BERNINA

"Welcome to the BERNINA family"

In choosing **BERNINA**, you are assured of years of rewarding sewing. For over 100 years my family has concentrated on providing complete satisfaction to our customers. And it is my personal wish to continue this tradition of offering you Swiss precision engineering combined with state of the art technology and an after sales service second to none.

The new **BERNINA activa 220, 230 and 240** are characterized by a youthful appeal which is combined with a range of added value features to give you, dear Customer, more sewing pleasure than ever before. Enjoy modern, creative sewing with **BERNINA**: our wide range of accessories as well as our sewing publications brimming with imaginative ideas and practical tips all add to the joy of sewing **BERNINA** style.

Any questions you have will be dealt with courteously and efficiently by our highly trained **BERNINA** dealers, who will also be glad to service your sewing computer for you.

H.P. Ueltschi
Owner BERNINA
Sewing Machine Company

www.bernina.com
BERNINA International AG • CH-8266 Steckborn/Switzerland

IMPORTANT SAFETY INSTRUCTIONS

When using an electrical machine, basic safety precautions should always be followed, including the following.

Read all instructions before using this sewing computer.

When the sewing computer is not in use, it should be disconnected from the electricity supply by removing the plug from the outlet.

DANGER

To reduce the risk of electric shock:

1. A sewing computer should never be left unattended when plugged in.

2. Always unplug the sewing computer from the electric outlet immediately after using and before cleaning.

3. Always unplug before replacing light bulb. Replace the bulb with the same type rated 12 volts/5 watts.

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 the sewing computer is used by or near children and infirm persons.

2. Use this sewing computer 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 computer if
   - it has a damaged cord or plug
   - it is not working properly
   - it has been dropped or damaged
   - it has fallen into water

   Return the sewing computer to the nearest authorized **BERNINA** dealer or service center for examination, repair, electrical or mechanical adjustment.

4. Never operate the computer with any air openings blocked. Keep ventilation openings of the sewing computer and foot control free from accumulation of lint, dust and loose cloth.

5. Keep fingers away from all moving parts. Special care is required around the sewing needle.
6. Always use the BERNINA original needle plate. The wrong plate can cause the needle to break.
7. Do not use bent needles.
8. Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
9. Turn power switch to «0» when making any adjustments in the needle area, such as threading or changing the needle, threading the bobbin or changing the presser foot.
10. Always unplug the sewing computer from the electrical outlet when removing covers, lubricating or when making any other user servicing adjustments mentioned in this instruction manual.
11. Never drop or insert any object into any opening.
12. Do not use outdoors.
13. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
14. Before disconnecting, turn all controls to the off («0») position then remove the plug from the outlet.
15. Do not unplug by pulling on the cord but grasp the plug.
16. No responsibility will be taken for any possible damage as the result of misuse of the sewing computer.
17. This sewing computer is provided with double insulation. Use only identical replacement parts. See instructions for Servicing of double-insulated machines. (Except USA and Canada.)

SERVICING DOUBLE-INSULATED PRODUCTS

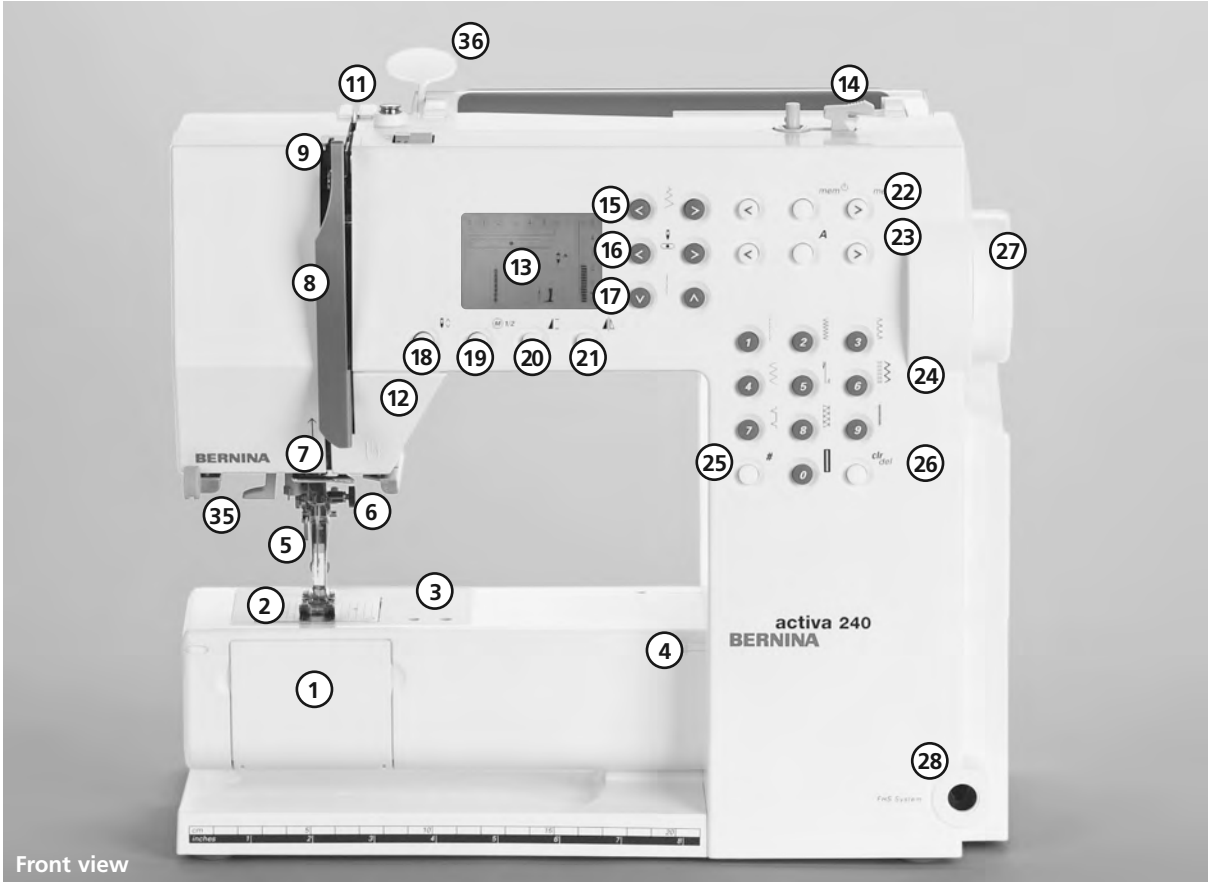
In a double-insulated product, two systems of insulation are provided instead of grounding. No grounding means is provided on a double-insulated product nor should a means for grounding be added to the product. Servicing a double-insulated product requires extreme care and knowledge of the system and should only be done by qualified service personnel. Replacement parts for a double-insulated product must be identical to those parts in the product. A double insulated product is marked with the words «DOUBLE INSULATION» or «DOUBLE INSULATED».

The symbol ⧈ may also be marked on the product.

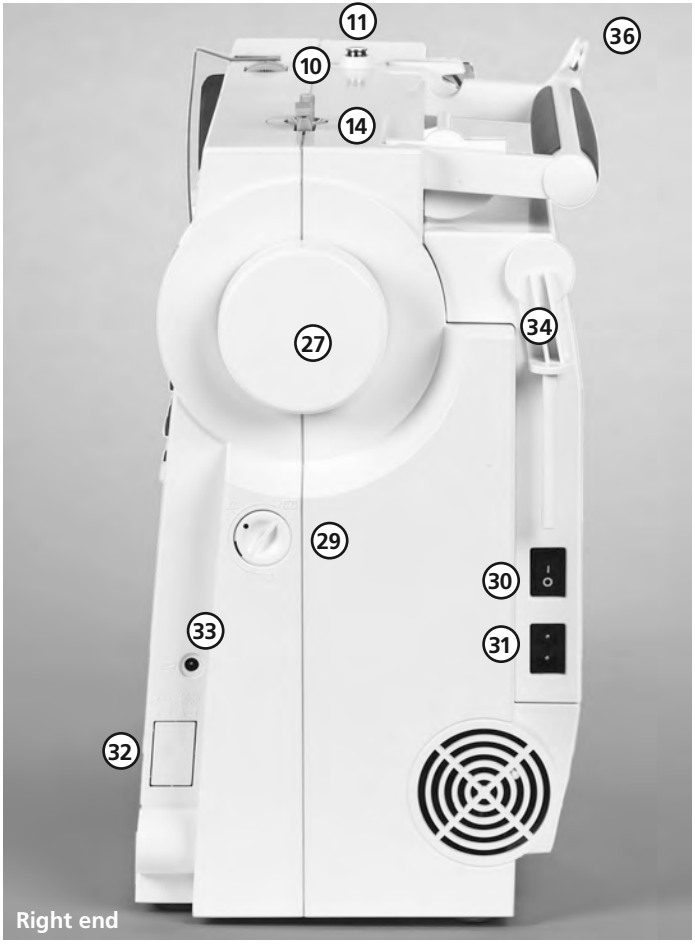
This sewing computer is intended for household use only.

SAVE THESE INSTRUCTIONS!

Details of the sewing computer



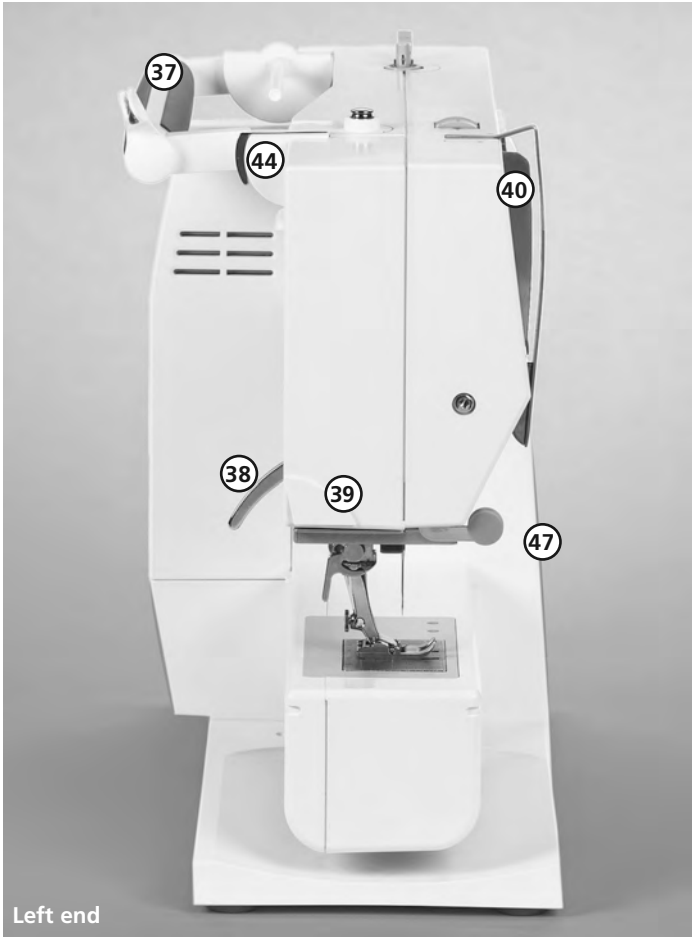
Front view



Right end

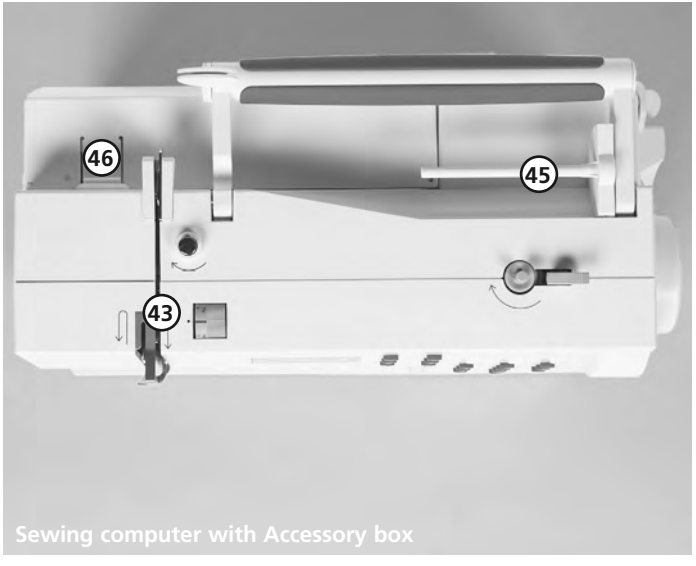
1 Bobbin cover
2 Stitch plate
3 Attachment base for special accessories
4 Sewing table socket
5 Presser foot
6 Needle clamp with fixation screw
7 Thread guide
8 Thread take up cover
9 Thread path
10 Thread tension adjustment
11 Bobbin pre-tension
12 Reverse button/quick and continuous
13 Screen
14 Bobbin winder with on/off switch and thread cutter
15 Stitch width button
16 Needle position button
17 Stitch length button
18 Needle stop up/down
19 1/2 speed
20 Pattern end
21 Mirror image
22 mem (memory) button
23 Alphabet buttons
24 Stitch selection buttons
25 #-button
26 clr/del-button
27 Handwheel
28 FHS connection
29 Balance adjustment knob
30 Power switch on/off
31 Power plug socket
32 Drop feed-dog
33 Foot control socket
34 Spool pin (vertical, collapsible)
35 Needle Threader
36 Holder for stitchcards

Back view



Left end

37 Carrying handle
38 Presser foot lifter (manual)
39 Thread cutter
40 Thread take up
41 Darning ring connection
42 Accessory box connection
43 Thread tension disc
44 Rear thread guide
45 Horizontal spool pin
46 Accessory box catch
47 Lens holder



Sewing computer with Accessory box

Accessories

- foot control
- instruction manual
- power cable
- sewing table (only 230/240)
- warranty card
- Accessory box
- presser foot lifter* (FHS) (**220/230)
- fabric case for standard accessories (only 220)

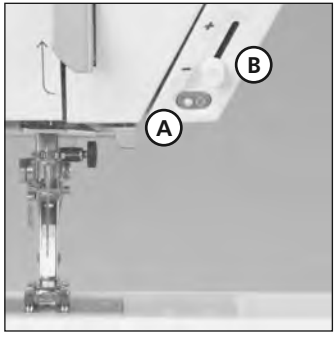
Standard accessories*:
4 bobbins (+ 1 in the capsule in the sewing computer)
Selection of 130/705H needles
Seam ripper
Screwdriver
Angle key Torx
Lint brush
Seam guide
Compensating plate
3 spool discs
Foam pad
Oiler
Compensation plate for sewing buttonholes

Fabric cover
- protects from dust and dirt
- compartment for accessories

Lens Set **
We recommend the use of the BERNINA Lens Set for more comfort when sewing.

Caution!
To avoid injury always attach the protective cover of the magnifying glass holder when the magnifying glass is not in use.

Start-stop-unit**



* can vary from country to country; see presser foot selection p. 36

** available as a special accessory

With the Start-stop-unit (SSU) the start-stop-function can be controlled by hand.
- press start-stop-button **A** = stitching starts
- with the speed regulator **B** the sewing speed can be regulated by hand
- to interrupt or stop sewing = press start-stop-button **A** again

Note:
If the foot control is connected with the sewing computer, the Start-stop-unit is out functions.

Please refer to the safety instructions!

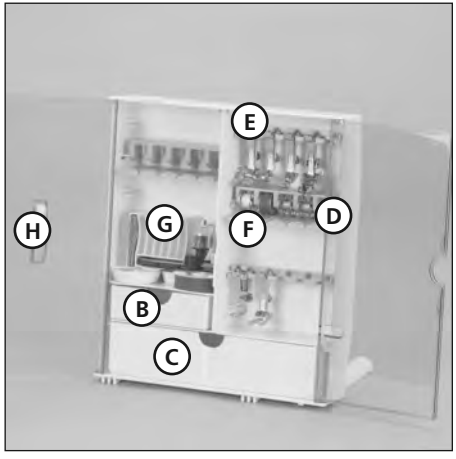
CFL (220/230)**
Contrary to an ordinary bulb, the CFL sewing light has a better illumination and a longer life.

