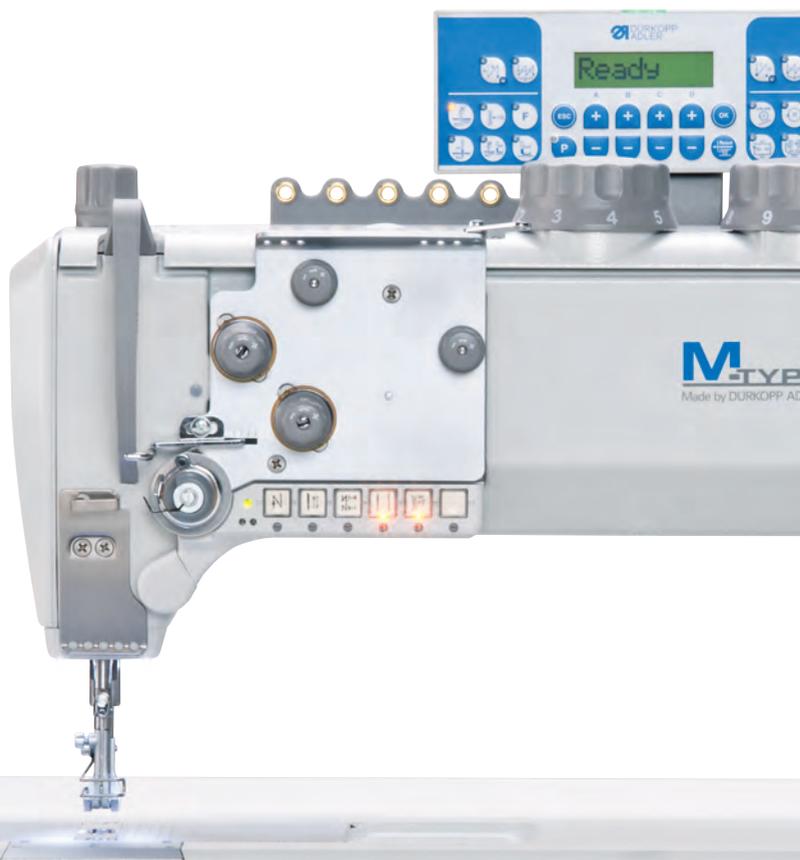


867

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. 137).

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. 97) 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
DANGER	(with hazard symbol) If ignored, fatal or serious injury will result
WARNING	(with hazard symbol) If ignored, fatal or serious injury can result

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

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

Symbol	Type of danger
	General
	Electric shock
	Puncture
	Crushing
	Environmental damage

Examples Examples of the layout of warnings in the text:

DANGER



Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

WARNING



Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

CAUTION



Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

NOTICE

Type and source of danger!

Consequences of non-compliance.

Measures for avoiding the danger.

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

CAUTION



Type and source of danger!

Consequences of non-compliance.

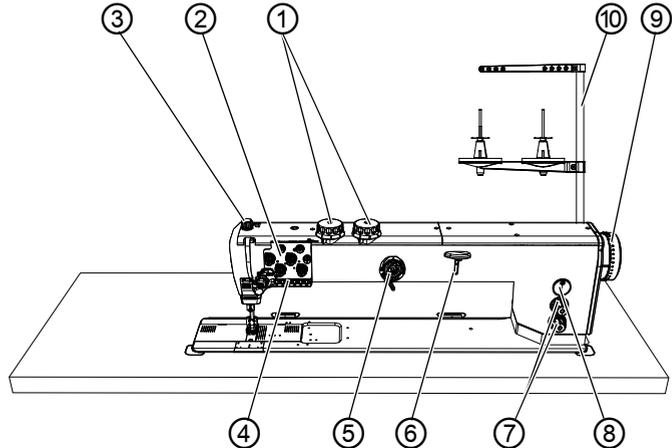
Measures for avoiding the danger.

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

3 Machine description

3.1 Components of the machine

Fig. 1: Components of the machine (example: Long arm machine)



- | | |
|--|--------------------------------------|
| (1) - Adjusting wheels for the sewing foot stroke | (6) - Stitch adjustment lever |
| (2) - Tensioning plate | (7) - Stitch length adjusting wheels |
| (3) - Adjusting wheel for the sewing foot pressure | (8) - Oil level indicator |
| (4) - Push buttons on the machine arm | (9) - Handwheel |
| (5) - Winder | (10) - Reel stand |

3.2 Proper use

WARNING



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

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

Follow all instructions provided.

NOTICE

Non-observance will lead to property damage!

Improper use can result in material damage at the machine.

Follow all instructions provided.

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

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

The needle thicknesses permissible for the machine are listed in the **Technical data** (📖 p. 149) 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.

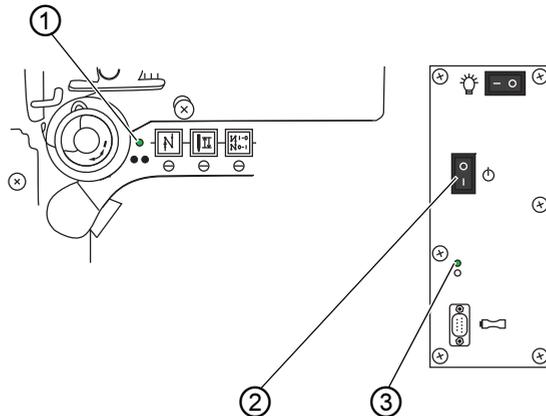
Complete the following steps in preparation of sewing before starting to work:

- Inserting/changing the needle ( p. 21)
- Threading the needle thread ( p. 27).
- Inserting and winding on the hook thread ( p. 38)
- Setting the thread tension ( p. 43)

4.2 Switching on and off the machine

Regulating the power supply, the main switch (2) on the control is used to switch the machine on or off.

Fig. 2: Switching on and off the machine



(1) - Indicator lamp
(2) - Main switch

(3) - Indicator lamp

Switching on the machine



To switch on the machine:

1. Set the main switch (2) to position **I**.
- ↳ The power supply is switched on, and the indicator lamps (1) and (3) are lit.

Switching off the machine



To switch off the machine:

1. Set the main switch (2) to position **0**.
- ↳ The power supply is switched off, and the indicator lamps (1) and (3) are no longer lit.

4.3 Inserting/changing the needle

WARNING



Risk of injury from moving, cutting or sharp parts!

Crushing, cutting and punctures are possible.

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

Do not reach under the needle.

NOTICE

Property damage may occur!

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

Correct the settings when using needles with a different thickness.

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. Set the distance again if necessary.



Order

After switching to a different needle thickness, adjust the distance between hook and needle ( *Service Instructions*).



Disturbances if hook distance is incorrect

After inserting a thinner needle:

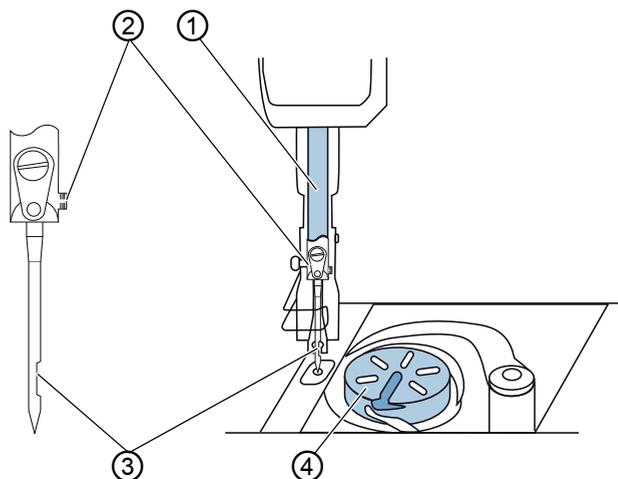
- Missing stitches
- Thread damage

After inserting a thicker needle:

- Damage to the hook tip
- Damage to the needle

4.3.1 In 1-needle machines

Fig. 3: In 1-needle machines



(1) - Needle bar
(2) - Screw

(3) - Groove
(4) - Hook



To insert or change the needle on 1-needle machines:

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



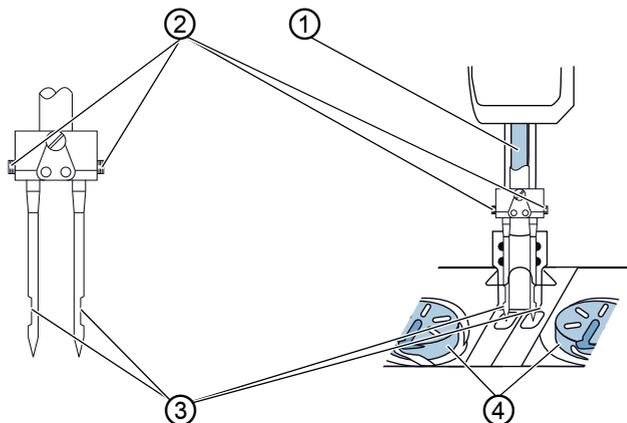
Important

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

5. Tighten the screw (2).

4.3.2 In 2-needle machines

Fig. 4: In 2-needle machines



(1) - Needle bar
(2) - Screws

(3) - Grooves
(4) - Hook



To insert or change the needle(s) on 2-needle machines:

1. Turn the handwheel until the needle bar (1) reaches the upper end position.
2. Loosen the screws (2) on both sides.
3. Pull each of the needles out towards the bottom.
4. Insert new needles on both sides.



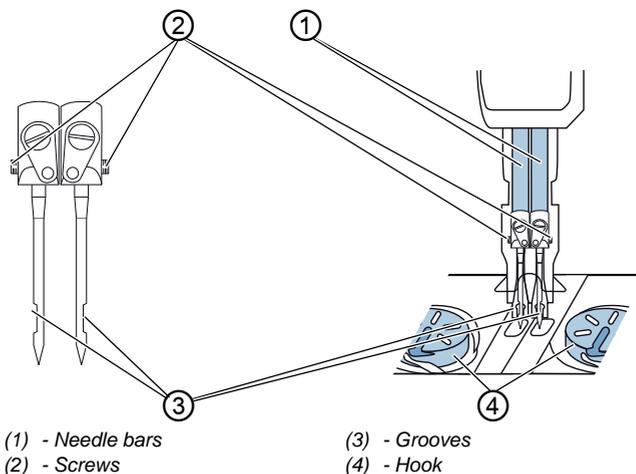
Important

When inserting the needles, align them such that the grooves (3) face away from each other. Each groove (3) must point to the hook (4) that belongs to this needle.

5. Tighten the screws (2) on both sides.

4.3.3 Machines with switchable needle bars

Fig. 5: Machines with switchable needle bars



To insert or change the needle(s) on a 2-needle machines with switchable needle bars:

1. Turn the handwheel until the needle bars (1) have reached the upper end position.
2. Loosen the screws (2) on both sides.
3. Pull each of the needles out towards the bottom.
4. Insert new needles on both sides.



Important

When inserting the needles, align them such that the grooves (3) face away from each other. Each groove must point to the hook that belongs to this needle.

5. Tighten the screws (2) on both sides.

4.4 Feeding needle/hook thread

WARNING

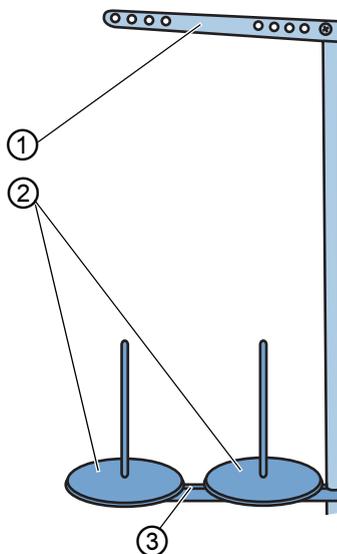


Risk of injury from moving, cutting or sharp parts!

Crushing, cutting and punctures are possible.

Switch off the machine before feeding the needle/hook thread.

Fig. 6: Feeding needle/hook thread



(1) - Unwinding bracket

(2) - Plate

(3) - Thread reel holder



To feed the needle/hook thread:

1. Fit the thread reel on the plate (2).

The unwinding bracket (1) must stand directly above the thread reel holder (3).

**Information**

- In 1-needle machines:
The thread reel carrying the needle thread belongs on the left plate. The thread reel carrying the hook thread belongs on the right plate.
 - In 2-needle machines:
The thread reels carrying the left and the right needle thread belong, respectively, on the left and the right plate (2) of the left thread reel holder (3).
The thread reel carrying the hook thread belongs on a plate (2) fitted on the right thread reel holder (3) (not shown in the figure).
-

2. Thread the needle thread at the unwinding bracket from the rear to the front.
3. Insert the needle thread ( p. 27 or  p. 32).

You can now thread needle and hook thread ( p. 27 and  p. 41) and set the thread tension ( p. 43).

4.5 Threading the needle thread

WARNING



Risk of injury from moving, cutting or sharp parts!

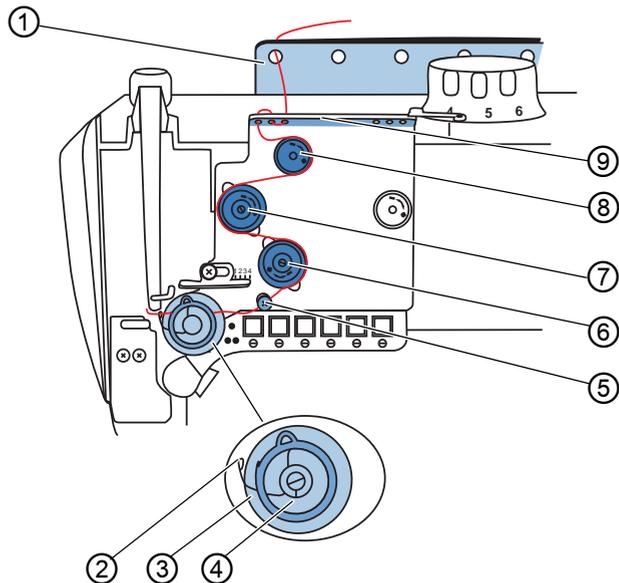
Crushing, cutting and punctures are possible.

Switch off the machine before threading the needle thread.

Do not reach under the needle.

4.5.1 In 1-needle machines

Fig. 7: In 1-needle machines (1)



- | | |
|-----------------------------|----------------------------|
| (1) - Thread guide | (6) - Main tensioner |
| (2) - Spring tip | (7) - Additional tensioner |
| (3) - Tightening lever | (8) - Pre-tensioner |
| (4) - Thread tension spring | (9) - Thread guide |
| (5) - Thread guide | |

**Information**

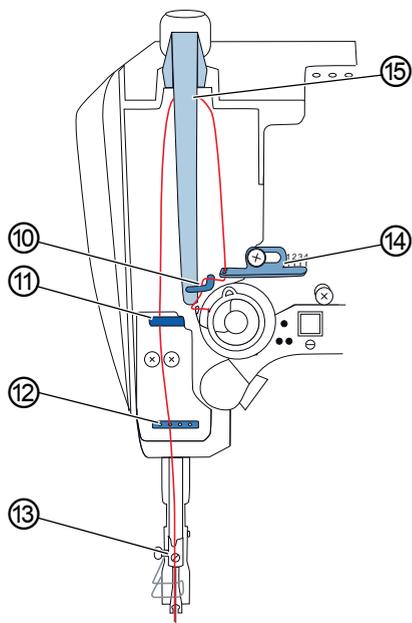
Threading the needle thread at the machine head requires that the needle thread be fed properly from the reel stand ( p. 25).



To thread the needle thread in 1-needle machines:

1. Insert the needle thread from the rear to the front through the left hole in the thread guide (1).
2. Insert the needle thread in a wavelike manner through the 3 holes of the 2nd thread guide (9):
From above to below through the right hole, then from below to above through the hole in the middle and finally from below to above through the left hole.
3. Guide the needle thread clockwise around the pre-tensioner (8).
4. Guide the needle thread counterclockwise around the additional tensioner (7).
5. Guide the needle thread clockwise around the main tensioner (6).
6. Feed the needle thread through the thread guide (5) to the thread tension spring (4).
7. Lift the tightening lever (3) with the needle thread.
8. Pull the needle thread under the spring tip (2).

Fig. 8: In 1-needle machines (2)



- | | |
|--------------------------|----------------------------------|
| (10)- Hook | (13) - Thread guide |
| (11)- Upper thread guide | (14)- Needle thread regulator |
| (12)- Lower thread guide | (15)- Thread lever (not visible) |

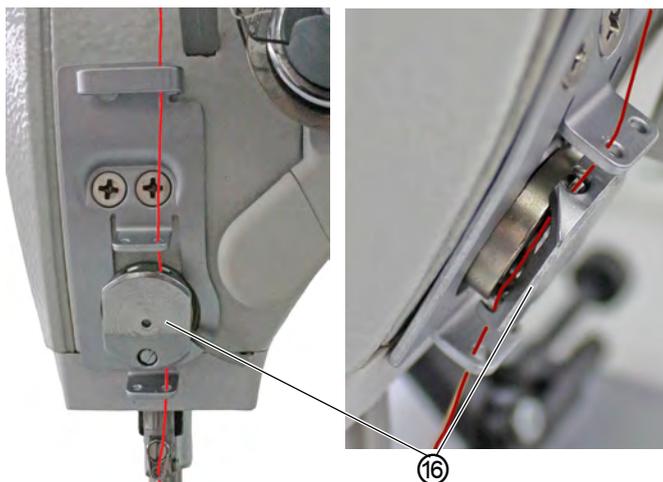


9. Guide the needle thread under the hook (10).
10. Insert the needle thread from bottom to top through the hole on the needle thread regulator (14).
11. Insert the needle thread from the right to the left through the thread lever (15).
12. Insert the needle thread through the upper thread guide (11).

For machines with thread clamp

13. Insert the needle thread through the right hole of the guide above the thread clamp (16).
14. Insert the needle thread through the right hole of the guide below the thread clamp (16).

Fig. 9: In 1-needle machines (3)



(16) - Thread clamp



15. Insert the needle thread into the thread clamp (16) from the left so that the needle thread is held in place inside the hook of the clamp.

The needle 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 (16).

16. Insert the needle thread through the thread guide on the needle bar (13).

-
17. Insert the needle thread through the needle eye in such a way that the loose thread end faces the hook.
-

For machines with a short thread cutter

18. Pull the needle thread through the needle eye until the loose thread end has a length of approx. 4 cm with the thread lever (15) at the highest position.



Important

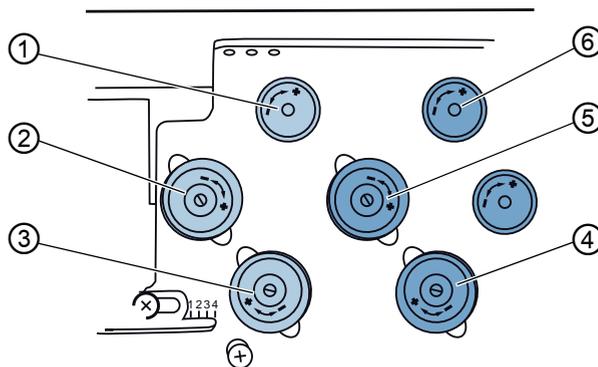
Check the thread length.

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

4.5.2 In 2-needle machines

2-needle machines are equipped with a 2nd Tensioning screws in triangular arrangement for the left needle thread. The threading procedure corresponds to that for the right needle thread (📖 p. 27).

Fig. 10: In 2-needle machines (1)



- | | |
|--|---|
| (1) - Pre-tensioner
(left needle thread) | (4) - Main tensioner
(right needle thread) |
| (2) - Additional tensioner
(left needle thread) | (5) - Additional tensioner
(right needle thread) |
| (3) - Main tensioner
(left needle thread) | (6) - Pre-tensioner
(right needle thread) |



Information

Threading the needle thread at the machine head requires that the needle threads be fed properly from the reel stand (📖 p. 25).

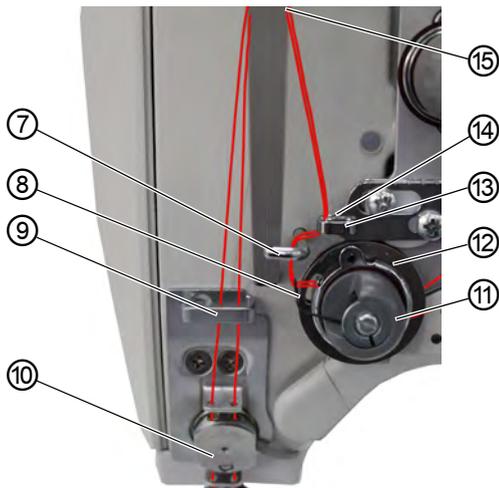


To thread the right and the left needle thread in 2-needle machines:

1. Guide the right needle thread clockwise around the pre-tensioner (6).
2. Guide the right needle thread counterclockwise around the additional tensioner (5).
3. Guide the right needle thread clockwise around the main tensioner (4).
4. Guide the left needle thread clockwise around the pre-tensioner (1).

5. Guide the left needle thread counterclockwise around the additional tensioner (2).
6. Guide the left needle thread clockwise around the main tensioner (3).

Fig. 11: In 2-needle machines (2)



- | | |
|------------------------------|--|
| (7) - Hook | (13) - Needle thread regulator (right thread) |
| (8) - Spring tip | (14) - Needle thread regulator (left thread Page 30) |
| (9) - Upper thread guide | (15) - Thread lever (not visible) |
| (10) - Thread clamp | |
| (11) - Thread tension spring | |
| (12) - Tightening lever | |



7. Guide the right needle thread to the front thread tension spring (11).
8. Lift the front tightening lever (12) with the right needle thread.
9. Pull the right needle thread under the front spring tip (8).
10. Guide the right needle thread under the hook (7).
11. Thread the right needle thread from the bottom through the needle thread regulator (13).
12. Thread the right needle thread from the right through the lower hole on the thread lever (15).
13. Guide the left needle thread to the rear thread tension spring (11).

