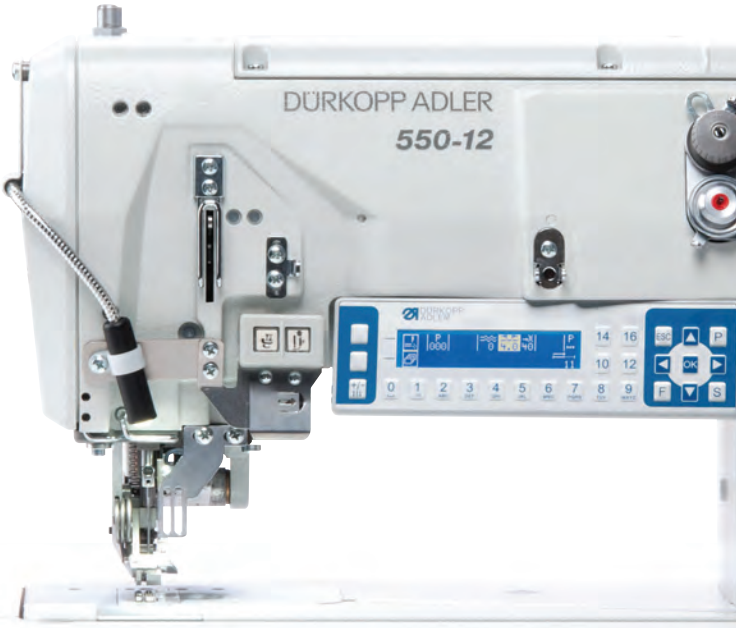
DÜRKOPP ADLER

550-12-33/-34

Operating Instructions



IMPORTANT

READ CAREFULLY BEFORE USE

KEEP FOR FUTURE REFERENCE

1 About these instructions

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

Should you notice any discrepancies or if you have improvement requests, then we would be glad to receive your feedback through **Customer Service** (📖 *p. 161*).

Consider the instructions 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. 139*) is important for specialists.

Service Instructions are supplied separately.

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

1.2 Representation conventions – symbols and characters

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

Proper setting

Specifies proper setting.

Disturbances

Specifies the disturbances that can occur from an incorrect setting.

Cover

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

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

Steps to be performed for service, maintenance, and installation

Steps to be performed via the software control panel

The individual steps are numbered:

1. First step
2. Second step

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

- Lists are marked by bullet points.

Result of performing an operation

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

Important

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

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

Order

Specifies the work to be performed before or after a setting.

References

Reference to another section in these instructions.

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 damage during transport
- Failure to observe these instructions
- Improper use
- Unauthorized modifications to the machine
- Use of untrained personnel
- Use of unapproved parts

Transport

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

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

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

2 Safety

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

2.1 Basic safety instructions

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

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

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

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

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

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

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

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

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

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

Requirements to be met by the personnel

Only qualified specialists may:

- Setting up the machine
- Performing maintenance work and repairs
- Performing work on electrical equipment

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

Operation

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

Safety equipment

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

2.2 Signal words and symbols used in warnings

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

Signal words Signal words and the hazard they describe:

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

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

Symbol	Type of danger
	General
	Electric shock

Symbol	Type of danger
	Puncture
	Crushing
	Environmental damage

Examples Examples of the layout of warnings in the text:

DANGER

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

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

WARNING

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

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

CAUTION

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

NOTICE

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

CAUTION

Type and source of danger!

Consequences of non-compliance.

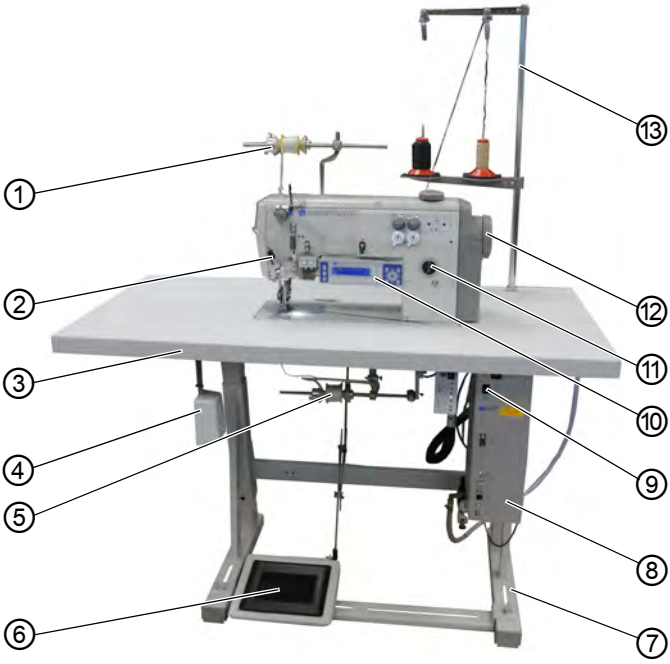
Measures for avoiding the danger.

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

3 Machine description

3.1 Components of the machine

Fig. 1: Components of the machine



(1) - Upper tape feeder
(2) - External sewing lamp
(3) - Tabletop
(4) - Knee button
(5) - Lower tape feeder
(6) - Pedal
(7) - Stand
(8) - Control
(9) - Main switch
(10) - Control panel OP3000
(11) - Oil-wick lubrication
(12) - Handwheel
(13) - Reel stand

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. 183*) 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.

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4 Operation

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

4.1 Preparing the machine for operation

WARNING

Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

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

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

- Inserting/changing the needle (📖 *p. 22*)
- Threading the needle thread (📖 *p. 24*)
- Threading the hook thread (📖 *p. 27*).
- Setting the thread tension (📖 *p. 36*)
- Threading the reinforcement tape (📖 *p. 30*)

4.2 Switching on and off the machine

WARNING

Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

Do not sew unless the machine is fully assembled and includes all safety devices.

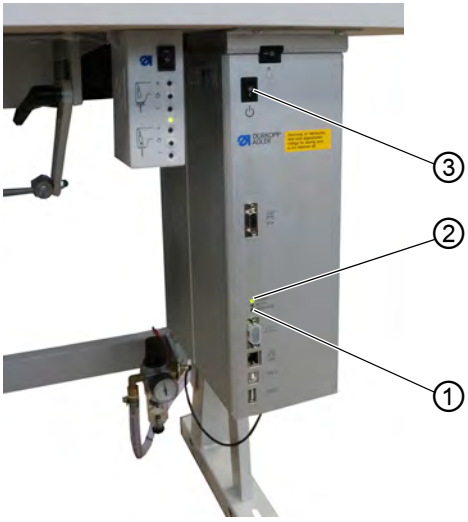
NOTICE

Property damage may occur!

While the machine is referencing and while the needle is down, the needle or the hook tip may break.

Do not switch the machine off unless the needle is up and NOT plunged in the material.

Fig. 2: Switching on and off the machine



(1) - MESSAGE LED
(2) - POWER LED
(3) - Main switch

Switching on the machine

To switch on the machine:

1. Ensure that the needle is up and not plunged in the material at the bottom.

Important
The needle must be at the top dead center, ensuring that needle and hook tip cannot become damaged during referencing.

2. Set the main switch (3) to position **I**.

↳ POWER LED (2) illuminates, and the MESSAGE LED (1) flashes briefly.

↳ The splash screen appears on the display:

- On the left, the class
- On the right, the firmware

↳ The machine performs a reference run and is ready for sewing when the display shows the start screen.
The control remains in automatic mode (📖 *p. 74*) only for a few seconds before switching to manual mode (📖 *p. 66*).

Switching off the machine

To switch off the machine:

1. Ensure that the needle is up and not plunged in the material at the bottom.

Important
The needle must be at the top dead center, ensuring that needle and hook tip cannot become damaged the next time the machine is switched on and completes a reference run.

2. Set the main switch (3) to position **0**.

↳ The control panel shuts down. When the POWER LED (2) goes out, the machine and the control are disconnected from the power supply.

4.3 Inserting/changing the needle

WARNING

Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

Only insert or change the needle with the machine switched off.

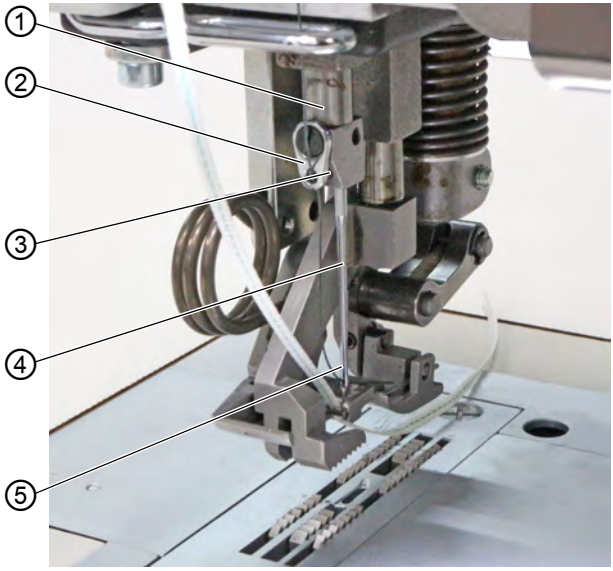
NOTICE

Property damage may occur!

Risk of missing stitches or damage to the thread when using thinner needles. Risk of damage to the hook tip or the needle when using thicker needles.

Correct the settings when using needles with a different thickness.

Fig. 3: Inserting/changing the needle



(1) - Needle bar
(2) - Thread guide
(3) - Threaded pin
(4) - Needle
(5) - Groove

To change the needle:

1. Turn handwheel until the needle (4) is at the top dead center.
2. Loosen the threaded pin (3) through the hole in the thread guide (2).

   This requires that the thread guide (2) be assembled completely straight to the needle bar (1).
3. Pull the needle (4) down and out.
4. Insert the new needle (4) into the hole in the needle bar (1) until it reaches the end stop.

Important

Align the needle (4) in such a way that the groove (5) is pointing to the rear.

5. Tighten the threaded pin (3) through the hole in the thread guide (2).

Order

Always adjust the clearance between the hook and the needle (4) after changing to a different needle thickness (📖 *Service Instructions*).

Disturbance

An incorrect hook distance can cause the following disturbances:

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

4.4 Threading the needle thread

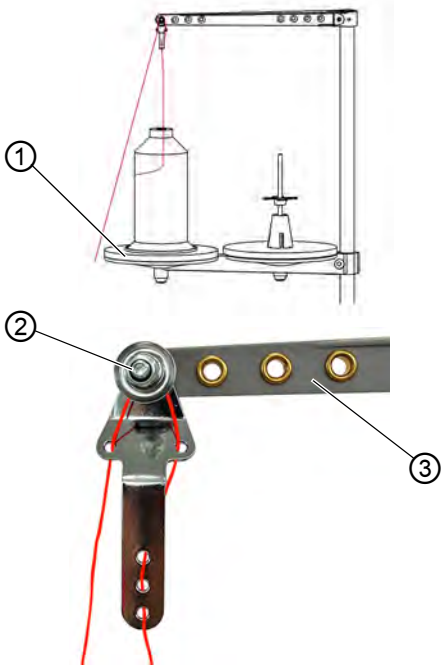
WARNING

Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

Only thread the needle thread with the machine switched off.

Fig. 4: Threading the needle thread (1)



(1) - Left thread reel plate
(2) - Tensioner
(3) - Thread guide

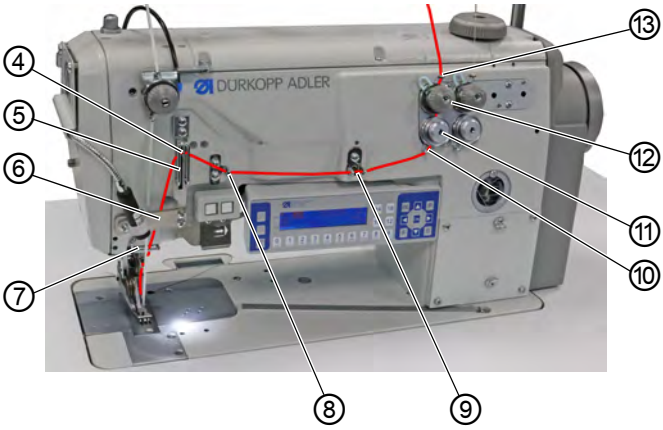
To thread the needle thread:

1. Fit the thread reel on the left thread reel plate (1).
2. Feed the needle thread through the thread guides as shown and guide it around the tensioner (2).

Important

The unwinding bracket (3) must stand directly above the thread reels.

Fig. 5: Threading the needle thread (2)



(4) - Thread lever
(5) - Needle thread regulator
(6) - Bracket
(7) - Thread guide
(8) - Thread guide
(9) - Thread guide
(10) - Thread guide
(11) - Tensioner
(12) - Tensioner
(13) - Thread guide

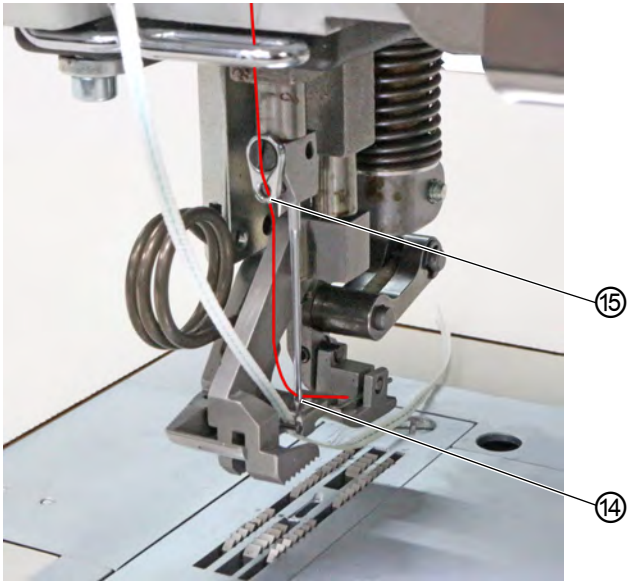
3. Feed the needle thread from top to bottom through the thread guide (13).
4. Guide the needle thread counterclockwise around the tensioner (12).
5. Guide the needle thread clockwise around the tensioner (11).
6. Feed the needle thread, as shown, through thread guides (8), (9) and (10).
7. Feed the needle thread through the needle thread regulator (5) and the thread lever (4).

Important

When feeding the thread through the needle thread regulator (5) and the thread lever (4), pay attention as to how much needle thread is needed to ensure proper stitch formation. The required needle thread quantity defines the threading of the needle thread (📖 *p. 37*).

8. Feed the needle thread downwards behind the bracket (6).
9. Insert the needle thread through thread guide (7).

Fig. 6: Threading the needle thread (3)



(14) - Needle eye *(15) - Thread guide*

10. Insert the needle thread through thread guide (15).
11. Insert the needle thread through the needle eye (14) in such a way that the loose end points downward/faces the hook.

4.5 Threading the hook thread

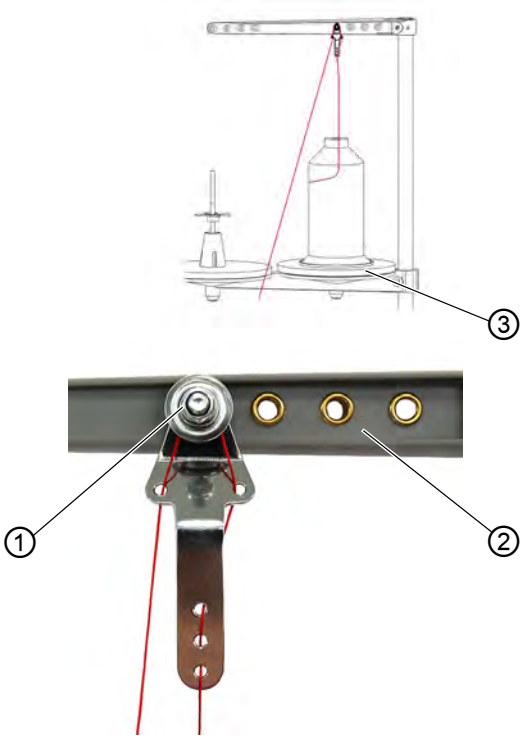
WARNING

Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

Only thread the hook thread with the machine switched off.

Fig. 7: Threading the hook thread (1)



(1) - Tensioner
(2) - Thread guide
(3) - Right thread reel plate

To thread the needle thread:

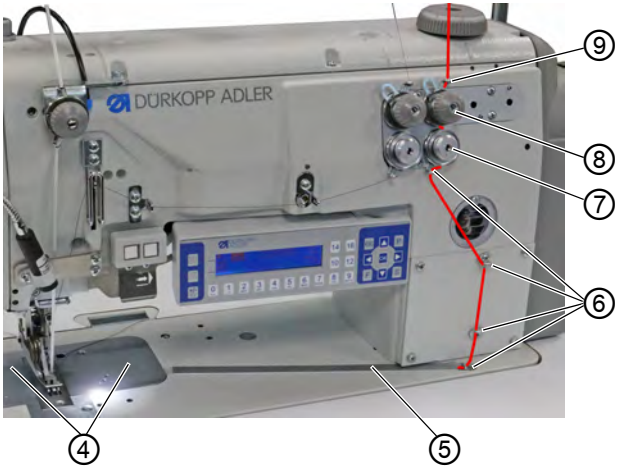
1. Fit the thread reel on the right thread reel plate (3).

2. Feed the needle thread through the thread guides as shown and guide it around the tensioner (1).

Important

The unwinding bracket (2) must stand directly above the thread reels.

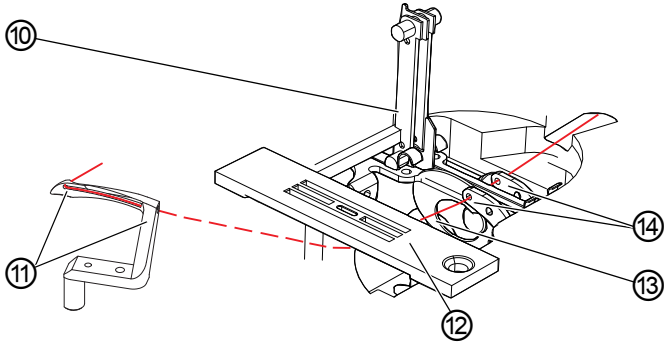
Fig. 8: Threading the hook thread (2)



(4) - Hook cover
(5) - Thread channel
(6) - Thread guide
(7) - Tensioner
(8) - Tensioner
(9) - Thread guide

3. Feed the hook thread from the top through the thread guide (9).
4. Guide the hook thread counterclockwise around the tensioner (8).
5. Guide the hook thread clockwise around the tensioner (7).
6. Insert the hook thread through the 4 thread guides (6).
7. Open the hook covers (4) on the left and the right next to the throat plate.
8. Open the thread channel (5).
9. Feed the hook thread through the thread channel (5).
10. Pull the hook thread from the rear under the cover plate of the thread channel (5).

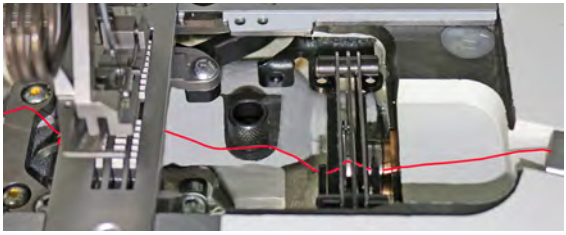
Fig. 9: Threading the hook thread (3)



(10) - Hook thread bobbin case retainer
(11) - Hook hole
(12) - Throat plate
(13) - Thread take-up disk
(14) - Hook thread guide

11. Remove the cover plates to the right and left of the throat plate (12).
12. Lift the hook thread bobbin case retainer (10) from its latching.
13. Turn the handwheel to position **B** in such a way that the thread take-up disk (13) is set accordingly.
14. Insert the hook thread from the right to the left through the holes of the hook thread guide (14).
15. Turn the handwheel until the hook holes (11) are accessible.
16. Insert the hook thread from the right to the left through the hook holes (11) before pulling it out towards the rear by approx. 3 cm.

Fig. 10: Threading the hook thread (4)



17. Press down and lock into place the hook thread bobbin case retainer (10).
18. Insert the hook covers (4) again on the left and the right next to the throat plate (12).

4.6 Threading the reinforcement tape

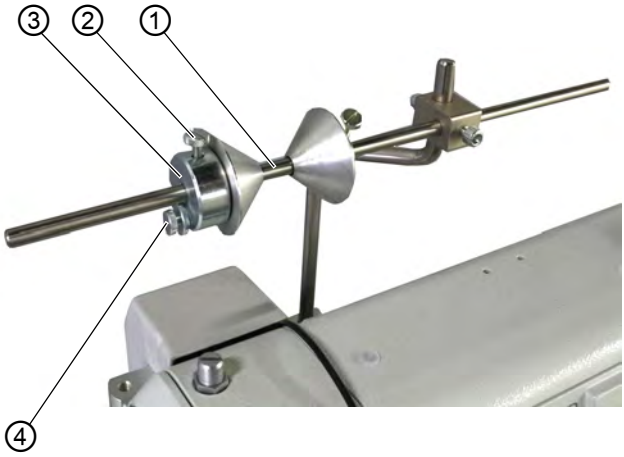
The reinforcement tape is used to reinforce the seam and support ruffling. The reinforcement tape can be fed in 2 ways:

- Tape feeder at the top (at the machine head)
- Tape feeder at the bottom (under the tabletop)

The machine is equipped with either type of tape feeder. If fed from the top, the reinforcement tape is sewn on top of the material. If fed from the bottom, the reinforcement tape is sewn under the material.

4.6.1 Threading the reinforcement tape from the top

Fig. 11: Threading the reinforcement tape from the top (1)



(1) - Bar
(2) - Screw
(3) - Brake element
(4) - Screw

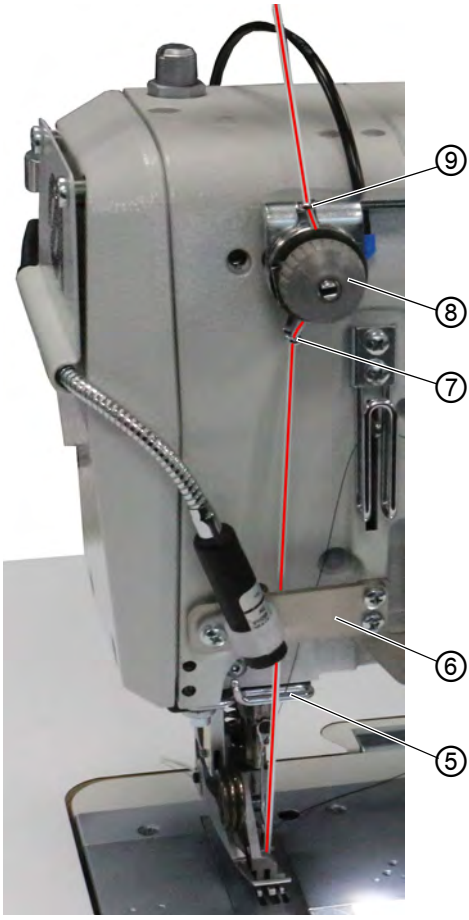
To thread the reinforcement tape from the top:

1. Loosen the screw (2) and pull it off the bar (1) towards the left together with the brake element (3).
2. Fit the tape roll onto the bar (1).
3. Slip the brake element (3) back onto the bar (1).
4. Tighten the screw (2).

Now, the tape roll can no longer slip off the bar.

5. Use the screw (4) to set how strongly the tape roll is supposed to be braked (📖 *p. 46*).

Fig. 12: Threading the reinforcement tape from the top (2)



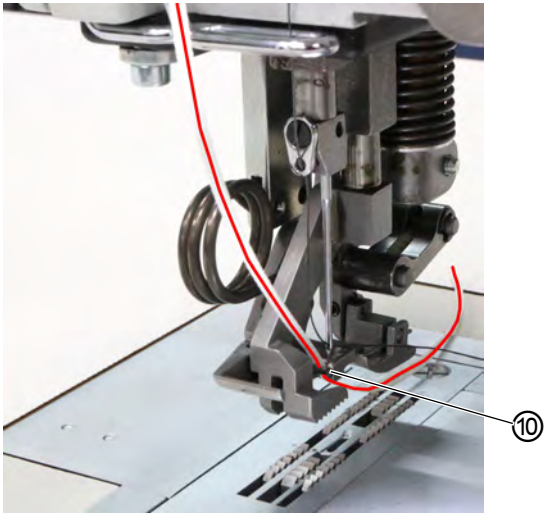
(5) - Thread guide
(6) - Bracket
(7) - Tape guide
(8) - Tensioner
(9) - Tape guide

6. Feed the reinforcement tape from the tape roll to the tape guide (9) and thread it from top to bottom.
7. Feed the reinforcement tape clockwise through the tensioner (8).
8. Feed the reinforcement tape from top to bottom through the tape guide (7).

