

EKC Handling and Knitting Technique



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1 CMS - Handling



These document refers to the CMS 530 HP machine type if nothing else is specified.



WARNING

Dangerous operations!

Handling the knitting machine requests to follow the safety precautions.



2 CMS Documents

The following documents about operation and maintenance of the CMS are delivered on DVD together with the machine:

- Safety Instructions
- Operating Instructions
- Circuit Diagram
- "Cleaning, Maintenance, Care" Brochure

These documents contribute to a safe and harmless operation.

The safety instructions and the "Cleaning, Maintenance, Care" brochure are delivered printed as well.





3 Overview of Patterns for the CMS Basic Training

Pattern name	Machine	Comb Usage	Setup Type	Task / Parameter	
Full Cardigan,	CMS 530 HP	With Comb	Setup	RS, NP, WMF, MSEC	
2 Colors / Tuck	CMS ADF 32 W				
Cable-4x4	CMS 530 HP			VCI, WMF, NP, RS, YDopt	
	CMS ADF 32 W			Usage of RS17	
1X1 Technique	CMS 530 HP			RS, NP, WMF, MSEC, VCI	
	CMS ADF 32 W				
Fully Fashion	CMS 530 HP			NP, NPJ, WMF, YDopt, YDF	
	CMS ADF 32 W				
Fully Fashion	CMS 530 HP			Order with several items (=	
	CMS ADF 32 W			sequence) RS, NP, WMF, MSEC	
Jacquards	CMS 530 HP			RS, NP, WMF, MSEC	
	CMS ADF 32 W				
Intarsia	CMS 530 HP			YCI, Setting the breaking val-	
	CMS ADF 32 W			ues	
Multi Gauge	CMS 530 HP			NP, RS, WM, MSEC	
	CMS ADF 32 W				
Plating	CMS 530 HP			YPI, Y:Ua-Ub, Y:Ncc	
	CMS ADF 32 W				
Split	CMS 530 HP			NP, RS, WM, MSEC	
	CMS ADF 32 W				
Weft Yarn	CMS ADF 32 W			NP, RS, WM, MSEC, YPI	
Plating with ADF					
Fully Fashion	CMS 530 HP	Without		NP,NPJ, RS, WMF, YDI,	
	CMS ADF 32 W	Comb		Counter #90	
Applications	CMS 530 HP	Without		NP, RS, WMF	
+ Gore	CMS ADF 32 W	Comb		Counter #90	



Pattern name	Machine	Comb Usage	Setup Type	Task / Parameter
Structure Pat- tern	CMS 822 HP	With Comb Without		Operating modes of the MC: Tandem mode with coupling
+ Applications		Comb		width of 44"
				NP, RS, WMF

4 Philosophy of the New User Interface

Table autométail ature	The consists of country at most first through the country of the c			
Task oriented struc- ture	The variety of work steps of a production are grouped to four domains:			
	Set up Order			
	Produce Order			
	Maintain Machine			
	• Configure Machine			
	View Data			
	Each area is assigned to a specific user group and protected by password to the other user groups			
User oriented structure	The tasks of the different users were combined to four user groups with defined user rights:			
	1. Operator (knitter)			
	2. Maintenance (maintenance personnel)			
	Senior Operator (technician, foreman) - having most of rights			
	4. STOLL Service (STOLL service technician)			
Area for the knitter (operator) only	The knitter (operator) gets his own area strictly focused on his activity "Produce Order". The training period for this area is short.			
	i: All the other areas are locked for him. They are protected by a password (default setting). This way the operator cannot perform unintentional changes or error operations in the other areas.			
Guided remedy of a production interruption	The remedy of the most common production interruptions (as for example yarn breakage, fabric take-down, etc.) is supported by special dialogs to remedy the error as fast as possible.			
Intuitive Operation	Fast recognition of the function of a button by icon and an explanatory text.			
	i : Most of the buttons come with bubble help - an additional help text, which informs about the function of the button.			
Order	An order is created for the production:			
	By one knitting program			
	- Or -			
	By several knitting programs			



: The previous order menu and sequence menu are no longer required.

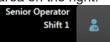


5 Rolls and Rights of Users

- I. Classification of the tasks according to four main areas:
- Set up Order
- Produce Order
- ► Maintain Machine
- Configure Machine
- 🌠 _{View Data}

II: Defined User Groups

- Operator (knitter)
- Maintenance (maintenance personnel)
- Senior Operator (technician, foreman)
- STOLL Service (STOLL service technician)
 - The active user group and the selected shift are displayed in the information area on the right.



III. User Groups and User Rights:

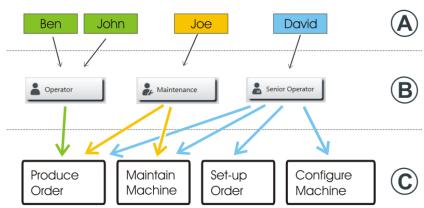
1 The four main areas are assigned to the user groups and each user group can only work in its own area.

The areas which are not to be used by one user group are password protected.



		Main Area	User rights of t	he user groups	
Set up 1 Produce Order 2 Maintain 2	1	Set up Order			Senior Oper- ator
Maintain Machine 3 Configure Machine 4 View Data	2	Produce Order	Operator	Maintenance	Senior Oper- ator
? Help	3	Maintain Ma- chine		Maintenance	Senior Oper- ator
	4	Configure Machine			Senior Oper- ator

IV. Definition of User, User Group and User Profile



User (A)	Each user of the machine is assigned to a specific user group (B).
User Group (B)	Each user group (B) has special user rights for the main areas (C), which they need for their work at the machine.
	The user group does not receive any permission for the actions they may not perform.
	i: The senior operator defines the user profile (user rights of an user group). (Configure Machine-> System Settings -> User -> Configure Windows)
	Each user group needs other permissions (user rights) to carry out the work at the machine.



User Profiles	Working with user profiles simplifies the rights management, as only the
	rights of the user group are to be adapted in case of a change.

Labeling of password protected areas i

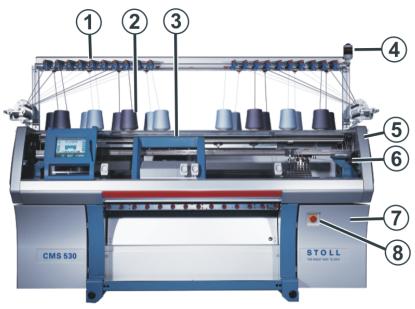


Main areas and the corresponding submenus, which are labeled with the symbol cannot be executed by the currently active user group.



6 CMS Performer Machines





	Designation	Explanation	
1	Yarn control device	Monitors the thread.	
2	Bobbin board	The bobbins are placed on it.	
3	Carriages	It moves over the needle beds and controls the work positions of the yarn carriers and of the needles in the needle bed.	
4	Signal light	It displays the operating state of the knitting machine	
5	Safety door (left, right)	The reversing position of the carriage is secured by the safety door.	
6	Covers	The entire traversing path of the carriage is secured with covers. You have to forbid everyone from reaching out into the running machine.	
7	Control	Controls the knitting process.	
		It saves the data of the knitting program.	
		It controls the needle selection and the motors in the carriage.	



	Designation	Explanation	
8	Main switch	Switching on and off of the machine. Emergency switching-off switch (1)	

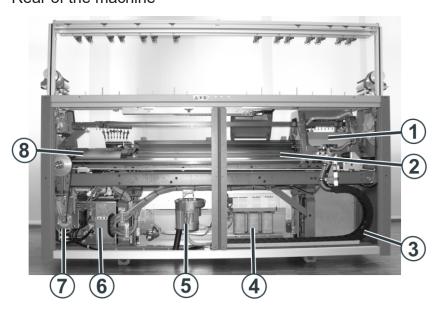


	Designation	Explanation	
9	Engaging rod	It activates and stops the carriage run.	
10	Fabric take-down	Main take-down: Pulls the stitches away from the needle downwards to the fabric container.	
		Auxiliary take-down: Grasps the fabric directly under the needle bed.	
		Comb take-down: With the comb take-down fabric pieces are automatically started and press off after completion.	



	Designation	Explanation	
11	Fabric collection chamber	The fabric take-down guides the finished fabric into the fabric collection chamber. There the fabric is protected from soiling.	
12	Touch screen	The touch screen enables communication with the machine control	
13	USB port	Connection for a removable drive, containing knitting programs, operating systems and machine data. Recommendations: Use USB Memory Stick.	

Rear of the machine

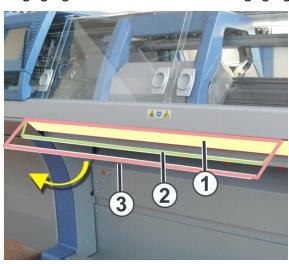


	Designation	Explanation
1	Carriages	It moves over the needle beds. It controls the work positions of each yarn carrier and each and every needle in the needle bed.
2	Rear needle bed	Every machine has a front and a rear needle bed. There are grooves in the needle bed which are run by needles.
3	Trailing cable (energy chain)	The cables for the carriage that travels hence and forth are fed along with in the energy chain.
4	Transformer (Fuses)	The knitting machine can be operated with various mains voltages.
5	Fluff absorption	The fluff absorption removes the yarn fluff from the upper area of the needle beds.



	Designation	Explanation
6	Control	It controls the knitting process.
		It saves the data of the knitting program.
		It controls the needle selection and the motors in the carriage.
	Control (right-hand side of the machine)	It controls the carriage run and the racking of the needle bed.
7	Main drive	The carriage is driven by the drive motor via a toothed belt.
8	Racking device	Racks the rear needle bed laterally.

Engaging the machine with the engaging rod



Positions of engaging rod		
1	Carriage stopped	
2	reduced speed	
3	3 normal speed	



Signal light

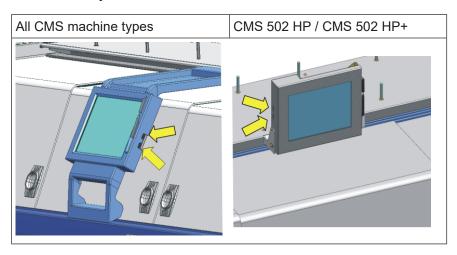


The signal light (1) displays the operating status (green, yellow) of the knitting machine.

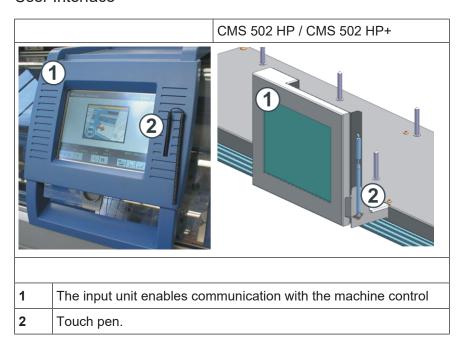
Color	State	
green	Knitting machine produces at 100%	
green (flashes)	Knitting machine is stopped with an engaging rod	
green, yellow (flashes)	Knitting machine produces at less than 100% due to manual interventions.	
	Reduced Carriage Speed (ML)	
	Long Stroke	
yellow	The knitting machine is not producing, as an error has occurred during knitting.	
green, yellow	Both lamps light up during the shutdown process.	
off	Main switch is off.	



USB Memory Stick



User Interface

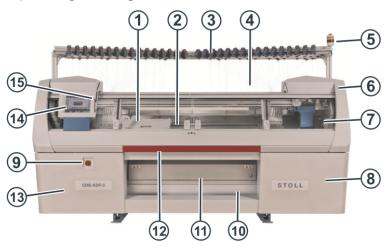


Functions at the touch screen (user interface):

- Display of operating data
- Changing machine settings and pattern data
- Input of commands
- Calling up help information

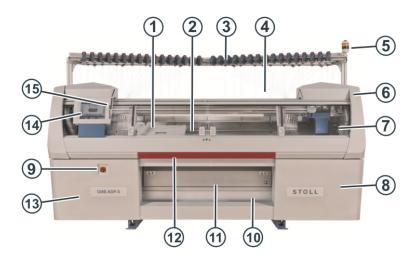
7 ADF machines





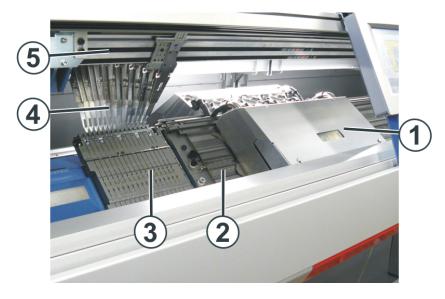
	Designation	Explanation
1	Carriages	It moves over the needle beds. It controls the work positions of each yarn carrier and each and every needle in the needle bed.
2	Needle bed	Every machine has a front and a rear needle bed. There are grooves in the needle bed which are run by needles.
3	Yarn control unit	Tensions and controls the thread.
4	Bobbin board	The bobbins are placed on it.
5	Signal light	It displays the operating state of the knitting machine
6	Safety door (left, right)	The reversing position of the carriage is secured by the safety door.
7	Covers	The entire traversing path of the carriage is secured with covers. You have to forbid everyone from reaching out into the running machine.
8	Control (right-hand	It controls the knitting process.
	side of the ma- chine)	It saves the data of the knitting program.
	Offinio)	It controls the needle selection and the motors in the carriage.
9	Main switch	Switching on and off of the machine. emergency switching-off switch.





	Designation	Explanation
10	Fabric collection chamber	The fabric take-down guides the finished fabric into the fabric collection chamber. There the fabric is protected from soiling.
11	Fabric take-down (main take-down, auxiliary take- down, comb take- down, belt take- down)	Main take-down: Pulls the stitches away from the needle downwards to the fabric container. Auxiliary take-down: Grasps the fabric directly under the needle bed. Comb take-down: With the comb take-down fabric pieces are automatically started and press off after completion. Belt take-down:
		Grasps the fabric directly under the needle bed.
12	Engaging rod	It activates and stops the carriage run.
13	Control (left side of the machine)	It controls the autarkic yarn carriers.
14	Touch screen	The touch screen enables communication with the machine control
15	USB port	Connection for a removable drive, containing knitting programs, operating systems and machine data. Recommendations: Use USB Memory Stick.

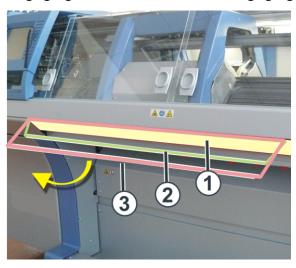
Inner view



	Designation	Explanation
1	Carriages	It moves over the needle beds. It controls the work positions of each and every needle in the needle bed.
2	Needle bed	Every machine has a front and a rear needle bed. There are grooves in the needle bed which are run by needles.
3	Thread clamping and cutting device (left, right)	The thread clamping and cutting device holds the thread of a yarn carrier not used for knitting at the moment.
4	Yarn Carriers	It leads the thread into the needle. A toothed belt moves the yarn carrier synchronously with the carriage or freely, regardless of the carriage direction.
5	Yarn carrier rail	On each yarn carrier rail there are four yarn carriers - two on the front side and two at the rear.



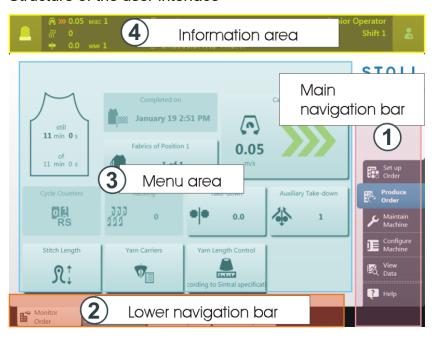
Engaging the machine with the engaging rod



Positions of engaging rod		
1 Carriage stopped		
2	reduced speed	
3	normal speed	

8 Design of the user interface

Structure of the user interface



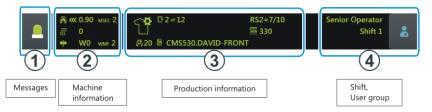
1	Main navigation bar	The tasks at the machine are separated in four main groups: Set up Order Produce Order Maintain Machine Configure Machine View Data Adjustment (area only visible at the STOLL factory when adjusting the machine) Help	
2	Bottom Navigation Bar	Display of the submenus depending on the selected main area (1)	
3	Menu area	Content display of the selected submenu	
4	Information area	 Messages Information about the machine, the user group and the order (knitting program) 	

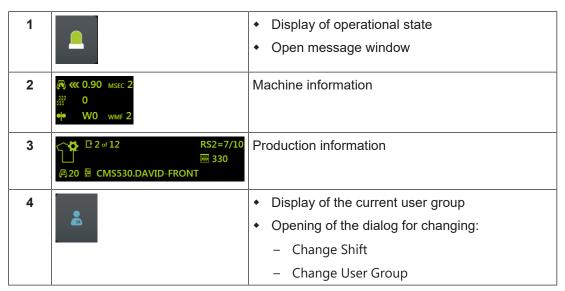
Information area



Select shift and user group

8.1 Information area





i Display Color

Depending on the operational state of the machine (status), the display color is changed.

Operational statuses of the machine (status)

<u> </u>	Green: ◆ Production is in progress
<u> </u>	Yellow: No Optimal Production

Information area



Red:

• Production interrupted, as an error occurred

8.1.1 Errors and Messages



	green	Production is in progress
Pattern loaded successfully 0 0 0 0 0 0 0 0 0 0 0 0 0		A note appears if you have carried out an action.
€ »» #*	yellow	No optimal production due to manual interventions. Reduced Speed Long Stroke 1: Tap the icon (1) and the message box will appear then.
@ »» #*	red	An error has occurred and the knitting machine is stopped. 1: The message window is opened automatically.



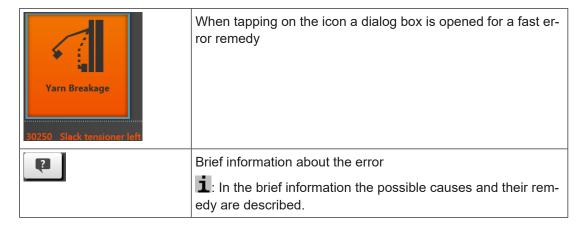
Layout of the message box:



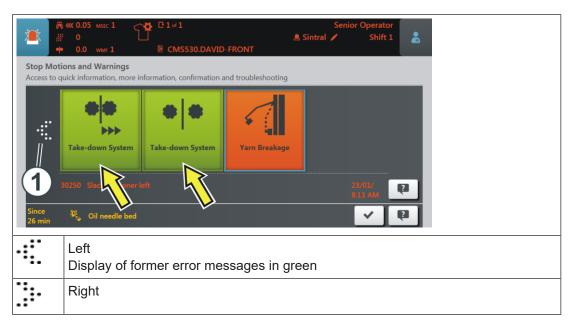
	Area and button	Explanation			
1	Error messages	Structure of the error message: • Icon • Error code • Text of message 30250 Slack tensioner left			
2	Warnings	Structure of the warning: Time of the warning Text of the warning			
3	Auto-hide	The message box remains in the foreground when a message / error appears. The message box remains in the background when a message / error appears.			
4	Confirm	Confirm the remedy of the error			



Further information about the error



Error history



8.1.1.1 Message: No Optimal Production

Reasons:

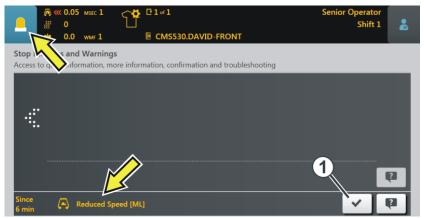
- The display changes to yellow due to
 - Reduced Speed
 - WWW Extended Stroke

37



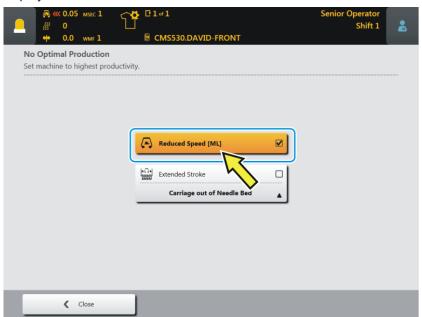
Display of the pending message:

- 1. Tap on the "Message" icon.
- ▶ The following window appears and in the lower area is displayed the cause.



Eliminate the cause:

- 1. Tap the (1) key.
- ► The window "No Optimal Production" is opened and the corresponding cause is displayed.



- 2. For deactivation, tap on the "Reduced Speed (ML)" key.
- ► The reason for the sub-optimal production is deactivated and the display changes to green_



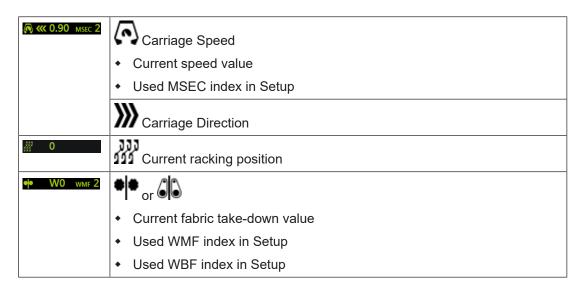
3. With the "Close" key return to the previous menu.



8.1.2 Machine information



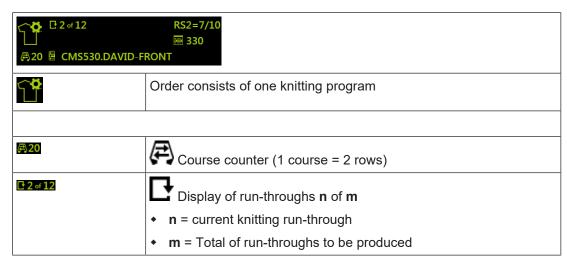
Symbolic picture



8.1.3 Production information



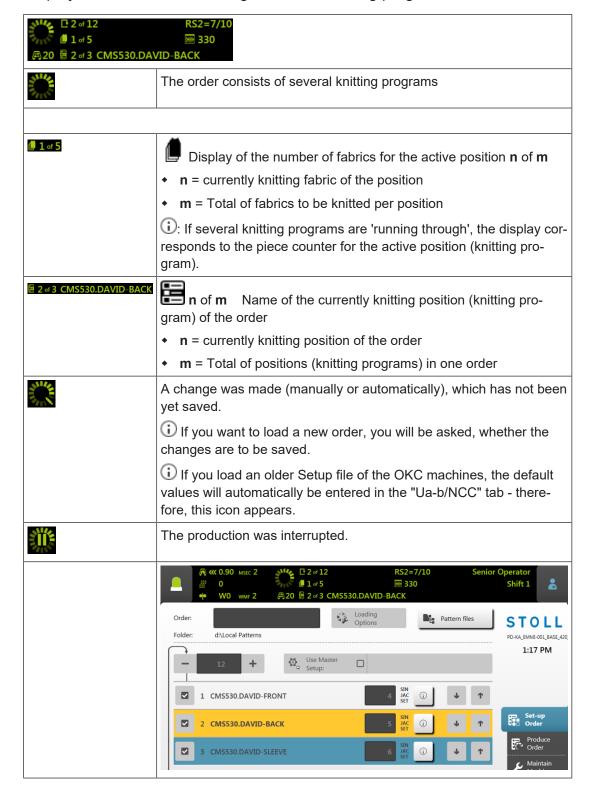
Display with an order of a knitting program





	i: If a knitting program is 'running through', the display corresponds to the piece counter.	
☐ CMS530.DAVID-FRONT	Name of the loaded knitting program	
RS2=7/10	Current Cycle Counter RSn = x / m	
	• n = Name of cycle counter	
	• x = Quantity of produced repeats	
	◆ m = Total of repeats to be produced	
≅ 330	Current Sintral line n	
Sintral	Display only with connected yarn length measuring device ASCON	
	A change was made (manually or automatically), which has not been yet saved.	
	if you want to load a new order, you will be asked, whether the changes are to be saved.	
	if you load an older Setup file of the OKC machines, the default values will automatically be entered in the "Ua-b/NCC" tab - therefore, this icon appears.	
	The production was interrupted.	
	Order: Loading Options Pattern files STOLL	
	Folder: d\\Local Patterns	
	─ 12 + Use Master □	
	1 CMS530.DAVID-FRONT SIN JAC SET O Auftree	

Display with an order consisting of several knitting programs





8.1.4 Change User Group

1. In the information area, tap on the "Shift and User Group" icon.

Operator Shift 1

Completed on Still 21 min 0 s

of 28 min 0 s

Fabrics of Position 1

1 of 1

Cycle Counters

Racking

Take-down

2. In the opened setting window select the desired user group.



- Switching to a user group with more rights:
- 1. PIN query



2. Enter PIN.

- 3. With the (1) button confirm the entered PIN.
 - i In case of an incorrect PIN entry

The window will not be closed and a new PIN input is required.

User Group	PIN required	PIN (default)
Operator	no	no
Maintenance	yes	1111
Senior Operator	yes	2222
STOLL Service	yes	3333

Display in the information area:



- Switching to a user group with less rights:
 - No PIN entry is necessary.
 - The selection window is closed automatically and the selected user group is displayed.



8.1.5 Change Shift

1. In the information area, tap on the "Shift and User Group" icon.

Operator Shift 1

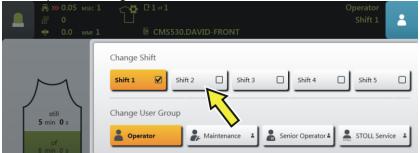
Completed on Still 21 min 0 s

of 28 min 0 s

I of 1

Set up Order

2. In the opened setting window select the desired shift.



- 3. The window is automatically closed.
- ▶ At the user interface, the shift set is displayed.





9 Safety Precautions for Production

Type of Risks	Measures
Risk of Injury	Close the covers.
	Close the rear panels (sliding boards) of the machine.
	Close the lateral covers.
	Keep eyes away from the lateral yarn tensioner.
	Objects such as tools, bobbins etc. to be removed from the inside of the machine.
	If the machine is in operation, under no circumstances should you reach into it.
	If the machine is in operation, do not reach into the area of the yarn carrier rails under any circumstances.
	Stop the machine if an intervention is necessary.
	Do not tear off the yarn by hand but use scissors.
Danger of winding and suction and danger of crushing.	Do not reach into the fabric take-down rollers.
	Do not touch the friction feed wheel while the machine is in operation and keep away loose garments and hair strands.
	Wait for the feed wheel to stop moving after stopping the machine.
Health hazard by fibers, dust and fumes.	Special caution is to be observed while knitting of yarns that cause health hazards or a damage to the machine:
	Yarns with heavy fiber fly
	Dyestuffs causing health hazards
	 Yarns made of glass fibers, metallic- annealed fibers, asbestos, carbon, PU or similar materials
	Employ suitable measures to avoid the hazard caused by fibre, dust and fumes.
	Observe the country-specific laws and regulations.
	Observe the manufacturer's specifications (safety data sheet).
	For any further queries please contact Stoll.



Type of Risks	Measures
Fire hazard by fluff, dust and other impurities.	Fluff, dust and other impurities to be removed regularly from the entire machine
Increased danger of short circuit during knitting of	depending upon the degree of dirt at least once in every shift.
metallic or conductive ma-	Take care of any additional suction.
terials by building up of conductive fluff and dust.	Wear inhalation protection gear.

10 Additional Safety Instructions for the Operation with Open Covers

If the covers are open the engaging rod cannot be locked into it's highest position (production). The user must hold the engaging rod in this position so that the machine works at the set speed "MSECCO" (dead man's switch).

The maximum carriage speed with open cover can be set in the "Machine parameter" window. (Value range in input field "MSECCO": 0.00 to 0.20 m/s, default: 0.05)



DANGER

The carriage moves at production speed!

Danger of crushing and cutting by the carriage.

- ✓ If the "MSECCO" check box is deactivated, the carriage moves at production speed.
 - After the reversal point, the carriage can move at higher speed, if it is set up that way in the knitting program.
- → Close the covers.
- → Do not deactivate the "MSECCO" check box.

Type of Risks	Measures
Danger of crushing and cutting by the carriages, racking, the needle	Do not reach into the running machine.
beds, the clamping and cutting devices and the additional needle beds.	Move carriage step by step or at creep speed (see operating instructions).
Danger of injury by broken cam box and needle pieces.	Wear safety glasses.
Danger of crushing and suction by the fabric take-down, the auxiliary	Do not reach in the gap between the needle beds.
take down, the comb take-down and the additional beds.	Keep hands, face, loose clothing and other loose objects away: danger of crushing.
	Do not reach into the area between the fabric take-down roller and the comb take-down.

Type of Risks	Measures
	Do not reach into the running machine. Move carriage step by step or at creep speed (see operating instructions).



Type of Risks	Measures
Danger of injury by broken cam box and needle pieces.	Wear safety glasses.
Danger of crushing and suction: • by the fabric take-down (main	Do not reach in the gap between the needle beds.
take-down, auxiliary take-down, comb take-down, belt take-down)	Keep hands, face, loose clothing and other loose objects away: danger of crushing.
	Do not reach into the area between the fabric take-down roller and the comb take-down.

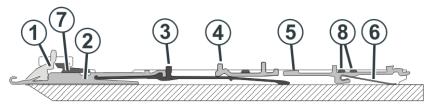
Type of Risks	Measures
Danger of crushing and cutting by the carriages, racking, the needle	Do not reach into the running machine.
beds, the clamping and cutting devices and the additional needle beds.	Move carriage step by step or at creep speed (see operating instructions).
Danger of injury by broken cam box and needle pieces.	Wear safety glasses.
Danger of crushing and suction: • by the fabric take-down (main	Do not reach in the gap between the needle beds.
take-down, auxiliary take-down, comb take-down, belt take-down)	Keep hands, face, loose clothing and other loose objects away: danger of crushing.
by the additional needle beds	Do not reach into the area between the fabric take-down roller and the comb take-down.



11 Needle Beds and their Elements

Construction: Needle beds

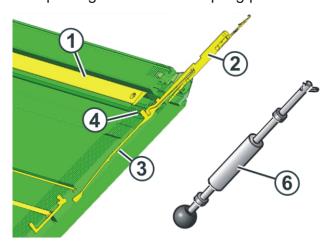
- The front needle bed is permanently screwed to the support of the needle beds.
- The rear needle bed can laterally be racked relative to the front needle bed by the racking device.



No.	Elements	No.	Elements
1	Holding-down jack	5	Selection jack
2	Needle	6	Selector spring
3	Coupling part	7	Needle bar
4	Intermediate slider	8	Cover rail

The moveable parts (2) till (6) are fixed by multiple cover rails (8) in the needle bed.

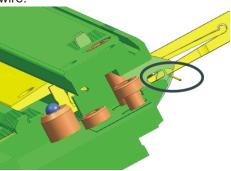




- 1. Open the needle rail (1) with extraction hook (6).
- 2. Pull the needle (2) and coupling part (3) upward.
- 3. Press the coupling part downward, when the butt of the coupling parts (4) bumps into the holding-down jack bed.
- 4. Assemble the new needle and coupling part.
- 5. Push the butt of the coupling part into the needle bed under the jack bed.

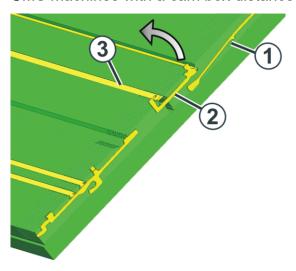


i While doing so, make sure that the needle is guided in above the knock-over wire.



II. Replacing intermediate slider

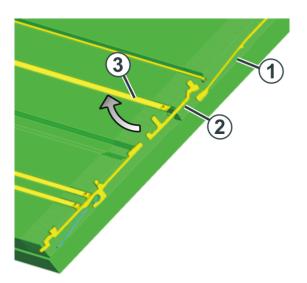
CMS machines with a cam box distance of 6"



- 1. Push the needle and coupling part (1) upward.
- 2. Push the intermediate slider (2) until the lower butt bumps into the cover rail (3).
- 3. Pull the upper butt of the intermediate slider out of the needle bed while pressing the lower butt into the needle bed and under the cover rail.
- 4. Install the new intermediate slider in the reverse order.
- 5. Slide the needle and coupling parts into the home position.

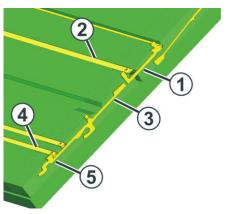
CMS machines with a cam box distance of 5" or 5.2"

i To replace the intermediate slider, you need a pair of pliers.



- 1. Push the needle and coupling part (1) upward.
- 2. Using the pliers, pull the butt of the intermediate slider (2) upwards out of the needle bed.
- 3. Install the new intermediate slider in the reverse order.
- 4. Push the needle and coupling parts into the home position.

III. Replacing selection jack



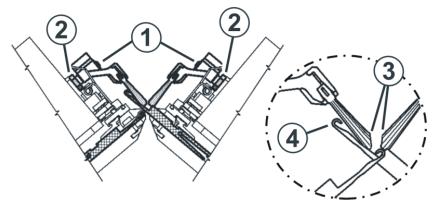
- 1. Push the needle upward with the coupling part.
- 2. Push the intermediate slider (1) until the lower butt bumps into the spring wedge (2).
- 3. Push the selection jack (3) upward until it bumps into the cover rail (4).
- 4. Press the butt (5) of the selection jack into the needle bed and at the same time slide the selection jack further upward.
- 5. Remove the selection jack.
- 6. Install the new selection jack in the reverse order.
- 7. Slide the intermediate slider in home position.
- 8. Push the needle and the coupling part into the home position.



12 Adjusting Needle Brushes

The needle brushes must be adjusted when errors occur during stitch formation, e.g. drop stitches.

The needle brushes open the needle latches for inserting the thread. They are swivel-mounted so, that they are always inclined in the direction of travel of the carriage assembly.



The needle brushes are correctly adjusted when

- the brushes project an equal distance over both sides of the holder The markings on the brush are visible on both sides.
- the canted surfaces (3) opposite each other
- the brushes do not touch the needle hooks of the fully raised needles (DJ). The distance (4) is to be 0.5 mm to 1 mm.

Adjusting needle brushes:

- 1. Release hexagon nut (2).
- 2. Adjust needle brush at screw (1).
- 3. Retighten hexagon nut (2).
- 4. Adjust needle brushes on all systems.
- 5. Move the carriage at low speed and check the setting of the needle brushes.

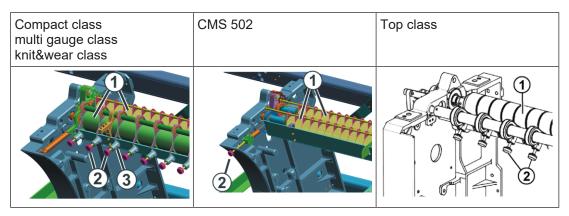


Main Take-down

13 Fabric take-down

13.1 Main Take-down

Types of Main Take-down



No.	Elements
1	Take-down rollers
2	Knurled screws
3	Scale

- A motor drives the take-down rollers (1).
 These provide the take-down tension and guide the finished fabric into the fabric collection chamber.
- The contact pressure can individually be adjusted with knurled screws (2).
- The scale (3) simplifies the adjustment.

Take-down tension

The take-down tension consists of:

- Pretension at the carriage reversing point (WMI)
- Take-down tension during knitting (WM)



You can set both take down values independently of each other.

The optimum value for the take-down tension depends on:

■ Working width



- Yarn
- Pattern

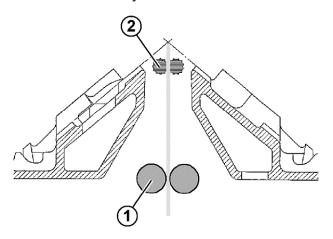
Premature wear of the take-down rollers

The roller rubber of the take-down roller (1) is prematurely worn by:

- Fabric take-down values too high (roller spins)
- Contact pressure too high
- abrasive, sanding yarns
- yarn finishes such as greases or oils
- UV radiation
- Cleaning agents harmful to rubber.
 - i Use cleaning petrol!

13.2 Auxiliary Take-down

Position: Auxiliary Take-down



Position	Element
1	Main Take-down
2	Auxiliary Take-down

- The auxiliary take-down grasps the fabric directly under the needle bed.
- The take-down force and the take-down speed are programmable.

Comb take-down

- The auxiliary take-down supports:
 - Stitch formation
 - Adjustment of the fabric take-down to special requirements when knitting
 - Narrowing or widening
 - i If the fabric is only taken down with the main take-down, the rollers of the auxiliary take-down are pivoted apart.

Adjust the contact pressure for machines with needle beds of 72, 84 or 96 inches:

- **i** The value for the contact pressure (W+P) appears in Setup.
- 1. In the main navigation bar select the main area "Set up Order".
- 2. Select Prepare Machine" in the bottom navigation bar.
- 3. Open the Setup Editor with the key.
- 4. Open the "Take-down" window.
- 5. Select the W+F" tab.
- 6. Carry out changes in the "W+P" column.

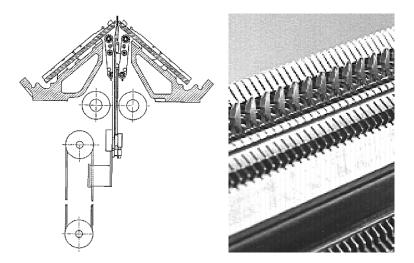
13.3 Comb take-down

Function: Comb take-down

Using the comb take-down, you can start fabric pieces on empty needles.

The fabric will be thrown off then and a new fabric will be started on empty needles again.





Comb hooks with the sliders open or closed:



i



With the start of a new fabric on empty needles the comb take-down will provide the take-down function and pulls the fabric down till the fabric is taken down by the main take-down.

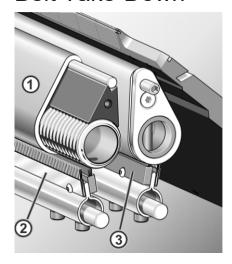
How the Comb Take-down Works

- The knitting program must be generated with "Comb start".
- The needle beds, comb hooks and fabric collection chamber must be empty.
- The comb take-down adopts the settings of the main take-down.
- The main take-down and the auxiliary take-down are open.
- 1. The knitting program is started.
- 2. The comb thread (elastic yarn) is inserted in the two rows.
- 3. The comb take-down moves upwards with opened comb hook and grasps the comb thread.
- 4. The comb hooks close and the comb pulls the comb thread under the comb level.
- 5. Now, the fabric can be started on the comb thread.
- 6. The comb take-down pulls the fabric below the main take-down.
- 7. The take-down rollers of the main take-down close and receive the fabric out of the comb.
- 8. The comb hooks open and release the fabric, simultaneously the comb moves to the home position.
- 9. The fabric is completed and gets cast-off at the end.

Belt Take-Down

■ A new fabric may start.

13.4 Belt Take-Down



1	Belts
2	Antistatic brush
3	Linear stripping brush

How the belt take-down works

The belt take-down grasps the fabric directly under the needle bed.

A motor drives the drive shafts. The belts (1) are driven by the drive shaft and guided by the deflection rod. The finished fabric is guided into the fabric collection chamber by the belts.

The winding protection device with antistatic brushes (2) and linear stripping brushes (3) avoid the winding of the fabric and the threads around the take-down belts. If winding is detected nevertheless, the machine stops.

Functional states

- Rotate: Forward rotation with controlled speed by the motor
- **Stop**: After a short delay the forward movement is stopped.
- Close: Short, fast forward rotation, then rotate
- Open: Short, fast backward rotation

Belt Take-Down



Premature wear of the take-down belts

The belt will be worn prematurely by:

- too high belt speed
- yarns that are harmful to rubber, e.g. abrasive, sanding yarns or yarn finishes such as greases or oils
- sharp tools that are used for example for pressing-down the stitches or the fabric
- UV radiation
- Cleaning agents harmful to rubber, e.g. ether or fuels. Recommendation: Use cleaning petrol for cleaning

Switching on/off the 40 Volt power supply.

14 Removing and mounting carriage part

Reasons why the carriage part must be removed:

- Cleaning
- blocked carriage part
- For changing cams
 - Assembling / disassembling split cams
 - wide or narrow coupling of tandem machines

14.1 Switching on/off the 40 Volt power supply.

- I. Switch off 40 V power supply:
- For mounting work on the carriage part (step motors, selection systems, yarn carrier plungers)
- Switching off and on of the machine is eliminated
- No waiting time until the computer of the machine has shut down and rebooted
 - if the power supply is switched off, the machine cannot be started with the engaging rod.
- In the main navigation bar select the main area Maintain Machine".
- 2. Select X "Service" in the bottom navigation bar.
- 3. With the Carriage" button, open the "Service Functions for the Carriage" window.
- 4. With ♣ "40 Volt" deactivate the setting ☑.
- ▶ The function is deactivated □ and the button is now displayed in white.
- 5. With the OK" button return to the previous window.
- 6. Perform the required steps.
- II. Switch on 40 V power supply.
- 1. In the main navigation bar select the main area Maintain Machine".
- 2. Select X "Service" in the bottom navigation bar.

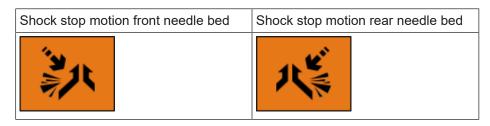


- 3. With the \(\bigcap\) "Carriage" button, open the "Service Functions for the Carriage" dialog.
- 4. With ♣ "40 Volt" activate the setting □.
- ▶ The function is activated ☑ and the button is now displayed in yellow.
- 5. With the "OK" button return to the previous window.

14.2 CMS Performer Machines

14.2.1 Remove the carriage part when the carriage assembly is blocked in the needle bed

In the case of a shock on the needle bed, the piezo-electric shock stop switches off the knitting machine.



Possible causes:

- Working butts of the movable parts (needle, coupling part, intermediate slider, and selection jack) are broken. This may have damaged trick walls as well.
- I. Remove the carriage part from the needle bed
 - On tandem machines both carriage parts in the same needle bed are raised, even if only one carriage part is blocked.
- 1. In the main navigation bar select the main area Troduce Order".
 - You can open the "Intervene Manually I" menu via set up Order" of the main area as well.
- 2. Tap on in the bottom navigation bar:
 - "Intervene Manually I"

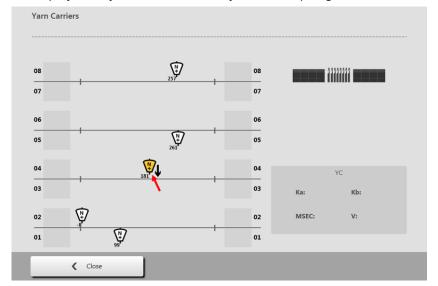


1		The production ru	ns with active knitting program (default)
		The production is	interrupted
		next reversal until	runs with empty carriage stroke starting with the the button is deactivated. s continued at the point where it was previously
2	₹.	Deletion of the yarn carrier positions when loading a knitting program (EAY) • Delete yarn carrier positions (EAY activated): When restarting a knitting program, at the start of the new fabric, the yarn carriers are not brought to the home position • Recommended for MC with the use of the clamping and cutting bed and the comb. • Do not delete yarn carrier positions (EAY disabled): When restarting a knitting program, at the start of the new fabric, the yarn carriers are brought to the home position Attention: The machine opens the corresponding clamp in the clamping and cutting bed and the previously manually clamped thread is released, i.e. unthreaded.	
3	48	Restart Fabric [SP]	from line [SPx]
	*		Input line number for the start of the program
4	(3%)	Start picking-up after pressing-off M1plus (#90)	
5	₩	Cancels the current fabric, and starts automatically a new one of the current position (knitting program) [Ctrl-Z]	
6	(so)	Cancel production [SPF S0] and continue on an empty row	



7	(F)	Fix the Line [SPFn]	
8	(-)	Stop machine	
9	(-)	Reduced Speed [ML]	
10	99999	The carriage only moves over the knitting area	
		The carriage always moves over the entire needle bed	
11	99939	Switch needle selection on or off	
12	•	Create Initial State	
13		Switch light on and off	
14	杲	Switch on or off the vacuum device by selecting Permanent or Interval.	

- With
 [™] "Needle selection" deactivate the setting
 [™].
 - ▶ The needle selection in the front and rear needle bed is switched off.□ The key is white.
- 4. Then, switch to market "Monitor Production" in the bottom navigation bar.
- 5. With the "Yarn carrier" button open the "Yarn carrier" window.
 - Display of all yarn carriers: active yarn carrier plunger botton



6. Tap on the 181 symbol of the active yarn carriers.

7. Tap a second time on the yarn carrier to pull up the plunger

- or -

Tap the **t** button to switch off all yarn carrier plunger.

or -

Select ** "Maintain Machine" / ** "Service" in the main navigation bar.

- 8. With the Carriage" button, open the "Service Functions for the Carriage" window.
- 9. Press the T "Switch All Yarn Carriers" button.
- 10. Push all yarn carriers outward.

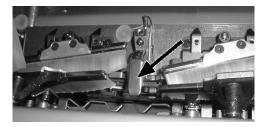
i Central lubrication

If a central lubrication is present, swivel it into mounting position.

- 11. With ♣ "40 Volt" deactivate the setting □.
- 12. Remove the carriage assembly panelling (1).



Pay attention to the needle detector when removing the rear carriage part.

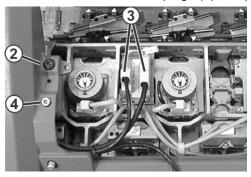


- 13. Remove the suction tube on the carriage assembly.
- 14. Loosen the shoulder screws (2) and screws (4) on the left and right sides.





- 15. Swivel left and right swiveling plates (5) inward.
- 16. Set and tighten the screws (4) evenly, with it the carriage part is raised off the needle bed in the process.
- 17. Loosen the screws on the plugs (3) and pull out the plugs.



- 18. To lower the carriage part again, loosen the screws (4) on the left and right-hand sides.
- 19. Remove the screws (4).
- 20. Exit the "Yarn carrier" window with the "< Close" button.
- 21. Press the T "Release drive brake [>!]" button below 🔓 "Intervene Manually II"





NOTICE

Damage to needles and knitting system!

There are still needles in the knitting system.

When moving the carriage assembly in the other direction (opposed to the carriage direction), the needles and knitting system can be damaged.

- → Do not change the pushing direction of the carriage assembly!
- 22. Push away the carriage assembly.
- 23. Lift carriage part from needle bed.
- 24. Check the carriage part and the needle bed.

If the carriage assembly is blocked:

The drive brake has automatically closed.

II. Check and clean the carriage part and the needle bed

Do not remove metallic parts and fragments (e.g. broken needle latch or needle hook) with a magnetic tool. There is a danger that the needle bed or cams can be magnetized, leading to incorrect selection.

■ Check the cams for damage.

Remove broken working butts of the movable parts (needle, coupling part, intermediate slider, and selection jack).

■ Check the needle bed for damage.

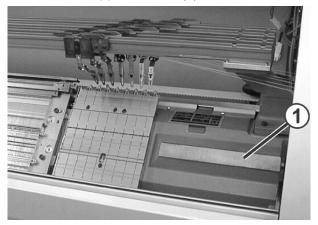
Remove broken working butts of the movable parts (needle, coupling part, intermediate slider, and selection jack).

If trick walls are damaged, they have to be repaired.

- 1. Clean the selection systems with a clean cloth.
- 2. Clean the cams with a cloth and check them for wear and damage.
- 3. Remove fragments if necessary
- 4. Apply oil onto the cams with a brush.
 - For further information about cleaning the knitting and selection systems refer to the operating instructions.

III. Put the carriage part on:

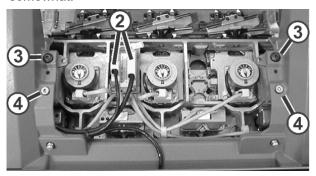
1. Mount the carriage part on the left or right outside the needle bed in such a way that it contacts the support surface (1).



- 2. In the main navigation bar select the main area Maintain Machine".
- 3. Select X "Service" in the bottom navigation bar.



- 4. With the \(\sum_{\text{"Carriage" button, open the "Service Functions for the Carriage" window.}\)
- 5. With "40 Volt" activate the setting 🚯
- ▶ The function is activated ☑ and the button is now displayed in yellow.
- 6. Press the "Release drive brake [>!]" button.
- 7. Push the carriage assembly right over the carriage part.
- 8. Deactivate again the power supply 🚱 "40 Volt" □.
- 9. Uniformly screw in the shoulder screws (3) until the carriage assembly is raised somewhat.



- 10. Swivel the left and right swiveling plates outward below the carriage assembly.
- 11. Tighten the screws (3) and (4) uniformly.
- 12. Insert the plug (2) and screw-in the safety screws on the plugs.
- 13. Bring the yarn carriers into their basic positions.
- 14. Mount the suction tubes on the carriage assembly.
- 15. If necessary, bring the swiveled central lubrication again into working position.
- 16. Assemble the carriage assembly panelling.
- 17. Switch on 40 V power supply.
- 18. Exit the window with WOK".
- 19. In the main navigation bar select the main area Test up Order".
- 20. Then, in the bottom navigation bar select "Intervene Manually I".
- 21. Press the Cancel Production [SPF S0]" button.
 - The knitting program is set to an empty row S0.
- 22. Start the machine with the engaging rod.
- 23. Move the left carriage to the reversal point.
- 24. Switch needle selection on if necessary

25. With the "Create Initial State" button recover the initial state of the machine - or
Return to "Edit Order" to re-start the order.

26. Tap the Start Order" key.

■ Switching on/off the 40 Volt power supply. [□ 61]

14.2.2 Remove the carriage part to replace cams

- I. Remove the carriage part from the needle bed
 - i Central lubrication

 If a central lubrication is present, swivel it into mounting position.
- 1. Move the carriage assembly outward up to the support surface.
- 2. Deactivate the power supply ♣️ "40 Volt" □.
- 3. Remove the carriage assembly panelling (1).

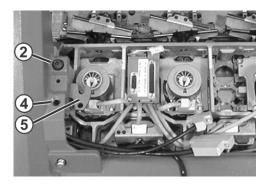


4. If the rear carriage part is removed, the needle detector is to be removed as well.

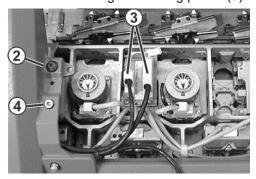


- 5. Mark the position of the needle detector so that it can be reassembled in the same position.
- 6. Remove the suction tube on the carriage assembly.
- 7. Remove the shoulder screws (2) and screws (4) on the left and right-hand sides.





8. Swivel left and right swiveling plates (5) inward.



- 9. Loosen the screws on the plugs (3) and pull out the plugs.
- 10. Press the Release drive brake [>!]" button below "Intervene Manually II"
- 11. Push away the carriage assembly.



If the carriage assembly is blocked:

The drive brake has automatically closed.

- 12. Lift the carriage part off the support surface.
 - or -

Open the side safety door hood and lift out the carriage part to the side.

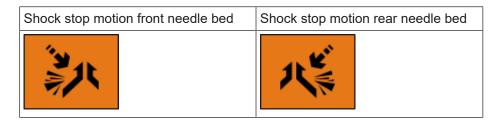
- 13. To replace the cams, turn the cam plate upward.
- Switching on/off the 40 Volt power supply. [□ 61]

14.3 ADF machines

14.3.1 Remove the carriage part when the carriage assembly is blocked in the needle bed

In the case of a shock on the needle bed, the piezo-electric shock stop switches off the knitting machine.

ADF machines



Possible causes:

- Working butts of the movable parts (needle, coupling part, intermediate slider, and selection jack) are broken. This may have damaged trick walls as well.
- I. Remove the carriage part from the needle bed
- 1. In the main navigation bar select the main area "Set up Order".

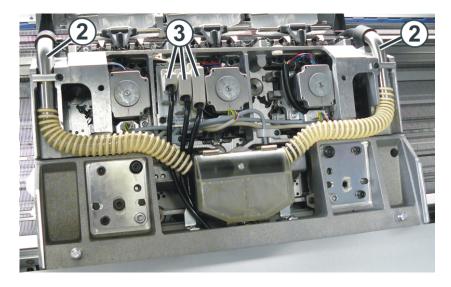


- 2. Tap on "Intervene Manually I" in the bottom navigation bar.
- 3. With I "Needle selection" deactivate the setting ✓.
- ▶ The needle selection in the front and rear needle bed is switched off.□ The key is white.
- 4. Open the covers.
- 5. Move all the yarn carriers away from the carriage area.
- 6. With ♣ "40 Volt" activate the setting □.
- 7. Remove the carriage assembly panelling (1).

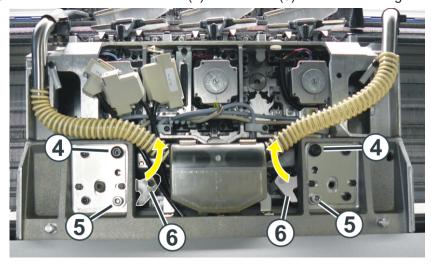


8. Take the suction tubes (2) out of the carriage part.





- 9. Loosen the screws on the plugs (3) and pull out the plugs.
- 10. Remove the shoulder screws (4) and screws (5) on the left and right-hand sides.



11. Swivel left and right swiveling plates (6) inward.





NOTICE

Damage to needles and knitting system!

There are still needles in the knitting system.

When moving the carriage assembly in the other direction (opposed to the carriage direction), the needles and knitting system can be damaged.

- → Do not change the pushing direction of the carriage assembly!
- 12. Press the Release drive brake [>!]" button below "Intervene Manually II"
- 13. Move the carriage support away continuing in the original carriage direction.

ADF machines



If the carriage support blocks:

The drive brake has automatically closed.

14. Remove carriage part from machine.



With the front carriage part there is the risk of the cover being damaged if the carriage part is lifted off directly from the needle bed.

Yarn carrier rods

15. Check the carriage part and the needle bed.

II. Check and clean the carriage part and the needle bed

- Do not remove metallic parts and fragments (e.g. broken needle latch or needle hook) with a magnetic tool. There is a danger that the needle bed or cams can be magnetized, leading to incorrect selection.
- Check the cams for damage. Remove broken working butts of the movable parts (needle, coupling part, intermediate slider, and selection jack).
- Check the needle bed for damage. Remove broken working butts of the movable parts (needle, coupling part, intermediate slider, and selection jack). If trick walls are damaged, they have to be repaired.
- 1. Clean the selection systems with a clean cloth.
- 2. Clean the cams with a cloth and check them for wear and damage.
- 3. Remove fragments if necessary
- 4. Apply oil onto the cams with a brush.
 - For further information about cleaning the knitting and selection systems refer to the operating instructions.



■ Switching on/off the 40 Volt power supply. [□ 61]

14.3.2 Remove the carriage part to replace the cams

- I. Remove the carriage part from the needle bed
- 1. Move the carriage assembly outward up to the support surface.
- 2. Deactivate the power supply ♣ "40 Volt" □.
- 3. Open the covers.
- 4. Move the yarn carrier from the clamping and cutting area into the needle bed. Reason: When lifting the carriage part, the yarn carriers can be damaged.

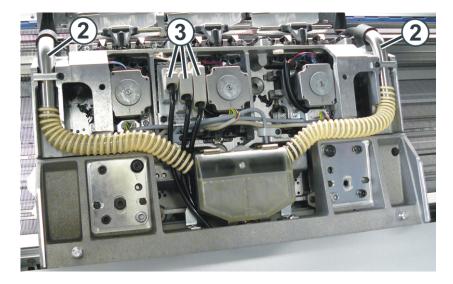


5. Remove the carriage assembly panelling (1).

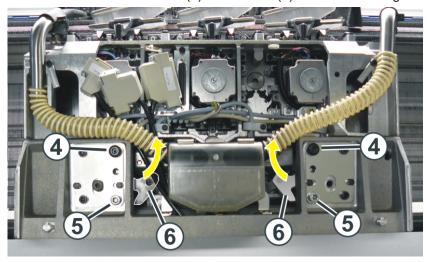


6. Take the suction tubes (2) out of the carriage part.





- 7. Loosen the screws on the plugs (3) and pull out the plugs.
- 8. Remove the shoulder screws (4) and screws (5) on the left and right-hand sides.



- 9. Swivel left and right swiveling plates (6) inward.
- 10. Press the Release drive brake [>!]" button below Intervene Manually II"
- 11. Push away the carriage support to the machine center.



If the carriage support blocks:

The drive brake has automatically closed.

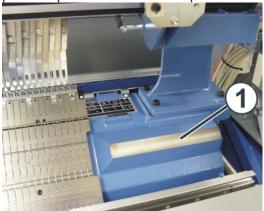
- 12. Remove carriage part from machine.
- 13. To replace the cams, turn the cam plate upward.
- Switching on/off the 40 Volt power supply. [□ 61]



14.3.3 Assembling carriage part and carriage support

I. Put the carriage part on:

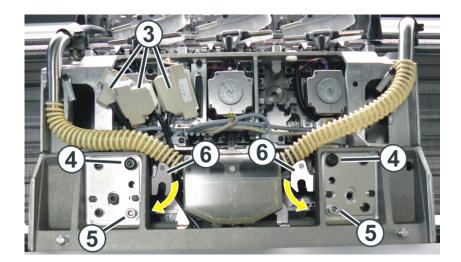
- 1. Mount the carriage part on the left or right outside the needle bed in such a way that it contacts the support surface (1).
- ▶ Moving the carriage part over the movable parts of the clamping and cutting bed, will push the parts into their correct position with the help of the cam curve.



	Procedure			
Front needle bed	Open the lateral safety door (on the right side).			
	Push the carriage part from outside onto the support surface.			
	•	 Push the carriage part inward until it is located above the clamping and cutting bed. 		
Rear needle bed	ear needle bed Push both sliding boards in the same direction.			
	Position the carriage part on the support surface (1).			

- 2. Deactivate the power supply ♣ "40 Volt" □.
- 3. Press the Release drive brake [>!]" button below a "Intervene Manually II"
- 4. Push the carriage support exactly over the carriage part.
- 5. Screw in the shoulder screws (4) until the carriage part lifts slightly.





- 6. Swivel the left and right swiveling plates (6) outward below the carriage support...
- 7. Tighten both shoulder screws (4) for fixing the carriage part. 1 Assembly of the rear carriage part: pull the upper area of the carriage part (needle brushes) away from the needle bed to ensure that the shoulder screw does not cant.
- 8. Tighten screws (5) evenly.
- 9. Plug in the plugs (3) while watching the plug coding.
- 10. Tighten the screws at the plugs (3).
- 11. Mount the suction tubes again.
- 12. Assemble the carriage assembly panelling.
- 13. Close the covers.
- 14. Switch on the "40 Volt" power supply.
- 15. Exit the window with WOK".
- 16. In the main navigation bar select the main area set up Order".
- 17. Then, in the bottom navigation bar select "Intervene Manually I".
- 18. Press the (SO) "Cancel Production [SPF SO]" button.
- ▶ The knitting program is set to an empty row S0.
- 19. Start the machine with the engaging rod.
- ▶ The yarn carriers move automatically back into their knitting position, then the carriage starts moving.
- 20. Move the left carriage to the reversal point.
- 21. Switch needle selection on if necessary
- 22. With the Create Initial State" button recover the initial state of the machine Return to "Edit Order" to re-start the order.

ADF machines



- 23. Tap the Start Order" key.
- Switching on/off the 40 Volt power supply. [□ 61]

15 Positioning the Needle Bed Upright

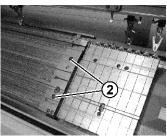
With machines with auxiliary take-down or belt take-down, yarns may be winded around the take-down. For removing the yarns the needle beds can be positioned upright.

Prepare Machine

- ✓ Before positioning the needles beds upright, the fabric is to be removed from the needles.
- 1. Stop the carriage assembly into the left reversing position.
- 2. In the main navigation bar select the main area "Set up Order".- or -
 - Select / "Maintain Machine".
- 3. Select Intervene Manually II" in the bottom navigation bar.
- 4. Press the Release drive brake [>!]" button.
- 5. Push the carriage assembly to the left up to the stop point.

Positioning the Needle Bed Upright

1. Remove two screws (2) on each side of the machine.



2. Lift the front needle bed carefully, tilt it to the front and lean it against the machine cover.



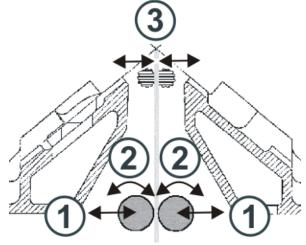


Cleaning the auxiliary take-down rollers

1. In the main navigation bar select the main area "Set up Order".

Select "Maintain Machine".

- 2. Tap on "Intervene Manually II" in the bottom navigation bar.
- 3. Tap the "Open auxiliary take-down [W+0]" button.
- ▶ The take-down rollers (3) are moved apart.
- ► The button changes automatically to → "Close Auxiliary Take-down [W+1]".

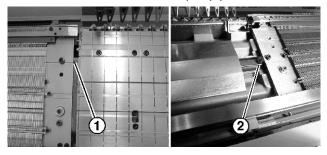


- 4. Free the take-down rollers from the threads.
- 5. With the Close auxiliary take-down [W+1]" button close the auxiliary take-down again.
 - **Danger:** Damage of the take-down rollers.

 Do not use pointed or sharp objects to remove the threads!

Returning the needle beds

1. Reassemble the needle bed in the reverse order. When doing so, make sure that the front needle bed contacts the pin (1) and the rear needle bed contacts the roller (2).





2. Screw the needle bed again onto each machine side.

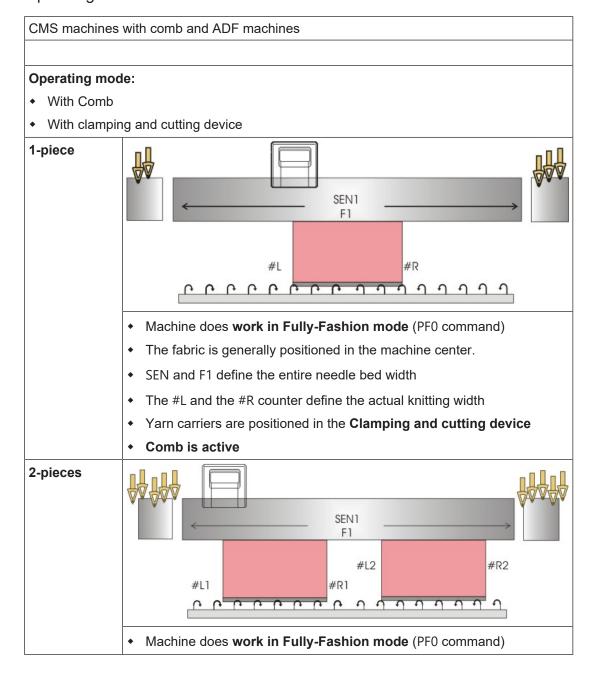




16 Operating Modes of the Machine Types CMS with Comb and ADF machines

If necessary, the machine types of the CMS 5xx compact class can be operated with two different operating modes.

Operating modes for CMS machines with comb and ADF:





CMS machines with comb and ADF machines

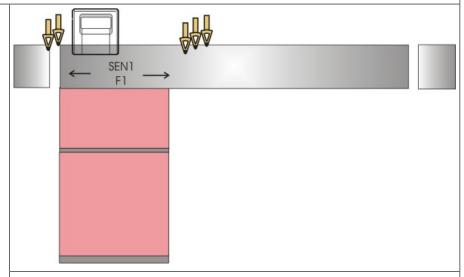
- Two pieces can be knitted
- SEN1 and F1 define the entire needle bed width
- The #L1 and the #R1 counter define the knitting width of the left piece
- The #L2 and the #R2 counter define the knitting width of the right piece
- Yarn carriers for the left piece in the left clamping and cutting device
- Yarn carriers for the right piece in the right clamping and cutting device
- Comb is active

CMS machines with comb and ADF machines

Operating mode:

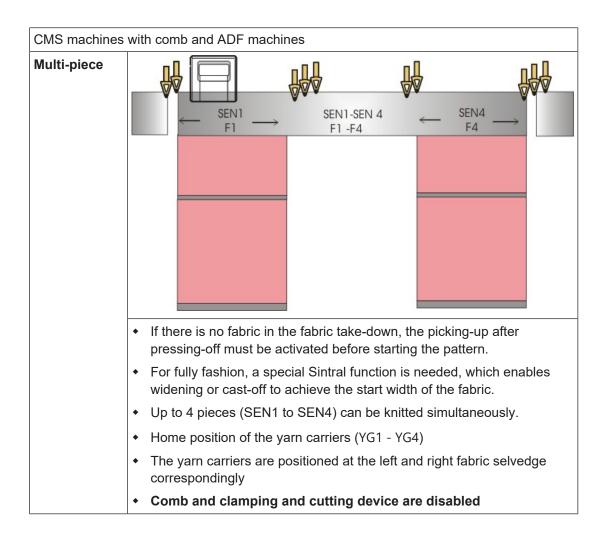
- Without Comb
- Without clamping and cutting device

1-piece



- If there is no fabric in the fabric take-down, the picking-up after pressing-off must be activated before starting the pattern.
- For fully fashion, a special Sintral function is needed, which enables widening or cast-off to achieve the start width of the fabric.
- The yarn carriers are positioned at the left and right fabric selvedge
- Comb and clamping and cutting device are disabled







Sintral

17 Elements of a knitting program

Generally, a knitting program consists of the following three elements:

- Sintral file (*.sin)
- Jacquard file (*.jac)
- Setup file (*.setx):
 - **1** The information from all of the three elements result in the knitting program.

17.1 Sintral

- Sintral is a machine language developed by Stoll.
- The text-based file contains all the relevant knitting specifications as function.

Sintral



```
CMS530.Full_Cardigan_2_Colors_GG72 E7.2 /janke 03.12.2015 11:33:28 <M1> 6.4.012
 1 C CMS530.
11 C NP1=9.0
                   Setup Rov
                Setup Tub
 12 C NP2=10.0
 13 C NP3=9.0
                   1x1-Cycle
 14 C NP4=11.0
                  Loose Row
 15 C NP5=11.5
                   stitch front
 16 C NP6=9.5
                   tuck rear
 17 C NP7=9.5
                   tuck front
 18 C NP8=11.5
                   stitch rear
 19 C NP9=12.0
                  Struc Single jersey front
 20 C NP11=7.9
                   Setup Row front
 21 C NP17=12.0
                  Safety rows
 22 C NP20*9.0
                   Start 1
 23 C NP21=10.0
                   Start 2
 24 C NP22=11.0
                   Start 3
 25 C NP24=12.0
                   Start 5
 26 C NP25=16.0
                   Comb Thread
 27 C MSECI=0.70
 39 IF #L=0 #L=1 IF #R=0 #R=699 #LM=0 #RM=0
 40 START
 41 C #98=0
42 C #69=0
                  C Cast-off On/Off (#98=0)
                  C MS*#69 (1-4s) (#69=1..4)
 43 PF0
 44 Y-CR1
 50 YGC:1=A 2=B/4=C 5=D 8=E;
 51 YDF=2
 52 C--
 53 C
                     LEFT
                                                         RIGHT
                                         T
 54 C-
 55 C
                                          I 8=E Protection thread 1
 56 C
                                          I 5=D color 2
 57 C
                                          I 4=C Rib thread 1 color 1
 58 C 2=B Comb threadl
 59 C 1=A Draw threadl
 60 C-
 61 YD YC
 80 FBEG:M1-SIZES;
 81 F1=1-699
 82 PA:JA1; PAI:JA1; PANP<>:JA1;
 83 PM:1:F1; SEN=1-699 #51=1 #52=699
84 FEND C M1-SIZES
85 JA1=1276(1100-1100)
110 #99=0
111 IF RS17=0 SOY
                    #99=1
112 IF RS17=1 SOYCRO #99=1
113 IF #99=1 #99=0 MS PRINT/CHECK YARN CARRIER/
114 F:M1-SINTRAL;
115 END
```

I. Structure:

```
Program structure

1 C CMS530.Vollfang_2_Farben_E8 ... <SETUP2>

11 C NP1=9.0 Netz
12 C NP2=10.0 Schlauch-Netz
13 C NP3=9.5 1x1-Rapport
14 C NP4=12.0 Übergang
15 C NP5=10.0 Masche vorne Farbe1
16 C NP6=10.0 Fang hinten Farbe1
17 C NP7=8.8 Fang vorne Farbe2
18 C NP8=9.6 Masche hinten Farbe2
19 C NP9=12.0 Struk. einflaechig vorne
20 C NP11=7.9 Netz vorne
21 C NP17=12.0 Schutzreihen
22 C NP20=9.0 Anfang1
```

Sintral

```
23 C NP21=10.0 Anfang2
24 C NP22=11.0 Anfang3
25 C NP24=12.0 Anfang5
26 C NP25=16.0 Kammfaden
27 C MSECI=0.70
40 START
41 C #98=0 C Cast-off On/Off (#98=0)
42 C #69=0 C MS*#69 (1-4s) (#69=1...4)
43 PF0
44 Y-CR1
50 YGC:1=A 2=B/ 4=C 5=D 8=E;
61 YD YC
80 FBEG: M1-SIZES;
81 F1=
82 PA: PAI:
83 PM:1:F1; SEN=..... #51=... #52=...
84 FEND C M1-Sizes
85 JA1= ...(...-...)
110 #99=0
111 IF RS17=0 SOY #99=1
112 IF RS17=1 S0YCR0 #99=1
113 IF #99=1 #99=0 MS PRINT / CHECK YARN CARRIER/
114 F:M1-SINTRAL;
xx END
xx FBEG: ... (Funktionsbeginn)
xx FEND (Funktionsend)
999 SO WO
```

II. Knitting instructions:

Sintral com- mand	Meaning
<<	Carriage direction to the left
>>	Carriage direction to the right
<>	any carriage direction
S:;	Knitting specification



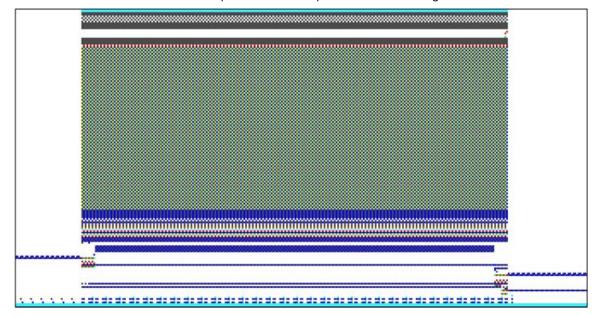
Sintral com- mand	Meaning	
* +.ABEGHIKLM OPQTWYZ abeghiklmopq twxyz	Jacquard symbols for single needle selection	
N	Symbols written after N are not selected, but all other symbols Example: S: A - NA;	
%.	Symbols written after the % move needles to the tuck position, symbols written before % in the stitch position Example: S: A%Y – 0;	
0	All needle do not knit	
-	Break between front and rear system	
/	Break between the systems	
;	End of a knitting specification	
<1->	Decrease Jacquard	
<a>	Releases the Jacquard selection in the color field A	
Y:;	Yarn Carriers	
S1 S6	Knitting system 1 to knitting system 6	
U^S	Transfer to rear	
UVS	Transfer to Front	
UXS	Transfer to the rear and to the front	
MCWSn-m	Carriage path from needle n to m	
RS	Cycle Counters	
FBEG	Beginning of the function	
FEND	Function end	
SBEG	Start of stroke processing. The knitting specifications are determined using conditions.	
SEND	End of stroke processing.	
JA18	Jacquard1 8	
#	Counters	

Jacquard

Sintral com- mand	Meaning
IF	IF-decisions
IFN	If not

17.2 Jacquard

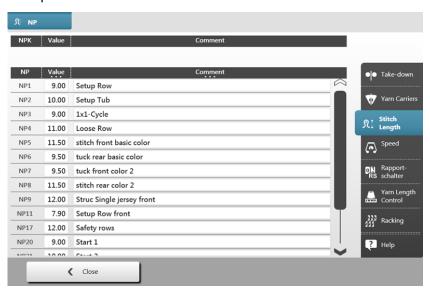
- The jacquard file provides the graphic representation of the knitting program with Jacquard symbols.
- Each Jacquard symbol refers to one needle, which is processed in the corresponding knitting specification in the Sintral.
- The information of one Jacquard row corresponds to one knitting row.





17.3 Setup file

Setup Editor



- All pattern related machine parameters are saved in the Setup.
- The setup data can be edited and saved on the running machine.
- The data of the setup file ensure the running properties of a pattern and allow for a convenient pattern setup at the machine.
- The edited values can be returned to the original pattern and are therefore repeatable.

Setup Editor	Tabs			
Take-down	• WMF			
	• WBF			
	◆ W+F			
	• WM% / WMK%			
Yarn Carriers	YD / YDI: Yarn Carrier Staggering			
	YC / YCI: Corrections of yarn carriers			
	• Y:Oa-b: Correction value for right carriage			
	• Y:Ua-b: Engaging width of yarn carrier sliding block			
Stitch Length	NPK: Stitch cam correction for all stitch cams			
	NPn: used stitch cam position			
	• NPR: Correction for stitch cam position of the right carriage			
Speed	MSEC0: Standard S0			
	MSECI: with intarsia yarn carriers			
	MSECK: Small knot			

Setup file

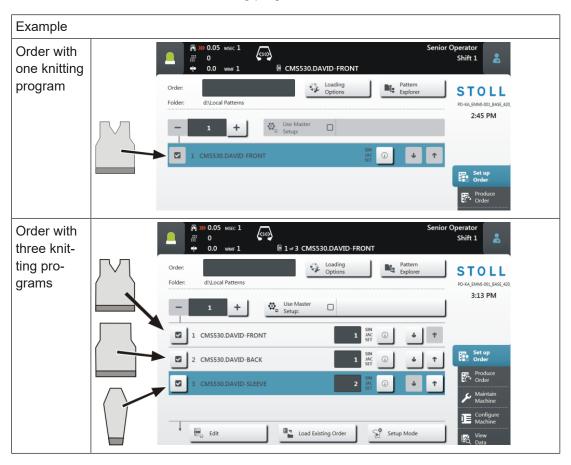
Setup Editor	Tabs			
	MSECC : Take yarn carrier out of clamp / Bring yarn carrier into clamp			
	MSEC1: with transfer rows			
	MSEC2-20: with knitting rows			
Cycle Counters	List of the used cycle counters: RSn (n=1 to 39)			
Yarn length	Basic Settings			
(display only with connected ASCON)	Correction Values			
led ASCON)	Yarn Data			
	NP (Knitting Mode) / Wheel			
Racking	VCI: Racking function			
	Direction: Racking direction of the correction			
	VK: Racking Correction			
	VV: Racking speed			
	V+/-: Overracking			
	Comment			
Miscellaneous	Counter of the machine			
	Machine Data			
	Comment			

Setup file



18 What is an Order?

An order consists of one or more knitting programs that are knitted once or more times.



