



841

# Operating Instructions

**IMPORTANT  
READ CAREFULLY BEFORE USE  
KEEP TO CONSULT LATER**

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## 1 About this operating manual

This operating manual for sewing machine 841-100-01 was compiled with the utmost care. It contains information and notes in order to ensure long-term and reliable operation.

Please contact us if you find any discrepancies or have any suggestions  5.13 *Customer Service*, page 36.

Consider this operating manual part of the product and keep it on hand at all times. Be sure to read the manual completely before using the product for the first time. If you pass the product on to someone else, please be sure to give them the operating manual.

### 1.1 Scope of the operating manual

This operating manual describes the set-up and intended use of the sewing machine 841-100-01.

### 1.2 For whom is this operating manual intended?

This operating manual is intended for:

- **Operators:**  
This group is familiar with the machine and has access to the operating manual. Specifically  5 *Operation* is intended for this group.
- **Technicians:**  
This group has the appropriate technical training for performing maintenance on the sewing machine or repairing malfunctions. Specifically  6 *Setup* is intended for technical personnel. A service manual will be provided separately.

With regard to minimum qualification and other requirements to be met by the personnel, please also observe  3 *Safety instructions*.

### 1.3 Representation conventions – symbols and characters

Various information in this operating manual is represented or highlighted by the following characters in order to facilitate easy and quick understanding:



**Correct setting**  
Indicates proper setting.



**Malfunctions**  
Specifies the faults that can occur due to an incorrect setting.

**Steps to be performed when operating the machine (sewing and equipping)****Steps to be performed for servicing, maintenance, and installation****Steps to be performed via the software control panel**

The individual steps are numbered:

1. 1. First step
  2. 2. Second step
  - ...
- The sequence of the steps must always be followed.

- Lists are identified by bullet points.

**Result of performing an operation**

Change to the machine or in the display.

**Important**

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

**Information**

Additional information, e.g. on alternative operating possibilities.

**Order**

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

**References**

Reference to another section in the manual.

**Safety** Important warnings for the machine operator are specially designated. Since safety is of particular importance, hazard symbols, levels of danger and their signal words are described separately in  *3 Safety Information*.

**Orientation** If the figure is unclear, indications of “right” and “left” are always from the operator's point of view.

## 1.4 Other documents

This equipment 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 these components is described in each manufacturer's manual.

## 1.5 Liability

All information in this operating manual was compiled with consideration to the state of the art, and applicable standards and regulations.

The manufacturer cannot be held liable for damages resulting from:

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

### 1.5.1 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 applies even if the packaging is undamaged.

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.

### 1.5.2 Proper use

The Dürkopp Adler 841-100-01 is a sewing unit for automatic sewing of buttonholes on the fronts of shirts and blouses. This sewing material requires needle strengths of 70-100 Nm.

The machine is intended only for use with dry sewing material. The material must not be thicker than 4 mm and not contain any hard objects.

The stitching is created with synthetic threads with a cotton covering or synthetic threads.

The sewing 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 EN 60204-31:1999.

Only authorized/trained personnel may operate the machine.

The manufacturer cannot be held liable for damages resulting from improper use.

### **WARNING**



**Risk of electric shock, crushing and punctures!**

Improper use can result in injury.

Please observe all instructions in the manual.

---

### **ATTENTION**

**Improper use can result in material damage.**

Please observe all instructions in the manual.

---

## 2 Technical Specifications

### 2.1 Sewing unit

The Dürkopp-Adler 841-100-01 is a sewing unit for automatic sewing of buttonholes on the fronts of shirts and blouses.

The sewing unit is made up of independent functional units like infeed, feed and sewing stations and stacker that enable fully overlapping work procedures.

In the infeed unit, the front section (sewing material) is placed along the a stop and fixed on markings using a vacuum.

After the sewing material had been transferred to the feed unit, it is transported to the sewing station in preprogrammed steps (button hole intervals).

During sewing of buttonholes, the feed unit moves synchronous to the feed motion of the sewing machine.

The infeed device is prepared for connection to a vacuum system at the customer's site. A vacuum distributor with a filter can be supplied as an additional device. This enables connection of up to 3 sewing units to a vacuum system provided by the customer. If no vacuum system is available, the vacuum fan needs to be ordered as additional equipment. The vacuum power is sufficient for 3 sewing units.

### 2.2 Characteristics

- CNC double lock stitch button hole indexer
- Mechanical quick adjustment for distance of buttonholes to the fabric edge
- Different buttonholes programmable in a sequence
- Variable sewing speed of 100 to 4000 r.p.m.
- 50 different buttonholes can be saved
- Selection of 2 external freely programmable buttonholes with 600 stitches
- Up to 20 programmable buttonholes can be merged in one sewing sequence
- Saving of 20 sewing sequences
- 100 indexer programs can be saved
- Bundle processing: After a preselectable quantity, the machine stops to empty the stacker
- Selectable bar shapes: crossbar (horizontal, vertical, split); wedged bar; circular bar (radial, horizontal); eyelet bar, simple bar
- Soft start
- Day piece counter
- Hook thread counter
- Pressure monitor
- Pivot head

### 2.3 Declaration of conformity

The machine complies with the European regulations specified in the declaration of conformity or in the installation declaration.



### 2.4 Additional equipment

A flexible system of additional equipment allows the sewing machine to be optimally equipped for any application at low cost.

- = Standard equipment
- = Optional enhancement

Order number	Additional equipment	841-100-01
0540 590014	Needle cooling	○
9822 510026	Halogen tripod sewing light	○
9870 001021	Sewing light attachment set	○
9822 510027	Table clamp for halogen tripod sewing light	○
0797 003031	Pneumatic connection package	○
0841 590024	Vacuum fan with silencer	○
0841 590014	Laser marking light	○

### 2.5 Technical data

#### Noise emission

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

$$L_{pA} = 77,2 \text{ dB(A)}; K_{pA} = 1,15 \text{ dB(A)}.$$

Technical data	841-100-01
Stitch type	Double lock stitch
Hook type	Circumferential horizontal hook
Number of needles	1
Needle system	265

Technical data	841-100-01
Maximal needle thickness [Nm]	100
Buttonhole cutter length [mm]	4
Maximum stitch count [stitches/min]	4000
Number of stitches on delivery [stitches/min]	3600
Presser foot stroke [mm]	12
Maximum sewing material length [mm]	900
Minimum sewing material width [mm]	250
Distance between first and last buttonhole [mm]	650
Buttonhole-front edge distance [mm]	10-22
Operating pressure [bar]	6
Air consumption per cycle at 5.5 bar [NL]	225
Length, width, height [mm]	2100, 940, 1560
Weight [kg]	260
Mains voltage [V]	1x230
Mains frequency [Hz]	50/60
Rated power without vacuum pump [kVA]	0.325



### 3 Safety information

This section 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 this section. Failure to do so can result in serious injury and damage to the machine.



#### 3.1 Basic safety instructions

The machine may be used only as described in this operating manual.

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

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

For the following work, the machine must be disconnected from the power supply using the main switch or by disconnecting the power plug:

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

Missing or faulty spare parts could impair safety and damage the machine. Make sure you only use original replacement parts from the manufacturer.

**Transport** Use a sturdy lifting carriage or forklift for transporting the machine. Raise the machine max. 20 mm and secure it against slipping off.

**Installation** The power cable must have a plug authorized for the country in which the machine is being used. The power plug may only be connected to the power cable by a qualified specialist.

**Operator's obligations** Observe the country specific safety and accident prevention regulations and the legal regulations concerning industrial safety and the protection of the environment.

All warnings and safety signs on the machine must always be in legible condition and may not be removed. Missing or damaged labels should be replaced immediately.

**Requirements to be met by the personnel** The machine may only be set up by qualified technicians.

Maintenance work and repairs may only be carried out by qualified technicians.

Work on electrical equipment may only be carried out by qualified specialists.

Only authorized persons may work on the machine. Every person who works on the machine must have read the operating manual first.

**Operation** Inspect the machine while in use for any externally visible damage. Stop working if you notice any changes to the machine. Report any changes to your supervisor. A damaged machine should no longer be used.

**Safety equipment** Safety equipment should not be removed or deactivated. If this cannot be avoided for a repair operation, the safety equipment must be refitted and put back into service immediately afterwards.

---

### 3.2 Signal words and symbols used in warnings

Warnings in the text are distinguished by color bars. The color scheme is oriented towards the severity of the danger. Signal words indicate the degree of risk:

**Signal words** Signal words and the hazard that they describe:

Signal word	Hazard
DANGER	Will result in serious injury or death.
WARNING	Can result in serious injury or death.
CAUTION	Can result in minor or moderate injury.
ATTENTION	Can result in property damage.

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

Symbol	Type of danger
	General risk
	Risk of electric shock
	Risk of puncturing
	Risk of crushing

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

**DANGER**



**Type and source of risk**  
 Consequences of non-observance  
 Measures for avoiding the risk  
*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 risk**  
**Consequences of non-observance**  
 Measures for avoiding the risk  
*This is what a warning looks like for a hazard that could result in serious injury or even death if ignored.*

### CAUTION



**Type and source of risk**

**Consequences of non-observance**

Measures for avoiding the risk

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

### CAUTION



**Type and source of risk**

Measures for avoiding the risk

*This is a warning note for a hazard that could result in environmental damage if ignored.*

### ATTENTION

**Type and source of risk**

Measures for avoiding the risk

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

## 4 Machine Description

### 4.1 Sewing unit

Figure 1: Sewing unit



(1) - Sewing machine upper part

(2) - Infeed device

(3) - Stacker

(4) - Knee lever

(5) - Vacuum fan (additional equipment)

(6) - Control panel

### 4.2 Control panel

The controller is programmed via the control panel and the functions set for the relevant seam. This is done by pressing the relevant buttons or by changing the parameters.

The parameters and the relevant values are shown on the display. To avoid preset parameters being altered unintentionally, operation of the control panel is subdivided into several levels (operator level, technician level, setter level).