9. Feed the reinforcement tape downwards from the top behind the bracket (6).
10. Guide the reinforcement tape IN FRONT OF the thread guide (5) from the top.

↳ DO NOT guide the reinforcement tape behind the thread guide (5) to keep the reinforcement tape and the needle thread from becoming entangled.

Fig. 13: Threading the reinforcement tape from the top (3)



(10) - Tape guide

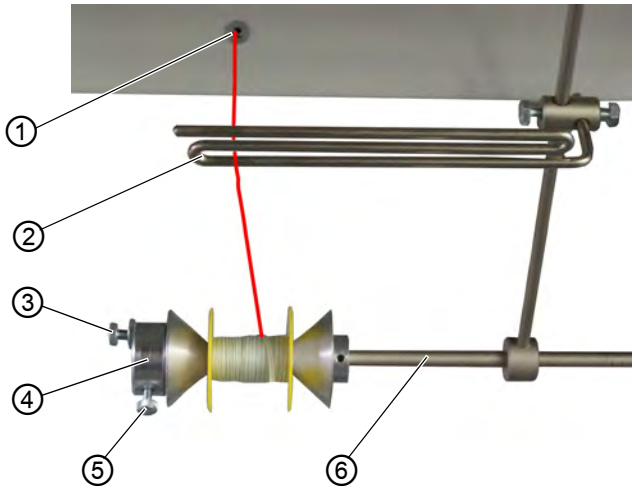
11. Feed the reinforcement tape from top to bottom through the tape guide (10).

↳ The reinforcement tape has been fully threaded from the top.

12. Guide the reinforcement tape towards the rear in the same way as the needle thread.

4.6.2 Threading the reinforcement tape from the bottom

Fig. 14: Threading the reinforcement tape from the bottom (1)



(1) - Slot in the oil pan
(2) - Tape guide
(3) - Screw
(4) - Brake element
(5) - Screw
(6) - Bar

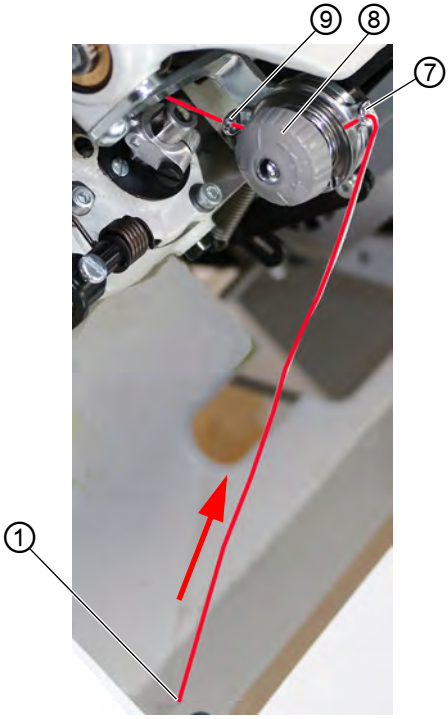
To thread the reinforcement tape from the bottom:

1. Loosen the screw (5) and pull it off the bar (6) towards the left together with the brake element (4).
2. Fit the tape roll onto the bar (6).
3. Slip the brake element (4) back onto the bar (6).
4. Tighten the screw (5).

↳ Now, the tape roll can no longer slip off the bar.

5. Use the screw (3) to set how strongly the tape roll is supposed to be braked (📖 *p. 46*).
6. Feed the reinforcement tape up from the tape roll to the tape guide (2) and thread it.
7. Tilt the machine head (📖 *p. 148*).
8. Feed the reinforcement tape up through the slot in the oil pan (1).

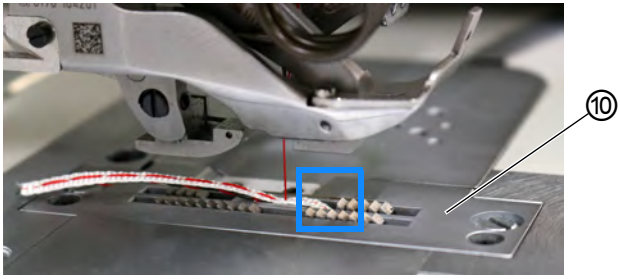
Fig. 15: Threading the reinforcement tape from the bottom (2)



(1) - Slot in the oil pan
(7) - Tape guide
(8) - Tensioner
(9) - Tape guide

9. Feed the reinforcement tape from the slot in the oil pan (1) through the tape guide (7).
10. Feed the reinforcement tape clockwise through the tensioner (8).
11. Insert the reinforcement tape through the tape guide (9).

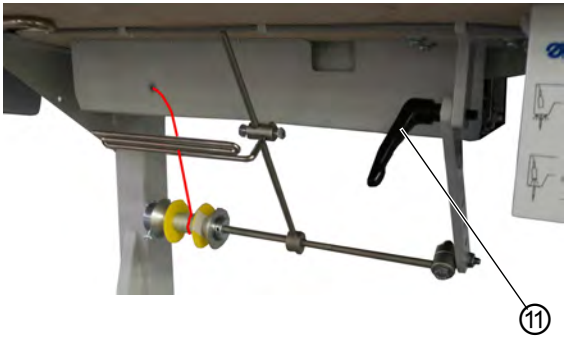
Fig. 16: Threading the reinforcement tape from the bottom (3)



(10) - Throat plate

12. Feed the reinforcement tape, as shown, from the bottom through the throat plate (10).
13. Guide the reinforcement tape towards the rear in the same way as the needle thread.
14. Erect the machine head again (📖 *p. 148*).

Fig. 17: Threading the reinforcement tape from the bottom (4)



(11) - Lever

15. Loosen the lever (11) to set the rod of the bottom tape guide.

↳ The bottom feeder must not impair free movement during sewing.

16. Lock the lever (11) back into position.

4.7 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 thread breakage.

Proper setting

The needle thread tension must be tighter than the hook thread tension. To ensure the proper setting, the hook thread tensioner is equipped with a spring made of thinner wire

Disturbance from incorrectly set thread tension

- Too tight: Crimping of the sewing material
- Too loose: Missing stitches

The thread tension is set at the **OP3000** control panel (📖 *p. 90*).

If 100 % thread tension is insufficient, the thread pre-tension can be supplemented (📖 *p. 42*). To this end, the tensioner elements of the thread pre-tensioner are set closer together. The tensioner elements of the thread pre-tensioner are, otherwise, always open.

4.7.1 Setting the needle thread quantity

WARNING

Risk of injury from moving parts!

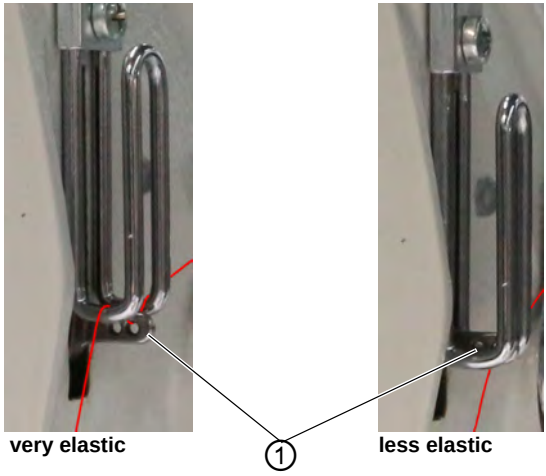
Crushing possible.

Switch off the machine before setting the needle thread quantity.

The needle thread quantity released for stitch formation is determined by the position of the needle thread regulator. The required needle thread quantity depends on the thickness of the sewing material, the thread strength, and the seam type.

In addition, the threading procedure varies with the needle threads and the types of seams used.

Fig. 18: Setting the needle thread quantity (1)

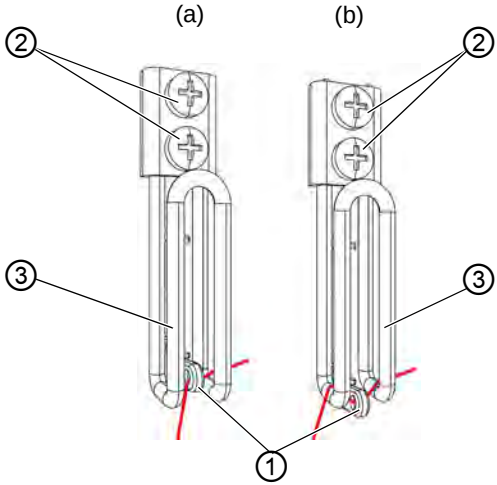


(1) - Thread lever

Proper setting

- **Less elastic threads:**
  The thread lever (1) is visible just above the needle thread regulator when at bottom dead center.
- **Very elastic threads:**
  The thread lever (1) is visible just below the needle thread regulator when at bottom dead center.

Fig. 19: Setting the needle thread quantity (2)



(1) - Thread lever
(2) - Screw
(3) - Needle thread regulator

To set the needle thread quantity:

1. Turn the handwheel until the thread lever (1) reaches its bottom dead center.
2. Loosen the screws (2) of the needle thread regulator (3).
3. Move the needle thread regulator (3) to the correct position.
   - **For tight and normal seams (detail image (a)):**
     Feed the needle thread through the hole of the thread lever (1) and then directly downwards.
   - **For elastic seams (detail image (b)):**
     Feed the needle thread through hole of the thread lever (1) and then via the left bar of the needle thread regulator (3).
4. Tighten the screws (2) for the needle thread regulator (3).

4.7.2 Setting the hook thread quantity

The hook thread quantity released is determined by the position of the hook thread take-up. The hook thread take-up adapts the hook thread quantity to each set stitch length to allow for the best possible stitch pull at any length and even with stitch condensing enabled.

The hook thread take-up can be adjusted continuously on a scale from **0** to **5**. The larger the value, the greater the released thread quantity and the more elastic the seam.

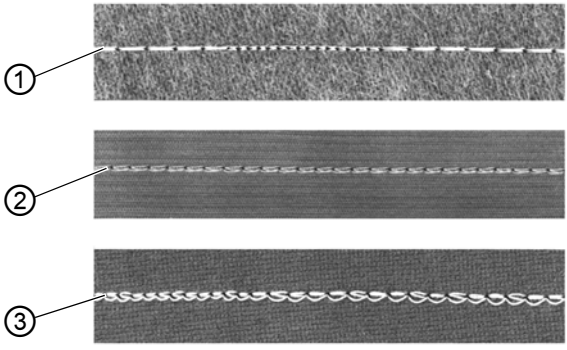
Proper setting

The proper setting is dependent on the stitch length and the seam type.

You need to ensure, especially when applying extreme settings, that the needle reliably plunges into the thread triangle:

- Elastic seam (3) with a very short stitch length = scale 5
- Tighter seam (1) with a significantly increased stitch length = scale 0

Fig. 20: Setting the hook thread quantity (1)

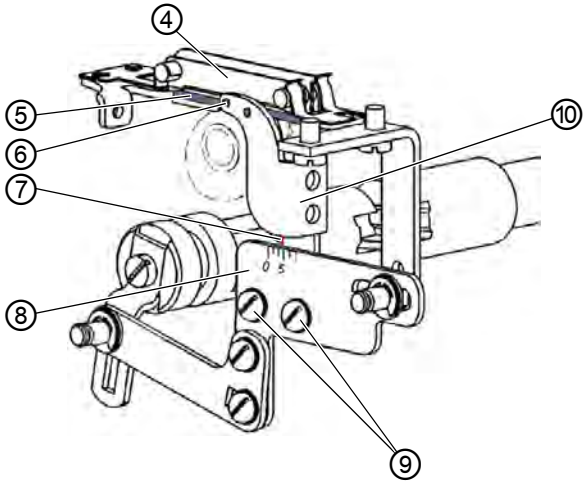


(1) - Tight seam
(2) - Normal seam
(3) - Highly elastic seam (balloon stitch)

Disturbance if hook thread quantity to too high

- Missing stitches
- Hook thread pops out of the thread take-up disk

Fig. 21: Setting the hook thread quantity (2)



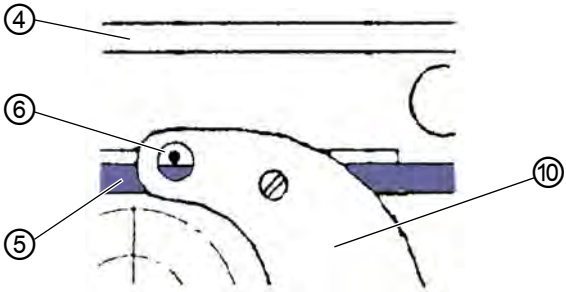
(4) - Thread bobbin case retainer
(5) - Lower bar
(6) - Hole
(7) - Front edge
(8) - Scale
(9) - Screw
(10) - Hook thread take-up

To set the hook thread quantity:

1. Tilt the machine head (📖 *p. 148*).
2. Loosen the screws (9).
3. Move the hook thread take-up (10).
   - Tighter seam = move the front edge (7) towards the **0** on the scale (8)
   - More elastic seam = move the front edge (7) towards the **5** on the scale (8)

Important

Fig. 22: Setting the hook thread quantity (3)



(4) - Thread bobbin case retainer
(5) - Lower bar
(6) - Hole
(10) - Hook thread take-up

Do not alter the height of the hook thread take-up (10).

The hole (6) must always remain above the lower bar (5) of the thread bobbin case retainer (4).

4. Tighten the screws (9).
5. Erect the machine head (📖 *p. 148*).

4.7.3 Setting thread pre-tensioner/tape tensioner

NOTICE

Production of loose stitches!

When sewing corners with active tensioner lift and simultaneous sewing foot lift, the machine will produce a loose stitch.

Do not activate the tensioner lift when lifting the sewing feet unless the sewing feet are NOT lifted during the seam.

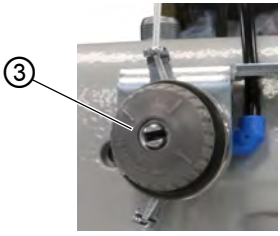
Fig. 23: Setting thread pre-tensioner/tape tensioner (1)

(1) - Tensioner element (needle thread)

(2) - Tensioner element (hook thread)

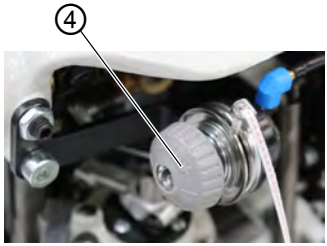
The additional tape tensioner of the reinforcement tape is set at the tensioner elements in the same way as the needle and hook thread tensioners.

Fig. 24: Setting thread pre-tensioner/tape tensioner (2)



(3) - Tensioner element (upper tape tensioner)

Fig. 25: Setting thread pre-tensioner/tape tensioner (3)



(4) - Tensioner element (lower tape tensioner)

To **increase** the thread pre-tension/tape tension:

1. Turn the tensioner element (1)/(2)/(3)/(4) clockwise in the **+** direction.

↳ The tensioner element (1)/(2)/(3)/(4) is closed.

To **reduce** the thread pre-tension/tape tension:

1. Turn the tensioner element (1)/(2)/(3)/(4) counterclockwise in the **-** direction.

↳ The tensioner element (1)/(2)/(3)/(4) is opened.

For information on how to set a larger amount of thread in the seam, see 🕮 *p. 37*.

Information

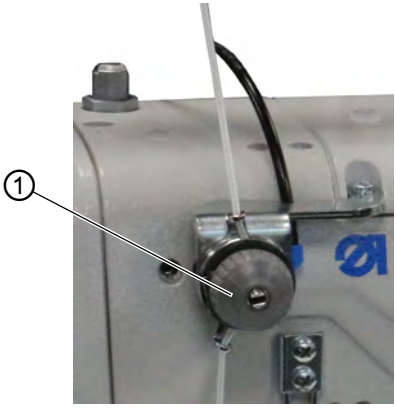
The tape tensioner for the reinforcement tape is best set when switched on, allowing you to test the setting directly during sewing.

For instructions on how to turn the tape tensioner of the reinforcement tape on/off, refer to (🕮 *p. 44*).

4.8 Switching the tape tensioner for the reinforcement tape on/off

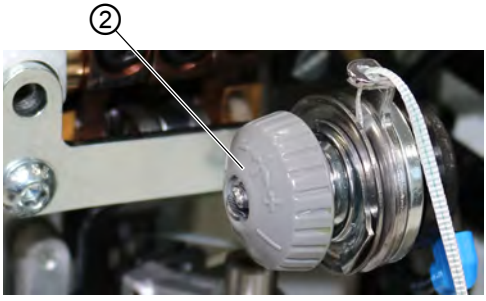
Depending on its equipment, the machine may be equipped with a lower or an upper tape feeder.

Fig. 26: Switching the tape tensioner for the reinforcement tape on/off (1)



(1) - Tensioner element (top)

Fig. 27: Switching the tape tensioner for the reinforcement tape on/off (2)



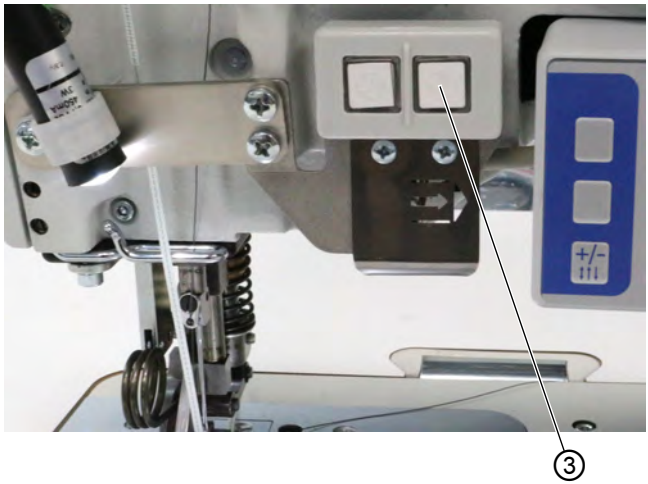
(2) - Tensioner element (bottom)

On both tape feeders, the reinforcement tape is fed through a tensioner element (1)/(2), which can be closed and opened as necessary.

The tape tensioner is switched off for ruffling values of **0**-**7**.
The tape tensioner is switched on automatically for ruffling values of **8** and higher; the button (3) will then light up. The tape tensioner can be switched off at any time.

The tape tensioner is set in the same way as needle thread pre-tensioner and hook thread pre-tensioner (📖 *p. 42*).

Fig. 28: Switching the tape tensioner for the reinforcement tape on/off (3)



(3) - Button

To switch the tape tensioner **on**:

1. Press the button (3).

↳ The tape tensioner is switched on.

To switch the tape tensioner **off**:

1. Press the button (3).

↳ The tape tensioner is switched off.

Information
The ruffling value at which the tape tensioner is switched on automatically can be adjusted on the **OP3000** control panel (📖 *p. 110*).

4.9 Setting the tape brake

Information
If the reinforcement tape is not sewn straight relative to the seam, the tape feeder may be too loose and/or the reinforcement tape tension may be too low.

Ruffling is increased if the tape tension is too high and/or the tape brake is set too tight.

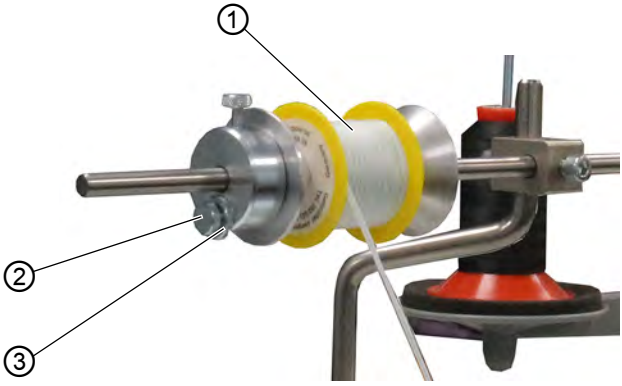
The reinforcement tape tension can be set by adjusting the tape tensioner (📖 *p. 44*). The tape brake regulates the tape feeder.

Depending on its equipment, the machine may be equipped with a lower or an upper tape feeder for the reinforcement tape (📖 *p. 30*).

To ensure that the reinforcement tape is fed in a way that achieves straight seam support and the desired ruffling value, the tape brake must be set accordingly.

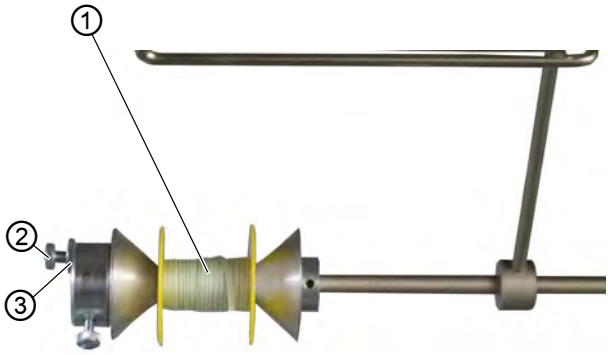
The principle that is used to brake the tape feeder is identical for the upper and the lower feeder.

Fig. 29: Setting point in time for cutting (1)



(1) - Tape roll (top)
(2) - Screw
(3) - Nut

Fig. 30: Setting point in time for cutting (2)



(1) - Tape roll (bottom)
(2) - Screw
(3) - Nut

To set the upper/lower tape brake:

1. Loosen the nut (3).
2. To reduce the force of the tape brake, loosen the screw (2).
3. To increase the force of the tape brake, tighten the screw (2).
4. To lock the screw (2) in position, tighten the nut (3).

4.10 Locking the sewing feet at top dead center

CAUTION

Risk of injury from moving parts!
Crushing possible.
Do not reach under the sewing feet.

Fig. 31: Locking the sewing feet at top dead center

(1) - Locking button

To lock the sewing feet at top dead center:

1. To lift the sewing feet, press and hold the pedal in position **-1** or position **-2**.
   ↳ The sewing feet remain lifted for as long as the pedal is kept in position **-1** or position **-2**.
2. Press the locking button (1) and keep it pressed.
3. Release the pedal (position **0**).
4. Release the locking button (1).
   ↳ The sewing feet are locked at top dead center.

To remove the lock:

1. Press the pedal to position **-1**.
2. Release the pedal (position **0**).

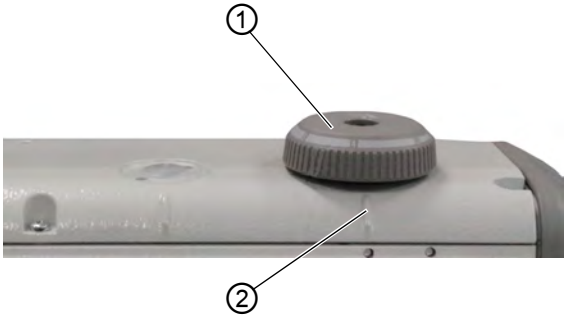
The locking button (1) disengages, canceling the lock.

4.11 Setting the sewing foot stroke

The sewing foot stroke is adjustable over a range of 2-7 mm by turning the adjusting wheel.

The increased sewing foot stroke can be switched on and off using the left button (📖 *p. 54*).

Fig. 32: Setting the stroke height



(1) - Adjusting wheel *(2) - Marking*

To set the sewing foot stroke:

1. Set the sewing foot stroke:
   - Increase the sewing foot stroke Turn the adjusting wheel (1) counterclockwise
   - Reduce the sewing foot stroke: Turn the adjusting wheel (1) clockwise

The marking (2) indicates the selected stroke height.

4.12 Setting the sewing foot pressure

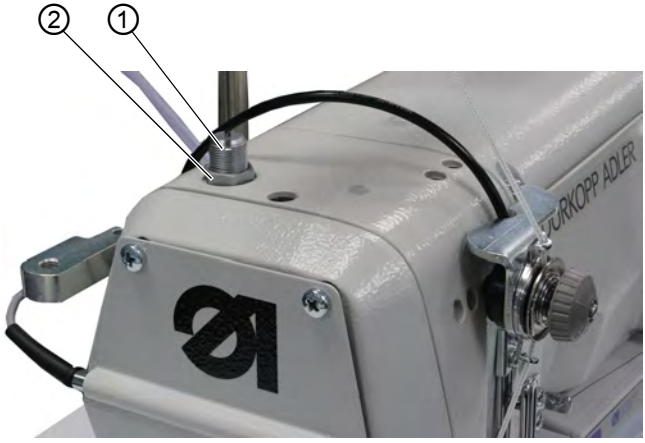
NOTICE

Property damage may occur!

Damage to the sewing material.

Set the sewing foot pressure such that the sewing material can neither slip nor become damaged.

Fig. 33: Setting the sewing foot pressure



(1) - Screw *(2) - Nut*

To set the sewing foot pressure:

1. Loosen the nut (2).
2. Set the sewing foot pressure:
   - Increase the sewing foot pressure:
     Turn screw (1) clockwise
   - Reduce the sewing foot pressure:
     Turn screw (1) counterclockwise
3. Tighten the nut (2).

