

BERNINA L 860

User Manual

made to create BERNINA

Dear Bernina Customer,



Congratulations on the purchase of your BERNINA Overlocker!

With BERNINA, you have selected a product that will impress you for years to come. For our family has made customer satisfaction our number one priority for more than 100 years. It is my personal goal to offer you Swiss innovation and precision at the highest level of perfection, future-oriented sewing technology, and comprehensive customer service.

With the new Overlocker Series, BERNINA launches extremely modern models which have been developed by our engineers in Switzerland. In addition to meeting the highest standards of modern technology, we have also focused on the design. After all, we are selling products to creative people like you, who place great emphasis on the language of design in addition to demanding the best quality. Thus, for the first time, our Overlocker models have a free arm as seen in the classic BERNINA sewing and embroidery machines. The new world of overlocking guarantees you all of this and more.

Enjoy creative sewing, embroidering and overlocking with BERNINA and stay informed about the various accessories. Visit us at www.bernina.com and allow yourself to be inspired to create new sewing projects. And don't forget to make use of service and maintenance offers from our highly trained authorized BERNINA dealers. I wish you lots of pleasure and many creative hours with your new BERNINA.



H.P. Ueltschi

Owner

BERNINA International AG

CH-8266 Steckborn

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IMPORTANT SAFETY INSTRUCTIONS

Please be aware of the following basic safety instructions when using your machine. Before using this machine, read instruction manual carefully.

WARNING

To reduce the risk of burns, fire, electric shock or injury to persons, the following instructions must be observed.

General facts

- This machine may only be used for the purpose described in this instruction manual.

Working environment

- Do not use the machine outdoors.
- Only use the machine in dry rooms.
- Do not use the machine in a humid area.
- Do not use the machine in rooms where aerosol products (sprays) are being used.
- Do not use the machine in rooms where oxygen is dispensed.

Technical condition

- Never use the machine when it is damp.
- Do not use the machine if it is not working properly.
- Do not use the machine if a cable or the plug is damaged.
- Do not use the machine if it has been dropped, damaged or has fallen into water.
- If the machine is damaged or does not work properly, have the machine checked or repaired by your local authorized BERNINA dealer.
- Keep all ventilation openings of the machine and the foot control free of lint, dust and loose cloth.
- Do not use the machine if the ventilation openings are blocked.

Accessories and Supplies

- Only use the accessories recommended by the manufacturer.
- Always use the original BERNINA Stitch Plate.
  An incorrect stitch plate can result in needle breakage.
- Use only straight needles of good quality.
  Bent or damaged needles can cause needle breakage.

- This machine is double-insulated (except for USA, Canada and Japan).
  Use only identical replacement parts. See instructions for servicing of double-insulated products.
- To lubricate the machine, only use the supplied overlocker oil.

Safety instructions

- While operating the machine, all protective inserts must be in place and all covers must be closed.

Appropriate use

- The machine may be used, cleaned and maintained by children older than eight or by people with reduced physical, sensory or mental capabilities or if there is a lack of experience and knowledge as long as they have been given instructions.
- Furthermore, these persons must be supervised while working with the machine, and/or they must know the safe operation of the machine and be aware of the resulting hazards.
- Children must not play with the machine.
- Special care should be taken when the machine is operated by or in the presence of children.
- Only use the machine with the supplied power cable.
- The power cable for USA and Canada (power plug NEMA 1-15) may only be used for a maximum supply voltage of 150 volt-to-ground.
- Only use this machine with the supplied foot control of type LV-1.
- Do not insert any objects into the openings of the machine.
- Do not place any objects on the foot control.
- While sewing, guide the fabric gently.
  Pulling and pushing the fabric can cause needle breakage.
- Keep fingers away from all moving parts.
- Special care is required in the needle area, the loopers and the knife.
- For activities in the needle area - such as threading the needle, changing the needle, threading the looper or changing the presser foot - switch off the machine.
- To switch off, set the power switch to «0».
- When protective covers are removed, when the machine is oiled or when other cleaning and maintenance operations mentioned in this instruction manual are carried out, switch off the machine and disconnect the power plug from the outlet.
- Pull the plug out of the outlet by pulling on the plug. Do not pull on the cable.

DANGER

To protect against electric shock, the following instructions must be observed.

- Never leave the machine unattended when it is connected to the power supply.
- Immediately after use and before cleaning, switch off the machine and disconnect the power cable from the outlet.

In order to protect against injury, the following instructions must be adhered to.

- Do not look directly into the LED lamp with optical instruments (e. g. magnifying glass).
- If the LED lamp is damaged or defective, have the LED lamp checked or repaired at your local authorized BERNINA dealer.
- Switch off the machine before working in the needle area.
- Before starting the machine, attach all protection guards and close the covers.

Important information

Availability of the instruction manual

The instruction manual is supplied with the machine.

- Keep the instruction manual safe at a suitable place near the machine to have it at hand in case that you need to look up something.
- If you pass the machine to a third party, always include the instruction manual.
- The latest version of the instruction manual can be downloaded at www.bernina.com

Proper use

Your BERNINA machine is conceived and designed for private household use. It answers the purpose for overlocking fabrics as it is decribed in this instruction manual. Any other use is not considered proper. BERNINA assumes no liability for consequences resulting from improper use.

Equipment and scope of delivery

Example images are used in these operating instructions for the purposes of illustration. The machines shown in the images and the accessories shown therefore do not always match the actual items included with your machine. The supplied accessory can vary depending on the country of delivery. You can acquire any accessories mentioned or shown that are not included in the scope of delivery as optional accessories from a specialist BERNINA dealer. Further accessories can be found at www.bernina.com.

For technical reasons and in order to improve the product, changes may be made to the equipment of the machine and the scope of delivery at any time and without prior notice.

Maintenance of double-insulated products

In a double-insulated product, two systems of insulation are provided instead of grounding. No grounding means is provided on a double-insulated product nor should a means for grounding be added to the product. Servicing a double-insulated product requires extreme care and knowledge of the system and should only be done by qualified service personnel. Only original spare parts should be used for service and repairs. A double-insulated product is marked with the words: «Double-Insulation »or «double-insulated».



The symbol may also be marked on the product.

Environmental Protection

BERNINA is committed to the protection of the environment. We strive to minimize the environmental impact of our products by continuously improving product design and our technology of manufacturing.



The machine is labeled with the symbol of the crossed-out wastebin. This means that the machine should not be disposed of in household waste when it is no longer needed. Improper disposal can result in dangerous substances getting into the groundwater and thus into our food chain, damaging our health.

The machine must be returned free of charge to a nearby collection point for waste electrical and electronic equipment or to a collection point for the reuse of the machine. Information on the collection points can be obtained from your local administration. When purchasing a new machine, the dealer is obliged to take back the old machine free of charge and dispose of it properly.

If the machine contains personal data, you are responsible for deleting the data yourself before returning the machine.

Explanation of symbols

⚠ DANGER	Designates a high-risk hazard which can lead to serious injuries or potentially even death if not avoided.
⚠ WARNING	Designates a medium-risk hazard which can lead to serious injuries if not avoided.
⚠ CAUTION	Designates a low-risk hazard which can lead to minor or moderate injuries if not avoided.
NOTICE	Designates a hazard which can lead to material damage if not avoided.
	You will find **tips** from BERNINA **sewing experts** next to this symbol.

1 My BERNINA overlocker

1.1 Introduction

Since the introduction of the overlocker for household use in the early 80s, they have become a standard sewing tool and are here to stay. Overlockers not only sew faster than conventional sewing machines, they also achieve more steps in just a single operation, which saves time. Seams are cut back, seamed and finished simultaneously in one task. Due to the Differential Feed, particularly fine fabrics or very elastic materials can be processed professionally.

Stitches varieties of 18 overlock stitches are available for sewing comfortably with tried-and-tested Swiss quality.

In addition to this instruction manual for your BERNINA L 860 the following information products are enclosed.

The current version of your manual as well as many other information about the machine and the accessories can be found on our website www.bernina.comwww.bernina.com

1.2 BERNINA quality control

All BERNINA machines are assembled with utmost care and are subjected to an extensive functionality test. The subsequent thorough cleaning does not exclude the possibility that thread remnants may still be found in the machine.

1.3 Welcome to the world of BERNINA

Made to create, this is the slogan of BERNINA. Not only with our machines do we support you in the implementation of your ideas. In addition to the offers listed below, we offer you lots of suggestions and instructions for your future projects as well as the opportunity to exchange ideas with other sewing, quilting and embroidery enthusiasts. I wish you lots of pleasure.

BERNINA YouTube Channel

On YouTube we offer a wide range of how-to videos and support concerning the most important functions of our machines. You can also find detailed explanations many presser feet, meaning that your projects will be a complete success.

https://www.youtube.com/BerninaInternational

Available in English and German.

inspiration – the sewing magazine in the online shop

Are you looking for ideas, sewing patterns and instructions for great sewing projects? In this case, the BERNINA magazine «inspiration» is exactly what you need. Three times a year, inspiration offers fantastic sewing and embroidery ideas. From seasonal fashion trends to trendy accessories and practical tips to original decorations for your home or cute sewing ideas for children.

The magazine is available in English, German, Dutch, and French.

In our online shop you can purchase "inspiration" as an e-magazine or as a print version, either as individual issues or as a subscription. Furthermore, there are many individual downloadable cutting patterns to discover! Please have a look at https://www.bernina.com/inspiration

BERNINA Blog

Subtle instructions, free sewing patterns and embroidery motifs as well as many new ideas: All this you can find in the weekly blog of BERNINA. Our experts give useful tips and explain step by step how you can achieve the desired result. In the community you can upload your own projects and exchange experiences and ideas with other sewing and embroidering enthusiasts.

https://www.bernina.com/blog

Provided in English, German and Dutch.

BERNINA Social Media

Follow on social networks to learn more about events, thrilling projects as well as tips and tricks all about sewing, quilting and embroidering. We keep updated and we are happy to show you one or two highlights from the world of BERNINA.

https://www.bernina.com/social-media

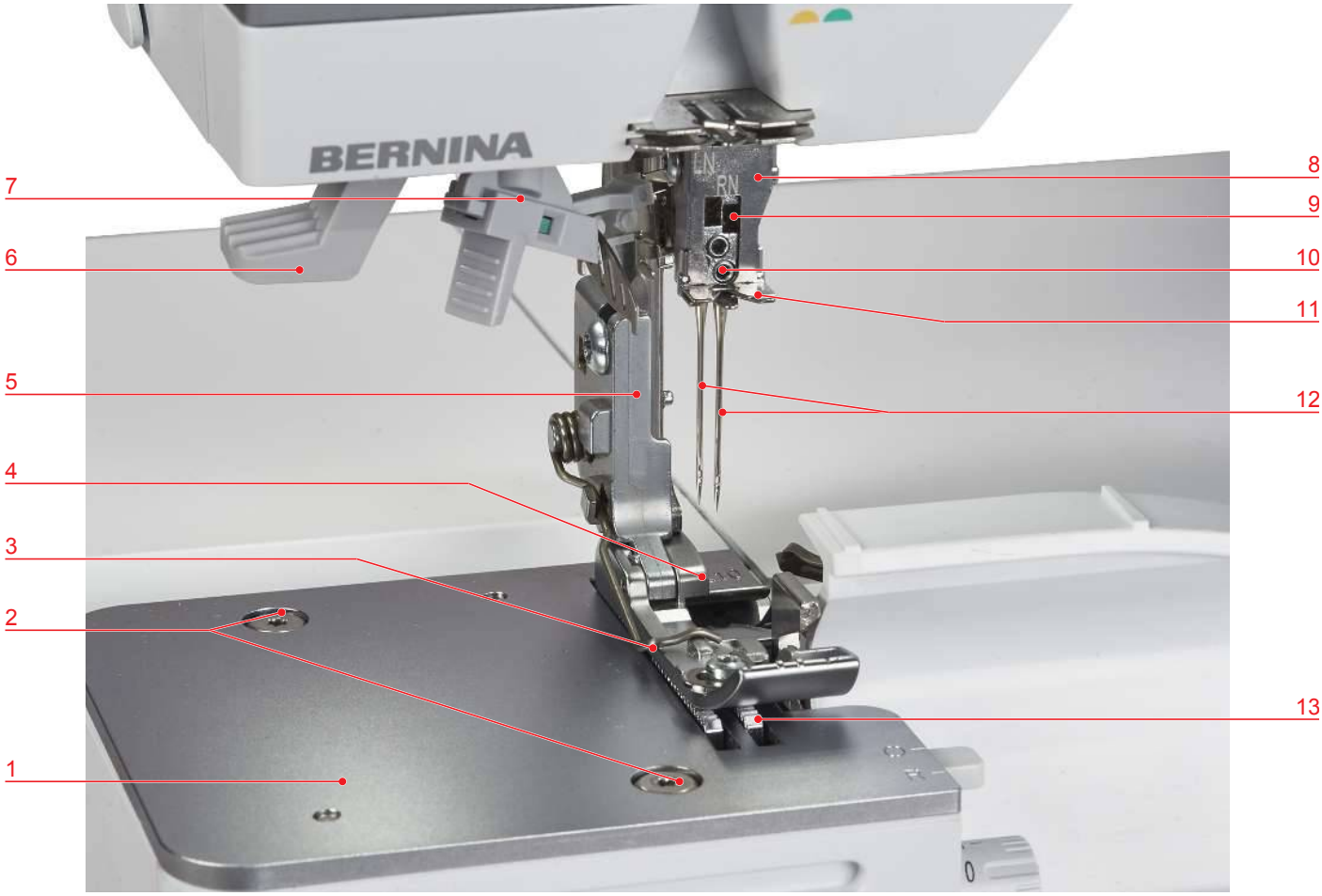
1.4 Machine overview

Overview - Front



1	Knife on/off	10	Thread deflection fingers
2	Cutting width dial	11	Thread tension fine adjustment
3	Freearm cleaning cover	12	Thread guiding plate
4	Freearm	13	Needle threader cover
5	Guide rail	14	Knife cover insert
6	Sewing light	15	Looper cover
7	Thread cutter	16	Cut-offs bin snap-in opening
8	Thread guide on the headframe	17	Connection for knee lifter (FHS)
9	Needle thread take-up lever cover	18	Suction feet

Overview - Needle area



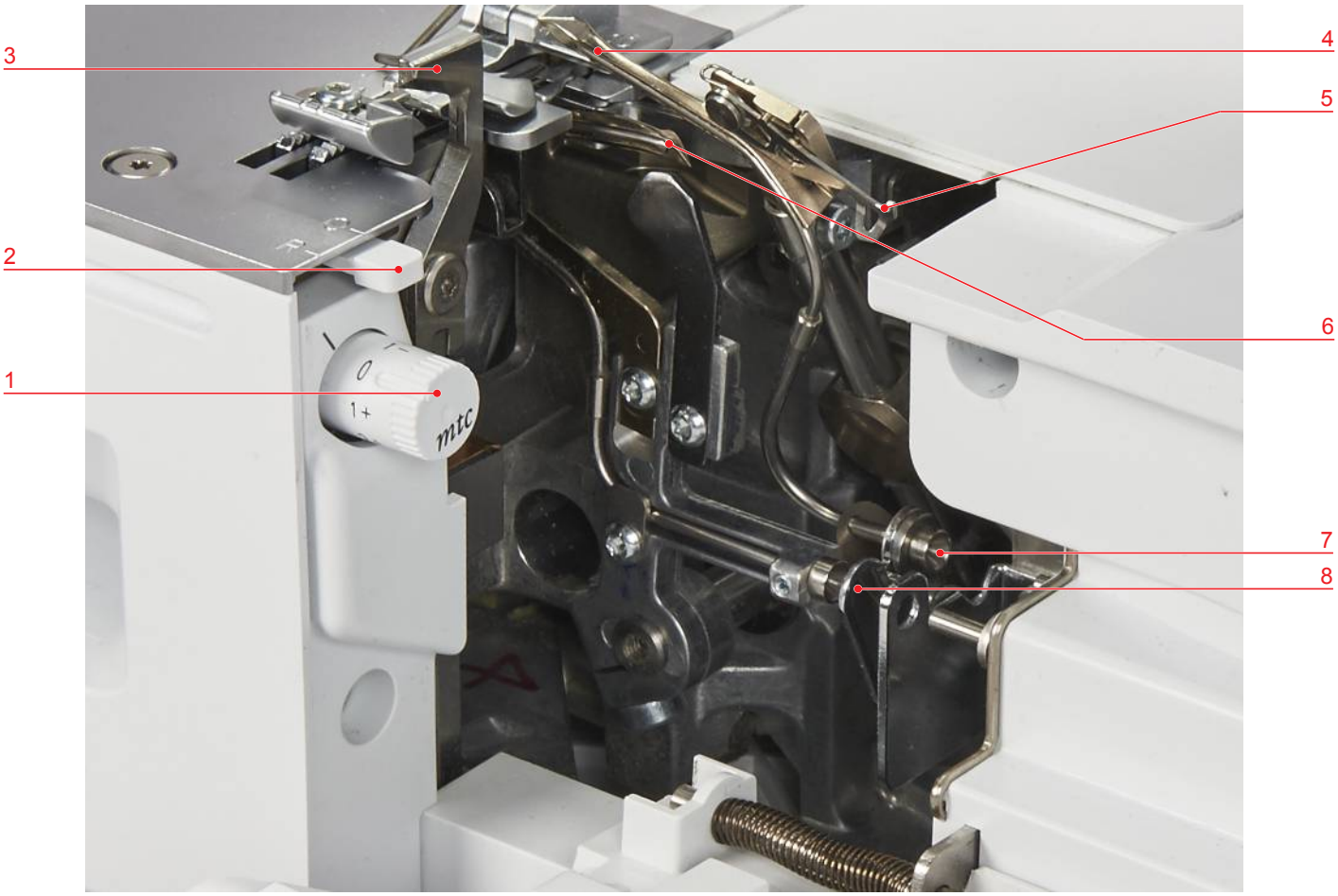
1	Stitch plate	8	Needle holder
2	Screws of the stitch plate	9	Needle checking window
3	Presser foot spring	10	Needle screws
4	Standard Presser Foot overlock	11	Thread guide on the needle holder
5	Presser foot shaft	12	Overlock needles ELx705 CF
6	Needle threader lever	13	Feed dog
7	Needle threader selector		

