Instruction Manual

Empisal Overlocker
EOL4D

Important safety instructions

When you use an electrical appliance, basic safety Precautions should always be adhered to as follows Read all instructions before using this sewing machine.

DANGER To reduce the risk of electric shock

1. The sewing machine should never be left unattended when plugged in. Always unplug this appliance from the electric outlet immediately after using and before cleaning it.
2. Always unplug before replacing bulb. Replace bulb with same type rated 15 watts.
3. Do not use a sewing machine that has fallen into water unplug immediately if this occurs
4. Do not place or store a sewing machine where it can fall or be pulled into a tub or sink. Do not place in or drop into water or other liquid.

WARNING To reduce the risk of burns, fire, electric shock, or injury to persons:

1. Do not allow to be used as a toy. Close attention is necessary when this sewing machine is used by or near children.
2. Use this sewing machine only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as contained in this manual.
3. Never operate this sewing machine if it has a damaged cords or plugs, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the appliance to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.
4. Never operate the sewing machine with any air openings blocked. Keep ventilation openings of the sewing machine and foot control free from the accumulation of lint, dust and loose cloth.
5. Never drop or insert any object into any opening.
6. Do not use outdoors.
7. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
8. To disconnect, turn all controls to off ("o") position, then remove plug from outlet.
9. Never operate on a soft surface such as a bed or couch where the air openings may be blocked.
10. Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
11. Keep fingers away from all moving parts. Special care is required around the sewing machine needle.
12. Always use the proper needle plate. The wrong plate can cause the needle to break.
13. Do not use bent or blunt needles. Use needles recommended by the manufacturer only.
14. Do not pull or push fabric while stitching. It may deflect the needle, causing it to break.
15. Switch the sewing machine off ("o")when making any adjustments in the needle area, such as threading needle, changing needle, threading bobbin, or changing presser foot, etc.
16. Always unplug sewing machine from the electric outlet when removing covers, lubricating, or when making any other user servicing adjustments mentioned in the instruction manual.
17. Hold plug when rewinding into cord reel. Do not allow plug to whip when rewinding.

Please also ~~observe~~ read the general safety ~~notes~~ rules on page 2.

Keep these instructions in a safe place

This sewing machine is designed and manufactured for HOUSEHOLD use only.

Notes on safety

1. The user must exercise adequate caution with regard to the up and down movement of the needle and constantly observe the sewing area whilesewing.
2. When leaving the machine unattended, during maintenance work or when replacing mechanical parts or accessories, always disconnect the machine from the mains by pulling out the mains plug.
3. The maximum permissible wattage for the sewing lamp is 15 Watts.
4. The tension of the drive belt may only be adjusted by a mechanic.
5. The machine must be put into operation in accordance with the indication plate.
6. Do not insert any objects in openings on the machine.
7. Do not use the sewing machine if:
   – there is visible damage,
   – its function is disturbed
   – it is wet, e.g. With condensation which can occur when a cold machine is brought into a warm room.
8. Do not pull the mains plug out of the socket by its cord.
9. If this appliance is used for a purpose other than that for which it is intended or if it is wrongly operated, we cannot accept any liability for any damage caused.
10. To avoid the risk of electric shock, do not open the machine. There are no parts inside the machine which the user can repair. This is solely the responsibility of our qualified service staff.
11. Be sure to use only original parts.
12. The machine is designed for a mains supply with a nominal voltage of +/-10% and a rated frequency of +/-4%.
13. When used properly, the temperature of the outer components of a non-electronically controlled foot control can reach up to B5't. Constant use at a low speed is therefore not permitted in order to avoid damage.

The recommended environment is:
Ambient temperature 10't to 40't,
Humidity 20%
to 80%.

The machine is suppressed and immune to interference; however, it should not be operated near electronic devices such as radios, TV's, pcs, broadcasting transmitters etc.

This sewing machine is a high-quality Electronic mechanical appliance; it is a machine for supervised use in the home. It should be operated in such a way that it is not subjected to: dust, severe dampness, direct sun- light, static electricity heat-producing objects corrosive chemicals or liquids.

For ventilation purposes the machine must be free-standing, on a surface which is both firm and even.

~~Cara~~ Care of the machine
Always protect the machine against damage which may occur by knocking or dropping.

Housing
To clean the housing use a dry, clean, soft and lint-free cloth. Any stubborn dirt can be removed with a soft cloth and alcohol or paraffin.

Please Note!
Do not use any insecticides or chemical products such as benzene (petroleum) or fluid chemicals for cleaning the housing.

Empisal EOL4D Overlocker

I trust that you will enjoy your new Empisal 4 thread overlocker

Contents

Page

Accessory box 7
Accessories 7
Adjusting the seam width 22
Adjusting the stitch length 23
Adjusting the thread tension ..... 32 – 43
Bead sewing foot 53
Blind stitch foot 48
Changing the light bulb (sewing light) 46
Changing the lower knife 45
Changing the needle 11
Changing the sewing foot 19
Cleaning rubber feet 44
Cleaning the machine 44
Connecting foot control 8
Cording foot 52
Differential feed ..... 24 – 25
Elastic tape sewing foot 50
Engaging/disengaging the upper knife 20
Folded 2-thread rolled hem 42
Folded 3-thread rolled hem 38
Free arm 26
Gimp sewing foot 49
Lace sewing foot 54
Lint box 9
Looper cover 9
Lubricating the machine 44
Machine cover 7
Machine maintenance 44
Mains switch 8
Mounting the converter 21
Needle position 11
Program summary ..... 28 – 31
Setting the slide lever for stitch width stitch finger 27
Sewing foot lift 19
Sewing foot pressure 23
Sewing problems and their solutions ..... 56 – 57
Shirring foot 51
Special accessories ..... 47 – 54
Specifications 58
Thread spool stand 10

Page
Telescopic thread guide ... 10
Thread spool net ... 10
Thread unreeling disc ... 10
Threading/guide wires ... 12
Threading upper over edge looper (pink} ... 13
Threading lower ovar edge looper (yellow} ... 14 – 15
Threading right needle A (green) ... 16
Threading left needle B (blue) ... 17
Thread reel change on threaded machine ... 18
Thread chain cutter ... 19
Thread table for 2-, 3-and 4-thread over edge seam ... 55
2-needle,3-thread over edge closing seam ... 43
2-thread over edge seam FLATLOCE (wide, narrow) ... 39
2-thread serging seam (wide, narrow) ... 40
2-thread rolled hem ... 41
3-thread overedge seam(wide. narrow) ... 34
3-thread serging seam(wide, narrow) ... 35
3-thread decorative seam serging FLATLOCK (wide, narrow) ... 36
3-thread rolled hem ... 37
4-thread over edge seam ... 32 – 33

Accessory box

Pull accessory box **11** to the left and remove the accessories.

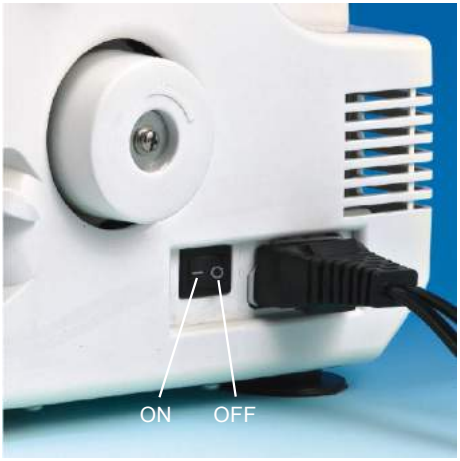
Accessories

The following accessories are included with the machine:

1 Overedge needles system EL X 705, cat. Nr. 2020
2 Screwdriver (large)
3 Screwdriver (small)
4 Pair of tweezers
5 Cleaning brush
6 Lower knife
7 Thread unreeling discs (4x)
8 Machine oil

Machine Cover

The machine cover protects the machine against dust and dirt. After each use push in telescopic thread guide **21.** Thread spool stand **24** with or without thread spool must be pushed against the machine as far as it will go. The machine cover can now be placed in position.



OPERATING INSTRUCTIONS

Connecting the foot control

Insert the plugs of the foot control into machine socket **27** and the power source respectively. **Sewing speed** is regulated by applying pressure to the foot control. In addition, **sewing speed** can be set by means of the bed slide adjuster at the top end of the foot control.

Position ▶ = half speed

Position ◀◀ = full speed

Mains switch

The sewing light lights up when mains switch 28 is switched on.

The machine is now ready for operation.

" O " = OFF

" I " = ON

Notes on safety

This appliance has a polarized plug (one blade wider than the other).
To reduce the risk of electric shock, this plug is intended to fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrican to install the proper outlet. Do not modify the plug in any way.

Foot control sewing machine, foot controller type AE 033 has to be used.

Lint box

Insert the upper tabs of lint box **34** into the upper slots of looper cover **7.**

Press against the lower part of the container until the lower tabs snap into the lower slots of the looper cover.

For removal of the lint box, use the reverse sequence.

Looper cover

Slide looper cover **7** as far as it will go to the right and swing it downwards. Individual threading paths are displayed in colour **on the inside of the machine,** as well as the threading method of the over-edge looper. In addition, the mounting procedure for the converter and the three most common stitch types are shown symbolically.

Note: For safety reasons, as soon as the **looper cover is opened,** the **power supply** to the machine is **interrupted,** i.e. the machine will not operate.

Thread spool stand

Before the thread spools are set in place, thread spool stand **24** must be pulled as far as it will go to the back.

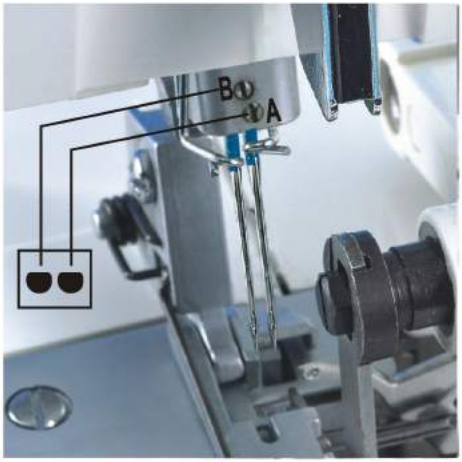
Telescopic thread guide

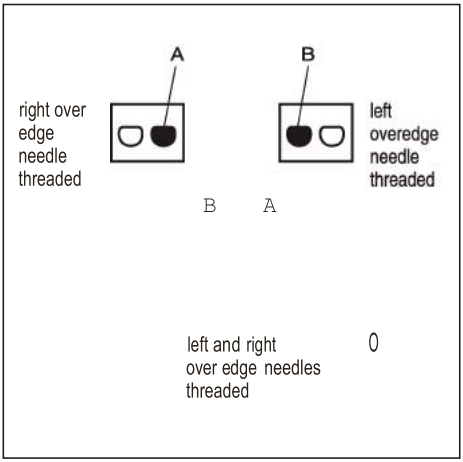
Extend telescopic thread guide **21** upwards.

To ensure optimum thread take-off, the two upper telescopes must be rotated slowly until their locking balls are heard to lock into place.

Thread unreeling disc

The thread unreeling disc included in the accessories is intended for use with smaller thread spools. Insert the thread unreeling disc into the thread spool and place them both on the cone adapter of the thread spool pin.



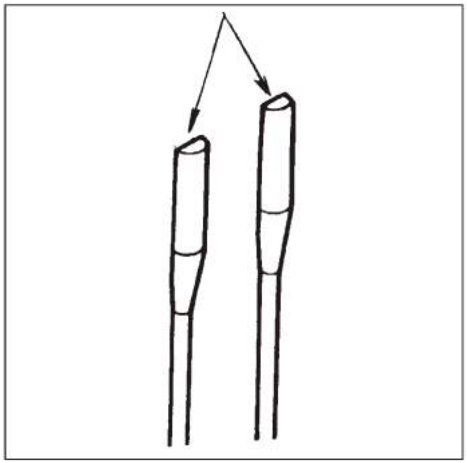


Needle position

As shown in the illustration, up to two needles can be inserted into the needle holder. Retaining screw **A** belongs to the right over edge needle, retaining screw **B** to the left over edge needle.

In this instructions manual the various needle positions are shown in a schematic drawing of the needle holder. See the above examples.

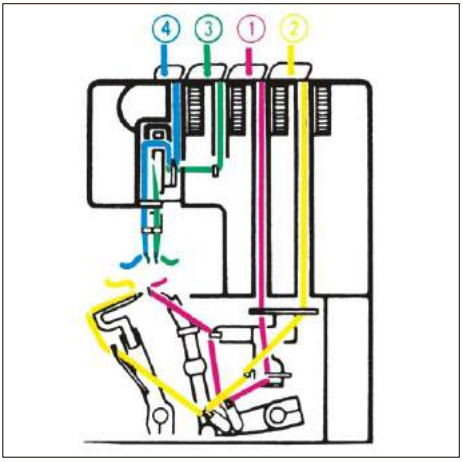
Note: If both the left and right over edge needles have been inserted, the left needle will be somewhat higher than the right needle.