Important

Major changes to the sewing foot pressure require a recalibration of the ruffling device (🕮 *Service Instructions*).

4.13 Using the knee button during sewing

The knee button can be used to switch a function on and off during sewing.

Fig. 34: Using the knee button during sewing (1)

(1) - Toggle switch *(2) - Knee button*

The position of the toggle switch (1) indicates whether the function is switched on or off.

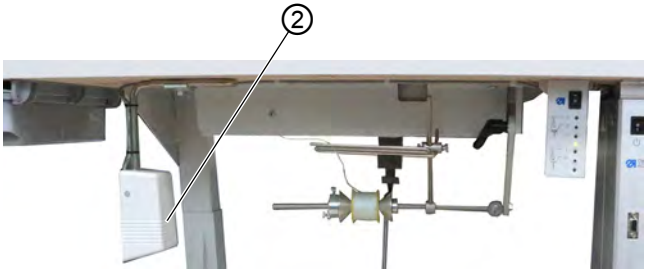
0 = function is switched off

1 = function is switched on

The function assigned to the knee button (2) at the factory is **Set selected ruffling value to 0 and vice versa**.

Information
The knee button (2) can also be assigned other functions (📖 *p. 118*).

Fig. 35: Using the knee button during sewing (2)



(2) - Knee button

To use the knee button during sewing:

1. Press the knee button (2).

↳ The ruffling value is reset to 0.

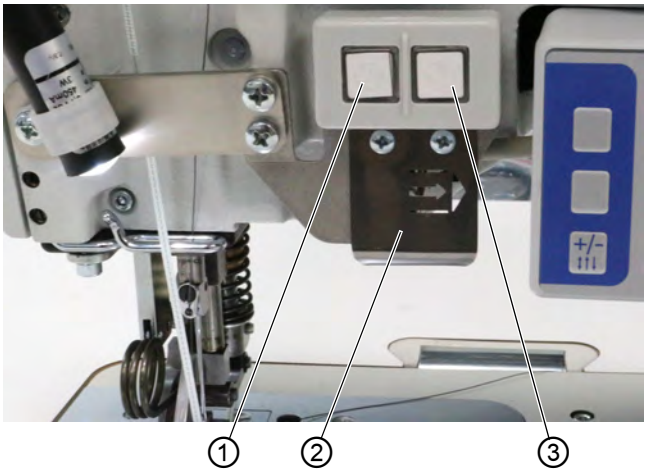
2. Press the knee button (2) again.

↳ The previous ruffling value is restored.

4.14 Push buttons on the machine arm

The machine arm houses a panel with 2 push buttons and an arrow button.

Fig. 36: Push buttons on the machine arm



(1) - Left button
(2) - Arrow button
(3) - Right button

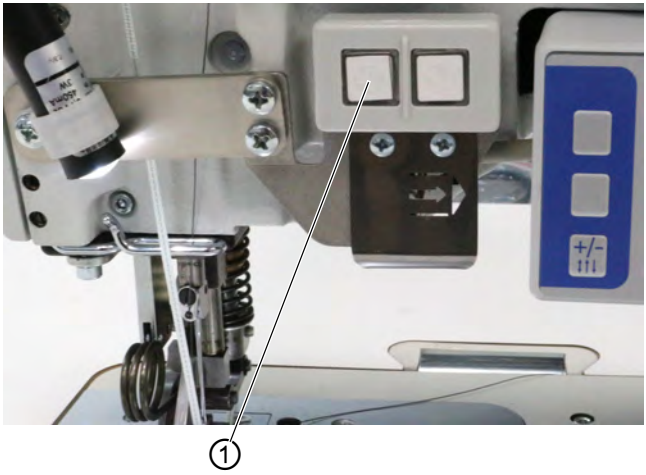
The following functions have been stored:

- Left button: Quick stroke adjustment (📖 *p. 54*)
- Right button: Tape tensioner (📖 *p. 44*)
- Arrow button: Seam section change (in automatic mode, 📖 *p. 74*)

4.15 Switching maximum stroke on and off

The left button can be used to switch the maximum stroke on and off during sewing.

Fig. 37: Switching maximum stroke on and off



(1) - Button

To switch the maximum stroke on and off:

1. To switch to maximum stroke, press button (1).

   The button (1) lights up, indicating that the function is switched off.

2. To switch the maximum stroke off, press button (1) again.

   The button (1) light goes out, indicating that the function is switched off.

4.16 Switching the edge cutter on and off

CAUTION

Risk of injury at exposed blade!

There is a risk of sustaining injuries at the exposed blades.

Do not reach into the cutting area.

Class 550-12-34 is equipped with an edge cutter. The edge cutter is switched on and off using the button (1) on the **OP3000** control panel.

In manual mode, the edge cutter can be switched on and off at any time (📖 *p. 66*). The top blade is designed such that it will penetrate reliably even if activated during sewing.

Fig. 38: Switching the edge cutter on and off

(1) - Upper softkey

To switch the edge cutter on:

1. Press the upper softkey (1)  .

To switch the edge cutter off:

1. Press the upper softkey (1)  .

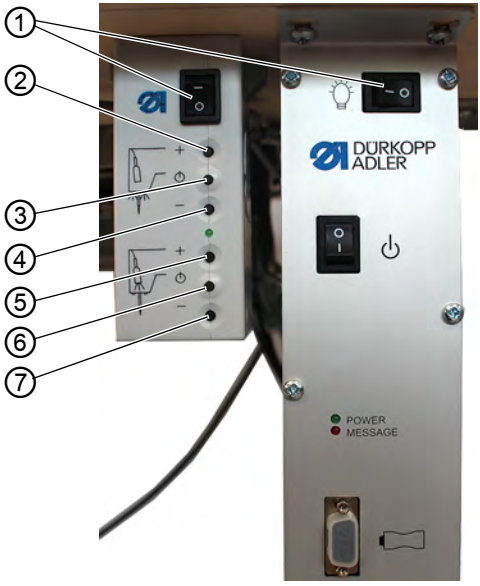
Information

The upper softkey (1) can also be assigned a different function. In this case, the edge cutter can also be switched on and off in the softkey menu (📖 *p. 70*).

4.17 Switching on and off the sewing lamp

The sewing lamp switches on and off independent of the main switch.

Fig. 39: Switching on and off the sewing lamp



(1) - Switch
(2) - Button
(3) - Button
(4) - Button
(5) - Button
(6) - Button
(7) - Button

To switch on the sewing lamp:

1. Set both switches (1) to position **I**.

↳ The sewing lamp transformer is now powered on.

2. Press the button (6).

↳ The sewing lamp illuminates.

3. Use the (5) or (7) button to set the brightness level.

To switch off the sewing lamp:

1. Press the button (6).

↳ The sewing lamp goes out.

2. Set both switches (1) to position **0**.

↳ The sewing lamp transformer is now powered off.

Information
The sewing lamp transformer allows for the connection of a second LED light. The buttons (2), (3) and (4) are used to switch the additional LED light on and off and to set the brightness level.

The scope of delivery does not include a second LED light.

4.18 Setting the stitch length

The stitch length is set at the **OP3000** control panel (📖 *p. 66*).

In every seam program, the stitch length can be set individually for each seam section.

4.19 Sewing

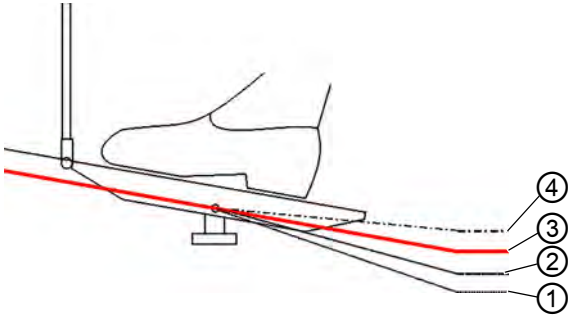
WARNING

Risk of injury from moving parts!

Crushing injuries may be sustained while lowering the sewing feet.

Do NOT put your hands under the lifted sewing feet.

Fig. 40: Sewing (1)



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

The machine offers 2 sewing modes:

- Manual mode (📖 *p. 72*)
- Automatic mode (📖 *p. 80*)

Use the pedal to start and control every sewing process.

Initial situation

The pedal is released (position **0**).

↳ The machine is at a standstill.

The needle is up, and the sewing feet are down.

To position the sewing material:

1. Press the pedal to position **-1**.

↳ The sewing foot is lifted.

2. Push the sewing material into the initial position.
3. Release the pedal (position **0**).

↳ The sewing foot lowers onto the sewing material.

At seam beginning

To start a seam:

1. Press the pedal forward to position **1**.

↳ The machine sews. The speed increases the further forward the pedal is pressed.

During sewing

To interrupt the seam:

1. Release the pedal (position **0**).

↳ The machine stops.

Needle and sewing foot are up / down.

To continue the seam:

1. Press the pedal forward to position **1**.

↳ The machine continues to sew.

At seam end

To finish the seam:

1. To finish the seam, press the pedal completely backwards to position **-2**.

↳ The machine stops.

Needle and sewing feet are lifted and remain up as long as the pedal is kept in the **-2** position.

Fig. 41: Sewing (2)

(5) - Thread-pulling knife

2. Cut the reinforcement tape at the thread-pulling knife (5).
3. Remove the sewing material.

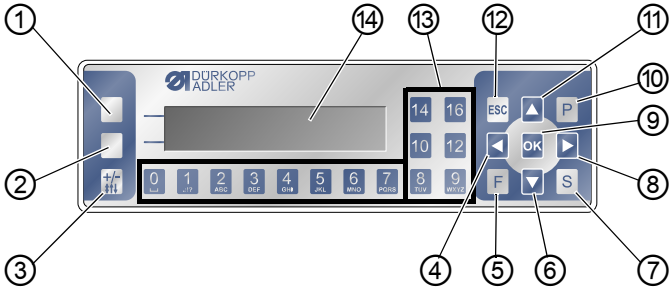
5 Programming

5.1 The OP3000 control panel at a glance

All software settings for the machine are performed using the **OP3000** control panel.

The control panel is equipped with the following buttons:

Fig. 42: The OP3000 control panel at a glance (1)



(1) - Upper softkey
(2) - Lower softkey
(3) - Plus/minus button
(4) - Arrow button
(5) - F button
(6) - Arrow button
(7) - S button
(8) - Arrow button
(9) - OK button
(10) - P Button
(11) - Arrow button
(12) - ESC button
(13) - Numeric buttons
(14) - Display

Buttons and functions

No.	Button	Function
①	Upper softkey	Assignment is different for each menu
②	Lower softkey	Assignment is different for each menu
③		Switch between ruffling top and/or ruffling bottom
④		• Selection to the left • Back one menu level
⑤	**F**	Function is different for each menu
⑥		• Decrease the value • Scroll through the list (downwards)
⑦	**S**	Function is different for each menu
⑧		• Selection to the right
⑨	**OK**	• Confirm the settings • Activate the input
⑩	**P**	• Start Edit mode
⑪		• Increase the value • Scroll through the list (upwards)
⑫	**ESC**	• Cancel the function • Exit the menu

No.	Button	Function
⑬	**0 – 16**	• Set the ruffling value • Enter the parameter value (if the field for the parameters is activated) • Select the parameter shown on the display Notice: There are no buttons 11, 13, and 15. In order to, for instance, set the ruffling value 11, press the two adjacent buttons, i.e. button 10 and button 12, at the same time.

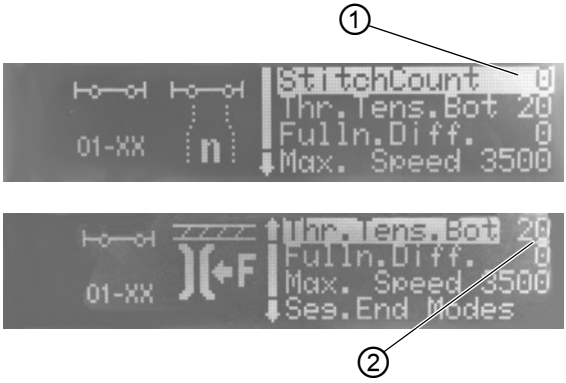
Display and selection

The display shows menu items and value fields that you can select and adjust.

Activated entry

The relevant activated entry is highlighted.

Fig. 43: The OP3000 control panel at a glance (2)



(1) - Activated entry in a menu list (2) - Activated entry in a value field

You can use the arrow buttons to move from entry to entry:

- ▲/▼ in a list of menu items
- ◀/▶ for adjacent value fields

Back to menu level

Use ◀ to access the previous menu level.

Canceling in menu lists

If you press **ESC** in a menu list, this will bring you to the user level.

Changing values

In activated value fields, you can enter a value by using the numeric buttons or change it incrementally using ▲/▼.

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

Confirm with OK

When pressing **OK** in a menu, you open the selected menu item

When pressing **OK**, you apply the activated entry.

Canceling value editing

If you press **ESC** when editing value fields, you can cancel the entry without having to apply your changes.

5.2 Control operating modes

The control offers several different modes:

- **Manual mode** (📖 *p. 66*)

  Manual mode is the simplest operating mode (seam program number **000**).

  There are no seam programs and no seam sections in manual mode.

  Any changes made to parameters (e.g. stitch length or thread tension, etc.) are applied immediately during the sewing process.

- **Automatic mode** (📖 *p. 74*)

  Automatic mode allows for the execution of seam programs (seam program number **001** – **999**).

  The seam programs are divided into individual seam sections. Each section is assigned its own specific parameters, e.g. ruffling value, needle thread tension, etc.
  Ruffling value and needle thread tension can be altered at any time during the sewing process without effecting any permanent changes to the seam program.

- **Programming mode** (📖 *p. 83*)

  Programming mode allows for the teaching of new sewing programs.

- **Edit mode** (📖 *p. 90*)

  In Edit mode, new sewing programs can be created, edited, deleted, copied and mirrored (right or left piece).

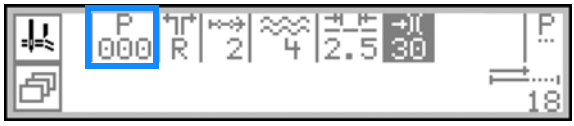
- **Service mode**

  Service mode offers, for instance, functions such as changing the language. For more information on service mode, refer to the 📖 *Service Instructions*.

Information
The machine is capable of storing up to 999 seam programs with a maximum of 30 seam sections each.

5.3 Manual mode

Fig. 44: Manual mode



Manual mode is the simplest operating mode, seam program number **000**. It does not contain any input for individual seam sections. Any changes made to parameters are applied immediately during the sewing process.

The following table shows the individual symbols of parameters on the display and the functions of the buttons on the control panel.

When a parameter is selected, its color on the display changes. When a parameter is changed, its new value is loaded immediately.

Button function and menu items on the display

Symbol	Meaning
 	**Upper softkey**, can be assigned a softkey function 📖 *p. 70* • Press the upper softkey. Class 550-12-34 features the symbol of the edge cutter on the upper softkey, as this function has been programmed at the factory.
	Open the **softkey menu** 📖 *p. 70*. • Press the lower softkey.
	**Seam program number** Value range: 000 **000** signifies Manual mode. • Use ◀ / ▶ to select the parameter. • Use ▲ / ▼ to change the seam program number. Or: • Enter the seam program number directly using one of the numeric buttons **0** – **9** and press **OK** to confirm if necessary. ↳ The control switches to Automatic mode

Symbol	Meaning


0 – 16
	Ruffling type and ruffling value
	The ruffling type and the ruffling value are shown on the display.
	Caution: While it cannot be selected, this selection can be changed.
	• To select the **ruffling type**, press the  button.
	  •  : Ruffling top and bottom
	  •  : Ruffling top
	  •  : Ruffling bottom
	Setting the ruffling value
	Value range: 0-16
	Notice: There are no buttons 11, 13, and 15. In order to, for instance, set the ruffling value 11, press the two adjacent buttons, i.e. button 10 and button 12, at the same time.
	• To change the **ruffling value**, press the numeric button/s.

	**Select possible ruffling types:** • Ruffling top and bottom • Ruffling top • Ruffling bottom
	**Stitch length** Value range: 3.0 – 6.0 mm • Use ◀ / ▶ to select the parameter. • Use ▲ / ▼ to change the stitch length.
	**Needle thread tension** Value range: 1 – 99, preset at 40 % • Use ◀ / ▶ to select the parameter. • Use ▲ / ▼ to change the needle thread tension.
	**Setting the parameters** 📖 *p. 68*
	**Stitch counter of the current seam section** After the thread has been cut, the display is retained. Measurement restarts when sewing starts again.
F, S	No function assigned

Symbol	Meaning
ESC	• Press **ESC** to end a function/exit the menu. ↳The changes remain in effect when you exit the menu.
OK	**OK** • Press **OK** to confirm a selection/open the menu
Left button	**Switch maximum stroke on and off (quick stroke adjustment)** 📖 *p. 54* • To switch maximum stroke on/off, press the left button.
Right button	**Tape tensioner for the reinforcement tape** 📖 *p. 44* • To switch the tape tensioner on/off, press the right button.

5.3.1 Adjusting additional parameters

To adjust the additional parameters:

1. Use ◄/► to switch to the P selection.
2. Confirm with **OK**.

↳ The menu opens.

You can adjust the following parameters in this menu:

Symbol	Meaning
	**Hook thread tension (*Thr. Tens. Bot*)** Set hook thread tension
	**Adjusting smooth sewing/stretch value (*Flat Sew*)** Adjust stretch value
	**Maximum speed (*Max Speed*)** Define maximum speed/number of stitches

Symbol	Meaning
	**Stitch condensing at seam beginning (*StitchCond Beg*)** Checkbox selected = function is switched on Checkbox deselected: function is switched off
	**Stitch condensing at seam end (*StitchCond End*)** Checkbox selected = function is switched on Checkbox deselected: function is switched off
	**Lifting the sewing feet (*Foot*)** **FL AtStop:** Lift sewing automatically when sewing stops **0** = deactivated **1** = activated • Activate/deactivate using ▲/▼. • Use ◀ to exit the submenu.
	**Ruffling support (*Ruffl. Support*)** The following additional settings can be activated to support ruffling: • Needle thread tension (*Thr. Tens. Top*) • Hook thread tension (*Thr. Tens. Bot*) • Tape tension (*Tape Tension*) 📖 *p. 110*

3. Use ▲/▼ to select the desired parameter.
4. Press the **OK** button to activate or deactivate the parameter or use ▲/▼ to edit the value and confirm the change by pressing **OK**.
5. To exit the menu, press the **ESC** button.

↳ The changed values are stored.

5.3.2 Softkey menu and softkey functions in manual mode

Fig. 45: Softkey menu and softkey functions in manual mode (1)

(1) - Upper softkey *(2) - Lower softkey*

The softkey buttons serve the following functions:

- **upper softkey (1)**: The button can be assigned a softkey function for quick access
- **lower softkey (2)**: quick access to the softkey menu during the sewing process

The following functions are found in the softkey menu in Manual mode:

Symbol	Meaning
	**Manual stitch condensing on** • Press the button **1** and keep it pressed
	**Stitch condensing on or off** • Press button **2** ↳ Stitch condensing is switched on or off
	**Switch maximum stroke on and off (quick stroke adjustment)** This function is only available during sewing • To switch maximum stroke n/off, press button **3**
	**Needle position up or down** • Press button **4** ↳ The needle is up or down when sewing stops

Symbol	Meaning
	**Creating a new seam program** • Press button **5**
	no softkey function assigned (factory setting, button **6**)
	**Go to page 2** • Press button **7**
	**Tape tensioner** • Press button **1**
	**Edge cutter** • Press button **2**
	**Return to page 1** • Press button **7**

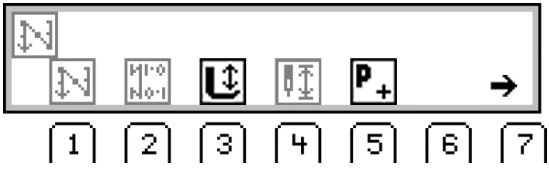
Opening the softkey menu

To open the softkey menu:

1. Press the lower softkey  .

↳ The display switches to:

Fig. 46: Softkey menu and softkey functions in Manual mode (2)



Switching a softkey function on/off

To switch a softkey function on and off:

1. Press button **1**/**2**/**3**/**4**/**5** under the desired softkey function.
2. To exit the softkey menu, press the lower softkey  again.

Assigning a softkey function to the upper softkey (1)

Information
The upper softkey can only be assigned one new softkey function at a time.

To assign a softkey function to the upper softkey (1):

1. Press button **1**/**2**/**3**/**4**/**5** under the desired softkey function and the upper softkey (1) at the same time.

↳ The function is assigned to the upper softkey (1) and can subsequently be called up using this softkey.

Removing a softkey function from the upper softkey

To remove the softkey function from the upper softkey:

1. Press the upper softkey (1) and button **6** at the same time.

↳ The upper softkey (1) is no longer assigned a function.

5.3.3 Sewing in manual mode

To sew in manual mode:

Sewing without ruffling

1. Press button **0** to set the ruffling value to 0.
2. If necessary, change values such as stitch length and thread tension.
3. Press the pedal forward to position **1** and sew.

Information
If the seam is not entirely smooth, adjust the stretch value for the ruffling value of **0** (📖 *p. 113*).

Sewing with ruffling

1. Release the pedal (position **0**).
2. To select the ruffling type if necessary, press the +/- button.
   - : Ruffling top and bottom
   - : Ruffling top
   - : Ruffling bottom

↳ The set ruffling value is shown on the display.

3. If necessary, use the numeric buttons **0** – **16** to change the ruffling value.

↳ The set ruffling value is shown on the display below the ruffling type.

4. Press the pedal forward to position **1** and continue sewing.

↳ The seam will be sewn using the altered parameter value.

Adjusting parameters during sewing

To adjust parameters during sewing:

1. Release the pedal (position **0**).
2. Change the desired parameter on the control panel ((📖 *p. 68*)).
3. Press the pedal forward to position **1** and sew.

↳ The seam will be sewn using the altered parameter value.

Finishing sewing

To finish a seam:

1. To finish the seam, press the pedal completely backwards to position **-2**.

↳ The machine stops.

Needle and sewing feet are lifted and remain up as long as the pedal is kept in the **-2** position.

2. Cut the reinforcement tape at the thread-pulling knife (📖 *p. 59*).
3. Remove the sewing material.

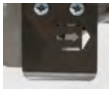
5.4 Automatic mode

Automatic mode includes all seam programs from **001**–**999**.

The following table shows the individual symbols on the display and the functions of the buttons on the control panel:

Button function and menu items on the display

Symbol	Meaning
	**Upper softkey**, can be assigned a softkey function • Press the upper softkey.
	Open the **softkey menu** 📖 *p. 76*. • Press the lower softkey.
	**Seam program number** Value range: 001 – 999 Automatic mode allows for the execution of seam programs **001**-**999**. • Use ◀ / ▶ to select the parameter. • Use ▲ / ▼ to change the seam program number. OR: • Enter the seam program number directly using one of the numeric buttons **0** – **9** and press **OK** to confirm if necessary. ↳ The control switches to automatic mode, and the corresponding seam program is active:
	**Right/left piece** • Use ▲ / ▼ to select between the right/left piece (if programs exist for both).
	**Stitch length** Value range: 3.0 – 6.0 mm • Use ◀ / ▶ to select the parameter. • Use ▲ / ▼ to change the stitch length.
	**Needle thread tension** Value range: 1 – 99 • Use ◀ / ▶ to select the parameter. • Use ▲ / ▼ to change the needle thread tension.

Symbol	Meaning
0 – 16	Setting the **ruffling value 0-16** Notice: There are no buttons 11, 13, and 15. In order to, for instance, set the ruffling value 11, press the two adjacent buttons, i.e. button 10 and button 12, at the same time.
	**Bar** Length per seam section in mm, or a dash (-) if no automatic seam section progression is active. Stitches are counted down for every seam section.
OK	**OK** • Press **OK** to confirm a selection/open the menu
ESC	**Exiting automatic mode** This step cannot cancel the sewing of a started seam. 🕮 *p. 82*
F, S	No function assigned
	**Arrow button** • If no automatic progression is active, use the arrow button to switch to the next seam section.
Left button	**Switch maximum stroke on and off (quick stroke adjustment)** 🕮 *p. 54* • To switch maximum stroke on/off, press the left button.
Right button	**Tape tensioner for the reinforcement tape** 🕮 *p. 44* • To switch the tape tensioner on/off, press the right button.

Information
If the stitch numbers programmed for each seam section are not displayed in automatic mode, the function `StitchCount` must be activated.

If the stitch counter is deactivated, the seam section change will be deactivated following the programmed number of stitches. No stitch counts are displayed for the individual seam sections, and no automatic seam section change is performed following the completion of the programmed stitch count. A seam section change can then only be executed manually using the arrow button.