Standard Presser Foot overlock



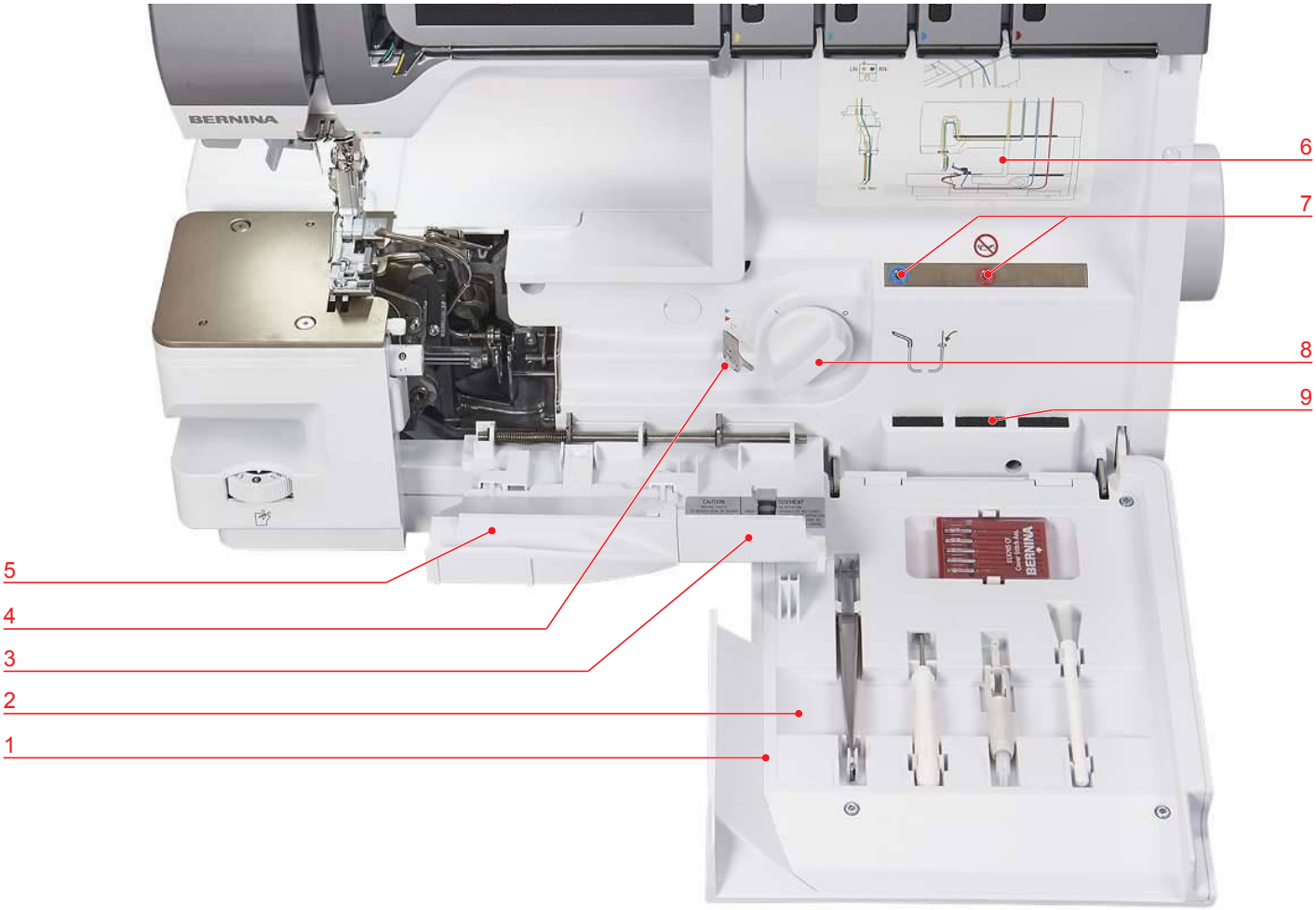
A Cutting line at cutting width 6
B Right needle for OL (RN)
C Left needle for OL (LN)
D 1 cm distance to the cutting line
E Tape Guide

Overview - Looper area



1	mtc micro thread control dial	5	Upper looper converter
2	Rolled hem selection lever	6	Lower looper
3	Knife	7	Air threader pipes upper looper
4	Upper looper	8	Air threader pipes lower looper

Overview - Threading area



1	Needle threader cover	6	Threading chart
2	Accessories storage	7	Air threader nozzles
3	Looper cover	8	Air threader connector on/off
4	Air threader circumvention	9	Needle pad
5	Knife cover insert		

Overview - side



1	Carry handle and recessed grip	6	Foot control connection
2	Handwheel	7	Power switch
3	Magnetic holder for touch screen pen	8	Power cable connection
4	USB connection (covered)	9	Type label
5	Air vents		

Overview - Back panel

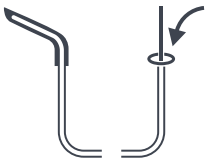


1	Spool pin	6	Thread cutter
2	Spool pin	7	Presser foot lifter
3	Carry handle	8	Presser foot release lever (red)
4	Retractable thread guide	9	Guide rail
5	Presser foot pressure wheel		

Symbols on the machine

The symbols on the machine are for your guidance and give assistance when adjusting settings and threading the machine.

	LN (Left needle for OL)	left overlock needle thread
		Thread path yellow OL
	RN (Right needle for OL)	right overlock needle thread
		Thread path green OL
	UL (Upper looper)	Upper looper thread
		Thread path blue OL Thread path blue air threading circumvention
	LL (Lower looper)	Lower looper thread
		Thread path red «LL» Thread path red air threading circumvention
▷		Thread path not used
	ULC (Upper looper converter)	Upper looper converter activated/deactivated
	CW (Cutting width)	Cutting width
	SL (Stitch length)	Stitch length
	DF (Differential Feed)	Differential Feed

	O/R (Overlock/Rolled hem)	Rolled hem selection lever
		Knife on/off
mtc	mtc (micro thread control)	micro thread control (mtc)
	FHS (Free Hand System)	Free Hand System (FHS)
		Presser foot pressure
		Air t hreader

Default values

The default values of the machine are chosen so that the settings are suitable for most typical applications.

4 ● The default values are marked on the machine with a gray dot.

The actual values may differ from the stitch chart depending on the fabric, thread and stitch and may need to be adjusted to the result of the sewing sample.

1.5 Overview - standard accessories

Included accessories

The machine is ready for operation with the supplied accessories. Special sewing applications sometimes require optional accessories.

Visit www.bernina.comfor more accessories information.

Illustration	Name	Purpose
	Dust cover	To protect the machine against dust when it is not in use and to store the accessories such as the slide-on table, the instruction manual, the Free Hand System, the foot control and the power cable.
	Power cable	To connect the machine with the power supply system.
	Foot control	To start and stop the machine. To control the sewing speed.
	Cut-offs Bin	To collect resulting scraps.
	Knife cover insert	To protect the fingers and to deflect the fabric cut-offs during the sewing process.
	Freearm cover	To extend the work surface.

Illustration	Name	Purpose
	Slide-on Table	To increase the sewing surface.
	Free Hand System (FHS)	To raise and lower the presser foot.
	Standard presser foot overlock #L10	For all overlock stitches. For general sewing projects. To sew on tape up to a width of 12 mm.
	Right seam guide	For an even fabric trim. To sew along a folded edge, without trimming, e.g. for flat joining seams. To guide while creating decorative pintucks or parallel seams and hems.

Accessories storage with accessories

The most frequently used accessories while sewing are stored in the threader cover of the machine.

Figure	Name	Purpose
	Needle set ELx705 CF	Recommended needles for all-purpose use.
	Screwdriver, Allen key 1,5 mm	To loosen or tighten the fixing screws on the needle holder.
	Brush	To clean the feed dog and the looper area.

Figure	Name	Purpose
	BERNINA tweezers	To grip the threads in narrow positions.
	Needle threader/inserter	To manually thread, insert and remove the needle.

Accenssories box with accessory

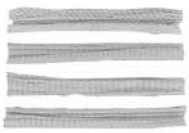
Illustration	Name	Purpose
	Accessories box standard with accessories	To store the supplied accessories as well as optional accessories.
	Overlocker oil	For oiling the looper components.
	Spool stabilizer (4 x)	To stabilize the thread cone on the thread stand.
	Spool net (4 x)	For even thread unwinding with smooth threads from the thread spool, e.g. nylon, rayon, silk threads or metallic yarns.
	Spool disc (4 x)	To support the regular unwinding of the thread from the spool.

Illustration	Name	Purpose
	Screwdriver, Torx T10	To loosen/tighten the stitch plate screws.
	Threading wire	To thread the looper threads manually in the air threader pipe.

Accessories box extension with accessories

Illustration	Name	Purpose
	Accessories box standard with accessories	To store the supplied accessories as well as optional accessories.
	Touchscreen pen	For precise operation of the touch screen.
	Coverstitch lock tool	To pull the needle threads and to secure the stitches.

1.6 Details of the screen

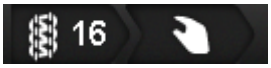
Software operation

The touch-sensitive screen can be operated with the finger or stylus.

Tap: Short tap of an element.

Draw: Tap the screen and slowly move in one direction, eg. for scrolling up and down.

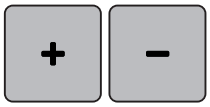
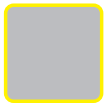
Navigation

Illustration	Name	Purpose
	«Home»	Switch between «Home screen» and «Sewing screen».
	Navigation path	Show a previous menu level.
	Animation	Show animations on the corresponding topic.
	«Close»	Close the window.
	More	Show more features or information.
	Continue	Scroll to next display.
	Back	Scroll to previous display.

Activate/deactivate functions

Figure	Element	Status
	Switch	Function is activated.
		Function is deactivated.
	Icon	Function ist deactivated.
		Function ist activated.

Adjust values

Illustration	Name	Purpose
	Slider control	Set the value with the slider control. Reset the value to the default value by tapping the small bullet.
	Field «Plus» / «Minus»	«Plus» increase, «Minus» reduce the value.
	Yellow frame	Indication that the set value differs from the default value. Reset the value to the default value by tapping.

Enter text and numbers

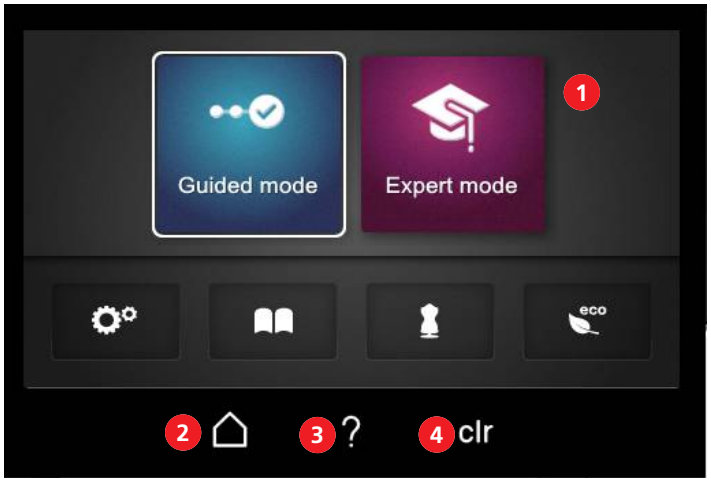
To enter numerical values or text, a corresponding keyboard is shown.



Illustration	Name	Purpose
	Entry field	Display of the entry. Delete all characters entered with a single tap.
	«Delete»	Delete the last character.
	«Lower Case Characters»	Show the available letters in lower case letters.
	«Upper Case Characters»	Show the available letters in upper case letters.
	«Numbers and Mathematical Characters»	Show the available numbers and mathematical characters.
	«Special Characters»	Show the available special characters.
	«Confirm»	Confirm the entry and leave the submenu.
	«Cancel»	Cancel the entry and the view closes.

Screen structure

The screen can be operated by touching the desired icon with your finger or with the included touch screen pen. When the machine is switched on for the first time, the desired screen language is requested in which the display texts appear. Each time the machine is switched on again, the sewing screen appears directly.



1	«Home screen» or «Sewing screen»	3	«?»-Help
2	«Home»	4	«clr»

«Home» switches between the two screens «Home screen» and «Sewing screen». «Home» allows you to obtain information, make machine settings or get sewing tips without losing the set stitch.



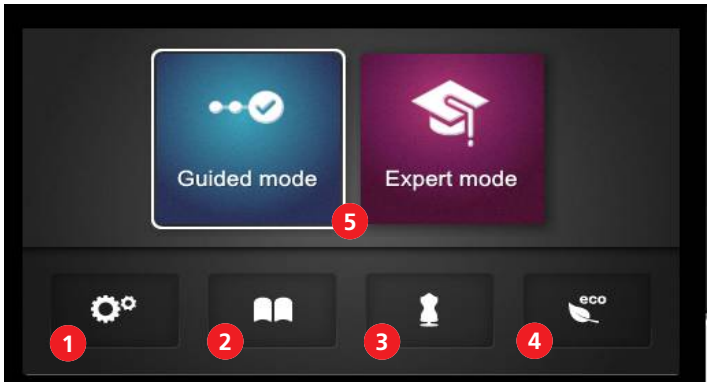
When «?» help is activated, information is called up and displayed on the selected screen area.



clr «clr» resets all settings of the selected stitch changed on-screen to the default value.

Home screen

All settings/queries that are **not** directly related to a specific stitch are made in the home screen. This view provides an entry-point to personalize the machine and query information.



1	«Setup Program»	4	«eco»
2	«Tutorial»	5	«User modes»
3	«Creative consultant»		

Setup Program

The setup program is used to make software settings or store machine information that is not directly related to a stitch setting.

Tutorial

The tutorial provides information and explanations about different areas of overlocking and the machine.

Creative consultant

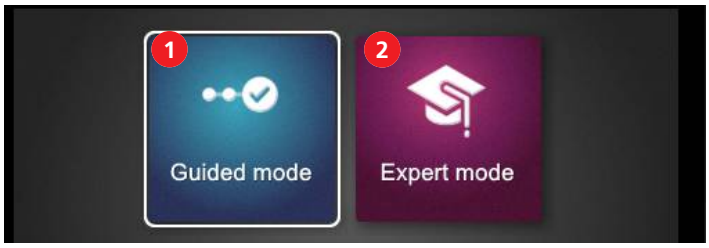
The creative consultant recommends the optimal stitch in combination with needle, thread and presser foot based on an individual project. (see page 72)

eco mode

If work is interrupted for a longer period of time, the machine can be switched to power saving mode. The eco mode also serves as a child safety feature. The screen will be locked and the machine cannot be started.

User modes

The user modes allow to preset the sewing screen according to the sewing experience of the user. The Guided mode is preset.



1 «Guided mode»
2 «Expert mode»

Guided mode

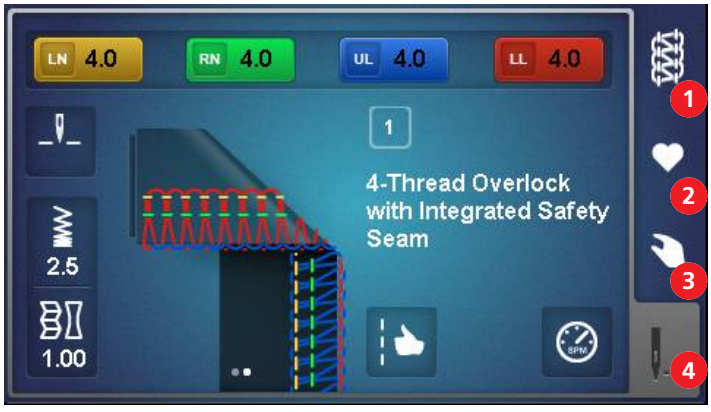
The guided mode is preset as standard and allows a smooth start into the operation of the machine. No previous knowledge is required. This mode guides you step by step through the necessary manual settings and leads to sewing start. Before changing to another stitch, you are asked whether the currently set stitch is to be added to the personal memory. Animations are offered in many places and help to perform the correct operation. By default, this mode is represented by a blue background of the screen.

Expert mode

The expert mode is a creative and fast mode, which allows shortened operation and only the most important instructions are indicated. In this mode a good knowledge of overlocking is required. After selecting the stitch this mode shows an overview of the manual settings, which are to be individually checked or executed. By default, this mode is represented by a purple background of the screen.

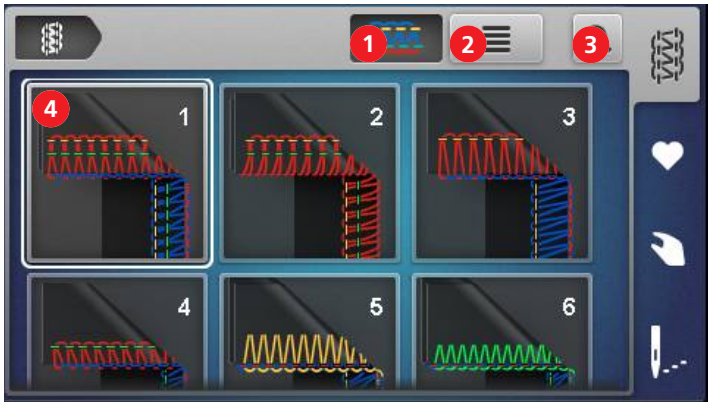
Sewing screen

The sewing screen displays all the settings that are directly related to a stitch. Different views or default values of the stitch can be displayed or the Setup Wizard can be called up.



1 «Stitch selection»
2 «Personal Memory»
3 «Manual settings»
4 «Stitch view»

Stitch selection



1	«Stitch pattern»	To switch between schematic or realistic stitch view.
2	«Name»	To activate/deactivate the stitch name next to the stitch pattern.
3	«Stitch number»	To select the stitch by entering the stitch number.
4	«Stitches»	To select an overlock stitch.

Personal memory

In the Personal Memory, changed stitch settings are saved, named and selected. A stitch name is unique and can not be assigned multiple times. A maximum of 100 different stitch settings can be saved as notes.



1	«Stitch view»	To switch between schematic or realistic stitch view.
2	«Saving a stitch»	To save the set stitch in the Personal Memory.
3	«Renaming a stitch»	To rename a saved stitch in the Personal Memory.
4	«Deleting a stitch»	To delete the stitch from the Personal Memory.