At the user interface it looks like this:



- 1 Knitting Program
- 2 Quantity of run-throughs (quantity of fabrics).



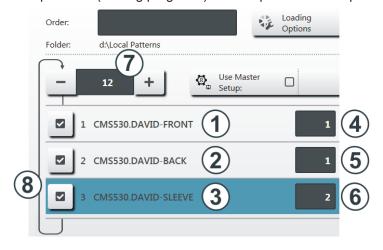




- 1 Knitting program 1 (position 1)
 2 Knitting program 2 (position 2)
 3 Knitting program 3 (position 3)
 - Several knitting programs (positions) are grouped to an order in a list.

 The sequence of positions is also the order when knitting.

The positions (knitting programs) are completed with the piece quantities.



4	Piece quantity for knitting program 1	7	Quantity of run-throughs	
			Number of times that the list of positions (knitting programs) is repeated.	
5	Piece quantity for knitting program 2	8	If the quantity of run-throughs is	
6	Piece quantity for knitting program 3		greater than "1", this will be represented graphically with a loop (8).	



The order consists of three positions (knitting programs) which should be knitted in the following order:

- 1. DAVID-FRONT (front) 1 piece
- 2. DAVID-BACK (back) 1 piece
- 3. DAVID-SLEEVE (sleeve) 2 piece

This sequence will be repeated a total of 12 times.

i Perhaps, you already know this example from earlier, it was designated as a sequence.



Loading Files, Library and Folders

19 Setting up the CMS machine

Sequence: Setting up the machine

- 1. Check the state of the machine.
- 2. Finish or cancel the current knitting program.
 - i Parking position of the carriage

The parking position of the carriage is as desired!

With "Start Order", the machine control ensures that the knitting program starts at the left in the carriage stroke. Empty rows may be necessary.

- 3. Save the changes in the current order.
- 4. Create a new order with a knitting program
- 5. Start production.
- 6. Preparation of the machine for the newly loaded knitting program.
 - Thread up the yarn carriers
- 7. Adapt pattern parameters.

19.1 Loading Files, Library and Folders

Possibilities of reading-in the knitting program (zip file):

- Removable Drive: USB Memory Stick
- Hard disk drive of the the knitting machine
- Ethernet (network drive)

19.2 Create an order with a knitting program

i Parking position of the carriage

The parking position of the carriage is as desired!
With "Start Order", the machine control ensures that the knitting program starts at the left in the carriage stroke. Empty rows may be necessary.

Before loading the pattern, the current machine state is to be checked:



■ With comb

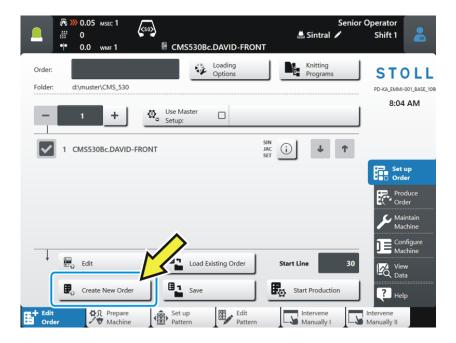
- No fabric in the needle bed or in the fabric take-down.
- The yarn carriers are in the clamping and cutting bed and are clamped.

■ Without comb

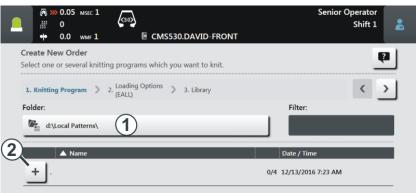
- Pay attention to the starting width of the new pattern.
- Check and adjust the yarn carrier positions.

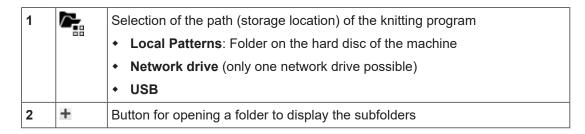
Create Order

- ✓ You are signed in as Senior Operator
- ✓ The yarn carriers are in the clamping and cutting bed.
- 1. In the main navigation bar select the main area Set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
 - It must be ensured that the yarn carriers of the previous knitting program are positioned in the clamping and cutting position. For this purpose, start again the previous knitting program until the yarn carriers are clamped (S0Y).
- 3. Then, first exit the current order with the ** "Exit order" button.
- ▶ In case of changes in the pattern, a prompt appears for saving the changes.
- 4. Save changes if necessary.
- 5. Tap the "Create New Order" button.



► The "Create New Order" window opens up.





6. More in the next chapter "Select knitting program".

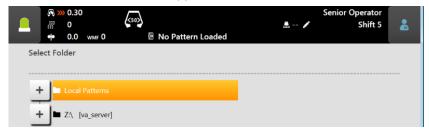
19.2.1 Select knitting program for the order (load)

Select the knitting program:

✓ In the "Create New Order" window, the setting 1. Knitting Program must be active.



- 1. If necessary switch to **1. Knitting Program** with the buttons.
- 2. For changing the path, then press the "..." button.
- ► The "Select folder" window appears.



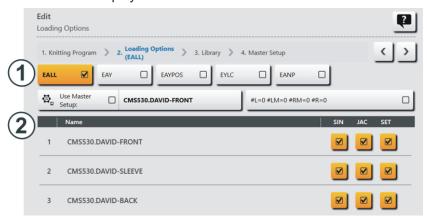
- 3. Select the desired location:
- Local Patterns (hard disk)
- Any released network drive
- 4. With the + button, open the folder / drive to display the subfolder.
- 5. Select the folder with the knitting program (zip file) to be loaded.
 - Display of the zip files (knitting program)

 Only the zip files saved directly in the folder can be displayed in the picklist.
- 6. With the "OK" button confirm the selection and return to the previous window.
- ▶ The content of the selected folder appears in the "Create New Order" window.
- 7. Select the desired knitting program (zip file).
 - The selection of several knitting programs of the list is also possible.
 In case of erroneous selection, this can be undone tapping again on them.
- 8. More in the next chapter Set Loading Options [103].
- or –
- 9. Press the "Create order" button to complete the order and to return to the previous window.
- An order with one knitting program was created.
- or –
- 10. With the Cancel button, cancel the process and return to the previous window.
- ► Create order is canceled without loading a new knitting program.
 - **i** When canceling the process, the previous knitting program is **not** deleted or overwritten!

19.2.2 Set Loading Options

Loading Options

- ✓ In the "Create New Order" window, the **2. Loading Options** setting must be active.
- 1. If necessary, switch to 2. Loading Options with the buttons
- ► The window is displayed.



1	Loading Options for All Positions:			
	EALL	Delete all data of the previous order.		
	EAY	Delete the yarn carrier positions of the previous pattern. i:		
		 Recommended for patterns with comb and clamping / cutting 		
		Not recommended for patterns without comb and clamping / cutting		
	EAYSEQ	Delete yarn carrier home position after each position of the order (knitting program).		
		i: This function is only active, if two or more positions (knitting programs) are selected for the order.		
	EYLC	If a YLC device is used for the yarn length control.		
		Delete YLC correction values of the previous order ("Working with mm" mode).		
	Use Master Setup:	Select whether a "Master Setup" should be used.		
	w ose master setup.	i: This function is only active, if two or more positions (knitting programs) are selected for the order.		



Ø ₂ (Use Master Setup:		
А	Button for selecting the location (path) of the desired Master Setup.		
В	Do not use Master Setup		
	Use Master Setup		

2	Loading Options for Individual Positions					
	Name		SIN	JAC	SET	
	List of all selected knitting programs	✓	The program element is switched on (active), i.e. it is used for the production (default setting).			
				m element is swit r the production.	ched off (inactive), i.e. it is	
		∰	Symbol for using a "Master-Setup" in the SET column.			
		i: Yo ments.		lually switch on o	r off these program ele-	

i Library

If a separate Sintral program (Auto Sintral) is required, it is to be saved in the library.

For this purpose continue with the "Library" chapter.

- 2. Selection of all required loading options.
- 3. Press the **E** "Create order" button to complete the order and to return to the previous window.
- ► An order with one knitting program was created.

- or -

- 4. With the Cancel button, cancel the process and return to the previous window.
- ▶ Create order is canceled without loading a new knitting program.
 - **i** When canceling the process, the previous knitting program is **not** deleted or overwritten!

If a separate Sintral program (Auto Sintral) is required, then it continues in the next chapter "Library."

19.2.3 Library

i Library = protected memory area

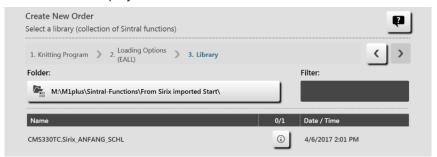
Load a Sintral program element which is to be loaded additionally to the knitting programs.

Cannot be modified at the machine!

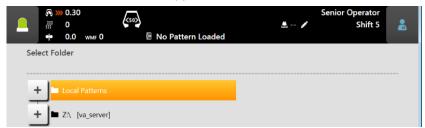
i: It can be the automatic functions of the AUTO-SINTRAL Stoll program or a private Autosintral file.

Library

- ✓ In the "Create New Order" window, the setting 3. Library must be selected.
- 1. If necessary, switch to **3. Library** with the buttons.
- ► The window is displayed.



- 2. For changing the path, then press the "..." button.
- ► The "Select folder" window appears.



- 3. Select the desired location:
- Local Patterns (hard disk)
- Any released network drive
- 4. With the + button, open the folder / drive to display the subfolder.
- 5. Select the folder with the knitting program (zip file) to be loaded.



i Display of the zip file (knitting program)

Only the zip files saved directly in the folder can be displayed in the picklist.

- 6. With the OK" button confirm the selection and return to the previous window.
- 7. The content of the selected folder appears in the "Create New Order" window.
- 8. Select the desired Sintral program element from the list.
 - i Term of the Sintral program element

This Sintral must also be saved as zip file!

The name of the zip file must be exactly the same as the name of the Sintral program element!

Example: CMS530.Autosintral.zip contains the Sintral program element with the name **CMS530.Autosintral.sin**.

- 9. Press the "Create order" button to complete the order and to return to the previous window.
- ▶ The order is created with a Sintral program element of the library.
 - i Machine type designation of the Sintral program element

If the Sintral program element has a different machine type designation than the machine in use, then a message with the following note appears: "Do you want to adapt the pattern name on the current machine type?"

"Yes": The Sintral program element is saved with the machine type of the used machine.

"No": The Sintral program element with the saved machine type is directly loaded.

- or -

10. With the Cancel button, cancel the process and return to the previous window.

Create order is canceled without loading a Sintral program element.

i Deletion of the library

The content of the library (protected memory area) can only be deleted via generating a new order with the desired settings with the "Create order" button.

Setting up the piece number for an order with one knitting program

19.2.4 Deleting orders

Delete all settings for 'Create new order':

i The pattern memory cannot be deleted completely!

19.3 Setting up the piece number for an order with one knitting program

Set piece counters:

- ✓ You are signed in as Senior Operator
- 1. In the main navigation bar select the main area "Set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
 - > The window is displayed.



- 1 Specify the total piece number (= quantity of run-throughs)
 - Reduce quantity
 - Increase quantity
 - Tap display field: Input via virtual keyboard



- 3. Increase the quantity with the \(\frac{1}{2} \) button under (1).
- ▶ If the piece number is > 1, the repetition is represented graphically with a loop (run through).

19.4 Start Production

Start production:

- ✓ You are signed in as Senior Operator
- 1. In the main navigation bar select the main area Set up Order".
- 2. Tap on tedit order in the bottom navigation bar.
- ► The window is displayed.



- Button for starting the production with the line number specified under (3).
 i: No TP is carried out automatically.
 Display of the Sintral line number, at which the knitting program will be started.
- 3. If necessary, specify the desired line number for the production start under (3).
- 4. Press the Start production button:
- ▶ Production will get started without executing **TP** (Test Program)

Prepare Machine

Execute Test Program (TP) on the machine:

- ✓ You are signed in as Senior Operator
- ✓ A knitting program is loaded.
- ✓ Figure 7 The Set up Order" main area is selected in the main navigation bar.
- 1. Tap on "Edit Pattern" in the bottom navigation bar.
- 2. Open the To "Test" tab then.
- 4. If **TP ok**, you can directly start the production by the "Start production" button.

19.5 Prepare Machine

Prepare the machine for knitting: Thread-up yarn carriers:

- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded and the order was started.
- 1. Tap on Trepare Machine" in the bottom navigation bar.
- ▶ The graphic representation of the yarn carriers used is displayed



1 Graphic display of the active yarn carriers of the yarn carrier home position of the loaded knitting program.

Prepare Machine



The dark background represents the clamping bed.

Yarn carriers required in the new pattern:



Black symbol for yarn carriers identifying the **Yarn carrier type and the positioning (number)**

- N : Normal yarn carrier
- I: Intarsia yarn carriers
- Q: Weft yarn carrier
- P: Plating Yarn Carrier
- PA: Double Bow Plating Yarn Carrier



- Without +: Existing yarn carrier, which was used in the previously loaded pattern and therefore does not need to be thread-in.
- With +: New yarn carrier, which was not used in the previously loaded pattern and therefore needs to be thread-in.

Yarn carriers no longer required in the new pattern:



Gray symbol for yarn carriers identifying the **Yarn carrier type and the positioning (number)**

1: When starting the order, the yarn carrier home positions of the previous pattern are compared with those of the new pattern.

- 2 ℯ₹√∤↑ Switch on/off plunger 3 Input braking values 4 Tabular display of the yarn carriers 5 Show the Setup Editor ᅋ 8 Display the list of counters • #1 to #221 **Shape Counters** Shape counters absolute 1: No cycle counters
- 2. Thread-up the yarn carriers according to the display.
 - Help for threading-up

 To make the thread-up easier, the production can be interrupted (empty carriage stroke) with the button of the menu. Then deactivate the button again to continue with the production.

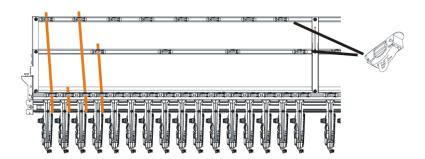
19.6 Threading up the Machine

Positioning the bobbins when using up to 16 yarn carriers:

You have different possibilities to position the bobbins depending on the machine type and the quantity of yarn carriers.

- 1. Place the bobbins from the outside toward the center of the machine.
- 2. Position the movable yarn guide brackets in order to get one yarn guide over each bobbin.

Top view:



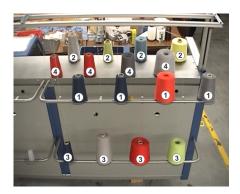
- 3. Thread each thread through a yarn guide bracket.
- 4. Thread-up the yarn carriers:
- Start with the yarn carriers of the highest track number, from the back to the front.
- Lead the thread of the inner yarn control device via the rear track of the roller deflector.
- Lead the thread of the outer yarn control device via the front track of the roller deflector.
- 5. Lead all threads for a yarn carrier on this side via the same track of the roller deflector.
- 6. Thread-up the draw thread, the elastic thread and the comb thread into the corresponding yarn carriers.

Positioning the bobbins when using more than 16 yarn carriers:

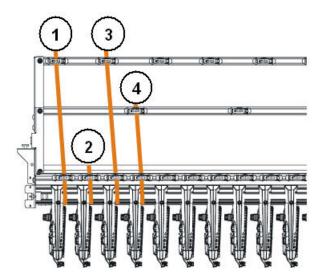
1. Position the bobbins on the bobbin board of the knitting machine and on the supplementary board starting from the outside to the center.

Arrangement of the bobbins using a supplementary bobbin board:





- 2. Feed the threads from the additional bobbin board (1) and (3) via the yarn guide bracket to the yarn control units (1) and (3).
- 3. Feed the threads from the additional bobbin board (2) and (4) via the yarn guide bracket to the yarn control units (2) and (4).
 - 1: Do not cross the threads.



- 4. Thread-up the yarn carriers:
- Start with the yarn carriers of the highest track number, from the back to the front.
- Lead the thread of the outer yarn control device via the rear track of the roller deflector.

■ Lead the thread of the inner yarn control device via the front track of the roller deflector.



- 5. Lead all threads for a yarn carrier on this side via the same track of the roller deflector.
- 6. Thread-up the draw thread, the elastic thread and the comb thread into the corresponding yarn carriers.

19.6.1 Default Yarn Carrier Home Positions

Default allocations of yarn carrier rails for the different machine types:

Machine Type	Comb	Yarn type	left track	right track
CMS 5xx (not 502 HP /	With Comb	Protection thread 1		8
502 HP+)		Rib thread		2
		Elastic Thread		1
		Comb Thread	2	
		Draw thread	1	
	Without Comb	Rib thread		2
		Elastic Thread		1
		Comb Thread		
		Draw thread	1	
CMS 822	With Comb	Protection thread 1		8
	coupling	Rib thread		2



Machine Type	Comb	Yarn type	left track	right track
		Elastic yarn 1		1
		Comb thread 1	2	
		Draw thread 1	1	
	With Comb wide	Protection thread 2	8	
	coupled	Protection thread 1		8
		Elastic yarn 2	7	
		Draw thread 2		7
		Rib thread	3	3
		Comb thread 2		2
		Comb thread 1	2	
		Elastic yarn 1		1
		Draw thread 1	1	
CMS 822	Without Comb	Protection thread 1		8
		Rib thread		2
		Elastic yarn 1		1
		Draw thread 1	1	
CMS 9xx		Elastic yarn 1		8
		Draw thread 1	8	
		Rib thread		3

Machine Type	Comb	Yarn type	left track	right track
		Protection thread 1		2

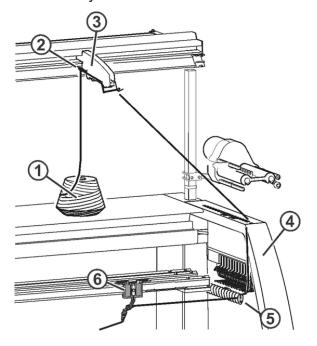
19.6.2 Threading up from the Bobbin Board to the Yarn Carrier

Various courses of yarn are provided for threading up the yarn on the knitting machine. The optimal course of yarn depends on the yarn and pattern.

Determining the course of yarn

Courses of yarn	Yarn
Course of yarn 1	Seldom used threads, e.g. elastic yarns
Course of yarn 2	Seldom used threads, e.g. draw threads
Course of yarn 2:with simple patterns	Frequently used threads
Course of yarn 3:with difficult patterns	
Course of yarn 3	Difficult-to-process threads
Course of yarn 4	Equally long fabrics

Course of yarn 1:

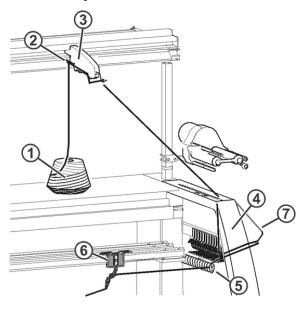


1	Bobbin	4	Safety door
---	--------	---	-------------



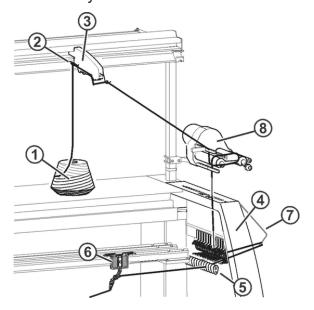
2	2	Yarn guide bracket	5	Yarn deflector
3	3	Yarn control unit	6	Yarn Carriers

Course of yarn 2



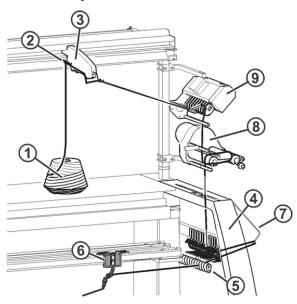
1	Bobbin	5	Yarn deflector
2	Yarn guide bracket	6	Yarn Carriers
3	Yarn control unit	7	Lateral yarn tensioner
4	Safety door		

Course of yarn 3



1	Bobbin	5	Yarn deflector
2	Yarn guide bracket	6	Yarn Carriers
3	Yarn control unit	7	Lateral yarn tensioner
4	Safety door	8	Friction feed wheel

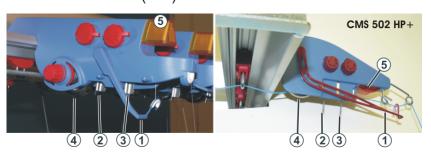
Course of yarn 4



1	Bobbin	6	Yarn Carriers
2	Yarn guide bracket	7	Lateral yarn tensioner
3	Yarn control unit	8	Friction feed wheel
4	Safety door	9	Yarn length measuring device (ASCON, STIXX)
5	Yarn deflector		

19.6.2.1 Threading up the yarn control unit

I. Yarn control unit (FKE):





1	Thread break control	4	Yarn brake disc
2	Knot detector for large knots	5	LED
3	Knot detector for small knots		

II. Tasks of the yarn control unit:

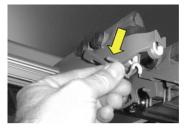
- The elements of the yarn control unit can individually be adjusted to the yarn being processed.
- 1. The yarn break control (1) monitors the yarn ends and switches off the machine in case of a yarn breakage or end.
- 2. In the case of large knots in the yarn, the knot detector switches off the knitting machine.
 - i Error display

Errors are indicated by the LED (5), the signal light and at the display.

- 1. In the case of small knots in the yarn, the machine knits a programmed number of rows at reduced speed.
- 2. The yarn brake disc (4) regulates the yarn tension and prevents the thread from hanging through while knitting.

III. Threading up the FKE:

Bring thread break control in work position.
 Pull thread break control a little towards left till it is not held by the stopping cam anymore.





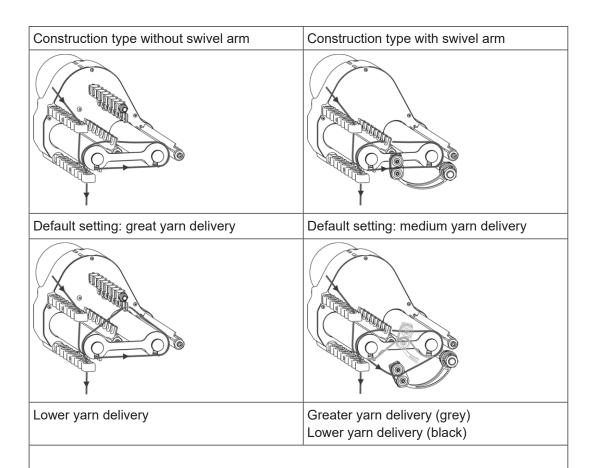


2. Thread each thread through a yarn control device as shown in the picture.

19.6.2.2 Threading up the Friction Feed Wheel

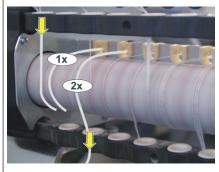
I. Different ways to thread up the friction feed wheel:

1 The different ways of threading up depend on the construction type of the feed wheel.





Lead the thread twice over the friction rollers if necessary. This reduces the yarn tension considerably.

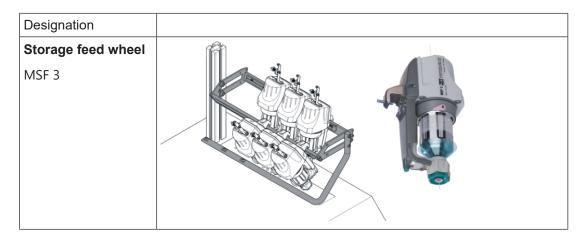




19.6.2.2.1 Using the Storage Feed Wheel

Use storage feed wheels with fine and delicate yarns.

- Storage feed wheels are standard with the gauges E14 E18
- You can use storage feed wheels with the gauges E3.5 E12 and E7.2 E9.2.

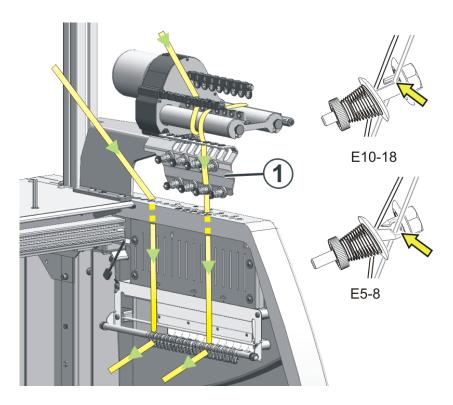


The storage feed wheel serves for temporary storage of the yarn. This way spikes will be caught and compensated when unwinding the yarn from the bobbin.

19.6.2.3 Threading-up the Permanent Brake

Thread-up into the permanent brake only the yarns that are processed with the friction feed wheel.

Make sure that you thread-up the yarn vertically downwards.



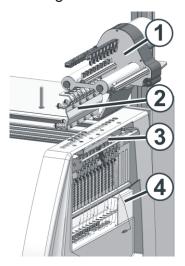
- 1. Guide the yarn downwards behind the brake discs.
- 2. Insert the yarn between the two brake discs.
- 3. Pull the yarn somewhat towards the machine center to open the brake discs.
- 4. Release the yarn tension again.
- ▶ The brake discs close and the yarn glides into the open eyelet.

19.6.2.4 Threading-up the Lateral Yarn Guide

The friction feed wheel, the permanent brake, the active thread clamp and the lateral yarn tensioner work together.

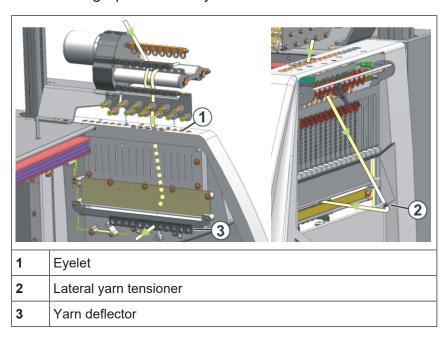


I. Designations of the lateral yarn guide



	Designation			
1	Friction feed wheel			
2	Permanent brake			
3	Active thread clamp			
4 Lateral yarn tensioner				

II. Threading-up the lateral yarn tensioner:

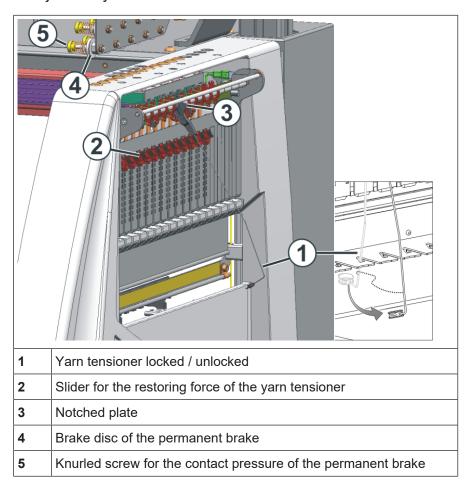


- **i** Make sure that you thread-up the thread vertically through the lateral safety door.
- 1. Bring the lateral yarn tensioner in still position (lock). This way the active thread clamp is opened.
- 2. Thread the thread through one of the eyelets (1) on the lateral safety door.
- Eyelet 3 to 10: for threads that are threaded-up via the feed wheel.

 The clamping positions of the active thread clamp are located in this area.
- Eyelet 1 + 2 / 11 and following: for threads that are processed without feed wheel. Example: Comb thread, draw thread
- 3. Thread-up the thread vertically downwards in the eyelet (2) of the lateral yarn tensioner.
- 4. Feed the thread through the yarn deflector (3) to the yarn carrier.
- 5. Bring lateral yarn tensioner in work position by unlocking.

19.6.2.5 Adjustment of the lateral yarn guide

I. Adjust the yarn tension:





- 1. Lateral Yarn Tensioner: Adjusting the restoring force on the linear regulator (2).
- 2. Open permanent brakes (5).
- 3. Adjusting yarn control unit.
- 4. Adjusting permanent brakes (5).
- 5. Lateral Yarn Tensioner: Adjust the yarn tensioning path at the notched plate (3).

II. Adjusting restoring force of the yarn tensioner

- 1. Remove lateral yarn tensioner (1) from the stay.
- 2. Linear regulator (2) is to be set in a manner that the lateral yarn tensioner has enough strength to hold the thread tensioned always.
- 3. Control the setting while the machine is knitting.
 In this case the thread must not sag rather it should always be tensioned by the yarn tensioner.

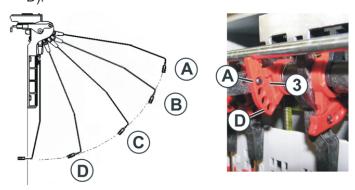
III. Adjusting permanent brake:

→ Adjust the permanent brake in such a manner that the lateral yarn tensioner swivels only a bit (approx. 25 degrees)

If a thread loop is formed between the friction feed wheel and the permanent brake (on the inner side of the lateral safety door) then the yarn brake on the yarn control unit should be set a little stronger and the yarn brake should be set a little weaker.

IV. Set the yarn tensioning path of the yarn tensioner:

- The yarn tensioning path of the yarn tensioner can be set from 80 to 35 degrees.
- The yarn tensioning path is adjusted with the four lock positions of the notched plate (A-D).



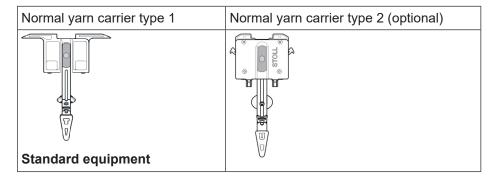
Position	max. angle	Function
A	80 °	Home position of the lock segment. Active thread clamp in action. Largest yarn tensioning path.

Position	max. angle	Function
В	65 °	Active thread clamp in action.
С	50 °	Active thread clamp in action.
D	35 °	Active thread clamp out of action. Smallest yarn tensioning path.

19.6.2.6 Threading-up the normal yarn carrier

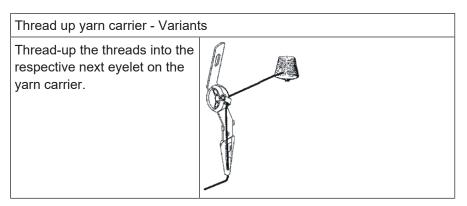


Normal yarn carrier types:



Different ways of threading-up the yarn carriers:

- 1. Open covers.
- 2. Thread up the yarn through the eyelets, the yarn guide star and yarn carrier head.



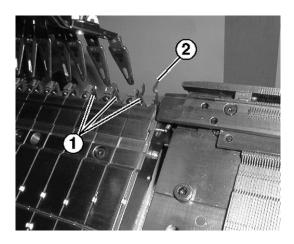


Thread up yarn carrier - Variants If several yarn carriers of one track are used and the threads are led to the yarn carriers from the same side. If several bobbins are used for one yarn carrier. Threading-up yarns from left and right. Make sure that almost the same number of threads are used from left and right. CMS 520 C, CMS 830 C The yarn carrier has two additional eyelets. Up to 5 thin yarns can be threaded into each eyelet.

19.6.2.7 Locking yarn ends

- I. Utilization of clamping and cutting device and of the comb:
- 1. Position the yarn carriers next to the corresponding clamping and cutting points on the right or on the left according to the yarn carrier home position.
- 2. Insert the yarn ends manually into the cutting needles of the clamping points.





No.	Element							
1	Clamping point with cutting needle							
2	Catch hook							

- II. Without utilization of clamping and cutting device and of the comb:
- 1. Position the yarn carriers at the fabric selvedge on the right or on the left according to the yarn carrier home position.
- 2. Push up some needles at the fabric selvedge manually.
- 3. Insert the yarn ends in the needles.
- 4. Pull down the needles manually.
- 5. Cut off the yarn end.
- 6. Close the covers.

19.6.2.8 Position the Yarn Carriers

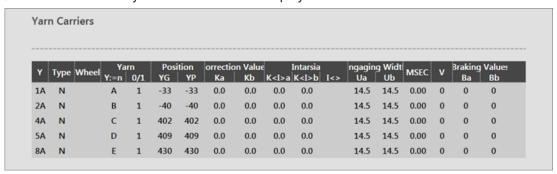
- I. Position the yarn carriers at the clamping point.
- ✓ The yarn carriers used in the pattern are threaded-up.
- ✓ With clamping and cutting device (YGC).
- 1. Position the yarn carriers at the **corresponding clamping points**.
 - **i** Allocation of the yarn carriers to a clamping point by the YGC command.

The yarn carrier number corresponds to the clamping point number.

- II. Position the yarn carriers at the fabric selvedge:
- ✓ The yarn carriers used in the pattern are threaded-up.



- ✓ Without clamping and cutting device (YG).
- Tap on "Prepare Machine" in the bottom navigation bar.
- ▶ The graphic representation of the yarn carriers used is displayed
- 2. In the opened window press the button.
- ▶ The table with the yarn carriers in use is displayed.



3. Position the yarn carriers staggered at the fabric selvedge according to the table.

19.6.3 Thread up the Yarn Carriers after Yarn Breakage



DANGER

Danger by moving carriage

Danger of crushing and cutting by the carriage.

With production: Thread up yarn carriers after yarn breakage.

- 1. Open covers.
- 2. Thread up the yarn through the yarn guide star and yarn carrier head.
- 3. Lay-in the thread in the needle head using a knitting hook.
- 4. Lead the yarn end opposed to the carriage direction.
- 5. Hold the yarn end outside the danger zone(carriage)
- 6. Pull the engaging rod to position 2 (reduced speed) keeping the carriage in view.
- ► The carriage moves with reduced speed, if a slower speed was set under "Speed with Covers Open [MSECCO]" and if the button is activated.

Setting up the pattern



- 7. Release the engaging rod when the thread is fixed in the fabric and the position is accessible.
- 8. Cut-off the yarn end.
- 9. Close the covers and continue production.

19.7 Setting up the pattern

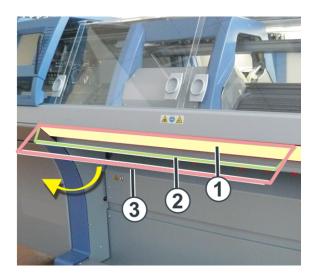
While the machine is knitting, the corresponding data of the knitting program is displayed for every carriage stroke and can be changed.

I. Setting up the loaded pattern:

- ✓ You are signed in as Senior Operator

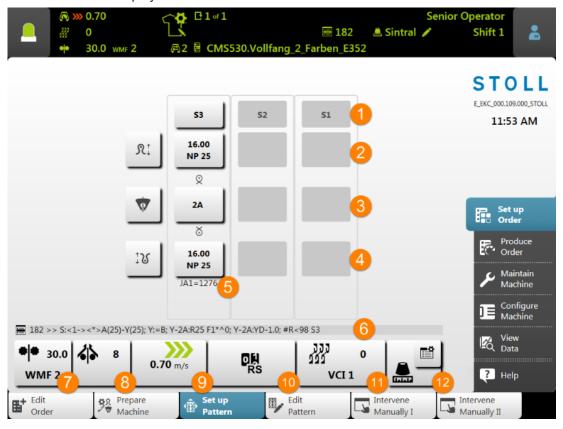
 ■
- ✓ An order with one knitting program was created.
- ✓ Quantity (run-throughs) is set.
- ✓ The order was started.
- ✓ The yarn carriers used in the knitting program are threaded-up.
- 1. Start the machine with the engaging rod.





1	Carriage stopped				
2	reduced speed				
3	normal speed				

- 2. Tap on "Set-up pattern" in the bottom navigation bar.
- ► The window is displayed.





		T .	1				
No.	Key						
1		System specification	Display of the systems used with numbering				
			Light gray: System active				
			Dark gray: System inactive				
Data	a for the	rear needle bed					
2	$\mathfrak{R}^{\updownarrow}$	Opening of the Setu	p Editor for changing the stitch tension				
		16,00 NP 25	Display of the current stitch tension (NP index) and the assigned value				
			Opens number field for direct change of the value				
			i: The value is directly transferred to Setup.				
		Graphic display of k	nitting symbols for the rear needle bed				
3	•	Opening of the SetuYD /YDIYC/YCIUa-b/NCC	p Editor for changing of				
			Display of the active yarn carrier				
		2A	Opens the "Yarn carrier" window with graphic display of the yarn carrier rails				
Data	a for the	front needle bed					
		Graphic display of k	nitting symbols for the front needle bed				
4	ૌંદ્ર	Opening of the Setu	p Editor for changing the stitch tension				
		16,00 NP 25	Display of the current stitch tension (NP index) and the assigned value				
			Opens number field for direct change of the value				
			i: The value is directly transferred to Setup.				
5		Display of the currer	ntly knitting jacquard line number				
6	=	Display of the currently knitting Sintral line number					



No.	Key								
7	•	Display of the take-down index with the current take- down value							
		Opening of the Setup Editors for changing data in the WMF menu							
8	4	Display of the auxiliary take-down index with the current speed of the auxiliary take-down.							
		Opening of the Setup Editors for changing data in the W+F menu							
9))) 0,70 m/	Display of the carriage stroke direction with the current carriage speed							
	s	Opening of the Setup Editor for changing the carriage speed values (MSEC)							
10		Display of the current cycle counter							
	Ko	Opening of the Setup Editor for changing the cycle counter							
11	333 333	Display of the current racking correction index with the current racking position							
		Opening of the Setup Editor for changing the values of the racking correction index							
12	=	Double button							
	Intal	Tabular display (monitoring) while working with the yarn length control (ASCON) Opening of the Setup Editor for working with the yarn							
		Opening of the Setup Editor for working with the yarn length control (ASCON)							

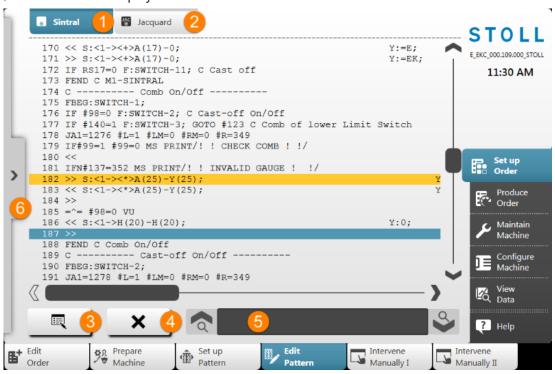
- 3. Make the desired changes of the pattern parameters.
- ▶ The pattern is set-up and prepared for the production.

19.7.1 Edit Pattern

- I. View or changes of Sintral or Jacquard:
- ✓ You are signed in as Senior Operator = ...
- 1. In the main navigation bar select the main area "Set up Order".

Setting up the pattern

- 2. Tap on "Edit Pattern" in the bottom navigation bar.
- ► The window is displayed.



No	Key	
1	O	Display window with the program element Sintral Sintral line highlighted in yellow: currently knitting row Sintral line highlighted in blue: selected Sintral line
2	JAC ⊚	Display window with the program element Jacquard
3	三	Open the editor to change the selected line 1: The changes are directly applied.
4	×	Delete the selected Sintral line 1: A prompt appears before deleting.
5		Edit box for searching of Sintral information
	♦	Upward search referring the selected line
	9	Downward search referring the selected line
6	>	Expand the display window for the knitting simulation

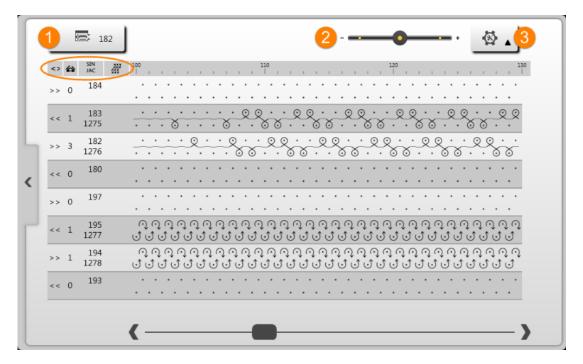
Setting up the pattern



No	Key	
-		
	<	Collapse the display window for the knitting simulation

- 3. Make the desired changes in the Sintral or Jacquard
 - **1** Changes at your own risk

 The changes cannot be tested at the machine and can lead to major problems.
- II. Display window with the knitting simulation:



No.	Key	
1	⊨	Currently knitting Sintral line
2		Zoom for the display
3	⊗▲	Selection menu for the display of the columns in the table
		Column for carriage direction Column for system specification

Check the yarn carriers

No.	Key	
		SIN ◆ JAC: Column for Sintral and Jacquard line number
		• 111 : Column for racking position
		Display of the carriage position while knitting

The knitting simulation shows the Sintral line before and after the currently i knitting Sintral line. Structure of the graphic in the knitting direction, i.e. read from the bottom upwards.

19.8 Check the yarn carriers

Display and check the yarn carrier positions.

✓ You are signed in as Senior Operator

—

...



- 1. In the main navigation bar select the main area set up Order".
- 2. Tap on Prepare Machine" in the bottom navigation bar.
- ▶ The graphic representation of the yarn carriers used is displayed
- 3. In the opened window press the button.
- ▶ The table with the yarn carriers in use is displayed.

Yarı	n Carrie	rs														
Υ	Type W	heel Y:=r	'arn 1 0/1	Pos YG	ition YP	orrection Ka			Intarsia K <i>b</i>	I<>	ngaging Ua	Widt Ub	MSEC	v	Braking Ba	Values Bb
1A	N	Α	1	-33	-33	0.0	0.0	0.0	0.0		14.5	14.5	0.00	0	0	0
2A	N	В	1	-40	-40	0.0	0.0	0.0	0.0		14.5	14.5	0.00	0	0	0
4A	N	С	1	402	402	0.0	0.0	0.0	0.0		14.5	14.5	0.00	0	0	0
5A	N	D	1	409	409	0.0	0.0	0.0	0.0		14.5	14.5	0.00	0	0	0
8A	N	Е	1	430	430	0.0	0.0	0.0	0.0		14.5	14.5	0.00	0	0	0

Column	Meaning
Υ	Specification of yarn carrier

Save the order with a knitting program



Column	Meaning								
Туре	Definition	on of the yarn carrier type:							
	• Norr	nal yarn carrier (N)							
	• Intar	rsia yarn carrier (I)							
Wheel	Allocation of the measuring wheels when using ASCON								
Yarn	Y: = n	Specification of yarn type							
	0/1	Yarn type switched on or off							
Position	YG	Home position of the yarn carrier with needle xx							
	YP	Current yarn carrier position with needle xx i: Changes while knitting.							
Correction Values	Ka	Yarn carrier correction value a at the left selvedge within the knitting area							
	Kb	Yarn carrier correction value a at the right selvedge within the knitting area							
		i: Valid for							
		Normal yarn carrier							
		Intarsia yarn carrier not swiveled							
Intarsia	K <i>a</i>	Yarn carrier correction value a for the swiveled intarsia yarn carrier at the left selvedge within the knitting area							
	K <i>b</i>	Yarn carrier correction value b for the swiveled intarsia yarn carrier at the right selvedge within the knitting area							
	 <>	Swiveling direction of intarsia yarn carrier							
Engaging	Ua	Engaging value at the left when plating with two yarn carriers							
Width	Ub	Engaging value at the right when plating with two yarn carriers							
MSEC	Carriage speed related to yarn carrier								
V	1	carriage speed for the selected yarn carrier. value =0, i.e. the yarn carrier specific speed was canceled)							
Braking Val-	Ва	Yarn carrier braking value a for the left selvedge							
ues	Bb	Yarn carrier braking value b for the right selvedge							

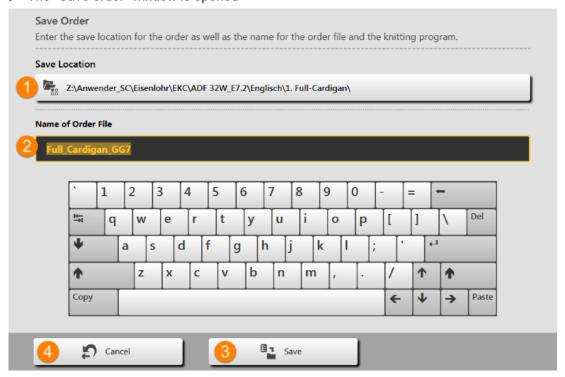
19.9 Save the order with a knitting program

i When saving an order a new file is always created with the xxx .seqx extension.

Save the order with a knitting program

Saving an order with a knitting program:

- ✓ You are signed in as Senior Operator
- 1. In the main navigation bar select the main area Set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
- 3. Then press the Save" button for saving.
- ► The "Save order" window is opened



- Select location
 Local Patterns: Hard disc of the machine
 Network drive
 Display of the name for the order file (seqx), which can be changed via the keyboard.
 Default setting: Name of the knitting program
 For orders with only one knitting program, the original name of the knitting program (zip file) is to be maintained, since with a modification also the zip file will be renamed!!
 Save the order under the entered name
 Cancel process
- 4. Select location.
- 5. Enter the desired name for the order file.



i Attention

For orders with only one knitting program, the original name of the program (zip file) is to be maintained, since the zip file is also renamed in case of renaming!!

- 6. With the Save" button perform the operation.
- ▶ In the specified location a **seqx** file with its zip file of the same name is created with the defined name.

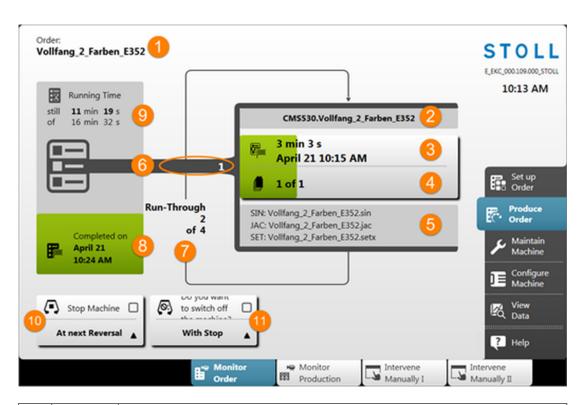
19.10 Produce Order

- ■ "Monitor Order": Display of the progress of an order
- Monitor Production": Display of the progress of the different fabrics of a position
- Re-knitting of fabrics of a position

19.10.1 Monitor the order with one knitting program

Monitor Order:

- ✓ An order is set-up and started.
- ✓ You are signed in as Senior Operator ■
- 1. Tap on Produce Order" in the main navigation bar.
- 2. Tap on **I** "Monitor order" in the bottom navigation bar.
- ▶ The window for **Monitoring the order** is displayed.



No.	Key	
1		Name of the order
2		Name of the active knitting program with the machine type designation
3		Display of the production progress (green bar) and running time of the current position (knitting program)
		 Running time of the number of fabrics per position plus fabrics to be re- knitted
		Date and time of the completion of the number of fabrics per position plus fabrics to be re-knitted
4	Ä	Display of the number of fabrics per position (knitting program) n of m
		• n = Number of completed fabrics of the current position
		• m = Total of fabrics to be knitted per position (knitting program)
		• + x = Number of fabrics to be re-knitted of the current position
		i: If several knitting programs are 'running through', the display corresponds to the piece counter for the corresponding active position (knitting programs).
5		Name of the elements of a knitting program
		Sintral: xxx .sin
		◆ Jacquard: xxx .jac
		Setup: xxx .setx
6	No.	Active position number = sequential number of the knitting programs of the order

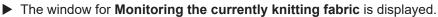


No.	Key			
7		Display of run-throughs (piece counter) n of m		
		• n=	- Quantity of completed run-throughs	
		• m	= Total of run-throughs to be produced	
			a knitting program is 'running through', the display corresponds to ece counter.	
8			ys the production progress (green area) of the order specifying the etion of the order (date + time).	
9	Z	Displa	y of the running time n of m of the order	
	لغت	• n=	Remaining run time	
		• m	= Total running time	
10	(Do not stop the machine	
		✓	Stop Machine	
			Open the selection menu with the button:	
			At next Reversal	
			Once the Current Fabric Is Finished	
11	©		Do not switch off machine	
		✓	Switch Off Machine	
			Open the selection menu with the button:	
			◆ With Stop	
			Once the Current Fabric Is Finished	
			Once the Order Is Finished	

19.10.2 Monitor the production with one knitting program

Monitor Production:

- ✓ You are signed in as Senior Operator ■.
 "Monitor Production" can also be performed by the Operator.
- ✓ An order is set-up and started.
- 1. In the main navigation bar select the main area Produce Order".
- 2. Tap M "Monitor production" in the bottom navigation bar.





N o.	Key	
1		Display of the running time per fabric piece still nn of xx with progress display (green bar)
		• nn : Remaining running time of the fabric piece
		xx : Total running time of the fabric piece
2	Completed on	Completion of the current position (plus re-knitting of fabric pieces)
	■ 2000	◆ Date
		Time of Day
3	Carriages	Current carriage speed m/s with display of
		carriage direction toward left / toward right
		Display of with the activated "Reduced speed [ML]" button
4	Fabrics of Position z	Display of the number of fabrics per position z (knitting program) in the run-through n of m
	n of m	z = Position number = Sequential number of the knitting programs of the order
		• n = Number of completed fabrics of the current position
		• m = Total of fabrics to be knitted per position (knitting program)
		+ x = Number of fabrics to be re-knitted of the current position



N o.	Key	
		i: If several knitting programs are 'running through', the display corresponds to the piece counter for the corresponding position (knitting program).
5	Cycle Counters	Display of the current cycle counter RS n = x / y
		• n : Number of the cycle counter
		• x : still remaining repetitions
		• y : total number of repetitions
6	Racking	Display of the current racking position
7	Take-down	Display of the current take-down value
8	Auxiliary Take- down	Display of the current speed of the auxiliary take-down
9	Stitch Length	Opening the dialog for changing the current stitch length
10	Yarn Carriers	Opening the "Yarn carrier" window with the graphic representation of the active yarn carrier
11	Yarn Length Con-	Only in case of connection of ASCON devices!!!
	trol	Display of the current operating mode. of the yarn length measuring device ASCON (YLC)
	+diaplay of the on	Operating modes:
	+display of the op- erating mode	Production without YLC:
		Working with mm: MM
		Working with original fabric: MP (Master Piece)
		as specified by Sintral: Sintral

- 3. Tap the desired button to change the corresponding value.
- ► The changes will be entered in Setup.

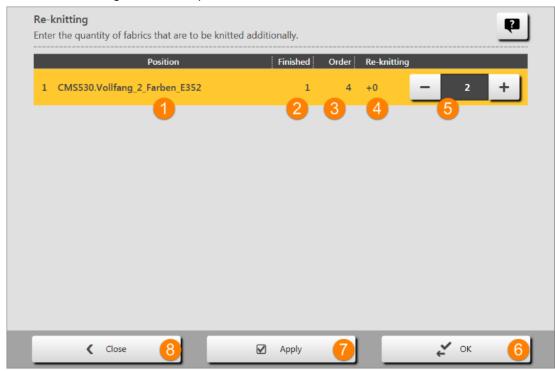
19.10.3 Re-knitting of fabrics

■ Necessary modification

- In case of orders with only one knitting program, the number of run-throughs (piece number) can be influenced
- In case of orders with several knitting programs, the number of fabrics per position can be influenced in the order.
- Re-knitting of defective fabrics
 - These changes do not influence the specification entered when creating the order, since this can only be performed by the Senior Operator.

Re-knitting window

- ✓ You are signed in as Senior Operator
 "Monitor Production" can also be performed by the Operator.
- ✓ An order is set-up and started.
- 1. Click the button in the "Monitor Order" or the "Monitor Production" window.
- ► The "Re-knitting" window is opened.



No.		
1	Position	List of the knitting programs in the current order
		Order with one knitting program
		Order with several knitting programs

Load Existing Order



No.		
2	Finished	Quantity of processed run-throughs
3	Order	Total number of run-throughs
		Order with one knitting program = Piece number
		Order with several knitting programs (positions) = Number of runthroughs of the entire position (list)
4	Re-knitting	Display of the already re-knitted fabrics
5	- 2 +	+/- button for entering the number of fabric pieces to be re-knitted
6	~ ок	Confirm the input and return to the previous window
7	Apply	Confirm the input for the first position in the list and do not exit the window to make further entries
8	€ Close	Close the window without applying the entries

- 2. Make the desired entry for the first position to be changed
- 3. Press the Apply" button, to confirm this input and then to continue with the next entry.
 - or -

Press the "Ok" button, to confirm this input and to close the window.

i Behavior

If fabrics are entered to be re-knitted, 're-knitting' is performed immediately after completion of a currently knitting position.

19.11 Load Existing Order

i An order with one or more knitting programs was saved as seqx file.

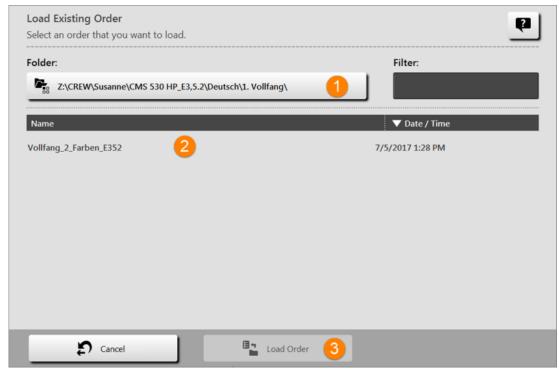
Load existing order (seqx file):

- ✓ You are signed in as Senior Operator

 ■
- ✓ A seqx file is saved.
- 1. In the main navigation bar select the main area Set up Order".

Load Existing Order

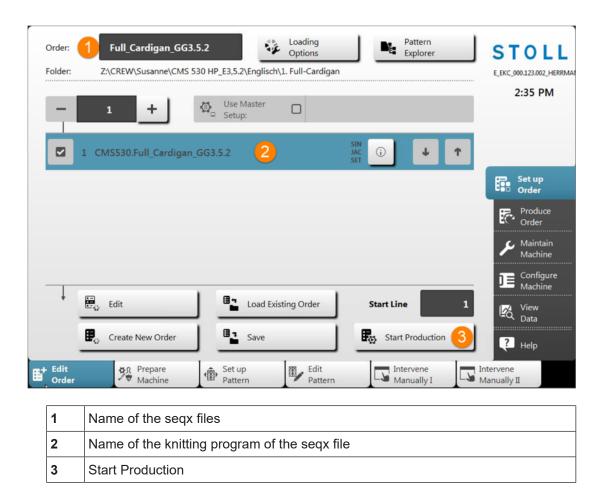
- 2. Tap on **b** "Edit order" in the bottom navigation bar.
- 3. Then, for loading an existing order, press the Load existing order button.
- ► The "Load" "Existing Order" window is opened.



- Select location (folder) of the saved seqx file
 Local Patterns: Hard disc of the machine
 Network drive
 List of all seqx files in the selected folder.
 Button for loading the selected seqx file
- 4. Select the desired seqx file.
- 5. Press the □ "Load Order" button.
- ► The order is loaded.
- ▶ In the menu area are displayed the loaded order and the knitting program.

Load Existing Order





6. Press the Start production" button:

Loading Files, Library and Folders

20 Setting up the ADF machine

Sequence: Setting up the machine

- 1. Check the state of the machine.
- 2. Finish or cancel the current knitting program.
 - i Parking position of the carriage

The parking position of the carriage is as desired!
With "Start Order", the machine control ensures that the knitting program starts at the left in the carriage stroke. Empty rows may be necessary.

- 3. Save the changes in the current order.
- 4. Create a new order with a knitting program
- 5. Start Order.
- 6. Preparation of the machine for the newly loaded knitting program.
 - Thread up the yarn carriers
- 7. Adapt pattern parameters.

20.1 Loading Files, Library and Folders

Possibilities of reading-in the knitting program (zip file):

- Removable Drive: USB Memory Stick
- Hard disk drive of the the knitting machine
- Ethernet (network drive)

20.2 Create an order with a knitting program

i Parking position of the carriage

The parking position of the carriage is as desired!
With "Start Order", the machine control ensures that the knitting program starts at the left in the carriage stroke. Empty rows may be necessary.

Before loading the pattern, the current machine state is to be checked:



■ With comb

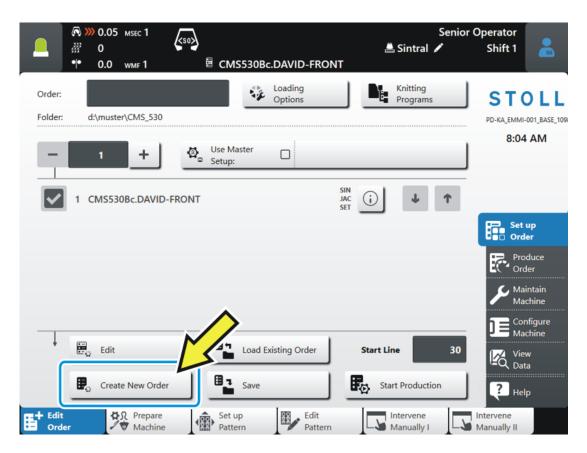
- No fabric in the needle bed or in the fabric take-down.
- The yarn carriers are in the collecting clamp unit and are clamped.

■ Without comb

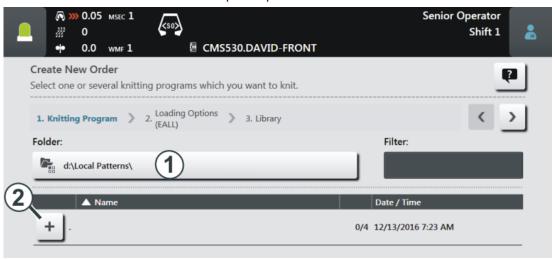
- Pay attention to the starting width of the new pattern.
- Check and adjust the yarn carrier positions.

Create Order

- ✓ You are signed in as Senior Operator
- ✓ The yarn carriers are in the collecting clamp unit.
- 1. In the main navigation bar select the main area Set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
 - It must be ensured that the yarn carriers of the previous knitting program are positioned in the clamping and cutting position. For this purpose, start again the previous knitting program until the yarn carriers are clamped (S0Y).
- 3. Then, first exit the current order with the ** "Exit order" button.
- ▶ In case of changes in the pattern, a prompt appears for saving the changes.
- 4. Save changes if necessary.
- 5. Tap the "Create New Order" button.



▶ The "Create New Order" window opens up.



1		Selection of the path (storage location) of the knitting program		
		Local Patterns: Folder on the hard disc of the machine		
		Network drive (only one network drive possible)		
		• USB		
2	+	Button for opening a folder to display the subfolders		

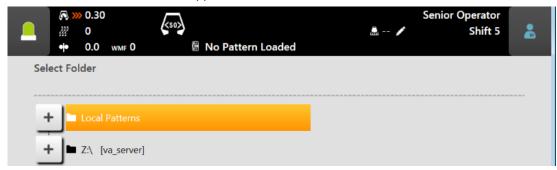


6. More in the next chapter "Select knitting program".

20.2.1 Select knitting program for the order (load)

Select the knitting program:

- ✓ In the "Create new order" window, the setting 1. knitting program must be selected.
- 1. If necessary switch to **1. knitting program** with the buttons
- 2. For changing the path, then press the "..." button.
- ► The "Select folder" window appears.



- 3. Select the desired location:
- Local Patterns (hard disk)
- Any released network drive
- 4. With the # button, open the folder / drive to display the subfolder.
- 5. Select the folder with the knitting program (zip file) to be loaded.
 - **i** Display of the zip files (knitting program)

 Only the zip files saved directly in the folder can be displayed in the picklist.
- 6. With the OK" button confirm the selection and return to the previous window.
- ▶ In the "Create new order" window is displayed the content of the selected folder.
- 7. Select the desired knitting program (zip file).
 - The selection of several knitting programs of the list is also possible. In case of erroneous selection, this can be undone tapping again on them.
- 8. More in the next chapter Set Loading Options [151].
- or –

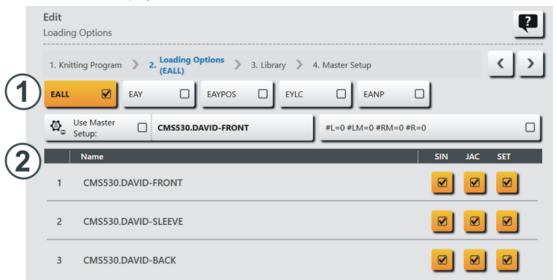


- 9. Press the "Create order" button to complete the order and to return to the previous window.
- ► An order with one knitting program was created.
- or -
- 10. With the Cancel button, cancel the process and return to the previous window.
- ▶ Create order is canceled without loading a new knitting program.
 - **i** When canceling the process, the previous knitting program is **not** deleted or overwritten!

20.2.2 Set Loading Options

Loading Options

- ✓ In the "Create new order" window, the setting **2. Loading Options** must be selected.
- 1. If necessary, switch to **2. Loading Options** with the buttons.
- ► The window is displayed.



1	Loading Options for All Positions:			
EALL Delete all data of the previous order.				
	EAY Delete the yarn carrier positions of the previous pattern.			
	ii:			



	 Recommended for patterns with comb and clamping / cutting Not recommended for patterns without comb and clamping / cutting 			
EAYSEQ	Delete yarn carrier home position after each position of the order (knitting program). 1: This function is only active, if two or more positions (knitting programs) are selected for the order.			
EYLC	If a YLC device is used for the yarn length control. Delete YLC correction values of the previous order ("Working with mm" mode).			
Use Master Setup:	Select whether a "Master Setup" should be used. 1: This function is only active, if two or more positions (knitting programs) are selected for the order.			
	A Button for selecting the location (path) of the desired Master Setup.			
	B Do not use Master Setup Use Master Setup			

2	Loading Options for Individual Positions					
	Name		SIN	JAC	SET	
	List of all selected knitting programs	✓	The program element is switched on (active), i.e. it is used for the production (default setting).			
			The program element is switched off (inactive), i.e. it is not used for the production.			
		∰	Symbol for using a "Master-Setup" in the SET column.			
		i: Yo ments.	i: You can individually switch on or off these program elements.			

i Library

If a separate Sintral program (Auto Sintral) is required, it is to be saved in the library.

For this purpose continue with the "Library" chapter.

- 2. Selection of all required loading options.
- 3. Press the "Create order" button to complete the order and to return to the previous window.
- ► An order with one knitting program was created.
- or -
- 4. With the Cancel button, cancel the process and return to the previous window.
- ▶ Create order is canceled without loading a new knitting program.
 - **i** When canceling the process, the previous knitting program is **not** deleted or overwritten!

If a separate Sintral program (Auto Sintral) is required, then it continues in the next chapter "Library."

20.2.3 Library

i Library = protected memory area

Load a Sintral program element which is to be loaded additionally to the knitting programs.

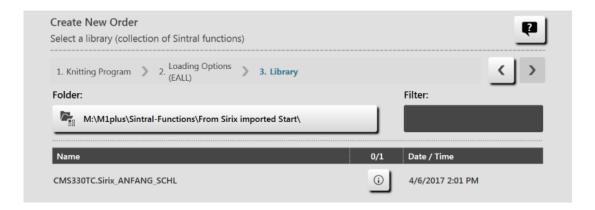
Cannot be modified at the machine!

1: It can be the automatic functions of the AUTO-SINTRAL Stoll program or a private Autosintral file.

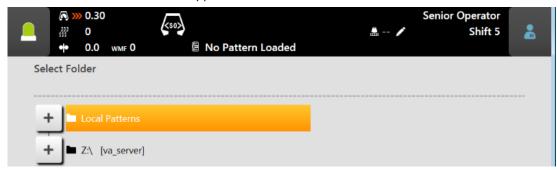
Library

- ✓ In the "Create new order" window, the setting 3. Library must be selected.
- 1. If necessary, switch to 3. library with the buttons
- ► The window is displayed.





- 2. For changing the path, then press the ##"..." button
- ► The "Select folder" window appears.



- 3. Select the desired location:
- Local Patterns (hard disk)
- Any released network drive
- 4. With the # button, open the folder / drive to display the subfolder.
- 5. Select the folder with the knitting program (zip file) to be loaded.
 - i Display of the zip file (knitting program)

 Only the zip files saved directly in the folder can be displayed in the picklist.
- 6. With the OK" button confirm the selection and return to the previous window.
- 7. In the "Create new order" window is displayed the content of the selected folder.
- 8. Select the desired Sintral program element from the list.

i Term of the Sintral program element

This Sintral must also be saved as zip file!

The name of the zip file must be exactly the same as the name of the Sintral program element!

Example: CMS530.Autosintral.zip contains the Sintral program element with the name **CMS530.Autosintral.sin**.

Setting up the piece number for an order with one knitting program

- 9. Press the "Create order" button to complete the order and to return to the previous window.
- ▶ The order is created with a Sintral program element of the library.
 - **i** Machine type designation of the Sintral program element

If the Sintral program element has a different machine type designation than the machine in use, then a message with the following note appears: "Do you want to adapt the pattern name on the current machine type?"

"Yes": The Sintral program element is saved with the machine type of the used machine.

"No": The Sintral program element with the saved machine type is directly loaded.

- or -
- 10. With the Cancel button, cancel the process and return to the previous window.
- ▶ Create order is canceled without loading a Sintral program element.
 - i Deletion of the library

The content of the library (protected memory area) can only be deleted via generating a new order with the desired settings with the "Create order" button.

20.2.4 Deleting orders

Delete all settings for 'Create new order':

i The pattern memory cannot be deleted completely!

20.3 Setting up the piece number for an order with one knitting program

Set piece counters:

✓ You are signed in as Senior Operator





- 1. In the main navigation bar select the main area "Set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
- ► The window is displayed.



- Reduce quantity
- + Increase quantity
- Tap display field: Input via virtual keyboard
- 3. Increase the quantity with the # button under (1).
- ▶ If the piece number is > 1, the repetition is represented graphically with a loop (run through).

20.4 Start Production

Start production:

Start Production

- 1. In the main navigation bar select the main area "Set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
- ► The window is displayed.



- 2 Button for starting the production with the line number specified under ((3)).
 - i: No TP is carried out automatically.
- 3 Display of the Sintral line number, at which the knitting program will be started.
- 3. If necessary, specify the desired line number for the production start under ((3)).
- 4. Press the Start production" button:
- ▶ Production will get started without executing **TP** (Test Program).

Execute Test Program (TP) on the machine:

- ✓ You are signed in as Senior Operator
- ✓ A knitting program is loaded.
- ✓ Set up Order" main area is selected in the main navigation bar.

Prepare Machine



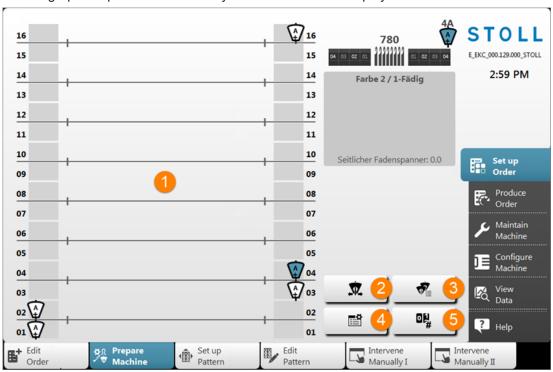
- 1. Tap on "Edit Pattern" in the bottom navigation bar.
- 2. Open the To "Test" tab then.
- 4. If **TP ok**, you can directly start the production by the "Start production" button.

20.5 Prepare Machine

Prepare the machine for knitting: Thread-up yarn carriers:

- ✓ You are signed in as Senior Operator

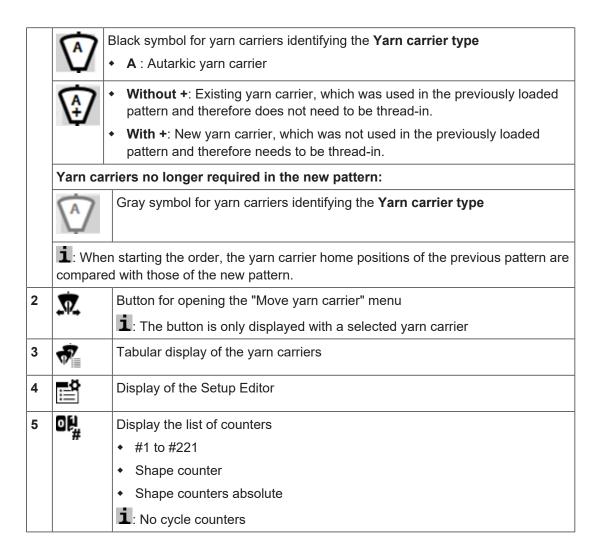
 ■...
- ✓ Knitting program is loaded and the order was started.
- 1. Tap on "Prepare Machine" in the bottom navigation bar.
- ▶ The graphic representation of the yarn carriers used is displayed



1 Graphic display of the active yarn carriers of the yarn carrier home position of the loaded knitting program and positioned in the area of clamping / cutting.

Yarn carriers required in the new pattern:

Prepare Machine



2. Thread-up the yarn carriers according to the display.

i	Help for threading-up
	To make the thread-up easier, the production can be interrupted (empty
	carriage stroke) with the button. Then deactivate the button again to
	continue with the production.



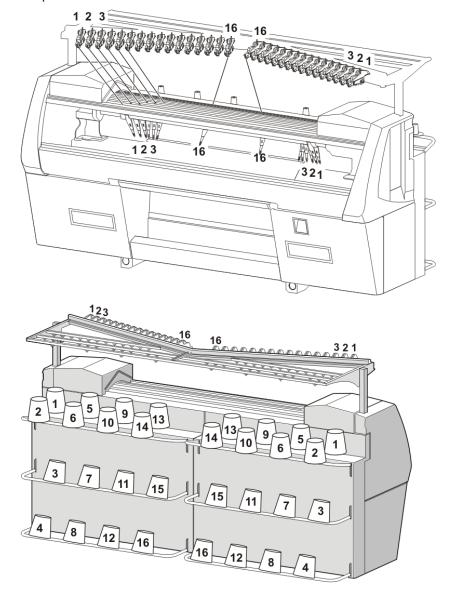
20.6 Threading up the Machine

20.6.1 Threading up from the Bobbin Board to the Yarn Carrier

Course of yarn

The yarn feeding is carried out from the top - directly from the yarn control unit to the yarn carrier.

To prevent the threads from touching each other, the yarn control units are arranged in a V-shape.



i Course of yarn

The course of yarn from the bobbin to the yarn carrier should run straight.

Threading up the Machine

Definition of the allocation of bobbin - yarn control unit - yarn carrier:

- Bobbin 1 Yarn control unit 1 Yarn carrier 1
- Bobbin 2 Yarn control unit 2 Yarn carrier 2
- etc.

This yarn feeding causes:

- the most reduced yarn tension possible
- that the threads do not touch each other

Example on equipment: of an ADF 32 W:

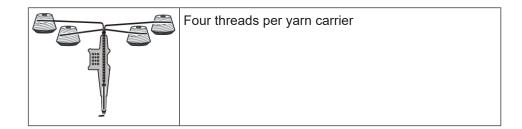
- Bobbin boards for a total of 32 yarn bobbins
- 32 Yarn control units
- 32 yarn carriers (2 yarn carriers on 16 tracks)

This means: If several threads are combined in one yarn carrier it is no longer possible to use all of the 32 yarn carriers.

Threading Options:

	Threads per yarn carrier	1	
	Quantity of yarn carriers	32	
ੁੰ Default allocation	Quantity of bobbins	32	
	i: Double assignme	ent of all tracks	
	Two threads per yarn carrier		
	One yarn carrier per track		
	Two yarn carriers	per track	
	Three yarns per yarn rier	carrier + one yarn per yarn car-	
	One yarn carrier per track		
	Two yarn carriers	per track	





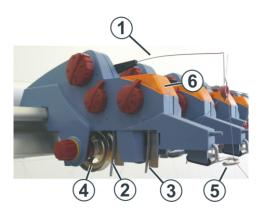
In the operating instructions you will find the graphic presentation of the different threading possibilities.

20.6.1.1 Threading up the yarn control unit

i

I. Yarn control unit (FKE):

The elements of the yarn control unit can individually be adjusted to the yarn being processed.



1	1 Tension arm		Yarn brake disc
2	Knot detector for large knots	5	Eyelet
3	Knot detector for small knots	6	LED

II. Tasks of the yarn control unit:

- Yarn brake disc (4):
 - controls the yarn tension and prevents threads from sagging via yarn tensioning.

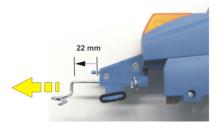
Threading up the Machine

- Tension arm (1:)
 - in case of yarn breakage or yarn end the tension arm switches off the knitting machine

i Error display

Errors are indicated by the LED (6), the signal light and at the display.

- Knot detector for large knots (2):
 - in case of large knots in the yarn, the knot detector switches off the knitting machine
- Knot detector for large knots (3):
 - in case of small knots in the yarn, the machine knits a programmed number of rows at reduced speed.
- Eyelet (5:)
 - guides the thread and prevents the threads from touching or crossing over each other.
 - adjustable: necessary when threading-up a yarn carrier with more yarns



20.6.1.2 Light Curtain

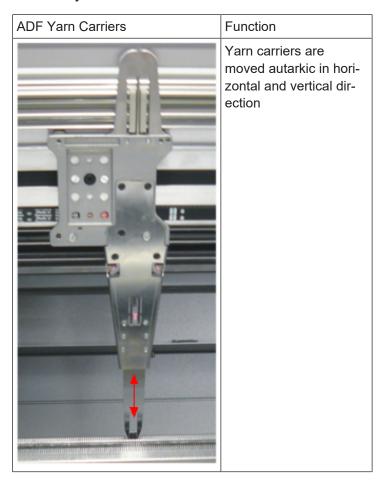


- The light curtain monitors the area above the yarn carrier rails.
- If this protective field is interrupted, the carriage and the autarkic yarn carriers are stopped immediately.