14. Lift the rear tightening lever (12) with the left needle thread.
 15. Pull the left needle thread under the rear spring tip (8).
 16. Guide the left needle thread under the hook (7).
 17. Thread the left needle thread from the bottom through the needle thread regulator (14).
 18. Thread the left needle thread from the right through the upper hole on the thread lever (15).
 19. Insert the right and the left needle thread through the upper thread guide (9).
The two needle threads must not cross over one another.
-

For machines with a short thread cutter

20. Insert the left needle thread through the left guide holes above the thread clamp.
 21. Insert the right needle thread through the right guide holes above the thread clamp.
 22. Insert the left needle thread through the left guide holes of the thread clamp (10).
 23. Insert the right needle thread through the right guide holes of the thread clamp (10).
 24. Insert the left needle thread through the left guide holes below the thread clamp.
 25. Insert the right needle thread through the right guide holes below the thread clamp.
Insert the needle threads into the thread clamp from the left / right so that the two needle threads are held in place inside the respective hook of the clamp (see figure Page 30).
-

26. Insert the right needle thread through the right thread guide of the needle bar.
27. Insert the left needle thread through the left thread guide of the needle bar.

-
28. Insert the right needle thread through the needle eye of the right needle in such a way that the loose thread end faces the right hook.
 29. Insert the left needle thread through the needle eye of the left needle in such a way that the loose thread end faces the left hook.
-

For machines with a short thread cutter

30. Pull the right and the left needle thread each through the needle eye until the loose thread end has a length of approx. 4 cm with the thread lever (15) at the highest position.



Important

Check the thread length.

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

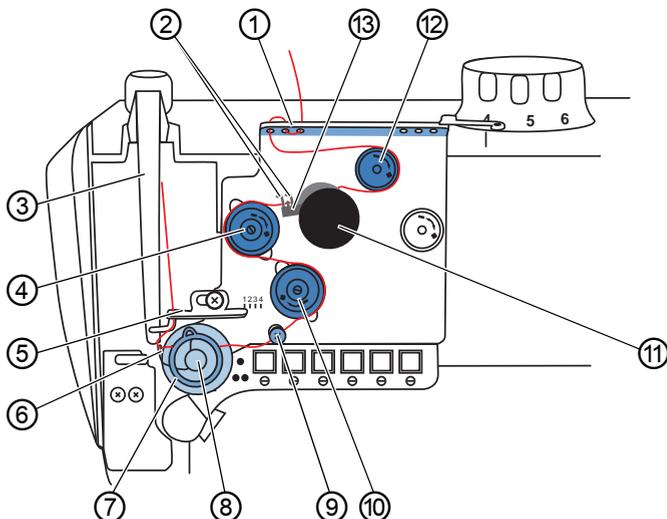
4.5.3 Machines with a neat seam beginning

The clean seam beginning kit provides a short and neatly sewn needle thread at the seam beginning.

After the 1st stitch the needle thread is clamped by the thread clamp (11) and pulled back by the thread retractor (13) so that the needle thread only protrudes by a small amount at the seam beginning.

The exact setting is described in the  *Additional Instructions*.

Fig. 12: Machines with a neat seam beginning



- | | |
|-------------------------------|-----------------------------|
| (1) - Thread guide | (8) - Thread tension spring |
| (2) - Eyelets | (9) - Diverter pin |
| (3) - Thread lever | (10) - Main tensioner |
| (4) - Additional tensioner | (11) - Thread clamp |
| (5) - Needle thread regulator | (12) - Pre-tensioner |
| (6) - Spring tip | (13) - Thread retractor |
| (7) - Tightening lever | |



To thread the needle thread on a machine with neat seam beginning:

1. Insert the needle thread in a wavelike manner through the 3 holes of the thread guide (1): From top to bottom through the left hole, then from bottom to top through the middle hole and, finally, from top to bottom through the right hole.

2. Guide the needle thread clockwise around the pre-tensioner (12).
3. Insert the needle thread through the thread clamp (11).
4. Insert the needle thread through the two eyelets (2) and the guide on the thread retractor (13).
5. Guide the needle thread counterclockwise around the additional tensioner (4).
6. Guide the needle thread clockwise around the main tensioner (10).
7. Guide the needle thread around the diverter pin (9) from above.
8. Guide the needle thread to the thread tension spring (8).
9. Lift the tightening lever (7) with the needle thread.
10. Pull the needle thread under the spring tip (6).
11. Insert the needle thread from the bottom through the thread guide and the hole on the needle thread regulator (5).
12. Insert the needle thread from the right to the left through the thread lever (3).
13. Feed the needle thread downward from the thread lever (3) through the upper thread guide.
14. Feed the needle thread through the thread guide on the needle bar.
15. Insert the needle 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 moving, cutting or sharp parts!

Crushing, cutting and punctures are possible.

Switch off the machine before winding the hook thread.

NOTICE

Property damage!

Damage to the sewing feet or throat plate possible if the thread is wound on without sewing material.

To wind on the hook thread without sewing material, set the sewing feet to the highest position and set the sewing foot stroke to the smallest value.

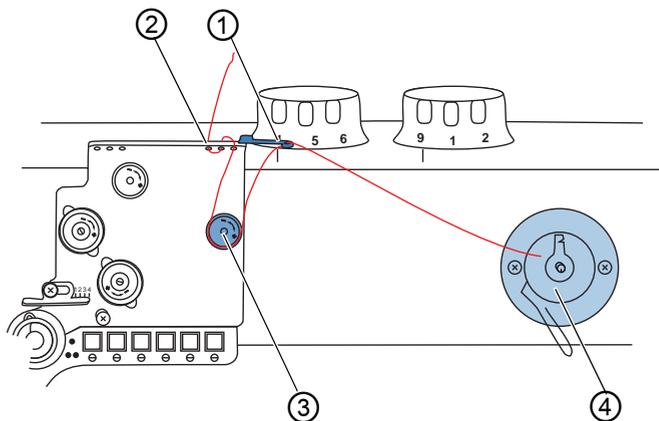
The hook thread is normally wound on when sewing is in progress. However, you can also wind on the hook thread without sewing, e. g. if you require a full bobbin in order to start sewing.



To wind the hook thread:

1. Feed the hook thread properly ( p. 25).

Fig. 13: Winding the hook thread (2)

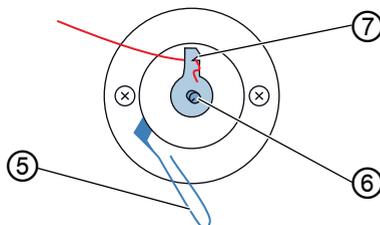


- | | |
|--------------------|---------------------|
| (1) - Thread guide | (3) - Pre-tensioner |
| (2) - Thread guide | (4) - Winder |



2. Insert the hook thread in a wavelike manner through the 3 right holes of the thread guide (2): from top to bottom through the left hole, from bottom to top through the hole in the middle and, finally, from top to bottom through the right hole.
3. Guide the hook thread counterclockwise around the pre-tensioner (3).
4. Insert the hook thread in a wavelike manner through the 2 holes of the thread guide (1): from bottom to top through the left hole and from top to bottom through the right hole.
5. Guide the hook thread to the winder (4).

Fig. 14: Winding the hook thread (3)



- | | |
|--------------------|--------------|
| (5) - Winder lever | (7) - Cutter |
| (6) - Bobbin shaft | |



6. Clamp the hook thread behind the cutter (7) and tear off the loose end behind it.

7. Fit the bobbin on the bobbin shaft (6).
8. Turn the bobbin clockwise until it locks audibly into place.
9. Pull the bobbin lever (5) up.
10. Switch on the machine ( p. 20).
11. Press the pedal forwards.
 - ↳ The machine sews while winding the hook thread from the thread reel onto the bobbin.
When the bobbin is full, the machine automatically stops winding. The winder lever (5) moves back down.
The cutter (7) is automatically moved to its vertical initial position.
12. Remove the full bobbin from the bobbin shaft (6).
13. Tear off the thread behind the cutter (7).
- ↳ You can now insert the full bobbin into the hook ( p. 41).

4.7 Changing the bobbin

WARNING

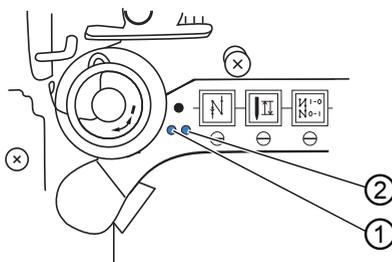


Risk of injury from moving, cutting or sharp parts!

Crushing, cutting and punctures are possible.

Switch off the machine before changing the bobbin.

Fig. 15: Changing the bobbin (1)

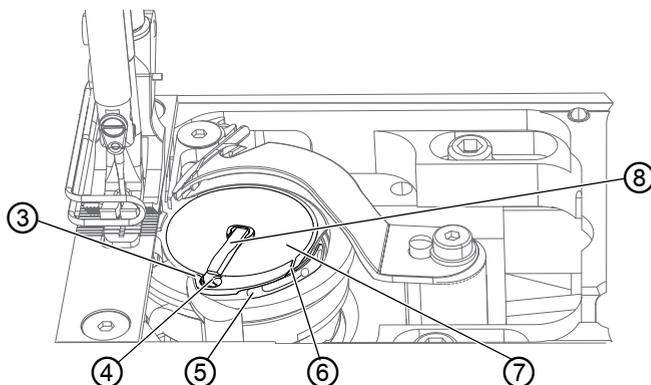


(1) - LED (left hook)

(2) - LED (right hook)

If the hook thread needs to be replaced, the LEDs (1)/(2) light up on the machine arm. The left LED is for the left hook, and the right LED is for the right hook.

Fig. 16: Changing the bobbin (2)



(3) - Slot

(4) - Guide

(5) - Tension spring

(6) - Slot

(7) - Bobbin

(8) - Bobbin case retainer



To change the bobbin:

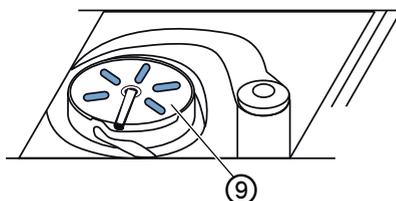
1. Swivel up the bobbin case retainer (8).
2. Remove the empty bobbin (7).
3. Insert a full bobbin (7):



Important

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

Fig. 17: Changing the bobbin (3)



(9) - Bobbin with vision slots

Information

If the machine is equipped with a remaining thread monitor, the bobbins come with vision slots on one side. Insert these types of bobbin (9) in the hook in such a way that the vision slots are pointing up. Otherwise, the remaining thread monitor will not work.



4. Feed the hook thread through the slot (6) in the bobbin case retainer.
5. Pull the hook thread under the tension spring (5).
6. Feed the hook thread through the slot (3) and pull it approx. 3 cm further.
7. Close the bobbin case retainer (8).

4.8 Thread tension

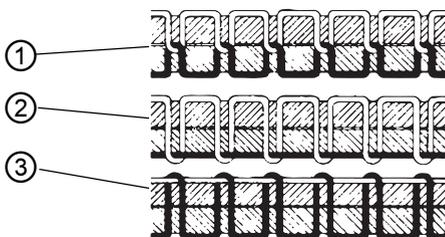
Together with the hook thread tension, the needle thread tension influences the final seam pattern. With thin sewing material, excessive thread tension can lead to undesired gathering and thread breakage.



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. 18: 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

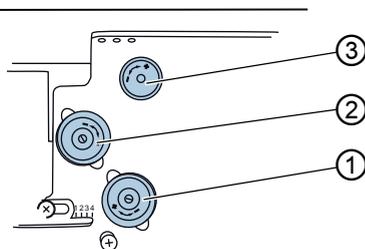
4.8.1 Setting the needle thread tension

The 3 adjusting wheels on the tensioning screw triangle determine the needle thread tension:

- Pre-tensioner (3)
- Additional tensioner (2)
- Main tensioner (1)

In the initial position, the top of the adjusting wheel is flush with the screw in the center.

Fig. 19: Setting the needle thread tension (1)



(1) - Main tensioner

(3) - Pre-tensioner

(2) - Additional tensioner



To increase the needle thread tension:

1. Turn the adjusting wheel clockwise.



To reduce the needle thread tension:

1. Turn the adjusting wheel counterclockwise.

Pre-tensioner

The pre-tensioner (3) holds the thread in position if the main tensioner (1) and additional tensioner (2) are completely open.

For machines with automatic thread cutter

The pre-tensioner (3) also determines the length of the initial thread for the new seam:

Shorter initial thread



1. Turn the adjusting screw of the pre-tensioner (3) clockwise.

Longer initial thread



1. Turn the adjusting screw of the pre-tensioner (3) counterclockwise.
-

Additional tensioner

The additional tensioner (2) increases the tension during sewing, e.g. for thickened seams.



Proper setting

The additional tensioner (2) must always be set lower than the main tensioner (1).

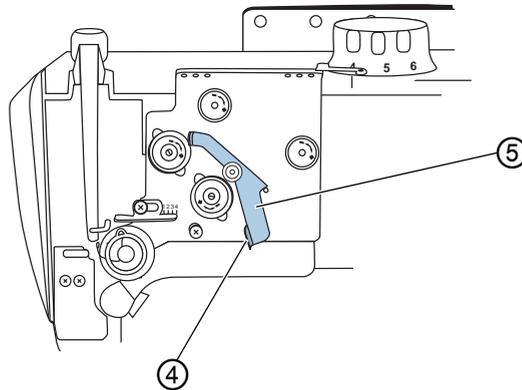
The additional tensioner (2) can be switched on and off manually or automatically.

Automatic switching of the additional tensioner

On CLASSIC machines with a push button panel on the machine arm, the additional tensioner is switched on and off via the corresponding function button on the push button panel ( p. 65).

Manual switching of the additional tensioner

Fig. 20: Setting the needle thread tension (2)



(4) - Handle

(5) - Lever

On machines without a push button panel on the machine arm the additional tensioner is switched on and off via the lever on the tensioning triangle.



To switch the additional tensioner on:

1. Push the lever (5) on the handle (4) to the left.



To switch the additional tensioner off:

1. Push the lever (5) on the handle (4) to the right.

Main tensioner

The main tensioner (1) determines the normal tension during sewing.



Proper setting

The main tensioner should be set as low as possible. The thread interlacing should be exactly in the middle of the sewing material.



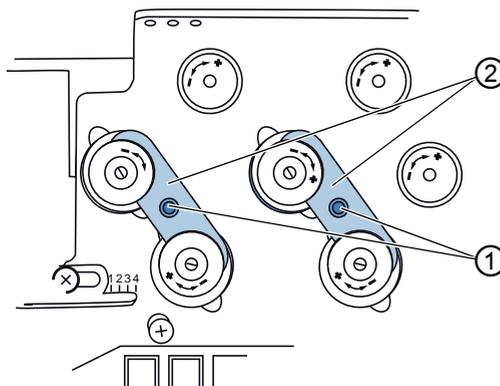
Faults due to excessively high tension

- Ruffing
- Thread breaking

4.8.2 Removing blocking of the needle thread tension

Machines with blockable adjusters are used especially in the automotive sector. With these machines the blocking must be removed before additional tensioner and main tensioner can be adjusted.

Fig. 21: Removing blocking of the needle thread tension



(1) - Fastening screws

(2) - Retaining plates



To remove the blocking of the needle thread tension:

1. Loosen the fastening screws (1).
2. Remove the retaining plates (2).
3. Set the needle thread tension ( p. 43).
4. Place the retaining plates (2).
5. Tighten the fastening screws (1).

4.8.3 Opening the needle thread tension

• ECO machines

The needle thread tension is automatically opened when the sewing feet are lifted via the knee lever ( p. 51).

• CLASSIC machines

When the thread is cut, the needle thread tension is opened automatically ( p. 52).

4.8.4 Setting the hook thread tension

WARNING

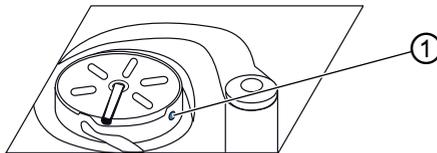


Risk of injury from moving, cutting or sharp parts!

Crushing, cutting and punctures are possible.

Switch off the machine before you set the hook thread tension.

Fig. 22: Setting the hook thread tension



(1) - Adjusting screw

The hook thread tension is adjusted using the adjusting screw (1).



To increase the hook thread tension:

1. Turn the adjusting screw (1) clockwise.



To reduce the hook thread tension:

1. Turn the adjusting screw (1) counterclockwise

4.9 Setting the needle thread regulator

WARNING



Risk of injury from moving, cutting or sharp parts!

Crushing, cutting and punctures are 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.

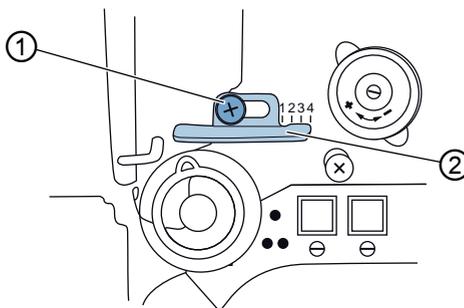


Proper setting

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

4.9.1 In 1-needle machines

Fig. 23: In 1-needle machines



(1) - Screw

(2) - Thread regulator

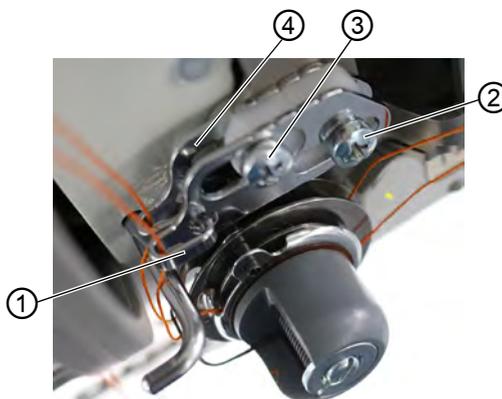


To set the needle thread regulator in 1-needle machines:

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).

4.9.2 In 2-needle machines

Fig. 24: In 2-needle machines



- | | |
|--|---|
| (1) - Needle thread regulator
(right needle thread) | (3) - Screw |
| (2) - Screw | (4) - Needle thread regulator
(left needle thread) |



To set the needle thread regulator for the right and the left needle thread in a 2-needle machine:

1. To set the needle thread regulator for the right needle thread:
Loosen the screw (2).
 - **To increase the tension:**
Slide the needle thread regulator (1) to the right.
 - **To reduce the tension:**
Slide the needle thread regulator (1) to the left.
2. Tighten the screw (2).
3. To set the needle thread regulator for the left needle thread:
Loosen the screw (3).
 - **To increase the tension:**
Slide the needle thread regulator (4) to the right.
 - **To reduce the tension:**
Slide the needle thread regulator (4) to the left.
4. Tighten the screw (3).



Information

When the largest thread quantity is required, the thread tension spring must be pulled approx. 0.5 mm up from its lower end position. This occurs when the needle thread loop passes the maximum hook diameter.

4.10 Lifting the sewing feet

The machine offers different ways to lift the sewing feet depending on its equipment:

- **ECO machines:** mechanically using the knee lever
- **CLASSIC machines:** electropneumatically using the pedal

4.10.1 Mechanical lifting with the knee lever

Fig. 25: Mechanical lifting with the knee lever



(1) - Knee lever

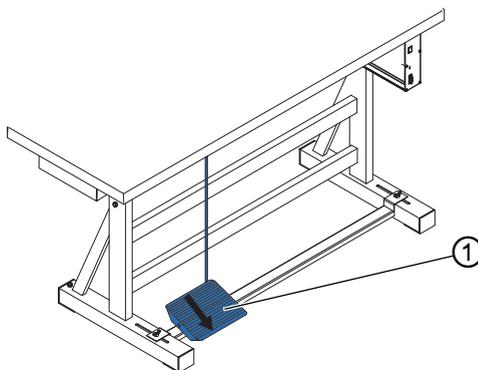


To lift the sewing feet mechanically using the knee lever (1):

1. Use your right knee to push the knee lever (1) to the right.
- ↳ The sewing feet remain open while the knee lever is pushed to the right.

4.10.2 Electropneumatic lifting with the pedal

Fig. 26: Electropneumatic lifting with the pedal



(1) - Pedal



To lift the sewing feet electropneumatically using the pedal:

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 Locking the sewing feet at top dead center

CAUTION



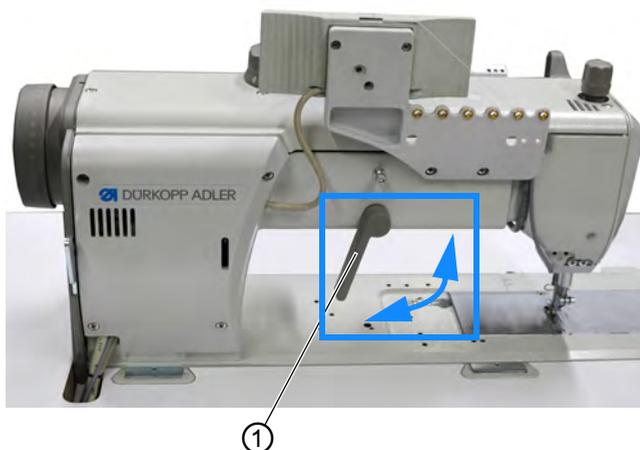
Risk of injury from moving parts!

Risk of crushing when lowering the sewing foot.

Do not reach under the sewing feet.

There is a lever at the back of the machine which can be used to hold the sewing feet at top dead center.

Fig. 27: Locking the sewing feet at top dead center



(1) - Lever



To lock the sewing feet at top dead center:

1. Swivel the lever (1) down.
 - ↪ The sewing feet are locked at top dead center.
2. Swivel the lever (1) up.
 - ↪ Top dead center is canceled.


Information

The sewing feet can also be lifted and locked at top dead center pneumatically using the pedal ( p. 52).
The lever (1) will then swivel up automatically.

4.12 Setting the sewing foot pressure

The adjusting wheel at the top left of the machine arm determines the contact pressure the sewing foot exerts on the sewing material. The pressure can be adjusted continuously by turning the adjusting wheel.

The correct pressure depends on the sewing material:

- Lower pressure for soft materials, e.g. cloth
- Higher pressure for harder materials, e.g. leather


Proper setting

The sewing material does not slip and is correctly transported.

