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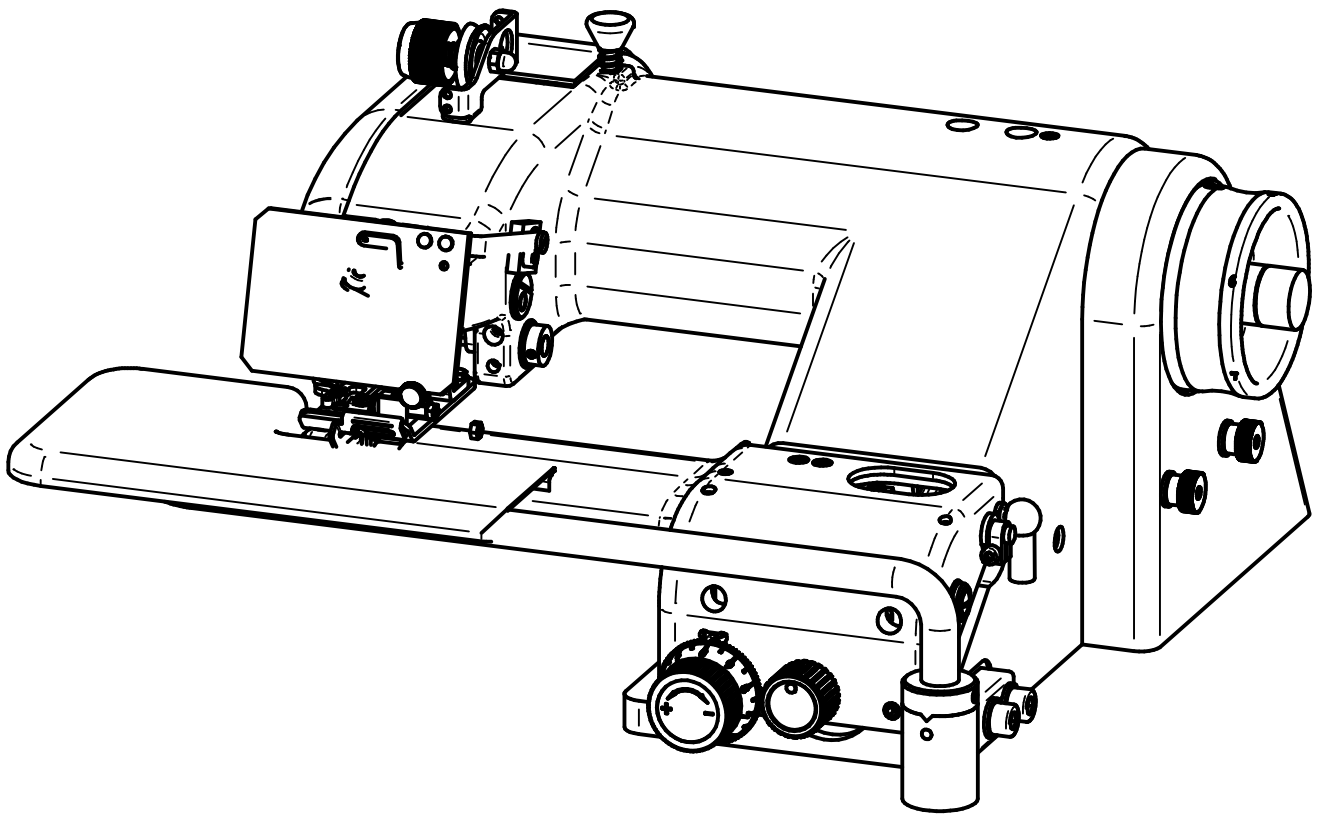
INDUSTRIAL SEWING MACHINES

BM 345

PRODUCED BY

STROBEL

Operating Instruction



GLOBAL

Operating instructions BM345

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We reserve the right to make design changes.

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1 General notes on safety

Failure to comply with the following safety instructions can lead to bodily injury or damage to the machine.