20.6.1.3 Threading-up the autarkic yarn carrier

Autarkic yarn carrier:

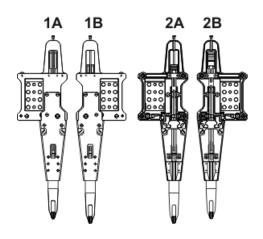


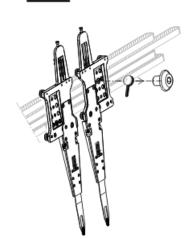
Rail allocation with 32 autarkic yarn carriers:

- At the yarn carriers of the rails 1-4, the yarn carrier tips are closed at the front open at the rear for threading-up
- At the yarn carriers of the rails 5-8, the yarn carrier tips are open at the front for threadingup - closed at the rear

Threading up the Machine

2B	1B	2A	1A	8
2B	1B	2A	1A	7
2B	1B	2A	1A	6
2B	1B	2A	1A	5
1A	2A	1B	2B	4
1A	2A	1B	2B	3
1A	2A	1B	2B	2
1A	2A	1B	2B	1





Two different construction types:

- Yarn carrier 1A corresponds to the yarn carrier 2B
- Yarn carrier 1B corresponds to the yarn carrier 2A

Special yarn carrier with ADF Weave-in machines:

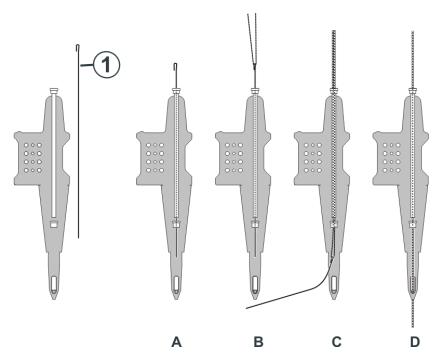


Yarn Carriers	Threading up
Taill Callers	Bypass: The yarn won't be threaded in the yarn tube but it will rather be led over two eyelets. 1. Only Bypass required: The yarn fits through the yarn carrier tip 2. Coarse yarn carrier with bypass + coarse yarn control unit (stronger restoring force): Yarn (thick) does not fit through the yarn carrier tip
4	
,	
Usage of the yarn carrier with bypass	Explanation
with a very coarse, voluminous yarn	The yarn is too thick, and cannot be threaded in the yarn tube
with a yarn, which "sticks" in the yarn tube	After the carriage reversal, the yarn is to be fetched back (tensioned) by the tension arm of the yarn control unit so that no yarn loop is formed.
	The increased friction results in a yarn loop, which leads to a fault in the fabric (yarn loop, hole, drop stitch, yarn breakage).

Procedure:

- 1. Open the covers.
- 2. Move the yarn carrier to a position where it can be threaded-up easier.
- 3. Thread-up yarn carrier.
 Use the threading aid (1) for it.

Threading up the Machine



- 4. Push the threading aid downward through the little yarn tube (A).
- 5. Form a thread loop (B).
- 6. Pull the threading aid downward (C).
- 7. Unthread the thread loop and thread it manually into the yarn carrier tip (D).
- 8. Hold the yarn end.



DANGER

The yarn carrier moves back into its knitting position!

Danger of crushing and cutting by the autarkic yarn carriers.

- ✓ The yarn carriers that were moved will automatically move back into their knitting position.
- \rightarrow
- \rightarrow
- 9. Pull the engaging rod upward cautiously.
 - ➤ The yarn carriers move automatically back into their knitting position or to the clamping and cutting position.
- 10. If the yarn carriers are in their knitting position, the carriage starts moving and inserts the thread in the needles.
- 11. When the thread is inserted securely in the needles, release the engaging rod.
- 12. Release the yarn end and close the covers.
- 13. Keep moving the carriage until the reversing position is reached and stop it.
- 14. Remove the yarn end.

Threading up the Machine



15. Continue the production or begin a new fabric.

20.6.1.4 Moving yarn carriers and repositioning them

For threading up and for repair work it is necessary to move the yarn carrier out of the knitting area.



Our recommendation:

Move the yarn carrier to a position where it is as accessible as possible and where you can thread it up easier.

Moving yarn carriers manually

- 1. Open the covers.
- ▶ All the yarn carriers are automatically disconnected from the power supply they are manually movable.
- 2. Move the yarn carrier to a position where it is as accessible as possible and where it can be threaded it up easier.

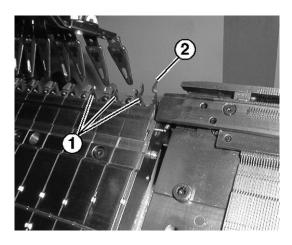
Reposition the yarn carriers

- 1. Insert the thread in the needles.
- 2. Close the covers.
- 3. Confirm the error message.
- 4. Pull up the engaging rod.
- ▶ The yarn carriers move automatically back into their knitting position.

20.6.1.5 Locking yarn ends

- I. Utilization of clamping and cutting device and of the comb:
- 1. Position the yarn carriers next to the corresponding clamping and cutting points on the right or on the left according to the yarn carrier home position.
- 2. Insert the yarn ends manually into the cutting needles of the clamping points.





No.	Element
1	Clamping point with cutting needle
2	Catch hook

- II. Without utilization of clamping and cutting device and of the comb:
- 1. Position the yarn carriers at the fabric selvedge on the right or on the left according to the yarn carrier home position.
- 2. Push up some needles at the fabric selvedge manually.
- 3. Insert the yarn ends in the needles.
- 4. Pull down the needles manually.
- 5. Cut off the yarn end.
- 6. Close the covers.

20.6.1.6 Position the Yarn Carriers

- I. Position the yarn carriers at the clamping point.
- ✓ The yarn carriers used in the pattern are threaded-up.
- ✓ With clamping and cutting device (YGCX).
- 1. Position the yarn carriers at the **corresponding clamping points**.
 - **i** Allocation of the yarn carriers to a clamping point by the YGCX command.

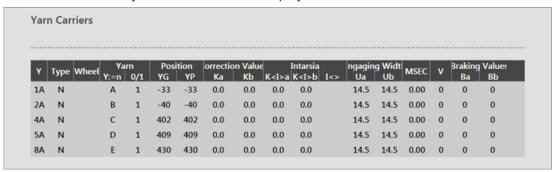
The yarn carrier number corresponds to the clamping point number.

- II. Position the yarn carriers at the fabric selvedge:
- ✓ The yarn carriers used in the pattern are threaded-up.

Threading up the Machine



- ✓ Without clamping and cutting device (YG).
- Tap on "Prepare Machine" in the bottom navigation bar.
- ▶ The graphic representation of the yarn carriers used is displayed
- 2. In the opened window press the button.
- ▶ The table with the yarn carriers in use is displayed.



3. Position the yarn carriers staggered at the fabric selvedge according to the table.

20.6.2 Thread up the Yarn Carriers after Yarn Breakage



DANGER

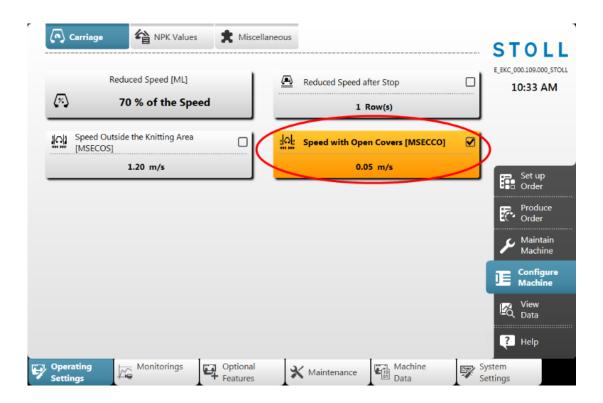
Danger by moving carriage

Danger of crushing and cutting by the carriage.

With production: Thread up yarn carriers after yarn breakage.

- 1. Open covers.
- 2. Thread up the yarn through the yarn guide star and yarn carrier head.
- 3. Lay-in the thread in the needle head using a knitting hook.
- 4. Lead the yarn end opposed to the carriage direction.
- 5. Hold the yarn end outside the danger zone(carriage)
- 6. Pull the engaging rod to position 2 (reduced speed) keeping the carriage in view.
- ► The carriage moves with reduced speed, if a slower speed was set under "Speed with Covers Open [MSECCO]" and if the button is activated.

Setting up the pattern



- 7. Release the engaging rod when the thread is fixed in the fabric and the position is accessible.
- 8. Cut-off the yarn end.
- 9. Close the covers and continue production.

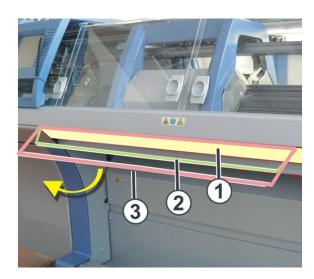
20.7 Setting up the pattern

While the machine is knitting, the corresponding data of the knitting program is displayed for every carriage stroke and can be changed.

- I. Setting up the loaded pattern:
- ✓ You are signed in as Senior Operator

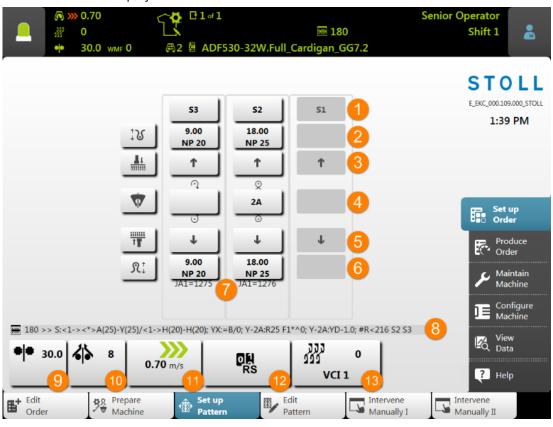
 —...
- ✓ An order with one knitting program was created.
- ✓ Quantity (run-throughs) is set.
- ✓ The order was started.
- ✓ The yarn carriers used in the knitting program are threaded-up.
- 1. Start the machine with the engaging rod.





1 Carriage stopped	
2 reduced speed	
3	normal speed

- 2. Tap on "Set-up pattern" in the bottom navigation bar.
- ► The window is displayed.



No.	Key			
1		System spe- cification	Display of the systems used with numbering Light gray: System active Dark gray: System inactive	
Date	a for th	e rear needle bed		
2	\mathcal{M}_{1}	Opening of the S	Setup Editor for changing the stitch tension	
		16,00 NP 25	Display of the current stitch tension (NP index) and the assigned value	
			• Opens number field for direct change of the value 1: The value is directly transferred to Setup.	
2		Onana tha "Taat		
3	9050505	Opens the Test	the weave-in device" window	
		Graphic display	of knitting symbols for the rear needle bed	
4	•	Opening of the S YD /YDI YC/YCI Ua-b/NCC	Setup Editor for changing of	
		2A	 Display of the active yarn carrier Opens the "Yarn carrier" window with graphic display of the yarn carrier rails 	
		_	the yant camerrans	
Date	a for th	e front needle be	ad .	
Date	a 101 til		·	
_	5555555		of knitting symbols for the front needle bed	
5	† T	Opens the "Test	the weave-in device" window	
6 † Opening of the Setup Editor for changing the stitch tension		Setup Editor for changing the stitch tension		
		16,00 NP 25	 Display of the current stitch tension (NP index) and the assigned value Opens number field for direct change of the value The value is directly transferred to Setup. 	
7		Display of the currently knitting jacquard line number		
8	·—	Display of the currently knitting Sintral line number		
	•—	Biopiay of the currently kintaing official file flumber		



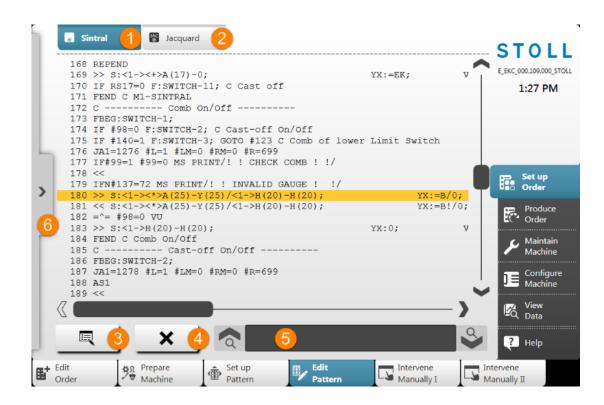
No.	Key	
9	•	Display of the take-down index with the current take-down value
		Opening of the Setup Editors for changing data in the
		– WMF menu
10	4	Display of the auxiliary take-down index with the current speed of the auxiliary take-down.
		Opening of the Setup Editors for changing data in the
		– W+F menu
11	>>>	Display of the carriage stroke direction with the current carriage speed
	0,70 m/s	Opening of the Setup Editor for changing the carriage speed values (MSEC)
12	ON RS	Display of the current cycle counter
		Opening of the Setup Editor for changing the cycle counter
13	333 333	Display of the current racking correction index with the current racking position
		Opening of the Setup Editor for changing the values of the racking correction index

- 3. Make the desired changes of the pattern parameters.
- ▶ The pattern should be set-up and prepared for the production.

20.7.1 Edit Pattern

- I. View or changes of Sintral or Jacquard:
- ✓ You are signed in as Senior Operator ■.
- 1. In the main navigation bar select the main area set up Order".
- 2. Tap on "Edit Pattern" in the bottom navigation bar.
- ► The window is displayed.

Setting up the pattern



N o.	Key	
1		Display window with the program element Sintral Sintral line highlighted in yellow: currently knitting row Sintral line highlighted in blue: selected Sintral line
2	JAC	Display window with the program element Jacquard
3	<u>::</u>	Open the editor to change the selected line 1: The changes are directly applied.
4	×	Delete the selected Sintral line 1: A prompt appears before deleting.
5		Edit box for searching of Sintral information
	¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬	Upward search referring the selected line
	>	Downward search referring the selected line
6	>	Expand the display window for the knitting simulation
	<	Collapse the display window for the knitting simulation

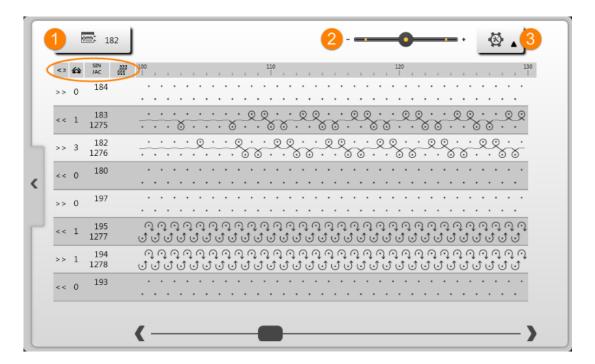
Setting up the pattern



- 3. Make the desired changes in the Sintral or Jacquard
 - **1** Changes at your own risk

 The changes cannot be tested at the machine and can lead to major problems.

II. Display window with the knitting simulation:



No.	Key	
1	E	Currently knitting Sintral line
2		Zoom for the display
3	⊗ ▲	Selection menu for the display of the columns in the table Column for carriage direction Column for system specification JAC: Column for Sintral and Jacquard line number Column for racking position Display of the carriage position while knitting

Check the yarn carriers

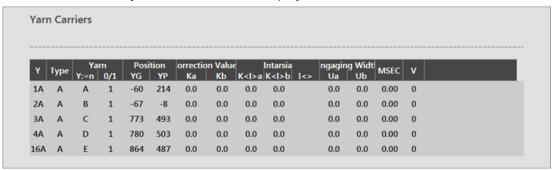
The knitting simulation shows the Sintral line before and after the currently knitting Sintral line.

Structure of the graphic in the knitting direction, i.e. read from the bottom upwards.

20.8 Check the yarn carriers

Display and check the yarn carrier positions.

- ✓ You are signed in as Senior Operator
- 1. In the main navigation bar select the main area Set up Order".
- 2. Tap on Trepare Machine" in the bottom navigation bar.
- ▶ The graphic representation of the yarn carriers used is displayed
- 3. In the opened window press the button.
- ▶ The table with the yarn carriers in use is displayed.



Column	Meaning		
Y Specific		eation of yarn carrier	
Туре	Definition of the yarn carrier type:		
	• Auta	rkic yarn carrier (A)	
Yarn	Y: = n	Specification of yarn type	
	0/1	Yarn type switched on or off	
Position	YG	Home position of the yarn carrier with needle xx	
	YP	Current yarn carrier position with needle xx i: Changes while knitting.	
Correction Values	Ka	Yarn carrier correction value a at the left selvedge within the knitting area	

Save the order with a knitting program



Column	Meanin	g
	Kb	Yarn carrier correction value a at the right selvedge within the knitting area
		i: Valid for
		Normal yarn carrier
		Intarsia yarn carrier not swiveled
Intarsia	K <i>a</i>	Yarn carrier correction value a for the swiveled intarsia yarn carrier at the left selvedge within the knitting area
	K <i>b</i>	Yarn carrier correction value b for the swiveled intarsia yarn carrier at the right selvedge within the knitting area
	 <>	Swiveling direction of intarsia yarn carrier
Engaging	Ua	Engaging value at the left when plating with two yarn carriers
Width	Ub	Engaging value at the right when plating with two yarn carriers
MSEC	Carriage speed related to yarn carrier	
V	Reduce carriage speed for the selected yarn carrier. (default value =0, i.e. the yarn carrier specific speed was canceled)	

20.9 Save the order with a knitting program

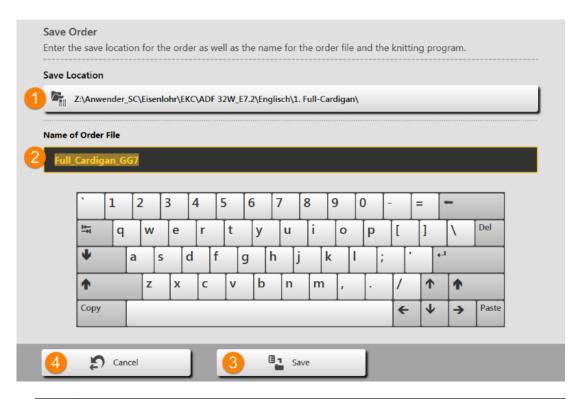
When saving an order a new file is always created with the xxx .seqx extension.

Saving an order with a knitting program:

i

- ✓ You are signed in as Senior Operator
 —
 ...
- 1. In the main navigation bar select the main area Set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
- 3. Then press the Save" button for saving.
- ► The "Save order" window is opened

Save the order with a knitting program



- Select location
 Local Patterns: Hard disc of the machine
 Network drive
 Display of the name for the order file (seqx), which can be changed via the keyboard.
 Default setting: Name of the knitting program
 For orders with only one knitting program, the original name of the knitting program (zip file) is to be maintained, since with a modification also the zip file will be renamed!!
 Save the order under the entered name
 Cancel process
- 4. Select location.
- 5. Enter the desired name for the order file.

i Attention

For orders with only one knitting program, the original name of the program (zip file) is to be maintained, since the zip file is also renamed in case of renaming!!

- 6. With the Save" button perform the operation.
- ▶ In the specified location a **seqx** file with its zip file of the same name is created with the defined name.

Produce Order



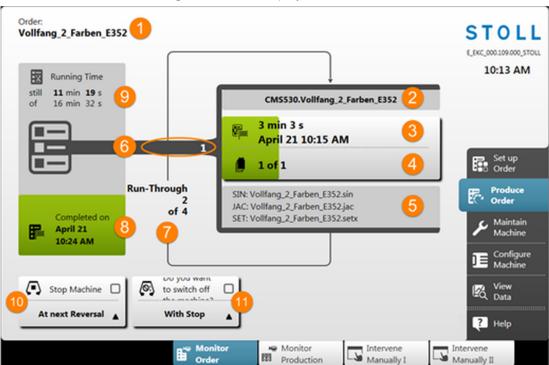
20.10 Produce Order

- ■ "Monitor Order": Display of the progress of an order
- Monitor Production": Display of the progress of the different fabrics of a position
- Re-knitting of fabrics of a position

20.10.1 Monitor the order with one knitting program

Monitor Order:

- ✓ An order is set-up and started.
- ✓ You are signed in as Senior Operator
- 1. Tap on Produce Order in the main navigation bar.
- 2. Tap on "Monitor order" in the bottom navigation bar.
- ▶ The window for **Monitoring the order** is displayed.



No.	Key	
1		Name of the order

No.	Key			
2		Name of the active knitting program with the machine type designation		
3		Display of the production progress (green bar) and running time of the current position (knitting program)		
		Running time of the number of fabrics per position plus fabrics to be re-knitted		
		Date and time of the completion of the number of fabrics per position plus fabrics to be re-knitted		
4		Display of the number of fabrics per position (knitting program) n of m		
		• n = Number of completed fabrics of the current position		
		• m = Total of fabrics to be knitted per position (knitting program)		
		• + x = Number of fabrics to be re-knitted of the current position		
		i: If several knitting programs are 'running through', the display corresponds to the piece counter for the corresponding active position (knitting programs).		
5		Name of the elements of a knitting program		
		Sintral: xxx .sin		
		◆ Jacquard: xxx .jac		
		Setup: xxx .setx		
6	No.	Active position number = sequential number of the knitting programs of the order		
7		Display of run-throughs (piece counter) n of m		
		• n = Quantity of completed run-throughs		
		• m = Total of run-throughs to be produced		
		i: If a knitting program is 'running through', the display corresponds to the piece counter.		
8		Displays the production progress (green area) of the order specifying the completion of the order (date + time).		
9	Ī	Display of the running time n of m of the order		
		• n = Remaining run time		
		◆ m = Total running time		
10	(-)	Do not stop the machine		
		Stop Machine		
		Open the selection menu with the button:		
		At next Reversal		
		Once the Current Fabric Is Finished		



No.	Key		
11	©	Do not switch off machine	
		✓	Switch Off Machine
			Open the selection menu with the button:
			With Stop
			Once the Current Fabric Is Finished
			Once the Order Is Finished

20.10.2 Monitor the production with one knitting program

Monitor Production:

- ✓ You are signed in as Senior Operator
 "Monitor Production" can also be performed by the Operator.
- ✓ An order is set-up and started.
- 1. In the main navigation bar select the main area Produce Order".
- 2. Tap "Monitor production" in the bottom navigation bar.
- ▶ The window for **Monitoring the currently knitting fabric** is displayed.



Symbolic picture

No.	Key	
1		Display of the running time per fabric piece still nn of xx with progress display (green bar)
		• nn : Remaining running time of the fabric piece
		• xx : Total running time of the fabric piece
2	Completed on	Completion of the current position (plus re-knitting of fabric pieces)
	■ 2000	• Date
		Time of Day
3	Carriages	Current carriage speed m/s with display of
	/ ■\	carriage direction toward left / toward right
	• •	Display of with the activated "Reduced speed [ML]" button
4	Fabrics of Position z	Display of the number of fabrics per position z (knitting program) in the run-through n of m
	n of m	z = Position number = Sequential number of the knitting programs of the order
		• n = Number of completed fabrics of the current position
		• m = Total of fabrics to be knitted per position (knitting program)
		• + x = Number of fabrics to be re-knitted of the current position



No.	Key	
		ightharpooling: If several knitting programs are 'running through', the display corresponds to the piece counter for the corresponding position (knitting program).
5	Cycle Counters	Display of the current cycle counter RSn = x / y
		• n : Number of the cycle counter
		• x : still remaining repetitions
		• y : total number of repetitions
6	Racking	Display of the current racking position
	333 333	
7	Take-down	Display of the current take-down value
9	Stitch length	Opening the dialog for changing the current stitch length
	ึ่Ωţ	
10	Yarn Carriers	Opening the "Yarn carrier" window with the graphic representation
	Ŷ _□	of the active yarn carrier

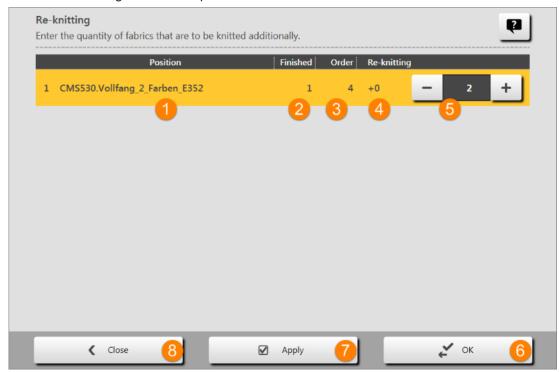
- 3. Tap the desired button to change the corresponding value.
- ▶ The changes will be entered in Setup.

20.10.3 Re-knitting of fabrics

- Necessary modification
 - In case of orders with only one knitting program, the number of run-throughs (piece number) can be influenced
 - In case of orders with several knitting programs, the number of fabrics per position can be influenced in the order.
- Re-knitting of defective fabrics
 - **i** These changes do not influence the specification entered when creating the order, since this can only be performed by the Senior Operator.

Re-knitting window

- ✓ You are signed in as Senior Operator ■.
 "Monitor Production" can also be performed by the Operator.
- ✓ An order is set-up and started.
- 1. Click the button in the "Monitor Order" or the "Monitor Production" window.
- ► The "Re-knitting" window is opened.



No.			
1	Position List of the knitting programs in the current order		
		Order with one knitting program	
		Order with several knitting programs	
2	Finished	Quantity of processed run-throughs	
3	Order	Total number of run-throughs	
		Order with one knitting program = Piece number	
		Order with several knitting programs (positions) = Number of runthroughs of the entire position (list)	
4	Re-knitting	Display of the already re-knitted fabrics	
5	- 2 +	+/- button for entering the number of fabric pieces to be re-knitted	
6	∠ ok	Confirm the input and return to the previous window	
7	Apply	Confirm the input for the first position in the list and do not exit the window to make further entries	

Load Existing Order



No.		
8	 ← Close	Close the window without applying the entries

- 2. Make the desired entry for the first position to be changed
- 3. Press the Yapply" button, to confirm this input and then to continue with the next entry.
 - or Press the "Ok" button, to confirm this input and to close the window.
 - i Behavior

If fabrics are entered to be re-knitted, 're-knitting' is performed immediately after completion of a currently knitting position.

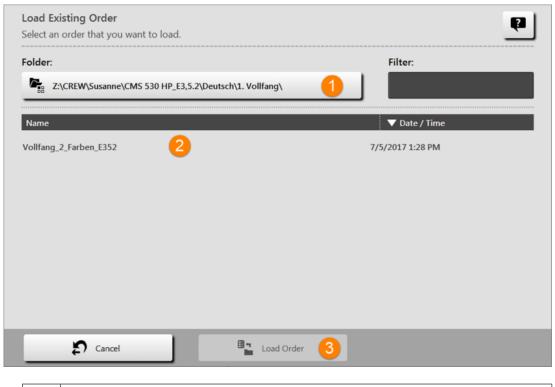
20.11 Load Existing Order

i An order with one or more knitting programs was saved as seqx file.

Load existing order (seqx file):

- ✓ You are signed in as Senior Operator
- ✓ A seqx file is saved.
- 1. In the main navigation bar select the main area Set up Order".
- 2. Tap on ted "Edit order" in the bottom navigation bar.
- 3. Then, for loading an existing order, press the Load existing order button.
- ► The "Load" "Existing Order" window is opened.

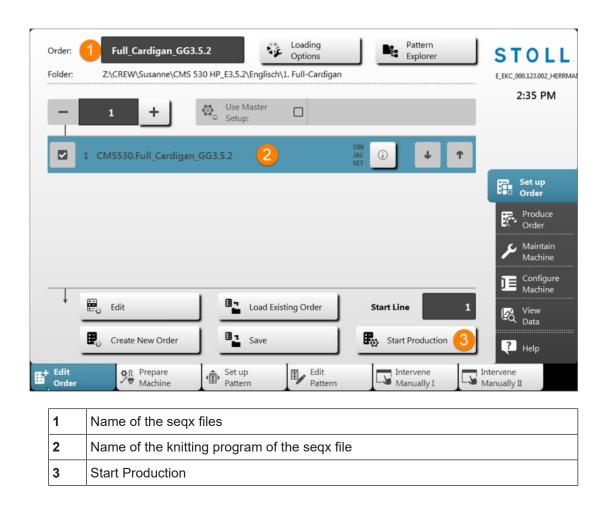
Load Existing Order



- Select location (folder) of the saved seqx file
 Local Patterns: Hard disc of the machine
 Network drive
 List of all seqx files in the selected folder.
 Button for loading the selected seqx file
- 4. Select the desired seqx file.
- 5. Press the Load Order" button.
- ► The order is loaded.
- ▶ In the menu area are displayed the loaded order and the knitting program.

Load Existing Order

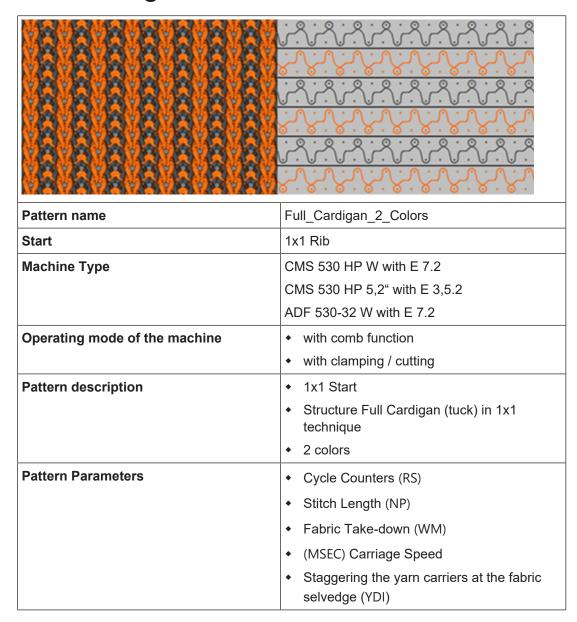




6. Press the Start production" button:



21 Full Cardigan, 2 Colors / Tuck





21.1 Operating Mode of the Machine and Knitting Program

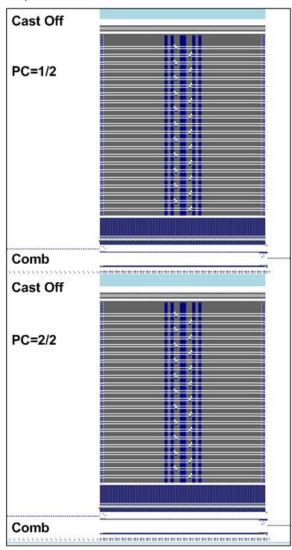
Operating mode of the machine

■ Operating mode using the comb

The knitting program (Sintral, Jacquard, Setup) is structured the way that the **comb function** is called-up at the start of the program and the **cast-off function** at the fabric end.

Result:

Each piece is started with the comb and cast-off at the end. This way single pieces are produced.



i There must **not** be a fabric in the needle bed or main take-down.

Comb function at the start of a fabric piece

- 1. Clearing the needle beds (knitting without yarn carrier)
- 2. Inserting the comb thread (special elastic yarn)
- 3. Raising the comb to the top till the comb thread is caught by the comb hooks
- 4. Closing the comb hooks

i

5. Lowering the comb till the comb hooks are no longer between the needles

Casting-off function at the end of a fabric piece

The function is called-up at the end of the fabric to ensure an empty needle bed when starting the next fabric.

```
280 C ----- Abwerfen -----
281 FBEG:SCHALTER-9;
282 JA1=1103 #L=125 #LM=0 #RM=0 #R=275
                                                                     VΟ
283 << S:<1->H(8)-H(8)/<1->H-H;
                                                     Y:0/0:
                                                                              S1 S2
                                                                                        WMF5
                                                                                             MSEC=0.70
284 #98=1
285 >> S:<1->H-H/<1->H-H;
                                                     Y:0/0;
                                                                              s2 s3
                                                                                             MS=2.5
286 IF #69=>1 IF #69<=4 F:SCHALTER-10; C MS*#69 (1-4s)
287 FEND C Abwerfen
288 C ----- MS*#69 (1-4s) -----
289 FBEG:SCHALTER-10;
290 JA1=1100 #L=125 #LM=0 #RM=0 #R=275
                                                                                        WMF2 MSEC=0.70
291 <<
                                                                     V0
                                                                              s0
292 IF#69=1 MS=1
293 IF#69=2 MS=2
294 IF#69=3 MS=3
295 IF#69=4 MS=4
                                                                              s0
297 FEND C MS*#69 (1-4s)
```

With the help of the **counter #69** in the cast-off function, an **additional standstill time (MS)** can be defined in the carriage reversal.

This is necessary in certain cases to ensure the casting-off of the fabric.

Set the counter#69:

i

- ✓ You are signed in as Senior Operator
- 1. In the main navigation bar select the main area "Set up Order".
- 2. Tap on Trepare Machine" in the bottom navigation bar.
- 3. Open the table of the counters with the #button.

Create and set-up an order with a knitting program



- 4. Tap on the #"Counter 51-99" button.
- ► The desired table is displayed
- 5. Enter the desired value for #69.

21.2 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
- Position the yarn carriers at the clamping point
- Check the knitting area and the fabric collection chamber
- 4. Start machine (engage).

Make the following changes:

- Cycle Counters (RS)
- Stitch Length (NP)
- Machine speed (MSEC)
- Fabric take-down values (WM, W+, WMK...)

21.3 Setting: Cycle Counters

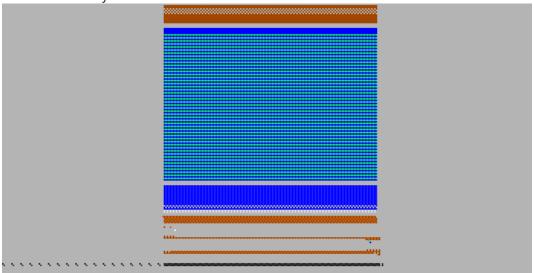
Use of cycle counters

- Cycle counters are used for the length control in a fabric piece
- Pattern areas are defined in the pattern and repeated by cycle counters (variables)
- The cycle counters are allocated to the corresponding pattern areas in the Sintral program.
- Possible variables of cycle counters:
 - **Setup**: RS1 to RS39

Setting: Cycle Counters

Behavior of cycle counters

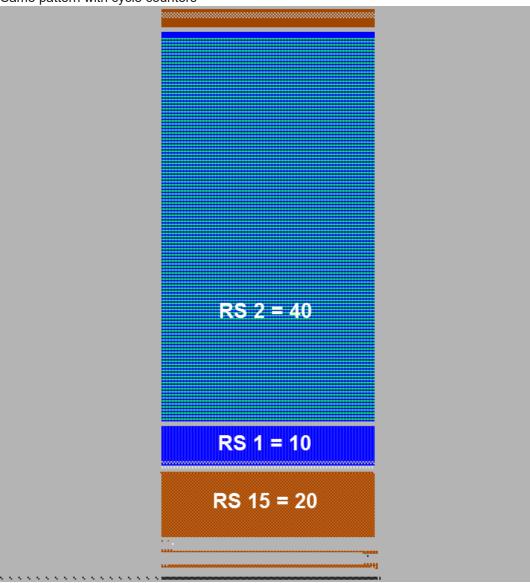
■ Pattern without cycle counters



Result: The pattern cannot be influenced regarding the length.



■ Same pattern with cycle counters



Result: The pattern can be changed regarding the length in the areas with defined cycle counters.

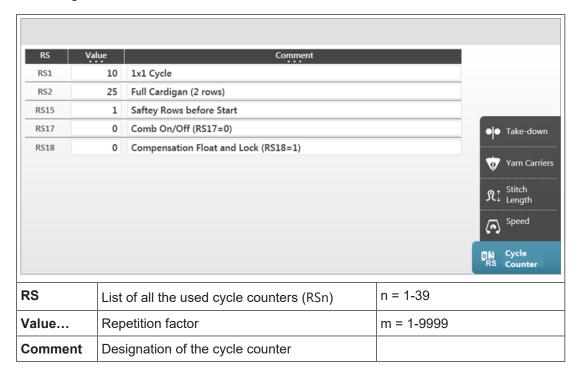
Call up and change used cycle counters in the Setup Editor

- ✓ You are signed in as Senior Operator

 ■...
- ✓ The knitting program is loaded and the production was started.

Setting: Stitch Length

- 1. Select "Prepare Machine" in the bottom navigation bar and for changing the cycle counters, open the window with the "Setup Editor" / RS "Cycle counter" button. or select the "Set-up pattern" window and for changing the cycle counters, open the window with the RS button.
- 2. Change the desired values.



- With the T'Close" button exit the Setup Editor.
- ▶ Changed values in the Setup are saved together with the pattern when saving.

21.4 Setting: Stitch Length

The stitch length is essentially decisive for the stitch appearance of the knitwear.

- The longer the stitch is, the looser will be the fabric.
- The shorter the stitch is, the tighter will be the fabric.

The stitch length depends on:

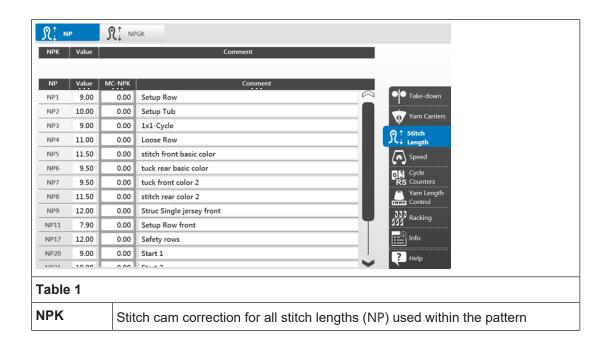
- Yarn Quality
- Structure / Binding / Knitting technique

Setting: Stitch Length



Call up the stitch length table and change the values

- ✓ You are signed in as Senior Operator
- ✓ The knitting program is loaded and the production was started.
- 1. In the main navigation bar set up Order is selected.
- 2. Select Set-up pattern" in the bottom navigation bar.
- Open the Setup Editor with the ↓ button for changing the stitch length in the front needle bed
- Open the Setup Editor with the 🏋 button for changing the stitch length in the rear needle bed
- 3. Change the values.
- 4. Close Setup Editor with the Close" button and return to "Set-up Pattern".
- ► The changed values are in Setup and will be stored together with the order when saving it.
- or -
- 5. In the main navigation bar select range "Produce Order".
- 6. Open M "Monitor production" in the bottom navigation bar.
- 7. Tap the **\$**[↑] key.
- ► Change the value via the number field.



Setting: Carriage Speed

Value	Input of desired correction	Min. value: -2 Max. value: 2 Step width: 0.05
Comment	Description of NPK value	
Table 2		
NP	List of all the used stitch lengths (NPn)	n = 1-250
Value	Input of desired stitch length value The value rang pends on the g	
MC-NPK	Machine specific NP correction values	Minimum value: -2
	Input of correction values not to be applied to other machines.	Maximum value: 2 Steps: 0.05
	These values are saved and kept by the machine.	Dongle Data
	These values cannot be transferred to other machines by the Setup file.	On the machine only!
	◆ You can delete these values by ☑ EANP (Loading Options) when creating a new order.	
	You can set all entries to one value or to =0 (zero) by click on the table header MC-NPK	
Comment	Description of NP value	

21.5 Setting: Carriage Speed

In a knitting program there are so-called technical rows (Jacquard rows), which control specific actions on the machine:

- Knit
- Transfer or casting-off
- Take or clamp yarn carriers

The carriage speed can be changed in the carriage reversal.

The quantity of Jacquard rows per carriage stroke to be knitted depends on the system number of the machine.

Adjust the carriage speed (MSEC) in case of:

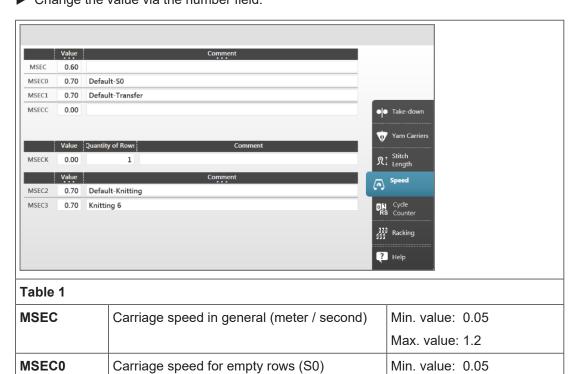
- Different structures
- Difficult program parts
- Tight transfer rows
- Delicate yarns (for ex. cashmere)



Carriage speed menu

- ✓ You are signed in as Senior Operator

 ■
- ✓ The knitting program is loaded and the production was started.
- 1. In the main navigation bar "Set up Order" is selected.
- 2. Select Set-up pattern" in the bottom navigation bar.
- 3. In the window tap the 0,30 m/s button.
- ► The Setup Editor appears.
- 4. Change the value.
- 5. Close Setup Editor with the Close" button and return to "Set-up Pattern".
- ► The changed values are in Setup and will be stored together with the order when saving it.
- or -
- 6. In the main navigation bar select range "Produce Order".
- 7. Open M "Monitor production" in the bottom navigation bar.
- 8. Tap the key
- ► Change the value via the number field.



		Max. value: 1.5
MSEC1	Carriage speed for transfer rows	Min. value: 0.00 = Carriage speed of the last knitting row will be applied
		Max. value: 1.2
MSECC	Carriage speed when fetching or bringing a	Min. value: 0.05
	yarn carrier to a clamp	Max. value: 0.5
MSECI	Carriage speed with intarsia yarn carriers	Min. value: 0.05
		Max. value: 1. 0
Comment	Description	
Table 2		
MSECK	Carriage speed with small knots	
Value	Input of the desired carriage speed	Min. value: 0.05
		Max. value: 1.2
Number of	Quantity of rows to be knit with the specified of	arriage speed.
Rows	i: Default: 1 row with ML.	
Table 3		
MSECm	List of all carriage speeds in use	m = 2 - 20
Value	Input of the desired carriage speed	

21.6 Setting: Fabric Take-down

The purpose of the fabric take-down is to continuously take-down the knitwear the stitch. This way, the stitch loops are hold reliably in the needle hook during the stitch formation process or transfer. The fabric gets stability during the knitting process.

The fabric take-down depends on:

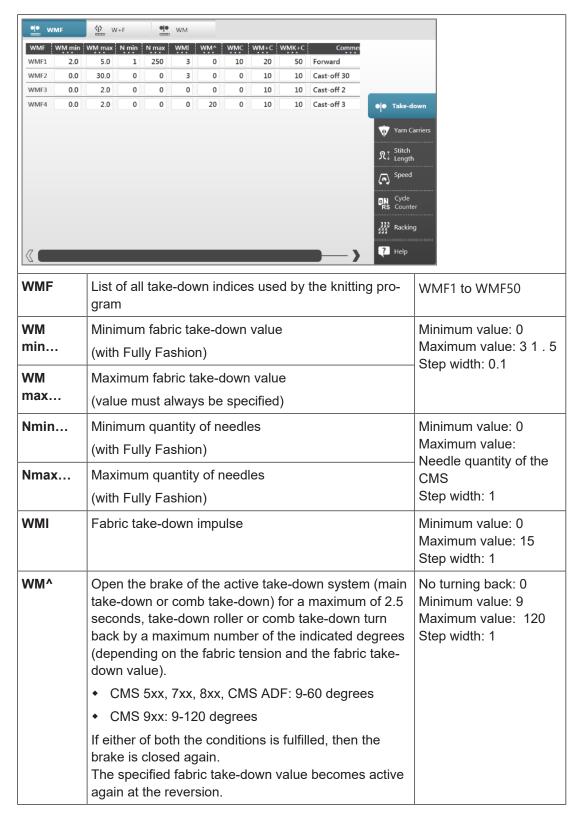
- Fabric width
- the knitting mode
- the stitch length
- the yarn in use



Open the Fabric Take-down Table

- ✓ You are signed in as Senior Operator
- ✓ The knitting program is loaded and the production was started.
- ✓ In the main navigation bar
 "Set up Order" is selected.
- 1. Select "Set-up pattern" in the bottom navigation bar.
- 2. In the window tap the button with the symbol.
- ► The "WMF" menu in the Setup Editor is opened.
- 3. Change the value.
- 4. Close Setup Editor with the Close" button and return to "Set-up Pattern".
- ► The changed values are in Setup and will be stored together with the order when saving it.
- or -
- 5. In the main navigation bar select reproduce Order.
- 6. Open M "Monitor production" in the bottom navigation bar.
- 7. Tap the button with the symbol.
- ► Change the value via the number field.
 - In the "W+F" (auxiliary take-down) menu and in the "WM" (WM% + WMK%) menu, the values can be changed following the same procedure.

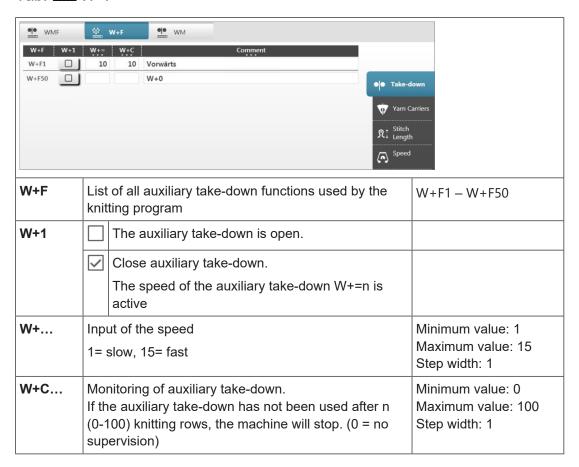
Tab: WMF



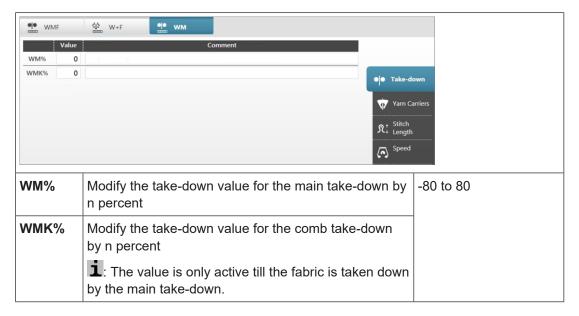


Set the speed control of the active take-down system (main take-down or comb take-down) to the value n (0-32). If the take-down system turns too quickly, the machine is stopped.		Minimum value: 0 Maximum value: 32 Step width: 1
WM+C	0= no stop motion, 1= insensitive, 32= very sensitive Monitoring of main take-down. If the take-down has not been used after n (0-100) knitting rows, the machine will stop. (0 = no supervision)	Minimum value: 0 Maximum value: 100 Step width: 1
WMK+C	Monitoring of comb. If the comb has not moved after n (0-100) knitting rows, the machine will stop. (0 = no supervision)	Minimum value: 0 Maximum value: 100 Step width: 1

Tab: ♣ W+F



Tab: WM



21.6.1 Additional Setting: Main Take-down, Auxiliary Take-down and Comb

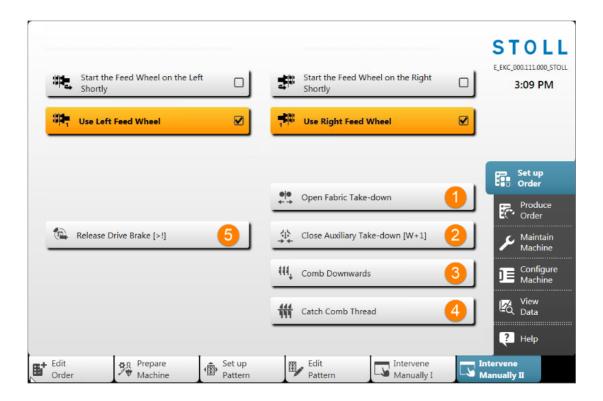
It may be necessary to do some of the following additional settings when setting up the knitting program or during production:

- Opening / closing the main take-down or the auxiliary take-down
- Control of the main take-down or of the auxiliary take-down
- Comb functions

Submenu: Intervene Manually II

- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded and the order was started.
- 1. Select Intervene Manually II" in the bottom navigation bar.
- 2. Tap the button for the desired function.



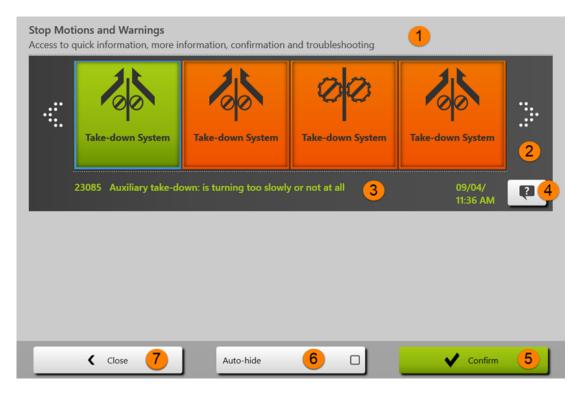


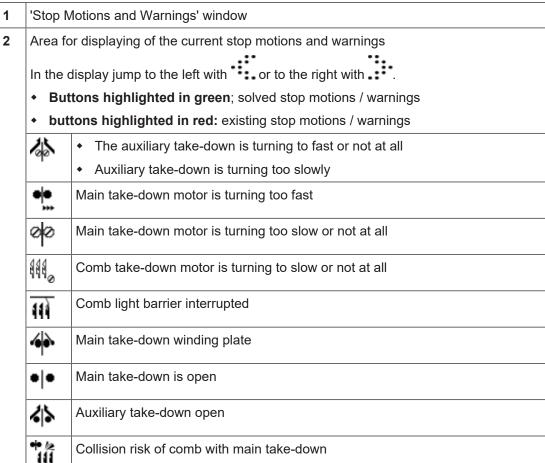
1	Open Fabric Take-down	
	* * → ←	Close Fabric Take-down
2	业	Close Auxiliary Take-down [W+1]
	华	Open Auxiliary Take-down [W+0]
3	111	Comb Downwards
4	111,	Catch Comb Thread
5		Release Drive Brake [>!]

Error messages about the take-down systems

During production, the control of knitting machine compares the current values with threshold values. If a threshold value is exceeded, the knitting machine stops and displays the corresponding error message in a window.









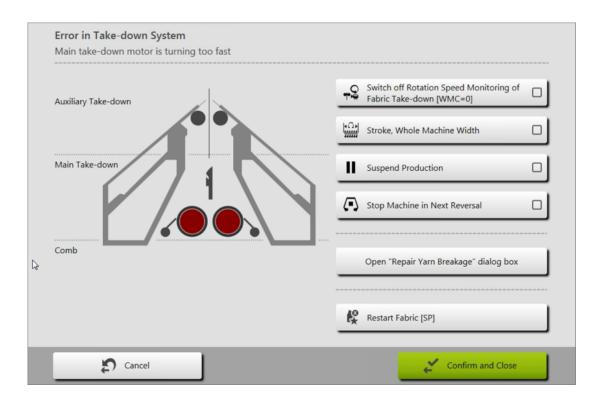
	4 III	Collision risk of co	omb with auxiliary take-down	
3	Display of the number witing		h detailed text description of the current stop motion / warn-	
	◆ Wit	n stop motions the	text is in red	
	• Wit	h warnings the text	is in yellow	
4	?		Opens a window for the current stop motion / warning with specification of the possible causes and their possible solution	
5	Confirm		With this button confirm the entry after solving the stop motion / warning.	
6	Auto-hide		The display window remains visible in the foreground	
			The display window remains in the background. When pressing the button, the window with the stop motions / warnings is displayed.	
7	Close		Close Window	

- 1. In the "Stop Motions and Warnings" menu tap the "Take-down system" (red) button.
- ▶ The window with the possible solutions for the error message is opened.

Example:

Error in Take-down System

Main take-down motor is turning too fast



- 2. Activate the "Switch off Rotation Speed Monitoring of Fabric Take-down [WMC=0]" button.
- ▶ The speed control of the active take-down system (main take-down / comb take-down) is set to 0. The motor does not turn anymore.

21.7 Save the order with a knitting program

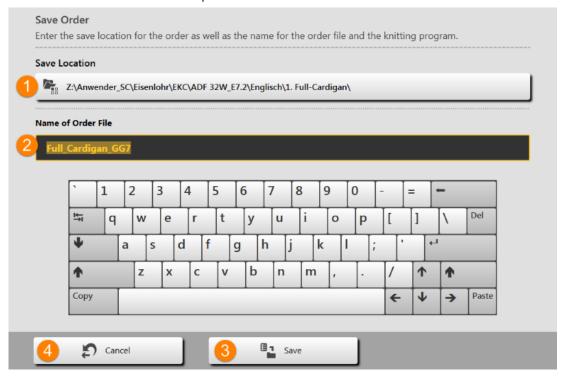
i When saving an order a new file is always created with the xxx .seqx extension.

Saving an order with a knitting program:

- ✓ You are signed in as Senior Operator
- 1. In the main navigation bar select the main area set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
- 3. Then press the Save" button for saving.



► The "Save order" window is opened



- Select location
 Local Patterns: Hard disc of the machine
 Network drive
 Display of the name for the order file (seqx), which can be changed via the keyboard.
 Default setting: Name of the knitting program
 For orders with only one knitting program, the original name of the knitting program (zip file) is to be maintained, since with a modification also the zip file will be renamed!!
 Save the order under the entered name
- 4. Select location.

4

- 5. Enter the desired name for the order file.
 - i Attention

Cancel process

For orders with only one knitting program, the original name of the program (zip file) is to be maintained, since the zip file is also renamed in case of renaming!!

6. With the "Save" button perform the operation.



▶ In the specified location a **seqx** file with its zip file of the same name is created with the defined name.





22 Cycle counter RS17 with constant fabric width (without fully fashion)

With the help of the cycle counter RS17, you control the work of the comb and the related clamping and cutting at the machine.

Working with RS17

RS17	Function	
RS17 = 0	Comb and clamping / cutting activated	
RS17 = 1	Comb and clamping / cutting disabled	

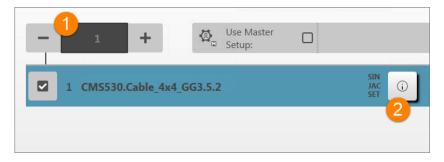
After loading a pattern in the machine memory, the cycle counter is set to RS17=0.

Production with RS17 with fabrics with constant fabric width

- Via the Sintral command RS17=1 IF #100=1 RS17=0, the activation / deactivation of the comb function is coupled to the number of run-throughs (piece counter).
- The use of the comb and the clamping / cutting are therefore automatically regulated within the production.
 - i Cancellation of the production with RS17

In case patterns need to be restarted based on machine problems (e.g. yarn breakage) or for other reasons it must be ensured that with SP the RS17 is set to RS17=0!

Behavior of the run-throughs (piece number) when using RS17



1 Quantity of run-throughs (= piece number)



2 Information button for Sintral, Jacquard and Setup

With quantity of run-throughs (1): =1:

- 1. For the one fabric piece, the comb and the clamping / cutting are active.
- 2. All yarn carriers are taken out of the clamp before the start and knitted-in.
- 3. The fabric is cast-off at the end via a cast-off function in the Sintral.

With quantity of run-throughs (1): >1:

I. First fabric:

- 1. The first piece works with **Comb** since **RS17=0** is set.
- 2. All yarn carriers are taken out of the clamp before the start and knitted-in.
- 3. The Comb thread is clamped after knitting, since it is only needed for the first piece.
- 4. All other yarn carriers are positioned at the fabric selvedge for the following pieces.
- 5. At the fabric end the RS17 is set to **=1** with the Sintral command RS17=1 IF #100=1 RS17=0, as the piece counter is >1.
- ▶ This way no cast-off is carried out at the fabric end.

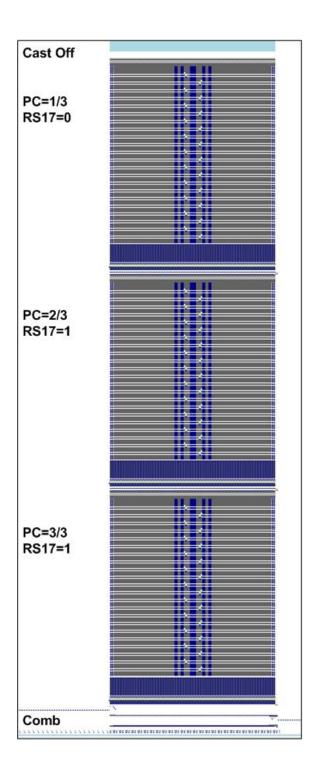
II. The following fabric pieces:

- 1. All the following fabrics are processed without comb and clamping / cutting.
- 2. No cast-off is carried out at the end of these fabrics.
- 3. The pieces are connected by knitting-in a draw thread. (Transition)

III. Last fabric piece of the piece counter:

- 1. The last fabric piece is processed without comb and clamping / cutting.
- 2. At the end of the last piece, the piece counter is checked by the Sintral command RS17=1 IF #100=1 RS17=0 and this way is set **RS17 = 0**.
- 3. With **RS17 = 0** the yarn carriers are brought into the clamps and then the fabric piece is cast-off.





Result

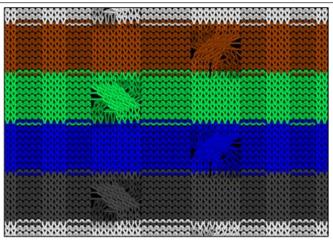
The fabric pieces are knitted together separated by the draw thread instead of casting-off after each single piece.

The working procedure is recommended for fabric pieces with reduced height, e.g. collars and other small pieces.



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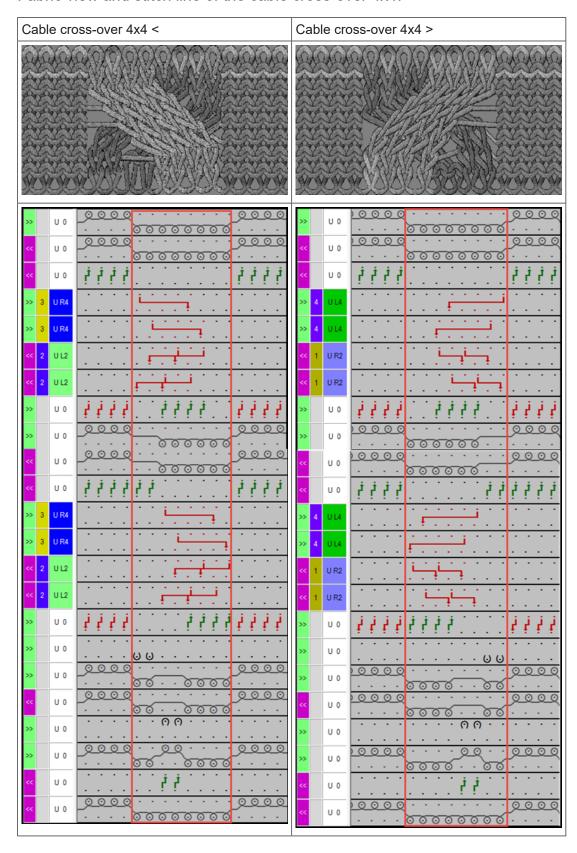
23 Cable_4x4



Pattern name	Cable_4x4
Start	1x1 Rib
Machine Type	CMS 530 HP W with E 7.2
	CMS 530 HP 5,2" with E 3,5.2
	ADF 530-32 W with E 7.2
Operating mode of the machine	Usage of RS17
	 First fabric piece with comb function and clamping / cutting
	 Following fabric pieces without comb function and clamping / cutting
	 Last fabric piece with piece counter =0 is cast-off
	• with Sintral command RS17=1 IF #100=1 RS17=0
Pattern description	4x4_cable crossed over to the left and to the right
	with rib structure
	different colors as stripes
Pattern Parameters	Stitch Length (NP)
	Cycle Counters (RS)
	• Fabric Take-down (WMF, WM^)
	Yarn Carriers (YDopt)
	Racking Correction (VCI)



Fabric view and stitch line of the cable cross-over 4x4:



Cable cross-over 4x4 <

Cable cross-over 4x4 >

The stitches on the left and on the right next to the cable are called 'environment'. If these stitches are on the rear needle bed (= reverse jersey stitches), they are transferred to the front before the cable cross-over (transfer environment) and after the cross-over they are transferred again to the rear. This way, these stitches are not 'racked' with the racking. The stitch quality is retained.

i Racking Correction

The racking specifications existing in the cable cross-overs have racking indices (VCI). In case of large racking courses this is necessary to increase the running reliability.



23.1 Operating Mode of the Machine and Knitting Program

Operating mode of the machine

- Operating mode without using the comb and production with RS17:

 The knitting program (Sintral, Jacquard, Setup) is structured in such a way that the working mode of the machine can be influenced via the cycle counter RS17.
- RS17=1 IF #100=1 RS17=0 Sintral command required in the Sintral program
- Value specification for Quantity of run-throughs
 - There must **not** be a fabric in the needle bed or main take-down.

 All fabric pieces are knitted consecutively, separated by a draw thread.

23.2 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
- Position the yarn carriers at the clamping point
- Check the knitting area and the fabric collection chamber
- 4. Start machine (engage).

Make the following changes:

- Cycle Counters (RS)
- Stitch Length (NP)
- Machine speed (MSEC)
- Fabric take-down values (WMF,WM^)
- Racking corrections (VCI)



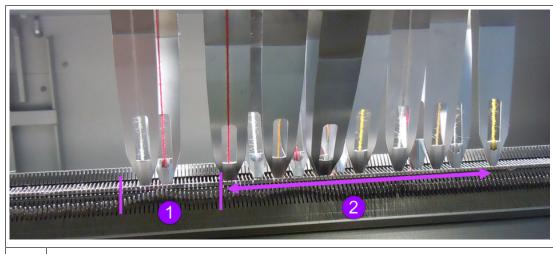
23.3 Optimized yarn carrier home position YDopt

YDopt:

If YDopt is used when programming, the distances between the yarn carriers and the fabric selvedge are automatically optimized.

Especially appropriate for patterns with a high use of yarn carriers, for ex. stripe patterns.

Functioning principle:



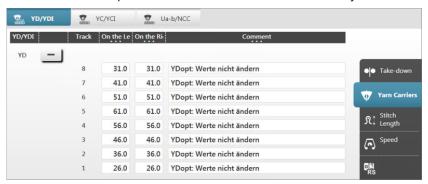
- 1 Parking area for the yarn carriers that are knitting in the pattern row
 - 1: The yarn carriers are positioned staggered
- 2 Parking position (waiting area) for the momentarily non knitting yarn carriers
 - i: The yarn carriers are positioned staggered
- 1. The yarn carriers are positioned staggered with a **wide** distance (parking position) in relation to the fabric selvedge.
- 2. The required yarn carriers are taken out of the parking position and start knitting.
- While knitting, the active yarn carrier receives a new parking position and will be positioned **much closer** to the fabric selvedge.
 The parking position is optimized (YDopt).
- 4. After the last knitting row, the active yarn carrier is returned to the parking position.
- 5. The following, knitting yarn carrier is taken out of the parking position and also positioned at the fabric selvedge with YDopt.

Optimized yarn carrier home position YDopt



YDopt in Setup

- The parking position YD of the yarn carriers is determined automatically.
 The specification are in the Sintral since the values change after each carriage stroke.
- The values are predetermined and cannot be edited anymore at the machine.



Column	Meaning		
YD / YDI	Display of the tables used for staggering of the yarn carriers at the fabric selvedge		
	YD: Default table for yarn carrier staggering		
	YDIn: further indirect yarn carrier staggering of	yarn carrier staggering of YDI1 - YDI20	
	Expanded table		
+	Collapsed table		
Track Numbering of the yarn carrier rails / yarn carrier number (YDn)		number (YDn)	
◆ CMS MC with 8 yarn carrier rails: Track 1- 8 (YD1 – YD8)		YD1 – YD8)	
	ADF MC with 16 yarn carrier rails: Track 1 – 16 (YD1 – YD16)		
at the left	Distance of yarn carrier from the left outer fabric selvedge	Minimum value: 0 Maximum value: 160	
at the right	Distance of yarn carrier from the right outer fabric selvedge	Step width: 0.5=1/32 inch=0.8 mm	
Comment Description			

i With **YDopt**, the corresponding YD values of the yarn carriers may **not** be changed.



23.4 Racking Positions and Racking Commands

Racking Positions

Designation	Symbol	Position of the needle bed
V0	Normal Racking	
V#	Half Racking	
VU	Transfer Racking	Н

The maximum racking course of the rear needle bed covers 2 inch to left and 2 inch to the right starting from the home position 0.

Racking Functions

i

Command	Function
VCI n	n = 1 – 50 racking functions available.
	One function is used for each racking in use.
	 The function has all commands to control the racking.

General Commands for Racking

Commands	Designation / Min./ max. val- ues	Movement of the needle bed:
Racking Correction VKn > m VKn < m	<pre>n = A - Z < = to the left > = to the right m = 1-10</pre>	4 3 2 1 0 1 2 3 4
	m = 0	Racking correction is turned off
	m = ?	Machine stops at the given racking position in order to check the racking position and correct it if necessary.
Overracking V+ n V- n	n = 1 - 24	4 3 2 1 0 1 2 3 4

Make settings for racking



Commands	Designation / Min./ max. val- ues	Movement of the needle bed:
Racking speed	n = 1-32	Default setting:
◆ VV = n		VV=32 (highest speed)

i Notice:

- Racking of the rear needle bed is carried out in the carriage reversal.
- The racking commands are maintained for one carriage stroke. (stroke-related data)
- Additional racking commands are used for machines with additional beds.

23.5 Make settings for racking

The racking correction optimizes the transfer process and improves the running reliability with patterns with racking technique. A racking correction influences the position of the rear needle bed regarding the front needle bed during the transfer.

Possible corrections:

- Racking Correction (VKn)
- Racking Speed (VV)
- Overracking (V+)

i Racking Functions VCI

All Sintral commands regarding the racking are managed by functions. For each racking position, a racking function VCIn is stored with index.

Input of changes for racking:

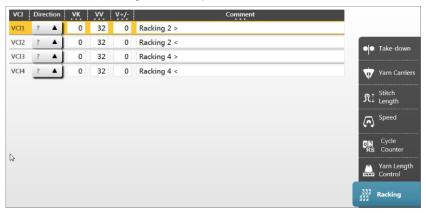
- ✓ You are signed in as Senior Operator

 —

 ...
- ✓ The knitting program is loaded and the production was started.
- ✓ Machine is running till the automatic stop (Sintral command ?).
- ✓ Machine is manually stopped at the racking position you want to check.
- 1. In the main navigation bar select the main area "Set up Order".
- 2. Tap on Trepare Machine in the bottom navigation bar.

Make settings for racking

- 3. Tap the button.
- ► The Setup Editor appears.
- 4. With the III "Racking" button, open the table with the VCI indices used in the pattern.



- 5. Tap in the input field to be changed.
- 6. Enter values or a comment.
- Command VKn<? or VKn>?:
 - In the **Direction** column, change the ? symbol regarding a carriage direction specification < or >.
 - In the VK column, enter the necessary VK value.
- Command VV=n or V+=n:
 - In the **VV...** and **V+/-...** columns, enter the desired values.

Sintral specification

A VCIn racking function is allocated to each racking direction existing in the cable crossovers. With the help of the commands in the racking function, the corresponding racking position is influenced.



```
149 << S:<1-><A>A(5)-Y(6)/<1->U^ST:
                                                              Y := C :
                                                                                   Y-3A:F1A^0:
                                                                                                Y-3A:YD1.0-6.0:
                                                                      Y:=C/0;
150 >> S:<1-><A>A(5)-Y(6)/<1->0-%Z(9):
                                                                                           Y-3A:YD1.0-1.0;
151 << S:<1-><A>A(5)-Y(6);
                                                              Y:=C;
152 >> S:<1-><A>A(5)-Y(6)/<1->%O(7)-O/<1->UXST-+;
                                                              Y:=C/0;
153 << S:<1->UVS+/<1->UVS+;
                                                                               VR2 VCI1
154 >> S:<1->UVS+/<1->UVS+
                                                                               VL4 VCI4
155 << S:<1->U^ST/<1-><A>A(5)-Y(6);
                                                              Y:=C;
                                                                               V0
156 >> S:<1-><A>A(5)-Y(6)/<1->UXST-+;
157 << s:<1->UVS+/<1->UVS+;
                                                                               VR2 VCI1
158 >> S:<1->UVS+/<1->UVS+
                                                                               VL4 VCI4
159 << S:<1->U^ST/<1-><A>A(5)-Y(6);
                                                              Y:=C;
                                                                              V0
160 >> S:<1-><A>A(5)-Y(6);
                                                                                   Y-3A:YD1.0-46.0;
                                                              Y := C :
                                                                               VU
161 << S:<1-><E>A(5)-Y(6)/<1->U^ST;
                                                              Y:=D;
                                                                                Y-4A:F1E^0; Y-4A:YD1.0-11.0;
162 >> S:<1-><E>A(5)-Y(6)/<1->0-%Z(9);
                                                                                       VU Y-4A:YD1.0-1.0;
163 << S:<1-><E>A(5)-Y(6);
                                                              Y := D;
                                                                               VU
164 >> S:<1-><E>A(5)-Y(6)/<1->%O(7)-O/<1->UXST-+;
                                                              Y:=D/0;
                                                                               VL2 VCI2
165 << S:<1->UVS+/<1->UVS+;
166 >> S:<1->UVS+/<1->UVS+;
                                                                               VR4 VCI3
167 << S:<1->U^ST/<1-><E>A(5)-Y(6);
                                                              Y:=D;
168 >> S:<1-><E>A(5)-Y(6)/<1->UXST-+;
169 << s:<1->UVS+/<1->UVS+;
                                                                               VL2 VCI2
170 >> S:<1->UVS+/<1->UVS+:
                                                                               VR4 VCI3
171 << S:<1->U^ST/<1-><E>A(5)-Y(6);
                                                                              V0
                                                              Y := D;
172 REP*3
173 >> S:<1-><E>A(5)-Y(6);
                                                              Y:=D;
                                                                               VU
174 << S:<1-><E>A(5)-Y(6);
                                                              Y:=D;
                                                                               VU
175 REPEND
```

23.6 Save the order with a knitting program

When saving an order a new file is always created with the xxx .seqx extension.

Saving an order with a knitting program:

- ✓ You are signed in as Senior Operator
- 1. In the main navigation bar select the main area "Set up Order".
- 2. Tap on E "Edit order" in the bottom navigation bar.
- 3. Then press the Save" button for saving.
- ► The "Save order" window is opened
- 4. Select location.

i

5. Enter the desired name for the order file.

i Attention

For orders with only one knitting program, the original name of the program (zip file) is to be maintained, since the zip file is also renamed in case of renaming!!

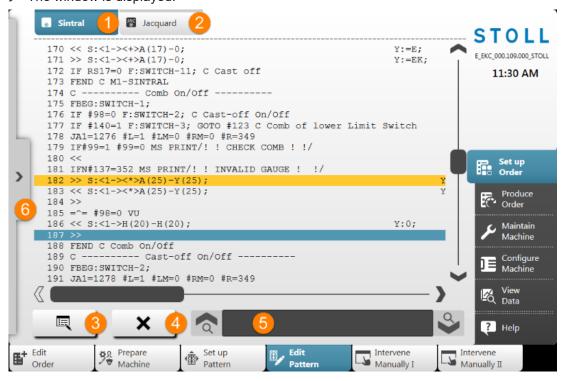
- 6. With the "Save" button perform the operation.
- ▶ In the specified location, a **seqx** file with its zip file of the same name is created with the defined name (= order).





24 Working in the Sintral / Jacquard editor: Edit Pattern

- I. View or changes of Sintral or Jacquard:
- ✓ You are signed in as Senior Operator ■.
- 1. In the main navigation bar select the main area "Set up Order".
- 2. Tap on "Edit Pattern" in the bottom navigation bar.
- The window is displayed.



No.	Key		
1		Display window with the program element Sintral	
	⊚	Sintral line highlighted in yellow: currently knitting row	
		Sintral line highlighted in blue: selected Sintral line	
2	JAC	Display window with the program element Jacquard	
3	:==	Open the editor to change the selected line	
		i: The changes are directly applied.	



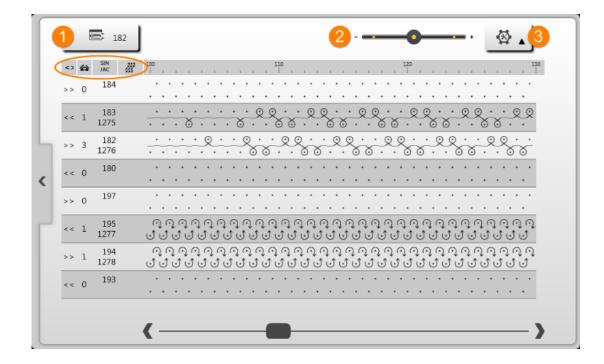
No.	Key		
4	Delete the selected Sintral line		
	• •	i: A prompt appears before deleting.	
5		Edit box for searching of Sintral information	
	¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬ ¬	Upward search referring the selected line	
	<u>Q</u>	Downward search referring the selected line	
6	>	Expand the display window for the knitting simulation	
	<	Collapse the display window for the knitting simulation	

3. Make the desired changes in the Sintral or Jacquard

1 Changes at your own risk

The changes cannot be tested at the machine and can lead to major problems.

II. Display window with the knitting simulation:





No.	Key		
1	E	Currently knitting Sintral line	
2		Zoom for the display	
3	⊗▲	Selection menu for the display of the columns in the table * Column for carriage direction	
		 Column for system specification Column for System specification JAC: Column for Sintral and Jacquard line number Column for racking position Display of the carriage position while knitting 	

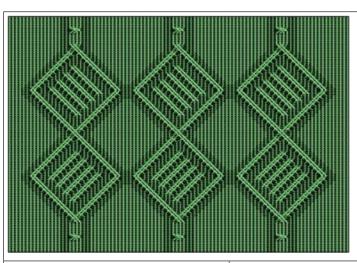
1 The knitting simulation shows the Sintral line before and after the currently knitting Sintral line.

Structure of the graphic in the knitting direction, i.e. read from the bottom upwards.



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25 1x1-Technique



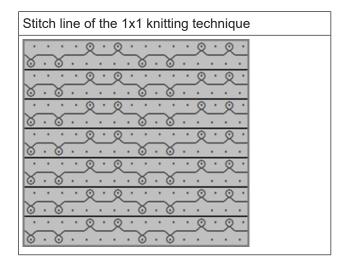
Pattern name	1x1-Technique	
Start	MG-1x1-rib	
Machine Type	CMS 530 HP W with E 7.2	
	CMS 530 HP 5,2" with E 3,5.2	
	ADF 530-32 W with E 7.2	
Operating mode of the machine	with comb function	
	with clamping / cutting	
Pattern description	Structure consisting of Front / rear stitch in 1x1 technique	
	• 1x1_Aran 2x1	
	• 1x1_Cable 2x2	
Pattern Parameters	Stitch Length (NP)	
	Cycle Counters (RS)	
	Fabric Take-down (WMF,WM^)	
	Racking Correction(VCI)	



25.1 1x1 Knitting Technique

Stitch line with 1x1 knitting technique

■ First needle knitted and the 2nd needle is a non-knitting needle (= float).