Caution:
Please note that a defective CFL sewing light must ONLY be replaced by an authorized technician. The sewing computer must be brought to an authorized BERNINA dealer!

Accessory box (only 230 and 240)

Free standing accessory box
- pull both feet out until they click into place
- stand box in chosen position

Storing accessories
Standard accessories are supplied in a plastic bag.
The box is equipped with one small and one large drawer (**B** and **C**) as well as compartments for bobbin holders **D** and presser feet **E**. (Additional compartments and drawers are available as optional extras).



- push the bobbins into the compartments provided
- to remove a bobbin, press the compartment holder **F** lightly
- insert the presser feet into the slot **E**
- the snap-on soles can be stored in the big drawer **C** (activa 220)
- the needle selection box can be stored in compartment **G**

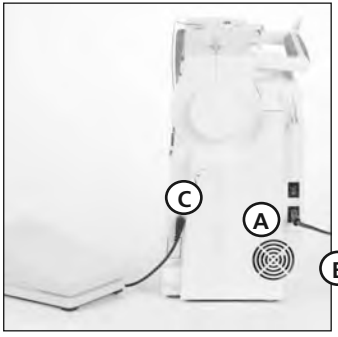
Attaching the accessory box to the sewing computer
- close the doors
- push feet back into position

- attach the box to the sewing computer (catch **A** must engage); inserting the presser foot lifter into the opening **H**
  Note: first lower the presser foot lifter!

Removing the accessory box
- press catch **A** on the top of the box
- remove box to the rear

available as a special accessory for activa 220

Power cable



The power cable
- plug **A** into sewing computer
- plug **B** into wall socket

Foot control cable
- plug **C** into sewing computer

Important! (USA/Canada only) This sewing computer 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.

Power switch

The switch is on the handwheel side of the computer
1 the computer is switched on
0 the computer is switched off

The sewing light is switched on and off with the power switch.

Refer to the safety instruction!

Foot control

The foot control regulates the sewing speed
Sewing speed is adjusted by applying more or less pressure to the foot control.

Important! (USA/Canada only)
Use only foot controller type SR-1 with sewing computers activa 220/ 230/ 240.

Self storing cord
- wind the cord on the reel
- insert the plug into the groove provided

When sewing
- unwind the cable

Sewing table*

Increases the sewing surface.

To attach
- raise the needle and presser foot
- place the table over the free arm and press firmly so that it engages on the fixing cam

To remove
- raise the needle and presser foot
- pull the table out of the fixing cam
- pull in horizontal position to the left

Scale
- «0» corresponds to the centre needle position

Seam guide
- insert into the groove (underside of table) from the right or left
- it can be freely adjusted over the whole width of the table
  Note: Remove the presser foot or the presser foot shaft (activa 220) when attaching the seam guide!

* Special accessory for 220

Free-Hand-System (FHS) presser foot lifter* (knee-operated)

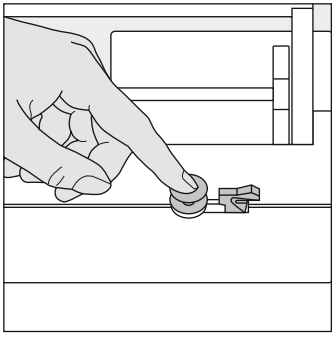
Attaching the presser foot lifter
Insert into the opening in the base plate: you should be able to operate the lifter with your knee in your normal sitting position.

Note:
Your dealer can adjust it if necessary.

The presser foot lifter raises and lowers the presser foot
- push to the right
- the presser foot is raised
- the feed-dog is lowered simultaneously
- the feed-dog is raised as soon as the first stitch is sewn

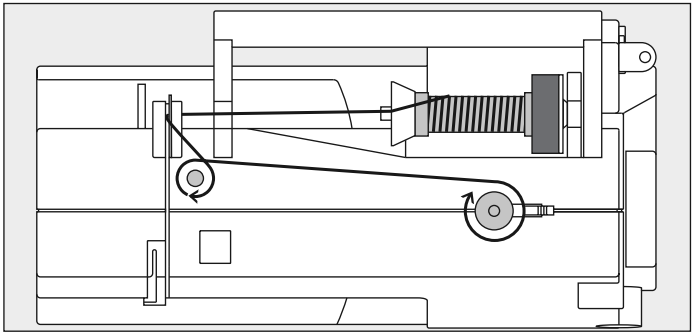
* Special accessory for 220, 230

Winding the bobbin

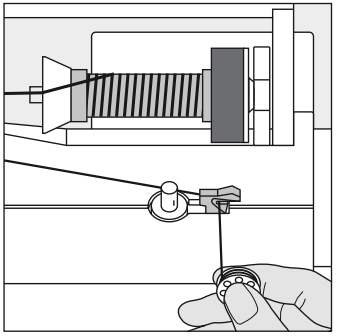


Winding the bobbin

- turn power switch on
- place empty bobbin on spindle



- following the direction of the arrow take thread through the rear guide and round the pre-tension stud
- wind the thread two to three times around the empty bobbin and cut off any excess thread on the thread cutter
- press the engaging lever against the bobbin
- press the foot control
- the motor will stop automatically when the bobbin is full
- remove the bobbin

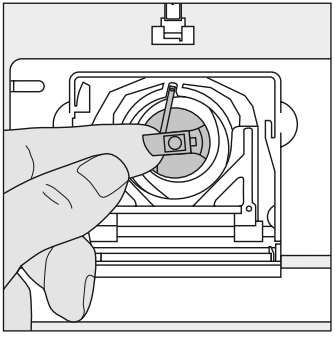


Thread cutter

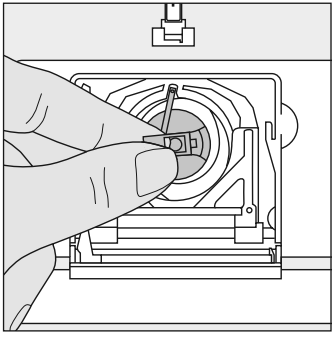
- cut the thread on the thread cutter

Note:
When winding the bobbin on the vertical spool holder (p. 17), it may be necessary to adjust the speed.

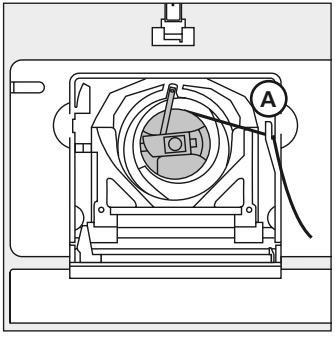
Bobbin case



To remove the bobbin case
- raise the needle
- turn power switch to «0»
- open the bobbin cover
- grasp the latch of the bobbin case
- remove case



To insert the bobbin case
- hold the bobbin case latch
- the finger on the case should point upwards
- insert so that it clicks into place

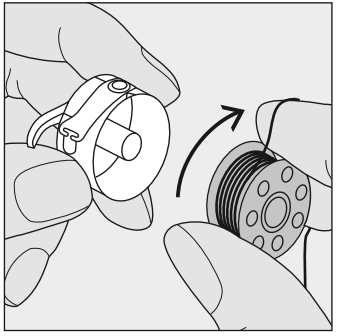


Bobbin thread cutter
- insert the bobbin case
- take the thread over cutter **A**
- thread is cut
- close the bobbin cover

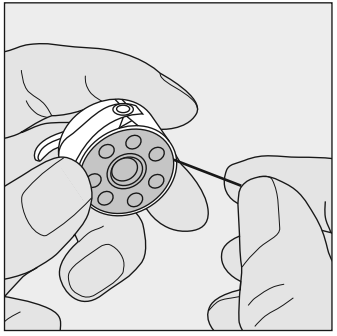
Note:
The bobbin thread does not have to be brought up as the loose end is just the right length to start sewing.

Refer to the safety instruction!

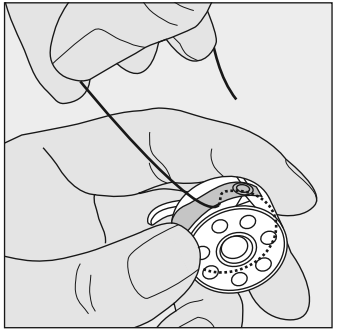
Inserting the bobbin



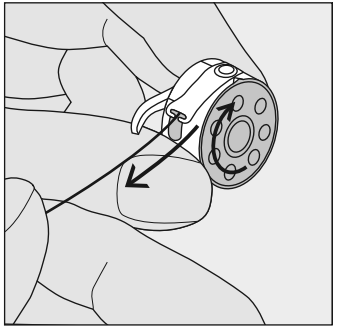
Insert the bobbin
Insert the bobbin so that the thread runs clockwise.



Pull the thread counter clockwise into the slot.

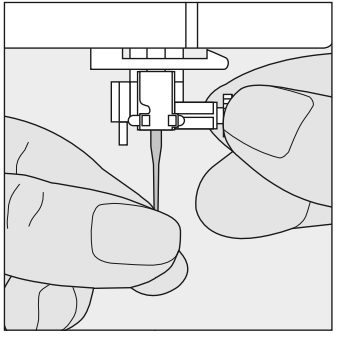


Pull the thread to the left under the spring until ...



... it lies in the T-shaped slit at the end of the spring.
The bobbin must turn clockwise when thread is pulled.

Changing the needle

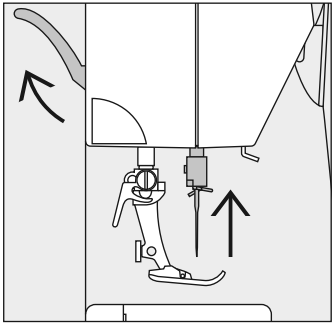


Removing the needle
- raise the needle
- turn power switch to «0»
- lower the presser foot
- loosen the needle clamp screw
- pull the needle down to remove

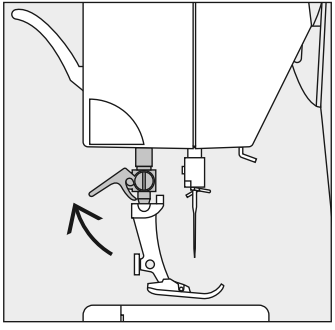
Inserting the needle
- flat side of needle to the back
- insert the needle as far as it will go
- tighten the needle clamp screw

Refer to the safety instruction!

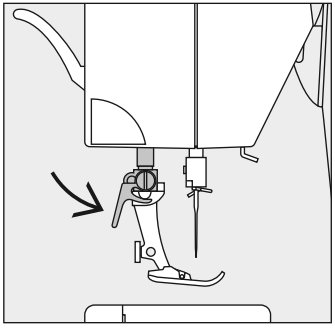
Changing the presser foot (activa 230/240)



Changing the presser foot
- raise the needle and presser foot
- turn power switch to «0»



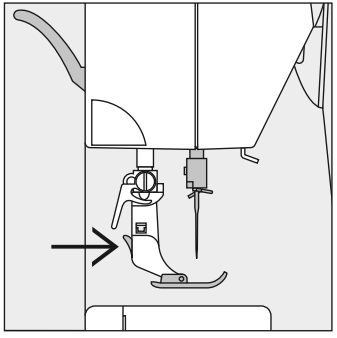
Raising the lever
- raise the clamping lever
- remove the presser foot



Attaching the presser foot
- guide the foot upwards over the cone
- press the clamping lever down

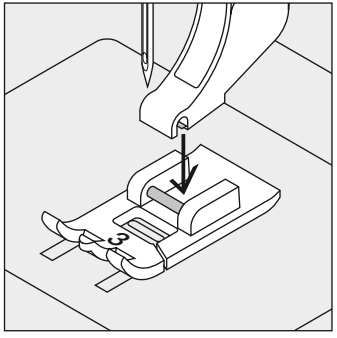
Refer to the safety instruction!

Changing the presser foot (activa 220)



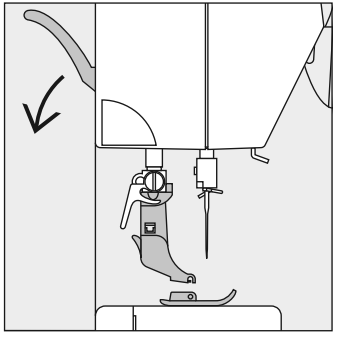
Changing the presser foot sole

- raise the needle and the presser foot shaft
- turn power switch to «0»
- press the button on the shaft to release the sole



Attaching the presser foot sole

- place the presser foot sole under the shaft so that the peg sits under the opening of the shaft



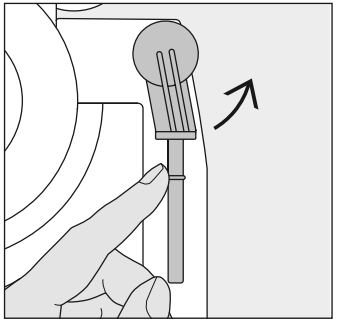
- lower the presser foot lifter and the foot sole will click into position

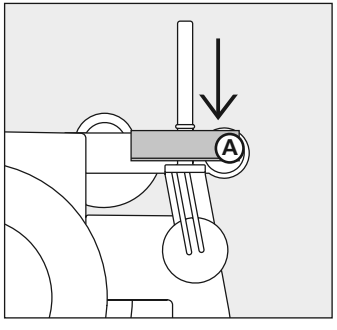
Refer to the safety instruction!

Supplementary spool pin

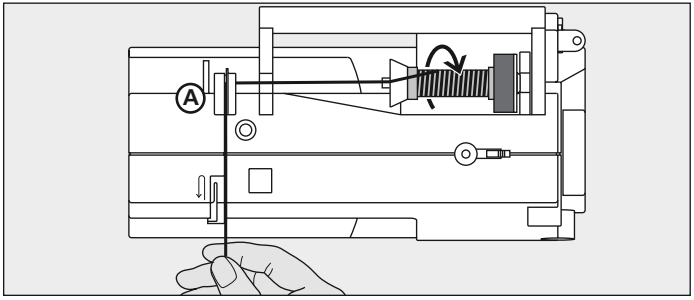
Collapsible vertical spool pin

- found on the back of the sewing computer behind the handwheel
- essential aid for sewing with more than one thread, i.e. double needle work
- raise the pin until it clicks into its vertical position
- when using large reels, add the foam pad **A** for stability





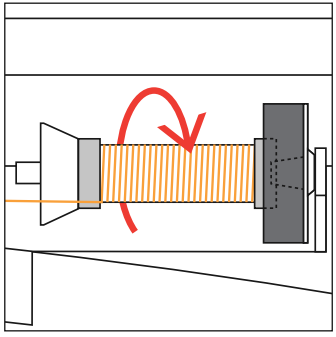
Threading the upper thread

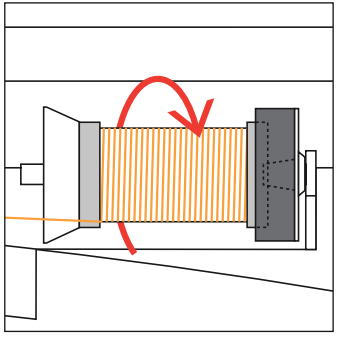


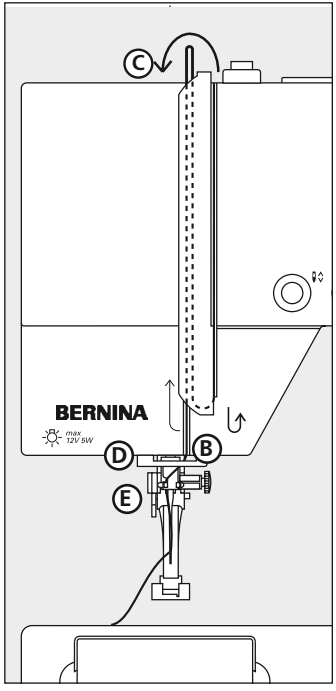
Attaching the thread spool
- raise the needle and presser foot
- turn the power switch to «0» (off)
- attach the foam pad
- place spool on pin (spool turns clockwise)
- attach the appropriate spool disc - diameter of spool disc is disc size. There must be no clearance between the disc and the spool
- take thread through rear guide **A**
- then into slit of upper thread tension

Down
- pull thread down to the right of the take-up cover to **B**

Up
- take thread up to the left of the cover to **C** in the direction of the arrow, placing it in the take-up level



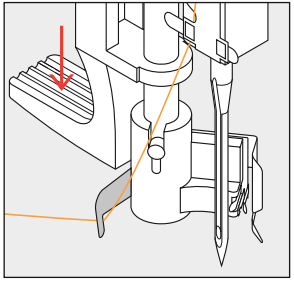




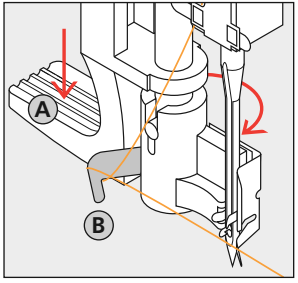
Down
- take thread down and through guides **D** and **E**

Refer to the safety instruction!

