

# 669 PREMIUM

## Operating Instructions

**IMPORTANT**  
**READ CAREFULLY BEFORE USE**  
**KEEP FOR FUTURE REFERENCE**

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# 1 About these instructions



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

Should you notice any discrepancies or if you have improvement requests, then we would be glad to receive your feedback through **Customer Service** ( p. 133).


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. 109) 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:

- 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
<b>DANGER</b>	(with hazard symbol) If ignored, fatal or serious injury will result
<b>WARNING</b>	(with hazard symbol) If ignored, fatal or serious injury can result



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

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

Symbol	Type of danger
	General
	Electric shock
	Puncture
	Crushing
	Environmental damage

**Examples** Examples of the layout of warnings in the text:

### **DANGER**



**Type and source of danger!**

Consequences of non-compliance.

Measures for avoiding the danger.

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

### **WARNING**



**Type and source of danger!**

Consequences of non-compliance.

Measures for avoiding the danger.

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

### **CAUTION**



**Type and source of danger!**

Consequences of non-compliance.

Measures for avoiding the danger.

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

### NOTICE

#### **Type and source of danger!**

Consequences of non-compliance.

Measures for avoiding the danger.

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

### CAUTION



#### **Type and source of danger!**

Consequences of non-compliance.

Measures for avoiding the danger.

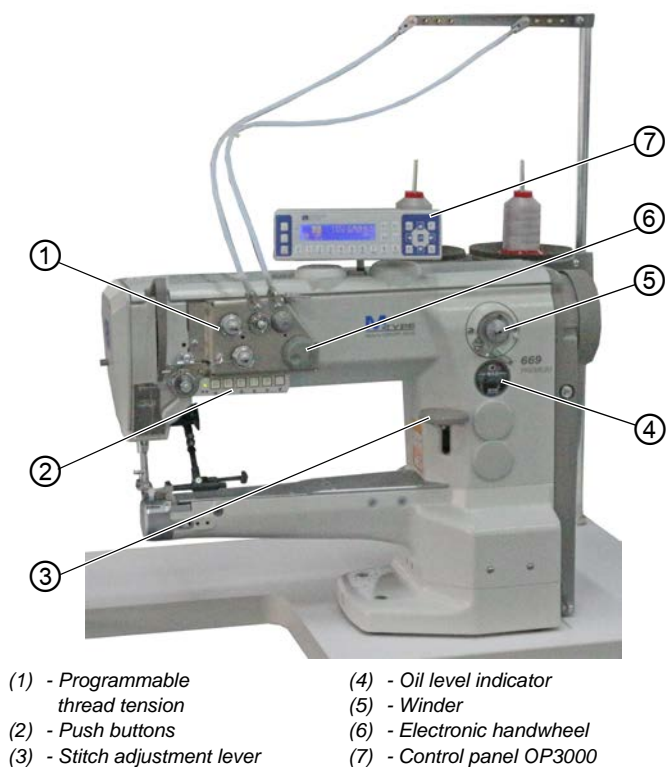
- ↪ This is what a warning looks like for a hazard that could result in environmental damage if ignored.



## 3 Machine description

### 3.1 Components of the machine

Fig. 1: Components of the machine



## 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. 147) chapter.

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

The machine is intended for industrial use.

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

Only authorized persons may work on the machine.

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

### 3.3 Declaration of Conformity

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







## 4 Operation

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

### 4.1 Preparing the machine for operation

#### WARNING



**Risk of injury from moving, cutting and sharp parts!**

Crushing, cutting and punctures are possible.

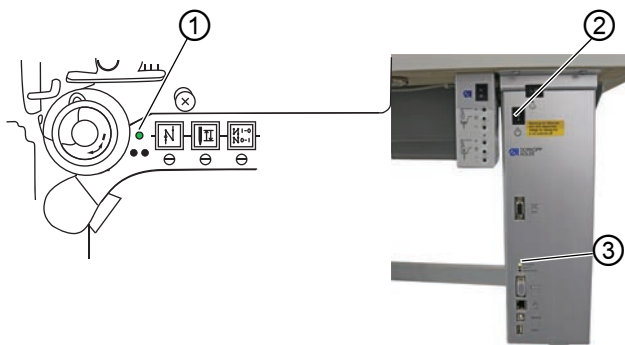
If possible, make preparations only when the machine is switched off.

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

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

## 4.2 Switching on and off the machine

Fig. 2: Switching on and off the machine



(1) - Indicator LED

(2) - Switch

(3) - POWER LED

### Switching on the machine



To switch on the machine:

1. Press the switch (2) to the **I** position.

↳ The indicator LED (1) and the POWER LED (3) illuminate.

### Switching off the machine



To switch off the machine:

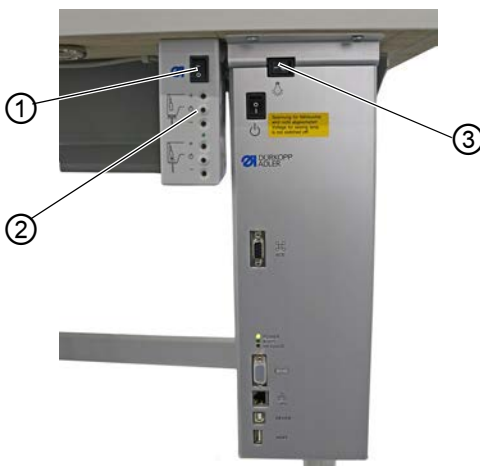
1. Press the switch (2) to the **O** position.

2. The indicator LED (1) and the POWER LED (3) go out.

### 4.3 Switching on and off the sewing lamp

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

*Fig. 3: Switching on and off the sewing lamp*



(1) - Switch

(2) - Button

(3) - Switch

#### Switching on the dimmable sewing lamp



To switch on the dimmable sewing lamp:

1. Press the switch (3) to the **I** position.
2. Press the switch (1) to the **I** position.

☞ The dimmable sewing lamp illuminates.

Press button (2) if the sewing lamp is not yet illuminated.

#### Switching off the dimmable sewing lamp



To switch off the dimmable sewing lamp:

1. Press switch (1) or (3) to the **O** position.

☞ The dimmable sewing lamp goes out.

## 4.4 Inserting/changing the needle

### CAUTION



#### **Risk of injury from sharp parts!**

Punctures possible.

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

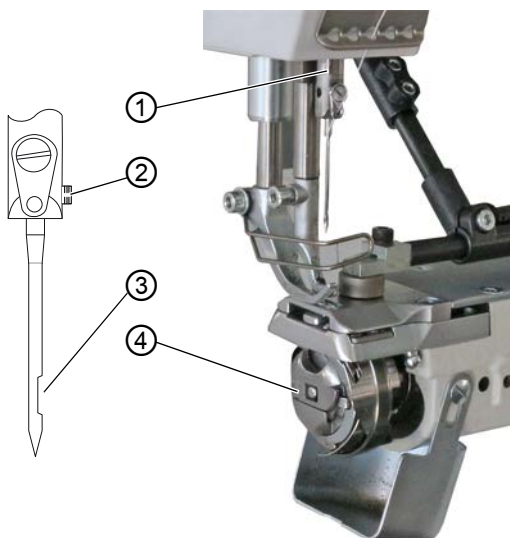
### NOTICE

#### **Property damage may occur!**

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

Check the distance to the hook tip after inserting a needle with a different thickness.

Fig. 4: Inserting/changing the needle



(1) - Needle bar  
(2) - Screw

(3) - Groove  
(4) - Hook



To change the needle:

1. Turn the handwheel until the needle bar (1) reaches the upper end position.
2. Loosen the screw (2).
3. Pull the needle out towards the bottom.
4. Insert a new needle into the hole in the needle bar (1) until it reaches the end stop.




### Important

- Align the needle in such a way that the groove (3) faces the hook (4).
5. Tighten the screw (2).



### Order

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



### Disturbance

An incorrect hook 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

## 4.5 Threading the needle thread

### WARNING



**Risk of injury from needle tip and moving parts!**

Puncture, cutting and crushing possible.

Turn off the machine before threading the thread.

Fig. 5: Threading the needle thread (1)



(1) - Hose guide

(2) - Thread guide

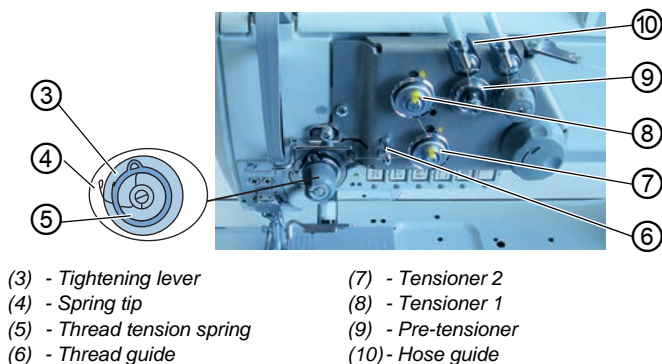


To thread the needle thread:

1. Fit the thread reel on the reel stand.

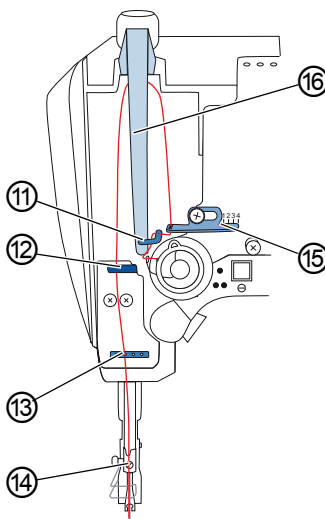
2. Feed the thread from the rear to the front through the thread guide (2) on the unwinding bracket.
3. Use a compressed air gun to feed the thread through the hose guide (1).

Fig. 6: Threading the needle thread (2)



4. Feed the thread clockwise from the hose guide (10) around the pre-tensioner (9).
5. Feed the thread counterclockwise around tensioner 1 (8).
6. Feed the thread clockwise around tensioner 2 (7).
7. Feed the thread under the thread guide (6) to the thread tension spring (5).
8. Lift the tightening lever (3) with the thread.
9. Pull the thread under the spring tip (4).

Fig. 7: Threading the needle thread (3)



(11) - Hook

(12) - Upper thread guide

(13) - Lower thread guide

(14) - Thread guide needle bar

(15) - Needle thread regulator

(16) - Thread lever



10. Guide the thread under the hook (11).

11. Insert the thread from bottom to top through the hole on the needle thread regulator (15).

12. Insert the thread from the right to the left through the thread lever (16).

13. Insert the thread through the upper thread guide (12).

14. Insert the thread through a hole in the lower thread guide (13).



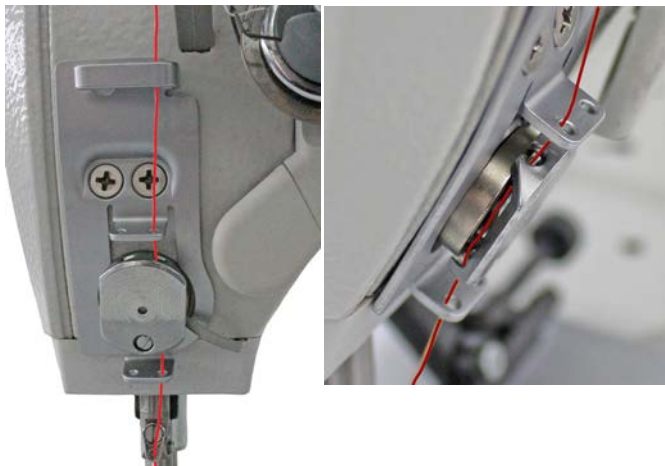
### For machines with thread clamp (optional)

15. Insert the left thread through the left hole of the guide above the thread clamp.

16. Insert the thread through the left hole of the guide below the thread clamp.



*Fig. 8: Thread clamp (optional)*



17. Insert the thread into the thread clamp from the left so that the thread is held in place inside the hook of the clamp.

The thread is supposed to run through the clamp almost without touching it and in such a way that it only makes contact with the guides above and below the thread clamp.

---

18. Feed the thread through the thread guide (14) on the needle bar.
19. Insert the thread through the needle eye in such a way that the loose thread end faces the hook.

## 4.6 Winding the hook thread

### WARNING



**Risk of injury from needle tip and moving parts!**

Puncture, cutting and crushing possible.

Turn off the machine before threading the thread.

Fig. 9: Winding the hook thread (1)



(1) - Thread guide

(2) - Hose guide

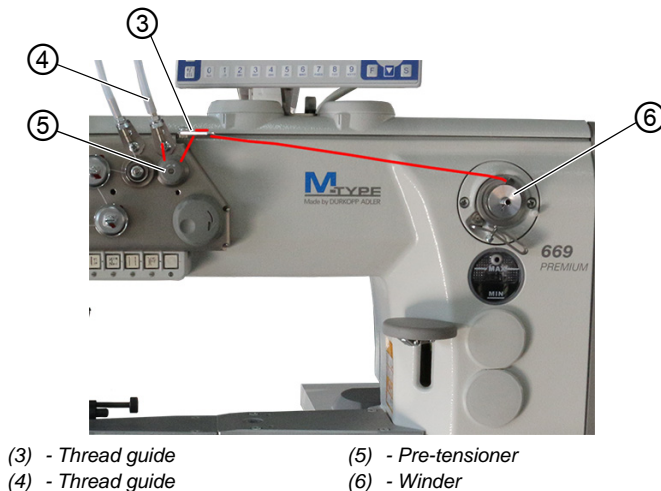


To wind the hook thread:

1. Fit the thread reel on the reel stand.

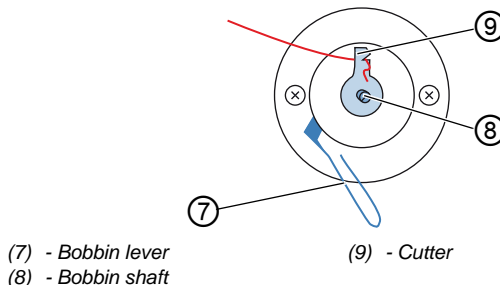
2. Feed the thread from the rear to the front through the thread guide (1) on the unwinding bracket.
3. Use a compressed air gun to feed the thread through the hose guide (2).

Fig. 10: Winding the hook thread (2)



4. Feed the thread counterclockwise from the thread guide (4) around the pre-tensioner (5).
5. Insert the thread in a wavelike manner through the 2 holes of the thread guide (3): from bottom to top through the left hole and from top to bottom through the right hole.
6. Guide the thread to the bobbin (6).

Fig. 11: Winding the hook thread (3)






7. Clamp the thread behind the cutter (9) and tear off the loose end behind it.
8. Fit the bobbin on the bobbin shaft (8).
9. Turn the bobbin clockwise until it clicks.
10. Pull the bobbin lever (7) up.





---

### Information

The hook thread is normally wound on when sewing is in progress. However, you can also wind on the hook thread without sewing, e. g. if you require a full bobbin in order to start sewing. For this purpose, use the winder mode in the softkey menu ( p. 54).

---



11. Switch on the machine.
12. Press the pedal forwards.
  -  The machine sews and winds the hook thread from the thread reel onto the bobbin. When the bobbin is filled, the winding process stops. The bobbin lever moves down. The cutter is automatically moved into its basic vertical position.
13. Pull off the full bobbin.
14. Tear off the thread behind the cutter (9).
15. Insert the full bobbin into the hook ( p. 31).

## 4.7 Changing the bobbin

### WARNING

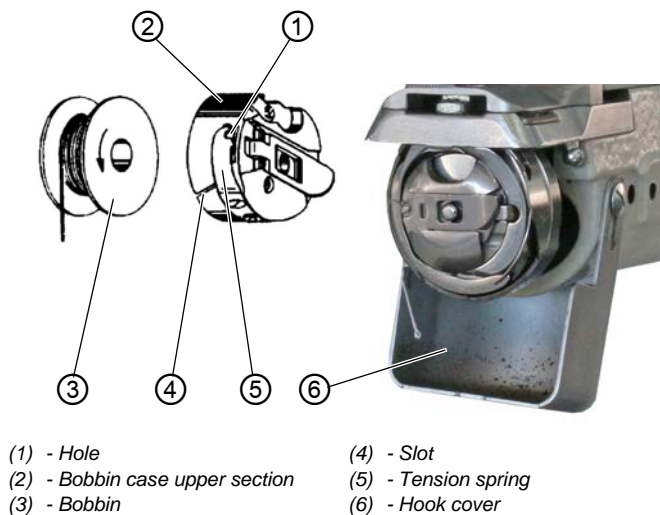


**Risk of injury from needle tip and moving parts!**

Puncture, cutting and crushing possible.

Turn off the machine before changing the bobbin.