1. The machine must only be operated by persons familiar with the relevant operating instructions and who have been instructed accordingly.
2. Before commissioning also read the notes on safety and the operating instructions of the sewing drive manufacturer.
3. Only use the machine in the intended manner and never without the provided guards. Always observe the pertinent safety regulations.
4. Switch off the main switch or pull the power plug for threading, changing the reels, exchanging sewing tools such as needle, gripper, needle plate, transport devices, possibly cutter and cutting block, for cleaning and when leaving the workplace as well as for maintenance. When using mechanically actuated clutch motors not equipped with actuation locks, always wait until the motor comes to a standstill.
5. General maintenance tasks may be carried out only by properly trained persons in accordance with the operating instructions.
6. Repair work, retrofitting and maintenance may be carried out only by technicians or specially trained personnel.
7. When servicing or repairing pneumatic equipment, the machine must be disconnected from the pneumatic supply. Exceptions are only allowed for adjustment work and tests of functionality performed by specially trained technicians.
8. Only specially qualified technicians may work on the electrical equipment.
9. It is forbidden to work on electrically live components! Exemptions are covered by the EN50110 (DIN VDE0105) regulations.
10. Any retrofitting or alterations to the machine may only be performed under strict compliance with all pertinent safety regulations.
11. Only use our approved spare parts when servicing and/or repairing the machine.
12. It is forbidden to operate the upper component until it is determined that the entire sewing unit complies with EU provisions.

13. Warning instructions given in the operating instructions that pertain to especially dangerous parts of the machine must be indicated at these positions using a safety symbol.



Warning instructions given in the operating instructions that pertain to special injury hazards for operating personnel or technicians must be indicated at these positions using a safety symbol.



It is essential that you observe and follow these instructions as well as the generally valid safety regulations.

2 General notes

2.1 Operating instructions

Every person in charge of setting up, operating, servicing and repairing the machine must first read and understand the operating instructions and particularly the safety instructions before starting up the machine.

2.2 Class designations, machine number and initial basis for descriptions

The operating side of the machine is the initial basis for left/right descriptions. The class designation (type) and machine/model numbers are fastened to the rear of the machine case.

This data is also noted on the front cover page of the operating instructions.

2.3 Applications of the machine

The BM345 is especially suitable for blind-stitch seams on thin to medium thick materials and knitted goods.

2.4 Technical data of machine

Stitch number:	Mechanical maximum:	3000 min ⁻¹
	Recommended nominal stitch number:	2200 min ⁻¹
Belt pulley diameter/machine		dw 80 mm
V-belt profile		10 x 6 mm
Tooth-belt pulley/machine		Z = 38
Tooth-belt profile		HTD 5M-9
Stitch length		5–8 mm adjustable
Stitch type		Single thread-chain stitch-blind stitch
Interval:		1:2 connectible
Needle system		STROBEL 1669 EEO
Needle thickness		60, 70, 80, 90
Needle system optional		STROBEL 4669 EEO
Needle thickness		65, 80, 90
Thread (recommended)		Polyester, continuously twined
Thread thickness (recommended)		120/2, 200
Stitch type		103
Operating noise:		
Avg. SPL at measurement surface for stitch number n = 2200 min ⁻¹ :		LpAm 71 dB(A)
		Noise levels in acc. with DIN 45635-48-1 KL3

3 Setup and installation

3.1 Unpacking the machine

BM345 machines are delivered solely as upper components.

The upper component, twine stand and other machine accessories can also be found in the packaging.

Before removing the packaging material, you must carefully check whether all of the accessory components have been unpacked.

3.2 Setting up the machine



CAUTION!

Injury hazard!

Entanglement hazard for clothing or hair and
Danger of finger injuries!
Never operate the machine without the belt guards for
the upper part and motor.

The upper component must be fastened to the provided rubber plate on the table top. The belt guard must be installed after inserting the V-belt.



CAUTION!

Injury hazard!

Before starting the machine, check that the electrical
specifications given on the type plate of the motor,
particular grid voltage and frequency, are appropriate for
your electric system.

Any anti-rust substances, such as vaseline or similar, must be carefully removed from the sewing tools before starting up the machine.

3.3 Direction of rotation on machine

When facing the handwheel, turn it in a clockwise direction.