Operators have direct access to their level. Other levels can only be accessed after entering a code.

Figure 2: Control panel



Key	Function
	<ul style="list-style-type: none"> <li>• Open/close stacker.</li> <li>If no input field is activated:</li> <li>• Change to higher-level menu.</li> </ul>
	<ul style="list-style-type: none"> <li>If no input field is activated:</li> <li>• Step-for-step mode for repairs.</li> </ul>
	<ul style="list-style-type: none"> <li>If an input field is activated:</li> <li>• Change between the tenths, ones or tens position.</li> </ul>
	<ul style="list-style-type: none"> <li>• Change between the rows in the menus. The selected row is highlighted with a dark background.</li> <li>If an input field is activated:</li> <li>• Increment/reduce the value of the relevant position by one or, in case of functions with several selection options, change between parameters e.g. between <i>Soft start switched on</i> and <i>Soft start switched off</i>.</li> </ul>
	<ul style="list-style-type: none"> <li>• Activate the input field.</li> <li>If an input field is activated:</li> <li>• The set value is transferred.</li> </ul>
	<ul style="list-style-type: none"> <li>• Change from a submenu back to sewing mode.</li> <li>• Repair thread break – repair mode, the basket moves to its end position, lifts up and releases the material.</li> <li>If an input field is activated:</li> <li>• The input is canceled. The value is retained.</li> </ul>

Key	Function
	<ul style="list-style-type: none"> <li>Controller switches from sewing mode to programming mode. The buttonhole parameters may be modified.</li> </ul>
	<ul style="list-style-type: none"> <li>Controller switches from sewing mode or programming mode to index programming mode.</li> </ul>
	<ul style="list-style-type: none"> <li>Change mode: Press x1: Controller switches to manual sewing mode. Press x2: Controller switches to technician mode. Technician mode can only be activated after entering a code. Basic machine parameters can be set here and diagnosis and setting programs opened up.</li> </ul>
	<ul style="list-style-type: none"> <li>Safe stop: Feed device moves back, cutter and needle are moved apart e.g. for inserting the thread.</li> </ul>
	<ul style="list-style-type: none"> <li>Fast stop: Interrupts sewing</li> </ul>

### Changing the parameters/numerical values

- 

 1. Select the rows where the value is located using the buttons.
2. Press the *OK* button.
  -  Cursor flashes below a numerical value position.
- 

 3. Switch between the positions using the buttons.
- 

 4. Increase or reduce the value using the buttons.  
 In case of parameters that cannot be changed arbitrarily, another possible parameter value will appear after the buttons have been pressed.
5. Press the *OK* button.
  -  The set value is transferred.
6. To prevent the set value being accepted, press the *ESC* button.
  -  The original set value is restored again.

### 4.3 Software description

Symbol	Parameters	Meaning
	Index program N1	<ul style="list-style-type: none"> <li>• Selection of indexer program to be sewn</li> <li>• Program numbers 1 to 99.</li> <li>• One or more buttonholes are assigned to each indexer program</li> </ul>
	Counter N6	<ul style="list-style-type: none"> <li>• Counts the number of buttonhole plackets sewn</li> <li>• By pressing the <i>OK</i> button twice, the counter is reset to zero</li> </ul>
	U-thread N7	<ul style="list-style-type: none"> <li>• Shows the current hook thread status (if active) and selects the submenu for changing the initial value and for switching the hook thread counter on and off. Either the buttonhole plackets or the buttonholes are counted.</li> <li>• Other parameters in the submenu: Set value: Resets the value of the hook thread counter to its presetting Value: Number of possible buttonholes per bobbin Counter on/off Placket: on/off (counts the plackets instead of the individual buttonholes)</li> </ul>
	Thread tension N2	<ul style="list-style-type: none"> <li>• Selects the submenu for changing the thread tension values</li> </ul>
	Cutting length N3	<ul style="list-style-type: none"> <li>• Selects the cutting length of the buttonhole to be sewn from 6 - 22 or 6 - 35 mm (depends on the buttonhole number)</li> </ul>
	Soft start	<ul style="list-style-type: none"> <li>• Switches soft start on/off</li> </ul>

## 5 Operation

### 5.1 Switching the unit on and off

For the sewing unit to be ready for operation, the infeed unit must be moved to reference position after being switched on.

The reference run is necessary in order to obtain a defined starting position for the infeed unit.

#### WARNING



#### Risk of injury

Crushing injuries from moving parts.

During the reference run, do not reach into the movement area of the infeed unit.

Figure 3: Switching the unit on and off



(1) - Start button

(2) - Main switch

#### Switching on the machine



1. Switch on the main switch (2)

↪ The controller loads the machine program. The operator is requested to start the reference run with the message <==== REF.

2. Press the start button (1).

↪ The feed unit moves to the left stop position.  
The display switches to the main screen.

#### Switch off the machine.



1. Switch off the main switch (2)

## 5.2 Threading in the needle thread

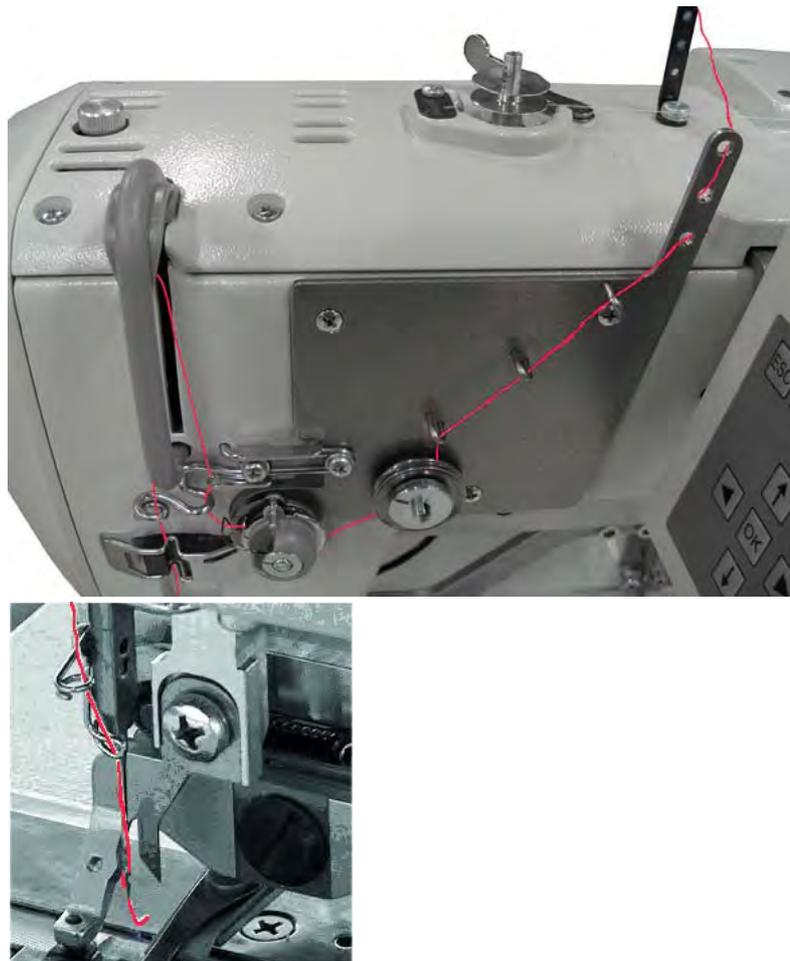
### CAUTION



**Risk of injury from the point of the needle and moving parts**

Only thread the needle thread with the sewing machine switched off.

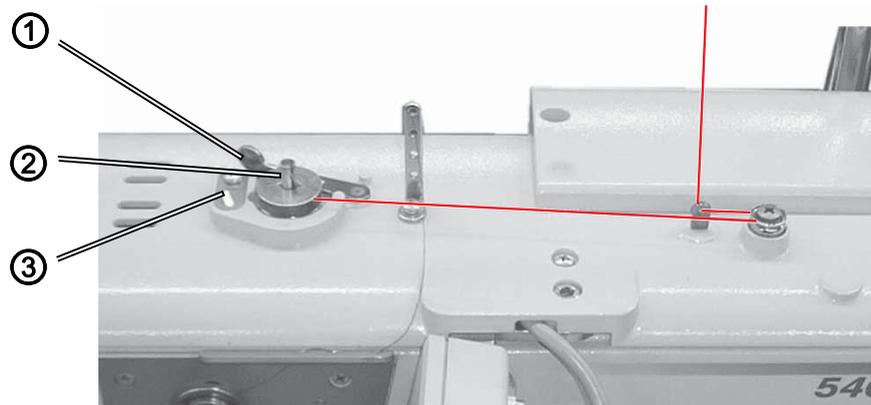
Figure 4: Threading in the needle thread



1. Fit the thread reels on the thread reel holder.
2. Press the *Safe Stop* key.
3. Thread needle thread.

### 5.3 Winding the hook thread

Figure 5: Threading the hook thread



(1) - Bobbin lever  
(2) - Winder

(3) - Thread clamp



1. Fit the thread reel on the thread reel holder.
2. Fit the bobbin on the bobbin winder (2).
3. Thread the hook thread as shown in the following figure.
4. Wind the hook thread clockwise approx. 5 x around the bobbin core.
5. Pivot the bobbin lever (1) towards the bobbin so it engages.
- ↳ The hook thread is automatically wound onto the bobbin. The bobbin lever (1) finishes winding as soon as the bobbin is full.
6. Tear off the hook thread at the thread clamp (3).