This knitting technique can be implemented on all machine types. Based on the quality (fabric appearance), however, we recommend using a machine with the Multi Gauge gauges.

Machine types with multi gauge

i Gauge specification multi gauge The gauges are specified with E xx.2.

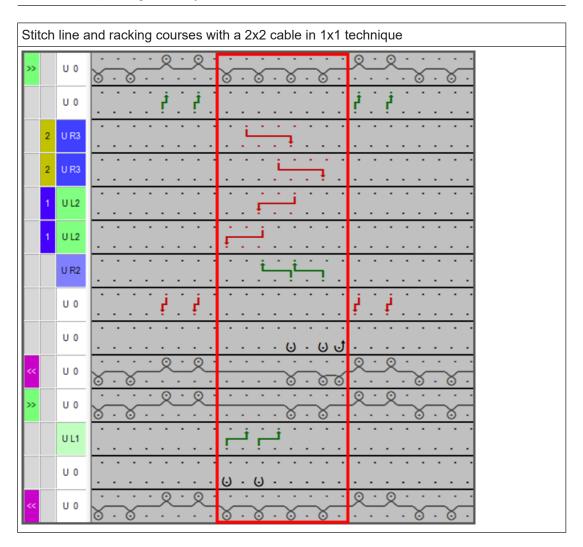
Multi gauge gauges	Coarse gauges:	Fine gauges:
	◆ E 1,5.2	◆ E 6.2
	◆ E 2,5.2	◆ E 7.2
	◆ E 3,5.2	◆ E 8.2
	◆ E 5.2	◆ E 9.2

Example E 5.2	Needle bed gauge = E 10 Needle hook gauge = about E 5
Advantages	Flexible production
	Several gauges can be implemented on one machine
	Fine fabrics are knit with fine yarn on all needles
	 Coarse fabrics are knit with coarse yarn in 1x1 technique
	i: The yarn thickness can be adapted by the number of yarns.
Characteristics of the ma-	Larger needle bed gap between the needle beds
chine	Adapted, larger needle hook
	Adapted holding-down jack control



Racking with patterns in 1x1 technique

When knitting structures with racking in 1x1 technique, the racking courses are doubled. This requires changing the transfer sequences to improve the running reliability.



25.2 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
- Position the yarn carriers at the clamping point

- Check the knitting area and the fabric collection chamber
- 4. Start machine (engage).

Make the following changes:

- Cycle Counters (RS)
- Stitch Length (NP)
- Fabric take-down values (WMF,WM^)
- Machine speed (MSEC)
- Racking corrections (VCI)

25.3 Save the order with a knitting program

When saving an order a new file is always created with the xxx .seqx extension.

Saving an order with a knitting program:

- ✓ You are signed in as Senior Operator
 ■
- 1. In the main navigation bar select the main area Set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
- 3. Then press the Save" button for saving.
- ► The "Save order" window is opened
- 4. Select location.
- 5. Enter the desired name for the order file.

i Attention

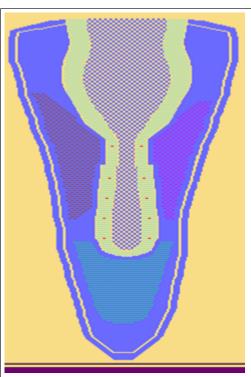
For orders with only one knitting program, the original name of the program (zip file) is to be maintained, since the zip file is also renamed in case of renaming!!

- 6. With the Save" button perform the operation.
- ▶ In the specified location, a **seqx** file with its zip file of the same name is created with the defined name (= order).



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26 Example with stitch length groups and their handling



Pattern name	Groups of Stitch Lengths	
Start	Tubular start (without RS1)	
Machine Type	CMS 530 HP W with E 7.2	
	CMS 530 HP 5,2" with E 3,5.2	
Operating mode of the machine	with comb function	
	with clamping / cutting	
Pattern description	Cross-tubular with binding thread (binding by tuck)	
Pattern Parameters	Stitch Length (NP)	
	Correction of Stitch Length (NPK)	
	Correction of Stitch Length Groups (NPGK)	
	Correction of stitch length related to the machine (MC-NPK)	
	Correction of stitch length groups related to the machine (MC-NPGK)	
	Fabric Take-down (WMF,WM^)	



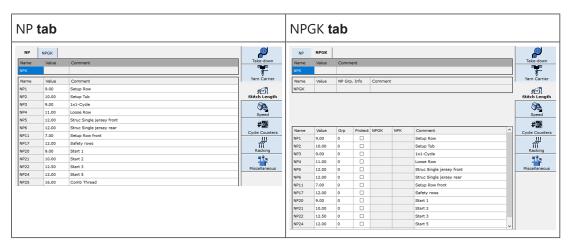
26.1 Advantages with Grouping Stitch Lengths

Pattern without grouping

When setting up the pattern on the machine, you have to adjust step by step each NP value of the table or via a common correction value (NPK) until the desired length and quality of the fabric is reached.

- Changing the individual NP values takes a lot of time when setting-up the pattern.
- The input of a NPK value does not always lead to the desired result.

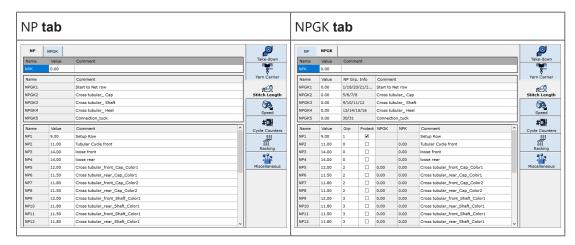
Display in the Setup Editor without grouping the NP:



Pattern with grouping

When setting-up the pattern on the machine, all NP values which are combined in group can be corrected by a common correction value (NPK).

Display in the Setup Editor with grouping the NP:



Create and set-up an order with a knitting program

i Recommendation:

When creating the pattern at M1plus, the programmer has to combine the stitch length values to groups according to the structure of the pattern (areas of special structures).

Note:

You can set up groups directly on the machine as well! This requires exact knowledge of the program structure.

26.2 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
- Position the yarn carriers at the clamping point
- Check the knitting area and the fabric collection chamber
- 4. Start machine (engage).

Make the following changes:

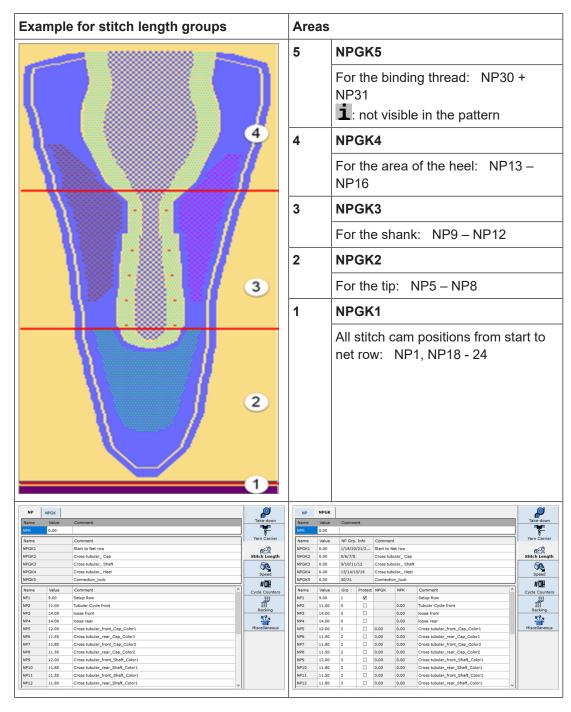
- Stitch Length (NP)
- Correction of Stitch Length (NPK)
- Correction of Stitch Length Groups (NPGK)
- Correction of stitch length related to the machine (MCNPK)
- Correction of stitch length groups related to the machine (MCNPGK)
- Fabric take-down values (WMF,WM^)
- Machine speed (MSEC)



26.3 Working with grouped corrections of the stitch cams NPGK

Step 1 Creating pattern on M1plus

The programmer gets the knitting program (zip file) generated by the M1plus correspondingly to the pattern with the stitch length groups. (**Recommended**)



Working with grouped corrections of the stitch cams NPGK

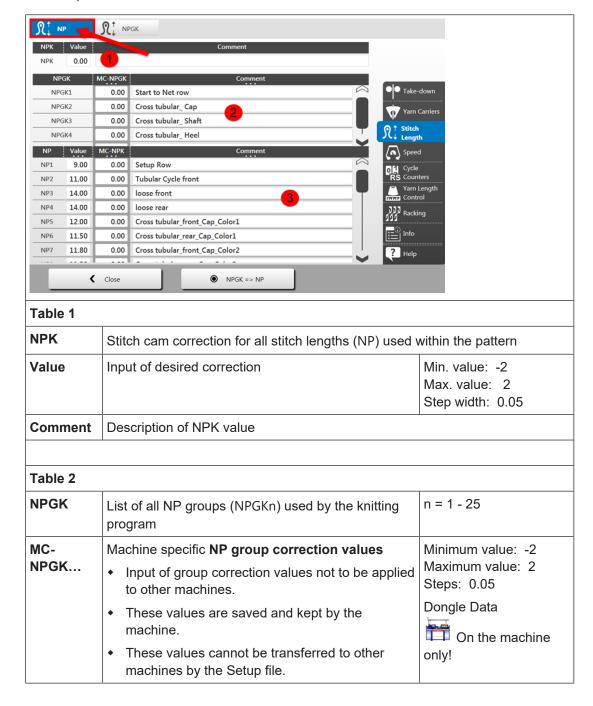
Step 2: Set up pattern on the machine

The senior operator loads the knitting program (zip file) on the machine and starts setting-up the pattern. With it, he adjusts the pattern parameters as take-down and **stitch length** (NP values) in the Setup Editor accordingly to the desired quality.

How to make changes in the Setup Editor:

■ NP tab

- Input of a correction value (NPK) for all NP values in use
- Input of a new NP value in the "Value..." column



Working with grouped corrections of the stitch cams NPGK

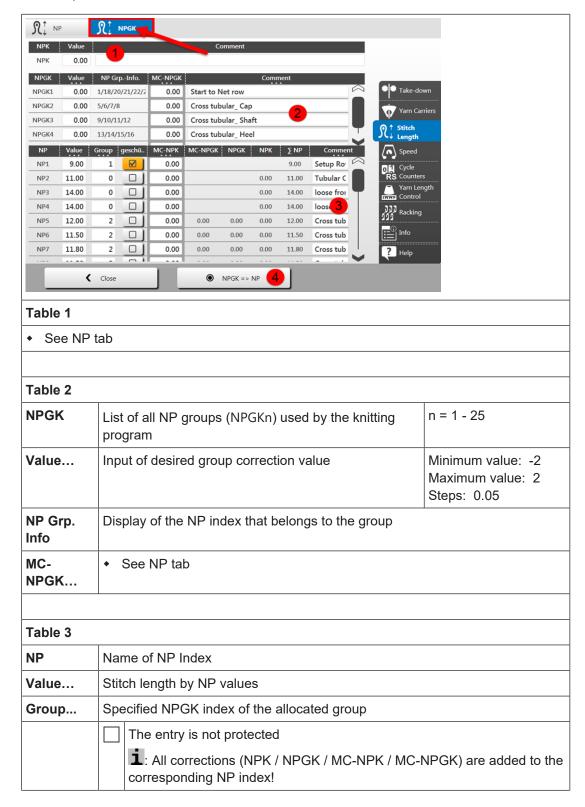


	You can delete these values by EANP (Loading Options) when creating a new order.	
	 You can set all entries to one value or to =0 (zero) by click on the table header MC-NPGK 	
Table 3		
NP	List of all the used stitch lengths (NPn)	n = 1-250
Value	Input of desired stitch length value	The value range depends on the gauge
MC-NPK	Machine specific NP correction values	Minimum value: -2
	 Input of correction values not to be applied to other machines. 	Maximum value: 2 Steps: 0.05
	These values are saved and kept by the machine.	Dongle Data On the machine
	These values cannot be transferred to other machines by the Setup file.	only!
	 You can delete these values by EANP (Loading Options) when creating a new order. 	
	You can set all entries to one value or to =0 (zero) by click on the table header MC-NPK .	

Working with grouped corrections of the stitch cams NPGK

■ NPGK tab

- Input of a correction value (NPK) for all NP values used in table (1)
- Input of a new NPGK value in the "Value..." column



Machine specific NP corrections



	The entry is protected	
	The entry is protected	
	1: All corrections (NPK / NPGK / MC-NPK / MC-I the corresponding NP index!	NPGK) are not added to
MC-NPK	Display of the currently on the MC effective stitch cam corrections	On the machine
NPGK	Display of the currently effective stitch cam group corrections	only!
NPK	Display of the currently effective stitch cam corrections for all stitch lengths (NP) in use	
ΣΝΡ	Sum of the NP with all entered correction values, 1: This is the NP value actually effective on the machine!	On the machine only!

Step 3: Production

The desired quantity shall be produced after adjusting all machine parameters relevant for production by the Senior Operator and achieving the desired quality when setting-up.

Recommended for production:

Apply the NPGK correction values set in the "Value..." column of table 2) in the "NPGK" tab

to the corresponding NP values by the NPGK => NP button.

(NP value + NPGK value = effective NP value)

Result:

- The effective NP value is shown.
- During production, the separate NP group correction is no longer available as the NPGK correction is already added to the NP value.

Attention!

If machine specific corrections (MC-NPK) are used additionally in the knitting program, they are not included in the NP values.

This information is shown in the "NPGK" tab of the Setup Editor and the ∑NP column indicates the sum of all values effectively used to form the stitches.

26.4 Machine specific NP corrections

- Machine-specific NP correction **MC-NPK**
 - For knitting programs using NP1, NP2, NP3.... stitch lengths
- Machine-specific NP group correction MC-NPGK
 - For knitting programs using NPGK1, NPGK2.... stitch length groupings

When to use:

Machine specific NP corrections

- Adjusting stitch cam positions to the target value of the fabric piece when changing yarn colors or yarn quality.
- Adjusting stitch cam positions to the target value of the fabric piece when changing to another machine

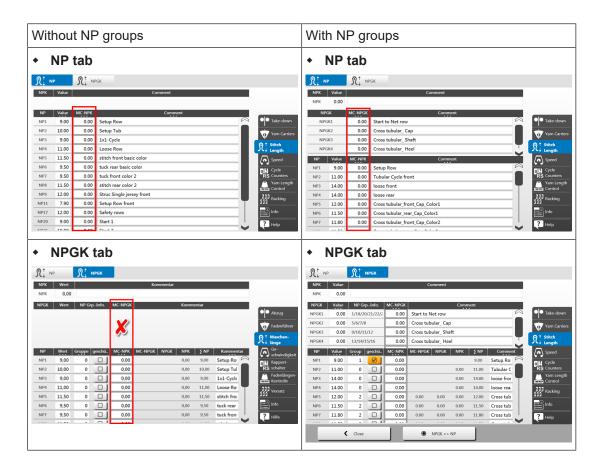
Working with MC-NPK or MC-NPGK:

- ✓ You are signed in as Senior Operator

 ■
- ✓ The knitting program is loaded and the production was started.
- 1. In the main navigation bar Set up Order" is selected.
- 2. Select Trepare Machine" in the bottom navigation bar.
- 3. Open the Setup Editor with the key.
- 4. Select the **\$\frac{1}{2}**"Stitch Length" in the window.
- Open the \$\int_{\text{"NP"}}^{\dagger}\$ "NPGK" tab.
- 6. Enter the desired machine specific correction value to the corresponding NP index in the "MC-NPK" or "MC-NPGK" column.
 - \triangleright This value is automatically applied to the \mathfrak{N}^{\uparrow} "NPGK" tab.

Machine specific NP corrections



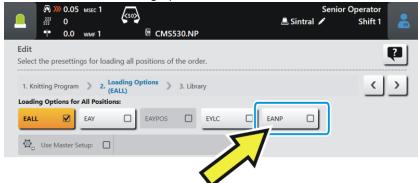


- These machine-specific NP correction values remain active at the machine until they will be deleted by the "Loading Options" setting when creating a new order.
- 7. Close Setup Editor by the
 Close" button.

Deleting the machine-specific correction values MC-NPK / MC-NPGK:

- ✓ You are signed in as Senior Operator
- ✓ Machine specific correction values are available on the machine.
- 1. Select **F** "Set up Order" in the main navigation bar.
- 2. Tap on "Edit Order" in the bottom navigation bar.
- 3. Then, first exit the current order with the Exit Order" button.
- ▶ In case of changes in the pattern, a prompt appears for saving the changes.
- 1. Save changes if necessary.
- 2. Open the menu with the Loading Options" button.

3. Select the desired loading option:



EANP

The machine-specific correction values will not be deleted by creating a new order.



The machine-specific correction values will be deleted by creating a new order.

- 1. Close the menu with WOK".
- 2. Create a new order with the "Create New Order" button.

26.5 Save the order with a knitting program

When saving an order a new file is always created with the xxx .seqx extension.

Saving an order with a knitting program:

- ✓ You are signed in as Senior Operator
- 1. In the main navigation bar select the main area "Set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
- 3. Then press the Save" button for saving.
- ► The "Save order" window is opened
- 4. Select location.
- 5. Enter the desired name for the order file.



i Attention

For orders with only one knitting program, the original name of the program (zip file) is to be maintained, since the zip file is also renamed in case of renaming!!

- 6. With the "Save" button perform the operation.
- ▶ In the specified location, a **seqx** file with its zip file of the same name is created with the defined name (= order).

27 Power Tension Setting - PTS

Working with PTS enables different stitch lengths (NP stitch tensions) in one knitting row. The stitch tension change is continuous (not needle exact) and depends on the machine gauge.



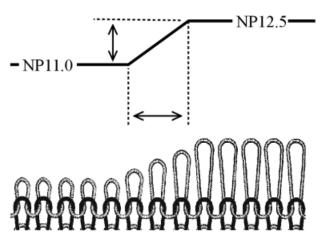
- I. Areas of application:
- Pattern with different knitting modes in one knitting row
- Fabric selvedge with fully fashion
- Intarsia pattern

II. Application of the NPJ command:

NPJ means Needle sinker Position Jacquard

Command	Meaning
NPJ n	n = 1-8 Define up to 8 jacquards in order to control the stitch tension.
PANP	Pattern pack arrangement for the control of the stitch cams with NPJ Necessary if the jacquard for NPJ differs from the jacquard of the pattern.

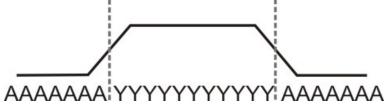
You can influence the transition of the stitch tensions of neighboring knitting areas.



STOLL

■ Stitch tension setting with symbol "="

The change of the stitch tension will be done in field A and field Y equally.



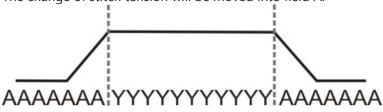
Example of Sintral instruction:

NPJ1: .=11.0 A=11.0 Y=12.0; C front needle bed NPJ2: .=11.0 A=11.0 Y=12.0; C rear needle bed <> S: <1-> A (J1) - Y (J2); SX

■ Stitch tension setting with symbol!

- Example 1:

The change of stitch tension will be moved into field A.

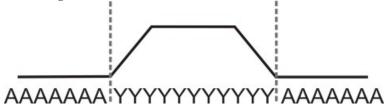


Allocating the "!" symbol:

NPJ1: .=11.0 A=11.0 Y! 12.0; C front needle bed NPJ2: .=11.0 A=11.0 Y! 12.0; C rear needle bed

Example 2:

The change of stitch tension will be moved into field Y.



Allocating the "!" symbol:

NPJ1: .=11.0 A! 11.0 Y=12.0; C front needle bed NPJ2: .=11.0 A! 11.0 Y=12.0; C rear needle bed

Specification in the Sintral:

i You change the indirect NPJ values in the "Setup Editor".

```
FBEG:M1-SIZES;

F1=1-399

PA:JA1; PAI:JA1; PANP<>:JA1;

PM:1:F1; SEN=1-399 #51=1 #52=399 #53=199 #54=200

FEND C M1-SIZES

JA1=2989(1100-1100)

C ----- NPJ ------

NPJ1:.=12.0 *=11 +=5; C vorne

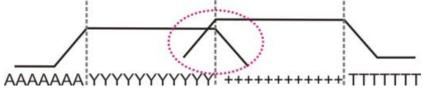
NPJ2:.=12.0 *=11 +=6; C hinten
```



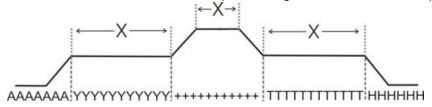
You can specify NPJ values directly in the Sintral as well.

III. Rules for NPJ:

- Watch out the distance between the areas (symbols).
- Symbol "." must always be specified.
- All other symbols will get the value of the symbol ".". Therefore do not a "!" to this symbol.
- "!" may not be applied to areas (symbols) lying next to each other.



■ Watch-out the idle times with subsequent changes of the stitch tension (X).



27.1 Table for Modifying the Stitch Tensions

Distances and idle times for modifying the stitch tensions with MSEC = 1.0: With the machine types ST 211 - ST 811

i The change of the stitch tension is **independent** of the machine type.



Gauge	Quantity of needles for changing stitch tension by one value	Idle time
E 3	2.66	5
E 3,5	3.2	5
E 5 (2,5.2)	1.8	7
E 7 (3,5.2)	2.25	8
E 8	3	9
E 10 (5.2)	4.5	11
E 12 (6.2)	4.5	13
E 14 (7.2)	4.5	14
E 16 (8.2)	4.8	4
E 18 (9.2)	5.4	4.5
E 20	6	5

With the machine types ST 168 - ST 468, OKC and EKC

1 These types of machines control the step motors faster.

Power Tension Settings (PTS) depending on the machine speed:

Command	Meaning
MSECNPJ = n.nn	n.nn = 0.05 - 1.20
	Speed setting with the work with the NPJ command
	Not specified: MSEC = 1.0

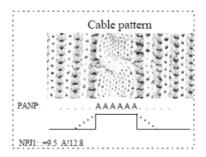
The table shows the required quantity of needles at different machine speeds for changing the stitch tension by one value.

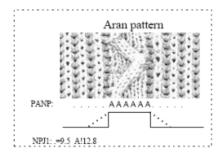
MSECNPJ= off-duty period	1.0	х	0.9	х	0.8	х	0.7	х	0.6	х	0,5	х
E 3	1,3	1,2	1,2	1,1	1	1	0,9	0,8	0,8	0,7	0,7	0,6
E 3,5	1,6	1,3	1,4	1,2	1,3	1	1,1	0,9	1	0,8	0,8	0,7
E 5 (2,5.2)	1,5	1,7	1,4	1,5	1,2	1,4	1	1,2	0,9	1	0,8	0,9
E 7 (3,5.2)	2,1	2,1	1,9	1,9	1,7	1,7	1,5	1,5	1,3	1,3	1,1	1,1
E 8	2,4	2,3	2,2	2,1	1,9	1,8	1,7	1,6	1,4	1,4	1,2	1,2
E 10 (5.2)	3	2,8	2,7	2,5	2,4	2,2	2,1	2	1,8	1,7	1,5	1,4
E 12 (6.2)	3,6	3,3	3,2	3	2,9	2,6	2,5	2,3	2,2	2	1,8	1,7
E 14 (7.2)	4,2	3,7	3,8	3,3	3,4	3	2,9	2,6	2,5	2,2	2,1	1,9
E 16 (8.2)	4,8	4,2	4,3	3,8	3,8	3,4	3,4	2,9	2,9	2,5	2,4	2,1
E 18 (9.2)	5,4	4,6	4,9	4,1	4,3	3,7	3,8	3,2	3,2	2,8	2,7	2,3

X = Quantity of needles for the idle time

27.2 Applications of NPJ (PTS)

Use different knitting modes in one knitting row (= one knitting system):



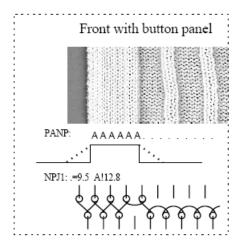


Use different stitch tensions on the left and right fabric selvedge:

For fully fashion fabric with different knitting modes at the fabric selvedges.

In the fully fashion mode, the needle area outside the shape (fabric selvedge) is automatically filled with symbol e.g. "N" symbol.





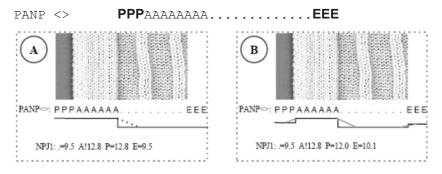
Same symbols at the left and right edge:

PANP ******AAAAAAAA......******

i Different stitch tensions at the left and right selvedge are not possible.

Command	Meaning		
PANP <>	Pattern pack arrangement for the control of the needle sinkers with NPJ.		
	Necessary if the jacquard for NPJ differs from the jacquard of the pattern.		
	2. Different stitch tensions at the left and right selvedge.		

Different symbols at the left and right selvedge:



Ex- ample	Meaning	Effect	
A	The same value for stitch tension will be applied to the "P" and "A" symbol	Same stitch tension of the selvedge stitches	
В	Any value for stitch tension will be applied to the "P" symbol.	Different stitch tension of the selvedge stitches	
	Any value for stitch tension will be applied to the "P" symbol.	Different stitch tensions at the left and right selvedge	

Applications of NPJ (PTS)

i Different symbols for the stitch tensions at the selvedge outside shape must be entered manually.

Applications of NPJ (PTS)





28 Front fully fashion with Power Tension Setting (PTS)



Pattern name	Front fully fashion			
Start	1x1 Rib			
Machine Type	CMS 530 HP W with E 7.2			
	CMS 530 HP 5,2" with E 3,5.2			
	ADF 530-32 W with E 7.2			
Operating mode of the ma-	with comb function and clamping / cutting			
chine	Usage of RS17			
	 First fabric piece with comb function and clamping / cutting 			
	 Following fabric pieces without comb function and clamping / cutting 			
	 Last fabric piece with piece counter =0 is cast-off 			
	• with Sintral command RS17=1 IF #100=1 RS17=0			
Pattern description	Shape: Front with v-neck			
	SJ fabric with stripe (3 colors)			
Pattern Parameters	Cycle Counters (RS)			
	Stitch length (NP) / Power Tension Setting - (NPJ)			
	Fabric Take-down (WMF)			
	Additional distance of the yarn carrier at the fabric selvedge (YDF)			



28.1 Additional Information with Fully Fashion - with Comb

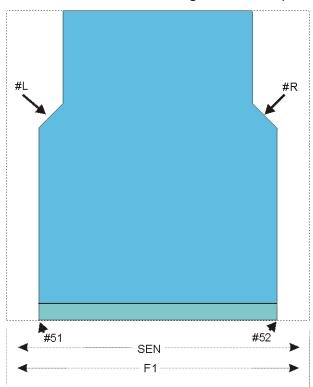
i Additional commands are necessary in Sintral for **fully fashion with comb!**

Fully Fashion commands:

Command	Function
PFN	Machine is working as a normal machine (Needle selection over the total width of the SEN)
PF0	Machine is working as a fully fashion machine (Needle selection within #L - #R)
WMN	Value of the fabric take-down depending on the quantity of needles (changes with the knitting width)
YDF	Additional distance of the yarn carriers at the fabric selvedge with fully fashion
# L / #R	Shape counters for outer edges
#LM / #RM	

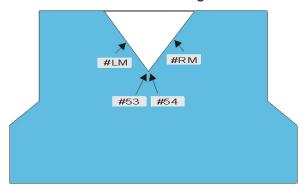
Additional Information with Fully Fashion - with Comb





Counters	Function	
#L	Selvedge counter for the left fabric selvedge	
#R	Selvedge counter for the right fabric selvedge	
#51	Auxiliary counter for start width at the left (Counter does not change)	
#52	Auxiliary counter for start width at the right (Counter does not change)	

III. Counter at the outer edge of the v-neck:

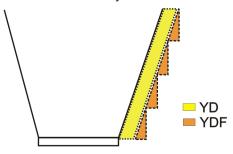




Counters	Function
#LM	Selvedge counter for the fabric selvedge in the neckline middle left
#RM	Selvedge counter for the fabric selvedge in the neckline middle right
#53	Auxiliary counter for start width middle left (Counter does not change)
#54	Auxiliary counter for start width middle right (Counter does not change)

V. Distance of the yarn carrier from the fabric selvedge:

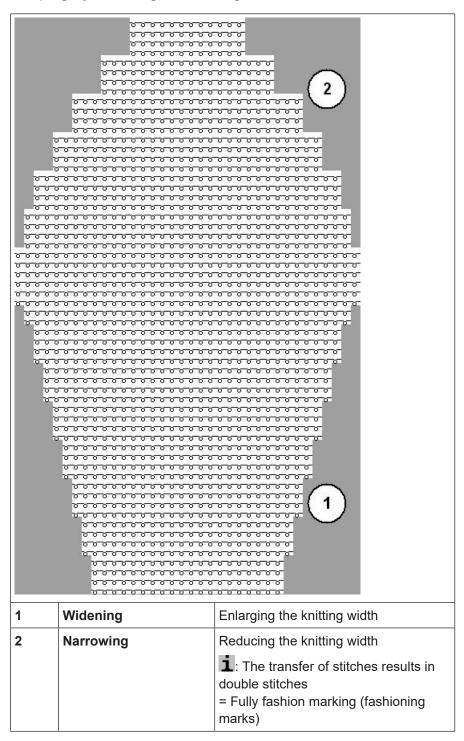
- YD: Manual staggering (yarn carrier distance) the yarn carriers at the fabric selvedge
 - Explanation and handling in the chapter Pattern 10: Fully fashion without comb
- YDopt: Automatic staggering the yarn carriers at the fabric selvedge
- YDF: Additional yarn carrier distance for fully fashion knitting



Command:		
YDF = n	Additional yarn carrier distance for fully fashion knitting	n = 1 – 20 (by needles)

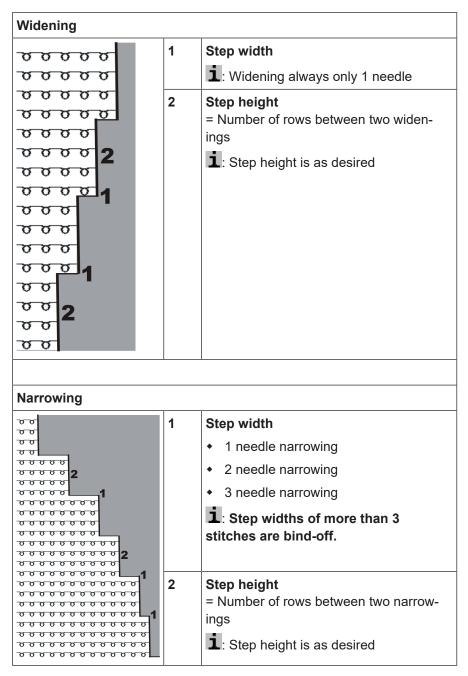
28.2 Widening / Narrowing of Fully Fashion

Shaping by widening / narrowing





Step height and step width when widening / narrowing

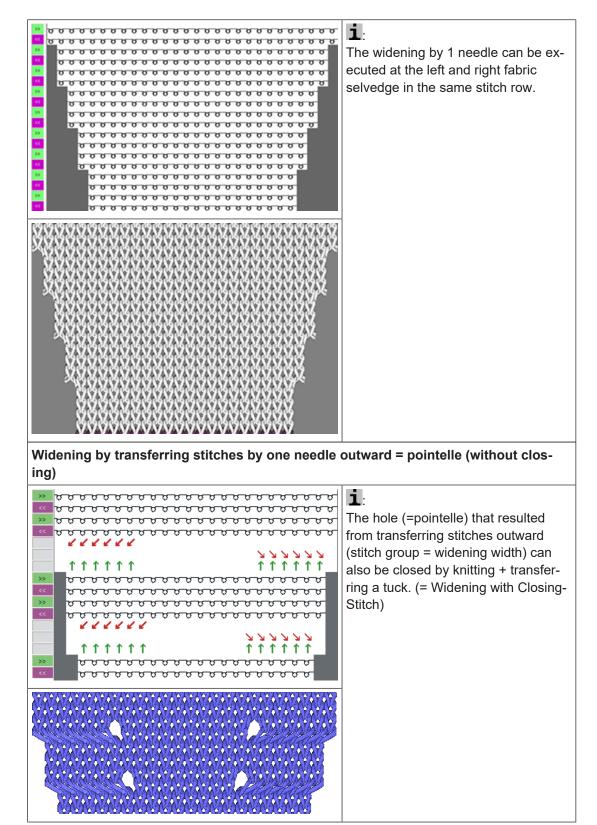


28.2.1 Widening Procedure by the Example of Single Jersey fabric

Widening

Widening onto an empty needle = tuck

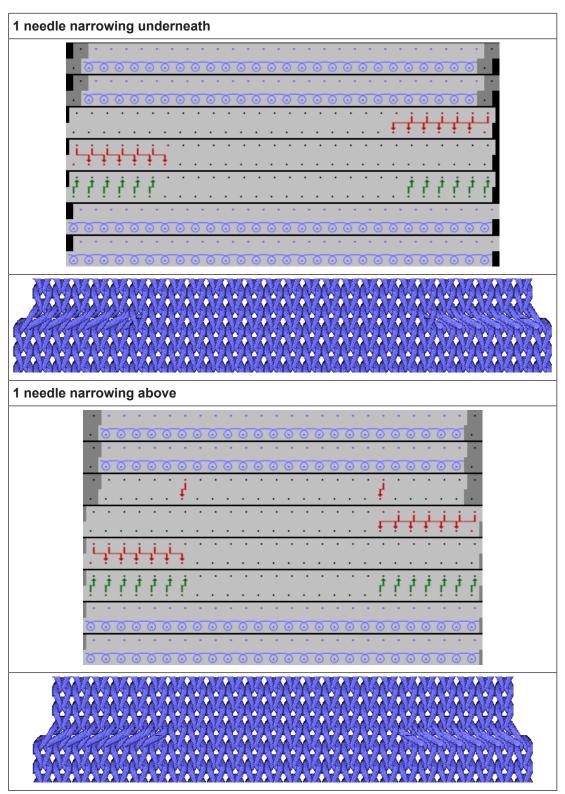
Widening / Narrowing of Fully Fashion

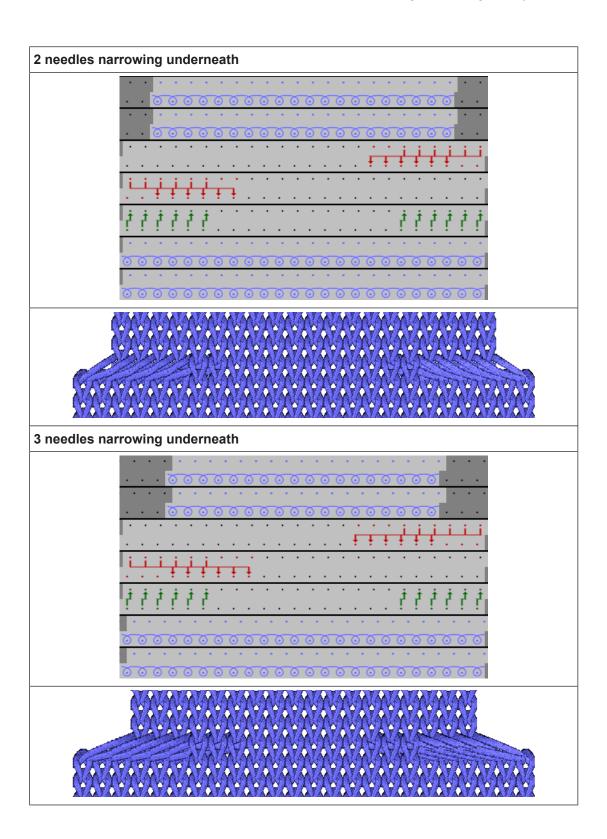




28.2.2 Narrowing Procedure by the Example of Single Jersey

Narrowing

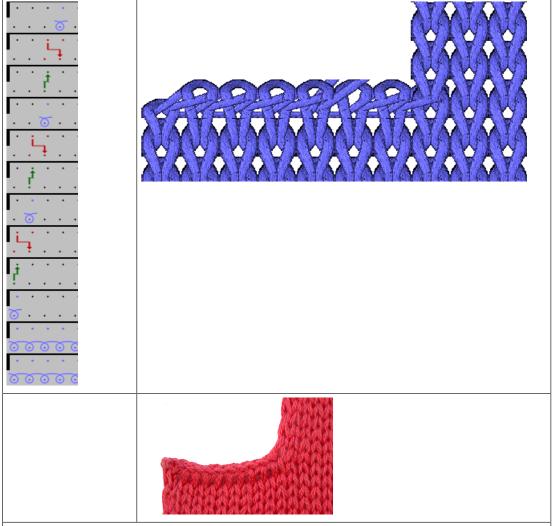




28.2.3 Binding-off Procedure by the Example of Single Jersey Fabric

Binding-off (to the right >>)





You can change the form of a fully fashion fabric by binding-off as well. The binding-off sequence consists of knitting and transferring of individual stitches. Different variants of binding-off are available.

28.3 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
- Position the yarn carriers at the clamping point
- Check the knitting area and the fabric collection chamber
- 4. Start machine (engage).



Cycle Counter RS17 with different Fabric Widths (with fully fashion)

Make the following changes:

- Cycle Counters (RS)
- Stitch Length (NP)
- Additional distance of the yarn carrier at the fabric selvedge (YDF)
- Fabric Take-down (WMF)
- Power Tension Setting PTS (NPJ)

28.4 Cycle Counter RS17 with different Fabric Widths (with fully fashion)

Production with RS17 with fully fashion fabrics:

- Via the Sintral command RS17=1 IF #100=1 RS17=0, the activation / deactivation of the comb function is coupled to the piece counter.
- Additional Sintral function FF-TRANS is required when using the cycle counter RS17 with fully fashion.

This function regulates the transition between the single fabric pieces.

- End width same as start-width: no special transition is necessary.
- End width larger than start-width: Surplus stitches are cast-off except the required start-width.
- End width smaller than start-width: protection yarn is used to widen up to the needed start-width.

Behavior of the run-throughs (piece number) when using RS17

With quantity of run-throughs: =1:

- 1. For the one fabric piece, the comb and the clamping / cutting are active.
- 2. All yarn carriers are taken out of the clamp before the start and knitted-in.
- 3. The fabric is cast-off at the end via a cast-off function in the Sintral.

With quantity of run-throughs: >1:

I. First fabric:

- 1. The first piece works with **Comb** since RS17=0 is set.
- 2. All yarn carriers are taken out of the clamp before the start and knitted-in.
- 3. The Comb thread is clamped after knitting, since it is only needed for the first piece.
- 4. All other yarn carriers are positioned at the fabric selvedge for the following pieces.

Cycle Counter RS17 with different Fabric Widths (with fully fashion)



- 5. At the fabric end the RS17 is set to **=1** with the Sintral command RS17=1 IF #100=1 RS17=0, as the **piece counter is >1**. This way **no cast-off is carried out at the fabric end**.
- 6. Afterwards, the Sintral function FF-TRANS is called-up for comparing the shape counters ant the required transition rows are processed.

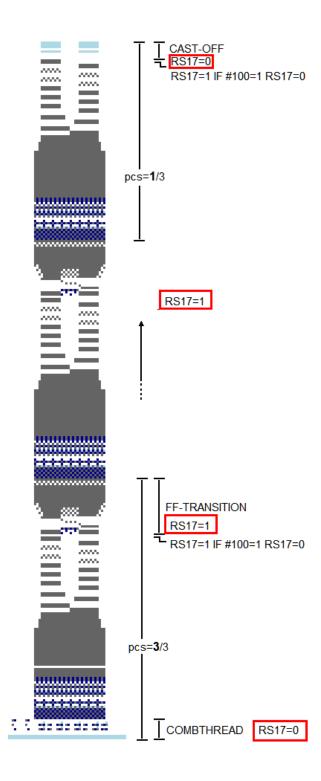
II. The following fabric pieces:

- 1. All the following fabrics are processed without comb and clamping / cutting.
- 2. No cast-off is carried out at the end of these fabrics.
- 3. Execution of the Sintral function FF-TRANS for the transition to the next fabric piece.

III. Last fabric piece of the piece counter:

- 1. The last fabric piece is processed without comb and clamping / cutting.
- 2. At the end of the last piece, the piece counter is checked by the Sintral command RS17=1 IF #100=1 RS17=0 and this way is set **RS17 = 0**.
- 3. With RS17 =0 the yarn carriers are brought into the clamps and then the fabric piece is cast-off.

Setting: Fabric take-down with fully fashion knitting



28.5 Setting: Fabric take-down with fully fashion knitting

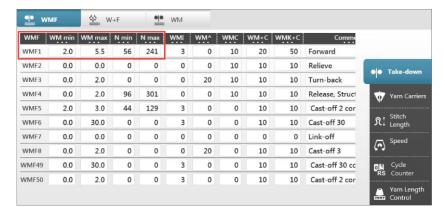
With fully fashion knitting, WMN controls the take-down in the fabric. The take-down values within the fabric are automatically adapted to the corresponding fabric width.



Open the Fabric Take-down Table

- ✓ You are signed in as Senior Operator
- ✓ The knitting program is loaded and the production was started.
- 1. Select "Set-up pattern" in the bottom navigation bar.
- 2. In the window tap the button with the symbol.
- ► The "WMF" menu in the Setup Editor is opened.
- 3. Change the value.
- 4. Close Setup Editor with the Close" button and return to "Set-up Pattern".
- ► The changed values are in Setup and will be stored together with the order when saving it.
- or -
- 5. In the main navigation bar select reproduce Order.
- 6. Open M "Monitor production" in the bottom navigation bar.
- 7. Tap the button with the symbol.
- ► Change the value via the number field.
- : The Setup-Editor can also be opened via Set-up Order" / Prepare machine" /





- For working with WMN, all values must be defined in the WMF menu:
 - WM min and WM max

Setting: NPJ with Fully Fashion

N min and N max

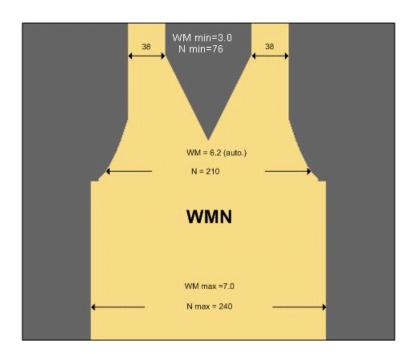
Command WMN

i

In the WMF1 menu are displayed the corresponding values for the fully fashion piece:

- WM max depends on N max (absolute value)
- WM min depends on N min (absolute value)
 - Automatic adjustment of the take-down value

 The WM values for all other needle widths within the fabric are automatically calculated at the machine.



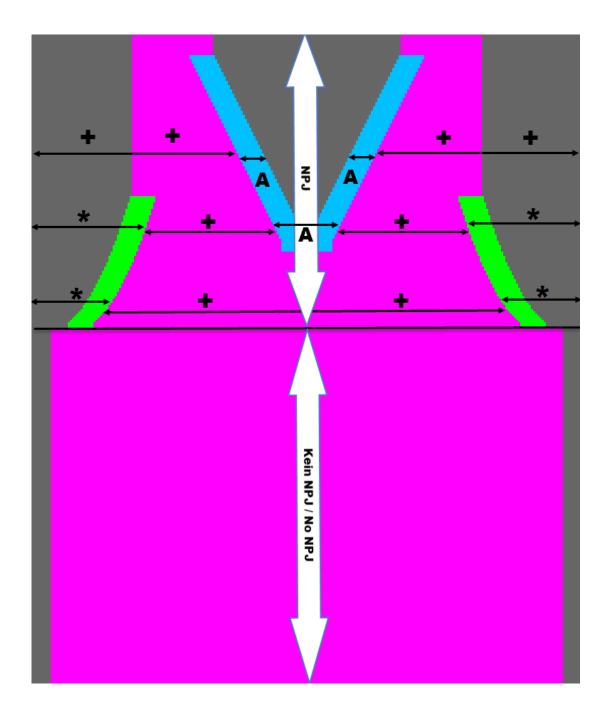
28.6 Setting: NPJ with Fully Fashion

Working with NPJ:

Each stitch tension value is assigned to the knitting needles in the pattern via a Jacquard symbol in an additional Jacquard (PANP).

In the Sintral is specified the assignment of Jacquard symbols to the indirect NP specification. The NP values appear in Setup.





Sintral specification: NPJ

- NPJ1: Indirect stitch tension specifications for the front needle bed.
- NPJ2: Indirect stitch tension specifications for the rear needle bed.

Setting: NPJ with Fully Fashion

- Specification for the Point jacquard symbol .=12.0 : Direct input of a stitch length for the . symbol (must be defined as safety information for possibly not defined symbols in jacquard).
- Change of the stitch length values (stitch tensions) in Setup.

Call up the stitch length table in Setup

- ✓ You are signed in as Senior Operator
- ✓ The knitting program is loaded and the production was started.
- 1. Select Set-up pattern" in the bottom navigation bar.
- 2. In the window tap the button with the $\Re t$ or the t symbol.
- ► The 🎵 "Stitch Length" menu in the Setup Editor is opened.
- 3. Change the value.
- 4. Close Setup Editor with the Close" button and return to "Set-up Pattern".
- ▶ The changed values are in Setup and will be stored together with the order when saving it.
- or -
- 5. In the main navigation bar select set-up Order".
- 6. Open Prepare Machine" in the bottom navigation bar.
- 7. Tap the button with the symbol.
- ► The 🎵 "Stitch Length" menu is opened in the Setup Editor.
- 8. Change the value via the number field.

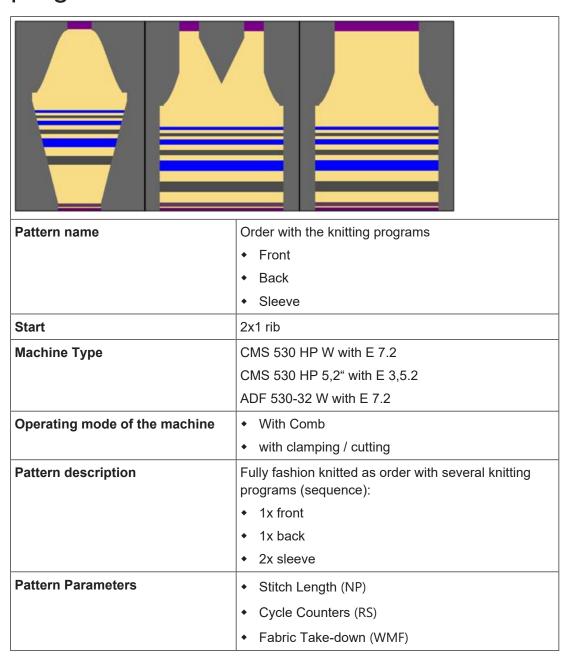


Setting: NPJ with Fully Fashion





29 Fully fashion - order with several knitting programs



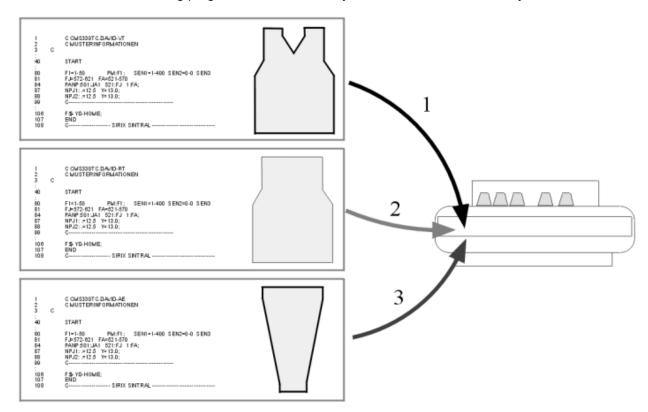


29.1 Behavior with an order with several knitting programs

This working procedure corresponds to working with a sequence with the OKC machine generation.

Working procedure:

- Processing of a specified sequence of knitting programs
- The knitting programs are automatically loaded into the main memory of the machine.



Usage:

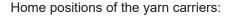
- Knitting of different patterns with constant knitting width
- Knitting of a pattern with different fabric widths (set of sizes)
- Knitting of different patterns in different fabric widths (fully fashion) Example for fully fashion Front, back, sleeve, sleeve.

Requirements:

All the knitting programs used in the order must meet the following conditions:

Same machine type and working procedure

■ With machines with comb and clamping / cutting:



- Knitting programs have the same yarn carrier home position
 Note:
 "EAYSEQ" does not need to be performed after each order position (knitting program).
- Knitting programs have different yarn carrier home positions
 - i: Note
 - "EAYSEQ" must be performed after each order position (knitting program).
- All yarn carriers must be brought to their home position before END.
 Recommended for knitting programs with comb use.

■ Wit machines without comb and clamping / cutting:

Selected needle area (SEN):

- The SEN area must be the same in all knitting programs

Home positions of the yarn carriers:

- All knitting programs have the same yarn carrier home position
- The "EAYSEQ" function does not need to be performed after each order position.
- **i** This "EAYSEQ" function only is available for selection for orders with 2 or more knitting programs.

29.2 Create order with several knitting programs

i Parking position of the carriage

The parking position of the carriage is as desired!
With "Start Order", the machine control ensures that the knitting program starts at the left in the carriage stroke. Empty rows may be necessary.

Before loading the pattern, the current machine state is to be checked:

■ With comb

- No fabric in the needle bed or in the fabric take-down.
- The yarn carriers are in the clamping and cutting bed and are clamped.

■ Without comb

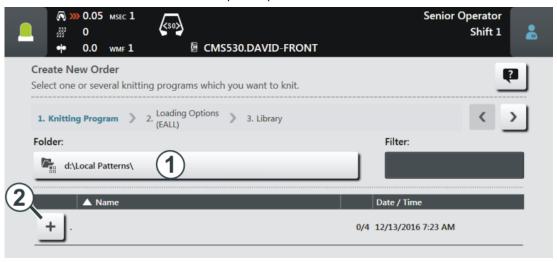
- Pay attention to the starting width of the new pattern.
- Check and adjust the yarn carrier positions.



Create Order

i

- ✓ You are signed in as Senior Operator
- ✓ The yarn carriers are in the clamping and cutting bed.
- 1. In the main navigation bar select the main area "Set up Order".
- 2. Tap on **E** "Edit order" in the bottom navigation bar.
 - It must be ensured that the yarn carriers of the previous knitting program are positioned in the clamping and cutting position. For this purpose, start again the previous knitting program until the yarn carriers are clamped (S0Y).
- 3. Then, first exit the current order with the **Exit production" button.
- ▶ In case of changes in the pattern, a prompt appears for saving the changes.
- 4. Save changes if necessary.
- 5. Tap the Create New Order" button.
- ► The "Create New Order" window opens up.

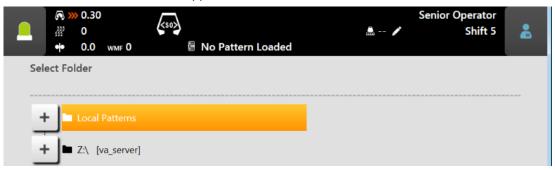


1		Selection of the path (storage location) of the knitting program			
		Local Patterns: Folder on the hard disc of the machine			
		Network drive (only one network drive possible)			
2	+	Button for opening a folder to display the subfolders			

6. More in the next chapter Select knitting program (load) [ho 279].

29.2.1 Select knitting program (load)

- 1. Load knitting programs
- ✓ In the "Create new order" window, the setting 1. knitting program must be selected.
- 1. If necessary switch to 1. Knitting Program with the buttons
- 2. For changing the path, then press the "..." button.
- ► The "Select folder" window appears.



- 3. Select the desired location:
- Local Patterns (hard disk)
- Any released network drive
- 4. With the ± button, open the folder / drive to display the subfolder.
- 5. Select the folder with the knitting programs (zip file) to be loaded.
 - i Display of the zip files (knitting program)

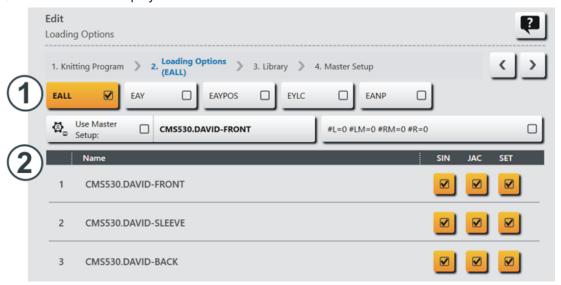
 Only the zip files saved directly in the folder can be displayed in the picklist.
- 6. With the OK" button confirm the selection and return to the previous window.
- ▶ In the "Create new order" window is displayed the content of the selected folder.
- 7. Select all the desired knitting programs (zip files).
 - The selection of several knitting programs of the list is also possible.
 In case of erroneous selection, this can be undone tapping again on them.
- 8. More in the next chapter Set Loading Options [280].
- or –
- 9. Press the "Create order" button to complete the order and to return to the previous window.



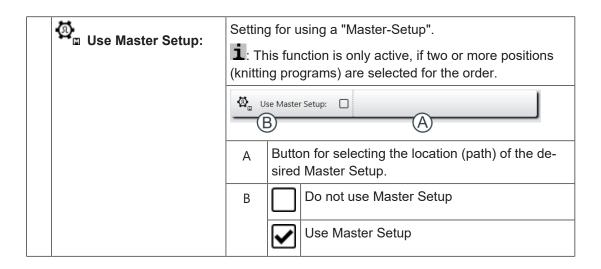
- ▶ The order is created with several knitting programs.
- or –
- 10. With the Cancel button, cancel the process and return to the previous window.
- ▶ Create order is canceled without loading a new knitting program.

29.2.2 Set Loading Options

- 2. Loading Options...:
- ✓ In the "Create new order" window, the setting 2. Loading Options must be selected.
- 1. If necessary, switch to 2. Loading Options... with the
- ► The window is displayed.



1	Loading Options for All Positions:					
	EAY	The deletion of the yarn carrier home position is performed only for the first order position.				
		i: Then, EAYSEQ is executed when changing to the next order position.				
	EAYSEQ	Delete yarn carrier home position after each position of the order (knitting program).				
		i: This function is only active, if two or more positions (knitting programs) are selected for the order.				



2	Loading Options for Individual Positions						
	Name		SIN	JAC	SET		
	List of all selected knitting programs	✓	The program element is switched on (active), i.e. it is used for the production (default setting).				
			The program element is switched off (inactive), i.e. it is not used for the production.				
		₩.	Symbol for using a "Master-Setup" in the SET column.				
		i: Yo		ually switch on o	r off these program ele-		

- 2. Selection of all required loading options:
- EALL
- EAY
- EAYSEQ
- 3. Press the (Create order) button to complete the order and to return to the previous window.
- ▶ The order is created with several knitting programs.
- or -
- 4. With the Cancel button, cancel the process and return to the previous window.
- ► Create order is canceled without loading a new knitting program.



29.2.3 Deleting all settings

Delete all settings for 'Create new order':

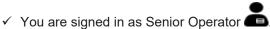
- **i** The pattern memory cannot be deleted completely!
- ✓ The "Create New Order" window is displayed.
- 1. Press the "Create New Knitting Program" button.
- ▶ A Sintral program element with empty rows is automatically generated and saved as new order in the pattern memory.

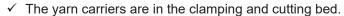
29.3 Setup Mode

i

The setup mode is only available for orders with several knitting programs (positions).

Handling of the setup mode:





- ✓ The order is created with several knitting programs.
- 1. In the dialog box select the first position (knitting program).

Setup Mode



- 1 List of all loaded knitting programs (positions) in the sequence of production. 2 Changing of the knitting order with the 1: Select the knitting program to be moved. 3 Information for Sintral (sin) Jacquard (jac) Setup (setx) 4 Piece counter for the corresponding position (knitting program) 5 Quantity of run-throughs for the entire order (all listed knitting programs) 6 Start the setup mode 7 Start Production
- 2. Start the setup of the first position (knitting program) with the Testup Mode" button.
- 3. Change to Trepare Machine" in the bottom navigation bar.
- ▶ The yarn carrier home position for the first knitting program is displayed.
- 4. Thread-up yarn carrier.
- 5. Start machine (engage) and knit.
- 6. Control all pattern parameters during the knitting and change them if necessary.

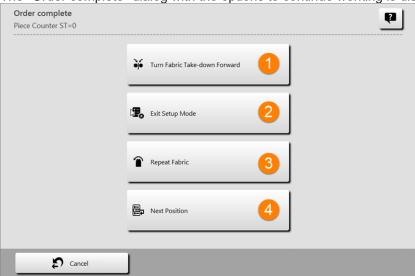
Setup Mode

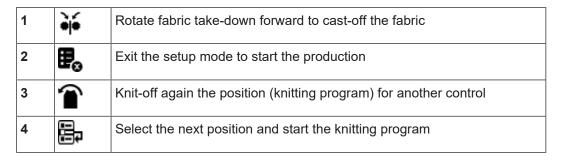


- ▶ The machine stops automatically at the end of the first knitting program in the left reversal.
- ▶ The cause of the stop motion is displayed.



- 7. In the "Stop Motions and Warnings" dialog box press the button.
- ▶ The "Order complete" dialog with the options to continue working is displayed.





8. If necessary, cast-off the fabric piece with the button. "Turn Fabric Take-down Forward"

Set the piece number and the run-throughs and start the production

1 Check the fabric piece to verify if the desired quality was achieved.

- Stitch Length
- Fabric length
- Fabric width
- 9. Inspection of the fabric piece:
- ► Not ok

 Proceed by the

 "Repeat Fabric" button.
- ➤ ok

 Proceed by the "Next Position" button.
- 10. When changing to the next position (new knitting program), if necessary, in the bottom navigation bar go again to "Prepare Machine", to check the yarn carrier home position for this knitting program.
- 11. If necessary, thread-up the added yarn carriers.
- 12. Continue with this sequence until all positions (knitting programs) are appropriate for the production.
- 13. After running-through all positions of the order exit the mode with the Mode" button.
- 14. Exit the dialog with the Cancel" button and return to the main window.

29.4 Set the piece number and the run-throughs and start the production

Set the piece counter per position and quantity of run-throughs:

- ✓ You are signed in as Senior Operator ■
- 1. In the main navigation bar select the main area Set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
- ▶ The window with the loaded knitting programs is displayed.





- Enter the piece number for a position (knitting program).
 Input via virtual numeric keypad.
 Enter the quantity of run-throughs (all listed knitting programs):
 Reduce quantity
 Increase quantity
- 3. Tap into the area under (1) and enter the desired piece number per position via the virtual numeric keypad.
- 4. Enter the desired quantity of run-throughs at (2)
- ▶ If the number is > 1, the repetition is represented graphically with a loop (run through).
- 5. Then start the production with the Start production" button.

29.5 Save the order with several knitting programs

When saving an order a new file is always created with the xxx .seqx extension.



Saving an order with several knitting programs:

- ✓ You are signed in as Senior Operator
- ✓ The production was not yet completed with the Exit production" button.
- 1. In the main navigation bar select the main area set up Order".
- 2. Tap on tedit order in the bottom navigation bar.
- 3. Then press the Save" button for saving.
- 4. Select location.
- 5. Enter the desired name for the order file.
- 6. With the "Save" button perform the operation.
- ▶ In the specified location, a seqx file and the corresponding zip files of all positions of the order are created with the defined name.





30 Working with Master Setup with orders with several knitting programs

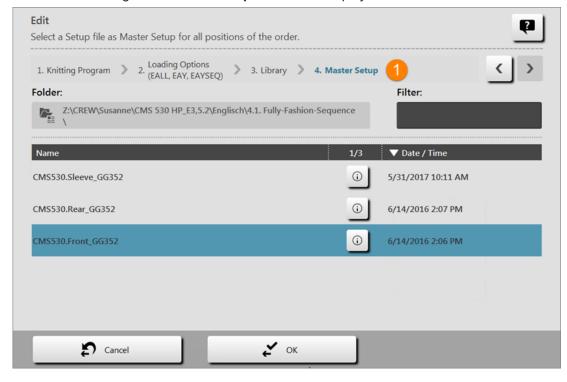
in case of orders with several knitting programs, it is possible to work with a Master Setup.

What is a Master Setup:

The Master Setup contains all important pattern parameters for all the knitting programs used in the order. The Master Setup must be prepared at the pattern workstation by the programmer for using it as Master Setup.

Working with a Master Setup:

- ✓ You are signed in as Senior Operator
- ✓ The yarn carriers are in the collecting clamp unit and are clamped.
- ✓ The order is created with several knitting programs.
- 1. In the dialog activate the "use Master Setup" button.
- ▶ The "Edit" dialog for 4. Master Setup selection is displayed.

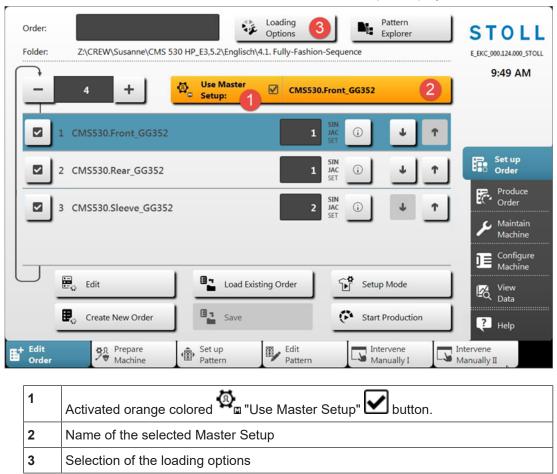


The Master Setup must be saved together with the knitting programs of the order in the same folder.

If there are several setup files in the folder, they will be displayed all in the list.

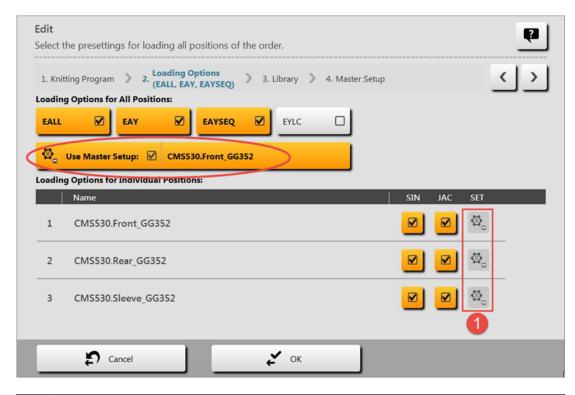


- 2. Select the desired setup file.
- 3. Confirm the selection with the WOK" button.
- ▶ Return to the main window, where the selected Master Setup is displayed.



4. Open the "Edit" dialog box with the "Loading options" button.





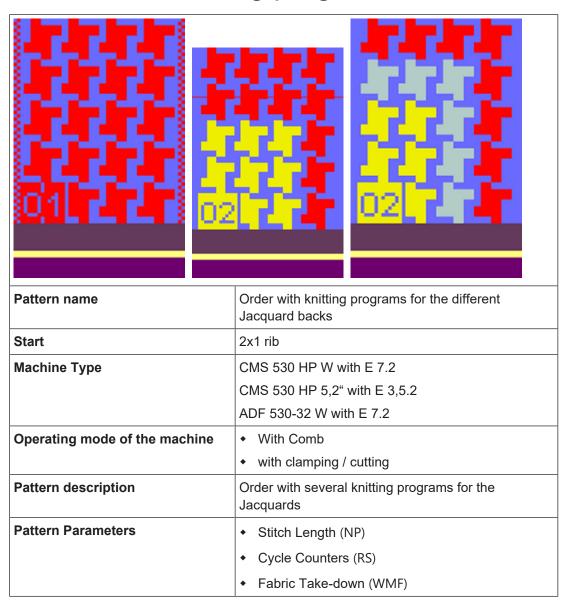
- Display for working with a Master Setup

 Use the activated orange colored "" "Use Master Setup" button with the name of the used setup file
 - Working with the Master Setup can be disabled in the main window or via the loading options.





31 Jacquards with different backs - Order with several knitting programs





Pattern description Jacquard:

A fabric with several colors on one fabric side. The so called picture side, which can be on the front or on the back side of the fabric piece, is a result of the colors. Depending on the picture side, the so called jacquard back is on the opposite fabric side.

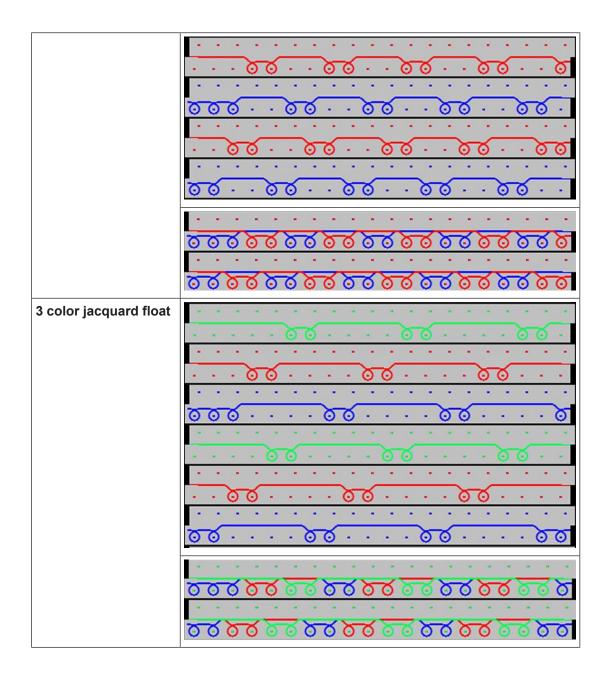
The exact designation of a jacquard contains also the number of colors on the picture side.

31.1.1 Jacquard float

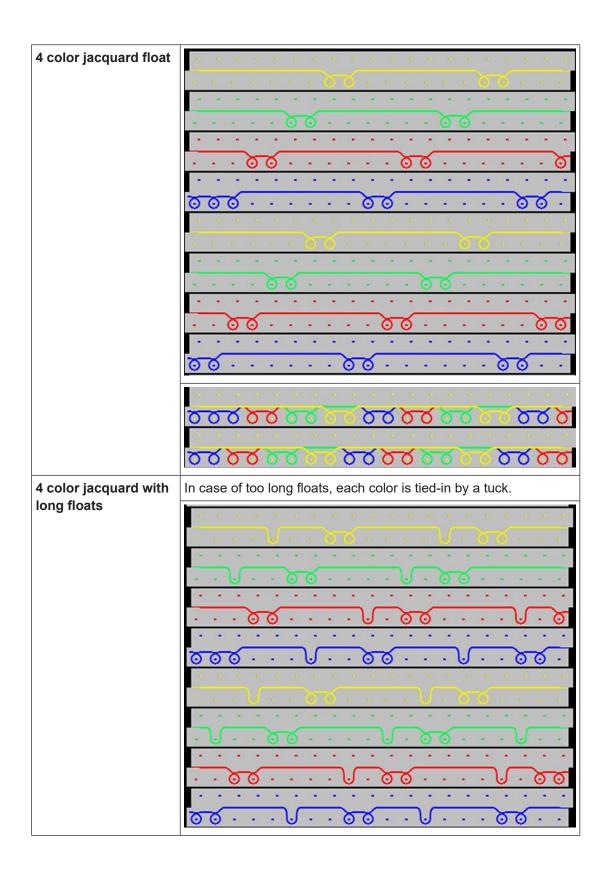
Fabric View		
Properties	Single jersey fabric / single-bed fabric	
	 Maximum floating length is 1 inch (= 2,54 cm) 	
	In case of longer floats the yarn must be tied-in by a tuck in the fabric.	

Examples	
	2 colors must be knitted one after the other to get a complete jacquard row (= picture row).









31.1.1.1 Jacquard float without transfer

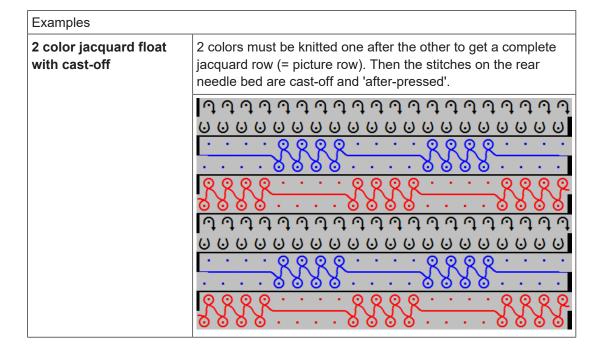
Fabric View	
Properties	Single jersey fabric / single-bed fabric
	◆ Maximum floating length is 1 inch (= 2,54 cm)
	 In case of longer floats the yarn must be tied-in by a tuck in the fabric.
	This jacquard back is used with
	– Waves with jacquard
	Applications with jacquard

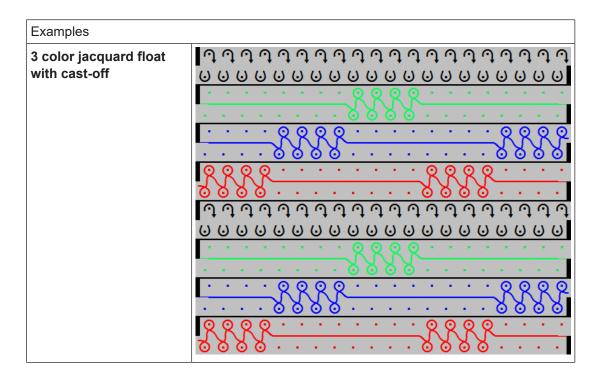
Example	
2 color jacquard float without transfer	This jacquard back is worked the same way as the back side of the jacquard with float. With this jacquard, no transfer to the jacquard area takes place in the transition to the jacquard area.
	000.000.000.000.000.
	06060606
	<u> </u>



31.1.2 Jacquard Float with Cast-off

Properties Single jersey fabric / single-bed fabric Maximum floating length is 1 inch (= 2,54 cm) In case of longer floats the yarn must be tied-in by a tuck in the fabric. The jacquard back is used with cast-off technique in case of coarse fabrics



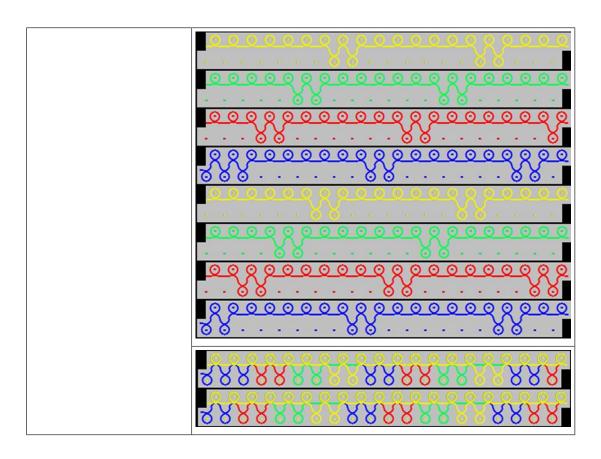


31.1.3 Jacquard stripe

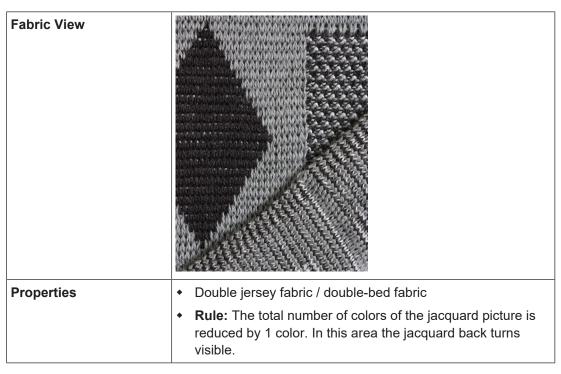
Fabric View	
Properties	Double jersey fabric / double-bed fabric
	 When using many colors, a high stitch ratio between picture side and back side is the result. Result: the picture side turns unclear



Examples 2 color jacquard stripe 2 colors must be knitted one after the other to get a complete jacquard row (= picture row). Each color is knitted on all needles on the jacquard back. The stitch ratio between the front and the rear needle bed with a 2 color jacquard with stripe is 1: 2. 3 color jacquard stripe 4 color jacquard stripe 4 colors must be knitted one after the other to get a complete jacquard row (= picture row). The stitch ratio between the front and the rear needle bed with a 4 color jacquard with stripe is 1: 4. This stitch ratio distorts the look of the picture side, wherefore the twill back is used in case of a large quantity of colors.



31.1.4 Jacquard stripe relief





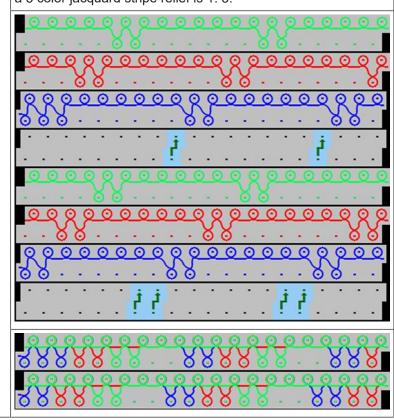
• When using many colors, a high stitch ratio between picture side and back side is the result.

Result: the picture side turns unclear

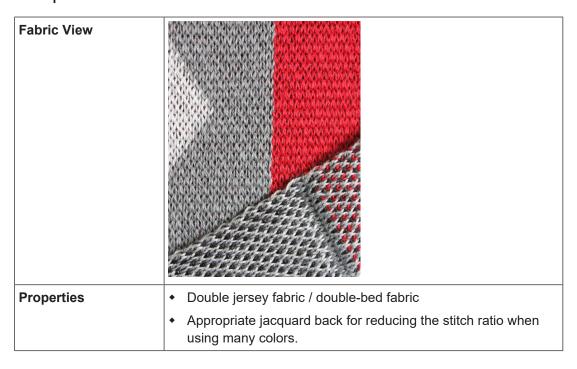
Example

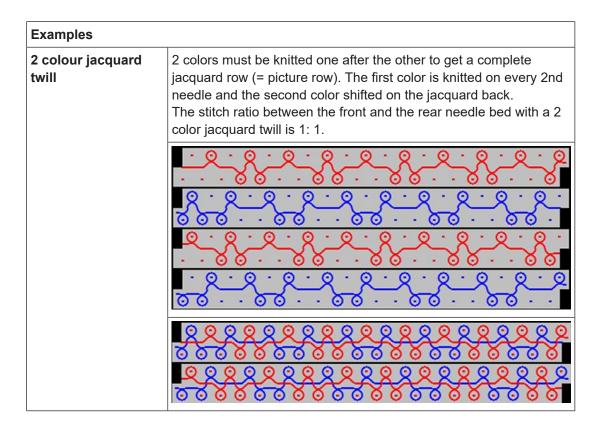
3 color jacquard stripe relief

For this jacquard the basic motif is created with 4 colors. During the processing, the color, which is not to be knitted will be defined. At the border of the non-knitting area, the stitches are transferred, whereby the back will be visible in that area. The stitch ratio between the front and the rear needle bed with a 3 color jacquard stripe relief is 1: 3.