Manual settings

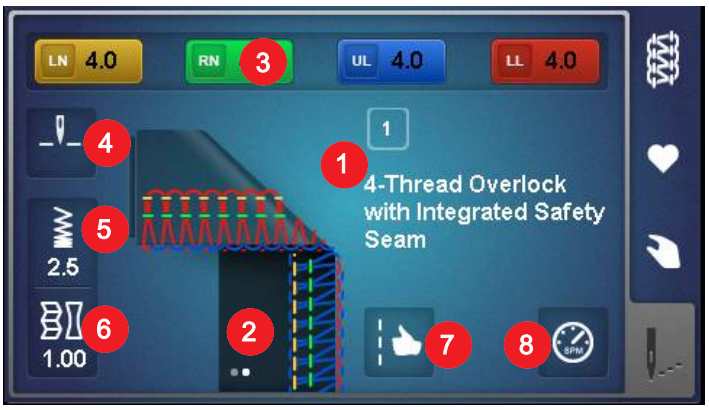
This overview shows which manual settings must be made for the selected stitch. All settings listed here must be checked and performed in order to sew the selected stitch.



	Note	Description
1	«Presser Foot»	Indicates the presser foot recommended for the stitch. (see page 43)
2	«Upper Looper Converter»	Indicates whether the upper looper converter is hooked in or hooked out. (see page 75)
3	«Knife on/off»	Indicates the necessary position of the knife. (see page 73)
4	«Cutting width»	Indicates the recommended cutting width. (see page 74)
5	«mtc micro thread control»	Indicates the recommended default value of the mtc Micro Thread Control. Setting the mtc micro thread control. (see page 82)
6	«Presser foot pressure»	Indicates the value of the presser foot pressure. (see page 83)
7	«Rolled hem selection lever O/R»	Indicates the position of the Rolled Hem Selection Lever. (see page 81)
8	«OL needles»	Indicates at which positions the needles must be inserted for the corresponding stitch. (see page 44)
9	«Cancel»	Closes the screen «Manual settings» and switches to the previous view.
10	«Confirm»	Closes the screen «Manual settings» and switches to the view of the currently selected stitch in the «Stitch view».
11	«Wizard»	Starts «step-by-step instruction» through the manual settings that must be made or checked for the selected stitch.

Stitch view

Any changes in this stitch view directly affect the stitch and the machine. All displayed values are set by the machine accordingly.



1	«Stitch number/name»	Shows the currently set stitch name with the stitch number.
2	«Stitch view»	Shows the currently set stitch pattern. Can include multiple views (schematic / real or exploded eg flat seam).The dots refer to hidden views. Tap to switch views.
3	«Thread tension»	Shows the preset default thread tension value for each required thread path. Tap to change.
4	«Needle stop up/down»	Indicates the position of the needle when the needle stops. Tap to change.
5	«Stitch length»	Indicates the stitch length. Tap to change.
6	«Differential Feed»	Indicates the preset default value of the Differential Feed. Tap to change.
7	«Stitch Optimizer»	Shows possible stitch results with the setting actions for stitch optimization. Tap to use.
8	«Sewing speed adjustment»	Determines the maximum sewing speed with the foot control pressed down. Tap to change.

Setting with a direct effect on the stitch

- Stitch length setting. (see page 84)
- Differential Feed setting. (see page 78)
- Thread tension adjustment setting. (see page 76)

These settings, or any changes to them, are saved in the Personal Memory when the stitch is saved.

Functions with direct influence on the machine

- Needle stop up/down. (see page 49)
- Sewing speed setting. (see page 56)

These settings or any changes to them, remain active until they are changed again.

2 Setting up the machine

2.1 Working area

A solid table with a secure stand is a good prerequisite for optimal sewing results. Ergonomics around the sewing table is important to protect the muscles and joints of the back, shoulder, arms and hands. The recommendation for this includes matching the table height with the body posture. Avoid remaining in the same position for long periods.

The machine can also be operated when standing.

> Place the machine on a solid table.

Correct sitting position

> Sit comfortably in front of the machine.
> Hold the arms bent at 90° across the table, with the fingertips facing the machine.
  – The fingertips should touch the stich plate.

Connecting the machine

> Insert the power cable into the power cable connection (1).



> Insert the power plug into the power outlet.

Use of the power cable (only USA/Canada)

The machine has a polarized plug (one contact is wider than the other). To reduce the risk of electric shock, the plug can only be plugged into the socket in one way. If the plug does not fit into the socket, turn the plug. If it still does not fit, contact an electrician to install an appropriate outlet. Do not modify the plug in any way.

Switching the machine on/off

> Set the main power switch to position «I».
  – The machine, the sewing light and the screen are switched on.
> Set the main power switch to position «0».
  – The machine, the sewing light and the screen are switched off, whereby the sewing light may still glow a little.



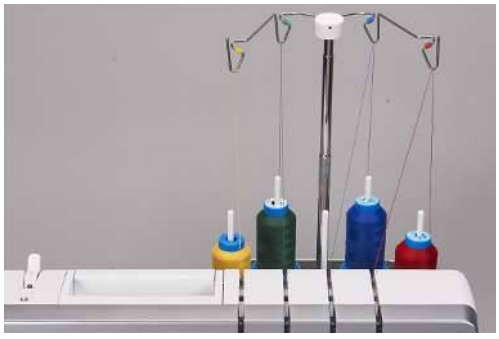
2.2 Thread stand

The thread stand is placed on the back of the machine. Thread cones, foot spools or household spools of all sizes can be placed on the thread stand.



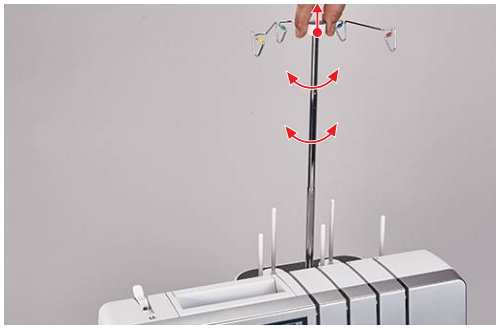
Preparing the retractable thread guide

The retractable thread guide is placed on the thread stand. It ensures a clean unwinding of the thread from the thread cones. Each thread is guided through a thread guide wire located directly above the thread cone. These thread guide wires are color-coded according to the threading path.

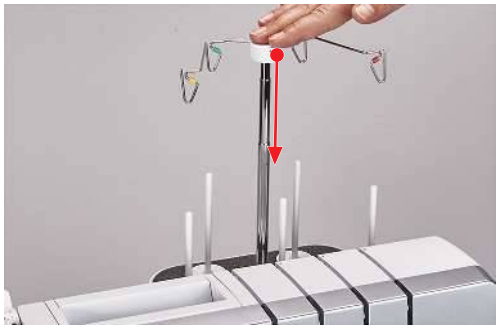


> Hold the thread guide attachment and pull it fully up.

> Turn the thread guide to the left and right until the two positioning pins engage.
  – The outer thread guide wires are parallel to the machine front.



> To retract the thread guide, push the thread guide down with a little pressure.



Attaching the spool stabilizer

For large thread cones, the spool stabilizer serves to stabilize the thread cone on the spool pin.



> For extremely conical spools, place the spool stabilizer onto the spool pin with the pointy end up.
> For slightly conical spools, place the spool stabilizer onto the thread spool pin with the pointy end down.



Place the spool disc

The Spool Disc ensures the stability of the thread spool and the even unwinding of the thread.

> Place the thread spool on the Thread Stand.
> Push the flat side of the Spool Disc over the Spool Pin to the thread spool.



Using the spool net

The spool net prevents the thread from sliding down from the thread spool and is recommended for special threads.

- Thin threads, which slide easily off the spool
- Nylon, rayon, silk threads or effect and metallic threads



> Put the spool net over the thread spool from above and pull the thread end upwards.



2.3 Foot control

Connect the foot control

> Unwind the foot control cable out to the desired length and then reattach the cable to the clamping modules.
  – To ensure the cable stays on the desired side.



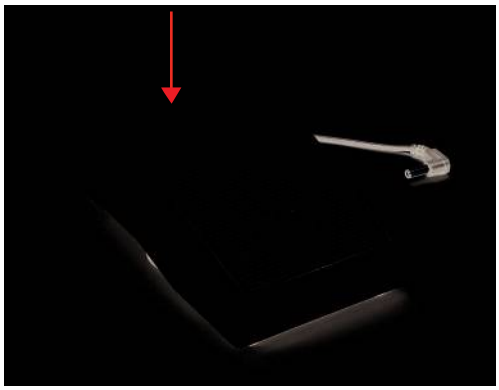
> Insert the cable of the foot control into the foot control connection (1).



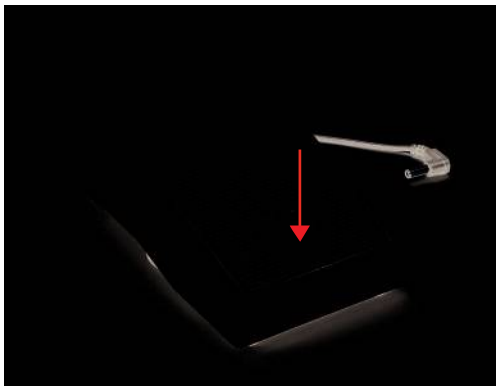
Press the foot control

Pressing the foot control moves the needles, the loopers and the knife. The sewing speed can be infinitely adjusted by more or less pressure on the foot control. The maximum sewing speed (pressing the foot control all the way down) can be preset. (see page 56) When the threader cover is open, the one-step BERNINA air threader starts.

> To start the sewing process, press the foot control down.
> To stop the sewing process, release the pressure on the foot control.



> To position the needle up/down, press the foot control down with the heel «Back-kick».



The «Back-kick» is deactivated when the machine covers are open.

Acoustic signal

If the sewing preparation of the machine or the air threading process is not guaranteed, an acustic signal sounds by pressing the foot control. Troubleshooting Guide

> Lower the presser foot.
> «Back-kick» to set needle in topmost position.
> Close the looper cover and the threader cover.

2.4 Presser foot

Positioning the presser foot up/down

The lifted presser foot allows you to place the sewing project under the presser foot. The lowered presser foot is a prerequisite for starting to sew.

> Lift the Presser Foot Lifter until it engages.
  – The presser foot remains in the upper position.
  – The Thread Tension is released.



> Lower the Presser Foot Lifter.
  – The machine is ready for sewing.
  – The Thread Tension is active.



Lifting the front foot

By lifting the presser foot lifter above the latching position, the space between the stitch plate and presser foot increases.

Thick layers of fabric can be placed more easily under the presser foot.

Prerequisite:

- The presser foot is raised.

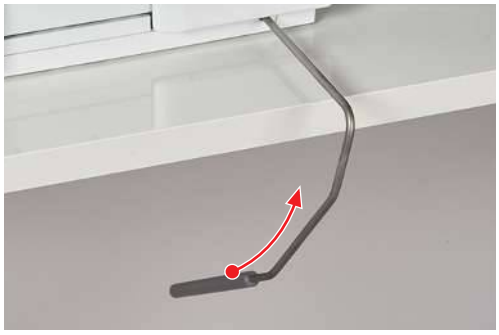
> Pull the presser foot lifter up over the upper latching position and hold it.
  – The presser foot lifts another 3 - 4 mm and the presser foot front is lifted.

> Release the tension on the presser foot lifter.
  – The presser foot is held in the lock-in position.



Lifting the presser foot up/down with the knee lifter

Temporarily lifting the presser foot using the Free Hand System allows the sewing project to be repositioned using both hands.



Prerequisite:

- The Knee Lifter of the Free Hand System is attached. (see page 52)

> To raise the presser foot, press the Knee Lifter with the knee out to the right and hold it in place.
> To lower the raised presser foot, slowly release the pressure on the Knee Lifter.
> To lower the already engaged presser foot, press the knee lifter all the way to the right and release slowly.

Swing the presser foot in/out

Swinging out the presser foot facilitates changing and threading the needle.

Prerequisite:

- The needles are in the top position. (see page 49)
- The presser foot is raised.

> Swing the presser foot front sideways to the left.



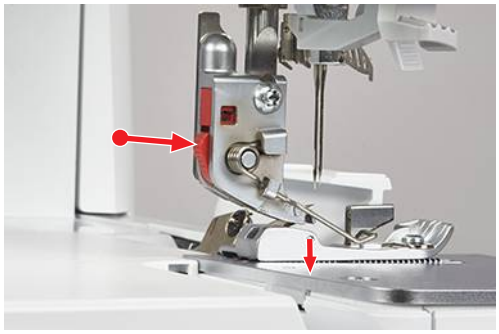
> To set the presser foot in the sewing position, lower the presser foot lifter or swing the presser foot sideways to the right.

Changing the presser foot

Prerequisite:

- The needles are in the top position.
- The presser foot is raised.

> Press the Release Button on the rear side of the Presser Foot Shaft.
  – The presser foot is released.



> Lift the Presser Foot Spring slightly and remove the presser foot.
> Lift the Presser Foot Spring slightly and place the new presser foot beneath the shaft groove so that the shaft groove lies exactly above the Presser Foot Pin.
> Lower the Presser Foot Shaft carefully until the shaft groove engages with the Presser Foot Pin.



> Raise the presser foot.

2.5 Needle area

Needle Holder

The needle holder can hold three needles. The machine is designed for needles of the ELx705 system. Needle sizes between 70 – 90 are to be used for this machine.



Needles for Overlock Stitches





«LN» Left Needle for Overlock Stitches.



«RN» Right Needle for Overlock Stitches.

Changing the Needle

The use of the Needle Inserter is recommended and prevents the needle from falling into the Feed Dog area. (see page 23)

Correctly inserted needles are not at the same height.

NOTICE

Damage due to excessive tightening of the screws

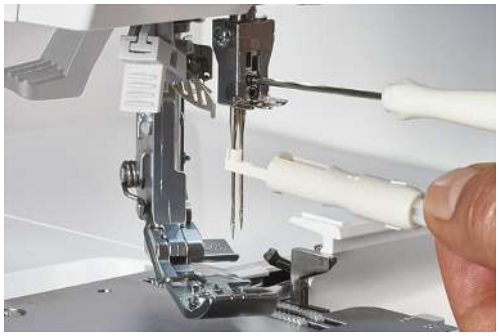
The threads of the Needle Holder may be damaged. A repair by the Authorized BERNINA dealer is required.

> Do not overtighten the Needle Screws.

Prerequisite:

- The needles are in the top position.
- The presser foot is up and swung out.

> Guide the needle inserter from below over the needle and loosen the needle screw using the supplied screwdriver Hex.



> Remove the needle downwards and place it in the needle box or the needle pad behind the threader cover.
> Insert the new needle with the flat side to the back into the needle inserter.



> Push the needle into the corresponding Needle Holder opening as far as it will go.
> Check the needle position in the needle checking window.



> Tighten the needle screws.

Needle pad

The needle pad is located behind the threader cover and is used to store needles that are not being used.



Using the built-in needle threader

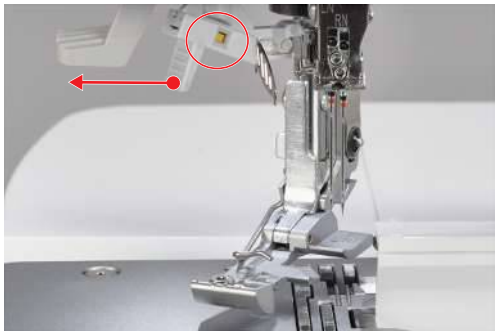
The built-in needle threader serves as the fastest threading method for the needle size 80 – 90 and can be used for the left.

Threading the needles

Prerequisite:

- The presser foot is swung out.
- The desired needle is inserted.

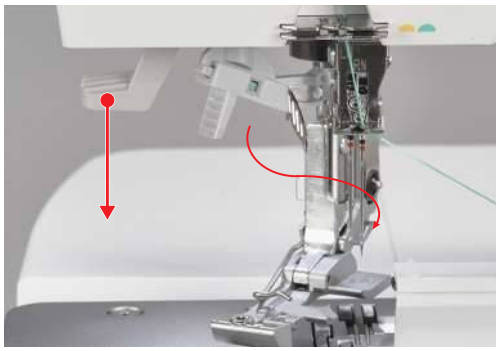
> Move the needle threader selector to the left.
  – The yellow marking can be seen and the built-in needle threader is ready for the left needle.



> Move the needle threader selector to the right.
  – The green marking can be seen and the built-in needle threader is ready for the right needle.



> Press the needle threader lever down and keep pressed.



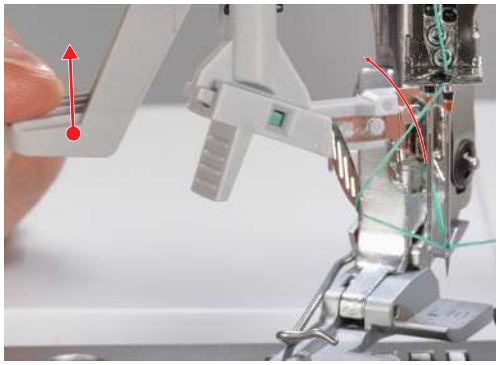
  – The threader head hook is pushed through the prepared needle eye.

> Pull the thread around the thread deflector and through the guide slots at the threader head.

> Extend the thread to the back on the right.



> Release the pressure on the needle threader selector and let it go back to its initial position.



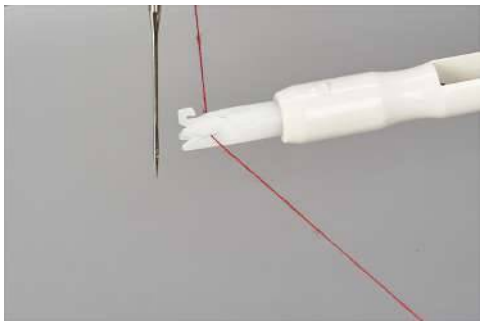
– The thread is pulled through the needle eye by a backward movement of the threader head and behind the needle holder a thread loop is formed.
– Avoid holding the thread too tightly, otherwise the thread loop cannot be formed.

> Pull the thread loop backwards using the needle threader/inserter.
> Place the thread beneath the presser foot to the back left.

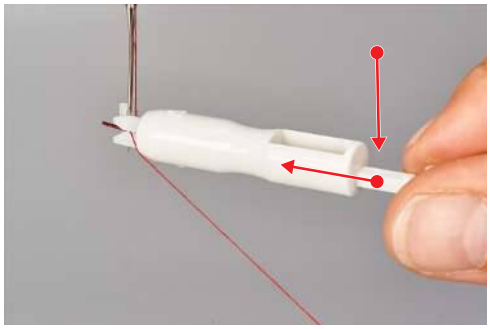
Threading the needle manually

With the Needle Threader every needle can be threaded easily.

