure	• Check for stiff movement • Replace encoder • Replace motor
8181	Error	Stepper Puller Bottom overcurrent	• Replace the control
8182	Error	Stepper Puller Bottom parameter initialization	• Perform software update • Check selection of class
8183	Error	Stepper Puller Bottom insulation error	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace motor
8185	Error	Stepper Puller Bottom transport interval failure	• Perform software update • Check selection of class
8186	Error	Stepper Puller Bottom reference drive failure	• Check for stiff movement • Replace encoder • Replace motor
8201	Error	Stepper card reference drive timeout (Edge guide)	- External Edge guide X Axis • Check reference sensor

Code	Type	Possible cause	Corrective
8208	Error	Stepper card not responding (Edge guide)	External Edge guide X Axis • Perform software update • Replace the control
8209	Error	Stepper card initialization failure (Edge guide)	External Edge guide X Axis • Perform software update • Check selection of class
8232	Error	Stepper card parameter initialization (Edge guide)	External Edge guide X Axis • Perform software update • Check selection of class
8251	Error	Stepper card reference drive timeout (Edge guide)	External Edge guide Y Axis • Check reference sensor
8258	Error	Stepper card not responding (Edge guide)	External Edge guide Y Axis • Perform software update • Replace the control
8259	Error	Stepper card initialization failure (Edge guide)	External Edge guide Y Axis • Perform software update • Check selection of class
8282	Error	Stepper card parameter initialization (Edge guide)	External Edge guide Y Axis • Perform software update • Check selection of class
9230	Warning	No thread detected	• Check the thread • Check connection cables • Replace sensor
9240	Warning	No thread tension sensor detected (right)	• Check sensor • Check connection cables • Replace thread tension sensor

Code	Type	Possible cause	Corrective
9241	Warning	No thread tension sensor detected (left)	• Check sensor • Check connection cables • Replace thread tension sensor
9300	Error	CAN cable not connected	• Check CAN cable • Switch off the machine and disconnect all CAN devices (including SSD!) from the control, except for the lower machine head PCB • Check if an error message other than 9300 is displayed • If an error message other than 9300 is displayed, switch off the machine, reconnect another CAN device and check again • If error message 9300 is displayed again, it is most likely that the device connected last is faulty • Repeat the process until all devices are connected again
9310	Error	Tape feeder not connected	• Check connection cables • Perform software update • Replace the control of the tape feeder
9320	Error	Tape feeder in lowered position	• Tape Feeder not in lowered position
9330	Information	Material thickness sensor not connected	• Check connection cables • Perform software update • Replace material thickness sensor
9340	Information	Remaining thread monitor not connected	• Check connection cables • Perform software update • Replace remaining thread monitor
9341	Information	Bobbin control (left) not connected	• Check connection cables • Perform software update • Replace remaining thread monitor
9350	Error	Upper machine head pcb is not connected	• Check connection cables • Perform software update • Replace PCB
9351	Error	Lower machine head pcb is not connected	• Check connection cables • Perform software update • Replace PCB

Code	Type	Possible cause	Corrective
9352	Error	Right thread tension pcb is not connected	• Check connection cables • Perform software update • Replace PCB
9353	Information	Needle thread tension sensor pcb not connected	• Check connection cables • Perform software update • Replace thread tension sensor
9354	Error	Needle Transport PCB not connected	• Check connection cables • Perform software update • Replace needle transport PCB
9360	Error	Edge guide pcb is not connected	• Check connection cables • Perform software update • Replace PCB
9361	Error	Edge guide x-axis pcb is not connected	• Check connection cables • Perform software update • Replace PCB
9362	Error	Edge guide y-axis pcb is not connected	• Check connection cables • Perform software update • Replace PCB
9370	Warning	Scanner module not connected	• Check connection cables • Perform software update • Replace scanner module
9371	Warning	Scanner module 24 V Error	• Check connection cables • Check connected scanners • Replace scanner module
9372	Warning	Scanner module 5 V Error	• Stored analogue value for stroke
9910	Warning	Sewing stop	• Check tilt sensor on machine • Check 24V • Replace the 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

Code	Type	Possible cause	Corrective
9916	Warning	Erase internal Memory	• Delete the SD card. Continue with OK; cancel with ESC
9917	Warning	Erase USB key	• Delete 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
9922	Warning	Service Stop	• Check the Service Stop button • Check 24V • Replace the 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 program. Please use programming mode to define a program.
9933	Information	Continue with actual value?	• Shall the bobbin winder continue with the actual value (Press YES), or shall the bobbin winder restart with a new bobbin (Press NO)?

Code	Type	Possible cause	Corrective
9934	Warning	Tilt sensor active	• Tilt sensor active
9935	Warning	Right bobbin cover	• Right bobbin cover is open (ENG ON 1)
9936	Warning	Left bobbin cover	• Left bobbin cover is open (ENG ON 2)
9937	Warning	Needle area cover	• Needle area cover is open (ENG ON 3)
9938	Warning	ENG ON 4	• (ENG ON 4)
9939	Warning	Tilt sensor active	• Tilt sensor active
9940	Information	Teach finished?	• To finish the teach please press pedal -2
9941	Information	Empty bobbin right	Low hook thread quantity • The thread supply on the bobbin is nearly used up. Please finish the seam and replace the empty bobbin with a full one. Please remove any remaining thread from the bobbin prior to winding.
9942	Information	Empty bobbin left	Low hook thread quantity • The thread supply on the bobbin is nearly used up. Please finish the seam and replace the empty bobbin with a full one. Please remove any remaining thread from the bobbin prior to winding.
9943	Warning	Press pedal back to reactivate pedal function	• Please press the pedal backwards (pedal-2) to reactivate the pedal function.
9944	Warning	Release pedal to reactivate pedal function	• Please release the pedal to neutral position to lower the sewing feet.
9945	Warning	Press pedal back to prepare threading mode	• Please press the pedal backwards (pedal-2) to prepare for the start of the threading mode.
9946	Warning	Release pedal to start threading mode	• Please release the pedal to neutral position to lower the sewing feet and start the threading mode.

Code	Type	Possible cause	Corrective
9947	Warning	The stitch length adjustment needs to be calibrated.	The maximum stitch length has changed. The stitch length must be recalibrated.
9948	Information	Thread Tension must be recalibrated	Please recalibrate the needle thread tension: - Calibrate the needle thread tension with parameter T 62 05 - Additionally on two needle machines: calibrate the left needle thread tension with parameter T 62 06
9951	Warning	Please press Service stop	Please press the Service stop button to activate it
9953	Warning	Desk is positioning	Caution! Height of the desk is being adjusted. Pay attention to tabletop and surrounding area! Tap the touch area to stop!
9954	Warning	Desk height error	The desk height measurement produced an implausible value. Check the measurement range for interfering objects and keep the area clear while performing the movement. Reset height? "Yes" for resetting to the current value "No" for keeping the old value
9955	Warning	Desk positioning Timeout	- A timeout occurred during positioning. - If the desk is not positioned at its minimum or maximum height, check if it is blocked
9956	Warning	Desk Height Sensor Error	The sensor for the desk height measurement is not responding or transmits a faulty signal. The height adjustment is not possible. - Check cable connections - Check if the sensor is switched on - The height cannot be adjusted until the error has been corrected and the machine has restarted
9957	Warning	Height limit control active	Height limit control active

Code	Type	Possible cause	Corrective
9958	Warning	A function of the Perfect Quality Sensor (PQS) is active	A function of the Perfect Quality Sensor (PQS) is active. Therefore the lifting height or the needle position could change automatically.
9961	Warning	Material thickness above maximum limit	The current material thickness exceeds the maximum permissible limit.
9962	Warning	Material thickness below minimum limit	The current material thickness falls below the minimum permissible limit.
9963	Warning	Please Wait!	Please wait for the ongoing operation to be finished
9964	Warning	Edge Guide in Wrong Position	Edge Guide must be in the right position
9965	Warning	Select target position	Select target position
9966	Warning	Thread Tension too low (Warning)	Thread Tension too low (Warning)
9967	Warning	Edge Guide in Wrong Position	Edge Guide must be in the right position
9968	Warning	PQS not connected	PQS is activated but not connected, please check the connection to the PCB or call the DA service
9969	Warning	Thread Tension too high (Warning)	Thread Tension too high (Warning)
9970	Warning	The limit values of the thread tension have been exceeded too often!	The limit values of the thread tension have been exceeded too often!
9971	Warning	The thread tension value does not change. The thread may be broken or the connection to the sensor is lost.	The thread tension value does not change. The thread may be broken or the connection to the sensor is lost.
9972	Warning	Scan required	Please scan the RFID tag
9973	Warning	Another scan required	Please scan the same RFID tag again
9974	Warning	Scan again as RFID tags did not match	Please scan the same RFID tag as before

Code	Type	Possible cause	Corrective
9975	Warning	Scan canceled	• Please scan the same RFID tag again
9976	Information	Daily piece counter reached	• Daily piece counter reached
9977	Warning	Switch off collision protection	• Attention: The electronic edge guide is protected by safety zones to prevent collisions. By activating this function, you are switching off this collision protection. There is an increased risk of the edge guide colliding with other components of the machine.
9978	Information	• Poka Yoke Function 1	The system is waiting for a release of Poka Yoke Function 1.
9979	Information	• Poka Yoke Function 2	The system is waiting for a release of Poka Yoke Function 2.
9980	Information	• Poka Yoke Function 3	The system is waiting for a release of Poka Yoke Function 3.
9981	Information	• Poka Yoke Function 4	The system is waiting for a release of Poka Yoke Function 4.

10.3 Errors in sewing process

Error	Possible causes	Corrective
Unthreading at seam beginning	Needle thread pretension is too firm	Check needle thread pretension ( p. 41).
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. 249).
	Thread tensions are too tight for the thread used	Check thread tensions ( p. 40).
	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	Corrective
Skip stitches	Needle thread and hook thread have not been threaded correctly	Check threading path ( p. 25,  p. 38).
	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. 249).
	The reel stand is assembled incorrectly	Check the assembly of the reel stand
	Thread tensions are too tight	Check thread tensions ( p. 40).
	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 ( <i>Service Instructions</i>)
Loose stitches	Thread tensions are not adjusted to the sewing material, the sewing material thickness or the thread used	Check thread tensions ( p. 40).
	Needle thread and hook thread have not been threaded correctly	Check threading path ( p. 25,  p. 38).
Needle breakage	Needle thickness is unsuitable for the sewing material or the thread	Use recommended needle thickness ( p. 249).