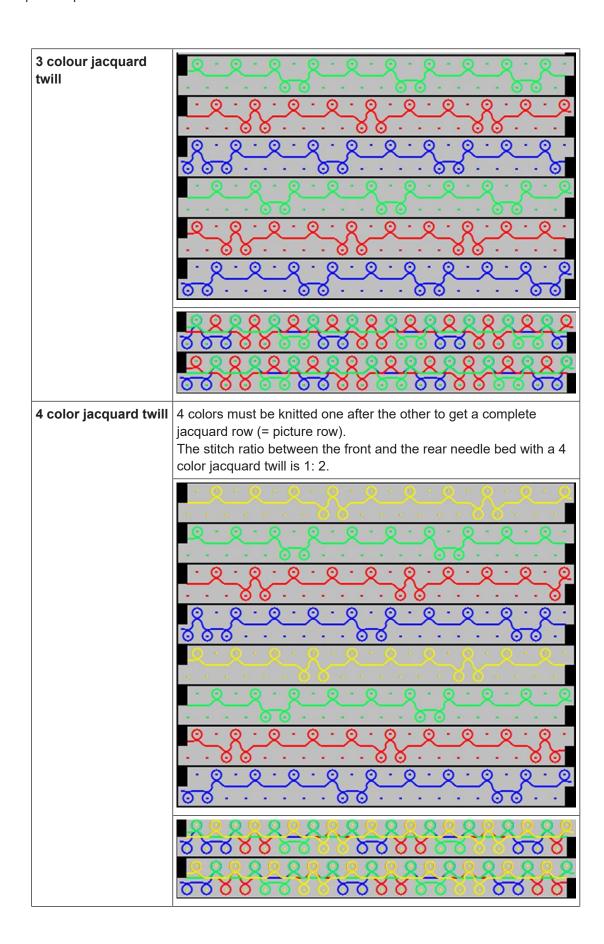


31.1.5 Jacquard twill



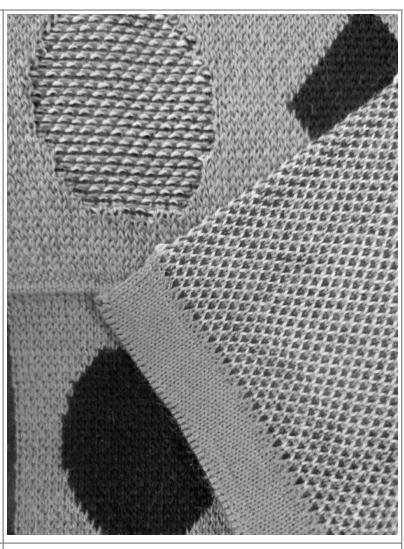






31.1.6 Jacquard twill relief

Fabric View



Properties

- Double jersey fabric / double-bed fabric
- Appropriate jacquard back for reducing the stitch ratio when using many colors.
- Rule: The total number of colors of the jacquard picture is reduced by 1 color. In this area the jacquard back turns visible.

Examples

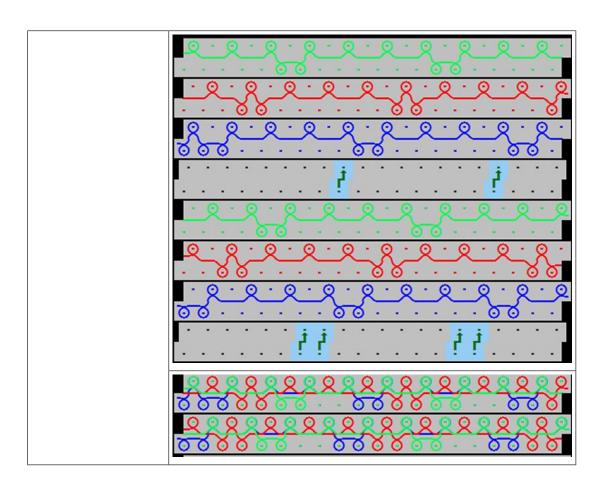
3 color jacquard twill relief

For this jacquard the basic motif is created with 4 colors. During the processing, the color, which is not to be knitted will be defined. At the border of the non-knitting area, the stitches are transferred,

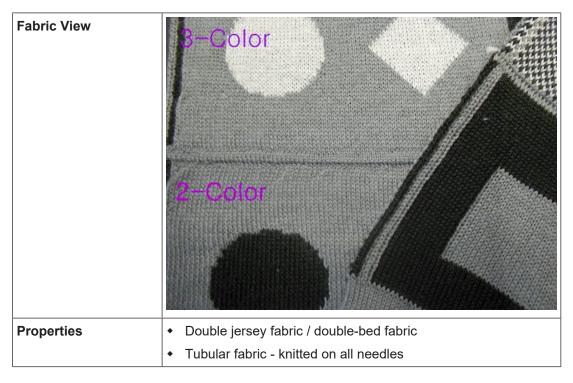
whereby the back will be visible in that area.

The stitch ratio between the front and the rear needle bed with a 3 color jacquard twill relief is 1: 1.5.





31.1.7 Jacquard net (cross-tubular)



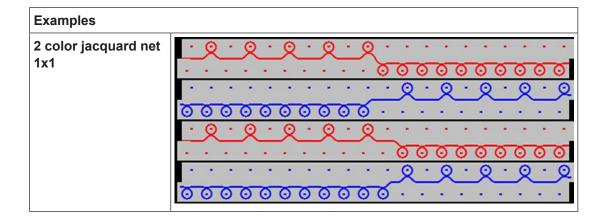
 For closing the selvedge (connection between front and rear needle bed), generally, a special selvedge is knitted.

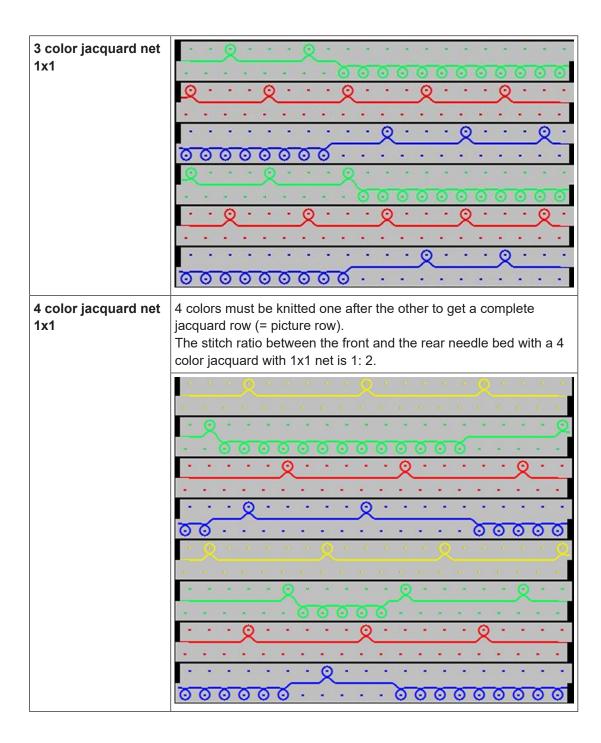
Examples 2 color jacquard net With a 2 color jacquard net, a double-face fabric is produced that shows a picture side on both sides. The picture sides only have interchanged colors (inverted). 00000 3 color jacquard net With a quantity of colors >= 3, the jacquard back is 'twilled' to maintain a low stitch ratio. The different colors are knitted as tubular, meaning that a connection only results when the colors change between the needle beds. 000000000



31.1.8 Jacquard Net 1x1

Properties • Double jersey fabric / double-bed fabric • Tubular fabric - Jacquard back is knitted on every 2nd needle • Appropriate jacquard back for reducing the stitch ratio when using many colors • The jacquard back is worked in 1x1 technique (only every 2nd needle knits), whereby the back does not result as compact. • With a large quantity of colors, the float length (max. 1 inch) must be taken into account.

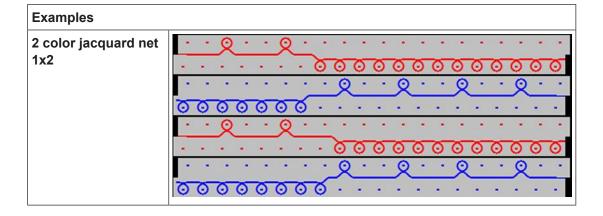


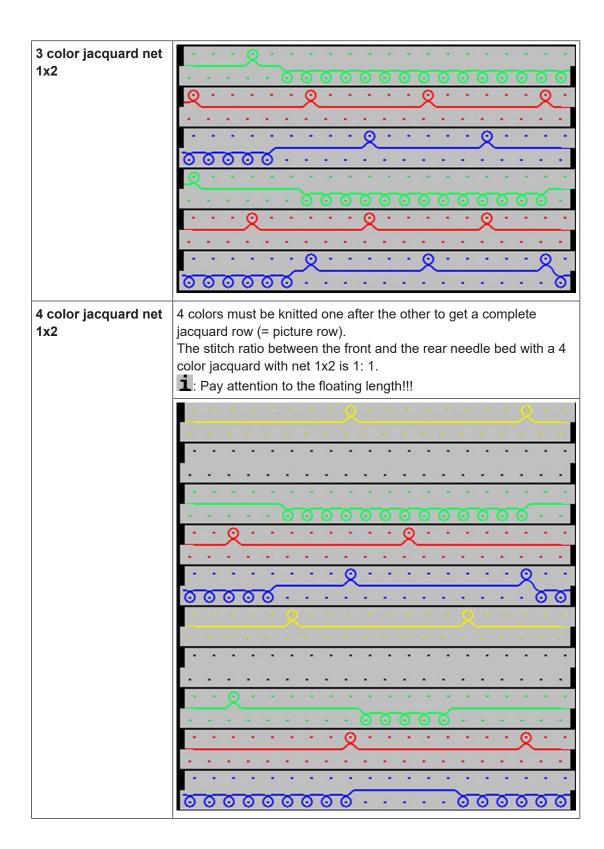




31.1.9 Jacquard Net 1x2

Properties Properties Double jersey fabric / double-bed fabric Tubular fabric - Jacquard back is knitted on every 3rd needle Appropriate jacquard back for reducing the stitch ratio when using many colors The jacquard back is worked in 1x2 technique (only every 3rd needle knits), whereby the back does not result as compact. With a large quantity of colors, the float length (max. 1 inch) must be taken into account

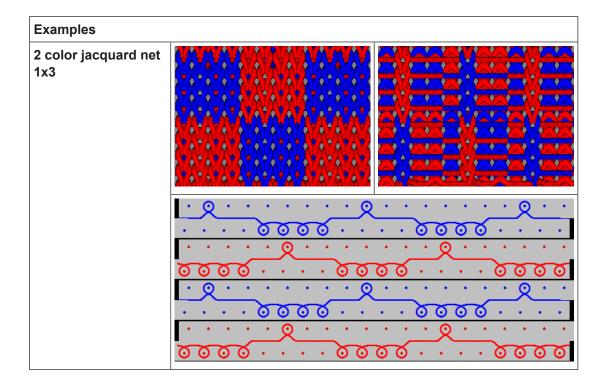


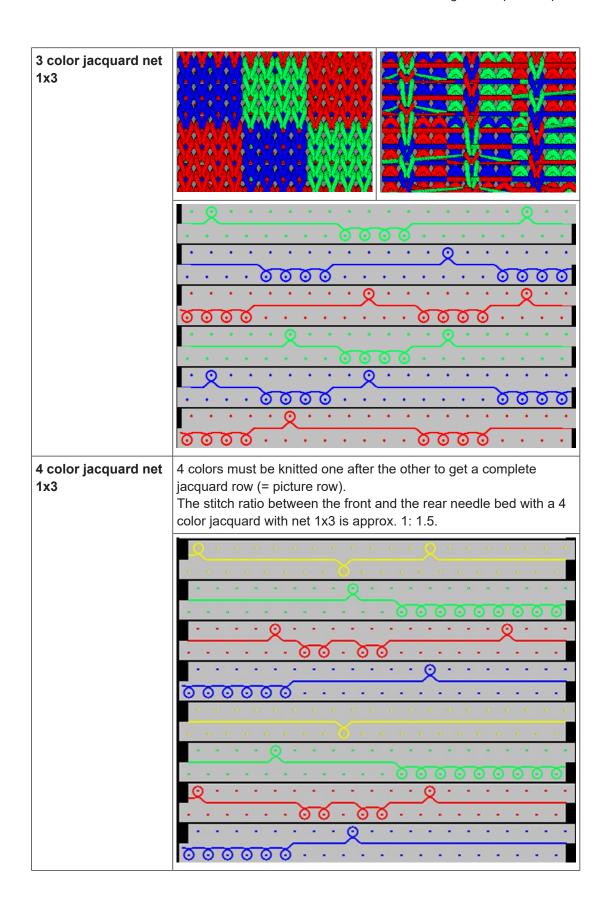




31.1.10 Jacquard Net 1x3

Properties • Double jersey fabric / double-bed fabric • Tubular fabric - Jacquard back is knitted on every 4th needle • Appropriate jacquard back for reducing the stitch ratio when using many colors • The jacquard back is worked in 1x3 technique (only every 4th needle knits), whereby the back does not result as compact. • With a large quantity of colors, the float length (max. 1 inch) must be taken into account.

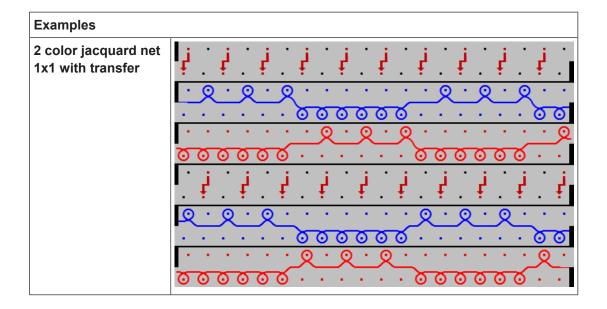


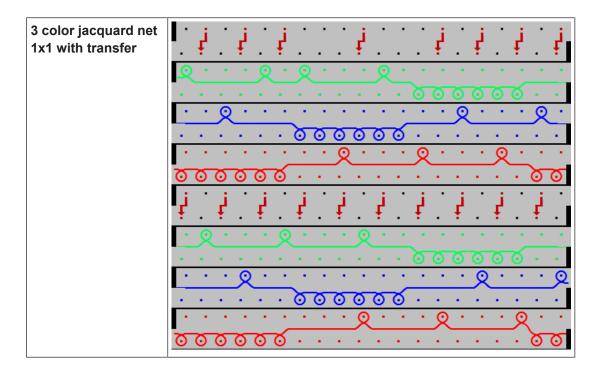




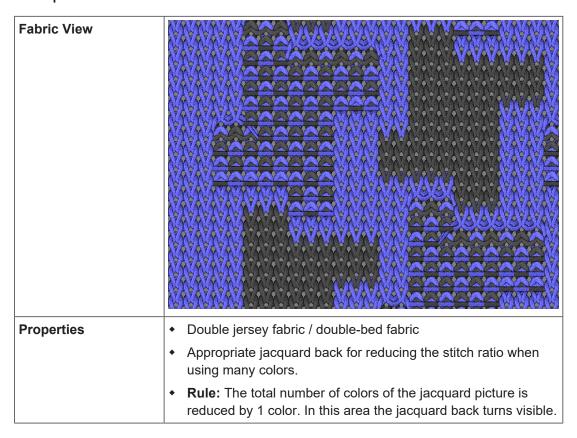
31.1.11 Jacquard Net 1x1 with Transfer

Fabric View		
Properties	Single jersey / single-bed fabric	
	Appropriate jacquard back for	
	 reducing the weight of the knitwear 	
	The jacquard back is worked in 1x1 technique (only every 2nd needle knits) and then the stitches are transferred.	





31.1.12 Jacquard net relief



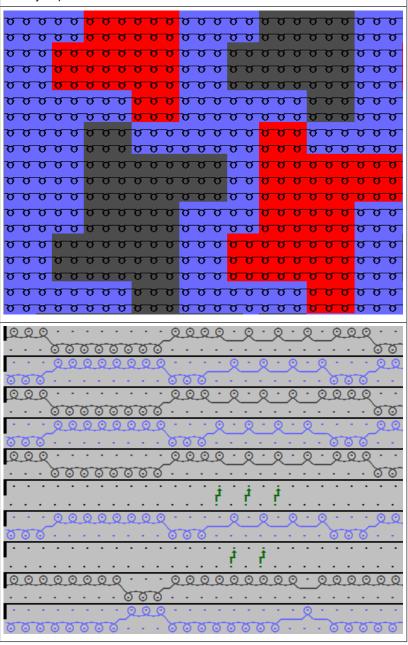


Examples

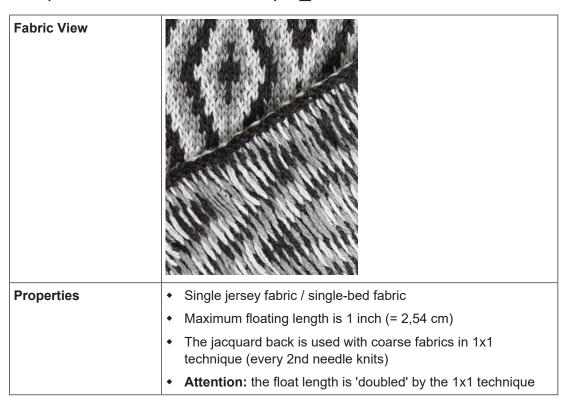
2 color jacquard net relief

For this jacquard the basic motif is created with 3 colors. During the processing, the color, which is not to be knitted will be defined. At the border of the non-knitting area, the stitches are transferred, whereby the back will be visible in that area.

The stitch ratio between the front and the rear needle bed with a 3 color jacquard net relief is 1: 1.5.

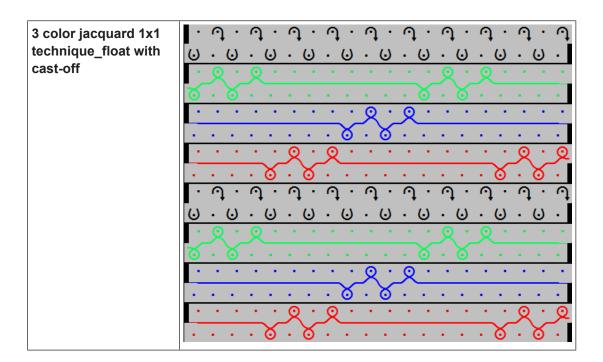


31.1.13 Jacquard Module 1x1 Technique_Float with Cast-off



Examples 2 color jacquard 1x1 technique_float with cast-off 2 colors must be knitted on every 2nd needle one after the other to get a complete jacquard row in 1x1 technique (= picture row). Then the stitches on the rear needle bed are cast-off and 'after-pressed'.





31.2 Create and set-up order with several knitting programs

Procedure:

- 1. Create order with several knitting programs.
- 2. Start the setup mode.
- 3. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
- Position the yarn carriers at the clamping point
- Check the knitting area and the fabric collection chamber
- 4. Start production.
- 5. Start machine (engage).

Make the following changes:

- Cycle Counters (RS)
- Stitch Length (NP)
- Fabric take-down values (WMF)
- Machine speed (MSEC)

Save the order with several knitting programs

31.3 Save the order with several knitting programs

i When saving an order a new file is always created with the xxx .seqx extension.

Saving an order with several knitting programs:

- ✓ You are signed in as Senior Operator

 ■...
- ✓ The production was not yet completed with the Exit production" button.
- 1. In the main navigation bar select the main area set up Order".
- 2. Tap on "Edit order" in the bottom navigation bar.
- 3. Then press the Save" button for saving.
- 4. Select location.
- 5. Enter the desired name for the order file.
- 6. With the Save" button perform the operation.
- ▶ In the specified location, a seqx file and the corresponding zip files of all positions of the order are created with the defined name.

Save the order with several knitting programs





32 Intarsia knitting technique



Pattern name	Intarsia_Technique	
Start	2x1 Rib	
Machine Type	CMS 530 HP W with E 7.2	
	CMS 530 HP 5,2" with E 3,5.2	
	ADF 530-32 W with E 7.2	
Operating mode of the machine	with comb function	
	with clamping / cutting	
Pattern description	Intarsia knitting technique:	
	With CMS 530 HP with 7 intarsia yarn carriers	
	 With ADF no special yarn carriers 	
	Intarsia with SJ structure	
Machine Parameters	CMS 530 HP (Performer Machines)	
	Braking value setting (Y:Ba-Bb)	
	– Manual input	
	 Adjustment program 	
	CMS ADF 32 W	
	No braking values adjustable / necessary	
Pattern Parameters	Yarn Carrier Correction (YCI)	



32.1 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Prepare the machine and set-up the pattern
- **■** with Performer Machines:
 - Exchange Yarn Carriers (normal yarn carriers against Intarsia yarn carriers)
 - Thread-up the Intarsia yarn carriers
 - Adjust the Intarsia Yarn Carriers
 - Position the Intarsia yarn carriers

■ With ADF machines:

- Threading up the Yarn Carriers
- Adjust the yarn carriers
- 4. Engage machine (start).

Make the following changes:

- Cycle counters (RS)
- Stitch Length (NP)
- Fabric take-down values (WM, W+, WMK, ...)
- Braking value of the yarn carriers (only necessary with Performer Machines)
- Corrections of yarn carriers (YC / YCI)

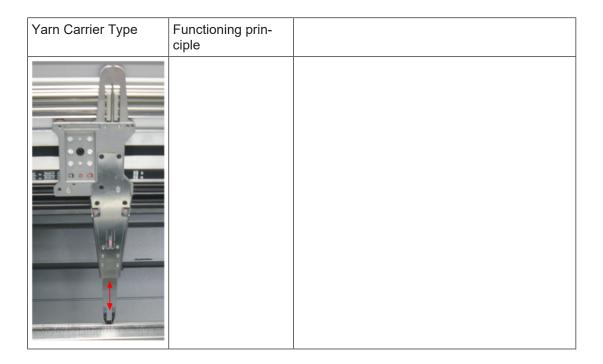
32.2 Yarn carrier types for the intarsia knitting technique

With the intarsia knitting technique, the yarn carriers are stopped in the fabric. This parking position leads to problems with the parked yarn carrier during the needle selection in the neighboring color field, i.e. the needles selected for knitting collide with the yarn carrier.

To avoid this collision, the yarn carriers are moved (kicked) out of the color field or parked in its own color field by swiveling the yarn carrier tip.

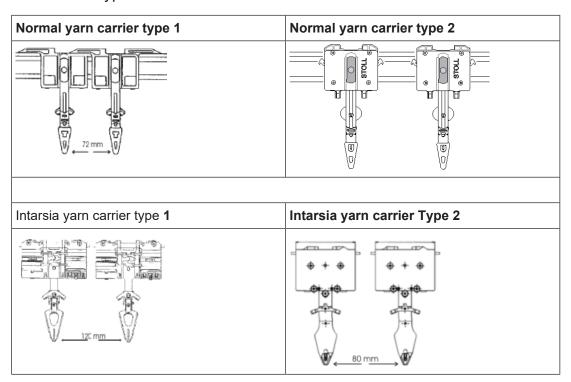
Yarn Carrier Type	Functioning prin- ciple	
Normal yarn carrier type 1 Normal yarn carrier type 2 (optional)	Yarn carriers can- not swivel	103 22 3 3 102 25 3 100 25 4 1
Intarsia yarn carrier type 2 STOLL 2-7 E7/8	Yarn carriers can swivel	i: At the end of the knitting row, the yarn carriers swivel into their own color field. The yarn carrier does not swivel at the fabric selvedge.
ADF Yarn Carriers	Yarn carriers are moved autarkic in horizontal and ver- tical direction	i: The yarn carrier is moved upward at the end of the color field and moved back to its color field in an autarkic way.

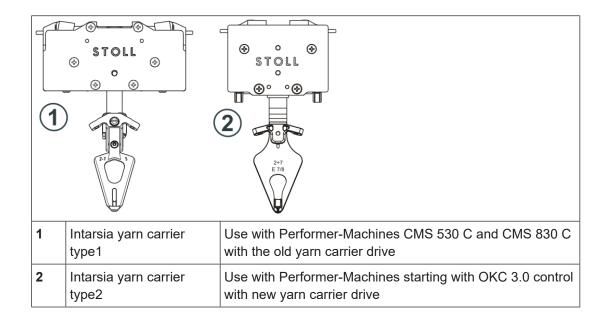




32.2.1 Intarsia Yarn Carriers with CMS Performer Machines and their way of working

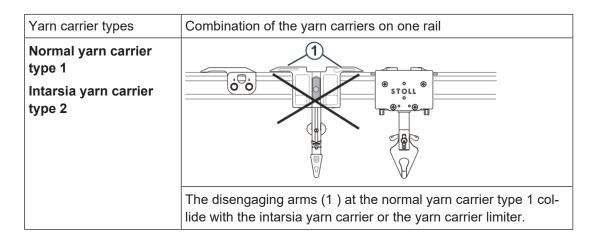
Yarn carrier types:

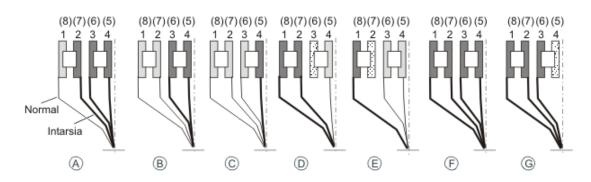




Combination of normal yarn carriers type 1 and intarsia yarn carriers type 2:

i A normal yarn carrier type1 and an intarsia yarn carrier cannot work on the same yarn carrier rail.







Tip:

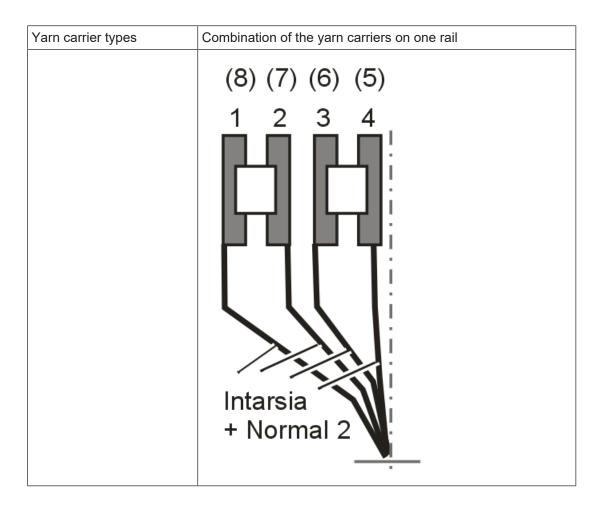
Equip the yarn carrier rails from inward to outward.

Benefit

With the allocation from inward to outward no track must be kept empty when using intarsia and normal yarn carriers.

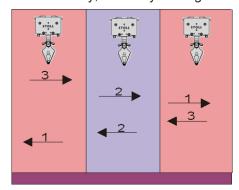
Combination of normal yarn carrier type 2 and intarsia yarn carrier type 2

Yarn carrier types	Combination of the yarn carriers on one rail
Normal yarn carrier type 2 Intarsia yarn carrier type 2	STOLL
Normal yarn carrier type 2 Normal yarn carrier type 2	THOUSE BY THE PARTY OF THE PART
Advantage	You can equip all yarn carrier rails as desired.



Sequence of the knitting technique with intarsia:

Consecutively, uniformly knitting intarsia yarn carriers:



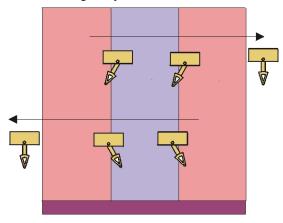
The result is a nice, uniform binding at the color field edge = high quality.

With a high quantity of colors per knitting row this sequence leads to a high production time.



Way of working of an intarsia yarn carrier type 2 with Performer Machines:

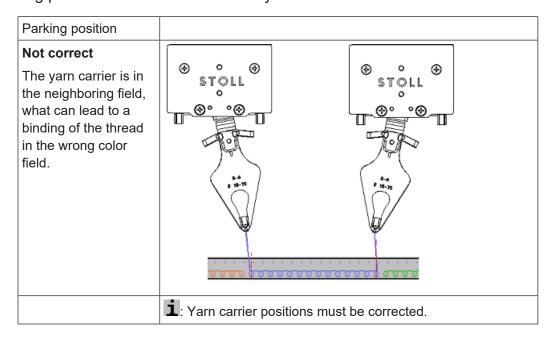
- 1. An intarsia yarn carrier is set upright from its swiveled position before knitting.
- 2. Knitting of the yarn carrier in its color field.
- 3. The brake is actuated and the yarn carrier is stopped at the end of the color field.
- 4. Swiveling the yarn carrier in its color field i.e. opposite to the carriage direction.

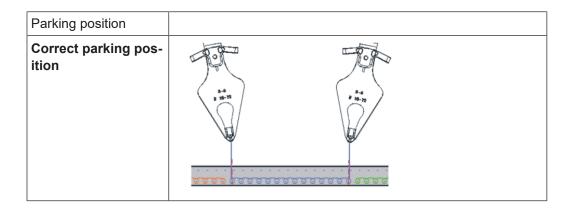


The yarn carriers stopped in the fabric are swiveled.

The yarn carriers stopped at the fabric selvedge are not swiveled.

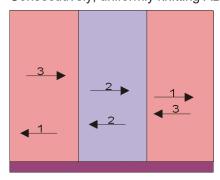
Parking position of a swivelled intarsia yarn carrier:





32.2.2 Yarn Carriers with CMS ADF Machines and their way of working

Sequence of the knitting technique with intarsia with autarkic yarn carriers: Consecutively, uniformly knitting ADF yarn carriers:



The result is a nice, uniform binding at the color field edge = high quality.

With a high quantity of colors per knitting row this sequence leads to a high production time.

How a yarn carrier works with CMS ADF machines:

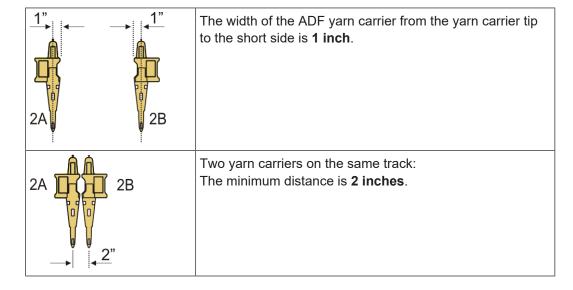
1 These autarkic yarn carriers doe not perform any swiveling movement.

Exchange yarn carriers on Performer Machines



	A1	Overrun path: 0.4 inch (6 nic) Yarn carrier moves in upper position out of its color field by the overrun path.
A1 C3 A	A2	Yarn carrier moves in lower position.
A2	А3	Yarn carrier moves to the beginning of its color field.
$\left \begin{array}{c}0.4^{\circ}\end{array}\right $ $\left \begin{array}{c}0.4^{\circ}\end{array}\right $	В	The yarn carrier works in its color field.
	C1	Overrun path: 0.4 inch (6 nic) Yarn carrier moves further at the end of the color field by the overrun path.
	C2	Yarn carrier in lower position moves back to its color field.
	С3	Yarn carrier moves to upper position.

Mechanical-induced distances:

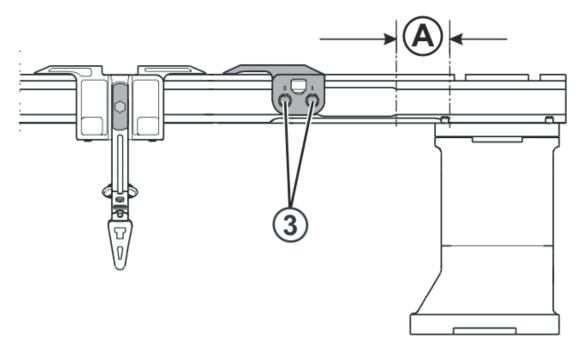


32.3 Exchange yarn carriers on Performer Machines

Based on the production time it is best to use intarsia yarn carriers for intarsia patterns.

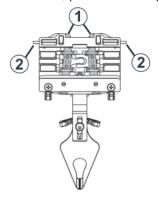
- I. Procedure for exchanging a yarn carrier:
- 1. Stop the carriage assembly into the left reversing position.

- 2. Loosen the screws (3) of the yarn carrier limiter.
- 3. Remove yarn carrier limiter.
 - **i** Yarn carrier limiters can be removed or mounted in any position.

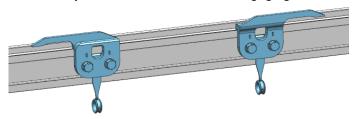


- 4. Push the normal yarn carriers to position (A) at the right and remove them.
- 5. Mount the intarsia yarn carriers at position (A) on the track and push them into their starting positions.

To do this, press the clamp (1) outward or the lifter (2) inward.



6. Mount the yarn carrier limiters with disengaging arms on the tracks!





7. Stag the yarn carrier limiters and lock them.

32.4 Adjustment of the yarn carriers on the machine

with Performer Machines:

- Guidance of the yarn carriers on the rails
- Vertical position (height)
- Horizontal position

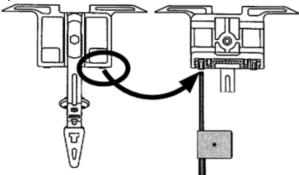
With ADF machines:

- Vertical position (height)
- Horizontal position

32.4.1 Adjustment of the Intarsia Yarn Carriers with Performer Machines

I. Adjust the guidance of yarn carriers:

1. To check whether the yarn carrier can be lifted from the yarn carrier rail, take the left and right sides of the yarn carrier housing in both hands and move the yarn carrier housing upward and downward.



- 2. If necessary push the setting key inwards with the adjusting key till the yarn carrier cannot be raised any more.
- 3. Turn the setting key back by one-eighth of a turn.
 - i Same procedure with normal and intarsia yarn carriers.

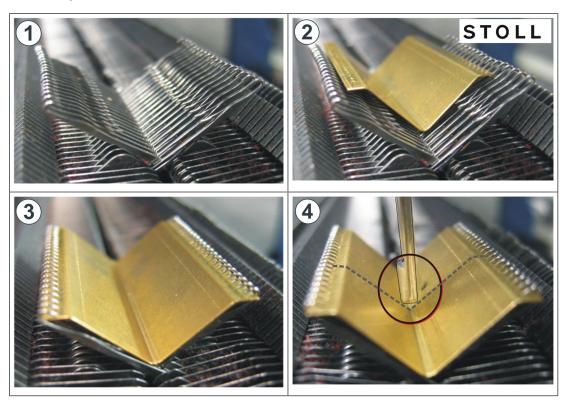
II. Adjustment of intarsia yarn carriers type 2:

The yarn carriers are correctly adjusted when:

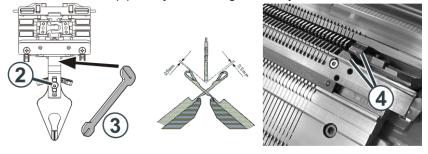
- an unswiveled yarn carrier passes by a swiveled yarn carrier.
- the yarn carrier tips move exactly between the needle beds in the needle cross and the distance between yarn carrier tips and the closed needle latch is 0.5 mm to 1 mm
- The yarn carriers of the track 1 and 8 are also set 0.5 higher so that they do not touch the lateral limiters (4) of the needle bed.

Procedure for adjusting an intarsia yarn carrier type 2:

- 1. Stop carriage assembly in needle area.
- 2. Insert yarn carrier shims in needles:



3. Loosen the screw (2) to adjust the height of the yarn carrier.

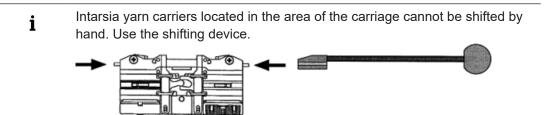


4. Adjust the height of the yarn carrier and re-tighten the screw (2).



5. In order to adjust the position of the yarn carrier tip laterally, bend the yarn carrier bow carefully (without using force) by means of the adjusting part (3).

III. Move the intarsia yarn carrier in the area of the carriage:



1. Press the lifters inward with the shifting device and shift the yarn carrier out of the area of the carriage.

IV. Check and correct the parking position of an intarsia yarn carrier:

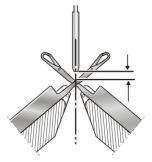
As soon as an intarsia yarn carrier reaches the end of its working area, the yarn carrier plunger is lifted out of the yarn carrier. The yarn carrier is braked and swivels back into its color field.

Cause of wrong parking position	Remedy
Inner surface of the yarn carrier rail is oily or greasy	Clean the oily or greasy braking surface of the yarn carrier rail.
Stopping time of the yarn carrier is not set correctly	Adjust the braking value of the yarn carriers directly on the machine.
Pressure plates are worn	Turn over or replace the pressure plates (see operating instructions of the machine)

32.4.2 Adjustment of the Intarsia Yarn Carriers with ADF Machines

Optimized adjustment of the yarn carrier depends:

on the centering of the yarn carrier tip.It is correctly adjusted if it is located exactly between both needle beds.

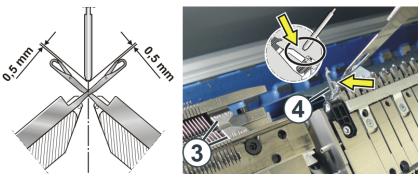


Adjustment of the yarn carriers on the machine

- on the height of the yarn carrier
 - If one of both settings are incorrect, there will be errors in the fabric or the needles will be damaged.

The yarn carriers are correctly adjusted if

- the thread is laid on the open latch at exactly the same point by each yarn carrier for both selvedge needles
- the yarn carrier tips move exactly between the needle beds in the needle cross and the distance between yarn carrier tips and the closed needle latch is 0.5 mm to 1 mm



- the yarn carriers of the track 1 and 16 are set 0.5 mm higher additionally so that they do not touch the limiters 3
- the yarn carrier in the clamping and cutting area does not press the cutting needle 4 located in the working position
 - **1** The yarn carrier must be adjusted on the software and on the hardware side.

32.4.2.1 Vertical adjustments of a yarn carrier

32.4.2.1.1 Centering a yarn carrier

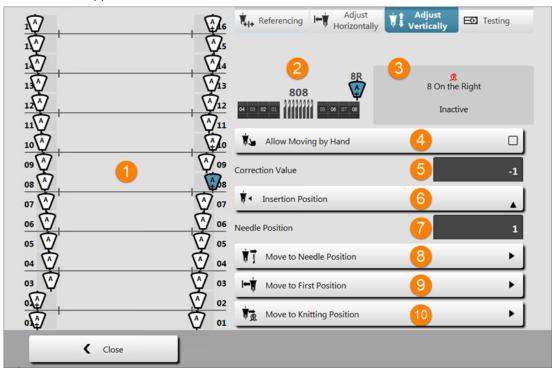
- I. Checking the centering:
- ✓ You are signed in as "Senior Operator"

 —

 ...
- ✓ Knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select Maintain Machine".



- 2. Select X "Service" in the bottom navigation bar.
- 3. Tap the "Yarn carrier key" button.
- 4. Select the Tadjust Vertically" tab.
- ▶ The menu appears.



Display of the yarn carrier rails with the yarn carrier type A

Display of the yarn carrier position of a selected yarn carrier

State of the selected yarn carrier

Ready to Knit

Inactive

Not Adjusted

Adjustment Active

Etc.

Moving by Hand allowed

The selected yarn carrier is supplied with power.

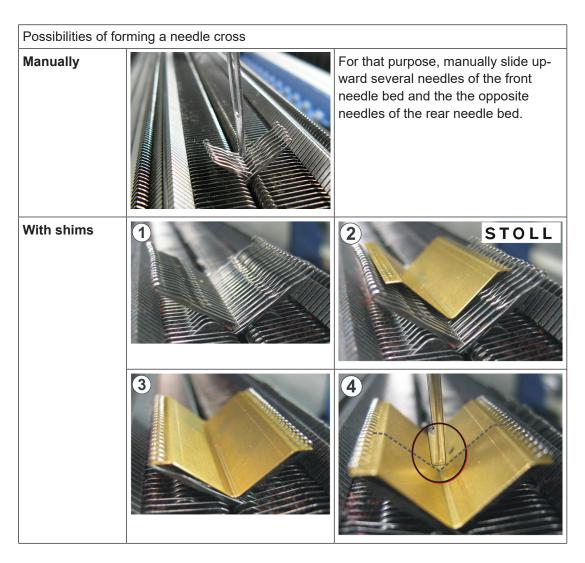
Moving by hand is not possible.

Adjustment of the yarn carriers on the machine

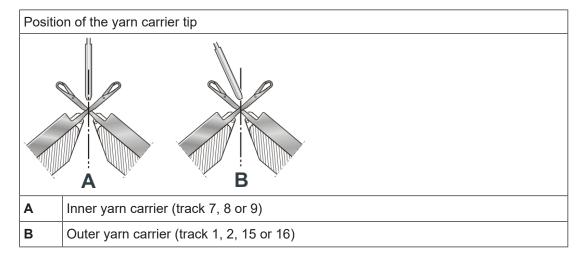
	l I —	e selected yarn carrier is not supplied with power. Moving by hand is possible.				
	i: The	e interruption of the light curtain removes the power supply as well.				
5	Correction Value	Input of a correction value for the selected yarn carrier via a virtual numeric keypad.				
		1: The correction value refers to the selected position of the yarn carrier, for ex. insertion position, etc.				
6	† ∢	Menu for entering the desired position for the vertical adjustment of the selected yarn carrier				
		High Position: Move the selected yarn carrier to its highest position				
		Insertion Position: Move the selected yarn carrier to the knitting position				
		Deep position: Move the selected yarn carrier to its deepest position				
7	Needle Position	Input of a value for the desired needle position for using the button "Move to Needle Position"				
8	∀ 1	Press the "Move to Needle Position" button				
		1: The selected yarn carrier is brought to the specified needle position.				
9	⊢ ₿	Button for performing the yarn carrier movement "Move to First Position"				
		1: The selected yarn carrier regarding its home position is brought to the first needle in the needle bed.				
10	₩ 📆	Button for performing the yarn carrier movement "Move to Knitting Position"				
		i: The selected yarn carrier is brought to the last knitting position.				

- 5. Tap on the yarn carrier to be centered.
- 6. Activate the "Allow Moving by Hand" button.- or -Interrupt the light curtain.
- 7. Open the covers and manually move the yarn carrier to a position where the yarn carrier can be controlled well.
- 8. Form a needle cross:





Check the position of the yarn carrier tip.For that purpose move the yarn carrier manually into the "needle cross" and check the adjustment.

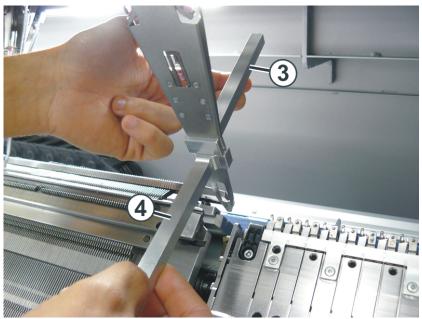


Adjustment of the yarn carriers on the machine

The adjustment is correct if the yarn carrier tip is located exactly vertically above the crossing point of the front and rear needles.

II. Centering the yarn carrier:

- ✓ You are signed in as Senior Operator
- ✓ The covers must be closed.
- 1. Open the selection menu by tapping A on the (6) button
- 2. Select the TInsertion position" setting.
- ▶ The yarn carrier moves to the knitting position (insertion position).
- 3. Open the covers.
- 4. Manually move the yarn carrier between needle bed and clamping and cutting bed.
- 5. With the help of the two adjusting levers (3) and (4) center the yarn carrier tip (.)



Procedure:

- 6. Position the adjusting lever (3) at the connecting point "yarn carrier sliding block tip" in the upper part of the yarn carrier.
- ▶ It serves as protection for the upper area of the yarn carrier. If this area is distorted, the yarn carrier can no longer be moved upward.
- 7. With the lower adjusting lever (4) bend carefully (without using force) the yarn carrier tip to the front or to the rear.
- 8. Check the adjustment:
- For that purpose move the yarn carrier over the needle cross.

Adjustment of the yarn carriers on the machine

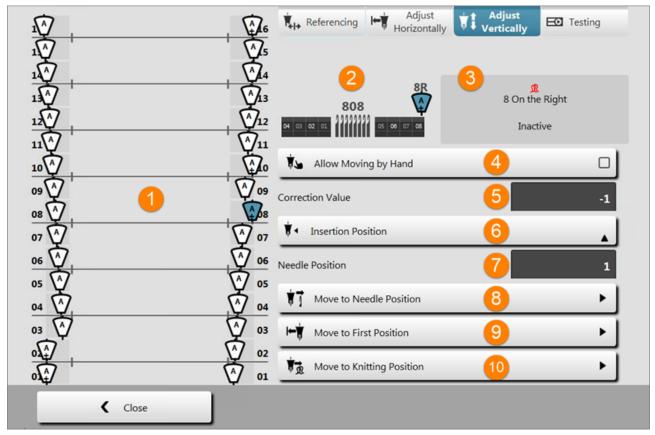


■ The adjustment is correct, if the lower end of the yarn carrier tip is located exactly in the center of the needle cross.

32.4.2.1.2 Set height of yarn carrier

This adjustment of the yarn carrier is machine related!!Additional pattern related adjustments may be required.

- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded.
- ✓ The production was started.
- In the main navigation bar select "Maintain Machine".
- 2. Select X "Service" in the bottom navigation bar.
- 3. Tap the "Yarn carrier key" button.
- 4. Select the **T** "Adjust Vertically" tab.
- ▶ The menu appears.



- 5. Tap on the yarn carrier to be centered.
- 6. Activate the "Allow Moving by Hand" ✓ button.
- or -

Interrupt the light curtain.

- 7. Open the covers and manually move the yarn carrier to a position where the yarn carrier can be controlled well.
- 8. Form a "needle cross"
- Manually
- With the help of the shims
- 9. In the edit box "Correction value" (5) enter the desired correction value via the virtual numeric keypad.

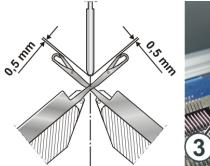
	Value range	
5	-1.0 0 3.0	Default =0
	Step width: 0.05 mm	

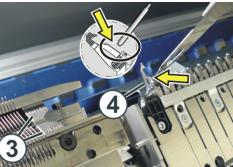
10. Check the height:

- Manually in the needle cross
- With the help of the shim

The yarn carriers are correctly adjusted if

- the thread is laid on the open latch at exactly the same point by each yarn carrier for both selvedge needles
- the yarn carrier tips move exactly between the needle beds in the needle cross and the distance between yarn carrier tips and the closed needle latch is 0.5 mm to 1 mm

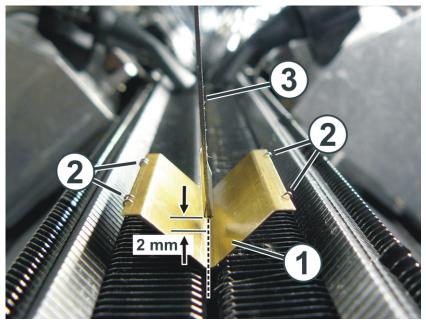




- the yarn carriers of the track 1 and 16 are set additionally 0.5 mm higher so that they do not touch the limiters (3)
- the yarn carrier in the clamping and cutting area does not touch the cutting needle (4) located in the working position



32.4.2.1.3 Adjust the Yarn Carriers With the Adjustment Gauge



- 1. Position the adjustment gauge (1) between the needle beds.
- Fix the adjustment gauge.
 Therefore push one needle (2) on the left and right of the gauge each upward, open the needle latches and pull them back then. Do this on both needle beds.
- 3. Push the yarn carrier (3) over the adjustment gauge.
- 4. The adjustment is correct if:
- the distance from the yarn carrier tip to the gauge is about 2 mm.
- the end of the yarn carrier tip is exactly in the center of the gauge.

32.4.2.2 Horizontal adjustment of a yarn carrier

Adjust yarn carrier horizontally

1 This adjustment of the yarn carrier is machine related!! Additional pattern related adjustments may be required.

- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select ** "Maintain Machine".

- 2. Select X "Service" in the bottom navigation bar.
- 3. Tap the "Yarn carrier key" button.
- 4. Select the "Adjust Horizontally" tab.
- ► The menu appears.

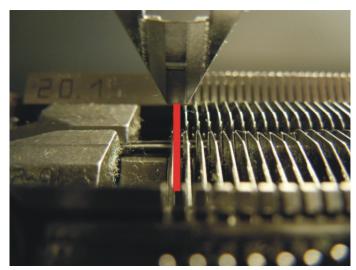


1	ı←À	Button "Move to First Position" in order to move the yarn carrier to the first position		
		1: The selected yarn carrier regarding its home position is brought to the first needle in the needle bed.		
		The identification of the button and the button are greyed out:		
2	₩ →	Button "Move to Last Position" in order to move the yarn carrier to the last position		
3	Buttons for positioning the yarn carrier			
	4	Large step width for moving the yarn carrier to the left		
	•	Small steps for moving the yarn carrier to the left		
		Small steps for moving the yarn carrier to the right		
	>>	Large step width for moving the yarn carrier to the right		
4	#→!	Button for confirming the corrected position as "Apply first position".		



1: Always confirm the new position with this button, otherwise the machine has no position for this yarn carrier.

- 1. Select the yarn carriers to be adjusted.
- 2. Press the "Move to First Position" button.
- ▶ The yarn carrier is located in the needle bed on the first position (first needle).
- Yarn carrier out of the left clamping and cutting device on first position at the left in the needle bed.
- Yarn carrier out of the right clamping and cutting device on first position at the right in the needle bed.
- 1. With the help of the arrow keys move the yarn carriers until the yarn carrier tip is centered to the first needle.



- 2. Tap on the "Confirm first position" button
- ▶ The setting is confirmed and the yarn carrier is adjusted.
- ▶ The yarn carrier automatically runs into its starting position.

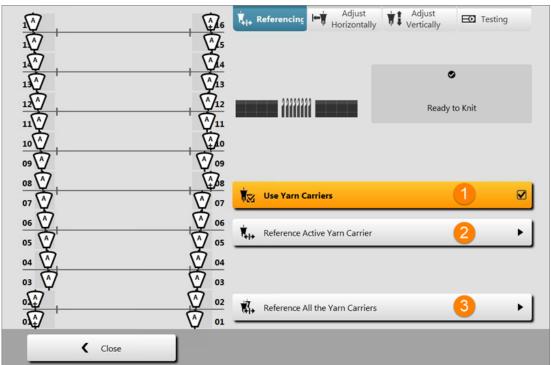
32.4.2.3 Reference yarn carrier

- ✓ You are signed in as Senior Operator

 —...
- ✓ Knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select Maintain Machine".
- 2. Select X "Service" in the bottom navigation bar.

Adjustment of the yarn carriers on the machine

- 3. Tap the "Yarn carrier key" button.
- 4. Select the Reference" tab.
- ► The menu appears.



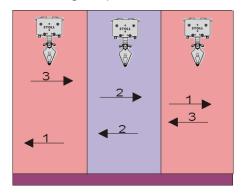
1	₩ Use Yarn Carrier	✓	The selected yarn carrier is active (is supplied with power).
			The selected yarn carrier is inactive (is not supplied with power).
			Yarn carrier defective
			i: Marking with
2	Reference Active Yarn Carrier	Ref	ference the selected yarn carrier
3	Reference All the Yarn Carriers	Ref	ference All the Yarn Carriers

- → Select the desired function:
- Reference the selected yarn carrier
- Reference All the Yarn Carriers
- → Exit the menu with the Close" button.



32.5 Intarsia Knitting Technique and Programming

I. Knitting sequence for intarsia knitting technique on Performer Machines:



- The color fields are individually knitted one after the other
- At the end of the color field, the yarn carrier is swiveled into its own color field
 - The result is a nice, uniform binding at the color field edge = high quality.

 With a high quantity of colors per knitting row this sequence leads to a high production time.
- II. Knitting sequence for intarsia knitting technique on ADF machines:
 - The autarkic yarn carrier does not perform any swiveling movement.

 This yarn carrier performs an upward / downward movement, which equals the swiveling of an intarsia yarn carrier.

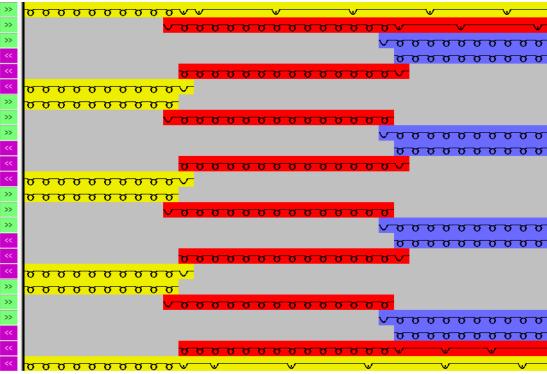
 For the knitting process the yarn carrier is positioned low and moved horizontally.

Conventional Intarsia yarn car- rier	Autarkic yarn carrier	Presentation of autarkic yarn carriers movement
Yarn carrier swiveled	The yarn carrier is positioned in its color field. 1: The overrun path is 0.4" (6 nic). This ensures a secure yarn insertion during the following knitting.	A1 C3 C2 O,4" Graphic presentation in the technical view:

Conventional Intarsia yarn car- rier	Autarkic yarn carrier	Presentation of autarkic yarn carriers movement
Yarn carrier not swiveled	The yarn carrier is positioned in the neighboring color field. 1: The behavior is similar to a normal yarn carrier, i.e. the overrun path is 0.75" (12 nic).	A B C 0,75" Graphic presentation in the technical view:
	i: The specification nic means: 1 meter.	nic = 1/16 inch = 1.5875 milli-

III. Fabric View

Stitch line:



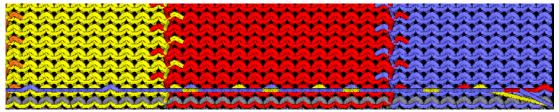


- Knitting-in / knitting-out the yarn carriers for ex. with the tuck binding / float needle actions
- Binding at the color field edge with tuck

Fabric front:



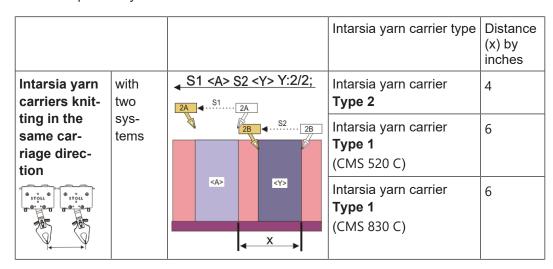
Fabric back:



32.5.1 Distances of intarsia yarn carriers with double assignment on Performer Machines

The distances depend on:

- on the intarsia binding between the color fields.
- The parking position of the yarn carrier in the preceding row.
 - in case of color fields that have an angular course the distance can be greater.
- Pattern-dependent yarn carrier correction values K<I>



i

				Intarsia yarn carrier type	Distance (x) by inches
with one system		S1 <ay> Y:2 2; 2A ◆ 2A 2B ◆ 2B</ay>		Intarsia yarn carrier Type 2	6
		<a> <y></y>	Intarsia yarn carrier Type 1 (CMS 520 C)	9,7	
		4	X	Intarsia yarn carrier Type 1 (CMS 830 C)	9,6
Intarsia yarn ca work in the op	posite	S1 <a> S1 <y></y>	Y:2A; Y:2B;	Intarsia yarn carrier Type 2	6
carriage directions	2A S1 2B S1 2B	Intarsia yarn carrier Type 1 (CMS 520 C)	9,7		
		<a> <y> <</y>		Intarsia yarn carrier Type 1 (CMS 830 C)	9,6
Distance of co		S1 <ay> 2</ay>	Y:2/5;	Intarsia yarn carrier Type 2	1
tem.		\$1 5 5	Intarsia yarn carrier Type 1 (CMS 520 C)	2,7	
i :		<a>	<y></y>	Intarsia yarn carrier Type 1 (CMS 830 C)	2,0
The yarn carrier not swivel into the field knitted by the system.	he color		× ×		

The table shows minimum distances of two intarsia yarn carriers on the same yarn carrier rail.



32.5.2 Distances of yarn carriers with double assignment on ADF Machines

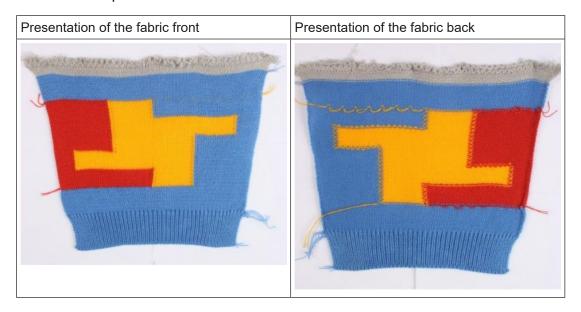
Function	Systems		Distance (x) by inches
Two yarn carriers on the same track work in the same carriage direction	with 2 systems	S1 <a> S2 <y> YX:2/2;</y>	2,4" (1"+1"+0,4")
		S1 <a> S2 <y> YX:2/2; 2A</y>	2,4" (1"+1"+0,4")
		S1 <a> S2 <y> YX:2/2;</y>	2,4 (1"+1"+0,4")

Function	Systems		Distance (x) by inches
Two yarn carriers on the same track work in the same carriage direction	with one system	S1 <ay> YX:2,2; 2A</ay>	2,8" (1"+0,4"+1"+0 ,4")
Two yarn carriers on the same track work in the different carriage direction	with one system	S1 <a> YX:2A; S1 <y> YX:2B; A> A</y>	2,4" (1"+1"+0,4")
Two yarn carriers on the different tracks work in the same carriage direction	with one system	S1 <ay> YX:2,5; 2A</ay>	0,7"



32.6 Pattern specific concepts of the intarsia knitting technique

Pattern example



- Intarsia binding / Gore binding at the color field selvedges
- Border processing of the color field selvedges
 - Feed
 - Reduce
 - Allowed Stepping
- Knitting-in / knitting-out the yarn carriers

32.6.1 Intarsia binding / Gore binding

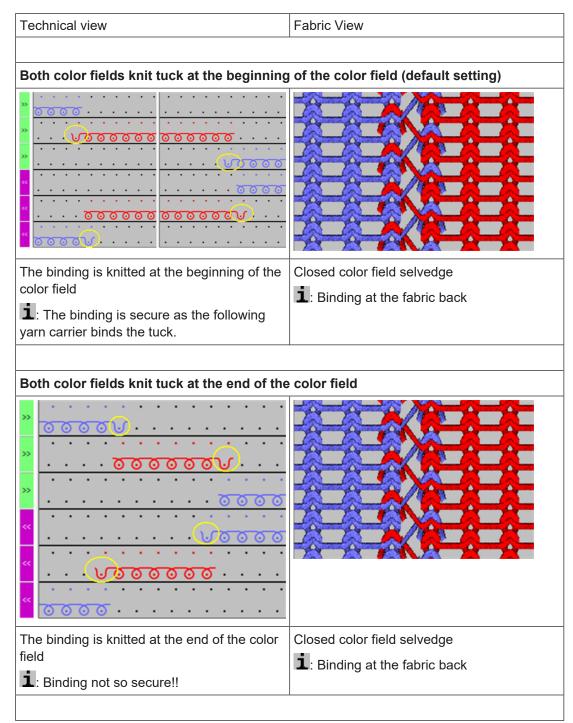
Intarsia binding / Gore binding

1 Under binding is meant the way of interconnecting two neighboring knitting areas (color fields).

The binding can be carried out at the beginning of the color field or at the end of the color field, i.e. the binding is carriage stroke dependent.



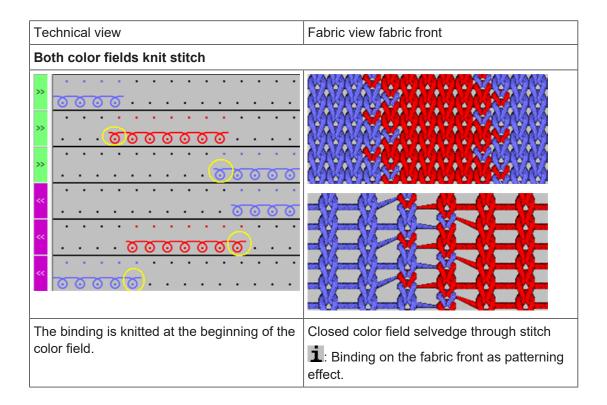
Binding with the binding element tuck (default)



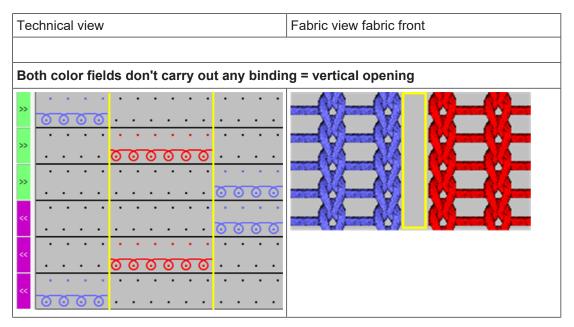
Binding with Binding Element Stitch

Technical view	Fabric view fabric front	





No binding at both color field selvedges



i Combination possibilities of the different bindings

You have many options of combining the types of bindings at the color field selvedges, where the right and left color field selvedge may also differ from each other.

Pattern specific concepts of the intarsia knitting technique

32.6.2 Intarsia border processing

Intarsia border processing

- With the concept **Border processing** is meant the processing of the steps at a color field selvedge (edge) depending on the carriage direction.
- Feed with Allowed Stepping
- Reduce with Allowed Stepping

32.6.2.1 Feed with Allowed Stepping

i Feed

With the concept **Feed** is meant the positioning of a yarn carrier regarding the following knitting row of its own color field.

For this, there are many different options regarding the knitting technique.

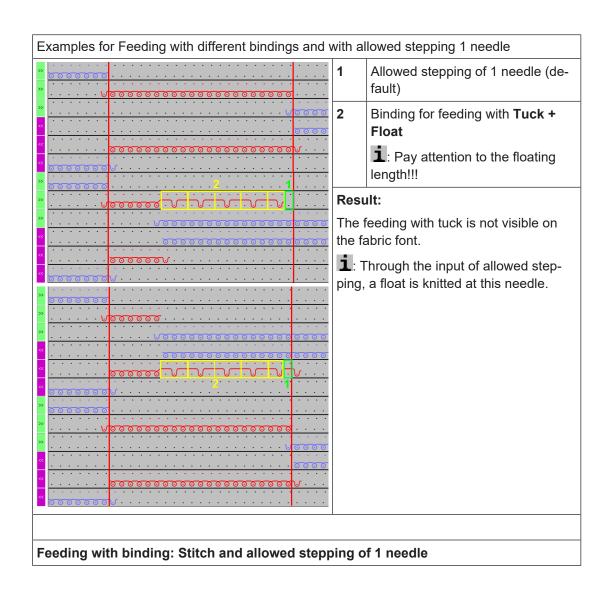
Feed with Allowed Stepping: 1 needle

Examples for Feeding with different bindings and with allowed stepping 1 needle

Feeding with binding: Float - tuck - float and allowed stepping of 1 needle

Pattern specific concepts of the intarsia knitting technique







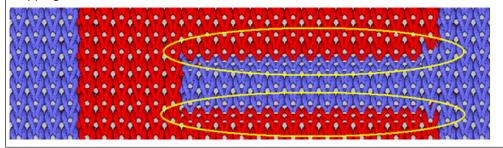
Examples for Feeding with different bindings and with allowed stepping 1 needle					
» <u>0000000</u> · · · · · · · · · · · · · · · ·	1	Allowed stepping of 1 needle			
<u> </u>	2	Binding for feeding Stitch			
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Result:

In the row of the feeding, an additional stitch row is knitted.

1: At straight color field selvedges, there results an unattractive step through the 'allowed stepping' of one needle.



i Numerical input under Allowed stepping

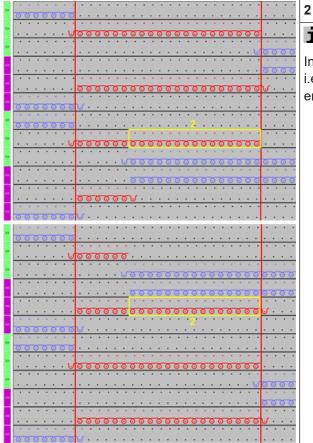
The number defines the quantity of needles at the color field selvedge, which is **not** knitted with the selected binding for feeding. At this position always results a float.



Feed with Allowed Stepping: None

Example for feeding with different bindings and with allowed stepping: 0 needles

Feeding with binding: Stitch and allowed stepping of 0 needle



Binding for feeding Stitch

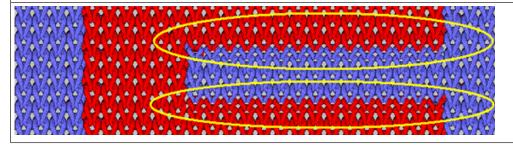
i

Input at 'Allowed stepping': 0 (needle), i.e. the selected binding for feeding is entered over the entire color field step.

Result:

In the row of the feeding, an additional stitch row is knitted.

1: At straight color field selvedges, there results a nice step through the 'allowed stepping' of 0 needle.



Pattern specific concepts of the intarsia knitting technique

32.6.2.2 Reduce with Allowed Stepping

i Reduce

With the border processing 'Reduce', the color field selvedges of a color field are adapted (=reduced) through the knitting technique according to the carriage direction.

This means that the color field selvedges will no longer correspond visually to the original drawing due to the modification.

Attention: in case of round color field selvedges the result is not nice.

Reduce with setting under Allowed Stepping

Examples for Reduce with allowed stepping						
Reducing with allowed stepping of 1 needle						
"	1	Allowed stepping of 1 needle (default) 1: The color field to be reduced is reduced by 1 needle less.				
	2	Reducing the color field according to the carriage direction. 1: Tuck is the binding at the color field selvedge.				
Pooriti						

Result:

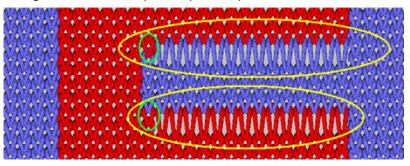
In the rows where the reduction takes place, two stitch rows less will be knitted in the red color field.



Examples for Reduce with allowed stepping

1: At straight color field selvedges, there results an unattractive step through the 'allowed stepping' of one needle.

The result at round color fields is not nice either, as the shape of the original color field is changed due to the adaptation (Reduce).



Reducing with allowed stepping of 0 needle

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Allowed stepping of 0 needle

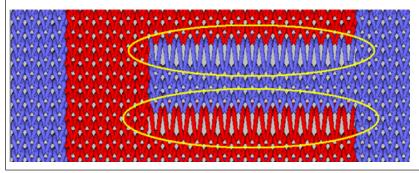
Reducing the color field according to the carriage direction.

i: Tuck is the binding at the color field selvedge.

Result:

Examples for Reduce with allowed stepping

In the rows where the reduction takes place, two stitch rows less will be knitted in the red color field.



32.6.3 Knitting-in / knitting-out the yarn carriers

i Knitting-in / Knitting out of yarn carriers

Knitting-in: The yarn carrier is at the fabric selvedge and must be positioned at the beginning of its color field for knitting at the color field selvedge. **Knitting-out:** The yarn carrier is at the end of its color field after knitting, at the color field selvedge and must be brought to the fabric selvedge.

- Knitting-in of yarn carriers
 - Example 1: Knitting-in with tuck and float
 - Example 2: Knitting-in with stitch and float
 - Example 3: Knitting-in with Knot1 and Tuck+Float
 - Example 4: Knitting-in with Knot, Split and Float
- Knitting-out of yarn carriers
 - Example 1: Knitting-out with tuck and float
 - **i** Specifications for the knitting mode for the knit-in / knit-out row

A knit-in / knit-out row can be knitted identically or differently regarding the binding technique.

Generally, the type of bindings depends on the pattern and can vary from case to case.

32.6.3.1 Knitting-in of yarn carriers

■ Yarn carriers are in the clamp

Pattern specific concepts of the intarsia knitting technique



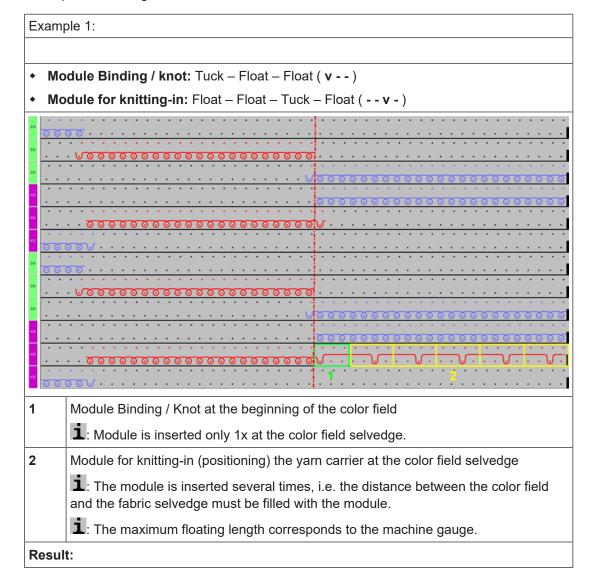
- Take yarn carriers out of the clamp and starting from the fabric selvedge position the yarn carrier at the beginning of its color field (knitting-in)
- The yarn carrier is at the fabric selvedge
 - starting from the fabric selvedge position the yarn carrier at the beginning of its color field (knitting-in)

i Structure of a knit-in row

When knitting-in the yarn carriers, two modules are used. For knitting-in the yarn carriers from the fabric selvedge, the shortest distance (way) to the color field is always used by default.

Regarding the knitting technique, many options are available.

32.6.3.1.1 Example 1: Knitting-in with tuck and float

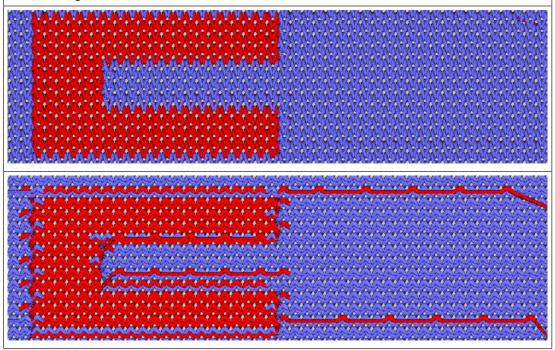


Pattern specific concepts of the intarsia knitting technique

Example 1:

Knitting-in with tuck and float is only visible on the fabric back.

1: When finishing, the thread ends must be pulled out manually and knotted at the color field selvedge.



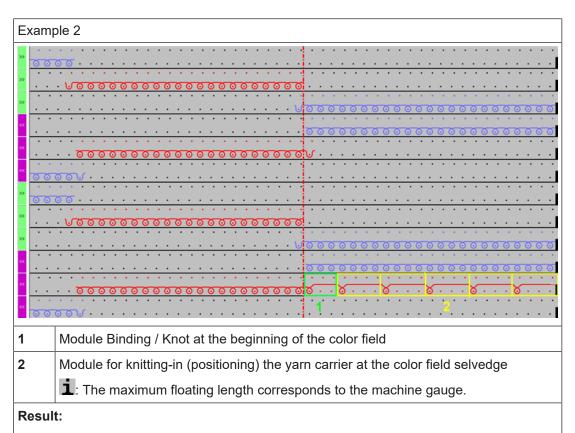
i Knitting-in and knitting-out never is knitted on the same needle!

32.6.3.1.2 Example 2: Knitting-in with stitch and float

Example 2

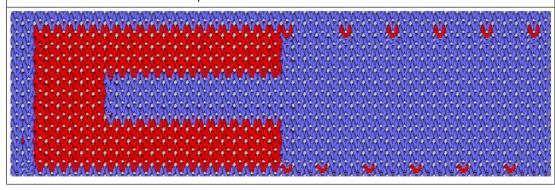
- Module Binding / knot: Stitch Float Float (o -)
- Module for knitting-in: Float Float Stitch Float (- o)





The binding of knitting-in is visible on the fabric front as stitch. A 'pattern effect' is the result.

1: The thread ends cannot be pulled out and the don't need to be knotted therefore.



i Knitting-in and knitting-out never is knitted on the same needle!

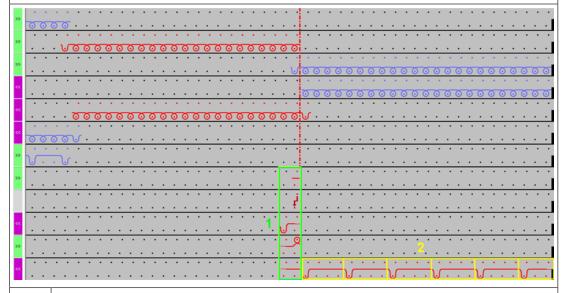
32.6.3.1.3 Example 3: Knitting-in with Knot1 and Tuck+Float

Example 3			



Example 3

- Module Binding / knot: Knot 1
- Module for knitting-in: Float Float Tuck Float (- v)



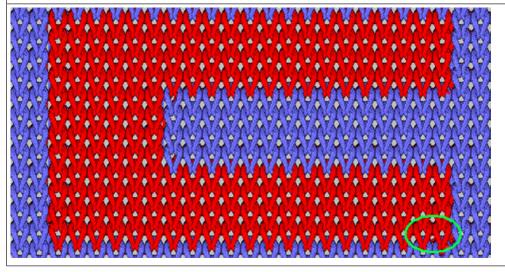
- 1 Module Binding / Knot at the beginning of the color field
- 2 Module for knitting-in (positioning) the yarn carrier at the color field selvedge
 - 1: The maximum floating length corresponds to the machine gauge.

