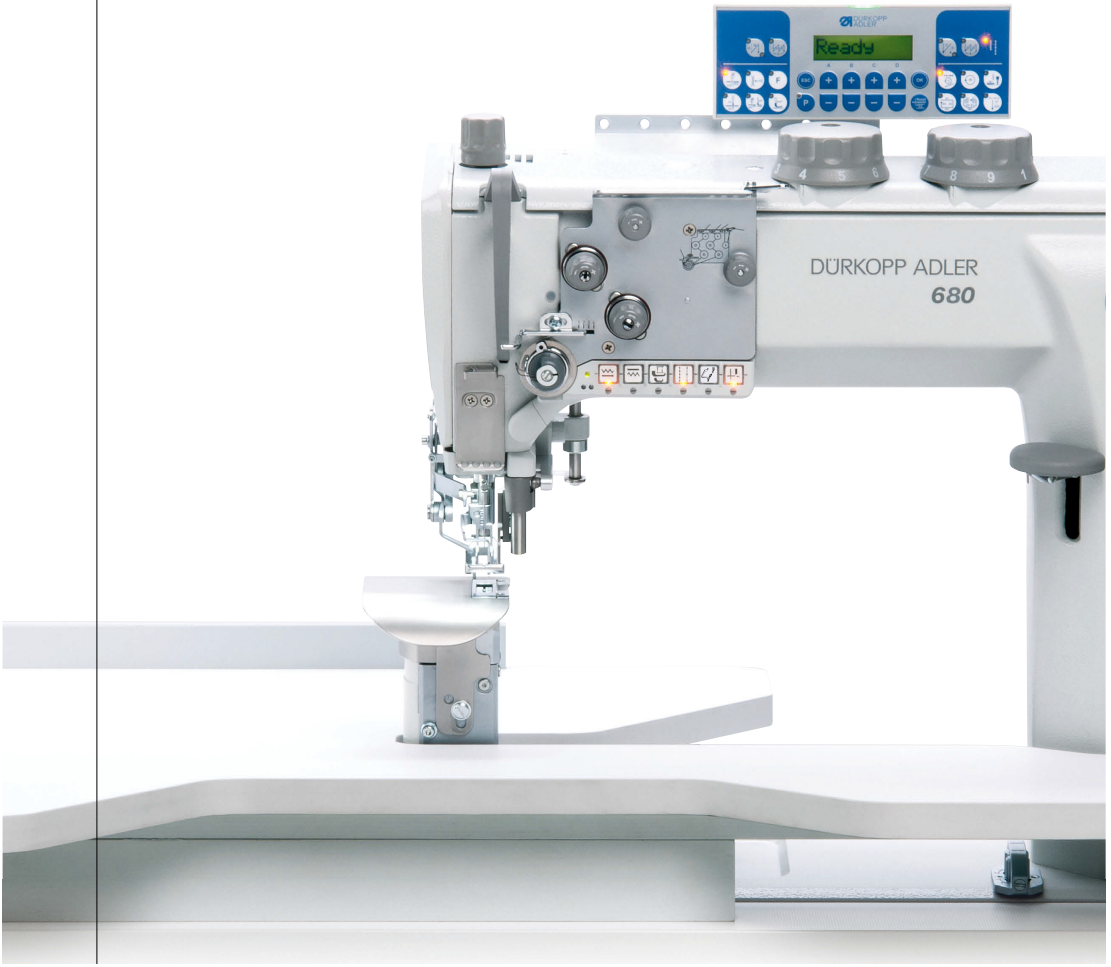
DÜRKOPP ADLER

670/680

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. 79*).

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. 17*) is important for the operators.
- Specialists:
  This group has the appropriate technical training for performing maintenance or repairing malfunctions. Specifically, the chapter **Setup** (📖 *p. 61*) 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. 7*).

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. 7*).

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:

- set up the machine
- perform maintenance work and repairs
- perform work on electrical equipment

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

Operation

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

Safety equipment

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

2.2 Signal words and symbols used in warnings

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

Signal words

Signal words and the hazard they describe:

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

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

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

Symbol	Type of danger
	General
	Electric shock
	Puncture
	Crushing
	Environmental damage

Examples Examples of the layout of warnings in the text:

DANGER

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

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

WARNING

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

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

CAUTION

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

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

NOTICE

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

CAUTION

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

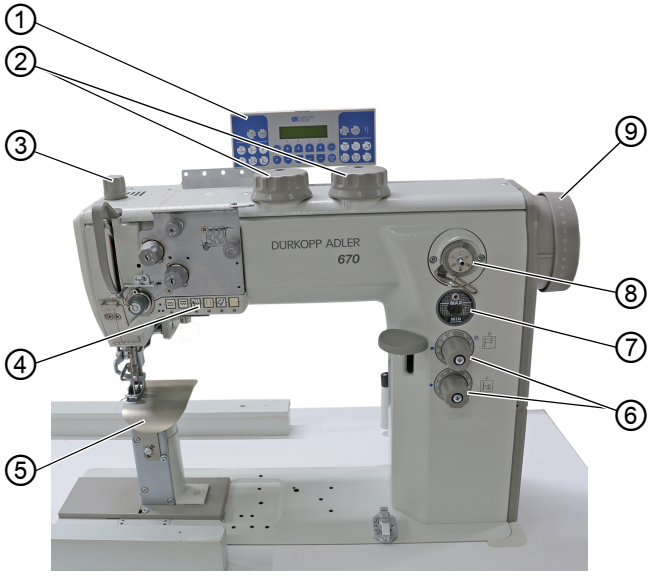
↳ This is what a warning looks like for a hazard that could result in environmental damage if ignored.

3 Machine description

3.1 Components of the machine

Components of the 670

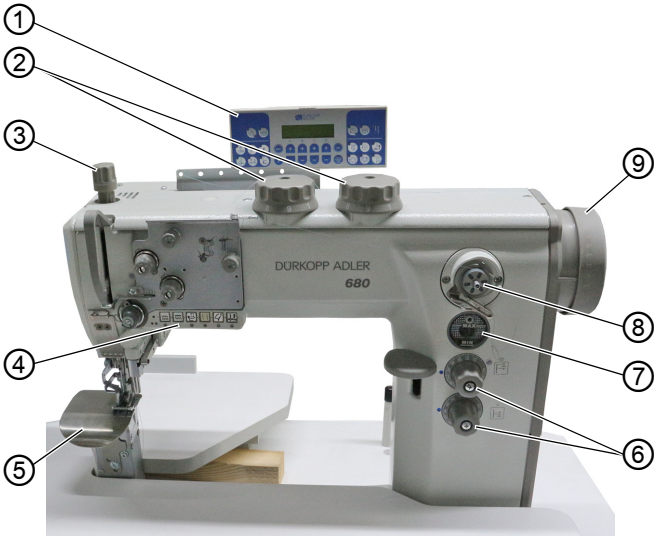
Fig. 1: Components of the 670



(1) - Control panel OP1000
(2) - Adjusting wheels for sewing foot stroke
(3) - Adjusting screw for sewing foot pressure
(4) - Buttons on the machine arm
(5) - Sewing table
(6) - Adjusting wheels for stitch length
(7) - Oil reservoir inspection glass
(8) - Winder
(9) - Handwheel

Components of the 680

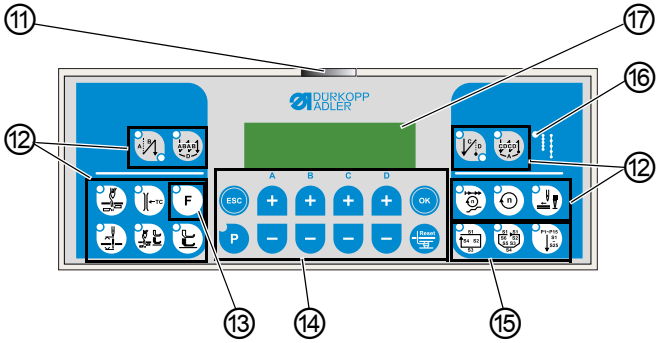
Fig. 2: Components of the 680



(1) - Control panel OP1000
(2) - Adjusting wheels for sewing foot stroke
(3) - Adjusting screw for sewing foot pressure
(4) - Buttons on the machine arm
(5) - Sewing table
(6) - Adjusting wheels for stitch length
(7) - Oil reservoir inspection glass
(8) - Winder
(9) - Handwheel

Control panel OP1000

Fig. 3: Control panel OP1000



(10) - Power LED
(11) - Thread button group
(12) - Function button
(13) - Programming button group
(14) - Seam program button group
(15) - LED for 2nd stitch length
(16) - Display

Information
Refer to the 🕮 *Instructions for use DAC basic/classic* for the functions of the control.

3.2 Proper use

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. 91*) 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.

WARNING

Risk 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.

3.3 Declaration of Conformity

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

CE

4 Operation

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

4.1 Preparing the machine for operation

WARNING

Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

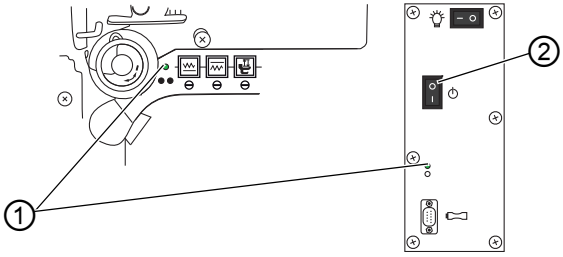
If possible, make preparations only when the machine is switched off.

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

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

4.2 Switching on and off the machine

Fig. 4: Switching on and off the machine



(1) - Indicator lamps

(2) - Main switch

To switch on the machine:

1. Move the main switch (2) from position **O** to position **I**.

↳ The indicator lamps (1) light up.

To switch off the machine:

1. Move the main switch (2) from position **I** to position **O**.

↳ The indicator lamps (1) go out.

4.3 Changing the needle

CAUTION

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

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

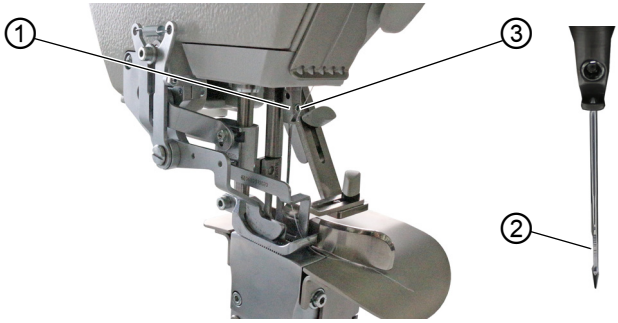
NOTICE

Property damage may occur!

The insertion of a thinner needle can lead to skipped stitches or damage to the thread!
The insertion of a thicker needle can result in damage to the hook tip or the needle!

When switching to a different needle, adjust the clearance between the hook and the needle (🕮 *Service Instructions*).

Fig. 5: Changing the needle (1)



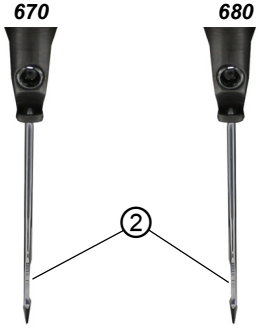
(1) - Needle bar
(2) - Needle groove
(3) - Screw

To insert a new needle:

1. Turn the handwheel until the needle bar (1) reaches the upper end position.
2. Loosen the screw (3).
3. Pull the needle downwards out of the needle bar (1).
4. Insert the new needle into the needle bar (1) until it reaches the end stop.

Important

Fig. 6: Changing the needle (2)



(2) - Groove

The groove (2) must face toward the hook!

5. Tighten the screw (3).

4.4 Threading the needle thread

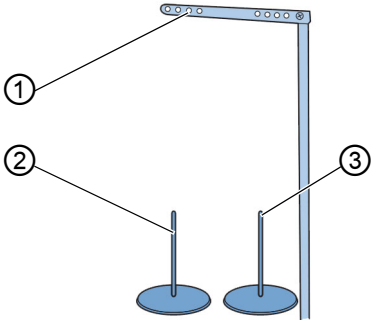
CAUTION

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Only thread the needle thread with the machine switched off.