Figure 1

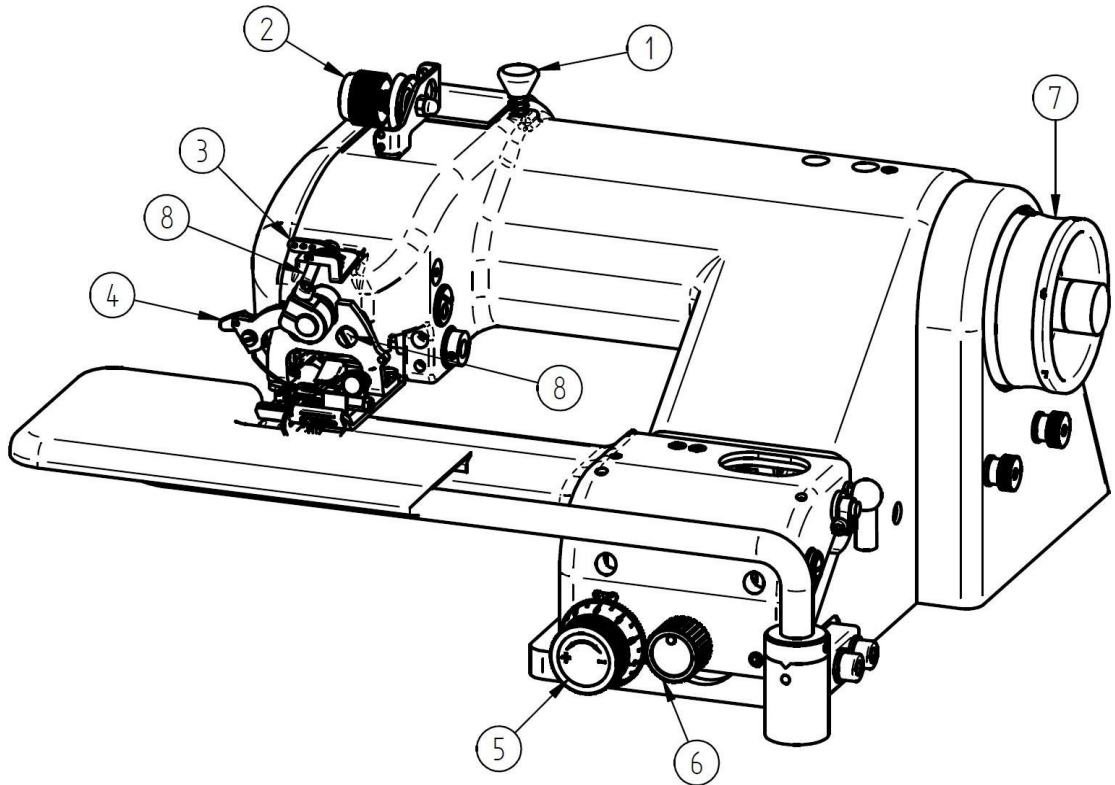


Figure 2

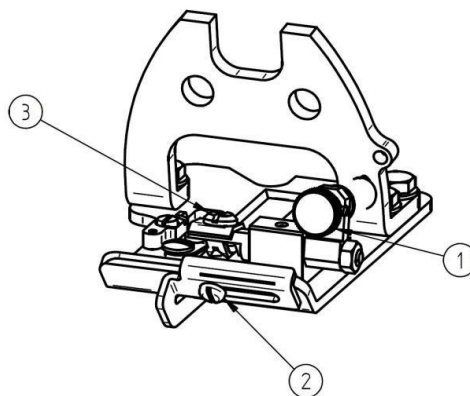
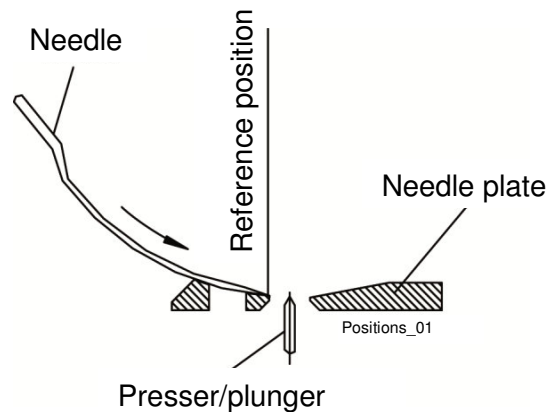