> Hold the needle threader with the triangular mark facing up.
> Pull the thread horizontally through the Y-shaped slot and hold the end of the thread.

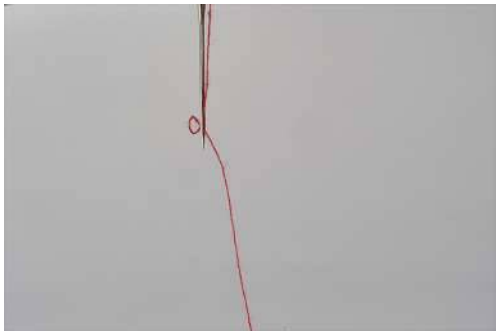


> Place the needle threader with the triangular mark facing upwards on the needle and glide along the needle with light pressure towards to the needle eye.



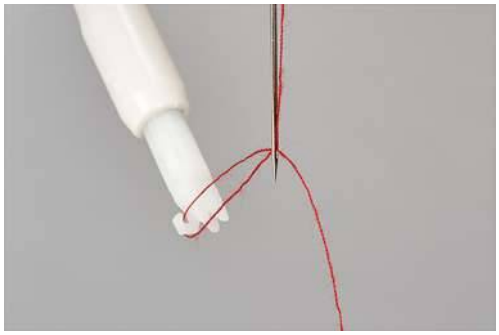
– The metal pin presses the thread through the eye of the needle.

> Release the pressure on the needle threader and remove it from the needle.



– A thread loop has formed.

> Use the hook of the needle threader to pull the thread loop to the back.



> Place the thread beneath the presser foot to the back left.

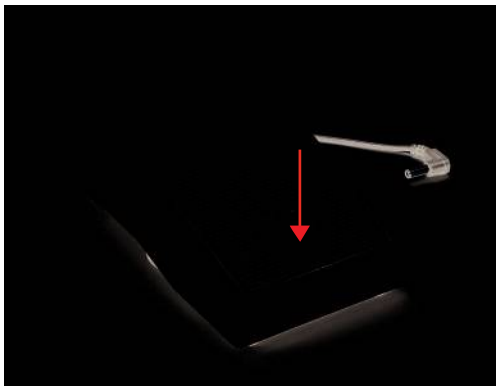
Positioning the needles up/down

The needles always remain in the topmost position when the sewing process is stopped. Turning the handwheel changes the needle position and the topmost position is not ensured. The «Back-kick» is deactivated when the machine covers are open.

The top needle position is required for the following actions:

- to change the needle
- to thread the needle
- to swing out the presser foot
- to start the air threader process

> «Back-kick» on the foot control.
  – The needles are positioned up/down.



Adjusting the needle stop up/down



The needle stop position can be preset in the stitch view and defines the stop position of the needle at the end of the sewing. (see page 34)

> Tap needle stop up/down.
  – The needle stops in the selected position.

2.6 Machine covers

The machine covers protect against injuries caused by moving components and prevent fragile elements from being damaged. All covers must be fitted or closed prior to sewing.

- Threader cover
- Looper cover
- Knife cover insert

A needle movement is still possible in some cases. (see page 87)

Open/close the Threader Cover

The Threader Cover protects the inserted looper threads during sewing operations.

> To open the threader cover, hold the groove and lower it forwards.



> To close the threader cover, swing the threader cover up until it clicks into place.



If the Threader Cover cannot be closed completely, the Air Threader Connector is still switched on.

Open/close the looper cover

The looper cover with integrated knife cover insert protects against injuries caused by the movement of the looper and knife movement as well as against dust and fabric scraps.

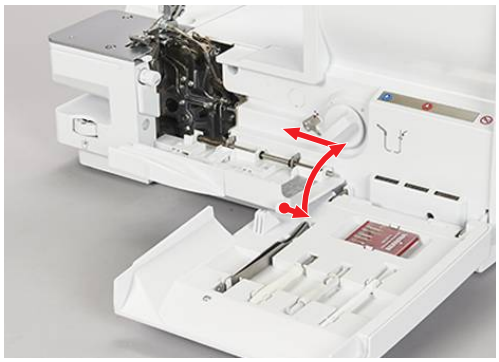
Prerequisite:

- Threader cover is opened.

> To open the looper cover, push the tabbed handle to the right and then lower it to the front.



> To close the looper cover, lift the tabbed handle upwards and let it slide back to the left slowly.



2.7 Handwheel

By turning the Handwheel counterclockwise, several activities can be performed.



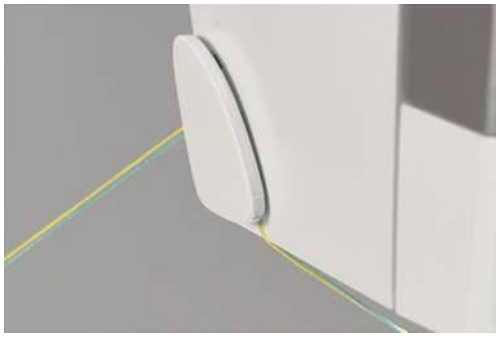
- Slow, precise placement of the needle
- Moving the Loopers
- Moving the Knife
- Mechanical coupling of the Air Threader

2.8 Sewing Assistance

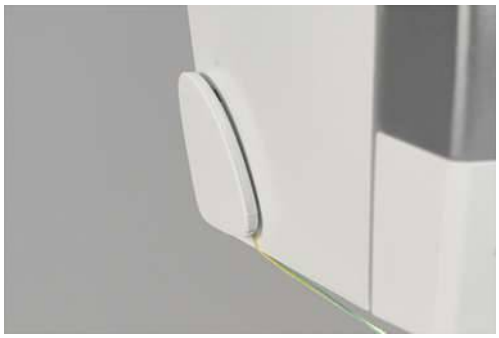
Using the thread cutter

The Thread Cutter is used to cut the threads/thread chain.

> Pull the threads/thread chain into the thread cutter and downwards.



– The threads/thread chains are held after cutting and are ready for sewing.



Attaching/removing the knee lifter

Temporarily lifting the presser foot using the Free Hand System allows the sewing project to be repositioned using both hands.

> To attach the Knee Lifter, push the Knee Lifter Engaging Cam in a horizontal position into the Knee Lifter Connection until it stops.



> To remove the Knee Lifter, pull the Knee Lifter out of the Knee Lifter Connection without swinging the Knee Lifter sideways.

The swing-out position of the knee lifter can be adjusted at an authorized BERNINA dealer if required.

Attaching/removing the cut-offs bin

The Cut-offs Bin catches the fabric scraps during the sewing process.



> To attach the Cut-offs Bin, hook the Cut-offs Bin into the snap-in opening on the Looper Cover.



> To remove the Cut-offs Bin, lift the Cut-offs Bin out of the snap-in opening on the Looper Cover.

Attaching/removing the freearm cover

The freearm is ideal when working with tubular, closed projects such as cuffs, trouser hems or sleeve ends. The freearm cover closes the gap between the stitch plate and the sewing surface.

Prerequisite:

- The slide-on table is removed.

> To attach the freearm cover, push the freearm cover along the guide rails from the left until it engages.
> To remove the freearm cover, pull the freearm cover to the left.



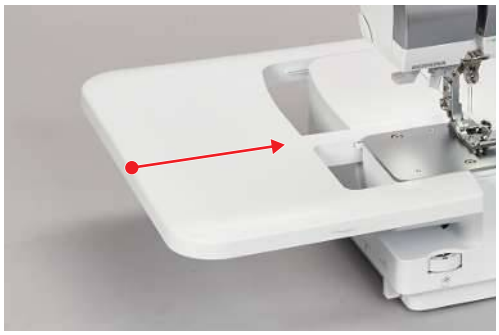
Attaching/removing the slide-on table

The slide-on table increases the sewing surface, which is especially helpful with larger sewing projects.

Prerequisite:

- The freearm cover is removed.

> To attach the slide-on table, push the slide-on table along the guide rails from the left until it engages.



> To remove the slide-on table, press the release mechanism (1) of the slide-on table and pull the slide-on table to the left.



Fixing the touch screen pen

The touch screen pen can be attached to the magnetic holder so that it is within easy reach.

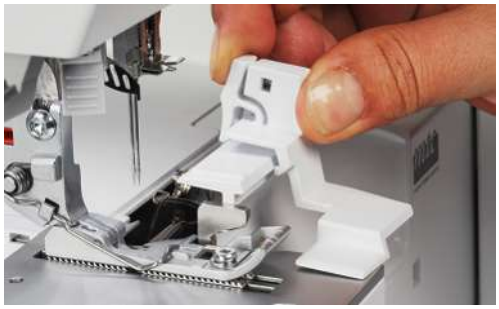




Attaching/removing the seam guide

The seam guide enables the fabric to be cut evenly, e.g. when sewing decorative pintucks. When guiding along the edge of the fabric fold without cutting, the seam guide supports straight seams.

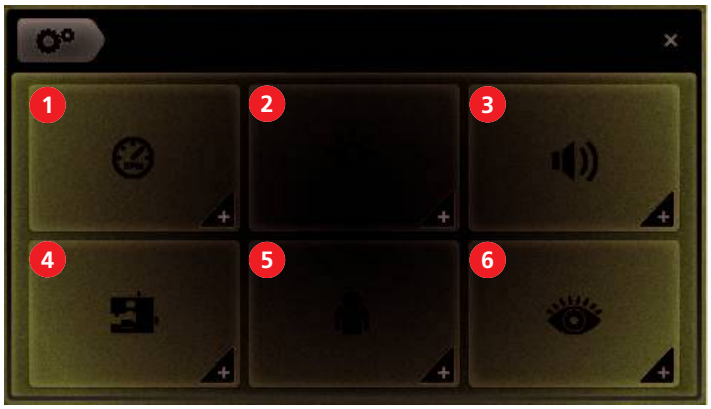
> Press the clamp together at the upper part of the seam guide, place the seam guide on the edge of the knife cover insert and let it engage.



> To remove the seam guide, press the upper part of the clamp together and pull it away from the knife cover insert.

3 Setting up software

3.1 Setup Program



1	«Sewing speed»	4	«Firmware settings»
2	«Screen brightness / sewing light»	5	«Personal settings»
3	«Sound settings»	6	«Monitoring functions»

Adjusting the sewing speed

The sewing speed of the machine can be preset.

The maximum sewing speed is achieved by pressing the foot control all the way down. The minimum sewing speed is attained by pressing the foot control gently. (see page 39)



1	«Setting the maximum sewing speed»	2	«Setting the minimum sewing speed»

> Preset the maximum sewing speed.

Adjusting screen brightness/sewing light

The screen brightness can be regulated according to your own wishes.

If the sewing light has a disturbing effect on the project, the Sewing Light can be switched off and on again.

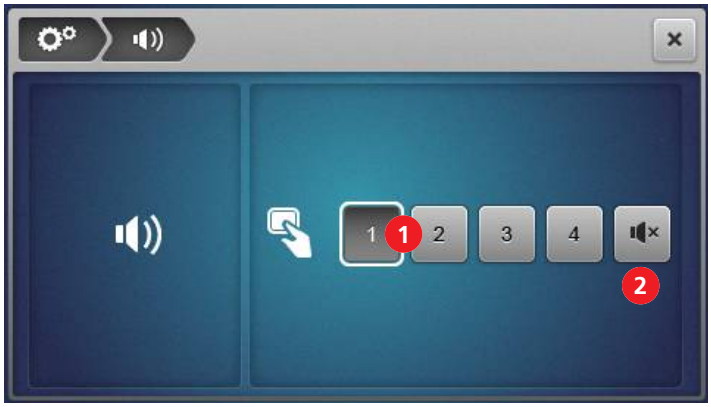


1 «Screen brightness» 2 «Sewing light on/off»

> Preset the screen brightness.
> Switch the sewing light on/off.

Activating the audio signals

On-screen touches are confirmed with a sound. The sound can be selected or muted as requested.



1 «Set sound» (1-4) 2 «Mute sound»

> Select a sound type or switch to mute by tapping.

Setting up the firmware



1 «Language selection» (see page 108)
2 «Information on the firmware version» (see page 108)
3 «Calibrating the screen» (see page 112)
4 «Factory setting» (see page 109)
5 «Firmware update» (see page 110)

Personalize the sewing screen

Different colors can be assigned to the sewing screen for the two user modes «Guided mode» and «Expert mode». A wallpaper pattern can be selected, which is displayed for both user modes.

The entry of the welcome text appears only for a short time during the start-up of the machine.



1 «Welcome text»
2 «Background color» of the sewing screen
3 «Wallpaper» of the sewing screen

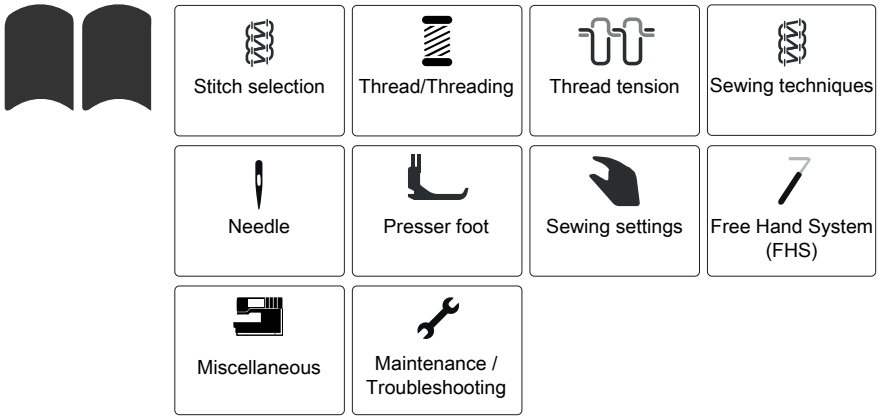
Presser foot indicator

When the «presser foot indicator» is activated, an animation appears if the presser foot is not in sewing position. A warning signal is heard when the sound is on.



1 «Presser foot indicator»

3.2 Querying the Tutorial

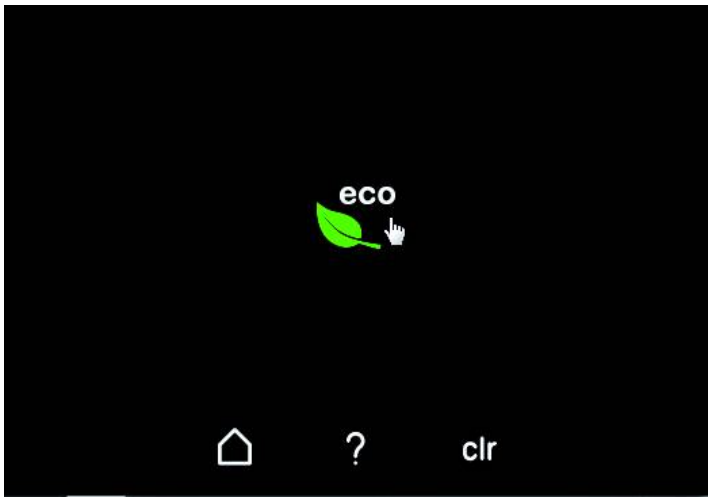


> To get to the topic selection, tap the «Tutorial».
> Select a subordinate topic until the desired information is obtained.
  – An active progress navigation at the upper left edge of the screen serves as orientation.

3.3 Activating the eco mode



> Press «eco».



– The screen turns black and the eco mode symbol appears.
– The sewing light switched off.
– The machine is not ready for sewing.

> Tap the icon «eco» on the screen.
– The Home screen appears.

4 Sewing start

4.1 Check before starting to sew

In order to start a project successfully, the following steps must be performed:

- The machine is switched on and the presser foot is lifted.
- The fabric and the applications have been selected. (see page 61)
- The thread has been selected.
- The needle size is matched with the thread type and the sewing project.
- The stitch is selected.
- The machine settings based on the stitch selection have been performed. (see page 73)
- The threading has been perfomed.
- All needle threads and looper threads lie under the presser foot to the back left.
- The looper cover and the threader cover are closed.

> Lower the presser foot.

> To start the sewing process, press the foot control.

  – A thread chain is formed.

  – If no thread chain is formed, the settings on the machine for the stitch must be checked.

4.2 Selecting the fabric

The choice of fabric, in combination with needle, thread and stitch, plays a vital role in achieving the perfect sewing result. The sewing test with the selected fabric is recommended. (see page 98)

4.3 Selecting the thread

A wide range of sewing and special overlock threads are manufactured in various sizes and in different fiber combinations.

- The use of high quality overlock thread is recommended to achieve good results.
- Use thread cones/spools which are suitable for overlock machines.

NOTICE

Thread breakage due to incorrect needle/thread or thread/looper matching

The thread needs to glide smoothly through the respective thread guides.
It must be possible to feed the thread through the looper or the needle eye without any resistance.
Thread thick decorative threads exclusively into the loopers, use the air threader circumvention if necessary.
In the case of thick threads, elongate the stitch length and reduce the thread tension.

Selecting the needle thread

Needle size and thread type must be carefully matched. The correct needle size depends both on the selected thread type and the fabric to be sewn. The fabric weight and type determine the thread weight, needle size and point form.

Needle thicknesses of 70 - 90 can be used on the machine.

Thread type	Needle size
Polyester overlock thread No. 120	80 – 90
Polyester multifilament < No. 120	70 – 90
Wooly nylon	80 – 90
Decorative thread/yarn	80 – 90
Metallic thread	80 – 90

Check the needle/thread combination

	The needle/thread combination is correct, when the thread fits perfectly into the long groove and goes easily through the needle eye.
	The thread can break and skipped stitches can occur when there is too much clearance in the long groove and the needle eye.
	The thread can break and get stuck when the thread scrapes against the edge of the long groove not fit well into the needle eye optimally.

Selecting the looper thread

A wide variety of thread types can be used as looper threads. They can be threaded using the air threading system. The air threading circumvention must be used for thicker threads. (see page 90)

NOTICE

Damage by coated or waxed threads

Coated or waxed threads may lose some of their coating in the air threader pipes, resulting in permanent blocking of the pipes. Repair by a BERNINA dealer will be necessary. Avoid use of coated or waxed threads.

4.4 Selecting the needle

This machine is designed for needles of the system ELx705 with needle sizes 70 – 90. It is recommended to use the ELx705 CF (Chrome Finish) version as ELx705 CF needles are more durable. Due to the second thread groove, the machine runs most reliably with ELx705 CF needles.