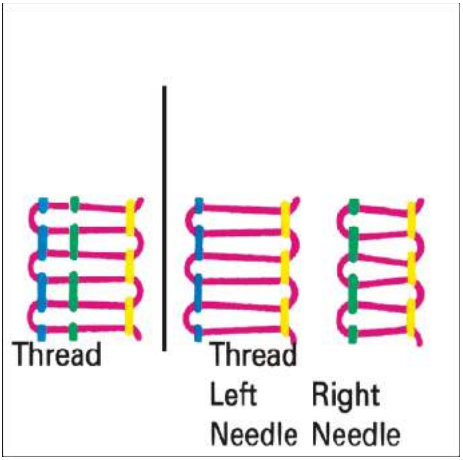


Changing the needle
Switch off at the mains switch.

Over edge needles for system EL X 705, cat. Nr. 2020 are required for this machine. Lower the sewing foot with the sewing foot lift and turn the hand wheel until the needle is at its highest point.

Loosen the needle fastening screw (without removing it completely) with the small screwdriver included in the accessories and remove the needle in a downward motion. Insert a new needle into the needle holder **with the flat side to the rear** and retighten the respective fastening screw.





Threading

A colour–coded threading diagram for quick reference is to be found behind the looper cover, i.e. inside the machine.

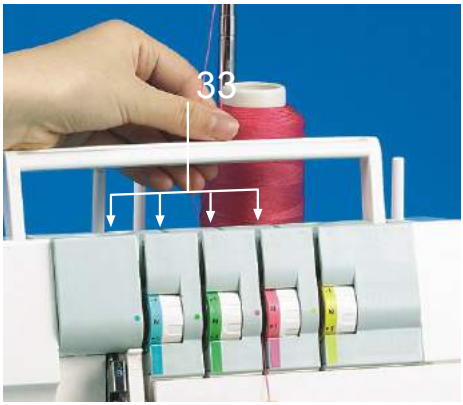
Thread the individual threads–as shown –following steps 1 to 4.

The colour markings are applicable as follows:

1. Upper overedge looper=pink
2. Lever overedge looper=yellow
3. Right needle=green
4. Left needle=blue

Threading/guide wires

Place the thread spools on spool pins **25**. Use cone adapters **26** only with conical spools. Further notes on the thread spool net and thread unreeling disc are to be found on page **10**. Insert the threads through the guide wires **20** from back to front according to the colour coding.

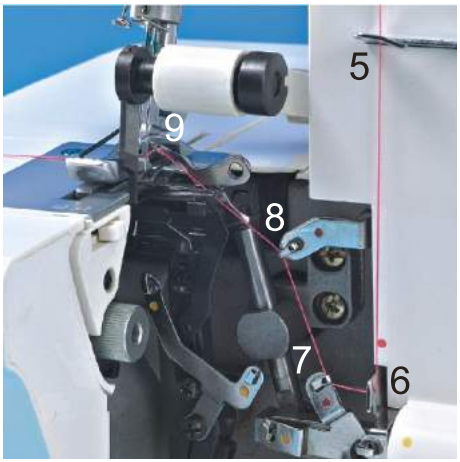


Lift carrying handle **3**. Insert the threads beneath the handle and through rear guides 33 by pulling down with both hands until the yarn slips under the guide wire. Now pull the thread between the tension discs and press it down until it is lodged between the latter. Return the carrying handle to its closed position.

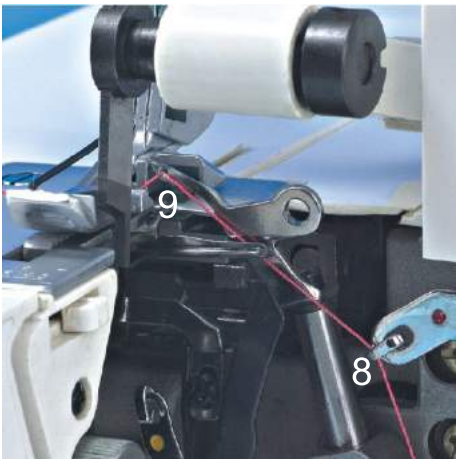
Threading/upper overedge looper (pink)

Thread by following steps 1 to 9.

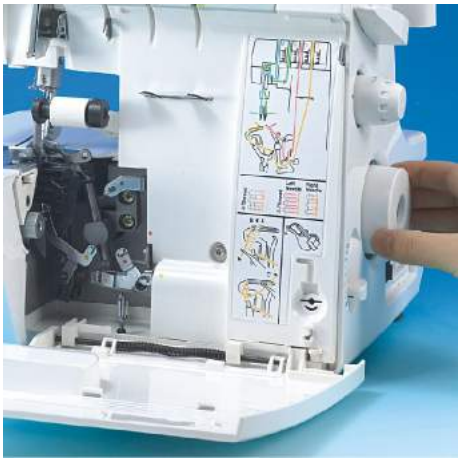
Note: To facilitate threading use the tweezers included in the accessory box.



Insert the thread along the path marked in pink through guides 5 to 8.



Insert the thread from the front through the eye in upper overedge looper 9. pull about 10 cm of thread through the looper and lay it to the left underneath the sewing foot .

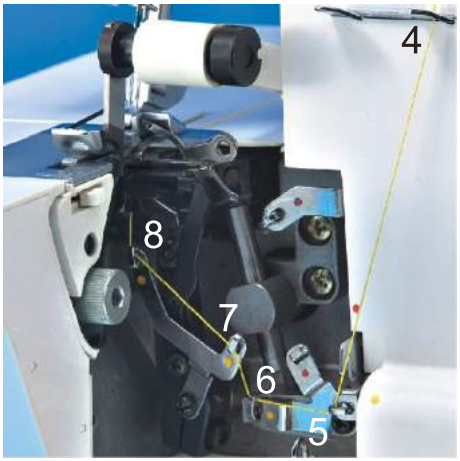


Threading the lower overedge looper (yellow)

Turn the handwheel in the direction of the arrow until overedge looper **15** is positioned at the extreme right.

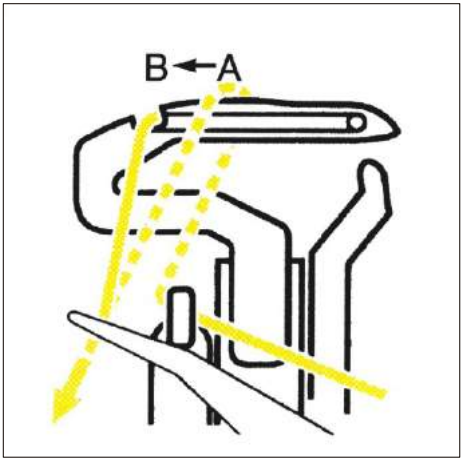
Insert the thread by following steps 1 to10.

Note: To facilitate threading, use the tweezers included in the accessory box .

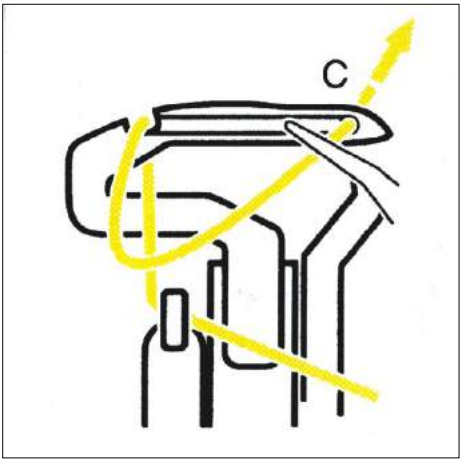


Insert the thread along the path marked in yellow through guides 4 to 8.

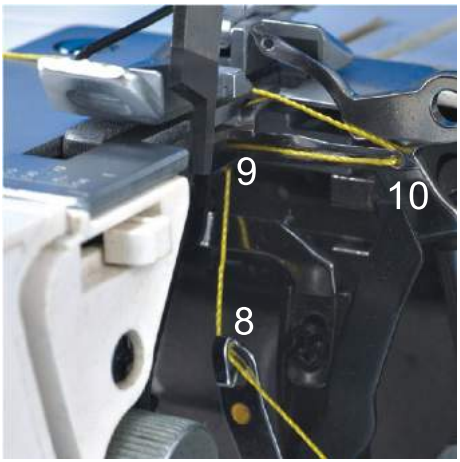
The diagrams to be found behind the looper cover illustrate the principles of threading.



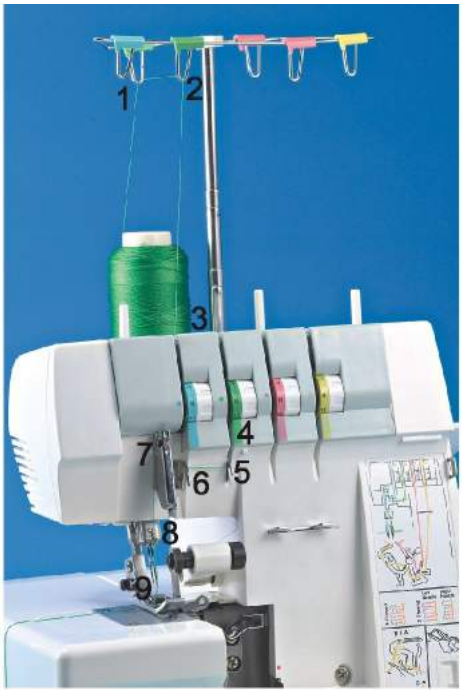
Lay the thread from back to front over the right–hand side of the looper. Carefully pull the thread to the left and slightly down until it slips into notch **B** (=threading point 9) of the looper.



Insert thread from the front through the eye of lower overedge looper **C** (= threading point 10). The thread must run along the groove in the looper.



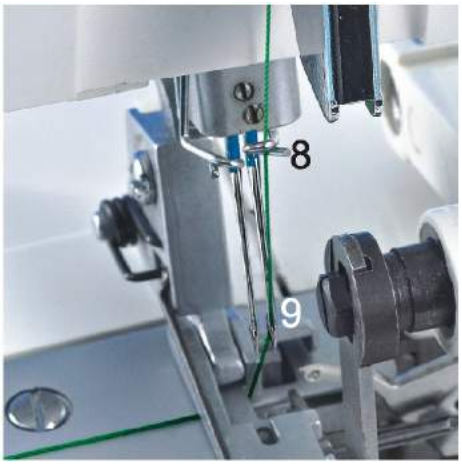
Pull about 10 cm or thread through the looper and lay it to the left underneath the sewing foot.



Threading /right needle A (green)

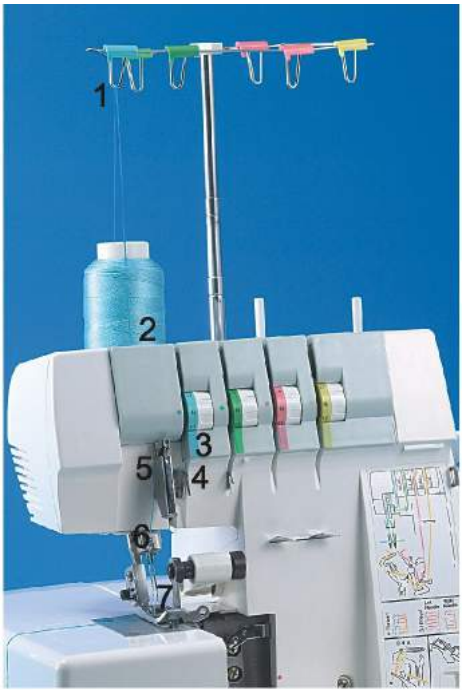
Insert the thread by following steps 1 to 9.

Note: The thread must run through the upper slot in guide 7.



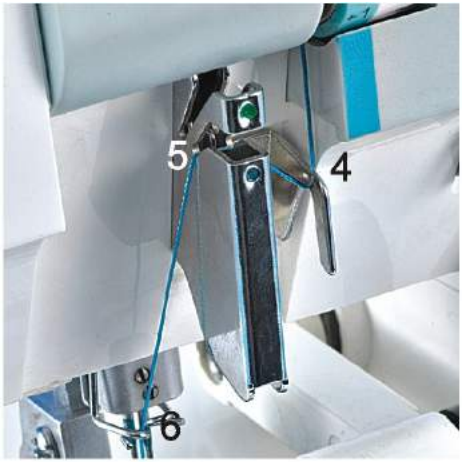
Pull about 10 cm of thread through the looper and lay it to the left underneath the sewing foot.

Note: To facilitate threading of the needle eye, use the tweezers included in the accessory box and lower the sewing foot.