Fig. 12: Changing the bobbin



To change the bobbin:

### Removing an empty bobbin

1. Move the needle to the top dead center.
2. Pull off the hook cover (6) and fold it down.
3. Remove the bobbin case upper section (2) with the empty bobbin.
4. Remove the empty bobbin.

### Inserting a full bobbin

5. Insert the full bobbin into the bobbin case upper section (2).
6. Feed the hook thread through the slot (4) under the tension spring (5) into the hole (1).
7. Pull the hook thread approx. 5 cm out of the bobbin case upper section (2).
- ↳ The bobbin must rotate in the direction of the arrow when pulling out the thread.
8. Insert the bobbin case upper section (2) again.
9. Close the hook cover (6).

## 4.8 Thread tension

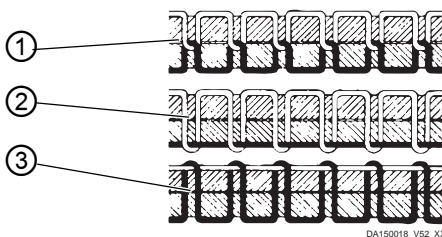
Together with the hook thread tension, the needle thread tension influences the final seam pattern. With thin sewing material, excessive thread tension can lead to undesired gathering and thread breakage.



### Proper setting


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

Fig. 13: Thread tension



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

### 4.8.1 Setting the needle thread tension

The needle thread tension can only be set using the software of the OP3000; for detailed information, refer to the chapter Programming ( p. 45).

### 4.8.2 Setting the hook thread tension

#### WARNING

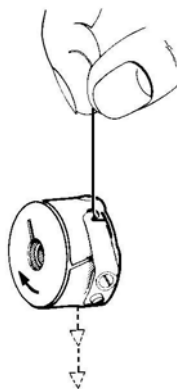


#### Risk of injury from needle tip and moving parts!

Puncture, cutting and crushing possible.

Switch off the machine before setting the hook thread tension.

Fig. 14: Setting the hook thread tension (1)



#### Proper setting

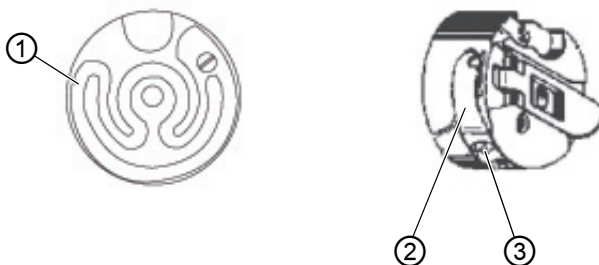
The hook thread tension must be set so that the resulting seam pattern is uniform.

The basic setting for the tension spring is performed as follows:

- When the bobbin case contains a full bobbin it must sink slowly under its own weight.

The braking spring (1) prevents the bobbin running on when the thread has been cut.

Fig. 15: Setting the hook thread tension (2)



(1) - Braking spring  
(2) - Tension spring

(3) - Adjusting screw



To set the hook thread tension:

1. Set the tension spring (2) using the adjusting screw (3).
  - **To increase the tension:** Turn the adjusting screw (3) clockwise
  - **To reduce the tension:** Turn the adjusting screw (3) counterclockwise



## 4.9 Setting the needle thread regulator

### WARNING



#### **Risk of injury from needle tip and moving parts!**

Puncture, cutting and crushing possible.

Switch off the machine before setting the needle thread regulator.

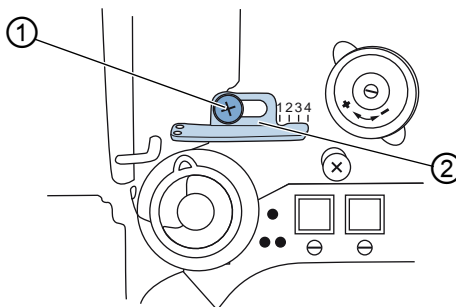
The needle thread regulator determines the tension applied to guide the needle thread around the hook.



#### **Proper setting**

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

*Fig. 16: Setting the needle thread regulator*



(1) - Screw

(2) - Needle thread regulator

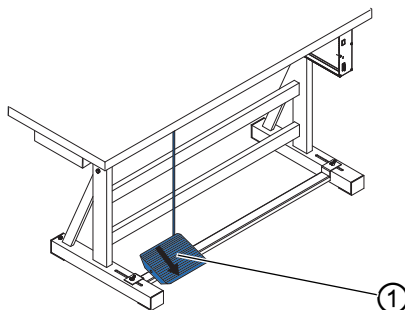


To set the needle thread regulator:

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

## 4.10 Lifting the sewing feet

Fig. 17: Lifting the sewing feet



(1) - Pedal



To lift the sewing feet:

1. Press the pedal (1) halfway back.
- ↳ The machine stops and lifts the sewing feet.  
The sewing feet remain up as long as the pedal is pressed halfway back.

**OR**

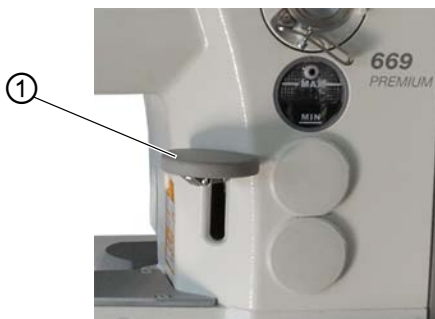


1. Press the pedal (1) fully back.
- ↳ The thread cutter is activated, and the sewing feet are raised.

## 4.11 Sewing backwards with the stitch adjustment lever (optional)

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

*Fig. 18: Sewing backwards with the stitch adjustment lever*



*(1) - Stitch adjustment lever*



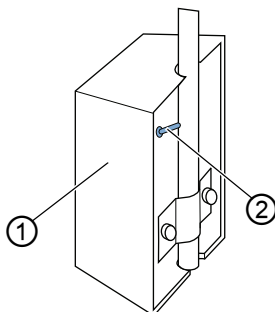
To sew backwards with the stitch adjustment lever:

1. Slowly push the stitch adjustment lever (1) down.
- ✚ The stitch length becomes smaller. In the lower end position, the machine sews backwards with the set stitch length.

## 4.12 Setting quick stroke adjustment

On machines with quick stroke adjustment the elevated sewing foot stroke is switched via the knee button. The toggle switch on the rear side of the knee button determines whether the elevated sewing foot stroke is switched on permanently or only while the knee button is pressed.

*Fig. 19: Setting quick stroke adjustment*



(1) - Knee button

(2) - Toggle switch

To set the quick stroke adjustment:

### For permanent conversion



1. Set the toggle switch (2) to the upper position.
  - **To switch on the elevated sewing foot stroke:**  
Push the knee button (1) to the right.
  - **To switch off the elevated sewing foot stroke:**  
Push the knee button (1) to the right again.

### For temporary conversion



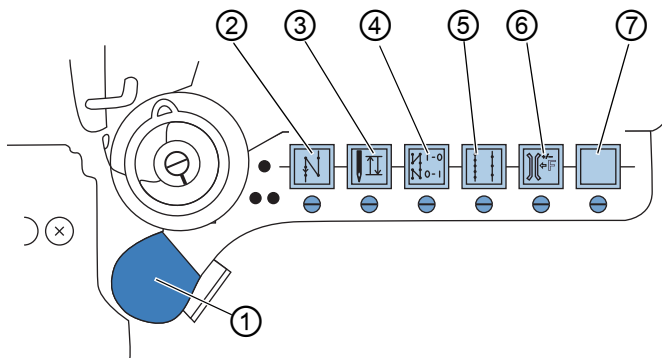
1. Set the toggle switch (2) to the lower position.
  - **To switch on the elevated sewing foot stroke:**  
Push the knee button (1) to the right and keep it pressed.
- ✎ The elevated sewing foot stroke is retained as long as the knee button is pushed to the right.
  - **To switch off the elevated sewing foot stroke:**  
Release the knee button (1).

## 4.13 Quick functions on the push buttons

The machine has push buttons on the machine arm which can be used to activate specific functions while sewing.

### 4.13.1 Activating function buttons

Fig. 20: Activating function buttons



- |                                 |                                  |
|---------------------------------|----------------------------------|
| (1) - Favorite button           | (5) - Stitch length preselection |
| (2) - Sewing backwards          | (6) - Auxiliary thread tension   |
| (3) - Needle position           | (7) - fully customizable button  |
| (4) - Start bartack/end bartack |                                  |

To activate/deactivate a function button:

#### Activating a function










1. Press the desired button.
- ☞ The function is activated. The button lights up.

#### Deactivating a function



1. Press the desired button again.
- ☞ The function is deactivated. The button turns off.

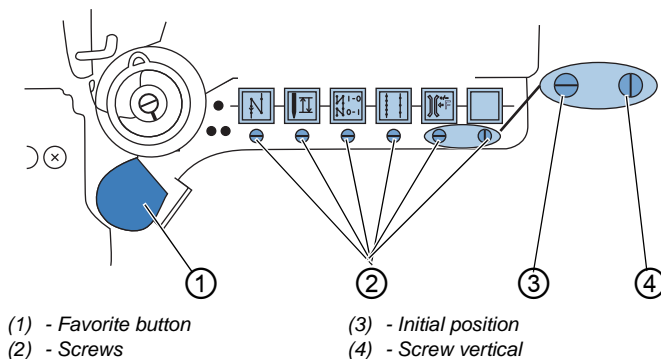
## Functions of the buttons

Button	Function
	<b>Sewing backwards</b> When this button is activated, the machine sews in reverse.
	<b>Needle position</b> When this button is activated, the needle moves to a specific position. This position is determined individually via the parameter settings. For more information, refer to the  Service Instructions. The machine comes configured so that selecting the button will bring the needle up to the top dead center.
	<b>Start bartack/end bartack</b> This button cancels the general setting for sewing start and end bartacks. If bartacks are on, pressing the button skips the next bartack. If bartacks are off, pressing the button sews the next bartack.
	<b>Stitch length</b> When this button is selected, the machine sews with the greater stitch length that was programmed for this stitch length on the control panel.
	<b>Auxiliary thread tension</b> When this button is selected, the machine sews with the programmed auxiliary thread tension.
	<b>Fully customizable</b> The button is fully customizable. The machine comes configured so that the machine will switch to the next seam section when the button is pressed.

### 4.13.2 Assigning a function to the favorite button

You can assign one of the button functions to the favorite button. Select a function that you frequently use so that you can switch it on faster while sewing.

Fig. 21: Assigning a function to the favorite button



The button function is assigned by turning the screw (2) under the button until it is vertical. Only one function at a time can be assigned to the favorite button (1). Therefore, only one of the screws (2) may be in the vertical position (4).

All screws must be turned back to their horizontal initial position (3) before a new function is assigned.

To assign a function to the favorite button:



1. Turn all screws to their initial position (3) so that the slots of the screws are horizontal.
2. Turn the screw (2) under the desired button 90° so that the slot is vertical (4).

## 4.14 Sewing

### WARNING

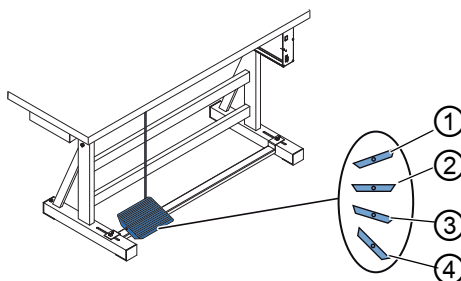


**Risk of injury from the needle if sewing is started unintentionally!**

Punctures possible.

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

Fig. 22: Sewing








(1) - Position +1  
(2) - Position 0

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

The pedal starts and controls the sewing process.

Condition	Processes
<b>Before starting sewing</b>	
Initial situation	<ul style="list-style-type: none"> <li>• Pedal in rest position (position <b>0</b>)</li> <li>↳ Machine is at a standstill</li> <li>↳ Needle is up. Sewing feet down.</li> </ul>
Position the sewing material	<ul style="list-style-type: none"> <li>• Press the pedal halfway back (position -1)</li> <li>↳ The sewing feet are lifted.</li> <li>• Position the sewing material.</li> <li>• Release the pedal.</li> <li>↳ Sewing feet are lowered onto the sewing material.</li> </ul>
<b>At seam beginning</b>	



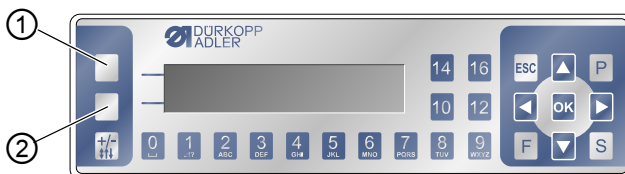
Condition	Processes
Start bartack and sew	<ul style="list-style-type: none"> <li>• Press the pedal forwards (position +1) and keep it there.</li> <li>↳ Machine sews a start bartack (if specified).</li> <li>↳ Afterwards, the machine continues to sew - with increasing speed the further forward the pedal is pressed.</li> </ul>
<b>In the middle of the seam</b>	
Stopping sewing	<ul style="list-style-type: none"> <li>• Release the pedal (position 0).</li> <li>↳ Machine stops. Depending on the setting, sewing feet and needle are up / down.</li> </ul>
Continue the sewing process (after releasing the pedal)	<ul style="list-style-type: none"> <li>• Press the pedal forwards (position +1)</li> <li>↳ Machine continues to sew - with increasing speed the further forward the pedal is pressed.</li> </ul>
Sew over thicker parts of the material	<ul style="list-style-type: none"> <li>• Switch on the elevated sewing foot stroke with the knee button ( p. 38).</li> </ul>
Change the stitch length	<ul style="list-style-type: none"> <li>• 2nd stitch length must be activated using the button on the push buttons ( p. 39).</li> </ul>
Increase the thread tension	<ul style="list-style-type: none"> <li>• Activate auxiliary thread tension using the button on the push buttons ( p. 39).</li> </ul>
Sew an intermediate bartack	<ul style="list-style-type: none"> <li>• Sew backwards with stitch adjustment lever ( p. 36) or activate backwards sewing using the button on the push buttons ( p. 39).</li> </ul>
<b>At seam end</b>	
Finish the seam and remove the sewing material	<ul style="list-style-type: none"> <li>• Press the pedal fully back (position -2) and keep it there.</li> <li>↳ End bartack is sewn, and thread is cut (if set).</li> <li>↳ Machine stops.</li> <li>↳ Needle is up. Sewing feet up.</li> <li>• Remove the sewing material.</li> </ul>



## 5 Programming

### 5.1 Control panel OP3000





Fig. 23: Control panel













(1) - Softkey button

(2) - Softkey menu button

All settings in the software for the M-TYPE PREMIUM are performed using the OP3000 control panel.

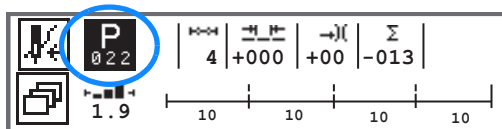
Button	Function
Numeric buttons 0 to 9	<ul style="list-style-type: none"> <li>Inputting the parameter value (if the field for the parameters is activated)</li> <li>Selection of a parameter that is shown on the control panel</li> <li>Press the button below the desired symbol to select the function</li> <li>Inputting a program name</li> </ul>
	<ul style="list-style-type: none"> <li>Cancel the function</li> <li>Exit the menu (changes remain saved) to return to the starting level</li> </ul>
	<ul style="list-style-type: none"> <li>Confirm the settings</li> <li>Activate the input</li> </ul>
	Function is different for each menu.
	Function is different for each menu.

Button	Function
	Function is different for each menu.
	<ul style="list-style-type: none"> <li>• Selection to the right</li> </ul>
	<ul style="list-style-type: none"> <li>• Selection to the left</li> <li>• Back one menu level</li> </ul>
	<ul style="list-style-type: none"> <li>• Increase the value</li> <li>• Scroll through the list (upwards)</li> </ul>
	<ul style="list-style-type: none"> <li>• Decrease the value</li> <li>• Scroll through the list (downwards)</li> </ul>
	<b>Softkey</b> button The button can be assigned various functions as required,  p. 54.
	<b>Softkey menu</b> button Quick access function,  p. 54.
	No function assigned

### Display on the control panel

The display shows the menu items that can be selected.  
 The activated menu point is shown inverted.

Fig. 24: The active entry is shown inverted (example)



## Entering values

Values can be entered using the ▲/▼ buttons or the numeric buttons.



### Information

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

## 5.2 Switching on the machine

Fig. 25: Switching on the machine



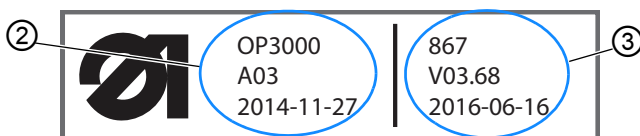
(1) - Main switch



To switch on the machine:

1. Switch on the main switch (1).
- The display briefly shows the software versions:

Fig. 26: Display of the control/control panel software version



(2) - Software version of the OP3000 (3) - Control panel software

- ↩ The machine performs a reference run:  
The display shows the program last used, or Manual mode.