## 5.4 Changing the bobbin

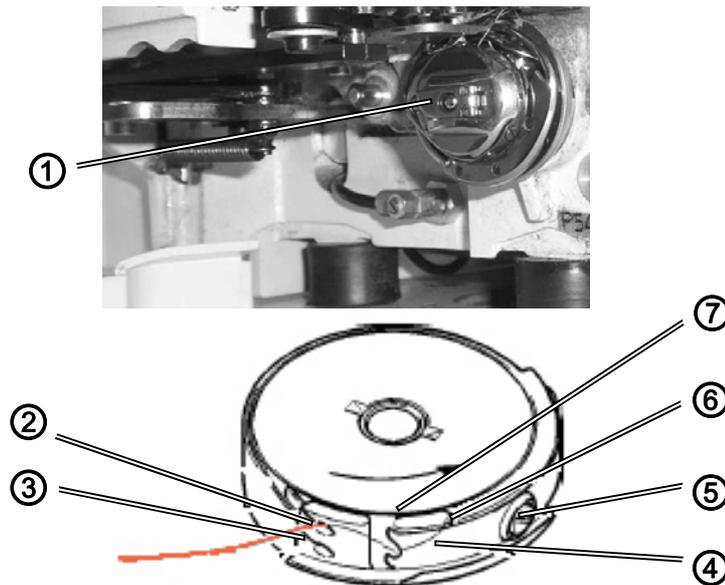
### CAUTION



**Risk of injury from the point of the needle and moving parts**

Only change the bobbin when the sewing unit is switched off.

Figure 6: Changing the bobbin



(1) - Hanger  
(2) - Slot  
(3) - Slot  
(4) - Spring

(5) - Screw  
(6) - Slot  
(7) - Slot

### Removing an empty bobbin



1. Open the hook compartment cover.
2. Flip the hook up (1).
3. Remove the bobbin housing upper section with the bobbin.
4. Remove the empty bobbin from the bobbin housing upper section.

### Threading the bobbin



1. Insert the full bobbin into the bobbin housing upper section. The bobbin must be turned anti-clockwise when pulled off.
2. Guide the hook thread through the slot (6) under the spring (4) to the rear of the bobbin housing upper section, grasp the hook thread with one finger and guide it back under the spring (4) again through the slot (7).
3. Depending on the desired buttonhole, the hook thread must be guided through the slot (2) for a puri buttonhole (more thread is pulled forward

over the rear of the hook) or through slot (3) for a whip-stitch buttonhole (less thread).

4. Cut off the hook thread you have inserted on the opposite side of the hook using the cutter.

### Setting the hook thread tension



1. Turn screw (5) so that the bobbin housing is lowered slowly due to its own weight while holding the end of the thread steady.  
With whip-stitch buttonholes, greater tension is required.

### Inserting the bobbin housing upper section



1. Insert the bobbin case with the bobbin.  
Important: Make sure the hook (1) engages audibly.
2. Close the hook compartment cover.



### Resetting the counter

If you change a bobbin that is not entirely empty, when changing the color for example, the bobbin counter can be reset to its initial value. This is described in the  4.3 *Software description*, page 18 *U-thread* menu.

## 5.5 Changing the needle

### CAUTION



**Risk of injury from the point of the needle and moving parts**

Change the needle only while the *Safe stop* key is pressed.

### ATTENTION

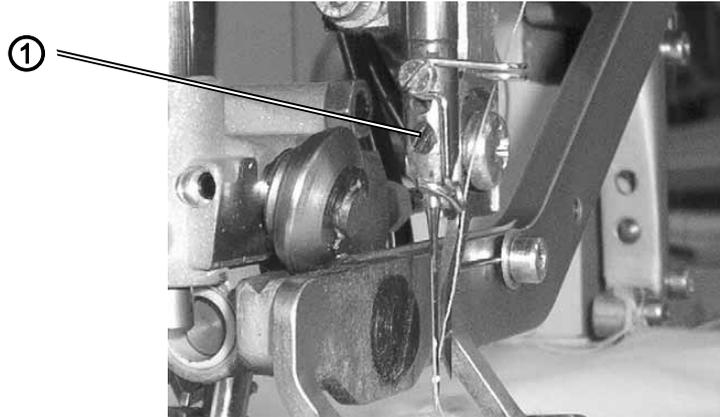
**Damage to the hook point or needle possible due to incorrect distance from the hook.**

The distance between the hook and the needle only needs to be inspected if the new needle has a different size.

After changing the needle size, adjust the hook distance if necessary.

For more information see  *Service manual*.

Figure 7: Changing the needle



(1) - Screw



1. Loosen the screw (1).
2. Pull the needle out towards the bottom.
3. Insert the new needle and push it right to the top.
4. Align the needle so that its scarf/groove is turned away from the cutter.
5. Tighten the screw (1).

## 5.6 Setting the sewing basket pressure



The sewing basket pressure is set to the maximum value. This pressure only needs to be reduced for sensitive sewing materials.

Figure 8: Setting the sewing basket pressure



(1) - Screw



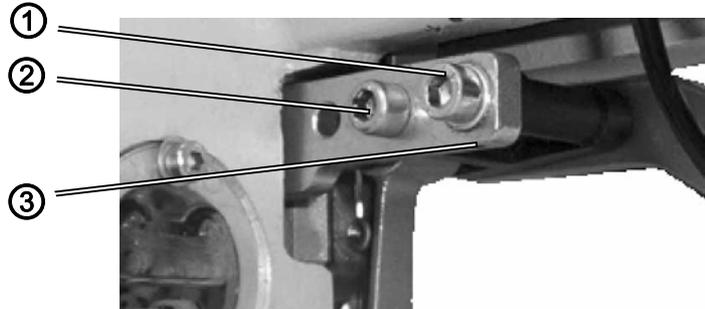
1. Set the sewing basket pressure at the screw (1).
  - **To increase pressure:** Turn screw clockwise.
  - **To reduce pressure:** Turn screw counterclockwise.

## 5.7 Setting the sewing basket fan height



A sewing basket fan height of 12 mm is set in the factory. The sewing basket fan height only needs to be changed for certain types of sewing material.

Figure 9: Setting the sewing basket fan height



(1) - Screw  
(2) - Screw

(3) - Setscrew



1. Switch off the machine.
2. Undo screws (1) and (2).
3. **To increase the sewing basket fan height:** Turn the threaded pin (3) clockwise.
4. **To reduce the sewing basket fan height:** Turn the threaded pin (3) counterclockwise.
5. Tighten screws (1) and (2).
6. Switch the machine on and check the setting.

## 5.8 Changing the cutter

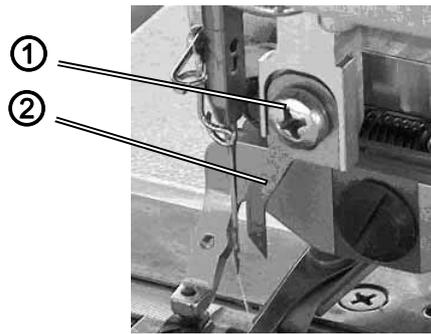
### CAUTION



**Risk of injury from the point of the needle and moving parts**

Change or set the cutter only while the *Safe stop* key is pressed.

Figure 10: Changing the cutter



(1) - Screw

(2) Cutter



1. Press the *Safe Stop* key.
2. Loosen the screw (2).
3. Remove the cutter (3).
4. Insert the new cutter and push it right to the top.
5. Tighten the screw (1).



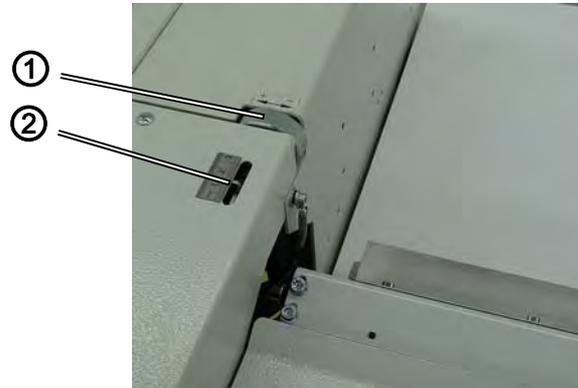
**Important**

If the cut does not run central in the buttonhole or is not parallel to the buttonhole seams, the cutter will have to be realigned. For more information see  *Service manual*.

## 5.9 Setting the buttonhole distance to the front edge

The distance of the buttonholes to the lay edge can be within a range between 10 and 20 mm.

Figure 11: Setting the buttonhole distance



(1) - Adjusting screw

(2) - Pointer

- Using the setting wheel (1) set the distance of the buttonholes to the lay edge. The pointer (2) can be used as orientation for how the distance is set.

## 5.10 Marking the lay points

- Mark the lay points on the infed unit for the sewing material according to the needle e.g. with a sticker.

## 5.11 Sewing

### 5.11.1 Switching on the machine

#### CAUTION



**Risk of injury from the point of the needle and moving parts**

During the reference run, do not reach into the movement area of the infed unit.



- Switch on the main switch (1)
  - The controller loads the machine program. The operator is requested to start the reference run with the message `<==== REF.`
- Press the start button (2).
  - The infed unit moves to left end position. The display switches to the main screen.

### 5.11.2 Checking the buttonhole setting



1. Use the buttons to select the index program.
2. Press the *F* key once to switch to manual sewing mode and sew a buttonhole or to check the settings for the current buttonhole.
3. Insert the material to be sewn.
4. When sewing the first buttonhole: Hold the end of the thread.
5. Press the *S* key.
- ↳ Sewing process starts.
6. Check the buttonhole settings and adjust if necessary.



### 5.11.3 Sewing the buttonhole placket

1. Place the sewing material at the infeed unit limit stop and at the marking.
2. Press the knee button.
- ↳ Sewing process starts.
3. Insert more sewing material.
4. Press the knee button.
- ↳ The sewing process starts automatically as soon as the first sewing process is completed.

### 5.11.4 Continuing to sew after a thread break

After detecting a thread break, the machine is stopped. The cutter is switched off, the needle moved up, the sewing basket remains lowered.

↳ The *thread break* message is shown.

1. Press the *Safe Stop* key.
2. Thread in the hook thread or needle thread and check this.
- ↳ There are 3 ways to continue sewing after a thread break. This is set at technician level.  
To do this read the  *service instructions* or follow the instructions on the control panel.

### Stitching over (mode A)

The buttonhole is entirely sewn over.