Threading / left needle B (blue)

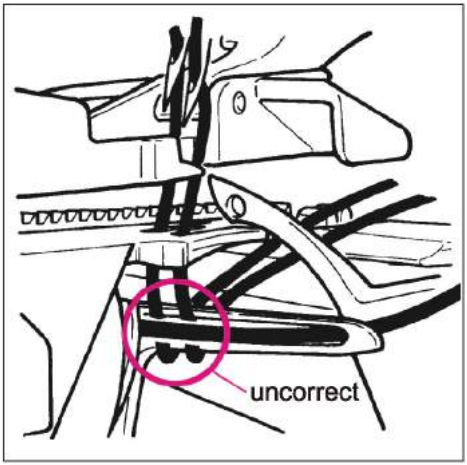
Thread the left needle **B** byfollowing steps 1 to 7.

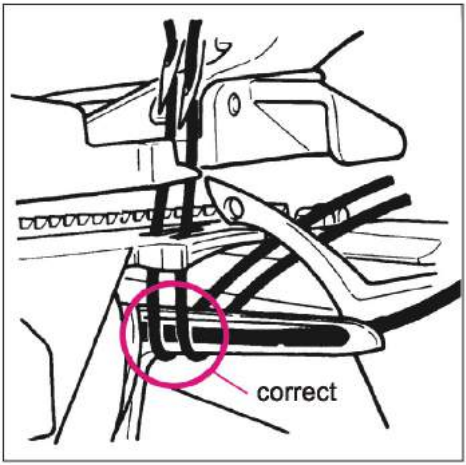


Note: The thread must run through the lower slot in guide 5.

Pull about 10 cm of thread through the needle eye and lay it to the left underneath the sewing foot.

Note: To facilitate threading of the needle eye, use the tweezers included in the accessory box and lower the sewing foot.





Important note on threading:

The needle threads must always be inserted last in order to avoid mistakes with the left looper thread and thread breakage or missed stitches.

The thread must also be removed from the needle(s) if the looper threads break. Re-insert the looper thread first, then ~~re-thresd~~ rethread the needle(s).

Thread reel change on threaded machine

Cut the threads close to the thread spool and set the new thread reels in place. Tie together the threads still in the machine and the new threads, and pull the threads out of the needles. Set all the thread tensions to -5. Now pull on the needle threads until the knots are about 15 cm past the last thread guide before the needles. Cut the knots off and pull the threads through the respective needle eyes. The looper threads can be pulled continuously past the looper eye and laid to the left underneath the sewing foot.

Important note!
Sewing foot lift

Once the thread chain has been formed, the sewing foot lift does not need to be raised any further as long as one continues working with the same thread and sewing foot. If you wish to work on another garment, then it is sufficient to lift up the front part of the presser foot slightly with your thumb. Then slide the garment under the raised part of the sewing foot. When the pedal is activated, the garment is then automatically taken up by the feed dog and transported on further.

Sewing foot lift

The sewing foot can be raised and lowered with sewing foot lift 32. The maximum vertical lift of 6 mm for the sewing foot for particularly thick fabrics can be achieved by also depressing the sewing foot lift towards the back.

Thread chain cutter

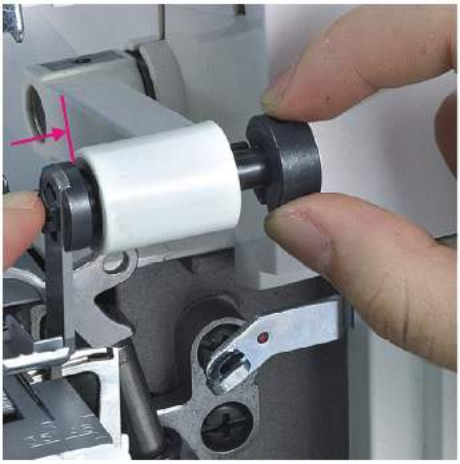
After finishing a seam, continue to sew a thread chain of 15-20 cm. Pull the thread chain towards the front over thread chain cutter 23. The thread chain will thusbe cut.

Changing the sewing foot
Switch off at the mains switch

To remove: Raise the needle(s) to the highest position and lift the sewing foot. Press the white lever at the rear of the sewing foot holder. The sewing foot will be released automatically from the holder and can be removed to the left. To do this, lift the spring slightly.

To insert: Lift the spring slightly and insert the sewing foot under the holder so that when the sewing foot lever is lowered, the pin of the foot locks into the sewing foot holder.

Check: Please lift the sewing foot lever to ensure that the sewing foot is properly locked into place.



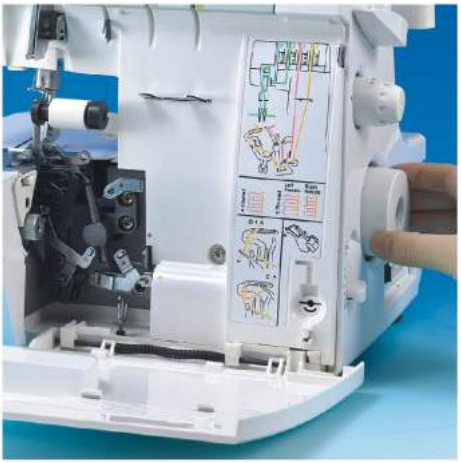
Dis-engaging the upper knife
Switch off at the mains switch

Raise upper knife **19** to its uppermost position by rotating the hand wheel. Detach the lint box and open the looper cover. Now slide the holder of the adjustable upper knife fully towards the right.

Turn the head of the upper knife away from you until the upper knife locks into a horizontal position.

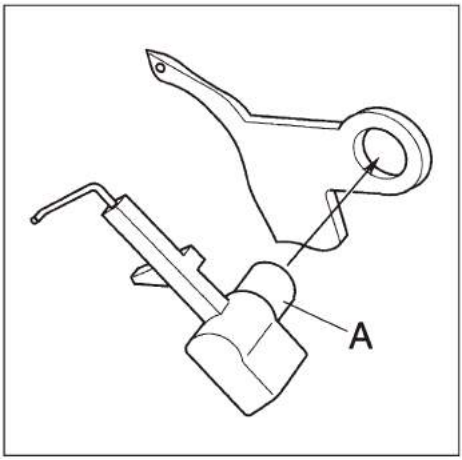
Engaging the upper knife

Slide the holder of the ~~movable~~ adjustable upperknife towards the right and swing theknife back until it locks into its workingposition. Close the looper cover and re-attach the lint box.



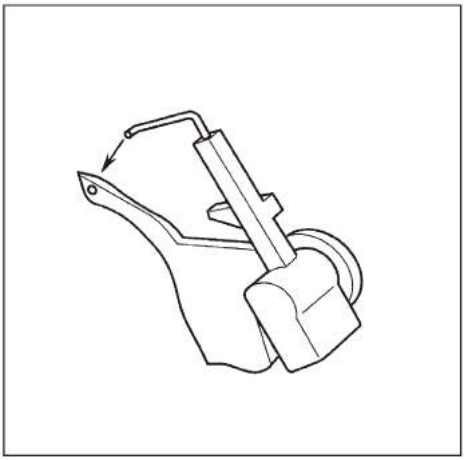
Mounting the converter
Switch off at the mains switch

The converter must be mounted for all 2-thread seams and the 2-needle,3-thread over edge closing seam. Detach the lint box and open the looper cover.
Converter **6** is located in the front of the machine housing. Pull it out.



Insert hub **A** of the converter into the aperture of the upper over edge looper.

Rotate the hand wheel until the upper over edge looper is positioned to the right of the adjustable upper knife.



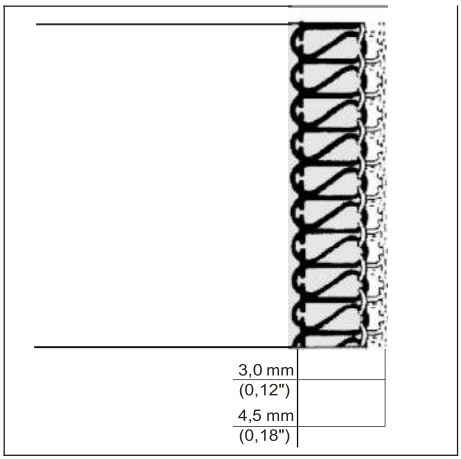
Rotate the converter towards the left and press the upper part slightly to the rear so that the tip of the converter locks into the eye of the looper.

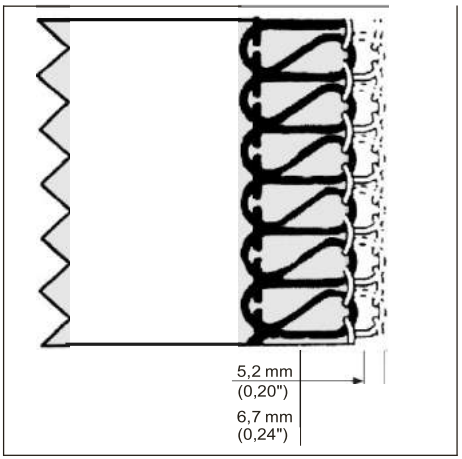
The converter can be removed by following these directions in reverse order.

Adjusting ~~sesm~~ seam width
Switch off at the mains switch

Detach the lint box. The seam width can be continuously adjusted as desired from 3.0 mm to 4.5 mm by turning seam width adjustment knob **17.** The seam width can be more easily adjusted if the upper knife holder is pushed slightly to the right.

The adjustments are marked on the needle plate. **R** is the seam width adjustment for rolled seams.





Note: The seam width adjustments between 3.0 mm and 4.5 mm apply to the right needle only. For the left needle, the set value is increased by 2.2 mm, i.e. the seam width can be continuously adjusted from 5.2 mm to 6.7 mm .

Adjusting the stitch length

The stitch length can be set as desired from F (1mm) to 4 mm by turning stitch length adjustment knob **31.**

For most sewing work, the stitch length adjustment knob should be set at 3 mm. When working with close-knit fabrics, set the adjustment knob to 4mm.

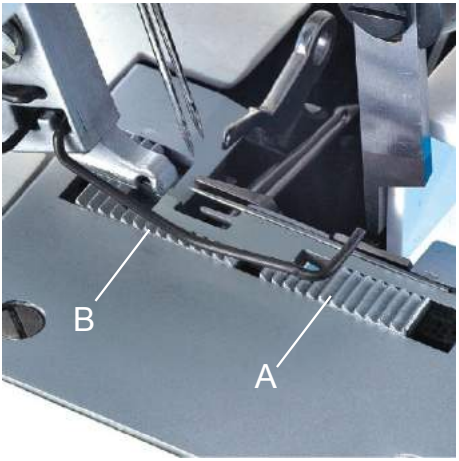
Sewing foot pressure

The machine's factory-set sewing foot pressure is suitable for medium-heavy fabrics.

The sewing foot pressure does not need to be changed for most fabrics. If lighter- or heavier fabrics are sewn, it may however become necessary to reset the pressure.

In this event, insert the small screwdriver from the accessory box into set screw 22 for adjusting the sewing foot pressure. The pressure is adjusted by turning the set screw to the left or right. For light- weight fabrics: reduce pressure by turning the set screw to the left. For heavyweightfabrics: increase pressure by turning theset screw to the right.

Note: Turn the set screw to the right until it strikes against the top lid. Then turn the screw back to the left, rotating it 6 times. Now the standard sewing foot pressure is set.



Differential feed

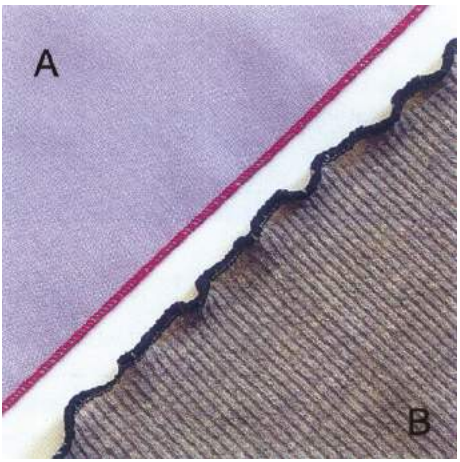
The differential feed consists of two feed dogs **(A+B)**, arranged one behind the other, which move the workpiece. Adjustment lever 30 regulates the movement of the front feed don(A), and thus the amount of fabric to be fed through. It can be adjusted within the range 0.5 and 2.0.

The **standard adjustment** is 1.0, by which the front feed dog **(A)** moves synchronously with the rear feed dog(B), i.e. the front and rear feed dogs both move the same amount of fabric.

Note: The effectiveness of the differential feed also depends on the stitch length selected and the type of fabric used.

If differential feed adjustment lever 30 is set to 0.5, the front feed dog moves half as fast as the rear feed dog, i.e. the front feed dog feeds through only halt as much fabric as the rear feed dog.

As a result, the fabric is **stretched**.