Result:

Knitting-in with tuck and float is only visible on the fabric back.

The knot1 knots the thread in its own color field, resulting in a slight thickening. This increases the production time as well.

1: When finishing, the thread ends must be pulled out but **not** knotted at the color field selvedge.



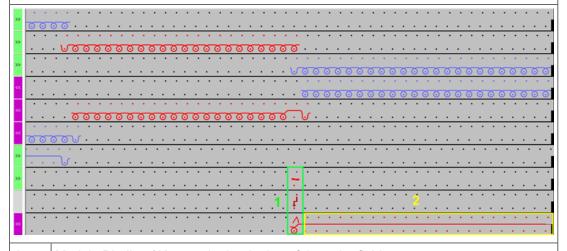


i Knitting-in and knitting-out never is knitted on the same needle!

32.6.3.1.4 Example 4: Knitting-in with Knot, Split and Float

Example 3

- Module Binding / knot: Knot Split
- Module for knitting-in: Float (---)



- 1 Module Binding / Knot at the beginning of the color field
- 2 Module for knitting-in (positioning) the yarn carrier at the color field selvedge
 - 1: In case of problems with long floats

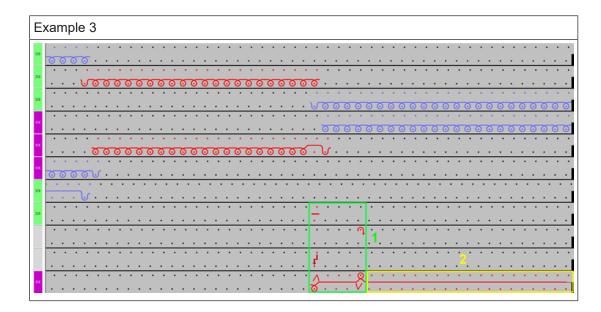
Result:

The float is visible on the fabric back.

The Split knot knots the thread in its own color field, resulting in a nice, invisible knot. The production time is not increased.

1: When finishing, the thread ends don't need to be pulled out manually nor knotted at the color field selvedge.

- Module Binding / knot: Knot Split with fixing (3)
 - 1: Fixing enables a better yarn insertion with knot split.
- Module for knitting-in: Float (---)



i Knitting-in and knitting-out never is knitted on the same needle!

32.6.3.2 Knitting-out of yarn carriers

- The yarn carrier is at the end of its color field
 - Position the yarn carrier at the fabric selvedge (knitting-out)
 - Position the yarn carrier at the fabric selvedge (knitting-out) and bring directly into the clamp

i Structure of a knit-out row

When knitting-out the yarn carriers, two modules are used.

The yarn carriers are always knitted-out the shortest distance (way) from the fabric selvedge.

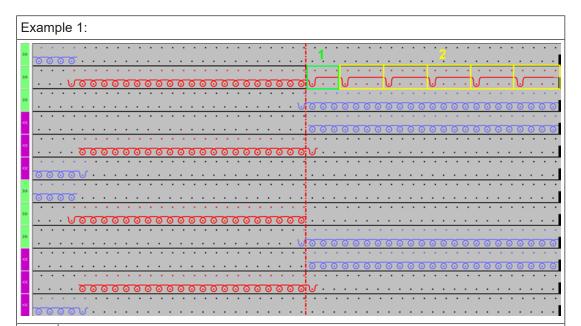
Regarding the knitting technique, many options are available.

32.6.3.2.1 Example 1: Knitting-out with tuck and float

Example 1:

- Module Binding / knot: Tuck Float Float (v -)
- Knitting-out module: Float Float Tuck Float (- v)



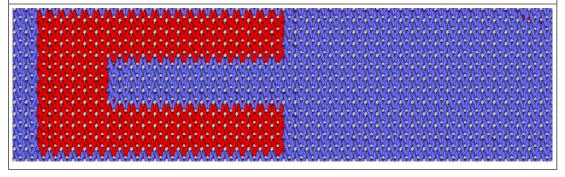


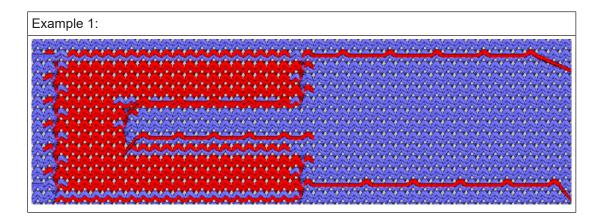
- 1 Module Binding / Knot at the beginning of the color field
 - 1: Module is inserted only 1x at the color field selvedge.
- 2 Module for knitting-out (positioning) the yarn carrier at the color field selvedge
 - 1: The module is inserted several times, i.e. the distance between the color field and the fabric selvedge must be filled with the module.
 - i: The maximum floating length corresponds to the machine gauge.

Result:

Knitting-out with tuck and float is only visible on the fabric back.

i: When finishing, the thread ends must be pulled out manually and knotted at the color field selvedge.





i Knitting-in and knitting-out never is knitted on the same needle!

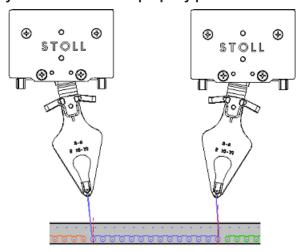
32.7 Braking Value with Intarsia Yarn Carriers with Performer Machines

i Braking values are changed in order to compensate mechanical variances of the yarn carriers on the machine.

Command	Function	Value range
Y-1A:Bn-m;	Braking value for yarn carrier 1A	-9 0 9
	n = value for the left edgem = value for the right edge	

Example:

yarn carriers are not properly positioned at the edge of their color field

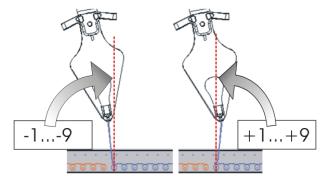




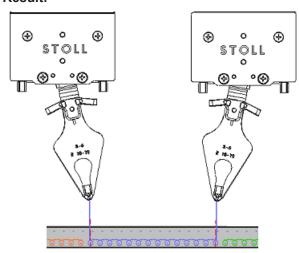
- The yarn carrier at the left edge must be corrected towards its own color field: 0... -9
- The yarn carrier at the right edge must be corrected away from its color field: 0... 9

Behavior of the correction of braking values:

- Negative values move the yarn carrier nearer to the knitting area
- Positive values move the yarn carriers away from the knitting area



Result:



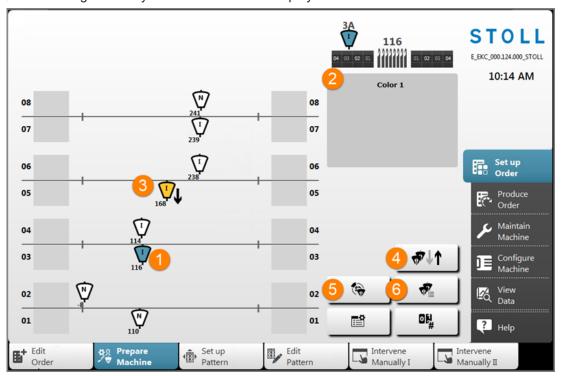
- The yarn carrier at the left edge is located at the left of the needle center:
- The yarn carrier at the right edge is located at the right of the needle center:
 - Loading a new pattern with EALL will **not delete** the existing braking values. Therefore check the braking values or set them to the default values always after loading.

32.7.1 Handling the Braking Values

i Adjust the intarsia yarn carriers mechanically correct on the machine at first.

Valuate braking values:

- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded.
- ✓ The yarn carriers are adjusted mechanically correct.
- 1. Execute with the "Start production" button.
- 2. Engage machine.
- 3. Switch to "Prepare Machine" in the bottom navigation bar.
- ▶ The dialog with the yarn carriers in use is displayed.



1	Selected yarn carrier (blue marking)
2	Information area
	Display of relevant information about the selected yarn carrier
3	The knitting yarn carrier (yellow marking) with the bottom plunger 🕹 symbol.
4	Button for switching the plungers when using normal yarn carriers.
	1: Not possible with intarsia yarn carriers. These must be switched individually.
5	Open the dialog for entering the braking values left / right
6	Display of yarn carrier table

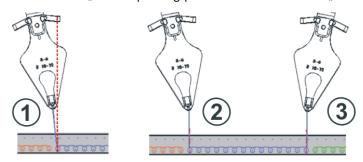
4. Select the yarn carrier to be edited in the dialog.

Braking Value with Intarsia Yarn Carriers with Performer Machines



- 5. Tap the button.
- ▶ The dialog for entering the values for the selected yarn carrier is opened.
- 6. Enter the value for "Braking value on the left" / "Braking value on the right" via the virtual keyboard.
- 7. Tap the Yapply All Values and Close" key.
- ▶ Values are applied and the display is switched back to the previous dialog box.
- 8. Check the position again when this yarn carrier is knitting the next time
- 9. Select the next yarn carrier in order to determine the braking value.
 - **i** Check the parking positions of every yarn carrier with both the knitting directions to the left and right.

Correction values "Ba" for parking positions on the left and "Bb" for the right:



Pos	Situation	
1	Yarn carrier at the left color field not corrected	
2	Yarn carrier at the left color field corrected	
3	Yarn carrier at the right color field corrected	

i The changes in the table for braking values are not reset with EALL / EAY

32.7.2 Handling the Adjusting Program

i You can determine the braking values by an adjusting program.

The adjusting program:

The adjusting program is a procedure inserted in the Intarsia knitting program which brings to use all yarn carriers before the start. The yarn carriers work on the same needle in order to get a vertical color stripe. With it you can determine the optimal parking position of the yarn carriers at the left and right.

I. Activate the adjusting program:

- ✓ You are signed in as Senior Operator
- ✓ The loaded knitting program contains the adjusting program.
- ✓ The production was started
- 1. Select "Set-up pattern" in the bottom navigation bar and then directly tap the button to open the "Cycle Counter" menu in the "Setup-Editor".
- 2. Set the cycle counter **RS39** to **=1** to activate the adjusting program.
- 3. Engage machine.
- ▶ With the help of the adjusting program, the machine brings the yarn carriers in use in the pattern into knitting positions to be able to determine the braking values.
- 4. Back to Trepare Machine".
- 5. Select the yarn carrier to be edited in the dialog.
- 6. Tap the button.
- ▶ The dialog for entering the values for the selected varn carrier is opened.
- 7. Enter the value for "Braking value on the left" / "Braking value on the right" via the virtual keyboard.
- 8. Tap the "Apply All Values and Close" button.
- ▶ Values are applied and the display is switched back to the previous dialog box.
- 9. Check the position again when this yarn carrier is knitting the next time
- 10. Select the next yarn carrier in order to determine the braking value.
- ▶ 16 of the yarn carriers are checked.
 - **1** Check the parking positions of every yarn carrier with both the knitting directions to the left and right.
- 11. Select "Set-up pattern" in the bottom navigation bar.
- 12. Tap the button.



- In order to continue the adjusting program (part 2), as there are more than 16 yarn carriers used by the knitting program.

 The machine brings the yarn carriers not yet used into knitting positions without a stop.
- To exit the adjusting program.

 The knitting program is started automatically.

II. Second part of the adjusting program:

- ✓ More than 16 yarn carriers are used by the knitting program.
- ✓ ∰ "Set-up pattern" is selected in the bottom navigation bar.
- 1. Change to Prepare Machine" in the bottom navigation bar.
- 2. Check the parking positions of the further yarn carriers and enter a braking value if necessary.
- ▶ All of the yarn carriers are checked.
- 3. Change to "Set-up Pattern" in the bottom navigation bar.
- 4. Exit the adjusting program by the button
- ▶ The knitting program is started automatically.



1	First part of the adjusting program	
2	Second part of the adjusting program:	
3	Embroidery stitch lines of the intarsia yarn carriers (vertical line, one needle wide)	
4	Pattern	

Automatic Staggering of Yarn Carriers in the Fabric

The cycle counters RS18 / RS39 will automatically be set to "zero".

The braking values will be kept even if the knitting program is deleted from the main memory of the machine.

32.8 Automatic Staggering of Yarn Carriers in the Fabric

This automatic staggering of yarn carriers is carried out within the fabric. In this case, it is **not** about **the automatic yarn carrier staggering at the fabric edge (YDopt).**

How to position the yarn carriers:

- The yarn carriers are positioned staggered at the fabric selvedge with YD / YDopt.
- The yarn carriers are staggered automatically within the fabric (auto-staggering) **Example:**
 - The yarn carrier follows a selection
 - Positioning of the yarn carriers within the v-neck

When to use the auto-staggering:

- For all yarn carriers that are 'upright':
 - Normal yarn carrier
 - Not swiveled Intarsia yarn carriers and ADF yarn carriers
- Not with swiveled intarsia yarn carriers and ADF yarn carriers (swiveled)
 - **i** For corrected yarn carriers (YC) the auto-staggering is disabled. The remaining yarn carriers will be parked using auto-staggering.

32.9 Yarn Carrier Correction

After a correct mechanical positioning of the yarn carriers with Performer Machines with help of the braking value and the adjustment of the yarn carriers with ADF machines, the **yarn carrier corrections** can be used for a **pattern technical positioning** with Performer Machines and also with ADF machines.



Command	Meaning	Value range
YC	Table with direct yarn carrier corrections for the yarn carriers in use 1: YC table is always displayed	
YCI n	Further tables with indirect yarn carrier corrections for the different pattern areas i: Display depending on the pattern creation	n = 1 -20
Y-1A :Kn-m	Correction for yarn carrier 1A with selected knitting n = value for the left edge m = value for the right edge	Min. value: -120 Max. value: 120 Steps: alt: 1 = 1/16 inch = 1,6 mm OKC: 0.50 = 1/32 inch = 0.8
Y-1A :KI n-m	Correction of not swiveled Intarsia yarn carriers	mm
Y-1A :K <i>n-m</i>	Correction of swiveled Intarsia yarn carriers	

Default values for the correction of normal / intarsia yarn carrier and ADF yarn carrier:

Command	Normal yarn carrier	Intarsia yarn carrier (swiveled)
	Intarsia yarn carrier (not swiveled)	ADF yarn carrier (swiveled)
	ADF yarn carrier (not swiveled)	
Y-1A: K0-0;	12 -12	
Y-1A: K I 0-0;	12 -12	
Y-1A: K <i> 0-0;</i>		0 -0

32.9.1 Handling of the Yarn Carrier Corrections with Performer Machines

Entering and changing yarn carrier corrections:

- ✓ You are signed in as Senior Operator

 —

 ...
- ✓ Knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select Set-up Order.
- 2. Switch to Trepare Machine" in the bottom navigation bar.



- 3. Open the Setup Editor with the key.
- 4. In the editor select the Yarn carrier menu.
- 5. Switch to the "YC/YCI" tab.
- ► The YC used in the pattern with all yarn carriers and all the additionally used yarn carrier corrections YCIn are displayed.
- 6. Make changes in the YC table or in one of the YCIn tables.



Column	Meaning		
YC/YCI	YC / YCI		
	• :YC	Default table	
	• :YCI	n Further tables for yarn carrier corrections	
	+	Expand the menu	
	-	Collapse the menu	
Υ	Display of the yarn carriers used in the pattern		
Ka / Kb	Correction left (a) / right (b) for all yarn carriers		
	Normal yarn carrier		
	Intarsia yarn carrier (not swiveled)		
K <i>a/</i>	Correct	Correction left (a) / right (b) only for Intarsia yarn carrier swiveled	
K <i>b</i>			



Column	Meaning		
MSEC	Defined carriage speed when knitting with selected yarn carrier		
Vn	Reduce carriage speed for the selected yarn carrier. I.e. the speed is reduced to 75% from the carriage reversal point until reaching the knitting area of the selected yarn carrier. Then it can be chosen between the following possibilities: • n = 1: Acceleration up to 100%		
	• n = 2: Reduce to 50% - Retain speed for 2 inch fabric width - Accelerate to 100%		
	 n = 3: Reduce to 50% - Retain speed for 5 inch fabric width - Accelerate to 100% 		
	• n = 0: Deletion of the defined carriage speed		
F	The yarn carrier follows the shape / counter (Default)		
	The yarn carrier does not follow the shape / counter (yarn carrier stops)		
	Comment line		

- 7. With the Close" button exit the "SETUP Editor".
- ► Changed values are saved in .setx.
- 8. Start the machine with the engaging rod.
- ▶ The changes will be carried out with the next use of the yarn carrier.

32.9.2 Handling of the Yarn Carrier Corrections with ADF Machines

Entering and changing yarn carrier corrections:

- ✓ You are signed in as Senior Operator

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 ■..
- ✓ Knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select Set-up Order.
- Switch to "Prepare Machine" in the bottom navigation bar.
- 3. Open the Setup Editor with the key.
- 4. In the editor select the Yarn carrier menu.
- 5. Switch to the "YC/YCI" tab.

STOLL

- ► The YC used in the pattern with all yarn carriers and all the additionally used yarn carrier corrections YCIn are displayed.
- 6. Make changes in the YC table or in one of the YCIn tables.
- 7. If necessary, scroll the display with **\(\)** or **\(\)**.



Column	Meaning		
Name	YC / YCIn		
	:YC Default table		
	YCIn: Further tables for yarn carrier corrections		
Υ	Display of the autarkic yarn carriers used in the pattern		
Ka / Kb	Correction left (a) / right (b) only for autarkic yarn carrier (not swiveled)		
K <i>a / K<i>b</i></i>	Correction left (a) / right (b) only for autarkic yarn carrier (swiveled)		
<> +/- [mm]	Horizontal correction of the insertion position (knitting position): • For knitting • For weft yarn (yarn carrier defined as Q) Positive value: Correction of the home position to the right (following)	Minimum value: - 100 Maximum value: 100 Step width: 0.1 mm	



Column	Meaning		
	Negative value: Correction of the home position to the left (in advance)		
	i: Attention:		
	The entered value is added to the values of the YPI tab.		
^v +/- [mm]	Vertical correction of the insertion position (knitting position):	Minimum value: - 2.0 Maximum value: 5.0	
	For knitting	Step width: 0.1 mm	
	For weft yarn (yarn carrier defined as Q)		
	Positive value: Correction of the home position upward (steep yarn angle)		
	Negative value: Correction of the home position downward (flat yarn angle)		
	i: Attention: The entered value is added to the values of the YPI tab.		
MSEC	Defined carriage speed when knitting with selected y	arn carrier	
V	Reduce carriage speed for the selected yarn carrier. I.e. the speed is reduced to 75% from the carriage re reaching the knitting area of the selected yarn carrier. Then it can be chosen between the following possibile.	· ·	
	• n = 1: Acceleration up to 100%		
	• n = 2: Reduce to 50% - Retain speed for 2 inch fabric width - Accelerate to 100%		
	• n = 3: Reduce to 50% - Retain speed for 5 inch fabric width - Accelerate to 100%		
	• n = 0: Deletion of the defined carriage speed		
^ +/-[mm]	,	Minimum value: - 2.0 Maximum value: 5.0	
v +/-[mm]	Correction of the yarn carrier in the 'Deep position'	Step width: 0.1 mm Default. 0	
A-MSEC	Speeds for a yarn carrier with a system independent, autarkic yarn carrier run (miss-knit). Minimum value: 0.05 Maximum value: 2.0 Step width: 0.05		
	,		



Column	Meaning	
F		Automatic tracking active: The yarn carrier follows the shape / counter (Default)
	V	Automatic tracking not active: The yarn carrier does not follow the shape / counter (yarn carrier stops)

- 8. With the Close" button exit the "SETUP Editor".
- ► Changed values are saved in .setx when saving.
- 9. Start the machine with the engaging rod.
- ▶ The changes will be carried out with the next use of the yarn carrier.

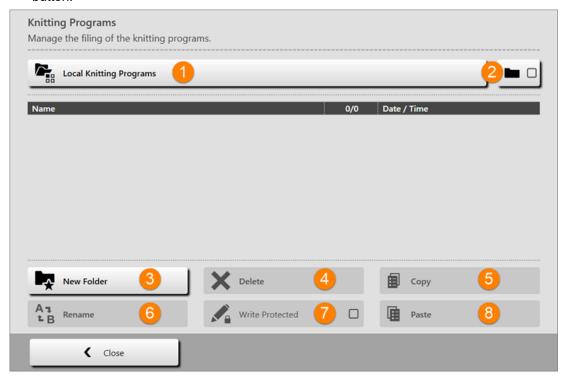
Yarn Carrier Correction

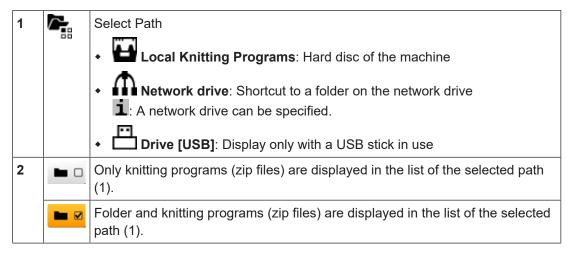


33 Manage folders and patterns

- I. Open the "Knitting Programs" Menu:
- ✓ You are signed in as "Senior Operator"

 ■
- 1. In the main navigation bar select **a** "Set-up Order".
- 2. Select "Edit order" in the bottom navigation bar.
- 3. Open the Select folder"Knitting Programs" menu with the button.







3	★	Create New Folder
4	×	Deleting the selected file (knitting program)
5	自	Copying selected files
6	AI LB	Renaming a selected file
7		Write-protecting a selected file
8	围	Pasting the copied files

II. Create new folder:

- ✓ The "Knitting Programs" menu is opened.
- 1. With the button open the "Select folder" menu.
- 2. Select the desired folder (path) for creating a new folder.
- 3. Confirm input with WOK".
- ▶ The path is displayed in the "Knitting Programs" menu.
- 4. Press the ♣ "New folder" button.
- ▶ The "New folder" with the virtual keyboard is opened.
- 5. Enter the desired folder name.
- 6. Confirm input with WOK".
- ▶ Return to the previous menu and the new folder is created.

III. Copy and paste files:

- ✓ The "Knitting Programs" menu is opened.
- 1. With the button open the "Select folder" menu.
- 2. Select the folder (path) of the files to be copied.
- 3. Confirm input with WOK".
- 4. In the "Knitting Programs" menu select the desired files to be copied from the list.
- 5. Then press the Topy" button.
- 6. Via the button select the path of the target folder.

STOLL

- Local Patterns (hard disk)
- Network drive
- USB
- 7. For pasting tap the Paste" button.
- ▶ The copied files are pasted and displayed in the menu.

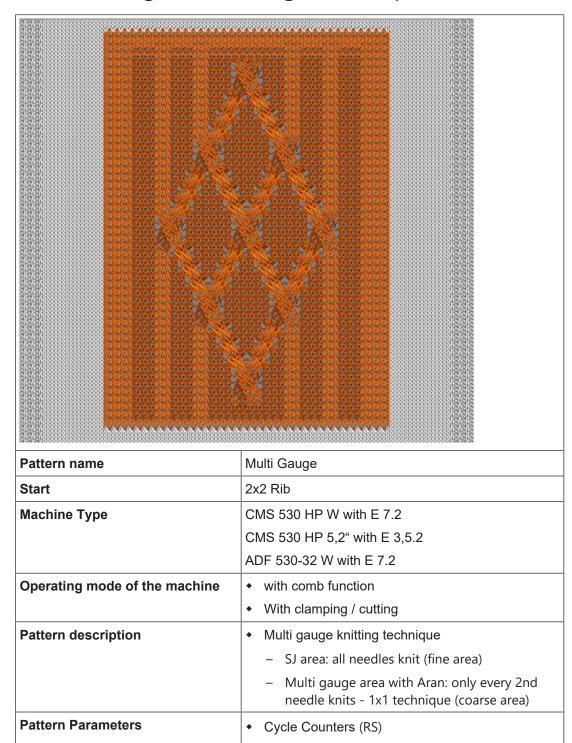
IV. Rename files:

- ✓ The "Knitting Programs" menu is opened.
- 1. With the button open the "Select folder" menu.
- 2. Select the desired folder (path) of the file to be renamed.
- 3. Confirm input with WOK".
- 4. Select the desired file to be renamed from the list in the "Knitting Programs" menu.
- 5. Then tap the **B** "Rename" button.
- ► The virtual keyboard is opened.
- 1. Enter the desired file name.
- 2. Confirm input with WOK".

V. Delete files:

- ✓ The Knitting Programs" menu is opened.
- 1. With the button open the "Select folder" menu.
- 2. Select the desired folder (path) of the file to be deleted.
- 3. Confirm input with WOK".
- 4. Select the desired file to be deleted from the list in the "Knitting Programs" menu.
- 5. Then tap the X "Delete" button.
- ▶ The selected files are deleted.

34 Multi Gauge - Knitting technique



Stitch Length (NP)

• Fabric Take-down (WMF)



34.1 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Prepare the machine and set-up the pattern
- **■** with Performer Machines:
 - Exchange Yarn Carriers (normal yarn carriers against Intarsia yarn carriers)
 - Thread-up the Intarsia yarn carriers
 - Adjust the Intarsia Yarn Carriers
 - Position the Intarsia yarn carriers

■ With ADF machines:

- Threading up the Yarn Carriers
- Adjust the yarn carriers
- 4. Start the machine.

Make the following changes:

- Cycle counters (RS)
- Stitch Length (NP)
- Fabric take-down values (WM, W+, WMK, ...)
- Corrections of yarn carriers (YC / YCI)

34.2 Multi gauge knitting technique

i Multi gauge knitting technique

This knitting technique is based on the intarsia knitting technique as the neighboring areas (coarse - fine) in one knitting row are knitted with different yarn carriers.

The multi gauge gauges are recommended (e.g. E2,5.2, 3,5.2, 5.2 etc.).



Simplified presentation of fabric and stitch line:

Stitch Presentation	Stitch line
	0000
Coarse and fine color fields side by side	In the coarse area only every second stitch row will be knit in 1x1. In the fine area every stitch row will be knit with all needles. Result: Stitch ratio coarse: fine is 1: 2.
	Stitch line with binding at the edge of the color field
	0000 0000 0000 0000 0000 0000

i Only the fine areas (fine yarn) are linked into the coarse field by tuck.

Different transitions at the change from coarse area to fine area

Multi gauge knitting technique



fine pick-up of stitches	split pick-up of stitches
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	

STOLL

35 Plating - knitting technique



Pattern name	CMS 530 HP	ADF 530-32 W	
	Plating_with_2_yc	Plating_2_yc	
	Double bow plating yc		
Start	1x1 rib plated with doubling in the transition		
Machine Type	CMS 530 HP W with E 7.2		
	CMS 530 HP 5,2" with E 3,5.2		
	ADF 530-32 W with E 7.2		
Operating mode of the ma-	with comb function		
chine	with clamping / cutting		
Pattern description	SJ structure pattern		
	Plating on Performer Machines		
	Pattern 1: with double bow plating yarn carrier		
	 Pattern 2: with 2 yarn carriers 		
	Plating with ADF machines		
	 Patterns with 2 autarkic yarn carriers 		
Pattern Parameters	With Performer Machines		
	 (Y:Ua-Ub) engaging wing carriers 	dth when plating with 2 yarn	
	- Clamping Depth (Y:Ncc)		
	 YDI: Plating index 		



	- Clamping Depth V: Nicc
	 Clamping Depth Y: Ncc

Types of plating

35.1 Types of plating

Plating types

■ Color plating:

Patterning effect through different colors with structures with single jersey and reverse jersey stitches.

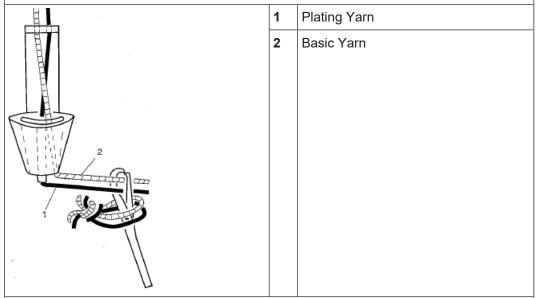
■ Plating of different materials:

Manufacturing elastic fabrics. For the basic yarn, an elastic Lycra thread is used.

- Usage in the cuff to achieve a more elastic rib
- Usage for a complete article to obtain a fashionable tight-fitting fabric.

Plating technique

Two threads are inserted at exact position in the needle hook with plating. The leading yarn (plating yarn) lies on the front in case of a single jersey stitch. The following yarn (basic yarn) lies on the rear side (on the background) in case of a jersey stitch.



Color Plating









Knitting technique possibilities for plating:

With Performer Machines

- Plating with one yarn carrier
 - Yarn carrier with double eyelet
 - Double Bow Plating Yarn Carrier
- Plating with two yarn carriers
 - The two yarn carriers must have different engaging widths.

With ADF machines

■ Plating with all yarn carriers is possible

35.2 Types of plating yarn carriers

I. Machine type-depending options of plating:

Double Eyelet-Plating Yarn Carrier	Using ma- chine type	Special feature
	ST 211 to EKC	Threading-up for color plating: Thread the plating yarn through the central eyelet and the basic yarn through the oblong hole.
		Threading-up with Elastane plating: Thread the basic yarn through the central eyelet and the Elastane yarn through the oblong hole.
		When an elastic thread is knitted, it is said that it is plated. Which is technologically not quite correct. From the technological point of view, the elastic thread is the basic yarn, and the visible one is the plating yarn.

Two special yarn carrier carriages	Using ma- chine type	Special feature
Combination for gauges E5 - E18	ST 711, ST 811, ST 168, ST 268, ST 468, OKC	Threading-up for color plating: Thread the plating yarn in the yarn carrier with the shortened engaging width and the basic yarn in the yarn carrier with the enlarged engaging width.
		Threading-up with Elastane plating: Thread the basic yarn in the yarn carrier with the shorter engaging width and the Elastane yarn in the yarn carrier with the larger engaging (following yarn carrier) width.
	23 mm	i: usable under certain conditions only! Depending on the machine gauge (≥ E10) and the machine speed, the needle latches can be damaged. Remedy: Increase the engaging width.



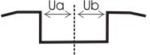
One special and one normal yarn carrier carriage (29 mm)	Using ma- chine type	Special feature
With 6" + 5.2" ma-chines: With 5" machines:	ST 711, ST 811, ST 168, ST 268, ST 468, OKC, EKC	Threading-up for color plating: Thread the plating yarn in the normal yarn carrier with the shorter engaging width and the basic yarn in the yarn carrier with the larger engaging width. Threading-up with Elastane plating: Thread the basic yarn in the yarn carrier with the normal engaging width and the Elastane yarn in the yarn carrier with the larger engaging (following yarn carrier) width.

Adjustable yarn carrier carriage	Using ma- chine type	Special feature
	OKC, EKC 26 – 46 mm	Threading-up for color plating: Thread the plating yarn in the yarn carrier with the shorter engaging width and the basic yarn in the yarn carrier with the larger engaging width.
знасу,		Threading-up with Elastane plating: Thread the basic yarn in the yarn carrier with the shorter engaging width and the Elastane yarn in the yarn carrier with the larger engaging (following yarn carrier) width.

Types of plating yarn carriers

Normal yarn carrier type 2	Yarn carrier engaging widths	Special features and usage
a Tous of	43 mm	CMS 933, CMS 822, CMS 530, CMS 520 • E10 E12 E14 E16 E18 E6.2 E7.2 E8. 2 E9.2
	46 mm	CMS 933, CMS 822, CMS 530, CMS 520 • E5 E7 E8 E2,5.2 E3,5.2 E5.2 CMS 740, CMS 730 T, CMS 530 T
	29 mm	all gauges Standard yarn carrier ("normal" knitting)
	23 mm	i: usable under certain conditions only! Depending on the machine gauge (≥ E10) and the machine speed, the needle latches can be damaged. Remedy: Increase the engaging width.

The different engaging widths of the yarn carrier carriages are defined by the Ua/b value in the MC program.

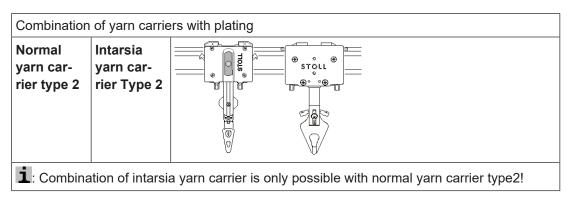


This way the correct parking position of the machine can be calculated. If a yarn carrier is used with other engaging widths, it is necessary to take account of this in the MC program.

Double Bow Plating Yarn Carrier	Using machine type	Special feature
	OKC starting with component	Threading-up for color plating: Thread the plating yarn in the fix yarn carrier bow and the basic yarn in the moving bow.
	type 002 EKC	Threading-up with Elastane plating: Thread the basic yarn in the fix yarn carrier bow and the Elastane yarn in the moving bow. 1: Only possible with tandem machines with: • 8 clamping and cutting points • 16/8 clamping and cutting points • without clamping and cutting points

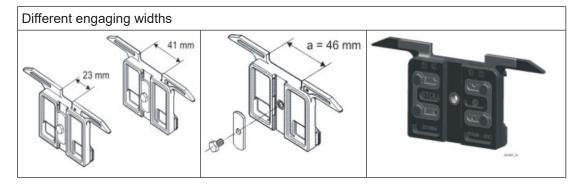


II. Plating in combination with intarsia yarn carriers



35.3 Engaging Width and Rail Allocation

I. Different engaging width of the yarn carrier carriages:



The different engaging widths of the yarn carrier carriages are defined by the Ua/b value in the MC program. This way the correct parking position of the machine can be calculated.

If a yarn carrier is used with other engaging widths, it is necessary to take account of this in the MC program.

- II. Recommended yarn carrier rail allocation:
- Rails 4 + 5
- Rails 3 + 6
 - An optimum yarn insertion is achieved via allocation of the central yarn carrier rails.

Create and set-up an order with a knitting program

35.4 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Prepare the machine and set-up the pattern
- **■** with Performer Machines:
 - Prepare plating yarn carrier
 - Threading up the plating yarn carriers
 - Adjust plating yarn carriers
 - Position plating yarn carriers

■ With ADF machines:

- Threading up the Yarn Carriers
- Adjust the yarn carriers
- 4. Start the machine.

Threading-up the different plating yarn carriers:

Technique of Plating	Used plating yarn carrier type	Threading-up the plat- ing yarn	Thread-up the basic yarn	
Color plating	Double Eyelet	Central Eyelet	Oblong Hole	
	Special yarn carrier carriages	Yarn carrier with short engaging width	Yarn carrier with large engaging width	
	Double Arm	Fix Central Bow	Moving Bow	
Elastane plat-	Double Eyelet	Oblong Hole	Central Eyelet	
ing	Special yarn carrier carriages	Yarn carrier with large engaging width	Yarn carrier with short engaging width	
	Double Arm	Moving Bow	Fix Central Bow	
	1: The elastic yarn is the invisible (at the start inner) yarn of single jersey stitches.			

Make the following changes:

- Cycle counters (RS)
- Stitch Length (NP)

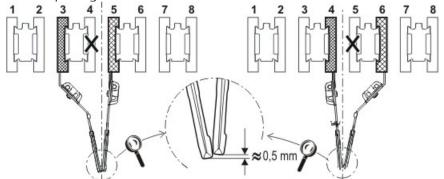


- Fabric take-down values (WM, W+, WMK, ...)
- With Performer Machines
 - Engaging Width Y: U a-b
 - Clamping Depth Y: Ncc
- With ADF machines
 - Plating index YPIn
 - Clamping Depth Y: Ncc

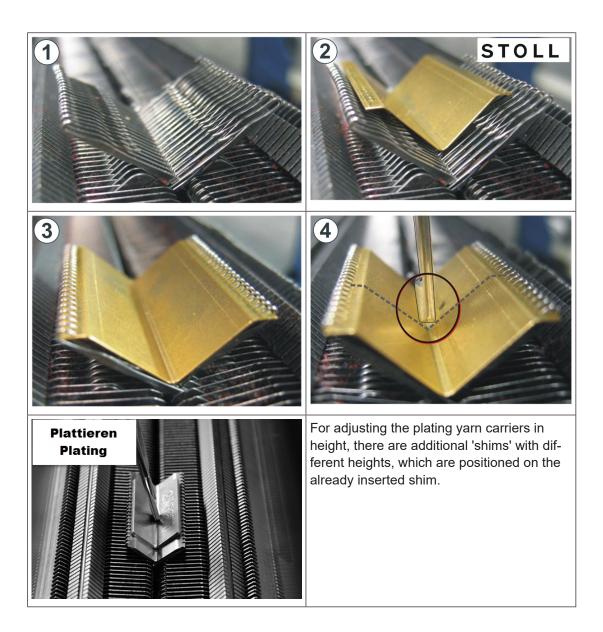
35.5 Plating with Performer Machines

35.5.1 Settings during Production

- I. Influences on the quality of plating with SJ:
- Adjustment of the plating yarn carriers (two yarn carriers):
 - The two yarn carriers must be positioned exactly in the centre of the needle cross.
 - Adjust the eyelet of the following thread about 0.5 mm higher.
 - The basic yarn lying above has to cover the plating yarn lying underneath of it optimally.
 - Recommendable: Leave one yarn carrier rail unutilized to prevent the yarn carriers from displacing each other.



Adjusting the two yarn carriers when plating:



II. Influences on the quality of plating with DJ:

- Setting the plating yarn carrier (double bow):
- Adjust the eyelet of the following thread about 3 to 3.5 mm higher.

■ Yarn tension:

Adjust a higher yarn tension for the following basic yarn as for the leading plating yarn.

i: Double the yarn tension nearly.

■ Take-down:

Work with a reduced fabric take-down.

1: Halve the fabric take-down value nearly.



■ NP value:

Produce a test fabric with different NP values.

i: Do not knit too tight.

35.5.2 Double Bow Plating Yarn Carrier



With the double bow yarn carrier it is possible to carry out color and quality platings (elastane).

Possible uses of the double bow yarn carrier

Use for gauges E 5 to E 18 only:		
OKC (component type 002)		
CMS 822 (component type 003)		
CMS 420 E (type 579, component type 000)		
Required operating v_OKC_001.006.000_STOLL (or higher) system		

With older OKC machines (component type 000 and 001) the yarn carrier can also be used:			
Machines without thread clamping and cutting device or Clamping / cutting deactivated	CMS 933	CMS 711	CMS 503
	CMS 922		CMS 502
Machines with thread clamping and cutting device *		CMS 730 T	CMS 530 T
		CMS 730 S	

Plating with Performer Machines

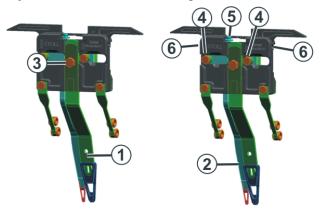
	With older OKC machines (component type 000 and 001) the yarn carrier can also be used:		
Required op- erating sys- tem	V_OKC_001.005.000_STOLL (or higher)		

Clamping and cutting of the double bow yarn carrier

When using 16 times clamping / cutting, every other clamping / cutting point has to be deactivated to ensure that both threads are reliably clamped and cut.

Machine	Clamping / cutting
OKC (component type 002)	Setting: 2x8
CMS 822 (component type 003) CMS 420 E (type 579, component type 000)	Setting: 2x16/8 Carry out the settings in the "Machine Configuration 2" window. (BootOkc> Restart and Configuration> Machine configuration 2)

35.5.2.1 Adjust the Double Bow Plating Yarn Carrier



1	Central bow (fixed)	Plating Yarn
2	Follower bow (movable, following the central bow)	Basic Yarn

Central bow (1) - adjust height:

- 1. Loosen the screw (3) (turn by 90 degrees).
- 2. Adjust the central bow the same way as the normal yarn carrier.
- 3. Retighten the screw.

Plating with Performer Machines

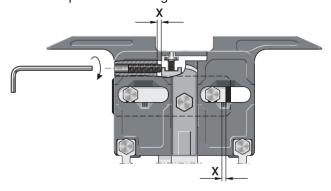


Follower bow (2) - adjust height:

- 1. Loosen both screws (4) (turn by 90 degrees).
- 2. Adjust the height turning the screw (5). Default setting: 2 mm higher than the central bow.
- 3. Retighten both screws (4).
- 4. Turn the screw (5) enough to prevent it from touching the upper or lower edge. If the screw is making contact, then the yarn carrier does not move smoothly and will be damaged.

Follower bow (2) - carry out the lateral adjustment:

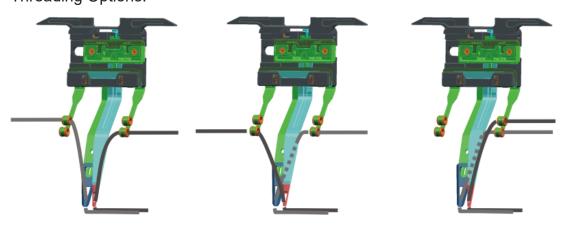
- 1. A screw is located in the boring (6). Adjust it with an Allen key (2 mm) (Setting range: 0 2 mm).
- 2. The distance from the bow (2) to the bow (1) can be set individually on each side. A scale simplifies the setting of the distance.



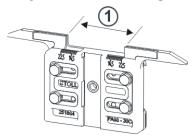
35.5.2.2 Threading up the Double Bow Plating Yarn Carrier

The follower and the central bow of the double bow yarn carrier can be threaded up from the left and from the right or from the same side.

Threading Options:



35.5.3 Adjustable Plating Yarn Carrier Carriage



For plating with normal yarn carriers are required two yarn carriers that differs by the engaging width (1) at the yarn carrier carriage.

On the plating yarn carrier carriage the engaging width is individually adjustable (23-46 mm).

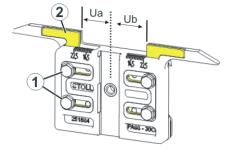
Applications when plating with two yarn carriers:

- 2 adjustable plating yarn carrier carriages
- 1 Standard normal yarn carrier and 1 adjustable plating yarn carrier carriage

Possible uses:

- With all OKC machines of the E5 E18 gauge
- Only starting with operating system V_OKC_001.005.000_STOLL

35.5.3.1 Adjusting the Engaging Width



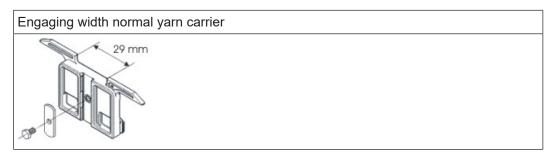
- 1. Loosen both screws (1).
- 2. Push insert (2) into the desired position. A scale simplifies the adjustment.
- 3. Retighten both screws (1).
- 4. Repeat the setting process for the other side.

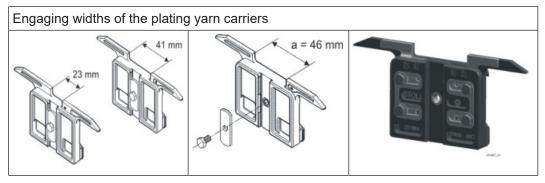
The entire engaging width consists of the value for the left (Ua) and the right (Ub) side. Both values may be equal (symmetrical setting) or may differ.



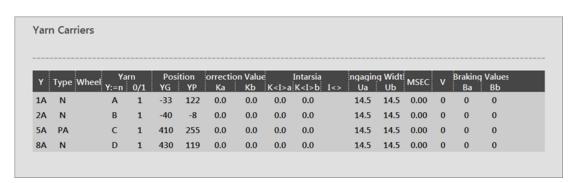
35.5.4 Changing Engaging Width and Loop Sinking Depth

Different engaging width of the yarn carrier carriages:





The different engaging widths of the yarn carrier carriages are defined by the Ua/b value. This way the correct parking position of the machine can be calculated.



Column	Meaning		
Υ	Specification of yarn carrier		
Туре	Definition	Definition of the yarn carrier type:	
	Normal yarn carrier (N)		
	• Doub	Double Bow Plating Yarn Carrier (PA)	
Yarn	Y: = n	Specification of yarn type	
	0/1	Yarn type switched on or off	



Column	Meaning		
Position	YG	Home position of the yarn carrier with needle xx	
	YP	Current yarn carrier position with needle xx i: Changes while knitting.	
		Engaging value at the left when plating with two yarn carriers	
Width	Ub	Engaging value at the right when plating with two yarn carriers	

Change engaging width:

- ✓ You are signed in as Senior Operator
 ■.
- ✓ Knitting program is loaded.
- ✓ The production was started.
- 1. Switch to Trepare Machine" in the bottom navigation bar.
- 2. Open the Setup Editor with the key.
- 3. In the editor select the Yarn carrier menu.
- 4. Switch to the "Ua-b/NCC" tab.



5. Enter the desired values into the Ua / Ub fields.

Recommended engaging width according to the machine gauge:

Gauge	Leading	Following
E 5	23 mm	41 mm
E2,5.2	Ua: 11,5	Ua: 20,5



Gauge	Leading	Following
E 3,5.2	Ub: 11,5	Ub: 20,5
E 7-18	29 mm	46 mm
E 7.2- 9.2	Ua: 14,5	Ua: 23,0
	Ub: 14,5	Ub: 23,0

II. Clamping depth of the clamping and cutting device

- In case of very fine or smooth yarn it can be beneficial to change the clamping depth of the clamping and cutting needle.
- The NCC command influences the clamping depth

	Explanation	Value range
NCC=n	Control of the clamping depth n of the clamping and cutting needles. Default setting: n=0 e.g.: sink the cutting needles by 5 steps deeper: NCC=5	Min. value: -25 Max. value: 25 Step width: 1

35.6 Plating with ADF machines

i Adjustment of the yarn carriers

It is a requirement that the ADF yarn carriers are correctly adjusted vertically and horizontally.

Changing specifications in assigned plating indices:

i With the help of the specifications in the YPI menu it is possible to 'correct' the yarn carriers when plating.

- ✓ Knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select Set-up Order.

Plating with ADF machines

- 2. Switch to Trepare Machine" in the bottom navigation bar.
- 3. Open the Setup Editor with the key.
- 4. In the editor select the Yarn carrier menu.
- 5. Switch to the "YC/YCI" tab.
- ► The yarn carriers used for plating in the pattern are displayed with the used YPIn plating indices.
- 6. Make changes.



	Meaning	Value range
YPI	List with the used YPIn plating indices i: Defines the distance between the yarn carrier and the normal yarn insertion position in the needles and the insertion angel.	
Insert Position	Horizontal panning of the insertion position (x) in the carriage direction from right to left - X + y - + y - Positive value: Following basic yarn. The thread is inserted in the needles later on. Default: 7.0 mm	Minimum value: -100 mm Maximum value: 100 mm Step width: 0.1 mm



	Meaning	Value range
	Negative value: Leading plating yarn Default: 0 mm	
Height <<	Vertical panning (y) in the carriage direction from right to left Corrects the insertion angle	Minimum value: -2 mm Maximum value: 5 mm Step width: 0.1 mm
Insert Position >>	Horizontal panning of the insertion position (x) in the carriage direction from left to right	
Height >>	Vertical panning (y) in the carriage direction from left to right	

- 7. With the Close" button exit the "SETUP Editor".
- ► Changed values are saved in .setx when saving.
- 8. Start the machine with the engaging rod.
- ▶ The changes will be carried out with the next use of the yarn carrier.

II. Clamping depth of the clamping and cutting device

- In case of very fine or smooth yarn it can be beneficial to change the clamping depth of the clamping and cutting needle.
- By the Ncc command the clamping depth can be influenced.

	Explanation	Value range
Ncc=n	Control of the clamping depth n of the clamping and cutting needles.	Min. value: -25 Max. value: 25 Step width: 1



Plating with ADF machines

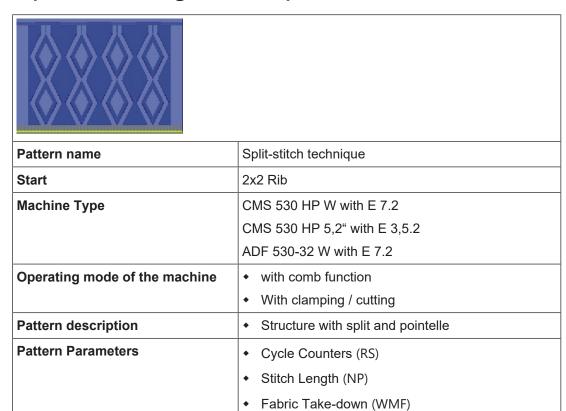
Explanation	Value range
Default setting: n=0 e.g.: sink the cutting needles by 5 steps deeper: NCC=5	

Plating with ADF machines





36 Split - knitting technique



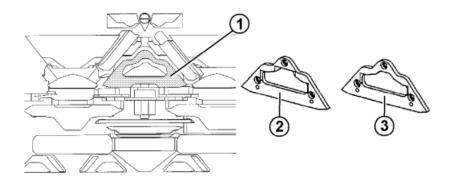


36.1 Install Raising Cam for Split-stitch

Exchange raising cam:

i When the knitting machine is shipped, the raising cams for transfer (2) are mounted.

Split cams (3) must be mounted into the machine in order to knit with splitstitch technique.



- 1. Exchange cam (2) with cam (3). Therefore remove the carriage parts.
- 2. The installation of split cams is possible in each knitting system.

Recommendation: The following system allocation is recommended due to production related reasons:

■ With CMS 530 and ADF 530-32 W:



■ With CMS 822:

i



The raising cam for split-stitch (3) can also be used for normal transfer patterns. In case of particularly delicate yarns, however, the raising cam for transfer (2) should be used so that the yarn does not tear when transferring the stitches.

36.2 Create and set-up an order with a knitting program

Procedure:

1. Set the machine to an empty row to install the split cams



Create and set-up an order with a knitting program

- 2. Create an order with a knitting program.
- 3. Start production.
- 4. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
- Position the yarn carriers at the clamping point
- Check the knitting area and the fabric collection chamber
- 5. Start machine (engage).

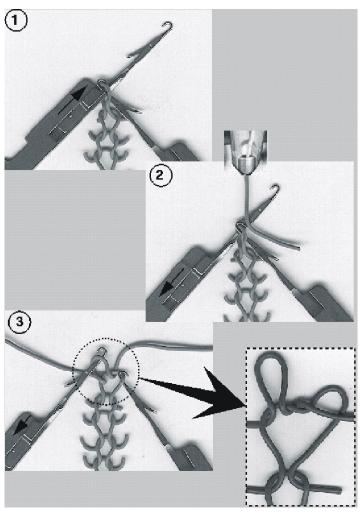
Make the following changes:

- Cycle Counters (RS)
- Stitch Length (NP)
- Fabric take-down values (WMF)
- Machine speed (MSEC)



36.3 Split-stitch technique

Knitting sequence for split:



1	Needle raising		
	All needles in transfer position (stitch)		
	Selection of the receiving needles only for splitting		
2	Yarn insertion in needles in transfer position		
3	Split-stitch on receiving needle		
	new stitch on transfer needle		

Split-stitch technique

Fabric View	
Front side	
Rear side	

Knitting specification	s for split	
Split from the front to the rear	0000000000 AAAAAAAAA	S:\$^S e%A; ↑ ↑ ↑ Split to the rear front stitch
Split from the rear to the front	<u>000000000</u>	S:\$VS k%Y;
Split from the front to the rear and from the rear to the front	200 h 2000 V Y Y B A A A A Y Y K Y	Split to the front back stitch \$\display \times \text{\$\display}\$ \$S:\$XS e%A-k%Y; \$\display \text{\$\display}\$ Split to the rear front stitch

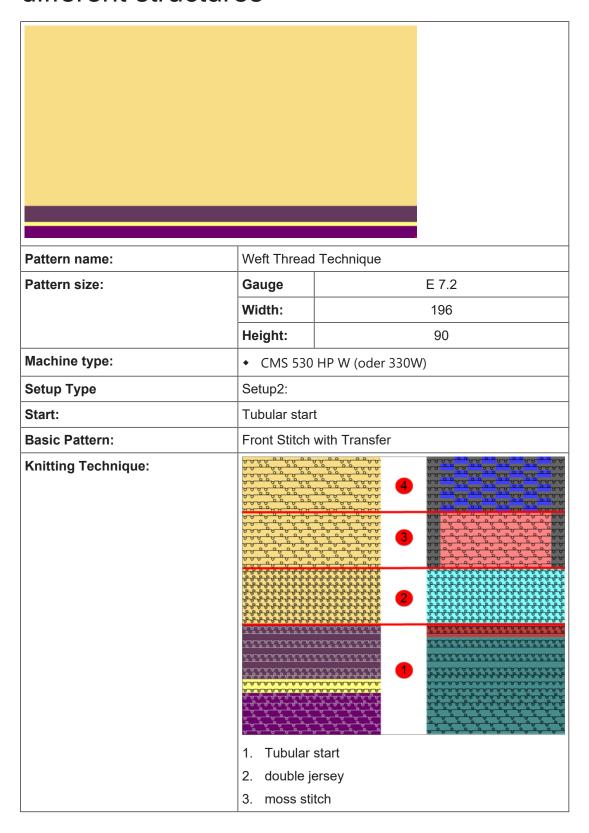


Application examples:

Fabric View	
Properties	The stitch is split via transfer and knitting-off half of a stitch (= one stitch leg)
Application	As closing stitch: By transferring and racking the stitches to another position, an 'empty' needle may result. At this position results a hole when knitting the following knitting row. This hole can be closed by a split stitch.
	As a knot: When knitting-in / out the yarn carriers with the intarsia knitting technique.



37 CMS 530 HP W: Weft yarn technique in different structures



How the weft yarn presser foot works



	4.	2x2 structure
Pattern description:	•	Weft yarn insert over the total pattern width
	•	Weave-in device activated
	•	Presser Foot Corrections

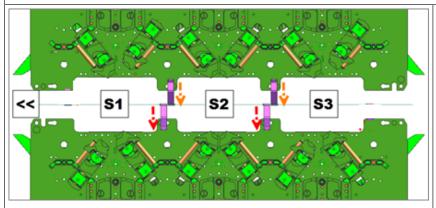
37.1 How the weft yarn presser foot works

The use of the weft yarn presser foot depends on the carriage direction.

The weft yarn presser foot is always active **following** the knitting system by which the weft yarn carrier is driven.

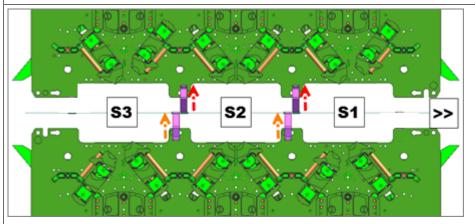
With a CMS 330W / 530W, the weft yarn carrier is driven by the leading system and the enclosing yarn carrier by the following system.

Knitting direction to the left



- Red arrowpresser foot unit inactive
- Orange arrow
 presser foot unit active
- Within the carriage stroke to the left the presser foot on the rear works as weft yarn presser.
- Front presser foot units are inactive.

Knitting direction to right

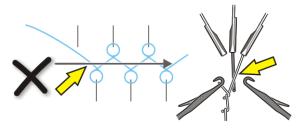


How the weft yarn presser foot works

- Within the carriage stroke to the right the presser foot on the front works as weft yarn presser.
- Rear presser feet are inactive.

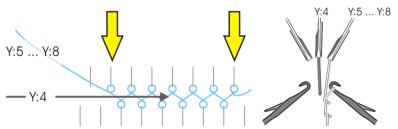
37.1.1 Secure insertion of the weft yarn

- The weft yarn is enclosed in the fabric by the subsequent basic yarn.
- To ensure a secure insertion of the weft yarn, the basic yarn may not cross the weft yarn. If the course of the weft yarn is obstructed by the basic yarn, there is the danger of the weft yarn not being inserted in the weave-in device.



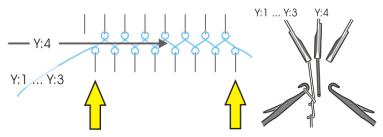
Rules for a secure weft yarn insertion:

■ The yarn carrier with a higher number than the weft yarn carrier knits the last stitch on the rear needle bed.



Y:4	Yarn carrier with weft yarn	
Y:5 Y8	The subsequent knitting yarn carrier is on the track 5 up to track 8	

■ The yarn carrier with a lower number than the weft yarn carrier knits the last stitch on the front needle bed.



Y:4	Yarn carrier with weft yarn
-----	-----------------------------

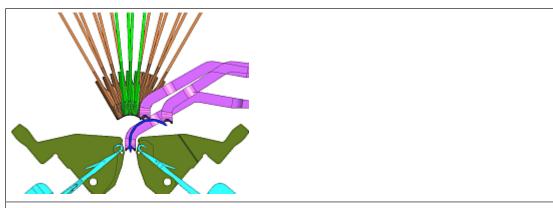
Rail allocation for the use of weft yarn presser foot



Y:1 Y3	The subsequent knitting yarn carrier is on the track 1 up to track 3
--------	--

37.2 Rail allocation for the use of weft yarn presser foot

i We recommend to use the inner yarn carrier tracks for the weft yarn carriers with patterns having weft yarn and weft yarn presser feet.



Recommendations for the different types of machines:

CMS 330 HP BW CMS 330 HP W CMS 530 HP BW CMS 530 HP W Tracks 4 - 5

1: Due to the different angles of the yarn carrier bows it is necessary to keep larger parking distances.

37.3 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
- Position the yarn carriers at the clamping point
- Check the knitting area and the fabric collection chamber
- 4. Start machine (engage).

Knitting Technique: Weave-in on CMS 530 HP W / CMS 330 HP W

Make the following changes:

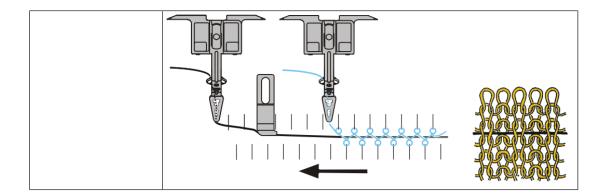
- Cycle Counters (RS)
- Stitch Length (NP)
- Fabric take-down values (WMF)
- Machine speed (MSEC)
- Presser Foot Corrections (ESCI)

37.4 Knitting Technique: Weave-in on CMS 530 HP W / CMS 330 HP W

Fabric View (Neckline)	
Properties	 A weft yarn (float thread) is laid-in covering the entire pattern width. No or minor crossways elasticity. With elastic threads a defined elasticity can be achieved (example: compression stocking) New fabric looks (woven-like) are feasible
How the weave-in device works	 The weave-in device holds the floats deep so that they don't obstruct the knitting process. The weave-in device holds the weft yarn deep enough so that it does not knit any stitch or tuck in the following knitting system. A weft yarn is inserted in knitting direction of the stitch rows but not fixed by stitch or tuck. The yarn carrier for the weft yarn is driven by a knitting system without needle actions; i.e. neither stitch nor tuck. The weave-in device presses the thread downwards between the needle beds. In the subsequent knitting system, the weft yarn will be enclosed by the stitches.

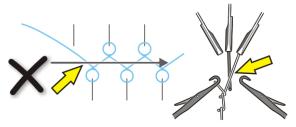
Knitting Technique: Weave-in on CMS 530 HP W / CMS 330 HP W





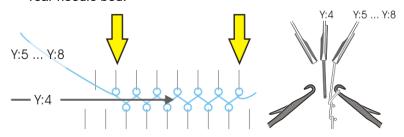
37.4.1 Secure insertion of the weft yarn

- The weft yarn is enclosed in the fabric by the subsequent basic yarn.
- To ensure a secure insertion of the weft yarn, the basic yarn may not cross the weft yarn. If the course of the weft yarn is obstructed by the basic yarn, there is the danger of the weft yarn not being inserted in the weave-in device.



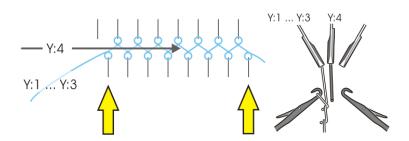
Rules for a secure weft yarn insertion:

■ The yarn carrier with a higher number than the weft yarn carrier knits the last stitch on the rear needle bed.



Y:4	Yarn carrier with weft yarn
Y:5 Y8	The subsequent knitting yarn carrier is on the track 5 up to track 8

■ The yarn carrier with a lower number than the weft yarn carrier knits the last stitch on the front needle bed.



Y:4	Yarn carrier with weft yarn
Y:1 Y3	The subsequent knitting yarn carrier is on the track 1 up to track 3

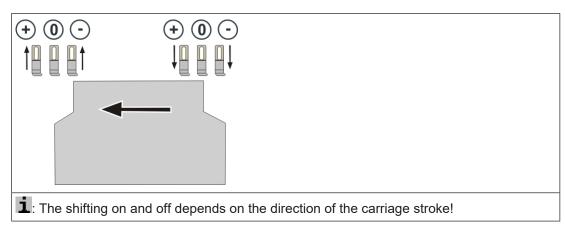
37.5 Presser Foot Corrections ESCI in Setup

■ To control the shift points of weft yarn presser feet.

Command for machines with W presser foot

Weft Yarn Presser Foot Correction (ESCI)	
ESCIn	49 correction values (indices) are available to activate or disable the presser foot
	• ESCIn: n= 1-49 i: ESCI 50 is used automatically for inverse plating with weft yarn presser foot.
	Value range from -120nic to 120nic Step width: 0.5 nic

Effects on shifting on and off by presser foot correction values



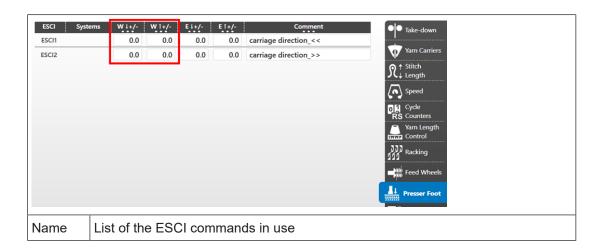


\downarrow	Activating the Weft Yarn Presser Foot
1	Deactivating the Weft Yarn Presser Foot
0	Standard shift position
+	Later shift position
-	Earlier shift position

Setup Editor: Enter presser foot corrections

Modifying correction values of presser feet:

- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded and the order was started.
- 1. Tap on "Prepare Machine" in the bottom navigation bar.
 or select the "Set up Pattern" window.
- 2. Open the editor with the Setup Editor" button.
- 3. Tap on Presser Feet" to open the window for modifying the presser foot correction value.
- 4. Change the desired presser foot correction value.



Systems	On the machine only! The active knitting systems of the corresponding knitting row are displayed.	
W ↓ +/-		
VV + 1/-	Positive value:	
	Move the shift point in direction of the carriage	
	-	
	 Presser foot will be set down in delay. 	
	Negative value:	
	 Move the shift point in opposite direction of the carriage 	
	Presser foot will be set down in advance.	
W ↑ +/-	Correction of the shift-off point for the weft yarn presser foot	
	Positive value:	
	 Move the shift point in direction of the carriage 	
	 Presser foot will be pulled-up in delay. 	
	Negative value:	
	 Move the shift point in opposite direction of the carriage 	
	 Presser foot will be pulled-up in advance. 	



i

M1plus:

Correction values entered on M1plus will be applied by the technical processing to the parking of yarn carriers at the fabric selvedge. Yarn carrier in the area for activating and deactivating will be displaced or in anticipation parked aside.

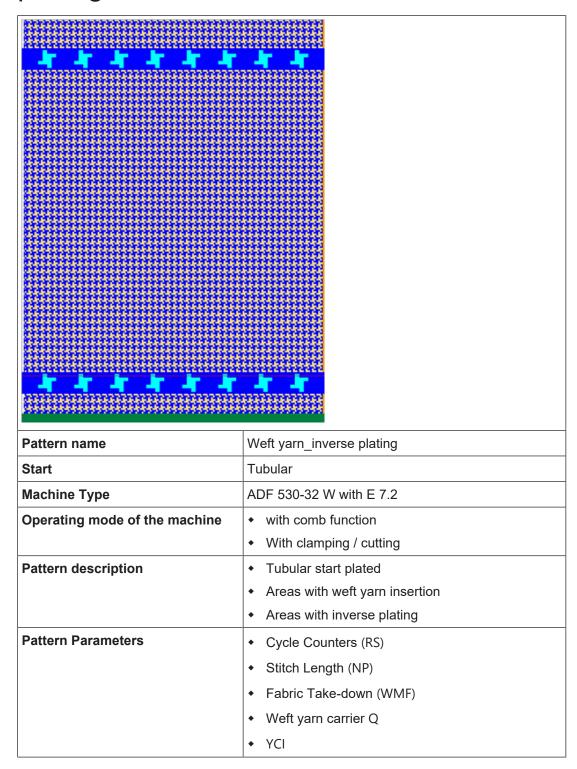
If the ESCI correction value is too high, the switch-on or switch-off area of the presser foot may be moved so far that the yarn carrier is in the active area of the presser foot. The technical processing will be canceled and the programmer has to solve the problem.

Machine:

With entering the correction values in the Setup Editor at the machine may lead to an error message and machine stop. Modify the values manually until error message will appear no more or edit the program on the M1plus again.

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38 ADF 530-32 W: Weft yarn and inverse plating





38.1 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
 - Weft yarn in a yarn carrier with bypass
- Position the yarn carriers at the clamping point
- Check the knitting area and the fabric collection chamber
- 4. Start machine (engage).

Make the following changes:

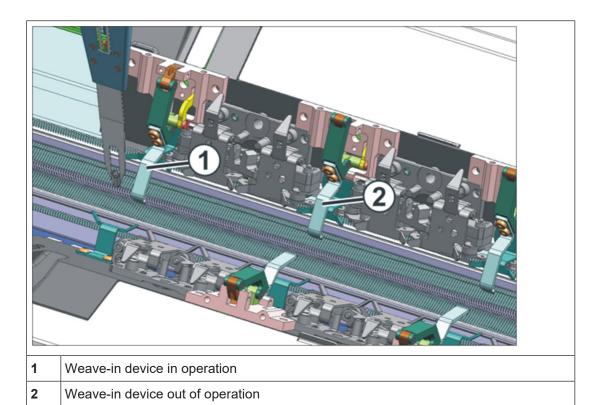
- Cycle Counters (RS)
- Stitch Length (NP)
- Fabric take-down values (WMF,WM^)
- Machine speed (MSEC)
- Yarn carrier correction for weft yarn carrier Q

38.2 Special features of ADF 530-32 W

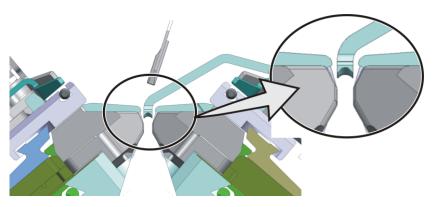
- I. Special features of the machine:
- 1. Each system has a weave-in device
 - i Weave-in Devices

The weave-in device improves the weft insertion significantly and can also be used partly (with limitation) as fabric presser foot.

1. The jack openers are not spring-loaded.



II. Position of the weave-in device:

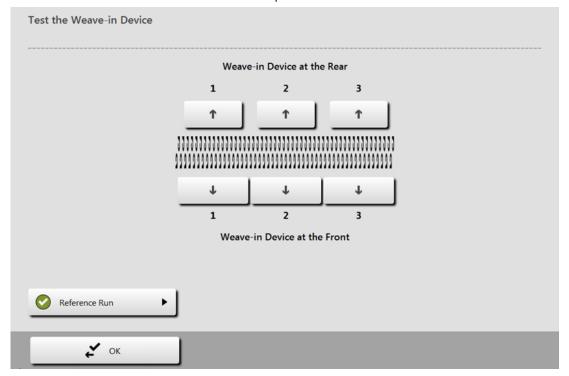


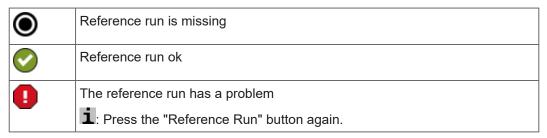
i Jack opener

Between the opened jack and the jack opener, there should be a small gap to prevent the jack butt from wearing.



- III. Reference run of the weave-in device at the machine:
- ✓ You are signed in as Senior Operator ■.
- 1. In the main navigation bar select Maintain Machine".
- 2. In the menu press the will "Weave-in device" button.
- ▶ The menu "Test the weave-in device" is opened.

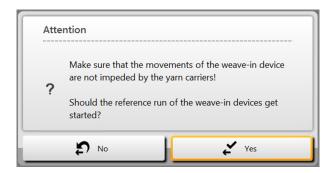




- 3. Tap the WReference run" button.
- ► A message is displayed:



ADF yarn carrier with bypass equipment



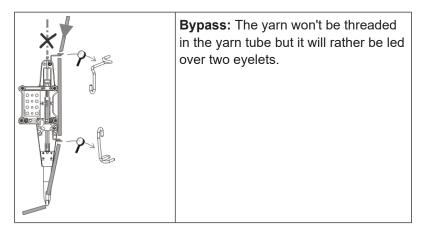
- 4. Confirm the message with the "Yes" button.
- ► The weave-in devices are referenced ○
- 5. Exit the menu with the TOK" button.
 - i Reference run presser foot

This reference run may be carried out only in the needle bed area. **No yarn carrier** may be located in the carriage as well.

Never carry out a reference run in the area of the clamping and cutting bed.

38.3 ADF yarn carrier with bypass equipment

I. Yarn carrier with bypass:



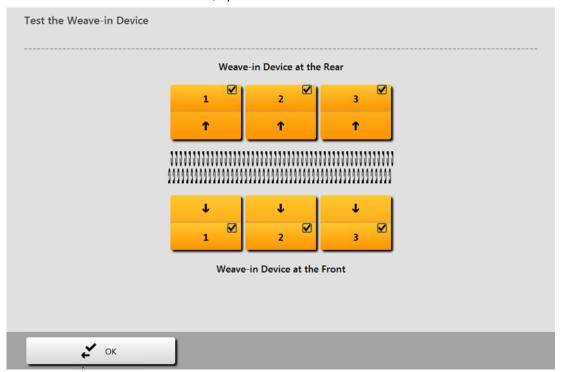
When will the bypass be used?



	Explanation
• with a very coarse, voluminous yarn	The yarn is too thick, and cannot be threaded in the yarn tube.
with a yarn, which "sticks" in the yarn tube	After the carriage reversal, the yarn is to be fetched back (tensioned) by the tension arm of the yarn control unit so that no yarn loop is formed.
	The increased friction results in a yarn loop, which leads to a fault in the fabric (yarn loop, hole, drop stitch, yarn breakage).

38.4 Setting / Adjustment of the Weft Yarn Presser Feet

- I. Setting / Adjustment of the Weft Yarn Presser Feet
- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select Set-up Order.
- 2. Switch to ** "Set-up pattern" in the bottom navigation bar.
- 3. With the weave-in device" menu.





Double b	Double button		
	Inactive button (white)	Weft yarn presser foot is inactive	
✓	Active button (or-	Weft yarn presser foot is active	
	ange)	1	Weft yarn presser foot activated (down)
		1	Weft yarn presser foot deactivated (up)

4. With the help of the buttons lacksquare or lacksquare check the weave-in devices in the selected area.



- Incorrect position of the weave-in device
 See operating instructions for horizontal and vertical adjustment of the presser foot.
- 5. Exit the menu with the OK" button.

38.5 Presser Foot Corrections ESCI in Setup

■ To control the shift points of weft yarn presser feet.

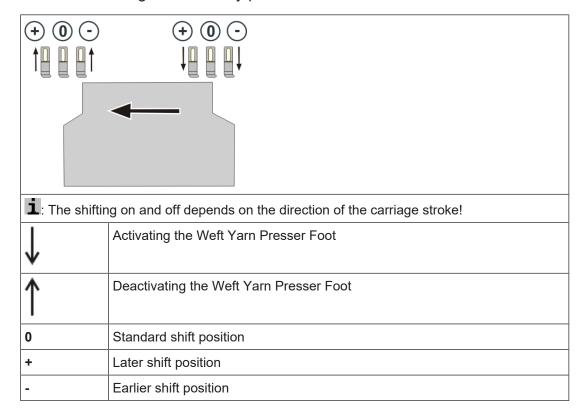
Command for machines with W presser foot

Weft Yarn Presser Foot Correction (ESCI)	
ESCIn	49 correction values (indices) are available to activate or disable the presser foot
	• ESCIn: n= 1- 49 1: ESCI 50 is used automatically for inverse plating with weft yarn presser foot.



Value range from -120nic to 120nic Stop width: 0.5 pig.
Step width: 0.5 nic

Effects on shifting on and off by presser foot correction values



Setup Editor: Enter presser foot corrections

Modifying correction values of presser feet:

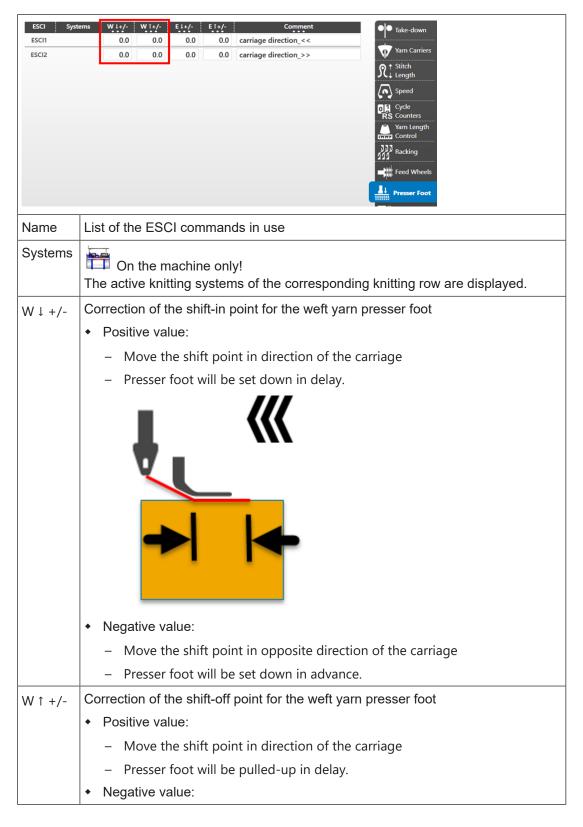
- ✓ You are signed in as "Senior Operator" ■
- ✓ Knitting program is loaded and the order was started.
- 1. Tap on "Prepare Machine" in the bottom navigation bar.