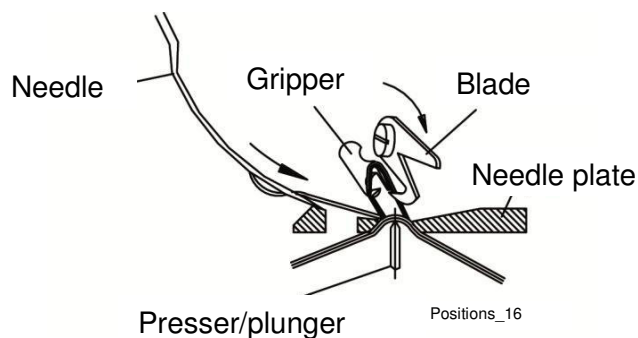
Figure 3



Needle position (when stopped within and outside of the stitch (**figure 4**))
(when using a thread trimmer):

Adjust the needle position so that when the machine is at a standstill, the hook of the thread blade can reliably catch the thread loop above the gripper without touching it.
In conclusion, check this by manually actuating the thread trimmer.

Figure 4



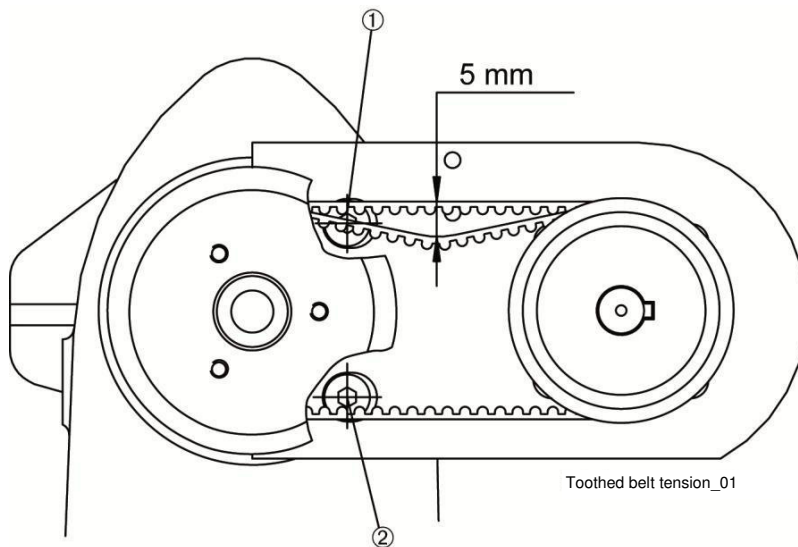
Notes for sewing drives with more than needle positions:

The needle position given above is suitable for sewing at position 2.
It is very important to set position 1 in accordance with the operating instructions pertaining to the chosen mode of sewing.


3.4 Motor drive using tooth belts

3.4.1 Tension of toothed belt (figure 5)

Figure 5



3.4.2 Machine positions

	CAUTION! Injury hazard!
Entanglement hazard for clothing or hair and danger of finger injuries and needle punctures! When checking the positions while the machine is turned on, keep your fingers and hands away from moving parts.	

Machine with or without thread trimmer:

The machine requires a needle position and, depending on the sewing mode, possibly a reference position.

Reference position:

The reference position must be set so that the tip of the needle closes against the right (inner) edge of the needle slide plate facing towards the inward stitch.

Needle position when stopped, inside and outside of the stitch (**figure 3**):

Adjust the needle position so that when the machine is at a standstill, the hook of the thread blade can reliably catch the thread loop above the gripper without touching it.

In conclusion, check this by manually actuating the thread trimmer.

Notes for sewing drives with more than needle positions:

The needle position given above is suitable for sewing at position 2. It is very important to set position 1 in accordance with the operating instructions pertaining to the chosen mode of sewing.

Needle position (when stopped within the stitch):

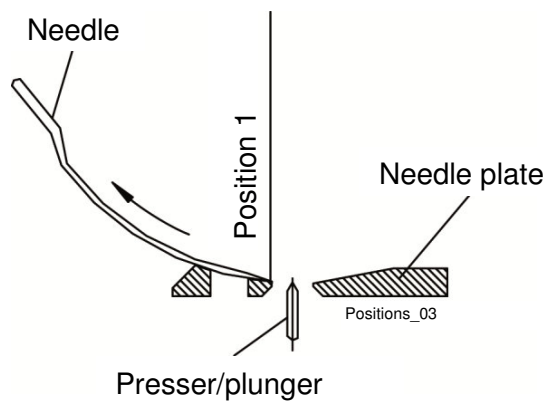
BM345:

The needle position must be set so that the tip of the needle closes against the right (inner) edge of the needle slide plate facing towards the outward stitch.