Fig. 7: Threading the needle thread (1)

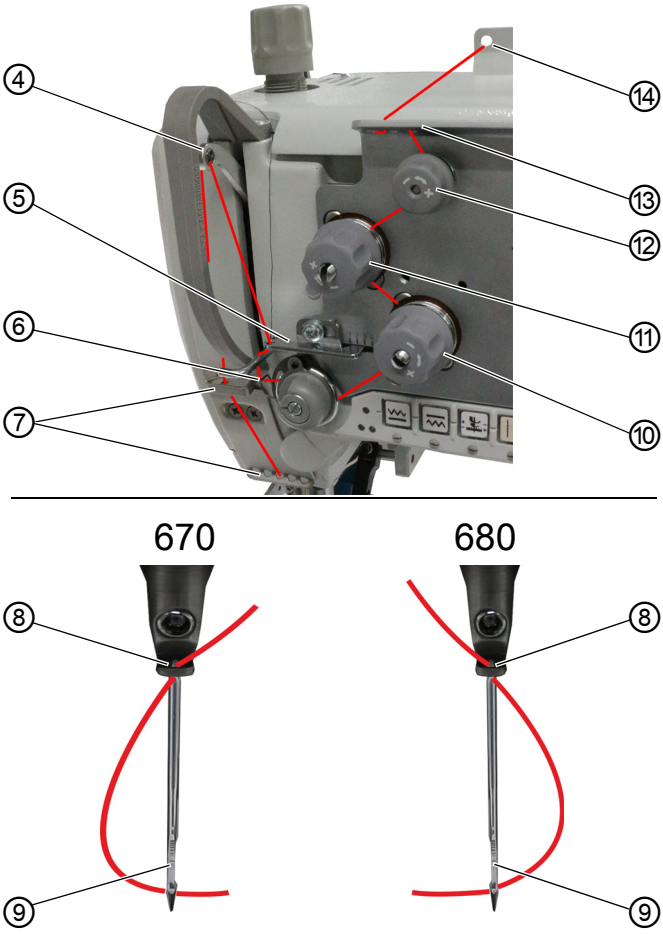


(1) - Thread guide
(2) - left thread reel holder
(3) - right thread reel holder

To thread the needle thread:

1. Slip the thread reel onto the left thread reel holder (2).
2. Insert the thread through the thread guide (1).
3. Position the unwinding bracket horizontally above the thread reels.

Fig. 8: Threading the needle thread (2)



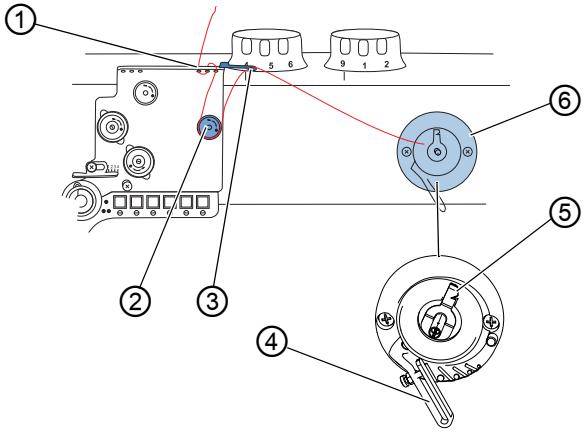
(4) - Thread lever
(5) - Needle thread regulator
(6) - Thread tension spring
(7) - Guides
(8) - Guide
(9) - Needle eye
(10) - Main tensioner
(11) - Additional tensioner
(12) - Pre-tensioner
(13) - Guide
(14) - Guide

4. Insert the thread through the guide (14).
5. Insert the thread in a wavelike manner though the guide (13) as shown in the figure above.

6. Guide the thread clockwise around the pre-tensioner (12).
7. Guide the thread counterclockwise around the additional tensioner (11).
8. Guide the thread clockwise around the main tensioner (10).
9. Pull the thread under the thread tension spring (6).
10. Feed the thread through the needle thread regulator (5) to the thread lever (4).
11. Insert the thread through the thread lever (4) and the guides (7).
12. Feed the thread through the guide (8) on the needle bar.
13. Insert the thread through the needle eye (9):
    - **Class 670**: Feed the thread through the needle eye from left to right
    - **Class 680**: Feed the thread through the needle eye from right to left

4.5 Winding the hook thread

Fig. 9: Winding the hook thread



(1) - Guide
(2) - Tensioner element
(3) - Guide
(4) - Winder lever
(5) - Cutter
(6) - Winder

To wind the hook thread:

1. Fit the empty bobbin onto the winder (6). The vision slots are at the front.
2. Slip the thread reel onto the right reel stand.
3. Feed the bobbin thread through the unwinding bracket.
4. As shown in the figure above, insert the thread in a wavelike manner through guide (1), the tensioner element (2) and guide (3).
5. Clamp the thread behind the cutter (5) and tear off the thread.
6. Press the winder lever (4) into the bobbin.

Information
The thread does not have to be wound onto the bobbin by hand.

7. Sew.

   The hook thread is wound on for as long as the machine is sewing. The winder lever (4) stops winding automatically as soon as the bobbin is full. The winder (6) always stops such that the cutter (5) is at the proper position.
8. Pull off the full bobbin.
9. Clamp the thread behind the cutter (5) and tear it off.

Information
The hook thread can only wound on during sewing. The machine does not have an electric winder.

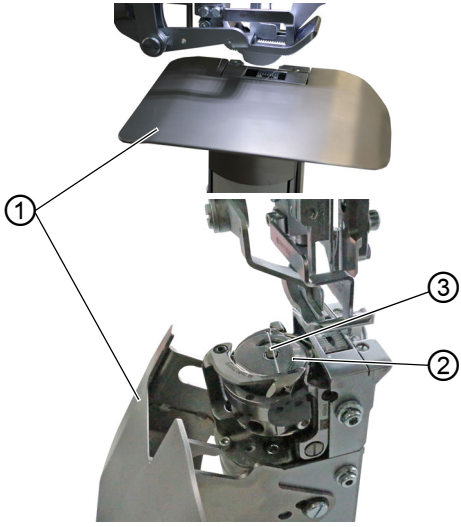
4.6 Changing the bobbin

CAUTION

Risk of injury from sharp and moving parts!
Puncture or crushing possible.

Only insert or change the hook thread bobbin with the machine switched off.

Fig. 10: Changing the bobbin (1)



(1) - Sewing table
(2) - Upper part of the bobbin case
(3) - Bobbin case retainer

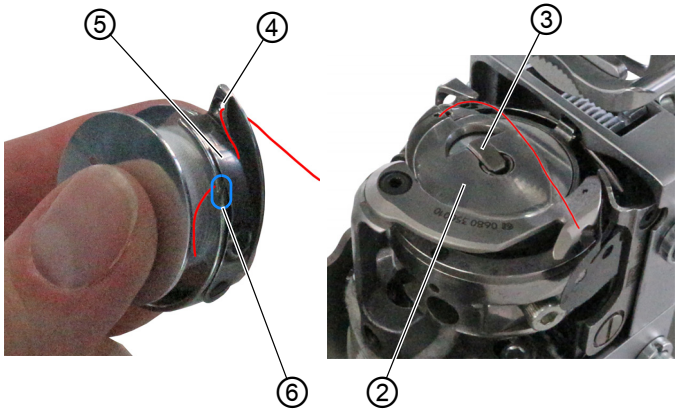
To change the bobbin:

1. Lift the sewing feet (📖 *p. 32*).
2. Fold open the sewing table (1).
3. Pull up the bobbin case retainer (3).
4. Take off the upper part of the bobbin case (2).

↳ The bobbin is pushed up by a spring.

5. Remove the empty bobbin.

Fig. 11: Changing the bobbin (2)



(2) - Upper part of the bobbin case
(3) - Bobbin case retainer
(4) - Hole
(5) - Spring
(6) - Slit

6. Insert a full bobbin into the upper part of the bobbin case (2).
7. Thread the bobbin thread through the slit (6) and behind the spring (5).
8. Thread the bobbin thread through the hole (4) from below.
9. Insert the bobbin and the upper part of the bobbin case (2).
10. Pull the bobbin thread out 3 cm.
11. Push down the bobbin case retainer (3).

4.7 Thread tension

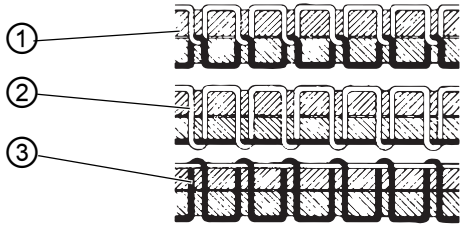
Together with the hook thread tension, the needle thread tension influences the final seam pattern.

The needle thread tension is defined by the pre-tensioner, the main tensioner and the additional tensioner.

Proper setting

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

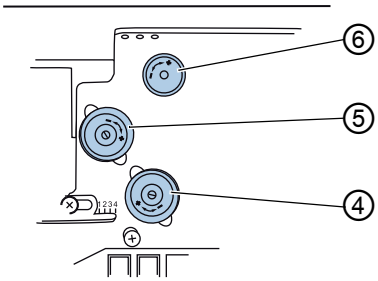
Fig. 12: Thread tension



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

4.7.1 Setting the needle thread tension

Fig. 13: Setting the needle thread tension



(4) - Main tensioner
(5) - Additional tensioner
(6) - Pre-tensioner

Setting the pre-tensioner

When main tensioner and additional tensioner are open, a small amount of residual tension of the needle thread is required. This residual tension is generated by the pre-tensioner.

The pre-tensioner influences the length of the cut needle thread end. The cut needle thread end is the initial thread for the next seam. Reliable operation of the thread cutter can only be achieved with a properly set pre-tensioner.

To set the pre-tensioner:

1. Turn the pre-tensioner (6) until the front side is flush with the bolt.
   - Set a shorter initial thread: turn counterclockwise
   - Set a longer initial thread: turn clockwise

Setting the main tensioner

The main tensioner determines the normal tension during sewing. Set the main tensioner as low as possible.

Important

The thread interlacing must be exactly in the middle of the sewing material. With thin sewing material, excessive thread tension can lead to undesired gathering and thread breaking.

To set the main tensioner:

1. Set the main tensioner (4) so that an even stitch pattern is achieved.
   - Increase the tension: turn clockwise
   - Reduce the tension: turn counterclockwise

Setting the additional tensioner

The additional tensioner (5) is used to quickly adjust the needle thread tension, e.g. for thickened seams.

The additional tensioner (5) can be switched off at the thickened seam to loosen the seam. To tighten the seam, the additional tensioner (5) is switched back on after the thickened seam.

To set the additional tensioner:

1. Set the additional tensioner (5) so that an even stitch pattern is achieved.
   - To increase the tension:
     Turn adjusting wheel clockwise
   - To reduce the tension:
     Turn adjusting wheel counterclockwise

4.7.2 Setting the hook thread tension

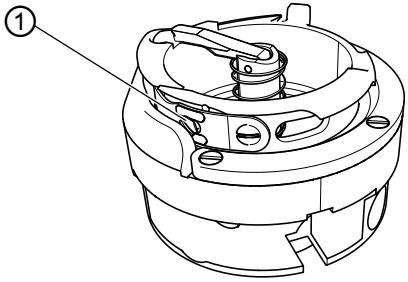
CAUTION

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

Only set the hook thread tension with the machine switched off.

Fig. 14: Setting the hook thread tension



(1) - Adjusting screw

To set the hook thread tension:

1. Use the adjusting screw (1) to set the tension spring.
   - Increase the hook thread tension:
     Turn the adjusting screw (1) clockwise
   - Reduce the hook thread tension:
     Turn the adjusting screw (1) counterclockwise
2. Perform a sewing test and check the stitch pattern.
3. Readjust the hook thread tension if necessary.

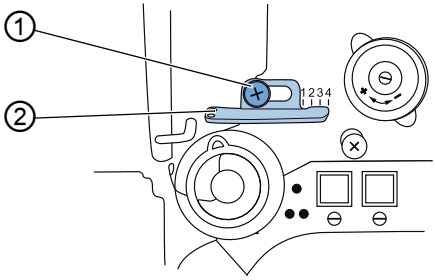
4.8 Setting the needle thread regulator

The needle thread regulator regulates the amount of needle thread required for forming the stitch.

Important

An optimum sewing result is possible only when the needle thread regulator is exactly adjusted!

Fig. 15: Setting the needle thread regulator



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

Proper setting

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

To check the setting of the needle thread regulator:

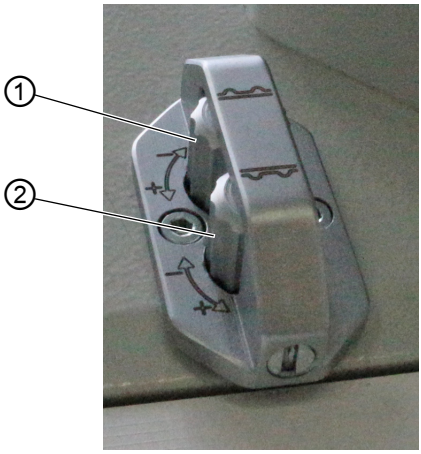
1. Fold open the sewing table.
   - The hook and the needle thread loop are visible.
2. Turn the handwheel and perform a visual inspection of the needle thread tension.

To set the needle thread regulator:

1. Loosen the screw (1).
2. Set the position of the needle thread regulator (2).
   - To set a larger amount of needle thread:
     Slide the needle thread regulator to the left
   - To set a smaller amount of needle thread:
     Slide the needle thread regulator to the right
3. Re-tighten the screw (1).