Tap on "Set up Pattern".

2. Open the Setup Editor with the key.

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- 3. Tap on "Presser Feet" to open the window for modifying the presser foot correction value.
- 4. Change the desired presser foot correction value.



Yarn carrier correction for the weft yarn carrier



- Move the shift point in opposite direction of the carriage
- Presser foot will be pulled-up in advance.

i M1plus:

- Correction values entered on M1plus will be applied by the technical processing to the parking of yarn carriers at the fabric selvedge.
- Yarn carrier in the area for activating and deactivating will be displaced or in anticipation parked aside.
- If the ESCI correction value is too high, the switch-on or switch-off area of the presser foot may be moved so far that the yarn carrier is in the active area of the presser foot. The technical processing will be canceled and the programmer has to solve the problem.

Machine:

- With entering the correction values in the Setup Editor at the machine may lead to an error message and machine stop.
- Modify the values manually until error message will appear no more or edit the program on the M1plus again.

38.6 Yarn carrier correction for the weft yarn carrier

i Definition of the weft yarn carrier

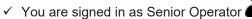
The **weft yarn carrier** is defined as a **Q yarn carrier**. This means that this yarn carrier works in vertical and horizontal direction with specified values.

Correcting the weft yarn carrier:

Recommendation for using the weft yarn carrier

For the optimal insertion of the weft yarn, the use of the weave-in device is recommended!

Due to this, the weft yarn is generally inserted with the System 1 (S1) as a yarn carrier correction may be necessary for optimization.





- ✓ Knitting program is loaded.
- ✓ The production was started.

Yarn carrier correction for the weft yarn carrier

- 1. In the main navigation bar select select "Set-up Order".
- 2. Switch to Trepare Machine" in the bottom navigation bar.
- 3. Open the Setup Editor with the button.
- 4. In the editor select the "Yarn carrier" menu.
- 5. Switch to the "YC/YCI" tab.
- ► The YC used in the pattern with all yarn carriers and all the additionally used yarn carrier corrections YCIn are displayed.
- 6. Make changes in the YC table or in one of the YCIn tables.
- 7. Scroll the display with or if necessary,



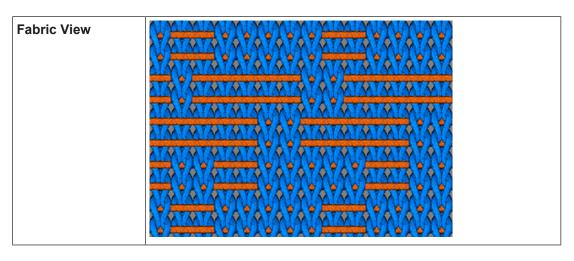
Column	Meaning	
<> +/- [mm]	Horizontal correction of the insertion position (knitting position):	Minimum value: - 100 Maximum value: 100
	For knitting	Step width: 0.1 mm
	For weft yarn (yarn carrier defined as Q)	
	Positive value: Correction of the home position to the right (following)	
	Negative value: Correction of the home position to the left (in advance)	
	i: Attention: The entered value is added to the values of the YPI tab.	



Column	Meaning	
^v +/- [mm]	Vertical correction of the insertion position (knitting position):	Minimum value: - 2.0 Maximum value: 5.0
	For knitting	Step width: 0.1 mm
	For weft yarn (yarn carrier defined as Q)	
	Positive value: Correction of the home position upward (steep yarn angle)	
	Negative value: Correction of the home position downward (flat yarn angle)	
	i: Attention: The entered value is added to the values of the YPI tab.	

- 8. Change the desired values:
- Horizontal value change in the <> +/- [mm] column
- Vertical value change in the ^v +/- [mm] column
- 9. With the Close" button exit the "SETUP Editor".
- ► Changed values are saved in .setx when saving.
- 10. Start the machine with the engaging rod.
- ▶ The changes will be carried out with the next use of the yarn carrier.

38.7 Knitting Technique: Weave-in on the CMS ADF 32 W





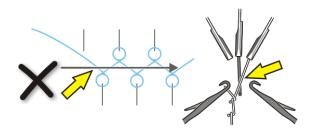
Knitting Technique: Weave-in on the CMS ADF 32 W

Properties A weft yarn (float thread) is laid-in covering the entire pattern or a selection.	
	 No or minor crossways elasticity. With elastic threads a defined elasticity can be achieved (example: compression stocking)
	New fabric looks (woven-like) are feasible
How the weave-in device works	 The weave-in device holds the floats deep so that they don't obstruct the knitting process.
	The weave-in device holds the weft yarn deep enough so that it does not knit any stitch or tuck in the following knitting system.
	A weft yarn is inserted in knitting direction of the stitch rows but not enclosed by stitch or tuck.
	2. The insertion of the weft yarn is carried out by the weft yarn carrier. This yarn carrier runs thus so far ahead before the knitting system that the yarn is only inserted but does not knit any stitch or tuck.
	3. The weave-in device pressed the thread downwards between the needle beds.
	4. In the subsequent knitting system, the weft yarn will be enclosed by the stitches.

38.7.1 Secure insertion of the weft yarn

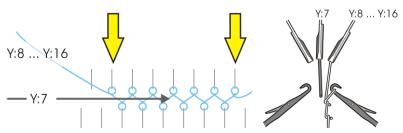
- Weft yarn carrier with bypass
- The weft yarn is enclosed in the fabric by the subsequent basic yarn.
- To ensure a secure insertion of the weft yarn, the basic yarn may not cross the weft yarn. If the course of the weft yarn is obstructed by the basic yarn, there is the danger of the weft yarn not being inserted in the weave-in device.





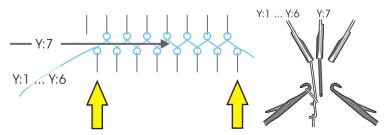
Rules for a secure weft yarn insertion:

■ The yarn carrier with a higher number than the weft yarn carrier knits the last stitch on the rear needle bed.



Y:7	Weft yarn carrier
Y:8 Y16	The subsequent knitting yarn carrier is on the track 8 up to track 16

■ The yarn carrier with a lower number than the weft yarn carrier knits the last stitch on the front needle bed.



Y:7	Weft yarn carrier
Y:1 Y6	The subsequent knitting yarn carrier is on the track 1 up to track 6

38.8 Knitting Technique: Plating with the ADF machines

The ADF machines don't need any special yarn carriers for plating.

Conventional plating types:

■ Color Plating

Knitting Technique: Plating with the ADF machines

- Plating of different materials
 - Plating over the entire fabric width with two yarn carriers in one knitting system (the same as on Performer Machines)

Special plating types of the ADF machines:

- Intarsia Plating
- Inverse Plating
- Stoll-ikat-plating ®
- Selective Plating

Designation of the knit- ting techniques	Definition	Stitch notation
Intarsia Plated	Two (or more) yarns work together in one intarsia area. The yarns are not used in neighboring areas.	A B+C D
Inverse Plating	Two (or more) yarns work together in one area and change their position (home position, plating position) with system change. Result: One pattern row	

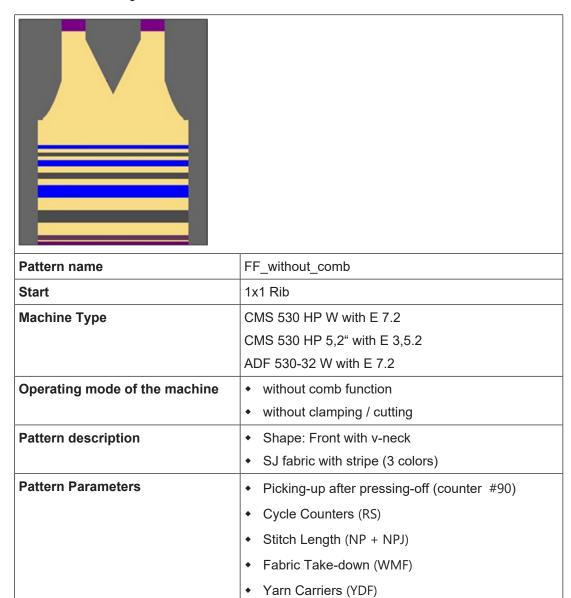
Knitting Technique: Plating with the ADF machines



Designation of the knit- ting techniques	Definition	Stitch notation
	is divided to several technical rows.	
Stoll-ikat plating ®	Two yarns work together in one area and change their position (home position, plating position) without system change.	
	Result: One pattern row corresponds to one technical row. In each pattern row, two yarns work, which knit in one system and change their position as well.	
Selective Plating	Two (or more) yarns work together only in one selected area. In the same knitting row at least one yarn is also used outside the selected area.	A A+B A Rear



39 Front fully fashion without comb





39.1 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production from start line 1 (SP1).
- 3. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
- Position yarn carriers at the fabric selvedge and fix the yarn ends
- Check the knitting area and the fabric collection chamber
- 4. Activate the Picking-up after Pressing-off function
- Set counter #90
- Check counter #51 and counter #52
- 5. Start machine (engage).

Make the following changes:

- Cycle Counters (RS)
- Stitch Length (NP)
- Fabric take-down values (WMF)
- Machine speed (MSEC)

39.2 Additional Information with Fully Fashion - without Comb

Additional commands and functions are necessary with Fully Fashion without comb:

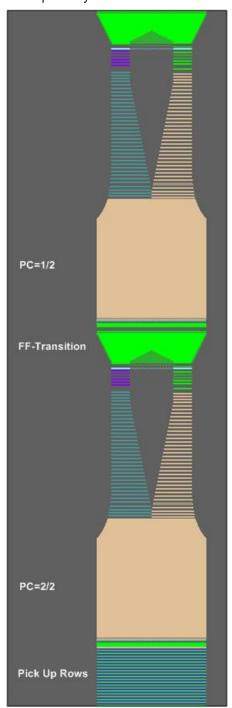
- Picking-up after pressing-off
- Transition rows (FF-trans)
- Yarn carrier home position

I. Transition rows:

- i Transition rows (FF-trans) are used when **Knitting without comb**.
- The transition rows form the transition from the end width of the previous fabric piece to the starting width of the following fabric piece.
- The FF-Trans function contains IF conditions to call up the necessary functions for widening and/or casting-off.

Additional Information with Fully Fashion - without Comb

- By RS17, you can control the number of knitting rows of the transition in order to get the entire fabric width into the main take-down.
- Separate yarn carriers allow to use residual yarn.

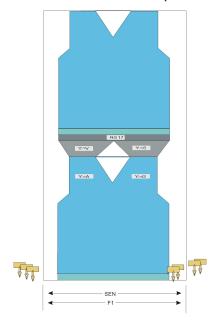


Sintral Function:



```
----- FF-TRANSITION -----
FBEG: FF-TRANS;
IF #LM<#54
           IF #RM>#53 IF #RM-#LM>2
                                               F: !-WIDENING-V;
IF #L=#51
           IF #R=#52
                                         #L=#51 #R=#52 #LM=0 #RM=0 GOTO FEND
IF #L<=#51
           IF #R>=#52 F:!-PRESS-OFF;
                                         #L=#51 #R=#52 #LM=0 #RM=0 GOTO FEND
IF #L>=#51
           IF #R<=#52 F:!-WIDENING;</pre>
                                         #L=#51 #R=#52 #LM=0 #RM=0 GOTO FEND
IF #L<>#51
           IF #R<>#52 F:!-PRESS-OFF;
                                         F: !-WIDENING;
                                                      #L=#51 #R=#52 #LM=0 #RM=0
FEND
```

II. Yarn carrier home position - YG



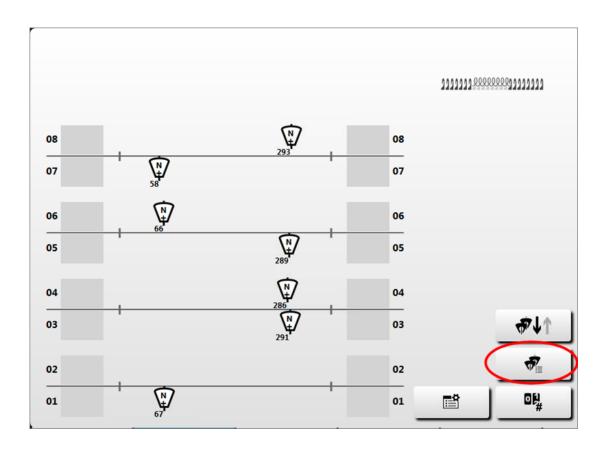
- Due to F, the yarn carriers without S0Y are positioned at the SEN.
- Due to F, the yarn carriers with S0Y are positioned at the fabric selvedge.

39.3 Threading-up and Positioning Yarn Carriers with patterns without comb

Calling up the assignment and allocation of the yarn carriers:

- ✓ You are signed in as Senior Operator
- ✓ The knitting program is loaded and the production was started with the Start line 1 (SP 1) setting.
- 1. Tap on "Prepare Machine" in the bottom navigation bar.
- ▶ The dialog with the yarn carrier home position is displayed.

Picking-up after Pressing-off Function



- 2. Additionally, the "Yarn carrier" dialog can be opened with the button.
- 3. Exit the dialog with the Close" button.

39.4 Picking-up after Pressing-off Function

- The Picking-up after Pressing-off function is used for:
 - Knitting programs for machines without comb
 - Knitting programs for machines with comb **but without using it**
- The Picking-up after Pressing-off function can be activated or deactivated.
- The knitting width and the knitting length for Picking-up after Pressing-off can be determined

Setting	Function
#90=0	Switch-off the Picking-up after Pressing-off function
#90=1	Activate the picking-up after pressing-off function (Automatic calculation of the length - depending on the gauge)
#90=n	The picking-up after pressing-off function is executed n times



Setting	Function	
#41 / #42	• #41 identical to #L	
	◆ #42 identical to #R	
#51 / #52	Auxiliary counter for defining the start width of the fabric	
	i: The counter values do not change during the knitting.	

Start the picking-up after pressing-off function

- ✓ You are signed in as Senior Operator
- ✓ The knitting program is loaded and the production was started with the **Start line 1** (SP 1) setting.
- 1. Select Intervene Manually I" in the bottom navigation bar.
- 2. Press the "Picking-up after pressing-off M1plus (#90)" button.
 - The "Picking-up after pressing-off M1plus (#90)" menu is opened and the counters #L
 (#41) and #R (#42) are set.
- 3. Perhaps, deactivate the "# 51" and "#52" buttons, to be able to set manually the counters #L (#41) and #R (#42).
- 4. Check the inputs.
- 5. Under "# 90" enter the desired value: e.g. 1.
- 6. Press the "Start picking-up after pressing-off" button.
- 7. Exit the dialog with the Close" button.
- 8. Engage machine (start).
 - > The machine stops to check the yarn carriers.
- 9. Engage the machine again.
 - The gauge-dependent length calculation for picking-up after pressing-off is executed and knitted.
 - After processing the function picking-up after pressing-off, the counter #90 is set to =0 and the machine is stopped.
 or -

perhaps exit the function prematurely when the fabric reached the desired length.

10. Take the fabric into the take-down:

Via the main navigation bar select the main area select up Order" - or - select reduce Order".

- 11. Then, in the bottom navigation bar tap "Intervene Manually II".
- 12. With the ←→ "Open fabric take-down" button open the main take-down to pull the fabric through.

- 13. Then, close the main take-down again with the Close fabric take-down button.
- 14. Engage the machine again.
- ► The function picking-up after pressing-off is closed and the knitting program is being processed.
 - The function picking-up after pressing-off will no longer be called-up during the production.

 Usage only at knitting start on the empty needle bed, in case of yarn breakage or other occurring situations, where the entire fabric is no longer in the main take-down.

Cancel the function picking-up after pressing-off before the end

In case of sufficient fabric length, the function **Picking-up after pressing-off** can be canceled before finishing the automatic length calculation..

- 1. Select Prepare Machine" in the bottom navigation bar.
- 2. Tap the #key.
- 3. In the # tab open the "Counters 51-99".
- 4. Under #90 enter the value 0 and confirm.
 - ${igle}$ The machine stops and the fabric can be taken to the take-down.
- 5. Under Intervene Manually I" press the Restart fabric automatically [Ctrl-Z]" button
 - or -

press the "Restart fabric [SP]" button, perhaps do not enter the desired start line (1 or 40) until "from line [SPn]"

- 6. Start machine (engage).
- ▶ The knitting program is automatically started until the machine stops again to check the yarn carriers. After the inspection it is possible to continue knitting.

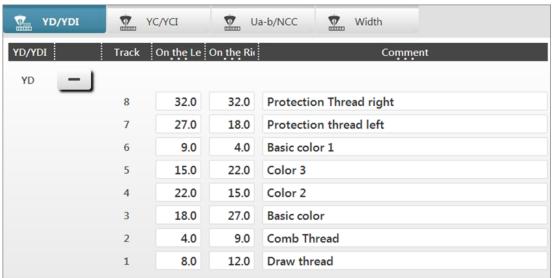
39.5 Setting: Distance of the yarn carrier at the fabric selvedge

i Manual staggering the yarn carriers at the fabric selvedge

This is only necessary if one is not working with YDopt (automatically optimized staggering) and loops are being formed at the fabric selvedge.



- I. Modify the yarn carrier distance (YD):
- ✓ You are signed in as Senior Operator
- ✓ The knitting program is loaded and the production was started.
- ✓ 🔭 "Prepare Machine" is selected in the bottom navigation bar.
- 1. Open the "Setup Editor" with the button.
- 2. Select the Yarn carrier menu.
- 3. Open the "YD/YDI" tab.
- ► The yarn carrier staggering YD used in the pattern and all the additional yarn carrier staggerings YDI will be displayed.



YD / YDI	Display of the YD / YDI tables used for the distance of the yarn carriers from the fabric selvedge in the knitting program				
	◆ YDn= m-o				
	◆ YDIn: further indirect yarn carrier staggerings (YDI1-YDI20)				
	-	Expand the display of the table			
	+	Collapse the display of the table			
Track	Display of the yarn carrier rail with the yarn carrier (n)				
at the left	Distance from fabric selvedge at the left (m) Minimum value: 0				
at the	Distance from fabric selvedge at the right Max		Maximum value: 160		
right	(o) Step width:		Step width:		
			0,5 = 1/32 inch = 0,8mm		
Comment	Explanation		ASCII Characters		

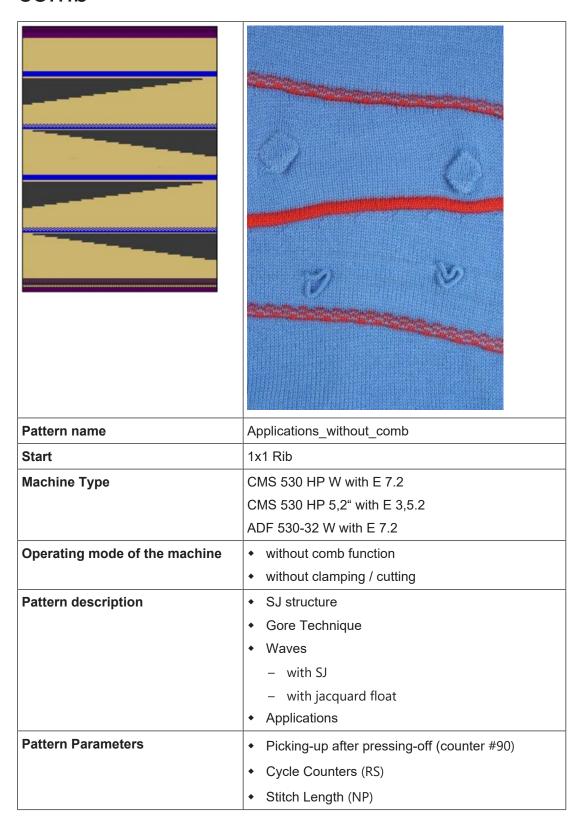


- 4. Make changes in the YD table.
- 5. If necessary, perform further changes in the other YDI tables.
- 6. Exit the dialog with the Close" button.
- 7. Start the machine with the engaging rod.
- ▶ The changes will be carried out with the next use of the yarn carrier.





40 Applications + gore technique without comb





◆ Fabric Take-down (WMF)	
Table Table Committee	

Create and set-up an order with a knitting program

40.1 Create and set-up an order with a knitting program

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production from start line 1 (SP1).
- 3. Prepare the machine and set-up the pattern
- Threading up the Yarn Carriers
- Position yarn carriers at the fabric selvedge and fix the yarn ends
- Check the knitting area and the fabric collection chamber
- 4. Activate the Picking-up after Pressing-off function
- Set counter #90
- Check counter #51 and counter #52
- 5. Start machine (engage).

Make the following changes:

- Cycle Counters (RS)
- Stitch Length (NP)
- Fabric take-down values (WMF)
- Machine speed (MSEC)

Create and set-up an order with a knitting program





41 Multi-piece Knitting without Using the Comb

Working with several SEN areas:

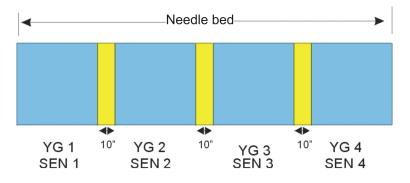
■ Machines without comb

i

■ Machines with comb: Comb and clamping / cutting deactivated

Sintral Commands		
Yarn carrier home position:	YG1: YG2: YG3: YG4:	
Pattern fields	F1: - or - F1: / F2: / F3: / F4:	
Pattern pack machine	PM: F1 xx: F1 xx: F1 xx: F1; - or - PM: F1 xx: F2 xx: F3 xx: F4;	
Selected needle area	SEN1= SEN2= SEN3= SEN4=	

Several SEN areas with the corresponding intermediate spacing for yarn carriers:



The distance between the single SEN areas depends on the number of yarn carriers in use per SEN.

42 Operating modes of CMS 822 HP

Operating mode with comb and clamping / cutting

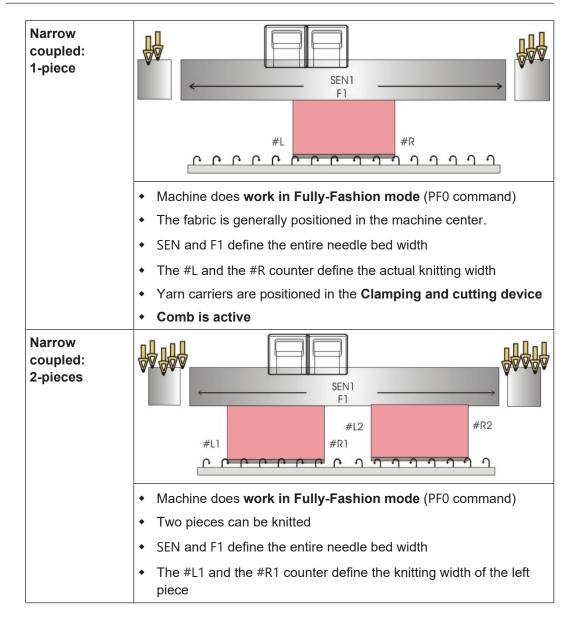
■ Operating mode using the comb:

The knitting program (Sintral, Jacquard, Setup) is structured the way that the **comb function** is called-up at the start of the program and the **cast-off function** at the fabric end.

Result:

Each piece is started with the comb and cast-off at the end. Single fabrics are produced.

i There must **not** be a fabric in the needle bed or main take-down.





The #L2 and the #R2 counter define the knitting width of the right piece Yarn carriers for the left fabric in the left clamping and cutting Yarn carriers for the right fabric in the right clamping and cutting device Comb is active Wide coupled 2-pieces SEN1 #R2 #L2 #L1 #R1 0000 9 9 9 Machine does work in Fully-Fashion mode (PF0 command) Two pieces can be knitted SEN and F1 define the entire needle bed width The #L1 and the #R1 counter define the knitting width of the left The #L2 and the #R2 counter define the knitting width of the right piece Yarn carriers for the left fabric in the left clamping and cutting Yarn carriers for the right fabric in the right clamping and cutting device Comb is active

Operating mode without comb and clamping / cutting

Operating mode without using the comb:

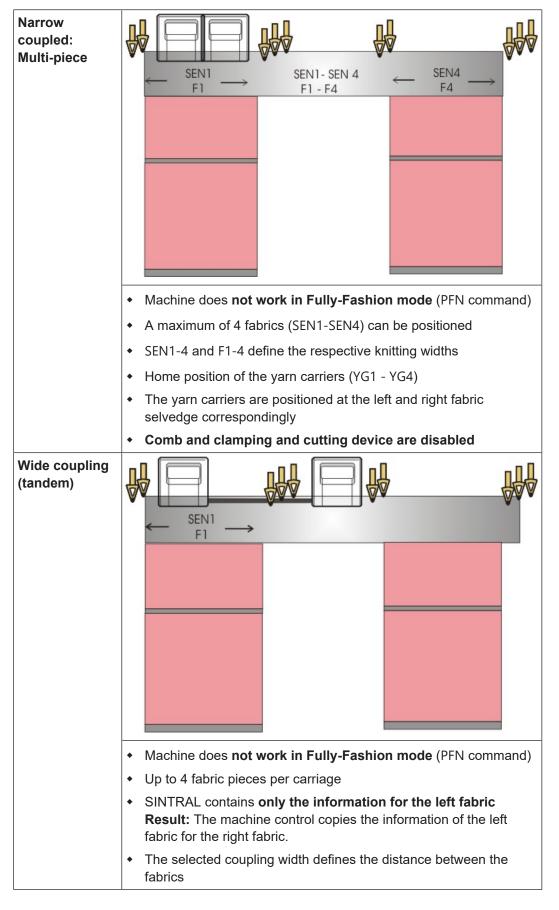
The knitting program (Sintral, Jacquard and Setup) comes with a draw thread at the start. The draw thread enables to separate the pieces after knitting or ironing.

Result:

The individual pieces are knitted in a common panel following each other.

i With this operating mode a fabric must always hang in the needles.

STOLL

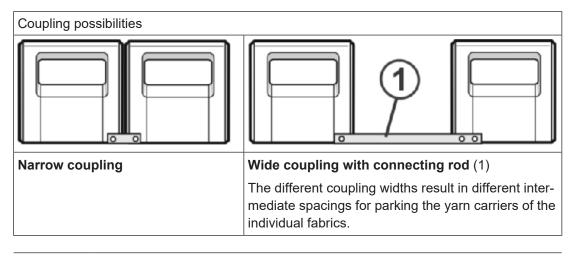




- The yarn carriers are positioned at the left and right fabric selvedge correspondingly
- · Comb and clamping and cutting device are disabled

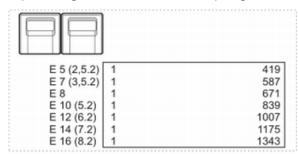
42.1 Coupling widths of the CMS 822 HP

Coupling with CMS 822 HP



i The needle area of the CMS 822 HP is 84".

Operating mode: Narrow coupling for 4-system knitting

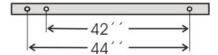


- Operating mode: Narrow coupling with comb
 - All four systems working in one SEN area.



- Operating mode: Narrow coupling without comb
 - All four systems work in **more than one** SEN areas (a maximum of 4 knitting areas).

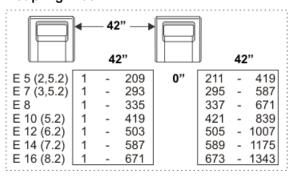
Coupling widths of the CMS 822 HP



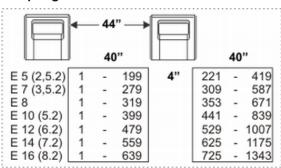
Operating mode: Wide coupling (tandem) without comb

■ Two systems working in **one** SEN area for each carriage.

Coupling width 42"



Coupling width 44"



- Two fabrics will be produced side by side.
- Up to 4 fabric pieces per carriage are possible
- The knitting program is generated for the left carriage with knitting systems S1 and S2. Needle selection is calculated internally for the left fabric piece and transferred to the right carriage, which produces the right fabric piece.



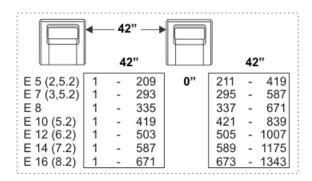
■ The workflow of the CMS 822 HP corresponds to the workflow of CMS 4xx TC / CMS 9xx.

Operating mode: Wide coupling (tandem) with comb

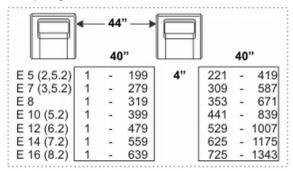
■ Two systems working in **one** SEN area for each carriage.

Coupling width 42":

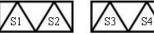




Coupling width 44":



- Two fabrics will be produced side by side.
- Both carriages function as one carriage with a wide space and with the system sequence:



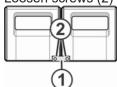
- The yarn carriers for the left fabric piece are positioned in the left clamping and cutting device.
- The yarn carriers for the right fabric piece are positioned in the right clamping and cutting device.
- One yarn carrier knits-in the comb thread (elastic thread) over both fabric pieces.

42.1.1 Couple Carriage Assembly Wide

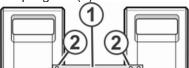
- ✓ You are signed in as Senior Operator
- ✓ A knitting program is loaded.
- 1. In the main navigation bar select "Set-up Order".
- 2. Open E "Edit order" in the bottom navigation bar.
- 3. Press the Exit production button:
- ▶ The loaded order was completed.
- 4. If necessary, save the order.
- 5. Select "Intervene Manually I" in the bottom navigation bar.

Coupling widths of the CMS 822 HP

- 6. Tap the Cancel Production [SPF S0]" button.
- ▶ If the loaded order was not yet saved, a prompt appears for saving the changes and the machine is set to an empty row.
- 7. If necessary, save changes.
- 8. Start the machine with the engaging rod and stop it again when the carriage is located shortly after the left reversing position.
- 9. In the main navigation bar select the main area "Maintain Machine".
- 10. Select X "Service" in the bottom navigation bar.
- 11. With the Carriage" button, open the "Service Functions for the Carriage" menu.
- 12. With ♣ "40 Volt" deactivate the setting □.
- ▶ The **power supply 40 V** is deactivated and the button is now displayed in white.
- 13. If necessary, press the Release drive brake [>!]" button.
- ▶ The carriage assembly can be moved manually.
- 14. Open and remove the rear panel segments.
- 15. Loosen screws (2) and remove coupling rod (1).



16. For wide coupling (tandem machine), push the right carriage to the right until the coupling rod (1) can be assembled.



- 17. Insert the screws (2) and tighten.
- 18. Remove the carriage part in order to replace the cams.



- **i** With the wide coupling you have to exchange the cam parts for reasons of safety.
- 19. Place carriage part on contact surface and assembly with carriage assembly.
- 20. Close the rear panel.
- 21. In the main navigation bar select the main area ** "Maintain Machine".



- 22. Select X "Service" in the bottom navigation bar.
- 23. With the Carriage" button, open the "Service Functions for the Carriage" menu.
- 24. With ♣ "40 Volt" activate the setting ✔.
- ▶ The **power supply 40 V** is activated and the button is now displayed in yellow.
- 25. With the "OK" button return to the previous window.
- 26. Engage machine.
- ▶ The machine stops and the "Coupling width ?" error appears.
- 27. Engage the machine for executing the reference run
- ▶ The reference run is executed to know the used coupling width.
- 28. More in the chapter for Tandem with or without comb.

42.1.1.1 Operating mode without comb

i With this operating mode, a fabric must always be in the main take-down.

Make the setting for tandem without comb:

- ✓ You are signed in as Senior Operator

 —...
- ✓ An empty row is active.
- 1. In the main navigation bar switch to **E** "Configure Machine".
- 2. Then, in the bottom navigation bar select "Options".
- 3. Open the "Functions" tab.
- 4. With the \Box "Tandem with comb" button deactivate the setting \Box .
- ▶ The function is deactivated and the button is now displayed in white.
- ► Comb take-down and clamping / cutting are disabled.
- → Create an order with a knitting program.
 - If the carriage assembly operate coupled wide, all needles outside the fabric pieces must be free of fabric.
 All yarn carriers must be positioned.
- 1. Check the yarn carriers.
- 2. Start production.

Coupling widths of the CMS 822 HP

42.1.1.2 Operating mode with comb

Make the setting for tandem with comb:

- ✓ You are signed in as Senior Operator
- ✓ An empty row is active.
- 1. In the main navigation bar switch to **I** "Configure Machine".
- Then, in the bottom navigation bar select "P" "Options".
- Open the "Functions" tab.
- 4. With the Tandem with comb" button activate the setting ✓.
- ▶ The function is activated and the button is now displayed in yellow.
- ▶ The comb and clamping / cutting are activated.
- → Create an order with a knitting program.
 - If the carriage assembly operate coupled wide, all needles outside the fabric pieces must be free of fabric.

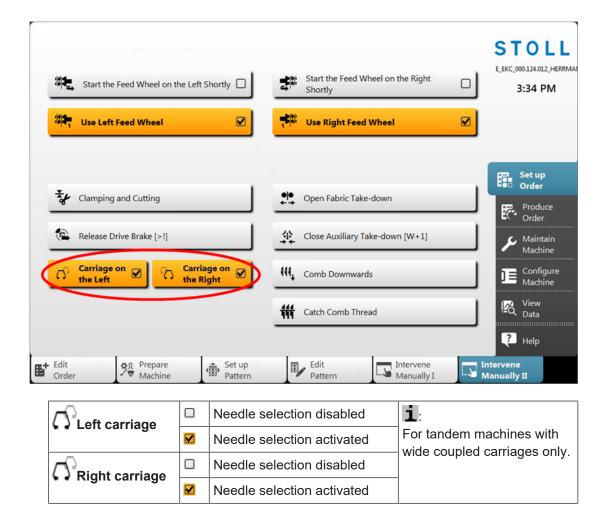
 All yarn carriers must be positioned.
- 1. Check the yarn carriers.
- 2. Start production.

42.1.1.2.1 Special features with the operating mode tandem with comb (CCC)

Switch the needle selection on or off:

- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded.
- 1. In the main navigation bar select set-up Order".
- 2. Then, in the bottom navigation bar select Intervene Manually II".
- ► The following menu is displayed.





42.1.2 Couple Carriage Assembly Narrow

- ✓ You are signed in as Senior Operator

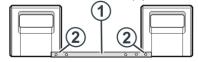
 —...
- ✓ Knitting program is loaded.
- 1. In the main navigation bar select "Set-up Order".
- 2. Open E "Edit order" in the bottom navigation bar.
- 3. Press the Exit production button:
- ▶ The loaded order was completed.
- 4. If necessary, save the order.
- 5. Select Intervene Manually I" in the bottom navigation bar.
- 6. Tap the Cancel Production [SPF S0]" button.

Coupling widths of the CMS 822 HP

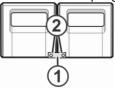
- ▶ If the loaded order was not yet saved, a prompt appears for saving the changes and the machine is set to an empty row.
- 7. If necessary, save changes.
- 8. Start the machine with the engaging rod and stop it again when the carriage is located shortly after the left reversing position.
- 9. In the main navigation bar select the main area Maintain Machine".
- 10. Select X "Service" in the bottom navigation bar.
- 11. With the Carriage" button, open the "Service Functions for the Carriage" window.
- 12. With ♣ "40 Volt" deactivate the setting □.
- ▶ The power supply 40 V is deactivated and the button is now displayed in white.
- 13. If necessary, press the "Release drive brake [>!]" button.
- ▶ The carriage assembly can be moved manually.
- 14. Open and remove the rear panel segments.
- 15. Remove the carriage part in order to replace the cams.



- 16. Place carriage part on contact surface and assembly with carriage assembly.
- 17. Remove the screws (2).



- 18. Remove the coupling rod (1).
- 19. For narrow coupling (tandem machine), push the left carriage assembly to the right and hook in the coupling rod (1).



- 20. Insert the screws (2) and tighten.
- 21. Lay the cable harness into the retainer.

 This prevents the cables at the support (3) from rubbing and being damaged.







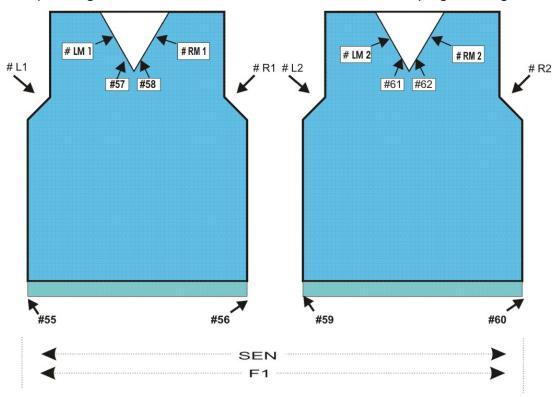
- 22. Close the rear panel.
- 23. In the main navigation bar select the main area "Maintain Machine".
- 24. Select X "Service" in the bottom navigation bar.
- 25. With the Carriage" button, open the "Service Functions for the Carriage" menu.
- 26. With ♣ "40 Volt" activate the setting ✔.
- ▶ The function is activated and the button is now displayed in yellow.
- 27. With the OK" button return to the previous window.
- 28. Engage machine.
- ▶ The machine stops and the "Coupling width ?" error appears.
- 29. Engage the machine for executing the reference run
- ▶ The reference run is executed to know the used coupling width.
- 30. Create an order with a knitting program.
- 31. Start Production

42.2 Counters with CMS 822 HP

- I. Operating mode: Narrow coupling (4 systems)
- Without comb and clamping / cutting
 - Single Piece: Working with all 4 systems in one SEN area
 - Multi-piece: Working with all four systems in several SEN areas (1-4).
- With comb and clamping / cutting
 - Single Piece: Working with all 4 systems in one SEN area.
 - double-piece: Processing 2 pieces with all 4 systems in one SEN area.
 - If the the fabric is worked as fully fashion with narrow coupling, counters will be used as well.

Counters with CMS 822 HP

- II. Operating mode: Tandem machine without comb and clamping / cutting:
- Processing one piece per carriage
- Processing up to a maximum of 4 pieces per carriage
 - The information of the knitting program will be transferred from the left carriage to the right carriage.
- III. Operating mode: Tandem machine with comb and clamping / cutting:



	Counters	Function
Left fabric	# L1	Selvedge counter for the left fabric selvedge
	# R1	Selvedge counter for the left fabric selvedge
	# LM1	Selvedge counter for the left side in the center
	# RM1	Selvedge counter for the right-hand side in the center
	# 55	Start-width at the left
	# 56	Start-width at the right
	# 57	Start-width middle-left



	Counters	Function
	# 58	Start-width middle-right
Right piece	# L2	Selvedge counter for the left fabric selvedge
	# R2	Selvedge counter for the left fabric selvedge
	Selvedge counter for the left side in the center	
	# RM2	Selvedge counter for the right-hand side in the center
	# 59	Start-width at the left
	# 60	Start-width at the right
	# 61	Start-width middle-left
	# 62	Start-width middle-right

42.2.1 Apply shape counters with operating modes without comb

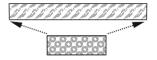
With pattern changes - Apply shape counters:

- Load knitting program to machine
- Setting up the machine
 - i Use this function only is effective with the following machines:
 - Machine without comb take-down
 - Machine with comb take-down but without use of comb

The machine compares automatically the shape counters (old-new) in order to e able to adjust the new knitting width (widening or narrowing) with the pattern change. The values of the shape counters of the previous pattern are necessary for this.



i



The condition is that the pattern was created as Fully Fashion knitting program on the M1plus.

Set shape counters manually:

✓ You are signed in as Senior Operator

■...





- ✓ A knitting program is loaded and the production was started.
- 1. Select Prepare Machine" in the bottom navigation bar.
- 2. Tap the # button.
- 3. Open the menu with the #"Shape Counters Absolute" button.
- ▶ The menu for entering the values for the counters #L and #R is displayed:



- 4. Under "Absolute (needle bed)", enter the values for the counters #L and #R read from the needle bed.
- ▶ The machine compares the counter of the previous knitting program with the counter in the new knitting program and can execute accordingly the function **F: FF-Trans**.

42.3 Yarn carrier corrections for the right carriage with tandem machines

- I. Yarn carrier corrections for the right carriage:
- CMS 822 HP: Tandem mode without comb and clamping / cutting

Possible reasons for a correction:



- different wear of the yarn carriers used in the left and right carriages
- different directions of the yarn feed in the left and right carriages
- different lubrication

II. Enter the yarn carrier correction:

- ✓ You are signed in as Senior Operator ■.
- ✓ A knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select set-up Order".
- 2. Tap on "Prepare Machine" in the bottom navigation bar.
- 3. Open the "Setup Editor" with the button.
- 4. Then, press the Yarn carrier button.
- 5. In the menu open the Y:Oa-Ob" tab.
- ▶ The table with the yarn carriers in use is displayed.



Y:Oa - Ob									
Υ	Yarn carrier designation • Rail number								
	 Yarn carrier designation with multiple allocation of the rails 								
Oa	Offset specification for the yarn carrier Y to be corrected, for the left parking position in the right carriage	Min. value: -8 Max. value: 8 Step width: 0.5 = 1/32 " = 0,8 mm							
Ob	Offset specification for the yarn carrier Y to be corrected, for the right parking position in the right carriage								
Comment	Description	,							



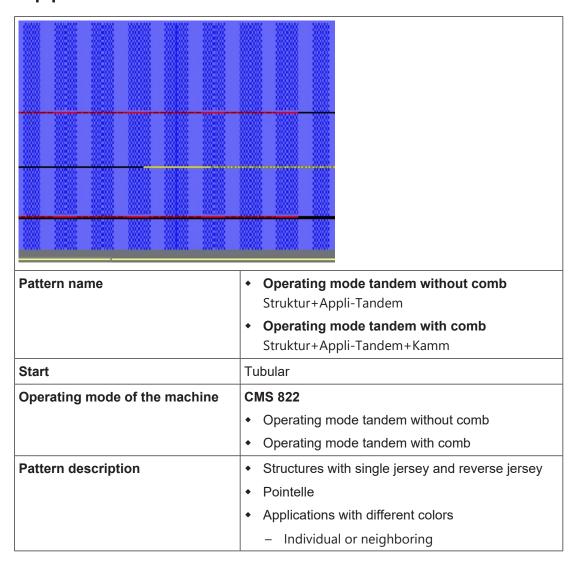
- 6. Tap in the field of the yarn carrier to be corrected.
- 7. Enter the value via the virtual numeric keypad.
 - **1** These correction values are machine-dependent!
 The values are **not deleted** with EALL and when reading-in a new operating system.

The correction values must be deleted manually.





43 CMS 822 HP: Structure Pattern with Applications



Fabric view and stitch line

	Presentation
Basic Pattern	



	Presentation
Application	
Neighboring applica- tions	

Operating Mode of the Machine: Tandem without Comb

43.1 Operating Mode of the Machine: Tandem without Comb

Tandem without Comb

The knitting program (Sintral, Jacquard, Setup) is structured as follows:

■ The knitting program is generated for the left carriage with knitting systems S1 and S2. Needle selection is calculated internally for the left fabric piece and transferred to the right carriage, which produces the right fabric piece.





A draw thread is knitted at the start of the program.
The draw thread enables to separate the pieces after knitting or ironing.

Result:

The fabrics are knitted as one piece, connected by the draw thread.

i With this operating mode, a fabric must always be in the main take-down.

Important settings for this operating mode:

- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded.
- 1. In the main navigation bar switch to **E**"Configure Machine".
- 2. Then, in the bottom navigation bar select "4" "Options".
- 3. Open the "Functions" tab.
- 4. With the Tandem with comb" button deactivate the setting □.
- ▶ The function is deactivated and the button is now displayed in white.
- ▶ The comb and clamping / cutting are disabled.
- 5. Create an order with a knitting program.

43.2 Operating Mode of the Machine: Tandem with Comb

Tandem with comb (CCC):

The knitting program (Sintral, Jacquard, Setup) is structured as follows:

Create an order with one knitting program, wide couple the carriage assembly and set-up



■ Both carriages function as one carriage with a wide space and with the system sequence:





- The yarn carriers for the left fabric piece are positioned in the left clamping and cutting device.
- The yarn carriers for the right fabric piece are positioned in the right clamping and cutting device.
- One yarn carrier knits-in the comb thread (elastic thread) over both fabric pieces due to the **comb function** at the start of the program.
- A Cast-off function is called-up at the fabric end.

Result:

Each piece is started with the comb and cast-off at the end. Single fabrics are produced.

i With this operating mode **no** fabric must be in the main take-down.

Make important settings for this operating mode:

- ✓ You are signed in as Senior Operator

 ■
- ✓ Knitting program is loaded.
- 1. In the main navigation bar switch to Tonfigure Machine".
- 2. Then, in the bottom navigation bar select "Then, in the bottom navigation bar select".
- 3. Open the "Functions" tab.
- 4. With the Tandem with comb" button activate the setting ✓.
- ▶ The function is activated and the button is now displayed in yellow.
- ▶ The comb and clamping / cutting are activated.
- 5. Create an order with a knitting program.

43.3 Create an order with one knitting program, wide couple the carriage assembly and set-up

Procedure:

- 1. Create an order with a knitting program.
- 2. Start production.
- 3. Interrupt the knitting program and set it to an empty row [SPF S0].

- 4. Couple the carriage assembly wide apart44".
- 5. Check the settings under Configure Machine" / Toptional Features in the "Functions" tab:
- "Tandem with Comb": □ disabled

 Result: Machine works without comb and clamping / cutting in tandem mode.
- "Tandem with Comb": ✓ activated

 Result: Machine works with comb, but not in tandem mode

 Two fabrics will be produced side by side.
- 6. Start production again.
- 7. Prepare the machine and set-up the pattern
- With Performer machine CMS 822:
 - Threading up the Yarn Carriers
 - Position the Yarn Carriers
- 8. Check the needle bed.
 No fabric hanging in the needles?
- With comb and clamping / cutting
 - No fabric in the needle bed
- Without comb and clamping / cutting
 - The fabric must be in the needle bed
 - Start picking-up after pressing-off (#90) if necessary
- 9. Start the machine.

Make the following changes:

- Cycle counters (RS)
- Stitch Length (NP)
- Fabric take-down values (WM, W+, WMK, ...)
- Yarn carrier staggering at the fabric selvedge (YD) with operating mode without comb

43.4 Tandem without Comb: Thread up Yarn Carriers and Position them

Calling up the assignment and allocation of the yarn carriers:

- ✓ Knitting program is loaded.
- ✓ The production was started



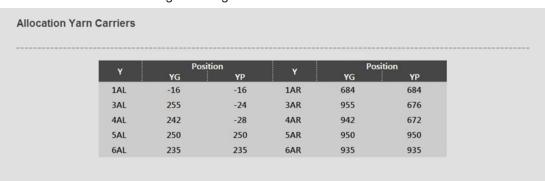
- 1. In the main navigation bar on switch to "Set-up Order".
- Select "Prepare Machine" in the bottom navigation bar.
- 3. With the button, open the "Yarn carrier" table.

		-												5 11	-
Y	Type Wheel	Yarı Y:=n	n 0/1	Posi YG	tion YP	orrection Ka			Intarsia K <i>b I<></i>	ngaging Ua	y Widt Ub	MSEC	٧	Braking Ba	Values Bb
1AL	N	Α	1	-16	-16	0.0	0.0	0.0	0.0	14.5	14.5	0.00	0	0	0
3AL	N	В	1	255	-24	0.0	0.0	0.0	0.0	14.5	14.5	0.00	0	0	0
4AL	N	C	1	242	-28	0.0	0.0	0.0	0.0	14.5	14.5	0.00	0	0	0
5AL	N	D	1	250	250	0.0	0.0	0.0	0.0	14.5	14.5	0.00	0	0	0
6AL	N	Ε	1	235	235	0.0	0.0	0.0	0.0	14.5	14.5	0.00	0	0	0
LAR	N			684	684	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0	0	0
BAR	N			955	676	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0	0	0
4AR	N			942	672	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0	0	0
SAR	N			950	950	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0	0	0
6AR	N			935	935	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0	0	0

4. Thread-up the yarn carriers and position them at the fabric selvedge as specified in the YP column.

- or -

5. Open the "Yarn Carrier Allocation" window with the L R button and position the yarn carriers for the left and right carriage.



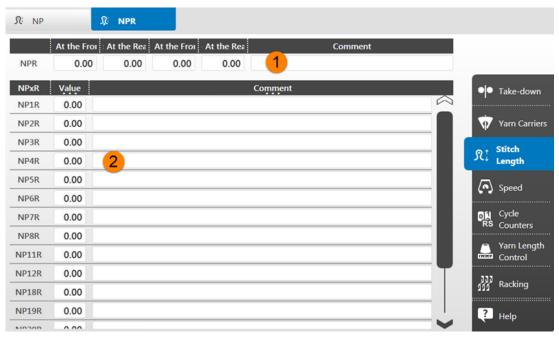
If the yarn carrier specifications in the Sintral differs from the yarn carriers really present on the machine, you can shift yarn carriers from the left to the right carriage.

43.4.1 Additional stitch length correction for the right carriage

Correct the stitch length for the fabric piece of the right carriage:

It may be necessary to change the stitch length of the right carriage if knitting different yarns.

- ✓ A knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select set-up Order".
- Open "Prepare Machine" in the bottom navigation bar.
- 3. Open the editor with the Setup Editor" button.
- 4. Open the window with the $\mathfrak{R}^{\updownarrow}$ "Stitch Length" button.
- 5. Select the T "NPR" tab.



Correction of all stitch cams of the right carriage (with tandem mode without comb only)

i: Values valid for all stitch cams

At the Front

Correction for the front needle bed and carriage stroke to the left



	< At the Rear	Correction for the rear needle bed and carriage stroke to the left
	> At the Front	Correction for the front needle bed and carriage stroke to the right
	> At the Rear	Correction for the rear needle bed and carriage stroke to the right
2	NPxR	List of all yarn carriers used by the knitting program for the right carriage
	Value	Correction setting for the corresponding yarn carrier

- 6. Tap the desired edit box.
- ► Change the value via the number field.
- 7. Exit the window with the Close" button.

43.4.2 Switch-off the Needle Selection

- I. Switch the needle selection on or off:
- ✓ You are signed in as Senior Operator
- ✓ A knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select set-up Order".
- or -
- 2. Select "Produce Order" in the main navigation bar.
- 3. Tap Intervene Manually I" in the bottom navigation bar.
- 4. Switch the complete needle selection with the "Needle Selection" button on or off.

9928299	Needl	e Selection				
	Needle selection of the complete needle bed is switched on					
		Needle selection of the complete needle bed is switched off				



	Explanation	Value range
YPI	Plating index Defines the distance between the yarn carrier and the normal yarn insertion position in the needles and the insertion angel.	
Insertion Position	Horizontal shifting of the insertion position (x)	Minimum value: -100 mm Maximum value: 100 mm Step width: 0.1 mm
	 Positive value: Following basic yarn. The thread is inserted in the needles later on. Default: 6.5 mm Negative value: Leading plating yarn Default: 0 mm 	
Height	Shifting in height (y) Corrects the insertion angle	Minimum value: -2 mm Maximum value: 5 mm Step width: 0.1 mm
	 Positive value: Steeper yarn angle Default: 0.9 mm for the following basic yarn Negative value: Flatter yarn angle 	
<< >>	Carriage Direction The plating index depends on the carriage direction	
Comment	Comment	ASCII characters



II.	Switch	on or	off the	needle	selection	of the	left	or right	carriage:

- **i** The needle selection can be switched on or off individually for one carriage with faulty fabric pieces.
- ✓ You are signed in as Senior Operator

 ■...
- ✓ A knitting program is loaded.
- ✓ The production was started.
- 1. In the main navigation bar select set-up Order".
- or -
- 2. In the main navigation bar select range "Produce Order".
- 3. Tap Intervene Manually II" in the bottom navigation bar.
- 4. The needle selection can separately be switched on or off with the \(\oldsymbol{\cappa} \) "Left Carriage" and \(\oldsymbol{\cappa} \) "Right Carriage" buttons.

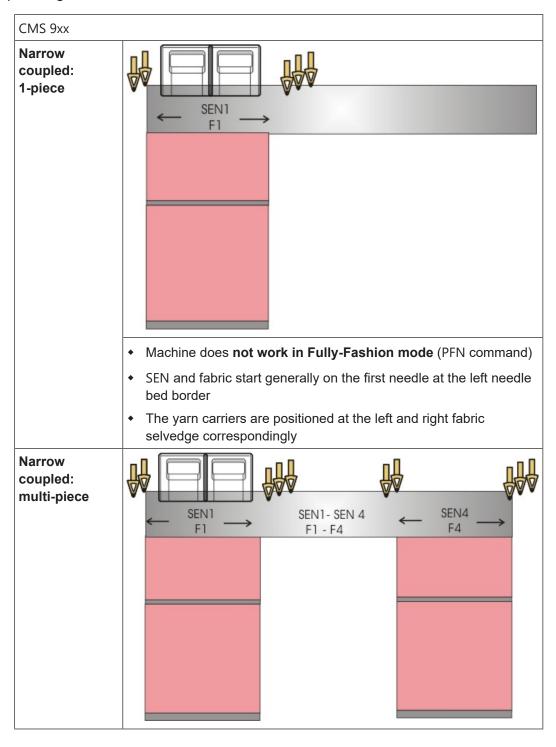
Q_2	Carriage on the Left						
	✓	Needle selection of left carriage is on					
	□ Needle selection of left carriage is off						
27	Carriage on the Right						
	~	Needle selection of right carriage is on					
		Needle selection of right carriage is off					

i All needle selection settings are switched on by default.

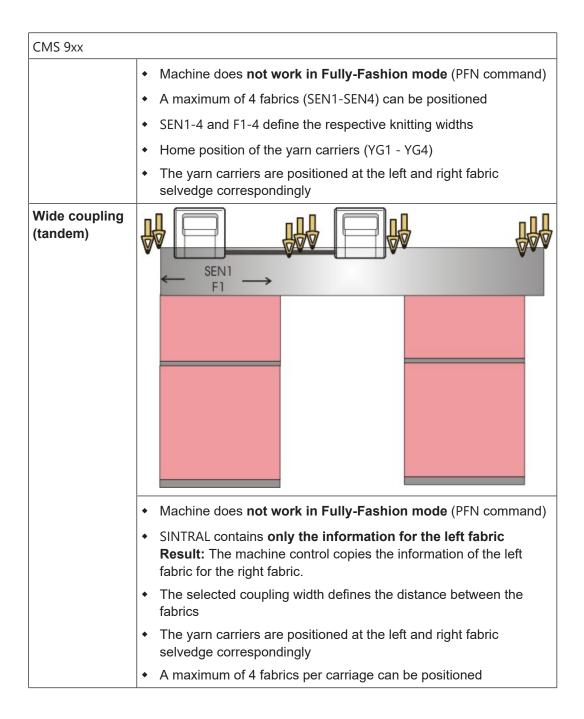
44 Operating Mode CMS 9xx HP

The CMS 9xx machine type works without comb and clamping and cutting device.

Operating modes of CMS 9xx HP

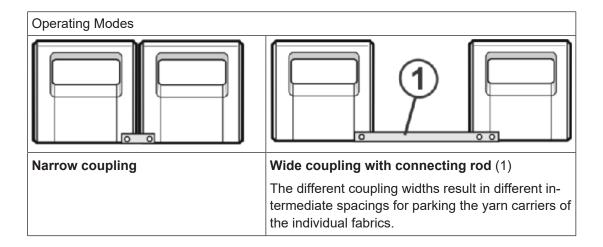




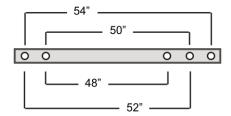


Operating Modes:

- Wide coupled in tandem mode
- Narrow coupling as 4 system machine.



Coupling widths for CMS 933 HP:

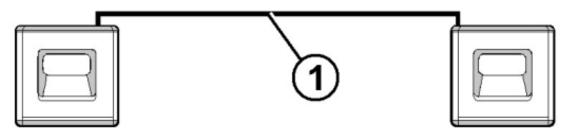


Needle area with 96 inch needle bed width - narrow coupling:

Gauge	Needle rage
E5	1 - 479
E7	1 - 671
E8	1 - 767
E10	1 - 959
E12	1 - 1151
E14	1 - 1343



Coupling widths and distances between the fabrics:



Coupling width 54":

Gauge	Knitting width 42"	Empty Space	Knitting width 42"
E5 (2,5.2)	1 - 209	12"	271 - 479
E7 (3,5.2)	1 - 293		379 - 671
E8	1 - 335		433 - 767
E10 (5.2)	1 - 419		541 - 959
E12 (6.2)	1 - 503		649 - 1151
E14 (7.2)	1 - 587		757 - 1343

Coupling width 52":

Gauge	Knitting width 44"	Empty Space	Knitting width 44"
E5 (2,5.2)	1 - 219	8"	261 - 479
E7 (3,5.2)	1 - 307		365 - 671
E8	1 - 351		471 - 767
E10 (5.2)	1 - 439		521 - 959
E12 (6.2)	1 - 527		625 - 1151
E14 (7.2)	1 - 615		729 - 1343

Coupling width 50":

Gauge	Knitting width 46"	Empty Space	Knitting width 46"
E5 (2,5.2)	1 - 229	4"	251 - 479
E7 (3,5.2)	1 - 321		351 - 671
E8	1 - 367		401 - 764
E10 (5.2)	1 - 459		501 - 959

Gauge	Knitting width 46"	Empty Space	Knitting width 46"
E12 (6.2)	1 - 551		601 - 1151
E14 (7.2)	1 - 643		701 - 1343

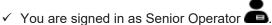
Coupling width 48":

i

Gauge	Knitting width 48"	Empty Space	Knitting width 48"
E5 (2,5.2)	1 - 239	0"	240 - 479
E7 (3,5.2)	1 - 335		336 - 671
E8	1 - 383		384 - 764
E10 (5.2)	1 - 479		480 - 959
E12 (6.2)	1 - 575		576 - 1151
E14 (7.2)	1 - 671		672 - 1343

You can not use the maximum knitting width with a coupling width of 48 inches.

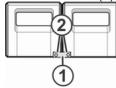
44.1.1 Couple Carriage Assembly Wide



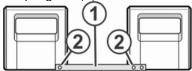
- ✓ A knitting program is loaded.
- 1. In the main navigation bar select set-up Order".
- 2. Open "Edit order" in the bottom navigation bar.
- 3. Press the Exit production button:
- ▶ The loaded order was completed.
- 4. If necessary, save the order.
- 5. Select Intervene Manually I" in the bottom navigation bar.
- 6. Tap the (Cancel Production [SPF S0]" button.
- ▶ If the loaded order was not yet saved, a prompt appears for saving the changes and the machine is set to an empty row.
- 7. If necessary, save changes.
- 8. Start the machine with the engaging rod and stop it again when the carriage is located shortly after the left reversing position.



- 9. In the main navigation bar select the main area ** "Maintain Machine".
- 10. Select X "Service" in the bottom navigation bar.
- 11. With the \(\bigcap \) "Carriage" button, open the "Service Functions for the Carriage" menu.
- 12. With ♣ "40 Volt" deactivate the setting □.
- ▶ The **power supply 40 V** is deactivated and the button is now displayed in white.
- 13. If necessary, press the Release drive brake [>!]" button.
- ▶ The carriage assembly can be moved manually.
- 14. Open and remove the rear panel segments.
- 15. Loosen screws (2) and remove coupling rod (1).



16. For wide coupling (tandem machine), push the right carriage to the right until the coupling rod (1) can be assembled.



- 17. Insert the screws (2) and tighten.
- 18. Remove the carriage part in order to replace the cams.



- **i** With the wide coupling you have to exchange the cam parts for reasons of safety.
- 19. Place carriage part on contact surface and assembly with carriage assembly.
- 20. Close the rear panel.
- 21. In the main navigation bar select the main area "Maintain Machine".
- 22. Select X "Service" in the bottom navigation bar.
- 23. With the Carriage" button, open the "Service Functions for the Carriage" menu.
- 24. With ♣ "40 Volt" activate the setting ✔.
- ▶ The **power supply 40 V** is activated and the button is now displayed in yellow.

- 25. With the "OK" button return to the previous window.
- 26. Engage machine.
- ▶ The machine stops and the "Coupling width?" error appears.
- 27. Engage the machine for executing the reference run
- ▶ The reference run is executed to know the used coupling width.

44.1.2 Couple Carriage Assembly Narrow

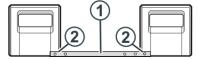
- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded.
- 1. In the main navigation bar select **a** "Set-up Order".
- 2. Open **E** "Edit order" in the bottom navigation bar.
- 3. Press the Exit production button:
- ► The loaded order was completed.
- 4. If necessary, save the order.
- 5. Select Intervene Manually I" in the bottom navigation bar.
- 6. Tap the Cancel Production [SPF S0]" button.
- ▶ If the loaded order was not yet saved, a prompt appears for saving the changes and the machine is set to an empty row.
- 7. If necessary, save changes.
- 8. Start the machine with the engaging rod and stop it again when the carriage is located shortly after the left reversing position.
- 9. In the main navigation bar select the main area * "Maintain Machine".
- 10. Select X "Service" in the bottom navigation bar.
- 11. With the \(\bigcap \) "Carriage" button, open the "Service Functions for the Carriage" window.
- 12. With ♣ "40 Volt" deactivate the setting □.
- ▶ The power supply 40 V is deactivated and the button is now displayed in white.
- 13. If necessary, press the Release drive brake [>!]" button.
- ▶ The carriage assembly can be moved manually.
- 14. Open and remove the rear panel segments.



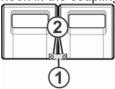
15. Remove the carriage part in order to replace the cams.



- 16. Place carriage part on contact surface and assembly with carriage assembly.
- 17. Remove the screws (2).



- 18. Remove the coupling rod (1).
- 19. For narrow coupling (tandem machine), push the left carriage assembly to the right and hook in the coupling rod (1).



- 20. Insert the screws (2) and tighten.
- 21. Lay the cable harness into the retainer.

 This prevents the cables at the support (3) from rubbing and being damaged.





- 22. Close the rear panel.
- 23. In the main navigation bar select the main area "Maintain Machine".
- 24. Select X "Service" in the bottom navigation bar.
- 25. With the Carriage" button, open the "Service Functions for the Carriage" menu.
- ▶ The function is activated and the button is now displayed in yellow.
- 27. With the "OK" button return to the previous window.
- 28. Engage machine.
- ▶ The machine stops and the "Coupling width?" error appears.
- 29. Engage the machine for executing the reference run
- ▶ The reference run is executed to know the used coupling width.
- 30. Create an order with a knitting program.



31. Start Production



45 Service

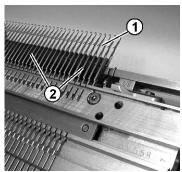
45.1 Cleaning the Knitting Machine

To ensure the operability of the knitting machine and ensure the quality of the fabric, the knitting machine must be cleaned regularly.

Cleaning interval	Cleaning work
if necessary	Cleaning the touch screen
6-24 operating hours	Cleaning suction and lint container
daily	Vacuuming off knitting machine Cleaning needle bed Cleaning the active thread clamp Cleaning the permanent brakes Cleaning the friction feed wheel
100 operating hours	Cleaning main drive fan
once a month	Cleaning fan and radiators in right control unit Cleaning filter mat of power supply unit
2 months	Quick cleaning of the clamping and cutting device
3 to 6 months	Thoroughly cleaning needle bed
6 months	Clean the knitting systems
	Thoroughly cleaning the clamping and cutting device

I. Clean needle beds:

- 1. Stop the knitting machine.
- 2. Push up all needles completely.



3. Vacuum off dirt in the area of the needle hook / pelerine spring (1) and in the area of the needle bed (2).

Cleaning the Knitting Machine





In order to avoid any dust being deposited on the inaccessible points of the machine, we recommend that the dust should be vacuum cleaned and the machine not to be cleaned by compressed air.



CAUTION

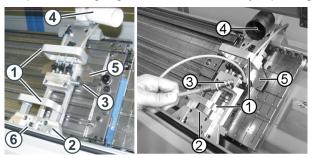
Damage of needles!

The spring-mounted needle latches will be damaged if the needles are blown out with compressed air.

→ Always vacuum fluff and dust off the needles, never blow them out.

II. Cleaning with cleaning apparatus:

The cleaning apparatus is used to clean the needle hooks and the holding-down jacks. The cleaning apparatus is machine and gauge dependent. The cleaning apparatus can be adapted to the gauge of the needle bed by replacing the cam.



Cleaning apparatus (left: OKC machine, right: TC machine)

	Function
1	Handles
2	Guide assembly
3	Connection for compressed-air
4	Connection for suction
5	gauge dependent cam

The cleaning apparatus is mounted on the right or left of the front needle bed and then pushed over the needle bed by hand.

If a thread clamping and cutting device is installed on the needle bed, the cleaning apparatus is mounted over the thread clamping and cutting device.



WARNING

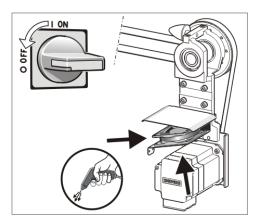
Dangerous operation!

Operation requires the observance of security measures

→ Observe the operating instructions of the cleaning apparatus by all means.



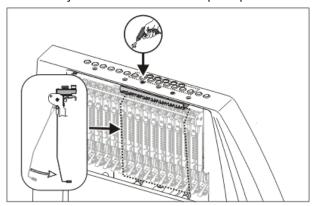
III. Clean the main drive fan:



- 1. Set the main switch to "0" and wait until the touch screen is dark and an alarm signal sounds.
- 2. Swing open the cover on the right-hand control unit.
- 3. Clean fan (1).
- 4. Close the cover on the right control unit.

IV. Cleaning the active thread clamp:

- 1. Bring the lateral yarn tensioner in still position.
 - > Thereby the active thread clamp is open.

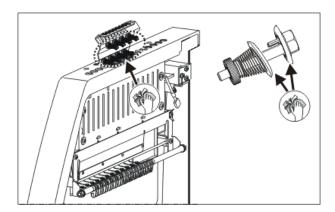


2. Blow the eyelets in the lateral safety door by compressed air.

V. Cleaning the permanent brakes:

1. Clean both the brake settings of each permanent brake with a cloth.

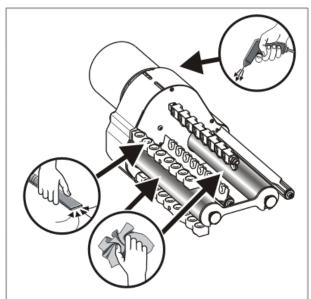




- 2. The permanent brake can be dismantled and blown out with compressed air if it is very dirty.
- 3. For this purpose, pull the adjusting lever of the permanent brake outwards and simultaneously press the lug of the permanent brake on the inner side of the safety door.
 - > The permanent brake flaps underneath.
- 4. Blow out the permanent brake with the compressed air.

VI. Cleaning the friction feed wheel:

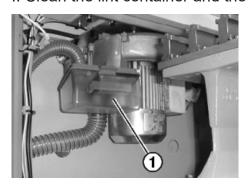
1. Vacuum off the fluff and dust from the friction feed wheel.



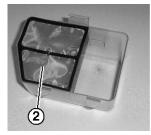
2. Remove dirt (e. g. paraffin) from the friction rollers.

45.1.1 Clean the Suction and Control Unit (component type 00)

I. Clean the lint container and the suction turbine:

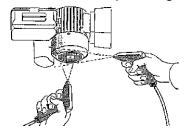


- 1. Slide on cover over needle bed.
- 2. Push the lock of the lint container (1) toward the rear and pull away the container downward.
- 3. Empty the lint container.





- 4. Clean the filter (2) in the lint container and the filter (3) at the vacuum device.
- 5. Reinstate the lint container.
- 6. Remove left rear panel segment.



- 7. Clean motor cover.
- II. Clean the suction tube:
- 1. Remove the suction tube (4) from the carriage and blow it out with compressed air.





II. Cleaning at the left and right control unit:





- Switch off machine.
 Set the main switch to "0" and wait until the touch screen is switched off.
- 2. Remove the covers of the left and right control unit.
- 3. Control unit on the left:
 Vacuum off both filter mats, remove them and blow them out.
 Reassemble them.
- 4. Control unit on the right: Vacuum off and blow out the fan and radiator.
- 5. Fix the covers of both control units.

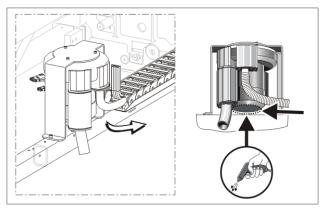
45.1.2 Clean the Suction and the Control Unit (starting with component type 01)

- I. Clean the lint container and the suction turbine:
- 1. Stop knitting machine when carriage is located on right half of needle bed.
- 2. Slide on cover over needle bed.
- 3. Push locking of lint container inwards and pull away container upwards.





- 4. Empty the lint container.
- 5. Clean filter (1) of lint container.
- 6. Reinstate the lint container.
- 7. Remove left rear panel segment.
- 8. Clean motor cover.





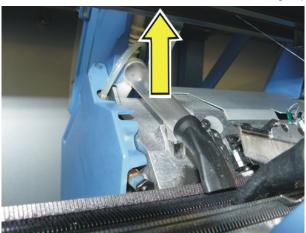
II. Clean the suction tube:

Damage of the suction tube!

The suction tube will be damaged at the coupling point suction tube-hose if you lift it by the suction nozzle.

Lift the suction tube always in the middle so that the coupling point of suction tube and hose is separated

1. Lift the suction tube in the middle until the fixing clip is pulled out of the carriage.

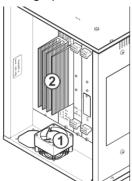


2. Blow out the suction tube with compressed air.

III. Cleaning at the right control unit:

- 1. Switch off machine.

 Set the main switch to "0" and wait until the touch screen is switched off.
- 2. Swing open the cover on the right control unit.



- 3. Vacuum-off and blow-out the fan (1) and heat sink (2).
- 4. Close the cover on the right control unit.

45.1.3 Cleaning the Suction and Control Unit (ADF)

- I. Clean the lint container and the suction turbine:
- 1. Stop the knitting machine when the carriage is located in the center of the needle bed.
- 2. Open the covers.
- 3. Remove the carriage assembly panelling (1).

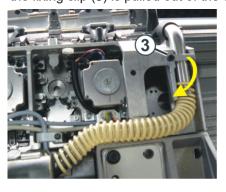


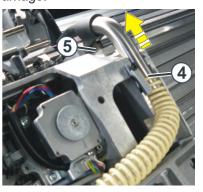
4. Push the locking of the fluff container downwards and pull away container upwards.





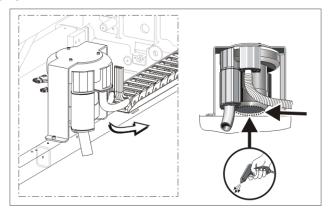
- 5. Empty the lint container.
- 6. Clean filter (2) of lint container.
- 7. Reinstate the lint container.
- 8. Loosen the screw (3) and swivel the retainer downwards.
- 9. Lift the suction tube somewhat at the lower end (4). Push the suction tube upwards until the fixing clip (5) is pulled out of the carriage.



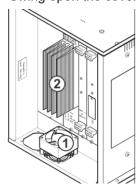




- 10. Separate the suction tube and the suction hose. Blow out the suction tube with compressed air.
- 11. On assembly please ensure that the suction hose is pushed about 2 cm over the suction tube.
- 12. Repeat this procedure on the rear carriage.
- 13. Clean motor cover.



- II. Cleaning at the right control unit:
- 1. Switch off the machine and wait until the machine is currentless.
- 2. Swing open the cover on the right-hand control unit.



- 3. Vacuum-off and blow-out the fan (1) and heat sink (2).
- 4. Close the cover on the right control unit.
- 5. Switch on machine.
 - **i** The fan is temperature-controlled.



45.2 Lubricate the Knitting Machine

Oiling and greasing:

You have to clean and lubricate the knitting machine regularly in order to maintain the operability of the knitting machine.

i When a lubricating interval expires, a message appears: Oiling or greasing



Use only the lubricants recommended by STOLL. See operating instructions

Unsuitable lubricants may damage the machine.

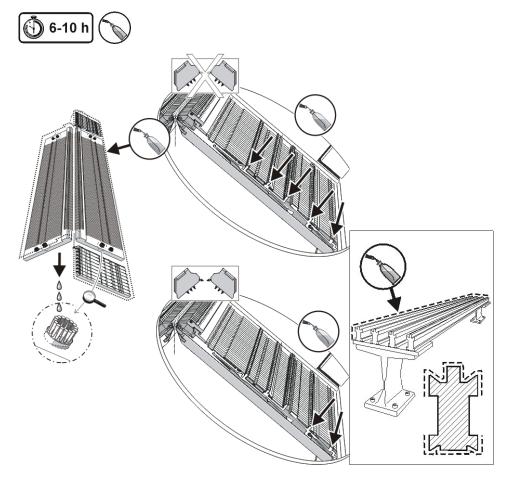
Failure to comply will void the guarantee.