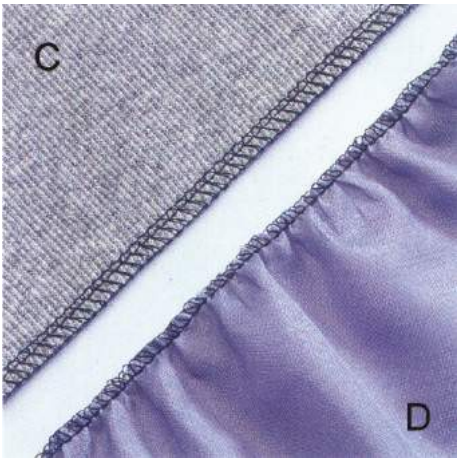


This prevents the seam from becoming gathered when sewing very delicate fabrics such as silk and taffeta. The result is a smooth seam **(A)**.

Fashionable touches can also be introduced in this way, such as the wave effect when using rib knit **(B)**.

Set differential feed adjustment lever 30 to 2.0 so that the front feed dog moves twice as fast as the rear feed dog, i.e. the front feed dog feeds through twice as much fabric as the rear feed dog.

As a result, the fabric is **gathered.**



This prevents the seam from becoming stretched when sewing knitted fabrics such as Jersey and rid stitch goods. The result is a smooth seam **(C)**.

Fashionable touches can also be introduced in this way, such as the gather effect when using very delicate fabrics **(D)**.

The following table indicates possible settings for the differential feed. However, you should always perform a sewing test on your fabric before starting work.

Fabric type/Effects	Differential feed setting		
	gather ›2,0‹	normal ›1,0‹	stretch ›0,5‹
Very thin fabrics: silk, satin, poplin, taffeta, lining fabrics.		●	●
normal fabrics: lightweight cotton, medium cotton, fine cord, thermal fabrics.		●	
thin knitted fabrics: Jersey, polo fabric, tricot, fine knitwear and cuffs.	●	●	
thick knitted fabrics: sweatshirt fabric, thick cuffs, knitwear.	●		
Stretch-wave effect: medium-and lightweight knitted fabrics, Jersey, knitwear, frilled edges on sleeves and neck openings, skirt hems, set tight stitch length.			●
Crimping: Frills made from thin fabrics and lace, seam allowances in circular cut-outs, curves on blouses, shirts, skirts, round pockets, flaps and lapels, gathering or slightly easing sleeve (shoulder) curves, sewing sleeves onto cuffs or wristbands.	●		

Sewing with the free arm
Detach the work support

Remove the lint box and pull detachable work support 10 towards the left.

Reattach the lint box.

The free arm is particularly useful for sewing tubular items such as trouser legs and sleeves. Insert the article over the free arm.

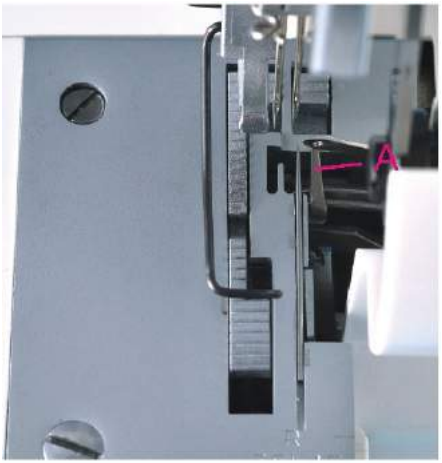
Reattaching the work support

Position the detachable work support so that it is level with the machine cover, then slide it to the right until it locks into Position.

Setting the slide lever for the stitch width stitch finger

For standard overlock seams:

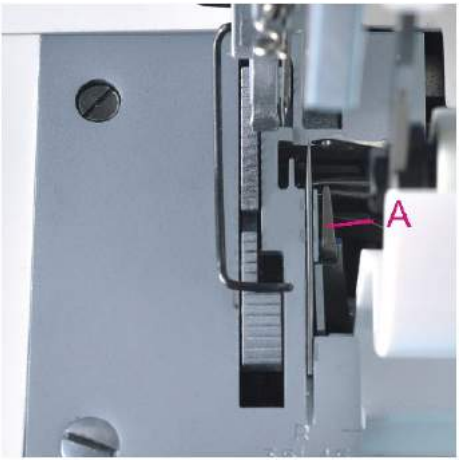
Set the slide lever for stitch finger **18** to position S.



Stitch finger **A** will be pushed forward.
All standard overlock seams can be sewn with this adjustment.

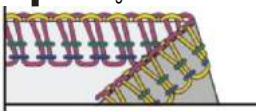
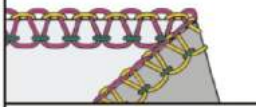
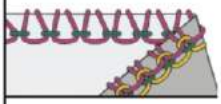
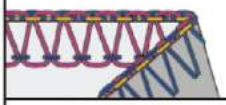
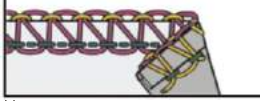
For rolled hems

Set the slide lever for stitch finger **1B** to position **R.**

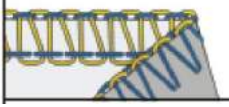
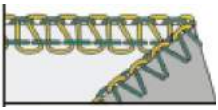
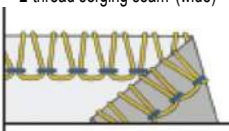
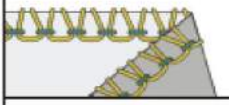
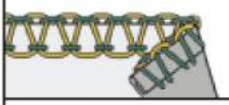
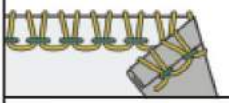
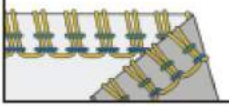


Stitch finger **A** will be pushed backward.
All rolled hems can be sewn with this adjustment.

Program summary

Program	Application	Needle position •0| = left, 0•| = right
4-thread overedge seam 	Sewing together any ateri_al, especially elastic fabrics, with simultaneous serging.	
3–thread overedge seam (wide)	Serging tightly-woen (easily frayed}fabrics	
3–thread–overedge seam (narrow) 	Serging lightweight : (easily-frayed} fabrics	
3-thread serging seam (wide)	Serging tightly-wven (non-fraying) fabrics	
3-thread serging seam (narrow) 	Serging lightweight : (easily-frayed} fabrics	
3-thread decorative seam (wide) FLATLOCK 	Serging medium-heavy abrics. As flatlock seam for _sewing together stretch arics and e as a decorative finished edg .	
3–thread decorative seam (narrow) FLATLOCK	Serging medium-heavy abrics. As flatlock seam for _sewing together stretchics an e as a decorative finished e g .	
3–thread rolled hem 	Sergi.ng med"ium-heavy fabrics. Decorative finished edges	

Thread tension This setting is for medium-heavy fabrics and normal polyester yarn.				Stitch length	Stitch-width	Position of slide lever for stitching	Converter =with D=with-out
blue	green	pink	yellow				
N	-2	-2	— '	3	3.5	S	D
N		-2	— '	3	3.5	S	D
	N	-2	— '	3	3.5	S	D
N		-5	+3.5	3	3.5	S	D
	N	-5	+4	3	3.5	S	D
-4.5		N	+2	3	3.5	S	D
	-4.5	N	+2	3	3.5	S	D
	-1	+2	-1	F	R	R	D

Programs	Application	Needle position =left O• = right
Folded 3-thread rolled hem	Serging lightweight to medium-heavy fabrics. Decorative finished edges.	
2-thread overedge seam (wide) FLATLOCK 	Serging medium-heavy fabrics. As flatlock seam for sewing together stretch fabrics.	
2-thread overedge seam (narrow) FLATLOCK 	Serging lightweight fabris. As flatlock seam for sewing together stretch fabrics.	
2-thread serging seam (wide) 	Serging lightweight fabrics.	
2-thread serging seam (narrow) 	Serging lightweight fabrics.	
2-thread rolled hem 	Serging very lightweight fabrics. Decorative finished edges.	
Folded 2-thread rolled hem 	Serging very lightweight fabrics. Decorative finished edges.	
2-needle, 3-thread overedge closing seam 	Serwing together and simultaneous Serging with of lightweight, high-stretch fabrics.	

Thread tension This treading tension is for medium-heavy fabrics and normal polyester yarn.				Stitch length	Stitch-width	Position of slide lever for stitch finger	Converter =with D=with-out
blue	green	pink	yellow				
	−2	N	+3	F	R	R	D
−4			+2.5	3	3.5	S	●
	−4		+2	3	3.5	S	●
N			−3.5	3	3.5	S	●
	N		−3.5	3	3.5	S	●
	−4		+1	F	R	R	●
	-1		−2	F	R	R	●
_′	−2		−4	3	3.5	S	●

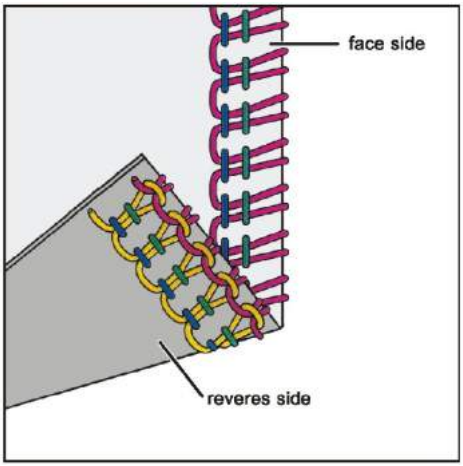
Adjusting the thread tension

The following pages contain directions for setting tread tensions for all programs. Adjust the tension by turning the tension wheel until the dot marker is at the desired setting.

The settings for adjusting thread tension are recommendations. Fabric type, yarn quality and needle gauge will influence seam results. For this reason it is always best to sew a test seam to check the interlocking of threads. It may be necessary to correct the thread tension settings.

Tip: When testing, it is a good idea to use thread colours corresponding to the individual thread tensions, e.g. thread the upper over edge looper with pink yarn, the lowerover edge looper with yellow yarn, etc.

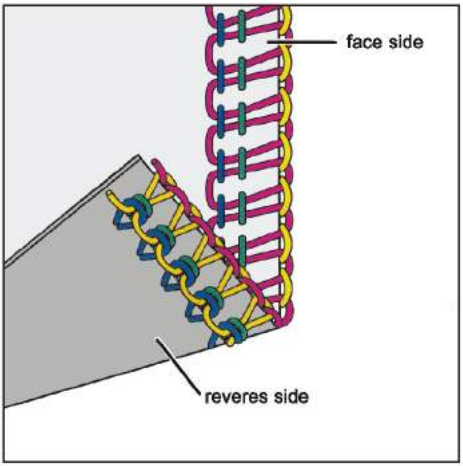
Note: All further settings required for individual programs (needle position, stitch length, stitch width, etc.) are to be found in the program summary on pages 28 to 31.



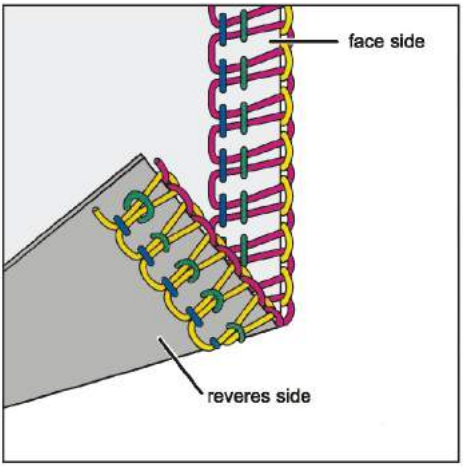
4-thread over edge seam

blue	green	pink	yellow
N	– 2	– 2	-1

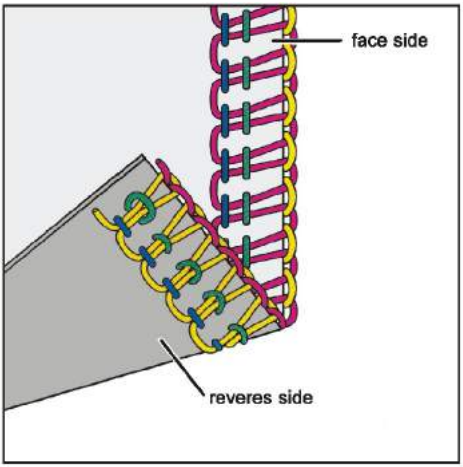
If all tensions are optimally set, the two looper threads will be interlocked at the very edge of the fabric.



The **left needle thread** (blue) is too loose.
Increase the tension of the blue thread.

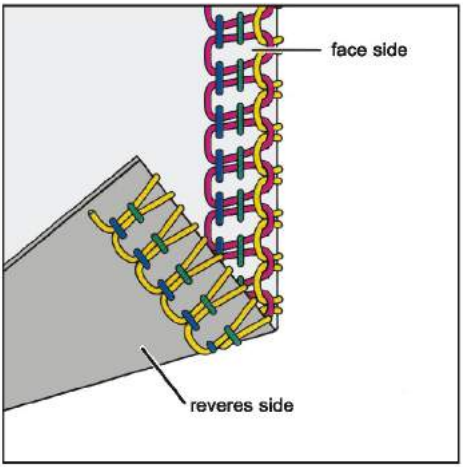


The **right needle thread** (green) is too loose.
Increase the tension of the green thread.