4.9 Setting the fullness

Fig. 16: Setting the fullness



(1) - Stop screw for upper fullness (2) - Stop screw for lower fullness

To set the upper fullness:

1. Turn the stop screw (1).
2. Perform a sewing test.
3. Readjust the stop screw (1) if necessary.

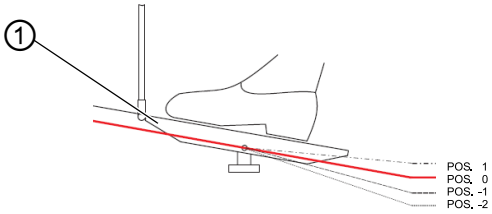
To set the lower fullness:

1. Turn the stop screw (3).
2. Perform a sewing test.
3. Readjust the stop screw (3) if necessary.

4.10 Lifting the sewing feet

The pedal is used to lift the sewing feet, e.g. to move the sewing material.

Fig. 17: Lifting the sewing feet



(1) - Pedal

To lift the sewing feet:

1. Press the pedal (1) to **POS. -1**.

↳ Lift the sewing feet.

4.11 Locking the sewing feet at top dead center

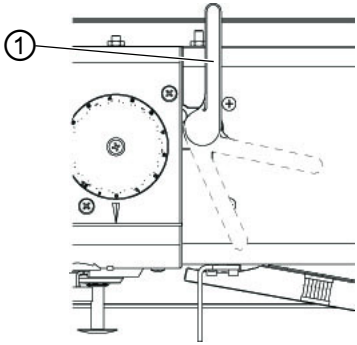
CAUTION

Risk of injury when lowering the sewing feet!

Crushing possible.

Do not hold your hands under the sewing feet when top dead center is released via the pedal or lever.

Fig. 18: Locking the sewing feet at top dead center



(1) - Lever

To lock the sewing feet:

1. Swivel down the lever (1) on the rear of the machine.

↳ The sewing feet are locked at top dead center.

To loosen the sewing feet:

1. Swivel the lever (1) up.

↳ The lock of the sewing feet has been removed.

Or:

1. Lift the sewing feet pneumatically using the pedal (📖 *p. 32*).

↳ The lever (1) swivels back to its initial position. The lock of the sewing feet has been removed.

4.12 Setting the sewing foot pressure

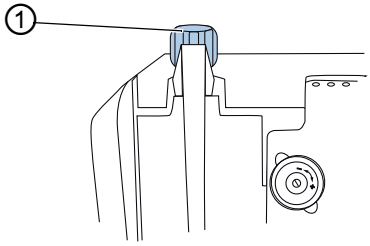
NOTICE

Property damage may occur!

If the sewing foot pressure is too high, the material could tear.
If the sewing foot pressure is too weak, the material could slip.

Set the sewing foot pressure in such a way that the sewing material slides smoothly over the base without slipping.

Fig. 19: Setting the sewing foot pressure



(1) - Adjusting wheel

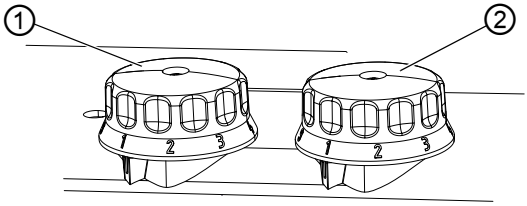
To set the sewing foot pressure:

1. Set the sewing foot pressure using the adjusting wheel (1).
   - Increase sewing foot pressure: turn clockwise
   - Reduce sewing foot pressure: turn counterclockwise

4.13 Setting the sewing foot stroke

The machine is equipped with 2 adjusting wheels for the sewing foot stroke.

Fig. 20: Setting the sewing foot stroke



(1) - Adjusting wheel for standard sewing foot stroke

(2) - Adjusting wheel for elevated sewing foot stroke

NOTICE

Property damage may occur!

It is not possible to set a lower sewing foot stroke on the right adjusting wheel than on the left adjusting wheel.

Do not attempt to use force to set a smaller sewing foot stroke on the right adjusting wheel.

To set the standard sewing foot stroke:

1. Turn the left adjusting wheel (1).
   - 1 = min. sewing foot stroke
   - 9 = max. sewing foot stroke

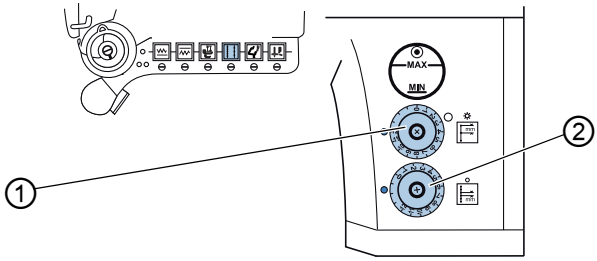
To set the elevated sewing foot stroke:

1. Turn the right adjusting wheel (2).
   - 1 = min. sewing foot stroke
   - 9 = max. sewing foot stroke

4.14 Setting the stitch length

The machine is equipped with 2 adjusting wheels for the stitch length. It is possible to set 2 different stitch lengths and activate them with the press of a button. For more information, refer to the chapter **Buttons on the machine arm** (📖 *p. 37*).

Fig. 21: Setting the stitch length



(1) - Adjusting wheel for the longer stitch length

(2) - Adjusting wheel for the shorter stitch length

The stitch lengths are set using the adjusting wheels (1, 2) on the machine.

NOTICE

Property damage may occur!

It is not possible to set a lower stitch length on the upper adjusting wheel than on the lower adjusting wheel.

Do not attempt to force the top adjusting wheel to set a lower stitch length.

To set the longer stitch length:

1. Turn the upper adjusting wheel (1).
   - 1 = min. stitch length
   - 12 = max. stitch length

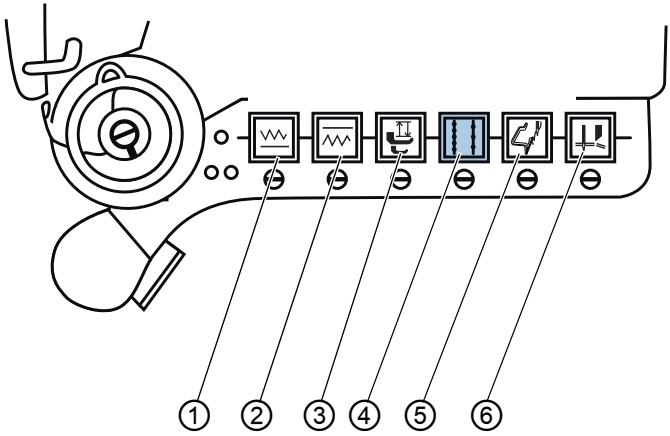
To set the shorter stitch length:

1. Turn the lower adjusting wheel (2).
   - 1 = min. stitch length
   - 12 = max. stitch length

4.15 Buttons on the machine arm

The buttons activate specific functions during sewing. It is possible to activate several functions at one time.

Fig. 22: Buttons on the machine arm



(1) - Upper fullness
(2) - Lower fullness
(3) - 2. Sewing foot stroke
(4) - 2. Stitch length
(5) - 2. Needle thread tension
(6) - Edge cutter

To enable the functions:

1. Press the desired button.

↳ The function is activated. The button lights up.

To disable the functions:

1. Press the button again.

↳ The function is deactivated. The button turns off.

Buttons and their function

Button	Function	Description
 (1)	Upper fullness	Upper fullness: The upper sewing material layer is transported faster than the lower sewing material layer. The F button on the control panel is lit.
 (2)	Lower fullness	The lower sewing material layer is transported faster than the upper sewing material layer. The F button on the control panel is not lit.
 (3)	2nd sewing foot stroke	The machine sews using the 2nd sewing foot stroke
 (4)	2nd stitch length	The machine sews using the greater stitch length. To set the stitch length, refer to p. 36.
 (5)	Stitch loosening device	The stitch loosening is activated to loosen the seam
 (6)	Edge cutter (only 680)	The edge cutter trims the sewing material during sewing.

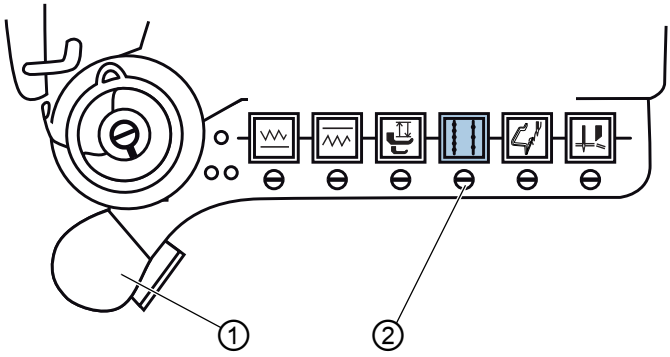
Information
Stitch loosening can also be set automatically on the control panel (p. 48).

4.15.1 Assigning functions to the favorite button

You can assign button functions to the favorite button.

Assign a function that you use frequently to the favorite button to that you can activate it quickly during sewing.

Fig. 23: Assigning functions to the favorite button



(1) - Favorite button *(2) - Screw*

Order

Before you can assign a new button function to the favorite button, you need to bring all screws under the buttons to the horizontal position.

To assign a function to the favorite button (1):

1. Set the screw (2) under the button with the desired function to the vertical position.

Information

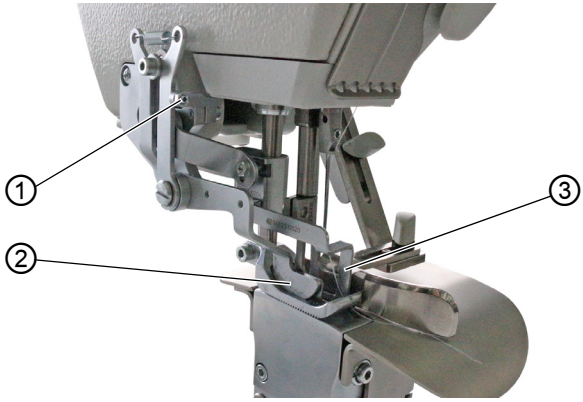
You can only assign one button function at a time to the favorite button.

4.16 Setting the height stop for the stitch loosening device

The stitch loosening device and the gear unit must not rest on the sewing material during sewing to ensure unhindered transport.

The height stop prevents the stitch loosening device from lowering onto the sewing material under its own weight.

Fig. 24: Setting the height stop for the stitch loosening device



(1) - Threaded pin for height stop
(2) - Scanner for height stop
(3) - Stitch loosening finger

To set the height stop for the stitch loosening device:

1. Screw in or unscrew the threaded pin (1).
   - To set the scanner (2) and stitch loosening finger (3) **lower**:
     Unscrew the threaded pin (1)
   - To set the scanner (2) and stitch loosening finger (3) **higher**:
     Screw in the threaded pin (1)

4.17 Sewing

WARNING

Risk of injury from sharp and moving parts!

Puncture or crushing possible.

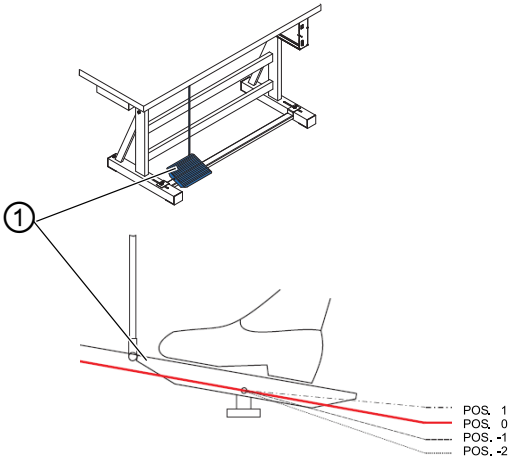
NEVER reach into the area of the sewing feet and needle during sewing.

Sewing process

Initial position of the machine before sewing starts.

- The main switch is switched on.
- The pedal (1) is in rest position (**POS 0**).
- The machine is at a standstill.
- The needle is up.
- The sewing feet are down.
- The last sewing process is completed by cutting off the thread.

Fig. 25: Sewing process



(1) - Pedal

To sew:

1. Press the pedal (1) to **POS. -1**.

↳ Lift the sewing feet.

2. Slide the sewing material up to the needle.
3. Press the pedal (1) to **POS. 1** and hold it down.

↳ The machine sews at the speed specified by the pedal.

Options during sewing

Process	Description	Reference
Stopping sewing	Press the pedal to **POS. 0**. ↳ The machine stops. The needle is down. The sewing feet are down.	
Continue the sewing process	Press the pedal to **POS. 1**. ↳ The machine sews at the speed specified by the pedal.	
Sew with 2nd stitch length	Press the button on the machine arm.	🕮 *p. 37*
Increasing the thread tension	Press the button on the machine arm.	🕮 *p. 37*

To remove the sewing material:

4. Press the pedal to **POS. -2** and hold it down.

↳ The thread is cut off. The machine stops. The needle is up. The sewing feet are raised.

5. Release the pedal and remove the sewing material.

5 Programming

All software settings are performed using the OP1000 control panel.

The control panel is composed of a display and buttons.