The `Count Stitches` function is activated/deactivated using the softkey menu (📖 *p. 76*).

5.4.1 Softkey menu and softkey functions in automatic mode

Fig. 47: Softkey menu and softkey functions in automatic mode (1)

(1) - Upper softkey *(2) - Lower softkey*

The softkey buttons serve the following functions in automatic mode:

- **upper softkey (1)**: The button can be assigned a softkey function for quick access
- **lower softkey (2)**: quick access to the softkey menu during the sewing process

The following functions are found in the softkey menu in automatic mode:

Symbol	Meaning
	**Manual stitch condensing on** • Press button **1** and keep it pressed for manual stitch condensing
	**Stitch condensing on or off** • Press button **2** ↳ Stitch condensing will be switched on or off the next time the seam section changes
	**Resetting the piece counter** • Press button **3**
	**Stitch counting on or off** If the function is switched off in the softkey menu, the programmed number of stitches will NOT be shown in the seam sections. • Press button **4**.
 	**Before sewing: Creating a new seam program** • Press button **5** **During sewing: Half stitch** • Press button **5**
	no softkey function assigned (factory setting, button **6**)
	Go to page 2 • Press button **7**
	**Switch tape tensioner on/off** • Press button **1**
	Return to page 1 • Press button **7**

Opening the softkey menu

To open the softkey menu:

1. Press the lower softkey (2).

↳ The display switches to:

Fig. 48: Softkey menu and softkey functions in automatic mode (2)

Switching a softkey function on/off

To switch a softkey function on and off:

1. Press button **1**/**2**/**3**/**4**/**5** under the desired softkey function.

↳ The symbol is highlighted.

2. To exit the softkey menu, press the lower softkey again.

Assigning a softkey function to the upper softkey (1)

Information
The upper softkey can only be assigned 1 softkey function at a time.

To assign a softkey function to the upper softkey (1):

1. Press button **1**/**2**/**3**/**4**/**5** under the desired softkey function and the upper softkey (1) at the same time.

↳ The function is assigned to the upper softkey (1) and can subsequently be called up using this softkey.

Removing a softkey function from the upper softkey

To remove the softkey function from the upper softkey:

1. Press the upper softkey (1) and button **6** at the same time.

↳ The upper softkey (1) is no longer assigned a function.

5.4.2 Selecting a seam program in automatic mode

To select a seam program in automatic mode:

1. Use ◄/► to switch to the P 000 selection.
2. Use ▲/▼ to select the seam program number **001** or another one (if available).

   The seam program number must not be **000**, as this number signifies manual mode rather than a seam program.

↳ The control switches to automatic mode, and the display switches to:

3. Adjust the parameters on the display if necessary (🕮 *p. 90*).

Fig. 49: Selecting a seam program in automatic mode

Information
If you wish to execute the seam program of a left/right piece and both pieces have already been created, select the desired piece now:

4. Use ◄/► to switch to the R selection.
5. Use ▲/▼ to select the desired piece *L*/*R*.

   L = left piece

   R = right piece

If a left piece has not yet been created, the existing right piece can be mirrored at any time (🕮 *p. 108*).

You can now execute the selected seam program (🕮 *p. 80*).

5.4.3 Sewing in automatic mode

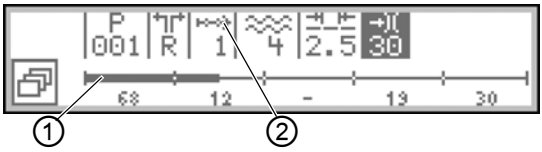
After selecting a seam program between **001** and **999**, you will be in Automatic mode.

To sew in Automatic mode:

1. Select the seam program (🕮 *p. 79*).
2. Press the pedal forward to position **1** and sew.

↳ The display switches to:

Fig. 50: Sewing in automatic mode (1)



(1) - Bar *(2) - Current seam section*

The parameter values for the current seam section are shown in the upper half of the display.

Fig. 51: Sewing in automatic mode (2)

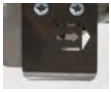
The bottom half of the display shows the progress of the seam program.

The bar shows half the current seam section in bold.
The number (2) under the current seam section (3) shows the outstanding stitches.

Fig. 52: Sewing in automatic mode (3)

The bar is shown fully in bold when the seam section has been completed.

The following table lists the button functions that can be performed in the course of the sewing process.

Button/Pedal	Function
	Open and close the **softkey menu**, 📖 *p. 76*. • To open the softkey menu, press the lower softkey.
◀ / ▶	**Next/previous seam section/return to beginning of seam section**
▲ / ▼	**Correction of the thread tension**
0 – 16	Setting the **ruffling value 0-16** Notice: There are no buttons 11, 13, and 15. In order to, for instance, set the ruffling value 11, press the two adjacent buttons, i.e. button 10 and button 12, at the same time.
OK	**OK** • Press the **OK** to confirm a selection/open the menu
ESC	Exit the menu
F, S	No function assigned
	**Arrow button** • Use the arrow button to switch to the next seam section.
Left button	**Switch maximum stroke on and off (quick stroke adjustment)** 📖 *p. 54* • To switch maximum stroke on/off, press the left button.
Right button	**Tape tensioner for the reinforcement tape** 📖 *p. 44* • To switch the tape tensioner on/off, press the right button.

3. Sew the programmed stitches.

The machine counts down the programmed stitches while sewing and will NOT stop automatically when all stitches have been sewn. The machine keeps sewing for as long as the pedal is kept in the **1** position. The stitches sewn and indicated on the display are preceded by a minus sign.

4. To finish the seam, press the pedal completely backwards to position **-2**.

↳ The machine stops and returns to the beginning of the seam program/to the other side (if the left and the right side are sewn one after the other).

Needle and sewing feet are lifted and remain up as long as the pedal is kept in the **-2** position.

5. Cut the reinforcement tape at the thread-pulling knife (📖 *p. 59*).
6. Remove the sewing material.

5.4.4 Canceling a seam program in automatic mode

To cancel a seam program in automatic mode:

1. Press the pedal fully back to position **-2**.

↳ The machine remembers the spot where sewing was interrupted. The seam program will resume from this position when sewing continues.

2. To cancel the seam program completely, press the pedal completely backwards to position **-2** again.

↳ The seam program is canceled.

5.5 Teaching a new seam program (programming mode)

You can create new seam programs using the (📖 *p. 91*) control panel OR by teaching.

Teaching means to sew the desired seam sections and manually adjust the seam section parameters in the process. The parameters for the seam program can subsequently be adapted.

Information
Every new seam program is based on the preset values that have been assigned at the factory and can only be changed in service mode (📖 *Service Instructions*).

To teach a new seam program:

Assigning a new seam program number

1. To open the softkey menu in automatic/edit/manual mode, press the lower softkey .

↳ The softkey menu appears.

2. To create a new seam program, press the button.

↳ The display switches to:

Fig. 53: Teaching a new seam program (programming mode)(1)

↳ The display shows the next available seam program number.

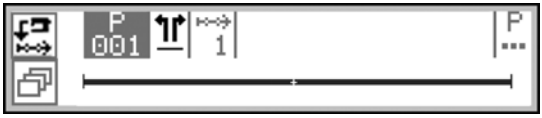
3. Seam program number
   - Confirm with **OK** or
   - Change using ▲/▼ or
   - Re-enter using the numeric buttons 0-9

Information
The machine displays only available seam program slots/accepts only available seam program slots entered numerically.

4. Confirm with **OK**.

↳ The display switches to:

Fig. 54: Teaching a new seam program (programming mode)(2)



↳ The new seam program has been created, but does not yet contain any individual settings.

Defining a sideless/left/right piece

5. Use ▸ to switch to the selection.
6. If the seam program is intended for a left/right piece, set the desired side using ▲/▼.

   L = left piece

   R = right piece

   If you do not change the setting **–**, the machine will create a new seam program for a sideless piece.

Important

Once the seam program has been saved, this setting can no longer be changed.

7. Press the upper softkey **Teach-In**.

↳ The display switches to:

Fig. 55: Teaching a new seam program (programming mode)(3)

Information

The upper softkey has been assigned the function `Count Stitches`. In this example, the stitch count is switched off and, consequently, struck through. When the switch count is switched off, the stitches programmed for each seam section during teaching will no longer be displayed during the sewing of the seam program.

When the stitch count is switched on, the length of the seam section is counted down in stitches.

8. To activate the stitch count, press the upper softkey.

↳ The stitch count is activated and no longer struck through on the display.

Important

If the number of stitches is still not being displayed in automatic mode, activate the stitch count in the softkey menu (🕮 *p. 76*).

Adjusting the parameters on the display

You can adjust the following parameters **for the current seam section** directly on the display:

Symbol	Meaning

	**Ruffling type and ruffling value**
	The ruffling type and the ruffling value are shown on the display.
	Caution: While it cannot be selected, this selection can be changed.
	• To select the **ruffling type**, press the  button.
	  •  : Ruffling top and bottom
	  •  : Ruffling top
	  •  : Ruffling bottom
	• To change the **ruffling value**, press the numeric button/s.

Symbol	Meaning
	Stitch length of the current seam section Value range: 3.0 – 6.0 mm • Use ◀ / ▶ to select the parameter. • Use ▲ / ▼ to change the stitch length.
	Needle thread tension of the current seam section Value range: 1 – 99 • Use ◀ / ▶ to select the parameter. • Use ▲ / ▼ to change the needle thread tension.

9. Use ◀/▶ to switch to the / selection.
10. Use ▲/▼ or the numeric buttons to adjust the value.

Adjusting additional parameters in the seam section menu

You can adjust the following parameters **for the current seam section**:

Symbol	Description
	Stitch counter (*StitchCount*) Enter the desired number of stitches for the seam section • Value: 0000-9999
	Hook thread tension (*Thr.Tens.Bot*) • Setting the hook thread tension
	Maximum speed (*Max Speed*) • Set maximum speed
	Lifting the sewing feet at the end of the seam program (*Foot Lifted*) • Switching sewing foot lifting on/off
	Needle position at the end of the seam program (*Needle Up*) • Set needle up/down
	Edge cutter (*EdgeTrimmer*) • Activate/deactivate the edge cutter

11. Use ◄/► to switch to the  selection.
12. Confirm with **OK**.

↳ The seam section menu appears.

13. Use ▲/▼ to select the desired parameter of the first seam section.
14. Press the **OK** button to activate or deactivate the parameter or use ▲/▼ to edit the value, enter new values using the numeric buttons and confirm the change by pressing **OK**. Use ◄ to exit the submenu.

↳ The changed values are stored immediately.

15. To exit the seam section menu, press the **ESC** button.

↳ The changed values are stored immediately.

16. Insert the sewing material.
17. To sew the 1st seam section up to the desired position, press the pedal forward to position **1**.

Information
If you already entered a number of stitches for this seam section in the seam section menu, the stitches sewn now will be added to this value.

The only way to correct/adjust this new number of stitches is by using the seam section menu.

Setting softkey functions for the current seam section

18. Press the lower softkey to switch a softkey function on or off.

↳ The softkey menu opens.

19. Switch the following softkey functions on and off as needed for the current seam section in the softkey menu:
    - Stitch count (button **1**)
    - Tape tensioner (button **2**)
    - Edge cutter (button **3**)

↳ Every softkey function that is struck through is deactivated.

Adding new seam sections

20. To switch to the 2nd seam section, press the ▲ button.

↳ The 2nd seam section is created automatically.

21. Repeat steps 3-11 for all other seam sections.

Finishing and saving the new seam program

There are **2 ways** to finish and save the new seam program:

22. When all seam sections have been sewn and adjusted, press the pedal fully back to position **-2**.

↳ The settings for the seam sections of the new seam program are stored.
P flashes.

23. Adjust the parameters for the seam program (📖 *p. 99*).

24. Press the **ESC** button.

↳ The settings of the new seam program are stored.
The machine switches to automatic mode, and the newly created seam program is selected and can be sewn right away.

OR

25. As soon as all seam sections have been sewn and adjusted, press the **S** button.

↳ The display switches to:

Fig. 56: Teaching a new seam program (programming mode)(4)

26. Press the pedal fully back to position **-2**.

↳ The new seam program is stored.

Important

There are now 2 different options that vary with the piece that was taught.

- sideless
- left/right piece

↳ **P** flashes if a sideless piece was taught.

27. Adjust the parameters for the seam program (📖 *p. 99*).

↳ If a left/right piece was taught, the display switches to:

Fig. 57: Teaching a new seam program (programming mode)(5)

The following functions are now available:

- Do not mirror the seam program (button **2**):

  While not mirrored now, the seam program can be mirrored later at any time (📖 *p. 108*).

- Mirror the seam program (button **4**):

  The created left/right side is mirrored, allowing you to immediately select and sew the desired side in automatic mode (📖 *p. 79*).

- Teach other side (button **5**):

  After teaching a left/right piece, teach the other piece now.

Important

Teaching the other piece only makes sense if the pieces are not supposed to be exactly mirror-inverted. Otherwise, it makes sense to mirror the left/right piece.

28. Select the desired function.
29. Repeat steps 5-17 if necessary.

Information
The mirrored piece is part of the newly created seam program and does not have its own seam program number.

30. To finish the teach-in, press the **ESC** button.

↳ The newly created seam program is displayed in automatic mode and can be sewn right away (📖 *p. 80*).

5.6 Edit mode

01-XX

Edit mode offers the following functions:

- create a new seam program on the control panel (📖 *p. 91*)
- edit existing seam programs (📖 *p. 99*)
- edit individual seam sections of existing seam programs (📖 *p. 102*)
- Copy seam programs (📖 *p. 105*)
- Delete seam programs (📖 *p. 107*)
- Mirror a seam program (📖 *p. 108*)

5.6.1 Switching to edit mode

To switch to edit mode:

1. Select a seam program in automatic mode (📖 *p. 79*).
2. Press the **P** button.

↳ **P** flashes, indicating that the machine has switched to edit mode.
The selected seam program can now be edited.
The display switches to:

Fig. 58: Switching to edit mode

5.6.2 Creating a new seam program on the control panel

You can create new seam programs using the control panel OR as a teach-in (📖 *p. 83*).

The creation of a seam program on the control panel is performed without sewing. New seam sections can be added and deleted. All parameters for the seam sections and the seam program are programmed manually.

Information
Every new seam program is based on the preset values that have been assigned at the factory and can only be changed at the Technician level (📖 *Service Instructions*).

To create a new seam program using the control panel:

Assigning a new seam program number

1. Switch to edit mode (📖 *p. 90*).
2. To open the softkey menu, press the lower softkey  .

↳ The softkey menu appears.

3. To create a new seam program, press the  button.

↳ The display switches to:

Fig. 59: Creating a new seam program on the control panel (1)

↳ The display shows the next available seam program number.

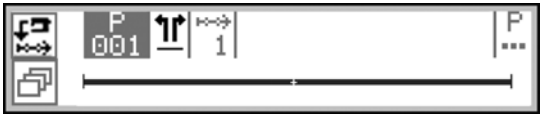
4. Seam program number
   - Confirm with **OK** or
   - Change using ▲/▼ or
   - Re-enter using the numeric buttons 0-9

Information
The machine displays only available seam program slots/accepts only available seam program slots entered numerically.

5. Confirm with **OK**.

↳ The display switches to:

Fig. 60: Creating a new seam program on the control panel (2)



Defining a sideless/left/right piece

Important

Once the seam program has been saved, this setting can no longer be changed.

6. Use ► to switch to the selection.
7. If the seam program is intended for a left/right piece, set the desired side using ▲/▼.

   L = left piece

   R = right piece

   If you do not change the setting -, the machine will create a seam program for a sideless piece.

Adding new seam sections

8. Use ► to switch to the selection.

↳ The display switches to:

Fig. 61: Creating a new seam program on the control panel (3)

9. To add a new seam section, press the upper softkey [+].

↳ The display switches to:

Fig. 62: Creating a new seam program on the control panel (4)

Information

The bar on the display shows all seam sections.
In this case, the seam program consists of a single seam section. The last section with the + sign indicates the option of adding additional seam sections.

One seam program can be composed of up to 30 seam sections.

To duplicate a specific seam section, select the seam section PRECEDING the section to be duplicated and press the upper softkey [+].
To duplicate the 1st seam section, select the 1st seam section and press the upper softkey [+].

10. Next, add new seam sections or adjust the seam program parameters first.

Information

If you wish to create several new seam sections for the new seam program that contain parameters other than the preset parameters, adjust the seam program parameters first before adding new seam sections. As a general rule, the altered seam program parameters only serve as the basis for future seam sections. Existing seam sections must be adjusted individually.

Adjusting the parameters on the display

You can adjust the following parameters **for the entire seam program** directly on the display:

Symbol	Meaning
	**Ruffling type and ruffling value** The ruffling type and the ruffling value are shown on the display. Caution: While it cannot be selected, this selection can be changed. • To select the **ruffling type**, press the  button. •  : Ruffling top and bottom •  : Ruffling top •  : Ruffling bottom • To change the **ruffling value**, press the numeric button/s.
	**Stitch length** Value range: 3.0 – 6.0 mm • Use ◀ / ▶ to select the parameter. • Use ▲ / ▼ to change the stitch length.
	**Needle thread tension** Value range: 1 – 99 • Use ◀ / ▶ to select the parameter. • Use ▲ / ▼ to change the needle thread tension.

11. Use ◀/▶ to switch to the  selection.
12. Use ▲/▼ or the numeric buttons to adjust the value.

Adjusting additional parameters in the seam section menu

You can adjust the following additional parameters **for the current seam section**:

Symbol	Description
	**Stitch counter (*StitchCount*)** Enter the desired number of stitches for the seam section Value: 0000-9999
	**Hook thread tension (*Thr. Tens. Bot*)** Setting the hook thread tension
	**Maximum speed (*Max Speed*)** Set maximum speed
	**Edge cutter (*Edge Trimmer*)** Activate/deactivate the edge cutter

13. Use ◄/► to switch to the  selection.
14. Use ▲/▼ to select the desired seam section.
15. Confirm with **OK**.

↳ The seam section menu appears.

16. Use ▲/▼ to select the desired parameter.
17. Press the **OK** button to activate or deactivate the parameter or use ▲/▼ to edit the value, enter new values using the numeric buttons and confirm the change by pressing **OK**.
    Use ◄ to exit the submenu.

↳ The changed values are stored immediately.

18. To exit the seam section menu, press the **ESC** button.
19. If necessary, repeat steps 12-20 for all other seam sections.

Adjusting parameters in the seam program menu

You can adjust the following parameters **for the entire seam program**:

Symbol	Description
	**Seam program name (*Prog. Name*)** A seam program name can be entered using the numeric buttons: • Use ◄/► to navigate forwards and backwards • Use the **F** button to delete a letter • Use the **OK** button to confirm the entry • Use the **ESC** button to discard the entry
	**Needle thread tension (*Thr. Tens. Top*)** Set needle thread tension Important: The needle thread tension MUST be greater than the hook thread tension!
	**Hook thread tension (*Thr. Tens. Bot*)** Set hook thread tension
	**Stitch length (*Stitchlen.*)** Set stitch length Value: 3-6 mm
	**Ruffling correction (*Ruffl. Corr.*)** Value:
	**Adjusting smooth sewing/stretch value (*Flat Sew*)** Adjust stretch value Value: 0-50 %
	**Stitch condensing at seam beginning (*StitchCond Beg*)** Checkbox selected = function is switched on Checkbox deselected: function is switched off
	**Stitch condensing at seam end (*StitchCond End*)** Checkbox selected = function is activated Checkbox deselected: Function is deactivated

Symbol	Description
	Ruffling support (*Ruffl. Support*) The following additional settings can be activated to support ruffling: • Needle thread tension (*Thr. Tens. Top*) • Hook thread tension (*Thr. Tens. Bot*) • Tape tension (*Tape Tension*) 📖 *p. 110*
	Piece counter (*DailyPieces*) Daily piece counter, can be set to count either up or down. When the daily piece counter is activated, it must be reset once after entering a value using the function in the softkey menu to ensure it counts correctly.

20. Use ◄/► to switch to the P selection.
21. Confirm with **OK**.

↳ The seam program menu opens.

22. Use ▲/▼ to select the desired parameter.
23. Press the **OK** button to activate or deactivate the parameter or use ▲/▼ to edit the value, enter new values using the numeric buttons and confirm the change by pressing **OK**. Use ◄ to exit the submenu.

↳ The changed values are stored immediately.

24. To exit the seam program menu, press the **ESC** button.

↳ The parameters adjusted for the seam program are stored.

25. To add additional seam sections, press the upper softkey [+].

Deleting a new seam section

26. Use ◄/► to switch to the selection.
27. Use ▲/▼ to select the desired seam section.
28. To delete the current seam section, press the lower softkey.

Adjusting the other side *L*/*R*

29. If the seam program is supposed to be created with a left AND a right side, use ◄/► to switch to the selection.
30. Use ▲/▼ to select the other side *L*/*R*.
31. Repeat steps 7-28 as often as necessary.

Saving a new seam program

Once all seam sections are complete:

32. Press the **ESC** button.

↳ The seam program is saved, and the **P** on the display stops flashing.

↳ The machine switches to automatic mode, and the newly created seam program is selected and can be sewn right away.

Fig. 63: Creating a new seam program on the control panel (5)

5.6.3 Editing an existing seam program

Important

The changes described in this chapter apply to the entire seam program rather than the individual seam sections (📖 *p. 102*).

Information

The setting as to whether the seam program is intended for a sideless, a left or a right piece cannot be changed. This setting is adjusted once during the creation of the seam program and cannot be changed at a later time.

To edit an existing seam program:

1. Switch to edit mode (📖 *p. 90*).

Selecting the desired left/right piece

If no sideless, but a left and a right piece have been programmed, select the desired piece.

2. Use ◄/► to switch to the L / R selection.
3. Use ▲/▼ to select the left or the right piece.

   L = left piece

   R = right piece

   The seam program of the selected piece is edited.

Editing parameters in the seam program menu

You can adjust the following parameters **for the entire seam program**:

Symbol	Description
	**Seam program name (*Prog. Name*)** A seam program name can be entered using the numeric buttons: • Use ◄/► to navigate forwards and backwards • Use the **F** button to delete a letter • Use the **OK** button to confirm the entry • Use the **ESC** button to discard the entry
	**Needle thread tension (*Thr. Tens. Top*)** Set needle thread tension Important: The needle thread tension MUST be greater than the hook thread tension!
	**Hook thread tension (*Thr. Tens. Bot*)** Set hook thread tension
	**Stitch length (*Stitchlen.*)** Set stitch length Value: 3-6 mm
	**Ruffling correction (*Ruffl. Corr.*)**
	**Adjusting smooth sewing/stretch value (*Flat Sew*)** Adjust the stretch value Value: 0-50 %
	**Stitch condensing at seam beginning (*StitchCond Beg*)** Checkbox selected = function is switched on Checkbox deselected: function is switched off
	**Stitch condensing at seam end (*StitchCond End*)** Checkbox selected = function is activated Checkbox deselected: Function is deactivated

Symbol	Description
	Ruffling support (*Ruffl. Support*) The following additional settings can be activated to support ruffling: • Needle thread tension (*Thr. Tens. Top*) • Hook thread tension (*Thr. Tens. Bot*) • Tape tension (*Tape Tension*) *p. 110*
	Piece counter (*DailyPieces*) Daily piece counter, can be set to count either up or down. When the daily piece counter is activated, it must be reset once after entering a value using the function in the softkey menu to ensure it counts correctly.

4. Use ◄/► to switch to the selection.
5. Confirm with **OK**.

↳ The seam program menu opens.

6. Use ▲/▼ to select the desired parameter.
7. Press the **OK** button to activate or deactivate the parameter or use ▲/▼ to edit the value, enter new values using the numeric buttons and confirm the change by pressing **OK**. Use ◄ to exit the submenu.

↳ The changed values are stored immediately.

8. To exit the seam program menu, press the **ESC** button.

↳ The parameters adjusted for the seam program are stored.

Adding or deleting seam sections

9. Use ◄/► to switch to the selection.

↳ The display switches to:

Fig. 64: Editing an existing seam program

10. Use ▲/▼ to select the desired seam section.
11. To add additional seam sections, press the upper softkey [+].
12. To delete the current seam section, press the button [X].

Exiting edit mode

13. To exit edit mode, press the **ESC** button.

↳ The seam program is saved.
The machine switches to automatic mode, and the edited seam program is selected and can be sewn right away.

5.6.4 Editing existing sewing sections

The seam sections of existing seam programs can be edited in edit mode at any time.

Important

These changes ONLY apply to the current seam section rather than the entire seam program.