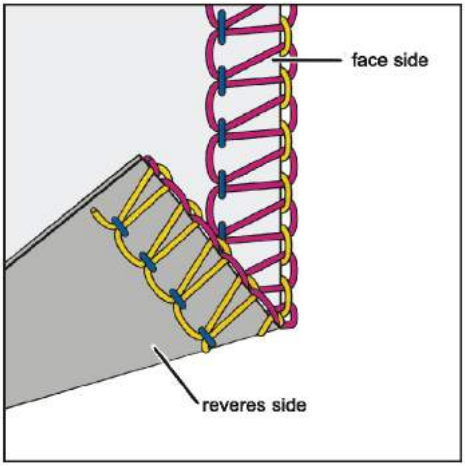
The **upper looper thread** (pink) is visible on the reverse side of the fabric.

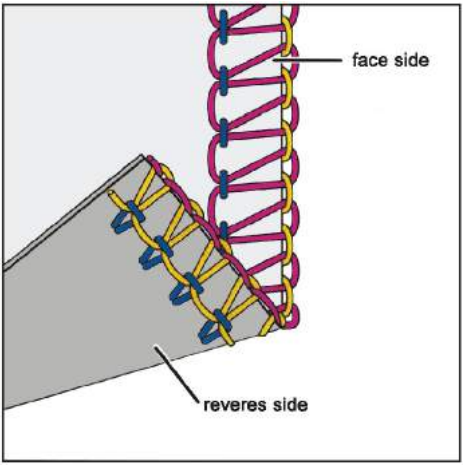
Increase the tension of the pink thread and/or reduce the tension of the yellow thread.



The **lower looper thread** (yellow) is visible on the face side of the fabric.

Increase the tension of the yellow thread and/or reduce the tension of the pink thread.





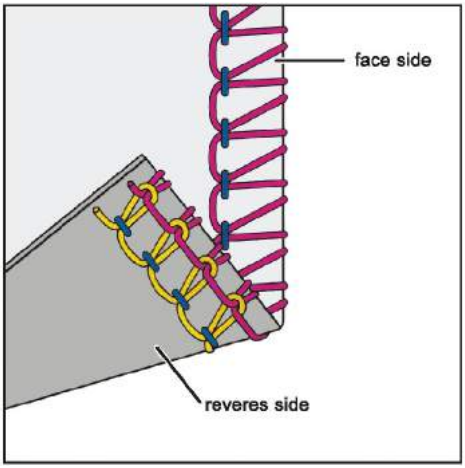
3-thread overedge seam

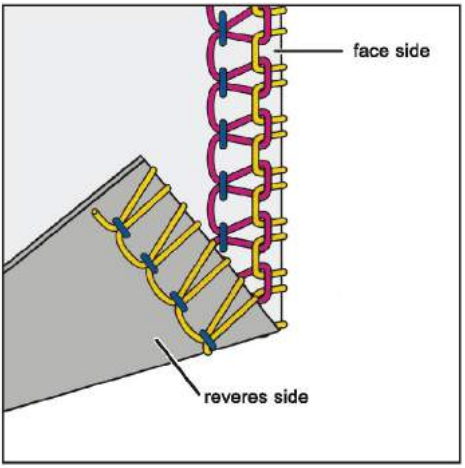
wide	blue	green	pink	yellow
	N		−2	− 1

The needle thread is too loose.

Increase the tension of respective needle thread.

narrow	blue	green	pink	yellow
		N	−2	− 1



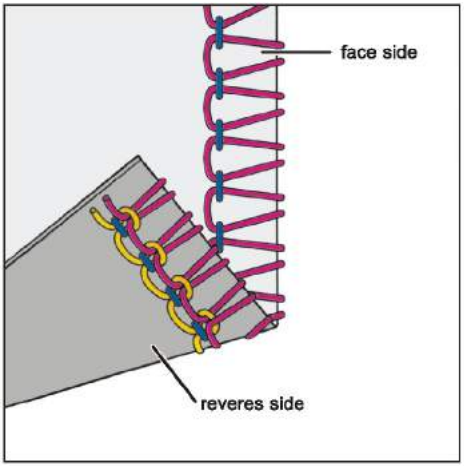


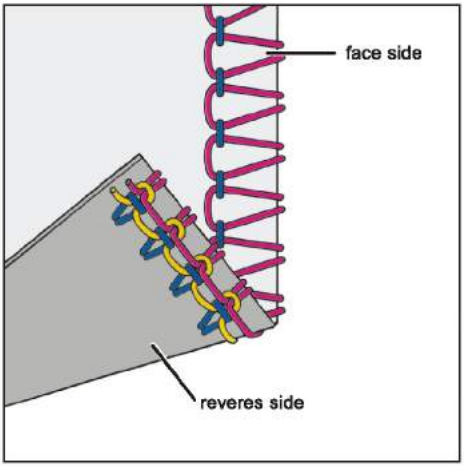
The **upper looper thread** (pink) is visible on the reverse side of the fabric.

Increase the tension of the pink thread and/or reduce the tension of the yellow thread.

The **lower looper thread** (yellow) is visible on the face side of the fabric.

Increase the tension of the yellow thread and /or reduce the tension of the pink thread.





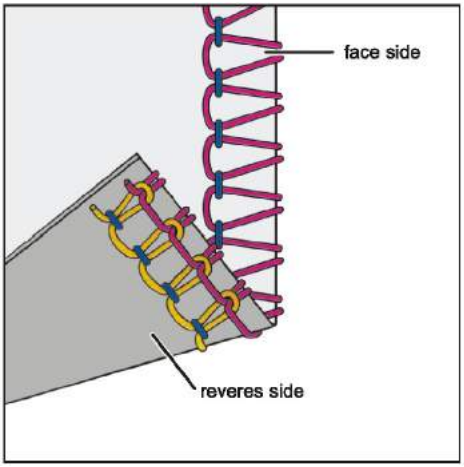
3-thread surging seam

wide	blue	green	pink	yellow
	N		−5	+3.5

If the needle thread is too loose.

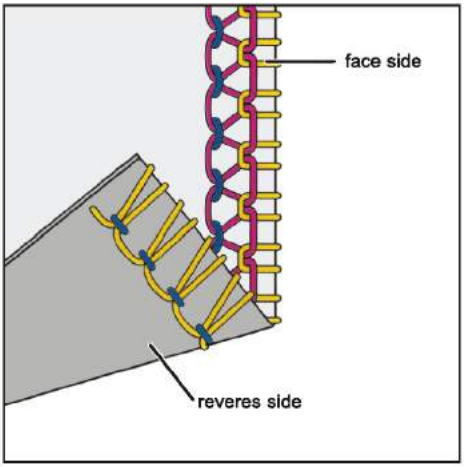
Increase the tension of the respective needle thread.

narrow	blue	green	pink	yellow
		N	−5	+4



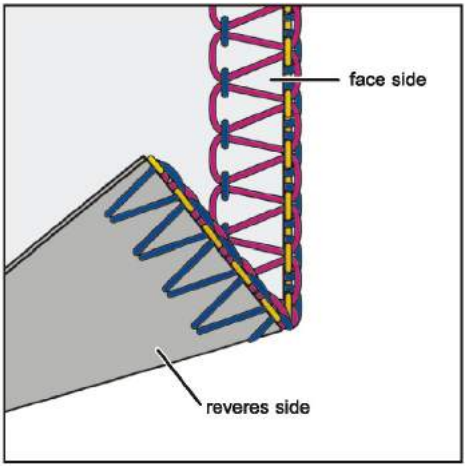
The **upper looper thread** (pink) is only partly looped around the edge of the fabric.

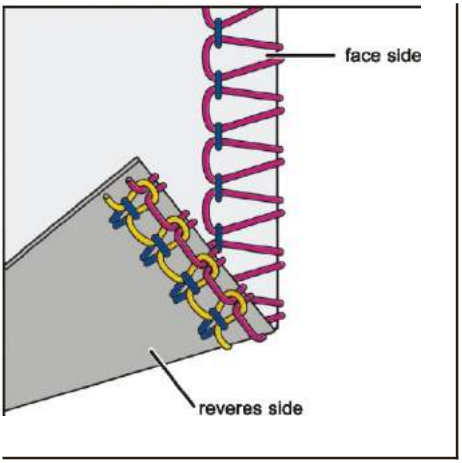
Reduce the tension of the pink thread and /or increase the tension of the yellow thread.



The **lower looper thread** (yellow) is visible on the face side of the fabric.

Increase the tension of the yellow thread and/or reduce the tension of the pink thread.





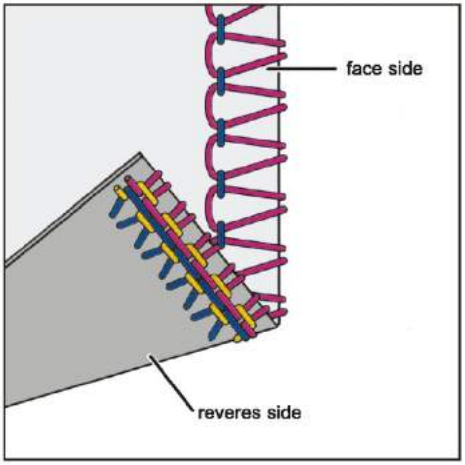
3-thread decorative seam surging. FLATLOCK

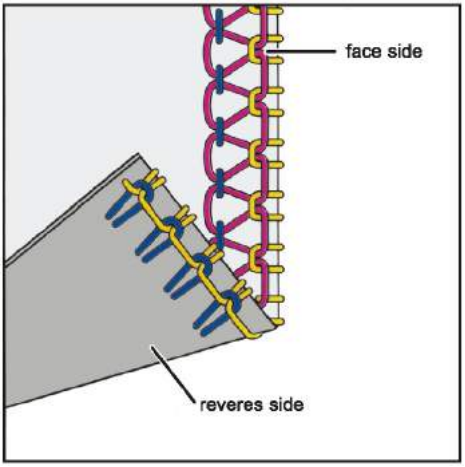
wide	blue	green	pink	yellow
	– 4.5		N	+ 2

	blue	green	pink	yellow
narrow	t-----+	-----+	-----+	-----,
		-4.5	N	+ 2

The needle thread is too tight.

Reduce the tension of the respective needle thread.



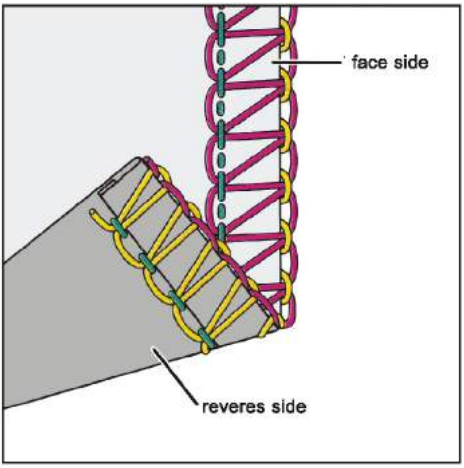


The **upper looper thread** (pink) is visible on the reverse side of the fabric

Increase the tension of the pink thread.

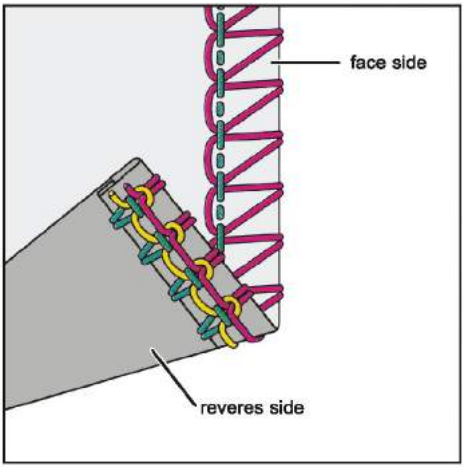
The **lower looper thread** (yellow) is too loose.

Increase the tension of the yellow thread.