11 Technical data

Noise emission

Workplace-specific emission value as per DIN EN ISO 10821:

Class: D867-190945

LpA = 78 dB (A); KpA = 0.88 dB (A) with

- Stitch length: 6.0 mm
- Sewing foot stroke: alternating: 1.5 mm
- Speed: 2000 rpm
- Sewing material: 4-layer material G1 DIN 23328

Class: D867-190945

LpA = 78 dB (A); KpA = 1.04 dB (A) with

- Stitch length: 6.0 mm
- Sewing foot stroke: alternating: 7.0 mm
- Speed: 1200 rpm
- Sewing material: 2-layer Skai; 1.6 mm 900 gr/mm²; DIN 53352

11.1 Data and characteristic values

Technical data	Unit	D867-190942-01	D867-190945-01	D867-190942-70-01	D867-190945-70-01
Stitch type		Double lockstitch 301			
Hook type		vertical (XXL), extra large			
Number of needles		1			
Needle system		134-35			
Needle strength	[Nm]	90 - 180			

Technical data	Unit	D867-190942-01	D867-190945-01	D867-190942-70-01	D867-190945-70-01
Thread strength	[Nm]	120/3 - 10/3 (short thread trimmer, KFA max. 15/3)		80/3 - 10/3	
Stitch length	[mm]	12/12	9/9	12/12	9/9
Speed maximum	[min ⁻¹]	3500		3000	
Speed on delivery	[min ⁻¹]	3500		3000	
Mains voltage	[V]	230 V			
Mains frequency	[Hz]	50/60			
Operating pressure	[bar]	6 (Compressed air only required in combina- tion with optional additional equipment)			
Length	[mm]	740		1050	
Width	[mm]	220		250	
Height	[mm]	460			
Weight	[kg]	56		104	

11.2 Requirements for fault-free operation

Compressed air quality must conform to ISO 8573-1: 2010 [7:4:4].

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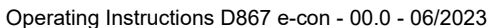
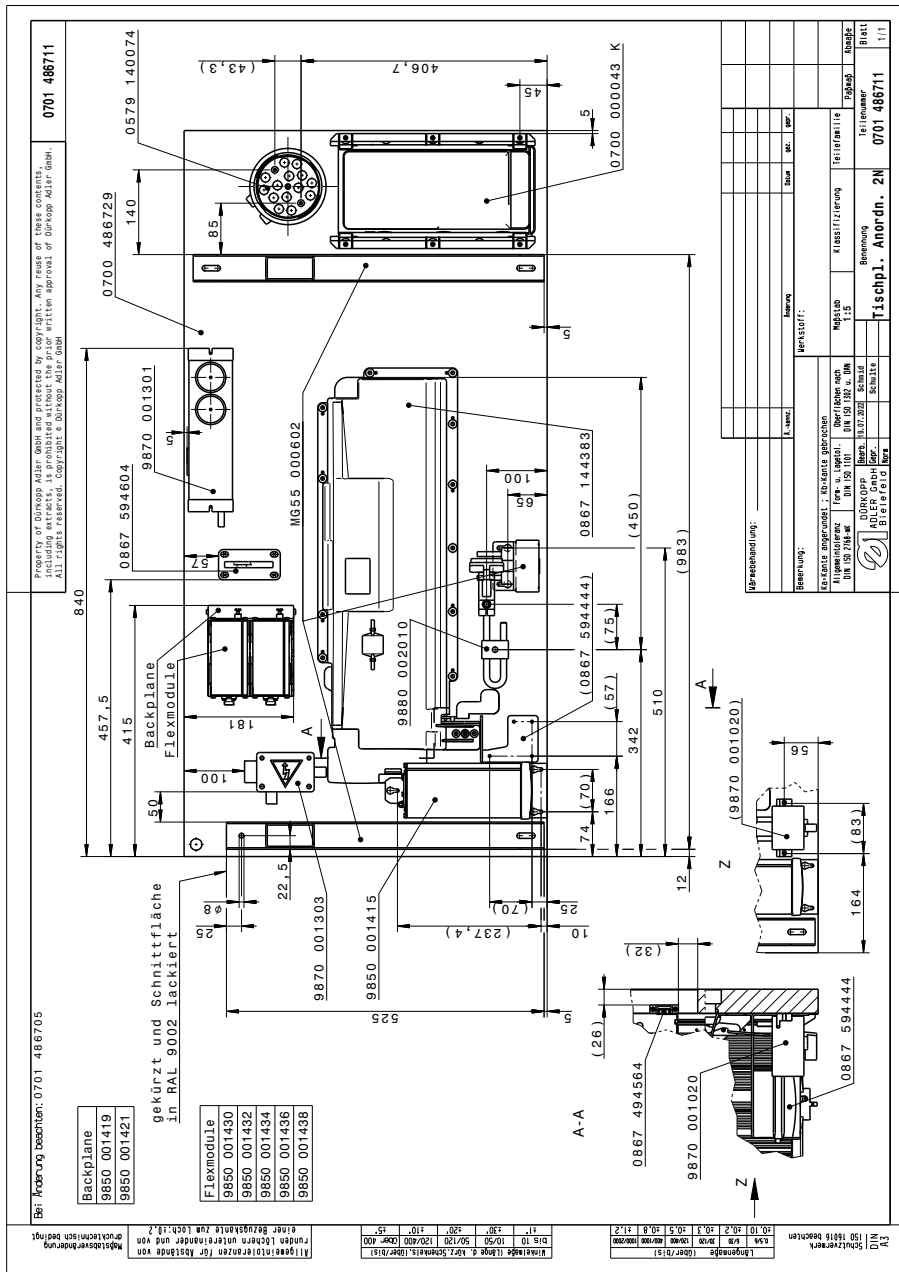


Fig. 123: Tabletop arrangement (7)



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Fig. 126: Tabletop arrangement (10)

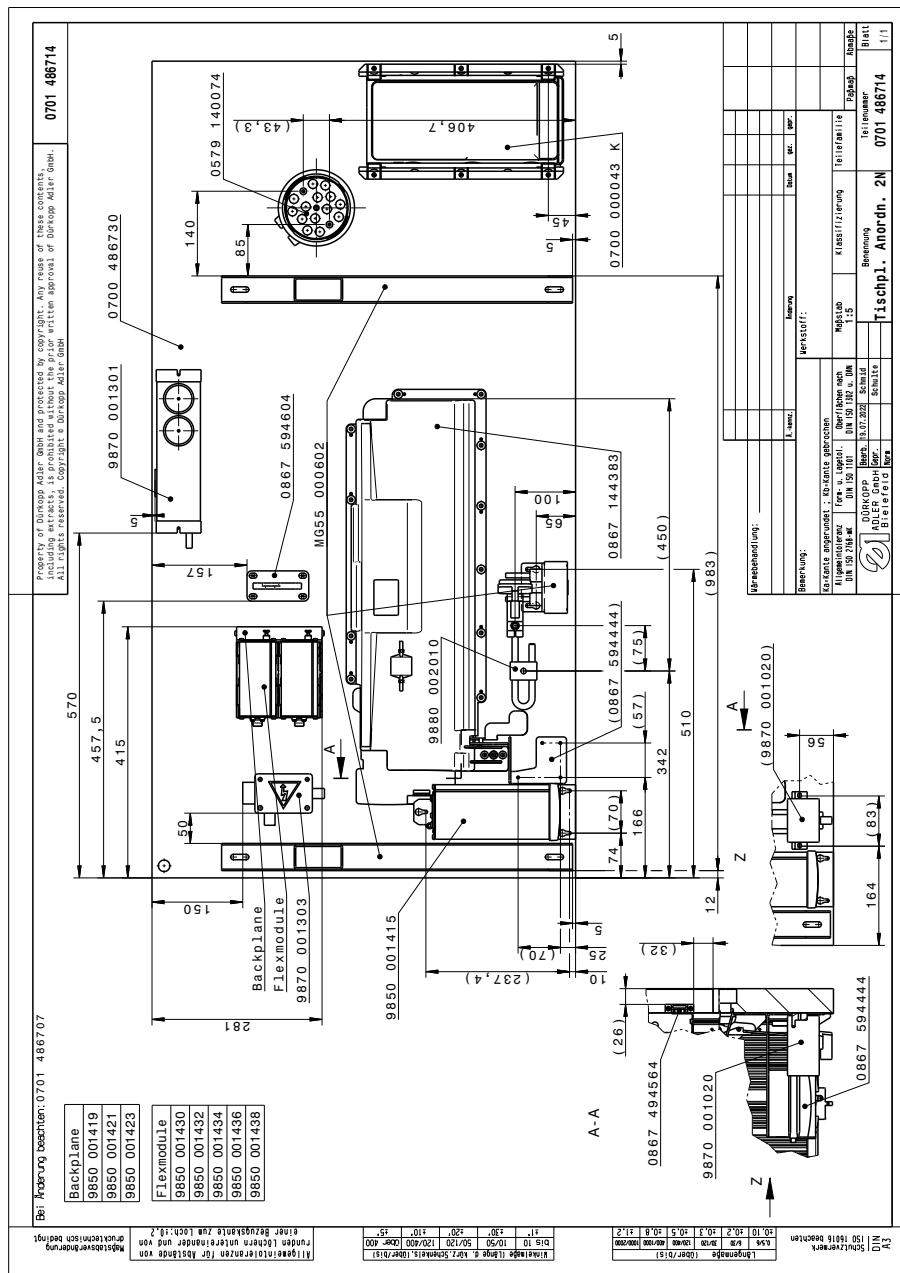


Fig. 127: Tabletop arrangement (11)