1. Press the key to confirm stitching over.
  - Press the *Safe Stop* key.
  - Insert the needle thread, see ( 5.2 *Threading in the needle thread*, page 20).
  - Release the *Safe Stop* key.
  - Press the *OK* key.
2. Press the key if sewing over is not required.
  - ↳ The *Reinsert* message is shown.
  - Press the key if sewing material is to be reinserted.  
The buttonhole will need to be opened up and re-sewn.



- Press the *OK* key.
- Remove the material to be sewn
- Press the key if sewing material is not to be reinserted.
- Confirm sewing over, cf. Step 1.



### Jumping from buttonhole to buttonhole (mode B)

1. Press the *Safe Stop* key.
2. Insert the needle thread, see ( 5.2 *Threading in the needle thread*, page 20).
3. Release the *Safe Stop* key.
4. Using the buttons, jump from buttonhole to buttonhole.
5. Press the *OK* key to start the sewing process.
6. Press the *ESC* key to cancel the sewing process.
- ↳ Sewing material is de-stacked.



### Continuing sewing (C mode)

Sewing of the buttonhole will continue after the detected thread break.

1. Press the *Safe Stop* key.
2. Insert the needle thread, see ( 5.2 *Threading in the needle thread*, page 20).
3. Release the *Safe Stop* key.
- ↳ Sewing basket moves with the material to the detected thread break point.
4. Using the keys, move towards the position where sewing is to be continued.
5. Press the *OK* key.
- ↳ Sewing process starts.
6. Press the *ESC* key to cancel the sewing process.
- ↳ Sewing material is de-stacked.



#### 5.11.5 Sewing material inspection indicator

Depending on the material and button distance, the light barrier may show the message *Correct sewing material inspection?*.

1. Check the sewing material.
2. Press the key to correct the sewing material.
- ↳ The *Remove sewing material* message is shown.
  - Press the *OK* key. Remove the sewing material.
3. Press the key to continue sewing without any adjustment.
  - Press the *OK* key.



### 5.11.6 Removing the sewing material from the stacker

1. Press the key.
  - ↳ Stacker opens.
2. Remove the sewing material.
3. Press the key.
  - ↳ Stacker closes.

### 5.11.7 Working with dongle data

Buttonhole data, sequence data and machine data can be loaded using a data dongle and stored. For more information see  *Service manual*.

## 5.12 Maintenance

This section describes simple maintenance work that needs to be carried out on a regular basis. This maintenance work can be carried out by the operating personnel.

### 5.12.1 Cleaning

Lint and thread remnants should be removed after every 8 hours of operation using a compressed air gun or a brush. In the case of very fluffy material to be sewn, the machine must be cleaned more frequently.

#### WARNING



#### Risk of injury

Switch off the machine at the main power switch before cleaning the machine.

Flying particles can get in the eyes, causing injury. Hold the compressed-air pistol so that particles do not fly toward persons.

Make sure no particles fly into the oil pan.

#### ATTENTION

#### Damage to the paintwork due to solvent-based cleaners.

Solvent-based cleaners will damage paintwork.

Only use solvent-free substances for cleaning.

#### Points that need to be cleaned particularly thoroughly:

- Underside of throat plate
- Sewing basket

- Area under hook
- Bobbin housing
- Thread cutter



### Cleaning steps

1. Remove any dust and thread remains using a compressed air gun or a brush.
2. Clean the vacuum pump (additional equipment).

### 5.12.2 Lubrication

#### WARNING



#### Risk of injuries due to contact with oil.

Contact with oil can cause irritation, rashes, allergies or skin injuries.

ALWAYS avoid long-term contact with oil.

ALWAYS thoroughly wash the affected areas if contact with oil occurs.

#### ATTENTION



#### Risk of environmental damage from oil.

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

Carefully collect waste oil and dispose of the waste oil and oil-contaminated machine parts in the legally prescribed manner.

#### ATTENTION

#### Machine damage possible due to incorrect oil.

An incorrect oil type can cause damage to the machine.

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

#### Required oil:

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

- Viscosity at 40 °C: 10 mm<sup>2</sup>/s – ISO VG10
- Flash point: 150 °C

DA 10 can be obtained under the following part number at DA sales offices:

- 9047 000011 – 250 ml
- 9047 000012 – 1 l
- 9047 000013 – 2 l
- 9047 000014 – 5 l

### 5.12.3 Lubrication of the upper part of the machine

The central oil lubrication system supplies all bearing positions with oil from the reservoir.

#### ATTENTION

##### Machine damage due to incorrect oil level

Too little or too much oil can result in damages to the machine.

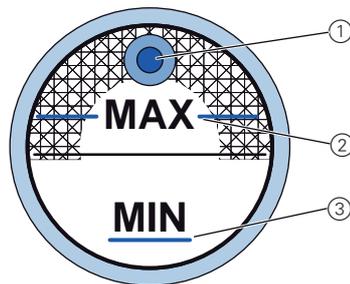
Check the oil level every day and top up the oil, if necessary.



##### Correct setting

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

Figure 12: Lubrication of the upper part of the machine



(1) - Refill opening

(2) - Maximum level marking

(3) - Minimum level marking



1. Check the oil level indicator every day.

If the oil level is below the minimum level marking (3):

Pour oil through the refill opening (1) but no higher than the maximum level marking (2).

### 5.12.4 Pneumatic system

#### Setting operating pressure

##### Correct setting



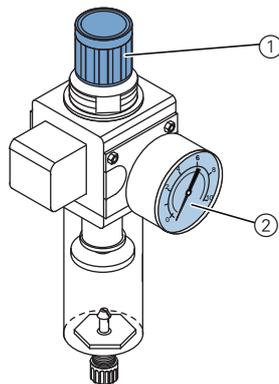
The operating pressure is 6 bar.

Check the pressure on the pressure indicator every day. The pressure cannot deviate by more than 1 bar.

**ATTENTION****Machine damage due to incorrect pressure**

Incorrect pressure can result in damage to the machine. Make sure that the machine is only used when the operating pressure is set correctly.

Figure 13: Setting operating pressure



(1) - Adjustment knob (2) - Pressure indicator

**Setting steps**

1. Pull the adjustment knob (1) up.
2. Turn the turning handle until the pressure indicator (2) indicates 6 bar:
  - **clockwise**: to increase pressure
  - **counterclockwise**: to reduce pressure
3. Push the adjustment knob (1) down.

**Draining the water condensation**

Water condensation may accumulate in the water separator of the pressure controller.

**Correct setting**

Water condensation cannot rise up to the filter element (1).  
Check the water level in the water separator on a daily basis.

**WARNING****Risk of injury**

Switch off the machine at the main power switch and disconnect it from the pneumatic network before you drain the water from the water separator.

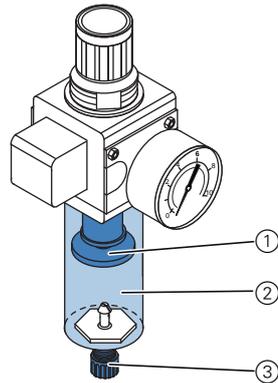
**ATTENTION**

**Machine damage due to too much water**

Too much water can result in damage to the machine.

Check the water level every day and drain water, if necessary.

Figure 14: Draining the water condensation



(1) - Filter element

(2) - Water separator

(3) - Drain screw



**Maintenance steps**

1. Place the collection tray under the drain screw (3).
2. Unscrew the drain screw (3) completely.
3. Allow water to drain into the collection tray.
4. Tighten the drain screw (3).

**Cleaning the filter element**

**WARNING**



**Risk of injury**

Switch off the machine at the main power switch and disconnect it from the pneumatic network before you clean the filter element.

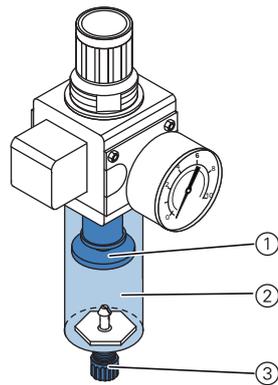
**ATTENTION**

**Damage to the paintwork due to solvent-based cleaners.**

Solvent-based cleaners damage the filter.

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

Figure 15: Cleaning the filter element



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

(3) - Drain screw



### Cleaning steps

1. Drain the water condensation ( page 33).
2. Unscrew the water separator (2).
3. Unscrew the filter element (1).
4. Blow out the filter element (1) using a compressed air gun.
5. Wash out the filter tray using benzine.
6. Tighten the filter element (1).
7. Tighten the water separator (2).
8. Tighten the drain screw (3).

### 5.12.5 Checking the toothed belt

#### WARNING



#### Risk of injury

Crushing injuries from moving parts.

Switch off the machine before checking the condition of the toothed belt.

The condition of the toothed belt must be checked once a month.

A damaged toothed belt must be replaced immediately.



#### Correct setting



- The toothed belt exhibits no cracks or fragile areas.
- When pressed with a finger, the toothed belt must yield no more than 10 mm.