Fig. 27: Display of the program last used (Automatic mode)

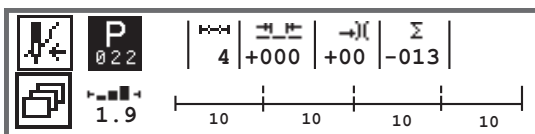
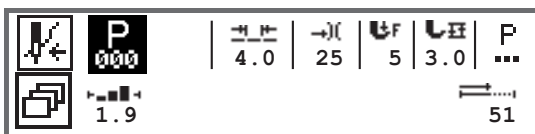


Fig. 28: Display in Manual mode



### 5.3 Software operating modes

The software of the 867-M PREMIUM has 3 available operating modes:

- **Manual mode (program 000)** (📖 p. 50)

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

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

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

- **Automatic mode (program 001 - 999)** (📖 p. 80)

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

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

- **Programming/Edit mode** (📖 p. 84)

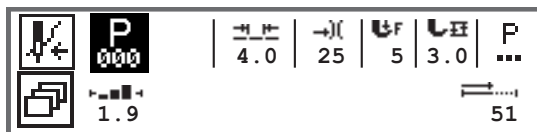
Programming mode allows the operator to create a new seam program in a quick and easy manner.

Edit mode can be used to adjust, delete and copy seam programs.

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















## 5.4 Using Manual mode

Fig. 29: Parameters in manual mode




























The following table shows the individual symbols of parameters on the display and the functions of the buttons on the control panel. For some parameters, the exact setting is described in more detail later in the chapter.



The selected parameter is shown inverted on the control panel display. When a parameter is changed, its new value is loaded immediately.


Symbol	Meaning
	The button can be assigned various functions as required,  p. 54. • Press <b>softkey</b> button
	Quick access function (softkey menu) Press the <b>softkey menu</b> button,  p. 54.
	Program number Value range: 000 - 999 Program 000 indicates that the control is in "Manual mode". • Use  /  to select the Program parameter • Use  /  to change the program number or enter the program number using the numeric buttons <b>0 – 9</b> and confirm with the <b>OK</b> button
	Stitch length Value range: 00.0 - 12.0 [mm] (depending on the sewing equipment and the subclass) • Use  /  to select the Stitch length parameter • Use  /  to change the stitch length








Symbol	Meaning
	<p>Needle thread tension Value range: 01 - 99</p> <ul style="list-style-type: none"> <li>• Use ◀/▶ to select the needle thread tension parameter</li> <li>• Use ▲/▼ to change the needle thread tension</li> </ul> <p><b>Information</b></p> <p>If the values for the needle thread tension of the right and the left needle thread are not identical and changed jointly, the difference remains the same.</p> <p><b>2-needle machines</b></p> <ul style="list-style-type: none"> <li>• Use ◀/▶ to select the needle thread tension parameter</li> <li>• Press the <b>OK</b> button to open the submenu</li> <li>• Use ▲/▼ to select the right or the left needle thread</li> <li>• Press the <b>OK</b> button to confirm</li> <li>• Use ▲/▼ to change the needle thread tension</li> <li>• Press the <b>OK</b> button to confirm</li> </ul>
	<p>Sewing foot pressure Value range: 01 - 20</p> <ul style="list-style-type: none"> <li>• Use ◀/▶ to select the Sewing foot pressure parameter</li> <li>• Use ▲/▼ to change the sewing foot pressure</li> </ul>
	<p>Sewing foot stroke Value range: 00.0 – 09.0 [mm] (0.5 mm increments)</p> <ul style="list-style-type: none"> <li>• Use ◀/▶ to select the Stroke height parameter</li> <li>• Use ▲/▼ to change the stroke height</li> </ul>

Symbol	Meaning
	<p>Other parameters</p> <ul style="list-style-type: none"> <li>• Use the <b>OK</b> button to go to the list</li> <li>• Use <b>▲/▼</b> to select the parameter</li> <li>• Use the <b>OK</b> button to go to the parameter settings</li> </ul> <p>More detailed description of parameters:</p> <ul style="list-style-type: none"> <li>• Speed (<i>Max Speed</i>) ( p. 57)</li> <li>• Thread cutter (<i>Thread Trim</i>) ( p. 57)</li> <li>• Thread clamp (<i>Thread Clamp</i>) ( p. 58)</li> <li>• Initial alignment stitch (<i>PointPos. °</i>) ( p. 58)</li> <li>• Start bartack (<i>Start Tack</i>) ( p. 58)</li> <li>• End bartack (<i>End Tack</i>) ( p. 62)</li> <li>• Sewing foot lift (<i>Foot</i>) ( p. 64)</li> <li>• Bobbin monitor (<i>Bobbin</i>) ( p. 65)</li> <li>• Information (<i>InfoScreen</i>) ( p. 67)</li> <li>• Puller (<i>Puller</i>) ( p. 68)</li> <li>• Edge stop (<i>EdgeGuide</i>) ( p. 68)</li> <li>• Correcting effects of high speed (<i>Speed Corr</i>) ( p. 69)</li> <li>• Material thickness detection (<i>Mat. Thickness</i>) ( p. 73)</li> <li>• Light barrier (<i>LightBarrier</i>) ( p. 78)</li> <li>• Outputs (<i>Output</i>) ( p. 79)</li> </ul>
	<p>S.p.m. or seam length in [mm]</p> <p>The active option, either s.p.m. or mm, can be set at the Technician level. The s.p.m. option is set at the factory. After the thread has been cut off, the display is retained. Measurement/counting restarts when sewing starts again.</p>
	<ul style="list-style-type: none"> <li>• Cancel the function</li> <li>• Exit the menu (changes remain saved) to return to the starting level</li> </ul>
	<ul style="list-style-type: none"> <li>• Confirm the settings</li> <li>• Activate the input</li> </ul>
	<p>Create a program,  p. 84.</p>
	<p>No function assigned</p>

Symbol	Meaning
	No function assigned
	No function assigned

If the parameter *FastMenuKeys* was activated at the Technician level, the display of the control panel will show the symbols listed in the table. The buttons on the control panel located underneath can then be used to select the corresponding functions. None of the parameters that may have been selected for the info screen are displayed. For an explanation on how to activate the fast menu keys, refer to the  *Service Instructions*.

Symbol	Meaning
	Start bartack (off/single/double)
	End bartack (off/single/double)
	Thread cutter (active/inactive)
	Needle position (bottom/top)
	Sewing foot position (bottom/top)

### 5.4.1 Selecting the quick access function (softkey menu)

Here, you have quick access to functions during the sewing process. You can also assign a function to the **softkey** button.



To select a quick access function:


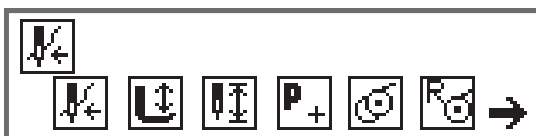
1. Press the **softkey menu**  button.
2. The following display appears:

Fig. 30: Softkey menu



3. To select a function: Press the numeric button under the desired function.

OR

4. To assign a function to the **softkey** button: Press the numeric button under the desired function and the **softkey** button at the same time.

↳ The function is assigned to the **softkey** button and can subsequently be called up using this softkey.














#### Information

There are various options available to assign to the **softkey** button depending on whether this is before the seam or in the seam.








5. To exit the menu, press the **ESC** button or the **softkey menu** button.




### Possible button assignment for the softkey button (Manual mode)

Symbol	Meaning
	Threading mode The needle bar moves to the defined position. The pedal is temporarily locked.
	Raise/lower sewing foot BEFORE the seam: Position of the sewing foot after thread cutting. IN the seam: Position of the sewing foot when sewing stops.
	Needle position up / down If sewing is stopped within the seam, the needle is positioned up or down.
 BEFORE the seam	Programming Activation of programming mode.
 IN the seam	Thread cutter Function active or inactive.
 BEFORE the seam	Bobbin mode
 IN the seam	Perform half stitches Half stitches are performed when the button is pressed (needle position raised or lowered).
	Resetting the bobbin stitch counter The defined maximum s.p.m. of the bobbin used is reset to the starting value.
	Thread clamp Function active or inactive.

Symbol	Meaning
	2 <sup>nd</sup> edge stop distance Moves to the position for the 2 <sup>nd</sup> edge stop distance.
	Edge stop reference run If the edge stop has lost its correct position due to an interruption, the reference run returns it to its starting position.

### Possible button assignment for the softkey button (Automatic mode)

Symbol	Meaning
	Threading mode The needle bar moves to the defined position. The pedal is temporarily locked.
	Reset daily piece counter.
	Automatic stitch counting Function active or inactive.
 BEFORE the seam	Programming Activation of programming mode.
 BEFORE the seam	Bobbin mode
 IN the seam	Perform half stitches Half stitches are performed when the button is pressed (needle position raised or lowered).
	Resetting the bobbin stitch counter The defined maximum s.p.m. of the bobbin used is reset to the starting value.

Symbol	Meaning
	Thread clamp Function active or inactive.
	2 <sup>nd</sup> edge stop distance Moves to the position for the 2 <sup>nd</sup> edge stop distance.
	Edge stop reference run If the edge stop has lost its correct position due to an interruption, the reference run returns it to its starting position.

### 5.4.2 Setting the Speed parameter (*Max Speed*)



It is possible to reduce the maximum speed at this point. The value of the maximum speed can be set in the software at technician level.

Menu item	Setting option
( <i>Max Speed</i> ) Speed	0050 – 3800 [rpm] depending on subclass

### 5.4.3 Setting the Thread cutter parameter (*Thread Trim*)



Set whether the thread cutter is activated or deactivated at the end of the seam.

Menu item	Setting option
( <i>Thread Trim</i> ) Thread cutter	ON = on OFF = off

#### 5.4.4 Setting the Thread clamp parameter (*Thread Clamp*)



If a thread clamp is present, this function can be activated or deactivated here. The thread clamp is closed for the 1<sup>st</sup> stitch of the seam to ensure that the needle thread lies on the underside of the sewing material.

Menu item	Setting option
( <i>Thread Clamp</i> ) Thread clamp	ON = on OFF = off

#### 5.4.5 Setting the Initial alignment stitch parameter (*PointPos. °*)



The distance of the needle from the material can be adjusted to allow precise positioning of the sewing material when starting sewing. The value entered here corresponds to the degree number on the handwheel.

Menu item	Setting option
( <i>PointPos. °</i> ) Initial alignment stitch function	000 – 359 [°]






#### 5.4.6 Setting the Start bartack parameter (*Start Tack*)







There are various options for setting the start bartack. All subitems in the *Start Tack* menu are listed in the following table.



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

Menu items	Setting option 1	Setting option 2
<i>On</i>	ON/OFF	
<i>Stitches</i> (↑) Number of backward stitches	Value range 01 – 50	
<i>Stitches</i> (↓) Number of forward stitches	Value range 01 – 50	
<i>Repetitions</i> , Number of sections in a bartack  p. 60	Value range 01 – 99	
<i>t Change</i> , Waiting time at turning points  p. 60	Value range 0000 – 1000 [ms]	
<i>St.Len. Def.</i> , Default stitch length  p. 60	ON/OFF	
	<i>St.Len.</i> (↑)	Value range 01.0 – 12.0 [mm] (depending on subclass)
	<i>St.Len.</i> (↓)	Value range 01.0 – 12.0 [mm] (depending on subclass)
<i>Speed</i> Speed in bartack	Value range 0000 – 2000	
<i>Pedal Stop</i> , Single stitches per pedal  p. 61	ON/OFF	
<i>Thr.Tens.Def</i> , Default needle thread tension  p. 61	ON/OFF	Value range 01 - 99

Menu items	Setting option 1	Setting option 2
<i>Catch Backtack,</i> Bartack before the bartack  p. 61	On	ON/OFF
	<i>Stitches</i> (↑)	Value range 01 - 50
	<i>Stitches</i> (↓)	Value range 01 - 50
<i>First Repet.,</i> Number of stitches different for 1 <sup>st</sup> section  p. 61	On	ON/OFF
	<i>Stitches</i> (↑/↓)	Value range 01 - 50
<i>Last Repeti.,</i> Number of stitches different for last section  p. 61	On	ON/OFF
	<i>Stitches</i> (↑/↓)	Value range 01 - 50
<i>Invert Dir.,</i> Invert direction  p. 62	ON/OFF	



### **Setting: Number of sections in a bartack (*Repetitions*)**

A bartack always consists of several sections. If the sewing direction is changed, a new section is started. The number of sections in a bartack can be set in this submenu.



### **Setting: Waiting time at turning point (*t Change*)**

The waiting time at the turning points (for example for a change of sewing direction) is set at this point. A short waiting time in milliseconds should ensure consistent seam quality (ornamental-stitch bartack).



### **Setting: Default stitch length (*St. Len. Def.*)**

If this function is active, the same stitch length is used for the bartack as the one set in Manual mode. If this function is deactivated, a custom input can be entered.

**Setting: Single stitches per pedal (*Pedal Stop*)**

If this function is activated, each stitch in the bartack can be sewn individually by pressing the pedal. This function can only be used meaningfully if the speed is set very low for the bartack.

**Setting: Default needle thread tension (*Thr. Tens. Def.*)**

If this function is active, the same needle thread tension is used for the bartack as the one set in Manual mode. If this function is deactivated, a custom input can be entered.

**Setting: Bartack before the bartack (*Catch Backtack*)**

To ensure a safe sewing start and complete sewing of the start bartack, an additional bartack can precede the start bartack.

Only the number of forward and backward stitches can be selected. The stitch length cannot be set individually – it corresponds to the stitch length of the normal start bartack.

**Setting: Number of stitches different for 1<sup>st</sup> section (*First Repet.*)**

The 1<sup>st</sup> section of the bartack can be programmed with a different number of stitches. All subsequent sections have the preset number of stitches from the settings for the start bartack.

**Setting: Number of stitches different for last section (*Last Repeti.*)**

The last section of the bartack can be programmed with a different number of stitches. All previous sections have the preset number of stitches from the settings for the end bartack.

This function is useful for the short stitch for the short thread cutter, for example. In this case, one less stitch is sewn in the last section.



### **Setting: Invert direction (*Invert Dir.*)**


Normally, a bartack starts either with the sewing direction (forwards – even number of sections) or against the sewing direction (backwards – odd number of sections), depending on the number of sections.




Setting this parameter inverts the sewing direction of the bartack.







## **5.4.7 Setting the End bartack parameter (*End Tack*)**



There are various options for setting the end bartack. All subitems in the *End Tack* menu are listed in the following table.

Settings that are more complex and therefore require further explanation are described in more detail in the chapter on the start bartack ( p. 58) or below the table.

Menu items	Setting option 1	Setting option 2
<i>On</i>	ON/OFF	
<i>Stitches</i> (↑) Number of backward stitches	Value range 01 – 50	
<i>Stitches</i> (↓) Number of forward stitches	Value range 01 – 50	
<i>Repetitions</i> , Number of sections in a bartack  p. 60	Value range 01 – 99	
<i>t Change</i> , Waiting time at turning points  p. 60	Value range 0000 – 1000 [ms]	
<i>St.Len.Def.</i> , Default stitch length  p. 60	ON/OFF	
	<i>St.Len.</i> (↑)	Value range 01.0 – 12.0 [mm] (depending on subclass)
	<i>St.Len.</i> (↓)	Value range 01.0 – 12.0 [mm] (depending on subclass)

Menu items	Setting option 1	Setting option 2
<i>Speed</i> Speed in bartack	Value range 0000 – 2000	
<i>Pedal Stop</i> , Single stitches per pedal  p. 61	ON/OFF	
<i>Thr. Tens. Def.</i> , Default needle thread tension  p. 61	ON/OFF	Value range 01 - 99
<i>Catch Backtack</i> , Bartack after the bartack  p. 61	On	ON/OFF
	<i>Stitches</i> (↑)	Value range 01 - 50
	<i>Stitches</i> (↓)	Value range 01 - 50
<i>First Repet.</i> , Number of stitches different for 1 <sup>st</sup> section  p. 61	On	ON/OFF
	<i>Stitches</i> (↑/↓)	Value range 01 - 50
<i>Last Repeti.</i> , Number of stitches different for last section  p. 61	On	ON/OFF
	<i>Stitches</i> (↑/↓)	Value range 01 - 50
<i>Invert Dir.</i> , Invert direction  p. 62	ON/OFF	

### 5.4.8 Setting the Sewing foot lift parameter (*Foot*)



The sewing foot lift can have various settings. Possible settings and the corresponding value ranges are listed in the table.