If required, needles of the 130/705 H system can also be used. These universal needles can provide good results in certain applications and are available with various tip shapes and in different needle sizes.

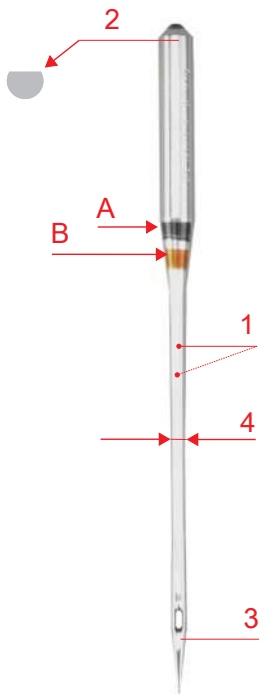


Fig. 1: Coverstitch needle ELx705 CF/80

A	■ **Coverstitch needle ELx705 CF/80**	3	**CF** = Chrome finish
1	two thread grooves	4 / B	**80** = Needle size
2	**705** = Flat shank		

The needles should be replaced regularly. Only a perfect needle point can achieve a proper stitch.

- Needle size 80: For any common applications. For medium-weight to heavyweight fabrics
- Needle size 90: For heavyweight fabrics
- Needle sizes < 80: In exceptional cases, only for light fabrics

Needle overview

Illustration	Designation	Size*	Description	Material/Application
 ■	**Coverstitch needle** ELx705 CF	80/12 90/14	Needle with two thread grooves	Overlock and coverstitch applications universal
 ■	**Jersey/Coverstitch needle** ELx705 SUK CF	80/12 90/14	Mid-sized ball point	Overlock and combo applications in knits and knitwear
 ☒	**Universal needle** 130/705 H	70/10 80/12 90/14	Slightly rounded point	For nearly all natural and synthetic fabrics (woven and knitted)
 ■	**Stretch needle** 130/705 H-S	75/11 90/14	Mid-sized ball point, special eye shape and groove	Jersey, tricot, knitted and stretch fabrics
 ■	**Jersey/Embroidery needle** 130/705 H SUK	70/10 80/12 90/14	Mid-sized ball point	Knitwear and embroidery
 ■	**Jeans needle** 130/705 H-J	80/12 90/14	Pointed, narrow point, reinforced shank	Heavy-weight fabrics such as jeans, canvas
 ■	**Microtex needle** 130/705 H-M	70/10 80/12 90/14	Especially sharp, narrow point	Mircro fiber fabrics and silk
 ■	**Quilting needle** 130/705 H-Q	75/11 90/14	Slightly rounded, narrow point	Straight and topstitching
 ☒	**Fine material needle** 130/705 H SES	70/10 90/14	Small ball point	Fine knitwear, embroidering on fine, delicate fabrics
 ■	**Metafil needle** 130/705 H METAFIL	80/12	Long needle eye (2 mm) in all needle sizes	Sewing projects with metallic threads

*Not all needle sizes are available as BERNINA Needles.

Detect defective needles

Check the needle before each sewing start and replace it if necessary.



1 Bent needle
2 Damaged needle point
3 Blunt needle

4.5 Fixing fabric layers

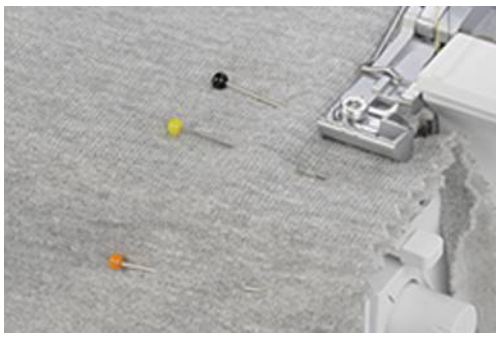
If several layers of fabric are sewn together, they can be fixed with basting stitches sewn on the sewing machine or by pins.

NOTICE

Damage to the Knife

Pins placed too close to the fabric edge can be caught by the knife. The needle tips can be sheared off or the blade of the knife can be damaged.
Position the pins at an adequate distance from the edge of the fabric.

> Place the pins approx. 2 cm from the edge of the fabric or remove them continuously while sewing.



5 Stitch

5.1 Stitch type

With this machine different stitch formations can be set. These stitches are achieved by different configurations of needles and mechanical settings.

Overlockstitch

The 3- and 4-Thread Overlock are considered standard overlock stitches for sewing two layers of fabric together, for finishing cut edges, e. g. facings, hem edges and seam allowances that are ironed apart.

The 2-Thread Overlock is ideal for finishing a fabric edge.

4-Thread Overlock

The 4-Thread Overlock is the most durable stitch thanks to the safety seam. The left and right overlock needle thread as well as the upper and lower looper thread are required for this stitch. The overlock needle threads form two parallel stitch rows, which on the front side look like step stitch rows of a sewing machine. On the wrong side, the overlock needle threads form «dots» to catch the under looper thread when the fabric is pierced, whereby the right overlock needle thread also serves as a safety seam.



3-Thread Overlock

The 3-Thread Overlock is usually stretchable than the 4-Thread. Therefore it is ideal for seams on knitted fabrics (LN wide) or fine fabrics (RN narrow).



2-Thread Overlock

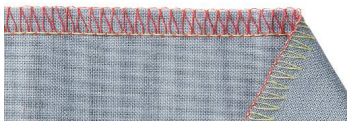
The 2-thread overlock is formed with an Overlock Needle Thread (LN wide or RN narrow) and the Under Looper Thread. The Lower Looper thread is guided to the right side of the fabric by means of the hooked-in Upper Looper Converter. This overlock stitch is only suitable for edge finishing.



5.2 Select stitch by application

Edge serging

The finishing of a fabric edge is mostly used as preparation for open seams or as a decorative edge finish.

Stitch number	Stitch name	Stitch pattern
No. 3	3-thread overlock wide (LN)	
No. 4	3-thread overlock narrow (RN)	
No. 8	3-thread rolled hem	
No. 9	2-thread wrapped overlock wide (LN)	
No. 10	2-thread wrapped overlock narrow (RN)	
No. 13	2-thread rolled hem	
No. 14	2-thread overlock wide (LN)	
No. 15	2-thread overlock narrow (RN)	
No. 28	2-Thread Blanket Stitch Wide (LN)	

Stitch number	Stitch name	Stitch pattern
No. 29	2-Thread Blanket Stitch Narrow (RN)	
No. 30	3-thread picot stitch	

Seam

Seams are at least two layers of fabric, which are usually placed right side on right side and then sewn together. There are two different types of seams.

- Closed seams
- Flat seams

Closed seam

For closed seams 3-thread or 4-thread overlock stitches are suitable, because they loop around both fabric edges and sew them together. These stitches are mainly chosen for garments made of knitted fabrics and for wide cut garments made of woven fabrics.

Stitch number	Stitch name	Stitch pattern
No. 1	4-thread overlock with Integrated safety seam	
No. 2	3-thread super-stretch	
No. 3	3-thread overlock wide (LN)	
No. 4	3-thread overlock narrow (RN)	
No. 7	3-thread narrow seam	

Flatlock for flat seams

The flatlock forms loops on the upper side of the seam and stitches on the underside.

> Thread and set the machine for 2- or 3-thread flatlock.
> to sew two layers of fabric together (wrong side on wrong side).
> Carefully separate the two layers of fabric.
  – The two fabric edges now lie flat on top of each other at the stitch width of the flatlock.

Stitch number	Stitch name	Stitch pattern
No. 5	3-thread flatlock wide (LN)	
No. 6	3-thread flatlock narrow (RN)	
No. 11	2-thread flatlock wide (LN)	
No. 12	2-thread flatlock narrow (RN)	

5.3 Stitch selection on the screen

There are three different options to select a stitch.

	Select a stitch from the «Stitch selection» in the sewing screen. (see page 70)
	In the sewing screen, select a stitch from the «Personal memory». (see page 70)
	In the Home screen, open the «Creative Consultant» for assistance. (see page 72)

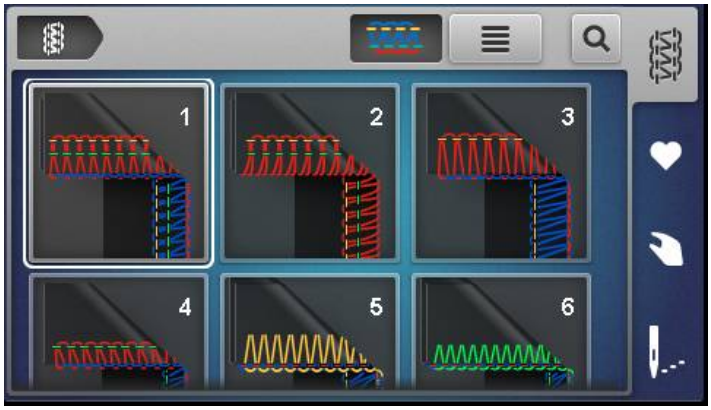
When changing a stitch in the guided mode, a prompt appears asking whether the current stitch should be saved.

Selecting a stitch directly

Prerequisite:

- «Sewing screen» is active.

> Select the «Stitch selection».



> Select a «stitch.»
  – The Wizard begins.

> Follow the instructions by scrolling forward and perform one setting at a time, step by step.

The stitch selection with the preset Expert Mode omits the Setup Wizard and displays an overview of the manual settings to be made.

Selecting/Editing a stitch from the Personal Memory

> Select the Personal Memory.
  – Stitches which are already saved are displayed.



> Select the stitch by tapping on the icon.
  – The Setup Wizard starts.

> Perform all settings for the selected stitch step by step on the machine and scroll forward.

> When all settings have been made, tap on «Confirm».
  – The stitch from the Personal Memory is visible in the stitch view and ready to sew.

Stitch save/overwrite



In order to save a stitch with changed settings in the Personal Memory, the stitch selection and any modifications to it must already have been made.



From the guided mode, tapping on the personal memory automatically displays a query as to whether the stitch should be saved.

> By «confirming» the query, the screen «Save the stitch» opens directly.
> By «canceling» the query, the screen «Personal memory» opens directly.

Saving a stitch

> Select the «Personal Memory» and tap on «Save the stitch».
  – The stitch pattern is added to the selection without a stitch name.
> Select a new stitch pattern.
> Enter and confirm the stitch name using letters, numbers and symbols.
> Enter any changed manual settings as a note and confirm.
  – The stitch is saved.
  – The last selected stitch is shown in the stitch view.

Overwriting a stitch

> Select the «Personal Memory» and tap on «Save the stitch».
  – The stitch pattern is added to the selection.
> Select the stitch pattern of the stitch to be overwritten.
> Confirm the query «Overwrite».
> Check the stitch name, change it if necessary and confirm.
> Enter any changed manual settings as a note and confirm.
  – The stitch is renamed.
  – The last selected stitch is shown in the stitch view.

Rename stitch



Prerequisite:

- The Personal memory is selected.
- All saved stitches are listed.

> Tap on «Rename a stitch».
> Select the stitch pattern with the stitch name to be changed.
  – The entry field for stitch naming appears.
> Change and confirm the new stitch name using letters, numbers and symbols.
  – The stitch name is changed in the personal.

Delete stitch



Prerequisite:

- The Personal Memory is selected.
- All saved stitches are listed.

> Tap «Deleting a stitch».
  – The stitches in the memory that can be deleted are marked.
> Tap on the stitch pattern of the stitch to be deleted.
> Confirm the query «Delete» on the screen.
  – The stitch is deleted from the Personal Memory.

Using the stitch recommendation of creative consultant



Prerequisite:

- The Home screen is selected.
- The Creative Consultant is selected.

> Select the fabric type.
> Select the application.
  – A matching stitch, presser foot, thread and a matching needle are suggested.
> Reject the suggestions made by the Creative Consultant.
  – The home screen appears.
> Confirm the suggenstion made by the Creative Consultant.
  – The Setup Wizard starts.
> Perform all settings for the selected stitch step by step on the machine and scroll forward.
> By tapping on «Confirm», you also confirm that the settings have been made on the machine.

6 Machine settings

6.1 Setting the knife

Knife on/off

For a better overview and better access in the sewing area, e. g. for threading, the knife can be lowered (off) and then raised again (on). The knife is also lowered if the sewing project already has a clean cut edge and the edge is only to be finished. The best sewing results are achieved by cutting and finishing in one single step.

> Push «Knife off» to the back.
  – The knife is lowered.



> Pull «Knife on» to the front.
  – The knife raises and is in cutting position.

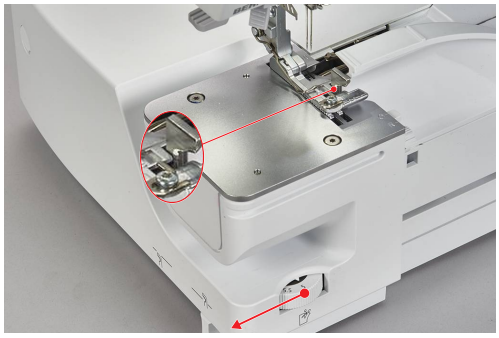


Setting the cutting width

The cutting width for the knife position can be adjusted between 5 - 9 mm. The numbers on the scale correspond with the actual cutting width in mm from the left overlock needle «LN» to the cutting edge. The cutting width is used to determine the stitch width. The set cutting width is indicated at the cutting width dial. (see page 84)

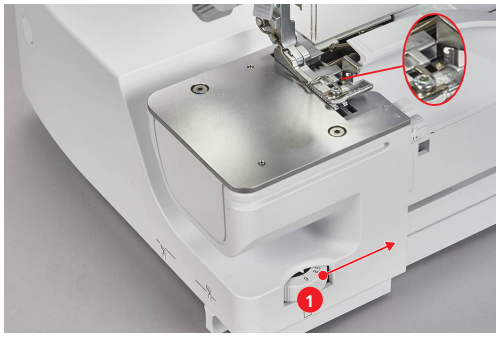


> To increase the cutting width, turn the cutting width dial (1) to the a higher value.



– The set cutting width is visible on the cutting width dial.

> To reduce the cutting width, turn the cutting width dial (1) to a lower value.



– The knife, the stitch finger and the looper cover move in the corresponding direction as a result of the set knife position.

6.2 Upper looper converter hooked in/hooked out

By hooking in the upper looper converter, the upper looper grabs the lower looper thread so that it covers the entire fabric edge.

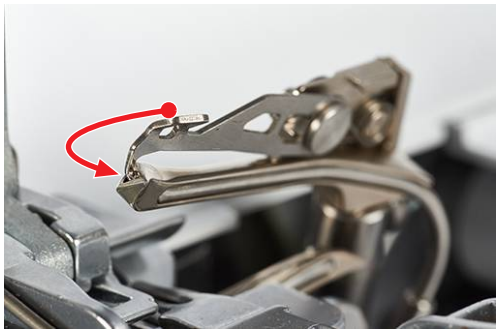
Prerequisite:

- The needles are in the top position.
- Upper looper is in position «I».
- The upper looper thread is removed.
- The lower looper thread is below the upper looper.

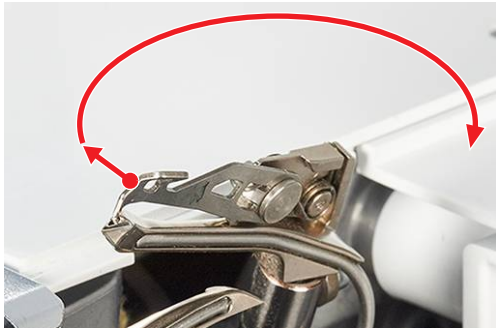
> To hook in the upper looper converter, swing the upper looper converter to the left at the retaining bracket.



> Lightly press the upper looper converter back on the retaining bracket and hook the snap-in lug into the eye of the looper, making sure that the snap-in lug is completely engaged.



> To unhook the upper looper converter, press the retaining bracket of the upper looper converter back slightly and remove the snap-in lug out of the looper eye.
> Swing the upper looper converter completely back to the right.



6.3 Adjusting the thread tension

The thread tension has a considerable influence on each individual thread and its task to perform the stitch formation. The thread tension is preset for each stitch with a default value and does not have to be changed until the test sewing.

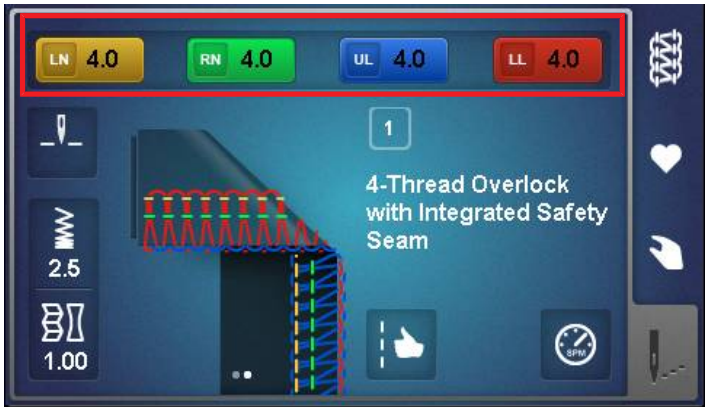
The thread tension can be changed while sewing.

> To reduce the thread tension, set the thread tension fine adjustment to a lower value.
> To increase the thread tension, set the thread tension fine adjustment to a higher value.

An adjustment of the stitch formation can primarily be achieved by reducing the thread tension.

The thread tension can be changed using the fine adjustment buttons «+»/«-» or in the stitch view. (see page 34)

> By selecting the thread tension range, the thread tension can be adjusted individually for each thread path.



> The slider control of each thread tension can be adjusted between 1 and 9.



> Each individual thread tension can be adjusted between 1 and 9 using the fine adjustment keys «+/-». The alteration of the thread tension is visible on the screen.



Resetting to default value

> Select the yellow-outlined field
  – The thread tension is reset to the default value.
> Touch the icon «clr»
  – resets all settings of the selected stitch that have been changed on the screen to the default value.

6.4 Adjusting the differential feed

The Differential Feed prevents unwanted seam puckering or seam waves in knitted or stretchy fabrics as well as the shifting of fabric layers. The rear feed dog always maintains the same speed, while the speed of the front feed dog can be adjusted. The two feed dogs can be synchronized with each other during the sewing process so that the fabric is fed as desired, and no waves or unwanted puckering occur.

To enable a «blind operation», the setting range is displayed larger when the machine is running.

> Set the Differential Feed proportion of the front feed dog via the Differential Feed setting.