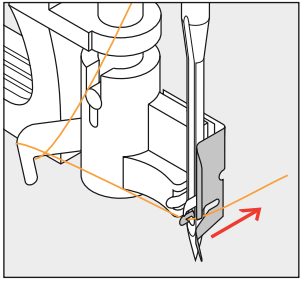
Needle Threader



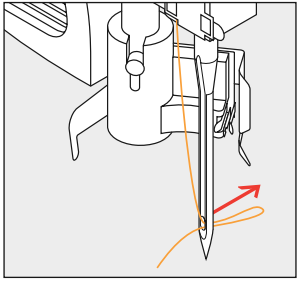
Thread in hook
· **raise the needle**
· lower the presser foot
· lay the thread behind hook **B** and hold lightly



Lever down
· press lever **A** down and simultaneously guide the thread around hook **B** to the right to the needle

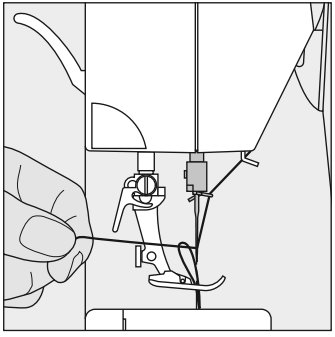


Thread in front of needle
· put the thread from the front into the guide until it catches in the hook



Release the lever and thread
· let go of lever **A** and thread

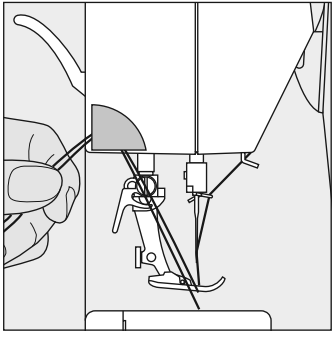
Bringing up the lower thread



- hold the upper thread
- sew one stitch
- pull the upper thread until the bobbin thread appears in the stitch plate hole
- pull bobbin thread out of the hole and insert both threads through the slit in the presser foot towards the back
- pull threads over the cutter

Note:
The bobbin thread must be brought up through the stitch plate for certain types of work. The length of thread is sufficient for most normal work if the lower thread cutter has been used.

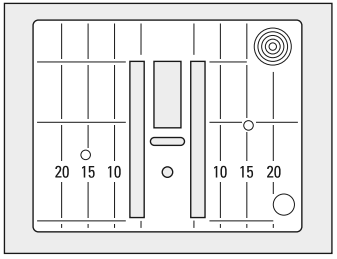
Thread cutter

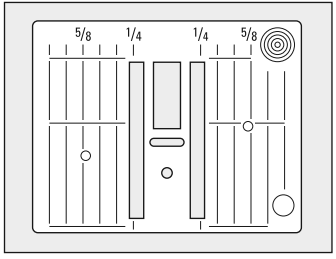


Thread cutter on head frame

- pull both threads from front to back over the cutter
- the threads release as soon as the first stitch is sewn

Stitch plate*





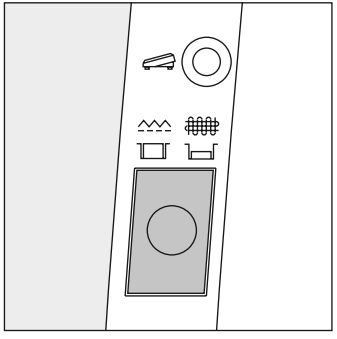
Note: To change the stitch plate see page 65

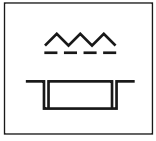
Stitch plate markings

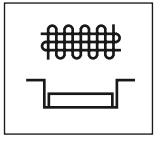
- the stitch plates are marked with seam guide lines in mm or inches
- the millimetre markings are at the front
- the inch markings are at the back
- the measurements show the distance (with needle position centre) from needle to line
- lines are provided to the right and left of the needle
- they are very useful guide lines for precise seaming
- the horizontal lines are useful for sewing corners, etc.

*can vary from country to country

Feed-dog







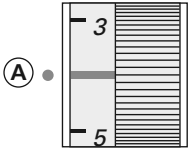
Button below the handwheel

Button flush with housing =
sewing position

Button depressed = feed-dog is lowered

- for free-hand sewing (darning, embroidery, etc.)

Thread tension



The basic setting
- is indicated when the red line on the tension adjustment wheel is in line with the marking **A**
- the tension does not need adjusting for normal sewing work
- for special sewing work, the tension can be adjusted to suit the fabric

The tension is factory set for the best results. Metrosene 100/2 (Arova Mettler, Switzerland) is used to set both the upper and lower thread tension.

If other sewing or embroidery threads are used, the tension may need adjusting to suit the fabric and chosen stitch.

Perfect stitch formation
- the stitch formation is in the fabric

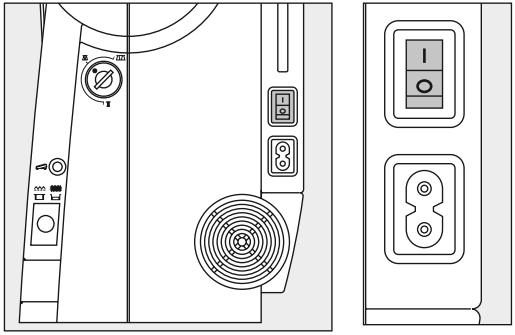
Upper thread tension too tight
- the lower thread is pulled more to the right side of the fabric
- to reduce the upper thread tension turn tension adjustment wheel to 3–1

Upper thread tension too loose
- the upper thread is pulled more to the wrong side of the fabric
- to increase the upper thread tension turn tension adjustment wheel to 5–10

For example:

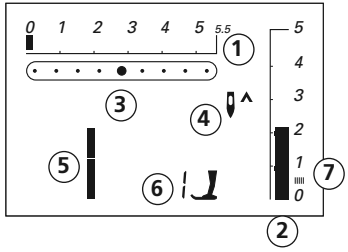
	Tension	Needle
Metallic thread	approx. 3	90
Monofilament	approx. 2–4	80

General instructions



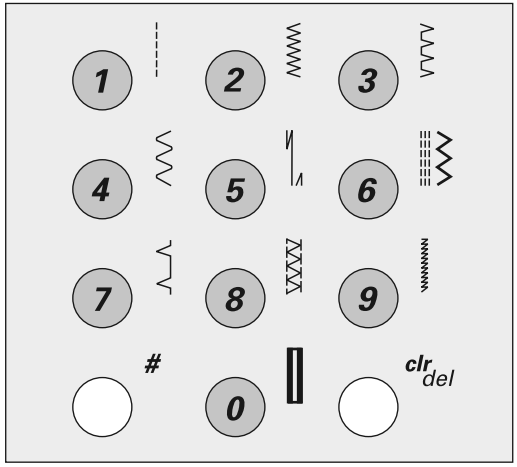
Main switch to 1

- the sewing computer is ready to sew



The screen shows

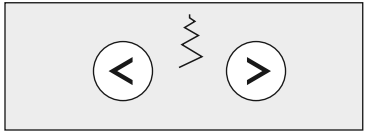
1 stitch width, basic setting blinks constantly
2 stitch length, basic setting blinks constantly
3 needle position (9 positions)
4 needle stop up/down (generally up)
5 stitch number 1 (straight stitch)
6 presser foot number 1 indicator (recommended foot for selected stitch)
7 satin stitch; dense, short zig-zag stitch



Stitch* selection

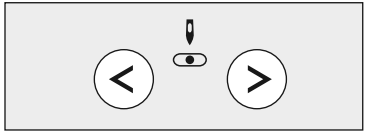
- stitches 1–10:
  touch the number of your choice; stitch number and basic width and length settings appear
  Note: touch «0» to select stitch number 10 (standard buttonhole)
- to select stitches 11–50 (activa 220), 11–70 (activa 230) or 11–99 (activa 240):
  touch #-button and the appropriate number

* see p. 32-33 for the complete stitch selection; for activa 230 PE see appendix A1



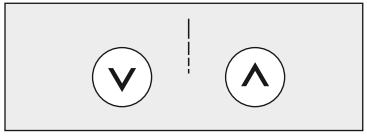
Stitch width

- left button = narrow the stitch width
- right button = widen the stitch width
- the basic settings of the chosen stitch blink constantly



Needle position

- left button = needle to the left
- right button = needle to the right

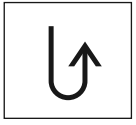


Stitch length

- left button = shorten the stitch length
- right button = increase the stitch length

Functions

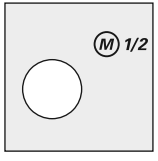
Functions are ...
activated when the symbol appears on the screen.
deactivated when the symbols no longer appear on the screen.



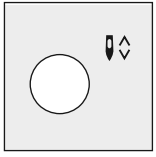
Reverse sewing
quick reverse:
- press button
- Sewing computer sews reverse until button is released (max. stitch length 3 mm)

Applications:
- programming buttonholes
- programming darning program
- switch to straight stitch securing program (stitch No. 5)
- manual securing (seam begin and end)

continous reverse:
- press button quickly twice
- the sewing computer sews the chosen stitch in reverse
- press button once to cancel

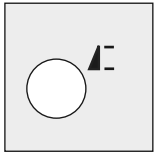


1/2 speed
- press the button and the sewing speed will be halved
- press the button again to revert to full speed

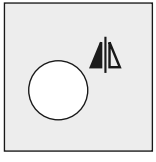


Needle stop
- basic setting needle stop up
- press button
- arrow points down = sewing computer stops with needle down
- press button again
- arrow points up = sewing computer stops with needle up

Note:
Press key a bit longer = the needle will go automatically up or down.

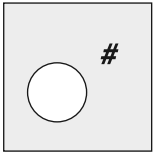


Stitch end
- press button
- sewing computer stops at the end of a single stitch or stitch combination (in Memory)

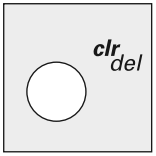


Mirror image*
- press button
- mirror image of selected stitch will be sewn

*activa 240 only

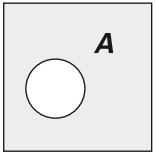


#-button
Stitch selection button (see p. 24)



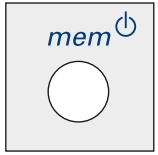
clr/del (clear/delete)
- press button = reverts to basic settings
- other selected functions are cleared

Exceptions:
- needle stop down
- 1/2 speed
- altered basic settings for buttonholes = press «clr/del»-button twice (without activa 220)



Letters, numbers and punctuation marks (activa 220 only Block alphabet)
- press the alphabet button
- one of the fonts will appear on the screen
- select desired font by touching the alphabet button
- press the right button to scroll letters and numbers forwards (A B C ...)
- press the left button to scroll letters and numbers backwards (@ Ç ? ...)

Alphabet contents (only Block alphabet)
ABCDEFGHIJKLMNOPQRSTUVWXYZ
Ä Ö Ü Å ÆŒØÑÈÉÊÀÂ
01234567890_-.'&?Ç@



mem (Memory)
- press the centre button to open memory (capacity of 30)
- use the left and « mem↵ »-buttons to scroll and programme stitches, letters and numbers

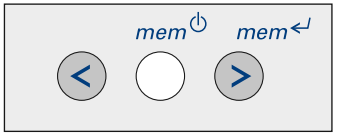
Altered Stitch Memory
- any stitch length or width alterations will be saved automatically
  For example:
  - sew altered stitch, e.g. zig-zag
  - select another stitch, e.g. straight stitch
  - return to zig-zag, your alterations are still active

Return to basic settings
- basic settings can be restored manually for individual stitches
- all altered settings are lost when the «clr/del»-button is pressed or when the sewing computer is turned off

Application:
- for all stitches and fabrics
- particularly useful for switching between different applications

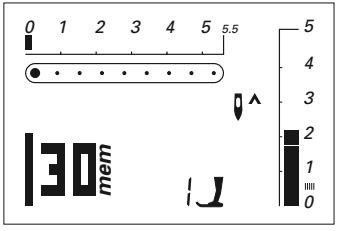
Memory

Any combination of 30 stitches, letters or numbers can be saved in Memory, which is long term. They remain saved until deleted by the user. Power failures or disconnection from the electricity supply do not affect the Memory. Alterations to the stitch length, width or needle position can be made at any time. Individual stitches, letters or numbers can be deleted or overwritten.