Menu item	Setting option
<i>FL AtStop</i> , Sewing foot lift when sewing stops	ON = on OFF = off
<i>FL AfterTrim</i> , Sewing foot lift after thread cutting	ON = on OFF = off
<i>FL ht.AtStop</i> , High sewing foot lift when sewing stops	Value range 00 – 20 [mm] (depending on subclass)
<i>FL ht.A.Trim</i> , High sewing foot lift after thread cutting	Value range 00 – 20 [mm] (depending on subclass)

### 5.4.9 Setting the Bobbin monitor parameter (*Bobbin*)





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



#### Information

The bobbin monitor setting is global and NOT limited to an operating mode or a seam program.

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

Menu items	Setting option 1	Setting option 2
<i>Off</i>		
<i>Monitor,</i>  <i>p. 66</i>	<i>t Clean</i>	Value range 0000 – 5000 [ms]
	<i>Motor Stop</i>	ON/OFF
<i>Softw.,</i> <i>Software</i>  <i>p. 66</i>	<i>Counter type</i>	A/B/C/D
	<i>Counter</i>	Value range 00000 – 99999
	<i>Motor Stop</i>	ON/OFF
	<i>ResetNeces</i>	ON/OFF



### Setting: Monitor (*Monitor*)

Monitor mode can only be used if the additional equipment of the remaining thread monitor is present on the machine. Monitor mode allows for optical monitoring of the bobbin. The possible settings are listed in the table.

<i>t Clean</i> Value range 0000 – 5000 [ms]	Duration for which the lens is blown clear with compressed air. The process takes place as the thread is cut.
<i>Motor Stop</i> ON/OFF	Sewing stops and a notice is shown on the display when the bobbin is detected to be nearly empty. If the parameter is not activated, only the LEDs on the machine arm give a warning if the bobbin is empty.



### Setting: Software (*Softw.*)

In Software mode, the bobbin is monitored by the software based on the number of stitches sewn. The possible settings are listed in the table.

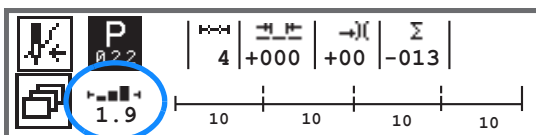
<i>Counter type</i> A/B/C/D	4 different counters can be applied. The following 3 subitems can be set for each of the counters.
<i>Counter</i> Value range 00000 – 99999	Bobbin supply capacity in stitches. This is a very variable value, which depends on the size of the bobbin and the thickness of the thread.
<i>Motor Stop</i> ON/OFF	Sewing stops and a notice is shown on the display when the bobbin is detected to be nearly empty. If the parameter is not activated, only the LEDs on the machine arm give a warning if the bobbin is empty.
<i>ResetNeces</i> ON/OFF	It is only possible to resume sewing after changing the bobbin and confirming the message on the control panel.








### 5.4.10 Setting the Information parameter (*InfoScreen*)

Information can be displayed on certain settings during sewing as desired or required.

Fig. 31: Display with information shown



#### Possible settings for the Information parameter

Symbol	Menu item	Meaning
	<i>Off</i>	no display
	<i>Bobbin Cnt</i>	Bobbin stitch counter
	<i>Speed</i>	Current speed
	<i>Position</i>	Handwheel position (Value range 000 – 359 [°])
	<i>Mat. Thickness</i>	Material thickness detection
	<i>Pedal</i>	Pedal position (Value range 24 – -2)

### 5.4.11 Setting the Puller parameter (*Puller*)



The puller supports the transport of the sewing material. The feed of the two rollers is calculated automatically based on the stitch length of the machine. An adjustment may be necessary depending on the application.

The rollers of the puller can be adjusted separately. The input is in percent: a positive value increases the roller feed while a negative value reduces the feed.

Menu item	Setting option
<i>Top Cor.</i> Correction top roller	Value range -100 – 100 [%]
<i>Bottom Cor.</i> Correction bottom roller	Value range -100 – 100 [%]

### 5.4.12 Setting the Edge stop parameter (*EdgeGuide*)



The edge stop helps to precisely position the sewing material. The value set indicates the distance between the needle and edge stop/material edge.

The 2<sup>nd</sup> distance for the edge stop can only be accessed using the **softkey menu** button or the **softkey** button if these are assigned to the 2<sup>nd</sup> distance.




Menu item	Setting option
<i>Distance</i> Edge guide	Value range 01.0 – 45.0 [mm]
<i>Gap (+)</i> Edge stop 2 <sup>nd</sup> Distance	Value range 01.0 – 45.0 [mm]

### 5.4.13 Setting the Correction of effects of high speed (*Speed Corr.*) parameter



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

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

Menu items	Setting option 1	Setting option 2
ON/OFF		
<i>Stitchlen., Stitch length</i>  p. 71	<i>Off</i>	
	<i>linear</i>	<i>stitch length.</i>
		<i>Min. Speed</i>
		<i>Max. Speed</i>
	<i>2.OnOff</i>	<i>Min. Speed</i>
	<i>2.On</i>	<i>Min. Speed</i>
<i>Thr. Tens., Needle thread tension</i>  p. 72	<i>Off</i>	
	<i>linear</i>	<i>Thr. Tens.</i>
		<i>Min. Speed</i>
		<i>Max. Speed</i>
	<i>2.OnOff</i>	<i>Min. Speed</i>
	<i>2.On</i>	<i>Min. Speed</i>
<i>Foot Press., Sewing foot pressure</i>  p. 72	<i>Off</i>	
	<i>linear</i>	<i>Foot Press.</i>
		<i>Min. Speed</i>
		<i>Max. Speed</i>

## Overview of settings modes

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

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



### Setting: Stitch length (*Stitchlen.*)

The stitch length changes slightly depending on the speed.  
For this reason, the stitch length can be adjusted at different speeds by the software.

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


**Setting: Needle thread tension (*Thr. Tens.*)**

Depending on the speed, the needle thread tension can be adjusted at different speeds by the software.

<i>linear</i>	<i>Thr. Tens.</i> Value range 00 – 99	Maximum needle thread tension reached at the upper speed limit.
	<i>Min. Speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in needle thread tension should start.
	<i>Max. Speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in needle thread tension should occur.
<i>2.OnOff</i>	<i>Min. Speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2 <sup>nd</sup> needle thread tension should be used.
<i>2.On</i>	<i>Min. Speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed from which the 2 <sup>nd</sup> needle thread tension should be used.


**Setting: Sewing foot pressure (*Foot Press.*)**

Depending on the speed, the sewing foot pressure can be adjusted at different speeds by the software.

<i>linear</i>	<i>Foot Press.</i> Value range 00 – 20	Maximum sewing foot pressure reached at the upper speed limit.
	<i>Min. Speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed at which the increase in sewing foot pressure should start.
	<i>Max. Speed</i> Value range 0000 – 4000 [rpm] (depending on subclass)	Speed up to which the increase in sewing foot pressure should occur.



#### 5.4.14 Setting the Material thickness detection (*FabricThickness*) parameter



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

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

Menu items	Setting option 1	Setting option 2
ON/OFF		
Stroke,  p. 75	Off	
	linear	Stroke
		ThickMin
		ThickMax
	2.OnOff	ThickMin
	2.On	ThickMin
Stitchlen.,  p. 76	Off	
	linear	Stitch length
		ThickMin
		ThickMax
	2.OnOff	ThickMin
	2.On	ThickMin
Thr. Tens., Needle thread tension  p. 77	Off	
	linear	Thr. Tens.
		ThickMin
		ThickMax
	2.OnOff	ThickMin
	2.On	ThickMin

Menu items	Setting option 1	Setting option 2
<i>Foot Press., Sewing foot pressure</i>  <i>p. 77</i>	<i>Off</i>	
	<i>linear</i>	<i>Foot Press.</i>
		<i>ThickMin</i>
		<i>ThickMax</i>
<i>Max. Speed, Speed</i>  <i>p. 77</i>	<i>Off</i>	
	<i>linear</i>	<i>Max. Speed</i>
		<i>ThickMin</i>
		<i>ThickMax</i>

### Overview of settings modes

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

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





### Setting: Sewing foot stroke (*Stroke*)

The sewing foot stroke can be adjusted to different material thicknesses by the software.

<i>linear</i>	<i>Stroke</i> Value range 00 – 09 [mm]	Maximum sewing foot stroke reached at the upper material thickness limit.
	<i>ThickMin</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot stroke should start.
	<i>ThickMax</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot stroke should occur.
<i>2.OnOff</i>	<i>ThickMin</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 <sup>nd</sup> sewing foot stroke should be used.
<i>2.On</i>	<i>ThickMax</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 <sup>nd</sup> sewing foot stroke should be used.


**Setting: Stitch length (*Stitchlen.*)**

The stitch length changes slightly depending on the material thickness. For this reason, the stitch length can be adjusted at different material thicknesses by the software.

<i>linear</i>	<i>stitch length.</i> Value range -50 – 50 [%]	Maximum stitch length variation reached at the upper material thickness limit.
	<i>ThickMin</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase/reduction of stitch length should start.
	<i>ThickMax</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase/reduction of stitch length should occur.
<i>2. OnOff</i>	<i>ThickMin</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 <sup>nd</sup> stitch length should be used.
<i>2. On</i>	<i>ThickMin</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 <sup>nd</sup> stitch length should be used.



### Setting: Needle thread tension (*Thr. Tens.*)

Depending on the material thickness, the needle thread tension can be adjusted at different material thicknesses by the software.

<i>linear</i>	<i>Thr. Tens.</i> Value range 00 – 99	Maximum needle thread tension reached at the upper material thickness limit.
	<i>ThickMin</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in needle thread tension should start.
	<i>ThickMax</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in needle thread tension should occur.
<i>2. OnOff</i>	<i>ThickMin</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 <sup>nd</sup> needle thread tension should be used.
<i>2. On</i>	<i>ThickMin</i> Value range 00.0 – 10.0 [mm]	Material thickness from which the 2 <sup>nd</sup> needle thread tension should be used.



### Setting: Sewing foot pressure (*Foot Press.*)

The sewing foot pressure can be adjusted at different material thicknesses by the software.

<i>linear</i>	<i>Foot Press.</i> Value range 00 – 20	Maximum sewing foot pressure reached at the upper material thickness limit.
	<i>ThickMin</i> Value range 00.0 – 10.0 [mm]	Material thickness at which the increase in sewing foot pressure should start.
	<i>ThickMax</i> Value range 00.0 – 10.0 [mm]	Material thickness up to which the increase in sewing foot pressure should occur.

### 5.4.15 Setting the Light barrier (*LightBarrier*) parameter



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

Menu item	Setting option
<i>Light barrier</i>	ON = on OFF = off
<i>Start</i> , Signal detection at the beginning of the material	ON/OFF
<i>End</i> , Detection of end of material	ON/OFF
<i>Distance</i> , Distance after detection of end of material	Value range 0 – 255
<i>Seams</i> , Number of signal detections	Value range 1 – 255
<i>Filter</i> , Filter stitches up to signal detection	Value range 0 – 255



#### **Setting: Signal detection at the beginning of the material (*Start*)**

The signal scan of the light barrier is performed at the beginning of the seam. If the function is activated, the light barrier must detect a signal to allow the machine to sew. If the function is inactive, sewing can take place without signal detection.



#### **Setting: Detection of end of material (*End*)**

The signal scan of the light barrier is performed at the end of the seam. If the function is active, the machine will continue to sew with the specifically set parameters following the signal detection. If the function is inactive, nothing will happen.

**Setting: Distance after detection of end of material (*Distance*)**

Here, you can set the distance from the detection of the signal to the end of the material. This distance signifies the path from the needle to the light barrier. The path is specified in millimeters and used by the machine to independently calculate the number of stitches.

**Setting: Number of signal detections (*Seams*)**

Input of the number of signal detections after which the machine is supposed to continue with the specifically set parameters.


**Setting: Filter stitches up to signal detection (*Filter*)**

Loosely woven fabric with stitches may cause the light barrier to wrongly detect a signal. To prevent this from happening, you enter the number of filter stitches. This number represents the minimum number of stitches with signal detection following the 1<sup>st</sup> detection of the signal.

### 5.4.16 Setting the Outputs parameter (*Output*)

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

These parameters cannot be used unless the virtual outputs have been assigned to a physical output at the Technician level.

This requires that the parameter *Add I/O* be configured at the Technician level; for more details, refer to the explanation in the  *Service Instructions*.

## 5.5 Using Automatic mode

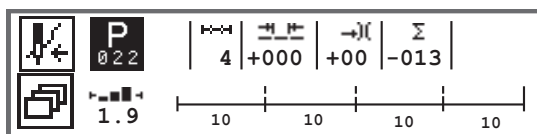
Automatic mode includes all program numbers from 001 to 999.



To access Automatic mode:







1. Use ◀/▶ to select the **Program** parameter.
  2. Use ▲/▼ to select the program number **001** or another one (if available).
- ☞ The software switches to Automatic mode, the program name is shown briefly, and then the following display appears:

Fig. 32: Display in Automatic mode



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

Symbol	Description
	Depending on the assignment of buttons, there may be different functions here,  p. 54. • Press <b>softkey</b> button
	Quick access function (softkey menu) Press the <b>softkey menu</b> button,  p. 54.
<b>P</b>	Program number Value range: 000 - 999 • Use ◀/▶ to select the <b>Program</b> parameter • Use ▲/▼ to change the program number or enter the program number using the numeric buttons <b>0 – 9</b> and confirm with the <b>OK</b> button If you select program 000, the control selects Manual mode,  p. 50.
	Seam sections Number of seam sections contained in the current program.

Symbol	Description	
	Stitch length correction factor Value range: -50 – 50 [%] Alters the stitch length in all seam sections with ▲/▼.	Allows for finer adjustment than by setting the parameters directly.
	Default needle thread tension adjustment factor Value range: -50 – 50 [%] Alters the needle thread tension in all seam sections with ▲/▼.	
	Day piece counter Function active or inactive,  p. 90.	
	Information on the display Can be assigned differently as desired,  p. 67.	

### 5.5.1 Sewing in Automatic mode

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



To sew in Automatic mode:


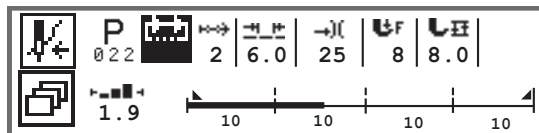
1. Press the pedal forward and sew.
-  The following display appears:

Fig. 33: Display when sewing in Automatic mode

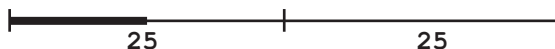


The parameter values for the current seam section are shown on the display.

The program bar shows the progress of the seam program. The number under the current seam section shows the number of stitches yet to be sewn / the outstanding length of the seam section.

The program bar shows half the current seam section in bold.

Fig. 34: Seam section in progress









Completed seam sections are shown fully in bold.

Fig. 35: Completed seam section






Additional information is shown next to the program bar, which can be identified at a glance thanks to the small symbols on the display:

Symbol	Meaning
	Start bartack
	End bartack
	Manually switch between two seam sections (using ◀/▶ or button assignment for the push button on the machine arm or knee button); there is no stitch counting
"10"	Number of stitches or length in mm of the seam section. The active option, either s.p.m. or mm, can be set at the Technician level. The s.p.m. option is set at the factory.
	Stop at the end of the seam section with thread cutting
	Switch between two seam sections without stopping
	Switch between two seam sections, with a stop, but without thread cutting



### Possible actions in the course of the seam

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

Button/Pedal	Function
	Seam section forwards/backwards or go to start of seam section.
Pedal halfway back	Lift sewing foot.
Pedal fully back	Cut off or cancel the program. The program remains stopped at the cutoff point.
	Softkey menu,  p. 54.

### 5.5.2 Canceling a program in automatic mode



To cancel a program in automatic mode:

1. Push the pedal fully back.
  - ↳ The program is canceled and the thread cut. The machine takes note of where the program was canceled, and then continues from the same point when sewing resumes.
2. To cancel the program completely, press the pedal all the way backwards again.
  - ↳ The program is canceled, and the machine starts from the first seam section in the program when sewing resumes.

## 5.6 Using Programming/Edit mode

### 5.6.1 Creating a new program



To create a new program:





1. Press the  button.  
 The softkey menu appears.
2. Press the  button.  
 The control displays the next free program number.

Fig. 36: Creating a new program




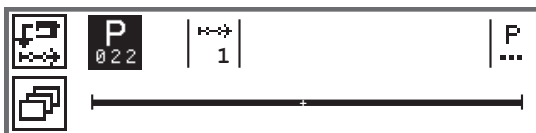


3. Press the **OK** button to load the program number.  
Or:
4. Choose a different program number using  $\blacktriangle/\blacktriangledown$  or enter one with the numeric buttons **0 – 9** and then press the **OK** button (only free program positions are shown/accepted as numeric entries).  
 The following information is shown, and the P in the program number field flashes:

Fig. 37: Programming mode display



Programming mode offers two options for creating new seam programs:

- Creating a program using keyboard input,  p. 85.
- Creating a program using teach-in,  p. 87.