Using the control panel you can:

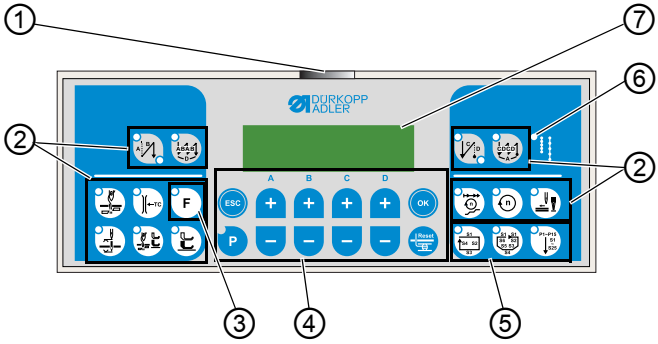
- Use groups of buttons to select machine functions
- Read service and error messages.

Information

This chapter describes the machine-specific functions of the OP1000 control panel.

Refer to the 🕮 *Instructions for use DAC basic/classic* for further information on the control and the OP1000 control panel.

Fig. 26: Programming



(1) - Power LED
(2) - Thread button group
(3) - Function button
(4) - Programming button group
(5) - Seam program button group
(6) - LED for 2nd stitch length
(7) - Display

OP1000 buttons and functions

Button		Function
Thread button group		
	Start bartack	• Sets the start bartack
	Multiple start bartack	• Sets the multiple start bartack
	End bartack	• Sets the end bartack
	Multiple end bartack	• Sets the multiple end bartack
	Thread cutter	• Activates or deactivates the thread cutter
	Thread clamp	• Activates or deactivates the thread clamp
	Needle position after sewing stop	• Sets the needle position after sewing stop
	Sewing foot lift after thread cutter	• Activates or deactivates the sewing foot lift after the thread cutter
	Sewing foot lift after sewing stop	• Activates or deactivates the sewing foot lift after sewing stops
	Soft start	• Activates or deactivates the soft start

Button	Function
 Speed	• Reduces the motor speed
 **Function button**	• Activates or deactivates any stored function
Programming button group	
 ESC	• Ends parameter mode
 A+	• Increases parameter • Changes user level • Selects subprogram
 B+	• Increases parameter • Changes to next higher category • Selects subprogram
 C+	• Increases parameter • Selects subprogram
 D+	• Increases parameter • Selects subprogram
 OK	• Calls parameter or saves it
 P	• Starts or ends the parameter mode

Button	Function
 A-	• Decreases parameter • Changes user level • Selects subprogram
 B-	• Decreases parameter • Changes to next lower category • Selects subprogram
 C-	• Decreases parameter • Selects subprogram
 D-	• Decreases parameter • Selects subprogram
 Reset	• Resets the (piece) counter

Button	Function
Seam program button group	
 Seam program I	• Activates seam program I
 Seam program II	• Activates seam program II
 Seam program III	• Sets seam program III

5.1 Activating automatic stitch loosening

Stitch loosening is used to loosen the seam at a thickened seam. Stitch loosening prevents the thread from tightening, keeping the seam soft.

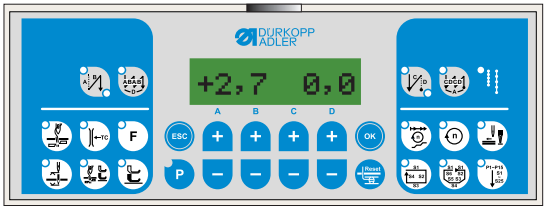
The sewing material thickness must be between 0 and 10 mm to allow for stitch loosening.

To activate the automatic stitch loosening:

1. Press the  button.

↳ The button lights up.
The display shows numerical values.

Fig. 27: Activating automatic stitch loosening



2. Use the buttons **A** and **B** to set the values.
   - **A**: Changing signs
     +: the thickness of sewing material for which stitch loosening is used
     -: the thickness of sewing material for which stitch loosening stops
   - **B**: Set the value at which stitch loosening is used or stops
   - **C/D**: Status indicator showing the thickness of the current sewing material and the height which the sewing foot is raised

3. Press button  to switch between stitch loosening modes.
   - **Only stitch loosening active**: mode 0, LED is not lit
   - **2nd stitch length plus stitch loosening active**: mode 1, LED is lit
   - **2nd stitch length and 2nd stroke height plus stitch loosening active**: mode 2, LED flashes

5.2 Setting the reference position

The reference position is used to align the synchronizer with the actual rechanical position.

To set the reference position:

1. Press the P and Reset buttons at the same time.

↳ You are on the technician level.

2. Use the buttons under the display to select the parameter **t 08 10**.

3. Press the OK button.

↳ *Syn?:* appears on the display.

4. Turn the handwheel.

↳ *Ref.Pos?:* appears on the display.

5. Turn the handwheel into position 125°.

6. Confirm with OK.

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)*.

Work to be carried out	**Operating hours**			
	8	**40**	**160**	**500**
Removing lint and thread remnants	●			
Check the oil	●			
Servicing the pneumatic system	●			

6.1 Cleaning

WARNING

Risk of injury from flying particles!

Flying particles can enter the eyes, causing injury.

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

NOTICE

Property damage from soiling!

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

Clean the machine as described.

NOTICE

Property damage from solvent-based cleaners!

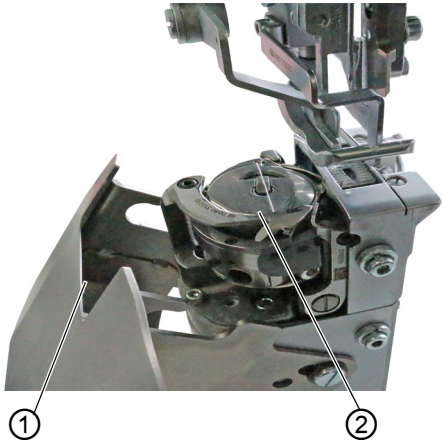
Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

Lint and thread remnants should be removed after every 8 operating hours using a compressed air gun or a brush. If very fluffy material is being sewn the machine must be cleaned more frequently.

A clean machine provides protection from faults during the sewing process.

Fig. 28: Cleaning



(1) - Underside of sewing table *(2) - Hook*

Points that need to be cleaned particularly thoroughly:

- Underside of throat plate
- Area around the hook (2)
- Area around the needle
- Underside of sewing table (1)

Also remove any lint and thread remnants from the oil pan.

6.2 Lubricating

CAUTION

Risk of injury from contact with oil!

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

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

NOTICE

Property damage from incorrect oil!

Incorrect oil types can result in damage to the machine.

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

CAUTION

Risk of environmental damage from oil!

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

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

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

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

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

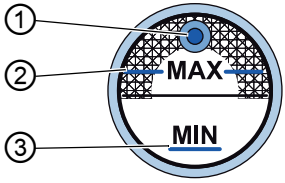
You can order the lubricating oil from our sales offices using the following part numbers.

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

Checking the oil level in the machine head

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

Fig. 29: Checking the oil level in the machine head



(1) - Oil filler opening
(2) - MAX marking
(3) - MIN marking

Proper setting

The oil level must not raise above the MAX marking (2) or drop below the MIN marking (3).
If the oil level is too low, the inspection glass of the oil reservoir lights up red.

To top off the oil:

1. Fill oil through the oil filler opening (1) up to the MAX marking (2).

6.3 Servicing the pneumatic system

6.3.1 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

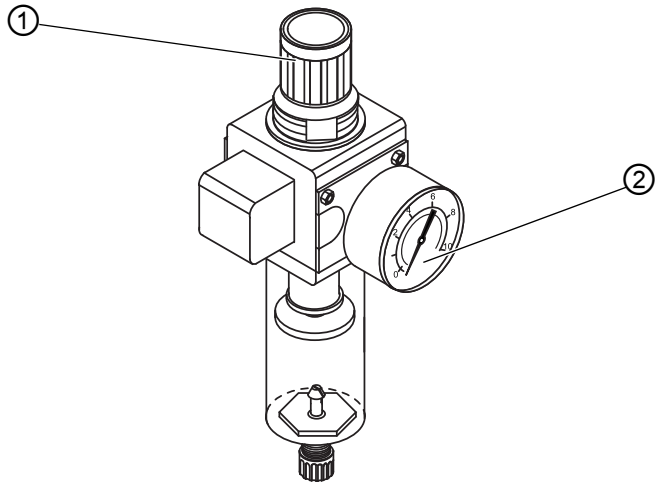
Ensure that the machine is only used when the operating pressure is set correctly.

Proper setting

Refer to the **Technical data** (📖 *p. 91*) 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. 30: Setting the operating pressure



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

To set the operating pressure:

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

6.3.2 Draining the water condensation

NOTICE

Property damage from excess water!

Excess water can cause damage to the machine.

Drain water as required.

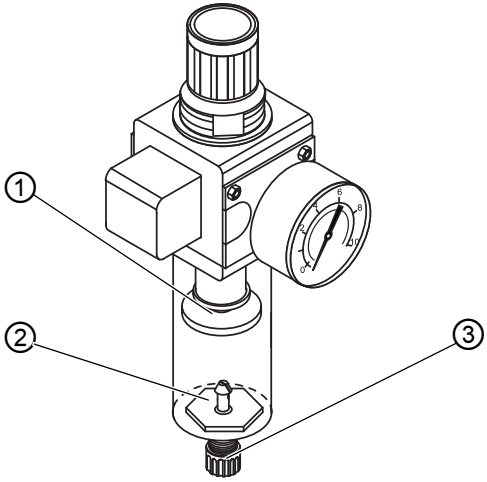
Water condensation accumulates in the water separator (2) of the pressure controller.

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. 31: 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.

6.3.3 Cleaning the filter element

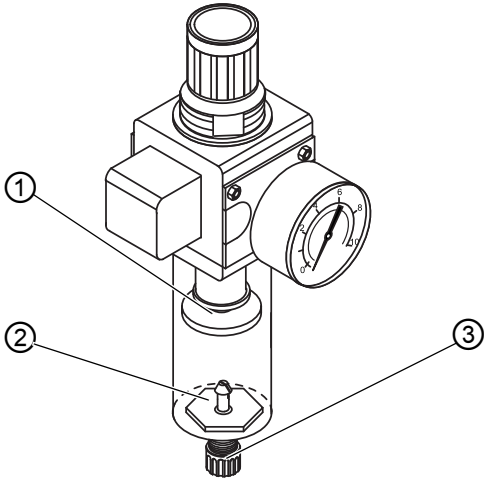
NOTICE

Damage to the paintwork from solvent-based cleaners!

Solvent-based cleaners damage the filter.

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

Fig. 32: 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. 57*).
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.

6.4 Parts list

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

www.duerkopp-adler.com

7 Setup

WARNING

Risk of injury from cutting parts!

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

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

WARNING

Risk of injury from moving parts!

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

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

7.1 Checking the scope of delivery

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

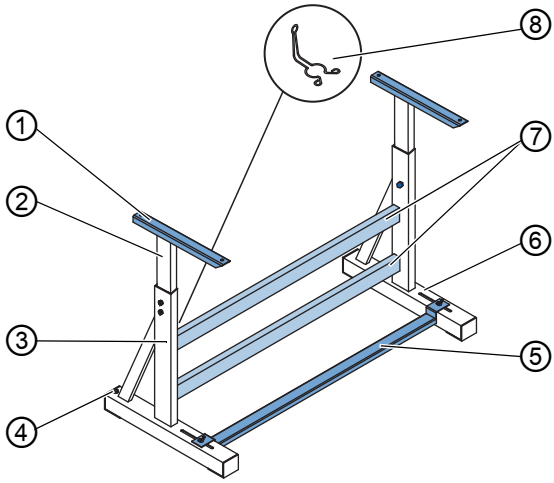
7.2 Removing the transport locks

Remove all transport locks before setting up the machine:

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

7.3 Assembling the stand

Fig. 33: Assembling the stand



(1) - Head sections of the inner bars
(2) - Inner bars
(3) - Stand bars
(4) - Adjusting screw
(5) - Cross strut
(6) - Foot struts
(7) - Cross struts
(8) - Oil can holder

To assemble the stand:

1. Screw the cross struts (7) to the stand bars (3).
2. Screw the oil can holder (8) at the rear to the upper cross strut (7).
3. Screw the cross strut (5) to the foot struts (6).
4. Insert the inner bars (2) in such a way that the longer end of the head sections (1) is above the longer end of the foot struts (6).
5. Tighten the inner bars (2).

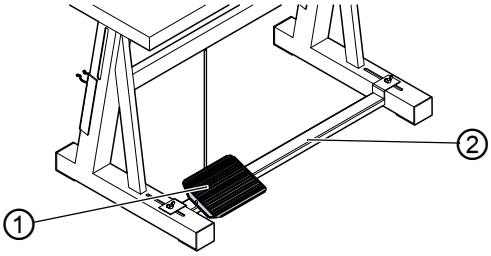
↳ Both head sections (1) must be at the same height.

Important

Turn the adjusting screw (4) so that the stand has even contact with the ground.