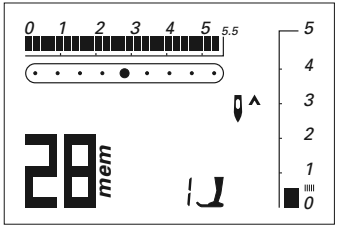
Memory buttons

- press left button (<) to scroll contents backwards
- press centre button (mem) to open and close Memory
- press right button (mem) to scroll contents forwards and to program the memory



Open Memory

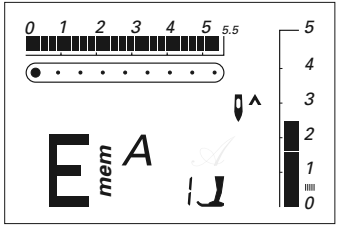
- press « mem »-button to open Memory
- if the Memory is empty, the cursor and number 30 (= empty memories) blink
- if the Memory is not empty, the saved stitches, letters or numbers appear on the screen; scroll forwards until the cursor and number of empty memories blink



Example: saved stitch

- saved stitch (28) is shown

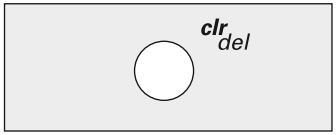
To program stitches see p. 28

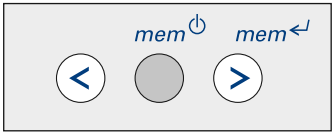


Example: saved letter

- saved letter (E) is shown

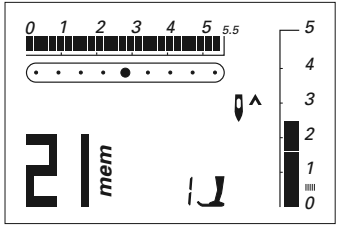
To program letters and numbers see p. 29

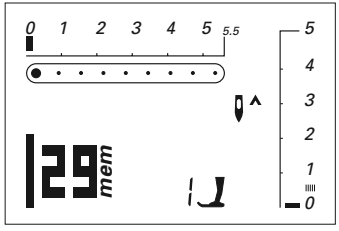




Delete complete Memory

- press «clr/del» and « mem » -button at the same time
- release both buttons
- leave Memory by pressing the « mem »-button
- Memory is now completely deleted

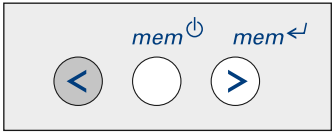


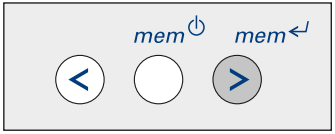


Programming practical and decorative stitches

- open Memory (p. 27)
- select stitch (p. 24)
- stitch number appears on the screen (here 21)
- press « mem » to program (save)
- the number of remaining empty memories (here 29) and the cursor blink

- select next stitch, press « mem » and continue in this manner





Note 220:
The following special programs cannot be saved in Memory:
No. 5, Securing program
Nos. 10–11, Buttonholes
No. 12, Button sewing-on program
No. 13, Darning program
No. 16, Basting stitch

Note 230:
The following special programs cannot be saved in Memory:
No. 5, Securing program
Nos. 10–12, Buttonholes
No.13, Button sewing-on program
No.14, Eyelet
No.15, Darning Program
No.19, Basting stitch

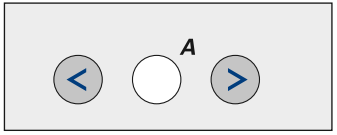
Scroll backwards
press left button = the programmed stitch numbers scroll backwards

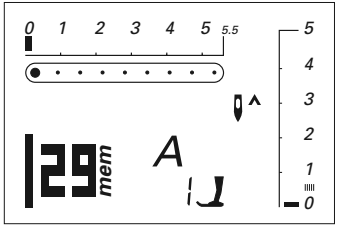
Scroll forwards
press « mem » -button = the programmed stitch numbers scroll forwards

Begin sewing

- press the foot control = the sewing computer starts automatically at the beginning of a stitch sequence
- select Pattern End ( ) as well = the sewing computer stops automatically at the end of a stitch sequence

Note 240:
The following special programs cannot be saved in Memory:
No. 5, Securing program
Nos. 10–14, Buttonholes
No.15, Button sewing-on program
No.16, Eyelet
No.17, Darning Program
No.21, Basting stitch

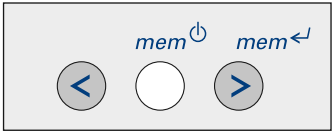


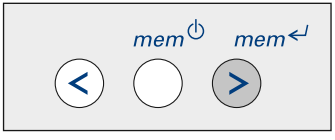


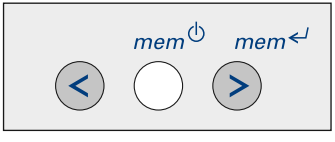
Programming letters, numbers and punctuation marks

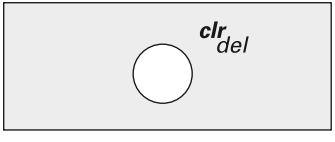
- open Memory (p. 27)
- press Alphabet button
- select letter or number (p. 26)
- press « *mem* » to program (save)
- the number of remaining empty memories (here 29) and the cursor blink
- select next letter/number, press « *mem* » and continue in this manner
- programme single words or sentences/numbers
- select (_) to program spacing

Note:
If the stitch length and/or width of letters or numbers have been altered, the alterations will affect all of them. If you only want to alter single letters or numbers, this must be done individually.









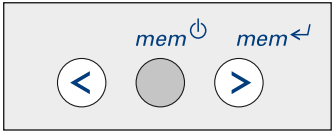
Corrections in Memory

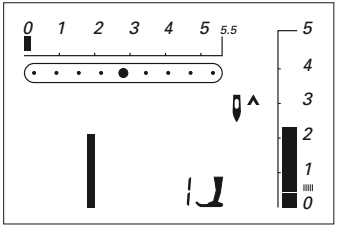
Changing individual stitches, letters and numbers

- scroll with the right or left button to find the stitch you want to change or correct
- then correct or change:
  stitch
  letter
  number
  stitch length or width
  needle position
  etc.
- press « *mem* » to save the change(s)

Delete single stitch, letter or number

- scroll to find the stitch
- press «clr/del» to delete
- stitch/letter/number is deleted





Leave Memory

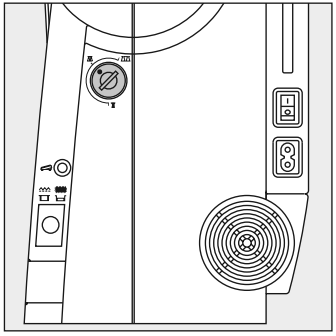
- press « *mem* »-button = contents are saved
- Memory is closed

« *mem* »-symbol disappears from the screen

The contents of the memory remain saved even when the sewing computer is disconnected from the electricity supply. They can be recalled at any time.

The contents of the memory will be lost if the sewing computer is switched off without pressing the « *mem* » button before closing the memory.

Balance

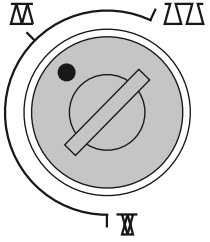


Your sewing computer has been tested and factory set using a double layer of cretonne fabric and Metrosene 100/2 threads (Arova Mettler, Switzerland).

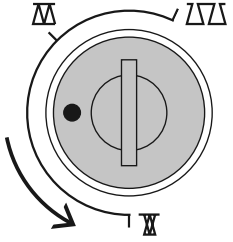
Different fabrics, threads and stabilizers can naturally affect the stitch balance so that they are sewn too close together or not close enough.

This can be remedied with Balance to suit the fabric and produce perfect results.

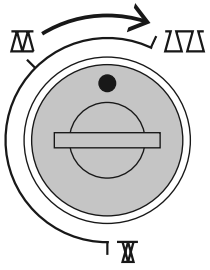
Applications:
Practical stitches, e.g. Honeycomb stitch on jersey, decorative stitches, fantasy stitches, letters, buttonholes, etc.



Normal position



Denser stitch formation
(shorter stitch length)

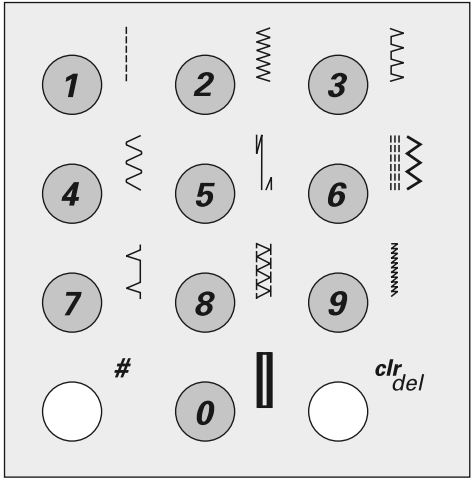


Finer stitch formation
(longer stitch length)

☞ **Note:**
If the balance has been adjusted, return it to the normal setting once sewing is completed.

Stitches*

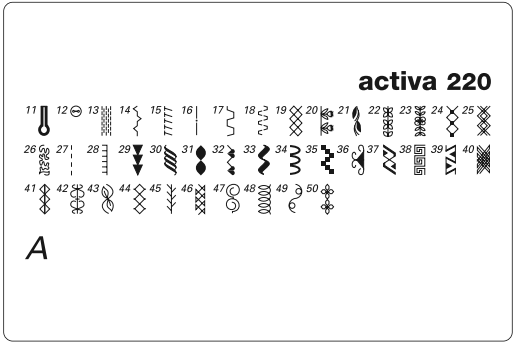
activa 220 / 230 / 240



Practical and decorative

1 Straight stitch
2 Zig-zag
3 Vari-overlock
4 Running stitch
5 Securing stitch
6 Triple straight and zig-zag
7 Blind stitch
8 Double overlock
9 Super stretch stitch
10 Standard buttonhole

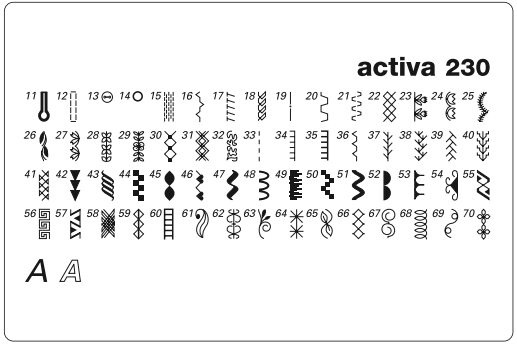
activa 220



11 Keyhole buttonhole
12 Button sewing-on program
13 Darning program
14 Gathering stitch
15 Stretch overlock
16 Basting stitch
17 Universal stitch
18 Lycra stitch
19 Honeycomb stitch
20–25, 29–50 Decorative stitches
26–28 Quilting stitches

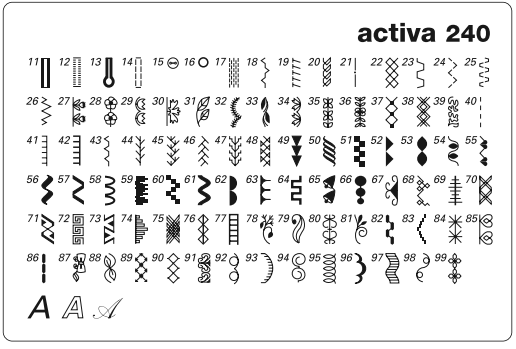
*activa 230 PE see appendix A1

activa 230



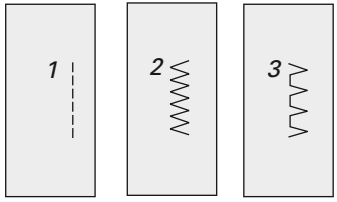
11 Keyhole buttonhole
12 Straight stitch buttonhole
13 Button sewing-on program
14 Eyelet
15 Darning program
16 Gathering stitch
17 Stretch overlock
18 Jersey stitch
19 Basting stitch
20 Universal stitch
21 Lycra stitch
22 Honeycomb stitch
23–31, 42–70 Decorative stitches
32–41 Quilting stitches

activa 240



11 Narrow buttonhole
12 Stretch buttonhole
13 Keyhole buttonhole
14 Straight stitch buttonhole
15 Button sewing-on program
16 Eyelet
17 Darning program
18 Gathering stitch
19 Stretch overlock
20 Jersey stitch
21 Basting stitch
22 Honeycomb stitch
23 Universal stitch
24 Sewn-out zig-zag
25 Lycra stitch
26 Stretch stitch
27–38, 49–99 Decorative stitches
39–48 Quilting stitches

Stitch selection*



1 Straight stitch

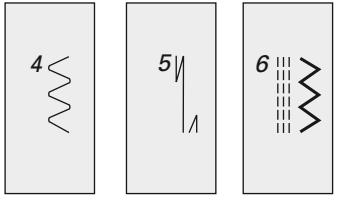
All non-stretch fabrics. All straight stitch work

2 Zig-zag

Most fabric types; all simple zig-zag such as oversewing fine fabrics. Sewing on elastic and lace

3 Vari-overlock

Primarily for fine jerseys, stretch overlock seams and hems



4 Running stitch

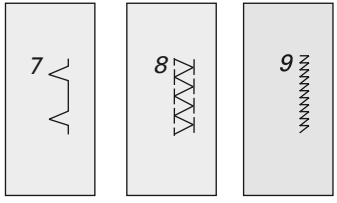
Most types of fabric. Mending, patching, reinforcing seams

5 Securing stitch

All types of fabric. Secures the beginning and end of seams sewn with straight stitch

6 Triple straight and triple zig-zag

Reinforced seams in tough, heavy fabrics



7 Blind stitch

Most types of fabric; blind hems, shell edging on soft jerseys and fine fabrics, decorative seams

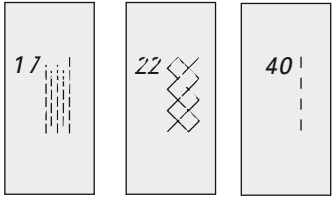
8 Double overlock

All types of knit; Overlock = sew and neaten in one operation

9 Super stretch

Open seam for all super-stretch fabrics

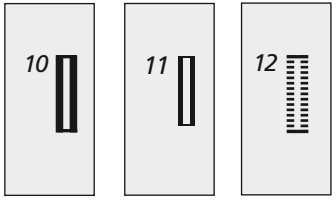
*activa 230 PE see appendix A



17 Darning program — Automatic darning for fine and medium weight fabrics

22 Honeycomb stitch — Most types of interlock and smooth fabrics; visible seams and hems

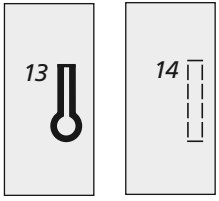
40 Quilt/hand stitching — Hand stitched effect: only the one stitch (lower thread) is visible; the other stitch (upper thread = monofilament) is invisible; increase upper thread tension to suit the fabric (6–9)



10 Standard buttonhole — Fine to medium weight woven fabrics; blouses, shirts, trousers, bedlinens, etc.

11 Narrow buttonhole — Light- to mediumweight fabrics. Blouses, dresses, children's and baby clothes, dolls' clothes, crafts

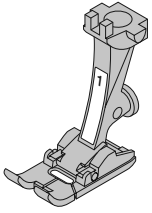
12 Stretch buttonhole — All stretch fabrics made from cotton, wool, silk and synthetic fibers



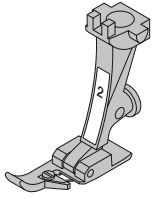
13 Keyhole buttonhole — Heavy weight, non stretch fabrics. Jackets, coats, trousers, leisure wear, etc.