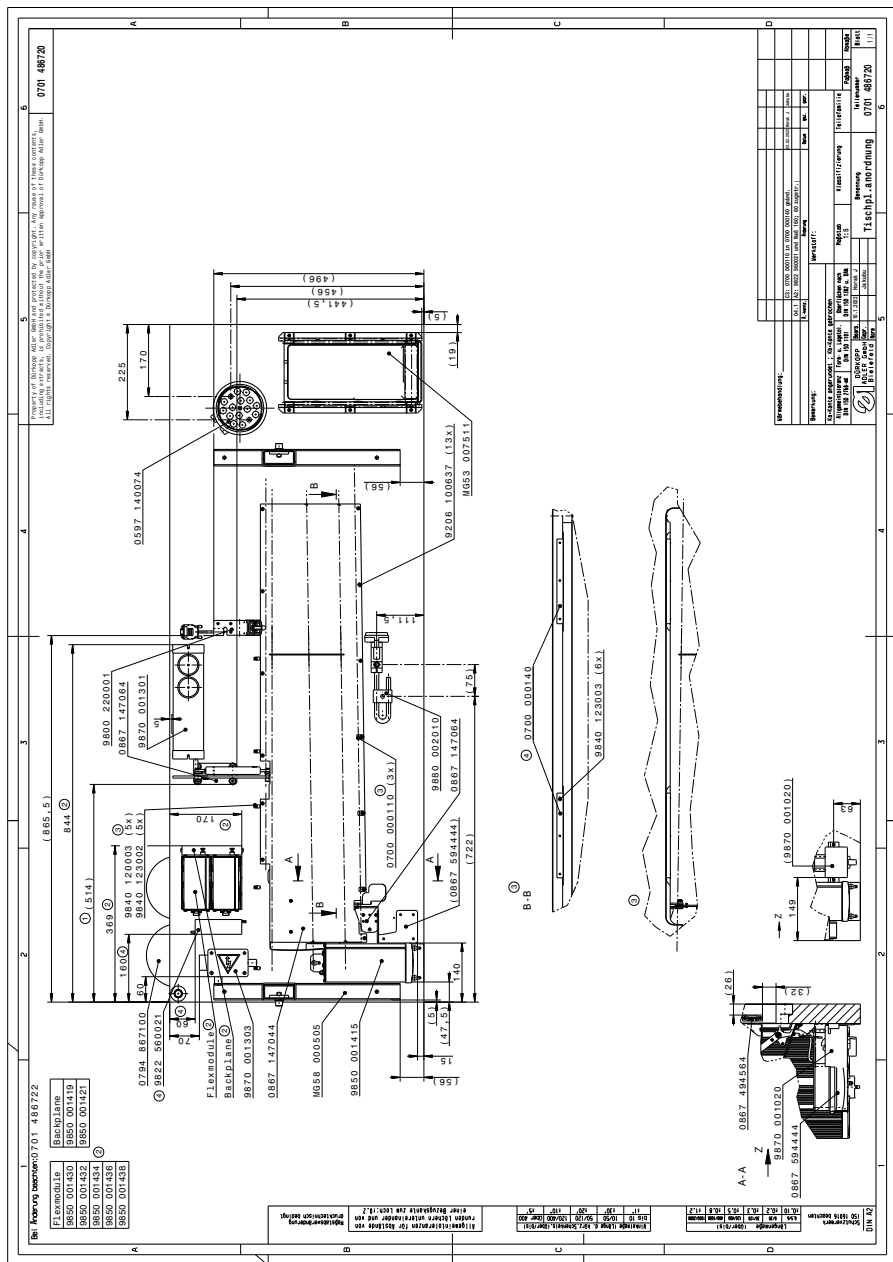
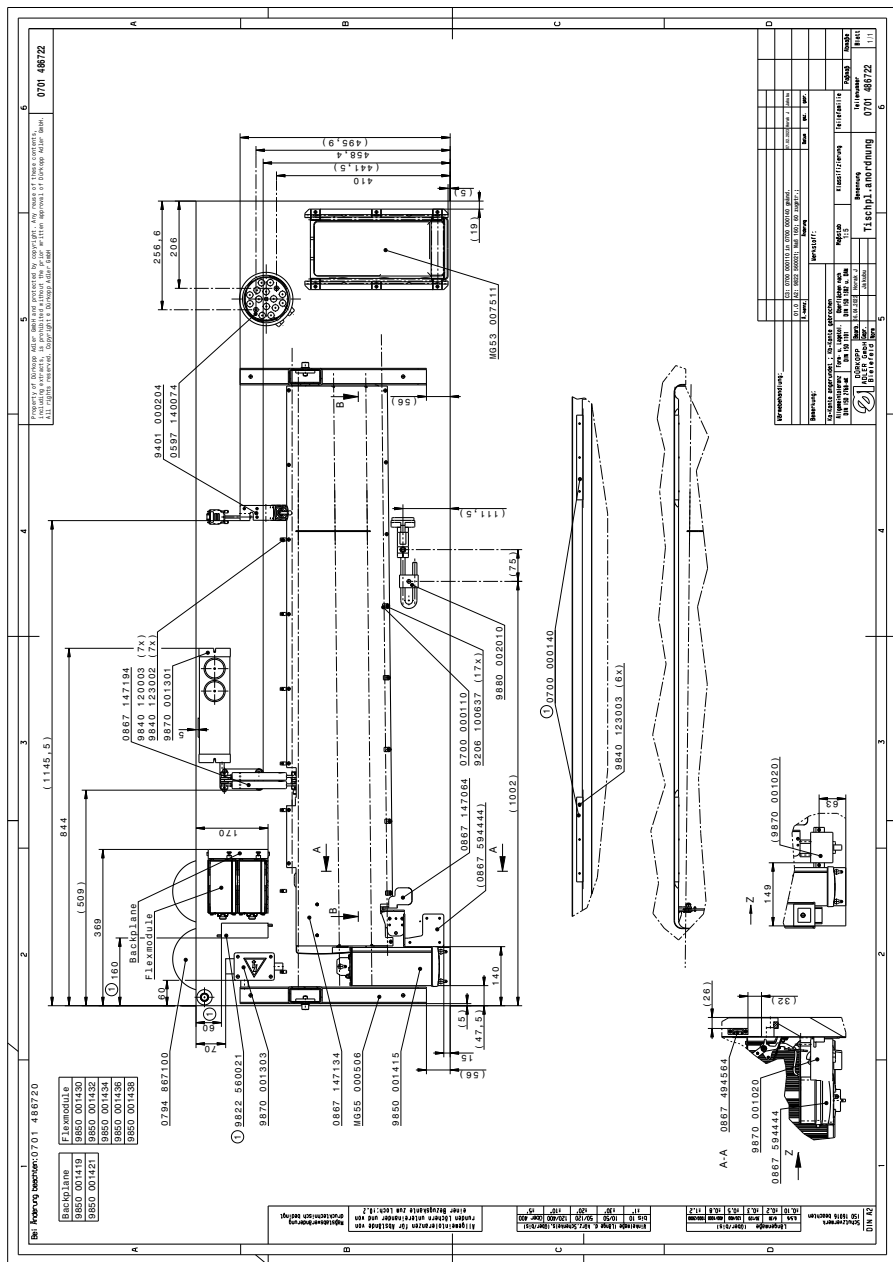


Fig. 128: Tabletop arrangement (12)



12.2 Tabletop cutouts

Fig. 129: Tabletop cutout (1)

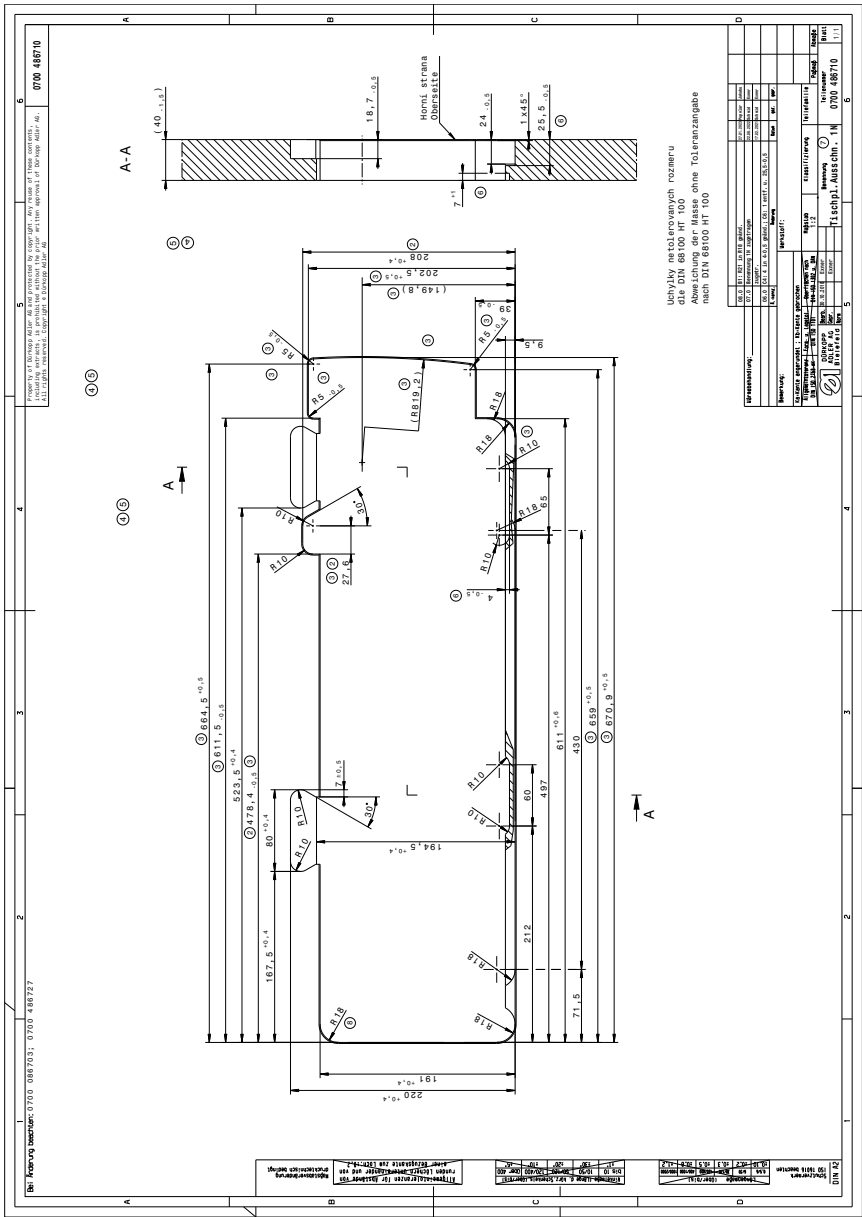


Fig. 130: Tabletop cutout (2)