### 5.6.2 Creating a program using keyboard input

Creating a program using keyboard input is done completely without sewing. All parameters for the seam sections and the program are entered manually.



To create a program using keyboard input:



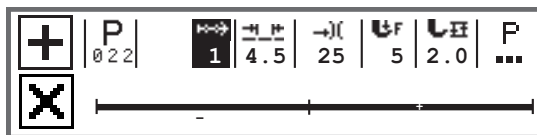




1. Create a new program,  p. 84.
  2. Use ► to switch to the seam section selection.
  3. Use  to activate the seam section.
- ✎ The following display is shown, with preset values which can be specified at technician level.

Fig. 38: Programming mode display






4. Set the basic parameters that are explained in the table.

Symbol	Meaning
	Stitch length for the current seam section Value range: 00.0 - 12.0 [mm] (depending on the subclass) <ul style="list-style-type: none"> <li>• Use ◀/▶ to select the Stitch length parameter</li> <li>• Use ▲/▼ to change the stitch length</li> </ul>

Symbol	Meaning
	<p>Needle thread tension value (%) of current seam section Value range: 00 - 99</p> <ul style="list-style-type: none"> <li>• Use ◀/▶ to select the Needle thread tension parameter</li> <li>• Use ▲/▼ to change the needle thread tension.</li> </ul> <p><b>Information</b></p> <p>If the values for the needle thread tension of the right and the left needle thread are not identical and changed jointly, the difference remains the same.</p> <p><b>2-needle machines</b></p> <ul style="list-style-type: none"> <li>• Use ◀/▶ to select the needle thread tension parameter</li> <li>• Press the <b>OK</b> button to open the submenu</li> <li>• Use ▲/▼ to select the right or the left needle thread</li> <li>• Press the <b>OK</b> button to confirm</li> <li>• Use ▲/▼ to change the needle thread tension</li> <li>• Press the <b>OK</b> button to confirm</li> </ul>
	<p>Sewing foot pressure Value range: 01 - 20</p> <ul style="list-style-type: none"> <li>• Use ◀/▶ to select the Sewing foot pressure parameter.</li> <li>• Use ▲/▼ to change the sewing foot pressure</li> </ul>
	<p>Stroke Value range: 00.0 – 09.0 [mm] (0.5 mm increments)</p> <ul style="list-style-type: none"> <li>• Use ◀/▶ to select the Stroke height parameter</li> <li>• Use ▲/▼ to change the stroke height</li> </ul>



5. Set other parameters for this seam section,  p. 88.
6. To set up another seam section, use ▲ on the seam section display to switch to the next seam section.
7. Use  to activate the seam section and set parameters again as described above.
8. Repeat steps 6 and 7 to define up to 30 seam sections if necessary.
9. Press the **ESC** button.
-  The program is saved. The machine switches to Automatic mode and the newly created program is selected.

### 5.6.3 Creating a program using Teach-In

Creating a program using Teach-In is done by sewing the seam sections and manually entering the parameters for the seam sections and the program.



To create a program using Teach-In:



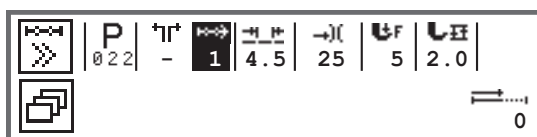




1. Create a new program,  p. 84.
2. Press the **Teach-In**  button.
- ↳ The following display is shown, with preset values which can be specified at technician level.

Fig. 39: Programming mode display





3. Set the basic parameters that are explained in the table.

Symbol	Meaning
	<p>Stitch length for the current seam section Value range: 00.0 - 12.0 [mm] (depending on the subclass)</p> <ul style="list-style-type: none"> <li>Use ◀/▶ to select the Stitch length parameter</li> <li>Use ▲/▼ to change the stitch length</li> </ul>
	<p>Needle thread tension value (%) of current seam section Value range: 00 - 99</p> <ul style="list-style-type: none"> <li>Use ◀/▶ to select the Needle thread tension parameter</li> <li>Use ▲/▼ to change the needle thread tension.</li> </ul> <p><b>Information</b></p> <p>If the values for the needle thread tension of the right and the left needle thread are not identical and changed jointly, the difference remains the same.</p> <p><b>2-needle machines</b></p> <ul style="list-style-type: none"> <li>Use ◀/▶ to select the needle thread tension parameter</li> <li>Press the <b>OK</b> button to open the submenu</li> <li>Use ▲/▼ to select the right or the left needle thread</li> <li>Press the <b>OK</b> button to confirm</li> <li>Use ▲/▼ to change the needle thread tension</li> <li>Press the <b>OK</b> button to confirm</li> </ul>

Symbol	Meaning
	Sewing foot pressure Value range: 01 - 20 • Use ◀/▶ to select the Sewing foot pressure parameter. • Use ▲/▼ to change the sewing foot pressure
	Stroke Value range: 00.0 – 09.0 [mm] (0.5 mm increments) • Use ◀/▶ to select the Stroke height parameter • Use ▲/▼ to change the stroke height



4. Press the pedal and complete the seam section up to the desired position on the material.
5. To set other parameters for another seam section, use ▲ to add a new seam section.
6. Set the basic parameters.
7. Repeat steps 5 and 6 to define up to 30 steps if necessary.
8. Push the pedal fully back.
- ↪ The program switches to Edit mode.
9. If necessary, set additional parameters for all seam sections ( p. 88) and complete the selected program ( p. 90).
10. Press the **ESC** button.
- ↪ The program is saved. The machine switches to Automatic mode and the newly created program is selected.


## 5.6.4 Adjusting parameters for the current seam section



This menu allows the parameters for the current seam section to be changed. This setting **ONLY** affects the currently selected seam section, and **NOT** the entire program.






















To adjust the parameters for the current seam section:

1. Use ◀/▶ to select the field .
2. Press the **OK** button.
- ↪ The submenu opens.
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 the **OK** button.

### Parameters for the current seam section:

Symbol	Description
	<i>Stitch counter</i> Length of the seam section 0 = Manually step through > 1 = Number of stitches or length in mm
	<i>Max Speed</i> Maximum speed for the seam section.
	<i>Seg. End Modes</i> Set what happens at the end of a seam section when switching to the next section: <ul style="list-style-type: none"> <li>• <i>Stop</i> Sewing stops – if OFF: no more settings possible, smooth switch between the seams sections</li> <li>if ON: <ul style="list-style-type: none"> <li>• <i>Thread Trim</i> - Thread cutting</li> <li>• <i>Needle Up</i> - Needle position</li> <li>• <i>Foot Lifted</i> - Sewing foot lift</li> <li>• <i>FL height</i> - Sewing foot lift stroke height</li> </ul> </li> </ul>
	<i>Start bartack</i> Start bartack, setting identical to Manual mode,  p. 58.
	<i>End bartack</i> End bartack, setting identical to Manual mode,  p. 62.
	<i>Needle Up</i> Position of the needle when sewing stops on the seam section.
	<i>Foot Lifted</i> Position of the sewing foot when sewing stops on the seam section.

Symbol	Description
	<i>FL height</i> Lifting height of the sewing foot when sewing stops on the seam section.
	<i>Backwards</i> Backward stitches; when the parameter is activated, the section is sewn backwards.
	<i>Puller</i> Supports the transport of the sewing material, setting identical to Manual mode,  p. 68.
	<i>Center Guide</i> Seam middle guide (only on 2-needle machines)
	<i>EdgeGuide</i> • <i>Distance</i> Edge stop (if available); value for the distance between the needle and the material edge, setting identical to Manual mode,  p. 68.
	<i>Light barrier</i> Detects the beginning or the end of the material, setting identical to Manual mode,  p. 78.
	<i>Output</i> To be assigned specifically for each customer,  p. 79.



5. Exit the submenu using the **ESC** or ◀ button  
 The changed values are stored immediately.
6. If necessary, create further seam sections or exit Programming mode using the **ESC** button.  
 The program is saved. The machine switches to Automatic mode and the newly created program is selected.

### 5.6.5 Adjusting parameters for the selected program



**P**  
001-999

This menu allows the parameters for the current program/seam program to be changed. This setting affects all seam sections created in the program.



















To adjust the parameters for the selected program:

1. Use ◀/▶ to select the field .
2. Press the **OK** button.
-  The submenu opens.
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 the **OK** button.

**Parameters for selected program:**

Symbol	Description
	<p><i>Prog. Name</i> A program name can be entered using the numeric buttons:</p> <ul style="list-style-type: none"> <li>• Use ◀/▶ to navigate forwards and backwards</li> <li>• Use the <b>F</b> button to delete a letter</li> <li>• Use the <b>OK</b> button to confirm the entry</li> <li>• Use the <b>ESC</b> button to discard the entry</li> </ul>
	<p><i>Add Values +)</i></p> <ul style="list-style-type: none"> <li>• <i>St.Len. +)</i></li> <li>• <i>Foot Stroke +)</i></li> <li>• <i>Thr.Tens. (+)</i></li> <li>• <i>Gap (+)</i></li> </ul> <p>Insert the 2<sup>nd</sup> value of the parameters</p>
	<p><i>Next Prog.</i> A subsequent program can be defined.</p>
	<p><i>Loop Prog.</i> The program is executed as a loop, which is useful, for instance, for ornamental stitch seams.</p>
	<p><i>Thread clamp</i> Function active or inactive, if available.</p>
	<p><i>Bobbin</i> Setting identical to Manual mode,  p. 65.</p>
	<p><i>InfoScreen</i> Setting identical to Manual mode,  p. 67.</p>
	<p><i>Piece counter</i> 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.</p>

Symbol	Description
	<i>PointPos.°</i> Setting identical to Manual mode,  p. 58.
	<i>Speed Corr</i> Setting identical to Manual mode,  p. 69.
	<i>Mat.Thickness</i> If present, setting identical to Manual mode,  p. 73.



- Exit the submenu using the **ESC** or **◀** button.

↳ The changed values are stored immediately.

- If necessary, create further seam sections or exit Programming mode using the **ESC** button.

↳ The program is saved. The machine switches to Automatic mode and the newly created program is selected.

## 5.6.6 Editing programs

Parameters of already created programs can be adjusted subsequently.



To edit a program:

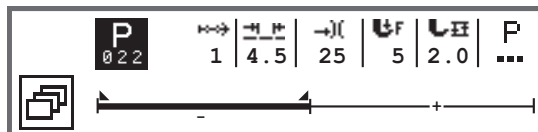
- Select the desired program.

- Press the **P** button.








↳ The control switches to Edit mode.

The following information is shown, and the P in the program number field flashes:

Fig. 40: Display in editing mode








3. Select the seam section to be changed using  with **▲/▼**.  
 The selected seam section is shown in bold in the program bar.
4. Adjust the basic parameters.
5. Adjust the parameters for the selected seam section,  *p. 88*.
6. Adjust the parameters for the entire program,  *p. 90*.
7. Use  to add a new seam section.
8. Use  to delete the seam section marked in bold in the program bar.
9. Exit Edit mode using the **ESC** button.  
 The program is saved. The machine switches to Automatic mode and the newly created program is selected.

### 5.6.7 Copying the program

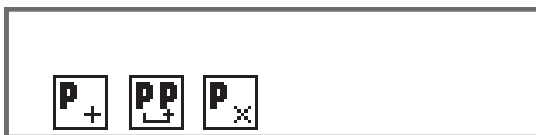
Only the selected program is copied to a new program number.



To copy a program:

1. Select the desired program.
2. Press the **P** button.  
 The P above the program number will flash.
3. Press the **Softkey menu**  button.  
 The softkey menu appears.

*Fig. 41: Softkey menu*





4. Press the numeric button under .
-  The following display appears:

Fig. 42: Copying the program



↪ The control displays the next free program number.



5. Press the **OK** button to load the program number.

OR

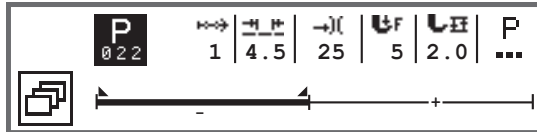
Select another program number using ▲/▼ or input a program number using the numeric buttons **0 – 9**.

6. Press the **OK** button to confirm the program number.

↪ The program number is loaded.

The control switches to Edit mode and the program number flashes:

Fig. 43: Display after specifying the program number



7. If necessary, make changes to the newly copied program.

8. Press the **ESC** button.




↪ The program is saved. The machine switches to Automatic mode and the newly created program is selected.

### 5.6.8 Deleting the program

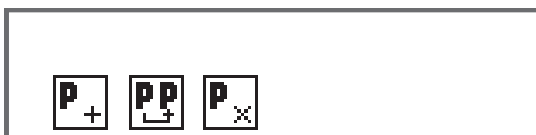
Only the selected program can be deleted.








To delete a program:

1. Select the desired program.
2. Press the **P** button.  
 The P above the program number will flash.
3. Press the **Softkey menu**  button.  
 The softkey menu appears.

*Fig. 44: Softkey menu*



4. Press the numeric button under .  
 The selected program is deleted. The program below/above is selected and can be edited.
5. To delete further programs, select the program using / and repeat from step 3.
6. Press the **ESC** button to go to Automatic mode.  
 The machine switches to Automatic mode.

## 6 Maintenance

### WARNING



#### Risk of injury from sharp parts!

Punctures and cutting possible.

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

### WARNING




#### Risk of injury from moving parts!

Crushing possible.

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

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

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

### Maintenance interval

Work to be carried out	Operating hours			
	8	40	160	500
<b>Cleaning</b>				
Removing lint and thread remnants	●			
<b>Lubricating</b>				
Lubricating the machine head	●			
Lubricating the hook		●		

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

## 6.1 Cleaning

### WARNING



#### **Risk of injury from flying particles!**

Flying particles can enter the eyes, causing injury.

Wear safety goggles.

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

Make sure no particles fly into the oil pan.

### NOTICE

#### **Property damage from soiling!**

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

Clean the machine as described.



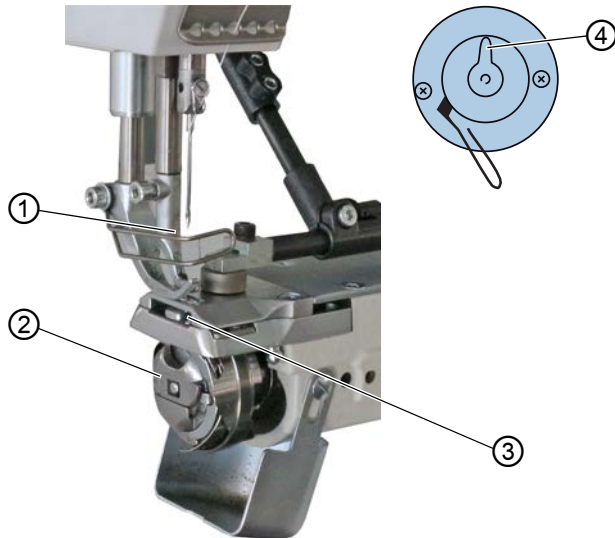
### NOTICE

#### Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

Fig. 45: Areas requiring special cleaning



(1) - Area around the needle

(2) - Hook

(3) - Area under the throat plate

(4) - Cutter on the winder

#### Areas particularly susceptible to soiling:

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



#### Cleaning steps:

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

## 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<sup>2</sup>/s
- Flash point: 150 °C

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

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

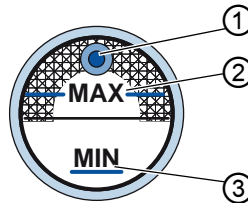
### 6.2.1 Lubricating the machine head



#### Proper setting

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

*Fig. 46: Lubricating the machine head*



(1) - Refill opening

(2) - Maximum level marking

(3) - Minimum level marking



To lubricate the machine head:

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

## 6.2.2 Lubricating the hook

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



### Proper setting

1. Hold a piece of blotting paper next to the hook.
  2. Allow the machine to run without thread and sewing material for 10 seconds with the sewing feet lifted and at a high speed.
- ✎ The blotting paper will show a thin strip of oil when sewing is complete.