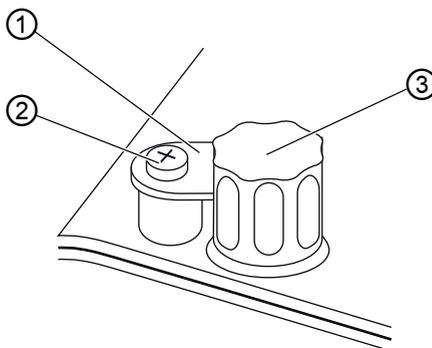

Disturbance from incorrectly set sewing foot pressure

- Excessively high pressure: Tearing of the sewing material
- Excessively low pressure: Slipping of the sewing material

Removing blocking of the adjusting wheel

Machines with blockable adjusting wheels are used especially in the automotive sector. With these machines the blocking must be removed before the sewing foot pressure can be adjusted.

Fig. 28: Removing blocking of the adjusting wheel



(1) - Blocking element
(2) - Screw

(3) - Adjusting wheel



To set the desired sewing foot pressure:

1. Loosen the screw (2) on the blocking element (1) using a Phillips head screwdriver.
2. Set the sewing foot pressure.
 - To increase the sewing foot pressure:
Turn the adjusting wheel (3) clockwise
 - To reduce the sewing foot pressure:
Turn the adjusting wheel (3) counterclockwise
3. Tighten the blocking element (1) using the screw (2).

4.13 Sewing foot stroke

4.13.1 Limiting of number of stitches with an increased sewing foot stroke

NOTICE

Property damage may occur!

Possible damage to the machine through an excessively high number of stitches with an increased sewing foot stroke.

Do not exceed the maximum number of stitches specified for the respective combination of stitch length and sewing foot stroke ( p. 149).

When sewing with large stitch lengths and high sewing foot stroke on ECO machines, do not press the pedal forward as far as usual.

Do not change the potentiometer settings on CLASSIC machines.



Information

CLASSIC machines have a potentiometer on the arm shaft.

The potentiometer automatically adapts the number of stitches to the sewing foot stroke: If you increase the sewing foot stroke, the number of stitches is automatically reduced.



Important

ECO machines do not have automatic reduction of the number of stitches. On ECO machines, you as the user must ensure that the number of stitches specified in the technical data is not exceeded ( p. 163).

4.13.2 Setting the sewing foot stroke

NOTICE

Property damage may occur!

Machine can be damaged if the adjusting wheels are forced. The machine is designed in such a way that the sewing foot stroke at the right adjusting wheel cannot be set to a lower level than at the left adjusting wheel.

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

Depending on the equipment the machine has 1 or 2 adjusting wheels for the sewing foot stroke. The sewing foot stroke is continuously adjustable over a range of 1 – 9 mm by turning the adjusting wheel.



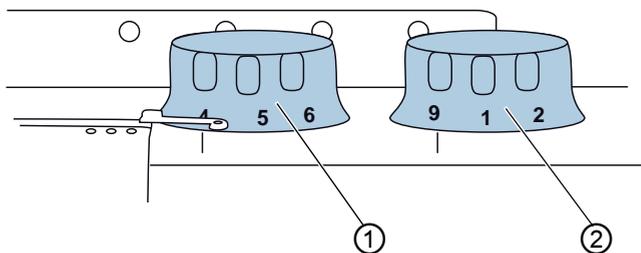
Important

The increased sewing foot stroke must NOT be lower than the normal sewing foot stroke. Always set the sewing foot stroke at the right adjusting wheel so that it is at least as high as the sewing foot stroke at the left adjusting wheel.

On machines with only 1 adjusting wheel, the highest stroke of 9 mm is automatically activated as the increased sewing foot stroke by pressing a button housed in the push button panel.

On CLASSIC machines with 2 adjusting wheels, the left adjusting wheel (1) sets the normal sewing foot stroke, while the right adjusting wheel (2) sets the increased sewing foot stroke. The increased sewing foot stroke can be switched on and off using the button on the push button panel or the knee button ( p. 59).

Fig. 29: Setting the stroke height



(1) - Adjusting wheel
(normal sewing foot stroke)

(2) - Adjusting wheel
(increased sewing foot stroke;
CLASSIC machines only)

The adjusting wheels serve the following functions:

- Adjusting wheel (1): normal sewing foot stroke (stroke during sewing)
- Adjusting wheel (2): increased sewing foot stroke (switchable stroke)



To set the sewing foot stroke:

Increasing the sewing foot stroke

1. Turn the adjusting wheel clockwise.

Reducing the sewing foot stroke

1. Turn the adjusting wheel counterclockwise.

4.13.3 Quick stroke adjustment via knee button

The increased sewing foot stroke can be activated using the knee lever (2).

The toggle switch (1) on the rear side of the knee button (2) determines whether the increased sewing foot stroke is switched on permanently or only while the knee button (2) is pressed.

Fig. 30: Quick stroke adjustment via knee button



(1) - Toggle switch

(2) - Knee button

Position	Function	Description
0	Push-to-run mode	<ul style="list-style-type: none"> To activate the sewing foot stroke: Press the knee button once. To deactivate the sewing foot stroke: Press the knee button one more time.
1	Hold-to-run mode	The sewing foot stroke remains activated for as long as you hold down the knee button.



Information

The knee button (2) can also be assigned functions other than the activation of the sewing foot stroke in push-to-run and hold-to-run mode (📖 p. 83).



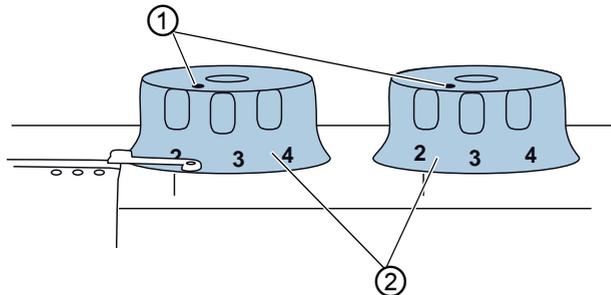
To activate the increased sewing foot stroke using the knee button:

1. Set the toggle switch (1) of the knee button (2) to the desired function:
 - Push-to-run mode: Set the toggle switch (1) to position **0**.
 - Hold-to-run mode: Set the toggle switch (1) to position **1**.

4.13.4 Removing blocking of the sewing foot stroke adjusting wheels

Machines with blockable adjusters are used especially in the automotive sector. With these machines the blocking must be removed before the sewing foot stroke can be adjusted.

Fig. 31: Removing blocking of the sewing foot stroke adjusting wheels



(1) - Blocking screws (2) - Adjusting wheel (for sewing foot stroke)



To remove the blocking of the adjusting wheels for the sewing foot stroke:

1. Loosen the blocking screws (1).
2. Turn the adjusting wheels for the sewing foot stroke (2) (📖 p. 56).
3. Tighten the blocking screws (1).

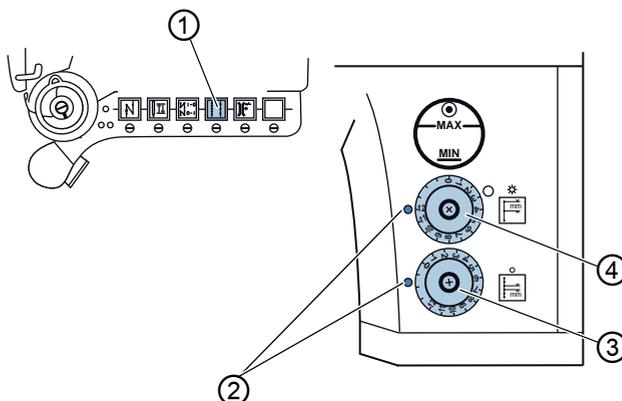
4.14 Stitch length

4.14.1 Setting the stitch length

Depending on the equipment, the machine has 1 or 2 adjusting wheels for stitch length.

The stitch length can be adjusted continuously.

Fig. 32: Setting the stitch length



(1) - Button
(2) - Adjusting marks

(3) - Adjusting wheel
(4) - Adjusting wheel



To set the stitch length:

Setting the stitch length on the adjusting wheel (3)

1. Turn the adjusting wheel (3) counterclockwise until you reach the desired stitch length.

The marking (2) on the left of the adjusting wheel indicates the stitch length selected.

Setting the stitch length on the adjusting wheel (4)

1. Turn the adjusting wheel (4) clockwise until you reach the desired stitch length.

The marking (2) on the left of the adjusting wheel indicates the stitch length selected.

4.14.2 Sewing with 2 stitch lengths

NOTICE

Property damage may occur!

Machine can be damaged if the adjusting wheels are forced. The machine is designed in such a way that the stitch length at the top adjusting wheel cannot be set to a lower level than at the bottom adjusting wheel.

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

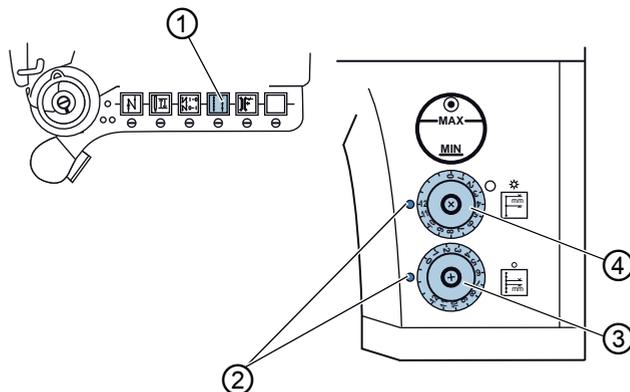
NOTICE

Property damage may occur!

Risk of breakage.

The stitch length at adjusting wheel (3) must NOT be greater than the stitch length at adjusting wheel (4).

Fig. 33: Sewing with 2 stitch lengths



(1) - Button
(2) - Marking

(3) - Adjusting wheel
(4) - Adjusting wheel

Depending on its subclass the machine is fitted with 2 adjusting wheels for the adjustment of the stitch length. These can be used to sew two different stitch lengths and can be activated with a press of button (1).

The stitch lengths are set using the adjusting wheels (3) and (4).

4.14.3 Removing blocking of the adjusting wheels

WARNING



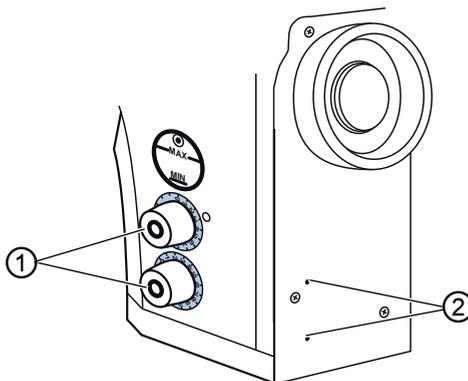
Risk of injury from moving, cutting or sharp parts!

Crushing, cutting and punctures are possible.

Switch off the machine before you remove the blocking of the adjusting wheels.

Machines with blockable adjusters are used especially in the automotive sector. With these machines the blocking must be removed before the stitch length can be adjusted.

Fig. 34: Removing blocking of the adjusting wheels



(1) - Adjusting wheel

(2) - Access hole



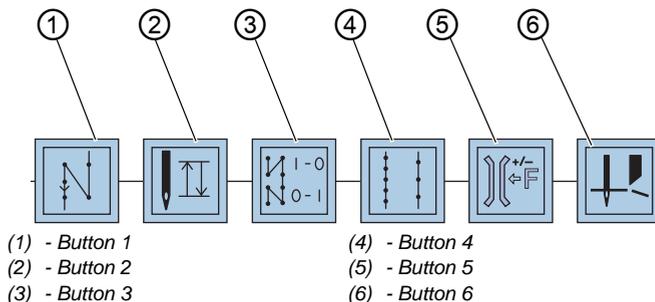
To remove the blocking of the adjusting wheels:

1. Insert a 3 mm hex key through the access holes (2) and release the blocking screws for the adjusting wheels.
2. Turn the stitch length adjusting wheels (1) ( p. 61).
3. Insert a 3 mm hex key through the access holes (2) and tighten the blocking screws for the stitch length adjusting wheels.

4.15 Push buttons on the machine arm

Depending on the subclass, the machine has push buttons on the machine arm for activating specific functions while sewing.

Fig. 35: Push buttons on the machine arm



Push buttons on the machine arm

Button	Function
1 	Manual sewing in reverse. The machine sews in reverse while the button is pressed.
2 	Needle position When this button (2) is activated, the needle moves to a specific position. This position is determined individually via the parameter settings ( <i>Service Instructions</i>). The machine comes configured so that selecting the button (2) will bring the needle up.
3 	Start and end bartacks This button (3) cancels the general setting for sewing start and end bartacks. If start/end bartacks are on, pressing the button (3) skips the next bartack. If start/ end bartacks are off, pressing the button (3) sews the next bartack. For the general setting required for sewing start and end bartacks, refer to the  <i>Instructions for use for the DAC classic control</i> .

Button	Function
4 	Stitch length (optional) When this function is activated, the machine sews with the longer stitch length set at the upper adjusting wheel.
5 	Auxiliary thread tension The auxiliary thread tension can be activated using this button.
6 	Vertical cutter (optional) Button (6) switches on the vertical cutter. When the sewing feet are lifted, the cutter is automatically switched off, and the button (6) is deactivated.

4.15.1 Switching on and off the function of a button



To switch the function of a button on:

1. Press the desired button (1)/(2)/(3)/(4)/(5)/(6).
- ↪ The button lights up; the function is switched on.

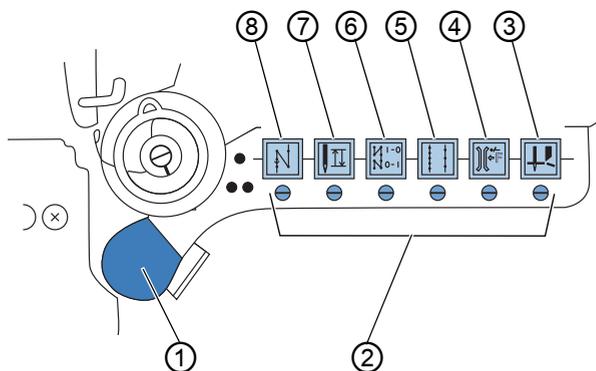


To switch the function of a button off:

1. Press the button (1)/(2)/(3)/(4)/(5)/(6) whose function is switched on.
- ↪ The button is no longer lit; the function is switched off.

4.15.2 Assigning functions to the favorite button

Fig. 36: Assigning functions to the favorite button



- | | |
|-----------------------|--------------|
| (1) - Favorite button | (5) - Button |
| (2) - Screw | (6) - Button |
| (3) - Button | (7) - Button |
| (4) - Button | (8) - Button |

You can assign a button function (3)-(8) of your choice to the favorite button (1).



Information

Assign the function to the favorite button (1) that you need most commonly. This allows you to switch the function on and off quickly while sewing.

If the slot of a screw (2) is in the vertical position, the favorite button (1) has been assigned the associated function.

If the slot of a screw (2) is in the horizontal position, the favorite button (1) has not been assigned the associated function.

Only one function at a time can be assigned to the favorite button (1). Only one of the screws (2) may be in the vertical position.

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



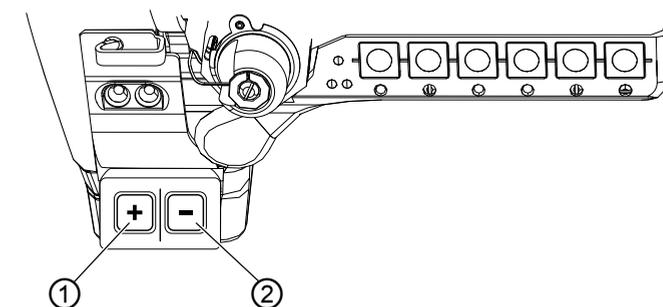
To assign a function to the favorite button:

1. Turn all screws (2) so that the slots are horizontal.
 2. Turn the screw (2) under the button of the function you wish to assign to the favorite button (1) in such a way that its slot is in the vertical position.
- ☞ You can now use both the buttons (3)/(4)/(5)/(6)/(7)/(8) and the favorite button (1) to call up this function.

4.16 Switching the binder

On machines equipped with a binder the buttons + and - above the path followed by the binder.

Fig. 37: Switching the binder



(1) - Plus button

(2) - Minus button

- **No button pressed:**
 - ☞ The binder follows the same path as the feed dog.
- **Plus button pressed:** Bind an outer bow
 - ☞ The binder follows a longer path.
- **Minus button pressed:** Bind an inner bow
 - ☞ The binder follows a shorter path.

When the machine is switched on, the binder always follows the same path as the feed dog - regardless of which button was pressed before the machine was switched off.



To increase or reduce the path of the binder:

1. Press the plus or minus button.
 - ↳ The pressed button lights up.
The binder follows a larger or smaller path than the feed dog.
 2. Press the currently illuminated button again.
 - ↳ The button does not light up any more.
The binder follows the same path as the feed dog.
-



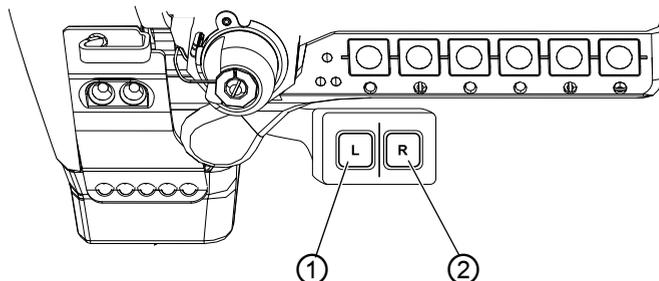
Information

You cannot directly switch between plus and minus.
Deactivate the respectively illuminated button as described in step 2 before switching to the other button.

4.17 Switching needle bars on/off

On machines with switchable needle bars the needle bars can be individually switched on and off via the **L** and **R** buttons.

Fig. 38: Switching needle bars on/off



(1) - Button (left needle bar)

(2) - Button (right needle bar)



To switch a needle bar off:

1. Press the button (1)/(2) for the desired needle bar.
- ↪ The button (1)/(2) lights up. The needle bar is switched off.



To switch a needle bar on:

1. Press the illuminated button (1)/(2).
- ↪ The button (1)/(2) turns off. The needle bar is switched on.



Information

You cannot switch off both needle bars at the same time. When a needle bar is switched off and you press the button for the other needle bar, this switches on the disabled needle bar so that both needle bars are in use.

4.18 Switching on and off the sewing lamp

Depending on its equipment, the machine may come with an integrated sewing lamp that can be switched on and off.

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

Fig. 39: Switching on and off the sewing lamp



- (1) - Button -
- (2) - Button
- (3) - Button +

- (4) - Switch
- (5) - Switch



To switch on the sewing lamp:

1. Set the switch (5) to position I.
- ↳ The sewing lamp transformer is now powered on.
2. Set the switch (4) to position I.
3. Press the button (2).
- ↳ The sewing lamp illuminates.
4. Use the - (1) or + (3) button to set the brightness level.



To switch off the sewing lamp:

1. Press the button (2).
- ↳ The sewing lamp goes out.
2. Set the switch (4) to position 0.

3. Set the switch (5) to position **0**.
↳ The sewing lamp transformer is now powered off.



Information

The sewing lamp transformer allows for the connection of a second LED light. The 3 additional buttons (below button (1)) are used to switch the additional LED light on and off and to set the brightness level.

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

4.19 Operating the control

Depending on the subclass, the machine is operated with an Efka or a DAC control.

Operation of the control is described in control-specific instructions.

- **Efka DC1550/DA321G control:**
See accessory pack included with the control
- **Control DAC eco and DAC basic/classic:**
See accessory pack included with the control
The instructions for use are also available in the download area at www.duerkopp-adler.com

4.20 Sewing

WARNING



Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

Guide the material so that your hands do not slip under the needle.

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

NOTICE

Property damage may occur!

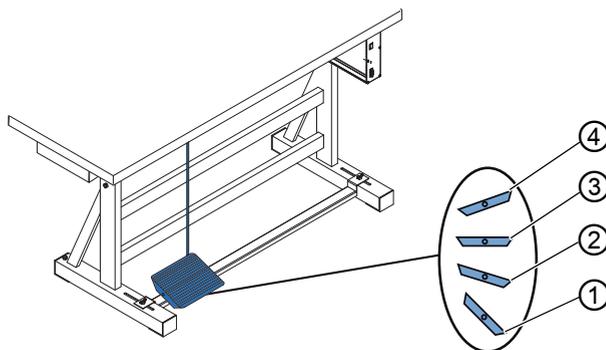
Remnants of fabric and thread entering the sewing area can result in damage or defects on the machine.

Immediately remove any contamination during the sewing process.

Clean the machine daily (📖 p. 86).

Use the pedal to start and control the sewing process.

Fig. 40: Sewing



- (1) - Pedal position -2
(Sew end bartack and cut off thread)
- (2) - Pedal position -1
(Lift the sewing feet)

- (3) - Pedal position 0
(Rest position)
- (4) - Pedal position +1
(Sew forward)

Initial situation

- Pedal position **0**:
 - ↪ Machine stationary, needles up, sewing feet down.

Positioning the sewing material



1. Press the pedal halfway back in pedal position **-1**:
 - ↪ The sewing feet are lifted.
2. Push the sewing material into the initial position.

Sewing



1. Press the pedal forwards in pedal position **+1**:
 - ↪ The machine sews.
The sewing speed increases the further forward the pedal is pressed.