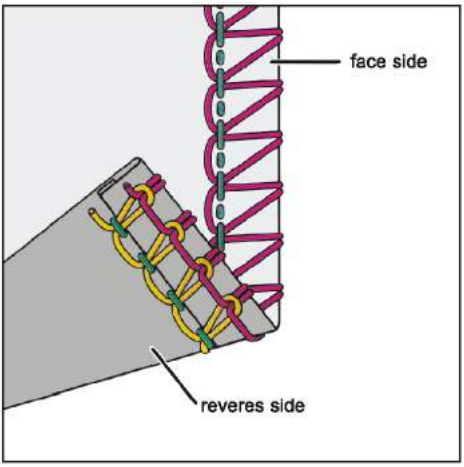
3-thread rolled hem

blue	green	pink	yellow
	– 1	+2	-1



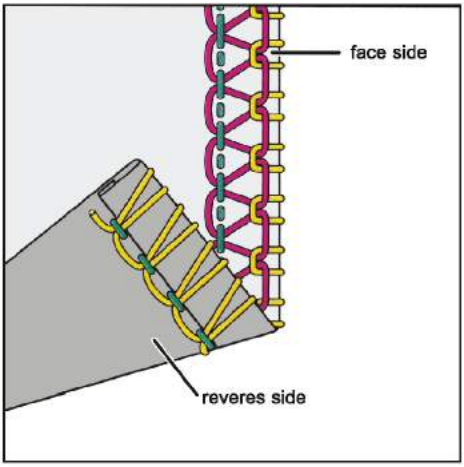
If the **right needle thread** (green) is too loose.

Increase the tension of the green thread.



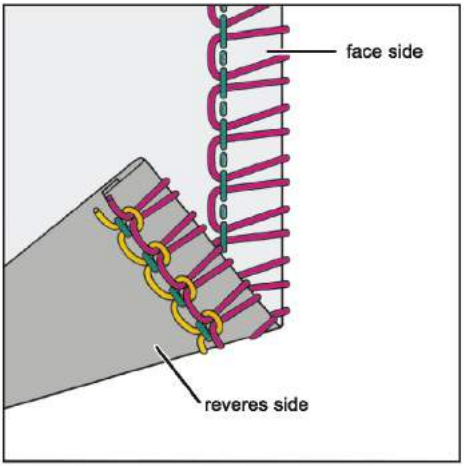
The **upper looper thread** (pink) is visible on the reverse side of the fabric.

Increase the tension of the pink thread and/or reduce the tension of the yellow thread.



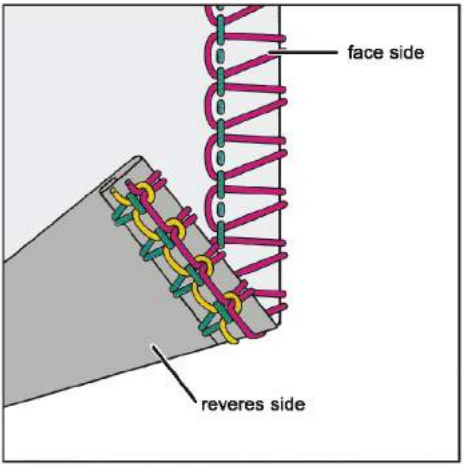
The **lower looper thread** (yellow) is visible on the face side of the fabric.

Increase the tension of the yellow thread and /or reduce the tension of the pink thread.



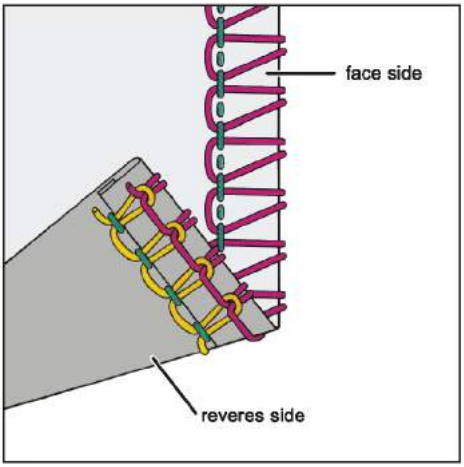
Folded 3-thread rolled hem

blue	green	pink	yellow
	−2	N	+3



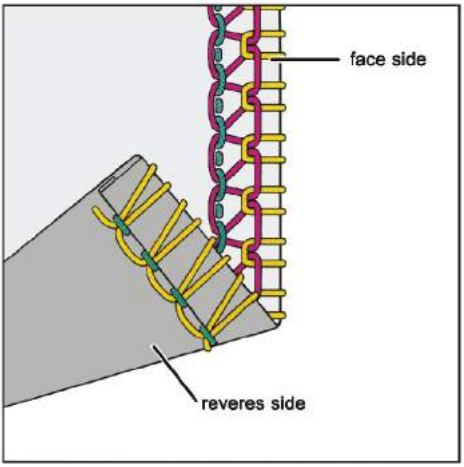
The **right needle thread** (green) is too loose.

Increase the tension of the green thread.



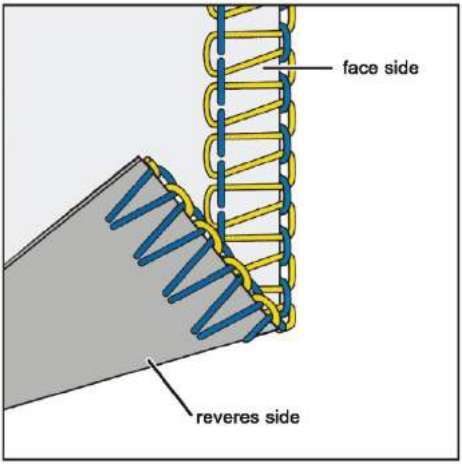
The **upper looper thread** (pink) only partly loops around the edge of the fabric.

Reduce the tension of the pink thread and/or increase the tension of the yellow thread.



The **lower looper thread** (yellow) is visible on face side of the fabric.

Increase the tension of the yellow thread and/or reduce the tension of the pink thread.

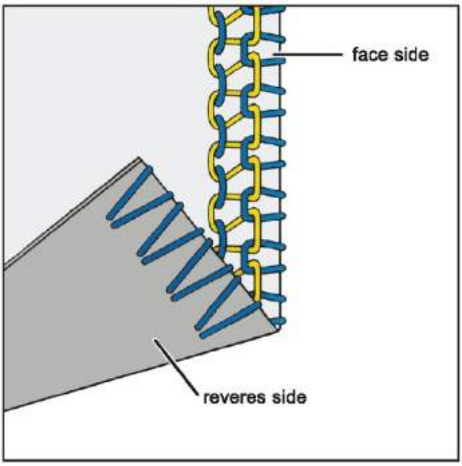


2-thread over edge seam, FLATLOCK

	blue	green	pink	yellow
wide	– 4			+ 2.5

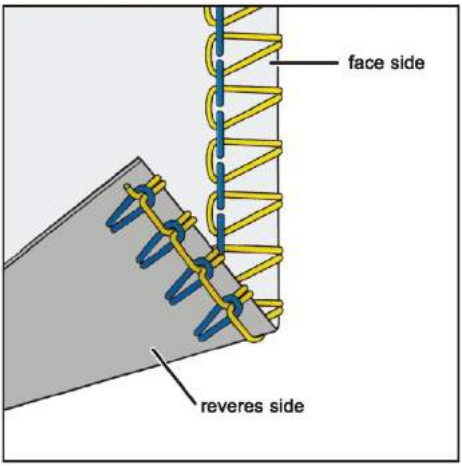
	blue	green	pink	yellow
narrow	1	– 4		+ 2 1

Note: Attach the converter (see page 21) for sewing 2-thread over edge seams (FLATLOCK).



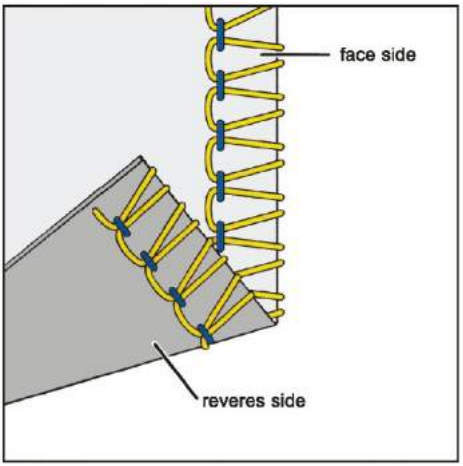
The needle thread is too loose or the lower looper thread (yellow) is too tight.

Increase the tension of the respective needle thread and /or reduce the tension of the yellow thread.



The **lower looper thread** (yellow) is visible on the reverse side of the fabric.

Increase the tension of the yellow thread and/or reduce the respective needle thread tension.

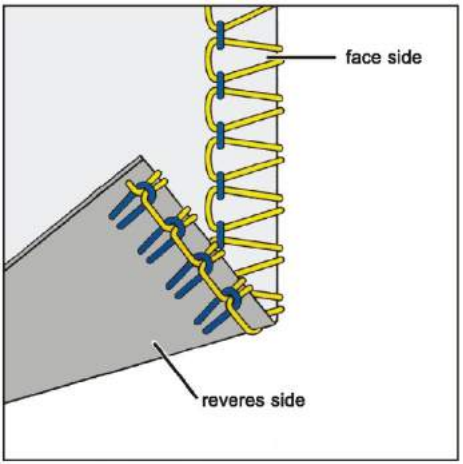


2-thread surging seam

wide	blue	green	pink	yellow
	N			-3.5

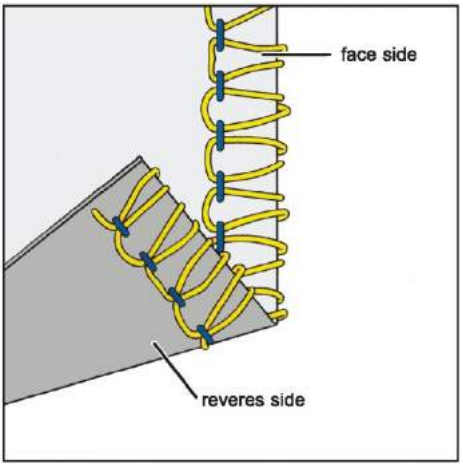
narrow	blue	green	pink	yellow
		N		-3.5

Note: Attach the converter (see page 21) for sewing 2-thread surging seams (FLATLOCK).



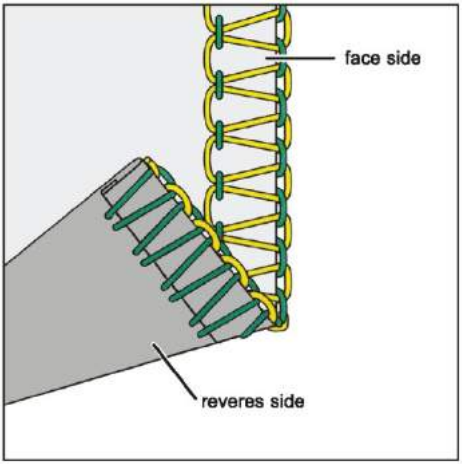
The needle thread is too loose.

Increase the tension of the respective needle thread and/or reduce the tension of the yellow thread.



The **lower looper thread** (yellow) is too loose.

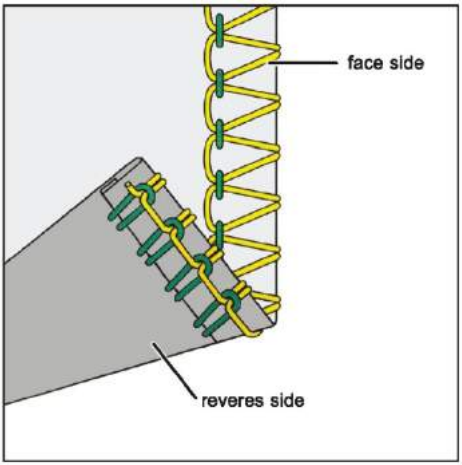
Increase the tension of the yellow thread.



2-thread rolled hem

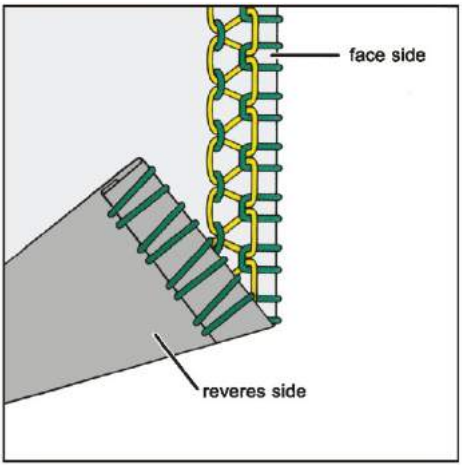
blue	green	pink	yellow
	– 4		+ 1

Note: Attach the converter (see page 21) for sewing 2-thread rolled hems.



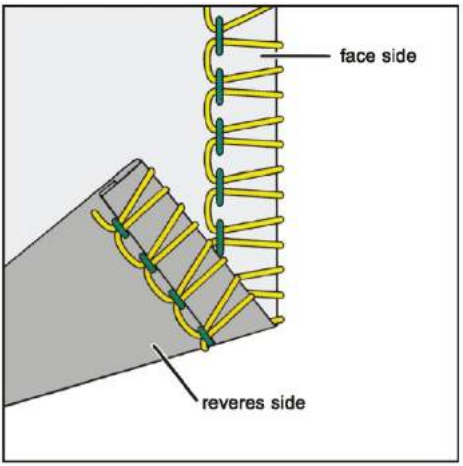
The **right needle thread** (green) is too tight.