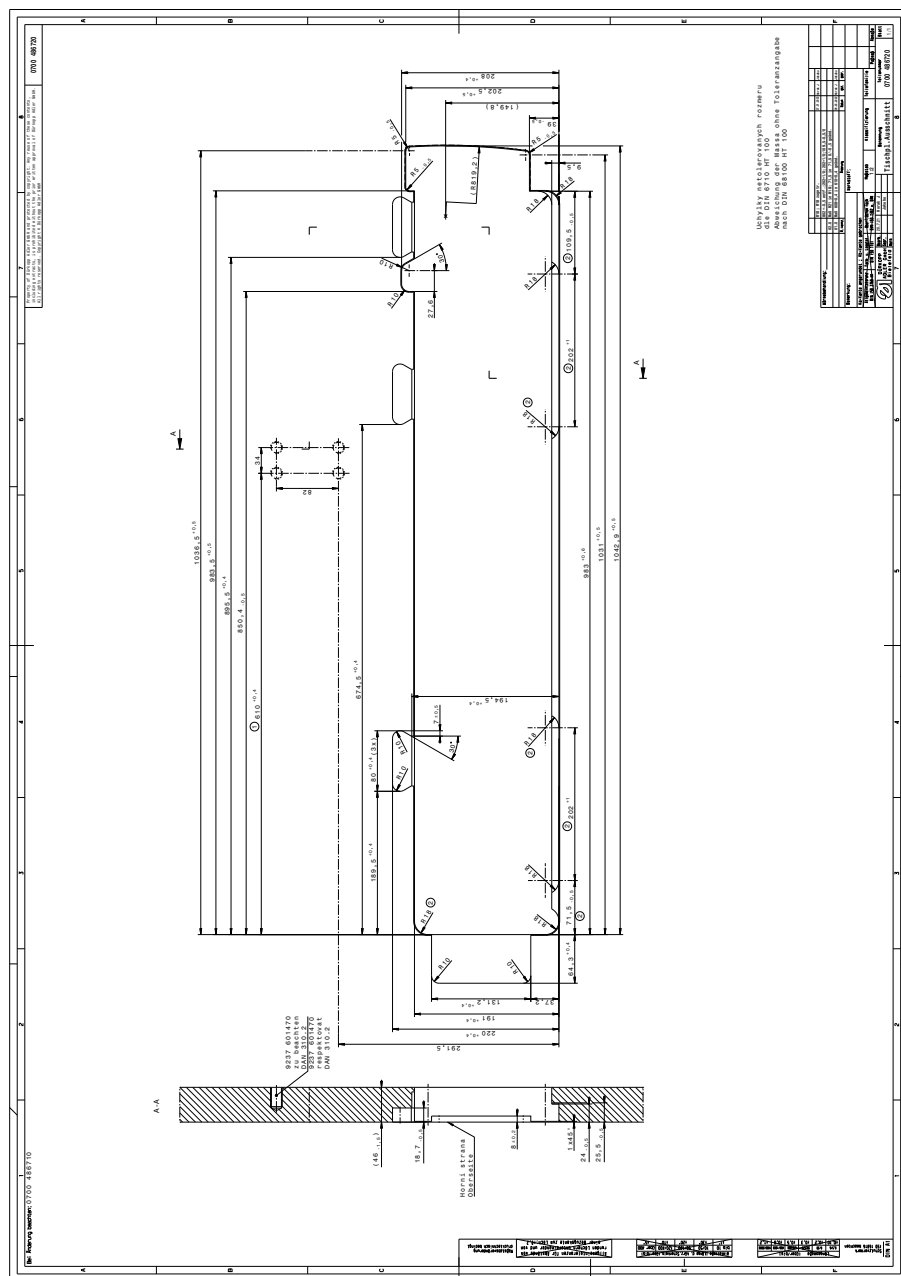


Fig. 131: Tabletop cutout (3)

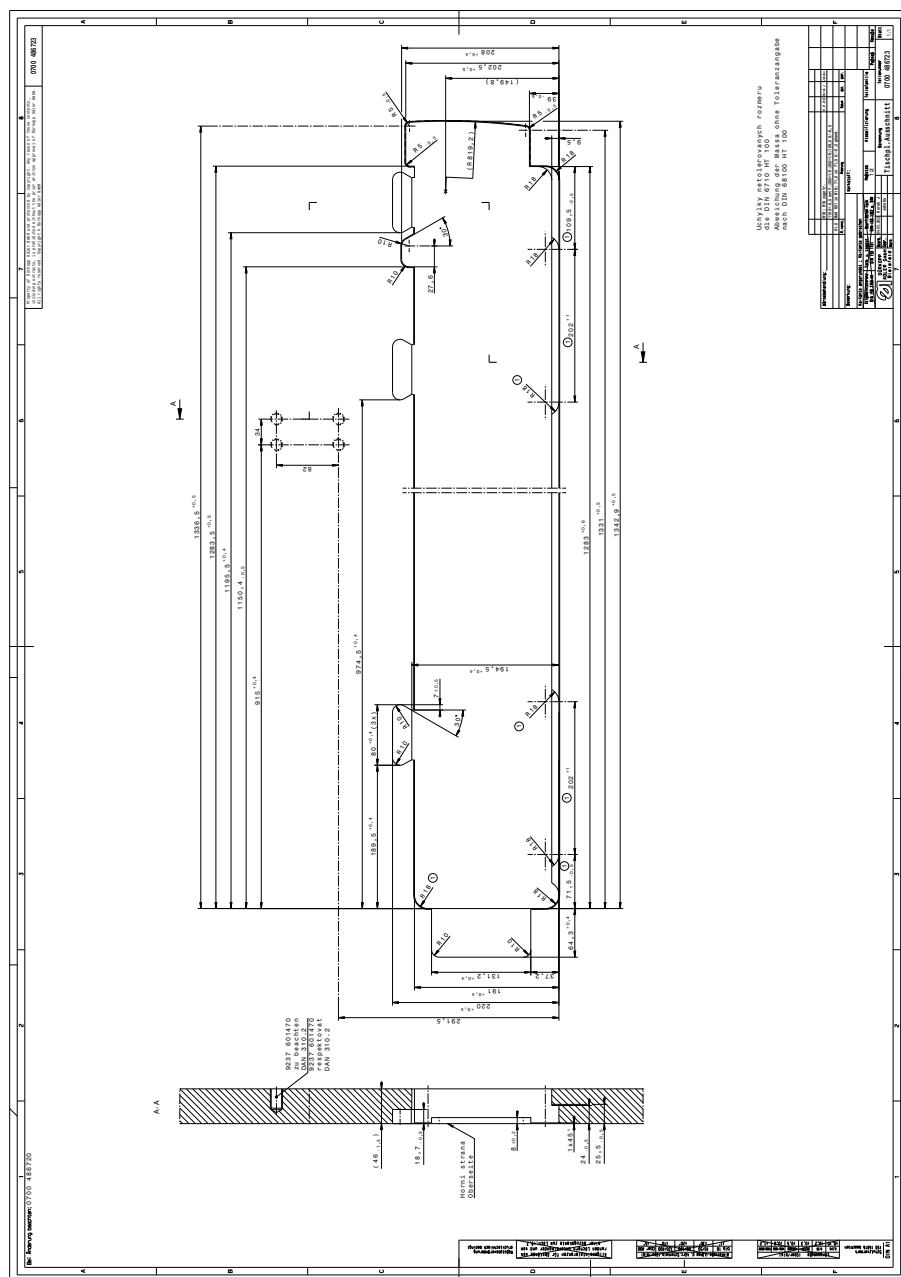


Fig. 132: Tabletop cutout (4)

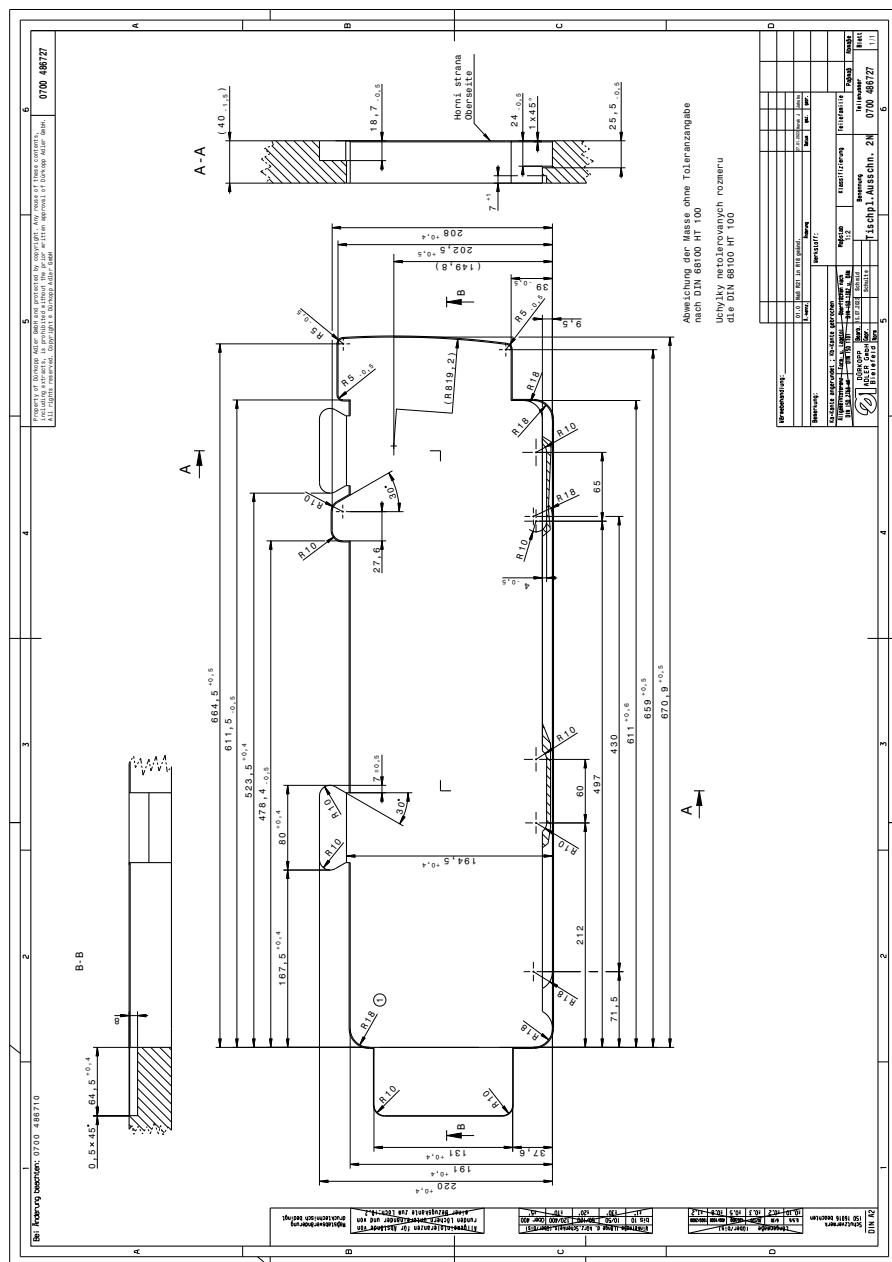


Fig. 133: Tabletop drawing (1)