Interrupt sewing



1. Release the pedal in pedal position **0**:
 - ↪ The machine stops, needles and sewing feet are down.

Continue sewing



1. Press the pedal forwards in pedal position **+1**:
 - ↪ The machine continues to sew.

Sewing over thicker parts of the material



1. Switch on the increased sewing foot stroke with the knee button ( p. 59).

Changing the stitch length



1. The 2nd stitch length must be switched on using the quick function button ( p. 62).

Increasing the thread tension



1. Switch on the additional tensioner using the quick function button ( p. 64).

Sewing an intermediate bartack



1. Reverse sewing with the stitch adjustment lever or the quick function button (📖 p. 64 or 📖 p. 72).

Finishing the seam

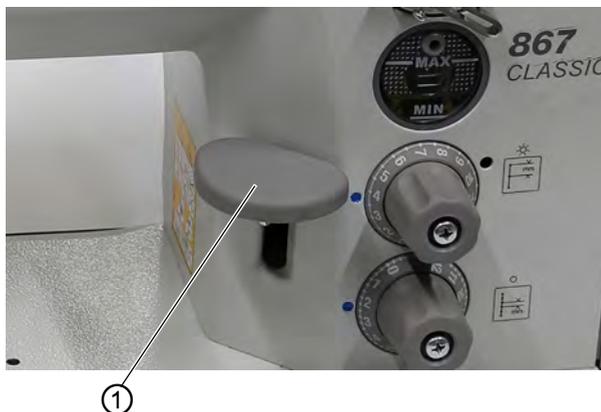


1. Press the pedal back completely in pedal position -2:
 ↳ The machine sews the end bartack, and the thread cutter cuts the thread.
 The machine stops, needles and sewing feet are up.
2. Remove the sewing material.

4.21 Sewing backwards

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

Fig. 41: Sewing backwards



(1) - Stitch adjustment lever



To sew backwards:

1. Slowly push the stitch adjustment lever (1) down.
 ↳ The stitch length becomes smaller. In the lower end position, the machine sews in reverse with the stitch length currently set at the adjusting wheels.



Information

Another option for turning on sewing in reverse is to use the button for reverse sewing on the machine arm.

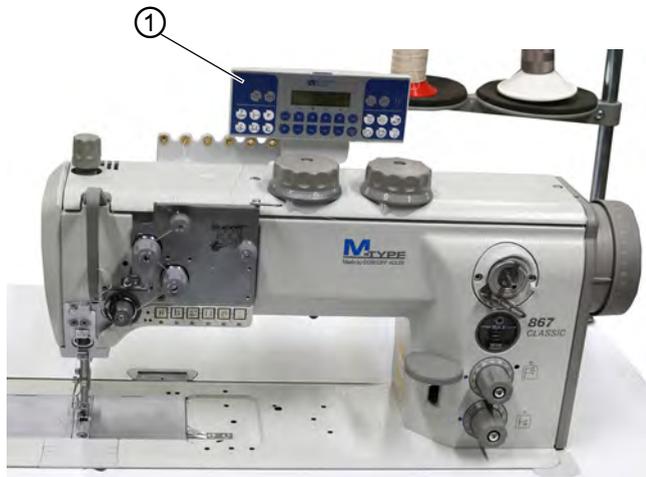
5 Programming

The machine comes with one of the following control panels depending on its equipment:

- OP1000
- V810
- V820

5.1 Control panel OP1000

Fig. 42: Control panel OP1000



(1) - Control panel OP1000

All software settings are performed using the OP1000 control panel. The control panel is composed of a display and buttons.

Using the control panel you can:

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



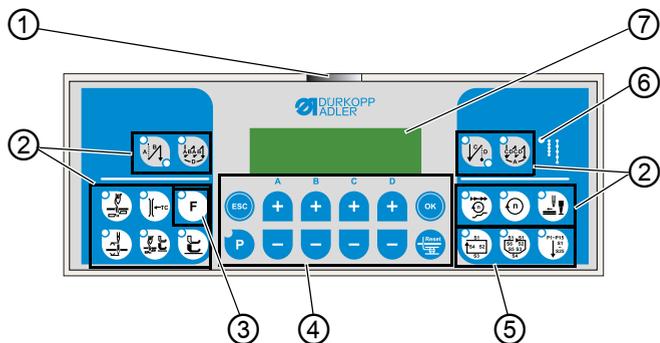
Information

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

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

5.1.1 Buttons on the OP1000 control panel

Fig. 43: Buttons on the OP1000 control panel

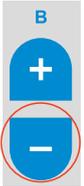


- | | |
|--------------------------------|---------------------------------|
| (1) - Power LED | (5) - Seam program button group |
| (2) - Thread button group | (6) - LED for 2nd Stitch length |
| (3) - Function button | (7) - Display |
| (4) - Programming button group | |

OP1000 buttons and functions

Button	Function
Thread button group	
	<p>Start bartack</p> <ul style="list-style-type: none"> • Sets the start bartack
	<p>Multiple start bartack</p> <ul style="list-style-type: none"> • Sets the multiple start bartack
	<p>End bartack</p> <ul style="list-style-type: none"> • Sets the end bartack
	<p>Multiple end bartack</p> <ul style="list-style-type: none"> • Sets the multiple end bartack
	<p>Thread cutter</p> <ul style="list-style-type: none"> • Activates or deactivates the thread cutter
	<p>Thread clamp</p> <ul style="list-style-type: none"> • Activates or deactivates the thread clamp
	<p>Needle position after sewing stop</p> <ul style="list-style-type: none"> • Sets the needle position after sewing stop
	<p>Sewing foot lift after thread cutter</p> <ul style="list-style-type: none"> • Activates or deactivates the sewing foot lift after the thread cutter

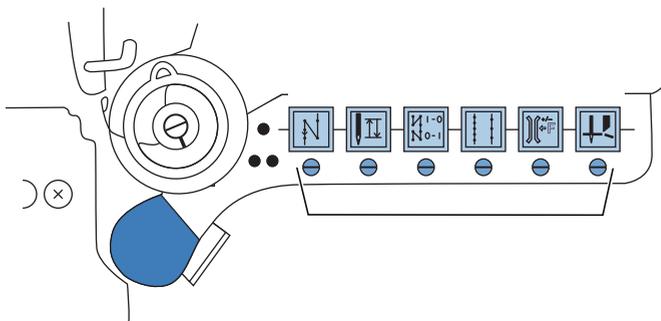
Button	Function
 <p>Sewing foot lift after sewing stop</p>	<ul style="list-style-type: none"> • Activates or deactivates the sewing foot lift after sewing stops
 <p>Soft start</p>	<ul style="list-style-type: none"> • Activates or deactivates the soft start
 <p>Speed</p>	<ul style="list-style-type: none"> • Reduces the motor speed
 <p>Function button</p>	<ul style="list-style-type: none"> • Activates or deactivates any stored function
Programming button group	
 <p>ESC</p>	<ul style="list-style-type: none"> • Ends parameter mode
 <p>A+</p>	<ul style="list-style-type: none"> • Increases parameter • Changes user level • Selects subprogram
 <p>B+</p>	<ul style="list-style-type: none"> • Increases parameter • Changes to next higher category • Selects subprogram
 <p>C+</p>	<ul style="list-style-type: none"> • Increases parameter • Selects subprogram
 <p>D+</p>	<ul style="list-style-type: none"> • Increases parameter • Selects subprogram

Button	Function
	<ul style="list-style-type: none"> • Calls parameter or saves it
	<ul style="list-style-type: none"> • Starts or ends the parameter mode
	<ul style="list-style-type: none"> • Decreases parameter • Changes user level • Selects subprogram
	<ul style="list-style-type: none"> • Decreases parameter • Changes to next lower category • Selects subprogram
	<ul style="list-style-type: none"> • Decreases parameter • Selects subprogram
	<ul style="list-style-type: none"> • Decreases parameter • Selects subprogram
	<ul style="list-style-type: none"> • Resets the (piece) counter

Button	Function
Seam program button group	
	Seam program I
	Seam program II
	Seam program III

5.1.2 Assigning functions to buttons on the push button panel

Fig. 44: Assigning functions to buttons on the push button panel



The buttons on the push button panel can be assigned different functions. Possible function assignments are:

- Suppress start/end bartack
- Start/end bartack
- Single stitch
- Needle up/down
- Edge cutting
- Stroke adjustment



To assign a function to a button on the push button panel:

1. Press the  button.
2. Press and hold the button on the push button panel to which you wish to assign a function.
 - ↳ The control panel shows the value currently set for the button.
3. Use +/- to enter the desired value; see Parameter list 867, parameter t 51 20 for information on which function is assigned which value.
4. Confirm with the  button.
5. Press the  button.
 - ↳ The machine is ready to sew again.

5.1.3 Assigning a function to the knee button

Fig. 45: Assigning a function to the knee button



(1) - Toggle switch

(2) - Knee button

The knee button (2) can be assigned 2 different functions. The functions are selected in sewing mode via the position of the toggle switch (1) (**1** or **0**).


Information

At the factory, the knee button was assigned the switchable sewing foot stroke function in push-to-run and hold-to-run mode ( p. 59). The knee button (2) can also be assigned different functions.



To assign a function to the knee button (2):

1. Press the  button.
2. Set the toggle switch (1) to the desired position (**1** or **0**).
If the toggle switch (1) is, for instance, set to the bottom position, the new function is saved to the **0** position.
3. Keep the knee button (2) pressed for a few seconds.
 flashes.
4. Use the buttons **+** or **-** to set the numerical value to the desired value associated with the new function ( *Parameter list 867*).
5. Confirm with .

5.2 Control panel V810

Follow the  *Operating Instructions of the manufacturer*.

5.3 Control panel V820

Follow the  *Operating Instructions of the manufacturer*.

6 Maintenance

WARNING



Risk of injury from sharp parts!

Punctures and cutting possible.

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

WARNING



Risk of injury from moving parts!

Crushing possible.

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

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

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

Maintenance intervals

Work to be carried out	Operating hours			
	8	40	160	500
Cleaning				
Removing lint and thread remnants	●			
Cleaning the motor fan mesh			●	
Lubricating				
Lubricating the machine head	●			
Lubricating the hook		●		

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

6.1 Cleaning the machine

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.

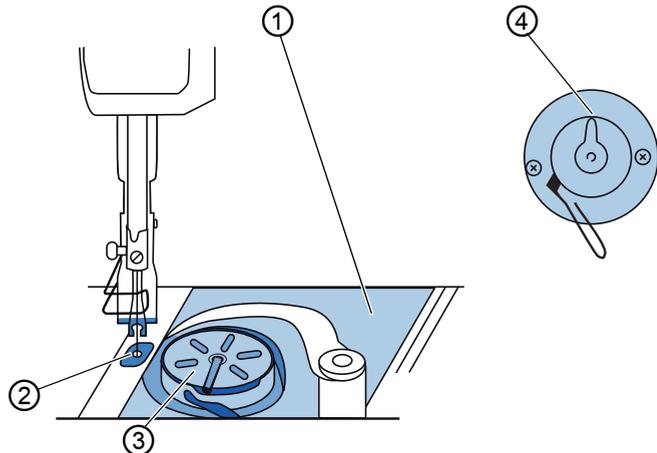
When sewing very fluffy material, clean the machine at shorter intervals than every 8 hours.

NOTICE
Property damage from solvent-based cleaners!

Solvent-based cleaners will damage paintwork.

Use only solvent-free substances for cleaning.

Fig. 46: Cleaning the machine



(1) - Area under the throat plate

(3) - Hook

(2) - Area around the needle

(4) - Cutter on the winder

The following areas are particularly susceptible to soiling:

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



To clean the machine:

1. Switch off the machine ( p. 20).
2. Remove any lint and thread remnants using a compressed air gun or a brush.

6.2 Cleaning the motor fan mesh

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

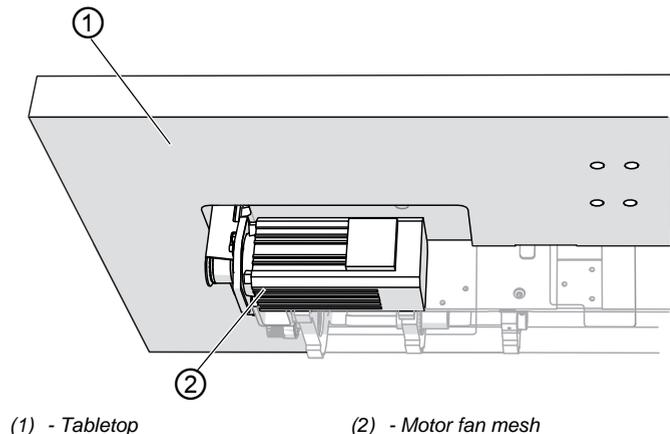
Property damage from soiling!

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

Clean the motor fan mesh as described.

When sewing very fluffy material, clean the machine at shorter intervals than every 160 hours.

Fig. 47: Cleaning the motor fan mesh





To clean the motor fan mesh.

1. Switch off the machine ( p. 20).
2. Remove any lint and thread remnants using a compressed air gun or a brush.

6.3 Lubricating

CAUTION



Risk of injury from contact with oil!

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

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

NOTICE

Property damage from incorrect oil!

Incorrect oil types can result in damage to the machine.

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

CAUTION



Risk of environmental damage from oil!

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

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

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

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

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

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

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

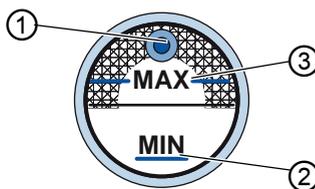
6.3.1 Lubricating the machine head



Proper setting

The oil level must be above the minimum level marking (2) and just below the maximum level marking (3).

Fig. 48: Lubricating the machine head



(1) - Refill opening

(2) - Minimum level marking

(3) - Maximum level marking



To lubricate the machine head:

1. Check the oil level indicator at the inspection glass every day.
If the inspection glass lights up red, the machine is not sufficiently supplied with oil.

2. If the oil level is below the minimum level marking (2):
Pour oil through the refill opening (1) up to no more than 2 mm below the maximum level marking (3).



Information for CLASSIC machines

If the oil level drops below the minimum level marking (3) on a CLASSIC machine, the oil level indicator will show red.

3. Turn the machine off and back on after refilling oil ( p. 20).
 The red light goes out.

6.3.2 Setting the hook lubrication

CAUTION



Risk of injury!

Crushing and puncture possible.

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

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



Proper setting



To check the hook lubrication:

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.



To set the hook lubrication:

1. Turn the screw:
 - 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.

6.4 Servicing the pneumatic system

6.4.1 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

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

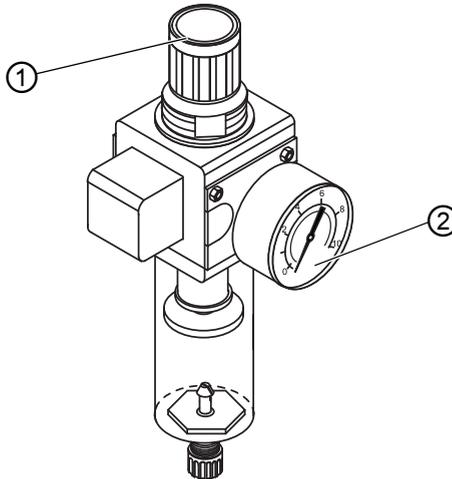


Proper setting

Refer to the **Technical data** ( p. 149) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Check the operating pressure on a daily basis.

Fig. 49: Setting the operating pressure



(1) - Pressure controller

(2) - Pressure gage



To set the operating pressure:

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

6.4.2 Draining the water condensation

NOTICE

Property damage from excess water!

Excess water can cause damage to the machine.

Drain water as required.

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

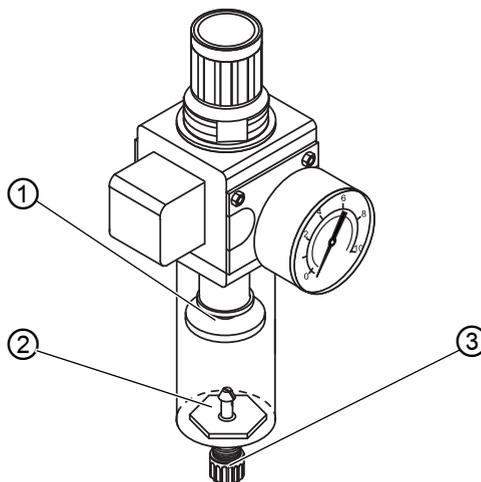


Proper setting

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

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

Fig. 50: Draining the water condensation



(1) - Filter element
(2) - Water separator

(3) - Drain screw



To drain water condensation:

1. Disconnect the machine from the compressed air supply.
2. Place the collection tray under the drain screw (3).
3. Loosen the drain screw (3) completely.
4. Allow water to drain into the collection tray.

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

6.4.3 Cleaning the filter element

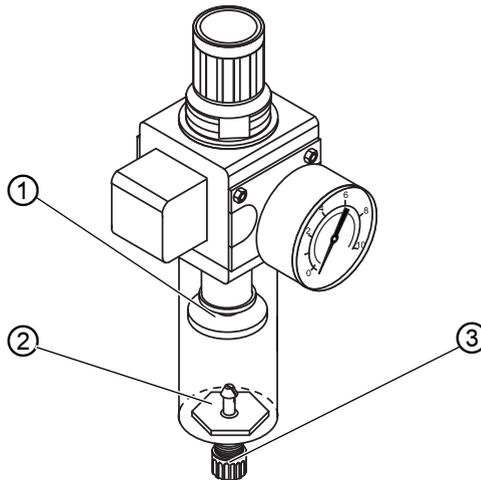
NOTICE

Damage to the paintwork from solvent-based cleaners!

Solvent-based cleaners damage the filter.

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

Fig. 51: Cleaning the filter element



(1) - Filter element
(2) - Water separator

(3) - Drain screw



To clean the filter element:

1. Disconnect the machine from the compressed air supply.
2. Drain the water condensation ( p. 94).
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.

6.5 Parts list

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

www.duerkopp-adler.com



7 Setup

WARNING



Risk of injury from cutting parts!

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

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

WARNING



Risk of injury from moving parts!

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

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

7.1 Checking the scope of delivery

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

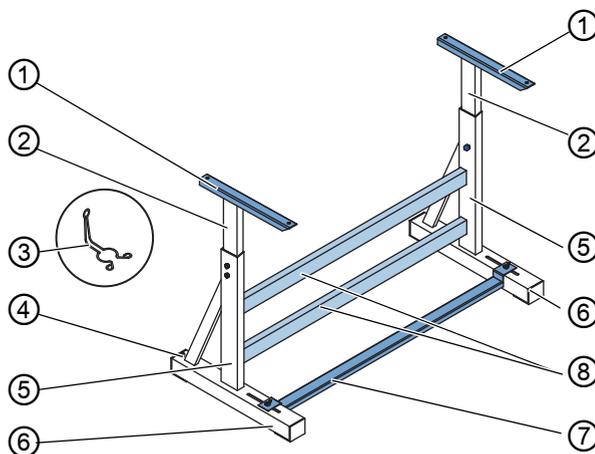
7.2 Removing the transport locks

All transport locks must be removed prior to setup:

- All 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. 52: Assembling the stand



- | | |
|-------------------------------------|------------------------------|
| (1) - Head section of the inner bar | (5) - Stand bar |
| (2) - Inner bar | (6) - Foot strut |
| (3) - Holder for the oil can | (7) - Cross strut |
| (4) - Adjusting screw | (8) - Cross bar (1 or 2 pcs) |



To assemble the stand:

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



Information

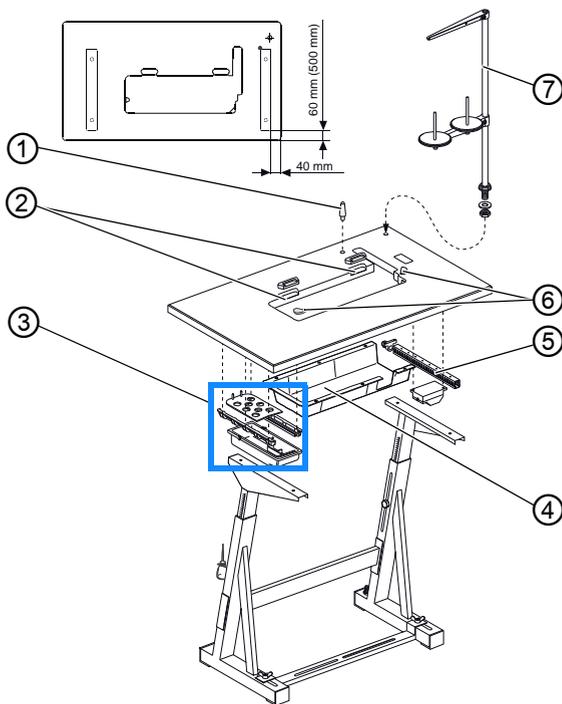
Stand components for long arm machines have 2 cross bars, while the other stand components have 1 cross bar.

7.4 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. 171) as a template.

7.4.1 Completing a short arm tabletop

Fig. 53: Completing a short arm tabletop



- | | |
|--|-------------------|
| (1) - Machine head support | (4) - Oil pan |
| (2) - Slot for the
Lower hinge part | (5) - Cable duct |
| (3) - Drawer | (6) - Corner slot |
| | (7) - Reel stand |

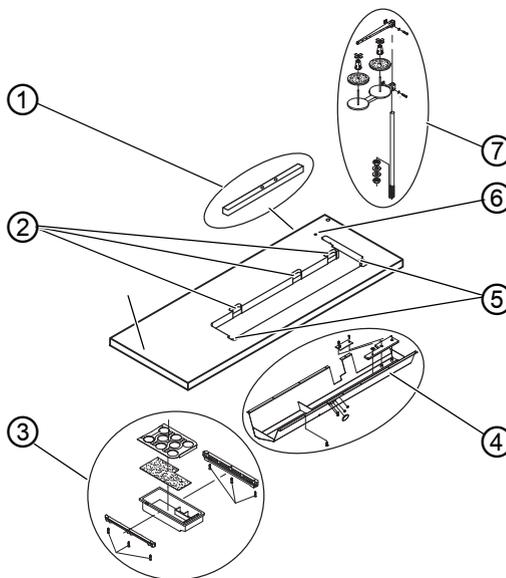


To complete the short arm tabletop:

1. Screw the drawer (3) with the left-hand bracket to the underside of the tabletop.
2. Screw the oil pan (4) in place under the slot for the machine.
3. Screw the cable duct (5) to the underside of the tabletop.
4. Insert the reel stand (7) into the hole.
5. Assemble the reel stand (7) with nut and washer.
6. Tighten the thread reel holder and the unwinding bracket on the reel stand (7) in such a way that they are exactly opposite each other.
7. Insert the machine head support (1) into the hole.
8. Insert and fasten the lower hinge parts in the hinge slots (2).
9. Insert the rubber corners into the corner slots (6).