Reduce the tension of the green thread and/or increase the tension of the yellow thread.



The **lower looper thread** (yellow) is too tight.

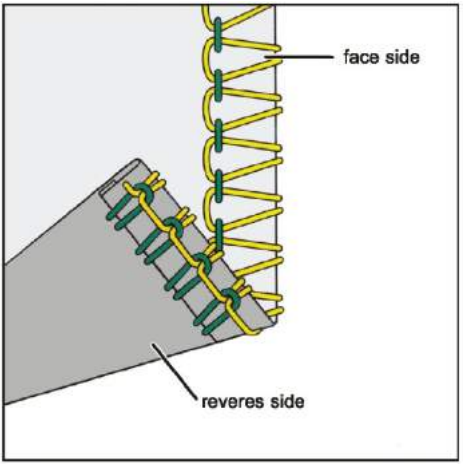
Reduce the tension of the yellow thread and/or increase the tension of the green thread.



Folded 2-thread rolled hem

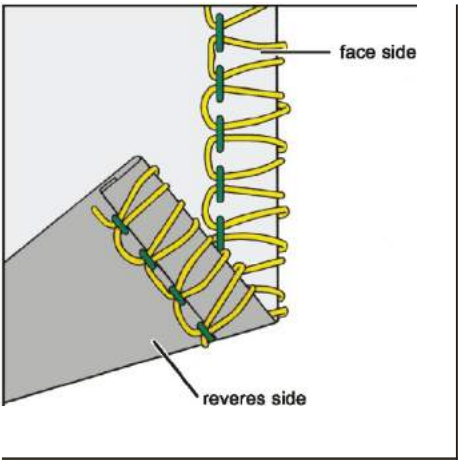
blue	green	pink	yellow
	– 1		– 2

Note: Attach the converter (see page 21) for sewing 2-thread rolled hems.



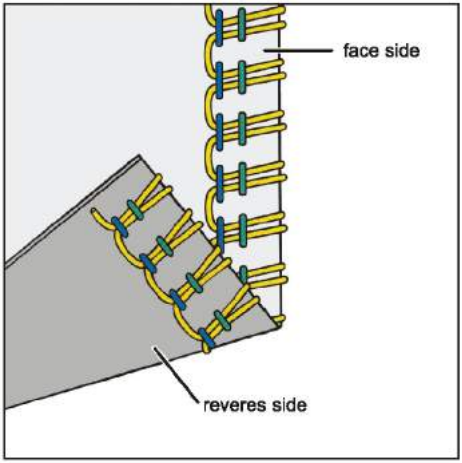
The **right needle thread** (green) is too loose.

Increase the tension of the green thread and /or reduce the tension of the yellow thread.



The **lower looper thread** (yellow) is too tight.

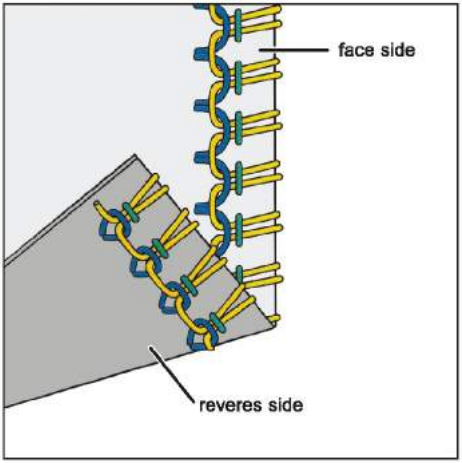
Reduce the tension of the yellow thread and /or increase the tension of the green thread.



2-needle, 3-thread overedge closing Seam

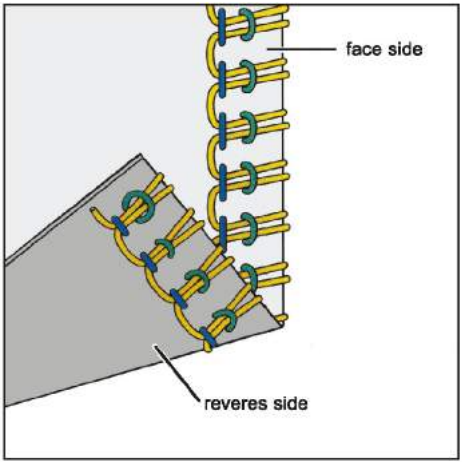
blue	green	pink	yellow
– 1	– 2		– 4

Note: Attach the converter (see page 21) for sewing 2-needle, 3-thread over edge closing seams.



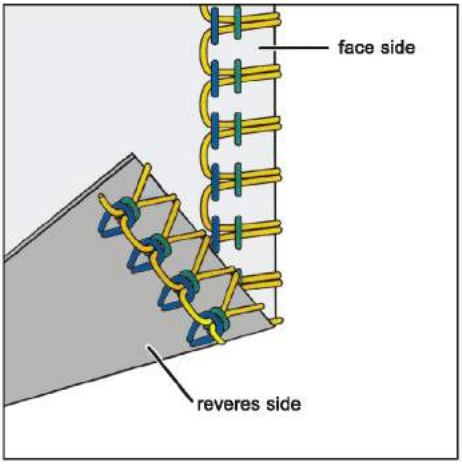
The **left needle thread** (blue) is too loose.

Increase the tension of the blue thread.



The **right needle thread** (green) is too loose.

Increase the tension of the green thread.



The **lower looper thread** (yellow) is too tight.

Reduce the tension of the yellow thread.

Machine maintenance & cleaning the machine
Switch off at the mains switch

Detach the lint box open the looper cover. Disengage the upper knife and remove the sewing foot.

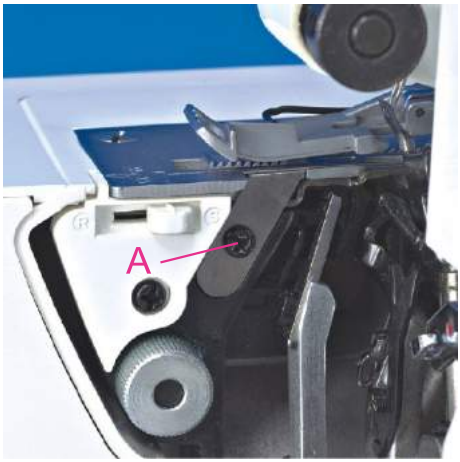
Use the lint brush from the accessories to remove lint from the needle plate, the upper and lower knives and looper area.

Lubricating the machine
Switch off at the mains switch

The point shown above should be lubricated with the oil from the accessories every time the machine is cleaned. One or two drops of sewing machine oil are sufficient. All other parts are manufactured from special material and do not require lubrication.

Cleaning the rubber feet

Clean the machine s rubber feet from time to time with rubbing alcohol. This ensures good stability.



Changing the lower knife
Switch off at the mains switch

Removal: Detach the lint box and open the looper cover. Disengage the upper knife and move the needle(s) to the uppermost position. Use the large screw–driver from the accessories to loosen lower knife retaining screw **A**.Remove the screw and the lower knife.

Insertion: Insert a new lower knife into the recess provided and tighten the retaining screw. Engage the upper knife and close the looper cover.

Changing the light bulb (sewing light! Switch off at the mains switch

Use the large screwdriver from the accessories to loosen the retaining screw of sewing light cover 13 until the latter can be removed.

Push the bulb into the socket, give it a half-turn in a counter-clockwise direction and remove it.

Insert a new bulb (max. 15 Watt) into the socket and rotate it until the two cams of the bulb lock in. Push the bulb into the socket, thereby rotating it in a clockwise direction until it is firmly in place. Replace the sewing lamp cover and tighten the retaining screw

Special accessories

On the following pages you will find descriptions of all sewing feet available as special accessories to help you to get the best from your 853/854. By using these sewing feet, you can perform various sewing steps in one, thus saving time and ensuring perfect sewing results.

The special accessories can be purchased from your dealer.

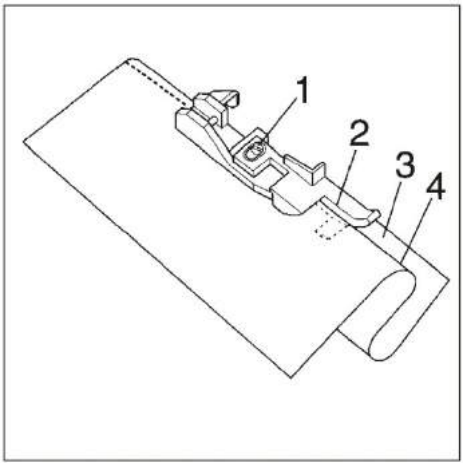
Special accessory	Order No
Blind stitch sewing foot	93-415 506-23/000
Gimp thread sewing foot	93-415 507-00/000
Elastic tape sewing foot	93-415 506-21/000
Shirring foot	93-415 506-20/000
Cording foot	93-415 506-22/000
Bead sewing foot	93-415 506-24/000
Lace sewing foot	93-415 507-69/000

Blindstitch foot

The blind stitch foot is ideal for professional sewing of invisible seams on medium-heavy and thick fabrics. The seam is trimmed, serged and "blind" stitched in a single operation.

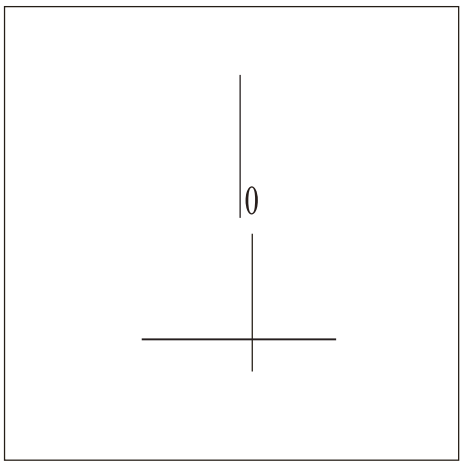
Setting the machine

Remove the left needle. Set your machine to 3-thread over edge seam (narrow) and select stitch length 4.

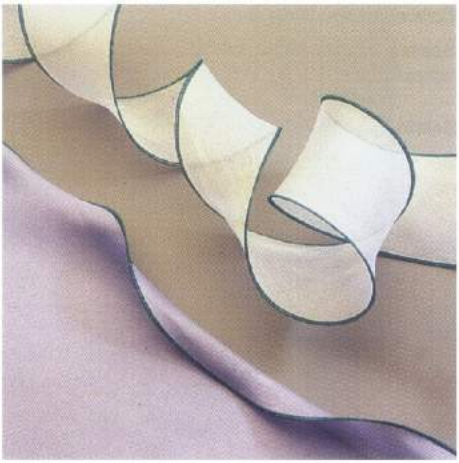


Working:

Raise the needle to its uppermost position and insert the blind stitch foot. Fold the seam inwards. Now fold the seam once again outwards so that the edge protrudes approx. 1cm . Position the seam under the sewing foot so that the folded **seam part** 3 lies beneath **edge guide 2. Crease 4** must thereby run along the edge of **guide 2.**



Loosen **set screw 1** and adjust **edge guide** 2 so that upon penetration only one thread of the upper fabric is caught by the needle. Sew a test seam.

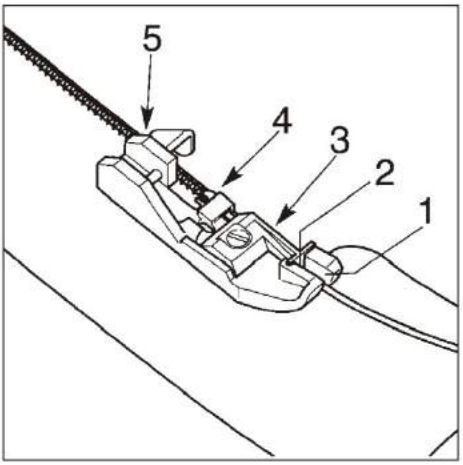


Gimp sewing foot

This sewing foot is used for sewing in gimp threads (cords, synthetic threads) up to a thickness of 1.0 mm. It creates a wavelike hem finish in delicate fabrics e.g. for evening dresses and bridal gowns or curtains

Setting the machine

Set your machine to folded 3-thread rolled hem.



Working

Raise the needle to its uppermost position and insert the gimp sewing foot. Insert the gimp thread into **guide 1** and pull it through **hole** 2 into **lateral guide** 3. Then lay the thread under **guides 4 and 5** so that it projects approx. 10 cm towards the back. Hold the gimp thread in place with a few stitches, the lay the fabric under the sewing foot and continue sewing (the face side of the fabric should be upwards). Sew a test seam.