7.4 Assembling the pedal

Fig. 34: Assembling the pedal



(1) - Pedal *(2) - Cross strut*

To assemble the pedal:

1. Fit the pedal (1) on the cross strut (2) and align it in such a way that the middle of the pedal is under the needle.
2. Assemble the pedal (1).

7.5 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

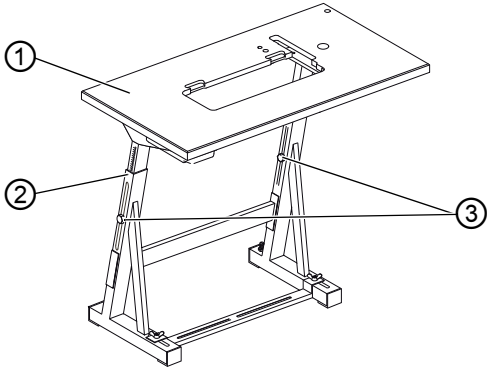
Risk of musculoskeletal damage from incorrect setting!

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 continuously to any height between 750 and 900 mm.

Fig. 35: Setting the working height



(1) - Tabletop
(2) - Stand bars
(3) - Screws

To set the working height:

1. Loosen the screws (3) on the stand bars (2).
2. Set the tabletop to the desired height.

Important

Ensure that the tabletop is level.

3. Tighten the screws (3).

7.6 Machine head

7.6.1 Inserting the machine head

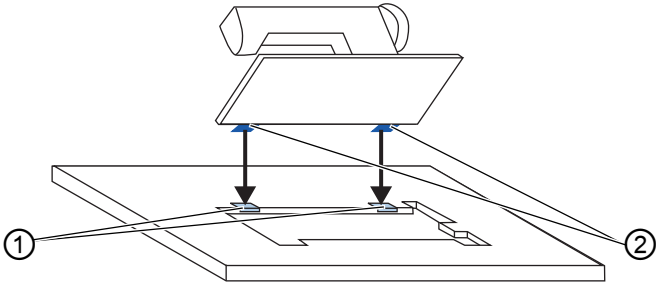
WARNING

Risk of injury from the machine head!

The machine head is heavy and can cause crushing injuries if handled in a careless manner.

NEVER stick your hands between machine head and tabletop.

Fig. 36: Inserting the machine head



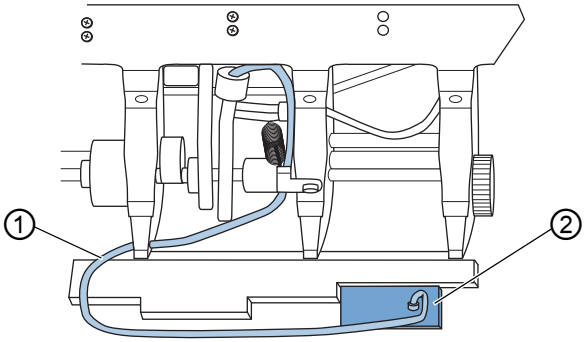
(1) - Rubber inlays *(2) - Upper hinge parts*

To insert the machine head:

1. Position the machine head from the top at a 45° angle.
2. Insert the upper hinge parts (2) into the rubber inlays (1).
3. Tilt the machine head.

7.6.2 Assembling the oil extraction line

Fig. 37: Assembling the oil extraction line



(1) - Tube of oil extraction line *(2) - Felt mat*

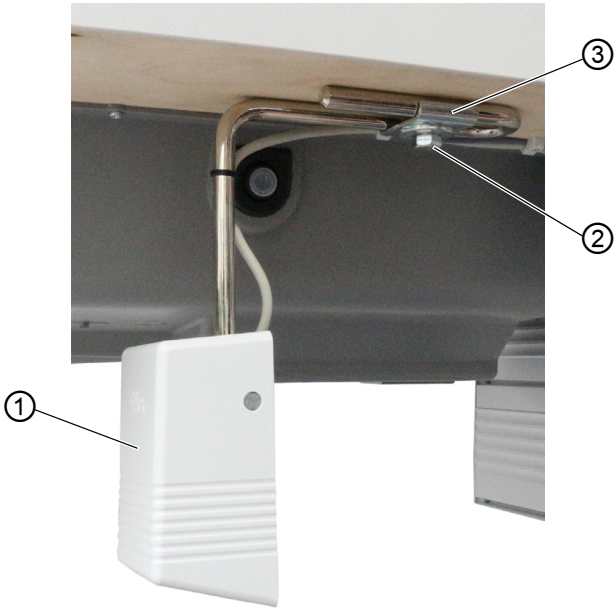
To assemble the oil extraction line:

1. Tilt the machine head.
2. Tighten the felt mat (2) into the oil pan with the plastic adapter on the right.
3. Insert the tube of the oil extraction line (1) into the plastic adapter.

7.6.3 Setting the knee button

Setting the knee button sideways

Fig. 38: Setting the knee button sideways



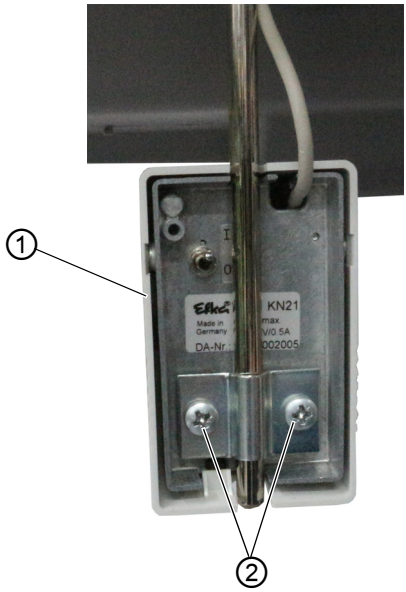
(1) - Knee button
(2) - Screw
(3) - Guide

To set the knee button sideways:

1. Loosen the screw (2).
2. Move the knee button (1) sideways inside the guide (3).
3. Tighten the screw (2).

Setting the height of the knee button

Fig. 39: Setting the height of the knee button



(1) - Knee button *(2) - Screws*

To set the height of the knee button:

1. Loosen the screws (2).
2. Adjust the height of the knee button (1).
3. Tighten the screws (2).

7.7 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.

Connecting the control

To connect the control:

1. Tighten the control on the tabletop.
2. Guide the cable from the machine head through the tabletop cutout.
3. Connect the cable with the control.
   Both the cable and the appropriate plug are color-coded and marked with a symbol.

7.8 Pneumatic connection

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.

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!

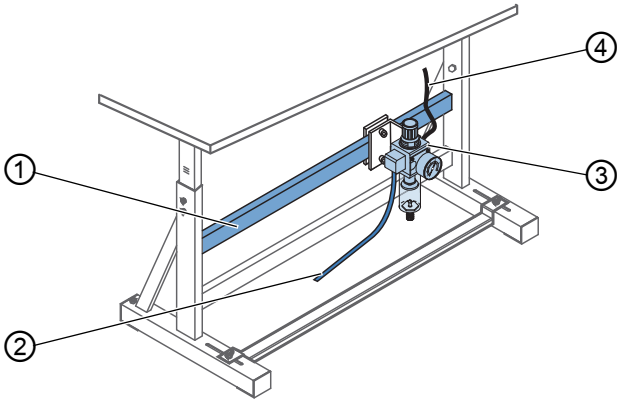
Incorrect system pressure can result in damage to the machine.

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.

7.8.1 Assembling the compressed air maintenance unit

Fig. 40: Assembling the compressed air maintenance unit



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

To assemble the compressed air maintenance unit:

1. Assemble the maintenance unit (3) to the upper cross strut (1) of the stand using the bracket, screws and clip.
2. Connect the connection hose to the compressed air supply using a hose coupling R 1/4”.

7.8.2 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

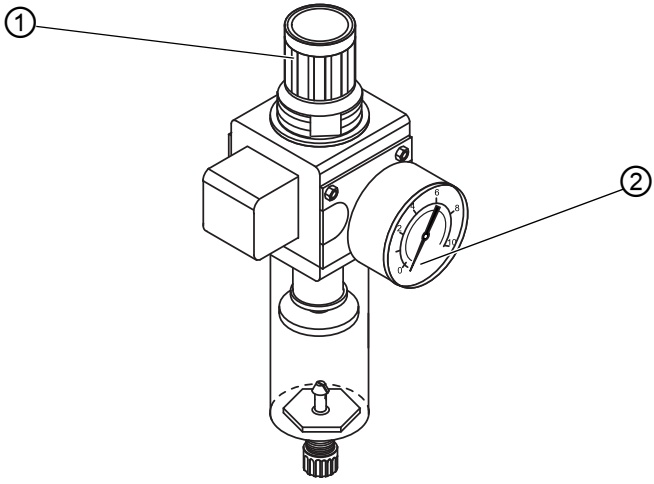
Incorrect operating pressure can result in damage to the machine.

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

Proper setting

Refer to the **Technical data** (📖 *p. 91*) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Fig. 41: 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.

7.9 Performing a test run

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

8 Decommissioning

WARNING

Risk of injury from a lack of care!

Serious injuries may occur.

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

CAUTION

Risk of injury from contact with oil!

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

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

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.

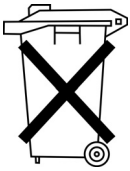
9 Disposal

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

.

Code	Possible cause	Remedial action
1000	Sewing motor encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
1001	Sewing motor error: Sewing motor plug (AMP) not connected	• Check connection and plug in, if necessary • Test sewing motor phases (R= 2.8 Ω, high impedance to PE) • Replace the encoder • Replace sewing motor • Replace the control
1002	Sewing motor insulation fault	• Check motor phase and PE for low-impedance connection • Replace the encoder • Replace sewing motor
1004	Sewing motor error: Incorrect sewing motor direction of rotation	• Replace the encoder • Check plug assignment and change, if necessary • Test motor phases and check for correct value
1005	Motor blocked	• Eliminate stiff movement in the sewing machine • Replace the encoder • Replace the motor

Code	Possible cause	Remedial action
1006	Maximum speed exceeded	• Replace the encoder • Perform reset • Check machine class (parameter t 51 04)
1007	Error in the reference run	• Replace the encoder • Eliminate stiff movement in the sewing machine
1008	Encoder error	• Replace the encoder
1010	External synchronizer plug (Sub-D, 9-pin) not connected	• Connect cable of external synchronizer to control, use correct connection (*Sync*) • Only required for machines with transmission!
1011	Encoder Z pulse missing	• Switch off the control, use handwheel to turn, and switch on the control again • If error is not corrected, check encoder
1012	Synchronizer fault	• Replace the synchronizer
1052	Sewing motor overcurrent, internal current increase >25 A	• Check selection of class • Replace the control • Replace sewing motor • Replace the encoder
1053	Sewing motor overvoltage	• Check selection of class • Replace the control
1054	Internal short circuit	• Replace the control
1055	Sewing motor overload	• Eliminate stiff movement in the sewing machine • Replace the encoder • Replace sewing motor

Code	Possible cause	Remedial action
1203	Position not reached	• Check and, if necessary, change controller settings • Make mechanical changes to the machine (e.g. thread cutting setting, belt tension) • Check the position (thread lever at top dead center)
2020	DACextension box not responding	• Check connection cables • Check LEDs of DACextension box • Perform software update
2021	Sewing motor encoder plug (Sub-D, 9-pin) not connected to DACextension box	• Connect encoder cable to DACextension box using the correct connection
2101	DA stepper card 1 reference run timeout	• Check reference sensor
2103	DA stepper card 1 step losses	• Check for stiff movement
2120	DA stepper card 1 not responding	• Check connection cables • Check LEDs on DACextension box • Perform software update
2121	DA stepper card 1 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2122	DA stepper card 1 flywheel position not found	• Check connection cables • Check stepper motor 1 for stiff movement
2155	DA stepper card 1 overload	• Check for stiff movement
2201	DA stepper card 2 reference run timeout	• Check reference sensor
2203	DA stepper card 2 step losses	• Check for stiff movement

Code	Possible cause	Remedial action
2220	DA stepper card 2 not responding	• Check connection cables • Check LEDs on DACextension box • Perform software update
2221	DA stepper card 2 encoder plug (Sub-D, 9-pin) not connected	• Connect encoder cable to the control, use correct connection
2222	DA stepper card 2 flywheel position not found	• Check connection cables • Check stepper motor 2 for stiff movement
2255	DA stepper card 2 overload	• Check for stiff movement
3100	AC-RDY timeout, intermediate circuit voltage did not reach the defined threshold in the specified time	• Check the mains voltage • If the mains voltage is OK, replace the control
3101	High voltage fault, mains voltage, longer duration >290 V	• Check mains voltage, if nominal voltage is continuously exceeded: stabilize it or use a generator
3102	Low voltage failure (2^{nd} threshold) (mains voltage <150 V AC)	• Check the mains voltage • Stabilize the mains voltage • Use generator
3103	Low voltage failure (1^{st} threshold) (mains voltage < 180 V AC)	• Check the mains voltage • Stabilize the mains voltage • Use generator
3104	Pedal is not in position 0	• Do not press the pedal when switching on the control