7.4.2 Completing a long arm tabletop

Fig. 54: Completing a long arm tabletop



- | | |
|--|-------------------|
| (1) - Cable duct | (4) - Oil pan |
| (2) - Slot for the
Lower hinge part | (5) - Corner slot |
| (3) - Drawer | (6) - Hole |
| | (7) - Reel stand |

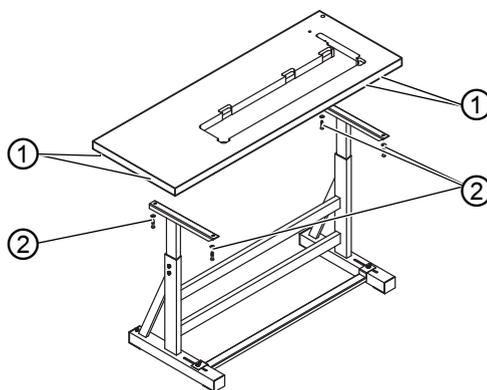


To complete the long arm tabletop:

1. Screw the drawer (3) with the left-hand bracket to the underside of the tabletop.
2. Screw the oil pan (4) 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 (7) into the hole.
5. Assemble the reel stand (7) with the nut and the washer.
6. Tighten the thread reel holder and the unwinding bracket on the reel stand (7) in such a way that they are exactly opposite each other.
7. Insert the plug (6) in the hole.
8. Insert the lower hinge parts into the slots (2).
9. Insert the rubber corners into the corner slots (5).

7.5 Assembling the tabletop to the stand

Fig. 55: Assembling the tabletop to the stand



(1) - Screw holes (not visible)

(2) - Screws



To assemble the tabletop to the stand:

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

7.6 Setting the working height

WARNING



Risk of crushing 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



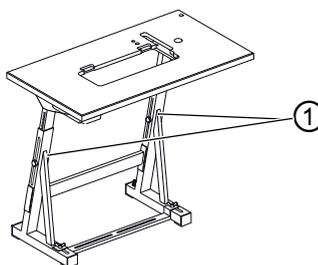
Risk of musculoskeletal damage from incorrect setting!

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. 56: Setting the working height



(1) - Screw



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

Depending on the subclass, the following controls are available:

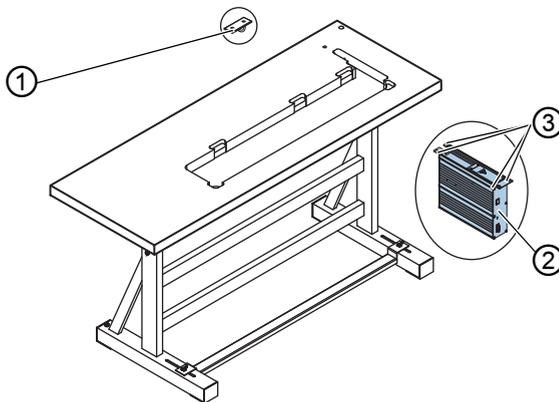
Machine type	Subclass: 867-	Control
Short arm	19020 19040 39240	DAC eco or DAC classic
Long arm	190020-70 190040-70 290020-70 290040-70	
Machines with integrated motor	190142-M 190322-M 190342-M	DAC classic
Short arm	392342 393342 394342 190122 190142 160122 260122 190145 190125 190146 190322 190342 190445 190425 29040 29020 290122 290142	Efka DC 1550/ DA 321G

Machine type	Subclass: 867-	Control
Short arm	290322 290342 490322 290445	Efka DC 1550/ DA 321G
Long arm	190122-70 190322-70 190342-70 290122-70 290322-70 290342-70 290342-100	

7.7.1 Assembling the control

The DAC controls and the Efka control are installed according to the same principle.

Fig. 57: Assembling the control



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

(3) - Screw holder

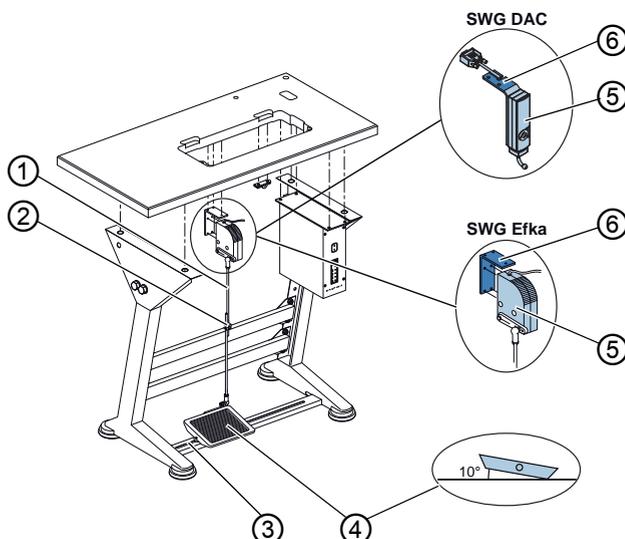


To assemble the control:

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.

7.7.2 Assembling the pedal and setpoint device

Fig. 58: Assembling the pedal and setpoint device



(1) - Pedal rod
(2) - Screw
(3) - Cross strut

(4) - Pedal
(5) - Setpoint device
(6) - Bracket



To assemble pedal and setpoint device:

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



Proper setting: 10° inclination with pedal (4) released

8. Tighten the screw (2).

7.8 Inserting the machine head

WARNING



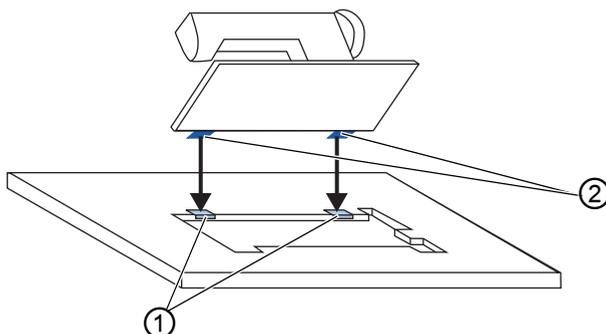
Risk of crushing!

Risk of crushing by the machine head.

The machine head is very heavy.

Take care not to jam your hands when inserting the machine head. This especially applies when inserting the hinges into the hinge slots.

Fig. 59: Inserting the machine head



(1) - Hinge slots

(2) - Hinges

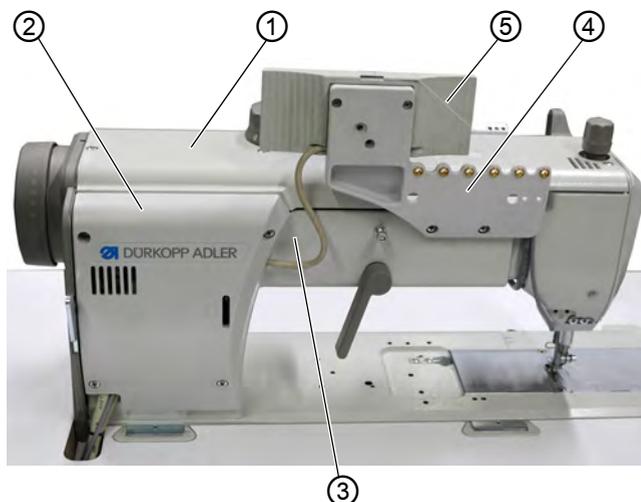


To insert the machine head:

1. Tighten the hinges (2) to the machine head.
2. Insert the machine head from above at an angle of 45°.
3. Insert the hinges (2) into the hinge slots (1).
4. Fold down the machine head and insert it fully into the tabletop cutout.

7.9 Assembling the control panel

Fig. 60: Assembling the control panel (1)



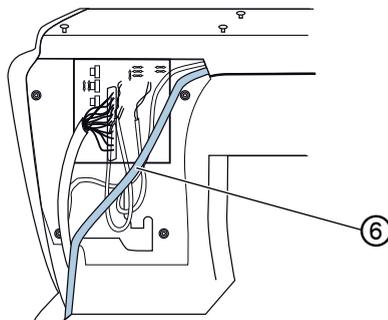
- | | |
|---|-----------------------------|
| (1) - Upper machine cover | (4) - Control panel bracket |
| (2) - Valve cover | (5) - Control panel |
| (3) - Cable duct (only for long arm;
not visible here) | |



To assemble the control panel:

1. Unscrew the machine cover (1) and the valve cover (2).
2. Tighten the control panel (5) on the control panel bracket (4).

Fig. 61: Assembling the control panel (2)



(6) - Connecting cable

Additional step for long arm machines:

3. Install the connecting cable (6) through the cable duct (3).



4. Install the connecting cable (6) in the machine arm.
5. Feed the connecting cable (6) along with the remaining cables through the hole in the tabletop.
6. Insert the plug of the connecting cable (6) into the socket of the control.
7. Screw on the valve cover (2) and the upper machine cover (1).

7.10 Assembling the knee lever / knee button

The machine has either a mechanical or electrical knee lever, depending on subclass and equipment.

7.10.1 Assembling the mechanical knee lever

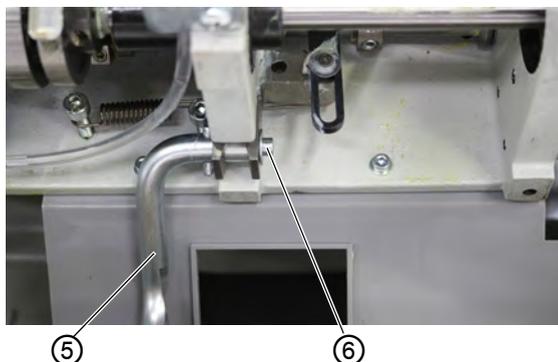
Fig. 62: Assembling the mechanical knee lever (1)



(1) - Oil pan
(2) - Rod

(3) - Knee lever
(4) - Connecting piece

Fig. 63: Assembling the mechanical knee lever (2)



(5) - Transmission rod

(6) - Screw

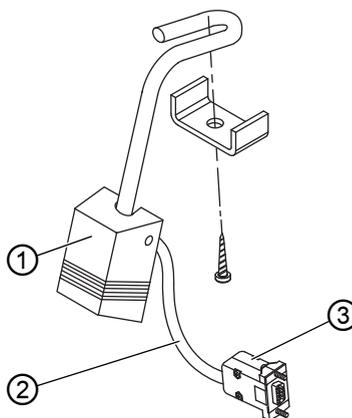


To assemble the mechanical knee lever:

1. Tilt the machine head.
 2. Guide the transmission rod (5) through the oil pan (1).
 3. Assemble the transmission rod (5) on the machine head using the screw (6).
 4. Screw the rod (2) and the knee lever (3) together.
 5. Assemble the rod (2) to the transmission rod (5) using the connecting piece (4).
 6. Erect the machine head.
- ↳ The knee lever (3) automatically moves to its initial position and is ready for operation.

7.10.2 Assembling the electric knee button

Fig. 64: Assembling the electric knee button



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

(3) - Plug

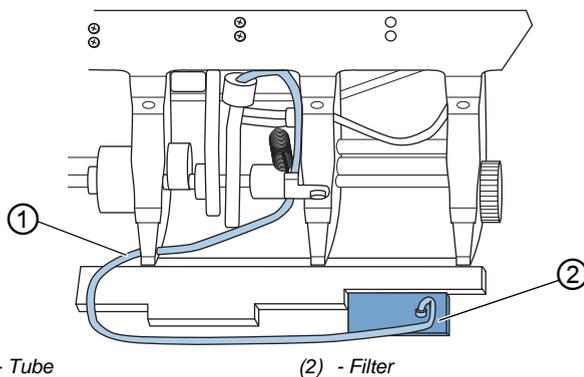


To assemble the electric knee button:

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 (2) into the socket of the control ( p. 122).

7.11 Assembling the oil extraction line

Fig. 65: Assembling the oil extraction line



To assemble the oil extraction line:

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

7.12 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.

7.12.1 Checking the mains voltage



Important

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



1. Check the mains voltage before connecting the machine.

7.12.2 Assembling and connecting the sewing lamp and sewing lamp transformer

DANGER



Risk of death from electric shock!

When the machine is switched off and, thus, powered off (switch set to position **0**), the supply voltage to the sewing lamp remains switched on.

Disconnect the power plug before assembling and connecting the sewing lamp to the sewing lamp transformer.

Ensure the power plug cannot be unintentionally reinserted.



Information

The sewing lamp is an additional component that is not part of the standard delivery package.

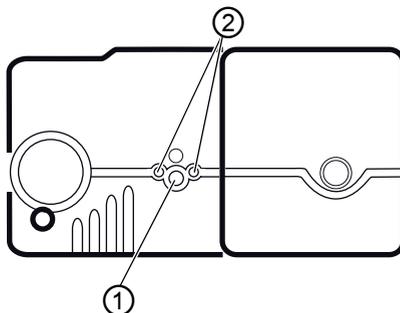
Assembling the sewing lamp



To assemble the sewing lamp:

1. Unscrew the valve cover and upper machine cover (📖 p. 108).
The upper machine cover has pre-drilled holes for attaching the sewing lamp.

Fig. 66: Assembling the sewing lamp



(1) - Large hole

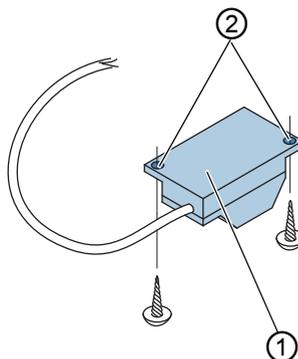
(2) - Small holes



2. Either drill through the hole for 1 large hole (1) or through the holes for 2 small holes (2).
3. Screw the sewing lamp holder through the hole on the arm cover.
4. Assemble the sewing lamp on the bracket.
5. Lay the connecting cable in the machine arm and feed it through the hole in the tabletop ( p. 108).
6. Stick the sticker with safety instructions onto the front of the control.

Assembling the sewing lamp transformer

Fig. 67: Assembling the sewing lamp transformer



(1) - Sewing lamp transformer

(2) - Pre-drilled hole

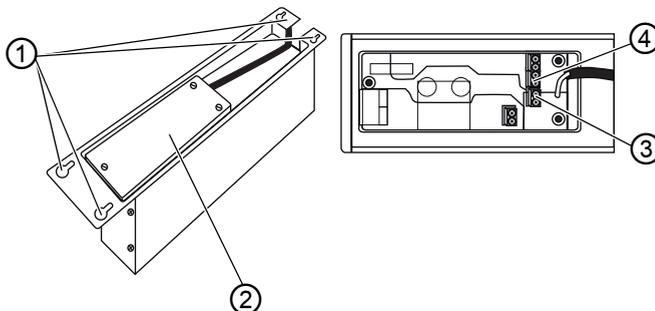


To assemble the sewing lamp transformer::

1. Screw the sewing lamp transformer (1) in place at the pre-drilled holes (2) 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.

Connecting the sewing lamp transformer to the DAC control

Fig. 68: Connecting the sewing lamp transformer to the DAC control



(1) - Screw holder

(2) - Adapter cover screw

(3) - 24V/X5 connection

(4) - X3 connection

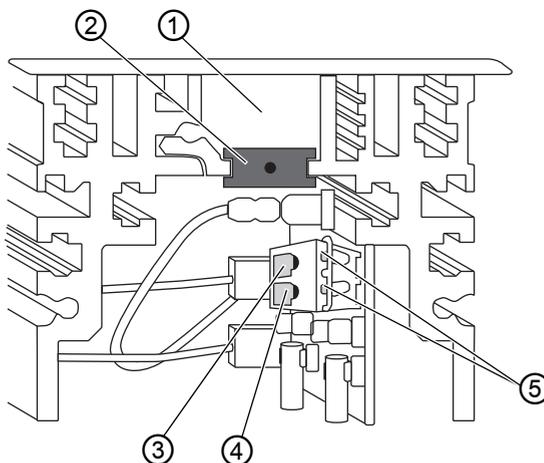


To connect the sewing lamp transformer to the DAC control:

1. Loosen the screw holder (1) 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 sewing lamps to be additionally assembled to the X3 connection (4)
 - For integrated LED sewing lamps on the 24V/X5 connection (3)

Connecting the sewing lamp transformer to the Efka control

Fig. 69: Connecting the sewing lamp transformer to the Efka control



(1) - Cable duct
(2) - Rubber guide
(3) - Upper terminal

(4) - Lower terminal
(5) - Terminal opening



To connect the sewing lamp transformer to the Efka control:

1. Remove all 4 screws from the control front panel.
2. Remove the front panel.
3. Feed the cable from the rear through the cable duct (1) into the control.
4. Remove the black rubber guide (2).
5. Pierce the round opening of the rubber guide with a screwdriver.
6. Feed the sewing lamp transformer cable through the resulting slot in the rubber guide.
7. Insert the black rubber guide (2) again.
8. Press a narrow screwdriver into the terminal openings (5) to open terminals (3) and (4).



Important: Do not press so hard that the board is pressed in.

9. Connect the blue cable to the upper terminal (3) and the brown cable to the lower terminal (4).
10. Fasten the front panel with the 4 screws.

7.12.3 Establishing equipotential bonding

DANGER



Risk of death from electric shock!

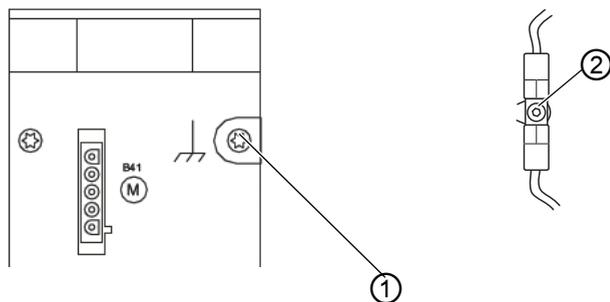
Unprotected contact with electricity can result in serious injuries or death.

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. 70: Establishing equipotential bonding



(1) - Connection on the control (2) - Tab connector



To establish equipotential bonding:

1. Tilt the machine head.
2. Feed the protective earth conductor from the connection (1) on the rear side
Feed the control through the cutout in the tabletop and slip it onto the tab connector (2) on the base plate.

7.12.4 Connecting the control

DANGER



Risk of death from electric shock!

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.

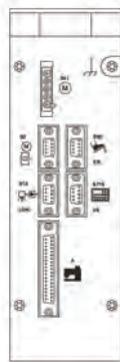
Connecting the control consists of the following work:

- Insert the plug of each connecting cable into the sockets on the back of the control.
- Connect the control to the power supply using the power cable.

Operation of the control is described in the control-specific instructions:

- **Efka DC1550/DA321G control:**
See accessory pack included with the control.
- **DAC eco and DAC classic controls:**
See accessory pack included with the control.
The instructions also available in the download area at www.duerkopp-adler.com

Fig. 71: Connecting the control



7.12.5 Connecting the machine head



To connect the machine head:

1. Insert the plug on the connecting cable for the machine head into the socket of the respective control.

7.12.6 Assembling and connecting the Hall sensor

DANGER



Risk of death from electric shock!

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

Disconnect the power plug before assembling and connecting the Hall sensor.

Ensure the power plug cannot be unintentionally reinserted.



Information

The Hall sensor is required for machines with a transmission ratio of 1:1.55 between the motor and machine.

The transmission ratio of 1:1.55 provides approx. 30% more torque and stitching force compared to the normal transmission ratio of 1:1.



Important

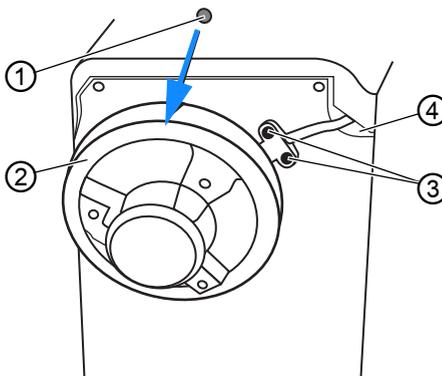
For this reason, when using the Hall sensor it is important to ensure that the maximum speed for the respective subclass is not exceeded.



To assemble the Hall sensor:

1. Remove the handwheel and handwheel cover.
2. Remove the valve cover.

Fig. 72: Assembling and connecting the Hall sensor



- (1) - Magnet
 (2) - Belt pulley
 (3) - Pre-drilled hole
 (4) - Cable opening



3. Assemble the Hall sensor at the pre-drilled holes (3).
4. Feed the Hall sensor cable through the cable opening (4) down to the control.
5. Check if a magnet is already fitted on the inside of the pulley wheel (2). If a magnet is not already fitted:
Insert the magnet (1) provided in the Hall sensor accessory pack.
6. Insert the Hall sensor plug into socket B18 of the respective control.

Additional step for Efka control

7. Check and set the following parameters:
 - **F-290** as per  *Parameter sheet 9800 331104 PBXX*
 - **F-111** set to 3,000 rpm or less
 - **F-270** set to 6 (position sensor selection)
 - **F-272** to be calculated according to the following formula:

$$\frac{\text{Motor belt pulley diameter (teeth)}}{\text{Machine belt pulley diameter (teeth)}} \times 1000$$



With DAC controls the parameters are automatically set via transfer of the machine ID.

8. Place the valve cover and tighten.
9. Check the setting of the Hall sensor:



Proper setting

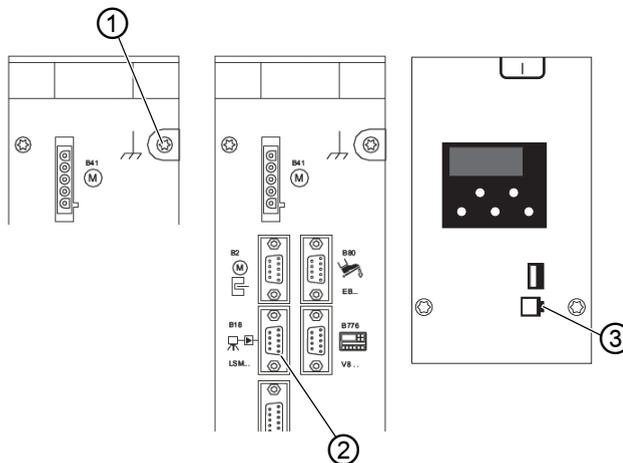
The magnet is located directly above the Hall sensor when the needle tip reaches the throat plate.