At the same time, the thread loop lies under tension across the gripper.

The needle position is position 1 at the sewing drive.

Figure 6



4 Notes on usage

4.1 Needles and threads

The sewing quality can be improved by using the most appropriate needles and threads for the goods to be produced.

Only use approved STROBEL needle system 1669 EEO or system 4669 EEO.

The machine is delivered with needles of size 80.

Furthermore, needle sizes 60, 65, 70 and 90 are also available.

Note: An intact needle is very important for ensuring good quality stitches. Bent needle tips, that may only be visible under a magnifying glass, will lead to poorer sewing results. Replace your needles in time!

We recommend using twined polyester tread of thickness 120/2 or 200. Due to their high strength and good sliding behaviour at a small thread size, they are preferable to spun thread.



Guarantee note!

This machine has been configured and broken in using **original Strobel needles**.

No guarantees can be given when the machine is readjusted for the use of different needles.

4.2 Inserting the needles



CAUTION!

Injury hazard!

Before replacing needles, switch off the machine and depress the motor switch pedal to ensure that the machine is truly at a standstill.

Otherwise there is a danger of finger injuries and needle punctures.

The bent shape of the needles determines the position of the needle lever. Only ensure that the needle shank can be pushed into the groove of the needle lever until it stops and the needle clamping plate is tightly fastened using the screw ((for pos 4) figure 1).

4.3 Threading and thread insertion


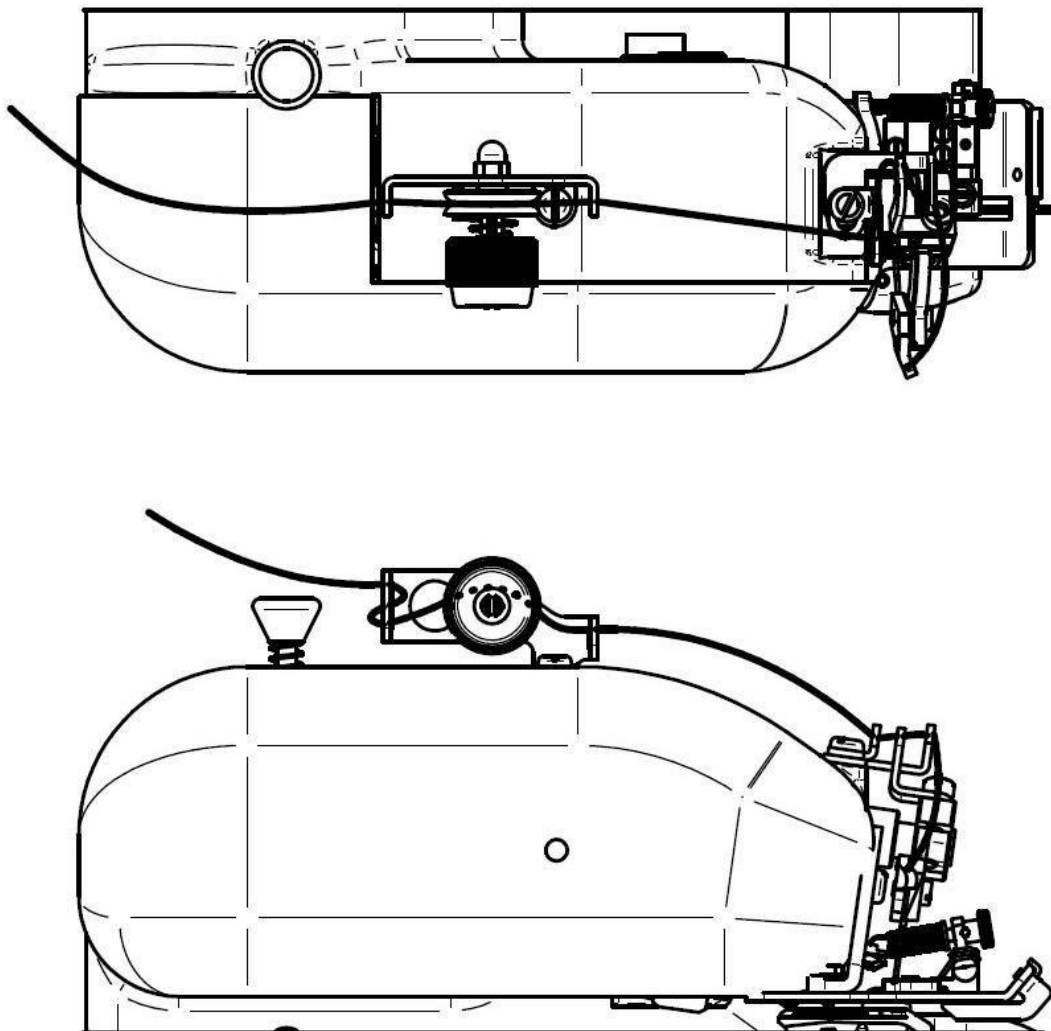
	CAUTION! Injury hazard!
Before threading, switch off the machine and depress the motor switch pedal to ensure that the machine is truly at a standstill.	