14 Straigth stitch buttonhole — Pre-stitch program for bound buttonholes (Foot No. 3A) or pocket openings (Foot No. 3, special accessory)

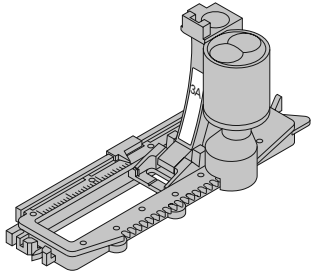
Standard foot selection



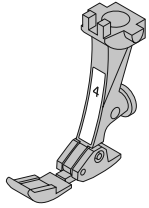
1
Reverse pattern foot
Practical and decorative stitches



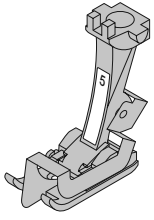
2
Overlock foot
Overlock seam, hems, oversewing edges, narrow satin stitch



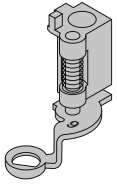
3A
Buttonhole foot with slide
Buttonhole on smooth fabrics, darning



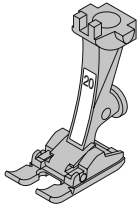
4
Zipper foot
Sewing in zips



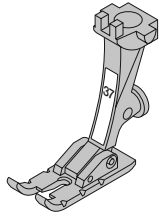
5
Blind stitch foot
Blind hems, edge stitching



9
Darning foot
Freehand quilting for light to medium weight quilts; darning



20
Open Embroidery foot
Embroidery, appliqué, satin stitch seams



37
Patchwork foot
Patchwork with seam allowance 1/4″ or 1/8″ (≈ 6 or 3 mm)

activa 220 = presser foot shaft and 5 soles (1, 2, 3, 4, 5)
activa 230 = 7 feet (1, 2, 3A, 4, 5, 9, 20)
activa 230 PE = 7 feet (1, 3A, 4, 5, 9, 20, 57)
activa 240 = 7 feet (1, 2, 3A, 4, 5, 9, 37)

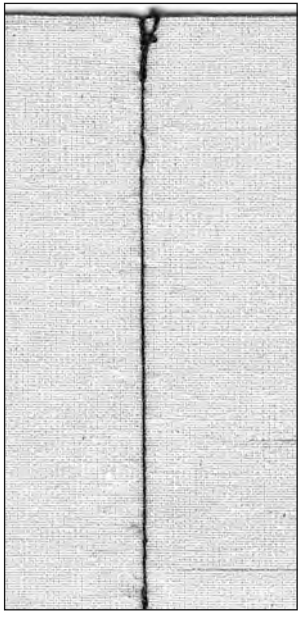
Securing program

Stitch: **Securing program No. 5***
Needle: **size and type suitable for the fabric selected**
Thread: **cotton/polyester**
Feed-dog: **raised (sewing position)**
Presser foot: **Reverse pattern foot No. 1**
Reverse pattern sole No. 1 (activa 220)

Securing program
- for all fabrics
- secures seam begin and end
- sews exactly over the previous stitches

Seam begin
- sewing computer secures automatically (5 stitches forwards, 5 reverse)
- continues sewing straight stitch forwards

Seam end
- press the reverse button = sewing computer secures automatically (5 stitches reverse, 5 forwards)
- stops automatically when securing is complete



* 230 PE see appendix A2

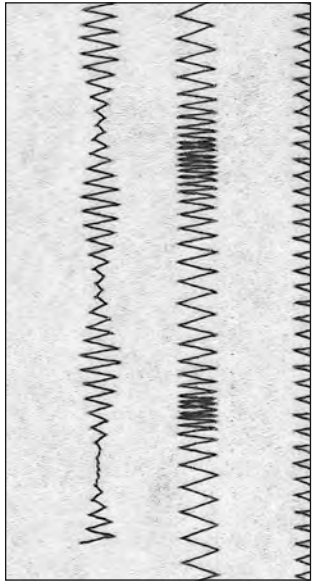
Zig-zag stitch

Stitch: **Zig-zag No. 2**
Needle: **size and type suitable for the fabric selected**
Thread: **cotton or polyester**
Feed-dog: **up (sewing position)**
Presser foot: **Reverse pattern foot No. 1**
Reverse pattern sole No. 1 (activa 220)

Zig-zag stitch
- for all fabrics
- for neatening edges
- for decorative work

Satin stitch
- dense (shorter) zig-zag stitch = filled in zig-zag
- adjust the stitch width as you sew for new effects

Oversewing edges
- guide edge of fabric under the center of the presser foot
- needle goes into fabric on one strike and over the edge of the fabric on the next stroke
- do not select too wide a width or too long a stitch – the edge should lie flat and not roll
- use darning thread for fine fabrics

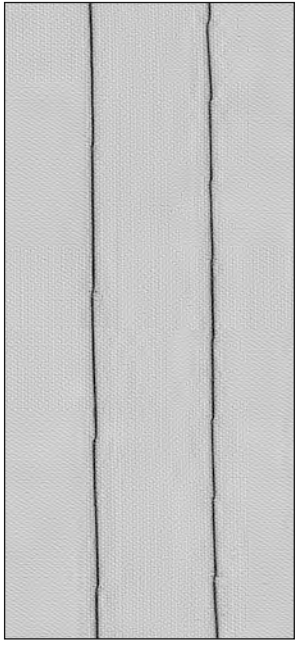


A **B** **C**

A Zig-zag stitch with altered stitch width
B Zig-zag stitch with altered stitch length
C Fabric edges finished with zig-zag stitch

Basting stitch

Stitch: **Basting stitch No. 21 (activa 230 No. 19, activa 220 No. 16)**
Needle: **size and type suitable for the fabric selected**
Thread: **cotton/polyester**
Feed-dog: **lowered (darning position)**
Presser foot: **Darning foot No. 9 (optional for activa 220)**



Basting stitch
- for all work which requires a very long stitch
- for basting seams, hems, quilts, etc.
- easy to remove

Preparation:
- pin work horizontally to basting direction to prevent the layers slipping

Basting
- lower the feed-dog
- position work under the presser foot and sew one stitch; hold threads when starting to sew
- pull work from behind to the required length of the stitch
- sew one stitch and repeat the procedure

☞ **TIP**

Securing/fixing the thread
- sew a few basting stitches at the beginning and end of a seam

Basting
- use a fine darning thread for basting as it is easier to remove

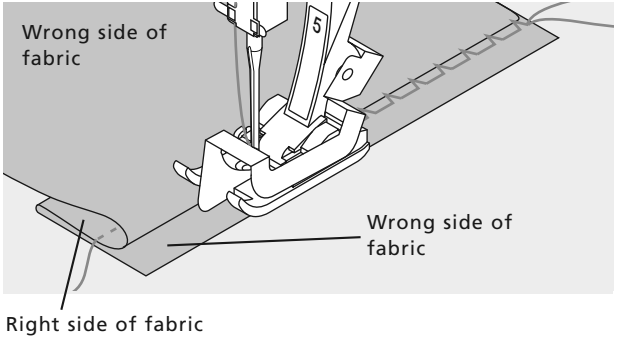
Blind hem

Stitch: **Blind stitch No. 7**
Needle: **size and type suitable for the fabric selected**
Thread: **cotton or polyester**
Feed-dog: **up (sewing position)**
Presser foot: **Blind stitch foot No. 5**
Blind stitch sole No. 5 (activa 220)

Blind hem
for «invisible» hems in medium to heavy cotton, wool and blended fabrics

Preparation
- neaten raw edges
- prepare seam as for sewing by hand
- place work under the presser foot (see drawing)

Sewing
- the needle should just pierce the edge of the fold (same as hand sewing)
- adjust the stitch width to suit the fabric
- after sewing about 10 cm (4"), check both sides of fabric and adjust width again if necessary

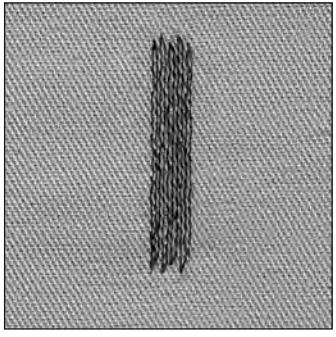


TIP

Fine stitch width adjustment
Guide the folded edge evenly along the metal guide on the foot = even depth

Darning program

Stitch: **Darning Program No. 17 (activa 230 No. 15, activa 220 No. 13)**
Needle: **size and type suitable for the fabric selected**
Thread: **darning thread**
Feed-dog: **up (sewing position)**
Presser foot: **Reverse pattern foot No. 1**
Reverse pattern sole No. 1 (activa 220)
Buttonhole foot No. 3A



Quick darning of holes or worn areas
Replacement of damaged fibres/threads

Darning with Reverse pattern foot No. 1 (auto stitch counter)
- insert needle in top left of damaged area
- sew the first length and stop the sewing computer
- press the quick reverse button: length is programmed
- complete the darn; the sewing computer stops automatically
- clear the programme by pressing the «clr/del»-button

Large areas:
- the darning area can be extended by moving the work under the foot

Darning with Buttonhole foot with slide No. 3A (activa 230, 240)
- use for small tears and damaged areas, not more than 3 cm ($1^1/_4$") long
- use same method as with foot No. 1

TIP

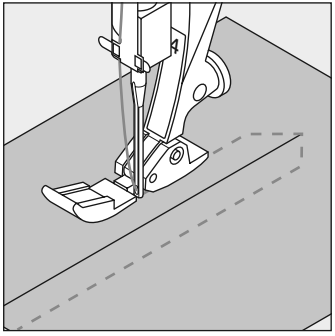
Reinforcement
use fine fabric or interlining as a backing

Preparation
stretch fabric into darning ring* prevents puckering

*The darning ring is available as a special accessory

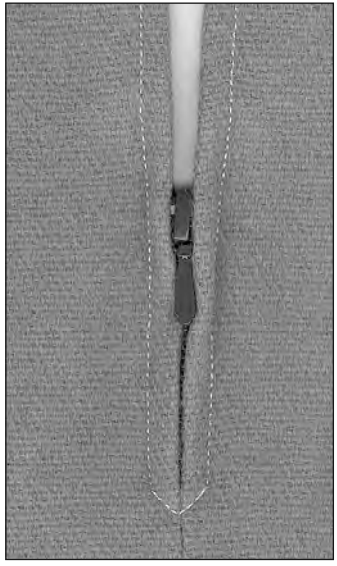
Zippers

Stitch:	**Straight stitch No. 1**
Needle:	**size and type suitable for the fabric selected**
Thread:	**cotton or polyester**
Feed-dog:	**up (sewing position)**
Presser foot:	**Zipper foot No. 4**
	Zip sole No. 4 (activa 220)
Needle position:	**far right or far left**



Preparation:
- baste in zipper
- fabric edges should meet over the center of the zipper

Sewing
- sew in the zipper, each side from bottom to top
- once with needle position far right and once with needle position far left
- the edge of the foot runs along the teeth of the zip
- the needle inserts close to the teeth



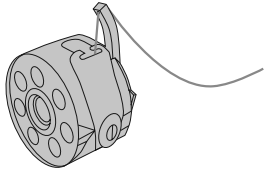
☞ TIP

To sew around zipper pull
- close zipper and sew up to about 5 cm (2") away from the pull
- insert needle, raise the presser foot, open the zipper, lower the foot and continue to sew

Seam begin
hold thread firmly when starting to sew = pull fabric slightly to the back (fewer stitches)

Zipper or fabric is thick or densely woven
use a 90–100 needle for even stitch formation

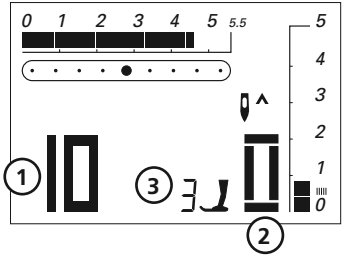
Everything you need to know about buttonholes



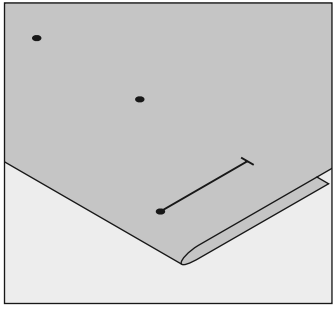
Thread tension
- thread the bobbin thread through the finger of the bobbin case = the bobbin tension is a little tighter
- this gives the beads on the right side of the fabric a slightly rounded appearance
- the buttonhole looks more attractive
- gimp reinforces buttonholes and enhances their appearance (pages 45, 46)

Buttonholes are not only practical closures, they can also be used to decorative effect

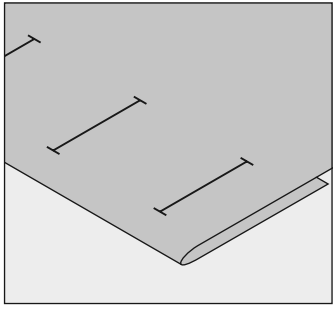
Select the buttonhole of your choice; the following appears on the screen:



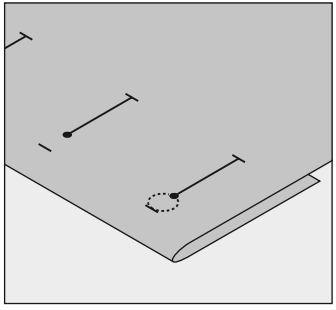
1 Buttonhole number
2 Buttonhole symbol
3 Presser foot number



Mark the length of automatic buttonholes
- mark the length of just one buttonhole
- after sewing the first buttonhole, the length for all subsequent buttonholes is automatically programmed
- mark only the beginning of all subsequent buttonholes
- stitch using Automatic buttonhole foot No. 3A



Mark the length of manual buttonholes
- mark the buttonhole length in the appropriate position
- stitch using buttonhole foot No. 3 (optional accessory)



Mark the length of keyhole buttonholes
- mark the bead length only
- the correct length eye will be added when the buttonhole is sewn

Test sewing
- always test sew on the fabric and stabilizer you intend to use
- select the buttonhole type you intend to use
- sew the buttonhole in the same direction on the fabric (with or against the grain)
- cut the buttonhole open
- push the button through and adjust the buttonhole length if necessary

Corrections

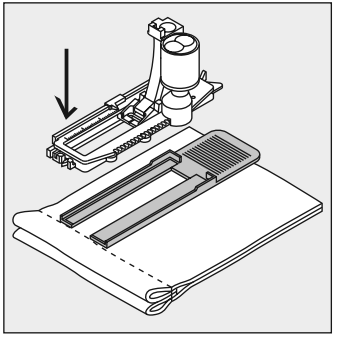
To adjust the bead width:
- alter the stitch width
- altered stitch widths can be deleted by pressing the «clr/del»-button

Altering the stitch length:
- any alterations to the stitch length affect both beads (denser or less dense)
- altered stitch length can be deleted by pressing the «clr/del»-button

Balance for automatic/manual buttonholes
- any balance alterations to the 6-step manual and auto length buttonholes affects both beads identically because they are sewn in the same direction

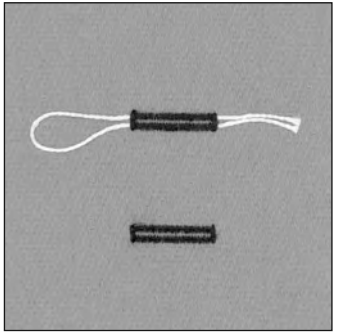
Note:
When all buttonholes have been sewn, return balance to the normal setting!

☞ TIP



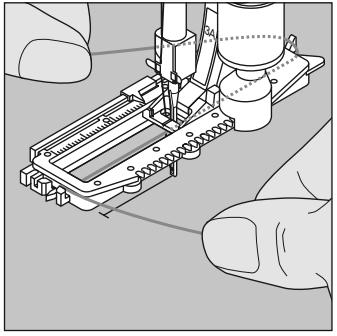
If a buttonhole is to be sewn at right angles to a seam, we recommend the use of the buttonhole leveler. Insert the plate from behind between the fabric and the foot up to and over the thicker area.