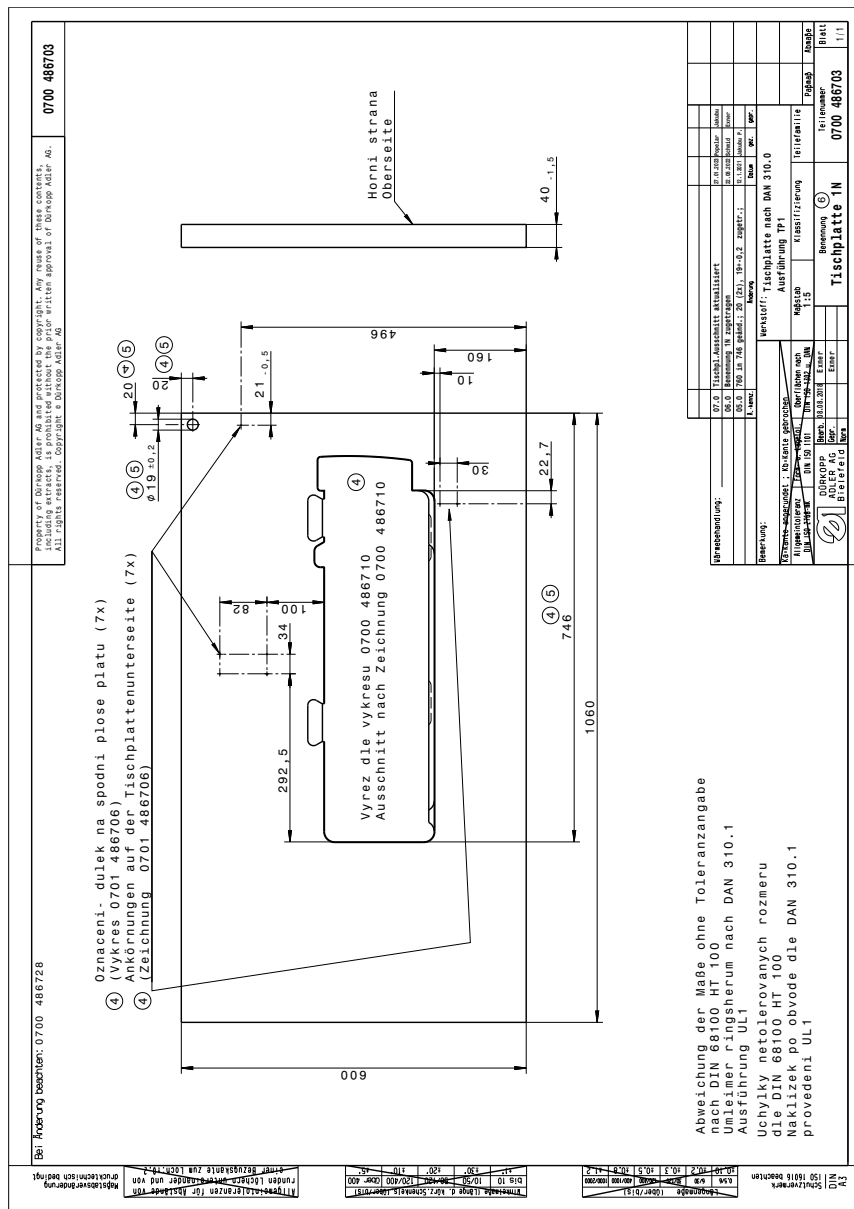
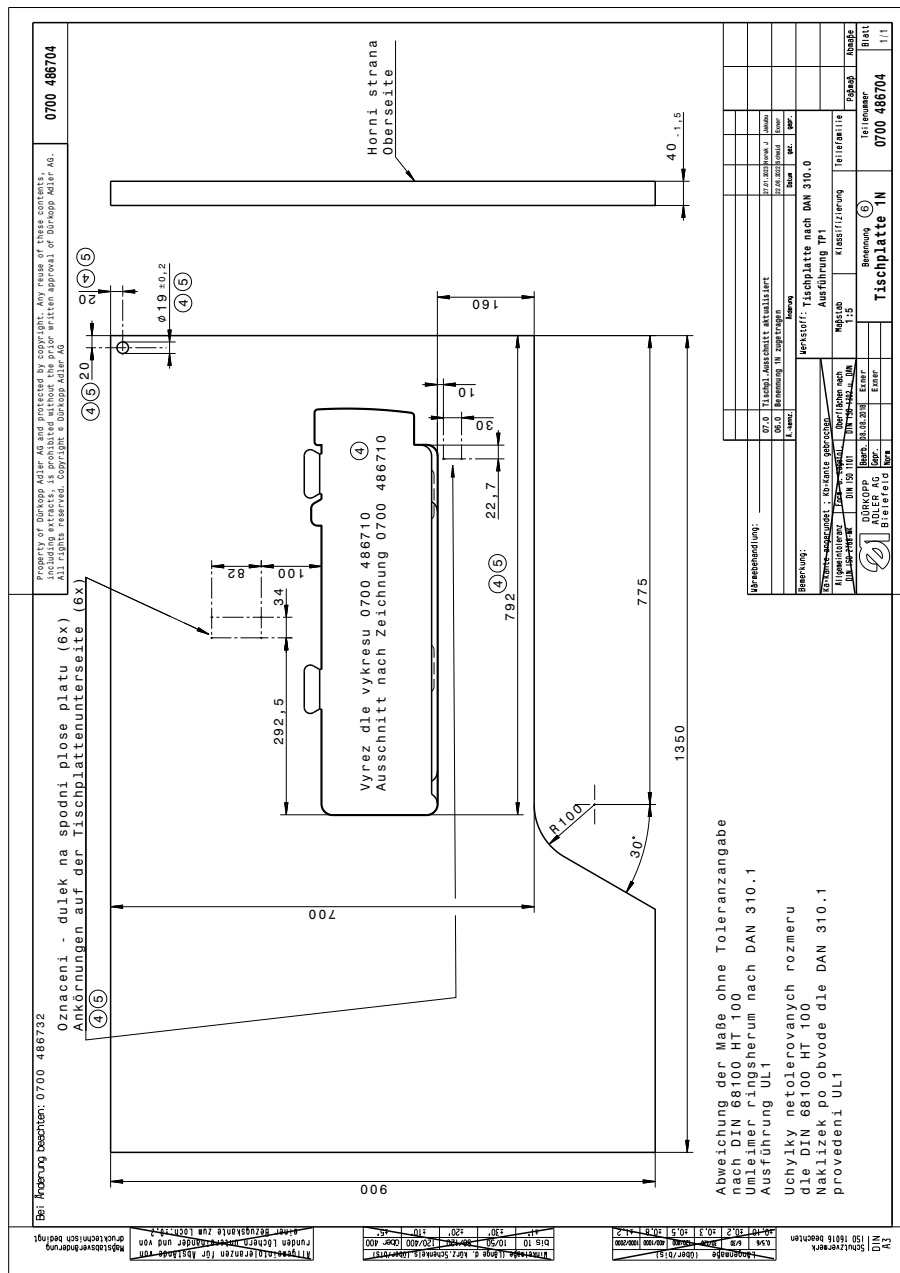


Fig. 134: Tabletop drawing (2)



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Fig. 138: Tabletop drawing (6)

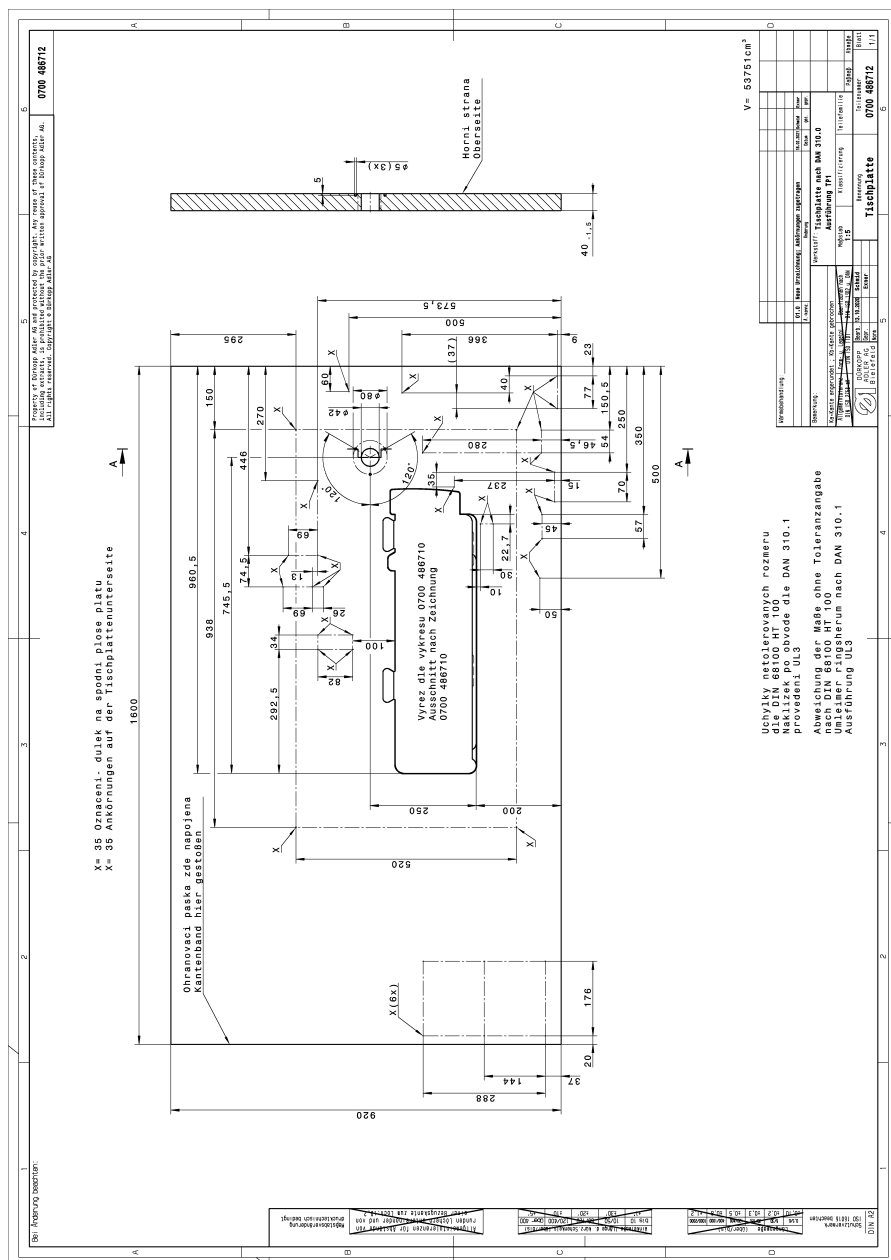


Fig. 139: Tabletop drawing (7)