Figure 7 indicates the correct threading using the thread take-up device

Figure 7



4.4 Thread tension

Depending on the quality, properties and thickness of the thread as well as the sewing material, the thread tension is set using the knurled nut **((2) figure 1)** until the desired seam shape is created **(figure 8)**.

4.5 Thread feeder

The thread feeder **(8) shown in figure 1** prevents the thread from twisting and the loop from falling. It also ensures that the loop is properly caught by the gripper and needle.

The seam shape becomes homogeneous and the edge of the seam free of tension.

The behaviour of the thread feeder is affected by the thread movement (choice of eye) and thread tension.

4.6 Stitch depth control

The stitch depth controller makes it possible to adjust the distance between the upper edge of the presser and the needle radius so that the presser is lifted or lowered, depending on the thickness of the material to be sewed. This determines how deep the needle can penetrate into the layer of material between the presser and cloth retainer. This value is referred to as the stitch depth.

4.6.1 Adjusting the stitch depth

The stitch depth is set using the control button **((5) figure 1)** and is located on the front side of the machine.

⇒ Turn the control button to the left (+) to create a deeper stitch insertion.

⇒ Turn the control button to the right (-) to create a more shallow stitch insertion.

4.7 Cloth retainer



CAUTION!

Injury hazard!

When making adjustments in the needle plate area, there is an injury hazard for fingers due to accidental actuation of the pedals!

The needle plate is equipped with a cloth retainer. This retainer holds the sewing material against the presser to allow needles to insert stitches.

The cloth retainer must be set so that the sewing material cannot move as the needle inserts stitches.

The correct positioning is important for the quality of the stitch! The pressure of the cloth retainer against the layers of material or seam edge can be varied by turning the screw **((1) figure 2)**. This should be kept as small as possible to prevent the material from developing tension or becoming marked by the pressure between the presser and cloth retainer. This is particularly important with delicate materials such as velvet.

However, the pressure must still be sufficient to ensure that the sewing material cannot move during the needle insertion.

4.8 Sewing material transport

The machine transports the sewing material using a rigid upper transport. The feed (stitch length) can be adjusted between 5–8 mm in 4 levels. The standard version of the machine is equipped with a sawtooth transporter.

4.8.1 Adjusting the stitch length



CAUTION!

Switch off the machine and depress the motor switch pedal to ensure that the machine is truly at a standstill.

Press the stitch setting knob **((1) figure 2)** and turn the handwheel until it simply snaps into place. The configured stitch length corresponds to the number engraved in the handwheel as it comes to a standstill in the highest position. Press down the setting knob and move the handwheel forwards until the desired stitch length noticeably snaps into place.

4.8.2 Adjusting the upper transporter

The transporter can be adjusted in its intrusion depth to the needle plate by loosening the two fastening screws. If the stitch length is adjusted across a greater range e.g., from 8 to 5, then the transporter should be readjusted.

Adjustments might also be required when changing to sewing materials that are thicker or otherwise different in quality.

Here, observe the instructions given in the mechanic's manual.

4.9 Interval

The machine is equipped with a connectible interval 1:2.

The interval principle is based on recurrent lowering of the presser to an exactly configured value (interval stitch depth).