If this is not the case then the handwheel must be readjusted. For more information, refer to the *Service Instructions*.

10. Place and tighten the handwheel cover and the handwheel.

7.12.7 Connecting the electric knee button

Fig. 73: Connecting the electric knee button



(1) - Earth connection (rear)

(2) - Socket DAC control (rear)

(3) - Socket Efka control (front)



To connect the electric knee button:

1. Connect the knee button earthing cable to the rear side of the control (1).
2. Insert the plug of the knee button into the socket of the respective control:
 - **DAC eco/classic control:**
Socket (2) on the rear side of the control
 - **Efka DC1550/DA321G control:**
Socket KN19 (3) on the front side of the control

7.12.8 Assembling and connecting the M-Control circuit board

DANGER



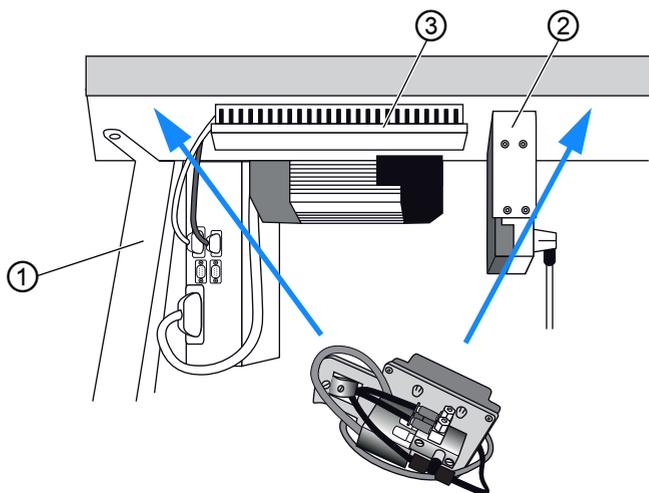
Risk of death from electric shock!

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

Disconnect the power plug before assembling and connecting the M-Control circuit board.

Ensure the power plug cannot be unintentionally reinserted.

Fig. 74: Assembling and connecting the M-Control circuit board (1)



- (1) - Stand
(2) - Cable duct

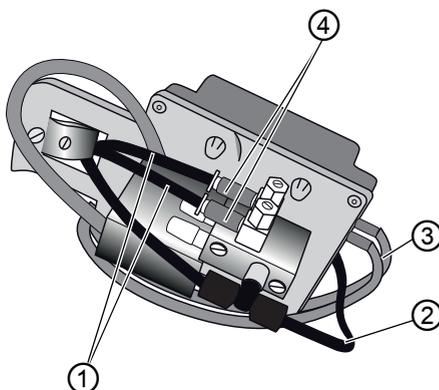
(3) - Setpoint device angle bracket



To assemble and connect the M-Control circuit board:

1. Circuit board for machines with binder: assemble between stand (1) and cable duct (2)
2. Circuit board for machines with switchable needle bars: Assemble at the right next to the setpoint device angle bracket (3).

Fig. 75: Assembling and connecting the M-Control circuit board (2)



- | | |
|--|-----------------------|
| (1) - Upper section compressed air hoses | (3) - Sockets |
| (2) - Compressed air supply hose | (4) - Throttle valves |



3. Connect the compressed air supply hose (2) to the compressed air maintenance unit.
4. Assemble the upper section compressed air hoses (1) to the throttle valves (4).



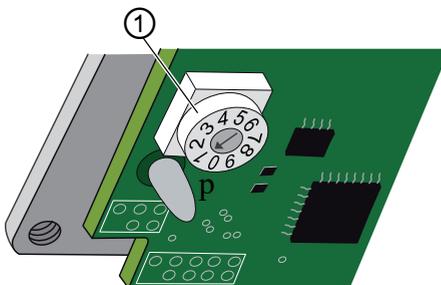
Important

If the function of the **R** and **L** buttons are swapped over on machines with switchable needle bars, then the upper section compressed air hoses (1) are swapped on the throttle valves (4).

5. Plug the electrical cable connectors into the connection sockets (3).

Switch position on the circuit board

Fig. 76: Switch position on the circuit board



(1) - Switch

The position of the switch (1) depends on the subclass:

- Machines with a binder: Position 1
- Machines with switchable needle bars: Position 2
- Machines with a clean seam start:

 *Additional Instructions* 0791 867708

7.12.9 Setting machine-specific parameters

With DAC controls the parameters are automatically set via transfer of the machine ID.

With Efka controls the parameter F-290 must be set for each subclass according to the specifications in  *Parameter sheet*.

The parameter sheet is provided in the control accessory pack.



To set the machine-specific parameters:

1. Set parameter **F-290** according to the specifications in  *Parameter sheet*.

For subclass 867-290342-100 only:

2. Set parameter **F-111** to 2500 min⁻¹ or less.
-

7.13 Pneumatic connection

NOTICE

Property damage from oily compressed air!

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

Ensure that no oil particles enter the compressed air supply.

NOTICE

Property damage from incorrect setting!

Incorrect system pressure can result in damage to the machine.

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

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

7.13.1 Assembling the compressed air maintenance unit

NOTICE

Property damage from incorrect setting!!

Incorrect system pressure can result in damage to the machine.

Ensure that the system pressure is set to 8 – 10 bar before assembling the compressed air maintenance unit.

The following parts make up the compressed air maintenance unit:

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



Information

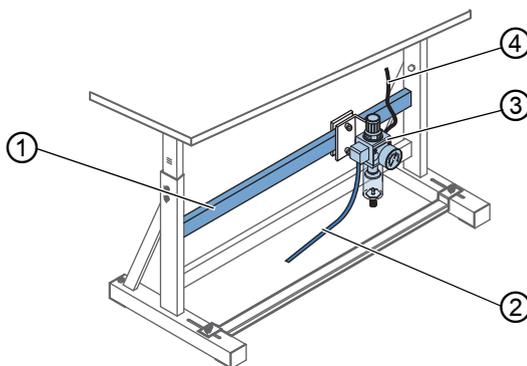
The compressed air maintenance unit is available under part number 0797 003031.



Proper setting

The system pressure for the pneumatic unit is 8 – 10 bar.

Fig. 77: Assembling the compressed air maintenance unit



(1) - Cross bar

(2) - System connection hose

(3) - Maintenance unit

(4) - Machine hose



To assemble the compressed air maintenance unit:

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

7.13.2 Setting the operating pressure

NOTICE

Property damage from incorrect setting!

Incorrect operating pressure can result in damage to the machine.

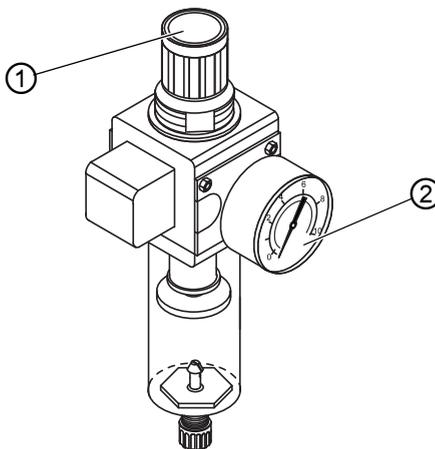
Ensure that the machine is only used when the operating pressure is set correctly.



Proper setting

Refer to the **Technical data** ( p. 149) chapter for the permissible operating pressure. The operating pressure cannot deviate by more than ± 0.5 bar.

Fig. 78: Setting the operating pressure



(1) - Pressure controller

(2) - Pressure gage



To set the operating pressure:

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

7.13.3 Pneumatic sewing foot lift

For information on how to assemble the pneumatic sewing foot lift, refer to the  *Additional Instructions 0791 867704*.

7.14 Lubricating

CAUTION



Skin damage from contact with oil!

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

Avoid any skin contact with the oil.

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

NOTICE

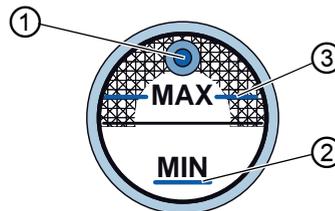
Machine damage possible from incorrect oil level!

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

During the 1st filling only pour in oil up to 2 mm below the maximum level marking.

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. 79: Checking the lubrication



(1) - Refill opening

(2) - Minimum level marking

(3) - Maximum level marking



To top off the oil reservoir:

1. Pour oil through the refill opening (1) up to no more than 2 mm below the maximum level marking (3).

The oil level must be above the minimum level marking (2) and just below the maximum level marking (3).

Required oil:**CAUTION****Risk of environmental damage from oil!**

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

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

NOTICE**Machine damage possible due to incorrect oil!**

An incorrect oil type can cause damage to the machine.

Only use oil specified in the operating instructions.

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

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

7.15 Performing a test run

WARNING



Risk of injury from moving, cutting and sharp parts!

Crushing, cutting and punctures are possible.

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

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

Adjust the machine to the sewing material requirements.



To perform a test run:

1. Insert needle ( p. 21).
2. Wind on the hook thread, ( p. 38).
3. Insert the bobbin ( p. 41).
4. Thread hook thread ( p. 41).
5. Thread needle thread ( p. 27).
6. Set the thread tension to the sewing material being sewn ( p. 43).
7. Set the needle thread regulator to the sewing material being sewn ( p. 49).
8. Set the sewing foot pressure to the sewing material being sewn ( p. 54).
9. Set the sewing foot stroke to the sewing material being sewn ( p. 56).
10. Set stitch length ( p. 61).
11. Assign a function to the favorite button ( p. 66).
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.



To decommission the machine:

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

9 Disposal

CAUTION



Risk of environmental damage from improper disposal!

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

ALWAYS comply with the national regulations regarding disposal.



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

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

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

10 Troubleshooting

10.1 Customer Service

Contact for repairs and issues with the machine:

Dürkopp Adler GmbH

Potsdamer Str. 190
33719 Bielefeld, Germany

Tel. +49 (0) 180 5 383 756

Fax +49 (0) 521 925 2594

Email: service@duerkopp-adler.com

Internet: www.duerkopp-adler.com



10.2 Messages of the software

Please contact customer service if an error occurs that is not described here ( p. 137). Do not attempt to correct the error yourself.

10.2.1 Information messages

Code	Possible cause	Remedial action
1203	Position not reached (during thread cutting, reversal, etc.)	<ul style="list-style-type: none"> • Check the controller settings and change them if required; make mechanical changes to the machine (e.g. thread cutter, setting for belt tension, etc.) • Check position (thread lever at top dead center)
2020	DACextension box not responding	<ul style="list-style-type: none"> • Check connection cables • Check LEDs of DACextension box • Software update
2021	Sewing motor encoder plug (Sub-D, 9-pin) not connected to DACextension box	<ul style="list-style-type: none"> • Connect encoder cable to DACextension box using the correct connection
2120	DA stepper card 1 not responding	<ul style="list-style-type: none"> • Check connection cables • Check LEDs of DACextension box • Software update
2121	DA stepper card 1 encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> • Connect encoder cable to the control, use correct connection
2122	DA stepper card 1 flywheel position not found	<ul style="list-style-type: none"> • Check connection cables • Check stepper motor 1 for stiff movement

Code	Possible cause	Remedial action
2220	DA stepper card 2 not responding	<ul style="list-style-type: none"> • Check connection cables • Check LEDs of DACextension box • Software update
2221	DA stepper card 2 encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> • Connect encoder cable to the control, use correct output
2222	DA stepper card 2 flywheel position not found	<ul style="list-style-type: none"> • Check connection cables • Check stepper motor 2 for stiff movement
3103	Low voltage failure (1 st threshold) Mains voltage < 180 V AC	<ul style="list-style-type: none"> • Check the mains voltage • Stabilize the mains voltage • Use generator
3108	Speed limited due to insufficient mains voltage	<ul style="list-style-type: none"> • Check the mains voltage
3150	Maintenance necessary	<ul style="list-style-type: none"> • Information on lubricating the machine  <i>Service Instructions</i>
3155	No release for sewing process	<ul style="list-style-type: none"> • Parameter t 51 20-t 51 33 = 25 • Input signal for sewing process release required
3160	Stitch loosening device	<ul style="list-style-type: none"> • Stitch loosening cannot be performed
3215	Bobbin stitch counter (info value 0 reached)	<ul style="list-style-type: none"> • Change bobbin, set counter value • Press counter reset button
3216	Remaining thread monitor left	<ul style="list-style-type: none"> • Change the left bobbin
3217	Remaining thread monitor right	<ul style="list-style-type: none"> • Change the right bobbin
3218	Remaining thread monitor left and right	<ul style="list-style-type: none"> • Change the left and right bobbin
3223	Skip stitch detected	
3224	Bobbin failed to rotate	

Code	Possible cause	Remedial action
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"> • Software update
6361	No external EEPROM connected	<ul style="list-style-type: none"> • Connect machine ID
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"> • Check machine ID connection • Switch off the control, wait until the LEDs are off, and then switch the control on again • Software update
6363	No valid data on internal and external EEPROM (software version is not compatible with the internal data storage device, emergency operating features only)	<ul style="list-style-type: none"> • Check machine ID connection • Switch off the control, wait until the LEDs are off, and then switch the control on again • Software update
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"> • Check machine ID connection • Switch off the control, wait until the LEDs are off, and then switch the control on again • Software update
6365	Internal EEPROM defective	<ul style="list-style-type: none"> • Replace the control
6366	Internal EEPROM defective and external data not valid (emergency operating features only)	<ul style="list-style-type: none"> • Replace the control
6367	Internal EEPROM defective and external EEPROM not connected (emergency operating features only)	<ul style="list-style-type: none"> • Replace the control

Code	Possible cause	Remedial action
7202	DACextension box boot error	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7203	Checksum error during update	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7212	DA stepper card 1 boot error	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7213	Checksum error occurred while updating DA stepper card 2	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7222	DA stepper card 2 boot error	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7223	Checksum error occurred while updating DA stepper card 2	<ul style="list-style-type: none"> • Check connection cables • Software update • Replace DACextension box
7801	Software version error (DAC classic only; only the functions of the DAC basic will remain available)	<ul style="list-style-type: none"> • Software update • Replace the control
7802	Software update error (DAC classic only; only the functions of the DAC basic will remain available)	<ul style="list-style-type: none"> • Software update • Replace the control
7803	Communication error (DAC classic only; only the functions of the DAC basic will remain available)	<ul style="list-style-type: none"> • Restart of the control • Software update • Replace the control

10.2.2 Error messages

Code	Error/ warning	Possible cause	Remedial action
1000	Error	Sewing motor encoder plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> • Connect encoder cable to the control, use correct connection
1001	Error	Sewing motor error: Sewing motor plug (AMP) not connected	<ul style="list-style-type: none"> • Check connection and plug in, if necessary • Test sewing motor phases (R= 2.8 Ω, high impedance to PE) • Replace the encoder • Replace sewing motor • Replace the control
1002	Error	Sewing motor insulation fault	<ul style="list-style-type: none"> • Check sewing motor phase and PE for low-impedance connection • Replace the encoder • Replace sewing motor
1004	Error	Sewing motor error: Incorrect sewing motor direction of rotation	<ul style="list-style-type: none"> • Replace the encoder • Check plug assignment and change, if necessary • Check wiring in machine distributor and change it, if necessary • Test sewing motor phases and check for correct value
1005	Error	Sewing motor blocked	<ul style="list-style-type: none"> • Eliminate stiff movement in the sewing machine • Replace the encoder • Replace sewing motor
1006	Error	Maximum speed exceeded	<ul style="list-style-type: none"> • Replace the encoder • Perform reset • Check class (t 51 04)

Code	Error/warning	Possible cause	Remedial action
1007	Error	Error in the reference run	<ul style="list-style-type: none"> • Replace the encoder • Eliminate stiff movement in the sewing machine
1008	Error	Encoder error	<ul style="list-style-type: none"> • Replace the encoder
1010	Error	External synchronizer plug (Sub-D, 9-pin) not connected	<ul style="list-style-type: none"> • Connect cable of external synchronizer to control; use correct connection (Sync) • Only required for machines with transmission!
1011	Error	Encoder Z pulse missing	<ul style="list-style-type: none"> • Switch off the control, adjust the handwheel, and switch the control on again • If error is not corrected, check encoder
1012	Error	Synchronizer fault	<ul style="list-style-type: none"> • Replace the synchronizer
1052	Error	Sewing motor overcurrent, internal current increase >25 A	<ul style="list-style-type: none"> • Check selection of class • Replace the control • Replace sewing motor • Replace the encoder
1053	Error	Sewing motor overvoltage	<ul style="list-style-type: none"> • Check selection of class • Replace the control
1054	Error	Internal short circuit	<ul style="list-style-type: none"> • Replace the control
1055	Error	Sewing motor overload	<ul style="list-style-type: none"> • Eliminate stiff movement in the sewing machine • Replace the encoder • Replace sewing motor

Code	Error/ warning	Possible cause	Remedial action
2101	Error	DA stepper card 1 reference run timeout	<ul style="list-style-type: none"> • Check reference sensor
2103	Error	DA stepper card 1 step losses	<ul style="list-style-type: none"> • Check for stiff movement
2155	Error	DA stepper card 1 overload	<ul style="list-style-type: none"> • Check for stiff movement
2201	Error	DA stepper card 2 reference run timeout	<ul style="list-style-type: none"> • Check reference sensor
2203	Error	DA stepper card 2 step losses	<ul style="list-style-type: none"> • Check for stiff movement
2255	Error	DA stepper card 2 overload	<ul style="list-style-type: none"> • Check for stiff movement
3100	Error	AC-RDY timeout, intermediate circuit voltage did not reach the defined threshold in the specified time	<ul style="list-style-type: none"> • Check the mains voltage • If the mains voltage is OK, replace the control
3101	Error	High voltage fault, mains voltage > 290 V for an extended period	<ul style="list-style-type: none"> • Check mains voltage, if nominal voltage is continuously exceeded • stabilize it or use a generator
3102	Error	Low voltage failure (2 nd threshold), mains voltage < 150 V AC	<ul style="list-style-type: none"> • Check the mains voltage • Stabilize the mains voltage • Use generator
3104	Warning	Pedal is not in position 0	<ul style="list-style-type: none"> • When switching the control on, take your foot off the pedal

Code	Error/warning	Possible cause	Remedial action
3105	Error	U24 V short circuit	<ul style="list-style-type: none"> • Disconnect 37-pin plug • Replace control if error is not corrected • Test inputs/outputs for 24 V short circuit
3106	Error	U24 V (I ² T) overload	<ul style="list-style-type: none"> • One or several magnets defective
3107	Error	Pedal not connected	<ul style="list-style-type: none"> • Connect analog pedal
3109	Warning	Operation lock	<ul style="list-style-type: none"> • Check tilt sensor on machine
3151	Warning	Maintenance necessary (operation cannot continue unless parameter t 51 14 is reset)	<ul style="list-style-type: none"> • Service is urgently required  <i>Service Instructions</i>
6353	Error	Internal EEPROM communication error	<ul style="list-style-type: none"> • Switch off the control • Wait until the LEDs are off • Switch the machine back on
6354	Error	External EEPROM communication error	<ul style="list-style-type: none"> • Switch off the control • Wait until the LEDs are off • Check machine ID connection • Switch the control back on
8401	Error	Watchdog	<ul style="list-style-type: none"> • Software update • Machine ID reset • Replace the control

Code	Error/ warning	Possible cause	Remedial action
8402- 8405	Error	Internal error	<ul style="list-style-type: none">• Software update• Machine ID reset• Replace the control
8406	Error	Checksum error	<ul style="list-style-type: none">• Software update• Replace the control
8501	Error	Software protection	<ul style="list-style-type: none">• Always use the DA tool for software updates

10.3 Errors in sewing process

Error	Possible causes	Remedial action
Unthreading at seam beginning	Needle thread tension is too firm	Check needle thread tension  p. 44
Thread breaking	Needle thread and hook thread have not been threaded correctly	Check threading path  p. 27
	Needle is bent or sharp-edged	Replace the needle  p. 21
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar  p. 21
	The thread used is unsuitable	Use recommended thread  p. 149
	Thread tensions are too tight for the thread used	Check thread tensions  p. 43
	Thread-guiding parts, such as thread tube, thread guide or thread take-up disk, are sharp-edged	Check threading path  p. 27
	Throat plate, hook or spread have been damaged by the needle	Have parts reworked by qualified specialists

Error	Possible causes	Remedial action
Missing stitches	Needle thread and hook thread have not been threaded correctly	Check threading path  p. 27
	Needle is blunt or bent	Replace the needle  p. 21
	Needle is not inserted correctly into the needle bar	Insert the needle correctly into the needle bar  p. 21
	The needle thickness used is unsuitable	Use recommended needle thickness  p. 149
	The reel stand is installed incorrectly	Check the assembly of the reel stand  p. 99
	Thread tensions are too tight	Check thread tensions  p. 43
	Throat plate, hook or spread have been damaged by the needle	Have parts reworked by qualified specialists
Loose stitches	Thread tensions are not adjusted to the sewing material, the sewing material thickness or the thread used	Check thread tensions  p. 43
	Needle thread and hook thread have not been threaded correctly	Check threading path  p. 25 and  p. 27
Needle breakage	Needle thickness is unsuitable for the sewing material or the thread	Use recommended needle thickness  p. 149

11 Technical data

11.1 Noise emission

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

$L_{pA} = 79 \text{ dB (A)}$; $K_{pA} = \pm 0.64 \text{ dB (A)}$ at

- Stitch length: 6.0 mm
- Alternating sewing foot stroke 1.5 mm
- Speed: 2200 rpm
- Sewing material: 4-layer material G1 DIN 23328

11.2 Data overview by subclasses

1-needle machines with large hook (L)

Subclasses: 867-	-160122	-190020 ECO	-190122	-190125	-190322	-190425	-160426
Type of stitches	Double lockstitch 301						
Hook type	Vertical hook, large (L)						
Number of needles	1						
Needle system	134-35						
Maximum needle strength [Nm]	130	180					
Maximum sewing thread size	120/3-30/3	80/3-10/3 (up to 15/3 with short thread cutter)					
Stitch length, forwards / backwards [mm]	7/7	12/12					
Number of adjustable stitch lengths	1				2		
Maximum s.p.m.	3800						
Number of stitches on delivery	3400	3000	3400				