Buttonhole with gimp

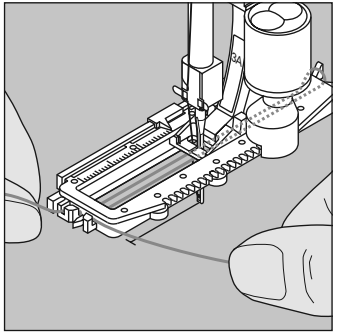


Gimp
- gimp cord reinforces buttonholes and enhances their appearance
- the loop of the cord should be at the end of the buttonhole most subject to wear cord loop = where button is sewn on
- position the work accordingly
- gimp cord is particularly recommended for standard and stretch buttonholes

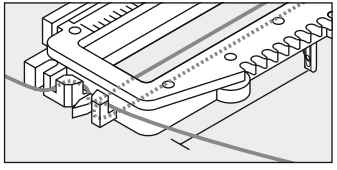
Ideal cords
- Perle yarn No. 8
- strong hand sewing thread
- fine crochet yarn



Hooking the cord in the buttonhole foot with slide No. 3A
- insert the needle at the beginning of the buttonhole
- raise the presser foot
- guide the cord under the foot to the right
- hook the cord over the pin at the back of the foot

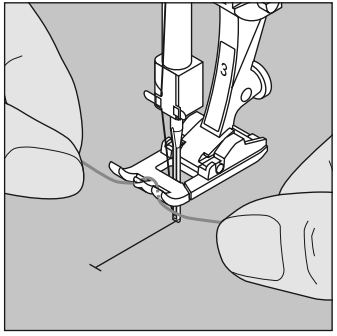


- bring the cords to the front of the foot

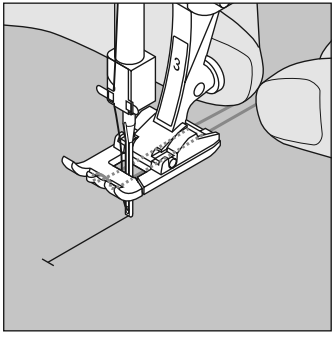


- pull them into the slit
- sew the buttonhole

Sewing
- sew the buttonhole in the usual manner
- do not hold the cord tightly
- the buttonhole will form over the cord, covering it

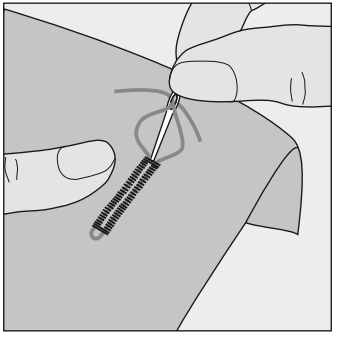


Hooking the cord onto presser foot No. 3 or buttonhole sole No. 3 (activa 220)
- insert the needle at the beginning of the buttonhole
- raise the presser foot
- hook the cord over the centre pin on the front of the foot

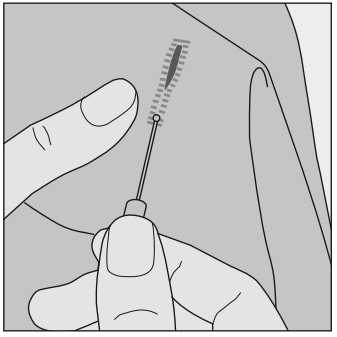


- place both ends of the cord in the grooves on the sole of the foot and pull them to the back
- lower the presser foot

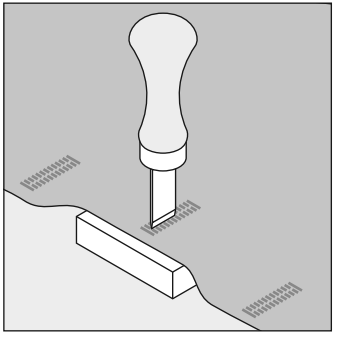
Sewing
- sew the buttonhole in the usual manner
- do not hold the cord tightly
- the buttonhole will form over the cord, covering it



Securing the cord
- pull the cord through the buttonhole
- pull cords through to back of fabric
- knot or secure with stitches



Cutting buttonholes open with the seam ripper
- use the back of the seam ripper to nick the stitches
- cut from both ends towards the middle

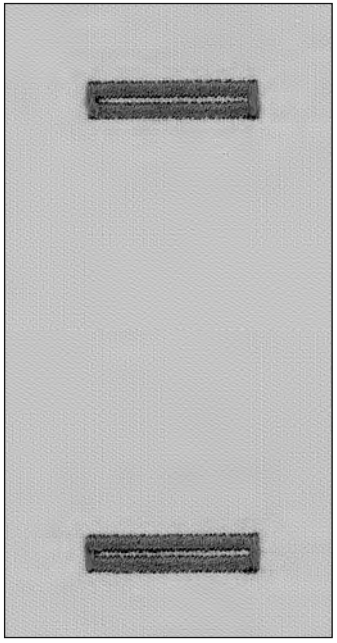


Buttonhole cutter and block (special accessory)
- place the fabric on the wood
- place the cutter in the centre of the buttonhole
- press down on the cutter with your hand or a hammer

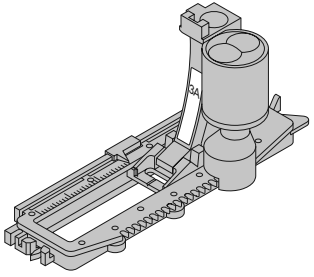
Automatic standard buttonhole with auto length (activa 230/240)

Both beads are sewn in the same direction.

Note:
The automatic buttonhole foot No. 3A must lie perfectly flat on the fabric. If the foot lies on a seam, the length cannot be measured accurately.



Stitch: **Standard buttonhole No. 10**
Needle: **size and type suitable for fabric selected**
Thread: **cotton or polyester**
Feed-dog: **up (sewing position)**
Presser foot: **Automatic buttonhole foot No. 3A**



Automatic standard buttonhole
- insert the lower thread in the finger of the bobbin case (p. 43)
- when using Buttonhole foot No. 3A, the length of the buttonhole is automatically registered by the lens on the foot = exact duplication and automatic sequence change when the maximum length has been sewn
- each step of the sewing sequence blinks on the screen

Note:
When any automatic buttonhole is selected, presser foot No. 3 is indicated on the screen.

1

2 3 4 5

Programme the standard buttonhole

1 sew the first bead forwards, stop the sewing computer
- press the reverse button
- «auto» and presser foot No. 3A are indicated on the screen = the buttonhole length is programmed

2 the sewing computer sews reverse straight stitch automatically
3 the first bar tack
4 the second bead forwards
5 the second bar tack and securing stitches
- sewing computer stops and returns automatically to buttonhole begin

Auto buttonhole
- all subsequent buttonholes will be sewn to exactly the same length (no need to press the reverse button)
- press the «clr/del»-button to delete the programme
- the programmed buttonhole can be saved in the long term memory (see p. 53)

Corrections see p. 44

Balance
- any changes to the balance affect both beads of auto length buttonholes, because both beads are sewn in the same direction

Note:
When all buttonholes have been sewn, return balance to the normal setting!

TIP

Exact duplicates
the auto function ensures that each buttonhole will be exactly the same length as the previous one

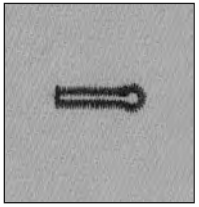
Marking
mark only the beginning of the buttonholes – a real time saver!

Sewing speed
- sew at moderate speed for best results
- sew all buttonholes at the same speed for a consistent bead density

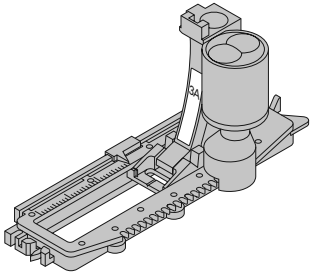
Compensating plates for buttonholes (special accessory)
If a buttonhole is to be sewn horizontally to the edge of the garment, it is worth using the compensating plates.
This accessory provides an even surface for the buttonhole foot with slide which results in a perfect buttonhole (see tips p. 44).

Automatic keyhole buttonhole with auto length (activa 230/240)

Both beads are sewn in the same direction.



Stitch:	**Keyhole buttonhole No. 13 (activa 230 No. 11)**
Needle:	**size and type suitable for the fabric selected**
Thread:	**cotton or polyester**
Feed-dog:	**up (sewing position)**
Presser foot:	**Automatic buttonhole foot No. 3A**

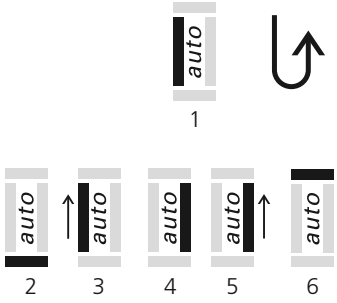


Automatic keyhole buttonhole

- insert the lower thread in the finger of the bobbin case (p. 43)
- when using Buttonhole foot No. 3A, the length of the buttonhole is automatically registered by the lens on the foot = exact duplication and automatic sequence change when the maximum length has been sewn

Marking the keyhole buttonhole

- mark the bead length only. The correct eye length will be added when the buttonhole is sewn.
- each step of the sewing sequence blinks on the screen



Note:
When all buttonholes have been sewn, return balance to the normal setting!

Programming the buttonhole

1 sew the straight stitch forward, stop the sewing computer,
- press the reverse button
- auto and presser foot No. 3A are displayed on the screen = buttonhole length is programmed

2 the sewing computer automatically sews the eye
3 the first bead in reverse
4 sews second straight stitch
5 sews second bead in reverse
6 sews bartack and securing stitches
- the sewing computer stops and returns automatically to buttonhole begin

Auto buttonhole
- all subsequent buttonholes will be sewn automatically to the same length (without pressing the reverse button)
- Press the «clr/del»-button to delete the programme
- the programmed buttonhole can be saved in the long term memory (see p. 53)

Corrections see p. 44

Balance
- any changes to the balance affect both beads of auto length buttonholes, because both beads are sewn in the same direction
- any distortions to keyhole buttonholes can be corrected with balance

TIP

Exact duplicates
the auto function ensures that each buttonhole will be exactly the same length as the previous one

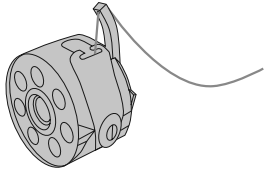
Marking
mark only the beginning of the buttonholes – a real time saver!

Double sewn keyhole buttonholes
- keyhole buttonholes can be sewn twice on thick fabrics
- after sewing the first buttonhole, do not move the work
- simply tap the foot control once to begin sewing again

Manual buttonhole (all types)

Manual buttonholes are particularly suitable for single buttonholes or for repairing existing buttonholes.
Individual steps can be eliminated or repeated. The number of steps corresponds to the buttonhole type. Manual buttonholes cannot be saved.

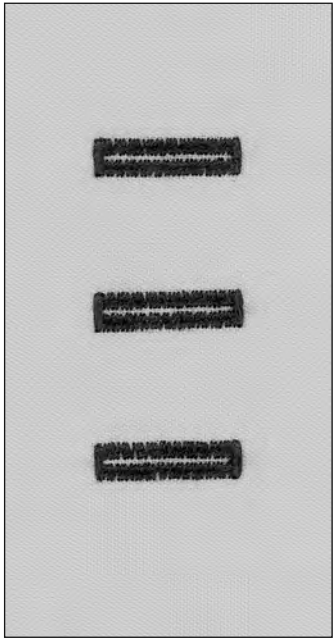
Stitch:	**any buttonhole**
Needle:	**size and type suitable for the fabric selected**
Thread:	**cotton or polyester**
Feed-dog:	**up (sewing position)**
Presser foot:	**Buttonhole sole No. 3 (activa 220)** **Buttonhole foot No. 3 (optional accessory activa 230/240)**

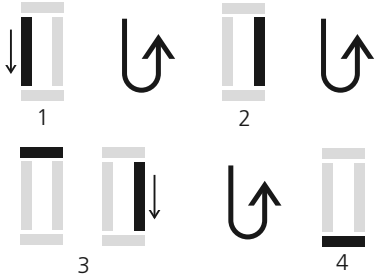


Preparation
- select the desired buttonhole
- screen shows:
  buttonhole number
  presser foot No. 3
  the buttonhole symbol (the first step blinks on the screen)
- insert the lower thread in the finger of the bobbin case

Always test sew buttonholes
- test on the fabric and stabilizer you intend to use
- sew buttonholes in the same grain direction (with or against)

Note: Corrections see p. 44





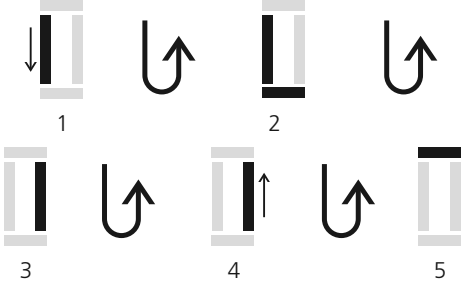
Sewing a manual standard buttonhole
Both beads are sewn in the same direction.
The individual steps blink on the screen.

1 sew the first bead forward, stop the sewing computer
- press the reverse button

2 sew reverse straight stitch, stop the sewing computer at the first stitch (buttonhole begin)
- press the reverse button

3 sew the bartack and the second bead, stop the sewing computer
- press the reverse button

4 sew the bartack and the securing stitches



Manual keyhole buttonhole
Sew both forward and reverse beads at the same speed.
The individual steps blink on the screen.

1 sew straight stitch forwards, stop the sewing computer, press the reverse button

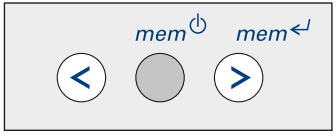
2 sew the eye and the first bead in reverse, stop the sewing computer at the first stitch (buttonhole begin), press the reverse button

3 sew straight stitch forwards and stop at the keyhole, press the quick reverse button

4 sew the second bead in reverse, stop the sewing computer at the first stitch (buttonhole begin), press the reverse button

5 sew bartack and securing stitches

Programmed buttonholes (only activa 230/240)



Saving programmed buttonholes in long term memory

- after programming press the « mem↵ »-button
- the buttonhole is now saved in long term memory

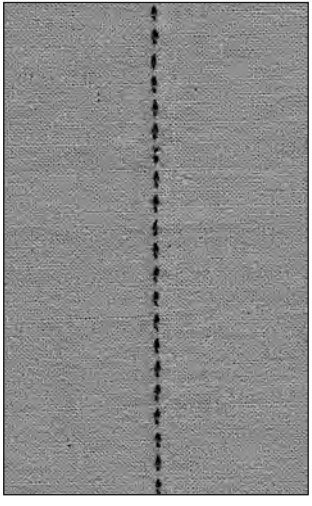
Opening saved buttonholes

Programmed saved buttonholes can be opened for re-use even after the sewing computer has been disconnected.

- select the buttonhole
- press the « mem⏻ »-button
- sew the programmed buttonhole
- only one of any style buttonhole can be saved, if a new length is saved with « mem↵ », it overwrites the previously saved buttonhole

Handlook quilt stitch

Stitch:	**Quilt stitch No. 40 (activa 230 No. 33, activa 220 No. 27)**
Needle:	**size and type suitable for the fabric selected**
Upper thread:	**monofilament**
Bobbin thread:	**30/2 cotton thread**
Feed-dog:	**up (sewing position)**
Presser foot:	**Reverse pattern foot No. 1** **Reverse pattern sole No. 1 (activa 220)**



Quilt/hand stitch
for all fabrics and all types of work which should have a hand-sewn look

Sewing test
the bobbin thread must come through to the right side:
1 stitch is visible
1 stitch is invisible (monofilament) = hand stitched effect

Upper thread tension
depending on the fabric = increase the tension (6–9)

Balance
adjust if necessary

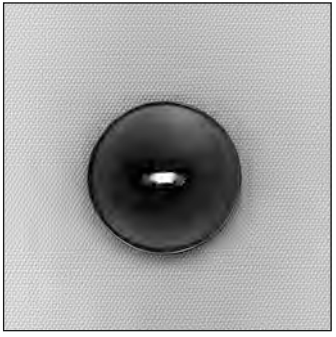
Sewing
Quilt stitch can be sewn with any needle position

TIP

Perfect corners
- activate needle-stop down and then turn work

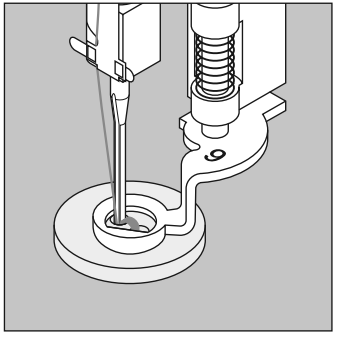
Monofilament breaks
- sew more slowly
- reduce upper thread tension slightly

Button sewing-on program



Stitch: **Button sewing-on program No. 15 (activa 230 No. 13, activa 220 No. 12)**
Stitch width **depends on distance between the holes**
Needle: **size and type suitable for the fabric selected**
Thread: **cotton or polyester**
Feed-dog: **down (darning position)**
Presser foot: **Darning foot No. 9 (optional for activa 220)**
Button sew-on foot No. 18 (optional accessory)

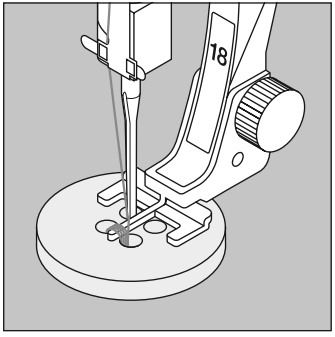
Sewing on buttons
- sews buttons with 2 or 4 holes
- buttons being sewn on for decorative purposes only can be stitched without forming a thread shank
- the length of the shank (= thread between button and fabric) can be made shorter or longer as required with foot No. 18