### **5.13 Customer Service**

Contact for repairs if machine is damaged:

Dürkopp Adler AG

Potsdamer Str. 190

33719 Bielefeld, Germany

Tel. +49 (0) 180 5 383 756

Fax +49 (0) 521 925 2594

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

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

## 6 Settings via the software



### 6.1 Indexer program parameters

Symbol	Parameters	Values	Meaning
	Indexer program (Index prg.)	1 ... 99	<ul style="list-style-type: none"> <li>• Selection of indexer program to be sewn</li> </ul>
	Sequence	On/Off	<ul style="list-style-type: none"> <li>• Asks whether the same buttonhole should be always be sewn or a selection of several buttonholes.</li> <li>• On: several buttonholes are sewn</li> <li>• Off: a single buttonhole is sewn</li> </ul>
	Buttonhole program number (Buttonhole no.)	1 ... 52	<ul style="list-style-type: none"> <li>• Selection of the relevant buttonhole program number (change of parameters for the buttonhole to be sewn during buttonhole programming)</li> </ul>
	Blouse	On/Off	<ul style="list-style-type: none"> <li>• On: Womens' blouse With a womens' blouse the lay mark is on the left of the infeed device.</li> <li>• off: Mens' shirt With a mens' shirt the lay mark is on the right.</li> </ul>
	Number (No.)	1 ... 20	<ul style="list-style-type: none"> <li>• Number of buttonholes to be sewn in this indexer program</li> </ul>
	Edge distance (Edge dist.)	0.0 ... 620.0	<ul style="list-style-type: none"> <li>• This parameter defines the distance in millimeters from the first buttonhole to the lay point. If the value 0.0 is input here, the first buttonhole will be sewn without the feed unit transporting the sewing material (for shirts only). If another value is input here, the sewing material will be transported by this value before the first buttonhole is sewn.</li> </ul>
	Uniform (unif.)	On/Off	<p>This parameter sets the type of distances between the buttonholes.</p> <ul style="list-style-type: none"> <li>• On: Uniform arrangement Since the distance between the buttonholes is always the same with a uniform arrangement of buttonholes, only one value needs to be entered with the following parameter.</li> <li>• off: Non-uniform arrangement In case of a non-uniform arrangement, all distances between the buttonholes need to be entered.</li> </ul>
	Distance (Dist.)	0.0 ... 620.0	<p>Depending on the "uniform" parameter setting, the distance between the buttonholes may be set here.</p> <ul style="list-style-type: none"> <li>• Uniform arrangement This parameter sets the distance in millimeters between the buttonholes.</li> <li>• Non-uniform arrangement This parameter (dist.1) sets the distance between the first and second buttonhole. This parameter (dist.2) sets the distance between the second and third buttonhole. The number of parameters depends on the number of buttonholes to be sewn in this indexer program.</li> </ul>

F

## 6.2 Manual sewing mode parameters

Symbol	Parameters	Meaning
	Basket	<ul style="list-style-type: none"> <li>Using the <i>OK</i> button, the sewing basket can be vented and lowered.</li> <li>The same function is applied by pressing the <i>P</i> button.</li> </ul>
Start	Start	<ul style="list-style-type: none"> <li>Using the <i>OK</i> button, the sewing process can be started. The sewing basket is lowered and the currently selected buttonhole is sewn.</li> <li>The same function is applied by pressing the <i>S</i> button.</li> </ul>

## 6.3 Setting the needle thread tension



1. Switch the machine on and reference it.
2. Select the *thread tension* menu item.
3. Select the value for *buttonhole seam* and *tacking* ( 6.5 *Programming mode parameters*, page 41 and  6.6 *Selectable tacking types*, page 43).
4. Enter value and confirm by pressing *OK*.

### Increasing the needle thread tension in the second third of the bobbin

The needle thread tension can be increased as a percentage up to five times to obtain a constant sewing result on the bobbin as the amount of remaining thread decreases.



1. Select the *thread tension* menu item and scroll right down to the bottom.
2. Enter a value for *counter 1* for buttonhole counting.



3. Enter an increase in needle thread tension as a percentage, see table in the example below.
4. For further increases in needle thread tension, start again at step 1 for counters 2 to 5.

### Example for increasing the needle thread tension to guarantee the quality for the buttonhole in the second third of the bobbin:

1. In the *U-thread* menu 120 buttonholes might be set, the counter needs to be activated, i.e. be set to *on* – The placket item must be deactivated i.e. set to *off*.
2. After 70 buttonholes have been sewn, the machine should increase the overall thread tension (zigzag/tacking) by 2%.
3. After 90 and 100 buttonholes have been sewn, it should be increased by 1% again.

Overall the needle thread tension can be increased up to 5 times. Individual adjustments will have to be made for how often the needle thread tension is increased and after which steps in order to obtain a good quality buttonhole.

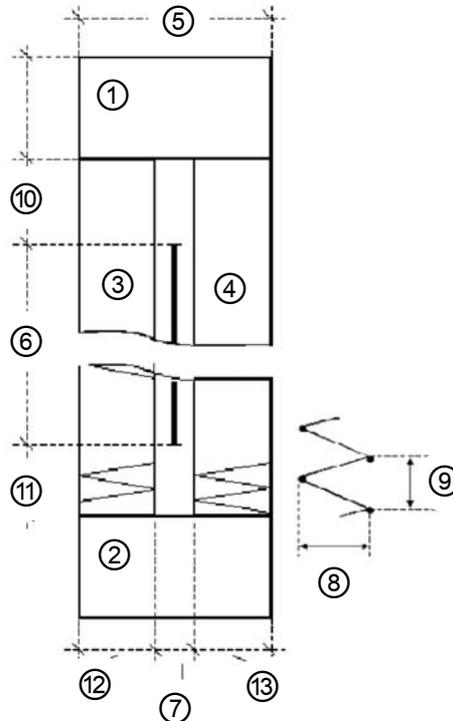
**Table for example of increasing the needle thread tension:**

Symbol	Combination	value
	Counter 1: TT+_1 [%]	70 [%] 2
	Counter 2: TT+_2 [%]	90 [%] 1
	Counter 3: TT+_3 [%]	100 [%] 1
	Counter 4: TT+_4 [%]	000 [%] 0
	Counter 5: TT+_5 [%]	000 [%] 0

## 6.4 Setting the buttonhole program

### 6.4.1 Buttonhole setup

Figure 16: Buttonhole setup



Pos.	Parameters	Meaning
1	First tacking	• First tacking to be sewn after the forward seam
2	End bar tack	• Final tacking after the return seam
3	Forward seam	• Buttonhole seam from start of sewing to first tacking
4	Return seam	• Buttonhole seam between first tacking and final tacking
5	Buttonhole width	• Distance between the outer stitches of a buttonhole.
-	Cutter length	• Length of cutting edge of cutter in mm
6	Cutting length	• Length of buttonhole to be cut in mm (= seam length)
7	Width of intermediate fabric	• Distance between the inner stitches of the forward and return seam
8	Overstitch	• Buttonhole seam width
9	Stitch distance	• Distance of a double stitch in y-direction
10	Length before cut	• Distance between first tacking and cut
11	Length after cut	• Distance between final tacking and cut
12	-	• Buttonhole seam width left
13	-	• Buttonhole seam width right

### 6.4.2 Principles

Parameters	Meaning
Forward and return seam	<ul style="list-style-type: none"> <li>The return seam is symmetrical to the forward seam using the cutting length as an axis of symmetry.</li> </ul>
Buttonhole width = tacking width	<ul style="list-style-type: none"> <li>The buttonhole width setting automatically specifies the tacking width. The tacking width can be adjusted via the parameters <i>offset l</i> and <i>offset r</i> in the relevant tacking menu.</li> </ul>
Tacking	<ul style="list-style-type: none"> <li>The final tacking length is the first tacking length if both tackings are identical. The tacking length is set for both in the menu <i>First tacking</i>.</li> </ul>
Buttonhole length	<ul style="list-style-type: none"> <li>The total buttonhole length is determined by the cutting length + length before cut + length after cut + first tacking length + final tacking length.</li> </ul>



### 6.5 Programming mode parameters

Symbol	Parameters	Values	Meaning
	Buttonhole number (Buttonhole no.) P1	1 ... 50	<ul style="list-style-type: none"> <li>Select buttonhole number</li> </ul>
	Cutting length (Cut) P2	5.0 ... 65.0 mm	<ul style="list-style-type: none"> <li>Adjust cutting length</li> </ul>
	Speed P3	200 ... 4000 rpm	<ul style="list-style-type: none"> <li>Sewing speed</li> </ul>
	Buttonhole seam parameters (seam) P4		<ul style="list-style-type: none"> <li>Set the buttonhole seam parameters  page 42</li> </ul>
	Start variant (Start var.) P5	A, B, C, D, E, F	<p>Selection of sewing start variant:</p> <ul style="list-style-type: none"> <li>A (Standard): Initial stitches are sewn flat</li> <li>B (thin fabric, lining): Initial stitches are sewn flat The upper thread is held better in the material by means of a cross stitch.</li> <li>C (very thin fabrics): Initial stitches are sewn flat The upper thread is held better in the material by use of forwards and return tacking stitches.</li> <li>D (very thin fabrics): Alternative to start variant C</li> <li>E, F (problematic materials) Alternative for when problems occur with variants A, B, C, D.</li> </ul>
	Upper tacking P6		<ul style="list-style-type: none"> <li>Set first tacking</li> </ul>

Symbol	Parameters	Values	Meaning
	Lower tacking P7		<ul style="list-style-type: none"> <li>Set the final tacking</li> </ul>
	Double run P8	On/Off	<ul style="list-style-type: none"> <li>Switches double sewing of the entire buttonhole on or off</li> </ul>
	Knit fabric P9	On/Off	<ul style="list-style-type: none"> <li>Switch knit fabric mode on/off</li> </ul>
	Basting stitches P10*		<ul style="list-style-type: none"> <li>Show number of basting stitches and properties</li> </ul>
	Zigzag runs (ZZ runs) P11*		<ul style="list-style-type: none"> <li>Set 2nd zigzag run and show properties</li> </ul>
	Cut P12*		<ul style="list-style-type: none"> <li>Cutting in the last run</li> <li>Cutting in the last but one run</li> <li>Cutting during both runs</li> </ul>
	Copying off P13	0 ... 50	<ul style="list-style-type: none"> <li>Buttonhole data for selected buttonhole number is copied to the currently active buttonhole</li> </ul>

\*) Only visible if P9 (knit fabric) is switched on.