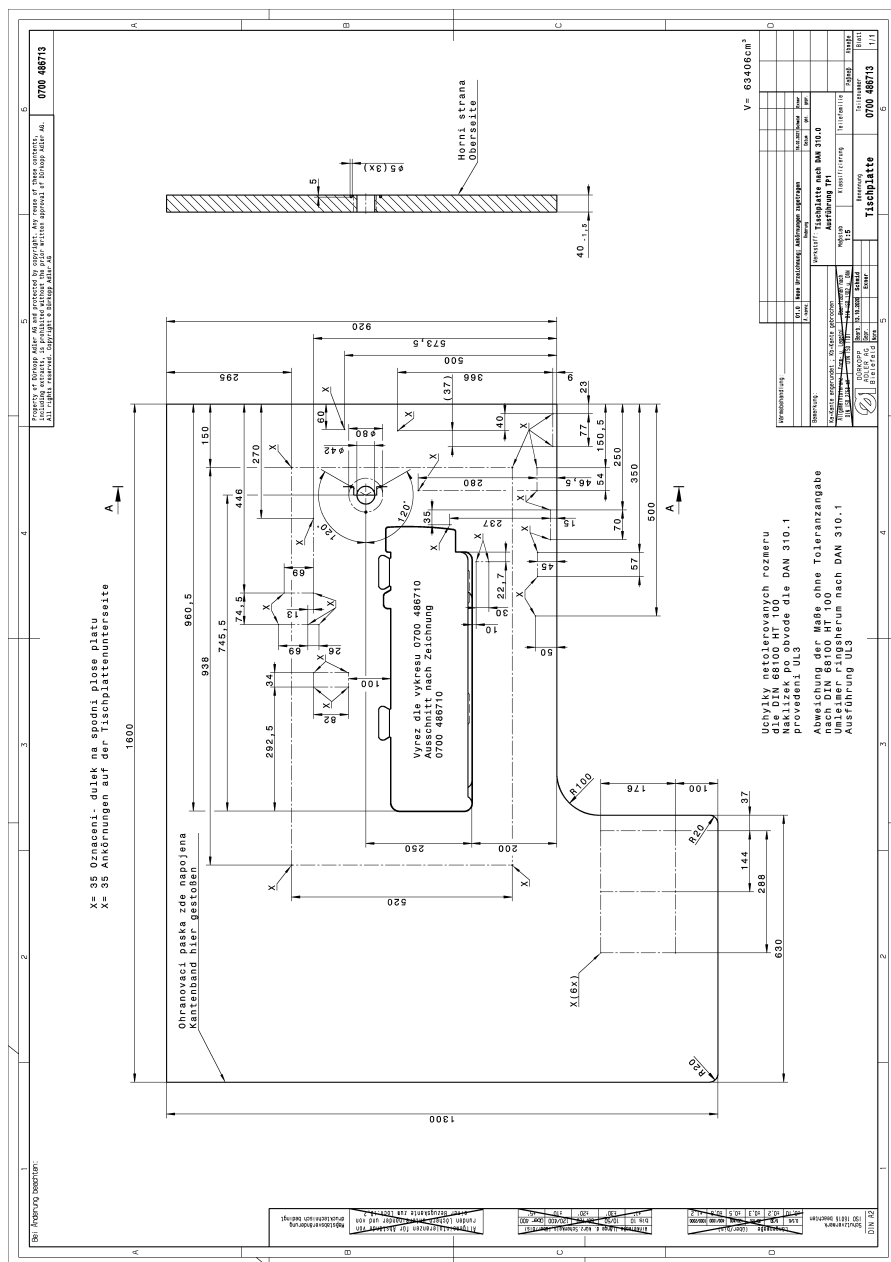


Fig. 140: Tabletop drawing (8)

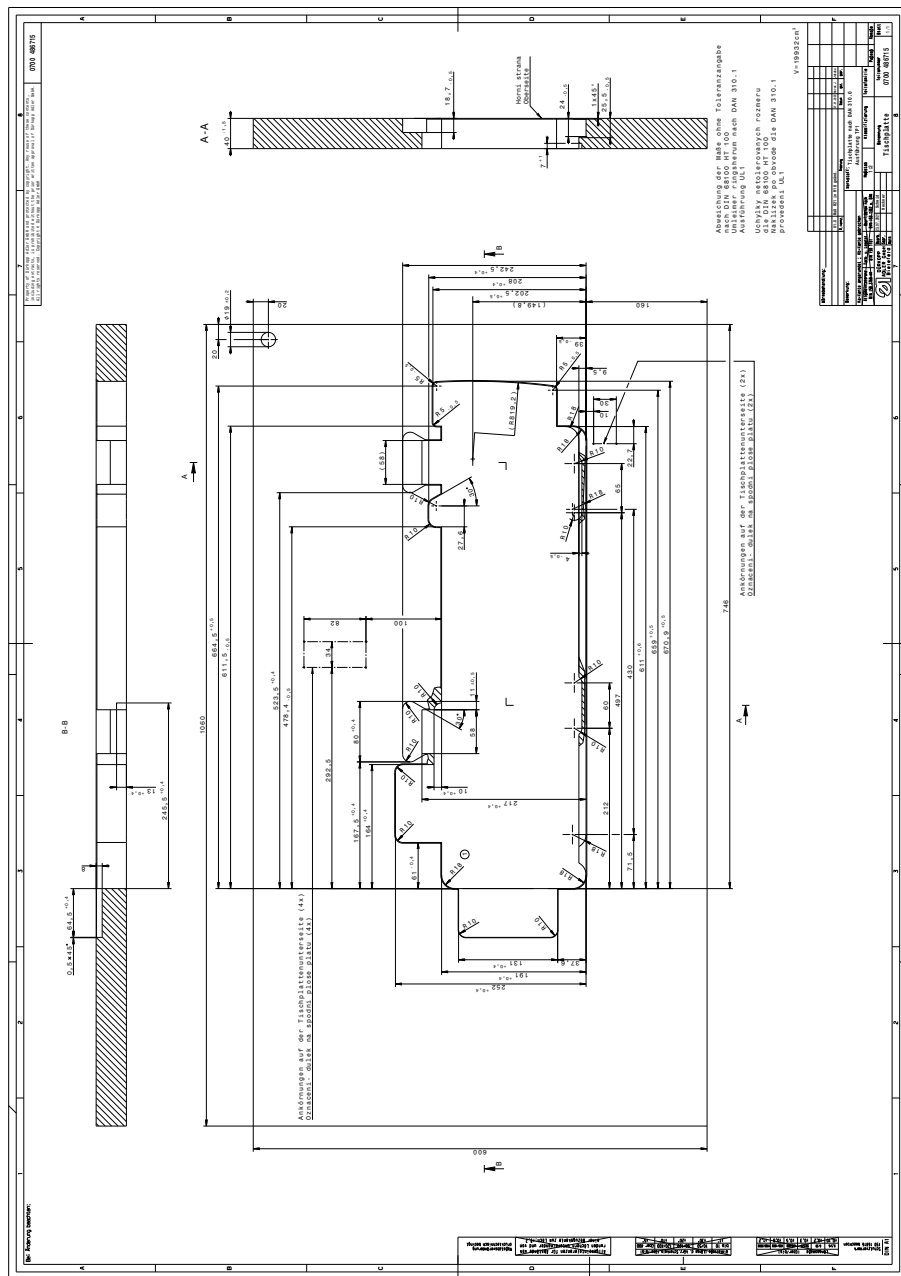


Fig. 141: Tabletop drawing (9)