To adjust the current seam section of an existing seam program:

1. Switch to edit mode (📖 *p. 90*).
2. Use ◄/► to switch to the  selection.
3. Use ▲/▼ to select the desired seam section.

Editing the parameters on the display

You can adjust the following parameters for the current seam section directly on the display:

Symbol	Meaning
	**Ruffling type and ruffling value** The ruffling type and the ruffling value are shown on the display. Caution: While it cannot be selected, this selection can be changed. • To select the **ruffling type**, press the  button. •  : Ruffling top and bottom •  : Ruffling top •  : Ruffling bottom • To change the **ruffling value**, press the numeric button/s.
	**stitch length** Value range: 3.0 – 6.0 mm
	**Needle thread tension** Value range: 1 – 99

4. Use ◄/► to switch to the desired selection.
5. Use ▲/▼ or the numeric buttons to enter the desired value.

Editing parameters in the seam section menu

You can edit the following parameters for the current seam section:

Symbol	Description
	**Stitch counter (`StitchCount`)** Enter the desired number of stitches for the seam section • Value: 0000-9999
	**Hook thread tension (`Thr. Tens. Bot`)** Setting the hook thread tension

Symbol	Description
n max	**Maximum speed (*Max Speed*)** • Set maximum speed
	Edge cutter (*Edge Trimmer*) • Activate/deactivate the edge cutter

6. Use ◄/► to switch to the ⇿ selection.
7. Use ▲/▼ to select the seam section you wish to edit.

↳ The selected seam section is shown in bold in the program bar.

8. Confirm with **OK**.

↳ The seam section menu opens.

9. Use ▲/▼ to select the desired parameter.
10. Press the **OK** button to activate or deactivate the parameter or use ▲/▼ to edit the value, enter new values using the numeric buttons and confirm the change by pressing **OK**.
    Use ◄ to exit the submenu.

↳ The changed values are stored immediately.

11. To exit the seam section menu, press the **ESC** button.

↳ The parameters edited for the seam section are stored.

Exiting edit mode

12. To exit edit mode, press the **ESC** button.

↳ The seam program is saved.
The machine switches to automatic mode, and the edited seam program is selected and can be sewn right away.

5.6.5 Copying a seam program

The selected seam program is copied into a new seam program number.

To copy an existing seam program:

1. Select the seam program in automatic mode that you wish to copy (📖 *p. 79*).
2. Press the **P** button.

↳ The display switches to:

Fig. 65: Copying the seam program (1)

↳ **P** flashes.

3. Press the lower softkey .

↳ The softkey menu appears on the display:

Fig. 66: Copying the seam program (2)

4. Press the button.

↳ The display shows the next available seam program number under which the seam program can be stored:

Fig. 67: Copying the seam program (3)

5. Confirm the seam program number with **OK**.

OR

Select another seam program number using ▲/▼ or enter a program number using the numeric buttons **0 – 9** and then press the **OK** button.

↳ The seam program number is adopted.
The display switches to:

Fig. 68: Copying the seam program (4)

↳ **P** flashes.

6. Make the desired changes in the new seam program (📖 *p. 90*).
7. Press the **ESC** button.

↳ The machine switches to automatic mode, and the edited seam program is selected and can be sewn right away.

5.6.6 Deleting a seam program

Existing seam programs can be deleted at any time.
This step does not require particular access rights.

To delete an existing seam program:

1. Select the seam program in automatic mode that you wish to delete (📖 *p. 79*).
2. Press the **P** button.

↳ The display switches to:

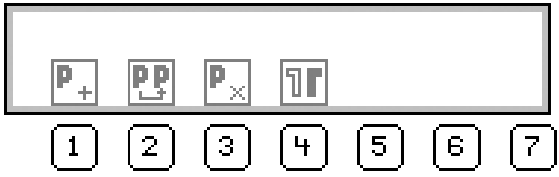
Fig. 69: Deleting a seam program (1)

↳ **P** flashes.

3. Press the lower softkey .

↳ The display switches to the softkey menu:

Fig. 70: Deleting a seam program (2)



4. Press the button.

↳ The seam program has been deleted.
The machine switches to automatic mode, and the next seam program is selected and can be sewn right away.

5.6.7 Mirroring a seam program

The left/right side that has already been programmed is mirrored.

Information
A sideless seam program CANNOT be mirrored.

To mirror a seam program:

1. Select the seam program in automatic mode that you wish to mirror (📖 *p. 79*).
2. Press the **P** button.

↳ The display switches to:

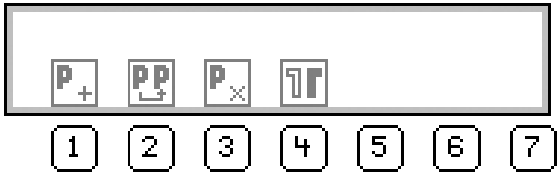
Fig. 71: Mirroring a seam program (1)

↳ **P** flashes.

3. Press the lower softkey.

↳ The softkey menu appears on the display:

Fig. 72: Mirroring a seam program (2)



Information
If the symbol is not displayed, the seam program is sideless and cannot be mirrored.
In this case, you will have to select a different seam program that was created for a left/right piece.

4. Press the button.

   ↳ The seam program has now been created for a left and for a right side.

5. If the left and the right piece are not supposed to be exactly mirror-inverted, edit the desired piece (📖 *p. 90*).

6. Press the **ESC** button.

   ↳ The machine switches to automatic mode, and the mirrored seam program is selected.

   You can now select and sew the desired left/right piece.

Information
The mirrored piece is part of the seam program and does not have its own seam program number.

5.7 Ruffling support

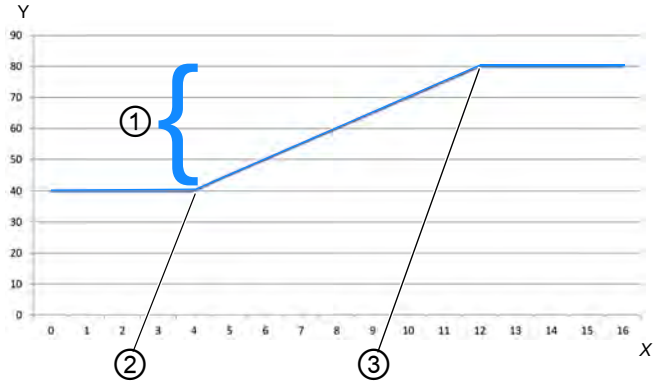
There are 3 additional setting options to support ruffling:

- Adjusting the needle thread tension
- Adjusting the hook thread tension
- Adjusting the tape tension

This ruffling support defines the ruffling value from which the needle/hook thread tension will increase with the ruffling value.

The graphic below shows the preset increase of the needle/hook thread tension (Y axis) with the rising ruffling value (X axis):

Fig. 73: Ruffling support



(1) - Rise of the needle/hook thread tension in percent
(2) - Initial ruffling value 4
(3) - Maximum ruffling value 12

In this example, the needle/hook thread tension remains constant up to a ruffling value of 4 and increases linearly starting with the initial ruffling value of 4 before remaining constant from the maximum ruffling value of 12.

The factory setting of the machine defines that the initial needle/hook thread tension amounts to 40% and will increase by another 40% starting with the initial ruffling value.
Consequently, the needle/hook thread tension has been set up at the factory in such a way that it amounts to a total of 80% starting with the maximum ruffling value.

The needle/hook thread tension cannot exceed the maximum of 100%.

Needle thread tension for ruffling support

The parameter *Ruffling support* (*Ruffl. Support*) offers the option of setting up the needle thread tension more accurately:

Parameter	Setting	Function
Needle thread tension (*Thr. Tens. Top*)	**Mode (*Mode*)**	Set whether the needle thread tension will increase with the ruffling value Value: *linear*/*off*
	Needle thread tension (*Thr. Tens. Top*)	Set the percentage by which the needle thread tension is supposed to rise starting with the initial ruffling value. Factory default settings: Increase by 40%
	Initial ruffling value (*Ruffl. Min.*)	Set the initial ruffling value from which the needle thread tension is supposed to increase linearly. Value: 0-16
	Maximum ruffling value (*Ruffl. Max.*)	Set the maximum ruffling value up to which the needle thread tension is supposed to rise. Value: 0-16

Hook thread tension for ruffling support

The parameter *Ruffling support* (*Ruffl. Support*) offers the option of setting up the hook thread tension more accurately:

Parameter	Setting	Function
Hook thread tension (*Thr. Tens. Bot*)	**Mode (*Mode*)**	Set whether the hook thread tension will increase with the ruffling value Value: *linear*/*off*
	Hook thread tension (*Thr. Tens. Bot*)	Set the percentage by which the hook thread tension is supposed to rise starting with the initial ruffling value. Factory default settings: Increase by 40%

Parameter	Setting	Function
Hook thread tension (*Thr. Tens. Bot*)	**Initial ruffling value (*Ruffl. Min.*)**	Set the initial ruffling value from which the hook thread tension is supposed to increase. Value: 0-16
	Maximum ruffling value (*Ruffl. Max.*)	Set the maximum ruffling value up to which the hook thread tension is supposed to rise linearly. Value: 0-16

Tape tension for ruffling support

The parameter *Ruffling support* (*Ruffl. Support*) offers the option of setting the ruffling value at which the tape tensioner will be switched on automatically (📖 *p. 44*):

Parameter	Setting	Function
Tape tension (*Tape Tension*)	**Mode (*Mode*)**	Set if the tape tensioner will be switched on automatically starting with a specific ruffling value. Value: *Off* / *2. On/Off*
	Initial ruffling value (*Ruffl. Min.*)	Set the ruffling value starting with which the tape tensioner will be switched on automatically. Value: 0-16 Preset: 8

Adjusting ruffling support

To adjust the parameters used for ruffling support:

1. Select the parameter *Ruffling support* (*Ruffl. Support*) in the seam program menu (📖 *p. 91*).
2. Confirm with **OK**.

↳ A submenu appears.

3. Use ▲/▼ to select the desired parameter.
4. Confirm with **OK**.
5. Use ▲/▼ to select the desired setting.
6. Confirm with **OK**.
7. Change the value using the ▲/▼ buttons.
8. To go back one level in the seam program menu, press the ◀ button.

↳ The changed value is stored immediately.

5.8 Smooth sewing - adjusting the stretch value

The process of sewing a seam without ruffling is called smooth sewing.

Depending on the sewing material, setting the ruffling value to **0** may not suffice to achieve smooth sewing. If the seam is not entirely smooth despite a ruffling value of **0**, you can adjust the stretch value in manual mode and in edit mode.

To adjust the stretch value:

1. Select the parameter *Flat Sew* in the seam program menu (📖 *p. 91*).
2. Confirm with **OK**.
3. Change the value using the ▲/▼ buttons.

   The desired stretch value can range between 0-50 %.
4. Test with the desired sewing material whether the altered stretch value is sufficient for smooth sewing.
5. Adjust the stretch value again if necessary.

5.9 Service mode

5.9.1 Opening the *User configuration* menu

To open the *User configuration* menu:

1. Press the **P** and **S** buttons.
2. Enter the password required for service mode: **25483**.
3. Confirm with **OK**.

↳ The machine switches to service mode: a menu opens.

4. Select the parameter *User configuration (User config.)* using ▲/▼.
5. Confirm with **OK**.

↳ The *User configuration* menu opens.

5.9.2 Setting the language

To set the desired language:

1. Open the *User configuration* menu (📖 *p. 114*).
2. Use ▲/▼ to select the *Language* parameter.
3. Confirm with **OK**.

↳ The language submenu opens.

4. Confirm with **OK**.
5. Change the desired language using the ▲/▼ buttons.
6. To go back one level in the menu, press the ◄ button.

↳ The changed value is stored immediately.

Language	Value on the display	Designation on the display
English	**0** and **7**	Language
German	**1**	Language
French	**2**	Langue

Language	Value on the display	Designation on the display
Czech	**3**	Jazyk
Slovenian	**4**	Jezik
Polish	**5**	Jezyk
Italian	**6**	Lingua

Information
More information on the contents available in service mode can be found in the 🕮 *Service Instructions*.

5.9.3 Switching the signal tone during a seam section change on/off

The factory setting is for the machine to sound a signal tone every time the seam section changes. The signal tone can be switched on and off as needed.

To switch the signal tone on/off:

1. Open the `User configuration` menu (🕮 *p. 114*).
2. Use ▲/▼ to select the parameter `Signal tone` (`Forward Sound`).
3. Confirm with **OK**.

↳ The submenu opens.

4. Confirm with **OK**.
5. Change the desired value using the ▲/▼ buttons.
   - **0** = the signal tone does not sound during a seam section change
   - **1** = the signal tone sounds during a seam section change
6. To go back one level in the menu, press the ◄ button.

↳ The changed value is stored immediately.

5.9.4 Switching automatic progression left/right side on/off

The machine has been set up at the factory such that a seam program with program steps for a left and a right side will automatically switch to the other side once the first side has been sewn. The sides can be sewn immediately one after the other without the need to adjust the seam program.

This automatic progression can be switched on and off as needed.

To switch the automatic progression on/off:

1. Open the *User configuration* menu (📖 *p. 114*).
2. Use ▲/▼ to select the parameter *Automatic Forwarding Side* (*AutoForwSide*).
3. Confirm with **OK**.

↳ The submenu opens.

4. Confirm with **OK**.
5. Change the desired value using the ▲/▼ buttons.
   - **0** = Automatic progression is switched off
   - **1** = Automatic progression is switched on
6. To exit service mode, press the **ESC** button.

↳ The changed value is stored immediately.

5.9.5 Setting seam program cancellation using the pedal

The machine has been set up at the factory in such a way that a seam program can be canceled during sewing by pressing the pedal in automatic mode. To this end, press the pedal to position **-2** twice (📖 *p. 82*).

This function can be switched off. In this case, a seam program can no longer be canceled with a press of the pedal. Only when a seam program has been sewn completely can a new seam program be started or automatic mode be exited.

To set seam program cancellation with a press of the pedal:

1. Open the `User configuration` menu (📖 *p. 114*).
2. Use ▲/▼ to select the `Pedal Abort` parameter.
3. Confirm with **OK**.

↳ The submenu opens.

4. Confirm with **OK**.
5. Change the desired value using the ▲/▼ buttons.
   - **0** = Seam program cancellation via the pedal is switched off
   - **1** = Seam program cancellation via the pedal is switched on
6. To exit service mode, press the **ESC** button.

↳ The changed value is stored immediately.

5.9.6 Assigning a function to the knee button

Fig. 74: Assigning a function to the knee button

(1) - Toggle switch *(2) - Knee button*

The position of the toggle switch (1) indicates whether the function is switched on or off.

0 = function is switched off

1 = function is switched on

The function assigned to the knee button (2) at the factory is **Set selected ruffling value to 0 and vice versa**.

To assign a function to the knee button:

1. Open the `User configuration` menu (📖 *p. 114*).
2. Use ▲/▼ to select the `Knee` parameter.
3. Confirm with **OK**.

↳ The submenu opens.

4. Confirm with **OK**.
5. Select the desired function using the ▲/▼ buttons.

Function of the knee button

Menu entry	Function
No ~	Set ruffling value to **0** and vice versa (Manual mode)
Stroke	Quick stroke adjustment: Switching maximum stroke on and off
Segment	Seam section change: • go forward by one seam section each • go forward no further than the last seam section within the seam program • To end the seam program and return to the beginning of the seam program, press the pedal to the **-2** position. (Automatic mode)
Seg. Beg	Seam section change: • go forward by one seam section each • after the last seam section, go forward to the 1st seam section of the same seam program

6. To exit service mode, press the **ESC** button.

↳ The changed value is stored immediately.

5.9.7 Setting the brightness of the display

You can adjust the brightness of the display on the **OP3000** control panel as needed.

To adjust the brightness of the display:

1. Open the *User configuration* menu (📖 *p. 114*).
2. Use ▲/▼ to select the *Brightness* parameter.
3. Confirm with **OK**.
4. Change the value using the ▲/▼ buttons.
5. Confirm with **OK**.
6. To exit service mode, press the **ESC** button.

↳ The changed value is stored immediately.

5.9.8 Setting the contrast of the display

You can adjust the contrast of the display on the **OP3000** control panel as needed.

To adjust the contrast of the display:

1. Open the *User configuration* menu (📖 *p. 114*).
2. Use ▲/▼ to select the *Contrast* parameter.
3. Confirm with **OK**.
4. Change the value using the ▲/▼ buttons.
5. Confirm with **OK**.
6. To exit service mode, press the **ESC** button.

↳ The changed value is stored immediately.

5.9.9 Activating/deactivating the tilt sensor

WARNING

Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

Only qualified specialists may deactivate the tilt sensor.

Do not deactivate the tilt sensor unless for good reason and re-activate it as soon as possible.

Exercise special caution when working on the machine with the tilt sensor deactivated

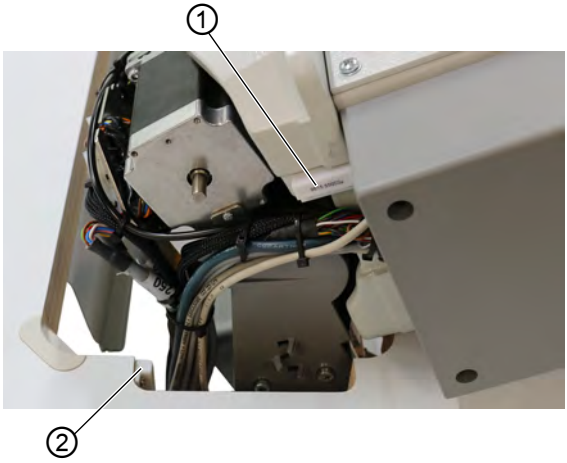
Do not press the pedal while the machine head is tilted back.

The tilt sensor serves as a safety device. It senses when the machine head is tilted and subsequently locks the machine. Sewing is not possible during this time. This feature prevents the pedal from being actuated inadvertently while the machine head is tilted back, e.g. for maintenance and repairs.

Fig. 75: Activating/deactivating the tilt sensor (1)

The tilt sensor is composed of 2 parts.

Fig. 76: Activating/deactivating the tilt sensor (2)



(1) - Tilt sensor (1st part) *(2) - Tilt sensor (2nd part)*

The 1st part is assembled to the machine head.

The 2nd part is screwed to the interior of the tabletop cutout.

Both parts can only be accessed with the machine head tilted back.

To activate/deactivate the tilt sensor:

1. Press the **P** and **S** buttons.
2. Enter the password required for service mode: **25483**.
3. Confirm with **OK**.

↳ The service menu opens.

4. Use ▲/▼ to select the parameter *Machine configuration* (*Machine config.*).
5. Confirm with **OK**.
6. Use ▲/▼ to select the *Other Devices* parameter.
7. Confirm with **OK**.
8. Use ▲/▼ to select *Tilt Sensor*.
9. Confirm with **OK**.

Important

The tilt sensor may only be deactivated in exceptional cases, only for a brief time and only by qualified specialists.

10. Use ▲/▼ to change the setting to *On*/*Off*.
11. Confirm with **OK**.

↳ The tilt sensor is activated/deactivated.

12. To exit service mode, press the **ESC** button.

5.10 Displaying the software version

To display the software version:

1. Switch on the machine.

↳ The start screen appears on the display:

- On the left, the firmware of the **OP3000** control panel
- On the right, the control software version

↳ The machine performs a reference run:
The display shows the seam program last used, or the manual mode.

5.11 Performing a software update

To perform a software update:

1. Download the latest software version from Duerkopp Adler's website (https://software.duerkopp-adler.com/maschinenprogramme.html).
2. Save the file to a USB key.

Fig. 77: Performing a software update

(1) - POWER LED
(2) - USB port
(3) - Main switch

3. Switch on the machine at the main switch (3) (📖 *p. 20*).

↳ The machine is ready for operation when only the POWER LED (1) is lit.

4. Insert the USB key into the USB port (2).

↳ The software update starts. The LEDs on the control light up in alternating fashion.
The update is complete when only the POWER LED (1) is lit after a few minutes.

↳ The machine is ready for sewing.

Information
Before disconnecting the USB key from the control, switch off the machine at the main switch (3).

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)*.

6.1 Maintenance intervals

Work to be carried out	Operating hours			
	8	40	160	500
Machine head				
Removing lint and thread remnants	●			
Clean the area under the throat plate	●			
Check oil level at machine head	●			
Check oil level at hook drive housing		●		
Pneumatic system				
Check the operating pressure	●			
Check the water level in the pressure controller	●			
Clean the filter element in the compressed air maintenance unit				●
Check the tightness of the system				●

6.2 Cleaning

WARNING

Risk of injury from flying particles!

Flying particles can enter the eyes, causing injury.

Wear safety goggles.

Hold the compressed air gun so that the particles do not fly close to people.

Make sure no particles fly into the oil pan.

NOTICE

Property damage from soiling!

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

Clean the machine as described.

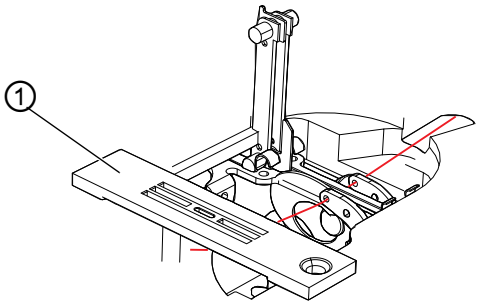
NOTICE

Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

Fig. 78: Cleaning



(1) - Throat plate

To clean the machine:

1. Remove any lint and thread remnants using a compressed air gun or a brush, particularly from the area of the throat plate (1) and the thread channel.
2. Remove sewing dust and cutting waste from the oil pan.

6.3 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 must be lubricated at regular intervals (📖 *p. 126*). Complete the following steps when lubricating the machine:

- Checking the oil level
- Lubricating the machine head
- Lubricating the hook

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

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

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

.

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

6.3.1 Checking the lubrication of the machine head

NOTICE

Property damage from incorrect oil level!

Too little or too much oil can cause damage the machine.

Top off oil as described.

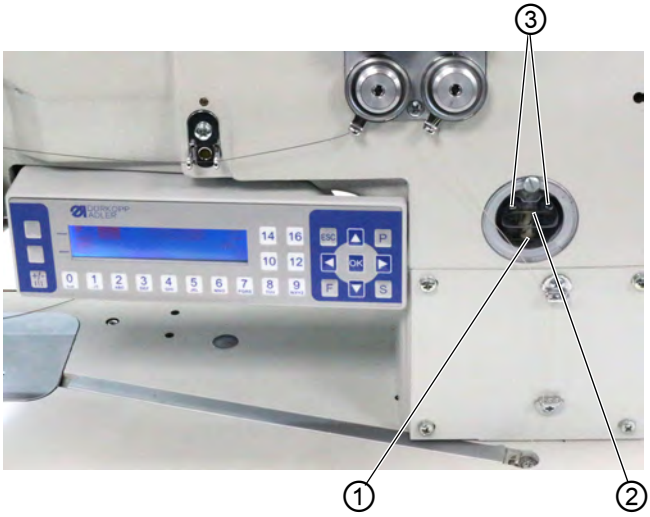
NOTICE

Property damage from incorrect oil!

Incorrect oil types can result in damage to the machine.

Use only oil that corresponds to the following specifications.

Fig. 79: Checking the lubrication of the machine head



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

Checking the oil level

Proper setting

The oil level must always be between the minimum level marking (1) and the maximum level marking (2) at the inspection glass.

Topping off the oil reservoir

To top off the oil reservoir:

1. Fill oil through the filler hole (3) to a maximum of 2 mm below the maximum level marking (2).

6.3.2 Checking the hook lubrication

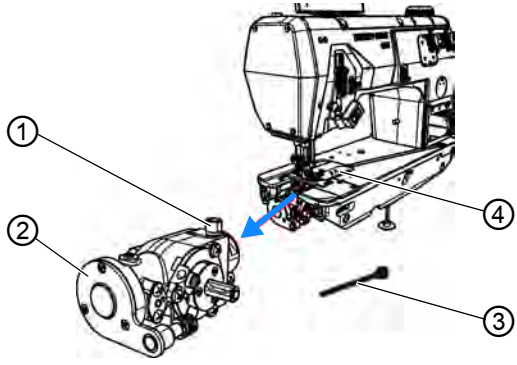
NOTICE

Property damage from incorrect oil level!

Too little or too much oil can cause damage the machine.

Top off oil as described.

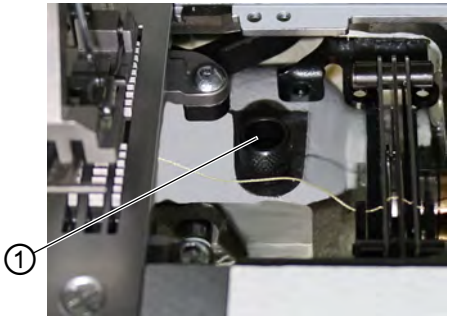
Fig. 80: Checking the hook lubrication (1)



(1) - Screw plug
(2) - Hook drive housing
(3) - Dipstick
(4) - Right hook cover

Hook drive housing (2) and screw plug (1) can be accessed under the right hook cover (4).