### Buttonhole seam parameters

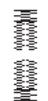
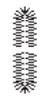
Symbol	Parameters	Values	Meaning
	Width of intermediate fabric (intermediate fabric) P4.1	-1.0...+1.0 mm	<ul style="list-style-type: none"> <li>Distance between buttonhole seam inner stitches</li> </ul>
	Buttonhole seam stitch distance (stitch leng.) P4.2	0.3...1.5 mm	<ul style="list-style-type: none"> <li>Distance in y-direction for a double stitch</li> </ul>
	Buttonhole width (bh.width) P4.3	1.6...6.0 mm	<ul style="list-style-type: none"> <li>Total buttonhole width (outer stitches)</li> </ul>
	Cut P4.5	On/Off	<ul style="list-style-type: none"> <li>On: Cutting open during sewing cycle</li> <li>Off: No cutting open</li> </ul>
	Length before cut (see above) P4.6	-P6.3...5.9 mm	<ol style="list-style-type: none"> <li>correction of position of first tacking at end of cut</li> <li>Additional buttonhole seam length before cut with asymmetrical opening cut within the buttonhole</li> </ol>

Symbol	Parameters	Values	Meaning
	Length after cut (see below) P4.7	(1.8 mm – P7.3) –5.9 mm	1. Correction of position of first tacking at end of cut 2. Additional buttonhole seam length after cut with asymmetrical opening cut within the buttonhole
	Cut correction X (X-Offset) P4.8	–0.5...+0.5 mm	• Location of cut within the buttonhole in x-direction
	Correction right (corr.r.) P4.9	–0.3...+0.3 mm	• Correction of right buttonhole seam width, only visible in case of tacking types A (cross tacking)

## 6.6 Selectable tacking types

Upper and lower tacking of tacking types A to G can be combined as desired e.g. G outer tacking as upper tacking and C tapered tacking as lower tacking.

Tacking type H simple tacking cannot be combined.

Symbol	Values	Tacking type
	Upper Lower	A Cross-tacking (horizontal)  page 44
	Upper Lower	B Circular tacking (to center point)  page 44
	Upper Lower	C Tapered tacking  page 44
	Upper Lower	D Circular tacking (horizontal)  page 45
	Upper Lower	L Cross-tacking (vertical)  page 45
	Upper Lower	F Cross-tacking (split)  page 45
	Upper Lower	G Outer tacking  page 46
	Upper Lower	H Single bar tack  page 46

### 6.6.1 Cross tacking (horizontal) parameters, tacking type A

Symbol	Parameters	Values	Meaning
	Tacking stitch distance (distance) P 6.2/P 7.2	0.2 ... 1.0 mm	• Distance in y-direction for a double stitch
	Tacking length (length) P 6.3/P 7.3	0.6 ... 6.0 mm	• Length of tacking in y-direction Parameter P7.3 can only be input when upper/lower tacking types are different
	Tacking width Right offset (Offset r) P 6.4/P 7.4	-1.0 ... 1.0 mm	• The width of the tacking is defined via the width of the buttonhole. The width of the tacking can be enlarged to the right using the right offset.
	Tacking width Offset left (Offset l) P 6.5/P 7.5	-1.0 ... 1.0 mm	• The width of the tacking is defined via the width of the buttonhole. The width of the tacking can be enlarged to the left using the left offset.
	Speed	200 ... 4000 rpm	• Sewing speed when creating the cross tacking; tacking cannot be sewn faster than the buttonhole seam

### 6.6.2 Circular tacking (to center point) parameters, tacking type B

Symbol	Parameters	Values	Meaning
	Number of tacking stitches (St.no) P 6.6/P 7.6	2 ... 50	• Number of stitches used for semi-circular-shaped tacking.
	Speed	200 ... 4000 rpm	• Sewing speed when creating the cross tacking; tacking cannot be sewn faster than the buttonhole seam

### 6.6.3 Tapered tacking parameters, tacking type C

Symbol	Parameters	Values	Meaning
	Tacking stitch distance (distance) P 6.2/P 7.2	0.2 ... 1.0 mm	• Distance in y-direction for a double stitch
	Tacking length (length) P 6.3/P 7.3	0.6 ... 9.0 mm	• Length of tacking in y-direction

#### 6.6.4 Circular tacking (horizontal) parameters, tacking type D

Symbol	Parameters	Values	Meaning
	Tacking stitch distance (distance) P 6.6/P 7.6	0.3 ... 1.0 mm	• Distance in y-direction for a double stitch

#### 6.6.5 Cross tacking (vertical) parameters, tacking type E

Symbol	Parameters	Values	Meaning
	Tacking stitch distance (distance) P 6.2/P 7.2	0.2 ... 1.0 mm	• Distance in y-direction for a double stitch
	Tacking length (length) P 6.3/P 7.3	0.6 ... 6.0 mm	• Length of tacking in y direction Parameter P7.3 can only be input when upper/lower tacking types are different
	Tacking width Right offset (Offset r) P 6.4/P 7.4	-1.0 ... 1.0 mm	• The width of the tacking is defined via the width of the buttonhole. The width of the tacking can be enlarged to the right using the right offset.
	Tacking width Offset left (Offset l) P 6.5/P 7.5	-1.0 ... 1.0 mm	• The width of the tacking is defined via the width of the buttonhole. The width of the tacking can be enlarged to the left using the left offset.
	Tacking offset Upper (Offset) P 6.6/P 7.6	-1.0 ... 0 mm	• Position of tacking can be moved down.
	Speed	200 ... 4000 rpm	• Sewing speed when creating the cross tacking; tacking cannot be sewn faster than the buttonhole seam

#### 6.6.6 Cross tacking (split) parameters, tacking type F

Symbol	Parameters	Values	Meaning
	Tacking stitch distance (distance) P 6.2/P 7.2	0.2 ... 1.5 mm	• Distance in y-direction for a double stitch
	Tacking length (length) P 6.3/P 7.3	0.6 ... 6.0 mm	• Length of tacking in y-direction Parameter P7.3 can only be input when upper/lower tacking types are different

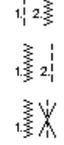
Symbol	Parameters	Values	Meaning
	Tacking width Right offset (Offset r) P 6.4/P 7.4	-1.0 ... 1.0 mm	<ul style="list-style-type: none"> <li>The width of the tacking is defined via the width of the buttonhole. The width of the tacking can be enlarged to the right using the right offset.</li> </ul>
	Tacking width Offset left (Offset l) P 6.5/P 7.5	-1.0 ... 1.0 mm	<ul style="list-style-type: none"> <li>The width of the tacking is defined via the width of the buttonhole. The width of the tacking can be enlarged to the left using the left offset.</li> </ul>
	Speed	200 ... 4000 rpm	<ul style="list-style-type: none"> <li>Sewing speed when creating the cross tacking; tacking cannot be sewn faster than the buttonhole seam</li> </ul>

### 6.6.7 Outer tacking parameters, tacking type G

Symbol	Parameters	Values	Meaning
	Tacking width (width) P 6.5/P 7.5	2.0 ... 6.0 mm	<ul style="list-style-type: none"> <li>Outer diameter of eyelet</li> </ul>
	Speed	200 ... 4000 rpm	<ul style="list-style-type: none"> <li>Sewing speed when creating the cross tacking; tacking cannot be sewn faster than the buttonhole seam</li> </ul>

### 6.6.8 Simple tacking parameters, tacking type H

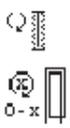
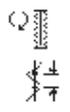
The parameters are set in the buttonhole seam parameter.

Symbol	Parameters	Values	Meaning
	Buttonhole seam stitch distance (stitchleng.) P4.2	0.3...1.5 mm	<ul style="list-style-type: none"> <li>Distance in y-direction for a double stitch</li> </ul>
	Buttonhole width (Bhwidth) P4.3	0.5...6.0 mm	<ul style="list-style-type: none"> <li>Total buttonhole width</li> </ul>
	Basting stitches length (stitchleng.) P 4.6	0.3 ... 3.0 mm	<ul style="list-style-type: none"> <li>stitch distance of basting stitches</li> </ul>
	Basting stitches (bastst.)	Start/End/No	<ul style="list-style-type: none"> <li>Start: Basting stitches at start of buttonhole seam Select number of runs (1-4)</li> <li>End: End of buttonhole seam</li> <li>No: no basting stitches</li> </ul>

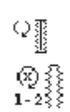
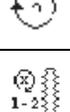
## 6.7 Knit fabric mode

Knit fabric mode is for sewing stretchable material. In knit fabric mode, buttonholes are sewn over several times to ensure greater stability.

### 6.7.1 Basting stitches parameters

Symbol	Parameters	Values	Meaning
	Runs (BS runs) P9.1	0...4	<ul style="list-style-type: none"> <li>Number of basting stitch runs</li> </ul>
	Stitch length P 9.2	0.3 ... 3.0 mm	<ul style="list-style-type: none"> <li>Stitch length of basting stitches</li> </ul>
	Thread tension (TT[%]) P 9.3	0...100%	<ul style="list-style-type: none"> <li>Thread tension value for basting stitches</li> <li>Parameter can only be set if electric thread tension is available.</li> </ul>

### 6.7.2 Zigzag parameters

Symbol	Parameters	Values	Meaning
	Runs P10.1	1/2	<ul style="list-style-type: none"> <li>Number of zigzag sewing runs</li> <li>The last sewing run always has the normal configuration</li> </ul>
	Stitch length P 10.2	0.3 ... 3.0 mm	<ul style="list-style-type: none"> <li>Stitch length of first zigzag</li> <li>Only visible if zigzag sewing runs = 2</li> </ul>
	Buttonhole width (width) P 10.3	0.3 1.0...P4.3	<ul style="list-style-type: none"> <li>Buttonhole width for the first zigzag &lt;= maximum buttonhole width P4.3.</li> <li>Only visible if zigzag sewing runs = 2</li> </ul>
	Speed P10.4	200 ... 4000 rpm	<ul style="list-style-type: none"> <li>Speed of first zigzag sewing run</li> </ul>
	Thread tension (TT for) P 10.5	0...100%	<ul style="list-style-type: none"> <li>Thread tension for the forward seam of the first zigzag.</li> <li>Only visible if zigzag sewing runs = 2</li> <li>Parameter can only be set if electric thread tension is available.</li> </ul>
	Thread tension (TT back) P 10.6	0...100%	<ul style="list-style-type: none"> <li>Thread tension for the return seam of the first zigzag.</li> <li>Only visible if zigzag sewing runs = 2</li> <li>Parameter can only be set if electric thread tension is available.</li> </ul>

### 6.7.3 Cutting parameters

Symbol	Meaning
	• Cut during both sewing runs
:	• Cut on last sewing run
:	• Cut on last but one sewing run

### 6.7.4 Combination options in knit fabric mode

Here a straight basting stitch can be combined with a single or double zigzag. A selection can be made as to whether to cut in the last run or last but one sewing run.