Fig. 47: Lubricating the hook



(1) - Screw

To lubricate the hook:



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



### Important

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

## 6.3 Servicing the pneumatic system

### 6.3.1 Setting the operating pressure

#### NOTICE

##### Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

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

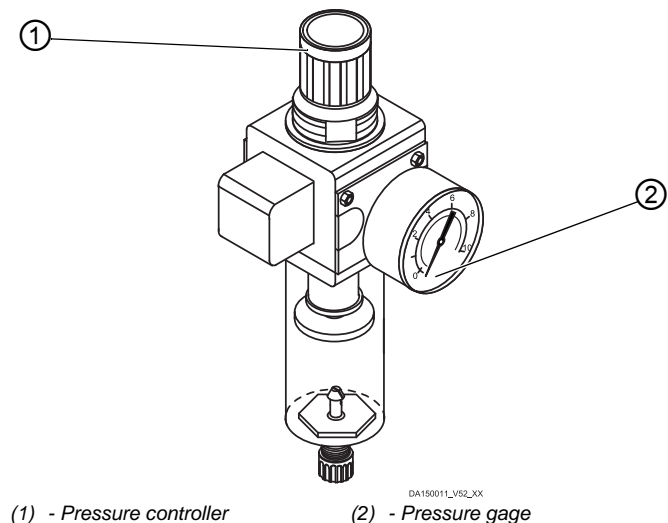


#### Proper setting

Refer to the **Technical data** (📖 p. 147) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than  $\pm 0.5$  bar.

Check the operating pressure on a daily basis.

Fig. 48: Setting the operating pressure



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.

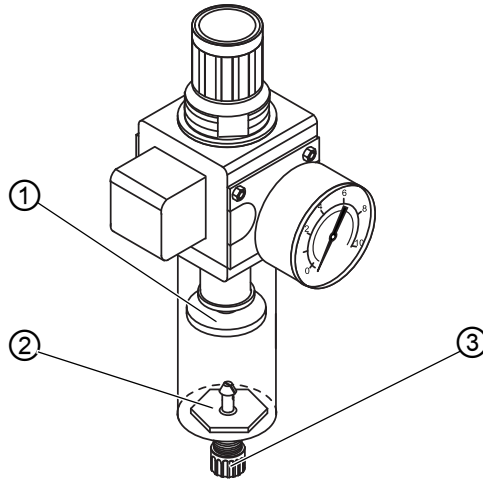


##### **Proper setting**

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. 49: 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

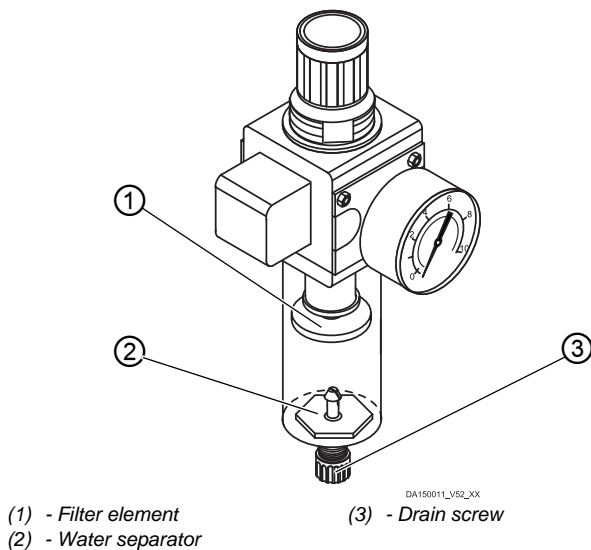
#### NOTICE

#### **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. 50: Cleaning the filter element



To clean the filter element:



1. Disconnect the machine from the compressed air supply.
2. Drain the water condensation ( p. 104).
3. Loosen the water separator (2).
4. Loosen the filter element (1).
5. Blow out the filter element (1) using a compressed air gun.
6. Wash out the filter tray using benzine.
7. Tighten the filter element (1).



8. Tighten the 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](http://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.

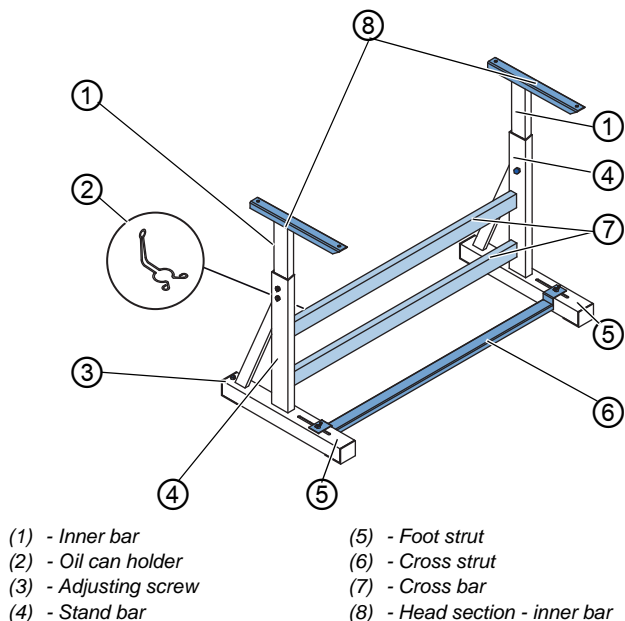
### 7.2 Removing the transport locks

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. 51: Assembling the stand



To assemble the stand:

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



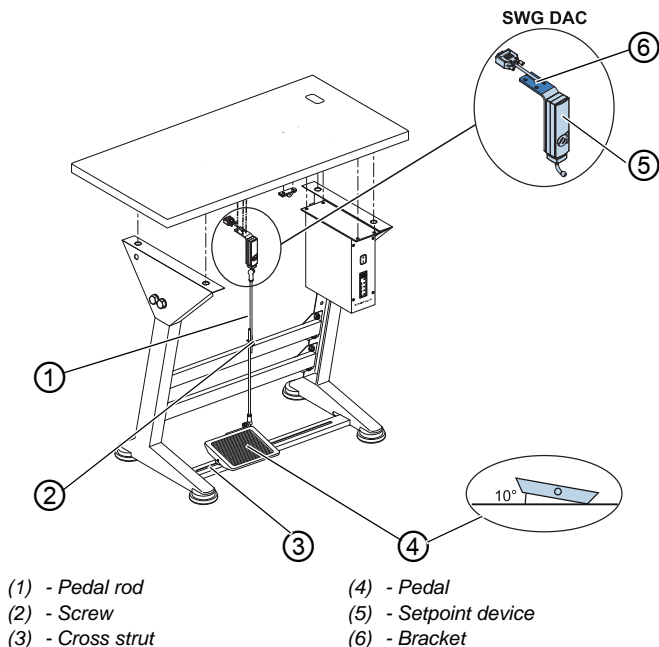
### Important

**Important:** Turn the adjusting screw (3) so that the stand has even contact with the ground.

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

## 7.4 Assembling the pedal and setpoint device

Fig. 52: Assembling the pedal and setpoint device



To assemble pedal and setpoint device:

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



### Proper setting

10° inclination with pedal (4) released

7. Tighten the screw (2).

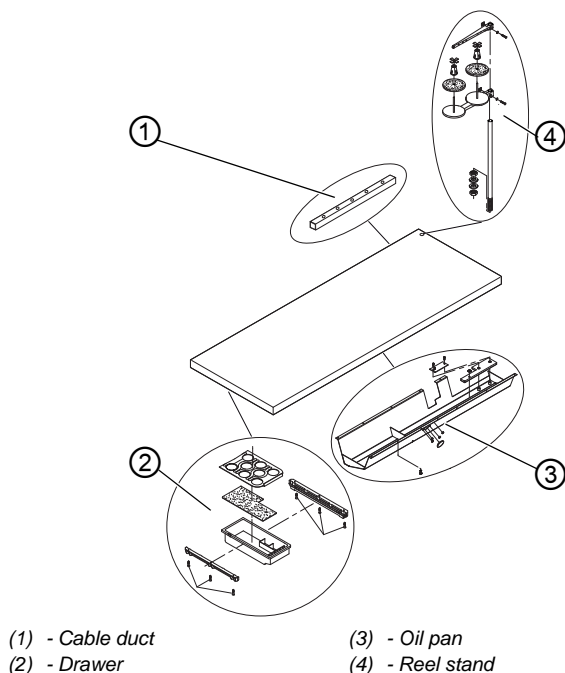
## 7.5 Tabletop

Ensure that the tabletop has sufficient load-bearing capacity and strength. If you want to make your own tabletop, use the dimensions given in the diagram **Appendix** (📖 p. 151) as a template.

### 7.5.1 Completing the tabletop

The tabletop is optional. Drawings are provided in the appendix to allow you to independently assemble a tabletop (📖 p. 151).

Fig. 53: Completing the tabletop



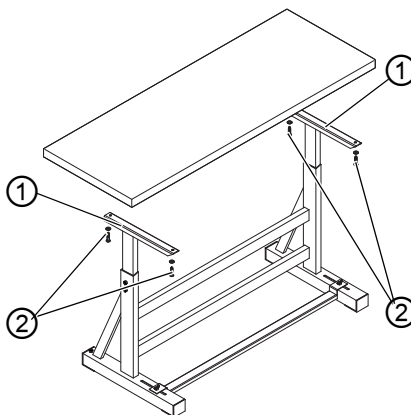


To complete the tabletop:

1. Screw the drawer (2) with the left-hand bracket to the underside of the tabletop.
2. Screw the oil pan (3) in place under the slot for the machine.
3. Screw the cable duct (1) to the underside of the tabletop.
4. Insert the reel stand (4) into the hole.
5. Assemble the reel stand (4) with nut and washer.
6. Tighten the thread reel holder and the unwinding bracket on the reel stand (4) in such a way that they are exactly opposite each other.

### 7.5.2 Assembling the tabletop to the stand

*Fig. 54: Assembling the tabletop to the stand*



(1) - Head section

(2) - Screws



To assemble the tabletop to the stand:

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

## 7.6 Setting the working height

### WARNING



#### **Risk of injury from moving parts!**

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

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

### CAUTION



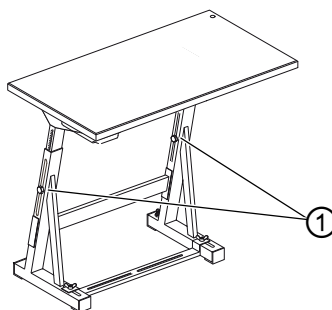
#### **Risk of musculoskeletal damage from incorrect setting!**

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

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

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

*Fig. 55: Setting the working height*



(1) - Screws





To set the working height:

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



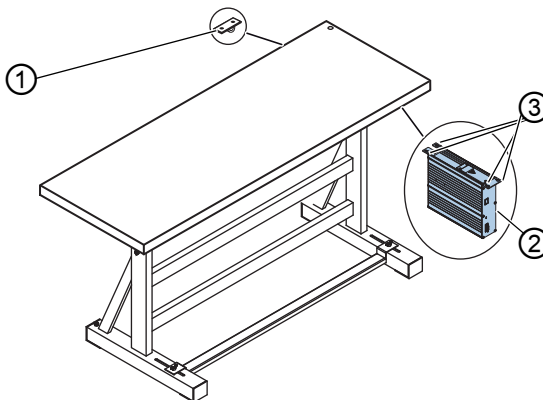
### Important

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

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

## 7.7 Assembling the control

Fig. 56: Assembling the control



(1) - Strain relief mechanism  
(2) - Control

(3) - Screw holder



To assemble the control:

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

## 7.8 Placing the machine head

### WARNING



#### **Risk of injury from moving parts!**

The machine head is very heavy.  
Crushing possible.

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

### NOTICE

#### **Property damage may occur!**

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

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

*Fig. 57: Placing the machine head (1)*



(1) - Screws



To place the machine head:

1. Place and align the machine head (2) on the tabletop.
2. Tighten the machine head using the screws (1).

## 7.9 Assembling the control panel

Fig. 58: Assembling the control panel



(1) - Control panel

(3) - Bracket

(2) - Plug

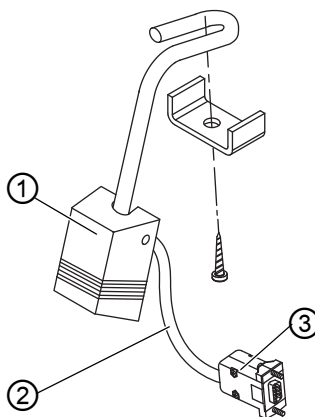


To assemble the control panel:

1. Tighten the control panel (1) on the bracket (3).
2. Insert the plug (2) of the connecting cable into the socket of the control panel (1).

## 7.10 Assembling the knee button

Fig. 59: Assembling the knee button



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

(3) - Plug



To assemble the knee button:

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

## 7.11 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.

### 7.11.1 Connecting the sewing lamp transformer

#### **DANGER**



#### **Risk of death from electric shock!**

When the sewing machine is switched off at the main switch, the supply voltage for the sewing lamp remains active.

Disconnect the power plug before assembling the sewing lamp with sewing lamp transformer. Ensure the power plug cannot be unintentionally reinserted.

*Fig. 60: Connecting the sewing lamp transformer (1)*



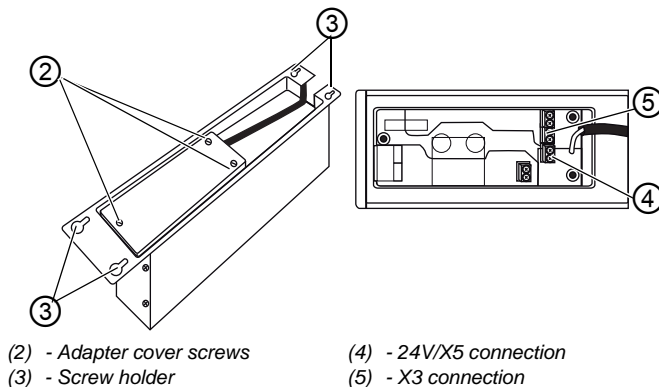
*(1) - Sewing lamp transformer*

### **Assembling the sewing lamp transformer**



1. Screw the sewing lamp transformer (1) in place at the pre-drilled holes under the tabletop.
2. Assemble the connecting cable under the tabletop using cable ties.
3. Establish the plug connection to the supply line for the sewing lamp.

Fig. 61: Connecting the sewing lamp transformer (2)



### Connecting the sewing lamp transformer



1. Loosen the screw holder (3) for the control until the control can be removed.
2. Remove the control.
3. Loosen the adapter cover screws (2).
4. Connect the supply line:
  - for additional sewing lamps to be assembled to the X3 port (5)
  - for integrated LED sewing lamps connected to the 24V/X5 port (4)

## 7.11.2 Establishing equipotential bonding

### DANGER



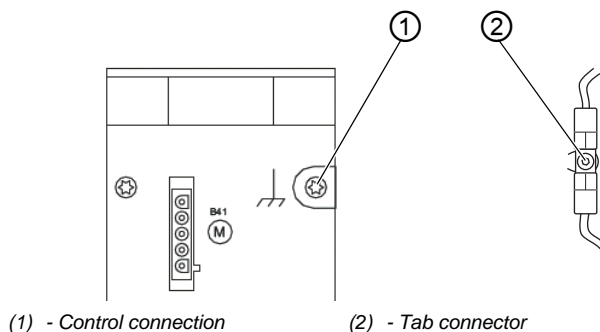
#### **Risk of death from live components!**

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

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

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

*Fig. 62: Establishing equipotential bonding*



To establish equipotential bonding:

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



### 7.11.3 Connecting the control

#### DANGER




#### **Risk of death from live components!**

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

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

To connect the control:



1. Connect the control as specified in the wiring diagram ( p. 151).

## 7.12 Pneumatic connection (optional)

### NOTICE

#### **Property damage from oily compressed air!**

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

Ensure that no oil particles enter the compressed air supply.

### NOTICE

#### **Property damage from incorrect setting!**

Incorrect system pressure can result in damage to the machine.

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

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



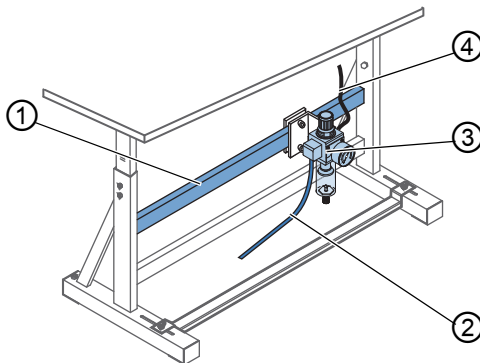
### Information

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

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

### 7.12.1 Assembling the compressed air maintenance unit

Fig. 63: Assembling the compressed air maintenance unit



(1) - Cross bar

(2) - System connection hose

(3) - Maintenance unit

(4) - Machine hose



To assemble the compressed air maintenance unit:

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

## 7.12.2 Setting the operating pressure

### NOTICE

#### Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

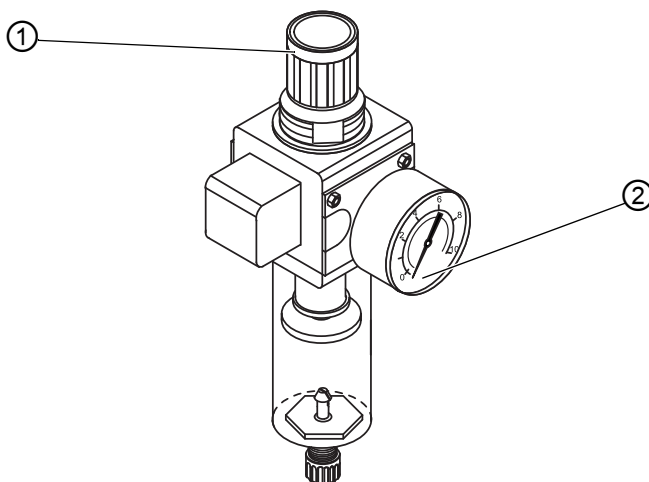
Ensure that the machine is only used when the operating pressure is set correctly.