Sewing on buttons with foot No. 9
- select Button Sew-on program
- check distances between holes with the handwheel and adjust stitch width if necessary
- sew the securing stitches; hold the threads when starting to sew
- sew
- sewing computer stops automatically when program is completed and is ready for the next button

Beginning and ending threads
- the threads are secured and can be trimmed

For added security
- after sewing on the button, pull the upper thread ends through to the wrong side and knot



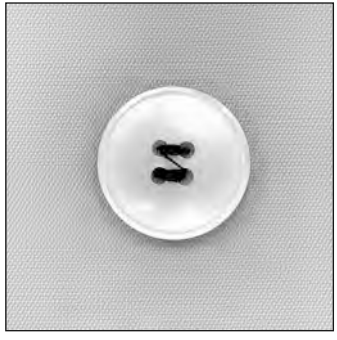
Sewing on buttons with foot No. 18
- set the shank length with the screw on the foot
- select Button sewing-on program and continue as with foot No. 9 (p. 55)

Beginning and ending threads
- the threads are secured and can be trimmed

For added security
- after sewing on the button, pull the upper thread ends through to the wrong side and knot or
- using the upper thread ends to sew a «shank» by hand

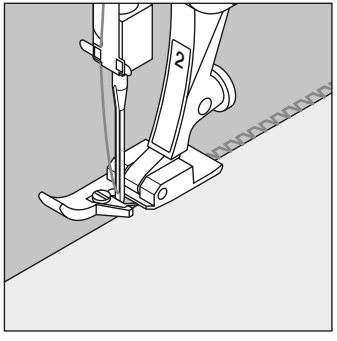
TIP

4-hole button
- sew the front holes
- carefully move the button forward
- sew the back holes
- cut the diagonal joining thread



Vari-overlock seam

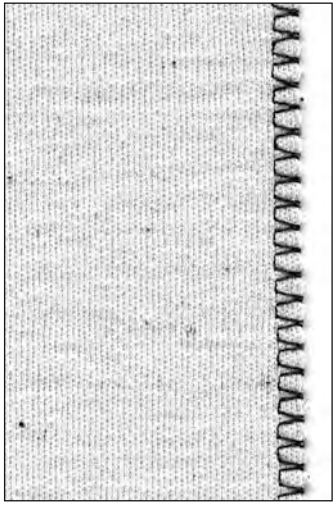
Stitch: **Vari-overlock No. 3**
Needle: **size and type suitable for the fabric selected**
Thread: **cotton or polyester**
Feed-dog: **up (sewing position)**
Presser foot: **Overlock foot No. 2, Overlock sole No. 2 (activa 220) or Reverse pattern foot No. 1, Reverse pattern sole No. 1 (activa 220)**



Overlock foot No. 2 is specially designed for overlock stitches. The pin on the foot produces more thread in each stitch so that the elasticity of the seam is maintained.

Closed seam
Stretchy seam in fine, soft knits such as silk jersey and interlock.

Sewing
- guide the raw edge along the pin on the overlock foot
- the stitch will form over the pin and over the edge of the fabric



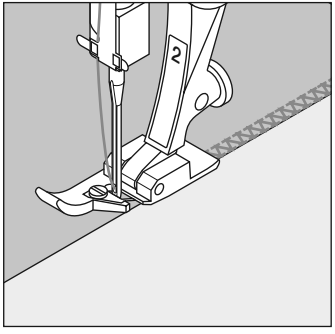
TIP

Knits and jersey
use a new needle to prevent damaging the loops

Sewing stretch fabrics
if necessary use a stretch needle (130/705H-S) = needle point slides between the fibers

Double overlock seam

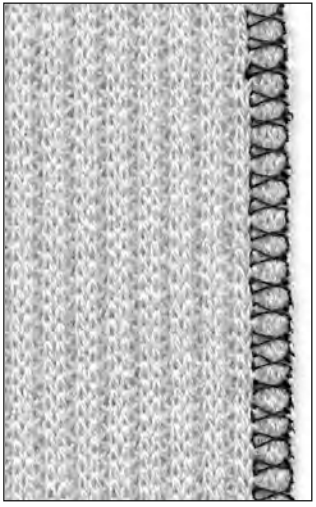
Stitch: **Double overlock No. 8**
Needle: **size and type suitable for the fabric selected**
Thread: **cotton or polyester**
Feed-dog: **up (sewing position)**
Presser foot: **Overlock foot No. 2, Overlock sole No. 2 (activa 220) or Reverse pattern foot No. 1, Reverse pattern sole No. 1 (activa 220)**



Overlock foot No. 2 is specially designed for overlock stitches. The pin on the foot produces more thread in each stitch so that the elasticity of the seam is maintained.

Closed seam
overlock seam in loose knits and cross seams in knits and jerseys

Sewing
- guide the raw edge along the pin on the overlock foot
- the stitch will form over the pin and over the edge of the fabric



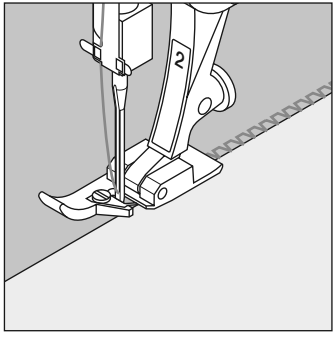
TIP

Knits and jersey
use a new needle to prevent damaging the loops

Sewing stretch fabrics
if necessary use a stretch needle (130/705H-S) = needle point slides between the fibers

Ribbing with overlock seam

Stitch: **Vari-overlock No. 3**
Needle: **size and type suitable for the fabric selected**
Thread: **cotton or polyester**
Feed-dog: **up (sewing position)**
Presser foot: **Overlock foot No. 2, Overlock sole No. 2 (activa 220) or Reverse pattern foot No. 1, Reverse pattern sole No. 1 (activa 220)**

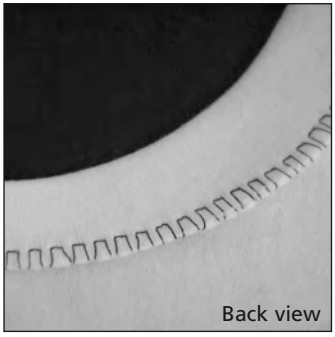


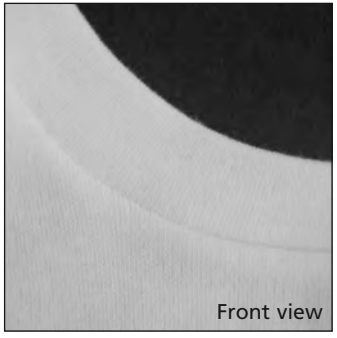
Overlock foot No. 2 is specially designed for overlock stitches. The pin on the foot produces more thread in each stitch so that the elasticity of the seam is maintained.

Ribbing with overlock seam
for all fine cotton, synthetic and mixed fiber jersey

Preparation
- fold ribbing in half
- pin and baste to opening, right side outside

Sewing
- sew Vari-overlock over the raw edge
- guide the edge along the pin on the foot


Back view


Front view

TIP

Needle stop down
needle stays in fabric when you stop to adjust the ribbing

Self-facing with Honeycomb stitch

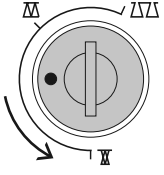
Stitch: **Honeycomb No. 22 (activa 230 No. 22, activa 220 No. 19)**
Needle: **universal, ballpoint or stretch as needed**
Thread: **cotton or polyester**
Feed-dog: **up (sewing position)**
Presser foot: **Reverse pattern foot No.1**
Reverse pattern sole No. 1 (activa 220)

Ribbing with visible seam
for all cotton, wool, synthetic and mixed fiber jersey

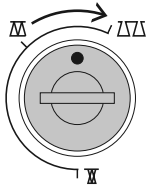
Preparation
press 1 cm (3/8") to wrong side

Sewing
- sew from the right at a foot's width from the edge
- trim surplus fabric (wrong side)

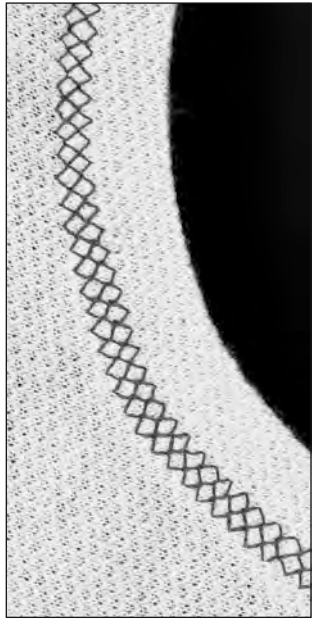
Balance/corrections



bring stitch together



open out stitch



Note:
After sewing return balance to the normal setting!

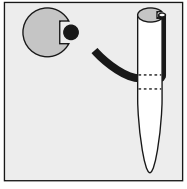
TIP

Needle stop down
needle stays in fabric when you stop to adjust the ribbing

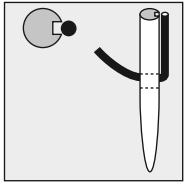
Important facts about sewing computer needles

Sewing computer, needle and thread
Your **BERNINA** uses needle system 130/705H.

Needle and thread
The most commonly sold needles are nos. 70–120.
The finer the needle, the lower the number. The table shows which needle is suitable for which threads.



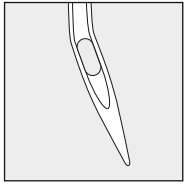
Needle appropriate for thread
When sewing, the thread runs in the long groove on the needle.



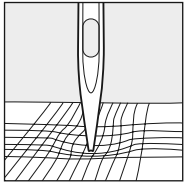
Needle inappropriate for thread
If the needle is too fine, the groove will be too narrow for the thread and faulty stitching or thread breakage can occur.

Needle and fabric
Condition of needle
The needle must be in perfect condition. Problems can occur with damaged needles.

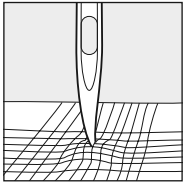
Needle	70	80	90	100	110–120
Darning thread	●	●			
Embroidery thread		●			
Mercerised cotton thread		●	●		
Synthetic thread		●	●		
Thick threads, synthetic mercerised thread			●	●	
Buttonhole thread for decorative seams (cordonnet)				●	●



bent needle

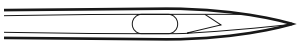


blunt needle



hooked needle

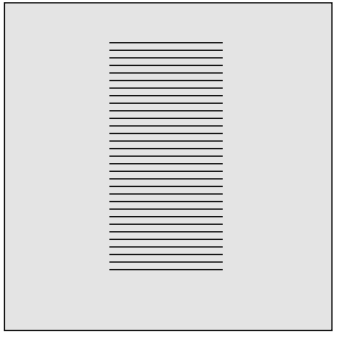
Special materials are easier to sew if the appropriate needle is used.
Special needles are available at your **BERNINA** dealer.

Needle table	Description	Needle point	Suitable for	
Standard needle	130/705 H	Normal point, slightly rounded	Universal needle for woven, needle synthetic and natural fibers, e.g. linen, chiffon, batiste, organdie, wool, satin, decorative stitching, embroidery	
Special needles	130/705 H-SES	Fine ball point	Fine knits, especially for synthetic fibers	
	130/705 H-SUK	Medium ball point	Heavier knits in synthetic or natural fibers	
	130/705 H-S	Medium ball point	Special needle for delicate or difficult stretch fabrics	
	130/705 H-J	Extra fine point	Overalls, heavy linen, denim, canvas. Pierces dense fabrics easily	
	130/705 H-LR + H-LL	Cutting point	Natural and synthetic leather, plastic, coated and waxed fabric	
Double needle	130/705 H-ZWI	Widths: 1,6 / 2,0 / 2,5 3,0 / 4,0	Visible hems in stretch fabrics, pintucks, decorative sewing	
Triple needle	130/705 H-DRI	Widths: 2,5 / 3,0	Decorative sewing	
Hemstitch needle	130/705 HO	Width: 2,0	Hemstitch in loose weaves	

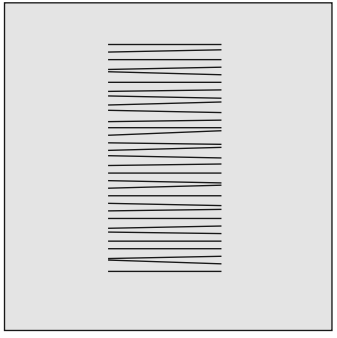
Feed-dog and fabric feed

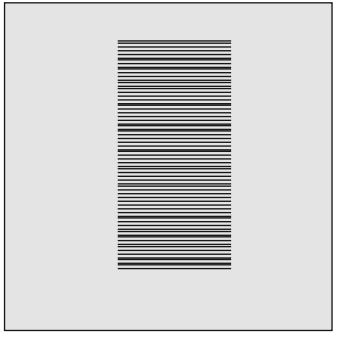
Feed-dog and stitch length
With each stitch the feed-dog moves forward by one step. The length of this step is determined by the stitch length selected. With an extremely short stitch length, the steps are also short. The fabric moves under the foot quite slowly, even at full sewing speed. Buttonholes, satin stitch and decorative stitches are all sewn with a very short stitch length.

Important



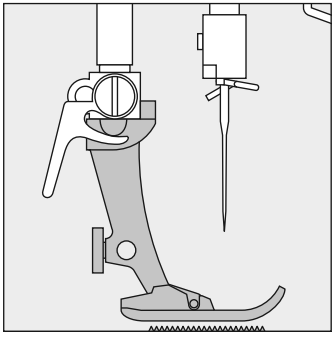
Let the fabric feed evenly!



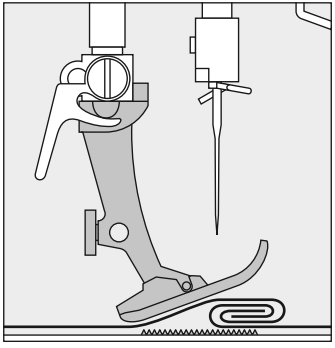


Pulling, pushing or holding back the fabric will result in uneven stitches.

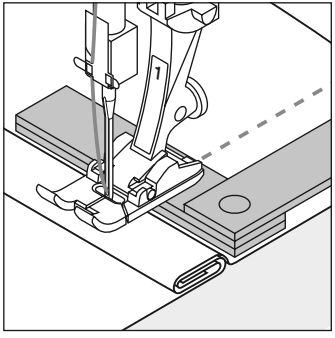
Feed-dog and fabric feed with compensating plates



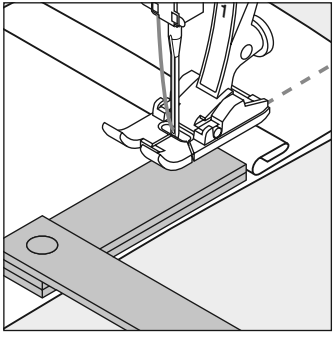
The feed-dog can work normally when the foot is level.



If the foot is at an angle, e.g. when sewing over thick to thin or vice-versa, the feed-dog cannot grip and feed the fabric and the fabric hangs up.

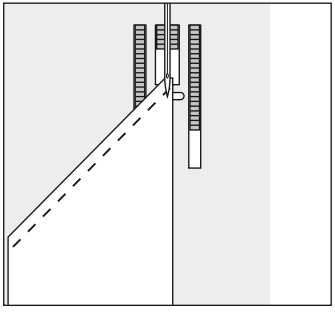


Uneven layers
To solve this problem, place one, two or three compensating plates as required behind the needle under the presser foot.