The following combination options are available:

Basting stitches	1st run	2nd run	Combination	Meaning
			1	<ul style="list-style-type: none"> <li>• 2 x zigzag</li> <li>• Cutting in the last run</li> </ul>
			2	<ul style="list-style-type: none"> <li>• 2 x zigzag</li> <li>• Cutting in the last but one run</li> </ul>
			3	<ul style="list-style-type: none"> <li>• Basting stitches on</li> <li>• Cutting in the last run</li> </ul>
			4	<ul style="list-style-type: none"> <li>• Basting stitches on</li> <li>• Cutting in the last but one run</li> </ul>
			5	<ul style="list-style-type: none"> <li>• Basting stitches on</li> <li>• Cutting in the last but one and last sewing run</li> </ul>
			6	<ul style="list-style-type: none"> <li>• Basting stitches on</li> <li>• 2 x zigzag</li> <li>• Cutting in the last run</li> </ul>
			7	<ul style="list-style-type: none"> <li>• Basting stitches on</li> <li>• 2 x zigzag</li> <li>• Cutting in the last but one run</li> </ul>
			8	<ul style="list-style-type: none"> <li>• Basting stitches on</li> <li>• 2 x zigzag</li> <li>• Cutting in the last but one and last sewing run</li> </ul>

## 7 Installation

### WARNING



#### Risk of injury

The machine may be installed only by trained specialists.

Wear safety gloves and safety shoes when unpacking and installing.

### 7.1 Checking the scope of delivery

The delivery scope will vary according to your order.



1. Check that all parts required are present.

### 7.2 Removing transport securing devices

All transport securing devices must be removed prior to setup.



1. Remove the lashing straps and wooden blocks from the machine upper section, the table, and the frame.
2. Remove the support wedges between the machine arm and needle plate.

### 7.3 Positioning the sewing unit

The sewing unit can be aligned using the screws on the rear right table leg. Make sure the table is horizontal.



1. Place the spirit level on the frame.
2. Release the screws on the table leg.
3. Align the table plate horizontally
4. Fasten the screws on the table leg.

### 7.4 Assembling thread reel holder



1. Insert the thread reel holder into the hole on the thread reel holder bracket.
2. Fasten the thread reel holder using nuts and washers.
3. Fit the thread reel holder and unwinding bracket align these.

## 7.5 Connecting the suction device

The vacuum in the infeed device fixes the sewing material once it is aligned. The infeed device has been prepared for connection to a vacuum system at the customer's site.

If no vacuum system is available at the site, the optionally available vacuum fan and vacuum distributor need to be ordered as additional equipment.



1. Connect the vacuum hose of the customer's vacuum system or the vacuum distributor to the intake nozzle.

## 7.6 Checking the V-belt

### WARNING



#### Risk of injury

Crushing injuries from moving parts.

Switch off the machine before checking the condition of the V-belt.



#### Correct setting

- The toothed belt exhibits no cracks or fragile areas.
- When pressed in the center with a finger, the V-belt should yield by no more than 10 mm.

#### Setting the V-belt tension



1. Release the nuts.
2. Adjust the V-belt tension by pivoting the sewing unit.
3. Tighten the nuts.

## 7.7 Electrical connection

### DANGER



#### Risk of death from electric shock!

The machine may only be connected by trained electricians.

Disconnect the power plug before carrying out work on the electrical equipment.

Make sure the power plug cannot be accidentally plugged back in.

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

1. Connect the sewing unit.

## 7.8 Pneumatic connection

### 7.8.1 Fitting the maintenance unit

The pneumatic unit is an additional component that is not part of the standard delivery package.

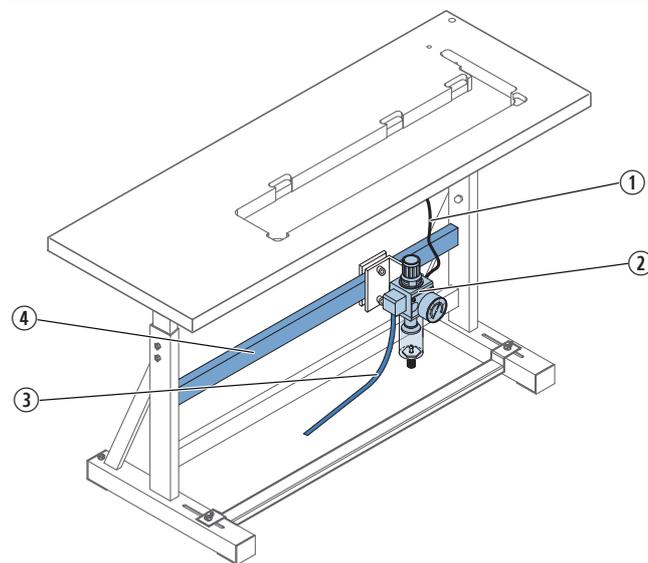
#### ATTENTION

##### Machine damage possible due to incorrect pressure.

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

Make sure that the system pressure is set correctly before fitting the pneumatic unit.

Figure 17: Connecting the pneumatic unit



(1) - Machine hose  
(2) - Maintenance unit

(3) - System connection tube  
(4) - Cross bar



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

### 7.8.2 Setting operating pressure

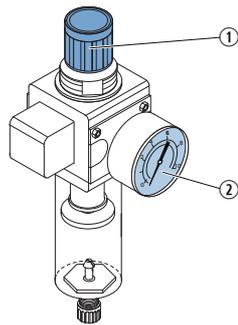
#### ATTENTION

**Machine damage possible due to incorrect pressure.**

The operating pressure for the pneumatic unit is 6 bar.

Make sure that the operating pressure is set correctly before putting the machine into operation.

Figure 18: Setting operating pressure



(1) - Adjustment knob

(2) - Pressure indicator



1. Pull the adjustment knob (1) up.
2. Set the operating pressure so the pressure indicator (2) shows 6 bar:
  - **To increase pressure:** Turn the adjustment knob (1) clockwise.
  - **To reduce pressure:** Turn the adjustment knob (1) counterclockwise.
3. Push the adjustment knob (1) down.

### 7.9 Checking the lubrication

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



1. Checking the lubrication ( 5.12.2 Lubrication, page 31).

#### Adjusting the hook lubrication

To ensure reliable lubrication during infeed time, a relatively large amount of oil is set at the factory.

1. Check the oil quantity and adjust this, if necessary.

## 7.10 Sewing test

Conduct a sewing test before commissioning.

Adjust the machine to the sewing material requirements.

To do this, read the corresponding sections in  *Operation*.

### CAUTION



#### **Risk of injury from the point of the needle and moving parts**

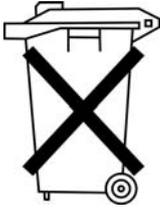
Switch off the sewing machine before replacing the needle, insert the thread, insert the hook thread reel, adjust the hook thread tension and the thread regulator.



1. Insert needle.
2. Thread needle thread.
3. Thread hook thread.
4. Wind on the hook thread.
5. Insert the hook thread reel.
6. Set sewing basket pressure to the material being sewn.
7. Set sewing basket fan height to the material being sewn.
8. Switch on the machine.
9. Start a reference run.
10. Set the thread tension to the material being sewn.
11. Insert the material to be sewn.
12. Start sewing with the knee switch
13. Check the buttonholes conform to requirements.



## 8 Disposal



Do not dispose of the machine in the general household waste.  
The machine must be disposed of in an appropriate and proper manner according to national regulations.

### ATTENTION



#### **Risk of environmental damage due to incorrect oil disposal**

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

ALWAYS observe the legally prescribed regulations for disposal of oil.

When disposing of the machine, be aware that it consists of a range of different materials (steel, plastic, electronic components, etc.). Observe the applicable national regulations for disposal.