#### Proper setting

Refer to the **Technical data** (📖 p. 147) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than  $\pm 0.5$  bar.

Fig. 64: Setting the operating pressure



DA150011\_V52\_XX

(1) - Pressure controller

(2) - Pressure gage



To set the operating pressure:

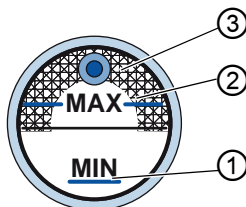
1. Pull the pressure controller (1) up.

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.

### 7.13 Checking the lubrication

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

Fig. 65: Checking the lubrication




- (1) - Minimum level marking  
(2) - Maximum level marking

(3) - Inspection glass



To check the lubrication:

1. Sew with the machine for approx. 1 minute.
2. Check at the inspection glass (3) whether the warning indicator is lit red or the oil level has dropped below the minimum marking (1).
3. If this is the case, top off oil ( p. 101).

## 7.14 Performing a test run

### WARNING





#### **Risk of injury from moving, cutting and sharp parts!**

Crushing, cutting and punctures are possible.









If possible, only change settings when the machine is switched off.

When setup is complete, perform a test run to check the functionality of the machine. To this end, adjust the machine to the sewing material requirements.

To do so, read the corresponding chapters in the  *Operating Instructions*. Read the corresponding chapters in the  *Service Instructions* in order to make adjustments to the machine if the sewing results do not conform to the requirements.

To perform a test run:



1. Insert a new needle ( p. 22).
2. Wind on the hook thread, ( p. 28).
3. Insert the bobbin ( p. 31).
4. Thread the hook thread ( p. 31).
5. Thread the needle thread ( p. 24).
6. Set the thread tensions to the sewing material being sewn ( p. 32).
7. Set the needle thread regulator to the sewing material being sewn ( p. 35).
8. Set the sewing foot pressure to the sewing material being sewn.
9. Set the sewing foot stroke to the sewing material being sewn.
10. Set the stitch length.
11. Transfer the desired quick function from the push button to the favorite button ( p. 39).
12. Start the sewing test at low speed.
13. 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.

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



To decommission the machine:

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





## 9 Disposal

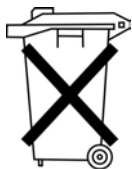
### CAUTION



#### **Risk of environmental damage from improper disposal!**

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

ALWAYS comply with the national regulations regarding disposal.



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

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

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



## 10 Troubleshooting

### 10.1 Customer Service

Contact for repairs and issues with the machine:

#### **Dürkopp Adler AG**

Potsdamer Str. 190  
33719 Bielefeld, Germany

Tel. +49 (0) 180 5 383 756

Fax +49 (0) 521 925 2594

Email: [service@duerkopp-adler.com](mailto:service@duerkopp-adler.com)


Internet: [www.duerkopp-adler.com](http://www.duerkopp-adler.com)



## 10.2 Messages of the software

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

### 10.2.1 Information messages

Code	Possible cause	Remedial action
3104	Pedal is not in position <b>0</b>	<ul style="list-style-type: none"> <li>When switching the control on, take your foot off the pedal.</li> </ul>
3109	Operation lock	<ul style="list-style-type: none"> <li>Check tilt sensor on machine</li> </ul>
3110	Right thread tension magnet not connected	<ul style="list-style-type: none"> <li>Check the connection of the right thread tension magnet</li> </ul>
3111	Left thread tension magnet not connected	<ul style="list-style-type: none"> <li>Check the connection of the left thread tension magnet</li> </ul>
3150	Maintenance necessary	<ul style="list-style-type: none"> <li>Service is required   <i>Service Instructions</i> </li> </ul>
3354	Error during thread cutting	<ul style="list-style-type: none"> <li>Perform software update</li> </ul>
3383	Error during motor referencing process	<ul style="list-style-type: none"> <li>Check motors</li> <li>Perform software update</li> </ul>
4201	SD card error	<ul style="list-style-type: none"> <li>Insert SD card</li> <li>Replace the control</li> </ul>
4430	OP3000 connection lost	<ul style="list-style-type: none"> <li>Check connection to OP3000</li> <li>Replace OP3000</li> <li>Replace the control</li> </ul>
4441	OP3000 DAC receiver timeout	<ul style="list-style-type: none"> <li>Check connection to OP3000</li> <li>Replace OP3000</li> <li>Replace the control</li> </ul>

Code	Possible cause	Remedial action
4442	OP3000: DAC unknown message	<ul style="list-style-type: none"> <li>• Check connection to OP3000</li> <li>• Replace OP3000</li> <li>• Replace the control</li> </ul>
4443	OP3000: DAC invalid checksum	<ul style="list-style-type: none"> <li>• Check connection to OP3000</li> <li>• Replace OP3000</li> <li>• Replace the control</li> </ul>
4446	OP3000: DAC transmission no response	<ul style="list-style-type: none"> <li>• Check connection to OP3000</li> <li>• Replace OP3000</li> <li>• Replace the control</li> </ul>
4447	OP3000: DAC transmission invalid response	<ul style="list-style-type: none"> <li>• Check connection to OP3000</li> <li>• Replace OP3000</li> <li>• Replace the control</li> </ul>
4451	OP3000: OP receive buffer overflow	<ul style="list-style-type: none"> <li>• Check connection to OP3000</li> <li>• Replace OP3000</li> <li>• Replace the control</li> </ul>
4452	OP3000: OP unknown message	<ul style="list-style-type: none"> <li>• Check connection to OP3000</li> <li>• Replace OP3000</li> <li>• Replace the control</li> </ul>
4456	OP3000: DAC transmission no response	<ul style="list-style-type: none"> <li>• Check connection to OP3000</li> <li>• Replace OP3000</li> <li>• Replace the control</li> </ul>
4460	OP7000 connection lost	<ul style="list-style-type: none"> <li>• Check connection to OP7000</li> <li>• Replace OP7000</li> <li>• Replace the control</li> </ul>
5001	Incorrect class	<ul style="list-style-type: none"> <li>• Change class</li> <li>• Perform reset</li> </ul>
5002	Incorrect class or machine ID error	<ul style="list-style-type: none"> <li>• Change class</li> <li>• Perform reset</li> </ul>
5003	Outdated data version	<ul style="list-style-type: none"> <li>• Perform reset</li> </ul>

<b>Code</b>	<b>Possible cause</b>	<b>Remedial action</b>
5004	Checksum error	<ul style="list-style-type: none"> <li>• Perform reset</li> </ul>
6360	No valid data on external EEPROM (internal data structures are not compatible with the external data storage device)	<ul style="list-style-type: none"> <li>• Perform software update</li> </ul>
6361	No external EEPROM connected	<ul style="list-style-type: none"> <li>• Connect machine ID</li> </ul>
6362	No valid data on internal EEPROM (internal data structures are not compatible with the external data storage device)	<ul style="list-style-type: none"> <li>• Check machine ID connection</li> <li>• Switch off the control, wait until the LEDs are off and then switch on again</li> <li>• Perform software update</li> </ul>
6363	No valid data on internal and external EEPROM (software version is not compatible with the internal data storage device, emergency operating features only)	<ul style="list-style-type: none"> <li>• Check machine ID connection</li> <li>• Switch off the control, wait until the LEDs are off and then switch on again</li> <li>• Perform software update</li> </ul>
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)	<ul style="list-style-type: none"> <li>• Check machine ID connection</li> <li>• Switch off the control, wait until the LEDs are off and then switch on again</li> <li>• Perform software update</li> </ul>
6365	Internal EEPROM defective	<ul style="list-style-type: none"> <li>• Replace the control</li> </ul>

Code	Possible cause	Remedial action
6366	Internal EEPROM defective and external data not valid (emergency operating features only)	<ul style="list-style-type: none"> <li>• Replace the control</li> </ul>
6367	Internal EEPROM defective and external EEPROM not connected (emergency operating features only)	<ul style="list-style-type: none"> <li>• Replace the control</li> </ul>
7270	External CAN	<ul style="list-style-type: none"> <li>• Check connection cables</li> <li>• Perform software update</li> <li>• Replace CAN slave</li> </ul>

## 10.2.2 Error messages

Code	Possible cause	Remedial action
1000	Sewing motor encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> <li>• Connect encoder cable to the control, use correct connection</li> </ul>
1001	Sewing motor error: Sewing motor plug (AMP) not connected	<ul style="list-style-type: none"> <li>• Check connection and plug in, if necessary</li> <li>• Test sewing motor phases (R= 2.8 Ω, high impedance to PE)</li> <li>• Replace the encoder</li> <li>• Replace the sewing motor</li> <li>• Replace the control</li> </ul>
1002	Sewing motor insulation fault	<ul style="list-style-type: none"> <li>• Check motor phase and PE for low-impedance connection</li> <li>• Replace the encoder</li> <li>• Replace the sewing motor</li> </ul>
1004	Sewing motor error: incorrect sewing motor direction of rotation	<ul style="list-style-type: none"> <li>• Replace the encoder</li> <li>• Check plug assignment and replace, if necessary</li> <li>• Check wiring in machine distributor and change it, if necessary</li> <li>• Test motor phases and check for correct value</li> </ul>
1005	Motor blocked	<ul style="list-style-type: none"> <li>• Eliminate stiff movement in the sewing machine</li> <li>• Replace the encoder</li> <li>• Replace the motor</li> </ul>
1006	Maximum speed exceeded	<ul style="list-style-type: none"> <li>• Replace the encoder</li> <li>• Perform reset</li> <li>• Check machine class (parameter <math>t_{5104}</math>)</li> </ul>
1007	Error in the reference run	<ul style="list-style-type: none"> <li>• Replace the encoder</li> <li>• Eliminate stiff movement in the sewing machine</li> </ul>
1008	Encoder error	<ul style="list-style-type: none"> <li>• Replace the encoder</li> </ul>



Code	Possible cause	Remedial action
1010	External synchronizer plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> <li>• Connect cable of external synchronizer to control, use correct connection (Sync)</li> <li>• Only required for machines with transmission!</li> </ul>
1011	Encoder Z pulse missing	<ul style="list-style-type: none"> <li>• Switch off the control, use handwheel to turn, and switch on the control again</li> <li>• If error is not corrected, check encoder</li> </ul>
1012	Synchronizer fault	<ul style="list-style-type: none"> <li>• Replace the synchronizer</li> </ul>
1054	Internal short circuit	<ul style="list-style-type: none"> <li>• Replace the control</li> </ul>
1055	Sewing motor overload	<ul style="list-style-type: none"> <li>• Eliminate stiff movement in the sewing machine</li> <li>• Replace the encoder</li> <li>• Replace the sewing motor</li> </ul>
1060	Sewing motor overload/ excess voltage/excess current/	<ul style="list-style-type: none"> <li>• Check class</li> <li>• Replace the control</li> <li>• Replace the encoder</li> <li>• Replace the sewing motor</li> </ul>
1061	Sewing motor overload/ excess voltage/excess current/	<ul style="list-style-type: none"> <li>• Check class</li> <li>• Replace the control</li> <li>• Replace the encoder</li> <li>• Replace the sewing motor</li> </ul>
1120	Sewing motor Init fault	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Check class</li> </ul>
1121	Sewing motor watchdog	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Check class</li> </ul>

Code	Possible cause	Remedial action
1203	Position not reached	<ul style="list-style-type: none"> <li>• Check and, if necessary, change controller settings</li> <li>• Mechanical changes to the machine (e.g. thread cutting setting, belt tension)</li> </ul>
1302	Sewing motor voltage error	<ul style="list-style-type: none"> <li>• Check service stop switch</li> <li>• Eliminate stiff movement in the sewing machine</li> <li>• Replace the encoder</li> <li>• Replace the sewing motor</li> </ul>
1330	No response from sewing motor	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Replace the control</li> </ul>
2101	DA stepper card 1 reference run timeout	<ul style="list-style-type: none"> <li>• Check reference sensor</li> </ul>
2105	DA stepper card X reference run timeout	<ul style="list-style-type: none"> <li>• Check for stiff movement</li> </ul>
2121	DA stepper card X encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> <li>• Insert the plug into the control, use correct connection</li> </ul>
2122	DA stepper card X flywheel position not found	<ul style="list-style-type: none"> <li>• Check stepper motor 1 for stiff movement</li> </ul>
2130	DA stepper card X not responding	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Replace the control</li> </ul>
2131	DA stepper card X Init fault	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Check class</li> </ul>
2152	DA stepper card X excess current	<ul style="list-style-type: none"> <li>• Check for stiff movement</li> </ul>
2201	DA stepper card 2 reference run timeout	<ul style="list-style-type: none"> <li>• Check reference sensor</li> </ul>
2205	DA stepper card Y stepper motor blocked	<ul style="list-style-type: none"> <li>• Check for stiff movement</li> </ul>








Code	Possible cause	Remedial action
2221	DA stepper card Y encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> <li>• Insert the plug into the control, use correct connection</li> </ul>
2222	DA stepper card Y flywheel position not found	<ul style="list-style-type: none"> <li>• Check stepper motor 1 for stiff movement</li> </ul>
2230	DA stepper card Y not responding	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Replace the control</li> </ul>
2231	DA stepper card Y Init fault	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Check class</li> </ul>
2252	DA stepper card excess current	<ul style="list-style-type: none"> <li>• Check for stiff movement</li> </ul>
2271	DA stepper card Y watchdog (sewing foot lift)	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Check class</li> </ul>
2301	DA stepper card Z reference run timeout (sewing foot stroke)	<ul style="list-style-type: none"> <li>• Check reference sensor</li> </ul>
2305	DA stepper card Z motor blocked	<ul style="list-style-type: none"> <li>• Check for stiff movement</li> </ul>
2321	DA stepper card Z encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> <li>• Insert the plug into the control, use correct connection</li> </ul>
2322	DA stepper card Z flywheel position not found	<ul style="list-style-type: none"> <li>• Check stepper motor 1 for stiff movement</li> </ul>
2330	DA stepper card Z not responding	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Replace the control</li> </ul>
2331	DA stepper card Z Init fault	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Check class</li> </ul>
2352	DA stepper card Z excess current	<ul style="list-style-type: none"> <li>• Check for stiff movement</li> </ul>












Code	Possible cause	Remedial action
2371	DA stepper card Z watchdog (sewing foot lift)	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Check class</li> </ul>
2401	DA stepper card U reference run timeout (edge stop)	<ul style="list-style-type: none"> <li>• Check reference sensor</li> </ul>
2430	DA stepper card U not responding	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Replace the control</li> </ul>
2431	DA stepper card U Init fault	<ul style="list-style-type: none"> <li>• Perform software update</li> <li>• Check class</li> </ul>
3010	U100 V start-up error	<ul style="list-style-type: none"> <li>• Disconnect stepper motor plug; replace control if error is not corrected</li> </ul>
3011	U100 V short circuit	<ul style="list-style-type: none"> <li>• Disconnect stepper motor plug; replace control if error is not corrected</li> </ul>
3012	U100 V ( $I^2T$ ) overload	<ul style="list-style-type: none"> <li>• One or several stepper motors defective</li> </ul>
3020	U24 V start-up error	<ul style="list-style-type: none"> <li>• Disconnect magnetic plug; replace control if error is not corrected</li> </ul>
3021	U24 V short circuit	<ul style="list-style-type: none"> <li>• Disconnect magnetic plug; replace control if error is not corrected</li> </ul>
3022	U24 V ( $I^2T$ ) overload	<ul style="list-style-type: none"> <li>• One or several magnets defective</li> </ul>
3030	Motor phase error	<ul style="list-style-type: none"> <li>• Replace the control</li> </ul>