Code	Possible cause	Remedial action
3105	U24 V short circuit	• Disconnect 37-pin plug; if error persists, replace control • Test inputs/outputs for 24 V short circuit
3106	U24 V (I^2T) overload	• One or several magnets defective
3107	Pedal not connected	• Connect analog pedal
3108	Speed limited due to insufficient mains voltage	• Check the mains voltage
3109	Operation lock	• Check tilt sensor on machine
3150	Maintenance necessary	• Lubricate the machine 🕮 *p. 54*
3151	Maintenance necessary (operation cannot continue unless parameter t 51 14 is reset)	• Service is required, 🕮 *Service Instructions*
3155	No release for sewing process	• Parameter t 51 20 - t 51 33 = 25 • Input signal for sewing process release required
3160	Stitch loosening device	• Stitch loosening cannot be performed • Reference position is not set correctly (🕮 *S. 49*) • Stitch loosening device is mechanically adjusted • No signal from the light barrier of the stitch loosening device (defective or not connected)
3215	Bobbin stitch counter (info value 0 reached)	• Change bobbin, set counter value
3216	Remaining thread monitor left	• Change the left bobbin

Code	Possible cause	Remedial action
3217	Remaining thread monitor right	• Change the right bobbin
3218	Remaining thread monitor left and right	• Change left and right bobbin
3223	Skip stitch detected	-
3224	Bobbin failed to rotate	-
6353	Internal EEprom communication error	• Switch off the control, wait until the LEDs are off and then switch on again
6354	External EEprom communication error	• Switch off the control, wait until the LEDs are off, check connection for machine ID, switch on control again
6360	No valid data on external EEprom (internal data structures are not compatible with the external data storage device)	• Perform software update
6361	No external EEprom connected	• Connect machine ID
6362	No valid data on internal EEprom (internal data structures are not compatible with the external data storage device)	• Check machine ID connection • Switch off the control, wait until the LEDs are off and then switch on the machine again • Perform software update
6363	No valid data on internal and external EEprom (software version is not compatible with the internal data storage device, emergency operating features only)	• Check machine ID connection • Switch off the control, wait until the LEDs are off and then switch on the machine again • Perform software update

Code	Possible cause	Remedial action
6364	No valid data on internal EEprom and no external EEprom connected (the internal data structures are not compatible with the external data storage device, emergency operating features only)	• Check machine ID connection • Switch off the control, wait until the LEDs are off and then switch on the machine again • Perform software update
6365	Internal EEprom defective	• Replace the control
6366	Internal EEprom defective and external data not valid (emergency operating features only)	• Replace the control
6367	Internal EEprom defective and external EEprom not connected (emergency operating features only)	• Replace the control
7202	DACextension box boot error	• Check connection cables • Perform software update • Replace DACextension box
7203	Checksum error during update	• Check connection cables • Perform software update • Replace DACextension box
7212	DA stepper card 1 boot error	• Check connection cables • Perform software update • Replace DACextension box
7213	Checksum error occurred while updating DA stepper card 2	• Check connection cables • Perform software update • Replace DACextension box

Code	Possible cause	Remedial action
7222	DA stepper card 2 boot error	• Check connection cables • Perform software update • Replace DACextension box
7223	Checksum error occurred while updating DA stepper card 2	• Check connection cables • Perform software update • Replace DACextension box
7801	Software version error (DACclassic only; only the functions of the DACbasic will remain available)	• Perform software update • Replace the control
7802	Software update error (DACclassic only; only the functions of the DACbasic will remain available)	• Perform software update again • Replace the control
7803	Communication error (DACclassic only; only the functions of the DACbasic will remain available)	• Restart the control • Perform software update • Replace the control
8401	Watchdog	• Perform software update • Perform a machine ID reset • Replace the control
8402 - 8405	Internal error	• Perform software update • Perform a machine ID reset • Replace the control
8406	Checksum error	• Perform software update • Replace the control
8501	Software protection	• The DA tool must always be used for software updates

10.3 Errors in sewing process

Error	Possible cause	Remedial action
Unthreading at seam beginning	Needle thread tension is too firm	Check pretension 🕮 *p. 27*
Thread breaking	Needle thread and hook thread have not been threaded correctly	Check threading path of needle thread 🕮 *p. 20* and hook thread 🕮 *p. 24*
	Needle is • bent • sharp-edged • not properly inserted	Insert new needle 🕮 *p. 18*
	Yarn is • knobby • hard • too thick	Use recommended yarn
	Thread tension is set too firm	Check thread tension 🕮 *p. 26*
	Thread-guiding parts are sharp-edged	Check the thread path
	Throat plate or hook has been damaged by the needle	Have parts replaced

Error	Possible cause	Remedial action
Skip stitch	Needle is • blunt • bent • not properly inserted	Insert new needle 🕮 *p. 18*
	Needle thread and hook thread have not been threaded correctly	Check threading path of needle thread 🕮 *p. 20* and hook thread 🕮 *p. 24*
	Thread tension is set too firm	Check thread tension 🕮 *p. 27*
	Sewing material is not held correctly	Check sewing foot pressure 🕮 *p. 34*
	Needle thickness is incorrect	Use recommended needle thickness 🕮 *p. 91*
	Throat plate or hook has been damaged by the needle	Have parts replaced
	Hook is set incorrectly	🕮 *Service Instructions*
Loose stitch	Thread tension not adjusted to • Sewing material • Sewing material thickness • Thread	Check thread tension 🕮 *p. 26*
	Needle thread and hook thread have not been threaded correctly	Check threading path of needle thread 🕮 *p. 20* and hook thread 🕮 *p. 24*
Needle breakage	Needle thickness not suitable for • Sewing material • Sewing material thickness • Thread	Alter needle thickness 🕮 *p. 18*

11 Technical data

Noise emission

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

L_{pA} = 78 dB (A); K_{pA} = 1,24 dB (A)

- Stitch length: 6 mm
- Sewing foot stroke: 1,5 mm
- Speed: 1300 rpm
- Sewing material: 2-layer material G1 DIN 23328

Data and characteristic values

Technical data	Unit	670/680
Machine type		Column double lockstitch sewing machine
Hook type		large vertical hook (L)
Type of stitches		301
Number of needles		1
Needle system		190 R
Needle strength	[Nm]	70 - 200
Thread strength	[Nm]	max 40
Stitch length	[mm]	max 9 mm
Max. speed	[min^{-1}]	1800 (without stitch loosening) 1500 (with stitch loosening)
Speed on delivery	[min^{-1}]	1500
Mains voltage	[V]	230
Mains frequency	[Hz]	50/60
Operating pressure	[bar]	6
Air consumption	[NL]	0.7
Length	[mm]	690

Technical data	Unit	670/680
Width	[mm]	220
Height	[mm]	480
Weight	[kg]	63
Rated power: - StandBy - Operation	[kWh]	

Characteristics

- Electromagnetic thread cutter
- Sewing foot lift
- Electropneumatic quick stroke adjustment
- Switchable thread tension
- Stitch loosening
- Electropneumatic 2nd stitch length
- Remaining thread length after thread cutting
  - Needle thread: 20 mm
  - Hook thread: 8 mm
- Safety snap-on coupling
- Wick lubrication system
- Oil reservoir with inspection glass on the machine head
- 6 function buttons on the machine arm and one favorite button that can be assigned one of the functions
- Integrated sewing lamp
- Driven edge cutter