## 9 Troubleshooting

Number	Location	Description	Possible cause	Remedial action
1052	Sewing motor	Excess current	<ul style="list-style-type: none"> <li>• Sewing motor cable</li> <li>• Sewing motor</li> <li>• Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the sewing motor cable</li> <li>• Check the sewing motor</li> <li>• Check the controller</li> </ul>
1053	Sewing motor	Excess voltage	<ul style="list-style-type: none"> <li>• Mains voltage too high</li> </ul>	<ul style="list-style-type: none"> <li>• Check the mains voltage</li> </ul>
1055	Sewing motor	Overload	<ul style="list-style-type: none"> <li>• Sewing motor (blocked/not moving freely)</li> <li>• Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the sewing motor</li> <li>• Check the controller</li> </ul>
1056	Sewing motor	Excess temperature	<ul style="list-style-type: none"> <li>• Sewing motor (not moving freely)</li> <li>• Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the sewing motor</li> <li>• Check the controller</li> </ul>
1058	Sewing motor	Speed	<ul style="list-style-type: none"> <li>• Sewing motor</li> </ul>	<ul style="list-style-type: none"> <li>• Check the sewing motor</li> </ul>
1059	Sewing motor	Standstill monitoring	<ul style="list-style-type: none"> <li>• Sewing motor</li> <li>• Reference switches</li> </ul>	<ul style="list-style-type: none"> <li>• Check the sewing motor</li> <li>• Check the reference switch</li> </ul>
1120	Sewing motor	Initialization	<ul style="list-style-type: none"> <li>• Sewing motor</li> <li>• Sewing motor cable</li> <li>• Reference switches</li> </ul>	<ul style="list-style-type: none"> <li>• Check the sewing motor</li> <li>• Check the sewing motor cable</li> <li>• Check the reference switch</li> </ul>
1205	Sewing motor	Not in ET	<ul style="list-style-type: none"> <li>• Sewing motor</li> <li>• Sewing motor cable</li> <li>• Reference switches</li> </ul>	<ul style="list-style-type: none"> <li>• Switch off the machine.</li> <li>• Check the sewing motor</li> <li>• Check the sewing motor cable</li> <li>• Check the reference switch</li> </ul>
1301	Sewing motor	Referencing Timeout	<ul style="list-style-type: none"> <li>• Reference switches</li> <li>• Sewing motor</li> <li>• Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the reference switch</li> <li>• Check the sewing motor</li> <li>• Check the controller</li> </ul>
1302	Sewing motor	Current supply error	<ul style="list-style-type: none"> <li>• Sewing motor</li> <li>• Sewing motor cable</li> <li>• Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the sewing motor</li> <li>• Check the sewing motor cable</li> <li>• Check the controller</li> </ul>
1310	Sewing motor	Communication problem	<ul style="list-style-type: none"> <li>• Sewing motor</li> <li>• Sewing motor cable</li> <li>• Reference switches</li> </ul>	<ul style="list-style-type: none"> <li>• Check the sewing motor</li> <li>• Check the sewing motor cable</li> <li>• Check the reference switch</li> </ul>
1320	Sewing motor	General Sewing motor error	<ul style="list-style-type: none"> <li>• Sewing motor</li> <li>• Sewing motor cable</li> <li>• Reference switches</li> </ul>	<ul style="list-style-type: none"> <li>• Check the sewing motor</li> <li>• Check the sewing motor cable</li> <li>• Check the reference switch</li> </ul>
2101	Stepper motor x-axis	Referencing: Timeout	<ul style="list-style-type: none"> <li>• Reference switches</li> <li>• Stepper motor</li> <li>• Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the reference switch</li> <li>• Check the stepper motor</li> <li>• Check the controller</li> </ul>
2152	Stepper motor x-axis	Excess current	<ul style="list-style-type: none"> <li>• Stepper motor</li> <li>• Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the stepper motor</li> <li>• Check the controller</li> </ul>
2153	Stepper motor x-axis	Excess voltage	<ul style="list-style-type: none"> <li>• Stepper motor</li> <li>• Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the stepper motor</li> <li>• Check the controller</li> </ul>
2155	Stepper motor x-axis	Overload	<ul style="list-style-type: none"> <li>• Stepper motor</li> <li>• Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the stepper motor</li> <li>• Check the controller</li> </ul>
2156	Stepper motor x-axis	Excess temperature	<ul style="list-style-type: none"> <li>• Stepper motor</li> <li>• Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Check the stepper motor</li> <li>• Check the controller</li> </ul>

Number	Location	Description	Possible cause	Remedial action
2158	Stepper motor x-axis	Speed	<ul style="list-style-type: none"> <li>Stepper motor</li> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Check the stepper motor</li> <li>Check the controller</li> </ul>
2301	Stepper motor z-axis	Referencing: Timeout	<ul style="list-style-type: none"> <li>Reference switches</li> <li>Stepper motor</li> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Check the reference switch</li> <li>Check the stepper motor</li> <li>Check the controller</li> </ul>
2352	Stepper motor z-axis	Excess current	<ul style="list-style-type: none"> <li>Stepper motor</li> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Check the stepper motor</li> <li>Check the controller</li> </ul>
2353	Stepper motor z-axis	Excess voltage	<ul style="list-style-type: none"> <li>Stepper motor</li> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Check the stepper motor</li> <li>Check the controller</li> </ul>
2355	Stepper motor z-axis	Overload	<ul style="list-style-type: none"> <li>Stepper motor</li> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Check the stepper motor</li> <li>Check the controller</li> </ul>
2356	Stepper motor z-axis	Excess temperature	<ul style="list-style-type: none"> <li>Stepper motor</li> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Check the stepper motor</li> <li>Check the controller</li> </ul>
2901	Stepper motor x+y axis	Referencing: Timeout	<ul style="list-style-type: none"> <li>Reference switches</li> <li>Stepper motor</li> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Check the reference switch</li> <li>Check the stepper motor</li> <li>Check the controller</li> </ul>
3100	Machine	Control voltage error	<ul style="list-style-type: none"> <li>Mains voltage cut (short-term)</li> </ul>	<ul style="list-style-type: none"> <li>Check the mains voltage</li> </ul>
3101	Machine	Power voltage error	<ul style="list-style-type: none"> <li>Mains voltage cut (short-term)</li> </ul>	<ul style="list-style-type: none"> <li>Check the mains voltage</li> </ul>
3102	Machine	Voltage error Intermediate circuit Sewing motor	<ul style="list-style-type: none"> <li>Mains voltage cut (short-term)</li> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Check the mains voltage</li> <li>Check the controller</li> </ul>
3103	Machine	Voltage error Intermediate circuit Stepper motor	<ul style="list-style-type: none"> <li>Mains voltage cut (short-term)</li> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Check the mains voltage</li> <li>Check the controller</li> </ul>
3107	Machine	Excess temperature DAC III (> 80 °C)	<ul style="list-style-type: none"> <li>Vent openings of control unit blocked or dirty</li> </ul>	<ul style="list-style-type: none"> <li>Clean vent openings of control unit</li> </ul>
3121	Machine	Pressure monitor depressurized	<ul style="list-style-type: none"> <li>Compressed air supply</li> <li>Pressure monitor</li> </ul>	<ul style="list-style-type: none"> <li>Check pressure</li> <li>Check electrical connections</li> </ul>
3210	Machine	Needle thread break	<ul style="list-style-type: none"> <li>Needle thread break</li> </ul>	<ul style="list-style-type: none"> <li>Insert thread</li> </ul>
3215	Machine	Hook thread counter run down	<ul style="list-style-type: none"> <li>Hook thread counter run down</li> </ul>	<ul style="list-style-type: none"> <li>Insert new hook bobbin.</li> </ul>
4102	Operation	Limit value infringement	<ul style="list-style-type: none"> <li>e.g. cutting length greater than basket length</li> </ul>	<ul style="list-style-type: none"> <li>Correct value</li> </ul>
4301	Memo dongle	missing	<ul style="list-style-type: none"> <li>Memo dongle missing</li> <li>Memo dongle defective</li> </ul>	<ul style="list-style-type: none"> <li>Attach memo dongle</li> </ul>
4303	Memo dongle	Blank	<ul style="list-style-type: none"> <li>Memo dongle does not contain any data</li> </ul>	<ul style="list-style-type: none"> <li>Copy data to memo dongle</li> </ul>
4304	Memo dongle	Wrong type	<ul style="list-style-type: none"> <li>Boot dongle has been attached</li> </ul>	<ul style="list-style-type: none"> <li>Use memo dongle</li> </ul>

Number	Location	Description	Possible cause	Remedial action
4307	Memo dongle	Wrong class	<ul style="list-style-type: none"> <li>Wrong class dongle attached</li> </ul>	<ul style="list-style-type: none"> <li>Attach correct dongle</li> <li>Format dongle</li> </ul>
5101	Contour data management	EEPROM not initialized	<ul style="list-style-type: none"> <li>Controller</li> <li>Controller does not contain a machine program</li> </ul>	<ul style="list-style-type: none"> <li>Check the controller</li> <li>Install a machine program</li> </ul>
5104	Contour data management	EEPROM checksum fault	<ul style="list-style-type: none"> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Machine performing a reset automatically.</li> <li>Inform DA Service</li> </ul>
5301	Contour data management	No contour data	<ul style="list-style-type: none"> <li>Cutting length smaller than length of cutter</li> </ul>	<ul style="list-style-type: none"> <li>Change parameters</li> </ul>
5302	Contour data management	Data memory full	<ul style="list-style-type: none"> <li>Too many stitches in contour</li> </ul>	<ul style="list-style-type: none"> <li>Reduce number of stitches</li> <li>Inform DA Service</li> </ul>
5303	Contour data management	Data memory overflow	<ul style="list-style-type: none"> <li>Too many stitches in contour</li> </ul>	<ul style="list-style-type: none"> <li>Reduce number of stitches</li> <li>Inform DA Service</li> </ul>
5305	Contour data management	Storage not permitted	<ul style="list-style-type: none"> <li>Too many stitches in contour</li> </ul>	<ul style="list-style-type: none"> <li>Reduce number of stitches</li> <li>Inform DA Service</li> </ul>
5306	Contour data management	Impermissible data call	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li>Perform a buttonhole contour reset</li> <li>Inform DA Service</li> </ul>
5315	Contour data management	General fault	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li>Perform a buttonhole contour reset</li> <li>Inform DA Service</li> </ul>
6151-6952	I <sup>2</sup> C/CPU/Mem Manager		<ul style="list-style-type: none"> <li>Fault</li> </ul>	<ul style="list-style-type: none"> <li>Switch the machine off and on again</li> <li>Inform DA Service</li> </ul>
7251-7659	ASC/SSC/RS485		<ul style="list-style-type: none"> <li>Fault</li> </ul>	<ul style="list-style-type: none"> <li>Switch the machine off and on again</li> <li>Inform DA Service</li> </ul>
8151-8351	IDMA/Xilinx/Test pins		<ul style="list-style-type: none"> <li>Fault (8151-8159: only entry in event recorder – no other impairment)</li> </ul>	<ul style="list-style-type: none"> <li>Switch the machine off and on again</li> <li>Inform DA Service</li> </ul>
9700	Machine/process	Basket not lifted up	<ul style="list-style-type: none"> <li>Basket monitoring sensor not active</li> </ul>	<ul style="list-style-type: none"> <li>Check distance to sensor</li> <li>Check sensor</li> </ul>
9702	Machine/process	Infeed table not in transfer position	<ul style="list-style-type: none"> <li>Infeed table sensor not active</li> </ul>	<ul style="list-style-type: none"> <li>Check ease of movement/alignment</li> </ul>
9703	Machine/process	Maximum position exceeded	<ul style="list-style-type: none"> <li>Distance between buttonholes too great</li> </ul>	<ul style="list-style-type: none"> <li>Correct program</li> </ul>







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