When switched on, the outer layer of material is only stitched every second time. This usually makes it possible to create a marking-free, elastic seam in materials that are difficult to process.

4.9.1 Actuating and adjusting the interval

The interval stroke (= lowering of presser) defines the stitch depth during the "interval stitch".

To switch on the interval for a correctly configured stitch depth, screw in the control knob **((6) figure 1)** until the required interval stroke is achieved.

To adjust the depth of the interval stitch to the thickness of the sewing material being processed, the interval stroke can also be adjusted continuously. This is particularly advantageous with very thin sewing material because each reduction of the stroke helps to reduce "air stitches".

More stroke means a more shallow stitch and vice versa.

4.9.2 Seams with blind stitches

In situations where no previous experience has been gathered, use one of the two settings:

1. Set the desired stitch length. **Figure 8** displays the corresponding seam shape for the required stitch length.
2. Set the stitch depth.
3. Check the cloth retainer pressure and adjust it if necessary.
4. Adjust the presser stop.
5. Adjust the material guide as desired. To do this, loosen the knurled screw **((2) figure 2)** and move the material guide to find the limit for the edge of the seam.
Sewing can be performed along the edge or directly on the seam. For more, see **figure 9**
6. Check the stitch length; if necessary readjust the transporter.
7. Adjust the thread tension. As a rule, the seam should lie loosely on the seam.
8. If desired, switch on the interval and set the interval stroke according to the required thickness of sewing material.
9. To correct the seam shape, thread in at a different spot if necessary.

Insert the sewing material and ensure that the start of the seam can be caught by the transporter after the first stitch.

Press the pedal briefly. Sew the part and, if required, changes the previous settings until the desired sewing results are achieved. When stitching through the outer material, readjust the stitch depth control.

On extremely thin or hard sewing material, it may not be entirely possible to prevent “markings” caused by the insertion of needles into the outer material (filament displacement).

When sewing, ensure that the edge of the seam always runs along the material guide. Avoid sudden actuation of the pedal since the speed changes can have a negative effect on stitching during the sewing process.

Figure 8

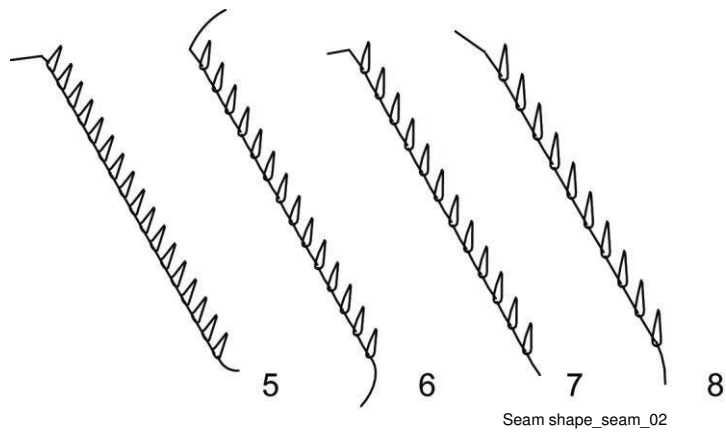
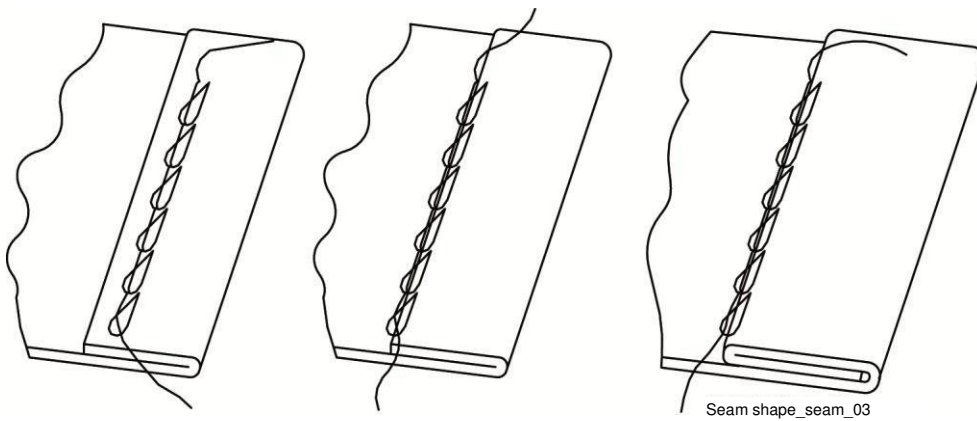


Figure 9



4.10 Sewing problems and troubleshooting



CAUTION!