12 Appendix

12.1 Wiring diagram

Fig. 42: Wiring diagram

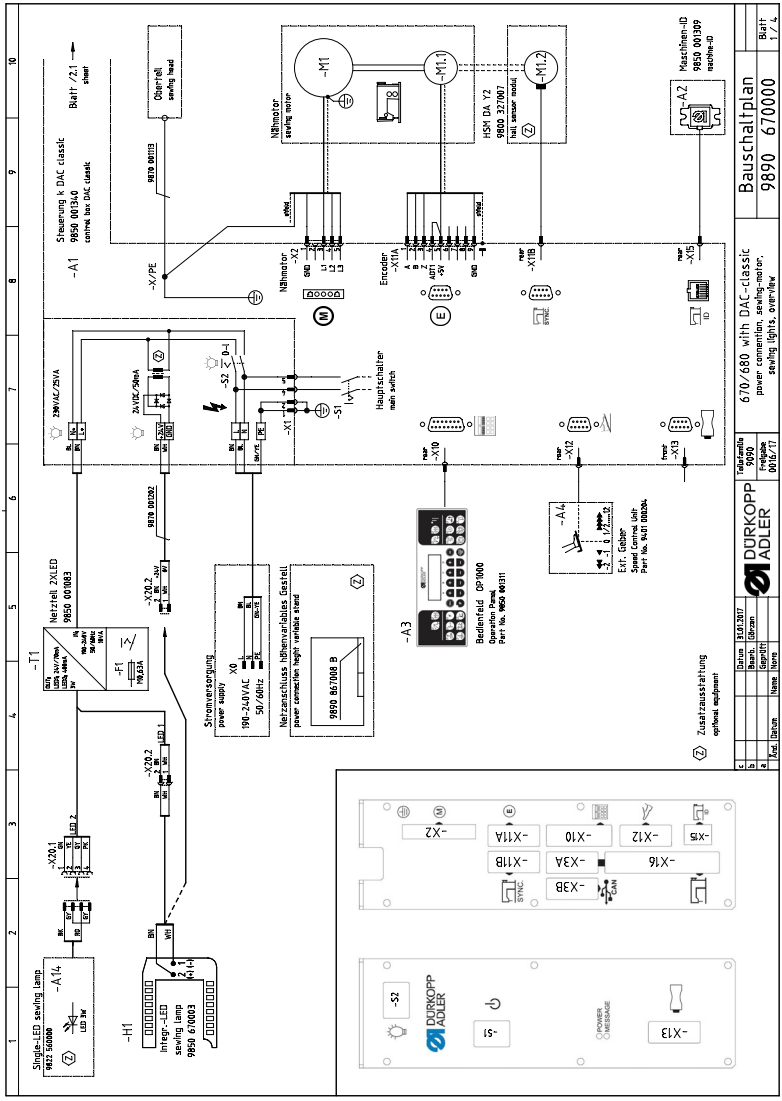


Fig. 43: Wiring diagram

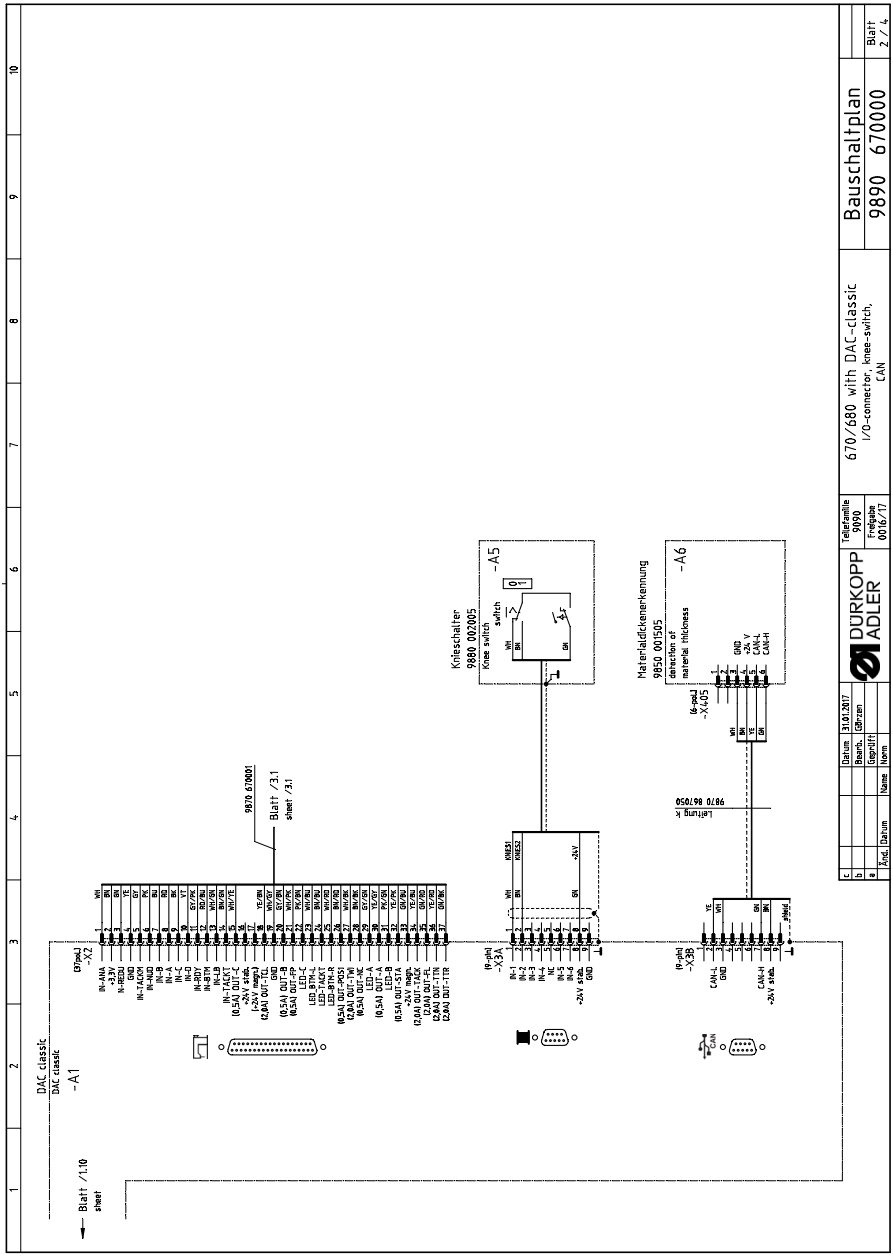


Fig. 44: Wiring diagram

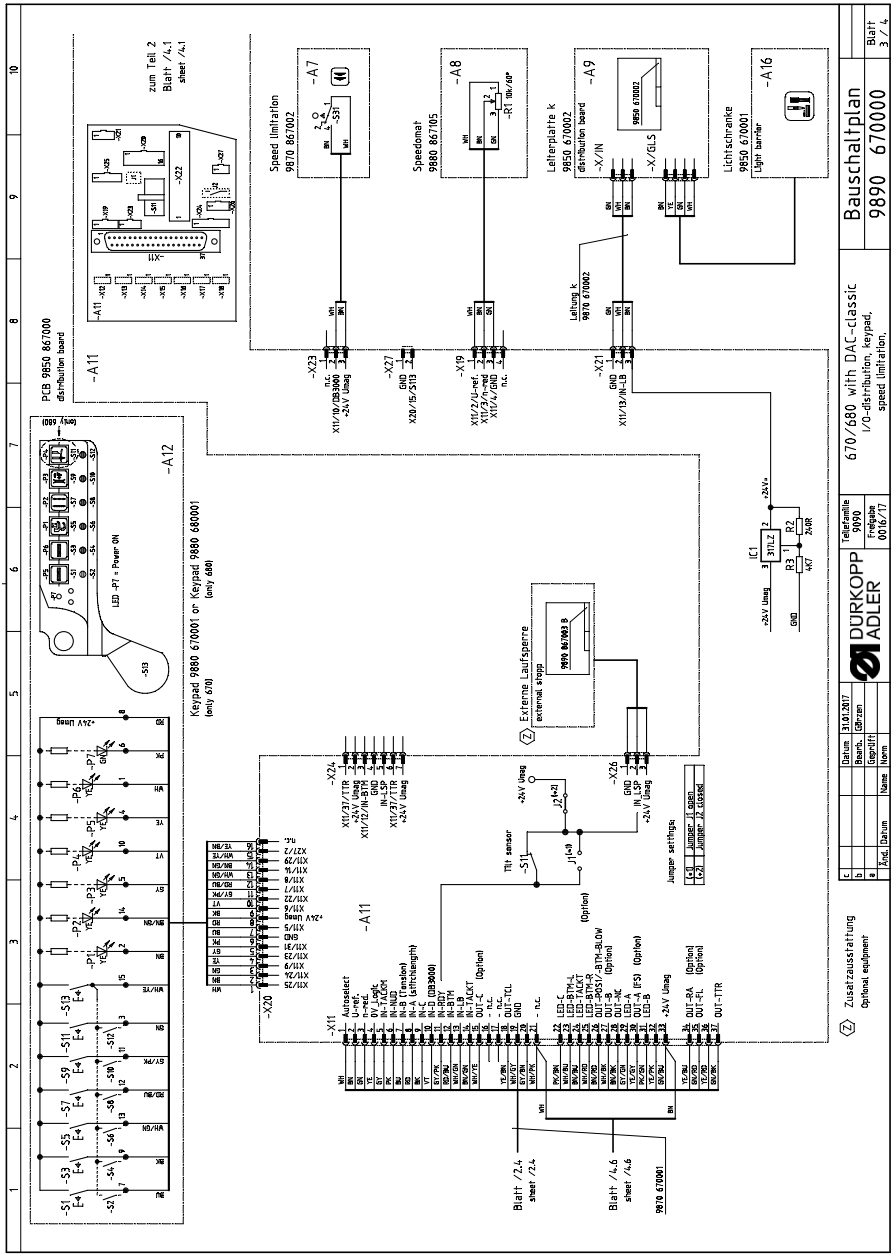
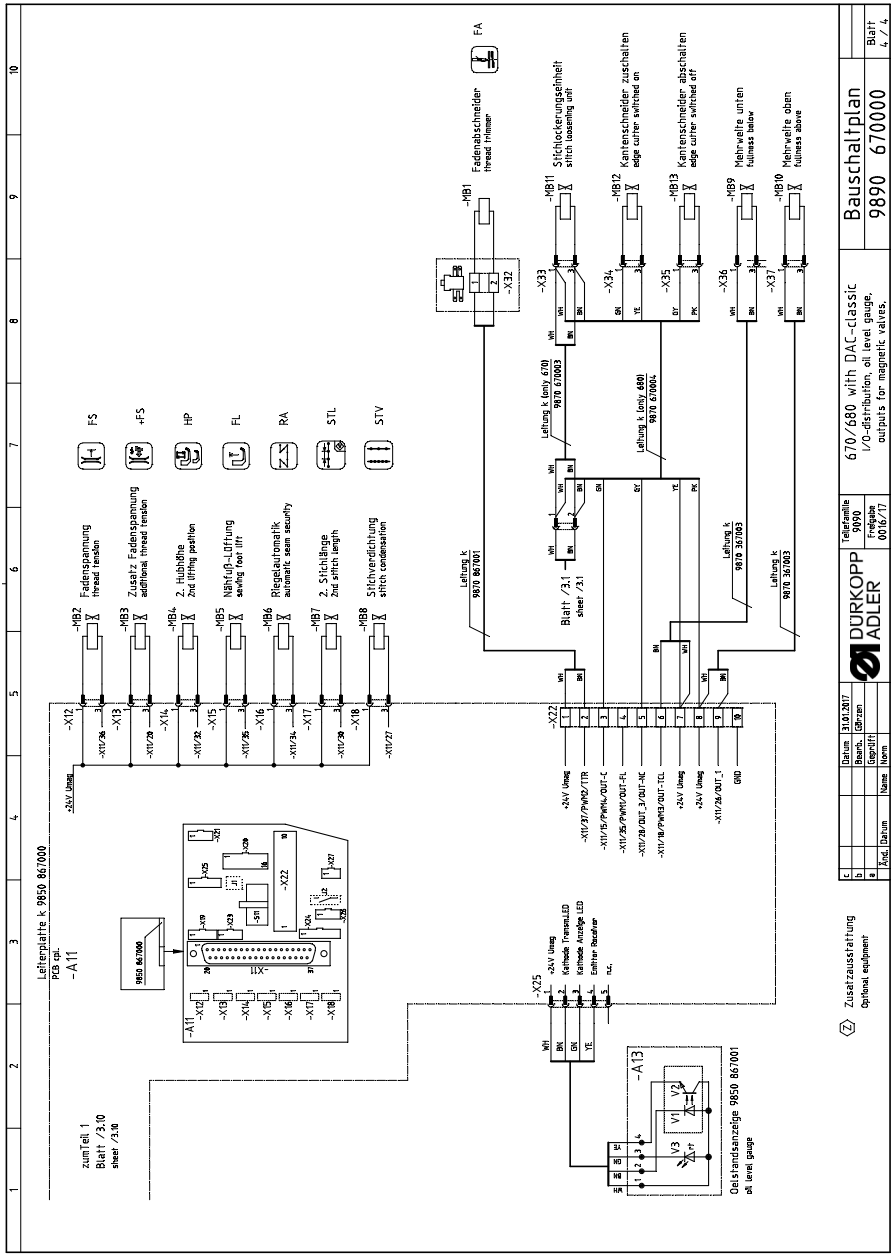