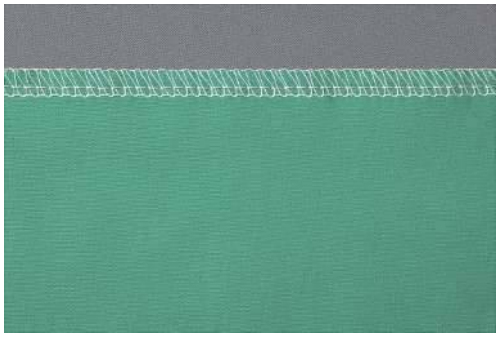
Setting for the front feed dog	Fabric	Result
2	Fine, soft fabrics	Ruffling, puckering, gathering
1.5	Jersey, sweatshirt, knits	Slight ruffling, preventing seam waving
1	Wowen knit and medium-weight dense fabric	Default value
0.7	Fine nylon tricots, densely woven fabric, lining, satin	Stretching, preventing seam puckering

These setting values describe the transport ratio of the front feed dog to the rear feed dog.

Default value 1



For default value 1, both feed dogs move by the same distance. The machine achieves an optimal sewing result for most applications regarding flat and even seams in the default value.



Ruffling/Gather to fit 1.5 – 2



The front feed dog with the setting value 2 travels a longer distance than the rear feed dog at constant speed.

Gathering

This setting for gathering can also be used to deliberately ruffle the material.

> To gather intentionally, increase Differential Feed to a value between 1.5 and 2. An elongated stitch length enhances the gathering effect.



Gather to fit

This setting for gathering can also be used to deliberately ruffle the material and helps to reduce seam waves.

> To prevent waving, increase the Differential Feed to a value between 1 and 2.



Stretching "0.7"



The front feed dog with the setting value 0.7 travels a shorter distance than the rear feed dog. This setting can also be used to deliberately stretch the material and to prevent seam puckering.

> To prevent seam puckering, reduce the Differential Feed to a value between 0.7 and 1.



6.5 Setting the rolled hem selection lever «O/R»

The adjustment positions for overlocking «O» and rolled hems «R» are marked in the stitch plate and can be set for the desired application.



Overlocking «O»

During overlocking, the upper and lower looper threads are laid around the stitch finger and this creates an even distance to the cut edge.

> Move the rolled hem selection lever to position «O».



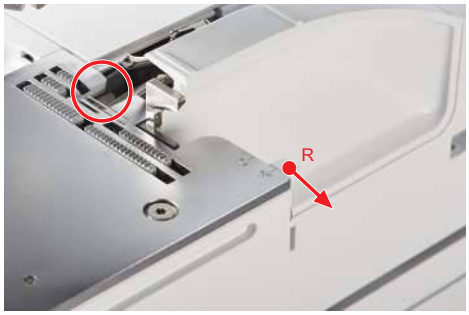
– Overlocking is activated.
– The stitch finger is extended.

If the thread quantity at the fabric edge is too much or too little, the thread quantity can be corrected by the mtc thread control. (see page 82)

Rolled hem «R»

By retracting the stitch finger, the loops of the upper and lower loopers thread are reduced and the fabric edge is rolled under. Rolled hems are the ideal edge finishing for fine fabrics. These are particularly suitable for decorative finishings on scarves, evening gowns, lingerie, home textiles and as lining seams.

> Move the rolled hem selection lever to position «R».



– The rolled hem is activated.
– The stitch finger is retracted.

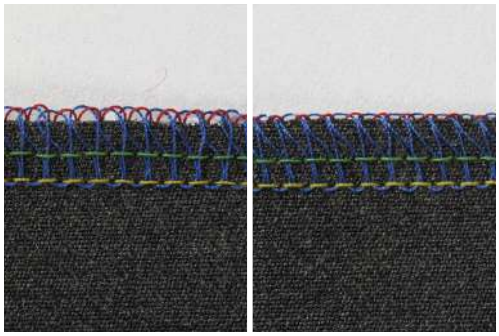
6.6 Setting the mtc micro thread control

mtc By default mtc micro thread control is always set to position «0». The mtc micro thread control affects the amount of the Looper Thread around the fabric edge and can be adjusted continuously while sewing. This feature makes it easy to achieve the look of the stitch at any given cutting width.

The mtc is most effective when used for a cutting width of 6 – 8 mm.

Between 5 – 6 mm the adjustment towards the minus «-» direction is limited.

Between 8 – 9 mm the adjustment towards the plus «+» direction is limited.

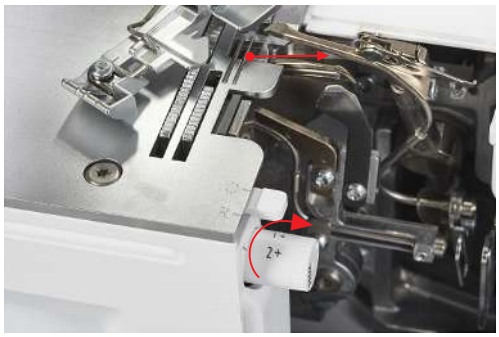


Prerequisite:

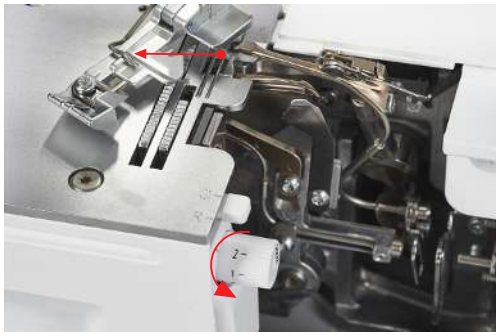
- The sewing test has been performed.
- The thread tension is set correctly.
- The knife position is set correctly.
- mtc (micro thread control) set to «0».

> To enlarge the loops of the Looper Thread at the fabric edge, turn the mtc micro thread control during sewing in «+» direction.

> In order to adjust the mtc micro thread control in «+» direction when the machine is at rest, the thread loops must be pushed off the stitch finger so that the movement of the stitch finger is not limited.



> To minimize the loops of the looper thread at the fabric edge, turn the mtc micro thread control in «-» direction during sewing.



6.7 Setting the presser foot pressure

The Presser Foot Pressure of the machine is set in the default value "4" so that it is suitable for sewing medium-weight fabrics. Most materials do not require any adjustment of the Presser Foot Pressure. However, there are some cases where an adjustment is necessary, for example when sewing very light or heavy fabrics.

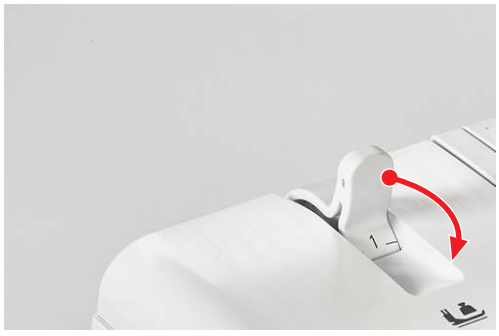


1	Extra-light	4	Default value
2	Light	5	Medium-high
3	Medium-light	6	High

> To set the optimal presser foot pressure for your sewing project, perform a sewing test.
> Reduce the presser foot pressure for light fabrics.
> Increase the presser foot pressure for heavy fabrics.
> To increase the presser foot pressure, set the presser foot pressure wheel to a higher value.



> To reduce the presser foot pressure, set the presser foot pressure wheel to a lower value.



6.8 Adjusting the stitch width

The stitch width can be adjusted in two different ways.

- Needle position
- Cutting width

Changing the stitch width via the needle position

The stitch width can vary by the choice of needle position by 2 mm.

> To sew a wide stitch, insert the left needle.

> To sew a narrow stitch, insert right needle.

Changing the stitch width via the cutting width

The stitch width can vary by adjusting the knife position. The scale of the cutting width dial determines the distance between the left overlock needle (LN) and the knife in mm. For the right overlock needle, the set scale value is reduced by 2 mm.

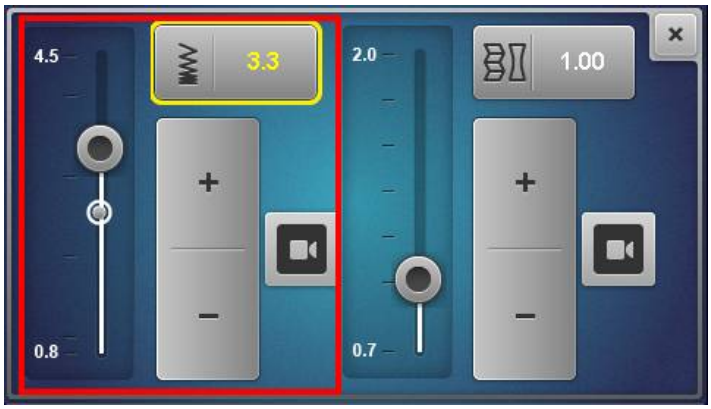
> To adjust the stitch width, set the cutting width dial between 5 – 9 mm.

6.9 Adjusting the stitch length

The stitch length setting corresponds to the feed dog movement in mm.

The common stitch length for overlock stitches is 2.5 mm, for coverstitches 3.5 mm and for combo stitches 3 mm. Stitch lengths of approx. 1 mm are e. g. used for rolled hems, while stitch lengths of approx. 4 mm are used for gathering or sewing on an elastic band. The stitch length can be infinitely adjusted between 0.8 – 4.5 mm while sewing.

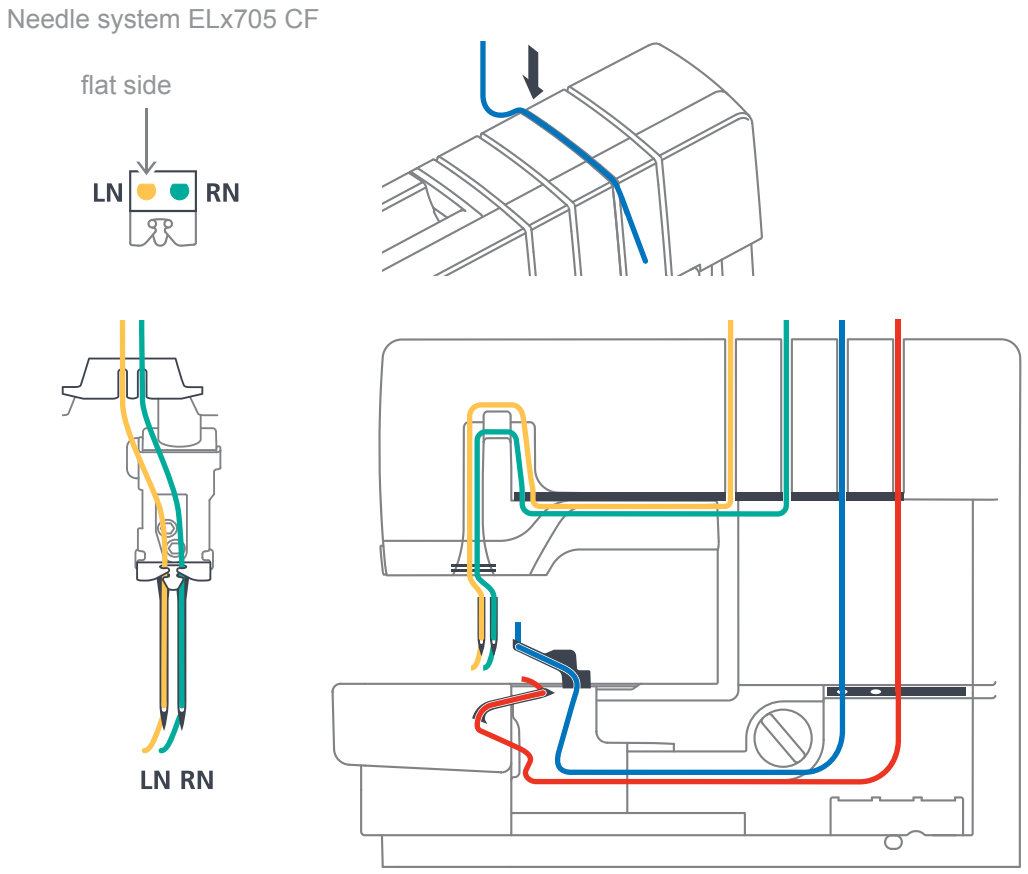
> Tap on the stitch length icon on the sewing screen and adjust the value.



To enable a «blind operation», the setting range is displayed larger when the machine is running.

7 Threading

Due to the one-step BERNINA air threader, no specific sequence is required for threading the machine.



7.1 Preparing for threading

Perform the required mechanical settings for the stitch e. g. needle position, rolled hem selection lever and upper looper converter. Correct threading is ensured when following the color markings.

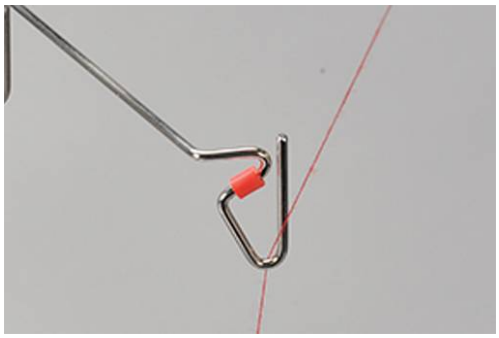
Prerequisite:

- The retractable thread guide is fully extended.
- The needles are in the top position.
- All threads that are not needed for the particular stitch have been removed.

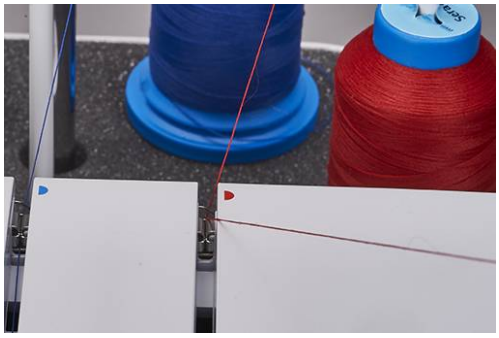
> Raise the presser foot.
  – The thread tensions are released. The thread can be inserted without resistance.

> Place the thread cones on the respective spool pin.

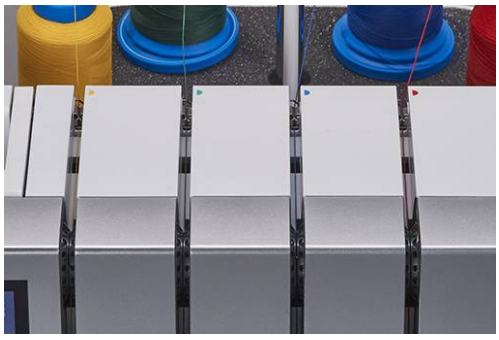
> Place the thread from the back through the corresponding color-coded thread guide.



> Engage the thread into the thread pretension with both hands downwards and check that the thread does not slip out of the thread pretension when pulling it up backwards.



> Place the thread along the threading slot between the thread tension discs.



7.2 One-step BERNINA air threader

NOTICE

Damage by coated or waxed threads

Coated or waxed threads may lose some of their coating in the air threader pipes, resulting in permanent blocking of the pipes. Repair by a BERNINA dealer will be necessary. Avoid use of coated or waxed threads.

The setting for the air threading is made by turning the air threader connection.



> Turn the air threader connection completely in the required direction.

Performing a pulse drive

The Pulse drive is a support function, allowing to move the main drive slowly while the covers are open. With this function the main drive moves to threading position or the upper looper is activated/deactivated.

NOTICE

Pulse drive

If the air threader pipes are not coupled, the Pulse drive will be performed by pressing the foot control.

The needles are brought into the top position and the coupling is complete.
Press the foot control again.
Threading or activating/deactivating upper looper can be continued.

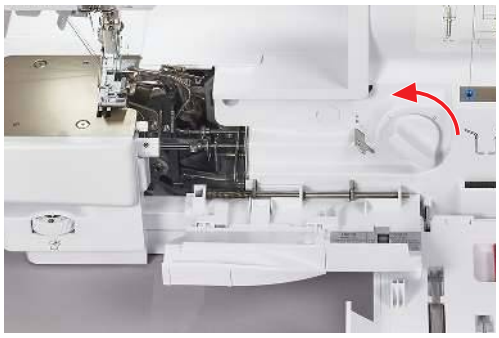
Threading the looper threads UL/blue, LL/red

For a stitch formation at least the lower looper thread (red) is required. Depending on the stitch, the upper looper (blue), the lower looper (red) are threaded.

Prerequisite:

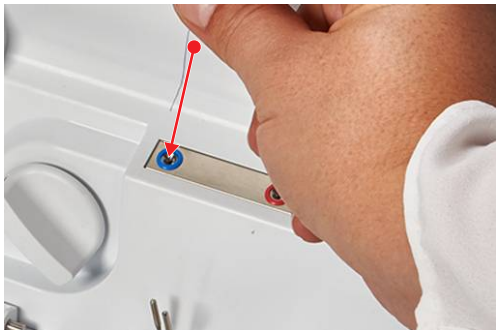
- «Preparing for threading» has been performed. (see page 86)

> Open the threader cover and the looper cover.
> Set the air threader connector to «I».

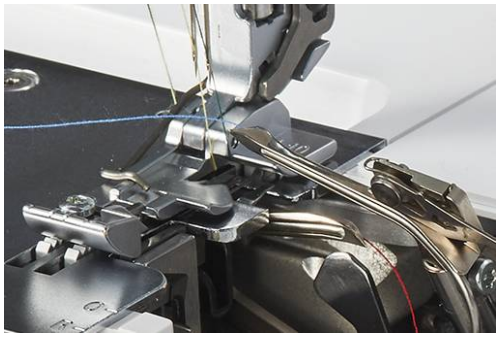


– The air threader pipes are coupled.

> Hold the thread end above the respective air threader nozzle.



> Pull a thread reserve of approx. 40 cm so that the thread can be completely drawn through the air threading pipe.
> Press the foot control.
– The automatic thread feed into the Air Threader starts.
– The looper thread is shot through the air threader pipe and exits at the looper tip.
> As soon as the looper thread emerges out of the looper eye, release the foot control.



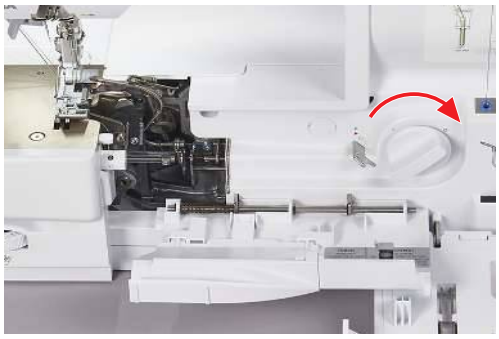
NOTICE

Pulse drive

If the air threader pipes are not coupled, the puls drive will be performed by pressing the foot control.