	Machine gauge	Designation
₹63	E 3-14	Stolltex T46
443	E 2,5.2 - 7.2	
~	E 16-18	Stolltex T32
	E 8.2 - 9.2	
	After every tenth note appears to grease needle bed	Stoll Grease 475

Lubricating intervals	Lubricating intervals		
6-10 operating	Oiling the needle bed without central lubrication.		
hours	Note: Select a shorter interval if necessary.		
10 operating hours	Oiling the jack bed, the thread clamping and cutting device and the yarn carrier rods.		
100 operating	Oiling the carriage guide bar		
hours	Oiling the needle latch hinges		
	Greasing the pulse generator rails and the carriage guide		
	Greasing the coupling parts and the intermediate sliders		
	Greasing the yarn carrier rods		
6 months	Greasing the racking device and needle bed supports		



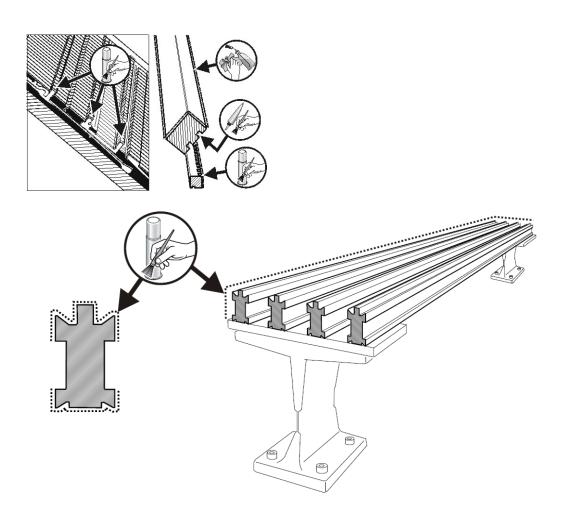
Lubricate with oil:



Lubricate with oil and grease:







Oiling the needle latch hinges:



- 1. Use a brush to apply oil to the needle latch hinges.
- 2. Knit with residual yarn until oil lines no longer appear in the fabric.
 - **i** Observe the lubrication schedule in the operating instructions.

Set the lubrication interval for the needle bed:

The lubrication interval for the needle bed depends on:

- Machine speed
- Ambient temperature

Lubricate the Knitting Machine



- Number of knitting systems
- ✓ You are signed in as Senior Operator

 ■
- ✓ The knitting program is loaded and the production was started.
- 1. In the main navigation bar select "Configure Machine".
- 2. Tap on X "Maintenance" in the bottom navigation bar.
- 3. Open the Tubricate" tab.
- ▶ The following menu is displayed.



- 4. Press the ... "Lubricate Knitting Area After" button.
- 5. Via virtual keyboard, enter the desired value (a maximum of 60 000 run-throughs).
- 6. Confirm the entry with the VOK" button.
- 7. Button "Stop Motion after Quantity of System Run-throughs":
- Active ☑: After reaching the lubrication interval, the machine stops.
- Inactive □: After reaching the lubrication interval, the machine is not stopped.

Note: Under — "System Run-throughs Until Lubricating Process" is displayed the current state of the lubrication interval.



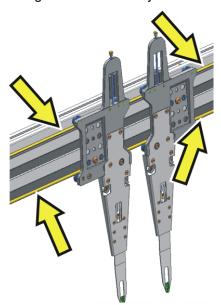
45.2.1 Lubricating the CMS ADF

Additional lubrication points:

Lubrication interval Lubricating work		Additional lubrication points with the CMS ADF
adjustable engaging width Recommendation: Every 6 - 10 operating hours; select shorter interval if necessary	Oiling the needle bed	
10 operating hours	Oiling the jack bedOiling the control of the holding-down jacks	Oiling the wires in the yarn carrier rails
100 operating hours	 Greasing the impulse sensor rails Greasing the coupling parts and the 	
1 Month	intermediate sliders	Greasing the yarn carrier bows
2 months		Greasing the linear guiding of the carriage
6 months	 Greasing the racking device Greasing the needle bed supports 	



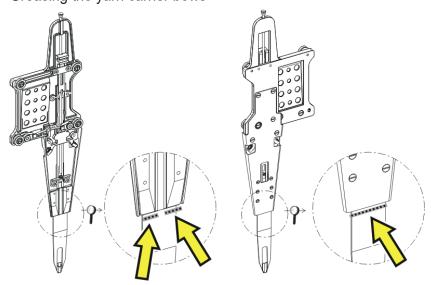
45.2.1.1 Oiling the wires in the yarn carrier rail



→ Apply oil on the wires on the wires in the yarn carrier rail using a paintbrush or the displayed tool.



45.2.1.2 Greasing the yarn carrier bows



Lubricate the Knitting Machine

- → Apply grease on the front and rear side of the yarn carrier bow using a paintbrush.
 - 1: Grease carefully so that the thread does not get soiled.

45.2.1.3 Greasing the Linear Guiding

If the lubricating interval for the linear guiding has elapsed, a pictograph appears indicating that the linear guidance has to be greased.



Linear Guiding of the Carriage

Linear Guiding of the Carriage		
Operating Time Since Last Greasing	Display of time (by hours) since last lubrication process.	
Traveled Distance Since Last Greasing	Display of traveled distance (by kilometers) since last lubrication process.	
Operating Hours	Display of the previous operating time of the carriage (operating hours counter)	
Kilometer	Display of the traveled distance of the carriage (kilometer counter)	
Confirm Greasing the Linear Guiding	Click this button only if the greasing process actually was performed. In case of insufficient grease, there is the risk of damaging the linear guiding.	
1119	An irreversible damage of the linear guiding is possible!	



NOTICE

An irreversible damage of the linear guiding is possible!

In case of insufficient grease, there is the risk of damaging the linear guiding.

- → If the "Grease linear guidance" icon is displayed, the linear guiding must be greased immediately.
- 1. Remove the carriage assembly panelling (1).





2. Grease the lubricating nipples (2) with a grease gun (Stoll Grease 475)



- 3. Quantity of grease per lubricating nipple: about 3 4 cm³ = press the hand lever three times.
 - 1: Use a grease gun with a flexible hose to be able to reach the lubricating point more easily.



- 4. Repeat this process at the rear carriage support.
 - **i** The lubricating interval cannot be changed!

45.2.1.3.1 Confirm the lubrication process

Confirm the lubrication process:

✓ After the set time of the lubrication interval appears the error message and the machine stops.



Linear Guiding of the Carriage



- 1. Manually grease the linear guiding of the carriage.
- 2. Tap on the error message.
- ► The "Lubricate" menu appears.



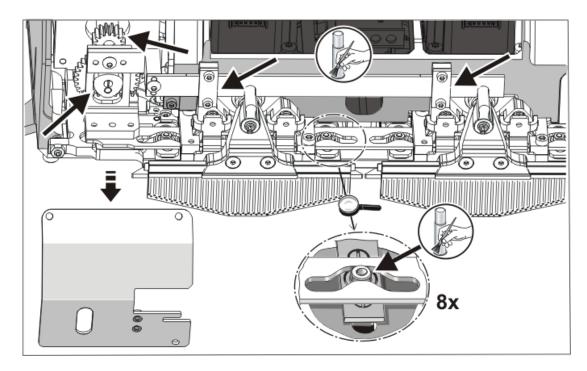
- 3. Confirm the message with the Tonfirm Greasing button.
- ▶ The message "Confirm Greasing" is displayed:
- 4. Confirm the message:
- Press the "Yes" button: Reset the counter for the lubrication interval and the machine is ready to knit.
- Press the "No" button: The counter for the lubrication interval will not be reset. While the machine knits there will, therefore, always appear a message.
- 5. With the Close" button return to the previous menu "Stop Motions and Warnings".
- 6. Cancel the error message with the V "Confirm" button.
- ▶ The error message is canceled and the machine is ready to knit again.
- 7. With the Close" button return to the previous menu.

45.2.2 Lubricating the CMS 822

Greasing the control sliders (CMS 822)

With the machine type CMS 822 the holding-down jack control and the needle brush are driven by a motor.





→ Apply grease to control slider and drive with a brush.

45.2.3 Central lubrication

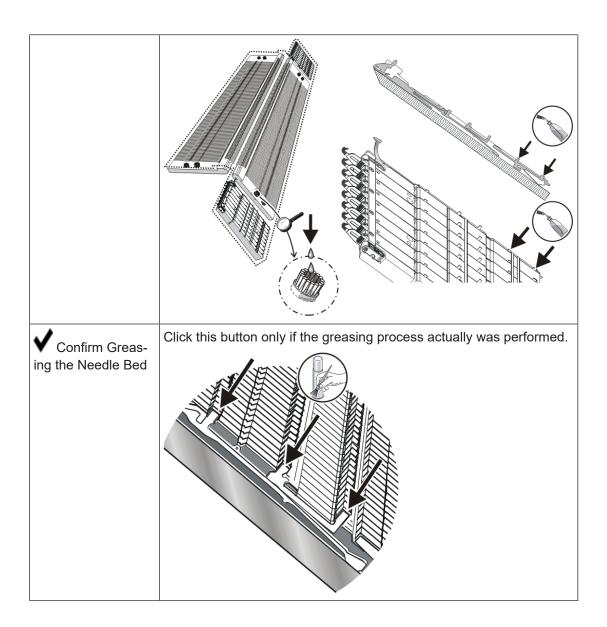
All machines with four or more knitting systems are equipped with a central lubrication as a standard equipment (not for CMS 822). If a central lubrication is mounted on the knitting machine you can switch it on and off.

i Central lubrication disabled

The monitoring of the lubrication interval is automatically activated and you must perform the following lubrication tasks manually:

- Oil needle bed
- Oil jack bed
- Oiling carriage guide bar

Needle bed		
System Run- throughs Until Lub- ricating Process	Displays the quantity of the system run-throughs until the next oiling of the needle bed.	
Confirm Oiling the Needle Bed	Tap on this button only if the oiling process actually was performed.	



I. Activate the central lubrication:

- i With Restart and Configuration the central lubrication is selected as option.
- ✓ You are signed in as Senior Operator

 ■
- 1. In the main navigation bar select **E** "Configure Machine".
- 2. Tap on X "Maintenance" in the bottom navigation bar.
- 3. Open the Lubricate" tab.

Lubricate the Knitting Machine



► The following menu is displayed.



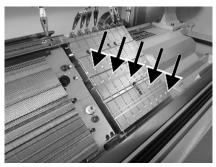
No.	Function		
1	***		Central Lubrication inactive
	•••	2	Central Lubrication active
2	Three s	ettings are	e available for the lubrication interval:
	Initial lubrication: This setting is used for the initial lubrication of a new machine at the Stoll factory. The values cannot be modified. (Caution: risk of soiling the fabric) Select this setting for approx. 15 minutes after a gauge conversion or with a machine, which has been out of operation for a longer period of time. STOLL inputs: This setting can be used for production. The values cannot be modified.		
	User settings: With this setting, the values can be changed by the user. (Caution: An improper setting could lead to insufficient oiling. Ensure that the central lubrication applies sufficient oil to the needle bed.)		
3	Input of the desired value (system run-throughs) for the lubrication interval for "Lubricate Knitting Area After"		
4	Input of the desired value (number of lubrication procedures) for the lubrication interval "Lubricate Whole Needle Bed After"		·
5	S	Number of system run-throughs since the last lubrication process.	



- 4. Activate the central lubrication with the Central lubrication ✓ button.
- 5. Make further desired settings for the lubrication interval of the central lubrication.

II. Oil the thread clamping and cutting device on the right

Machines which have central lubrication must have their thread clamping and cutting device on the right-hand side oiled manually. For mechanical reasons, the central lubrication does not reach all eight clamping positions.



→ Use a brush to apply oil to all working butts of the clamping points.

45.3 Export / import machine data

Reasons to export (save) machine data (dongle):

- Loss of data
- Installation of a new version of the Stoll operating system
- Exchanging the hard disk

Content of dongle data:

- Machine Data
- Options of the machine
- Configuration of Machine
- Report
- Network settings
- Other internal information
 - **1 Dongle-Data** is saved in a file with the name: Machine number. smc (Stoll-Machine-Configuration data).

Export / import machine data



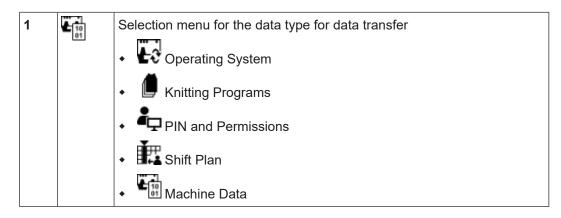
Possible data medium for saving:

- USB Memory Stick
- Network drive

Export machine data:

- ✓ You are signed in as Senior Operator
- 1. In the main navigation bar switch to **E** "Configure Machine".
- 2. Select "System Settings" in the bottom navigation bar.
- 3. Open the Data Transfer tab.





Export / import machine data

STOLL

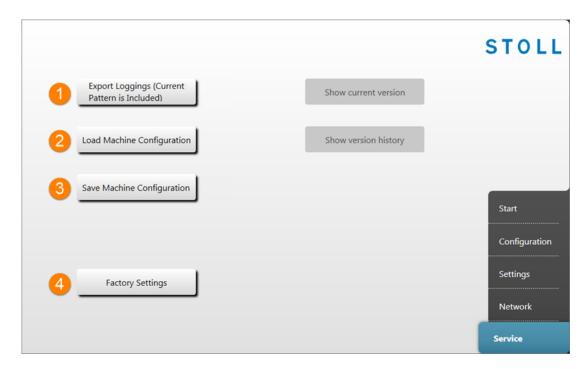
		Machine Settings Report Data "Sintral Crypto Key File" (only with EVP-Extended Value Package)
		Package)
2	L iii	Selection of the external location regarding the target directory F:\ [USB] Network Drive
3	4	Button to perform the data transfer Export

- 4. Open the menu under "Select data type".
- 5. In the selection menu, select the "Machine data".
- 6. Under "External Save Location" specify the desired target directory.
- 7. Press the Emport data" button.
- ▶ The dongle data is exported to the specified target directory.

Load machine data (import):

- 1. Switch off machine.
- 2. Switch on machine at the main switch.
- ▶ The machine boots until the "System Control Unit" (SCU) menu appears.
- → In the menu "System Control Unit" tap the "Service" button.





1	Export (Save) the logfiles	
2	Import (load) the Dongle data to the machine	
3	Export (save) the Dongle data from the machine	
4	Reset to default settings of Stoll	

- → Press the "Load Machine Configuration" button.
- ► The Dongle data are loaded.

The installation of the Stoll operating system can be carried out in two ways:

- **■** Direct Software Installation
 - When switching on the machine, the operating system is installed
- Indirect Software Installation
 - During the production, the operating system is made available and when switching on the machine the next time, it will automatically be installed.

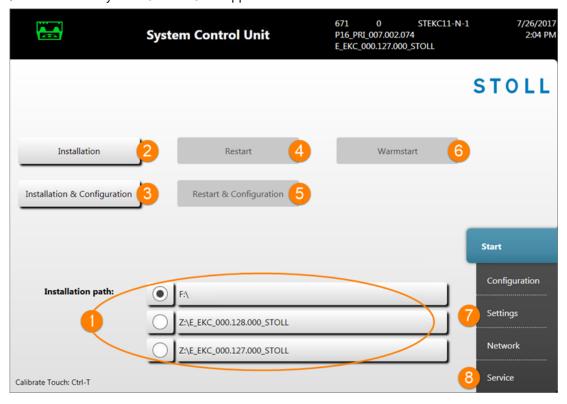
45.4.1 With Performer Machines



45.4.1.1 Install the Software - Direct Installation

Direct Software Installation:

- ✓ The machine is switched off.
- 1. Switch on machine.
- ► The menu "System Control Unit" appears.



1	Buttons for the selection of the source directories for the software installation		
	USB drive: F:\		
	Network drive (only one drive possible) with directories		
2	Button to start the installation process of the Stoll operating system (without query of the configuration data)		
3	Button to start the installation process of the Stoll operating system (with query of the configuration data)		
4	Restart of the machine (reboot) i. After restarting, there is no pattern in the pattern memory. The machine is set to one empty row.		
5	Restart of the machine (reboot) with query of the configuration data		
6	Carrying out an automatic Warmstart of the machine		



	i: A pattern is still located in the pattern memory and the machine can then be engaged again.	
7	Menu "Set-	Button automatic Warmstart:
	tings"	 — ✓: if the machine is able to carry out a Warmstart, it will be executed
		 —: if the machine is able to carry out a Warmstart, no Warmstart will be executed
		Calibrate Touch Screen
8	Menu "Ser- vice"	Working with the machine configuration data

2. More in the chapter **Direct installation: Installation and Configuration.**

45.4.1.1.1 Direct Installation: Installation and Configuration

Perform installation and configuration:

- 1. While the Warmstart is running, press one of the buttons, for ex. under "Installation path" (1) to specify the source directory for the software installation.
- ▶ The automatic warm start will be canceled.
- 2. Under (1) select one of the 3 presettings.
- 3. If necessary, change the path of the source directory via the corresponding button.
- 4. Select the desired installation:
- "Installation":

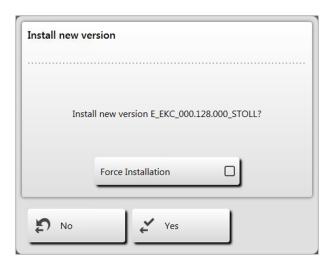
Without the possibility of changing the Machine parameters.

"Installation and Configuration":With the possibility of changing the Machine parameters.

Result

A message "Install new version" with the version to be installed is displayed.





Force Installation

Install the operating system completely new or repair it.

Not recommended!! (takes a long time)

- or -

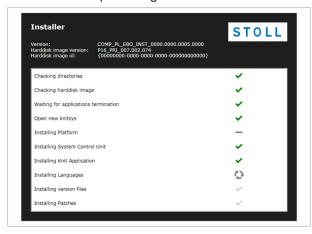
Force Installation :

Quickly install the changed data.

If the language file eknitlang is in the same directory as the operating system, this file is installed automatically.

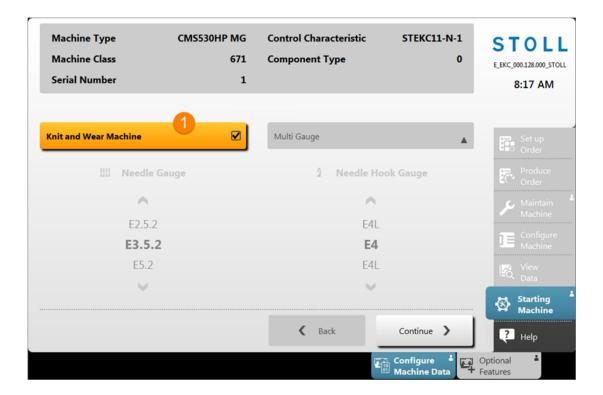
Can also be installed afterwards.

- 6. To confirm tap the "Yes" button.
- ▶ The installation process gets started.

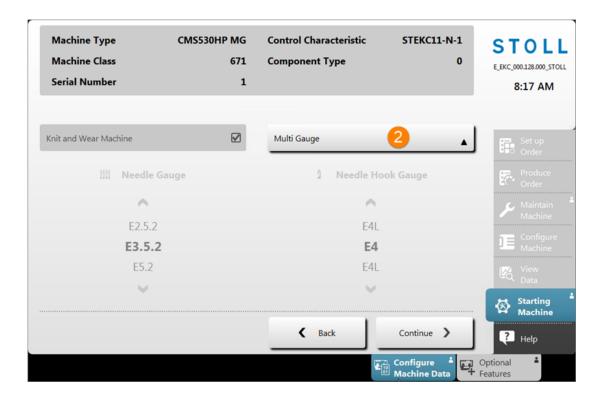


▶ The menu "Installer" is automatically closed and the next menu is displayed.





- 7. According to the machine gauge the "Knit and wear machine" button
- Activated ☑: with gauges of multi gauge and knit&wear machines
- Disabled □: with 'normal' gauges of the machine
- 8. Activate the "Knit and wear machine" ✓ button.
- 9. Go to the next setting with the "Continue" button.

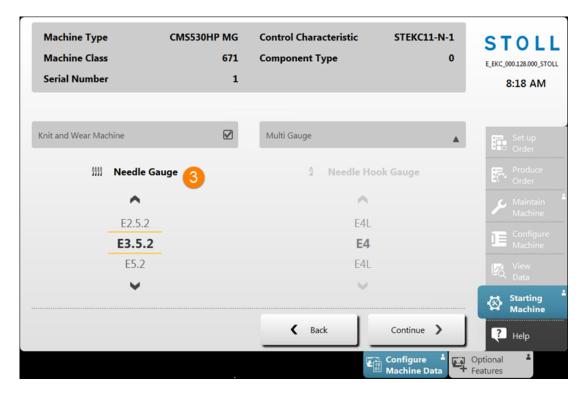


- 10. With the (2) button select the following:
- Multi Gauge
- Knit&Wear

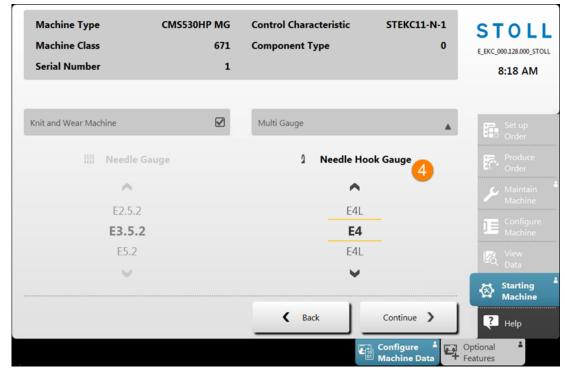
The selection only is possible if the "Knit and wear machine" ✓ button was activated.

11. Go to the next setting with the "Continue" button.



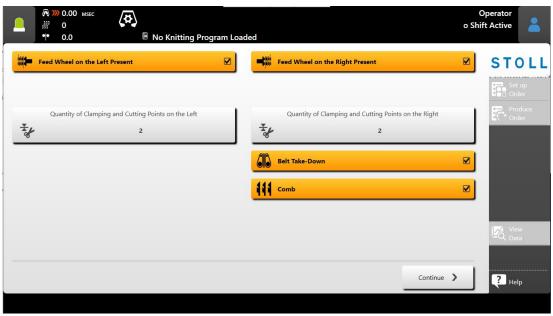


- 12. With or select the desired IIII "Needle gauge".
- 13. Go to the next setting with the "Continue" button.



14. With or select the desired 1 "Needle hook gauge".

15. Go to the next menu with the "Continue" button



#	Feed Wheel on the Left	◆ ☑: Yes
	Present	◆ □: No
-	Feed Wheel on the Right	◆ ☑ : Yes
'	Present	◆ □: No
*	Number of clamping and cutti	ng points on the left
	Number of clamping and cutti	ng points on the right
4	Auxiliary Take-down	◆ ☑: Yes
•		◆ □: No
	Belt Take-Down	◆ ☑ : Yes
		◆ □: No
***	Central lubrication	◆ ☑ : Yes
•••		◆ □: No
恳	Suction	◆ ☑: Yes
		◆ □: No
	Yarn Carrier Drive	Type 1
		Type 2

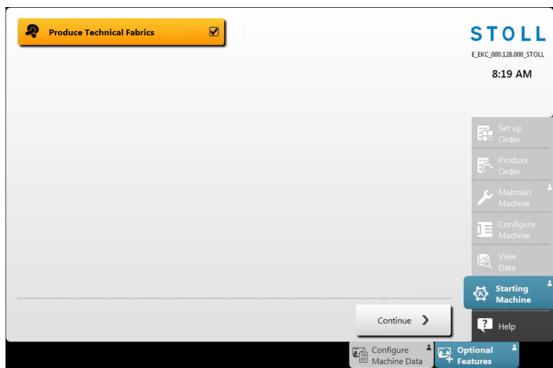
16. Via the respective buttons enter the corresponding machine configuration.



i Machine fault!

The presence or lack of machine options must correctly be specified, as otherwise a fault may occur on the machine.

17. Go to the next menu with the "Continue" button.

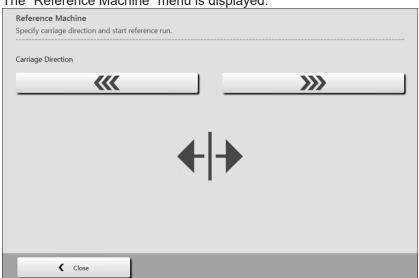


- 18. Make the desired setting with the **?** "Produce Technical Fabrics" button:
- Activated ☑: The functions for technical fabrics are enabled
- Disabled □: The functions for technical fabrics are not enabled
- 19. Go to the next menu with the "Continue" button.
- ▶ The menu "Reference Machine" is opened.
- 20. More in the next chapter Reference runs.

45.4.1.1.2 Reference Runs

Perform the following reference runs after the installation:

✓ The "Reference Machine" menu is displayed.

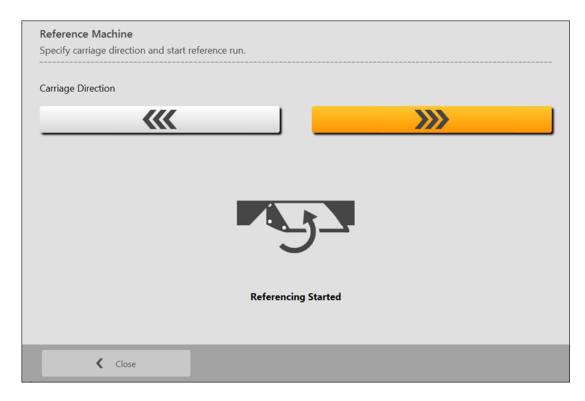


- 1. Tap the **(((** button or the **)))** button.
- 2. Start the machine with the engaging rod.
- ▶ The message for a comb reference appears.
- ▶ Observe the note!!



- 3. With the "Yes" button confirm the message.
- ▶ The comb reference is performed.





- 4. Tap on the desired carriage direction for the reference run.
- 5. Then, start the machine again with the engaging rod.
- ▶ The carriage moves at creep speed until the reference run is carried out.
- ▶ Racking and step motor reference is performed in the right carriage reversal.
 - Recommendation: Weave-in devices should be referenced as well if mounted on the machine.
- 6. Continue with Create Order.
 - Reference run racking
 Ensure that the stitches of one needle bed are cast-off.

45.4.1.2 Updating Software - Indirect Installation

Indirect Installation:

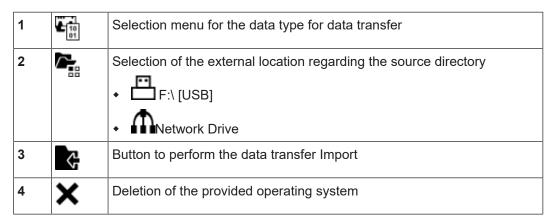
- The new Stoll operating system is located on the hard disk in a **separate memory area**.
- The software can be provided while the machine is producing
- The software will be read-in when starting the machine the next time
 - i No data is overwritten when copying the operating system.



Prepare the indirect installation:

- ✓ You are signed in as Senior Operator
- ✓ The machine is producing.
- 1. In the main navigation bar switch to Tonfigure Machine".
- 2. Select "System Settings" in the bottom navigation bar.
- 3. Open the Data Transfer" tab.





- 4. Open the menu under "Select data type".
- 5. In the selection menu, select the Toperating system".



- 6. Under "External Save Location" select the desired source directory of the operating system.
 - The operating system may **not** be saved as a zip file in the selected source directory. Always save the operating system as extracted file.
- 7. Press the Timport data" button.
 - > The operating system to be installed is displayed and installed when the machine is switched off the next time.
- 8. More in the chapter Reference runs.
 - if an operating system was loaded for **indirect installation**, **no** function key may be pressed in the "System Control Unit" window!

45.4.1.3 Update Languages

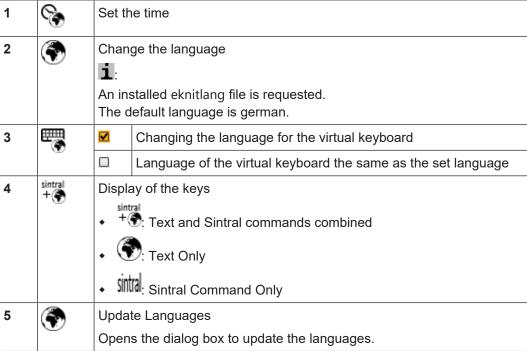
Reasons for update languages:

- The eknitlang file was not installed with the software installation
- A new eknitlang file is available

Sequence update languages.

- ✓ You are signed in as Senior Operator ■.
- 1. In the main navigation bar on switch to "Configure Machine".
- 2. Then, select "System Settings"in the bottom navigation bar.
- 3. Open the Time and Language" tab.





- 4. Tap the Update Languages" key.
- ► The "Update Languages"menu is opened.
- 5. Open the "Select Folder"menu with the button.



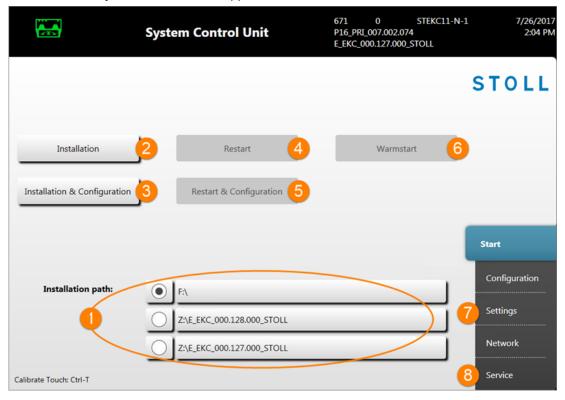
- 6. Select the path of the source directory for the eknitlang file:
- Local Patterns (hard disk)
- USB
- Network drive
- 7. Eknitlang Select the file in the source directory.
- 8. Confirm with the "OK" button.
- ► The language is being updated ♣
- 9. If necessary, make further settings in this menu.

45.4.2 With ADF machines

45.4.2.1 Install the Software - Direct Installation

Direct Software Installation:

- ✓ The machine is switched off.
- 1. Switch on machine.
- ▶ The menu "System Control Unit" appears.





1	Buttons for the selection of the source directories for the software installation		
	USB drive: F:\		
	Network driv	ve (only one drive possible) with directories	
2		the installation process of the Stoll operating system of the configuration data)	
3	Button to start t	the installation process of the Stoll operating system	
	(with query of the	he configuration data)	
4	Restart of the machine (reboot)		
	1 : After restarting, there is no pattern in the pattern memory. The machine is set to one empty row.		
5	Restart of the machine (reboot) with query of the configuration data		
6	Carrying out an automatic Warmstart of the machine		
		1: A pattern is still located in the pattern memory and the machine can then be engaged again.	
7	Menu "Set-	Button automatic Warmstart:	
	tings"	 ✓: if the machine is able to carry out a Warmstart, it will be executed 	
		 —: if the machine is able to carry out a Warmstart, no Warmstart will be executed 	
		Calibrate Touch Screen	
8	Menu "Ser- vice"	Working with the machine configuration data	

2. More in the chapter Direct installation: Installation and Configuration.

45.4.2.1.1 Direct Installation: Installation and Configuration

Perform installation and configuration:

- 1. While the Warmstart is running, press one of the buttons, for ex. under "Installation path" (1) to specify the source directory for the software installation.
- ▶ The automatic warm start will be canceled.
- 2. Under (1) select one of the 3 presettings.
- 3. If necessary, change the path of the source directory via the corresponding button.
- 4. Select the desired installation:
- "Installation":

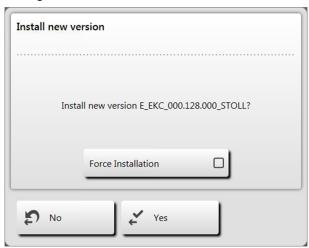
Without the possibility of changing the Machine parameters.



"Installation and Configuration":
With the possibility of changing the Machine parameters.

Result

A message "Install new version" with the version to be installed is displayed.



Force Installation

Install the operating system completely new or repair it.

Not recommended!! (takes a long time)

- or -

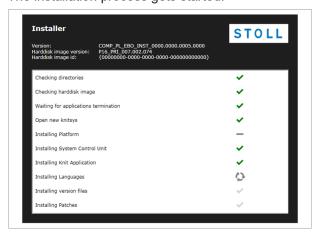
Force Installation :

Quickly install the changed data.

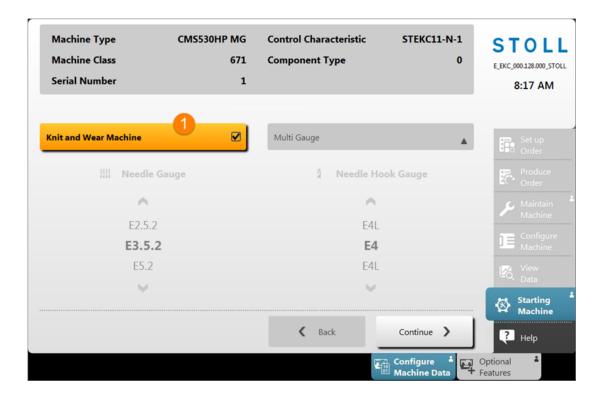
If the language file eknitlang is in the same directory as the operating system, this file is installed automatically.

Can also be installed afterwards.

- 6. To confirm tap the "Yes" button.
- ► The installation process gets started.



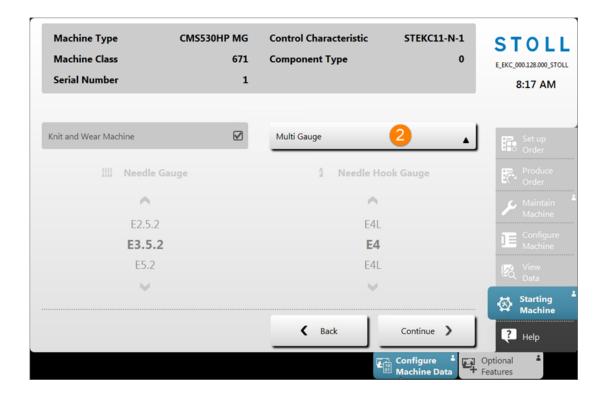
▶ The menu "Installer" is automatically closed and the next menu is displayed.



- 7. According to the machine gauge the "Knit and wear machine" button
- Activated ☑: with gauges of multi gauge and knit&wear machines
- Disabled □: with 'normal' gauges of the machine
- 8. Activate the "Knit and wear machine" ✓ button.
- 9. Go to the next setting with the "Continue" button.

Software installation

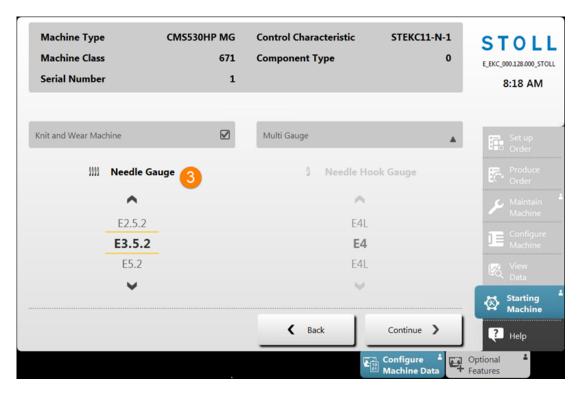




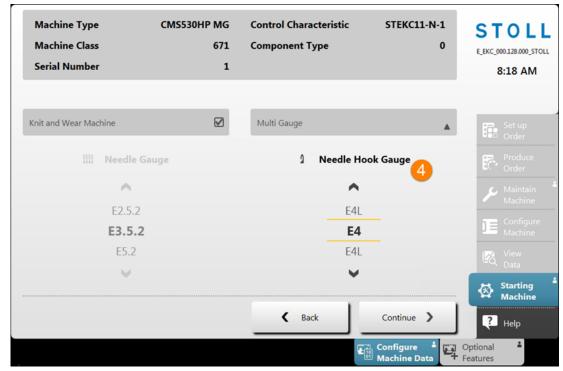
- 10. With the (2) button select the following:
- Multi Gauge
- Knit&Wear

The selection only is possible if the "Knit and wear machine" ✓ button was activated.

11. Go to the next setting with the "Continue" button.



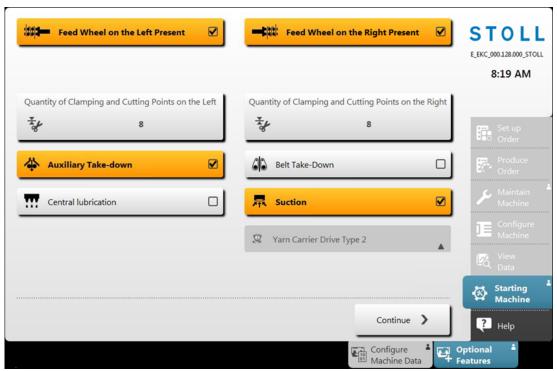
- 12. With or select the desired IIII "Needle gauge".
- 13. Go to the next setting with the "Continue" button.





14. With or select the desired 1 "Needle hook gauge".

15. Go to the next menu with the "Continue" button.



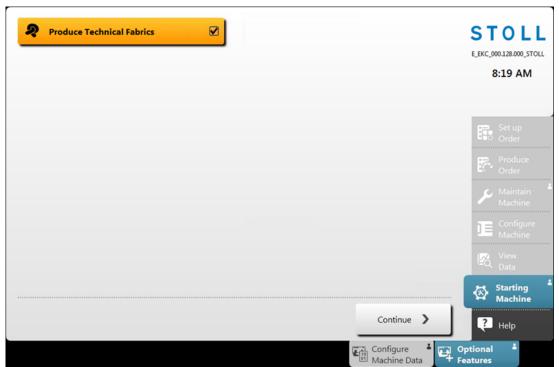
##	Feed Wheel on the Left Present	✔: YesD: No
		<u> </u>
-	Feed Wheel on the	◆ ☑ : Yes
'	Right Present	◆ □: No
* *	Number of clamping and cutting points on the left	
	Number of clamping and	cutting points on the right
4	Auxiliary Take-down	◆ ☑: Yes
*		◆ □: No
	Belt Take-Down	◆ ☑: Yes
9 0		◆ □: No
***	Central lubrication	◆ ☑: Yes
•••		◆ □: No
黒	Suction	◆ ☑: Yes
. , .		◆ □: No
	Yarn Carrier Drive	• Type 1
		◆ Type 2

16. Via the respective buttons enter the corresponding machine configuration.

i Machine fault!

The presence or lack of machine options must correctly be specified, as otherwise a fault may occur on the machine.

17. Go to the next menu with the "Continue" button.



- 18. Make the desired setting with the **?** "Produce Technical Fabrics" button:
- Activated ☑: The functions for technical fabrics are enabled
- Disabled □: The functions for technical fabrics are not enabled
- 19. Go to the next menu with the "Continue" button.
- ▶ The menu "Reference Machine" is opened.
- 20. More in the next chapter Reference runs.

Software installation



45.4.2.1.2 Reference Runs

Perform the following reference runs after the installation:

✓ The "Reference Machine" menu is displayed.

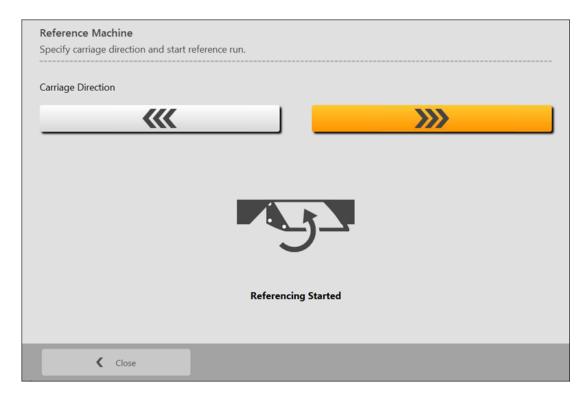


- 1. Tap the **(((** button or the **)))** button.
- 2. Start the machine with the engaging rod.
- ▶ The message for a comb reference appears.
- ▶ Observe the note!!

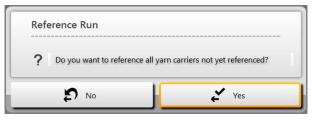


- 3. With the Yes" button confirm the message.
- ▶ The comb reference is performed.





- 4. Tap on the desired carriage direction for the reference run.
- 5. Then, start the machine again with the engaging rod.
- ▶ The carriage moves at creep speed until the reference run is carried out.
- ▶ Racking and step motor reference is performed in the right carriage reversal.
- 6. The message window "Reference run" appears.



- 7. Confirm the message with the "Yes" button.
- ► The yarn carriers to be referenced are being referenced ⊤.
- 8. The next "Reference run" message appears.



9. Confirm the message with the "Yes" button.

Software installation



- ▶ Observe the note for the reference of the weave-in device!
- ► The weave-in devices are referenced
- ► All references were performed.
- 10. With the Close" button, exit the "Reference machine" window.
- ▶ The note for the racking reference appears in the next reversal. Please take into consideration!
 - Reference run racking
 Ensure that the stitches of one needle bed are cast-off.
- 11. Continue with Create Order.

45.4.2.2 Updating Software - Indirect Installation

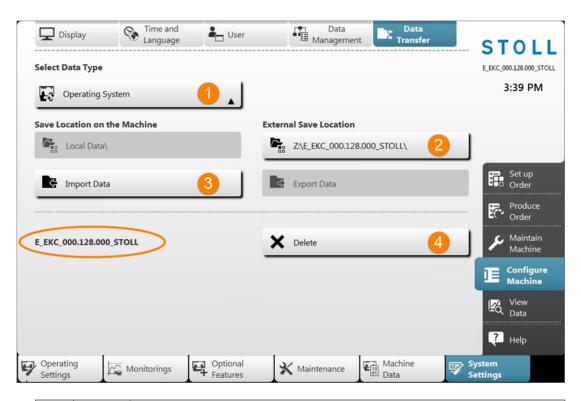
Indirect Installation:

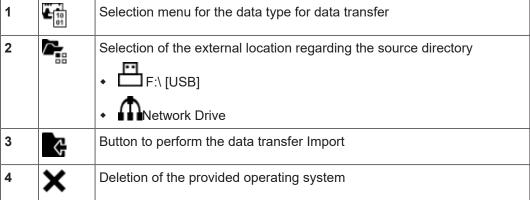
- The new Stoll operating system is located on the hard disk in a **separate memory area**.
- The software can be provided while the machine is producing
- The software will be read-in when starting the machine the next time
 - i No data is overwritten when copying the operating system.

Prepare the indirect installation:

- ✓ You are signed in as Senior Operator

 ■
- ✓ The machine is producing.
- 1. In the main navigation bar switch to **E** "Configure Machine".
- 2. Select "System Settings" in the bottom navigation bar.
- 3. Open the Data Transfer" tab.





- 4. Open the menu under "Select data type".
- 5. In the selection menu, select the 🗗 "Operating system".
- 6. Under "External Save Location" select the desired source directory of the operating system.
 - The operating system may **not** be saved as a zip file in the selected source directory. Always save the operating system as extracted file.
- 7. Press the Timport data" button.
 - > The operating system to be installed is displayed and installed when the machine is switched off the next time.

Software installation



- 8. More in the chapter Reference runs.
 - if an operating system was loaded for **indirect installation**, **no** function key may be pressed in the "System Control Unit" window!

45.4.2.3 Update Languages

Reasons for update languages:

- The eknitlang file was not installed with the software installation
- A new eknitlang file is available

Sequence update languages.

- ✓ You are signed in as Senior Operator

 ■...
- 1. In the main navigation bar on switch to "Configure Machine".
- 2. Then, select "System Settings"in the bottom navigation bar.
- 3. Open the Time and Language" tab.



1 Set the time



2	③	Change the language		
		i:		
		1	stalled eknitlang file is requested.	
		The d	lefault language is german.	
3		$\overline{\mathbf{V}}$	Changing the language for the virtual keyboard	
			Language of the virtual keyboard the same as the set language	
4	sintral +	Displa	ay of the keys	
			• ** Text and Sintral commands combined	
		. (Text Only	
		• sint	Sintral Command Only	
5		Update Languages		
		Open	Opens the dialog box to update the languages.	

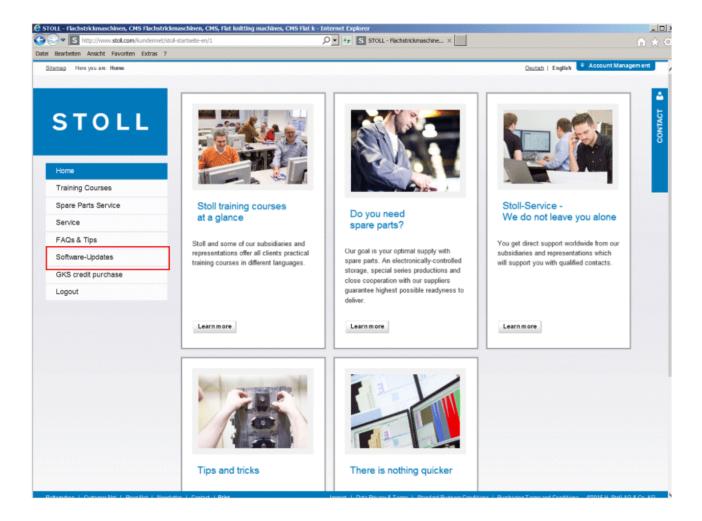
- 4. Tap the Update Languages" key.
- ► The "Update Languages"menu is opened.
- 5. Open the "Select Folder"menu with the button.
- 6. Select the path of the source directory for the eknitlang file:
- Local Patterns (hard disk)
- USB
- Network drive
- 7. Eknitlang Select the file in the source directory.
- 8. Confirm with the "OK" button.
- ► The language is being updated ♣
- 9. If necessary, make further settings in this menu.

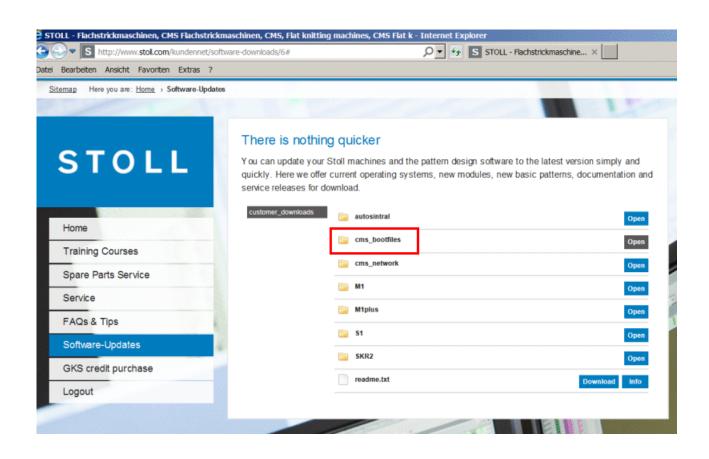
45.5 Software Download

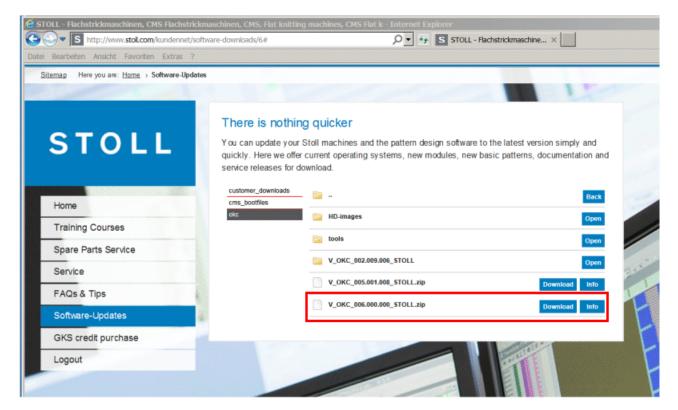
The Stoll operating system for CMS machines can be downloaded via the internet from the www.stoll.com / Service / Customer-Net / Software Updates.

Software Download









Software Download



46 Miscellaneous

46.1 Further system settings

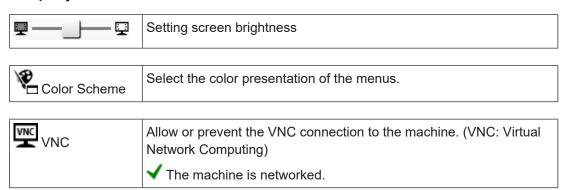
■ ☐ Display

- Calibrate touch screen
- Select the color presentation of the menus.
- VNC
- Time and Language
 - Set the time, date, time zone:
 - Select a Language
 - Synchronize Clock with Network Time

■ ♣ User

- Enter PINs for the different user groups
- Configure Windows
 Establish, which actions can be performed by a user group at the machine and which cannot.
- Set Shift Plan
 Enter times of beginning and ending of each shift.
 Activate the Automatic Shift Change.
- Pata Management
 - Carry out network settings
 - Set Ticket Processing

46.1.1 Display





With the help of the VNC connection, the user interface of the machine can be accessed from another computer. This way it is possible to work on a remote computer like being directly in front of the machine.

i Other people may access the user interface of the machine without you noticing if this function is activated.

46.1.2 Time and Language

Date	Enter the date.
Language	Select a Language.
Language	The menus and the error messages are displayed in the selected language.
Time of Day	Set Time of Day
Time of Buy	Setting time zone
	Automatically switch the clock to summer or winter time.
	買
	Set Time
• Keyboard Lay- out Deviating from	✓ Activate this setting if you want to use another keyboard than the set menu language.
the Language	For example if the menu language is set to english and a russian keyboard (with Cyrillic letters) is to be used.
	The keyboard layout is active:
	with the virtual keyboard on the user interface
	with the external keyboard which is plugged into the USB socket at the display
+ Text and Sintral	Select which text is to be displayed on the buttons: only text, text and Sintral command or only the Sintral command.
Command Combined	A Sintral command is not available for all control elements.
Update Lan-	Opens the dialog box to update the languages.
guages	Select the desired language file "eknitlang.zip".

46.1.3 User



Each user group authorizes itself with a special PIN number for working at the machine.

These user groups need a PIN number:

- Maintenance
- Senior Operator
- STOLL Service
- **1** The user group "Operator" doesn't need any PIN number.



Set PINs [🗅 558]



Establish, which actions can be performed by a user group at the machine and which cannot.

The specification can be made for a complete window or for individual controls within one window.



🕜 Set Permissions 🗈 5591



Copying Permissions



- Specify, which user group may use the remote desktop connection.
 - 1 This function is only available with EKC ki machines.
- Determine whether the password protected menus and submenus are to be hidden for the "Operator".



Remote Desktop Connection RDP



Hide all blocked menus



- Enter times of beginning and ending of each shift.
- Activate the automatic shift change



🕜 Set Shift Plan [🗅 565]



46.1.3.1 Set PINs

Each user group authorizes itself with a special PIN for working at the machine.

User Group	PIN required	PIN (default)
Operator	_	_
Maintenance	X	1111
Senior Operator	Х	2222
STOLL Service	Х	3333

1 The user group "Operator" does not need any PIN number.

Enter a password for a user group:

- 1. Select the user group.
- 2. Enter the current PIN.
- 3. Enter the new PIN.
- 4. Confirm the new PIN, for this purpose enter the new PIN again.
- 5. Confirm entries with "OK".

46.1.3.2 Set Permissions

For the work steps at the machine, the maintenance staff needs other permissions than the operator (knitter). The operator, for example, may not change any data or perform specific machine actions. You define this in the corresponding user profile.

Requirements:

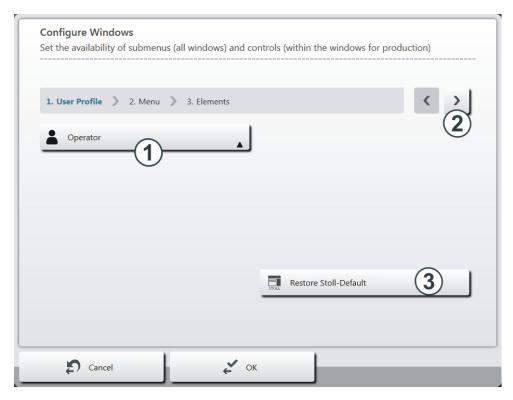
- You are signed in as "Senior Operator".
- Call up the "Set Permissions" window.

 "Configure Machine" -> "System Settings" -> "User" -> "Set Permissions"

The selection of a user profile is carried out in several steps:

Select the user group:

Tap the button (1).
 In the selection menu select the desired user group.

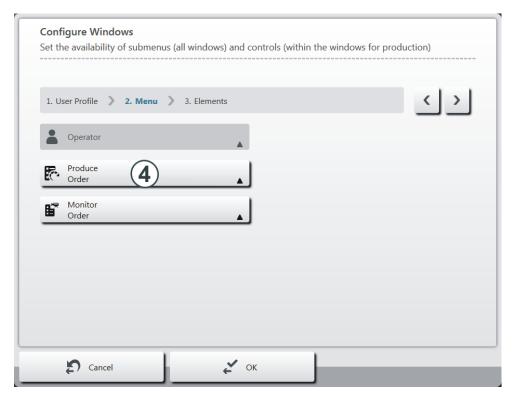


- 2. Proceed to the next program step. For this, tap the button (2).
- i) If you tap the button (3) your settings for all user profile will be reset to the STOLL settings (default).



Select the user rights for a menu:

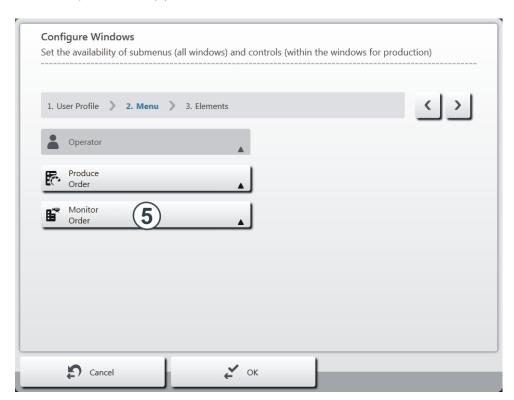
1. Select the desired menu item from the main navigation bar. For this, tap the button (4).



2. The selection menu appears.

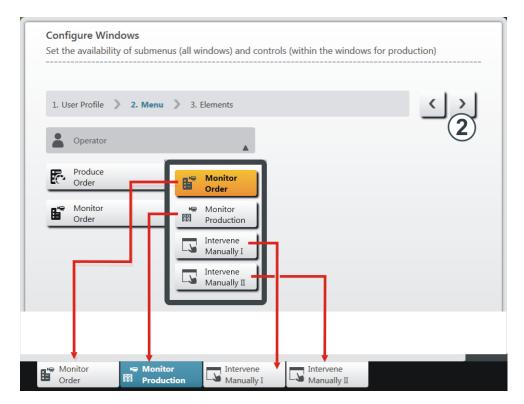


- 3. Select the desired menu item.
 - **1** These are the menu points from the main navigation bar (at the right screen edge).
- 4. Select the desired menu item from the lower navigation bar. For this, tap the button (5).



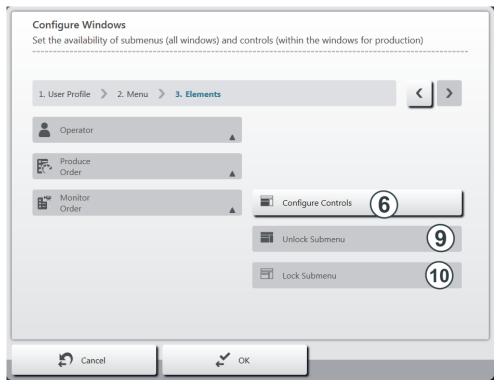


5. The selection menu appears.



- 6. Select the desired menu item.
 - 1 These are menu points from the lower navigation bar (at the lower screen edge)
- 7. Proceed to the next program step. For this, tap the button (2).

Selecting user rights for the selected menu:



- 6 Set accessibility for each control (action, button).

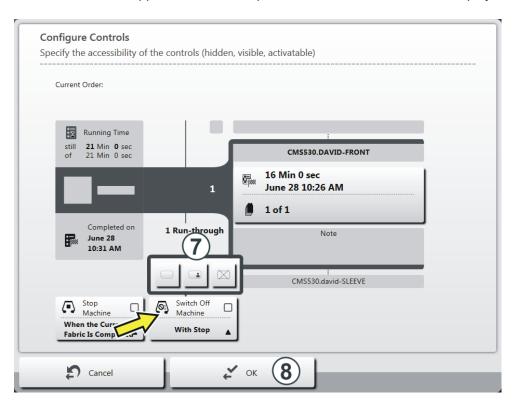
 i Only possible for the "Produce Order" menu.

 9 Unlock all controls of the selected window.

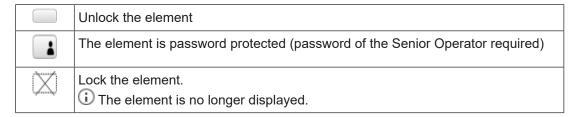
 10 Lock all controls of the selected window.
- 1. Set accessibility for each control (action, button). For this, tap the button (6).



2. The selected menu appears. In the example, the "Monitor Order" menu is displayed.



- In this window you can establish the access possibility for each element (action, button).
 In the example the "Switch Off Machine" element is selected.
 The selection menu (7) appears.
- 4. Select the desired setting in the selection menu (unlock, password protected, lock). Tap on the corresponding button for this.



- 1. If necessary, establish the access possibility for further elements. Repeat step 3 for this.
- 2. Save the settings. For this, tap the button (8).

If necessary, you can establish the access possibility for further menus. For this, repeat the "Select the desired menu" work step.

46.1.3.3 Set Shift Plan

- 1. Activate the "Automatic Shift Change" key.
- 2. Activate the checkbox of the desired shift.
- 3. Enter times of beginning and ending of the shift.
- 4. Set the time for all the shifts.
- 5. The entries are automatically checked.
 - i
- The shift times may not overlap.
- The total time is to be 24 hours.

 If the actual working time is less than 24 hours, then an additional shift that covers the remaining time is to be determined.
- "Ghost shift"

You can enter also a so-called "ghost shift" in the shift plan.

A "ghost shift" is a production shift outside the regular working time, during which no operator is present. The machines work until they are stopped by an error. Ghost shifts are often used at night.

46.1.4 Data Management

Network

at .	Opens the dialog box to enter the path to the network drives.
	Use it to access different network drives e.g. in order to load knitting
	programs.

STOLL KnitLAN	Pattern transfer from M1plus to knitting machine and vice versa.
-≛- STOLL KIIILAN	Opens the dialog box to enter the Online ID.

STOLL Extended knit Report



STOLL	Activate or deactivate the STOLL Nameserver.
Nameserver (SNS)	



Opens the dialog box in order to enter the name of the STOLL Nameserver. "Specifies that the knitting machine is really running on a STOLL Nameserver (SNS) and can be incorporated in the PPS. Opens the
dialog box for entering the SNS name."

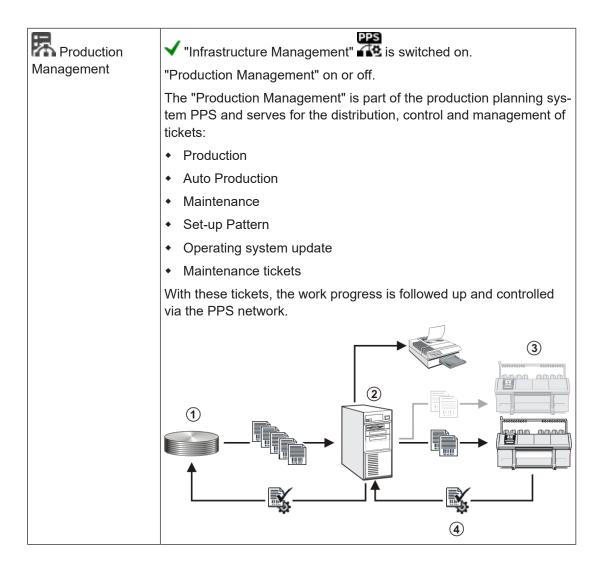
SNS Group:	Opens the dialog to specify the SNS group which the machine uses	
	to register in the PPS.	

STOLL - knit re-	STOLL-knit report on or off.
port (SKR)	

PPS Infrastructure	Enables the use of the PPS base functions.
Management	



STOLL Production Planning System (PPS)



46.2 Control of Knitting Systems and of Holding-down Jacks

The knitting system:

Each knitting system can knit using the three-way technique without limitation.

Single needle selection in 5 positions:

- Stitch
- Tuck
- Out of operation
- Delivery / Split Delivery



■ Receiving / Split - Receiving

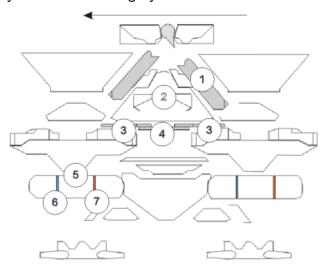
Possibilities of stitch formation:

- Stitch
- Tuck
- Out of operation
- Transfer from the front to the rear needle bed or vice versa
- Transfer simultaneously in both directions

The selection system only selects the needles which knit a stitch or tuck, transfer or splitstitch.

All other needles are not selected and do not sink the stitches.

I. Layout of the knitting system:

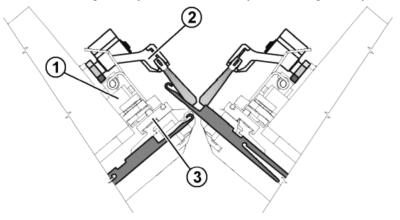


	Designation	Function
1	Stitch cam	
2	Raising cam	
3	Receiving pressure cam	
4	Tuck pressure cam	
5	Selection system	
6	Selection position 1 Stitch, Transfer delivery, Split delivery	
7	Selection position 2	Tuck, Receiving Transfer, Receiving Split

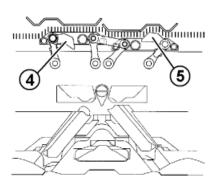


II. Holding-down function:

The holding-down jacks hold down the fabric when the needles for stitch formation are driven out. The holding down jacks are moved by the holding-down jack control unit on the carriage.



	Meaning
1	Holding-down jack control unit
2	Swiveling brush holder
3	Jack slider
4	Leading jack slider
5	Following jack slider



The leading jack slider (4) is switched upward.

This pivots the holding-down jacks downward into the holding-down position during needle raising and these hold down the stitches.

The following jack slider (5) is pulled back and the holding-down jacks swivel back again.

The holding-down jacks are open during yarn insertion.

When the carriage reverses, the jack sliders are switched over automatically.

Report Data



46.3 Report Data

The control collects all operating data recorded since the operating system was first read in and since the current knitting program was started.

Show Report Data:

- ✓ You are signed in as Senior Operator
- ✓ Knitting program is loaded.
- 1. Select View Data" in the main navigation bar.
- 2. Open Kaport Data" in the bottom navigation bar.
- ► The following menu will be shown.



1		Button to open the selection menu:
		Report: Data since the first loading of the operating system in the Stoll factory (not deletable)
		Report 0: Collect operating data for a specific time period
		Report for Shift n (n=1-5) Collect operating data for each shift individually
2	×	Button to delete the displayed table

Run-time Data

3	SIN	Working time of the control unit (SINTRAL loaded)			
	SIIN				
	RUN	Time of Production			
	V=V	Stop Stopping at the engaging rod			
	/-\	Stop Yarn control device, yarn feed			
	Stop Piece counter				
	>!	Stop Stop by resistance			
	-/)	Stop Position needle sensor			
	%	Stop Fabric take-down			
PR Stop Programming					
MS~ Machine stop or brief power failure					
	- > / Stop Shock stop motion				
	V[]	Racking Error			
	# <>	Total number of strokes			
	#ML	Number of strokes at reduced speed			
	ST	Quantity of produced fabrics			
4	Quantity	Column: Total quantity of each error			
2. Column: Percentage specification of the respective e		2. Column: Percentage specification of the respective error			
5	Time	Column: Stand still time of the respective error			
		2. Column: Percentage specification of the stand still time of the respective error			

46.4 Run-time Data

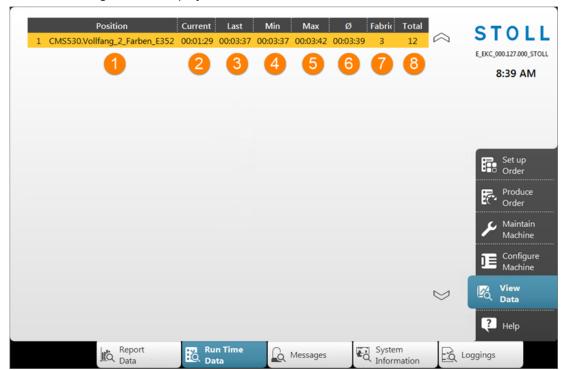
In the "View data" menu the running times of the following sequences are recorded and displayed:

- Sequence lists / Sequences
- Orders with the individual elements
- of individual patterns
- I. Call up running time data:
- ✓ You are signed in as Senior Operator ■
- ✓ The knitting program is loaded, quantity of run-throughs entered and the production started.
- 1. Select View Data" in the main navigation bar.

Yarn Table



- 2. Press the Run time data" button in the bottom navigation bar.
- ► The following menu is displayed.



1	Position	List of knitting programs			
2	Current	Running time of the currently knitting fabric			
3	Last	Running time of last knitted fabric			
4	Min	Shortest running time			
5	Max	Longest running time			
6	Ø	Average running time			
7	Fabrics	Number of pieces knitted so far			
8	Total	Total number of pieces to be knitted			

46.5 Yarn Table

The specified values serve as a guideline. The quality and the specific weight of a yarn must also be taken into account. Instead of a simple yarn, we recommend twisted yarn. With coarser machines it is advisable to use several twisted threads.



Gauge	doubled processing [Nm]	Final count [Nm]	
	Several fine threads are assembled and fed as a thick yarn to the yarn carrier.	Yarn thickness of the assembled threads Example: 6 x 16/2 16/2=8 8:6=1,33	
1,5.2	2 x 3,7	0,7 – 2,0	
	6 x 3,7		
2	6 x 16/2	1,2 - 1,4	
2.2	1 x 3,7	0,9 – 4,0	
	6 x 3,7		
2.5	6 x 18/2	1,3 - 1,6	
3	5 x 18/2	1 - 2	
3 m.3L	15 x 20/2	0,65 - 1	
3.5	6 x 24/2	1,4 - 2,5	
4	5 x 24/2	1,4 - 3	
	6 x 34/2		
5	4 x 24/2	3 - 4,5	
	4 x 34/2		
7	2 x 22/2	4,5 - 7	
	2 x 28/2		
8	2 x 24/2	6 - 8	
	2 x 34/2		
10	2 x 36/2	8 - 12	
	1 x 24/2		
12	1 x 24/2	10 - 18	
	2 x 44/2		
14	1 x 28/2	14 - 20	
	2 x 40/1		

Yarn table - Allocation of machine gauge and yarn thickness (Table 1)

Yarn Table



Gauge	doubled processing [Nm]	Final count [Nm]	
16	1 x 48/2	20 - 30	
	1 x 54/2		
	1 x 60/2		
18	1 x 54/2	20 - 40	
	1 x 60/2		
	1 x 80/2		
20	1 x 80/2	20 - 40	
2,5.2	3 x 28/2	3 - 4,5	
(all needles)	2 x 14/2		
2,5.2 m.4L	All needles: 3 x 28/2 Nm	3 – 4,5	
	Every 2nd needle: 8 x 28/2 Nm	1,3 - 2	
	Every 2nd needle with cast-off technique: maximum13 x 28/2 Nm	1,1	
2,5.2 (CMS 830 C)	3 x 14/2	1 - 2	
(each 2nd needle)	6 x 14/2		
2,5.2	3 x 14/2	1,3 - 2	
(each 2nd needle)	4 x 14/2		
3,5.2	2 x 28/2	4,5 - 7	
(all needles)	3 x 28/2		
3,5.2	3 x 14/2	1,5 - 2,5	
(each 2nd needle)	7 x 28/2		
3,5.2 m.4L	All needles: 3 x 28/2 Nm	4,5 – 7	
	Every 2nd needle: 7 x 28/2 Nm	1,5 – 2,5	
	Every 2nd needle with cast-off technique: maximum9 x 28/2 Nm	1,5	

Yarn table - Allocation of machine gauge and yarn thickness (Table 2)

Gauge	doubled processing [Nm]	Final count [Nm]	
5.2	1 x 20/2	8 - 12	
(all needles)	2 x 28/2		
5.2	3 x 28/2	3 - 4,5	

Yarn Table

Gauge	doubled processing [Nm]	Final count [Nm]
(each 2nd needle)	4 x 28/2	
6.2	2 x 44/2	10 - 16
(all needles)	1 x 28/2	
6.2	2 x 28/2	4,5 - 7
(each 2nd needle)	3 x 28/2	
7.2	1 x 28/2	14 - 20
(all needles)	1 x 30/2	
7.2	2 x 28/2	6 - 8
(each 2nd needle)	2 x 30/2	
8.2	1 x 50/2	15 - 25
(all needles)	2 x 60/2	
8.2	2 x 50/2	10 - 12
(each 2nd needle)	3 x 60/2	
9.2	1 x 40/2	20 - 30
(all needles)	1 x 60/2	
9.2	2 x 40/2	10 - 16
(each 2nd needle)	2 x 44/2	
	2 x 60/2	
	3 x 60/2	

Yarn table - Allocation of machine gauge and yarn thickness (Table 3)

Knitting technique information

Gauge	Explanation
and wear)	If an extreme yarn (non-elastic and/or very thick) is used, it should not be knitted too loosely (in the upper NP area), as there is a danger of wear of the cams and needle bed.

Knitting technique information

Economic production and the influencing factors [578]

- Economic production and the influencing factors [□ 578]
- Economic production and the influencing factors [□ 578]
- Economic production and the influencing factors [□ 578]

Stitch Tension Range



46.6 Stitch Tension Range

The tension ranges for knitting and splitting differ. The reason for this is the shape of the split-stitch piece. The specifications in the table show the minimum and maximum NP values.

Valid for:			
CMS 933			
CMS 822			
CMS 530			
CMS 520			
CMS 502			
CMS ADF-3			

	min. NP	max. NP	min. NP (Split)	max. NP (Split)
E 3	7.0	16.7	8.2	15.6
E 3,5	7.0	16.7	8.2	15.6
E 4	7.0	16.7	8.2	15.6
E 5	6.5	16.9	8.0	14.1
E 7	8.3	18.7	9.8	15.9
E 8	8.8	19.5	10.3	16.6
E 10	7.25	19.2	9.3	17.65
E 12	7.55	20.0	8.4	16.2
E 14	7.95	20.7	8.8	16.85
E 16	7.6	21.9	8.9	17.85
E 18	7.6	21.9	8.9	17.85
E 5.2	7.8	17.5	9.0	14.7
E 6.2	7.55	20.0	8.4	16.2
E 7.2	7.95	20.7	8.8	16.85
E 8.2	8.0	22.3	9.3	18.25
E 9.2	8.0	22.3	9.3	18.25
E 2,5.2	6.5	16.9	8.0	14.1
E 2,5.2 m.4L	6.5	16.9	8.0	16.15



Stitch Tension Range

	min. NP	max. NP	min. NP (Split)	max. NP (Split)
E 3,5.2	8.3	18.7	9.8	15.9
E 3,5.2 m.4L	8.3	18.7	9.8	17.95

Stitch Tension Range

Economic production and the influencing factors [578]

Valid for:
CMS 830 C
CMS 730 T
CMS 530 T
CMS 520 C
CMS 520 C+

	min. NP	max. NP	min. NP (Split)	max. NP (Split)
E 3 (CMS 520 C) E 1,5.2 (CMS 520 C+)	7.0 8.3	16.7 18.0	8.2 9.6	15.6 16.9
E 3 m.3L	7.0	16.7	8.2	15.6
E 3,5	7.0	16.7	8.2	15.6
E 4 (CMS 520 C) E 2.2 (CMS 520 C+)	7.0 8.5	16.7 18.2	8.2 9.8	15.6 17.1
E 5	6.5	16.9	8.0	14.1
E 7	8.3	18.7	9.8	15.9
E 8	8.8	19.5	10.3	16.6
E 10	7.4	21.5	9.4	17.7
E 12	7.7	21.5	9.4	15.1
E 14	8.1	22.3	9.8	15.5
E 16	8.1	22.5	9.5	15.2
E 18	8.1	22.5	9.5	15.2
E 5.2	7.8	17.5	9.0	14.7
E 6.2	7.7	21.5	9.4	15.1



	min. NP	max. NP	min. NP (Split)	max. NP (Split)
E 7.2	8.1	22.3	9.8	15.5
E 8.2	8.1	22.5	9.5	15.2
E 9.2	8.1	22.4	9.5	15.5
E 2,5.2	6.5	16.9	8.0	14.1
E 2,5.2 m.4L	6.5	16.9	8.0	16.15
E 3,5.2	8.3	18.7	9.8	15.9
E 3,5.2 m.4L	8.3	18.7	9.8	17.95

Stitch Tension Range

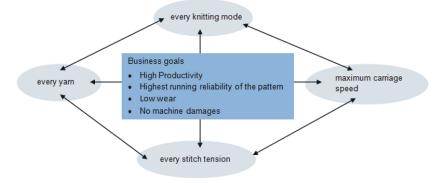
Economic production and the influencing factors [578]

E12 knitting. E14 E6.2 F7.2	E14 E6.2
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46.7 Economic production and the influencing factors

The requirements for a knitting machine can be divided into two main groups: the machine related goals and the business goals.

The knitting machine is to work with maximum speed with every knitting mode, every stitch tension, regardless of the yarn. Simultaneously a high productivity is expected from the knitting machine and the pattern shall be knitted faultless.



Economic production and the influencing factors

The simultaneous achievement of all goals is seldom possible, as there is a conflict between some goals. A conflict because they cannot be accomplished all simultaneously. Between the individual goals there are rather interactions, which can have negative effects on the accomplishment of other goals. In other words, there are goals that cannot be achieved together or that exclude each other.

Example:

One conflict exists between the yarn thickness, the stitch tension and the carriage speed. If the intention is to work at the upper limit, the maximum with all of the three goals, this will lead to a reduced running reliability of the pattern, an increased wear and in some cases even to machine damages.

The influencing factors

Running reliability	Structure of the pattern (knitting mode, Flexible Gauge,)
	Carriage Speed
	Stitch length (stitch tension)
	 Yarn quality (friction coefficient, elasticity, twisting, moisture, hairiness, bobbin setup, tensile strength)
	Yarn gauge, yarn count / twisted yarn
	Yarn type (fancy yarn)
	Yarn tension, yarn feeding
	◆ Fabric take-down
Wear and machine damages	The unsuitable combination of the influencing factors may lead to increased wear and to the damage of machine parts.
Conclusion	Therefore the influencing factors have to be adjusted.
	It's not possible to achieve any carriage speed and stitch tension with every yarn and knitting pattern. Recommendation: Start with a lower carriage speed (e.g. 0.7 m/sec) and increase it step by step.
	Defective machine parts caused by disregarding our guidelines, are excluded from warranty.