Switch off the machine and depress the motor switch pedal to ensure that the machine is truly at a standstill. Otherwise there is hazard of finger injuries and needle puncture!

● **Thread breakage**

Possible causes:

- Sharp edges or grooves in the needle guide, thread feeder, gripper or needle's eye after the machine has been used for a long time.
- Gripper or loop stroke incorrectly adjusted or has been moved, the thread loops are not always caught.
- Thread tension is too high
- Thread thickness does not correspond to the needle thickness (thread too thick)

Solutions:

- Replace or repolish the damaged parts
- Correct the gripper setting and/or loop stroke
- Correct the thread tension, check the thread movement.
- Choose a suitable thread thickness

Always observe: Thread movement, thread, needle plate with corresponding presser and cloth retainer, tested needles and thread tension must correspond to the sewing material being processed!

● **Imprecise stitching**

Possible causes:

- Often worn or damaged needles
- Cloth retainer or setting is incorrect
- Needle plate or needle guide is incorrectly set
- Needle slide plate damaged or worn
- Needle thickness is not suitable
- Damaged or incorrectly configured presser

Solutions:

- Replace any damaged needles, use the correct needle thickness
- Check the settings and correct if necessary
- Replace the needle slide plate

- **Loops are left out**

Possible causes:

- Incorrectly configured or misaligned gripper
- Loop stroke/needle stroke incorrectly configured, therefore loop size (too small/too large) may not be suitable
- Kettel finger damaged or misaligned
- Incorrectly set or misaligned cloth retainer or cloth retainer pressure

Solutions:

- Rotate the machine by hand, check the gripper movement; usually the cause can be seen.
- Check the settings, correct if necessary and/or replace any damaged parts.
- If necessary, change the thread feed using a thread feeder

- **The machine does not start even though the indicator lamp of the main switch is on.**

Possible causes:

- Thread trimmer not in final position, microswitch is locked
- Controller error
- Mechanical damage, machine is blocked

Solutions:

- Turn the machine off and back on again. Check the cutting position of the blade. Check the programming
- Eliminate any mechanical faults and, if necessary, call the customer service.

- **Markings or damage to the sewing material**

Possible causes:

- Transporter gearing is not suitable
- Presser shape is not suitable for the sewing material
- Cloth retainer is set too strongly
- Transport bracket contact pressure has been incorrectly adjusted or lift-off is blocked.
- Damaged sewing tools (lower side of needle plate!)
- Needles or thread thickness not suitable

Solutions:

- Replace the transporter or presser
- Check the contact pressures, sewing tools and their functionality, replace any damaged parts and/or repolish them if necessary.
- Choose needles and threads that are suitable for the sewing material

- **Difficulties in transporting the sewing material**
(stitch lengths vary from settings)

Possible causes:

- Transporter is incorrectly configured; insertion depth into sewing material is insufficient
- Transporter gearing is not suitable
- Different transport bracket pressure left/right
- Lift-off of transport bracket is blocked
- Blockage of sewing material in needle plate, especially for cross-seams
- The seam or loop remains stuck in the transporter, for instance.
- Stitch length accidentally misaligned
- Spring-load presser blocks the cross-seam area
- Correct tension on the lower transport belts

Solutions:

- Check the insertion depth of the transporter and the stitch length and, if necessary, replace the transporter.
- Correctly adjust the contact pressure of the transport bracket
- Check the lower side of the needle plate and transport/sewing tools for signs of damage and, if necessary, replace or polish them

5 Servicing the machine

The machine is largely intended for maintenance-free storage. The areas and oil holes marked in red should be re-oiled after 20 operating hours or at the very latest once per week. One drop of oil is sufficient.

To oil gripper joint 1G1019 and the transport crank, remove the countersunk-head screws and lift the lid away from the head.

Any residue that collects in the moving parts must be removed on a regular basis.

5.1 Lubricants

To oil the machine, only use oil of viscosity 46 cSt. This can be ordered under the following item number:

GLOBAL

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