The needles are brought into the top position and the coupling is complete.
Press the foot control again.
Threading can continue.

> Place the looper threads under the presser foot to the rear left.
> Repeat the process with the other Looper Thread if required.
> Set the air threader connector to position «0».



> Close the looper cover and the threader cover.

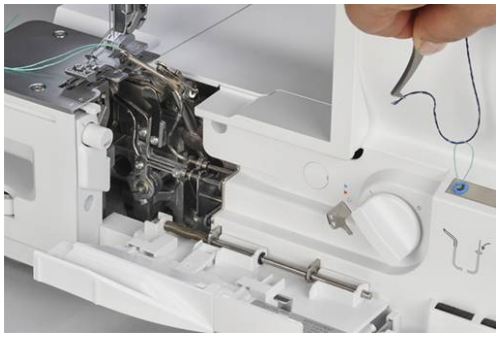
Threading the looper thread with an auxiliary thread

The use of an auxiliary thread makes sense if a Looper Thread cannot be threaded automatically with the Air Threader.

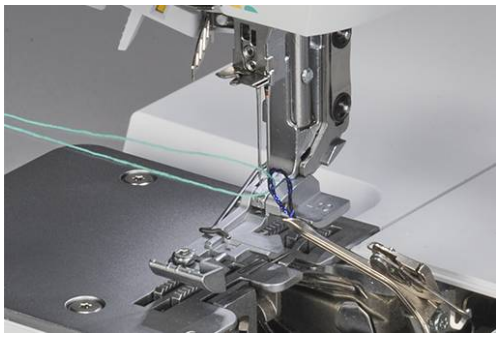
Prerequisite:

- «Preparing for threading» has been performed. (see page 86)

> Open the threader cover and the looper cover.
> Set the air threader connector to «I».
> Prepare an auxiliary thread at a length of about 80 cm.
> Fold the auxiliary thread in half, hold the thread loop and position the two thread ends above the respective air threader nozzle.
> Start the air threader process by pressing the foot control until the thread ends emerge out of the looper eye.
> Pull the looper thread end approx. 20 cm through the thread loop.



> Pull the auyiliary thread ends until the looper thread comes out of the looper eye.



> Remove the auxiliary thread.
> Place the looper thread under the presser foot to the rear left.

Circumventing the air theader

Some thick or decorative threads cannot be threaded through the air threader nozzles or don't provide optimal stitch formations when these threads are threaded through the air threader pipes.

Alternatively, such threads may be threaded through the air threader circumvention. This reduces the friction in the air threader pipes and results in a lower thread tension.

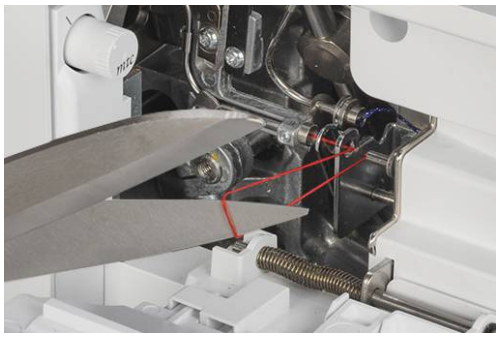
Prerequisite:

- The looper thread is threaded and can serve as auxiliary thread.

> Open the threader cover and the looper cover.
> Set the air threader connector to «0».
> Using the tweezers pull the looper thread out of the air threader pipe exit creating a thread loop.



> Cut the loop with scissors.

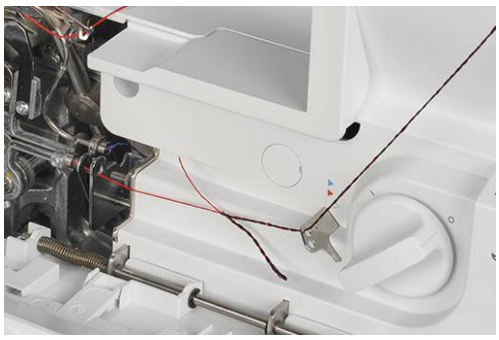


> Replace the looper thread on the thread stand with the desired special thread.

> Thread the special thread and guide it through the respective colored eyelet of the air threader circumvention.



> Tie the end of the auxiliary thread to the special thread from the air threader circumvention eye.



> Pull the auxiliary thread until the knot emerges out of the looper eye.
> Cut the knot.
  – The special thread is threaded as the new looper thread.



> Place the looper thread under the presser foot to the rear left.

Using the threading wire

The threading wire can be used as a threading aid for the looper thread if the air threader doesn't work. The threading wire is a wear part and not designed as a permanent threading or cleaning aid.

NOTICE

Damage by improper use of the threading wire

The air threader pipes may be damaged. Repair by a BERNINA dealer will be necessary.

> Insert and pull through the threading wire only in the thread flow direction.

Prerequisite:

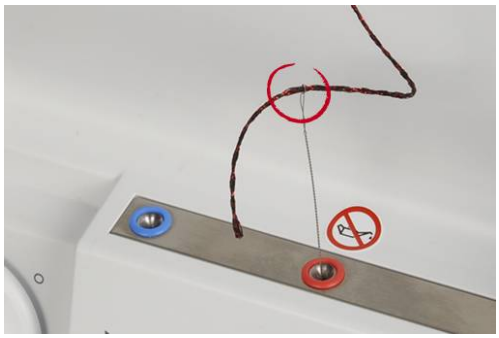
- There is no thread in the respective air threader pipe.
- «The threading preparation» has been performed. (see page 86)

> Open the threader cover and the looper cover.

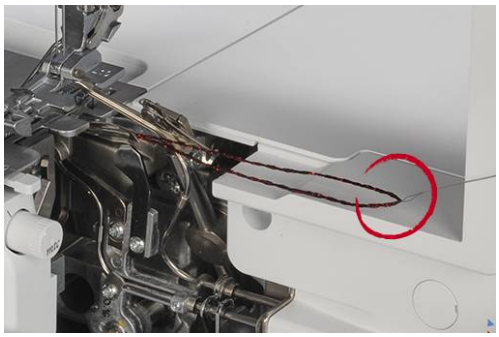
> Guide the threading wire with the end marked in red (threading wire loop upwards) through the corresponding air threader nozzle until it exits at the looper eye.



> Pull the desired looper thread through the threading wire loop.



> Pull the end of the threading wire until the looper thread emerges from the eye of the looper.



> Place the looper thread under the presser foot to the rear left.

7.3 Threading the needle thread

For the needles color-coded threading paths are assigned.

Threading the overlock needle thread LN/yellow

The thread path for the left overlock needle is marked in yellow.

Prerequisite:

- «Preparing for threading» has been performed. (see page 86)
- The presser foot is swung out. (see page 42)

> Pull the thread beneath the thread guide plate to the left and through the yellow marking of the thread deflection finger.



> Place the thread over the yellow thread take-up lever cover of the overlock needle and pull it down.



> Pull the thread in the 2nd position from the right through the thread guide.
> Hook the thread into the thread guide on the needle holder, corresponding to the needle used.



> Thread the left overlock needle (LN).
> Place the needle thread under the presser foot to the rear left.

Threading the overlock needle thread RN/green

The thread path for the right overlock needle is marked in green.

Prerequisite:

- «Preparing for threading» has been performed. (see page 86)
- The presser foot is swung out. (see page 42)

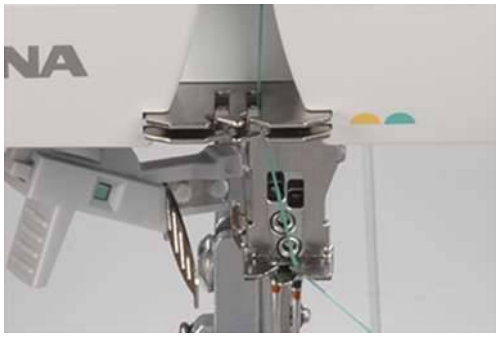
> Pull the thread beneath the thread guide plate to the left and through the green marking of the thread deflection finger.



> Place the thread over the green thread take-up lever cover of the overlock needle and pull it down.



> Pull the thread in the 1st position from the right through the thread guide.
> Hook the thread into the thread guide on the needle holder, corresponding to the needle used.



> Thread the right overlock needle (RN).
> Place the needle thread under the presser foot to the rear left.

7.4 Changing the thread

Tying on threads is often used for changing needle thread or looper thread. (see page 96)

Friction can be reduced by keeping the knotted area as tight as possible.

NOTICE

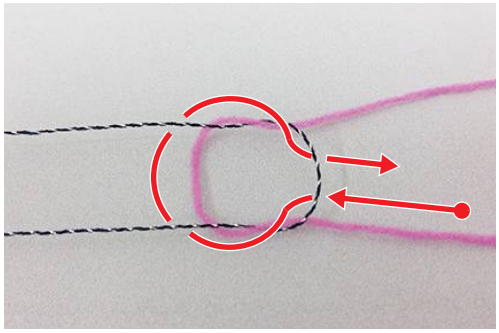
Pulling a thread tie through the needle eye

The needle can be bent. A bent needle affects the stitch formation.

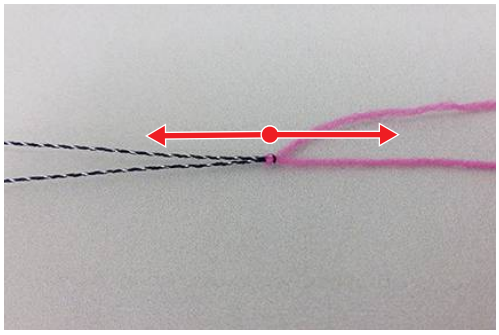
> Cut the tie in front of the needle eye and thread the needle individually.

Knotting thick thread

> Form a loop with the thin thread.
> Insert the thick thread end from below into the thin thread loop.
> Pass the thick thread to the back around both thin threads and guide it through the loop from above.



> Hold both thread ends and pull them apart.



Changing the needle thread

NOTICE

Pulling a thread tie through the needle eye

The needle can be bent. A bent needle affects the stitch formation.

> Cut the tie in front of the needle eye and thread the needle individually.

> Cut the thread above the thread cone.



> Change the thread cone.
> Tie the threaded thread to the new thread. (see page 95)



> Pull the threaded end of the thread until the newly knotted thread is in front of the needle eye.
> Cut off the new thread behind the knotting.



> Remove the excess thread from the needle eye.
> Thread the new thread.
> Place the thread under the presser foot to the left.

Changing the looper thread

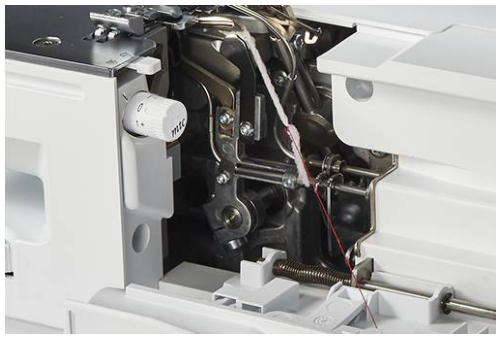
> Cut the thread above the thread cone.
> Change the thread cone.



> Tie the inserted looper thread to the new thread.



> Pull the end of the thread out of the looper eye until the knot emerges.



> Cut the knot.
> Place the thread under the presser foot to the left.

8 Sewing test

To check the optimal setting, a sewing test should be sewn on a spare piece of the fabric used for your project.

The default values of the stitches represent recommendations that work for most standard applications. Depending on the result of the sewing test, fine adjustments for stitch optimization are possible.

8.1 Performing a sewing test for an overlock stitch

Prerequisite:

- (see page 61)

> Place the fabric under the presser foot to the front of the knife so that the desired seam allowance is cut off.
> Press the Foot Control and sew slowly. Guide the fabric gently as the machine automatically transports the material.
> Sew beyond the fabric end such that a thread chain is formed.
> Pull the thread chain over the Thread Cutter.
> Assess the sewing test and make any necessary adjustments until the stitch setting matches the material combination.

The Stitch Optimizer provides assistance to achieve the perfect stitch appearance.

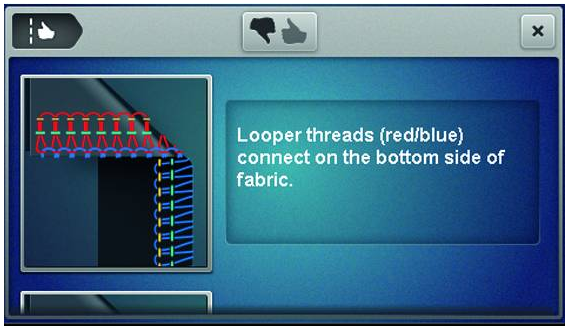
8.2 Stitch optimizer

The Stitch Optimizer provides assistance to obtain a «perfect» stitch appearance.

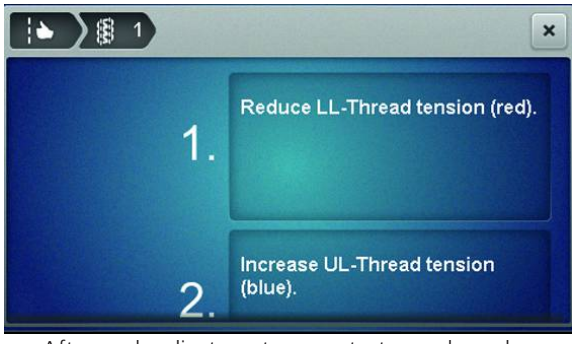
Prerequisite:

- The sewing test has been performed.

> Tap the «Stitch Optimizer».
  – Pictures of faulty stitches can be selected.



> Compare the sewing test and tap on the matching stitch picture.
  – Corrective measures are proposed.



> After each adjustment, sew a test sample and repeat the procedure until the perfect stich formation is achieved.

9 Practical overlocking

In this chapter the most important applications for a successful sewing project are described. More advanced sewing techniques are described in the BERNINA overlocker manual and can be purchased from authorized BERNINA dealers.

9.1 Securing overlock stitches

The stitches are secured when they are overstitched.

Securing stitches is particularly important when seam ends are not secured by other seams or hems.

Sewing in the overlock chain at the start of the seam

> Form a thread chain at a length of 5 - 8 cm.
> Place the fabric under the presser foot and sew a stitch into the fabric.
> Lower the needle .
> Raise the presser foot.
> Now pull the thread chain carefully forward and place it on the seam line to be sewn.
> Lower the presser foot.
> Sew approx. 4 cm over the thread chain.



Sewing in the overlock chain at the end of the seam

> At the end of the seam, sew one stitch over the fabric edge.
> Raise the needle.
> Raise the presser foot.
> Pull the fabric a bit backwards.
> Turn the fabric so that the wrong side points upwards.
> Place the fabric beneath the presser foot so that the needles pierce the fabric at the first stitch.
> Lower the presser foot.
> Sew approx. 1.5 - 2.5 cm over the thread chain and make sure that the existing thread chain is not cut.
> Finish the seam by sewing off the edge.



Securing overlock stitches

> Sew a thread chain of about 10 cm beyond the end of the seam.
> Pull the thread chain end through the looper threads using a loop flip or a tapestry needle.



Knotting the overlock chain

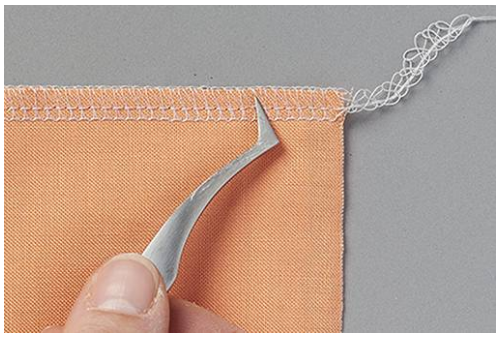
Knotting the overlock chain is the safest way to prevent the stitch from opening.

> Tie thread chain at the seam end, close to the fabric.

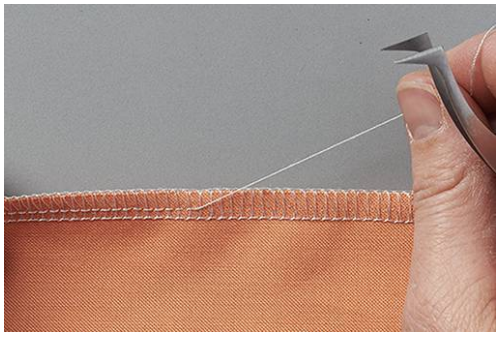
9.2 Undoing overlock stitches

The thread loops of the Looper and Needle Threads can be undone easily.

> Pull the right overlock Needle Thread (RN) out of the thread chain with tweezers, starting from the seam end.

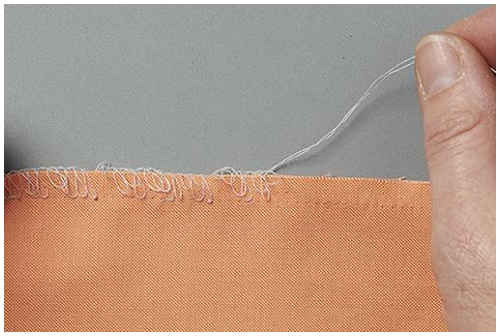


> Pull the Needle Thread out of the seam.



> With very long seams, cut the thread in the stitch and remove it step by step.

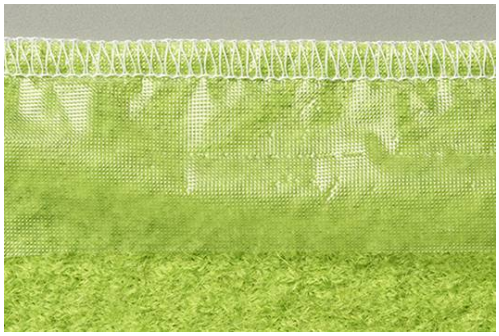
> Remove the left overlock Needle Thread in the same way.
  – The looper threads lie loosely around the fabric edge and can be pulled away easily.



9.3 Sew blanket stitch

The Blanketstitch is similar to the popular Parisian stitch and suits as edge finishing on woollen blankets, scarves or thick materials.

> Preferably thread decorative threads into the looper and the needle.
> Place water-soluble stabilizer on top of the fabric along the fabric edge.
> Sew along the fabric edge.



> After sewing, pull the stabilizer away from the fabric, and in doing so, the needle thread is pulled to the edge of the fabric.
  – This makes the seam look like the typical hand-stitched blanket stitch.