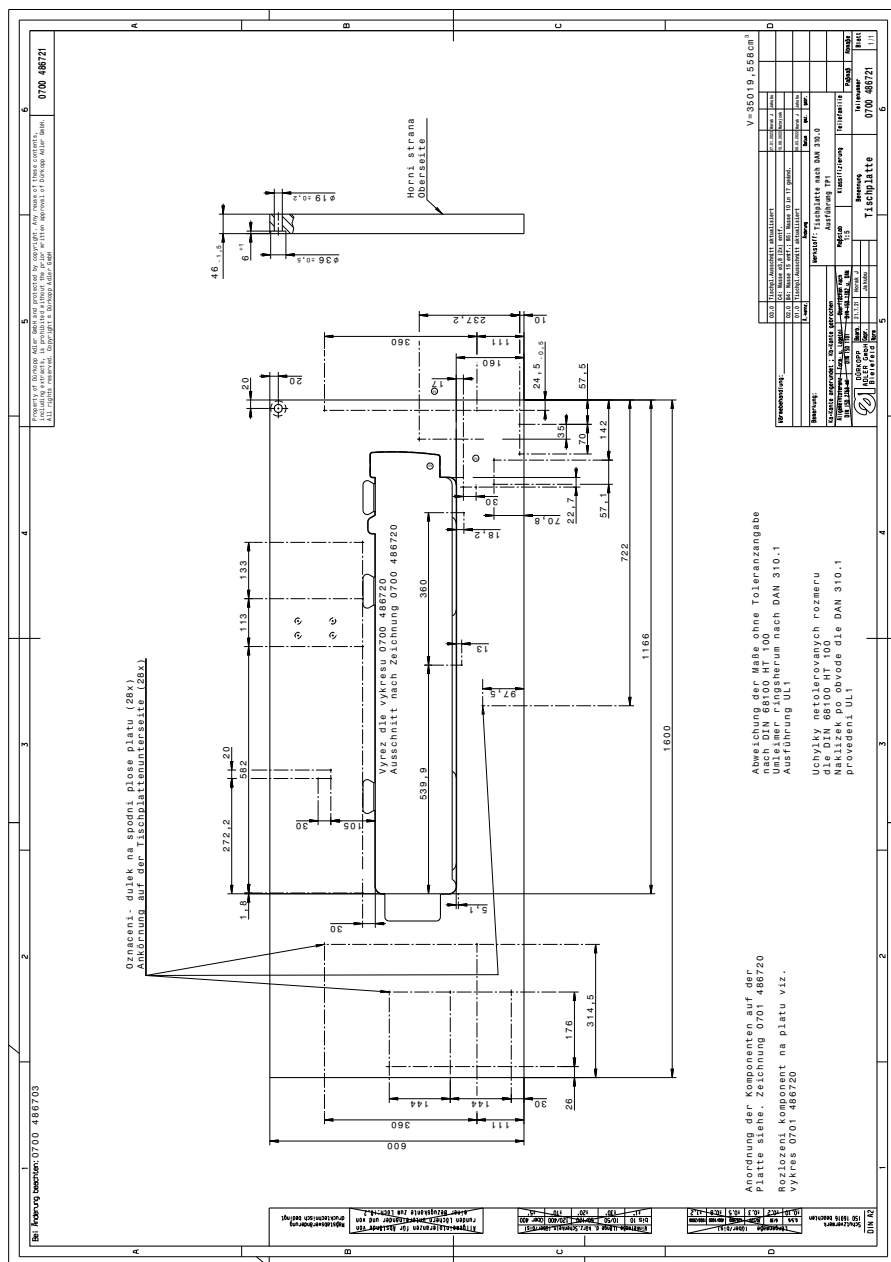


Fig. 142: Tabletop drawing (10)

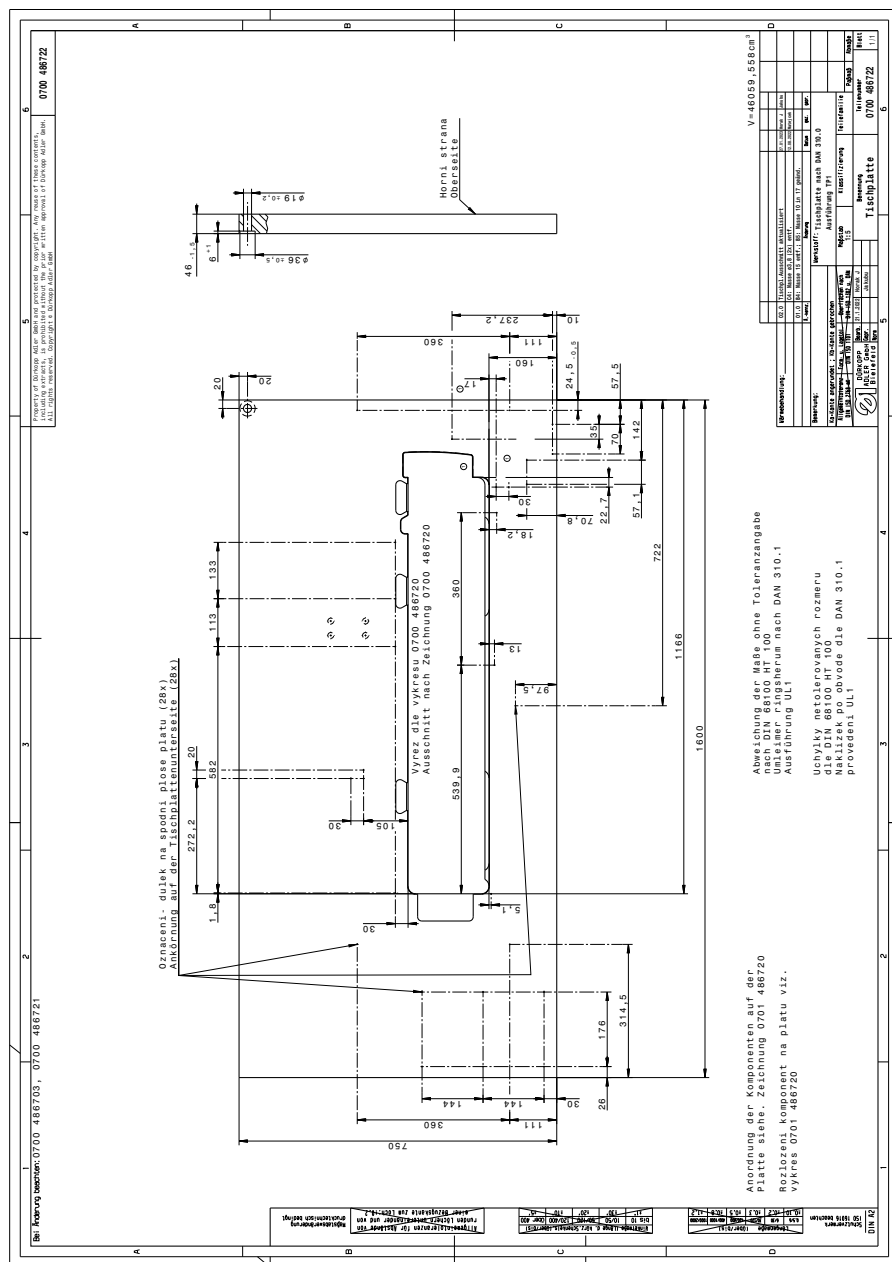


Fig. 143: Tabletop drawing (11)

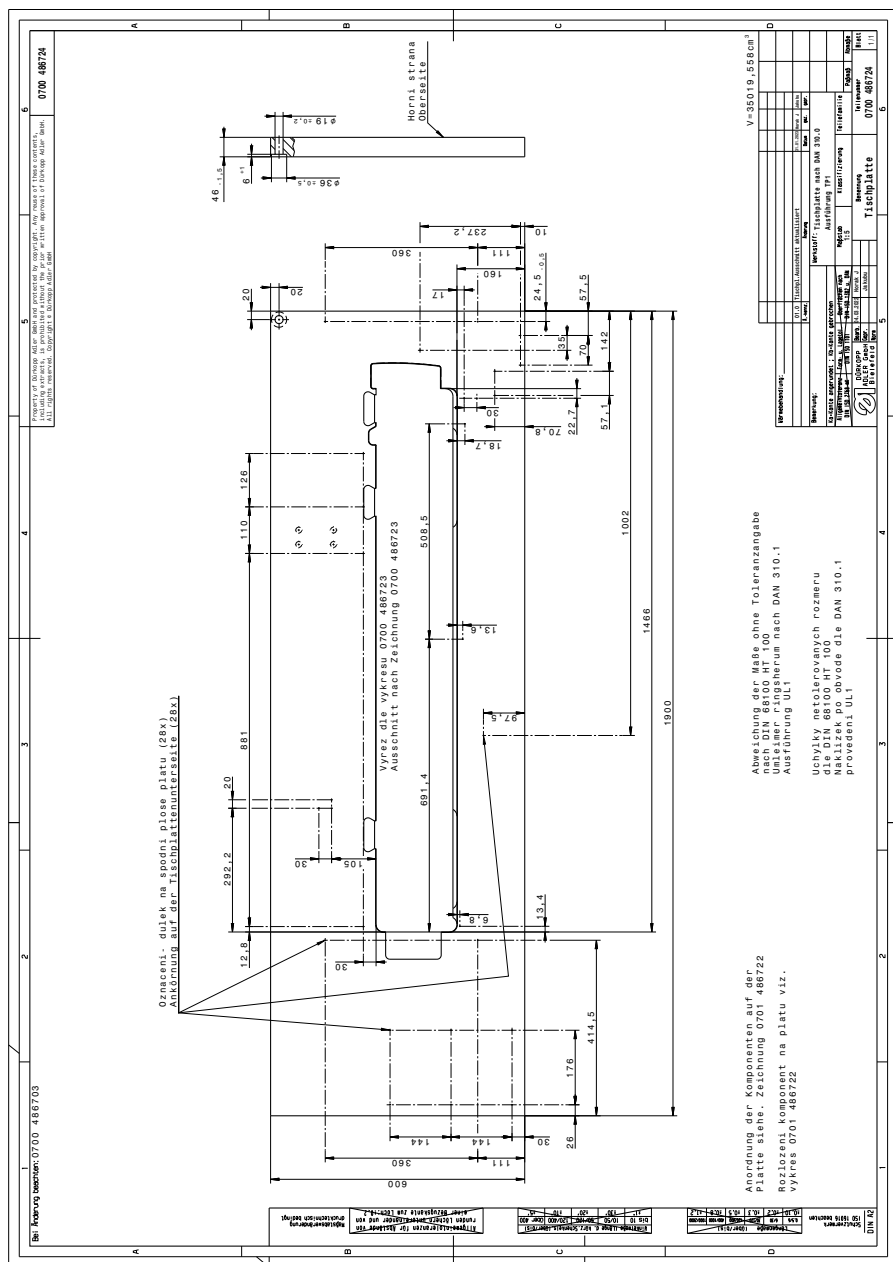


Fig. 144: Tabletop drawing (12)