Subclasses: 867-	-160122	-190020 ECO	-190122	-190125	-190322	-190425	-160426
Maximum stroke height (*only with reversing mechanism)	16*	20	20*				
Maximum sewing foot stroke	9						
Positive operating pressure [bar]	6		6				
Air consumption [NL]	0.7		0.7				
Length/width/height [mm]	690/220/460						
Weight/with direct drive [kg]	55/59						
Rated voltage [V, Hz]	230, 50/60						
Rated power [kVA]	0.75						

1-needle machines with extra-large hook (XXL)

Subclasses: 867-	-160446	-160146	-190040 ECO	-190142	-190145	-190342	-190445	-392040 ECO	-392342	-393342	-394342
Type of stitches	Double lockstitch 301										
Hook type	Vertical hook, extra-large (XXL)										
Number of needles	1										
Needle system	134-35										
Maximum needle strength [Nm]	180										

Subclasses: 867-	-160446	-160146	-190040 ECO	-190142	-190145	-190342	-190445	-392040 ECO	-392342	-393342	-394342
Maximum sewing thread size	80/3-10/3 (up to 15/3 with short thread cutter)	20/3	80/3-10/3 (up to 15/3 with short thread cutter)		15/3	80/3 – 10/3 (up to 15/3 with short thread cutter)	15/3		80/3-10/3 (up to 15/3 with short thread cutter)		
Stitch length, forwards/backwards [mm]	12/12										
Number of adjustable stitch lengths	2	1			2		1	2			
Maximum s.p.m.	3400							3000			
Number of stitches on delivery	3400	3000	3400				3000				
Maximum fan height (*only with reversing mechanism)	20*	20	20*				20	20*			
Maximum sewing foot stroke	9		9								
Positive operating pressure [bar]	6		6								
Air consumption [NL]	0.7		0.7					0.7			
Length/width/height [mm]	690/220/460							690/320/460			
Weight/with direct drive [kg]	55/59							58	59		
Rated voltage [V, Hz]	230, 50/60										
Rated power [kVA]	0.75										

2-needle machines with large/extra-large hook (L/XXL)

Subclasses: 867-	-260122	-290020 ECO	-290040 ECO	-290122	-290142	-290322	-290342	-290445	-490322	
Type of stitches	Double lockstitch 301									
Vertical hook, large (L)	x	x		x		x			x	
Vertical hook, extra-large (XXL)			x		x		x	x		
Number of needles	2									
Needle system	134-35									
Maximum needle strength [Nm]	130	180								
Maximum sewing thread size	80/3-10/3 (up to 15/3 with short thread cutter)							15/3	80/3 – 10/3 (up to 15/3 with short thread cutter)	
Stitch length, forwards/backwards [mm]	7/7	12/12								
Number of adjustable stitch lengths	1					2				
Maximum s.p.m.	3400**			3500**	3200**	3500**	3200**	3000		
Number of stitches on delivery	3400	3000								
Maximum fan height (*only with reversing mechanism)	16*	20			20*					
Maximum sewing foot stroke	9									
Positive operating pressure [bar]	6			6						
Air consumption [NL]	0.7			0.7						
Length/width/height [mm]	690/220/460									

Subclasses: 867-	-260122	-290020 ECO	-290040 ECO	-290122	-290142	-290322	-290342	-290445	-490322
	Weight/with direct drive [kg]	55/59							
Rated voltage [V, Hz]	230, 50/60								
Rated power [kVA]	0.75								

** For 2-needle machines equipped with the DC1550-DA321G and a motor assembled to the machine head, the maximum possible speed is 3,000 rpm.

1 and 2-needle long arm machines

Subclasses: 867-	-190020-70 ECO	-190040-70 ECO	-190122-70	-190322-70	-190342-70	-290020-70 ECO	-290040-70 ECO	-290122-70	-290322-70	-290342-70	-290342-100
	Type of stitches	Double lockstitch 301									
Vertical hook, large (L)	x		x			x		x			
Vertical hook, extra-large (XXL)		x			x		x				x
Number of needles	1					2					
Needle system	134-35										
Maximum needle strength [Nm]	180										
Maximum sewing thread thickness	80/3-10/3										
Stitch length Forwards/backwards [mm]	12/12										
Number of adjustable stitch lengths	1		2		1		2				
Maximum s.p.m.	3000										2500

Subclasses: 867-	-190020-70 ECO	-190040-70 ECO	-190122-70	-190322-70	-190342-70	-290020-70 ECO	-290040-70 ECO	-290122-70	-290322-70	-290342-70	-290342-100
	Number of stitches on delivery	3000									
Maximum fan height (*only with reversing mechanism)	20	20*			20	20*					
Maximum sewing foot stroke	9										
Positive operating pressure [bar]	6										
Air consumption [NL]				0.7				0.7			
Length/width/height [mm]	1090/220/460										1390/ 220/ 460
Weight/with direct drive [kg]	85/89										95/99
Rated voltage [V, Hz]	Depends on the drive package										
Rated power [W]	Depends on the drive package										

1-needle machines with integrated motor

Subclasses: 867-	-190020-M ECO	-190040-M ECO	-190122-M	-190125-M	-190142-M	-190145-M	-190146-M	-190322-M	-190342-M	-190425-M	-190445-M	-160122-M	-190426-M	-190446-M
Type of stitches	Double lockstitch 301													
Vertical hook, large (L)	x		x	x				x		x		x	x	
Vertical hook, extra-large (XXL)		x			x	x	x		x		x			x
Number of needles	1													
Needle system	134-35													
Maximum needle strength [Nm]	180											130	180	
Maximum Sewing thread thickness	80/3 – 10/3 (up to 15/3 and 20/3, respectively, with short thread cutter and neat seam beginning)											120/3 – 30/3	80/3 – 10/3 (up to 15/3 and 20/3, respectively, with short thread cutter and neat seam beginning)	
Stitch length, forwards/backwards [mm]	12/12											7/7	12/12	
Number of adjustable stitch lengths	1						2				1	2		
Maximum Number of stitches	3800	3400	3800	3400			3800	3400	3800	3400	3800	3400		

Subclasses: 867-	-190020-M ECO	-190040-M ECO	-190122-M	-190125-M	-190142-M	-190145-M	-190146-M	-190322-M	-190342-M	-190425-M	-190445-M	-160122-M	-190426-M	-190446-M
	Number of stitches on delivery	3000		3400										
Maximum Stroke height (*only with reversing mechanism)	20											16	20	
Maximum Sewing foot stroke	9													
Positive operating pressure [bar]	6													
Air consumption [NL]	0.7													
Length/width/height [mm]	740/220/460													
Weight/with direct drive [kg]	59		58											
Rated voltage [V, Hz]	230, 50/60													
Rated power [W]	375													

1 and 2-needle machines with integrated motor

Subclasses: 867-	-290020-M ECO	-290040-M ECO	-290122-M	-290125-M	-290142-M	-290322-M	-290342-M	-290445-M	-392040-M ECO	-392342-M	-393342-M	-394342-M	-490322-M	-260122-M
Type of stitches	Double lockstitch 301													
Vertical hook, large (L)	x		x		x									x
Vertical hook, extra-large (XXL)		x			x		x							
Number of needles	2						1				2			
Needle system	134-35													
Maximum needle strength [Nm]	180												130	
Maximum Sewing thread thickness	80/3-10/3 (up to 15/3 and 20/3, respectively, with short thread cutter and neat seam beginning)												120/3 – 30/3	
Stitch length, forwards/backwards [mm]	12/12												7/7	
Number of adjustable stitch lengths	1				2			1	2				1	
Maximum s.p.m.	3400		3500	3200	3500	3200	3000				3400			
Number of stitches on delivery	3000												3400	
Maximum Stroke height (*only with reversing mechanism)	20												16	

Subclasses: 867-	-290020-M ECO	-290040-M ECO	-290122-M	-290125-M	-290142-M	-290322-M	-290342-M	-290445-M	-392040-M ECO	-392342-M	-393342-M	-394342-M	-490322-M	-260122-M	
	Maximum Sewing foot stroke	9													
Positive operating pressure [bar]	6														
Air consumption [NL]	0.7														
Length/width/height [mm]	740/220/460														
Weight/with direct drive [kg]	59	58						59	60	59	58				
Rated voltage [V, Hz]	230, 50/60														
Rated power [W]	375														

1-needle long arm machines with integrated motor (-M)

Subclasses: 867-	-190020-70-M ECO	-190040-70-M ECO	-190122-70-M	-190322-70-M	-190342-70-M	-190142-70-M
Type of stitches	Double lockstitch 301					
Vertical hook, large (L)	x		x	x		
Vertical hook, extra-large (XXL)		x			x	x
Number of needles	1					
Needle system	134-35					
Maximum needle strength [Nm]	180					
Maximum sewing thread size	80/3-10/3					
Stitch length, forwards/backwards [mm]	12/12					
Number of adjustable stitch lengths	1	1	1	2	2	1
Maximum s.p.m.	3000					
Number of stitches on delivery	3000					
Maximum stroke height (*only with reversing mechanism)	20	20	20*	20*	20*	20*
Maximum sewing foot stroke	9					
Positive operating pressure [bar]	6					
Air consumption [NL]			0.7			
Length/width/height [mm]	1090/220/460					
Weight/with direct drive [kg]	89					
Rated voltage [V, Hz]	230, 50/60					
Rated power [W]	375					

2-needle long arm machines with integrated motor (-M)

Subclasses: 867-	-290020-70-M ECO	-290040-70-M ECO	-290122-70-M	-290322-70-M	-290342-70-M	-290142-70-M	-290342-100-M (Long arm)
Type of stitches	Double lockstitch 301						
Vertical hook, large (L)	x		x	x			
Vertical hook, extra-large (XXL)		x			x	x	x
Number of needles	2						
Needle system	134-35						
Maximum needle strength [Nm]	180						
Maximum sewing thread size	80/3-10/3						
Stitch length, forwards/backwards [mm]	12/12						
Number of adjustable stitch lengths	1	1	1	2	2	1	2
Maximum s.p.m.	3000						2500
Number of stitches on delivery	3000						2500
Maximum stroke height (*Only with reversing mechanism)	20	20	20*	20*	20*	20*	20*
Maximum sewing foot stroke	9						
Positive operating pressure [bar]	6						
Air consumption [NL]			0.7				
Length/width/height [mm]	1090/220/460						1390/ 220/460

Subclasses: 867-	-290020-70-M ECO	-290040-70-M ECO	-290122-70-M	-290322-70-M	-290342-70-M	-290142-70-M	-290342-100-M (Long arm)
Weight/with direct drive [kg]	89						99
Rated voltage [V, Hz]	230, 50/60						
Rated power [W]	375						

11.3 Characteristics

The machine is a flatbed sewing machine for double lockstitches.

General technical characteristics

- Large (L) or extra-large (XXL) vertical hook
- Transport: Bottom feed, needle transport and alternating foot-top feed
- DC drive for all subclasses
- Safety snap-on coupling for preventing any misadjustment of or damage to the hook in the event of a thread jamming
- Automatic wick lubrication for machine and hook with oil level indicator on the column
- Maximum passage with lifted sewing feet: 20 mm
- Remaining thread length with automatic thread cutter approx. 15 mm and 5 mm with short thread cutter

Characteristics of the individual subclasses

Depending on the respective subclass, the product is available

- as a 1-needle or 2-needle machine
- with or without an edge cutter
- with or without an automatic thread cutter
- with or without push buttons on the machine arm and favorite button for quick functions
- a 2-way additional button for the functions of binder differentiation or switching the needle bars can be added for machines equipped with a thread cutter
- possible needle spacing for machines with thread cutter: 3-50 mm
- possible needle spacing for machines without thread cutter: 3-60 mm
- DLC coating of needle bar, presser foot bar and feeding foot bar for oil-reduced operation
- slip coating of throat plate and throat plate slide for reduced friction
- integrated LED sewing lamp depending on class

Subclasses with integrated motor

Subclasses with the **-M** suffix have a direct drive mounted on the arm shaft. The control is built into the motor cover on ECO machines. CLASSIC machines have a separate control under the tabletop.

Subclasses of long arm machines

The subclasses of long arm machines have suffixes of **-70** or **-100**, which specify the length of the arm throat in cm.

11.4 Permissible maximum speeds

To ensure safe operation, optimum sewing results and a long service life of the machine, do NOT exceed the permissible maximum speeds:

1-needle machines with large hook (L)

Subclasses: 867-		-160122	-190020 ECO	-190122	-190125	-190322	-190425	-190426
Stitch length 0-6	Stroke 1-3	3800	3000	3800	3800	3800	3800	3800
	Stroke 4	3100	3000	3100	3100	3100	3100	3100
	Stroke 5	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-4		3000	3000	3000	3000	3000	3000
	Stroke 5		2500	2500	2500	2500	2500	2500
	Stroke 6-9		1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5		2000	2000	2000	2000	2000	2000
	Stroke 6-9		1800	1800	1800	1800	1800	1800

1-needle machines with extra-large hook (XXL)

Subclasses: 867-		-160446	-160146	-190040 ECO	-190142	-190145	-190146	-190342	-190445	-392040 ECO	-392342	-393342	-394342
Stitch length 0-6	Stroke 1-3	3400	3400	3000	3400	3400	3400	3400	3400	3000	3400	3400	3400
	Stroke 4	3100	3100	3000	3100	3100	3100	3100	3100	3000	3100	3100	3100
	Stroke 5	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-4			3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
	Stroke 5			2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9			1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5			2000	2000	2000	2000	2000	2000				
	Stroke 6-9			1800	1800	1800	1800	1800	1800				

2-needle machines with large/extra-large hook (L/XXL)

Subclasses: 867-		-260122	-290020 ECO	-290040 ECO	-290122	-290142	-290322	-290342	-290445	-490322
Stitch length 0-6	Stroke 1-4	3000	3000	3000	3000	3000	3000	3000	3000	3000
	Stroke 5	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-4	3000	3000	3000	3000	3000	3000	3000	3000	3000
	Stroke 5	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800

1 and 2-needle long arm machines

Subclasses: 867-		-190020-70 ECO	-190040-70 ECO	-190122-70	-190322-70	-190342-70	-290020-70 ECO	-290040-70 ECO	-290122-70	-290322-70	-290342-70	-290342-100
Stitch length 0-6	Stroke 1-3	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	2500
	Stroke 4	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2300
	Stroke 5	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-3	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	2500
	Stroke 4	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800
	Stroke 5	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800

1-needle machines with integrated motor and large hook (L)

Subclasses: 867-		-190020-M ECO	-190122-M	-190125-M	-190322-M	-190425-M	-160122-M	-190426-M
Stitch length 0-6	Stroke 1-3	3000	3800	3800	3800	3800	3800	3800
	Stroke 4	3000	3100	3100	3100	3100	3100	3100
	Stroke 5	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-4	3000	3000	3000	3000	3000	3800	3000
	Stroke 5	2500	2500	2500	2500	2500	3100	2500
	Stroke 6-9	1800	1800	1800	1800	1800	2500	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000		2000
	Stroke 6-9	1800	1800	1800	1800	1800		1800

1-needle machines with integrated motor and extra-large hook (XXL)

Subclasses: 867-		-190040-M ECO	-190142-M	-190145-M	-190146-M	-190342-M	-190445-M	-190446-M	-392040-M ECO	-392342-M	-393342-M	-394342-M
		Stitch length 0-6	Stroke 1-3	3000	3400	3400	3400	3400	3400	3400	3000	3400
Stroke 4	3000		3100	3100	3100	3100	3100	3100	3000	3100	3100	3100
Stroke 5	2500		2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Stroke 6-9	1800		1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-4	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
	Stroke 5	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000	2000	2000				
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800				

2-needle machines with integrated motor (-M)

Subclasses: 867-		-290020-M ECO	-290040-M ECO	-290122-M	-290125-M	-290142-M	-290322-M	-290342-M	-290445-M	-490322-M	-260122-M
Stitch length 0-6	Stroke 1-3	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
	Stroke 4	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 5	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
	Stroke 6-9	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
Stitch length 6-9	Stroke 1-4	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Stroke 5	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
	Stroke 6-9	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Stitch length 9-12	Stroke 1-5	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
	Stroke 6-9	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000

1-needle long arm machines with integrated motor (-M)

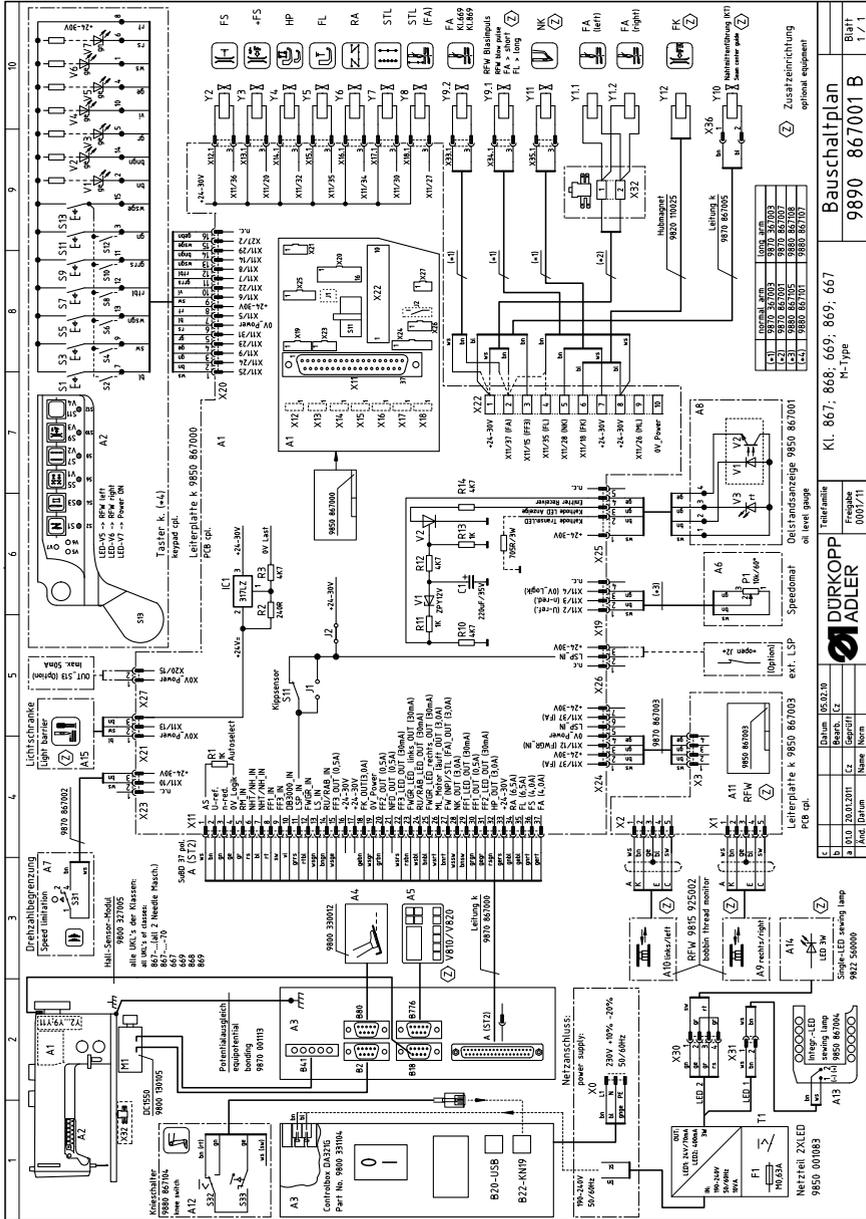
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Stitch length 0-6	Stroke 1-3	3000	3000	3000	3000	3000	3000
	Stroke 4	2800	2800	2800	2800	2800	2800
	Stroke 5	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-3	3000	3000	3000	3000	3000	3000
	Stroke 4	2800	2800	2800	2800	2800	2800
	Stroke 5	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800

2-needle long arm machines with integrated motor (-M)

Subclasses: 867-		-290020-70-M ECO	-290040-70-M ECO	-290122-70-M	-290322-70-M	-290342-70-M	-290142-70-M	-290342-100-M (Long arm)
Stitch length 0-6	Stroke 1-3	3000	3000	3000	3000	3000	3000	2500
	Stroke 4	2800	2800	2800	2800	2800	2800	2300
	Stroke 5	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800
Stitch length 6-9	Stroke 1-3	3000	3000	3000	3000	3000	3000	2500
	Stroke 4	2800	2800	2800	2800	2800	2800	2800
	Stroke 5	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800
Stitch length 9-12	Stroke 1-5	2000	2000	2000	2000	2000	2000	2000
	Stroke 6-9	1800	1800	1800	1800	1800	1800	1800