Code	Possible cause	Remedial action
3100	AC-RDY timeout, intermediate circuit voltage did not reach the defined threshold in the specified time	<ul style="list-style-type: none"> <li>• Check the mains voltage</li> <li>• If the mains voltage is OK, replace the control</li> </ul>
3101	High voltage fault, mains voltage, longer duration >290 V	<ul style="list-style-type: none"> <li>• Check mains voltage, if nominal voltage is continuously exceeded: stabilize it or use a generator</li> </ul>
3102	Low voltage failure (2nd threshold) (mains voltage < 150 V AC)	<ul style="list-style-type: none"> <li>• Check the mains voltage</li> <li>• Stabilize the mains voltage</li> <li>• Use generator</li> </ul>
3105	U24 V short circuit	<ul style="list-style-type: none"> <li>• Disconnect 37-pin plug; if error persists: Replace the control</li> <li>• Test inputs/outputs for 24 V short circuit</li> </ul>
3106	U24 V ( $I^2T$ ) overload	<ul style="list-style-type: none"> <li>• One or several magnets defective</li> </ul>
3107	Pedal not connected	<ul style="list-style-type: none"> <li>• Connect analog pedal</li> </ul>
4440	OP3000: DAC receive buffer overflow	<ul style="list-style-type: none"> <li>• Check connection to OP3000</li> <li>• Replace OP3000</li> <li>• Replace the control</li> </ul>
4445	OP3000: DAC output buffer overflow	<ul style="list-style-type: none"> <li>• Check connection to OP3000</li> <li>• Replace OP3000</li> <li>• Replace the control</li> </ul>

Code	Possible cause	Remedial action
4450	OP3000: DAC receive buffer overflow	<ul style="list-style-type: none"> <li>• Check connection to OP3000</li> <li>• Replace OP3000</li> <li>• Replace the control</li> </ul>
9330	Material thickness sensor not connected	<ul style="list-style-type: none"> <li>• Check connection cables</li> <li>• Perform software update</li> <li>• Replace material thickness sensor</li> </ul>
9922	Service stop	<ul style="list-style-type: none"> <li>• Check service stop switch</li> <li>• Check 24 V</li> <li>• Replace the control</li> </ul>

### 10.3 Errors in sewing process

Error	Possible causes	Remedial action
Unthreading at seam beginning	Needle thread pretension is too firm	Check needle thread pretension (  p. 33).
Thread breaking	Needle thread and hook thread have not been threaded correctly	Check threading path (  p. 24).
	Needle is bent or sharp-edged	Replace the needle (  p. 22).
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar (  p. 22).
	The thread used is unsuitable	Use recommended thread (  p. 147).
	Thread tensions are too tight for the thread used	Check thread tensions (  p. 32).
	Thread-guiding parts, such as thread guides, are sharp-edged	Check threading path (  p. 24).
	Throat plate or hook 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,  p. 31).
	Needle is blunt or bent	Replace the needle (  p. 22).
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar (  p. 22).
	The needle thickness used is unsuitable	Use recommended needle thickness (  p. 147).
	The reel stand is installed incorrectly	Check the assembly of the reel stand
	Thread tensions are too tight	Check thread tensions (  p. 32).
	Throat plate or hook have been damaged by the needle	Have parts reworked by qualified specialists
	Distance from the hook to the needle is not set correctly	Set the correct distance (  <i>Service Instructions</i> )
Loose stitches	Thread tensions are not adjusted to the sewing material, the sewing material thickness or the thread used	Check thread tensions (  p. 32).
	Needle thread and hook thread have not been threaded correctly	Check threading path (  p. 24,  p. 31).
Needle breakage	Needle thickness is unsuitable for the sewing material or the thread	Use recommended needle thickness (  p. 147).



## 11 Technical data

### Data and characteristic values

Technical data	Unit	669 PREMIUM
Type of stitches		Double lockstitch 301
Hook type		Horizontal hook, large
Number of needles		1
Needle system		134 - 35
Needle strength	[Nm]	80 - 150
Thread strength	[Nm]	90/3 - 15/3
Stitch length	[mm]	9/9
Speed maximum	[min <sup>-1</sup> ]	3000
Speed on delivery	[min <sup>-1</sup> ]	3000
Mains voltage	[V]	230
Mains frequency	[Hz]	50/60
Operating pressure	[bar]	6
Length	[mm]	600
Width	[mm]	300
Height	[mm]	470
Weight	[kg]	55

### Characteristics

Single-needle double lockstitch free-arm sewing machine with bottom feed, needle feed and alternating foot-top feed. With thread cutter, 2nd stitch length and automatic bartack.

Max. stitch length 5, 6 or 9mm depending on equipment.  
Needle thicknesses Nm 80-150.

The machine is equipped with programmable, motorized actuators that will set stitch length, stroke height and sewing foot pressure. The programmable thread tension force is controlled electromagnetically (ETT).

The control used is a DAC comfort combined with the OP3000 control panel.

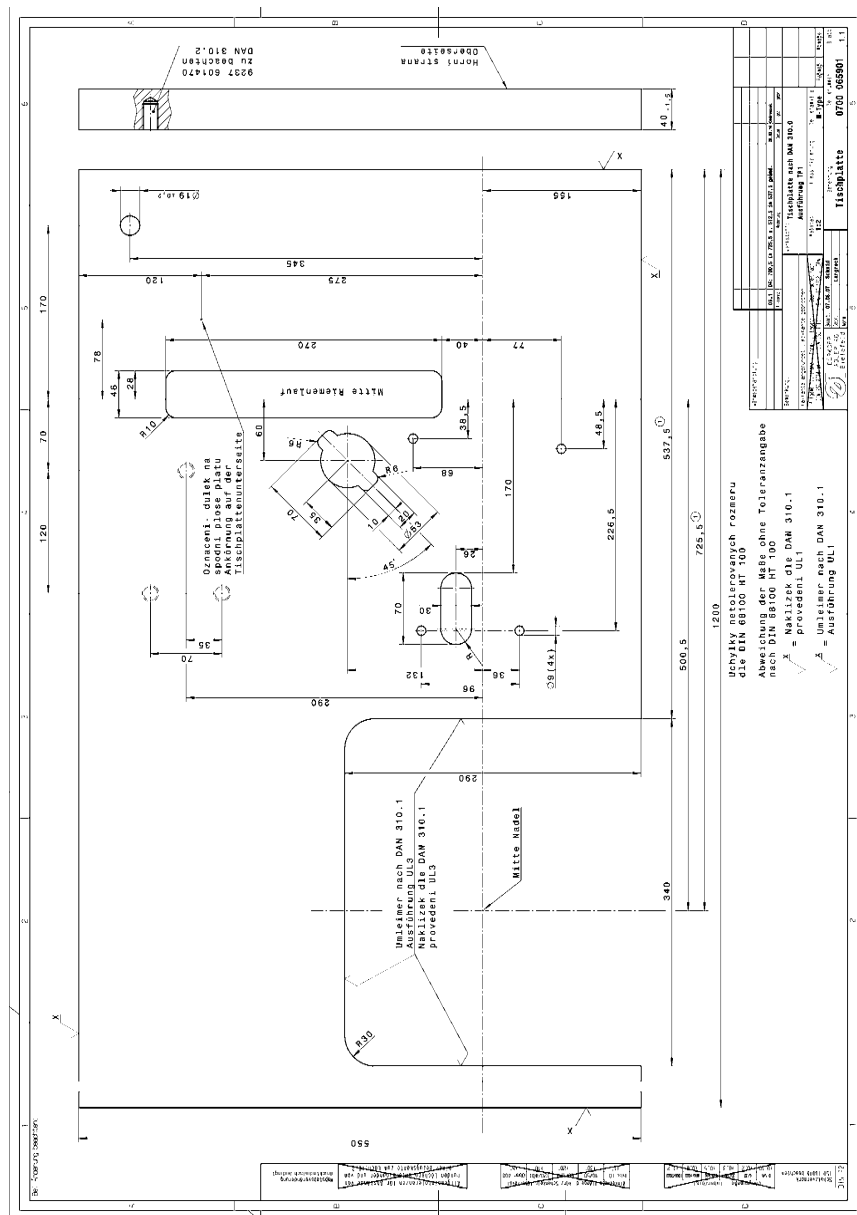
**Technical features:**

- ShangQi sewing motor with a max. speed of 3,000 rpm
- DAC comfort control with OP3000 control panel (including control panel holder)
- Actuators without compressed air
- The machines are equipped with a large horizontal hook.
- The diameter of the hook cover is 48mm
- The machines are equipped with an electromagnetic thread cutter
- The remaining thread length following the thread cutting process is approx. 10 mm.
- Bottom feed stroke can be switched off easily by a simple conversion, e.g. for binding operations.
- Programmable setting of the stitch length via stepper motor (max. 9 mm)
- Programmable adjustment of the alternating sewing feet via stepper motor (max. 9 mm)
- Material thickness detection with programmable functions for sewing speed, sewing foot pressure, sewing foot stroke, thread tension and stitch length
- Programmable sewing foot pressure via stepper motor (in combination with compression spring)
- Sewing foot lift controlled by stepper motor (max. 20 mm, same actuator as the one used for the sewing foot pressure)
- Electronic thread tension (electromagnetically) with speed compensation
- electronic handwheel (ENP 10-1)
- Safety clutch prevents any misadjustment or damage to the hook in the event of a thread jamming
- Automatic wick lubrication with an inspection glass housed in the arm for lubricating the machine and the hook (including low oil level warning light)

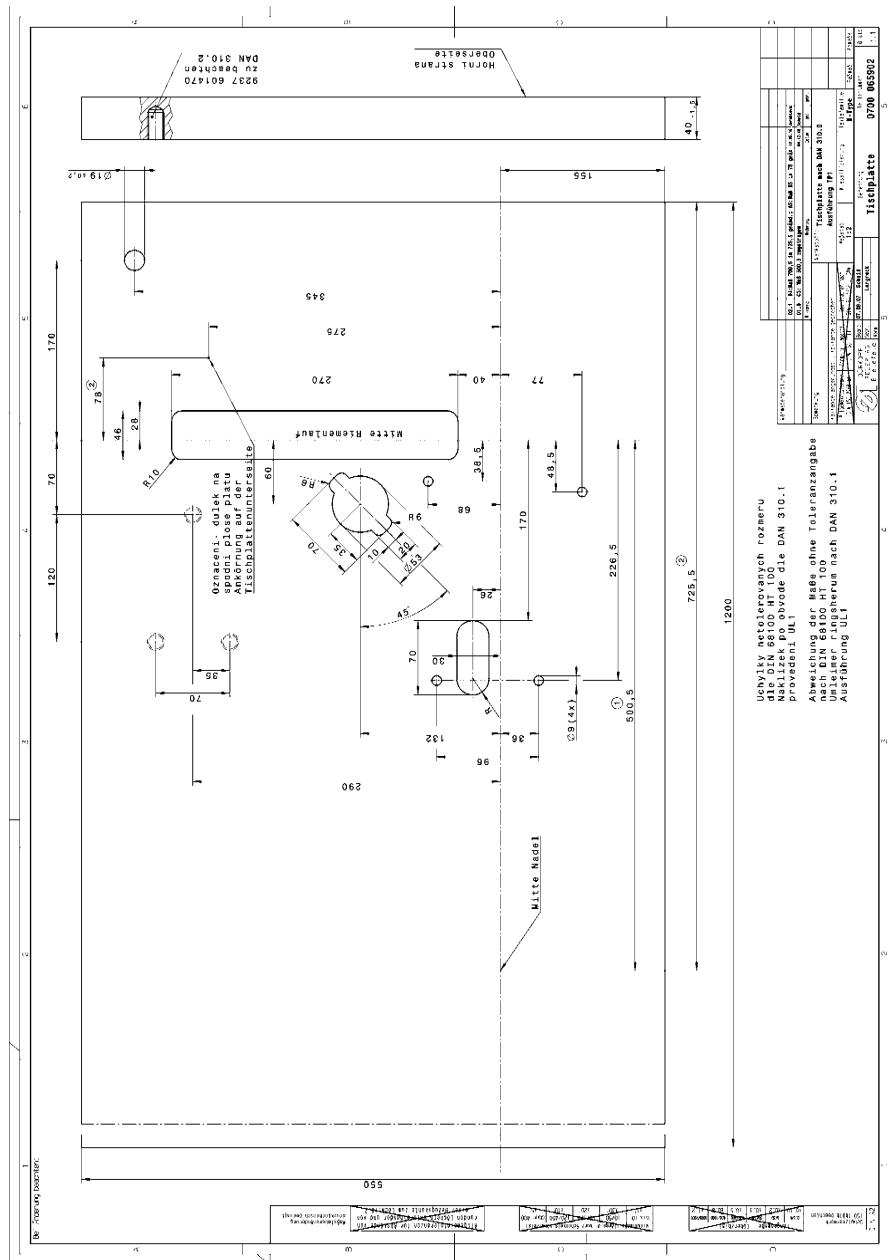
- All subclasses are equipped with a bar holding 6 push buttons. An additional button panel has been placed within easy reach of the sewer and allows the sewer to assign the same 6 functions of the buttons housed in the button bar.
- Possible operating functions are intermediate bartacks, needle up/down, bartack suppression, second stitch length, and switchable thread tension.
- Integrated LED sewing lamp including power supply and dimming function
- Intuitive control software with graphical user interface for programming and activating up to 999 different seam programs supporting a maximum of 30 individual seam sections each. Sequential mode for a maximum of 9 interlinked seam programs
- Service button for service routines with the sewing motor switched off.

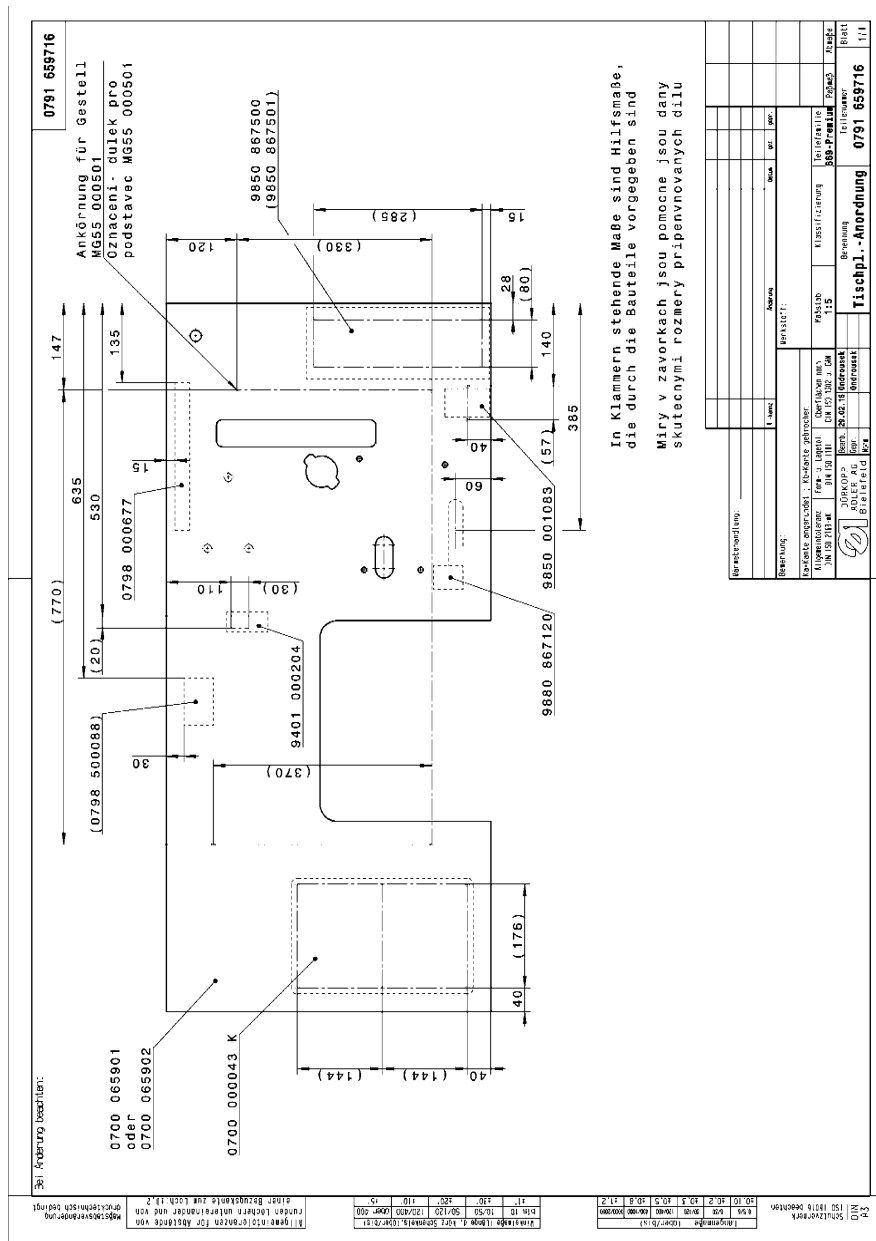


Fig. 66: Tabletop drawing (1)



*Fig. 67: Tabletop drawing (2)*













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