Fig. 81: Checking the hook lubrication (2)



(1) - Screw plug

Checking the oil level

To measure the oil level, you will need the dipstick (3) included in the accessory pack.

To check the oil level:

1. Keep the dipstick (3) ready.
2. Open the right hook cover.
3. Loosen the screw plug (1) on the filler opening.
4. Insert the dipstick (3) into the hook drive housing (2).
5. After a few seconds, pull the dipstick (3) out of the hook drive housing (2).

Fig. 82: Checking the hook lubrication (3)

(5) - Minimum level marking

(6) - Maximum level marking

6. Check if the oil level is between the minimum level marking (4) and the maximum level marking (5).
7. Tighten the screw plug (1) if the oil level is sufficient.
8. Top off the oil if the oil level is low.

Topping off the oil

To top off the oil in the hook drive housing:

1. Loosen the screw plug (1) on the filler opening.

Important

Only top off the oil a little at a time. When finished, check the oil level. If necessary, repeat these 2 steps several times until the oil level is just below the maximum level marking (5) of the dipstick (3). There must not be too much oil in the hook drive housing.

2. Carefully refill oil through the filler opening no higher than the maximum level marking (5) of the dipstick (3).
3. Check the oil level again.
4. If necessary, repeat step 2 and 3 until the oil level is just below the maximum level marking (5) of the dipstick (3).
5. Tighten the screw plug (1).

6.4 Servicing the pneumatic system

6.4.1 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

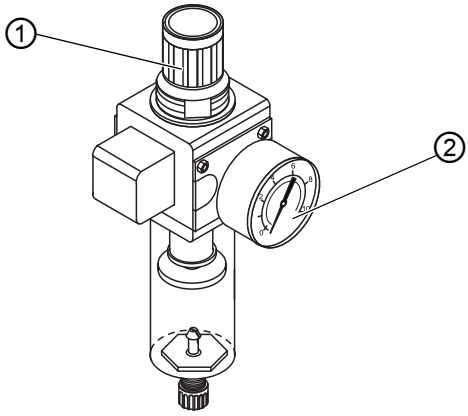
Ensure that the machine is only used when the operating pressure is set correctly.

Proper setting

Refer to the **Technical data** (📖 *p. 183*) 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. 83: Setting the operating pressure



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

To set the operating pressure:

1. Pull the pressure controller (1) up.

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

6.4.2 Draining the water condensation

NOTICE

Property damage from excess water!

Excess water can cause damage to the machine.

Drain water as required.

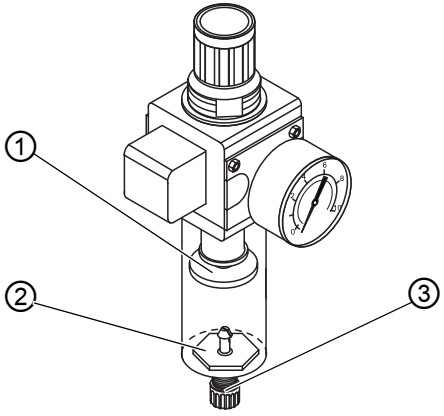
Water condensation accumulates in the water separator (2) of the pressure controller.

Proper setting

Water condensation must not rise up to the level of the filter element (1).

Check the water level in the water separator (2) on a daily basis.

Fig. 84: Draining the water condensation



(1) - Filter element
(2) - Water separator
(3) - Drain screw

To drain water condensation:

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 water to drain into the collection tray.
5. Tighten the drain screw (3).
6. Connect the machine to the compressed air supply.

6.4.3 Cleaning the filter element

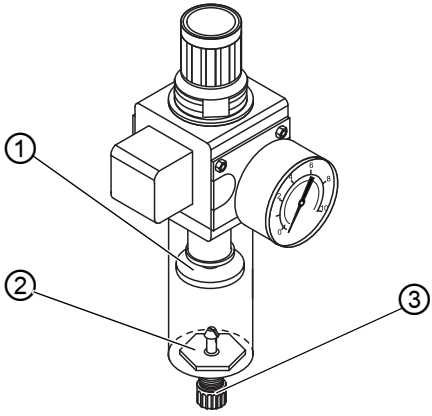
NOTICE

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. 85: Cleaning the filter element



(1) - Filter element
(2) - Water separator
(3) - Drain screw

To clean the filter element:

1. Disconnect the machine from the compressed air supply.
2. Drain the water condensation (📖 *p. 135*).
3. Loosen the water separator (2).
4. Loosen the filter element (1).
5. Blow out the filter element (1) using the compressed air gun.
6. Wash out the filter tray using benzine.
7. Tighten the filter element (1).
8. Tighten the water separator (2).
9. Tighten the drain screw (3).
10. Connect the machine to the compressed air supply.

6.5 Parts list

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

www.duerkopp-adler.com

7 Setup

WARNING

Risk of injury from cutting parts!

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

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

WARNING

Risk of injury from moving parts!

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

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

7.1 Checking the scope of delivery

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

7.2 Removing the transport locks

Remove all transport locks before setting up the machine:

- Lashing straps and wooden blocks from the machine head
- If applicable, safety clips on the stand feet
- All pieces of Styrofoam and cardboard
- If applicable, lashing straps and wooden blocks from the table-top and the stand

7.3 Assembling the reel stand

A fully assembled reel stand is included and must be assembled to the tabletop.

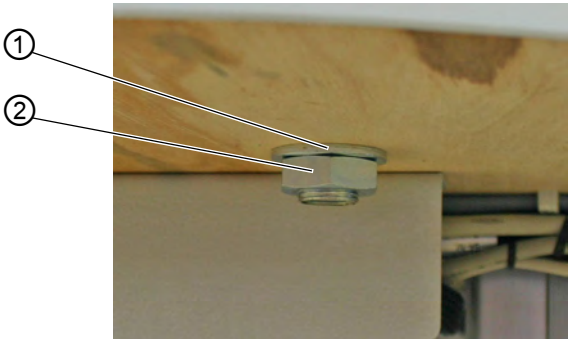
Fig. 86: Assembling the reel stand (1)

(1) - Washer
(2) - Nut
(3) - Reel stand tube

To assemble the reel stand:

1. Place a washer (1) onto the hole in the tabletop.
2. Screw in a nut (2) until you reach the end of the thread.
3. Insert the reel stand tube (3) through the washer (1) and into the hole in the tabletop.

Fig. 87: Assembling the reel stand (2)



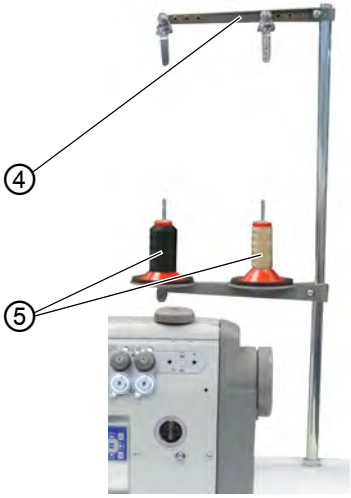
(1) - Washer *(2) - Nut*

4. Slide the 2nd washer (1) from the bottom onto the thread at the end of the reel stand tube (3).
5. Screw the 2nd nut (2) from the bottom onto the thread at the end of the reel stand tube (3).

↳ The reel stand is now securely assembled to the tabletop.

Important
The unwinding bracket (4) must stand directly above the thread reels (5).

Fig. 88: Assembling the reel stand (3)



(4) - Unwinding bracket *(5) - Thread reel*

7.4 Setting the working height

WARNING

Risk of injury from moving parts!

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

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

CAUTION

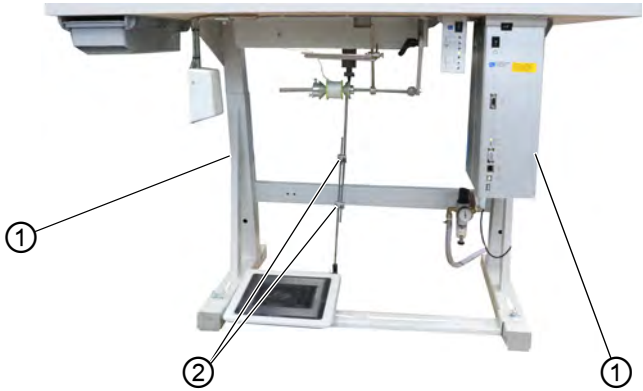
Risk of musculoskeletal damage from incorrect setting!

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

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

The working height can be adjusted between 750 mm and 950 mm (measured to the upper edge of the tabletop).

Fig. 89: Setting the working height



(1) - Screw (not visible) *(2) - Screw*

To set the working height:

1. Loosen the 2 screws (2) on the pedal rod.
2. Loosen the screw (1) on both bars of the stand.

   We recommend to seek the assistance of a 2nd person to complete this step.
3. To avoid jamming, slide the tabletop in or out evenly at both sides.

   The scales on the outer sides of the stand bars serve as an adjustment aid.
4. Tighten the screw (1) on both bars of the stand.
5. Ensure that the setting of the pedal rod matches the new working height.
6. Tighten both screws (2) on the pedal rod.
7. Set the pedal again (📖 *p. 144*).

7.5 Setting the pedal

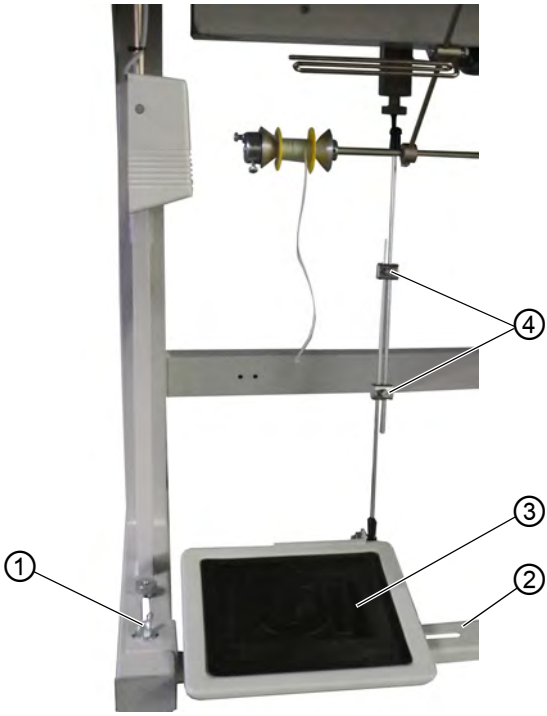
CAUTION

Risk of injury!

Crushing possible.

Take care not to crush your fingers at the pedal rod or the pedal.

Fig. 90: Setting the pedal



(1) - Wing nut
(2) - Cross strut
(3) - Pedal
(4) - Screw

Proper setting: 10° inclination with pedal (3) released

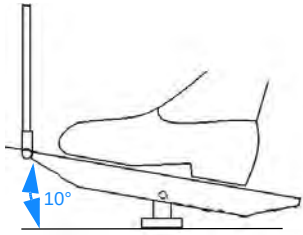
The pedal (3) is assembled to the cross strut (2). You can adjust the position of the pedal (3) as needed by moving it using the cross strut.

The pedal (3) must also be tilted to a degree that allows the operator to move the pedal forward and backward without a problem.

To set the position of the pedal:

1. Loosen the wing nuts (1) on the left and the right of the cross strut ends (2).
2. Slide the cross strut (2) that holds the pedal (3) forward or backward.
3. Tighten the wing nuts (1) on the left and the right of the cross strut ends (2).
4. Slightly loosen the 2 screws (4) on the pedal rod.

Fig. 91: Setting the pedal (2)



5. Pull the pedal rod to the correct length.

↳ When in the rest position, the pedal (3) must be bent 10° at the front.

6. Tighten the 2 screws (4) on the pedal rod.

7.6 Inserting the machine head

WARNING

Risk of crushing from moving parts.

The machine head is very heavy.
Crushing possible.

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

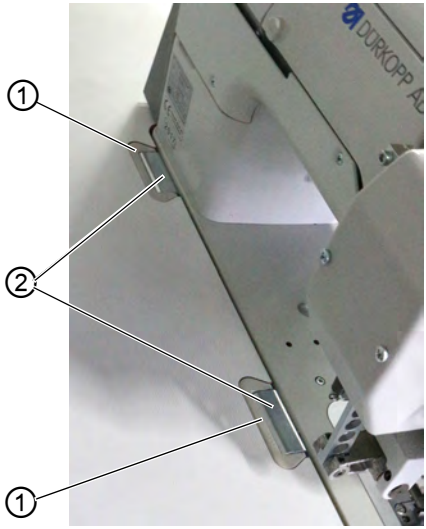
NOTICE

Property damage may occur!

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

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

Fig. 92: Inserting the machine head



(1) - Lower hinge part *(2) - Hinge*

To insert the machine head (2):

1. Guide the cables through the tabletop with great care so as not to kink or pinch them.
2. Insert the machine head vertically into the tabletop cutout.
3. Insert the hinges (2) into the lower hinge parts (1).

7.7 Tilting and erecting the machine head

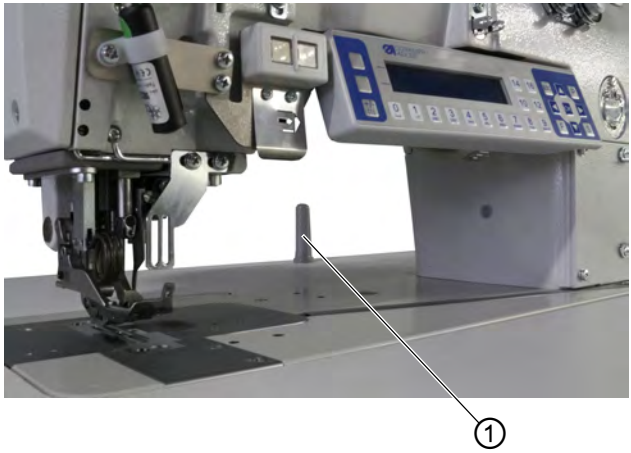
WARNING

Risk of injury from electricity!
Parts of the machine may be energized.

Switch off the machine and disconnect the power plug.

You can tilt the machine head for maintenance work.

Fig. 93: Tilting and erecting the machine head



(1) - Tilt protection device

Tilting the machine head

To tilt the machine head:

1. Grab the machine head at the top on the machine arm and carefully lower it down to the tilt protection device (1).

The tilt sensor locks the machine for as long as the machine head is tilted. Sewing is not possible during this time.

Erecting the machine head

To erect the machine head:

1. Grab the machine at the machine arm and erect it carefully.

↳ The tilt sensor detects the erected position and unlocks the machine. The machine is ready to sew again.

Information

The tilt sensor is composed of the tilt sensor found on the machine head and a permanent magnet housed inside the tabletop cutout. Both parts have been pre-assembled at the factory.

The machine remains locked if the tilt sensor is not fully assembled or defective.

While the tilt sensor can be deactivated on the **OP3000**, deactivation is not recommended (📖 *p. 120*).

7.8 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.

7.9 Establishing equipotential bonding

Important

Before putting the machine into operation, establish equipotential bonding.

To establish equipotential bonding:

1. Establish equipotential bonding as specified in the wiring diagram (📖 *p. 187*).

7.10 Pneumatic connection

NOTICE

Property damage from oily compressed air!

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

Ensure that no oil particles enter the compressed air supply.

NOTICE

Property damage from incorrect setting!

Incorrect system pressure can result in damage to the machine.

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

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

7.10.1 Assembling the compressed air maintenance unit

To assemble the compressed air maintenance unit:

1. Connect the connection hose to the compressed air supply using a hose coupling R 1/4”.

7.10.2 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

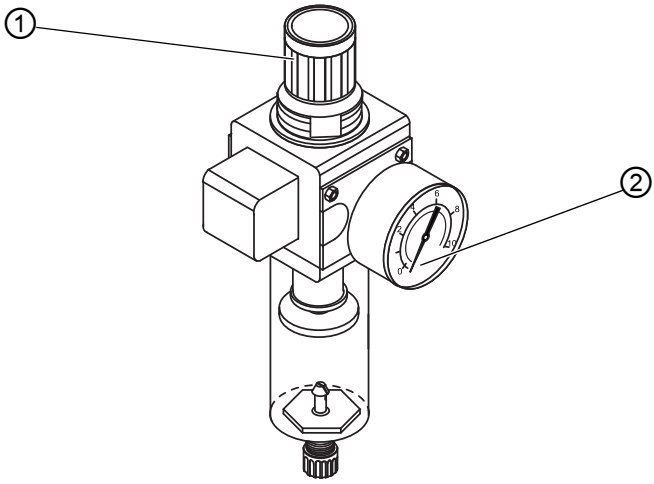
Incorrect operating pressure can result in damage to the machine.

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

Proper setting

Refer to the **Technical data** (📖 *p. 183*) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Fig. 94: Setting the operating pressure



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

To set the operating pressure:

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

7.11 Lubricating

Required oil:

CAUTION

Risk of environmental damage from oil!

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

Collect waste oil carefully and dispose of it and oily machine parts in accordance with the applicable statutory regulations.

NOTICE

Machine damage possible due to incorrect oil!

An incorrect oil type can cause damage to the machine.

Only use oil specified in the operating instructions.

NOTICE

Property damage from incorrect oil level!

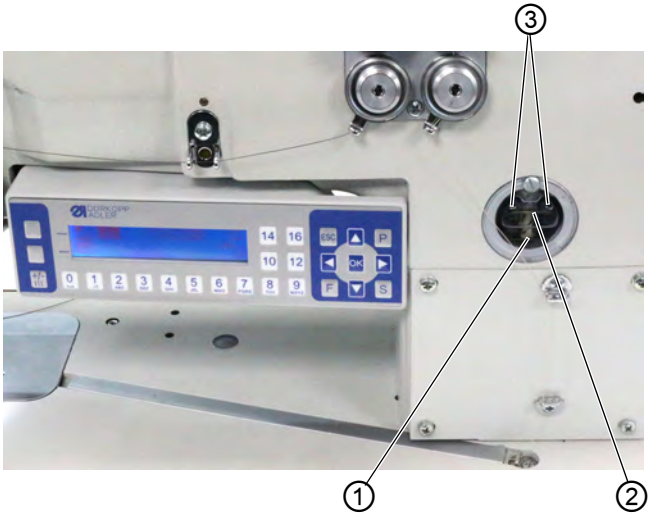
Too little or too much oil can cause damage the machine.

Top off oil as described.

Only DA 10 or equivalent oil should be used for the machine, which has the following properties:

- Viscosity at 40 °C: 10 mm²/s
- Flash point: 150 °C

Fig. 95: Lubricating



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

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.

Checking the oil level

Proper setting

The oil level must always be between the minimum level marking (1) and the maximum level marking (2).

Topping off the oil reservoir

To top off the oil reservoir:

1. Fill oil through the filler hole (3) to a maximum of 2 mm below the maximum level marking (2).

7.12 Performing a test run

WARNING

Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

Switch off the machine before you replace the needle, insert the thread, and adjust the needle/ hook thread tension and the thread regulator.

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

Adjust the machine to the sewing material requirements.

To perform a test run:

1. Insert needle (📖 *p. 22*).
2. Thread hook thread (📖 *p. 27*).
3. Thread needle thread (📖 *p. 24*).
4. Set the thread tension to the sewing material being sewn (📖 *p. 36*).
5. Set the needle thread regulator to the sewing material being sewn (📖 *p. 37*).
6. Set the sewing foot pressure to the sewing material being sewn (📖 *p. 50*).
7. Set the sewing foot stroke to the sewing material being sewn (📖 *p. 49*).
8. Set stitch length (📖 *p. 57*).
9. Switch on the machine (📖 *p. 20*).
10. Start a sewing test with the appropriate sewing material and at a low speed.

    Gradually increase the speed until the working speed is reached.

8 Decommissioning

WARNING

Risk of injury from a lack of care!

Serious injuries may occur.

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

CAUTION

Risk of injury from contact with oil!

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

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

To decommission the machine:

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

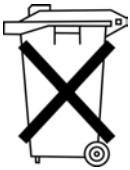
9 Disposal

CAUTION

Risk of environmental damage from improper disposal!

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

ALWAYS comply with the national regulations regarding disposal.



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

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

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

10 Troubleshooting

10.1 Customer Service

Contact for repairs and issues with the machine:

Dürkopp Adler GmbH

Potsdamer Str. 190
33719 Bielefeld, Germany

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

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

Messages of the software

Code	Type	Possible causes	Remedial action
1000	Error	Sewing motor error: • Encoder plug (Sub-D, 9-pin) not connected or defective • Encoder defective	• Check the connection of the encoder cable and replace, if necessary

Code	Type	Possible causes	Remedial action
1001	Error	Sewing motor error: • Sewing motor plug not connected or defective	• Check the connection of the sewing motor cable • Test sewing motor phases (R = 2.8Ω, high impedance to PE) • Replace encoder • Replace sewing motor • Replace control
1002	Error	Sewing motor insulation fault	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace sewing motor
1004	Error	Sewing motor error: • Incorrect direction of rotation	• Replace encoder • Check plug assignment and change, if necessary • Check wiring in machine distributor and change it, if necessary • Test motor phases and check for correct value
1005	Error	Sewing motor current error: • Sewing motor blocked • Encoder cable not connected or defective • Encoder defective	• Remove blockage • Check the encoder cable and replace, if necessary • Replace sewing motor
1006	Error	Sewing motor error: • Max. speed exceeded • Sewing motor cable defective • Sewing motor defective	• Switch off and on the machine • Replace encoder • Perform reset • Replace sewing motor • Contact customer service
1007	Error	Error in the reference run	• Replace encoder • Eliminate stiff movement in the sewing machine
1008	Error	Fault in sewing motor encoder	• Replace encoder

Code	Type	Possible causes	Remedial action
1010	Error	Sewing motor synchronization error: • External synchronizer plug (Sub-D, 9-pin) not connected	• Connect plug of external synchronizer to control, use correct connection (Sync) • Replace the reference switch or synchronizer • Only required for machines with transmission!
1011	Error	Sewing motor synchronization error (Z pulse)	• Switch off the control, use handwheel to turn and switch on the control again • If error is not corrected, check encoder
1012	Error	Sewing motor synchronization error	• Replace the synchronizer
1051	Error	Sewing motor timeout: • Cable to sewing motor Reference switch defective • Reference switch defective	• Replace cable • Replace reference switch
1052	Error	Sewing motor overcurrent: • Sewing motor cable defective • Sewing motor defective • Control defective	• Replace sewing motor cable • Replace sewing motor • Replace control
1053	Error	Sewing motor overvoltage	• Check the mains voltage
1054	Error	Internal short circuit	• Replace control
1055	Error	Sewing motor overload (I^2T): • Sewing motor is sluggish or is blocked • Sewing motor defective • Control defective	• Remove the cause of the stiff movement or blockage • Replace sewing motor • Replace control

Code	Type	Possible causes	Remedial action
1056	Error	Sewing motor overtemperature: • Sewing motor not moving freely • Sewing motor defective • Control defective	• Eliminate sluggishness • Replace sewing motor • Replace control
1058	Error	Sewing motor speed greater than setpoint: • Reference switch defective • Sewing motor defective	• Replace reference switch • Replace sewing motor
1060	Error	PowerParts	• Replace control
1061	Error	Sewing motor disturbance: • Encoder defective • Sewing motor defective	• Switch off and on the machine • Replace encoder • Replace sewing motor • Contact customer service
1062	Error	Sewing motor disturbance (IDMA auto increment)	• Switch off and on the machine
1120	Error	Software error: • Parameter not initialized	• Perform a software update
1203	Information	Sewing motor: Position not reached	• Switch off and on the machine • Perform a software update • Contact Customer Service
1302	Error	Sewing motor current error: • Sewing motor blocked • Encoder cable not connected or defective • Encoder defective	• Remove the blockage • Check the encoder cable and replace, if necessary • Replace sewing motor

Code	Type	Possible causes	Remedial action
1330	Error	No answer from sewing motor	• Switch off and on the machine • Perform a software update • Contact Customer Service
2102	Error	X-axis stepper motor: • Stepper motor not moving freely or blocked • Encoder cable not connected or defective • Stepper motor cable is not connected or faulty • Encoder defective • Stepper motor faulty	• Remove the cause of the stiff movement or blockage • Check the encoder cable and replace, if necessary • Replace encoder If the stepper motor is not supplied with current: • Check the stepper motor cable and replace, if necessary • Replace step motor
2103	Error	X-axis stepper motor step losses: • Stiff mechanical movement or blockage	• Remove the cause of the stiff mechanical movement or blockage
2121	Error	X-axis stepper motor: • Encoder plug (Sub-D, 9-pin) not connected or defective • Encoder defective	• Check the connection of the encoder cable and replace, if necessary
2122	Information	Pulse-wheel search time out	• Check connection cables • Check stepper motor for stiff movement
2130	Error	X-axis stepper motor not responding	• Perform a software update • Replace control
2152	Error	X-axis stepper motor overcurrent	• Replace step motor
2153	Error	Overvoltage	• Check the mains voltage