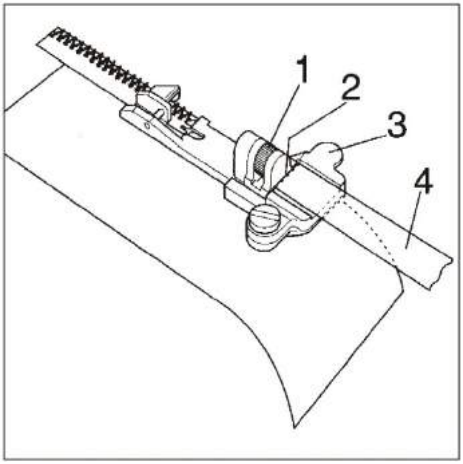
Note: The wave effect can be accentuated by setting the differential feed to 0.5 and cutting your workpiece diagonal to the threading.

Elastic tape sewing foot

This sewing foot is used for sewing on elastic tape. In the same operation, the fabric is trimmed and surged, and also gathered by the contracting elastic tape.

Setting the machine

Set your machine to 4-thread over edge seam. The seam width is determined by the width of the elastic tape.



Working

Raise the needle to its uppermost position and insert the elastic tape sewing foot . Loosen **screw 1** so that **brake 3 at opening 2** is opened by approx. 2mm. Insert**elastic tape 4** into **opening 2** and pull itbeneath the sewing foot so that it protrudes approx. 10 cm behind the latter. Re-tighten **screw 1.** The more the screw is tightened, the greater the pressure **brake** 3 exerts on the elastic tape and thus the greater the gather effect. Sew a test seam.

The next step is normally to stitch the elastic tape towards the left with one of your machine s elastic (expandable) stitches (see figure).

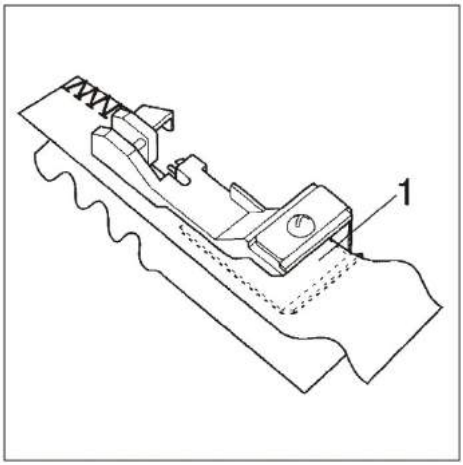
Sewing on a non-elastic tape prevents stretching of the seams (e g shoulder seams) in stretch fabrics.

Loosen **screw 1** until the non-elastic tape can pass through **opening 2** without problem.

Shirring foot

The shirring foot enables two fabrics to be sewn together, whereby the bottom ply is automatically gathered. It is ideal for children s wear, as well as attaching gathered valances for curtains, table linen or tiered skirts.

Setting the machine
Set your machine to 4-thead over edge seam and the differential feed to 2.



Working

Raise the needle to its uppermost position and insert the shirring foot. Lift the sewing foot and insert the fabric ply to be shirred (face side up). Insert the second fabric ply (face side down) under the sewing foot to that **plate 1** lies between the two plies. Lower the sewing foot and sew the two fabric plies together. Sew a test seam.

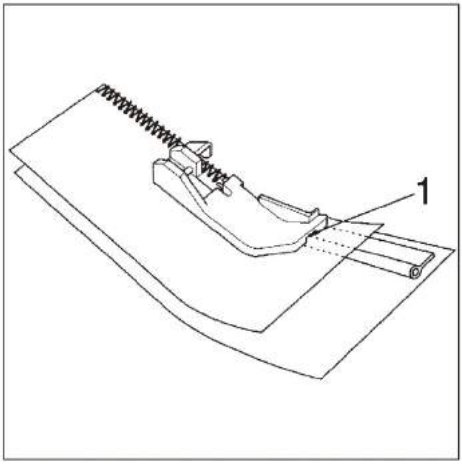
Note: The degree of shirring can be changed by adjusting the differential feed.

Cording foot

This sewing foot allows you to sew together two fabric plies, with a cording tape between them, in one operation. Ideal for casual wear, sports bags and upholstery covers.

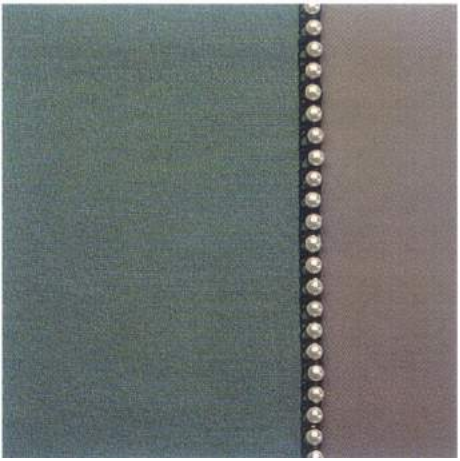
Setting the machine

Set your machine to 4-thread over edge seam and seam width 4.5 mm.



Working

Raise the needle to its uppermost position and insert the cording foot. Place the two fabric plies on top of one another (face side to face side) and insert the cording tape between the two plies. Position the workpiece beneath the cording foot, ensuring that the cording (piping) runs through **groove 1** in the foot. Sew a test seam.

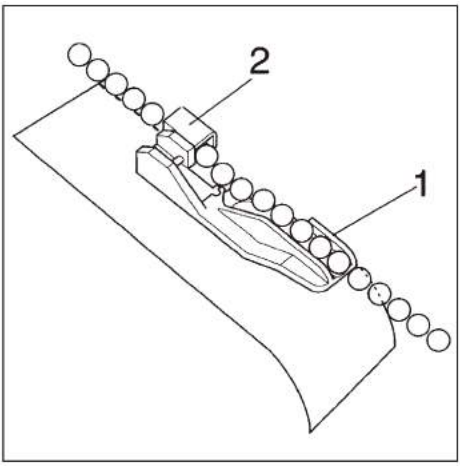


Bead sewing foot

This sewing foot is used for sewing on beads, sequins, strass bands, lead and ordinary cords.

Setting the machine

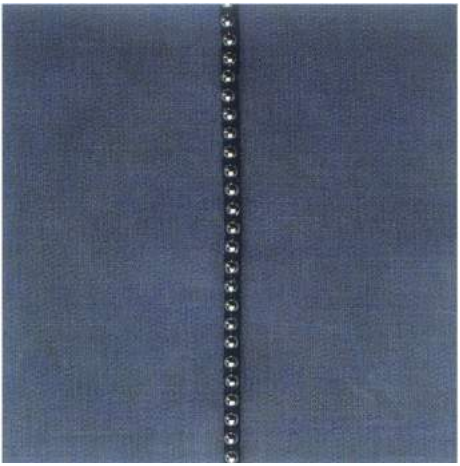
Set your machine to 3-thread over edge seam (narrow or wide depending on bead size). Stitch length should be between 3 and 4



Working

Raise the needle to its uppermost position and insert the bead sewing foot. Insert the string of beads into guide 1and beneath guide 2 approx. 5 cm behind the sewing foot. Hold the beads in place with a few stitches, then lay the fabric face up under the sewing foot and sew the beads onto the selvage.

Note: For sewing on lead beading, we recommend threading the two over edge looper with bulk thread and correctingthe tension if necessary.



If you wish to sew the beading into the fabric as shown to the left, the needle thread tension must be loose (approx.-5). Lay the material reverseside to reverse side and guide the crease past the upper the while sewing .Pull the fabric apart;
the beading is now in top

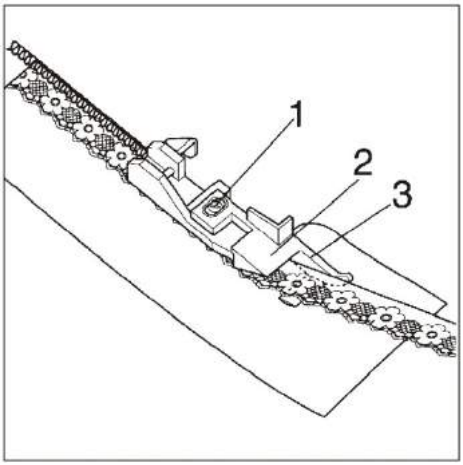
Sew a test seam.

Lace sewing foot

The lace sewing foot enables you to sew lace and wide bands together or onto a nother workpiece.

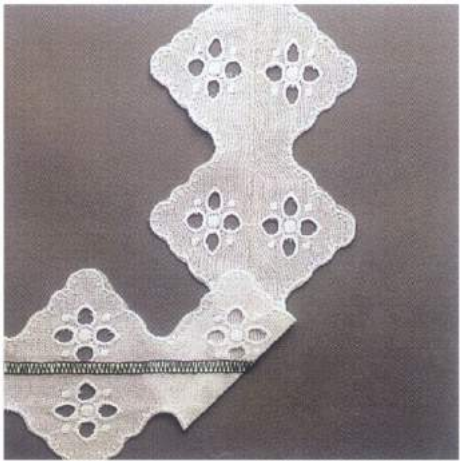
Setting the machine

Set your machine to 3-thread over edge seam (narrow) and select a stitch length between 1.5 and 2.0.



Working

Raise the needle to its uppermost position and insert the lace sewing foot. Use the large screwdriver from the accessories to loosen **screw 1** and adjust **guide** 2 so that the needle penetrates the lace as close to the edge as possible. Tighten **screw 1.** Lay the lace onto the fabric, face side to face side, at a distance of 1.5 to 2.0 cm (depending on seam allowance) away from the selvedge and sew ti on.



When sewing two lace workpieces together, the two halves must be guided flush along **edge guide 3.**

Thread chart for 2-, 3- and 4-thread over edge seams			
Fabric	**Thread**		Stitch **length**
Lightweight fabrics: Organdy, light-knit fabric, taffeta, silk, lining fabrics	Cotton Synthetic yarn	No. 50 – 70 No. 70 -140	2.0 – 4.0 mm
Medium-heavy fabrics: Cotton, tricot, linen, dress materials	Cotton Synthetic yarn	No. 40 – 60 No. 70 -140	2.0 – 4.0 mm
Heavy fabrics: iweed, suit materials, denim, heavy cloth	Cotton Synthetic yarn	No. 30 – 50 No. 70 -140	2.0 – 4.0 mm
Knitwear:	Cotton Synthetic yarn	No. 40 – 60 No. 70 -140	2.0 – 4.0 mm
2 or 3-thread rolled hems	Polyester yarn Mercerized yam (bluk thread)	No. 120 – 140	1.0 – 2.0 mm

Sewing problems and their solutions

These machines have been developed for ease of operation and no difficult adjustments must be made. Sewing problems of the kind described below may occur due to minor adjustment and operating errors. They can be easily corrected by following the instructions.

Problem	Cause	Solution
Needle breakage	Needle bent or point damaged	Insert new needle (see page 11).
	Needle not fully inserted	Insert needle correctly (see page 11).
	Material was pulled too firmly	Do not pull material during sewing
Thread breakage	Incorrectly threaded	Thread correctly (see pages 12-1B).
	Thread has caught	Check whether thread catches at reel stand etc.
	Thread tension too tight	Correct tension (see pages 32-43).
	Needle not fully inserted	Insert needle correctly (see page 11).
	Incorrect needle used	Use needle system EL X 705.
	Needle bent or point damaged	Insert new needle (see page 11).
	Needle not fully inserted	Insert needle correctly (see page11).
	Incorrect needle used	Use needle system EL X 705
	Incorrectly threaded	Thread correctly (see pages 12-18).
Incorrect stitch formation	Incorrect setting of thread tensions	Reset thread tensions (see pages 32-43).
The 3- or 4-thread over edge seam has an irregular appearance and the upper looper thread has not interlocked in the seam.	The converter is attached.	Converter must be detached.

Problem	Cause	Solution
Machine will not operate, although mains switch is on	Power supply interrupted	Close looper cover (see page 9).
Fabric not neatly trimmed	Sewing lint between upper and lower knife	Clean knives
	Lower knife is blunt	Replace lower knife (see page 45).
Puckered seams	Thread tension too tight	Reduce thread tension.
	Incorrect setting of differential feed	Re-adjust diffirential feed (see pages 24,25).
	Thread has caught due to incorrect threading	Thread correctly (see pages 12-18).
Workpiece not fed through evenly	Stitches too short	Increase stitch length (see page 23).
	Sewing foot pressure too low for heavy fabrics	Increase sewing foot pressure (see page 23).
	Sewing foot pressure to high for lightweight fabrics	Reduce sewing foot pressure (see page 23).

Max. Sewing speed	2
Specifications:	
	1 00 stitches per minute
Seam width	3 – 6.7 mm
Stitch length	F (≙ 1mm) – 4 mm
Sewing foot	clip on
Lubrication	manual
Sewing foot height	4.5 mm
Overedge stroke	1.5 mm
Needle system	EL X 705, Cat. No. 2020
Needle size	80/11, 90/14
Dimensions (length × height × width)	2, 3, 4
Number of threads	395 × 360 × 375mm
Weight	6.5 kg

Contents of cardboard box

1 machine
1 foot control
1 instruction manual/guarantee certificate
1 lint box
1 machine cover