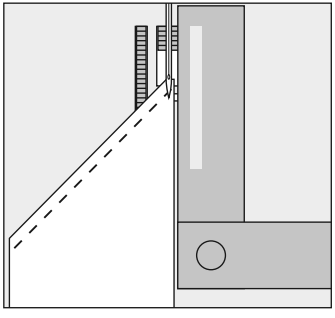


To correct the height in front of the foot, place one or more plates to the right of the foot close to the needle. Sew until the foot is level again and remove the plates.

Thick fabrics: feed-dog and sewing corners



The gap between the two rows of teeth is relatively large due to the width of the stitch plate hole.
When sewing corners only a small section of the fabric is actually on the feed-dog so that it cannot grip the fabric well.



Correct this by placing one or more compensating plates as close as possible to the edge of the fabric.

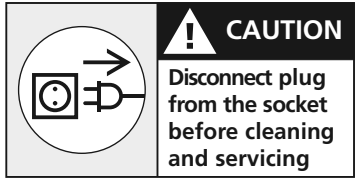
Cleaning

If the sewing computer is stored in a cold room, it should be brought to a warm room about one hour before use.

Cleaning
Clean the sewing computer after every use
- turn power switch to «0» (off) and pull out plug from electric outlet
- remove presser foot and needle
- open the free-arm cover
- press the stitch plate down at the back right corner, lift and remove
- clean the area with the lint brush
- replace the stitch plate

Cleaning the hook
- turn power switch to «0» (off) and pull out plug from electric outlet
- remove the bobbin case
- push the release lever to the left
- push the locking lever to the left and fold down the hook race cover
- remove the hook
- clean the hook race with a cloth or brush, never use a sharp instrument
- replace the hook, turning the handwheel if necessary so that the hook driver is on the left
- close the hook race cover and secure with the locking lever, the locking pin must engage
- check by turning the handwheel
- insert the bobbin case

Cleaning the screen and the sewing computer
- wipe with a damp cloth

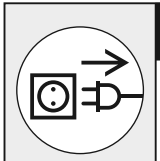


Lubricating
- squeeze 2–3 drops of oil into the hook race
- run the machine for a short time without thread to prevent oil soiling your work

Important!
Never use alcohol, petrol, white spirit or any type of solvent to clean the sewing computer!

Refer to the safety instruction!

Sewing light



CAUTION

Disconnect plug from the socket before cleaning and servicing

Note:
Use bulb type
12 V 5 W.
W 2.1 x 9.5 d.

Replacing the bulb

- turn power switch to «0»
- loosen the screw
- remove the cover by lifting it slightliy and detaching from the top
- remove the bulb
- insert the new bulb
- replace cover and tighten screw

Light bulbs get hot.
Allow to cool down before removal.

Refer to the safety instruction!

Replacing the Sewing Light**

Contrary to an ordinary bulb, the CFL sewing light has a better illumination and a longer life.

Caution:
Please note that a defective CFL sewing light must ONLY be replaced by an authorized technician. The sewing computer must be brought to an authorized BERNINA dealer!

Please refer to the safety instructions!

** Available as a special accessory for activa 220, 230

Trouble shooting

In most cases you will be able to identify and remedy faults by checking the following.

Check whether:
- the upper and lower threads are threaded correctly
- the needle is inserted correctly
- the needle size is correct – check the needle/thread table p. 61
- the sewing computer is clean – brush out any thread fluff
- the hook race is clean
- any threads are trapped between the tension discs or under the bobbin case spring
- the bobbin runs smoothly in the case or if remnants or lint need removing

Upper thread breaks
- The upper thread tension is too tight.
- The needles are of a poor quality. Ideally needles should be purchased from your **BERNINA** dealer.
- The needle is bent or blunt.
- Poor quality, knotted or dried out thread has been used.
- Use the correct spool disc.
- Stitch plate or hook tip damaged. Take your sewing computer to your **BERNINA** dealer.

Lower thread breaks
- The lower thread tension is too tight.
- The bobbin is jamming in the bobbin case. Remove and replace the bobbin.
- The hole in the stitch plate has been damaged by the needle. This must be repolished by an expert.
- The needle is blunt or bent.

Skipped stitches
- Wrong needles used. Use only 130/705H system.
- The needle is blunt, bent or incorrectly inserted.
- Push right to the top when inserting.
- Needle inserted all the way to the top.
- The needle point does not suit the fabric being sewn. If necessary use a ball point for knitted fabrics and cutting point for hard leather.

Needle breaks
- Needle clamp screw loose.
- Fabric taken out in front instead of behind presser foot.
- When sewing over thick area, the fabric was pushed with the needle still in the fabric.
- Poor quality thread, unevenly wound or knotted.
- See pages 61 and 62 for information about needles

Faulty stitching
- Remnants of thread between the tension discs.
- Remnants of thread under the bobbin case spring.
- Lower thread still threaded in the bobbin case finger.
- Sewing computer threaded with foot down.
- Incorrect threading. Check upper and lower threads.
- Use the correct spool disc.

Sewing computer fails to run or runs slowly
- Plug not properly inserted.
- Power switch in off position.
- Sewing computer has been standing in a cold room.
- Bobbin winder still switched on.

Index

A

Accessories 8
Accessory box 9

B

Balance 31, 60
Basting stitch 39
Blanket stitch A3
Blind hem 40
Bobbin 13
Bobbin case 14
Bobbin thread cutter 14
Bringing up the lower thread 20
Button sewing-on program 55
Buttonholes 43–53
- Altering buttonholes 44
- Automatic keyhole buttonhole 49–50
- Automatic standard buttonhole 47–48
- Buttonhole with gimp 45–46
- Manual buttonhole 51–52
- Programmed buttonholes 53

C

Changing the needle 15
Changing the presser foot 16, 17
CFL 8, 66
Cleaning 65
Compensating plates 64

D

Darning program 41
Details of the sewing computer 4–7
Double blanket stitch A3
Double overlock seam 58

F

Fabric cover 8
Fabric feed, Needles, Threads 61–64
Feather stitch A6
Feed-dog 21, 63
Foot control 11
Functions 25–26
- #-button 26
- 1/2 speed 25
- clr/del (clear/delete) 26
- Letters 26
- mem (Memory) 26
- Mirror image 24
- Needle stop 24
- Reverse sewing 24
- Stitch end 24

H

Handlook quilt stitch A5
Honeycomb stitch 60

I

Inserting the bobbin 15

K

Keyhole buttonhole 49
Knits and jersey 57, 58

L

Letters programming 29
Lower thread 20
Lens Set 8

M

Maintenance 65, 66
Memory 27
- Corrections in Memory 29
- Leave Memory 30
- Memory buttons 27
- Open Memory 27

- Programming letters, numbers and punctuation marks 29
- Programming practical and decorative stitches 28
- Scroll backwards/forwards 28

N

Needle position 24
Needles, Threads, Fabric feed 61–64
Needle Threader 19

O

Overlock seam 59

P

Power cable 10
Presser feet 36
Presser foot lifter 12

Q

Quilters securing program A2
Quilt stitch (Handlook quilt stitch) A5

R

Ribbing with overlock seam 59
Reverse sewing 24

S

Screen shows 23
Seam guide 12
Securing program 37
Self-facing with Honeycomb stitch 60
Sewing light 8, 66
Sewing table 12
Single blanket stitch A3
Spool pin 17
Standard accessories 8
Standard buttonhole 47–48
Stiches 32–35, A1
Stipple stitch A4
Stitch length/width 24
Stitch plate 21
Stitch selection 24
Stretch fabrics 57, 58
Supplementary spool pin 17

T

Threads, Fabric feed, Needles 61–64
Thread cutter 13, 20
Thread tension 22
Threading the upper thread 18
Trouble shooting 67

U

Upper thread 18

V

Vari-overlock seam 57

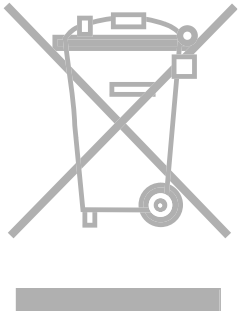
W

Winding the bobbin 13

Z

Zippers 42

2 Important safety Instructions
4 Details
10 Setting up the sewing computer
23 Operating instructions
32 Stitches
36 Presser feet
Selected practical stitches:
37 • Securing program
38 • Zig-zag stitch
39 • Basting stitch
40 • Blind hem
41 • Darning program
42 • Zippers
43 • Buttonholes
54 • Hanlook quilt stitch
55 • Button sewing-on program
57 • Overlock
60 • Honeycomb
61 Needle, Thread, Fabric Feed
65 Cleaning, Maintenance, Troubleshooting
68 Index
A1–A6 Appendix



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.

At end of life please dispose of this product in an environmentally responsible way according to the national directive. Do not throw away this product with your household waste. In case of doubt, please contact your dealer.

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Graphics: Müller-Melzer ID, Kreuzlingen

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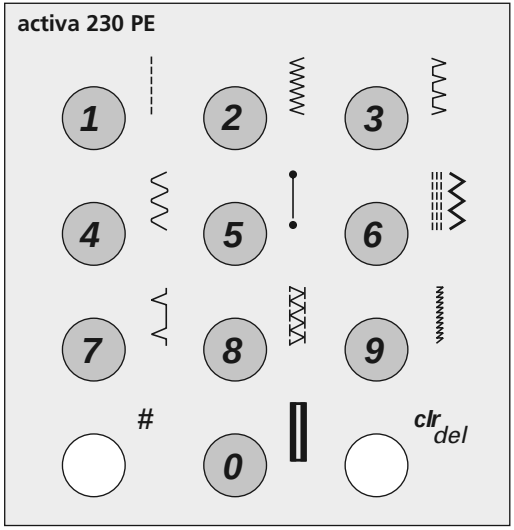
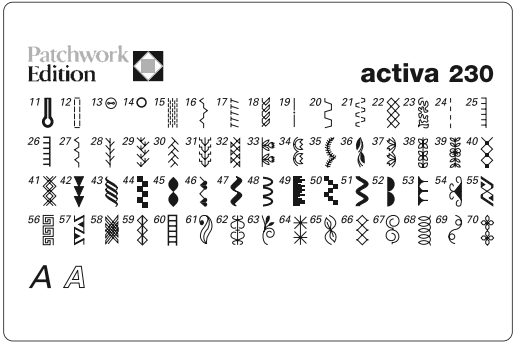
Stitches

Practical

1 Straight stitch
2 Zig-zag
3 Vari-overlock
4 Running stitch
5 Quilters securing program
6 Triple straight and zig-zag
7 Blind stitch
8 Double overlock
9 Super stretch stitch
10 Standard buttonhole
11 Keyhole buttonhole
12 Straight stitch buttonhole
13 Button sewing-on program
14 Eylet
15 Darning program
16 Gathering stitch
17 Stretch overlock
18 Jersey stitch
19 Basting stitch
20 Universal stitch
21 Lycra stitch
22 Honeycomb stitch
23–32 Quilting stitches
33–70 Decorative stitches





Quilters securing program

Stitch: **Quilters securing program No. 5**
Needle: **80 Quilting, Jeans, Sharp, or Microtex**
Thread: **cotton/polyester or Monofilament for the upper thread and cotton or polyester for the lower thread**
Feed-dog: **up (sewing position)**
Presser foot: **Reverse pattern foot No. 1 or Walking foot No. 50 (optional)**

Securing program
- for all fabrics
- secures seam begin and end

Seam begin
- sewing computer secures automatically (6 short stitches forwards)
- continues sewing straight stitch forwards

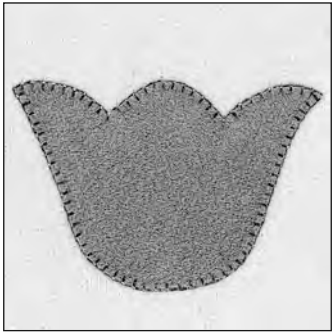
Seam end
- press the reverse button = sewing computer secures automatically (6 short stitches forwards)
- stops automatically when securing is complete

TIP

- when quilting, the quilt securing program can be combined for example with the handlook quilt stitch No. 32
- for work which is likely to be subjected to heavy wear or laundering, use straight stitch No. 1 for securing

Blanket stitch

Stitch:	**Single blanket stitch No. 25 or Double blanket stitch No. 26**
Needle:	**80**
Thread:	**machine thread**
Feed-dog:	**up (sewing position)**
Presser foot:	**Reverse pattern foot No. 1 or Open Embroidery foot No. 20**
Needle position:	**center**



Preparation
- cut desired applique shapes
- fuse or baste as desired to a background fabric

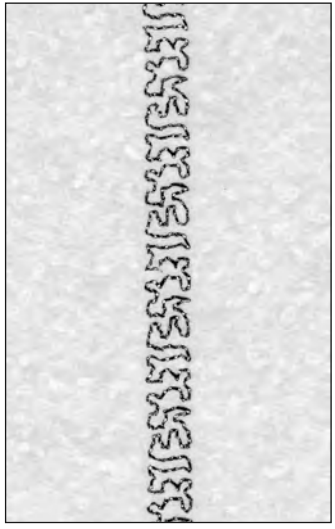
Sewing
- place the fabric under the needle and position it so the wide portion of the stitch will form on the applique and the straight portion will fall just outside of it on the background fabric
- stitch around entire applique shape

☞ TIP

- for a hand-stitched look, increase the stitch length and width when appliqueing heavy fabrics such as felt, flannel, and Ultra Suede®

Stipple stitch

Stitch:	**Stipple stitch No. 23**
Needle:	**80**
Thread:	**machine thread**
Feed-dog:	**up (sewing position)**
Presser foot:	**Reverse pattern foot No. 1**
Needle position:	**center**



Preparation

- prepare a «quilt sandwich» by placing a layer of batting between the quilt top and the backing fabric (fabric will be right sides out)
- pin or baste layers together

Sewing

- place the quilt sandwich under the needle and sew the stipple stitch as desired across the fabric.

Handlook quilt stitch

Stitch:	**Hand-look quilt stitch No. 24**
Needle:	**80 Quilting, Jeans, Sharp, or Microtex**
Thread:	**0.044 monofilament for the upper thread and 40 or 30 weight cotton for the lower thread**
Feed-dog:	**up (sewing position)**
Presser foot:	**Reverse pattern foot No. 1 or Walking foot No. 50 (optional)**
Needle position:	**as desired**
Tension:	**tighten to 6–9**
Balance:	**adjust if necessary**

Preparation

- prepare a «quilt sandwich» by placing a layer of batting between the quilt top and the backing fabric (fabric will be right sides out)
- pin or baste layers together

Sewing

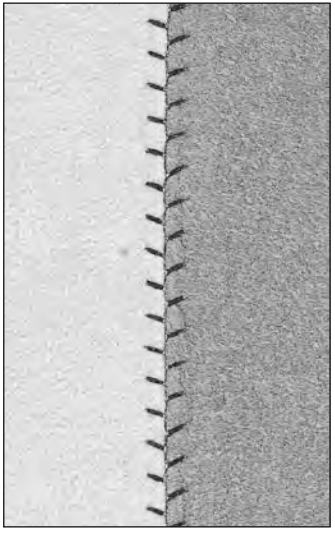
- place the quilt sandwich under the needle and sew the hand-look quilt stitch as desired across the fabric
- the bobbin thread should pull to the surface of the fabric and give the appearance of a hand-sewn running stitch

TIP

- moderate speed for best results

Feather stitch

Stitch:	**Feather stitch No. 28**
Needle:	**80**
Thread:	**machine thread**
Feed-dog:	**up (sewing position)**
Presser foot:	**Reverse pattern foot No. 1 or Open Embroidery Foot No. 20**
Needle position:	**center**



Use this delicate embroidery stitch to embellish fabric or to cover patchwork seams.

Preparation
- piece patchwork shapes as desired

Sewing
- place the fabric under the needle and position it so the center portion of the stitch will fall «in-the-ditch» of the seam
- stitch, embellishing seams as desired

TIP

- for variety, increase or decrease the length and width of the pre-programmed feather stitch