Code	Type	Possible causes	Remedial action
2155	Error	X-axis stepper motor overload (I^2T): • Stepper motor not moving freely or blocked • Stepper motor faulty • Control defective	• Remove the blockage or the cause of the stiff movement • Replace step motor • Replace control
2156	Error	X-axis stepper motor: • Stepper motor sluggish • Stepper motor faulty • Control defective	• Eliminate sluggishness • Replace step motor • Replace control
2162	Error	X-axis stepper motor disturbance (IDMA auto increment)	• Switch off and on the machine
2171	Error	Watchdog	• Switch off and on the machine • Perform a software update • Contact Customer Service
2172	Error	Stepper motor overvoltage: • Stepper motor card defective	• Replace control
2173	Error	X-axis stepper motor error	• Check the connection • Test stepper motor phases (R = 2.8 Ω, high impedance to PE) • Replace encoder • Replace step motor • Replace control
2174	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2175	Error	Magnet wheel search	• Check the connection • Test stepper motor phases (R = 2.8 Ω, high impedance to PE) • Replace encoder • Replace step motor • Replace control

Code	Type	Possible causes	Remedial action
2177	Error	Stepper motor overload (I^2T)	• Remove the cause of the stiff movement or blockage • Replace step motor • Replace control
2178	Error	Encoder error	• Check the connection of the encoder cable and replace, if necessary • Replace control
2179	Error	Current sensor: • Stepper motor card defective • Control defective	• Replace control
2180	Error	Direction of rotation	• Replace encoder • Check plug assignment and change, if necessary • Check wiring in machine distributor and change it, if necessary • Test stepper motor phases and check for correct value
2181	Error	Error in the reference run	• Replace reference switch
2182	Error	Stepper motor current error	• Remove blockage • Check the encoder cable and replace, if necessary • Replace step motor
2183	Error	Stepper motor overcurrent	• Replace sewing motor cable • Replace step motor • Replace control
2184	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2185	Error	Stepper motor insulation error	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace step motor

Code	Type	Possible causes	Remedial action
2186	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2187	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2188	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2202	Error	Y-axis stepper motor: • Stepper motor not moving freely or blocked • Encoder cable not connected or defective • Stepper motor cable is not connected or faulty • Encoder defective • Stepper motor faulty	• Remove the cause of the stiff movement or blockage • Check the encoder cable and replace, if necessary • Replace encoder If the stepper motor is not supplied with current: • Check the stepper motor cable and replace, if necessary • Replace step motor
2203	Error	Y-axis stepper motor step losses: • Stiff mechanical movement or blockage	• Remove the cause of the stiff mechanical movement or blockage
2221	Error	Y-axis stepper motor: • Encoder plug (Sub-D, 9-pin) not connected or defective • Encoder defective	• Check the connection of the encoder cable and replace, if necessary
2222	Information	Pulse-wheel search time out	• Check connection cables • Check stepper motor for stiff movement
2230	Error	Y-axis stepper motor not responding	• Perform a software update • Replace control
2252	Error	Y-axis stepper motor overcurrent	• Replace step motor

Code	Type	Possible causes	Remedial action
2253	Error	Overvoltage	• Check mains voltage
2255	Error	Y-axis stepper motor overload (I^2T): • Stepper motor not moving freely or blocked • Stepper motor faulty • Control defective	• Remove the blockage or the cause of the stiff movement • Replace step motor • Replace control
2256	Error	Y-axis stepper motor: • Stepper motor sluggish • Stepper motor faulty • Control defective	• Eliminate sluggishness • Replace step motor • Replace control
2262	Error	Y-axis stepper motor disturbance (IDMA auto increment)	• Switch off and on the machine
2271	Error	Watchdog	• Switch off and on the machine • Perform a software update • Contact Customer Service
2272	Error	Stepper motor overvoltage: • Stepper motor card defective	• Replace control
2273	Error	Y-axis stepper motor error	• Check the connection • Test stepper motor phases (R = 2.8 Ω, high impedance to PE) • Replace encoder • Replace step motor • Replace control
2274	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service

Code	Type	Possible causes	Remedial action
2275	Error	Magnet wheel search	• Check the connection • Test stepper motor phases (R = 2.8 Ω, high impedance to PE) • Replace encoder • Replace step motor • Replace control
2277	Error	Stepper motor overload (I^2T)	• Remove the cause of the stiff movement or blockage • Replace step motor • Replace control
2278	Error	Encoder error	• Check the connection of the encoder cable and replace, if necessary • Replace control
2279	Error	Current sensor: • Stepper motor card defective • Control defective	• Replace control
2280	Error	Direction of rotation	• Replace encoder • Check plug assignment and change, if necessary • Check wiring in machine distributor and change it, if necessary • Test stepper motor phases and check for correct value
2281	Error	Error in the reference run	• Replace reference switch
2282	Error	Stepper motor current error	• Remove blockage • Check the encoder cable and replace, if necessary • Replace step motor
2283	Error	Stepper motor overcurrent	• Replace sewing motor cable • Replace step motor • Replace control

Code	Type	Possible causes	Remedial action
2284	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2285	Error	Stepper motor insulation error	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace step motor
2286	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2287	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2288	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2302	Error	Z-axis stepper motor: • Stepper motor not moving freely or blocked • Encoder cable not connected or defective • Stepper motor cable is not connected or faulty • Encoder defective • Stepper motor faulty	• Remove the cause of the stiff movement or blockage • Check the encoder cable and replace, if necessary • Replace encoder If the stepper motor is not supplied with current: • Check the stepper motor cable and replace, if necessary • Replace step motor
2303	Error	Z-axis stepper motor step losses: • Stiff mechanical movement or blockage	• Remove the cause of the stiff mechanical movement or blockage

Code	Type	Possible causes	Remedial action
2321	Error	Z-axis stepper motor: • Encoder plug (Sub-D, 9-pin) not connected or defective • Encoder defective	• Check the connection of the encoder cable and replace, if necessary
2322	Information	Pulse-wheel search time out	• Check connection cables • Check stepper motor for stiff movement
2330	Error	Z-axis stepper motor not responding	• Perform a software update • Replace control
2352	Error	Z-axis stepper motor overcurrent	• Replace step motor
2353	Error	Overvoltage	• Check mains voltage
2355	Error	Z-axis stepper motor overload (I^2T): • Stepper motor not moving freely or blocked • Stepper motor faulty • Control defective	• Remove the blockage or the cause of the stiff movement • Replace step motor • Replace control
2356	Error	Z-axis stepper motor: • Stepper motor sluggish • Stepper motor faulty • Control defective	• Eliminate sluggishness • Replace step motor • Replace control
2362	Error	Z-axis stepper motor disturbance (IDMA auto increment)	• Switch off and on the machine
2371	Error	Watchdog	• Switch off and on the machine • Perform a software update • Contact Customer Service
2372	Error	Stepper motor overvoltage: • Stepper motor card defective	• Replace control

Code	Type	Possible causes	Remedial action
2373	Error	Z-axis stepper motor error	• Check the connection • Test stepper motor phases (R = 2.8 Ω, high impedance to PE) • Replace encoder • Replace step motor • Replace control
2374	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2375	Error	Magnet wheel search	• Check the connection • Test stepper motor phases (R = 2.8 Ω, high impedance to PE) • Replace encoder • Replace step motor • Replace control
2377	Error	Stepper motor overload (I^2T)	• Remove the cause of the stiff movement or blockage • Replace step motor • Replace control
2378	Error	Encoder error	• Check the connection of the encoder cable and replace, if necessary • Replace control
2379	Error	Current sensor: • Stepper motor card defective • Control defective	• Replace control
2380	Error	Direction of rotation	• Replace encoder • Check plug assignment and change, if necessary • Check wiring in machine distributor and change it, if necessary • Test stepper motor phases and check for correct value
2381	Error	Error in the reference run	• Replace reference switch

Code	Type	Possible causes	Remedial action
2382	Error	Stepper motor current error	• Remove the blockage • Check the encoder cable and replace, if necessary • Replace step motor
2383	Error	Stepper motor overcurrent	• Replace the sewing motor cable • Replace step motor • Replace control
2384	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2385	Error	Stepper motor insulation error	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace step motor
2386	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2387	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2388	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2402	Error	U-axis stepper motor: • Stepper motor not moving freely or blocked • Encoder cable not connected or defective • Stepper motor cable is not connected or faulty • Encoder defective • Stepper motor faulty	• Remove the cause of the stiff movement or blockage • Check the encoder cable and replace, if necessary • Replace encoder If the stepper motor is not supplied with current: • Check the stepper motor cable and replace, if necessary • Replace step motor

Code	Type	Possible causes	Remedial action
2403	Error	U-axis stepper motor step losses: • Stiff mechanical movement or blockage	• Remove the cause of the stiff mechanical movement or blockage
2421	Error	U-axis stepper motor: • Encoder plug (Sub-D, 9-pin) not connected or defective • Encoder defective	• Check the connection of the encoder cable and replace, if necessary
2422	Information	Pulse-wheel search time out	• Check connection cables • Check stepper motor for stiff movement
2430	Error	U-axis stepper motor not responding	• Perform a software update • Replace control
2452	Error	U-axis stepper motor over current	• Replace step motor
2453	Error	Overvoltage	• Check the mains voltage
2455	Error	U-axis stepper motor overload (I^2T): • Stepper motor not moving freely or blocked • Stepper motor faulty • Control defective	• Remove the blockage or the cause of the stiff movement • Replace step motor • Replace control
2456	Error	U-axis stepper motor: • Stepper motor sluggish • Stepper motor faulty • Control defective	• Eliminate sluggishness • Replace step motor • Replace control
2462	Error	• U-axis stepper motor disturbance (IDMA auto increment)	• Switch off and on the machine

Code	Type	Possible causes	Remedial action
2471	Error	• Watchdog	• Switch off and on the machine • Perform a software update • Contact Customer Service
2472	Error	Stepper motor overvoltage: • Stepper motor card defective	• Replace control
2473	Error	U-axis stepper motor over current error	• Check the connection • Test stepper motor phases (R = 2.8 Ω, high impedance to PE) • Replace encoder • Replace step motor • Replace control
2474	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2475	Error	Magnet wheel search	• Check the connection • Test stepper motor phases (R = 2.8 Ω, high impedance to PE) • Replace encoder • Replace step motor • Replace control
2477	Error	Stepper motor overload (I^2T)	• Remove the cause of the stiff movement or blockage • Replace step motor • Replace control
2478	Error	Encoder error	• Check the connection of the encoder cable and replace, if necessary • Replace control
2479	Error	Current sensor: • Stepper motor card defective • Control defective	• Replace control

Code	Type	Possible causes	Remedial action
2480	Error	Direction of rotation	• Replace encoder • Check plug assignment and change, if necessary • Check wiring in machine distributor and change it, if necessary • Test stepper motor phases and check for correct value
2481	Error	Error in the reference run	• Replace reference switch
2482	Error	Stepper motor current error	• Remove the blockage • Check the encoder cable and replace, if necessary • Replace step motor
2483	Error	Stepper motor overcurrent	• Replace sewing motor cable • Replace step motor • Replace control
2484	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2485	Error	Stepper motor insulation error	• Check motor phase and PE for low-impedance connection • Replace encoder • Replace step motor
2486	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2487	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2488	Error	Software error	• Perform reset • Perform a software update • Contact Customer Service
2901	Error	Referencing timeout	• Switch off and on the machine • Check the clamping of the stepper motor

Code	Type	Possible causes	Remedial action
3010	Error	Control: 100 V voltage error	• Check connections • Replace control
3011	Error	Control: 100 V voltage error	• Check connections • Replace control
3012	Error	Control: 100 V voltage error (I^2T)	• Switch off and on the machine • Check connections • Replace control
3020	Error	Short circuit at Input or output 24 V	• Check connections • Replace control
3021	Error	Short circuit at Input or output 24 V	• Check connections • Replace control
3022	Error	Short circuit in 24 V input or output (I^2T)	• Switch off and on the machine • Check connections • Replace control
3030	Error	Sewing motor phase error	• Test sewing motor phases (R = 2.8Ω, high impedance to PE) • Replace encoder • Replace sewing motor • Replace control
3104	Warning	• Pedal not in rest position • Setpoint device defective	• Do not press the pedal when starting up the machine • Replace setpoint device
4440 – 4459	Error	OP3000 control panel: Internal error	• Switch off and on the machine • Perform a software update • Replace control panel
6000 – 6299	Error	Internal error	• Switch off and on the machine • Perform a software update • Contact Customer Service

Code	Type	Possible causes	Remedial action
6351 – 6354	Error	Control defective (I^2C)	• Replace control
6360	Warning	Data on machine ID not permissible	• Replace control
6361	Warning	Machine ID not connected	• Check the connection of the machine ID cable • Replace the machine ID • Replace control
6362 – 6367	Error	Internal EEprom	• Replace control
6400 – 6999	Error	Internal error	• Switch off and on the machine • Perform a software update • Contact Customer Service
7551 – 7659	Error	• Internal error • Cable disturbance • Cables to the control panel Interface defective	• Switch off and on the machine • Eliminate source of disturbance • Perform a software update • Replace cable • Contact customer service
9310	Error	• CAN connector not connected or faulty • Tape unwinder faulty	• Replace CAN connector • Replace tape unwinder • Replace control
9320	Error	• Tape unwinder dirty • Tape unwinder faulty	• Clean tape unwinder • Open throttle valve • Replace tape unwinder
9910	Error	Tilt sensor: • Machine head is tilted over • Tilt sensor not assembled or defective	• Erecting the machine head • Fit or replace tilt sensor

10.3 Errors in sewing process

Error	Possible causes	Remedial action
Unthreading at seam beginning	Needle thread tension is too firm	Check needle thread tension 📖 *p. 42*
Thread breaking	Needle thread and hook thread have not been threaded correctly	Check threading path 📖 *p. 24* and 📖 *p. 27*
	Needle is bent or sharp-edged	Replace 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. 183*
	Thread tensions are too tight for the thread used	Check thread tensions 📖 *p. 42*
Thread breaking	Thread-guiding parts, such as thread tube, thread guide or thread take-up disk, are sharp-edged	Check threading path 📖 *p. 24* and 📖 *p. 27*
	Throat plate, hook or spread have been damaged by the needle	Have parts reworked by qualified specialists

Error	Possible causes	Remedial action
Missing stitches	Needle thread and hook thread have not been threaded correctly	Check threading path 🕮 *p. 24* and 🕮 *p. 27*
	Needle is blunt or bent	Replace 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. 183*
	The reel stand is assembled incorrectly	Check the assembly of the reel stand 🕮 *p. 140*
	Thread tensions are too tight	Check thread tensions 🕮 *p. 42*
	Throat plate, hook or spread have been damaged by the needle	Have parts reworked by qualified specialists
Loose stitches	Thread tensions are not adjusted to the sewing material, the sewing material thickness or the thread used	Check thread tensions 🕮 *p. 42*
	Needle thread and hook thread have not been threaded correctly	Check threading path 🕮 *p. 24* and 🕮 *p. 27*
Needle breakage	Needle thickness is unsuitable for the sewing material or the thread	Use recommended needle thickness 🕮 *p. 183*

11 Technical data

Data and characteristic values

Technical data	Unit	550-12-33	550-12-34
Machine type		Special sewing machine	
Type of stitches		Double chain stitch	
Hook type		Crossline	
Number of needles		1	
Needle system		933	
Maximum thread strength • Cotton • Core spun thr. (polycotton)	 [NeB] [Nm]	 15/3 25/2	
Stitch length	[mm]	3, 4, 5 and 6 A change of the ruffling value extends the feed length of the top feed and of the differential feed to 8 mm while reducing the feed length of the normal feed to 2.5 mm.	
Width of the reinforcement tape	[mm]	2.25	
Number of stitches (ST) and sewing foot stroke (NFH) are interdependent When used as a trimmer without ruffling value	[min^{-1}]	**NFH** / **ST** 2.5 / 3000 up to 4 / 2500 4 or more / 2000 2.5 / 3500	
Knife stroke (convertible to 6 mm)	[mm]	-	8
Cutting margin	[mm]	-	4.5

Technical data	Unit	550-12-33	550-12-34
Clearance under the switched-off top blade	[mm]	-	17
Clearance under the sewing feet: • Maximum during lifting • Maximum during sewing	[mm]	15 10	
Mains voltage	[V]	190-240	
Mains frequency	[Hz]	50/60	
Operating pressure	[bar]	6	
Air consumption		0.8	
Power input	[kVA]	1	

Characteristics

The machine has the following characteristics:

- Single-needle double chain stitch crossline sewing machine
- For linear seams, using stitch type 401
- With differential, bottom and top feed as well as alternating sewing feet
- Control panel OP3000
- Option to program 16 different ruffling values
- Allows for sewing material that is smooth, gathered or ruffled at the top or the bottom
- Tape feeder at the top or bottom for increased ruffling intensity and reinforcement of the seam
- 2 push buttons with the following functions:
  - Left button: Edge cutter
  - Right button: Tape brake
- The knee button can be used to set the ruffling value to 0 at any time and to restore it to the set ruffling value
- The tape tension of the reinforcement tape can be switched on and off with the press of a button
- Storage capacity for up to 999 seam programs containing a maximum of 30 seam sections each
- Option to mirror the left/right side pieces
- The following parameters can be set for each individual seam section:
  - Ruffling value (0-16)
  - Tape tension for reinforcement tape
  - Quick stroke adjustment
  - Stitch condensing
- Option to set a stretch value between 0-50% for smooth sewing
- The basic stitch length can be set without any effect on ruffling
- Stitch condensing can be set for smooth seams
- 550-12-34: with edge cutter for pre-ruffling and trimming upholstery parts