Fig. 45: Wiring diagram



12.2 Dimensions for manufacturing a table top

Fig. 46: Table top

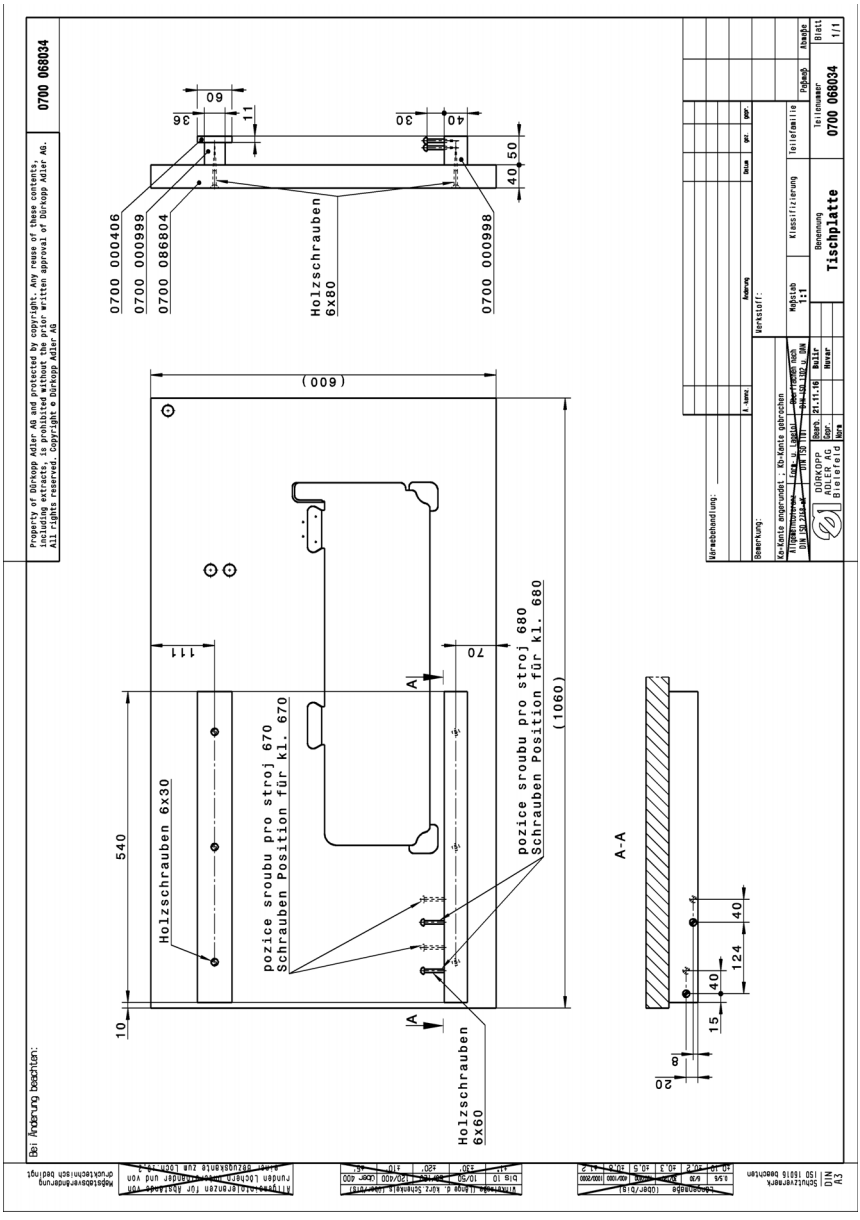


Fig. 47: Table top

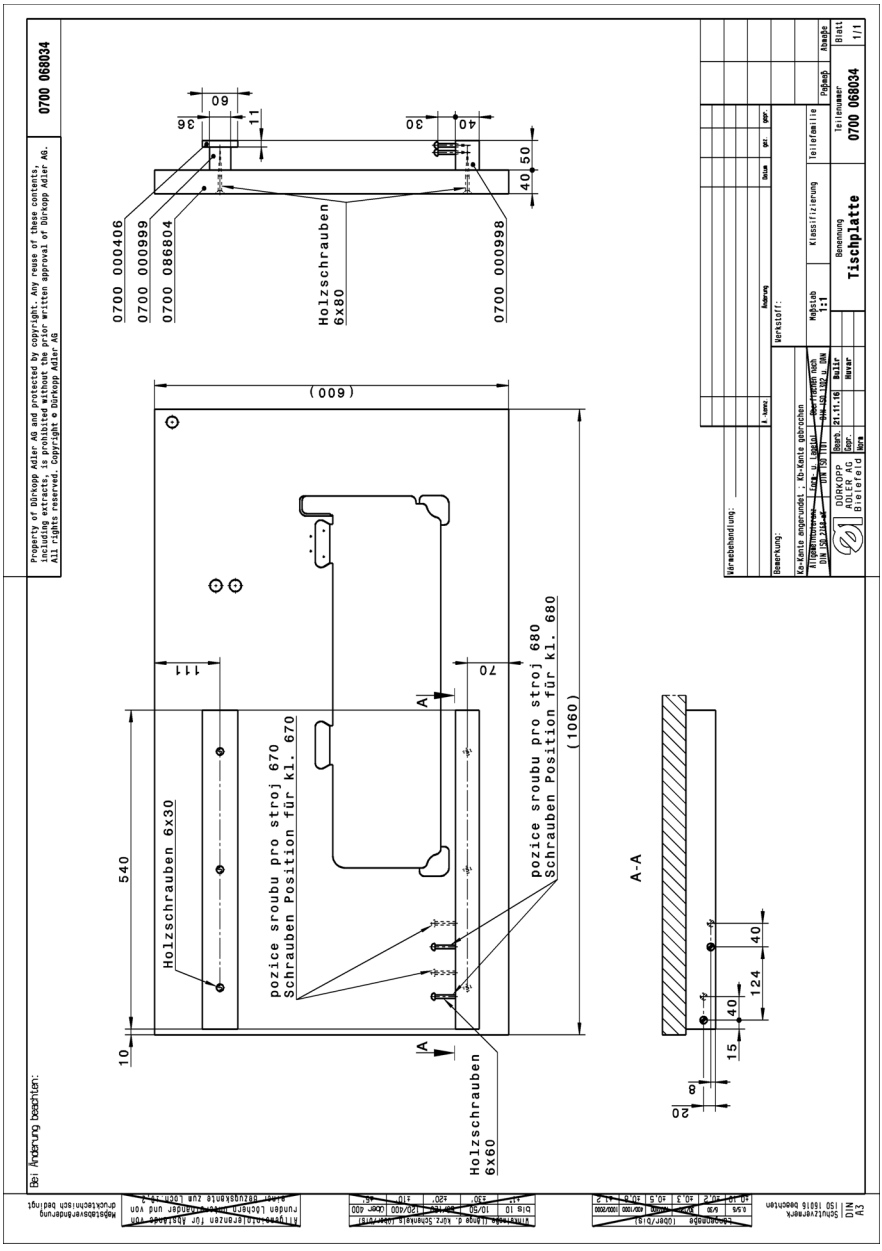


Fig. 48: Table cutout

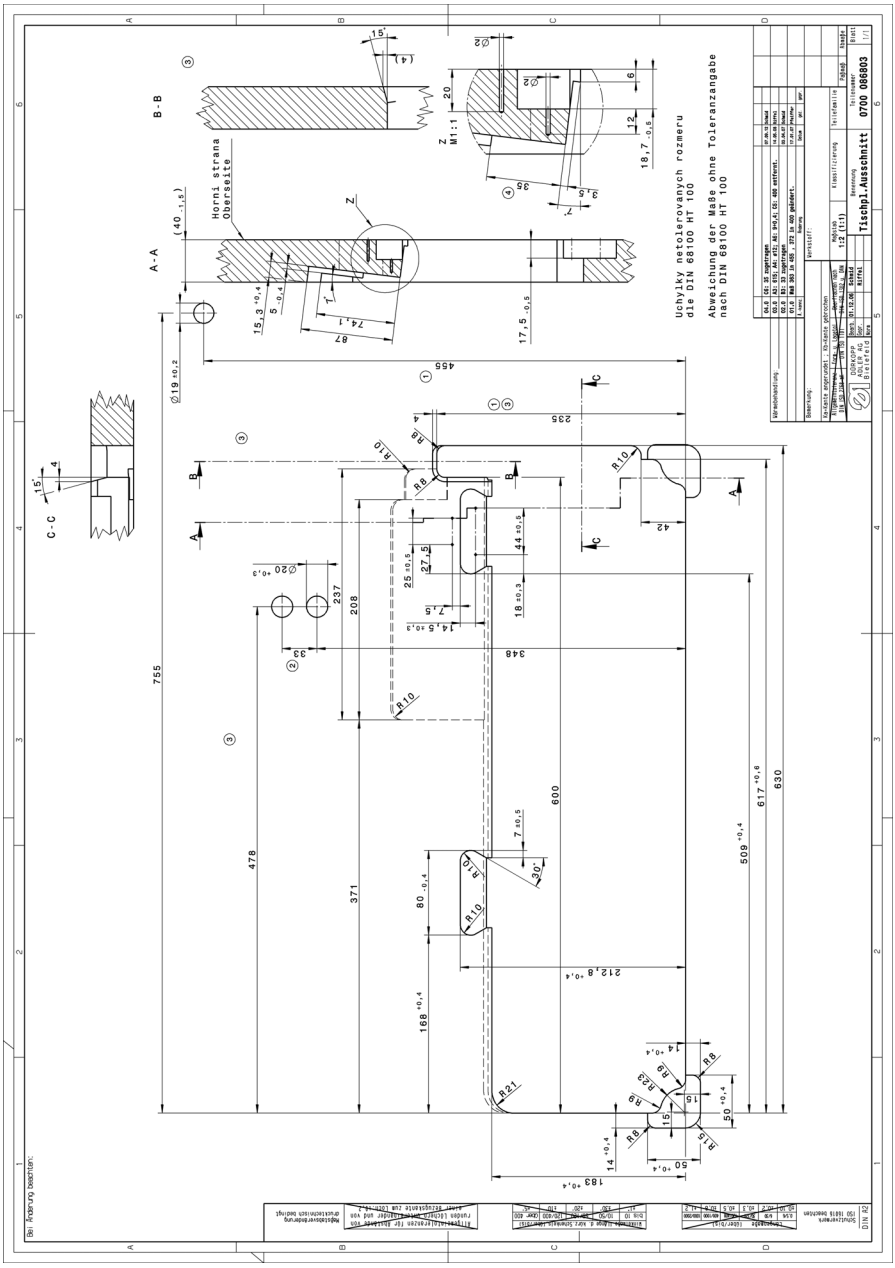


Fig. 49: Sliding table

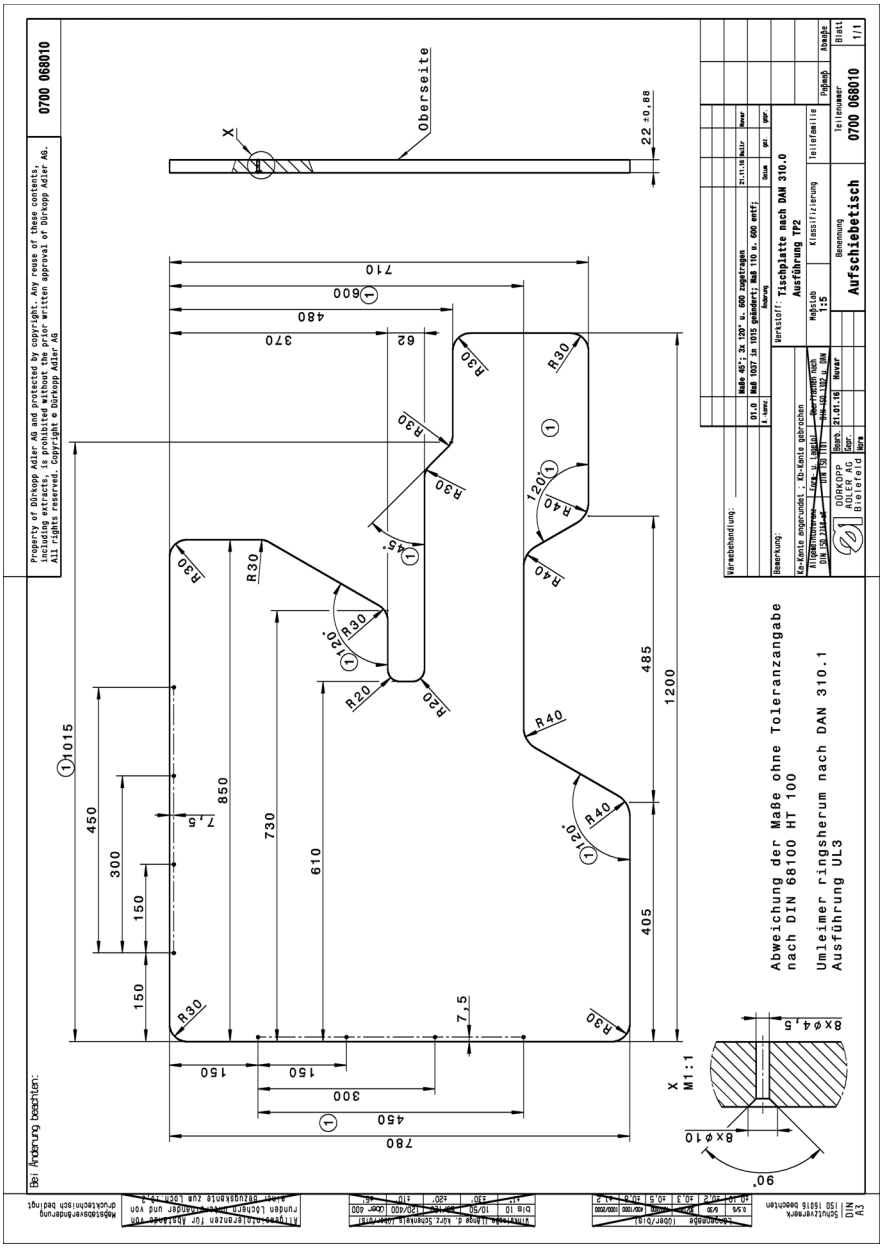
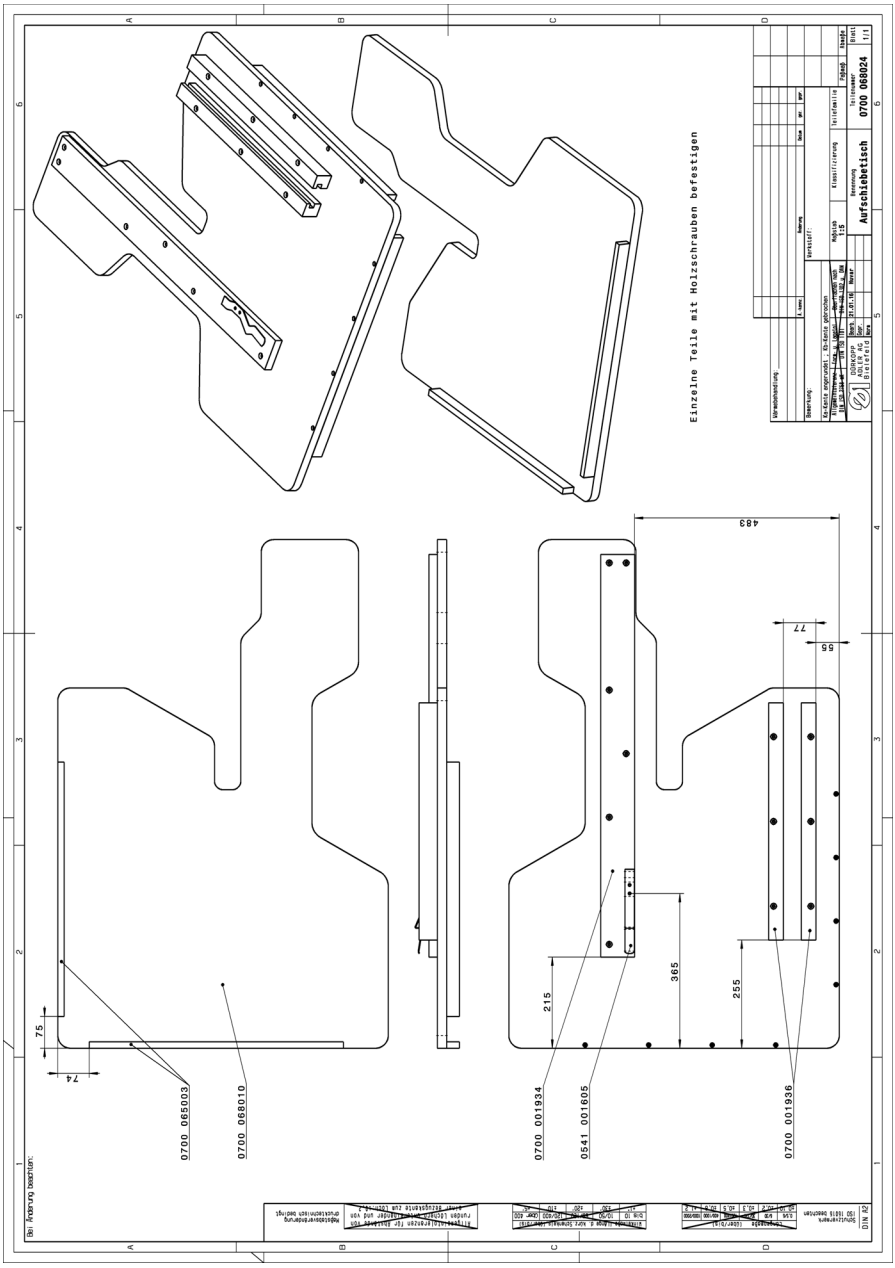


Fig. 50: Sliding table



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