> Wash out the water-soluble stabilizer.

9.4 Gathering

Ruffling is a gathering or puckering of a seam.

Increasing the differential feed

> Set the machine for a 4-thread overlock.
> Set the Differential Feed to «2».
> Set the stitch length to «4.5».
> Sew the fabric with this side up on which the ruffling is wanted.
> Sew off the edge of the fabric.



Pulling the needle thread

Slightly different colors of the needle/looper threads facilitates separating the needle threads.

The needle threads are usually the shorther ones in the thread chain.

> Set the machine for a 4-Thread Overlock.
> Set the differential feed at default value.
> Sew the fabric with this side up on which the ruffling is wanted.
> Leave a long thread chain at seam end.
> Separate the needle thread/threads from the thread chain.
> Pull the needle thread(s) and evenly spread the puckers along the seam.



9.5 Sew outer corners

A neat corner can be achieved by the following two methods.

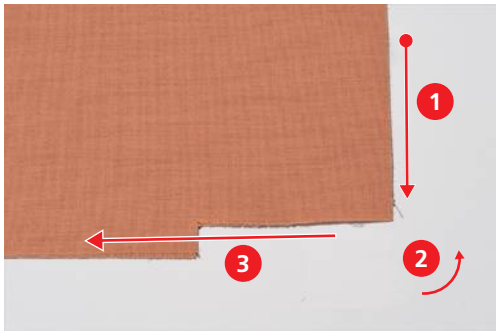
Method 1

> Set the machine for a 2-, 3- or 4-thread overlock.
> Sew along the edge of the fabric beyond the corner.
> Start a new edge and sew over the previously sewn edge.
> Secure the thread chain. (see page 100)



Method 2

> Trim the seam allowance for the Cutting Width of the following corner in the sewing direction (presser foot length).



> First sew the edge up to the cut corner.
> Sew one stitch beyond the fabric edge and stop.
  – The needles are in the top position.
> Raise the presser foot.
> Move the Rolled Hem Selection Lever to position «R».
  – The thread loops are loosened from the Stitch Finger.
> Turn the fabric counterclockwise.
  – The trimmed edge of the fabric is in the sewing direction under the presser foot.
> Switch the Rolled Hem Selection Lever to «O».
> Pierce the needle into the fabric.
> Pull back and tighten loose threads of the thread spools on the Thread Stand.

> Lower the presser foot and continue sewing.



9.6 Sewing inner corners

> Set the machine for a 2- or 3-thread overlock.



> Draw sewing lines on both sides of the corner about 5 cm long with the fabric pen.



> Sew the seam until the knife reaches the corner.



> Place the needle in the fabric.
> Raise the presser foot.
> Carefully pull the fabric edge to a straight line and fold the fabric forwards.
> Lower the presser foot.
> Continue sewing until the needles reach the corner.

> Place the needles exactly in the inner corner to fix the fabric.
> Raise the presser foot and fold the fabric to the back.
> Lower the presser foot and continue sewing.



9.7 Sewing inner curves

Inner curves appear on necklines, facings and armholes. Time-consuming clipping or trimming can be avoided by overlocking the fabric edge.

> Set the machine for a 3- or 4-Thread Overlock.
> While sewing, stretch the curve carefully so it is straight.



9.8 Sew outer curves and circles

Due to the Differential Feed, the seam can be pulled or pushed into shape for flat, round edges.

> Cut away the seam allowance in one place along the length of the presser foot.



> Start and end the seam at the cut seam allowance.
  – if seam waving out happens: set the Differential Feed to 1.5 – 2.
  – if puckering happens: set the Differential Feed to 0.7 – 1.
> At the seam end, sew 1 – 2 stitches over the seam beginning.
> Lower the needle and raise the presser foot.

> Turn the fabric off to the left of the presser foot.



> Lower the presser foot and sew over and beyond the fabric.

9.9 Using the tape guide

This presser foot provides an adjustable tape guide which can hold ribbons and elastics up to 12 mm in width. It is optimal to integrate ribbons as seam reinforcements or to attach elastics to lingerie and swimwear seams.



Prerequisite:

- The machine is set for a 3- or 4-thread overlock.
- The presser foot is raised and swung out.
- The needles are raised.

> Place the tape beneath the presser foot and insert it into the tape guide from the right.
> Lower the presser foot to fix the tape.
> Sew a few stitches on the tape.
> Loosen the screw at the tape guide lightly.
> Adjust the width of the tape guide so that at least one needle can stitch the tape.
> Tighten the screw.
> Raise the presser foot toe and place the material under the presser foot.
> Continue sewing on the tape.

10 Care and maintenance

10.1 Firmware

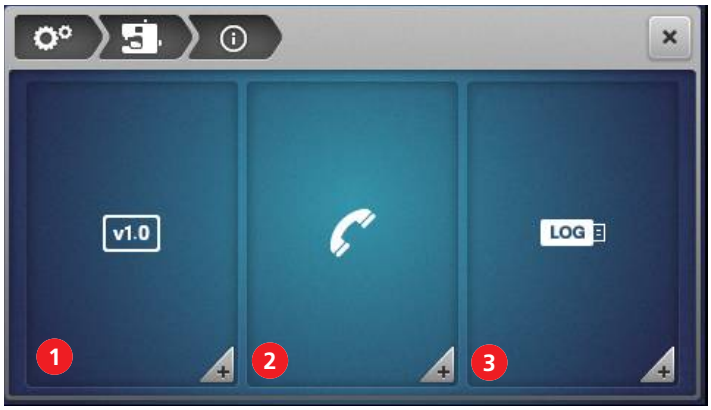
Selecting a language

By selecting one of the languages listed, all displays and assistance are changed accordingly. (see page 26)



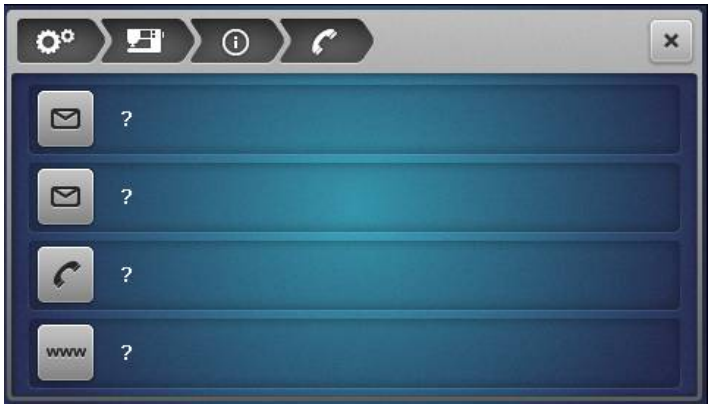
Information on the firmware

This screen allows the dealer to gather important information about the machine.



1 «Firmware version»
2 «Dealer data»
3 «Service data»







Restore factory settings

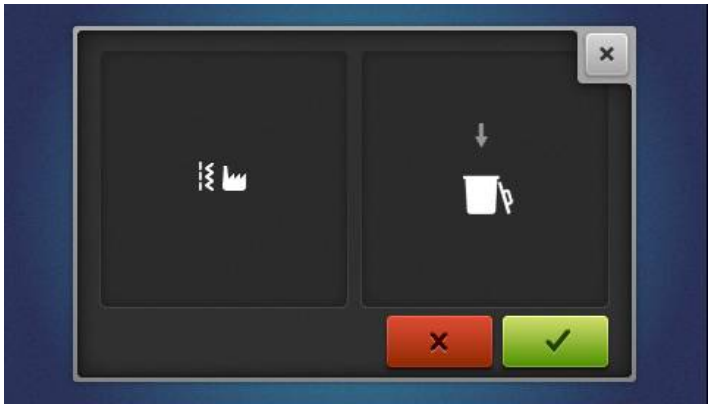
The factory settings are used to reset the software to the delivery state. All saved data will be deleted and cannot be restored. If the data from the personal memory should still be available, it must be backed up to the USB stick. (see page 110)



1 «Deleting the personal memory» 2 «Factory setting»

> To delete **only** the contents of the personal memory, tap on icon (1) and confirm the deletion process.

> To delete **all** data (personal memory and system memory), tap on field (2) and confirm the deletion process.



Updating firmware



1 «Backing up data»
2 «Starting the update»
3 «Importing data»

Downloading a firmware update

Download the latest firmware version from the website www.bernina.com and prepare it according to the firmware update installation instructions.

Backup/import data

In general, data from the Personal Memory and altered settings are automatically transferred during a firmware update. Data loss can be avoided by backing up data and settings to the BERNINA USB stick before the update and importing them back to the machine after the update.

Even before resetting the software to factory settings, a data backup is recommended.

Backup data on USB stick



Prerequisite:

- The USB stick is inserted.

> To back up personal data and settings, tap on «Data on USB».
> Remove the USB stick or continue with the firmware update. (see page 111)

Loading data to the machine



Prerequisite:

- The USB stick with the saved data is inserted.

> To import saved data and settings, tap on the «USB to machine».
> Remove the USB stick.

Starting the firmware update

Prerequisite:

- The latest firmware version is unpacked according to the firmware update installation instructions and saved on the USB stick.
- Personal data (if desired) are saved on the USB stick before the update.

> Insert the USB stick into the port.
> Tap on «update».



– Wait until the firmware update has finished.

NOTICE

Incomplete update due to removing the BERNINA USB stick too early

If the software has not been updated or has not been fully updated, the machine cannot be used.

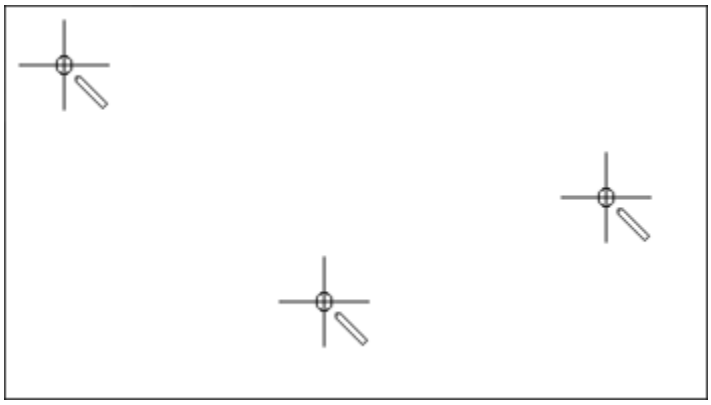
> Remove the BERNINA USB stick only once the update has been successfully completed.

> Import the saved data, if available.
> Remove the USB stick.

Calibrate screen

The purpose of screen calibration is to tell the screen where the correct touch points are. The screen must be calibrated if it no longer responds properly to touch.

> Tap on «Calibrate screen».
  – A screen with crosshairs appears.
> Use the touch screen pen to tap exactly on the intersection of the crosshairs.



> Repeat this process until the crosshairs no longer appear.

10.2 Machine

Cleaning the machine

The service life of the machine depends on the care and maintenance. Based on normal household use, an annual service at the Authorized BERNINA dealer is recommended.

Recommended aids for cleaning:

- Damp cloth
- Brush
- Tweezers
- Vacuum cleaner with soft tip

> The machine can be cleaned with a damp cloth without detergent.
> Free the sewing area from fabric and thread scraps regularly after sewing.

- Needle, Needle Bar
- Presser Foot
- Feed Dog (from above)
- Knife
- Freearm interior

Cleaning the looper area

Dust, fabric and thread remnants accumulate in the looper area during overlocking and these must be removed regularly.

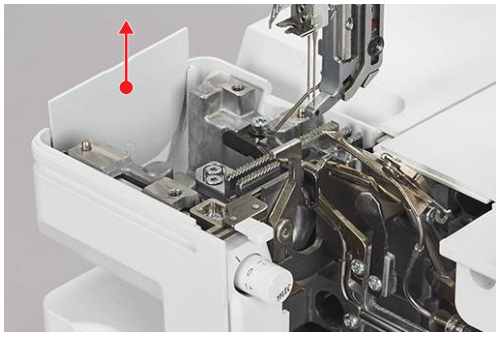
Prerequisite:

- The presser foot is raised.
- The needles are in the top position.
- Switch off the machine.

> Remove the presser foot.
> Remove the screws of the stitch plate with the Torx screwdriver.
> Remove the stitch plate from the freearm.



> Remove the cleaning cover on the freearm.



> Remove dust, fabric and thread remnants with the brush or a vacuum cleaner.



> Insert the cleaning cover.
> Attach the stitch plate and screw it on.
> By slowly turning the handwheel, ensure that the knife, the needle and the feed dogs are not impeded in their movement.

Cleaning the air threader pipes

NOTICE

Damage by fluids in the air threader system



The air threader pump may be damaged permanently if liquids infiltrate the system. A repair by the authorized BERNINA dealer is required.

> Keep liquids way from the air threader nozzles.

Regularly remove dust and thread remnants from the air threader pipes.

Prerequisite:

- Use a thick thread (e.g. Amann Saba C size 30) at a length of about 1 m.

> Thread the thread into the Air Threader Nozzle.
> Hold the thread at the thread ends and pull back and forth several times.
> Remove the thread at the Looper End in thread feed direction.
> Repeat the procedure for further Air Threader Nozzles with a clean thread.

Cleaning the screen

> Wipe the screen with a soft, slightly damp microfiber cloth.

Cleaning the suction feet

Cleaning the suction feet prevents the machine from slipping on the table at high sewing speed.

> Remove dust and thread remnants from the suction feet with a damp cloth.

Oiling the machine

> Regularly lubricate the upper looper joint with a drop of the supplied BERNINA overlock oil.



11 Errors and faults

11.1 Troubleshooting

Fault	Cause	Solution
Screen reacts poorly to touch	Screen is misaligned	> Calibrate the screen. (see page 112)
The stitch is irregular	The thread tension is incorrect.	> Adjust the thread tension. (see page 76)
	The needle size is incorrect.	> Match the needle size with the fabric/thread. (see page 62)
	Threading is incorrect.	> Rethread the machine. (see page 85)
	Fabric has been pulled.	> Don't pull the fabric; guide it only lightly.
	The presser foot is loose.	> Attach the presser foot properly. (see page 43)
	Air threader pipes are dirty.	> Clean the air threader pipes. (see page 114)
Needle breaks	The needle is defective.	> Replace needles. (see page 44)
	Fabric has been pulled.	> Don't pull the fabric; guide it only lightly.
	The needle size is incorrect.	> Match the needle size with the fabric/thread. (see page 63)
	The needle insertion is incorrect.	> Replace the needle. (see page 44)
	The presser foot is loose.	> Attach the presser foot properly. (see page 43)
	The needle system is incorrect.	> Insert needle of the system ELx705 CF or HAx1 . (see page 63)
Unwanted puckering	The thread tension is incorrect.	> Adjust the thread tension. (see page 76)
	Needles are defective.	> Insert a new needle. (see page 44)
	The Differential Feed is incorrect.	> set the Differential Feed to 0.7 – 1. (see page 78)
Unwanted wavering	The Differential Feed is incorrect.	> set the Differential Feed to 1 – 2. (see page 78)
Skipped stitches	The needle size is incorrect.	> Match the needle size with the fabric/thread. (see page 63)
	Threading is incorrect.	> Rethread the machine. (see page 85)
	The needle is defective.	> Insert a new needle. (see page 44)
	The needle insertion is incorrect.	> Insert the needle correctly. (see page 44)

Fault	Cause	Solution
Thread breakage	Threading is incorrect.	> Rethread the machine. (see page 85)
	The needle is bent.	> Insert a new needle. (see page 44)
	The thread tension is incorrect.	> Adjust the thread tension. (see page 85)
	The upper thread is tangled.	> Check the thread spool. (see page 36)
	Retractable thread stand is not fully extended.	> Raise the retractable thread stand completely. (see page 36)
The machine doesn't sew	No power supply.	> Connect the machine. (see page 35)
	The main power switch is switched off.	> Switch on the machine. (see page 36)
	Machine is overheated.	> Switch off the machine and let it cool down for 10 - 15 min. (see page 36)
The fabric is not cut properly	Knife stained	> Set the cutting width to 9. > Remove lint and remnants from the knife.
	Knife defective	> Have the knife replaced by your authorized BERNINA dealer.
Fabric piles up	The presser foot pressure is incorrect.	> Reduce the presser foot pressure . (see page 83)

12 Storage and disposal

12.1 Storing the machine

The correct storage of the machine over a longer period of time has an influence on its lifespan and functionality.

> Don't store the machine outdoors.
> Protect the machine against climatic influences.
> Before operating the machine again after storage, leave the machine unpacked for approx. 1 h at room temperature.

12.2 Transporting the machine

For a relocation or a longer transport of the machine, the following actions should be carried out.

> Retract the retractable thread guide of the thread stand completely downwards.
> Lower the presser foot.
> Remove all connecting cables.
> Lift and transport the machine at the carry handle and the transport carry groove under the handwheel.

12.3 Dispose of the machine

BERNINA International AG is committed to environmental protection. We make every effort to increase the environmental friendliness of our products by continually improving their design and production technology.

If the machine is no longer required, dispose of it in an environmentally friendly way in accordance with the national guidelines or take it to the nearest BERNINA specialist shop. Do not dispose of the machine in the household waste.

13 Specifications

Designation	Value	Unit
Number of stitches	18	
Number of loopers	2	
Number of needles	1 – 2	
Needle System	ELx705 CF	
Needle size	70 – 90 (10 – 14)	
Differential Feed	0.7 – 2	
Maximum fabric thickness	6,0 (0,23)	mm (in)
Stitch length	0,8 – 4,5 (0,03 – 0,16)	mm (in)
Cutting Width Left Overlock Needle LN	5 – 9 (0,19 – 0,35)	mm (in)
Cutting Width Right Overlock Needle RN	3 – 7 (0,11 – 0,27)	mm (in)
Minimum sewing speed	250	Stitches per minute
Maximum sewing speed	1 500	Stitches per minute
Dimensions without Retractable Thread Guide	43 x 28 x 41 (16.92/11.02/16.14)	cm (in)
Dimensions with Sewing Table / Cut-offs Bin	57 x 35 x 65 (22.44/13.78/25.59)	cm (in)
Weight of the machine	12.8 (28.2)	kg (lb)
Weight packaged	≈18,2 (40,12)	kg (lb)
Energy consumption	140	Watts
Input voltage	100 – 240 (50 – 60)	Volt (Hz)
Protection class (electrical engineering)	II	
Date of manufacture	To be seen on the type label under «Code»	

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BERNINA recommends threads from Mettler®

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