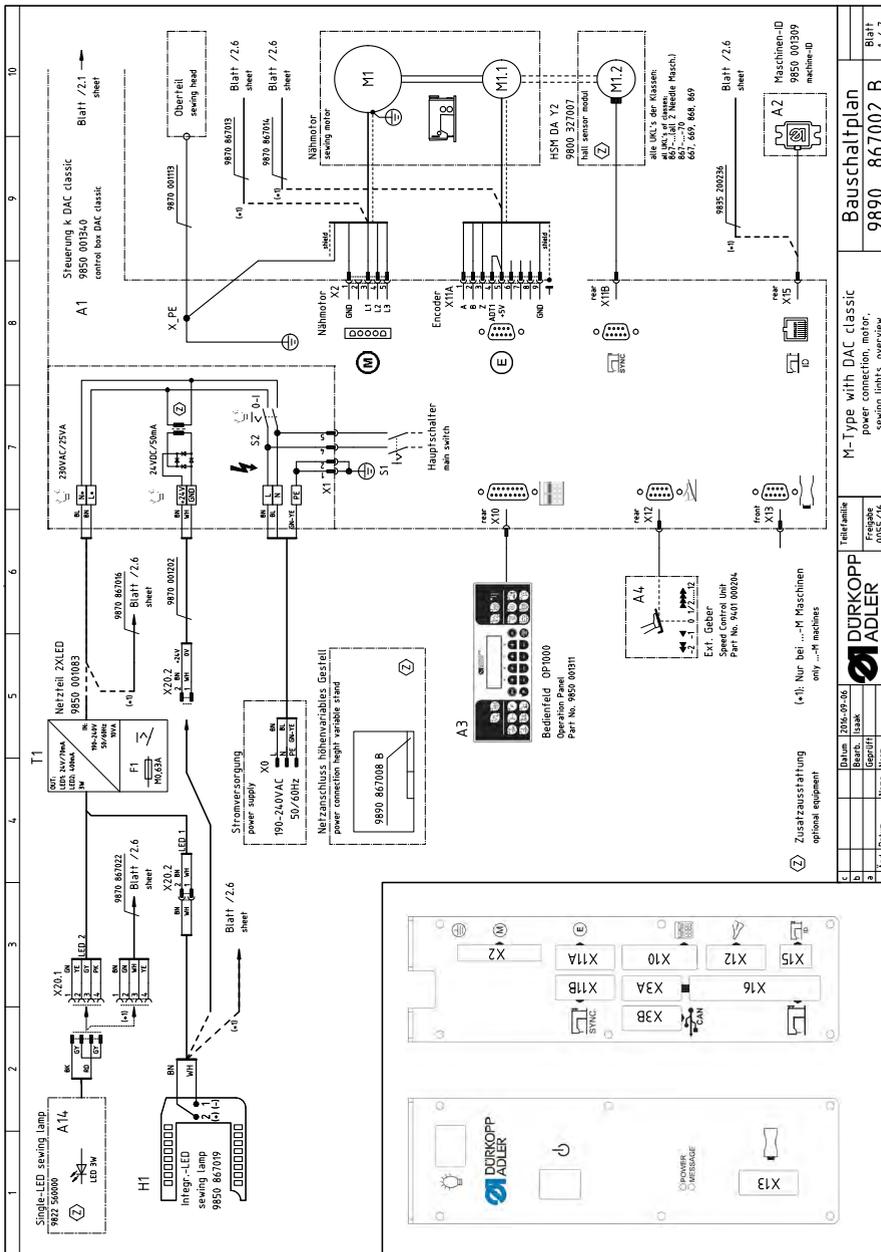
12 Appendix

Fig. 80: Wiring diagram (1)



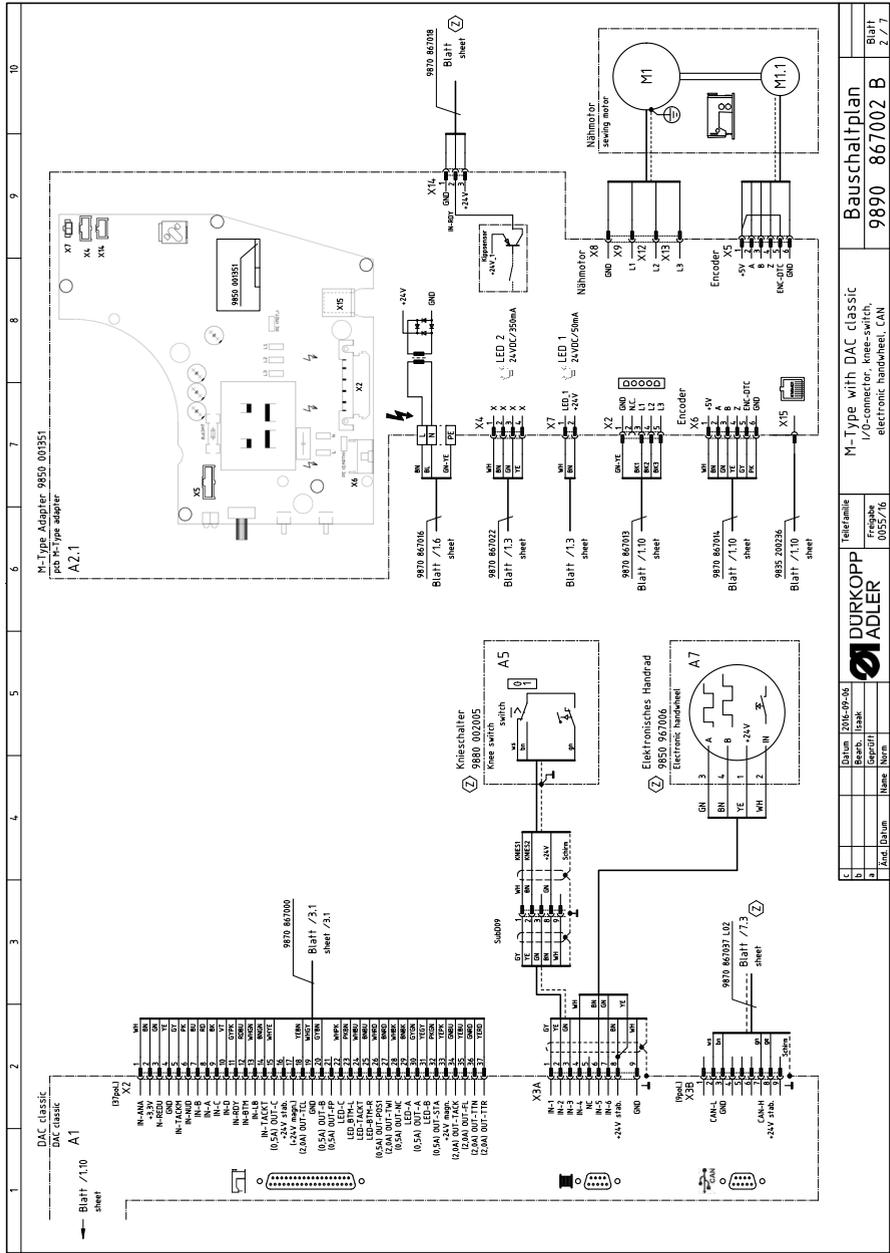
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Kl. 867; 868; 669; 667 M-Type	
Datum 05.02.19 Zeichner CG 010 10.01.2011 Name Norn	Thermieile Teilname Teilgröße 0007/11

Fig. 81: Wiring diagram (2)



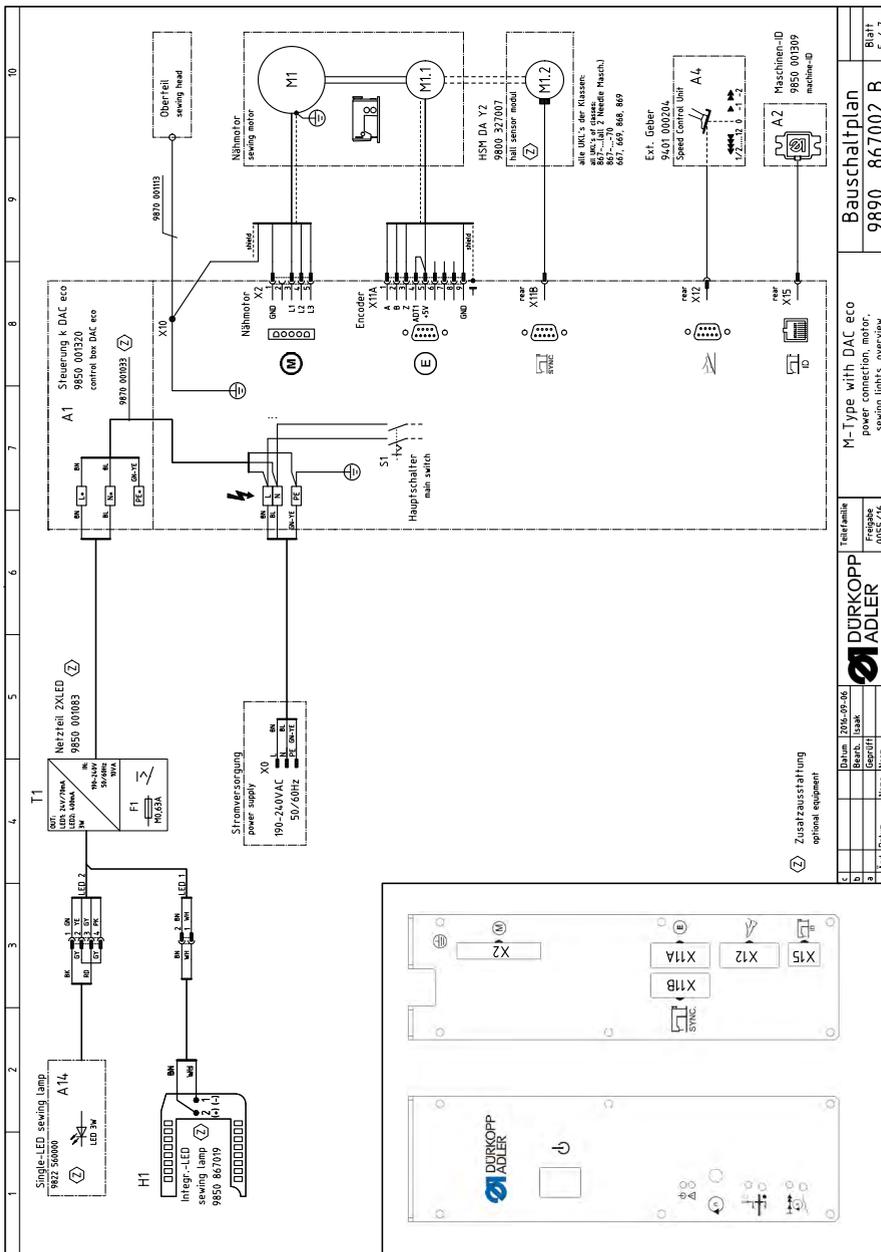
Datum		Blatt		Bauschaltplan																			
1	2	3	4	5	6																		
				9890 867002 B	Blatt 1 / 7.7																		
M-Typen mit DAC classic																							
power connection, motor, sewing lights, overview																							
Telefonliste																							
Fresnappe																							
00557/16																							
i-lit: Nur bei ...H Maschinen																							
only ...H address																							
Zusatzausstattung																							
optional equipment																							
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a	1305-05-06																						
b	1305-05-06																						
c	1305-05-06																						

Fig. 82: Wiring diagram (3)



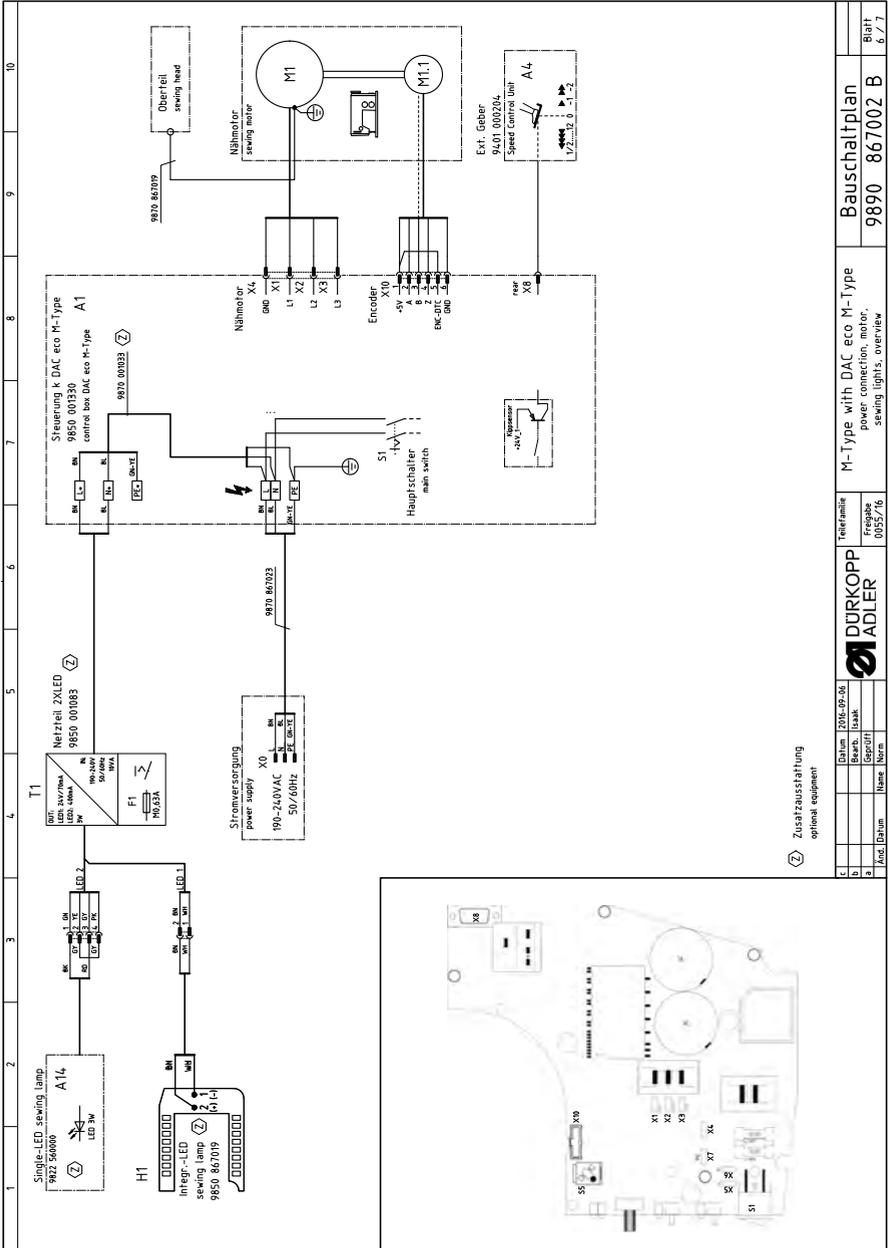
Date: 2016-09-26		Toleranz:		Bauschaltplan	
Bearb: Inack		Freigebe:		9890_867002 B	
Gezeichnet:		00557/b		M-Type with DAC classic	
Inack				I/O-connector, knee-switch,	
				electronic handwheel, CAN	

Fig. 85: Wiring diagram (6)



Blatt 5 / 7									
Bauschaltplan 9890 867002 B									
M-Type with DAC eco power connection, motor, sewing lights, overview									
Terminale	Freigeige 00557/6								
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Bezug	Isak								
Geschrift									
Name	Norm								
Art	Druck								

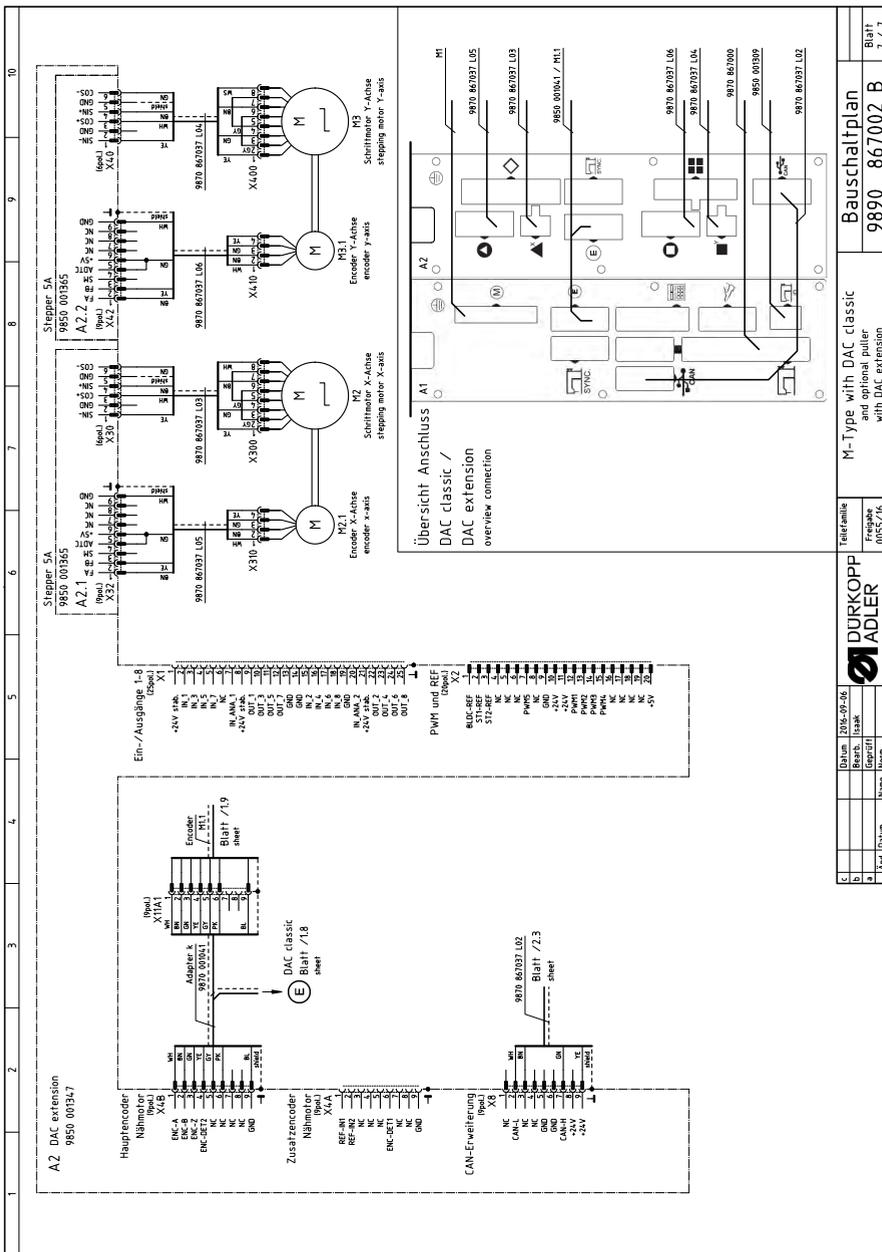
Fig. 86: Wiring diagram (7)



(Z) Zusatzausstattung
optional equipment

c	Datum	Z0L-09-16	Teilenummer	DURKOPP ADLER	M-Type with DAC eco M-Type power connection, motor, sewing lights, overview	Bauschaltplan	Blatt
b	Sucht	Isaiah	Freigeabe			9890 867002 B	8 / 7
a	Gesprift		00557/B				
	Name	Name					
	Face	Urbahn					

Fig. 87: Wiring diagram (8)



Blatt	7 / 7
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Bauschaltplan	9890 86702 B
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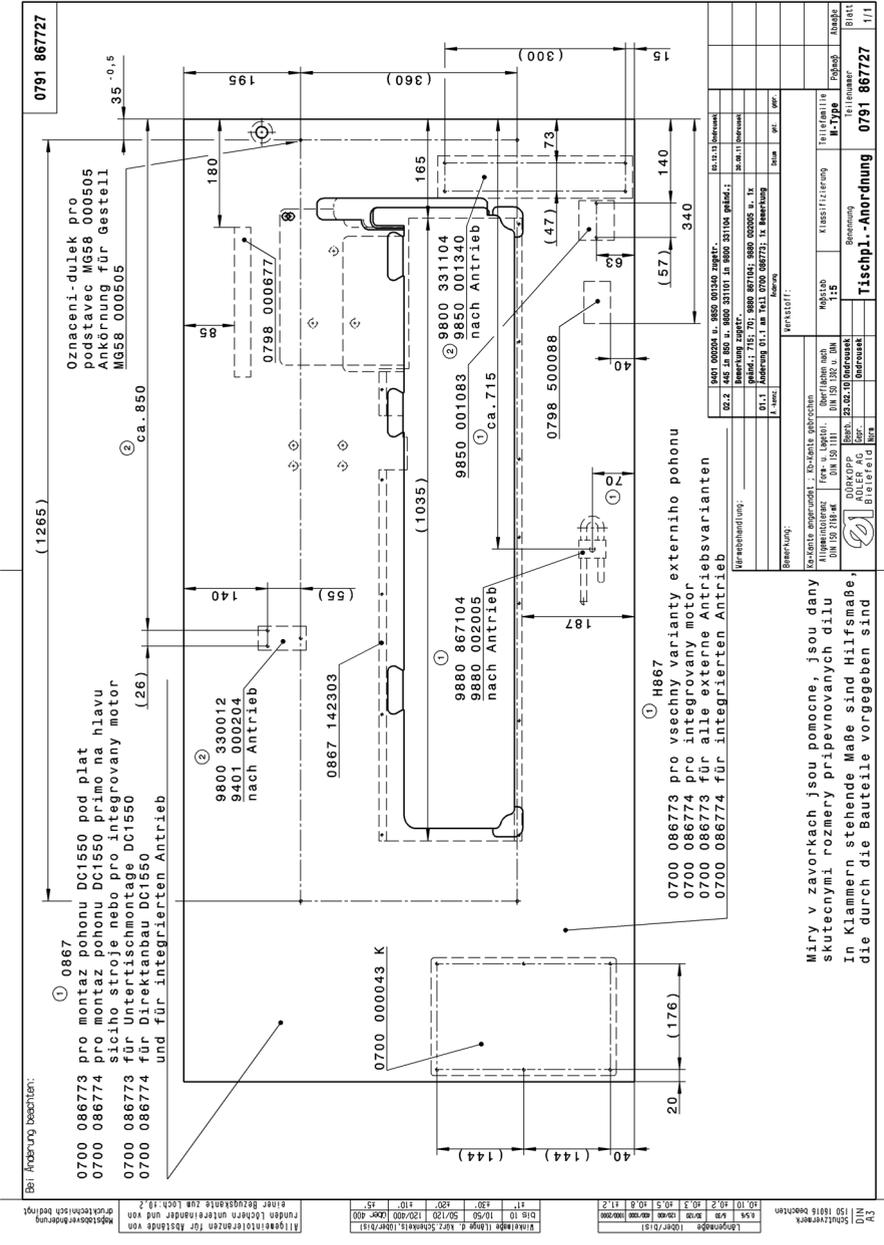
M-Type with DAC classic and optional pulser with DAC extension
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Telefonnr.	0055/16
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Datum	09-09-06
Bearb.	lsak
Geprüft	
Name	

DURKOPP ADLER	
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Fig. 96: Tabletop drawing (9)



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