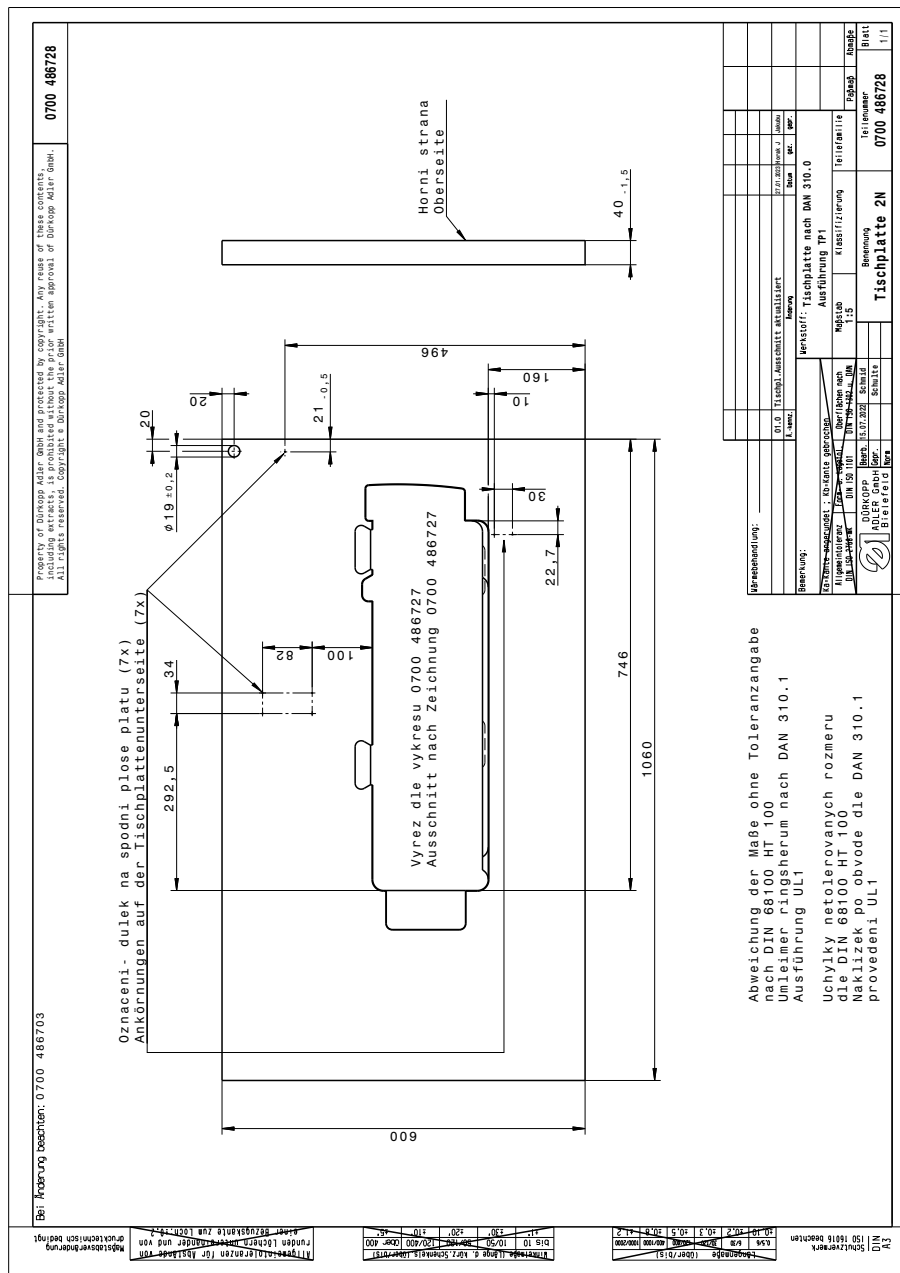
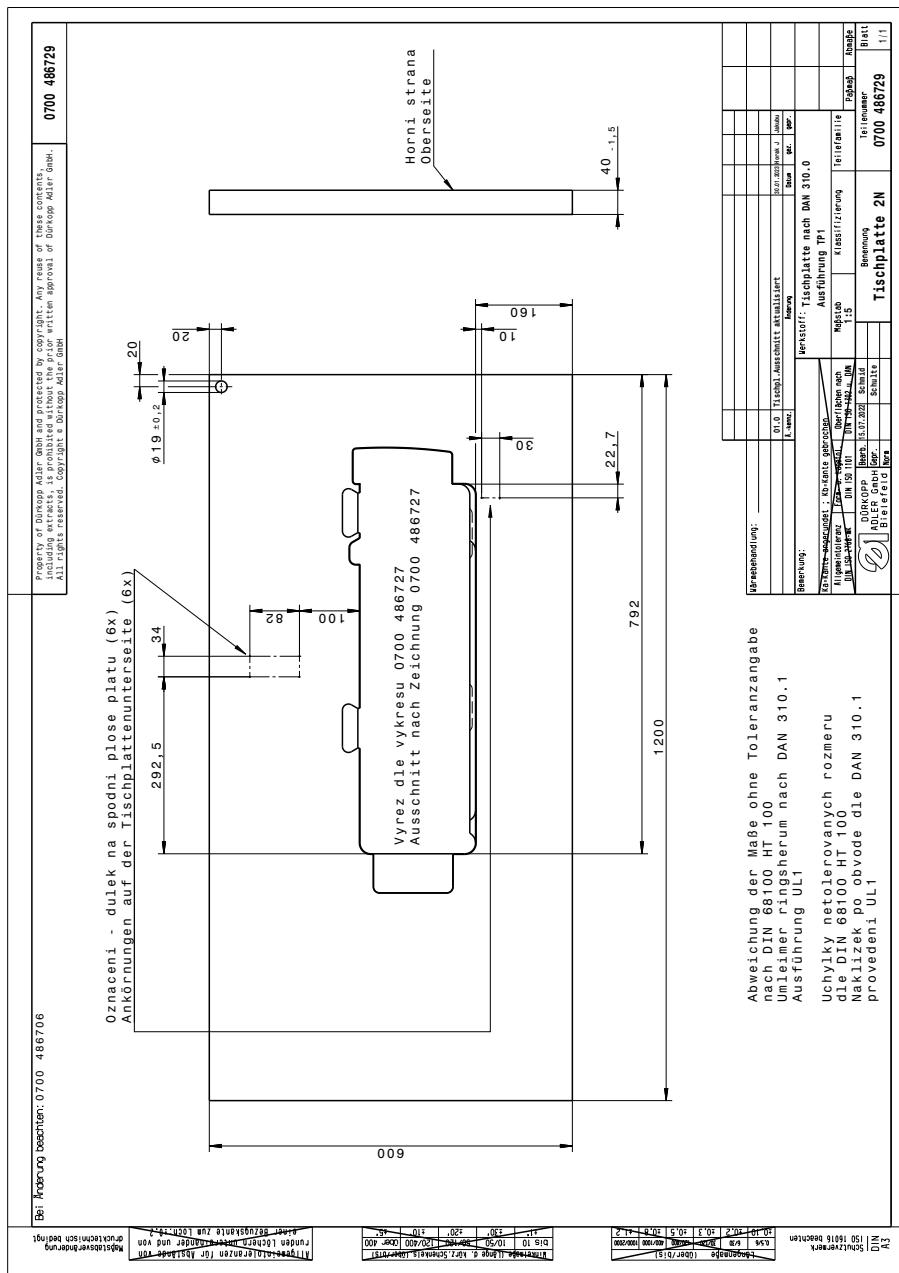


Fig. 145: Tabletop drawing (13)



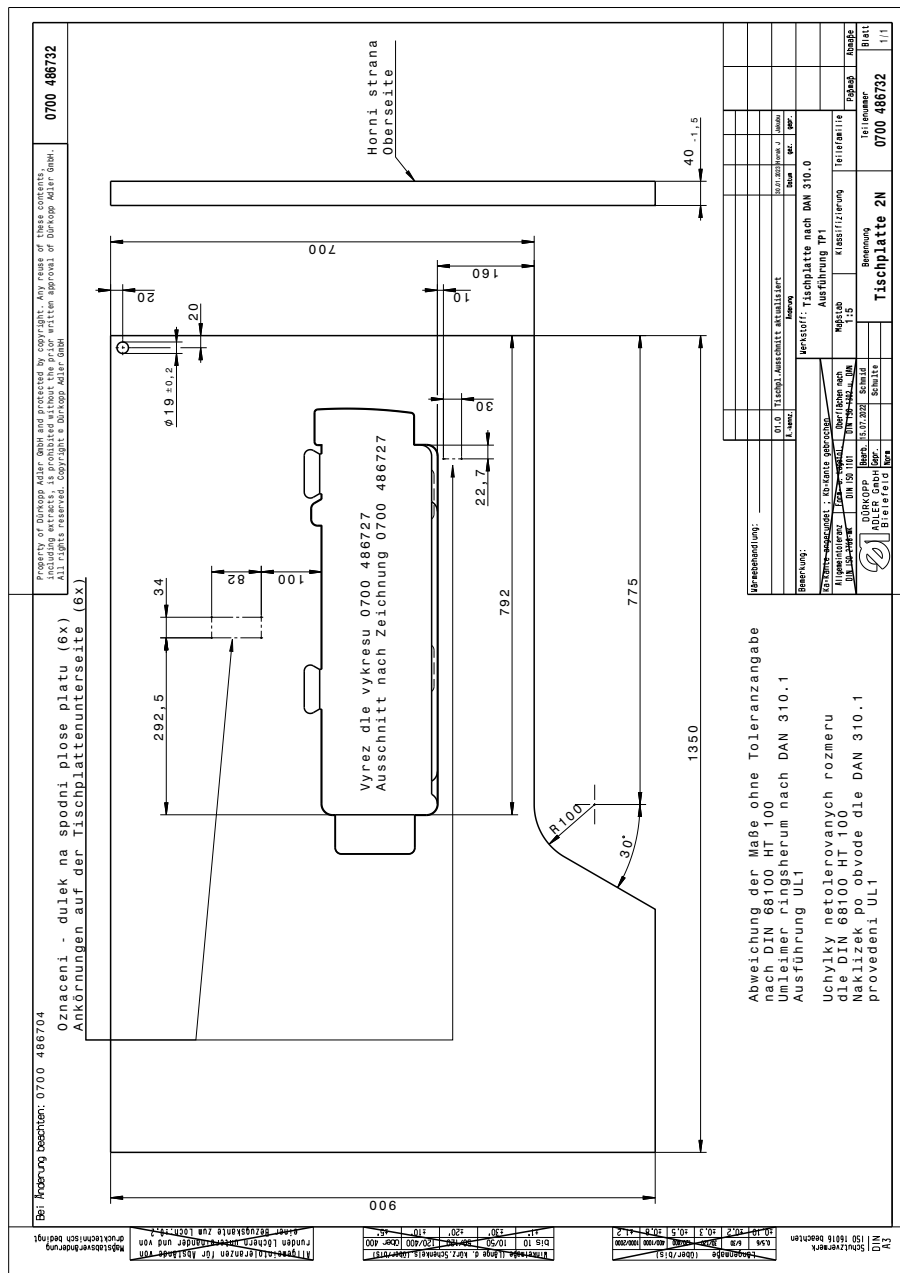
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