12 Appendix

12.1 Wiring diagram

Fig. 96: Wiring diagram

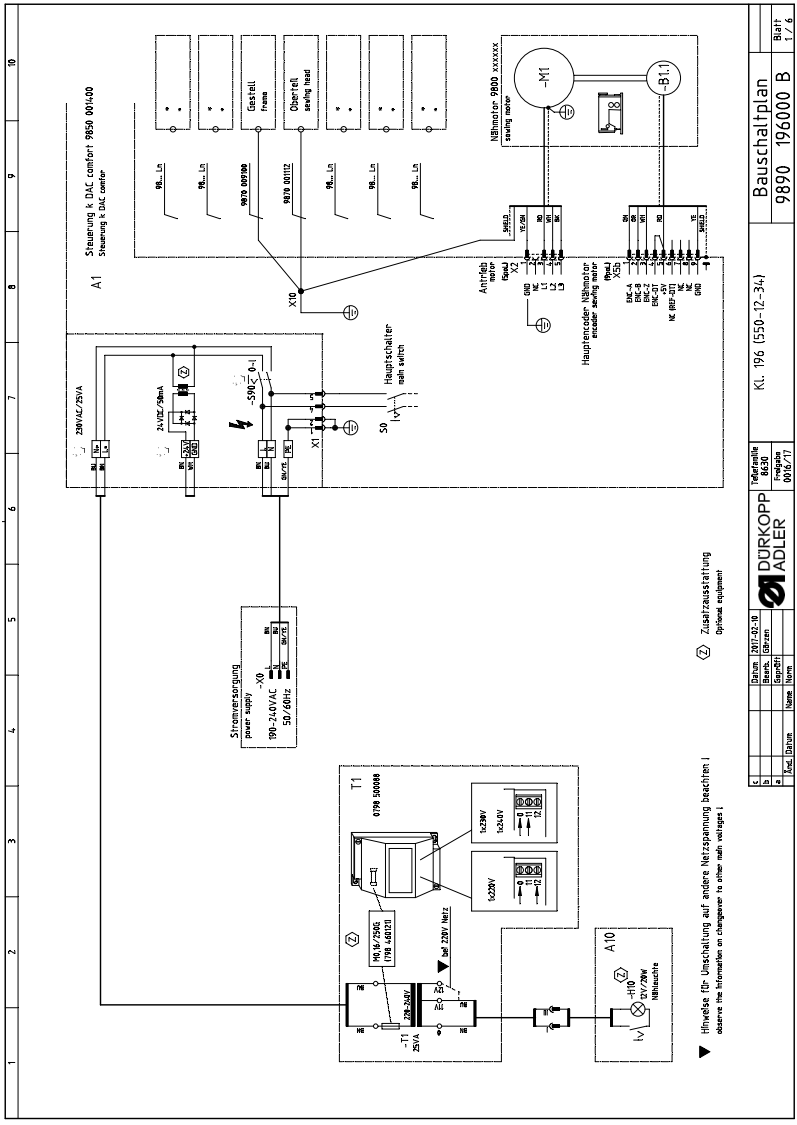


Fig. 97: Wiring diagram

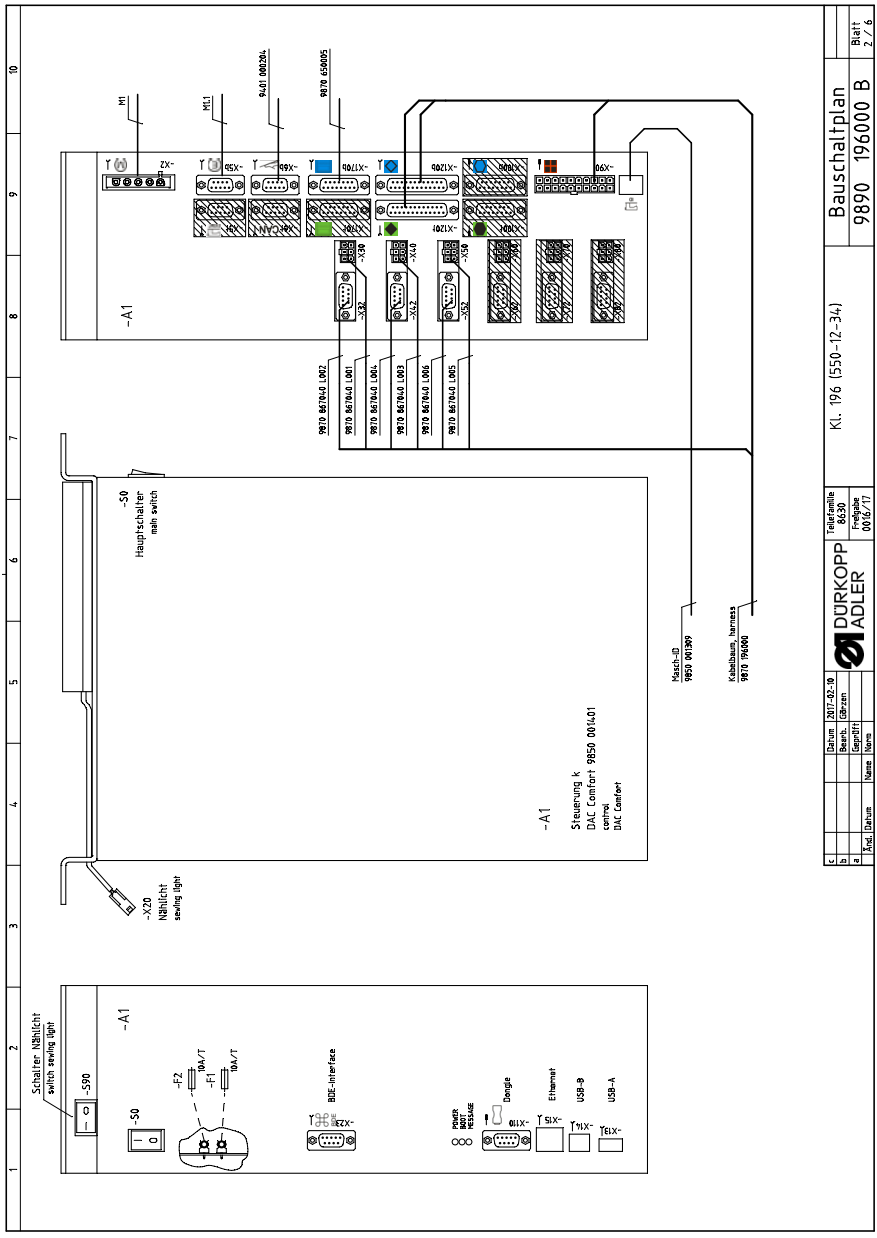


Fig. 98: Wiring diagram

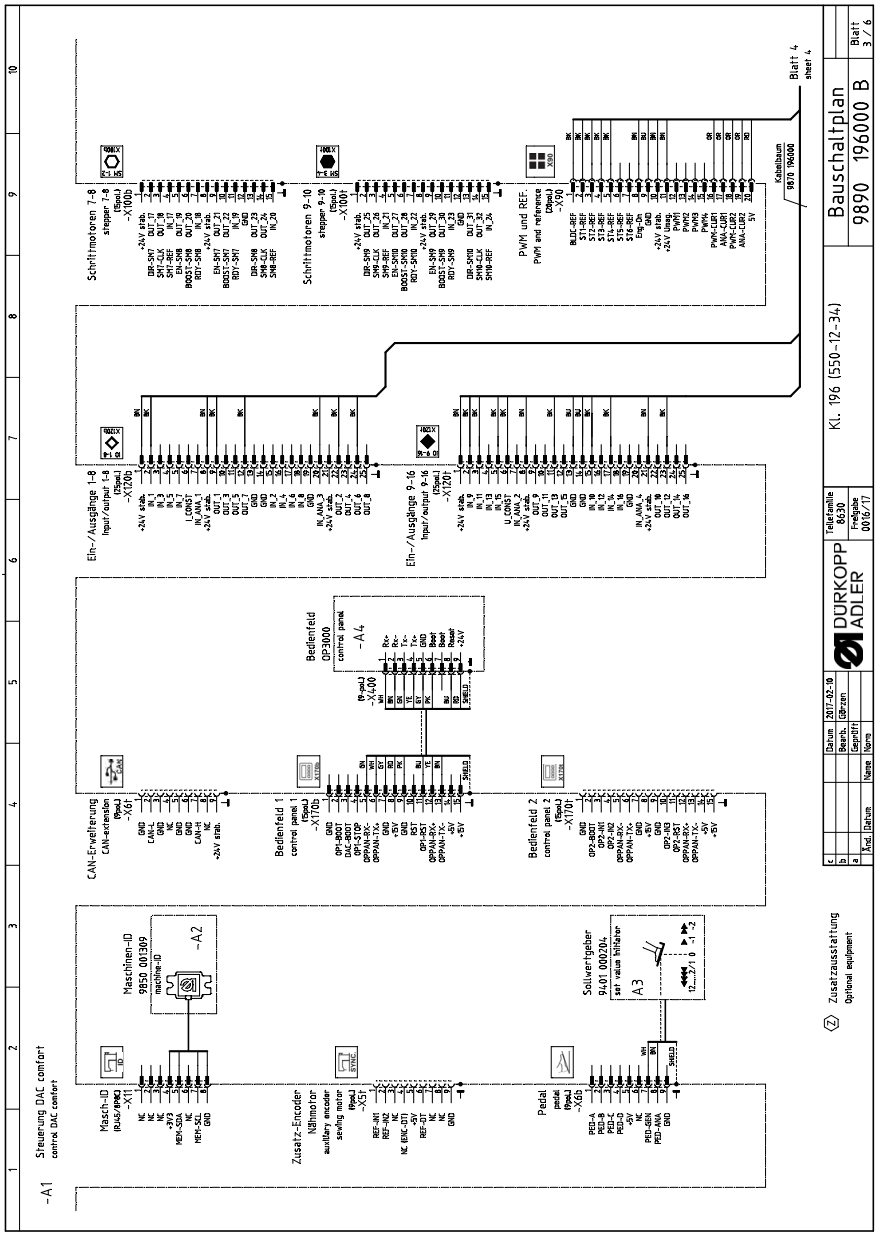


Fig. 99: Wiring diagram

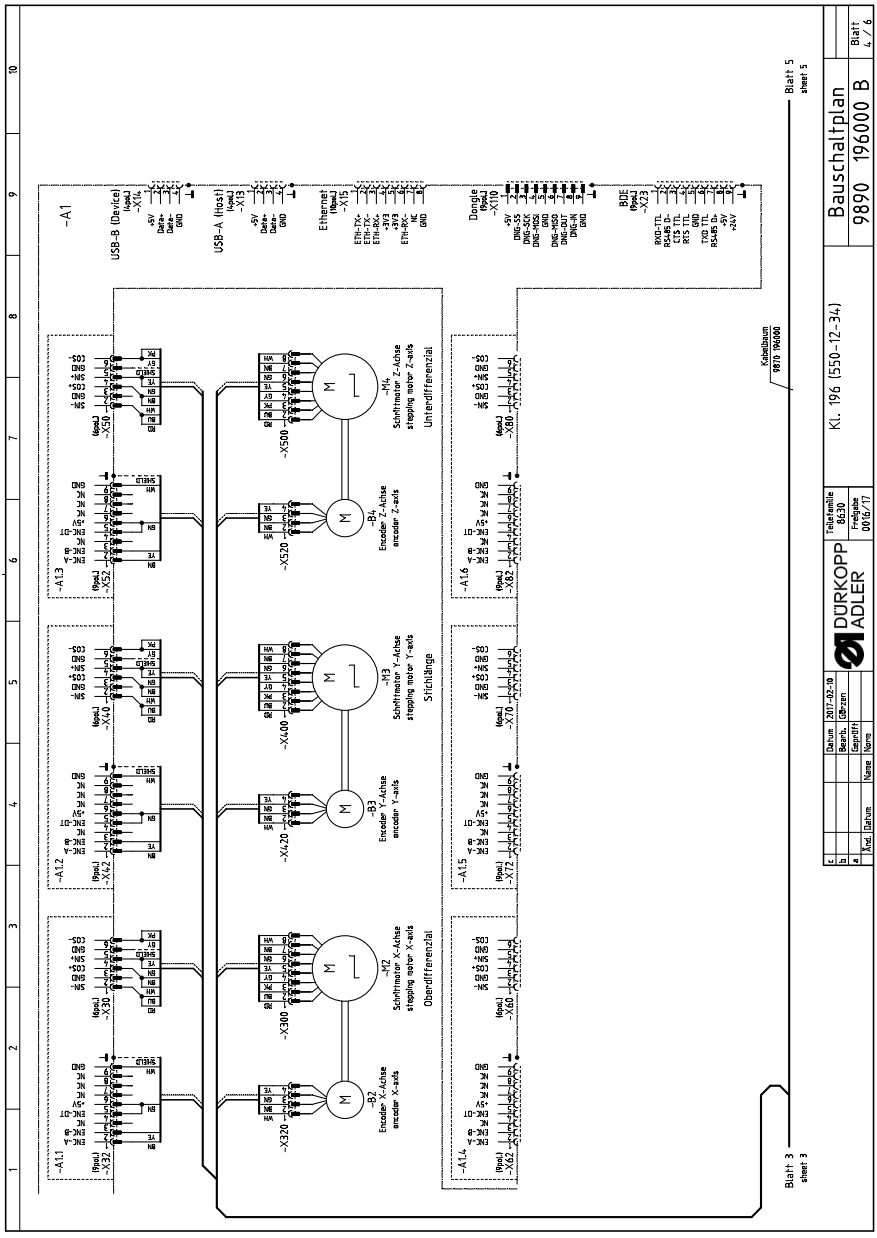


Fig. 100: Wiring diagram

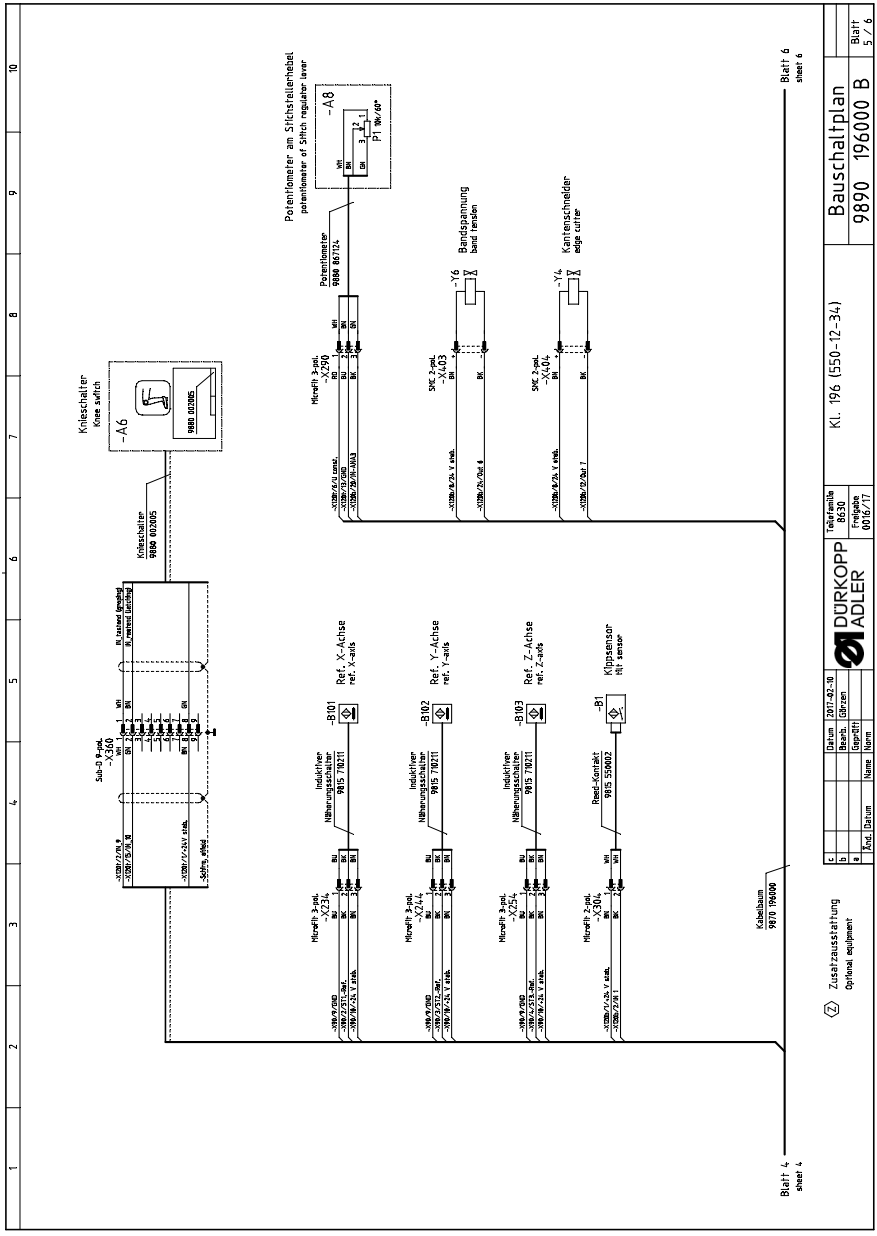
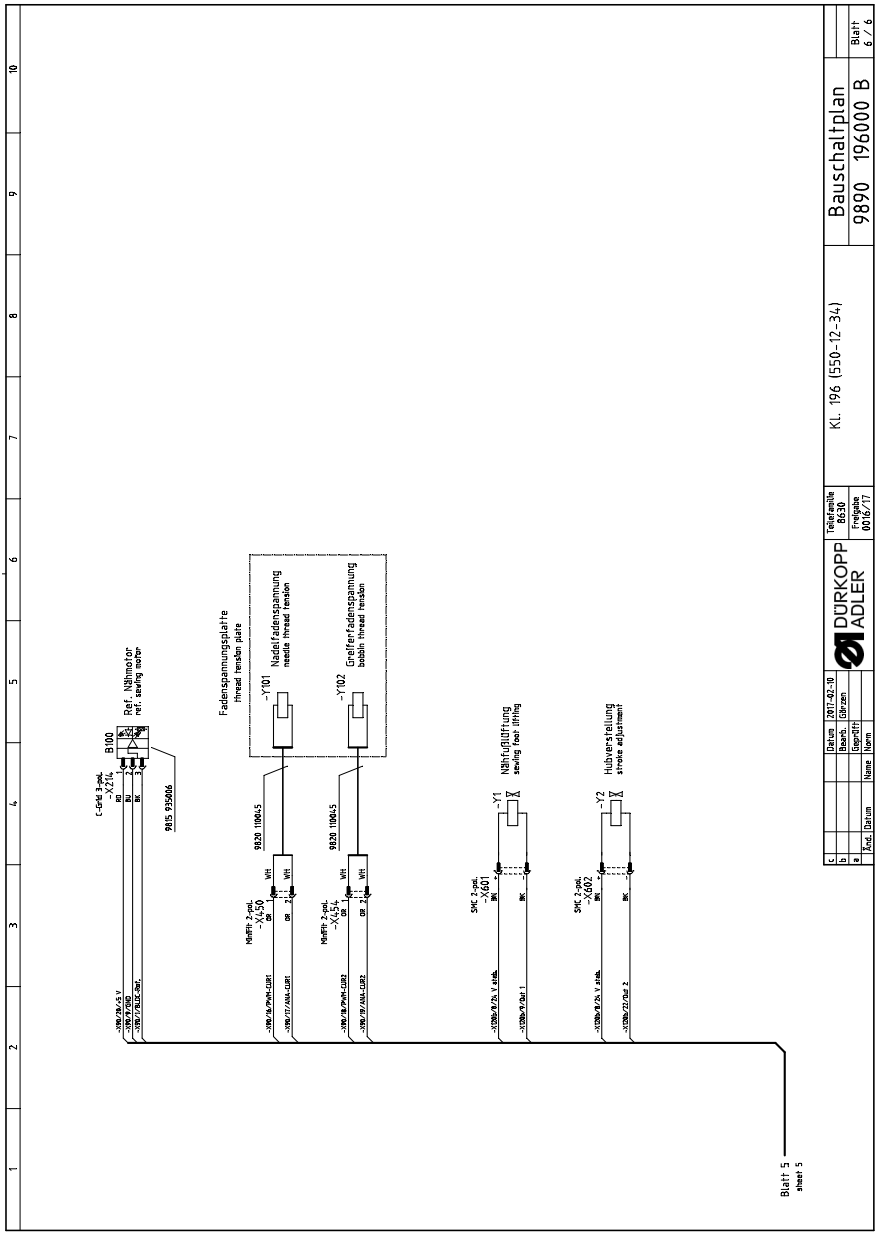


Fig. 101: Wiring diagram



12.2 Tabletop drawing

Fig. 102: Tabletop drawing

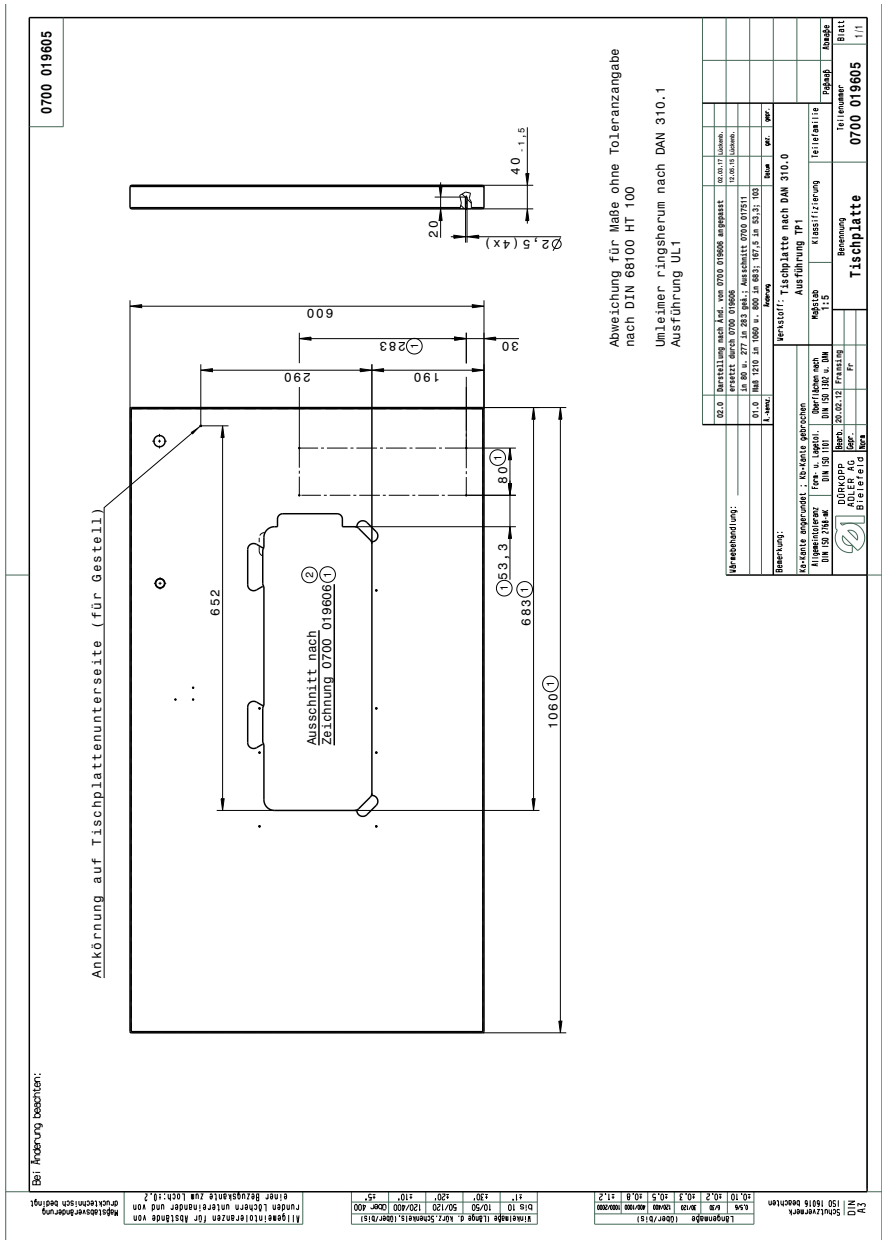


Fig. 103: Tabletop drawing

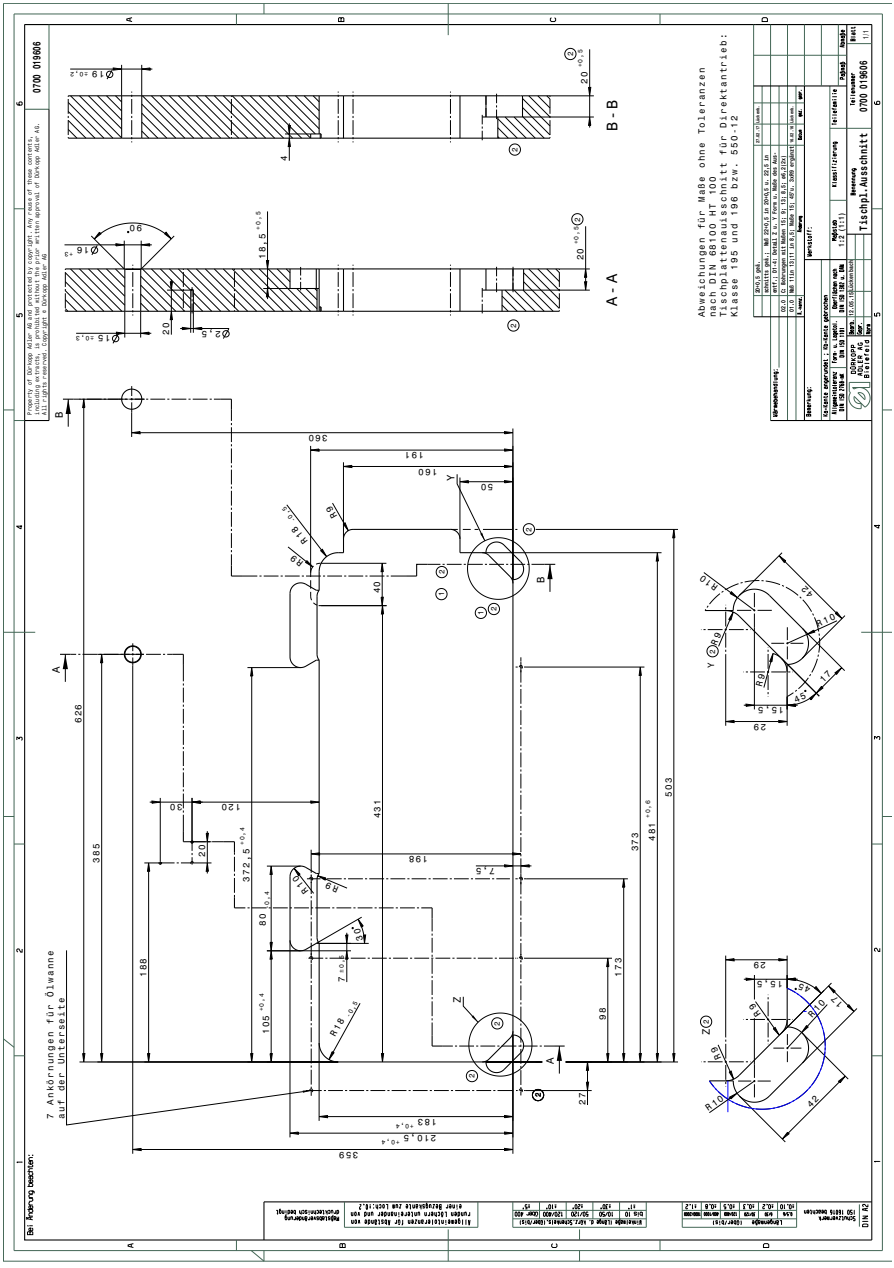
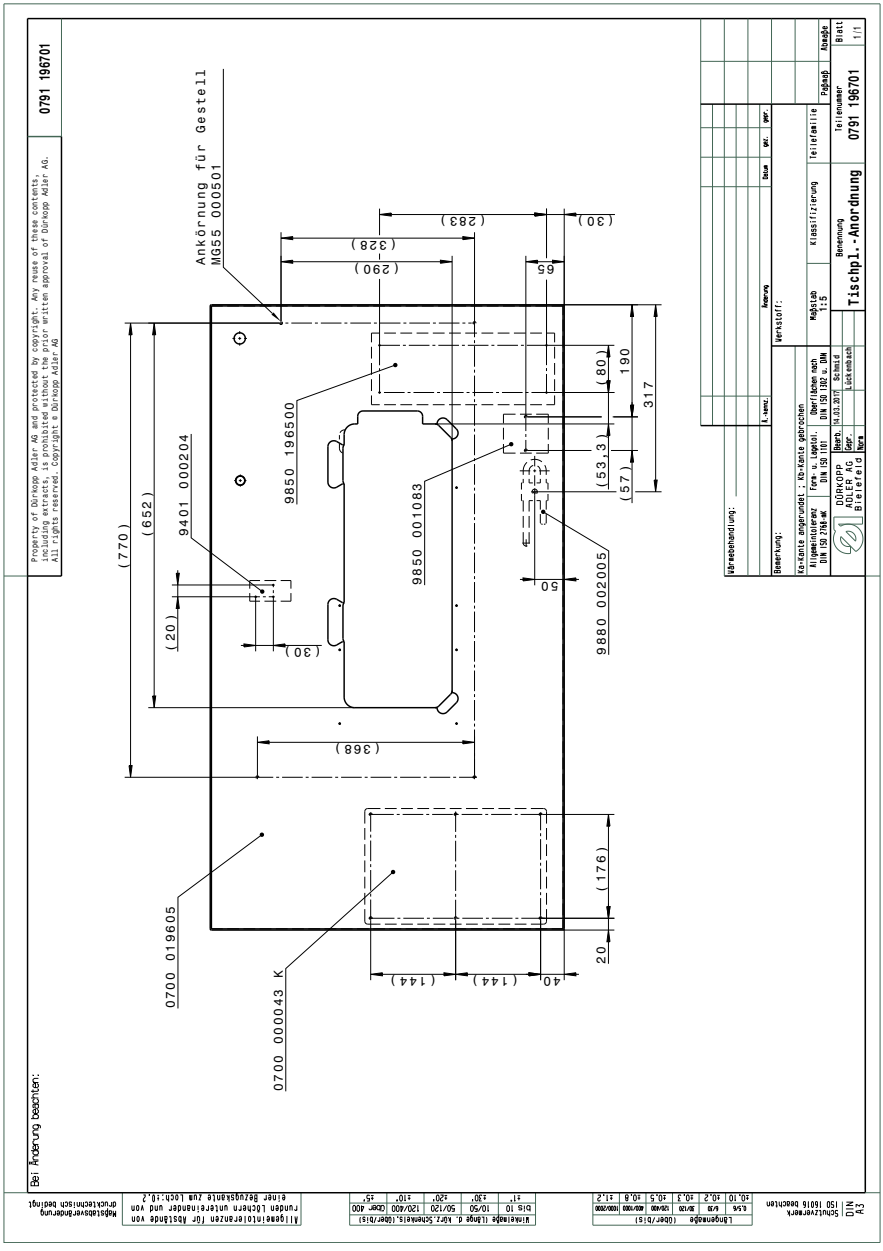


Fig. 104: Tabletop drawing



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